03-08-2019 LETTING ITEM 009

009

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
372	2013-040BP	COOK	122	1
	ILLINOIS	CONTRACT NO. 60W87		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

FAP ROUTE 372 (IL ROUTE 171)
I-55 (STEVENSON EXPRESSWAY) TO 55TH STREET
SECTION: 2013-040BP
BRIDGE PAINTING
PROJECT: NHPP 83TD(397)
COOK COUNTY
C-91-391-13

FOR INDEX OF SHEETS, SEE SHEET NO. 2

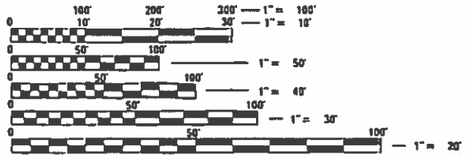
THIS PROJECT IS LOCATED IN THE VILLAGE OF SUMMIT

TRAFFIC DATA:

IL 171
2008 ADT = 41,800
2030 ADT = 42,000
DESIGN SPEED = 50 MPH
POSTED SPEED = 50 MPH
FUNCTIONAL CLASSIFICATION = STRATEGIC REGIONAL ARTERIAL (SRA)

STRUCTURE LOCATIONS

SN 016-0486 SB IL 171 OVER SANITARY & SHIP CANAL
SN 016-0487 NB IL 171 OVER SANITARY & SHIP CANAL
SN 016-0488 SB IL 171 OVER IC RR
SN 016-0489 NB IL 171 OVER IC RR
SN 016-2408 NB IL 171 RAMP TO NB I-55 OVER SANITARY & SHIP CANAL



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 MANAGER: LONG TRAN, P.E (847) 705-4232
PROJECT ENGINEER: CRAIG BAUER (847) 705-4265

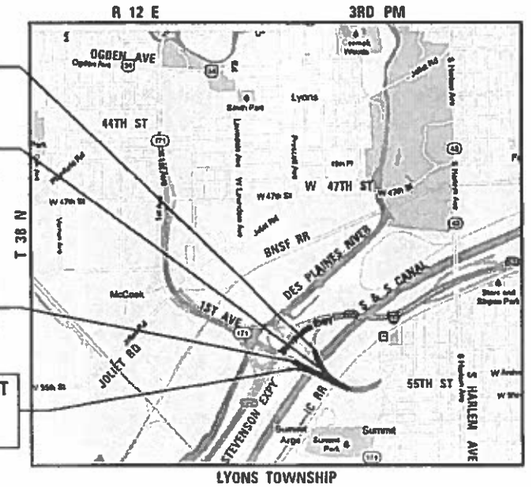
CONTRACT NO. 60W87

LIMIT OF IMPROVEMENT
RAMP D
STA 33+89.82

BEGIN IMPROVEMENT
STA 21+60.48

END IMPROVEMENT
STA 36+73.74

LIMIT OF IMPROVEMENT
RAMP F
STA 29+91.96



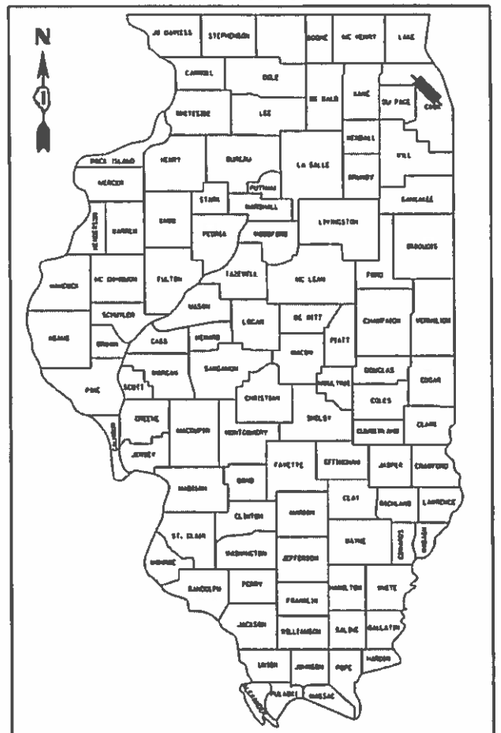
LYONS TOWNSHIP

LOCATION MAP

NOT TO SCALE

GROSS LENGTH = 1726.71 FT = 0.33 MILE
NET LENGTH = 1726.71 FT = 0.33 MILE

D-91-191-10



LOCATION OF SECTION INDICATED THUS:- ▬

MICHAEL T. HALEY 81-5991 STATE OF ILLINOIS
LICENSED STRUCTURAL ENGINEER

LIN ENGINEERING, LTD.
MICHAEL T. HALEY
NO. 081-005991
EXPIRES 11-30-2020
FOR DRAWINGS: 7-102
11-16-2018

FRED M. LIN 062-056704 LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

LIN ENGINEERING, LTD.
FRED M. LIN
NO. 062-056704
EXPIRES 11-30-2019
FOR DRAWINGS: 1-6, 103-120
11-19-2018

LIN ENGINEERING, LTD.
Consulting Engineers

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED November 26 2018
Anthony J. Quigley /CBB
REGIONAL ENGINEER
Feb 1 2019
ENGINEER OF DESIGN AND ENVIRONMENT
Feb 1 2019
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

INDEX OF SHEETS

STATE STANDARDS

STANDARD NO.	DESCRIPTION
701106-02	OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' AWAY
701400-09	APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY
701401-12	LANE CLOSURE, FREEWAY/EXPRESSWAY
701411-09	LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS ≥ 45 MPH
701421-08	LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY, FOR SPEEDS ≥ 45 MPH TO 55 MPH
701422-10	LANE CLOSURE, MULTILANE, FOR SPEEDS ≥ 45 MPH TO 55 MPH
701426-09	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS 45 MPH TO 55 MPH
701428-01	TRAFFIC CONTROL, SETUP AND REMOVAL, FREEWAY/EXPRESSWAY
701901-08	TRAFFIC CONTROL DEVICES

DISTRICT 1 DETAILS

DETAIL NO.	DESCRIPTION
TC-08	ENTRANCE AND EXIT RAMP CLOSURE DETAILS (TC-08)
TC-09	TRAFFIC CONTROL DETAILS FORFREEWAY SINGLE & MULTI-LANE WEAVE (TC-09)
TC-10	TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS AND DRIVEWAYS (TC-10)
TC-17	TRAFFIC CONTROL DETAILS FOR FREEWAY SHOULDER CLOSURES AND PARTIAL RAMP CLOSURES (TC-17)
TC-18	FREEWAY/EXPRESSWAY SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS ON FREEWAYS/EXPESSWAYS (TC-18)
TC-22	ARTERIAL ROAD INFORMATION SIGN (TC-22)

GENERAL NOTES

1. BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT (800) 892-0123 OR 811 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE, AND GAS FACILITIES. (48 HOUR NOTIFICATION REQUIRED)

2. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES AND THE VILLAGES OF McCOOK, LYONS AND SUMMIT.

3. THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT.

4. ANY PAVEMENT MARKINGS AND RAISED REFLECTIVE PAVEMENT MARKERS OBLITERATED BY MILLING AND RESURFACING OPERATIONS ON SIDE STREETS AND ENTRANCES SHALL BE REPLACED AT NO ADDITIONAL COST.

5. ANY DAMAGE TO EXISTING PAVEMENT MARKINGS OR RAISED REFLECTIVE PAVEMENT MARKERS OUTSIDE THE REMOVAL LINE SHOWN ON THE PLANS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

6. BEFORE BEGINNING ANY WORK, THE CONTRACTOR SHALL RETAIN AND RECORD FOR FUTURE REFERENCE, ALL EXISTING PAVEMENT MARKING LINES (AND RAISED REFLECTIVE PAVEMENT MARKERS) IN ORDER THAT THESE LOCATIONS CAN BE RE-ESTABLISHED FOR STRIPING. EXACT LOCATIONS OF ALL PAVEMENT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER.

7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTING AND ORDERING OF MATERIALS.

8. THE CONTRACTOR SHALL CONTACT THE DISTRICT ONE ARTERIAL TRAFFIC CONTROL SUPERVISOR AT (847) 705-4470 AND EXPRESSWAYS TRAFFIC CONTROL SUPERVISOR AT (847) 705-4155 A MINIMUM OF 72 HOURS IN ADVANCE OF BEGINNING WORK.

9. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ACCESS TO ABUTTING PROPERTY AT ALL TIMES DURING THE CONSTRUCTION OF THIS PROPERTY.

10. DO NOT SCALE PLANS FOR CONSTRUCTION DIMENSIONS.

11. THE ALIGNMENTS AND SUPPORTING DATA SHOWN IN THE PLANS WERE DEVELOPED FROM PREVIOUS PLANEMETRICS AND AERIAL PHOTOGRAPHY FURNISHED BY THE DEPARTMENT AND IS NOT THE RESULT OF A GROUND SURVEY. ALIGNMENT TIES HAVE BEEN ESTABLISHED FOR THE IL 171 BASELINE. THEREFORE, ALL ALIGNMENTS AND SUPPORTING DATA SHOWN IN THE PLANS IS FOR REFERENCE PURPOSES ONLY. THE RELATIVE ACCURACY OF THE INFORMATION IS UNKNOWN AND CANNOT BE GUARANTEED. THE CONTRACTOR MAY BE REQUIRED TO ADJUST LAYOUT TO MATCH ACTUAL FIELD CONDITIONS AND THE INTENT OF THE PLANS, ALIGNMENTS AND BASELINES.

12. THE CONTRACTOR IS RESPONSIBLE FOR PAYMENT OF RAILROAD FLAGGING SERVICES FOR THE MWRDGC RR PER ARTICLE 109.05 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR PAYMENT OF RAILROAD FLAGGING SERVICES FOR THE IC RR PER THE CONTRACT SPECIAL PROVISIONS.

13. THE COAST GUARD MUST BE CONTACTED AT LEAST 30 DAYS PRIOR TO ANY WORK IN OR OVER THE SANITARY AND SHIP CANAL TO COORDINATE VESSEL PASSAGES AND ISSUE NOTICE TO MARINERS. COORDINATION MAY INCLUDE, BUT NOT BE LIMITED TO, SUBMITTING PROJECT INFORMATION AND SCOPE, PROPOSED CONSTRUCTION ACTIVITIES, DATES AND DURATION OF WORK, WORKING HOURS AND EQUIPMENT TO BE USED. THIS INFORMATION WILL BE PREPARED BY THE CONTRACTOR, REVIEWED AND APPROVED BY THE ENGINEER, AND BE SUBMITTED BY THE ENGINEER TO THE COAST GUARD AT THE ADDRESS LISTED BELOW FOR APPROVAL. THE COST OF THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE CONSIDERED AS INCLUDED IN THE UNIT BID PRICE OF THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

    MR. SCOT STRIFFLER
    COMMANDER, NINTH COAST GUARD DISTRICT
    1240 EAST 9TH STREET
    CLEVELAND, OH 44199-2060
    (216) 902-6087, SCOT.M.STRIFFLER@USCG.MIL

14. THE METROPOLITAN WATER RECLAMATION DISTRICT OF GREATER CHICAGO (MWRDGC) HAS MANY FACILITIES LOCATED WITHIN THE PROJECT LIMITS. THESE FACILITIES SHALL BE LOCATED PRIOR TO BEGINNING OF WORK. MINIMUM HORIZONTAL/VERTICAL CLEARANCE OF TWO FEET SHALL BE MAINTAINED BETWEEN MWRDGC SEWERS AND ANY PROPOSED WORK. MWRDGC PERSONNEL SHALL HAVE 24 HOUR-A-DAY UNRESTRICTED ACCESS TO ALL MWRDGC FACILITIES. NO ACCESS HATCHES AND MANHOLE COVERS ON MWRDGC STRUCTURES AND MANHOLES WITHIN THE PROJECT LIMITS SHALL BE BURIED OR COVERED. NO DEBRIS SHALL ENTER MWRDGC STRUCTURES, SEWERS OR FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL MWRDGC FACILITIES FROM ALL CONSTRUCTION OPERATIONS AND EQUIPMENT. FOR ANY QUESTIONS REGARDING ACCESS TO MWRDGC FACILITIES OR FIELD LOCATION, CONTACT MR. RAFIQ BASARIA, SENIOR CIVIL ENGINEER, AT (708) 588-0480. THE CONTRACTOR SHALL COORDINATE WITH THE MWRDGC MAINTENANCE AND OPERATION DEPARTMENT PRIOR TO BEGINNING ANY WORK NEAR THE MWRDGC RAILROAD LINE NORTH OF THE SANITARY AND SHIP CANAL, CONTACT MR DANIEL COLLINS, SUPERVISING CIVIL ENGINEER. AT (708)588-4300.

COMMITMENTS

1. THE NAVIGATIONAL LIGHTS LOCATED ON THE UNDERSIDE OF THE IL 171 BRIDGES OVER THE SANITARY AND SHIP CANAL (S.N. 016-0487) AND S.N. 016-0486) MUST REMAIN IN SERVICE DURING CONSTRUCTION.

2. THE COAST GUARD WILL NEED TO APPROVE ANY WORK BELOW THE LOW STEEL OF THE IL 171 BRIDGES OVER THE SHIP AND SANITARY CANAL.

				CONSTRUCTION CODE						
			URBAN	80%FED 20%ST						
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	ROADWAY						
				0047						
				URBAN						
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	12	12						
67100100	MOBILIZATION	L SUM	1	1						
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	302	302						
70200100	NIGHTTIME WORK ZONE LIGHTING	L SUM	1	1						
X7010216	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	L SUM	1	1						
X7011015	TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS)	L SUM	1	1						
Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	L SUM	1	1						
Z0007102	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 2	L SUM	1	1						
Z0007103	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 3	L SUM	1	1						
Z0007104	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 4	L SUM	1	1						
Z0007105	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 5	L SUM	1	1						
Z0010501	CLEANING AND PAINTING STEEL BRIDGE NO. 1	L SUM	1	1						
Z0010502	CLEANING AND PAINTING STEEL BRIDGE NO. 2	L SUM	1	1						
Z0010503	CLEANING AND PAINTING STEEL BRIDGE NO. 3	L SUM	1	1						

- SPECIALTY ITEM

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE: 80%FED 20%ST ROADWAY 0047 URBAN						
			URBAN							
Z0010504	CLEANING AND PAINTING STEEL BRIDGE NO. 4	L SUM	1	1						
Z0010505	CLEANING AND PAINTING STEEL BRIDGE NO. 5	L SUM	1	1						
Z0030850	TEMPORARY INFORMATION SIGNING	SQ FT	150	150						
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1	1						

* SPECIALTY ITEM

LIN ENGINEERING,LTD.
Consulting Engineers
Westmont, Illinois

PLOT SCALE = 100.0000 ' / in.
PLOT DATE = 12/13/2018

DESIGNED - RC
DRAWN - RC
CHECKED - ST
DATE - 12/2018

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

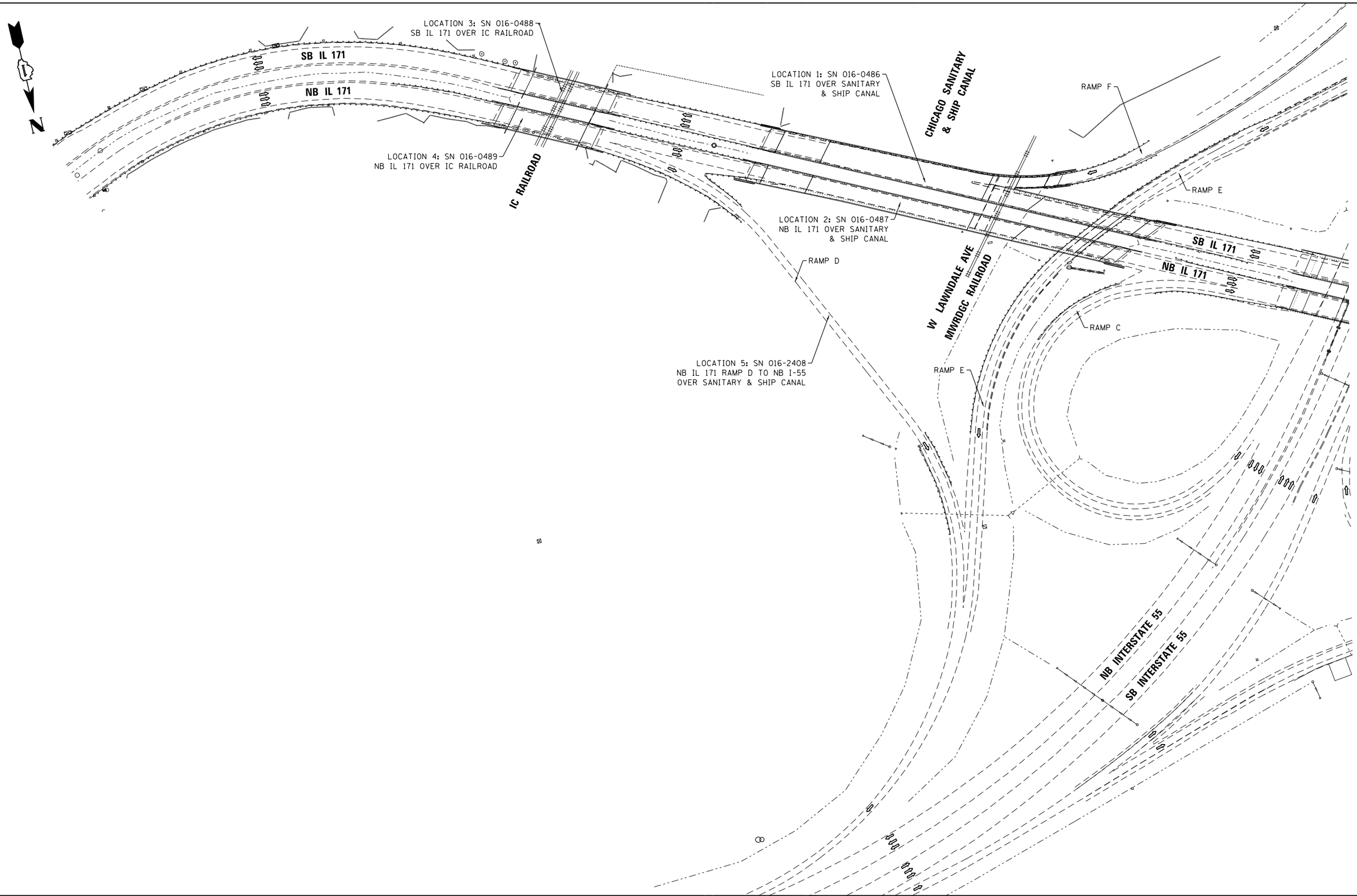
SCALE: N.T.S. | SHEET NO. 2 OF 2 SHEETS | STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	5

CONTRACT NO. 60W87

FED. ROAD DIST. NO. 1 | ILLINOIS | FED. AID PROJECT

REV. 1/17/19



LIN ENGINEERING,LTD.
Consulting Engineers
Westmont, Illinois

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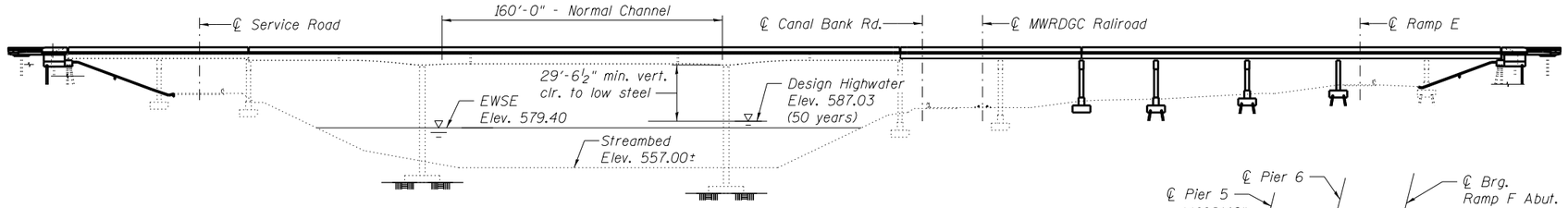
	DRAWN - RC	REVISED - -- -------	
PLOT SCALE = 200.0000 ' / in.	CHECKED - ST	REVISED - -- -------	
PLOT DATE = 12/13/2018	DATE - 12/2018	REVISED - -- -------	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

LOCATION MAP

SCALE: N.T.S. | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	6
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



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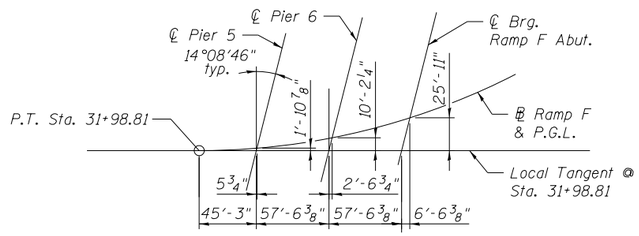
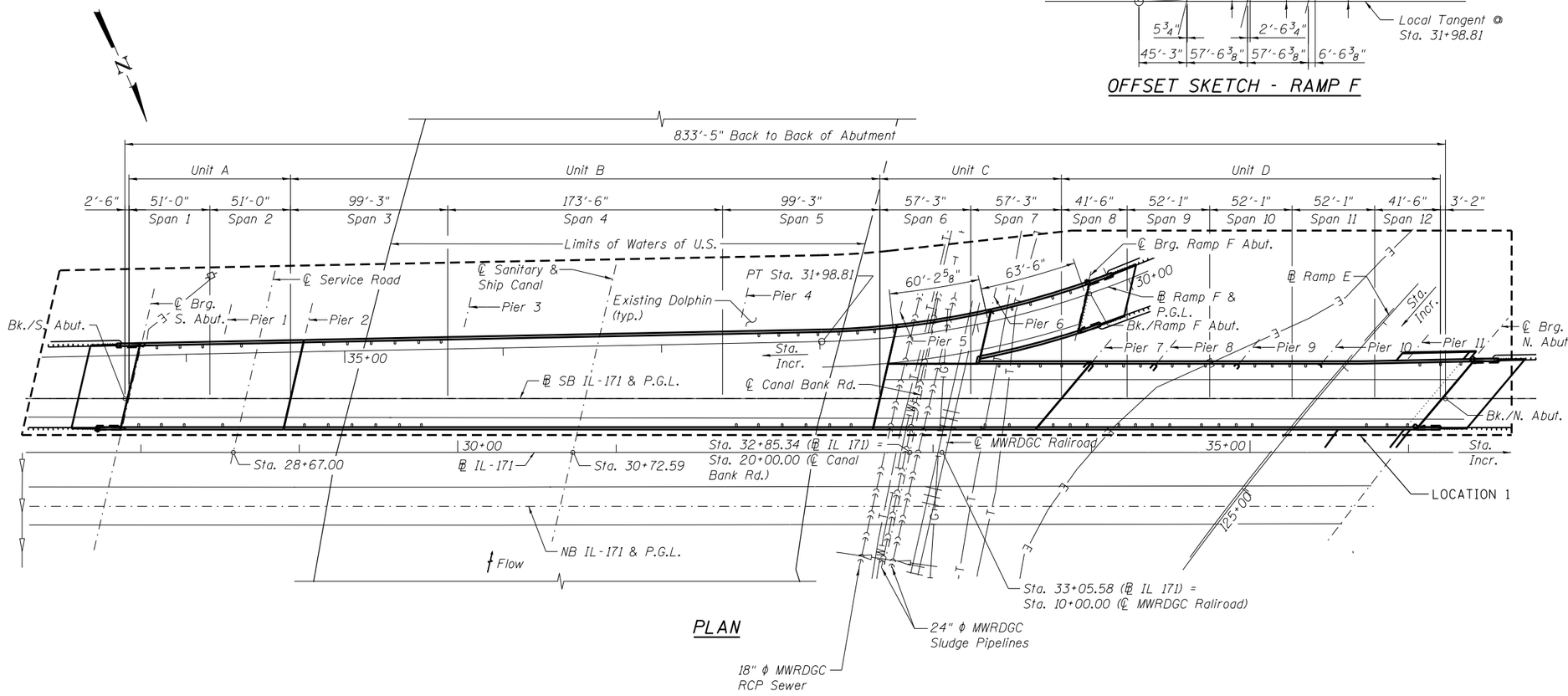


OFFSET SKETCH - RAMP F



PLAN

GENERAL NOTES

1. THE EXISTING STRUCTURAL STEEL COATING CONTAINS LEAD. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO DEAL WITH THE PRESENCE OF LEAD ON THIS PROJECT.

2. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES".

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. STRUCTURAL SHEETS TAKEN FROM EXISTING PLANS CONTAIN INFORMATION NOT PERTAINING TO THIS CONTRACT AND ARE FOR INFORMATION ONLY.

4. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SA-21 THRU SA-32 HAS BEEN PRIMED WITH AN INORGANIC ZINC RICH PRIMER UNDER A PREVIOUS CONTRACT. THESE STEEL SURFACES SHALL BE PRESSURE WASHED CLEAN AND POWER TOOL CLEANED (SSPC SP-3 MODIFIED) AS NECESSARY PRIOR TO THE APPLICATION OF THE INTERMEDIATE AND TOP COATS. THE INORGANIC ZINC RICH PRIMER / ACRYLIC / ACRYLIC PAINT SYSTEM SHALL BE USED FOR FIELD PAINTING OF THESE LOCATIONS. 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 AND ANY EXTERIOR FRAMING SHALL BE REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

5. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SA-2 THRU SA-20 SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SP10. THESE LOCATIONS SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF THE EPOXY MASTIC / EPOXY MASTIC / ACRYLIC PAINT SYSTEM. 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 AND ANY EXTERIOR FRAMING SHALL BE REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

6. A MINIMUM OF 3 AIR MONITORS WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THIS SITE. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".

7. THE ELASTOMERIC PADS OF THE EXISTING BEARINGS SHALL BE MASKED OFF FOR PROTECTION DURING PAINTING AND REMOVED WHEN PAINTING IS FINISHED. COST INCLUDED WITH "CLEANING AND PAINTING STEEL BRIDGE NO. 1".

8. IF APPLICABLE, THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS DEMONSTRATING THE STRUCTURAL INTEGRITY OF THE BRIDGE IS MAINTAINED UNDER THE ADDITIONAL IMPOSED LOADS OF THE CONTAINMENT SYSTEM. SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
CLEANING AND PAINTING STEEL BRIDGE NO. 1	L. SUM	1
CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	L. SUM	1

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LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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	CHECKED -	REVISED -
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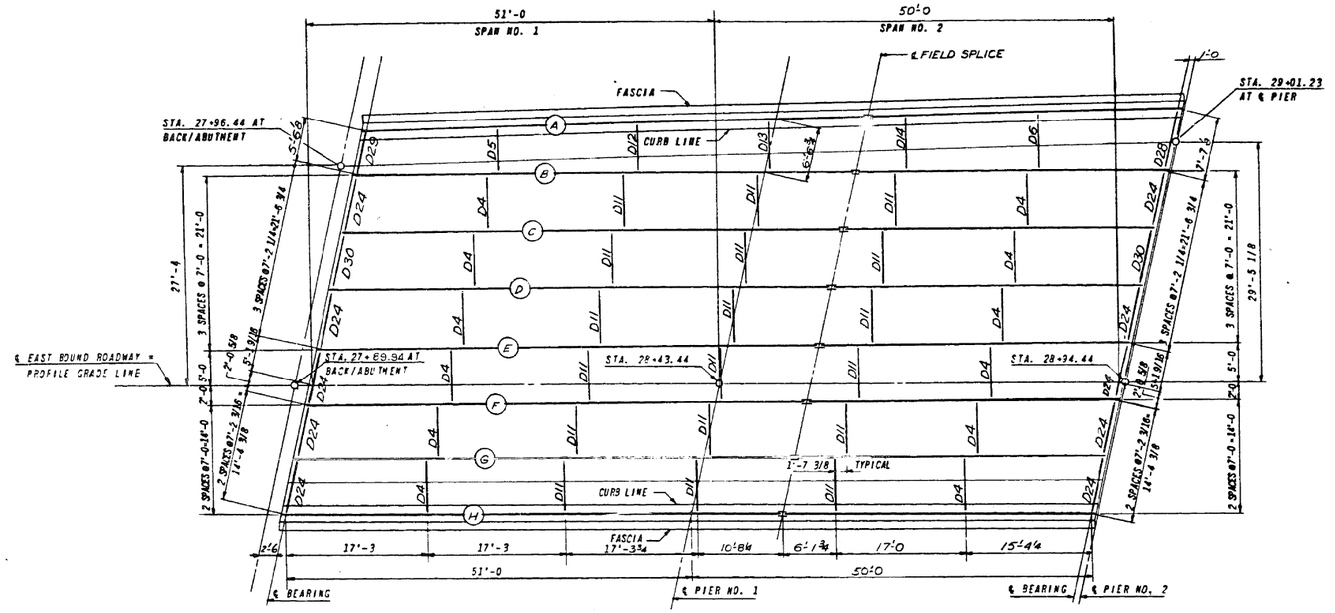
PLOT DATE = 12/05/2018 1:58:05 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION – LOCATION 1
STRUCTURE NO. 016–0486
SHEET NO. SA-1 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	7
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN SPANS NO.1 & NO.2
EAST BOUND

FRAMING PLAN SPANS NO. 1 & NO. 2
WEST BOUND

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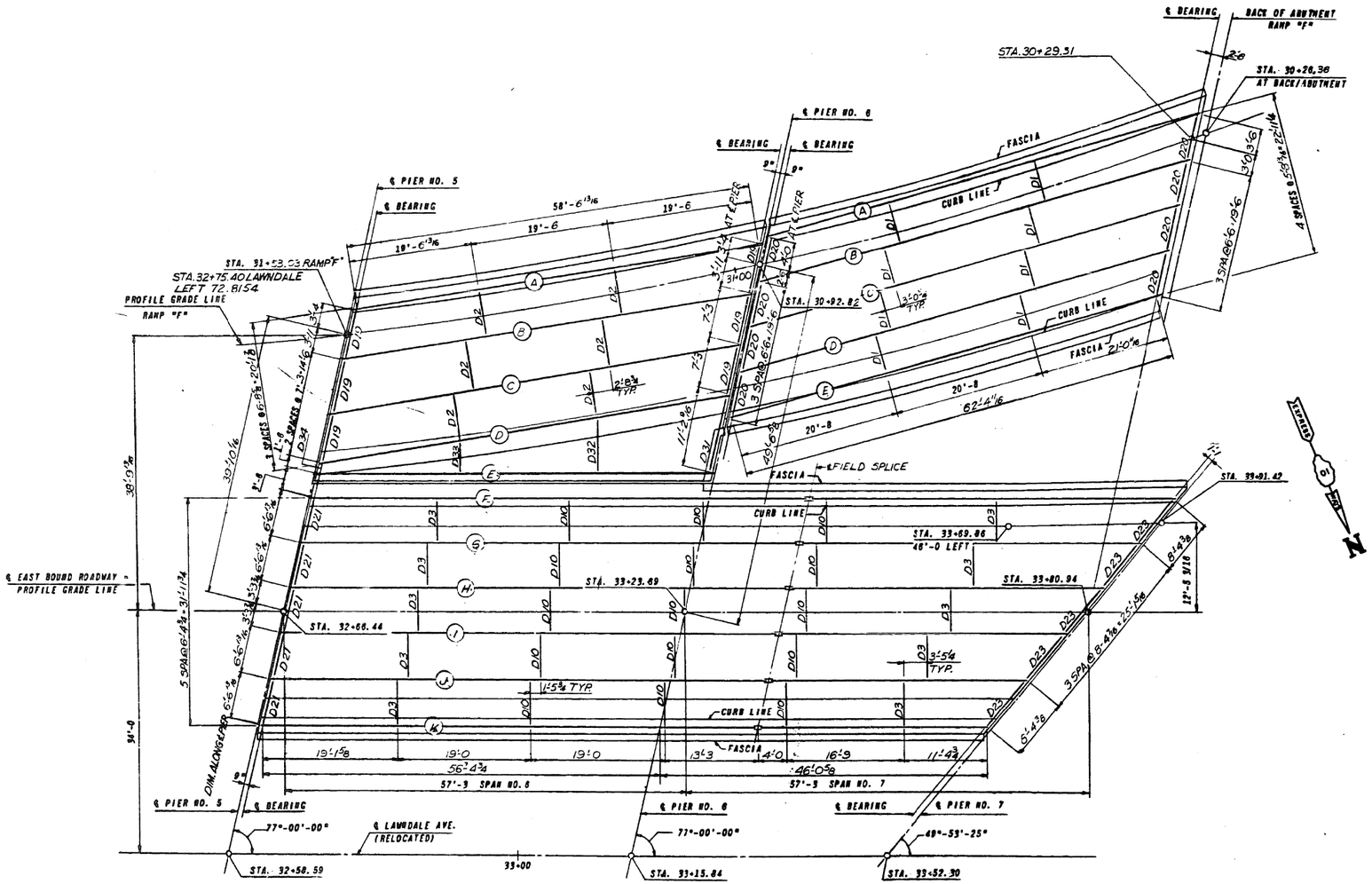
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	8
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN SPANS NO. 6 & NO. 7
EAST BOUND STRUCTURES AND RAMP "F"

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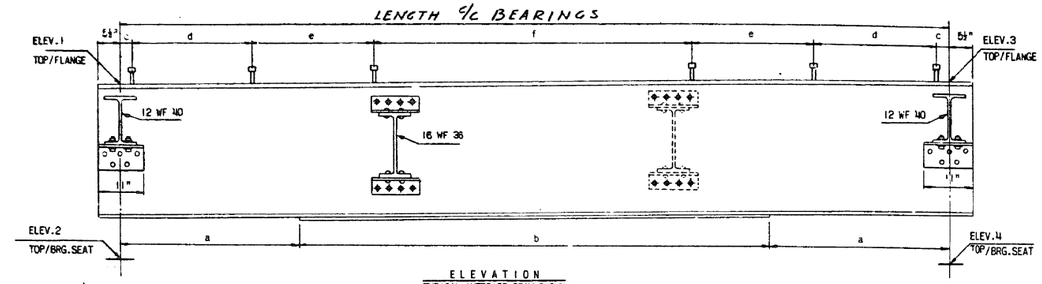
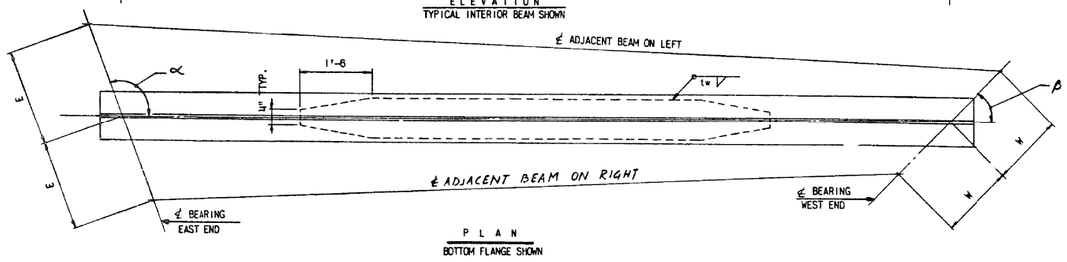
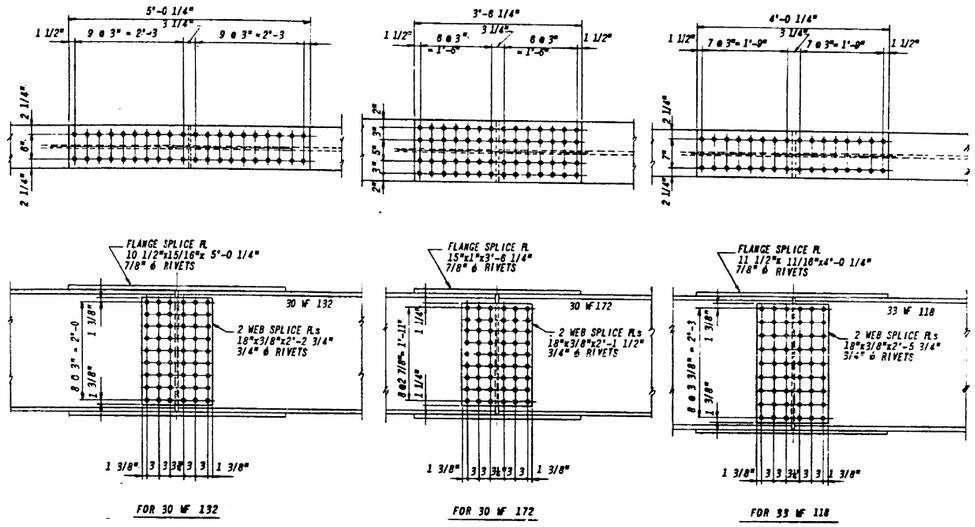
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	9
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	



ELEVATION
TYPICAL INTERIOR BEAM SHOWN

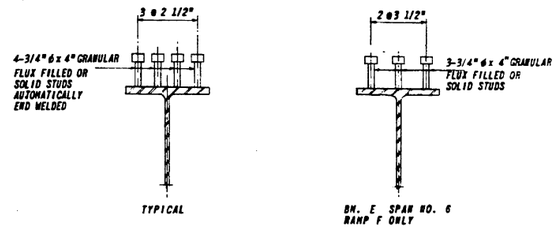


P L A N
BOTTOM FLANGE SHOWN

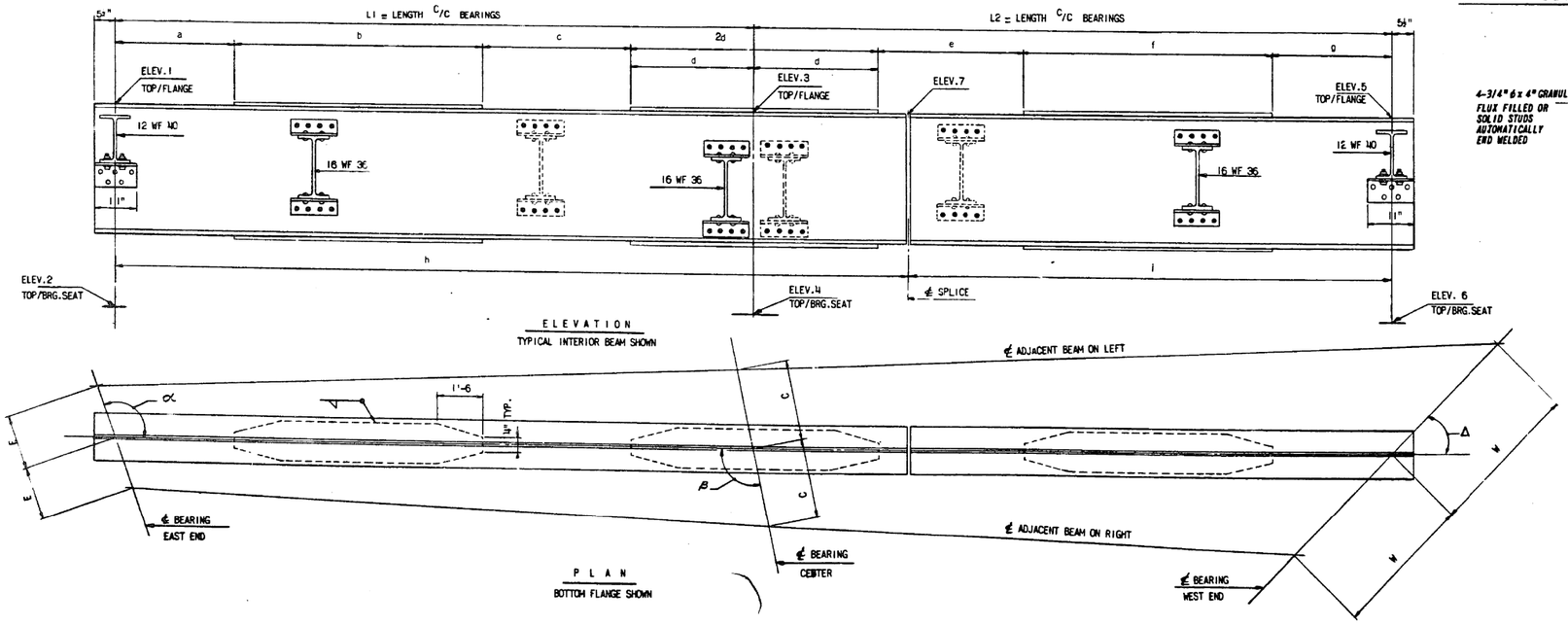


FOR 30 WF 132 | FOR 30 WF 172 | FOR 33 WF 118

SPLICE DETAILS



SHEAR CONNECTOR DETAILS



ELEVATION
TYPICAL INTERIOR BEAM SHOWN

P L A N
BOTTOM FLANGE SHOWN

NOTE: SEE SHEET "ELECTRICAL DETAILS" FOR BRACKET SUPPORTS FOR CONDUITS ATTACHED TO STRUCTURE.

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LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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	CHECKED -	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNITS A & C BEAM DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-4 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	10
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

SPAN	BEAM	EAST END DATA				WEST END DATA				BEAM DATA																	BEAM	REMARKS
		E	ELEVATION 1	ELEVATION 2	ANGLE α	W	ELEVATION 3	ELEVATION 4	ANGLE β	BEAM SIZE	LENGTH C/C BEARING	FLANGE PLATES SIZE	FLANGE PLATES WELD "t_w"	FLANGE PLATES a	FLANGE PLATES b	SHEAR CONNECTOR SPACING c	SHEAR CONNECTOR SPACING d	SHEAR CONNECTOR SPACING e	SHEAR CONNECTOR SPACING f	EAST END BRG. TYPE	EAST END SHIMPLATE	WEST END BRG. TYPE	WEST END SHIMPLATE			
RAMP F SPAN NO. 6	A	7'-3	623.217	619.581	67°-56'-55"	7'-3	622.701	619.017	67°-56'-55"	30 WF 116	58'-6 13/16"	9 1/2"x7/8"	5/16"	12'-9"	33'-0 13/16"	3 3/8"	1 @ 6"	12 @ 1'-0"	22 @ 1'-6"	E 3	-	F 5	11/16"				A	
	B	7'-3	623.595	619.960	do	7'-3	623.175	619.550	do	do	do	do	do	8'-9"	41'-0 13/16"	3 3/8"	20 @ 6"	12 @ 9"	20 @ 1'-0"	E 3	-	F 5	-				B	
	C	7'-3	623.965	620.329	do	7'-3	623.638	620.013	do	30 WF 116	do	9 1/2x7/8"	do	8'-9"	41'-0 13/16"	3 3/8"	20 @ 6"	12 @ 9"	20 @ 1'-0"	E 3	-	F 5	-				C	
	D	11'-7 9/16	624.326	620.677	67°-56'-55"	11'-1	624.091	620.453	67°-56'-55"	30 WF 124	58'-6 13/16"	9 1/2x1"	5/16"	10'-3"	38'-0 13/16"	3 3/8"	23 @ 6"	10 @ 9"	20 @ 1'-0"	E 3	-	F 5	-				D	
	E		624.287	620.677	76°-59'-46"		624.210	620.600	76°-59'-46"	30 WF 108	55'-8 9/16"	-	-	-	-	4 1/4"	-	14 @ 1'-0"	18 @ 1'-6"	E 3	-	F 5	-				E	3 STUDS EACH ROW ONLY
RAMP F SPAN NO. 7	A	6'-6	622.642	619.017	61°-54'-10"	6'-6	622.118	618.483	61°-54'-10"	30 WF 116	62'-4 11/16"	9 1/2"x7/8"	5/16"	13'-8"	35'-0 11/16"	5 5/8"	1 @ 9"	12 @ 1'-0"	12 @ 1'-6"	F 5	-	E 3	-				A	
	B	do	623.070	619.445	do	do	622.590	618.555	do	do	do	do	do	10'-8"	41'-0 11/16"	2 5/8"	20 @ 6"	12 @ 9"	12 @ 1'-0"	F 5	-	E 3	-				B	
	C	do	623.490	619.865	do	do	623.063	619.428	do	do	do	do	do	do	do	do	do	do	do	F 5	-	E 3	-				C	
	D	6'-6	623.901	620.276	do	do	623.538	619.902	do	do	do	do	do	10'-8"	41'-0 11/16"	2 5/8"	20 @ 6"	12 @ 9"	12 @ 1'-0"	F 5	-	E 3	-				D	
	E		624.244	620.600	61°-54'-10"	6'-6	623.993	620.258	61°-54'-10"	30 WF 116	62'-4 11/16"	9 1/2x7/8"	5/16"	13'-8	35'-0 11/16	5 5/8"	1 @ 9"	12 @ 1'-0"	12 @ 1'-6"	F 5	1/4"	E 3	-				E	

SPAN	BEAM	EAST END DATA				CENTER DATA				WEST END DATA				BEAM DATA																									BEAM	REMARKS
		E	ELEVATIONS 1	ELEVATIONS 2	ANGLE α	C	ELEVATIONS 3	ELEVATIONS 4	ANGLE β	W	ELEVATIONS 5	ELEVATIONS 6	ANGLE Δ	BEAM SIZE	LENGTH C/C BEARING L1	LENGTH C/C BEARING L2	COVER PLATES SIZE	COVER PLATES a	COVER PLATES b	COVER PLATES c	COVER PLATES d	COVER PLATES e	COVER PLATES f	COVER PLATES g	SPLICE h	SPLICE i	SPLICE ELEV. 7	EAST END BRG. TYPE	EAST END SHIMPLATE	CENTER BRG. TYPE	CENTER SHIMPLATE	WEST END BRG. TYPE	WEST END SHIMPLATE		
EAST BOUND SPAN NO. 1 & NO. 2	A	5'-6 1/8	625.912	622.039	75°-51'-13"	5'-6 3/4	625.703	621.840	75°-51'-13"	7'-7 1/8	625.498	621.625	75°-51'-13"	33 WF 118	51'-2 15/16	50'-2 7/8	-	51'-2 15/16	-	-	-	-	-	50'-2 7/8	62'-9 9/16	38'-8 1/4"	625.656	E 2	-	F 4	-	E 2	-			A	
	B	7'-2 1/4	626.024	622.151	77°-00'-00"	7'-2 1/4	625.837	621.932	77°-00'-00"	7'-2 1/4	625.653	621.779	77°-00'-00"	do	do	do	9" x 3/8"	46'-9"	-	-	4'-3"	-	-	45'-9	62'-6"	38'-6"	625.794	E 2	-	F 1	-	E 2	-			B	
	C	do	626.170	622.297	do	do	625.983	622.078	do	do	625.799	621.925	do	do	do	do	do	do	-	-	do	-	-	do	do	do	625.940	E 2	-	F 1	-	E 2	-			C	
	D	7'-2 1/4	626.316	622.443	do	7'-2 1/4	626.129	622.224	do	7'-2 1/4	625.945	622.071	do	do	do	do	do	do	-	-	do	-	-	do	do	do	626.086	E 2	-	F 1	-	E 2	-			D	
	E	7'-2 3/16	626.392	622.519	do	7'-2 3/16	626.205	622.300	do	7'-2 3/16	626.021	622.147	do	do	do	do	do	do	-	-	do	-	-	do	do	do	626.162	E 2	-	F 1	-	E 2	-			E	
	F	do	626.428	622.519	do	do	626.241	622.300	do	do	626.057	622.147	do	do	do	do	do	do	-	-	do	-	-	do	do	do	626.198	E 2	7/16"	F 1	11/16"	E 2	7/16"			F	
	G	7'-2 3/16	626.364	622.456	do	7'-2 3/16	626.177	622.237	do	7'-2 3/16	625.993	622.084	do	do	do	do	9" x 3/8"	46'-9"	-	-	4'-3"	-	-	45'-9	do	do	626.134	E 2	3/8"	F 1	7/16"	E 2	7/16"			G	
	H		626.280	622.393	77°-00'-00"		626.092	622.174	77°-00'-00"		625.908	622.021	77°-00'-00"	33 WF118	51'-0"	50'-0"	-	51'-0"	-	-	-	-	-	50'-0"	62'-6"	38'-6"	626.050	E 2	1/8"	F 4	3/16"	E 2	3/16"			H	
WEST BOUND SPAN NO. 1 & NO. 2	I	6'-8 1/16	626.311	622.437	77°-00'-00"	6'-8 1/16	626.123	622.260	77°-00'-00"	6'-8 1/16	625.939	622.065	77°-00'-00"	33 WF 118	51'-0"	50'-0"	-	51'-0"	-	-	-	-	-	50'-0"	62'-6"	38'-6"	626.081	E 2	-	F 4	-	E 2	-			I	
	J	do	626.401	622.528	do	do	626.214	622.350	do	do	626.030	622.156	do	do	do	do	-	do	-	-	-	-	-	60	do	do	626.171	E 2	-	F 4	-	E 2	-			J	
	K	do	626.472	622.598	do	do	626.284	622.421	do	do	626.100	622.226	do	do	do	do	-	do	-	-	-	-	-	do	do	do	626.242	E 2	-	F 4	-	E 2	-			K	
	L	6'-8 1/16	626.472	622.598	do	6'-8 1/16	626.205	622.421	do	6'-8 1/16	626.101	622.226	do	do	do	do	-	do	-	-	-	-	-	do	do	do	626.242	E 2	-	F 4	-	E 2	-			L	
	M	7'-8 13/16	626.413	622.528	77°-00'-00"	6'-5 5/8	626.225	622.338	77°-00'-00"	5'-2 3/4	626.041	622.155	77°-00'-00"	do	51'-0"	50'-0"	-	51'-0"	-	-	-	-	-	50'-0"	62'-6"	38'-6"	626.183	E 2	1/8"	F 4	3/16"	E 2	1/8"			M	
	N		626.339	622.485	75°-37'-33"		626.150	622.285	75°-37'-33"		625.965	622.092	75°-37'-33"	33 WF118	51'-3 9/16	50'-3 1/2	-	51'-3 9/16	-	-	-	-	-	50'-3 1/2	62'-10 3/8"	38'-8 11/16	626.108	E 2	-	F 4	-	E 2	-			N	
EAST BOUND SPAN NO. 6 & NO. 7	F	6'-6 13/16	624.505	620.490	77°-00'-00"	6'-6 13/16	624.298	620.600	77°-00'-00"	8'-4 3/8	624.056	620.430	49°-53'-25"	30 WF 172	58'-4 3/4	65'-7 7/16	-	56'-4 3/4"	-	-	-	-	-	65'-7 7/16	70'-5 5/8	51'-7 9/16	624.248	E 4	5/8"	F 2	-	E 4	1/8"			F	
	G	6'-6 13/16	624.595	620.661	do	6'-6 13/16	624.387	620.741	do	8'-4 7/16	624.180	620.540	do	30 WF 172	do	61'-8 7/16	-	56'-4 3/4"	-	-	-	-	-	61'-8 7/16	do	47'-8 9/16	624.335	E 4	1/4"	F 2	-	E 4	-			G	
	H	6'-6 7/8	624.664	620.661	do	6'-6 7/8	624.457	620.807	do	do	624.244	do	do	30 WF 132	do	57'-9 1/2	9"x3/8"	15'-10 3/4	19'-6"	21'-0"	6'-0"	21'-9 1/2"	13'-6"	16'-6"	do	43'-9 5/8	624.405	E 3	1/2"	F 3	-	E 3	1/2"			H	
	I	6'-6 13/16	624.670	620.661	do	6'-6 13/16	624.462	620.807	do	do	624.264	do	do	do	do	53'-10 1/2	9"x3/8"	52'-4 3/4"	-	-	4'-0"	-	-	49'-10 1/2	do	39'-10 5/8	624.410	E 3	1/2"	F 3	-	E 3	3/4"			I	
	J	6'-6 13/16	624.611	620.698	do	6'-6 13/16	624.404	620.744	do	8'-4 3/8	624.220	620.540	do	do	do	49'-11 9/16	-	56'-4 3/4"	-	-	-	-	-	49'-11 9/16	do	35'-11 11/16	624.352	E 3	5/8"	F 5	1/8"	E 3	1/4"			J	
	K		624.533	620.635	77°-00'-00"		624.325	620.675	77°-00'-00"		624.156	620.480	49°-53'-25"	30 WF 132	58'-4 3/4	48'-0 5/8	-	56'-4 3/4	-	-	-	-	-	46'-0 5/8	70'-4 5/8	32'-0 3/4	624.273	E 3	7/16"	F 5	-	E 3	3/16"			K	
WEST BOUND SPAN NO. 6 & NO. 7	L	6'-6 13/16	624.583	620.848	77°-00'-00"	6'-6 13/16	624.356	620.709	77°-00'-00"	8'-0 3/4	624.118	620.503	52°-30'-29"	30 WF 172	56'-4 3/4	64'-5 9/16	-	56'-4 3/4"	-	-	-	-	-	64'-5 9/16	70'-4 5/8	50'-5 11/16	624.304	E 4	-	F 2	-	E 4	-			L	
	M	6'-6 13/16	624.653	621.009	do	6'-6 13/16	624.445	620.799	do	8'-0 13/16	624.221	620.579	do	30 WF172	do	61'-0 3/8	-	56'-4 3/4"	-	-	-	-	-	61'-0 3/8"	do	47'-0 1/2	624.393	E 4	3/8"	F 2	-	E 4	5/16"			M	
	N	6'-6 7/8	624.722	621.009	do	6'-6 7/8	624.515	620.864	do	do	624.303	620.642	do	30 WF 132	do	57'-7 3/16	9"x3/8"	15'-10 3/4"	13'-6"	21'-0"	6'-0"	21'-10 3/16	13'-6	16'-3	do	43'-7 5/16	624.463	E 3	11/16"	F 3	-	E 3	-			N	
	O	6'-6 13/16	624.728	621.009	do	6'-6 13/16	624.520	620.864	do	8'-0 13/16	624.321	620.642	do	do	do	54'-9	9"x3/8"	52'-4 3/4"	-	-	4'-0	-	-	50'-2	do	40'-2 1/8	624.468	E 3	11/16"	F 3	1/16"	E 3	3/16"			O	
	P	6'-6 13/16	624.689	621.009	do	6'-6 13/16	624.461	620.801	do	8'-0 3/4	624.275	620.579	do	do	do	50'-8 13/16	-	56'-4 3/4"	-	-	-	-	-	50'-8 13/16	do	36'-8 15/16	624.409	E 3	-	F 5	1/8"	E 3	1/2"			P	
	Q		624.590	620.830	77°-00'-00"		624.383	620.733	77°-00'-00"		624.209	620.300	52°-30'-29"	30 WF 132	56'-4 3/4	47'-3 11/16	-	56'-4 3/4"	-	-	-	-	-	47'-3 11/16	70'-4 5/8	33'-3 13/16	624.331	E 3	-	F 5	-	E 3	9/16"			Q	

STRUCTURAL STEEL SPANS NO. 1, NO. 2, NO. 6 & NO. 7 EAST BOUND
SPANS NO. 1, NO. 2, NO. 6 & NO. 7 WEST BOUND, SPANS NO. 6 & NO. 7 RAMP F

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LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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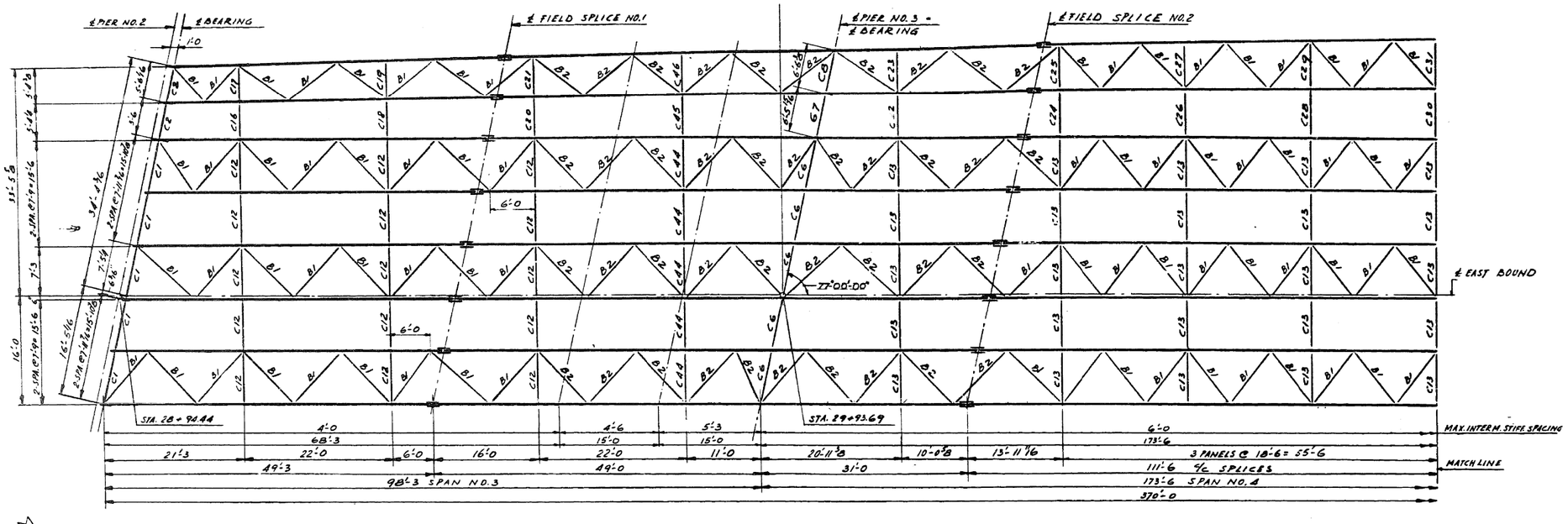
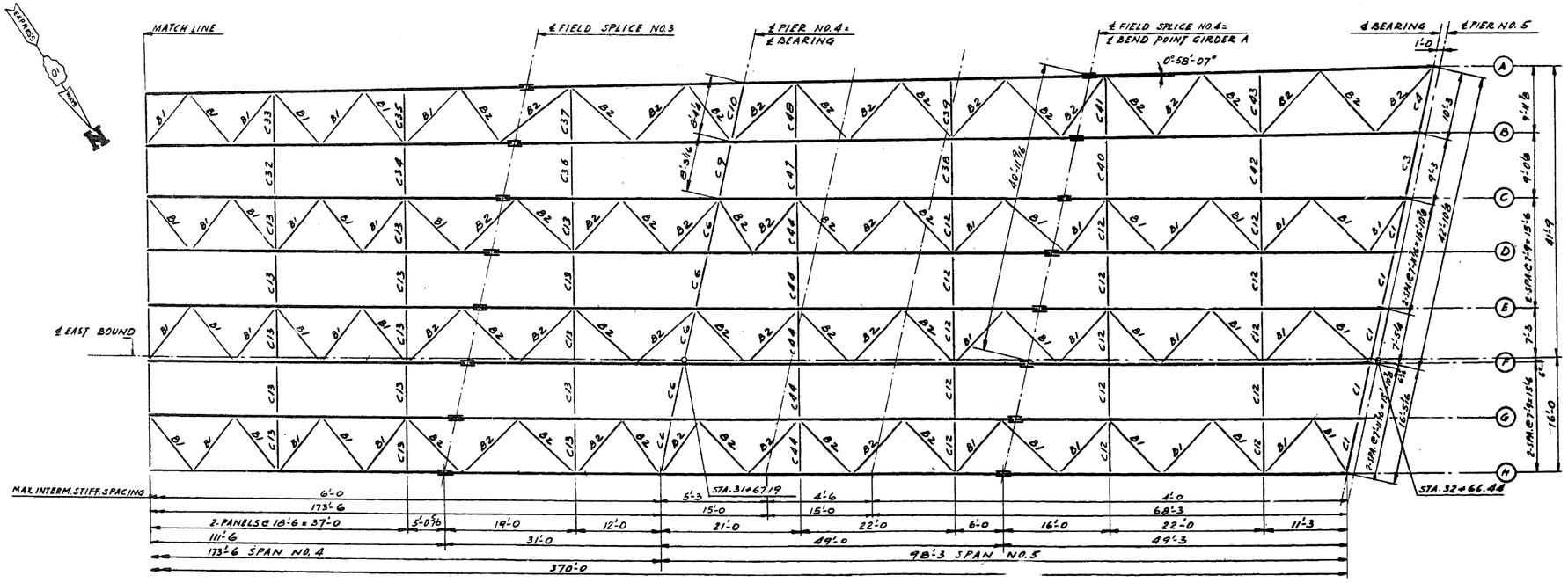
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNITS A & C BEAM DATA – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-5 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	11
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			





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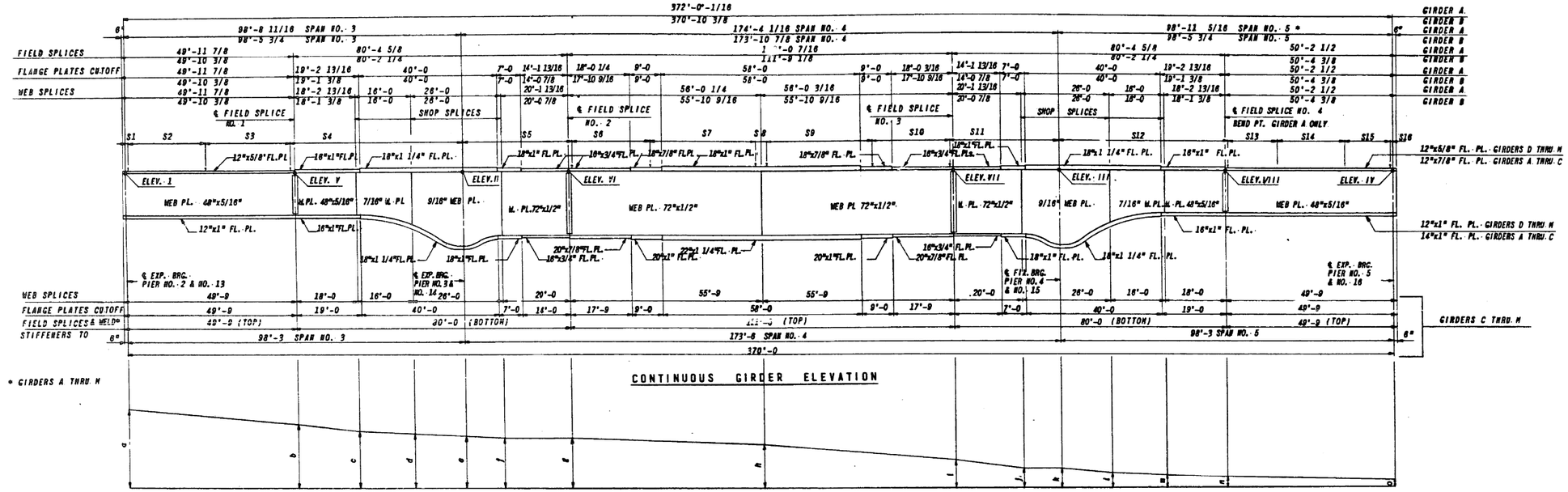
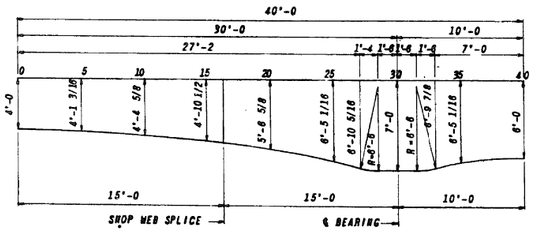
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT B FRAMING PLAN – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-6 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	12
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		





HAUNCH DETAIL

CONTINUOUS GIRDER BLOCKING DIAGRAM SPAN NO. 3 THRU NO. 5 EAST BOUND & WEST BOUND

GIRDER	TOP OF WEB ELEVATIONS* AT I	II	III	IV	V	VI	VII	VIII	BLOCKING AT a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
A	5.385	4.983	3.949	3.118	5.191	4.967	4.332	3.650	2'-3 3/16	2'-0 7/8	1'-11 7/16	1'-10 5/8	1'-10 3/8	1'-10 3/16	1'-10 3/16	1'-9 7/16	1'-2 9/16	0'-11 3/16	0'-10	0'-8 3/8	0'-6 13/16	0'-5 3/16	0
B	5.497	5.116	4.225	3.658	5.304	5.085	4.523	3.913	1'-10 1/16	1'-7 3/4	1'-6 5/8	1'-5 13/16	1'-5 1/2	1'-5 1/4	1'-5 1/8	1'-3 11/16	0'-10 3/8	0'-7 7/8	0'-6 13/16	0'-5 3/8	0'-4 1/4	0'-3 7/16	0
C	5.609	5.247	4.493	4.131	5.428	5.220	4.735	4.230	1'-5 3/4	1'-3 9/16	1'-2 3/16	1'-1 9/16	1'-1 3/8	1'-1 1/4	1'-1 1/16	1'-0	0'-7 1/4	0'-5 5/16	0'-4 3/8	0'-3 1/8	0'-2 5/16	0'-1 3/16	0
D	5.771	5.409	4.171	4.409	5.597	5.367	4.966	4.607	1'-4 5/16	1'-2 1/4	1'-1 3/16	1'-0 11/16	1'-0	0'-11 1/2	0'-11 1/2	0'-10 9/16	0'-6 11/16	0'-4 15/16	0'-4 5/16	0'-3 7/16	0'-2 15/16	0'-2 3/8	0
E	5.885	5.523	4.885	4.523	5.711	5.481	5.080	4.721	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
F	5.959	5.597	4.959	4.597	5.785	5.555	5.154	4.795	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
G	5.888	5.526	4.888	4.626	5.714	5.484	5.083	4.724	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
H	5.797	5.435	4.797	4.435	5.623	5.393	4.992	4.633	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
I	5.827	5.466	4.827	4.466	5.654	5.424	5.023	4.664	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
J	5.934	5.573	4.934	4.753	5.941	5.711	5.310	4.951	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
K	6.021	5.659	5.021	4.659	5.847	5.617	5.216	4.857	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
L	5.948	5.586	4.948	4.586	5.774	5.544	5.143	4.784	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
M	5.855	5.493	4.855	4.493	5.681	5.451	5.050	4.691	1'-4 5/16	1'-2 1/4	1'-1 3/16	1'-0 11/16	1'-0	0'-11 1/2	0'-11 1/2	0'-10 9/16	0'-6 11/16	0'-4 15/16	0'-4 5/16	0'-3 7/16	0'-2 15/16	0'-2 3/8	0

* ADD 620 TO ALL ELEVATIONS

SHEAR CONNECTOR SPACINGS

GIRDER	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16
A	– 0'-3	28 @ 0'-9 21'-0	21 @ 1'-3 26'-3	– 51'-2 11/16	– 33'-3	28 @ 0'-11 25'-8	–	34 @ 1'-6 51'-0	–	34 @ 0'-11 31'-2	– 33'-3 1/16	– 51'-2 11/16	13 @ 1'-9 18'-3	12 @ 1'-0 12'-0	29 @ 0'-8 18'-4	– 0'-1 5/8
B	– do	do	do	– 52'-11 3/4	– 33'-0 1/2	do	do	do	do	do	– 33'-0 3/8	– 51'-1 3/8	do	do	28 @ 0'-8 18'-8	– 0'-5 3/8
C	– do	28 @ 0'-9 21'-0	21 @ 1'-3 26'-3	– 52'-9	– 32'-10	28 @ 0'-11 25'-8	–	1'-6 -0	–	34 @ 0'-11 31'-2	– 32'-10	– 52'-9	13 @ 1'-3 18'-3	12 @ 1'-0 12'-0	28 @ 0'-8 18'-8	– 0'-7
D thru M	– 0'-3	33 @ 0'-9 24'-9	18 @ 1'-3 22'-6	– 52'-9	– 33'-0	48 @ 9" =36'-0	10 @ 1'-6 = 15'-0	3 @ 1'-10 = 5'-6	10 @ 1'-6 = 15'-0	48 @ 9" =36'-0	– 33'-0	– 52'-9	18 @ 1'-3 22'-6	33 @ 0'-9 24'-9	–	– 0'-3

STRUCTURAL STEEL SPAN NO. 3 THRU NO. 5 EAST BOUND AND WEST BOUND:

WEIGHT OF STUDS	7,499 LBS.
WEIGHT OF BEARING DEVICES	62,114 LBS.
WEIGHT OF EXPANSION GUARDS	21,734 LBS.
FRAMING STEEL	1,380,470 LBS.

FURNISHING AND ERECTING STRUCTURAL STEEL 1,471,817 LBS.

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Consulting Engineers
Springfield, Illinois

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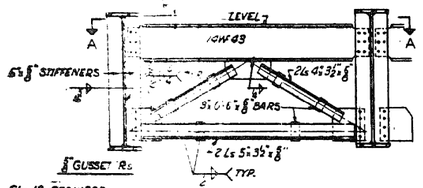
REVISED - | REVISED - | REVISED - | REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

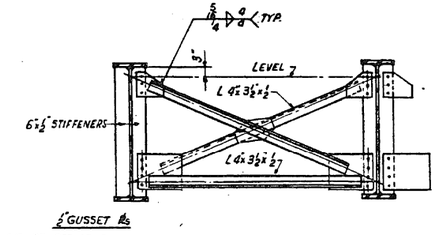
ORIG. UNIT B GIRDER ELEVATION – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-7 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	13
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



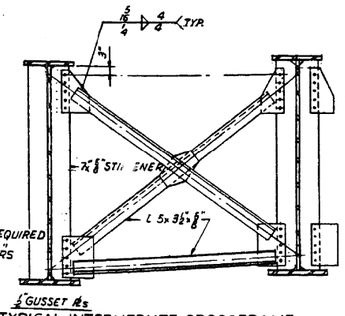
C1-10 REQUIRED
C2- 2 "
C3- 1 "
C4- 1 "
C5- 8 "

TYPICAL END CROSSFRAME
TYPES C1 THRU C5



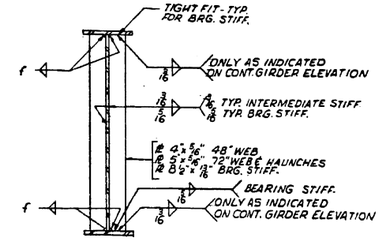
C12-30 REQUIRED
C13-35 "
C14-24 "
C15-32 "
ALL OTHERS 1 EACH

TYPICAL INTERMEDIATE CROSSFRAME
TYPES C12 THRU C22 - C24 THRU C38
C40 THRU C43



C24-10 REQUIRED
C29- 8 "
ALL OTHERS 1 EACH

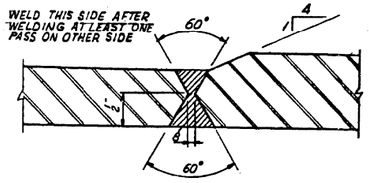
TYPICAL INTERMEDIATE CROSSFRAME
AT HAUNCH C23, C39, & C44 THRU C49



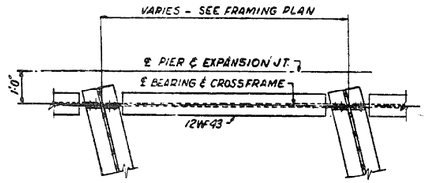
FOR MAX. INTERMEDIATE STIFFENER SPACING BETWEEN CROSSFRAMES SEE "FRAMING PLANS"

TYPICAL STIFFENER DETAIL

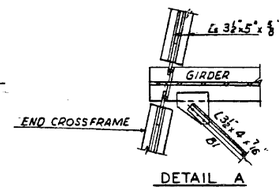
FLANGE THICKNESS	f
¾" TO 1½" INCL.	5/16"
1½" TO 2¼" INCL.	3/8"



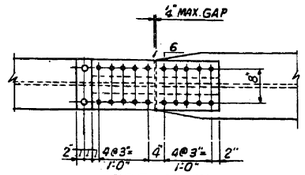
FLANGE SHOP WELD



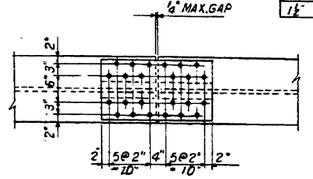
SECTION A-A



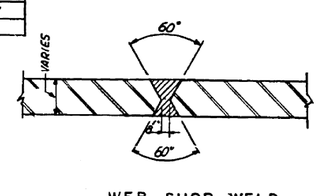
DETAIL A



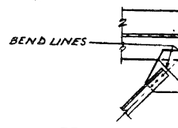
TOP VIEW



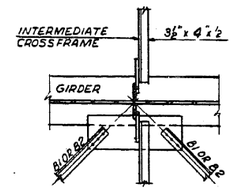
TOP VIEW



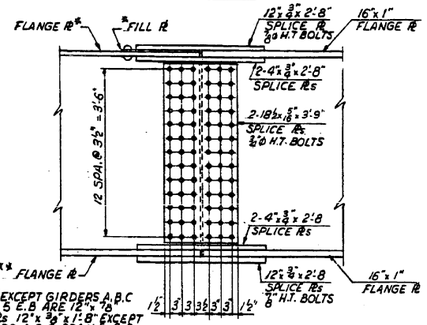
WEB SHOP WELD



BRACING DETAIL AT HAUNCHES



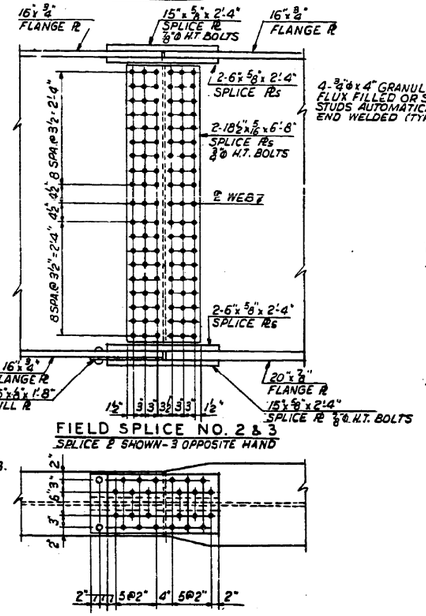
DETAIL B



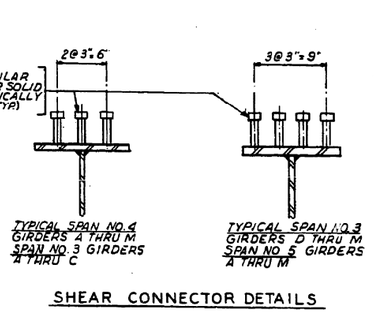
* 12" x ⅜" EXCEPT GIRDERS A,B,C SPAN 5 E.B ARE 12" x ⅝"
FILL Rs 12" x ⅜" x 1'-8" EXCEPT GIRDERS A,B,C SPAN 5 E.B ARE 12" x ⅝" x 1'-8"

** 12" x 1" EXCEPT GIRDERS A,B & C SPAN 5 ARE 16" x 1"

FIELD SPLICE NO 1 & 4
SPLICE 1 SHOWN - 4 OPPOSITE HAND



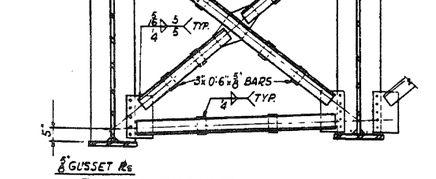
FIELD SPLICE NO. 2 & 3
SPLICE 2 SHOWN - 3 OPPOSITE HAND



TYPICAL SPAN NO. 4
GIRDERS A THRU M
SPAN NO. 3 GIRDERS
A THRU C

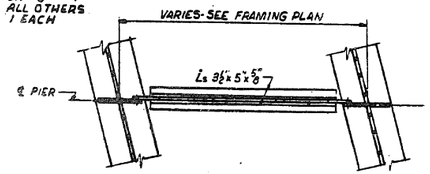
TYPICAL SPAN NO. 3
GIRDERS D THRU M
SPAN NO. 5 GIRDERS
A THRU M

SHEAR CONNECTOR DETAILS

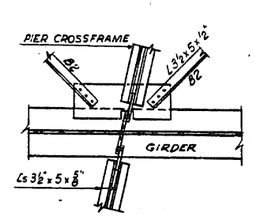


TYPICAL CROSSFRAME AT PIERS 3,4,14,15
TYPE C6 THRU C11

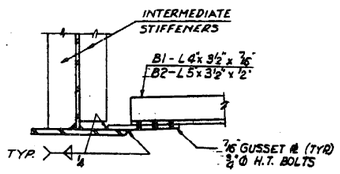
C6-10 REQUIRED
C11- 8 "
ALL OTHERS 1 EACH



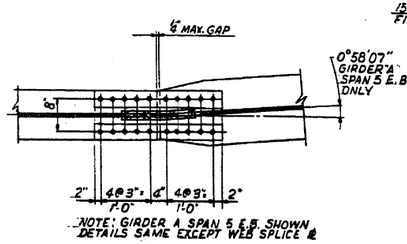
SECTION B B



DETAIL C



WELD DETAIL



NOTE: GIRDER A SPAN 5 E.B. SHOWN DETAILS SAME EXCEPT WEB SPLICE Rs

BOTTOM VIEW

BOTTOM VIEW

FILE NAME = ...\0160486-60W87-008-B.Sti.Dis.dgn

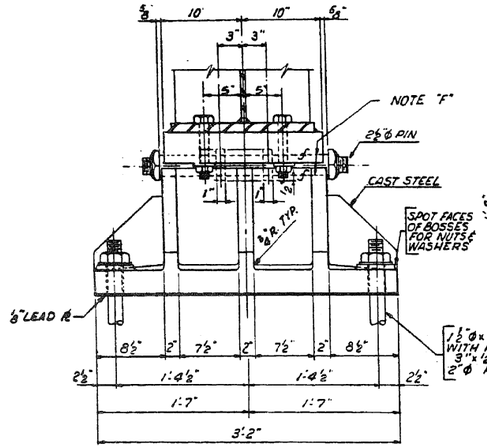
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

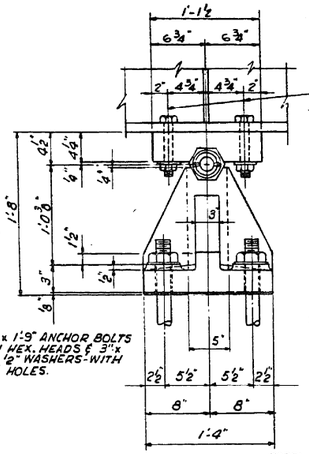
USER NAME = Lin.31	DESIGNED -	REVISED -	
	CHECKED -	REVISED -	
PLOT SCALE =	DRAWN -	REVISED -	
PLOT DATE = 12/05/2018 2:01:50 PM	CHECKED -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT B STEEL DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-8 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	14
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	





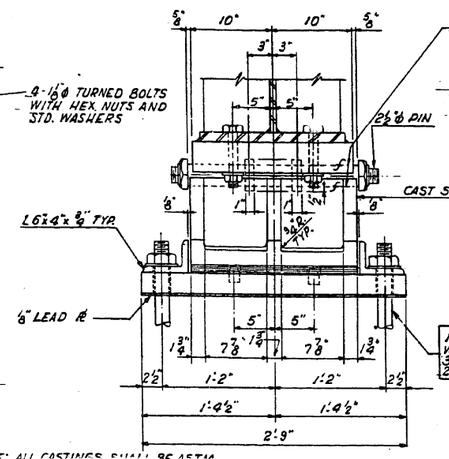
TYPE A - TYPICAL ALL GIRDERS - PIERS 4 & 15

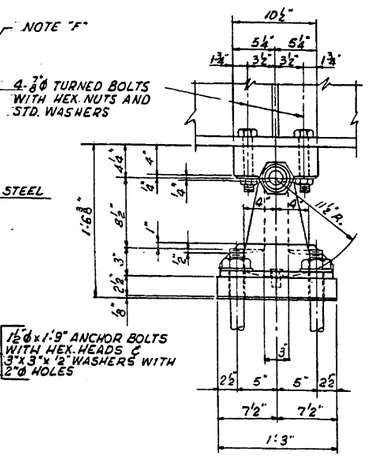
FIXED BEARING

13 REQUIRED

NOTE: ALL CASTINGS SHALL BE ASTM A27-60 GRADE 65-35, FULLY ANNEALED ALL PINS SHALL BE FORGED & SHALL BE ASTM A235, CLASS F

NOTE "F"
COAT WITH ANTI-RUST COMPOUND OR LACQUER.

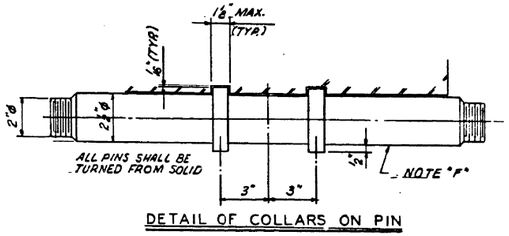




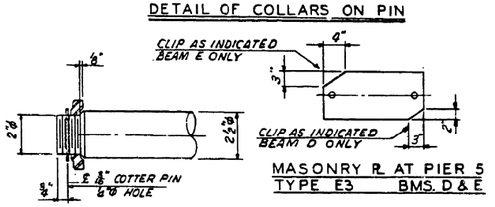
TYPE B - TYPICAL ALL GIRDERS - PIERS 3 & 14

EXPANSION BEARING

13 REQUIRED

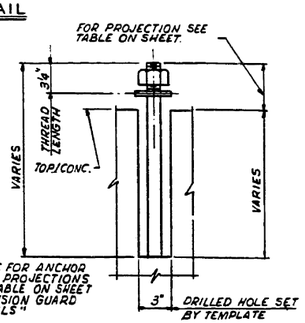


DETAIL OF COLLARS ON PIN

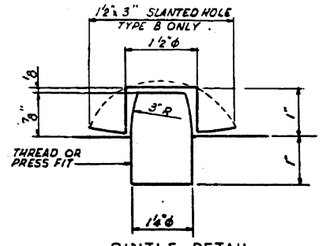


MASONRY R AT PIER 5
TYPE E3 BMS. D & E

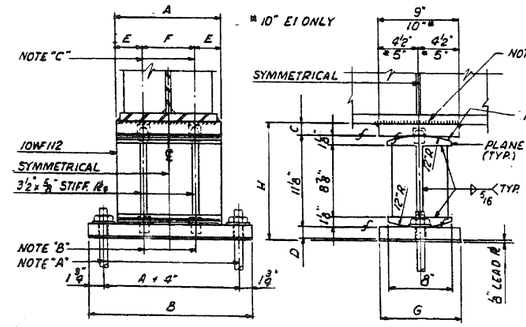
PIN DETAIL



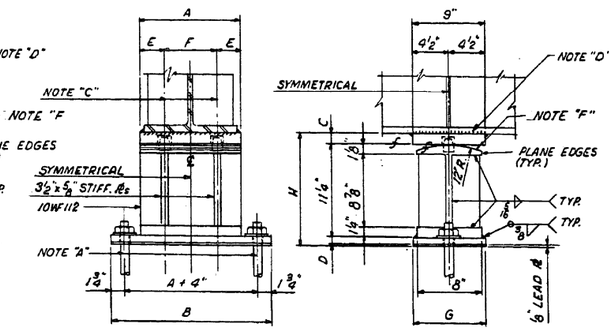
ANCHOR BOLT



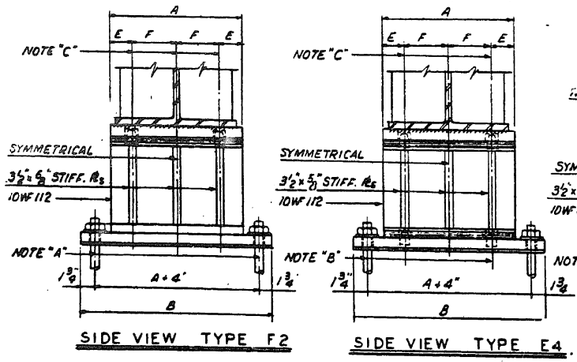
PINTLE DETAIL



EXPANSION BEARING - TYPE E1, E2, E3, E4

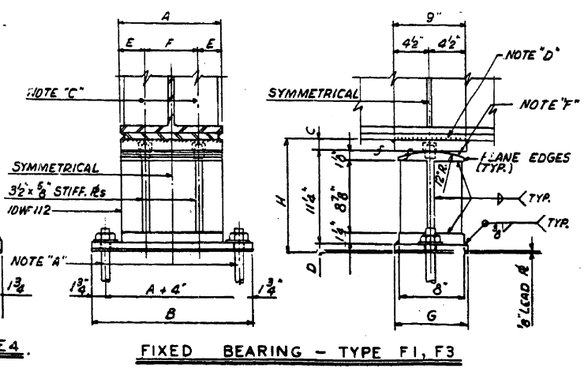


FIXED BEARING - TYPE F2, F4, F5



SIDE VIEW TYPE F2

SIDE VIEW TYPE E4



FIXED BEARING - TYPE F1, F3

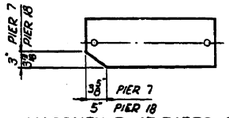
TABLE OF DIMENSIONS & LOCATIONS												
LOCATION	A	B	C	D	E	F	G	H	C.F.W.	REQ.	WT.	TYPE
EAST ABUT. - ALL BEAMS	12½"	20"	1"	1⅜"	3"	6½"	9"	13⅝"	½	14	268	E2
PIER 1 BEAMS B THRU G	11½"	19"	1¼"	1"	3"	5½"	9"	13⅜"	½	6	240	F1
PIERS 1 & 12 - BMS. A & H & 1 THRU N	12½"	20"	1⅜"	⅝"	3"	6½"	9"	13½"	½	8	248	F4
PIERS 2 & 13 ALL BEAMS - EAST	12½"	20"	1"	1⅜"	3	6½"	9"	13⅜"	½	14	268	E2
PIERS 2 & 13 ALL BEAMS - WEST	13"	20½"	1⅝"	1⅜"	3¼"	6½"	10"	14¼"	½	13		E1
PIERS 3 & 16 ALL BEAMS - EAST	13"	20½"	1⅝"	1⅜"	3¼"	6½"	10"	14¼"	½	13		E1
PIER 5 RAMP "E" BEAMS A THRU E	11½"	19	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	5	250	E3
PIERS 5 & 16 WEST BEAMS F, G, L & M	17"	24½"	1"	1⅛"	3"	5½"	9"	13½"	½	4	343	E4
PIERS 5 & 16 WEST BEAMS H, I, J, K, N, O, P & Q	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	8	250	E3
PIER 6 RAMP "F" BEAMS A THRU E	11½"	19"	1⅜"	¾"	3	5½"	9"	13½"	½	10	231	F5
PIERS 6 & 17 BEAMS F, G, L & M	16½"	24"	1½"	1"	2⅜"	5½"	9"	13⅞"	⅝	4	344	F2
PIERS 6 & 17 BEAMS H, I, N, O	10½"	18	1"	¾"	2½"	5½"	9"	13⅛"	½	4	207	F3
PIERS 6 & 17 BMS. J, K, P, Q	11½"	19"	⅜"	⅝"	3"	5½"	9"	13½"	½	4	231	F5
RAMP "F" ABUTMENT BEAMS A THRU E	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	5	250	E3
PIER 7 - BEAMS F & G	17"	24½"	1"	1¼"	3"	5½"	9"	13½"	½	2	343	E4
PIER 7 - BEAMS H, I, J & K	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	4	250	E3
PIER 18 - BEAMS L & M	17"	24½"	1"	1¼"	3"	5½"	9"	13½"	½	2	343	E4
PIER 18 BEAMS N, O, P, & Q	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	4	250	E3

NOTE "A"
1½"ø HOLES FOR 1"ø x 1'-2" ANCHOR BOLTS 2½" x 2½" x ⅝" R WASHER UNDER NUT - TYP. FOR BEARINGS E2 THRU E4.
1¼"ø HOLES FOR 1¼"ø x 1'-6" ANCHOR BOLTS 2½" x 2½" x ⅝" R WASHER UNDER NUT - TYP. FOR BEARING TYPE E1 ONLY.

NOTE "B"
1⅝"ø HOLES - 1" DEEP IN ROCKER FOR 1¼"ø PINTLES
1⅜"ø PINTLES - 1⅞" LONG IN BOTT. R THREAD OR PRESS FIT.

NOTE "C"
1⅝"ø HOLES IN TOP R FOR 1¼"ø PINTLES.
1⅜"ø PINTLES - 1⅞" LONG IN ROCKER OR BOTTOM R - THREAD OR PRESS FIT.

NOTE "D"
CONT. FILLET WELD 4 SIDES - SEE "TABLE OF DIMENSIONS & LOCATIONS" THIS SHEET FOR SIZE.



MASONRY R AT PIERS 7 & 18
TYPE E4 - BMS. F, G, L, M.
SET CUT SIDE TO EDGE OF PIER

NOTE "E"
FOR THICKNESS OF REQUIRED SHIMPLATES, SEE "SUMMARY OF BEAMS".

WEIGHT OF BEARING DEVICES = 88,360 LBS.
(SHIMPLATES INCLUDED)

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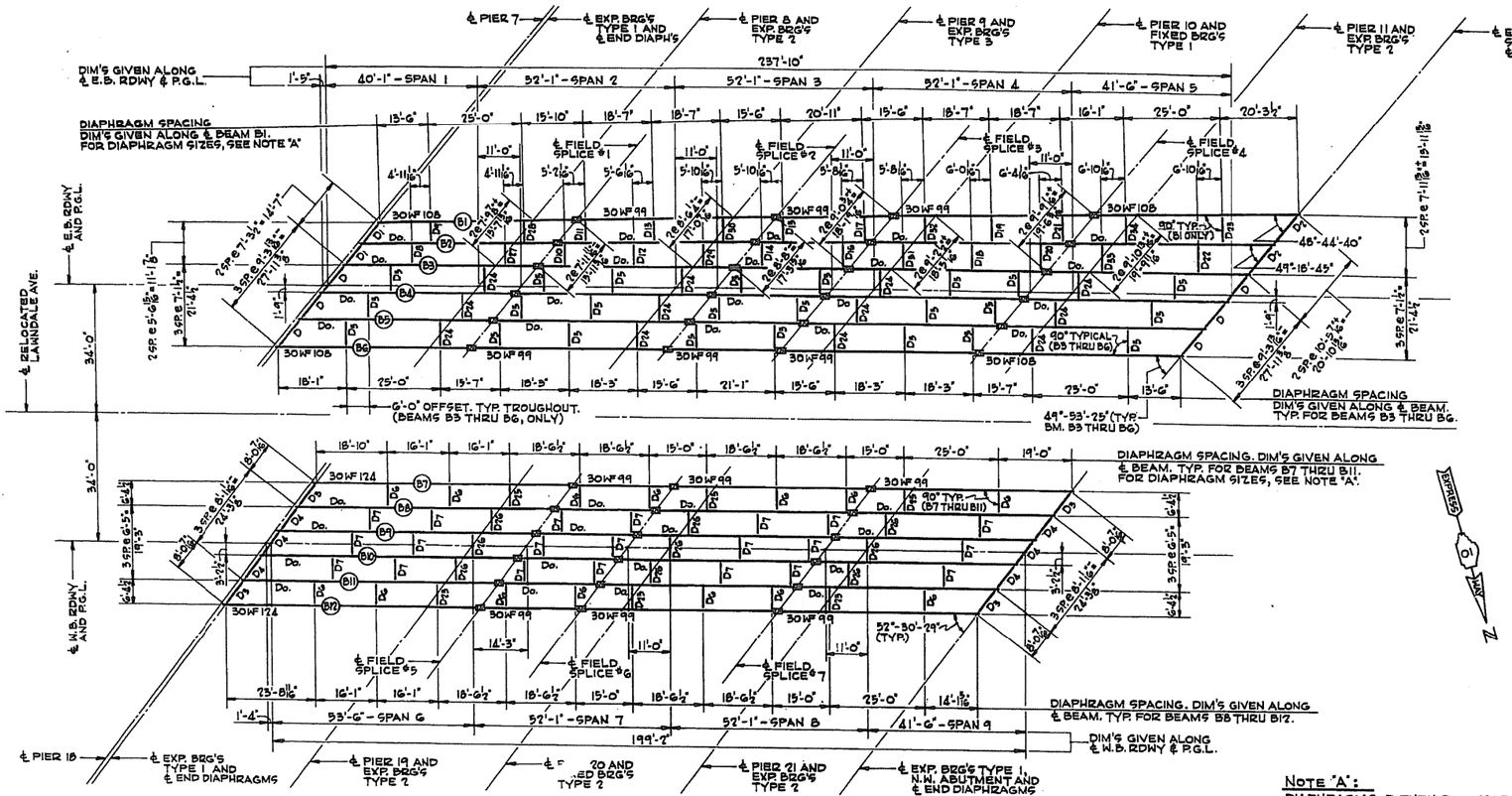
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED -	REVISED -	
	PLOT SCALE =	DRAWN -	REVISED -	
	PLOT DATE = 12/05/2018 2:02:29 PM	CHECKED -	REVISED -	

ORIG. UNIT B BEARING DETAILS - LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-9 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	15
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	



FRAMING PLAN

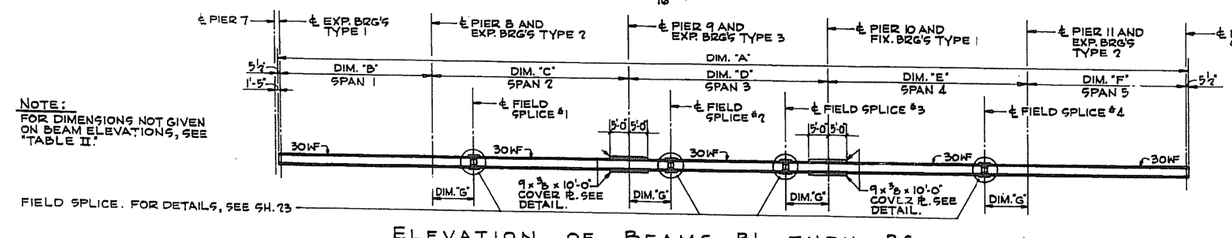
SCALE: 1/16" = 1'-0"

NOTE "A":
DIAPHRAGMS D THRU D4 - 12 WF 40
DIAPHRAGMS D5 THRU D34 - 16 WF 36
FOR DIAPHRAGM LENGTHS, SEE TABLE I.

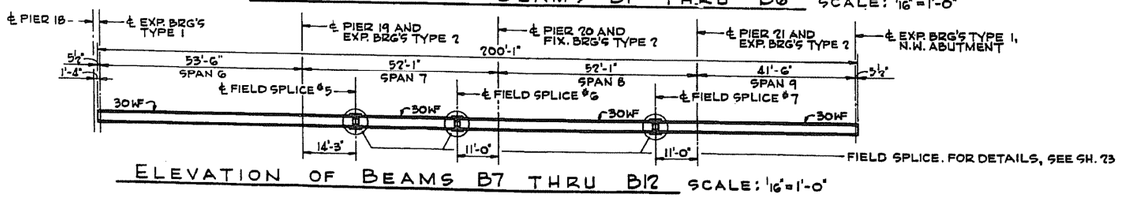
TABLE I					
DIAPH.	LENGTH **	NO. REQ'D		DIAPH.	LENGTH **	NO. REQ'D
D	9'-5 15/16"	6		D18	7'-2 3/8"	1
D1	7'-3 1/2"	2		D19	7'-1 5/8"	1
D2	10'-5 7/16"	2		D20	7'-4 9/16"	1
D3	8'-0 7/16"	4		D21	7'-3 15/16"	1
D4	8'-1 1/16"	6		D22	7'-9 1/2"	1
D5	7'-1 1/2"	24		D23	7'-8 3/4"	1
D6	6'-4 1/2"	14		D24	7'-1 1/2"	12
D7	6'-5"	21		D25	6'-4 1/2"	6
D8	5'-8 9/16"	1		D26	6'-5"	9
D9	5'-7 15/16"	1		D27	5'-11 9/16"	1
D10	6'-1 7/16"	1		D28	5'-10 15/16"	1
D11	6'-0 15/16"	1		D29	6'-5 7/8"	1
D12	6'-3 11/16"	1		D30	6'-5 1/4"	1
D13	6'-3"	1		D31	7'-0 5/16"	1
D14	6'-7 3/4"	1		D32	6'-11 7/16"	1
D15	6'-7 1/16"	1		D33	7'-6 1/2"	1
D16	6'-10 5/16"	1		D34	7'-5 3/4"	1
D17	6'-9 9/16"	1				

** DIMENSION GIVEN IS ℄ TO ℄ OF BEAMS.

TABLE II			
BEAM / DIM.	B1	B2	B3 THRU B6
"A"	242'-10 1/2"	240'-9 3/8"	238'-9"
"B"	40'-9 1/4"	40'-5 1/8"	40'-1"
"C"	52'-11 7/8"	52'-6 3/8"	52'-1"
"D"	52'-11 7/8"	52'-6 3/8"	52'-1"
"E"	52'-11 7/8"	52'-6 3/8"	52'-1"
"F"	42'-2 5/8"	41'-10 3/8"	41'-6"
"G"	11'-2 5/16"	11'-1 1/8"	11'-0"

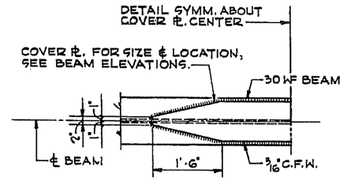


ELEVATION OF BEAMS B1 THRU B6 SCALE: 1/16" = 1'-0"



ELEVATION OF BEAMS B7 THRU B12 SCALE: 1/16" = 1'-0"

NOTE:
FOR DIMENSIONS NOT GIVEN ON BEAM ELEVATIONS, SEE TABLE II.



PLAN DETAIL OF COVER PL'S
TYPICAL - NOT TO SCALE

NOTES:
FOR STRUCTURAL STEEL DESIGNATION, SEE "GENERAL NOTES", SH. 3
FOR TABLES OF MOMENTS & REACTIONS, SEE SH. 23
FOR TABLE "TOP / WF ELEVATIONS", SEE SH. 23
FOR DIAPHRAGM DETAILS, SEE SH. 23

FILE NAME = ...\0160486-60W87-018-D_Fram_Plan.dgn

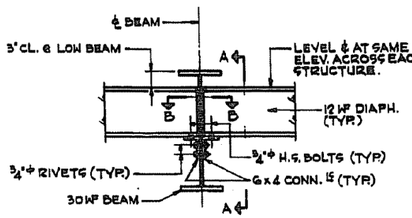
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:03:05 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT D FRAMING PLAN – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-10 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	16
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	

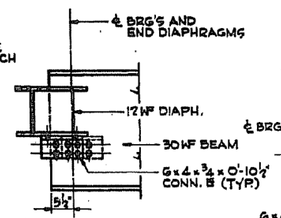


END DIAPHRAGM DETAIL

DIAPHRAGMS D THRU D4

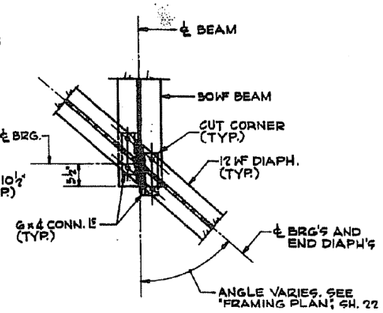
FOR NO. REQ'D, SEE "TABLE I" SH. 22

SCALE: ¾"=1'-0"



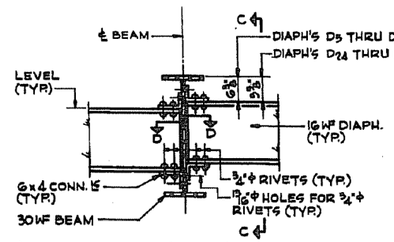
SECTION A-A

SCALE: ¾"=1'-0"



SECTION B-B

SCALE: ¾"=1'-0"

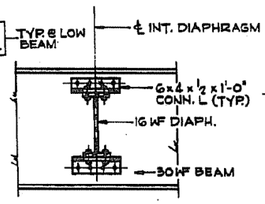


INTERMEDIATE DIAPHRAGM DETAIL

DIAPHRAGMS D5 THRU D34

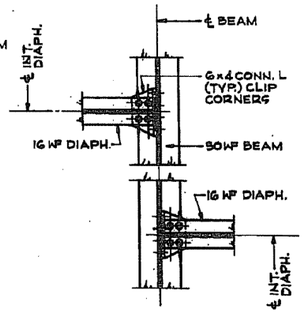
FOR NO. REQ'D, SEE "TABLE I" SH. 22

SCALE: ¾"=1'-0"



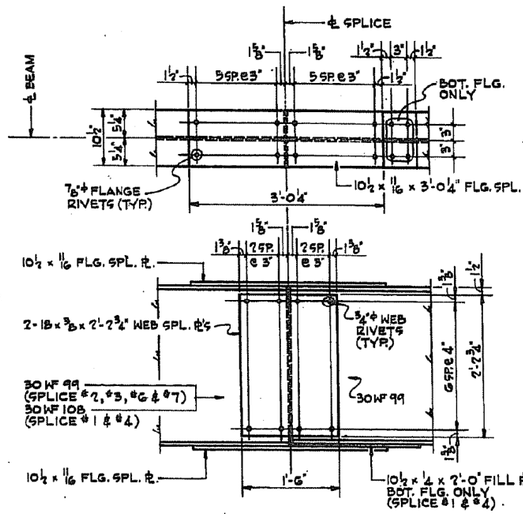
SECTION C-C

SCALE: ¾"=1'-0"



SECTION D-D

SCALE: ¾"=1'-0"

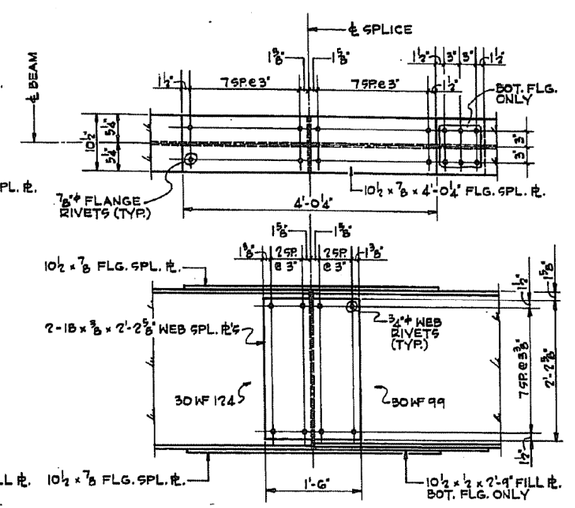


DETAIL - FIELD SPLICE #1 THRU #4, #6 & #7

SPLICES SIMILAR EXCEPT AS NOTED OTHERWISE

FIELD SPLICE #1, #2, #3, #6 & #7 - AS SHOWN

FIELD SPLICE #4 - OPPOSITE HAND



DETAIL - FIELD SPLICE #5

FIELD SPLICE DETAILS

SCALE: 1"=1'-0"

TOP/WF ELEVATIONS*

LOCATION \ BEAM	B1	B2	B3	B4	B5	B6
E.B. ROADWAY ℄ BRG'S, PIER 7	3.886	4.050	4.169	4.227	4.178	4.109
℄ PIER 8	3.738	3.903	4.021	4.080	4.030	3.961
℄ FIELD SPLICE #1	3.698	3.862	3.981	4.039	3.990	3.921
℄ PIER 9	3.546	3.711	3.830	3.888	3.839	3.770
℄ FIELD SPLICE #2	3.506	3.671	3.789	3.847	3.798	3.729
℄ FIELD SPLICE #3	3.395	3.560	3.678	3.737	3.687	3.618
℄ PIER 10	3.355	3.519	3.638	3.696	3.647	3.578
℄ FIELD SPLICE #4	3.204	3.368	3.487	3.545	3.496	3.427
℄ PIER 11	3.163	3.328	3.446	3.504	3.455	3.386
℄ BRG'S, S.W. ABUT.	3.010	3.175	3.293	3.352	3.303	3.233

LOCATION \ BEAM	B7	B8	B9	B10	B11	B12
℄ BRG'S, PIER 18	4.056	4.158	4.240	4.259	4.213	4.147
℄ PIER 19	3.860	3.961	4.044	4.062	4.016	3.950
℄ FIELD SPLICE #5	3.807	3.909	3.991	4.009	3.963	3.897
℄ FIELD SPLICE #6	3.708	3.810	3.892	3.911	3.865	3.799
℄ PIER 20	3.668	3.770	3.852	3.870	3.824	3.758
℄ FIELD SPLICE #7	3.517	3.618	3.701	3.719	3.673	3.607
℄ PIER 21	3.476	3.578	3.660	3.678	3.632	3.567
℄ BRG'S, N.E. ABUT.	3.324	3.425	3.508	3.526	3.480	3.414

* ADD 620.000 TO ALL TOP/WF ELEVATIONS GIVEN.

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Springfield, Illinois

USER NAME = Lin..31 | PLOT SCALE = | PLOT DATE = 12/05/2018 2:03:44 PM

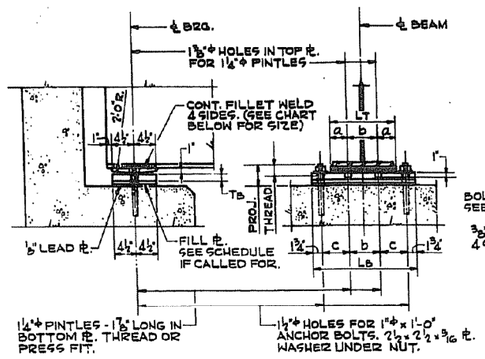
DESIGNED - | CHECKED - | DRAWN - | CHECKED -

REVISED - | REVISED - | REVISED - | REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT D STEEL DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-11 OF SA-32 SHEETS

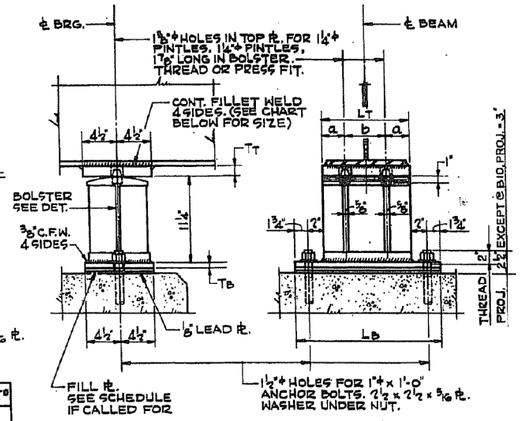
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	17
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



TYPE	NO. REQ'D	LT	LB	C.F.W.	TB	a	b	c	TOTAL WEIGHT*
	NONE								

FIXED BEARINGS AT ABUTMENTS

SCALE: 1"=1'-0"

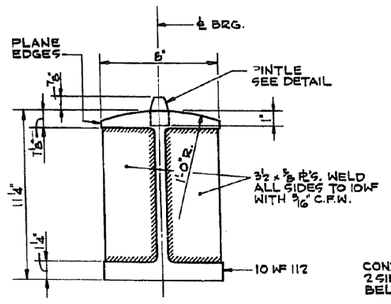


TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	C.F.W.	TOTAL WEIGHT*
F2	6	11½"	1'-7"	1⅜"	¾"	3"	5½"	½"	231 LBS.

FIXED BEARINGS AT PIER 20

BEAM WITHOUT COVER PLATES

SCALE: 1½"=1'-0"

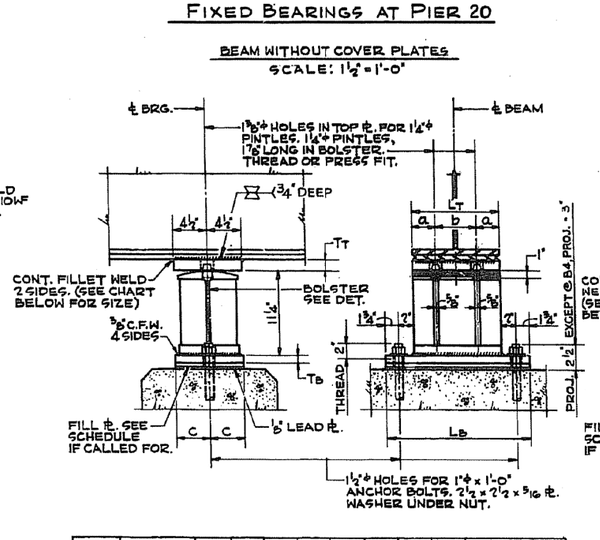


BOLSTER DETAIL

SCALE: 3"=1'-0"

FILL PL SCHEDULE		
LOCATION	BEAM	FILL PL THICKNESS
E.B. ROADWAY, ALL SUPPORTS	B4	¾"
	B5	⅛"
W.B. ROADWAY, ALL SUPPORTS	B9	5/16"
	B10	½"

TOTAL WEIGHT OF FILL PL'S = 455 LBS.



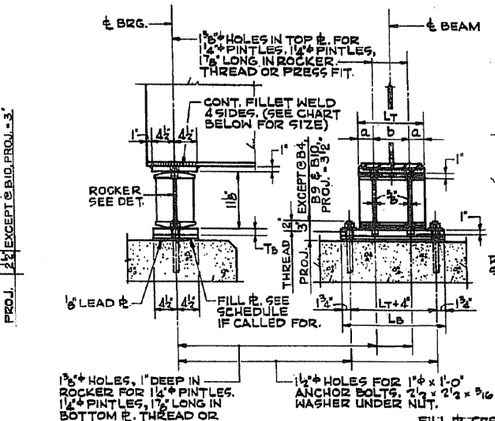
TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	c	C.F.W.	TOTAL WEIGHT*
F1	6	10½"	1'-6"	1"	¾"	2½"	5½"	4½"	½"	207 LBS.

✳ TOTAL WEIGHT OF ONE ASSEMBLY INCLUDES TOP PL., ROCKER OR BOLSTER, BOTTOM PL., ANCHOR BOLTS, PL. WASHERS AND LEAD PL. DOES NOT INCLUDE THE WEIGHT OF ANY FILL PL.

FIXED BEARINGS AT PIER 10

BEAM WITH COVER PLATES

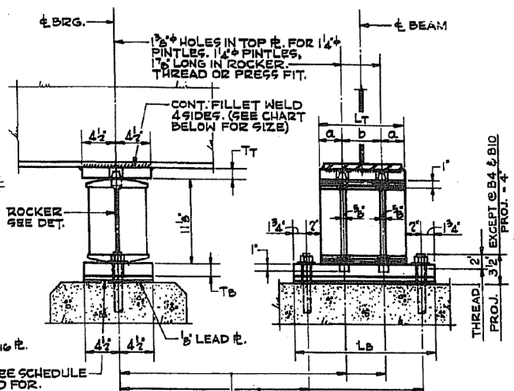
SCALE: 1½"=1'-0"



TYPE	NO. REQ'D	LT	LB	C.F.W.	TB	a	b	TOTAL WEIGHT*
E1	24	11½"	1'-7"	⅜"	1⅜"	3"	5½"	250 LBS.

EXPANSION BEARINGS AT ABUTMENTS AND AT PIERS 7 & 18

SCALE: 1"=1'-0"

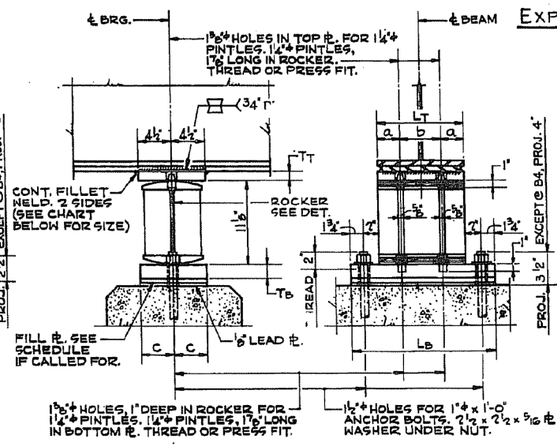


TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	C.F.W.	TOTAL WEIGHT*
E2	24	11½"	1'-7"	1⅜"	1¾"	3"	5½"	½"	280 LBS.

EXPANSION BEARINGS AT PIERS 8,11,19 & 21

BEAM WITHOUT COVER PLATES

SCALE: 1½"=1'-0"

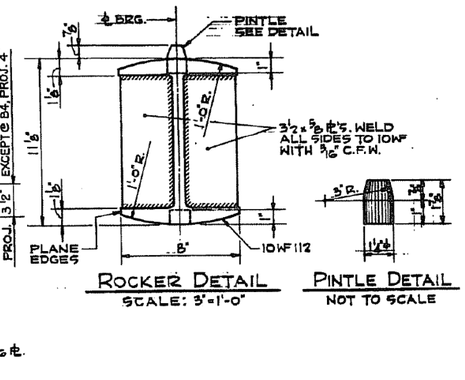


TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	c	C.F.W.	TOTAL WEIGHT*
E3	6	10½"	1'-6"	1"	1¾"	2½"	5½"	4½"	½"	253 LBS.

EXPANSION BEARINGS AT PIER 9

BEAM WITH COVER PLATES

SCALE: 1½"=1'-0"



ROCKER DETAIL

SCALE: 3"=1'-0"

PINTLE DETAIL

NOT TO SCALE

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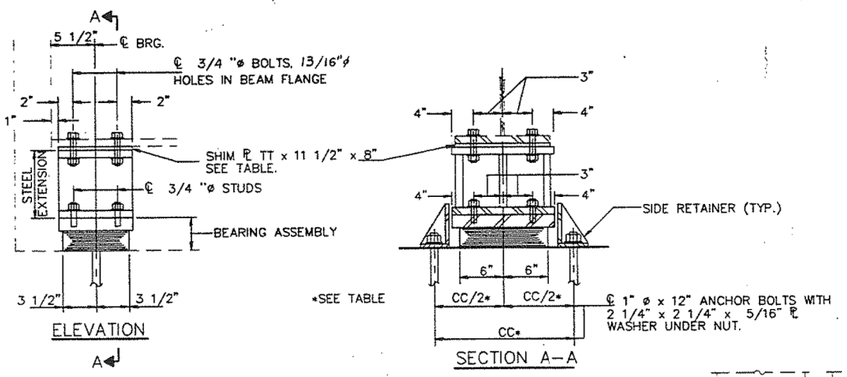
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED -	REVISED -	
	PLOT SCALE =	DRAWN -	REVISED -	
	PLOT DATE = 12/05/2018 2:04:39 PM	CHECKED -	REVISED -	

ORIG. UNIT D BEARING DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-12 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	18
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



TYPE I ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

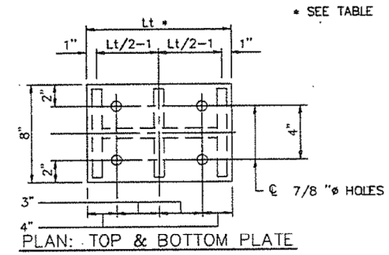
SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

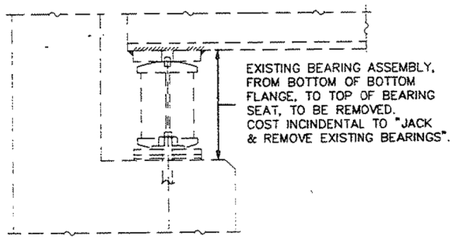
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

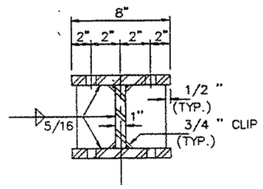
SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.



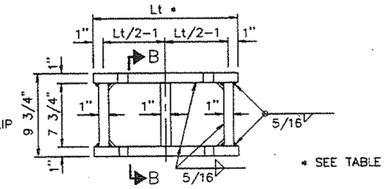
PLAN: TOP & BOTTOM PLATE



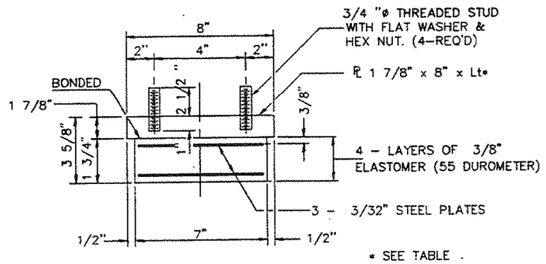
EXISTING ELEVATION



SECTION B–B

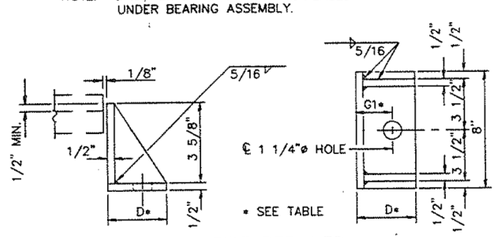


STEEL EXTENSION DETAIL



BEARING ASSEMBLY

NOTE: SHIM PLATES SHALL NOT BE PLACED UNDER BEARING ASSEMBLY.

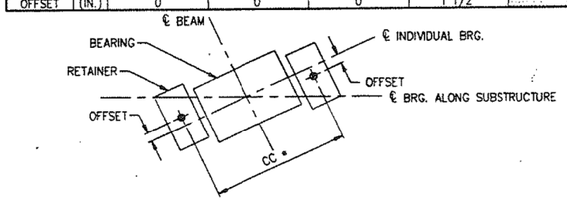


SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.

SHIM ℙ THICKNESS, TT: SIZES SHOWN ARE IN ADDITION TO THE 1/8" SHIM ℙ TO BE FURNISHED @ ALL LOCATIONS.

LOCATION / BEAM	DIM.	EAST BOUND				RAMP F	LOCATION / BEAM	WEST BOUND			
		EAST ABUTMENT	PIER 2 EAST	PIER 5 WEST	PIER 7 EAST	WEST ABUTMENT		EAST ABUTMENT	PIER 13 EAST	PIER 16 WEST	PIER 18 EAST
A–E	(IN.)	1/8	1/8			1/8	I–K	1/8	1/8		
F	(IN.)	9/16	9/16	5/8	1/8		L	1/8	1/8	0	0
G	(IN.)	1/2	9/16	1/4	0		M	1/4	1/4	3/8	5/16
H	(IN.)	1/4	5/16	5/8	5/8		N	1/8	1/8	13/16	1/8
I	(IN.)			5/8	7/8		O			13/16	5/16
J	(IN.)			3/4	3/8		P			1/8	5/8
K	(IN.)			9/16	5/16		Q			1/8	11/16
REACTIONS											
DL	(K)	21.7	21.7	23.6	27.4	31		20.1	20.1	23.6	27.4
LL	(K)	40.2	40.2	37.7	37.7	33.4		37.4	37.4	37.7	37.7
IMP	(K)	11.4	11.4	10.4	10.4	8.9		10.8	10.8	10.4	10.4
TOTAL	(K)	73.3	73.3	71.7	75.5	73.3		68.3	68.3	71.7	75.5
VARIABLE DIMENSIONS:											
BEAMS		A–H	A–H	F,G	H–K	F–K	A–E	I–N	I–N	L,M	N–Q	L–Q
CC	(IN.)	22 1/2	22 1/2	27	21 1/2	19 1/2	21 1/2	22 1/2	22 1/2	27	21 1/2	19 1/2
G1	(IN.)	4 1/8	4 1/8	5 7/8	3 1/8	2 1/8	3 5/8	4 1/8	4 1/8	5 7/8	3 1/8	2 1/8
D	(IN.)	6	6	7 3/4	5	4	5 1/2	6	6	7 3/4	5	4
Lt		1'–2"	1'–2"	1'–3"		1'–3"	1'–2"	1'–2"	1'–2"	1'–3"		1'–3"
OFFSET	(IN.)	0	0	0		1 1/2"				0		2



* SEE TABLE

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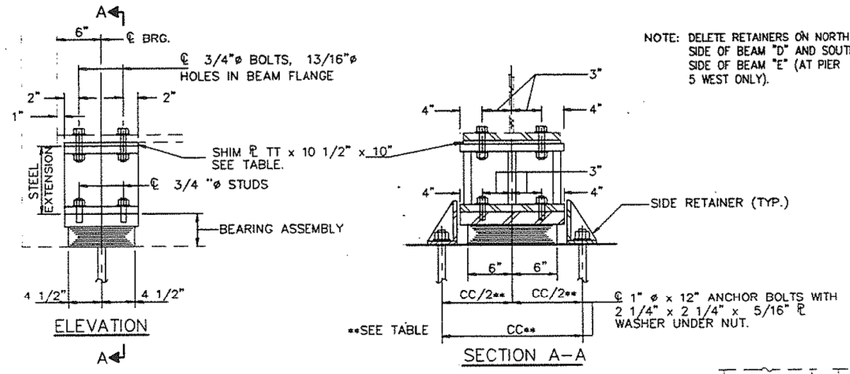
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SA-13 OF SA-32 SHEETS
	PLOT DATE = 12/05/2018 2:05:31 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	19
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		



TYPE I ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

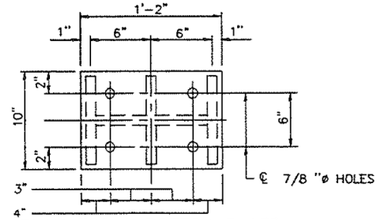
SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

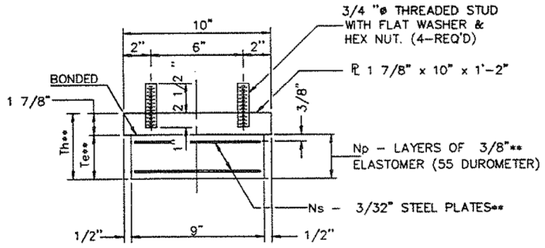
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.

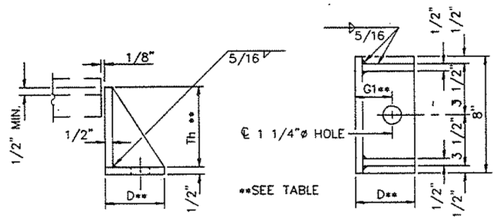


PLAN TOP & BOTTOM PLATE



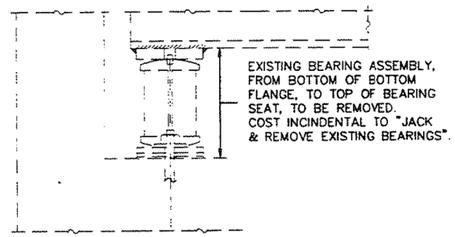
BEARING ASSEMBLY **SEE TABLE

NOTE: SHIM PLATES SHALL NOT BE PLACED UNDER BEARING ASSEMBLY.



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



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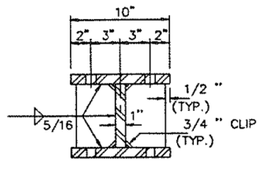
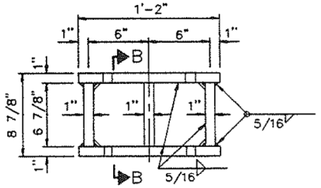


SECTION B–B



STEEL EXTENSION DETAIL

LOCATION / BEAM	DIM.	SHIM ℙ THICKNESS, TT: * EAST BOUND PIER 5 WEST RAMP F	WEST BOUND LOCATION / BEAM	WEST BOUND PIER 16 EAST
A	(IN.)	1/2	I	3/16
B	(IN.)	1/2	J	3/16
C	(IN.)	1/2	K	3/16
D	(IN.)	1/2	L	3/16
E	(IN.)	1/2	M	3/16
REACTIONS				
DL	(K)	42.9		34.0
LL	(K)	37.0		50.2
IMP	(K)	10.0		11.2
TOTAL	(K)	89.9		95.4
VARIABLE DIMENSIONS:				
BEARING TYPE		9x12,I,a		9x12,I,b
CC	(IN.)	21 1/2		23
G1	(IN.)	3 5/8		4 3/8
D	(IN.)	5 1/2		6 1/4
Np	(IN.)	5		7
Ns	(IN.)	4		6
Te	(IN.)	2 1/4		3 3/16
Th	(IN.)	4 1/8		5 1/16

* SIZES SHOWN ARE IN ADDITION TO THE 1/8" SHIM ℙ TO BE FURNISHED AT ALL LOCATIONS

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Springfield, Illinois

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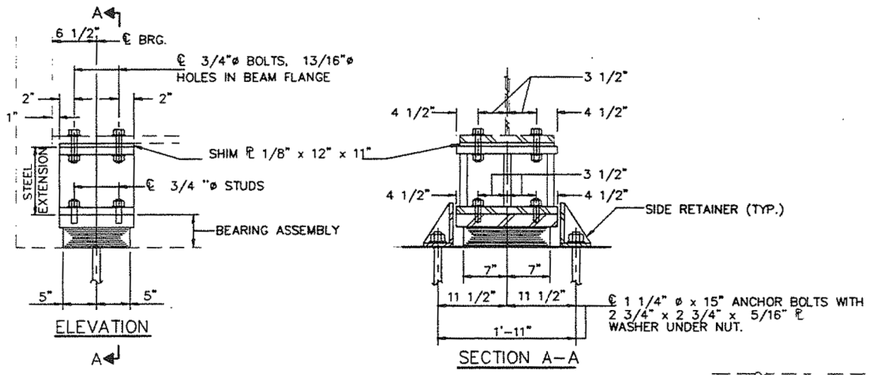
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

1993 BEARING REPLACEMENT DETAILS – LOCATION 1
STRUCTURE NO. 016–0486
SHEET NO. SA-14 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	20
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



TYPE I ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

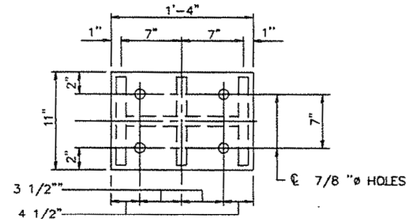
SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR-ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

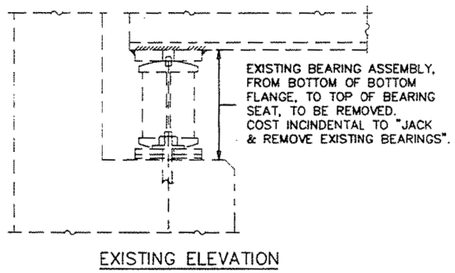
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

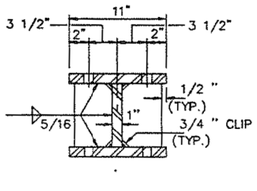
SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.



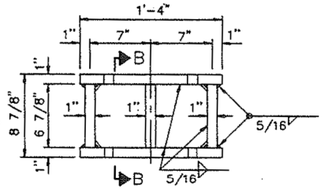
PLAN TOP & BOTTOM PLATE



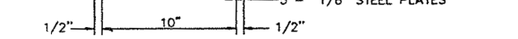
EXISTING ELEVATION



SECTION B-B

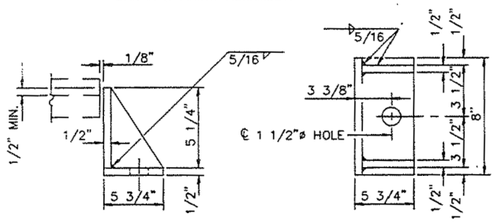


STEEL EXTENSION DETAIL



BEARING ASSEMBLY

NOTE: SHIM PLATES SHALL NOT BE PLACED UNDER BEARING ASSEMBLY.



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.

REACTIONS		PIER 5 EAST
R D	(K)	38.1
R L	(K)	57.3
IMP.	(K)	12.7
R (TOTAL)	(K)	108.1

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Consulting Engineers
Springfield, Illinois

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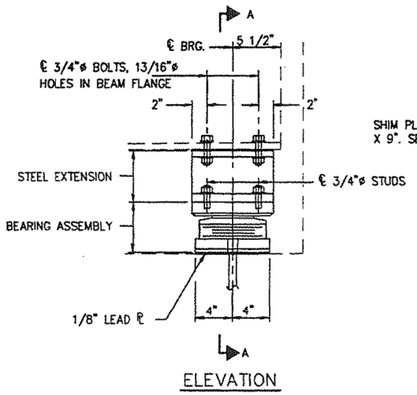
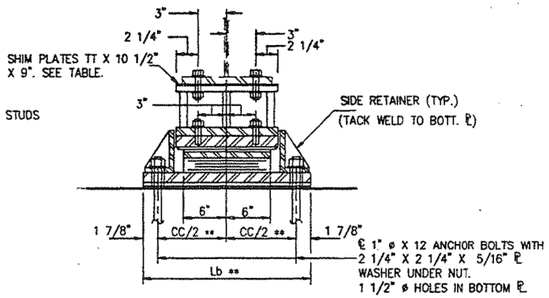
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

1993 BEARING REPLACMENT DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-15 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	21
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



ELEVATION



SECTION A–A

TYPE II TFE ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

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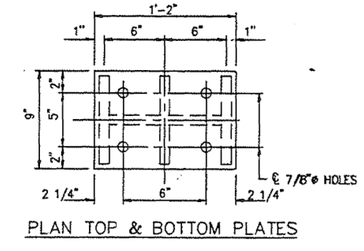
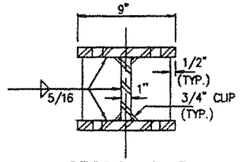
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

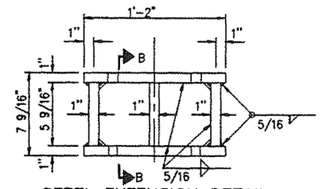
SEE SUPER STRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCAATIONS.



PLAN TOP & BOTTOM PLATES



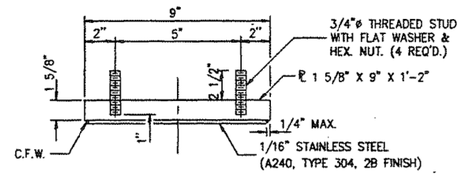
SECTION B–B



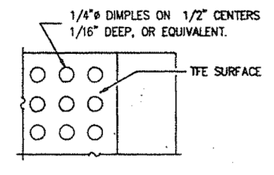
STEEL EXTENSION DETAIL

LOCATION	DIM.	SHIM ℄ THICKNESS, TT: *			
		EAST BOUND		LOCATION	WEST BOUND
BEAM		PIER 7 WEST	WEST ABUTMENT	BEAM	PIER 18 WEST
B1	(IN.)	0	1/2	B7	1/2
B2	(IN.)	0	1/2	B8	1/2
B3	(IN.)	0	1/2	B9	13/16
B4	(IN.)	3/4	1 1/4	B10	1
B5	(IN.)	1/8	5/8	B11	1/2
B6	(IN.)	0	1/2	B12	1/2
REACTIONS					
DL	(K)	14.6	15.7		20.2
LL	(K)	34.0	34.0		33.0
IMP	(K)	10.0	10.0		9.0
TOTAL	(K)	58.6	59.7		62.2
VARIABLE DIMENSIONS:					
BEARING TYPE		7x12,II,C	7x12,II,B		7x12,II,B
Np	(IN.)	5	4		4
Ns	(IN.)	4	3		3
Te	(IN.)	3 1/8	2 5/8		2 5/8
CC	(IN.)	18 1/2	19 1/4		18 1/2
Lb	(IN.)	22 1/4	23		22 1/4
G1	(IN.)	2 1/8	2 1/2		2 1/8
D	(IN.)	4	4 3/8		4

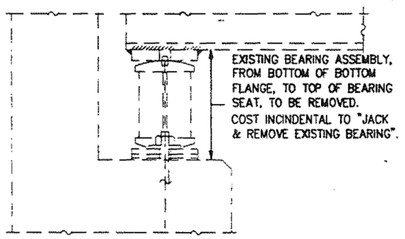
* IN ADDITION TO 1/8" SHIMS TO BE PROVIDED @ ALL BEARING LOCATIONS.



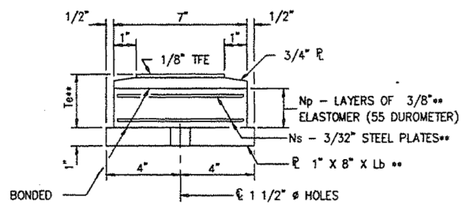
TOP BEARING ASSEMBLY



PLAN–TFE SURFACE



EXISTING ELEVATION



BOTTOM BEARING ASSEMBLY

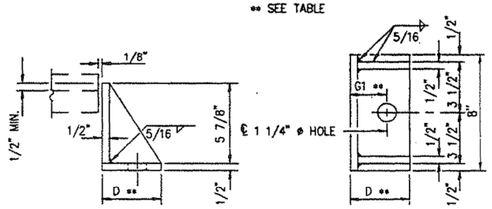
SECTION THRU TFE

** SEE TABLE

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.

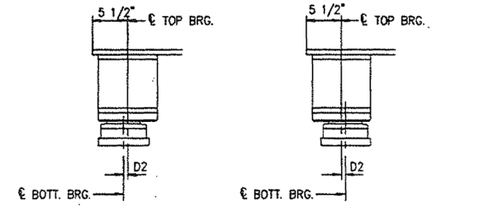
BONDING OF 1/8 " TFE SHEET DURING VULCANIZING PROCESS WILL BE PERMITTED PROVIDED THE PROCESS AND METHOD OF ADJUSTING ASSEMBLY HEIGHT IS APPROVED BY THE ENGINEER.

** SEE TABLE



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



SETTING ANCHOR BOLTS AT EXP. BRG.

D2= 1/8 " PER EACH 100° OF EXPANSION FOR EVERY 15° TEMP. CHANGE FROM THE NORMAL TEMP. OF 50°F

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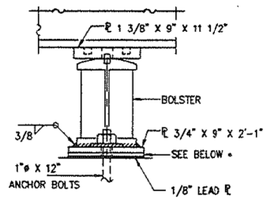
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

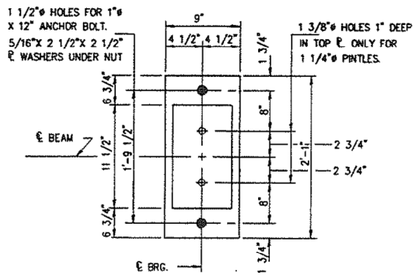
1993 BEARING REPLACEMENT DETAILS – LOCATION 1
STRUCTURE NO. 016–0486
SHEET NO. SA-16 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	22
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

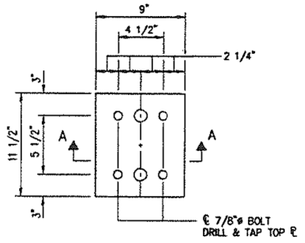


PIER 6: EAST & WEST BEARINGS

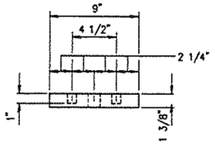
* SHIMS:
11/16" X 9" X 2'-1" @ PIER 6 EAST BEAM A
1/4" X 9" X 2'-1" @ PIER 6 WEST BEAM E



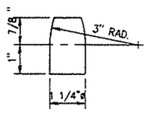
PLAN: BOLSTER



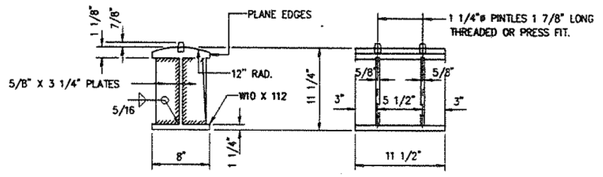
PLAN: TOP ℄



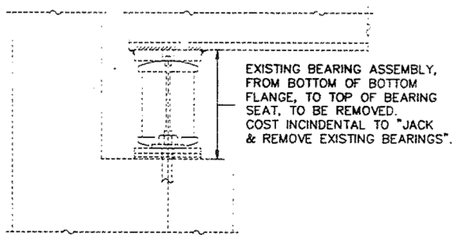
SECTION A-A



DETAIL OF PINTLE



DETAIL OF BOLSTER
AT PIER 6: EAST AND WEST BEARINGS



EXISTING ELEVATION

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR-ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.

FILE NAME = ...\0160486-60W87-017-Brg_Dtls.dgn

LIN ENGINEERING, LTD.
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Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -	
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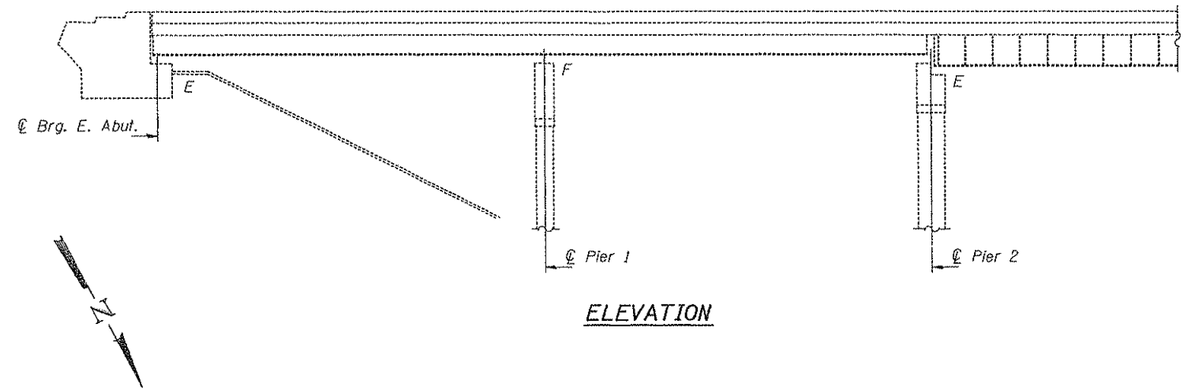
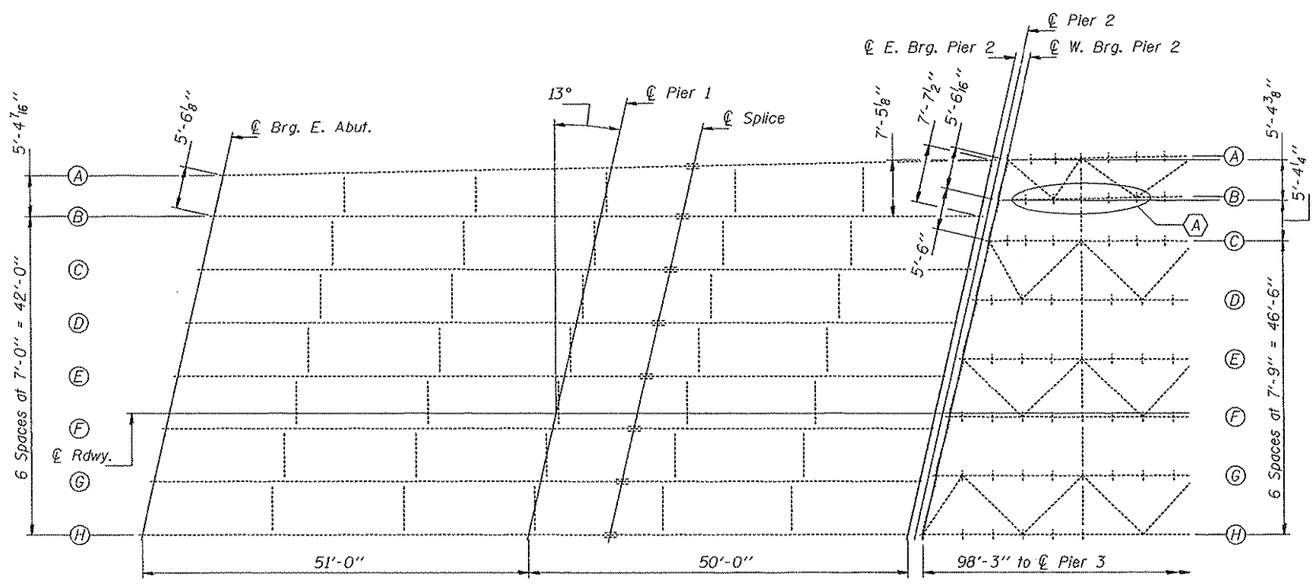
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

1993 BEARING REPLACEMENT DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-17 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	23
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION



PARTIAL FRAMING PLAN

(A) Repair existing girder B Span 3 by plating.

FILE NAME = ...\0160486-60W87-018-Girder Repairs.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -
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	PLOT SCALE =	DRAWN -	REVISED -
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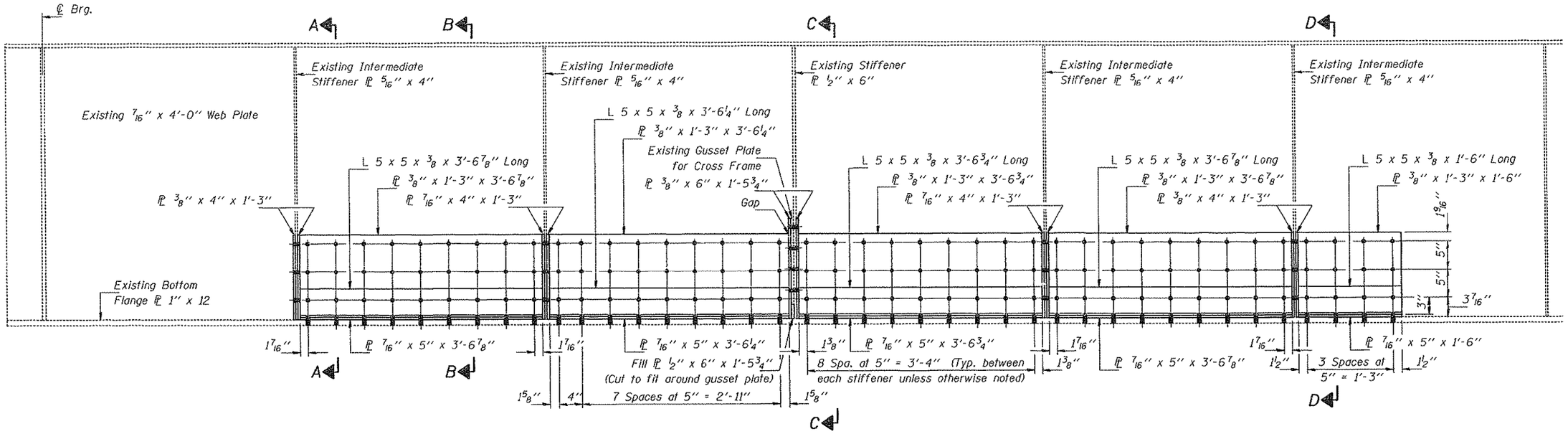
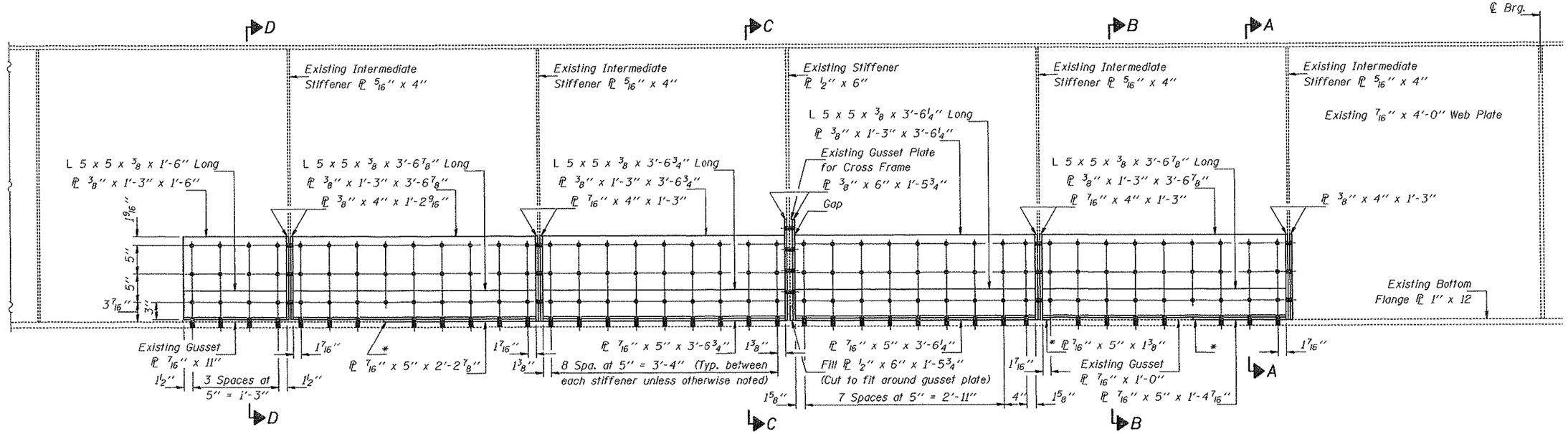
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

2002 GIRDER REPAIRS – LOCATION 1
STRUCTURE NO. 016–0486
SHEET NO. SA-18 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	24
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION
(Looking South)



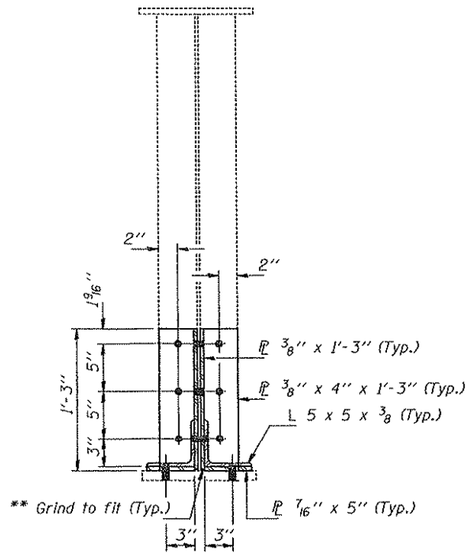
ELEVATION
(Looking North)

* Omit bolts in flange plates and bottom leg of angles at these locations.

FILE NAME = ...\0160486-60W87-019-Girder_Repairs.dgn

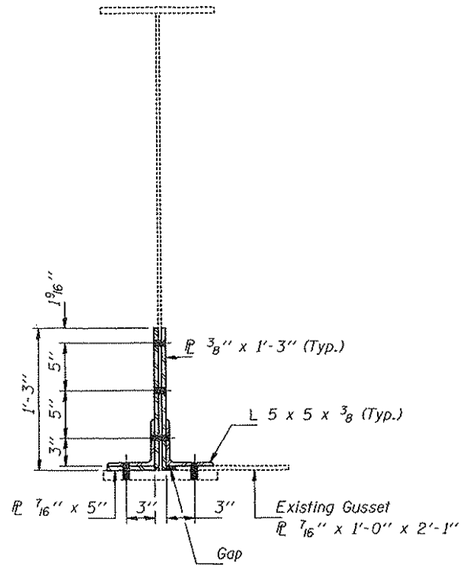
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	2002 GIRDER REPAIRS – LOCATION 1 STRUCTURE NO. 016-0486 SHEET NO. SA-19 OF SA-32 SHEETS
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		
	PLOT DATE = 12/05/2018 2:10:47 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	25
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

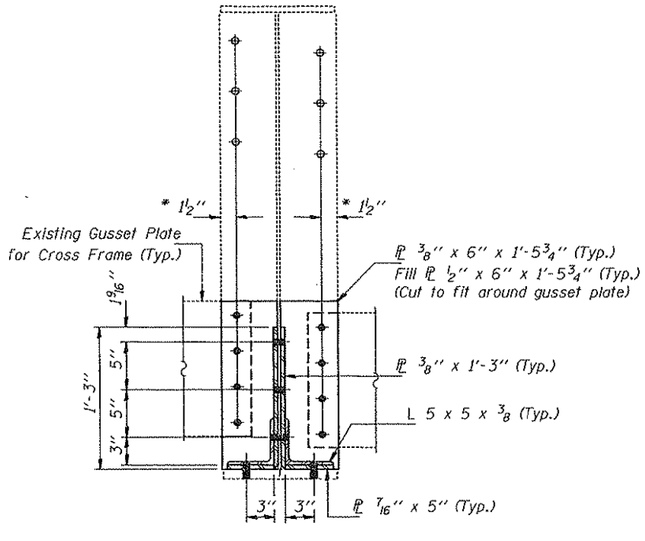


SECTION A-A

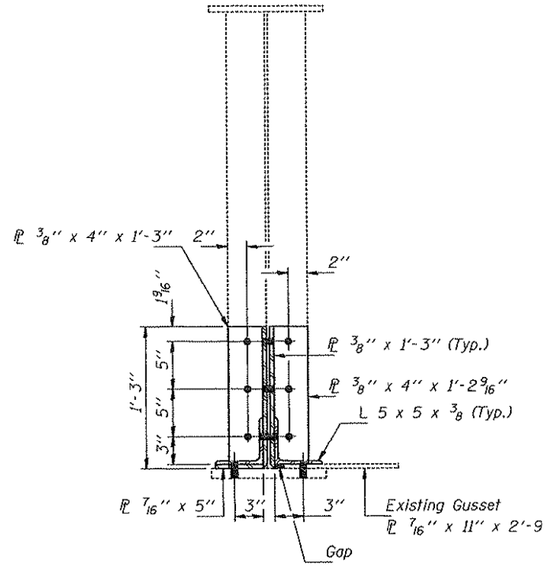
(Showing typical repair details at web, flange and at intermediate stiffeners.)



SECTION B-B



SECTION C-C



SECTION D-D

* *Remove existing rivets and field drill holes in new plates using holes in existing gusset plate as template. Cost included with Structural Steel Repair.*
** *Grind all 3/8" Web Plates as shown in Section A-A.*

FILE NAME = ...\0160486-60W87-020-Girder_Repairs.dgn

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Springfield, Illinois

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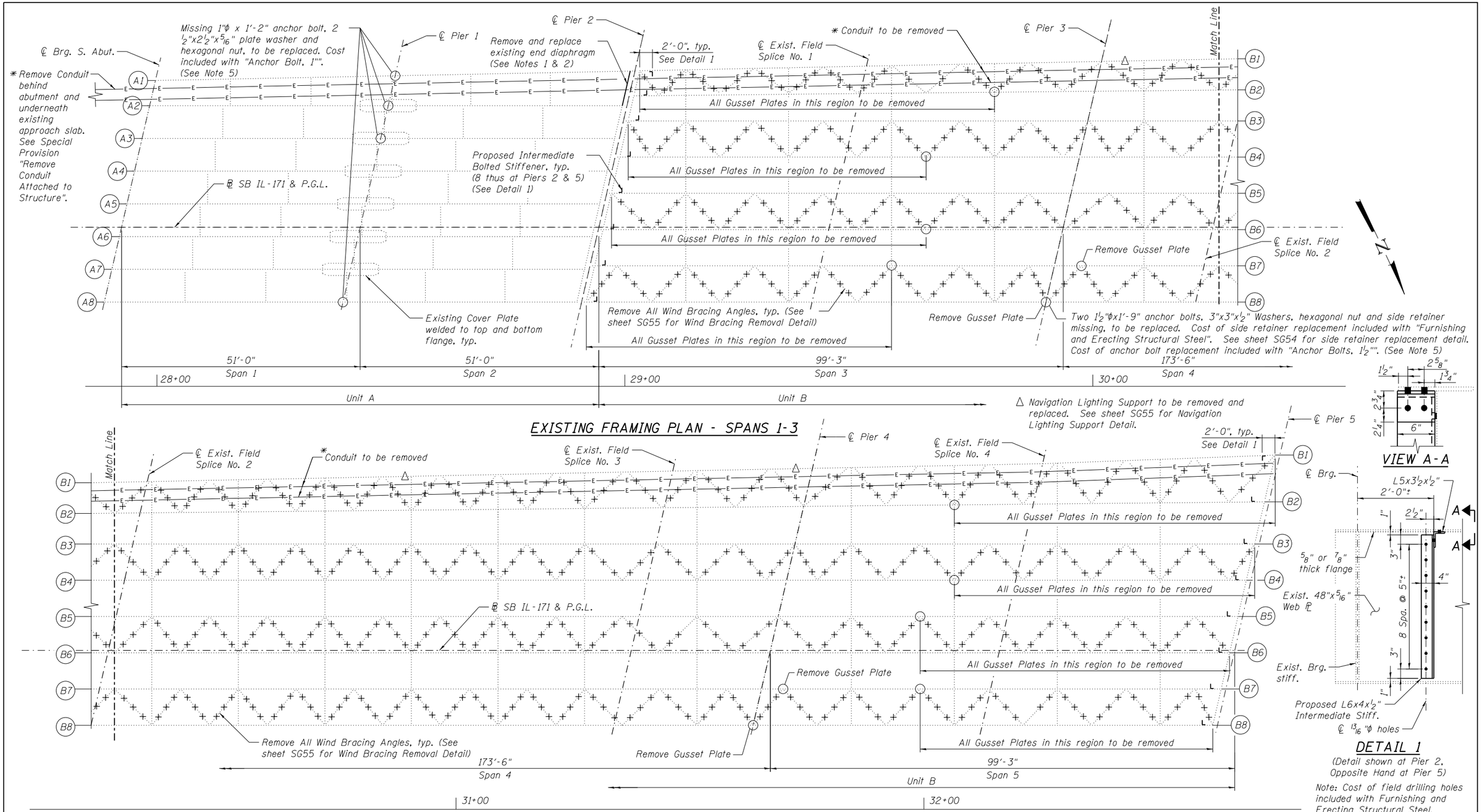
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

2002 GIRDER REPAIRS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-20 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	26
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



EXISTING FRAMING PLAN - SPANS 1-3

EXISTING FRAMING PLAN - SPANS 4-5

LEGEND

Remove existing steel

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DEPARTMENT OF TRANSPORTATION

UNIT A & B STEEL REPAIR PLAN – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-21 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	27
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

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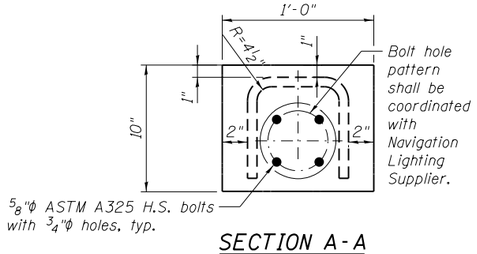
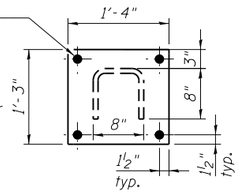
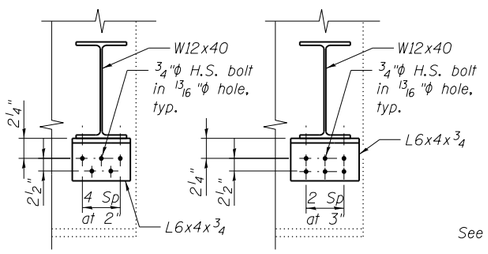


SECTION A-A

New ⅝" dia. fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Holes in new steel shall be subpunched or subdrilled 9/16" dia. and reamed in the field to 11/16" dia. Reuse existing holes in existing steel. Contractor to field verify location, size and spacing of existing holes prior to ordering new materials. Cost included with "Furnishing and Erecting Structural Steel".

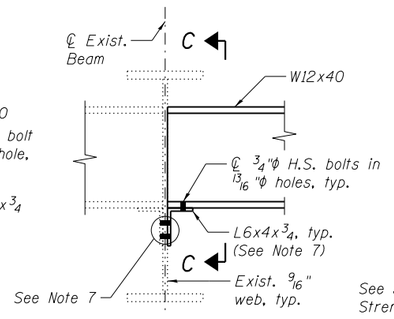


SECTION B-B

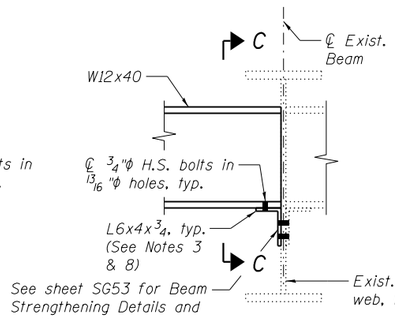


SECTION C-C
(At Unit A & Ramp F)
(See Note 7)

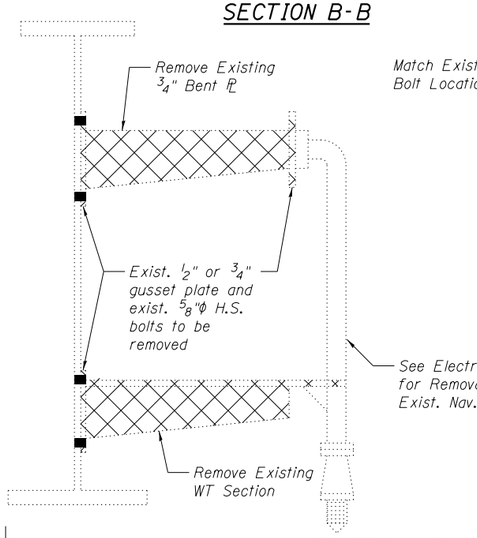
SECTION C-C
(At Unit D)
(See Note 8)

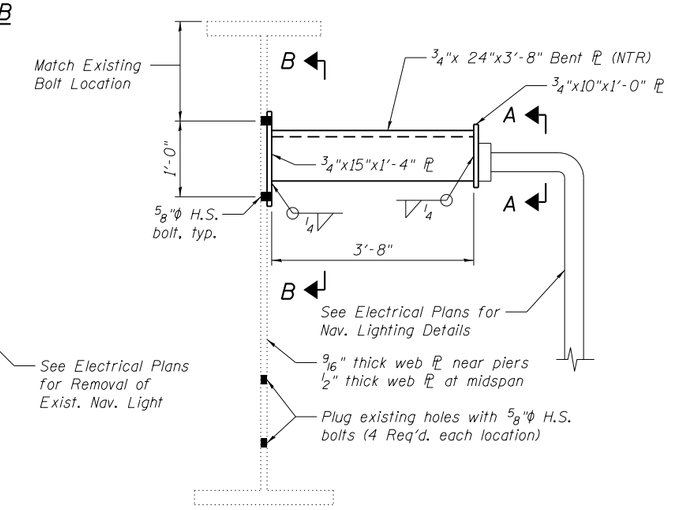


END DIAPHRAGM REPLACEMENT DETAIL
(No. of Locations Unit A = 1)
(No. of Locations Ramp F = 1)



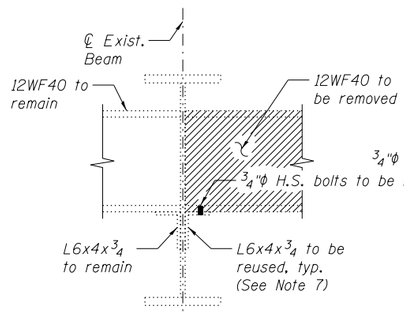
END DIAPHRAGM REPLACEMENT DETAIL
(No. of Locations Unit D = 3)



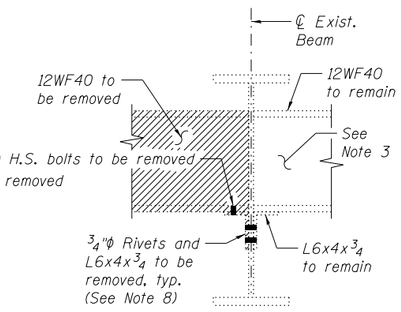


NAVIGATION LIGHTING SUPPORT DETAIL
(3 Locations)

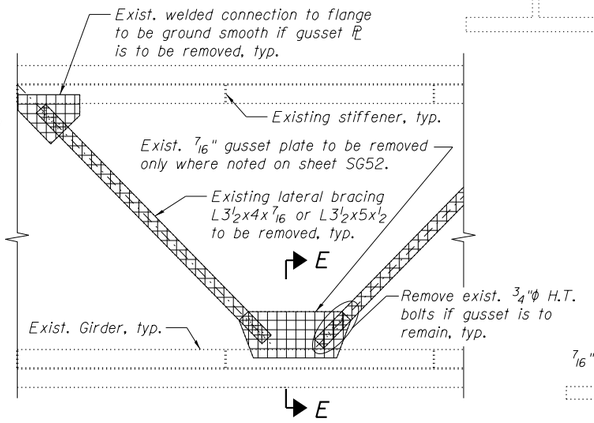
Note: All Navigational Lighting Support Details shall be coordinated with Navigational Light Supplier.
Steel removal is paid for as "Structural Steel Removal".
New steel is paid for as "Furnishing and Erecting Structural Steel".



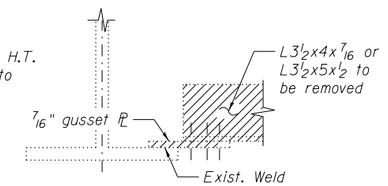
EXISTING END DIAPHRAGM REMOVAL DETAIL
(No. of Locations Unit A = 1)
(No. of Locations Ramp F = 1)



EXISTING END DIAPHRAGM REMOVAL DETAIL
(No. of Locations Unit D = 3)



WIND BRACING REMOVAL DETAIL
(Removal of lateral bracing and gusset plates paid for as "Structural Steel Removal")
(211 angles to be removed)
(86 gusset plates to be removed)



SECTION E-E

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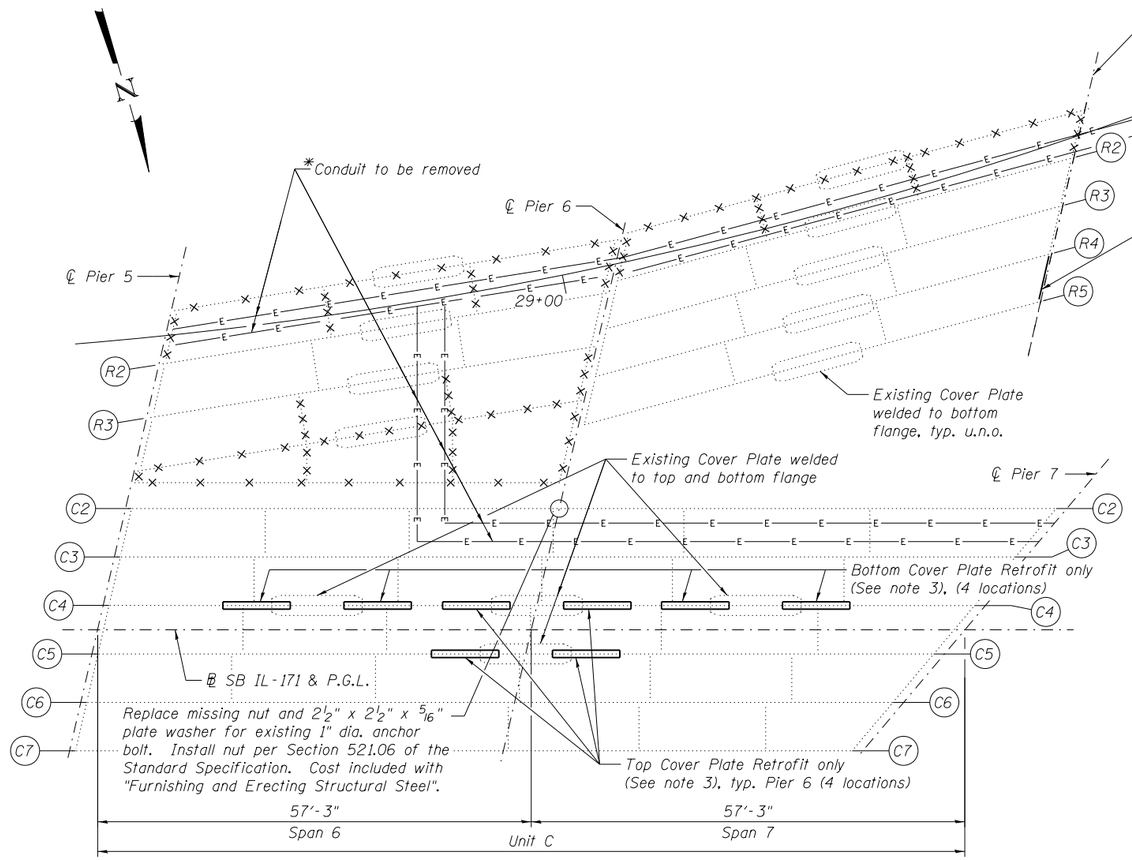
STRUCTURAL STEEL REPAIR DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-22 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	28
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



LEGEND

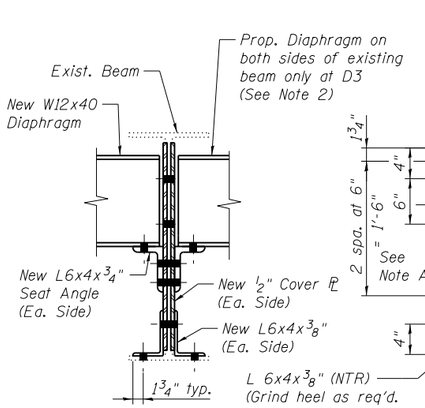
Remove existing steel

BEAM STRENGTHENING NOTES:

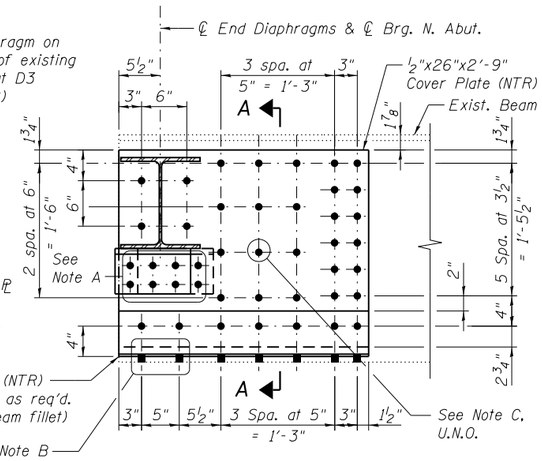
Note A:
See Sheet SG59 for bolt spacing at existing seat angle connection. Bolts for end diaphragm seat angle connection shall be ¾"ϕ, ASTM A325 Type 1, mechanically galvanized, in 13/16"ϕ holes. Holes in new steel plates shall be field drilled using the holes in the existing beam web from the existing end diaphragm seat angles as a template. Holes in the new seat angles shall be shop drilled. The Contractor shall verify existing dimensions before ordering materials. Cost of field drilling shall be included in "Structural Steel Repair".

Note B:
Remove existing ¾"ϕ bolts (4 each location) connecting the existing beam flange to the existing bearing bolster, field ream the existing holes to 15/16"ϕ, and bolt new conection with ⅞"ϕ H.S. bolts. Cost included with "Structural Steel Repair".

Note C:
Bolts for beam strengthening connections shall be ⅞"ϕ, ASTM A325 Type 1, mechanically galvanized, in 15/16"ϕ holes, unless noted otherwise. Holes in new steel plates and angles shall be shop drilled. Holes in the existing beam web and flange shall be field drilled using the holes from the new plates and angles as a template. Cost of field drilling shall be included in "Structural Steel Repair".



SECTION A-A

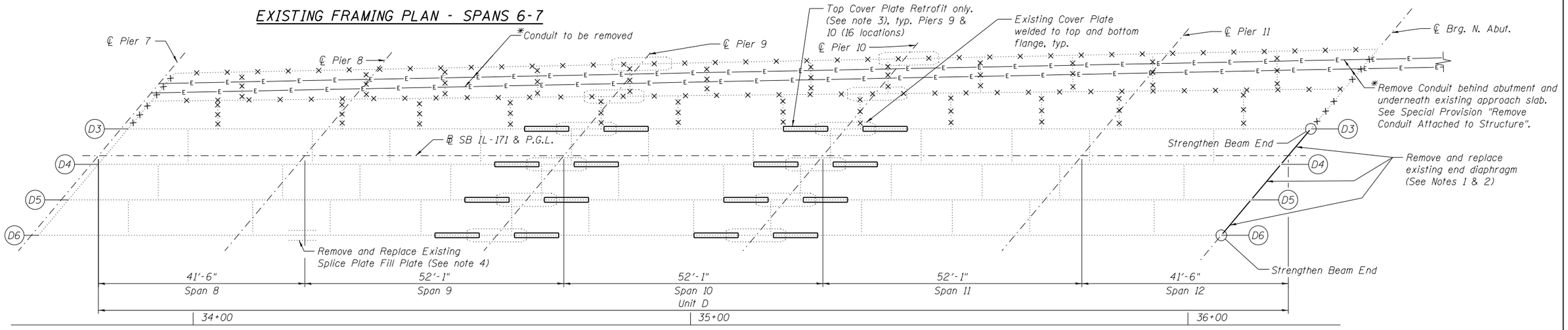


ELEVATION

BEAM STRENGTHENING DETAIL

(2 Locations) D3 shown. D6 similar.
The structural steel for the cover plates and flange angles shall meet the requirements of AASHTO M270 Grade 50

EXISTING FRAMING PLAN - SPANS 6-7



EXISTING FRAMING PLAN - SPANS 8-12

LIN ENGINEERING, LTD. Consulting Engineers, Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -
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UNIT C & D STEEL REPAIR PLAN – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-23 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	29
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

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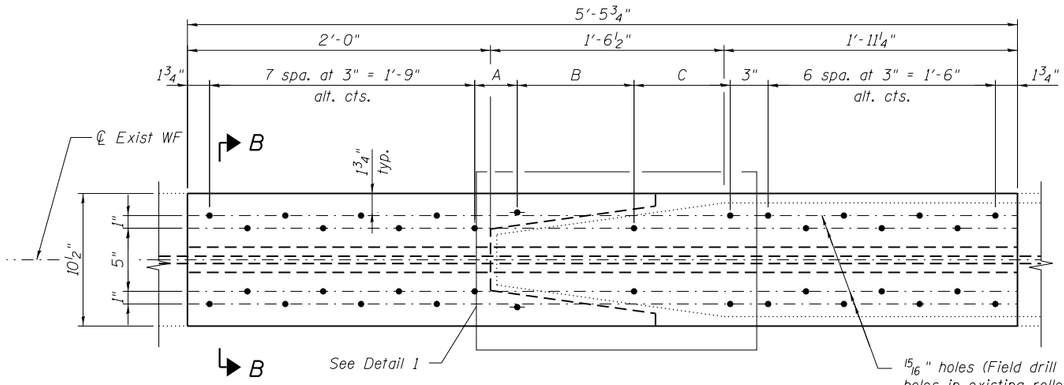
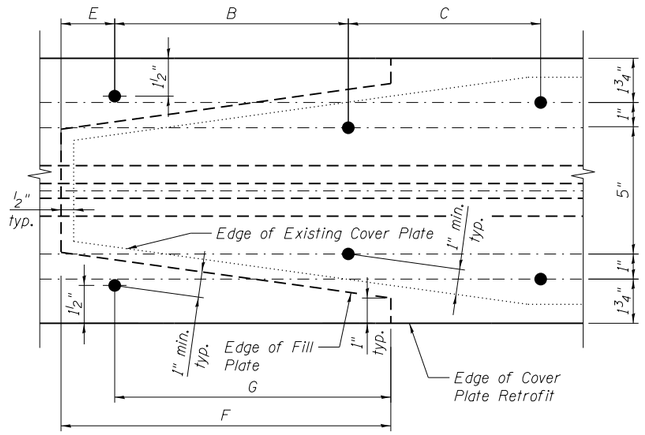


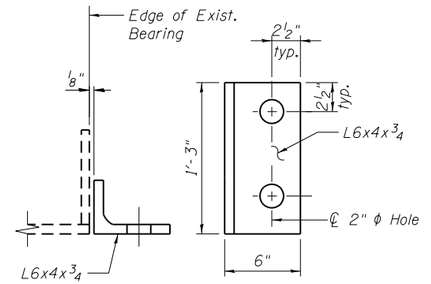
COVER PLATE RETROFIT

(See note 2)
(36 bolts per retrofit)
(24 Locations, 20 Top & 4 Bottom)

Note: Locations of Cover Plate Retrofit are symmetrical about the ℄ of the existing cover plate.



DETAIL 1

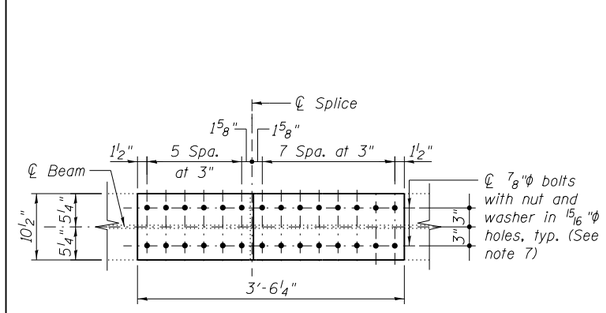


SIDE RETAINER REPLACEMENT

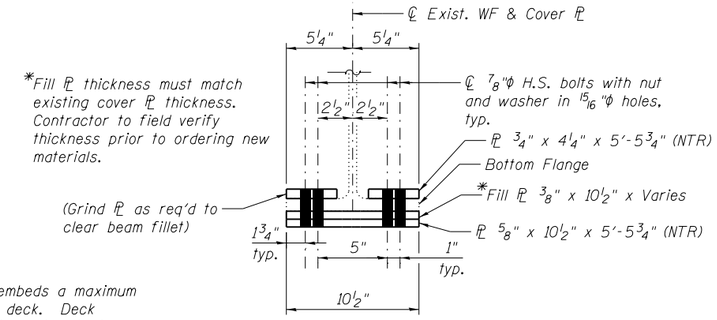
(1 Location)
(See sheet SG52 for location of side retainer replacement)

COVER PLATE RETROFIT DIMENSION TABLE

Unit	A	B	C	E	F	G
C	3 3/8"	9 1/4"	7 5/8"	2 1/8"	1'-1 1/8"(-)	11"(-)
D	7 5/8"	7 5/8"	5"	6 3/8"	1'-2 5/8"(-)	8 1/4"(-)

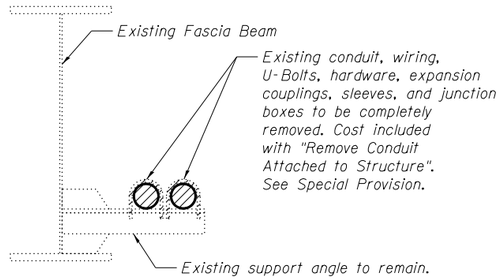


PROPOSED BOTTOM FLANGE SPLICE



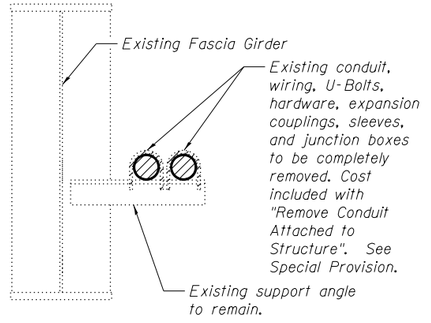
SECTION B-B

(Bottom shown, Top similar)



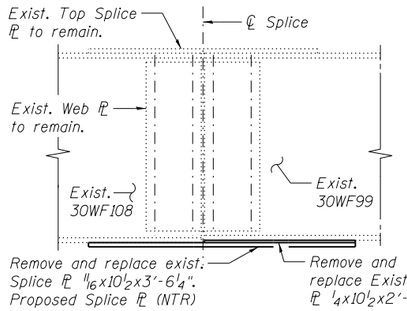
CONDUIT REMOVAL DETAIL

(Wide Flange Detail)



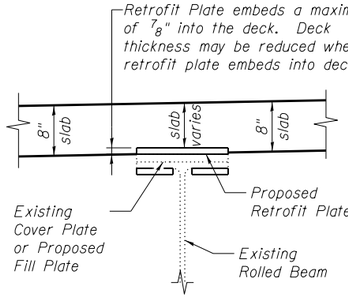
CONDUIT REMOVAL DETAIL

(Plate Girder Detail)

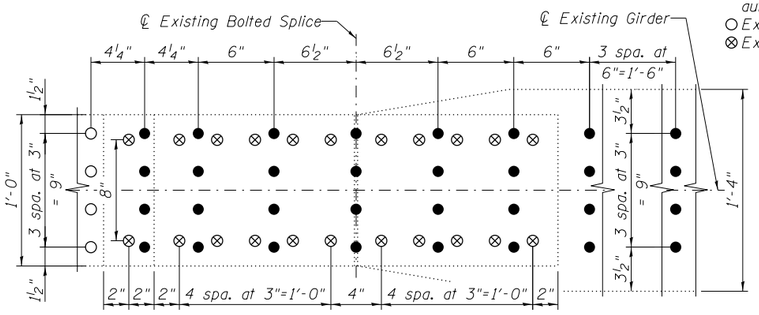


FIELD SPLICE REPAIR DETAIL

Note: No load other than self-weight of the steel beam may be present while the existing splice PL's are removed. See sheet SG53 for location of field splice repair.



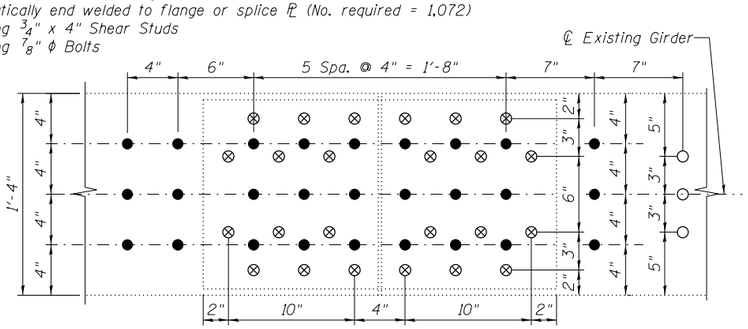
COVER PLATE RETROFIT EMBEDMENT



NEW STUD SPACING AT EXISTING BOLTED SPLICES SPANS 3 & 5

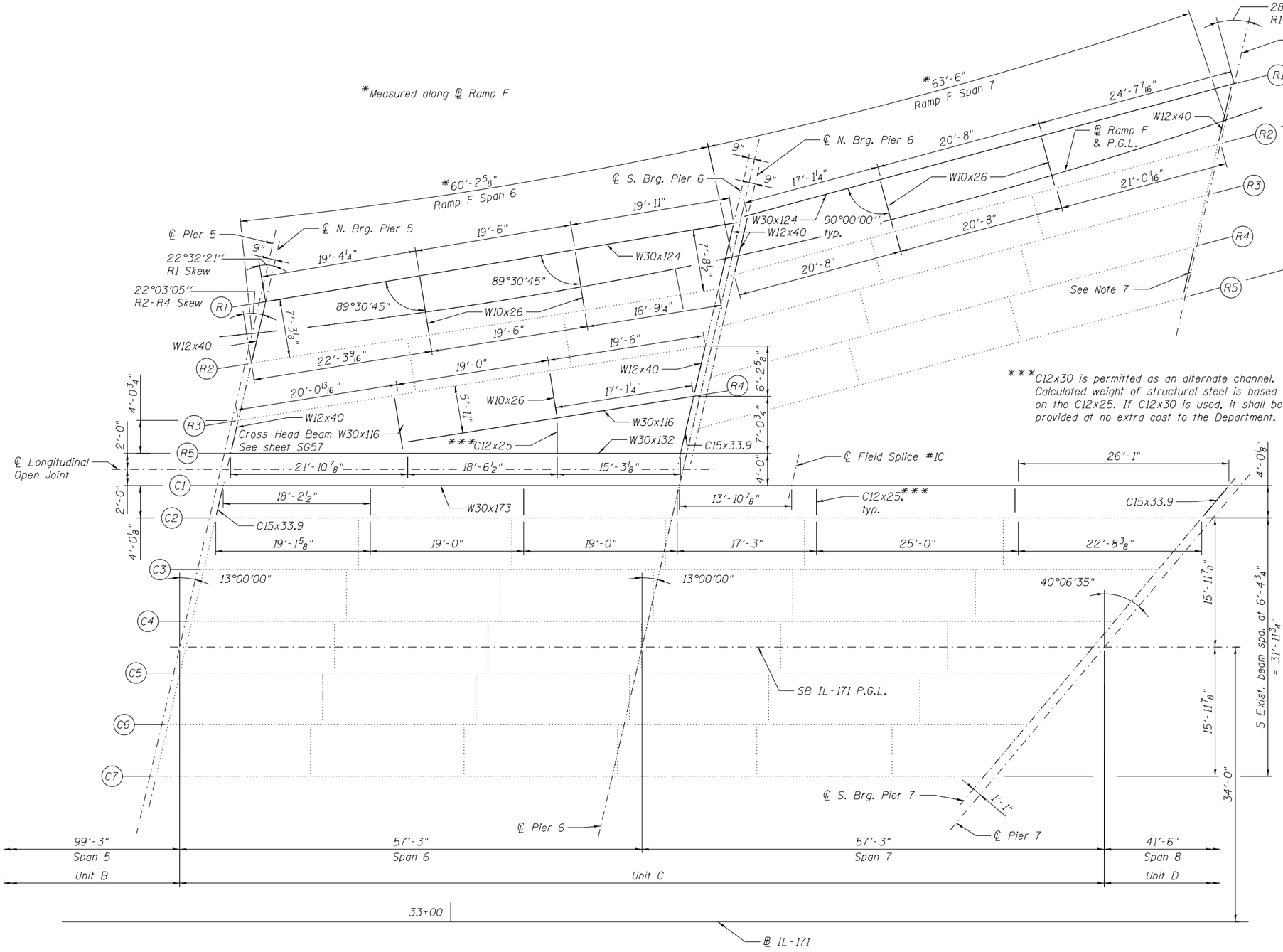
(Existing Field Splice No. 1 in Span 3 shown, Field Splice No. 4 in Span 5 opposite hand)
(16 Locations)

● Proposed 3/4" ϕ x 4" min. granular or solid flux filled headed studs automatically end welded to flange or splice PL (No. required = 1,072)
○ Existing 3/4" x 4" Shear Studs
⊗ Existing 7/8" ϕ Bolts



NEW STUD SPACING AT EXISTING BOLTED SPLICES SPAN 4

(Existing Field Splice No. 2 in Span 4 shown, Field Splice No. 3 in Span 4 opposite hand)
(16 Locations)



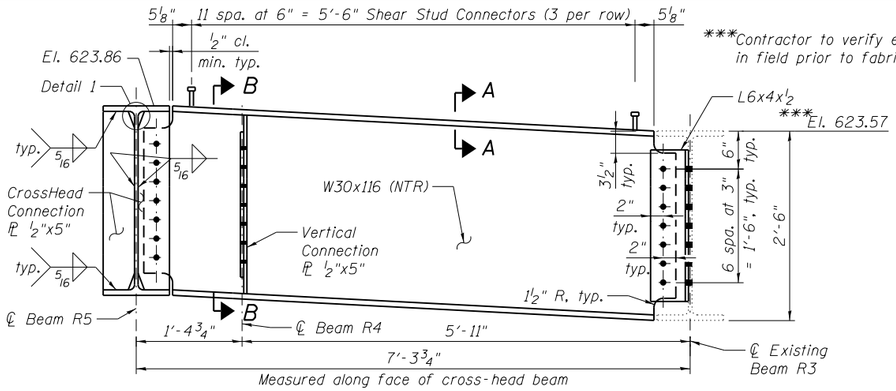
***C12x30 is permitted as an alternate channel. Calculated weight of structural steel is based on the C12x25. If C12x30 is used, it shall be provided at no extra cost to the Department.

FRAMING PLAN (Spans 6-7)

FILE NAME = ...\0160486-60W87-025-C_Fram_Plan.dgn

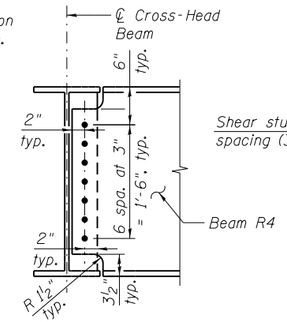
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REHAB. UNIT C FRAMING PLAN – LOCATION 1 STRUCTURE NO. 016-0486
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SA-25 OF SA-32 SHEETS
	PLOT DATE = 12/05/2018 2:12:49 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	31
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		

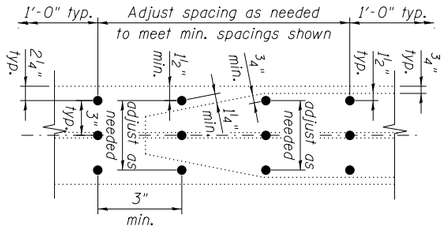


CROSS-HEAD BEAM ELEVATION

(Looking East)

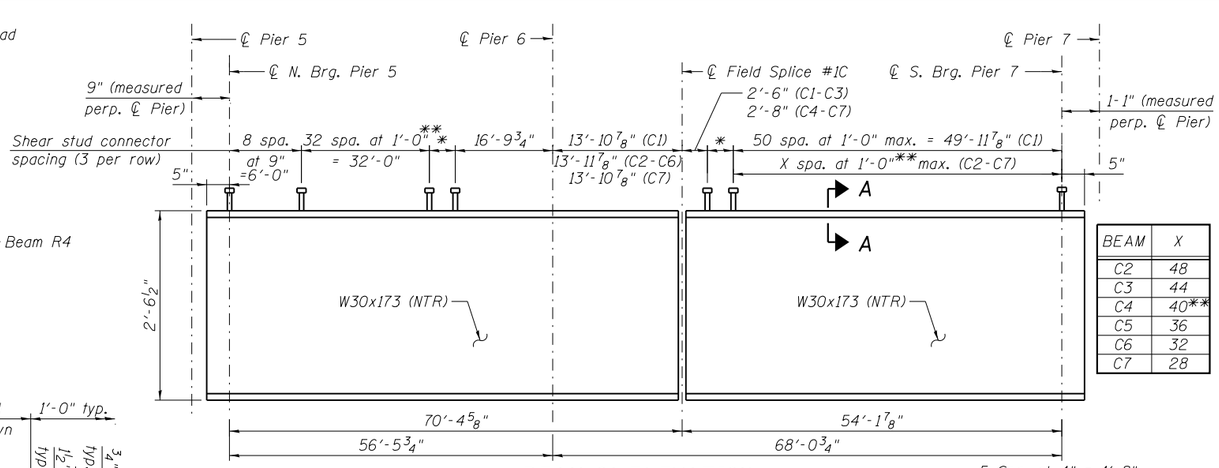


SECTION B-B



STUD SPACING AT COVER ℄'S

Minimum spacings and edge distances shown are to ℄ stud.



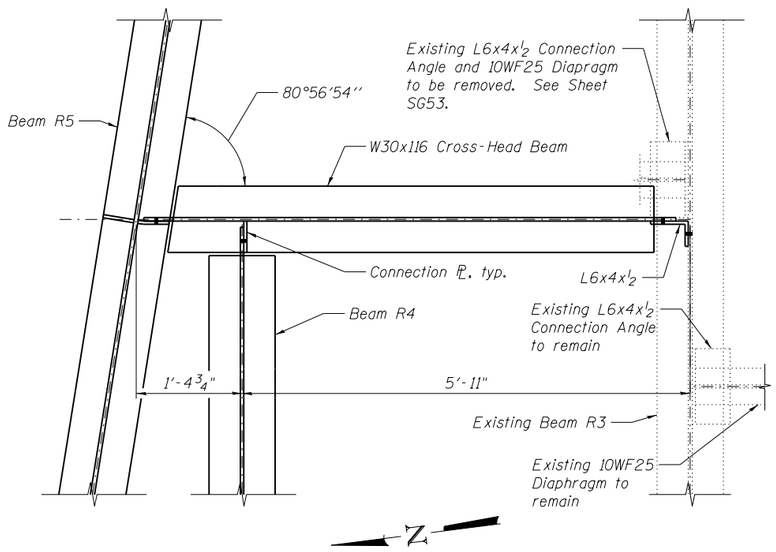
BEAM	X
C2	48
C3	44
C4	40**
C5	36
C6	32
C7	28

BEAM C1 ELEVATION

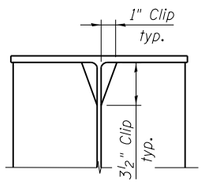
(Shear Stud Connector spacing also applicable for existing Beams C2-C7)

* 5 Spa. at 4" = 1'-8"

** Adjust spacing to miss bolts in cover ℄ retrofit at Beam C4. See Stud Spacing at Cover ℄'s detail.

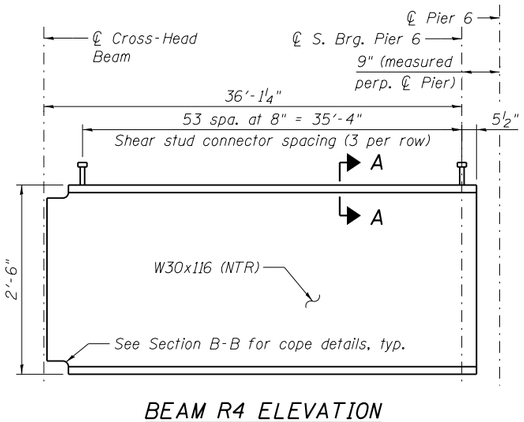


CROSS-HEAD BEAM FRAMING PLAN

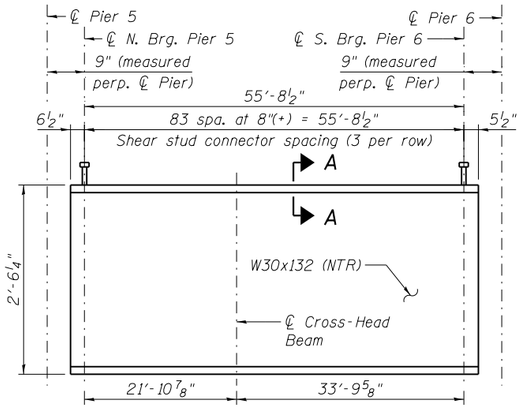


DETAIL 1

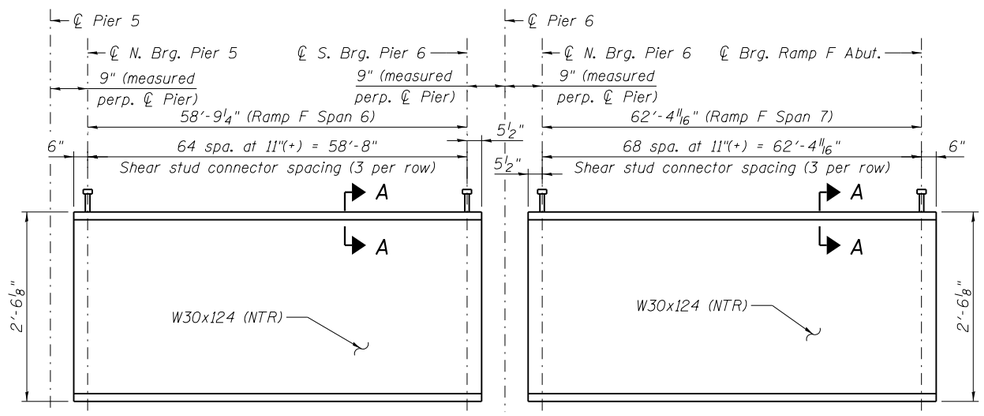
(Typical top & bottom flanges)



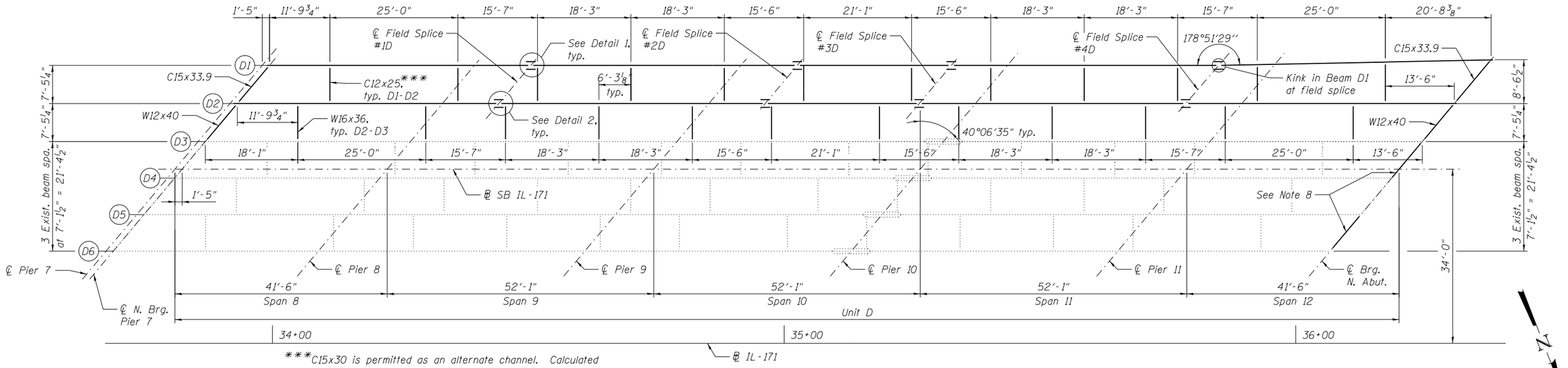
BEAM R4 ELEVATION



BEAM R5 ELEVATION

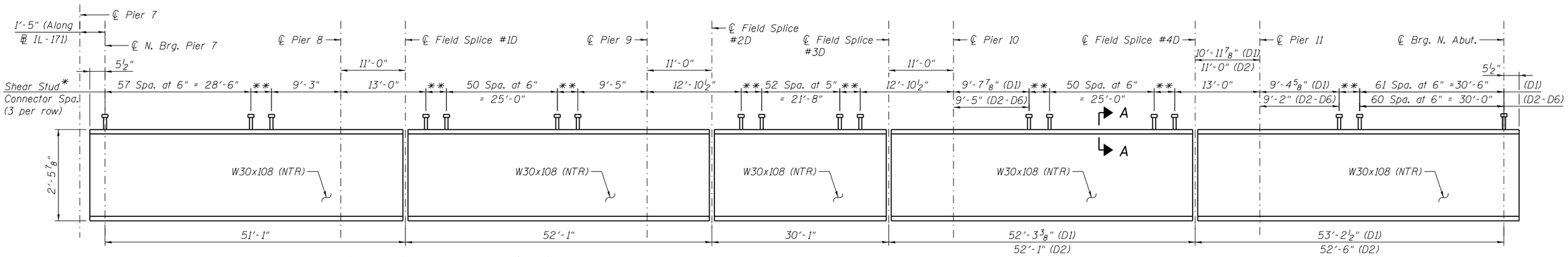


BEAM R1 ELEVATION



***C15x30 is permitted as an alternate channel. Calculated weight of structural steel is based on the C15x25. If C15x30 is used, it shall be provided at no extra cost to the Department.

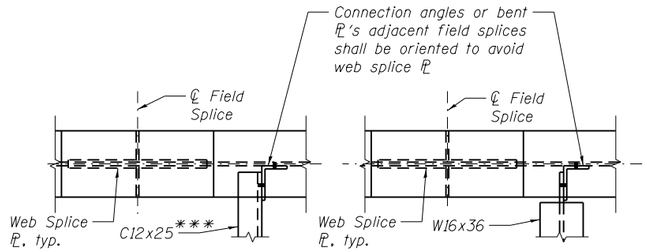
FRAMING PLAN (Spans 8-12)



* Dimension String measured along ℄ of Girder
** 7 Spa. at 4" = 2'-4"

GIRDER D1 & D2 ELEVATION

(Shear Stud Connector spacing also applicable for existing Beams D3-D6)



DETAIL 1 DETAIL 2

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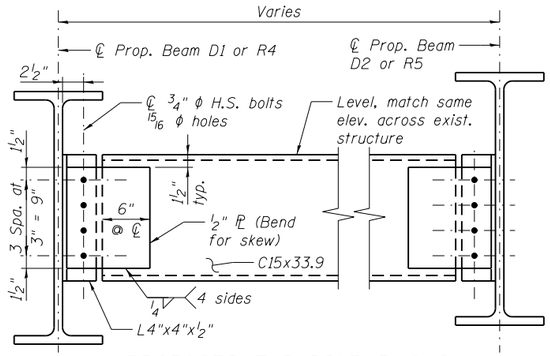
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:13:01 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

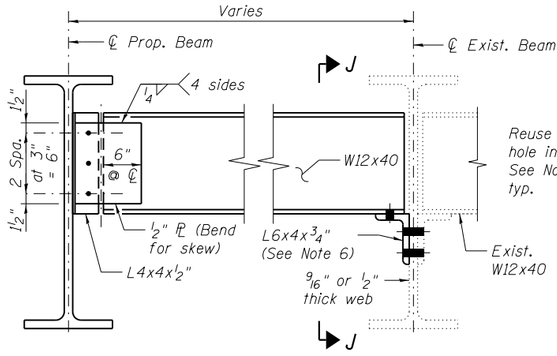
REHAB. UNIT D FRAMING PLAN AND GIRDER ELEVATION – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-27 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	33
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



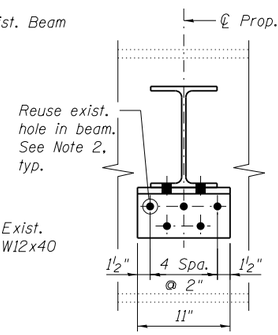
PROPOSED END DIAPHRAGMS BETWEEN TWO PROPOSED BEAMS UNIT D & RAMP F

(No. of Locations = 3)



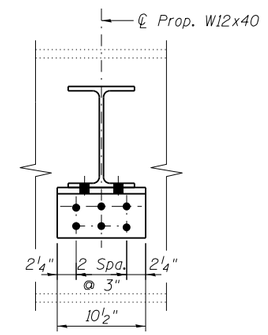
PROPOSED END DIAPHRAGMS BETWEEN EXIST. & PROP. BEAMS UNIT D & RAMP F

(No. of Locations = 8)



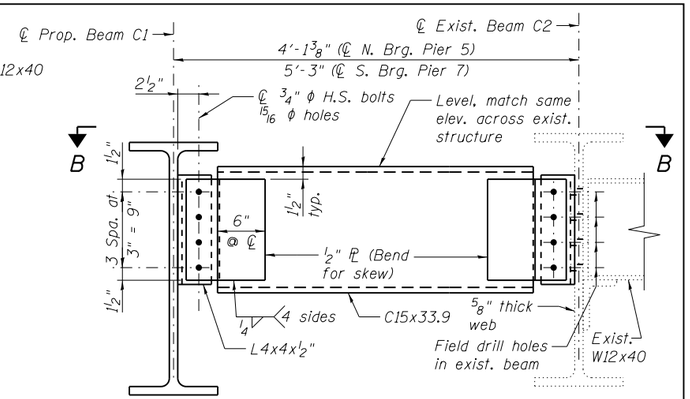
SECTION J-J

(Above detail is for diaphragm connections at Ramp F



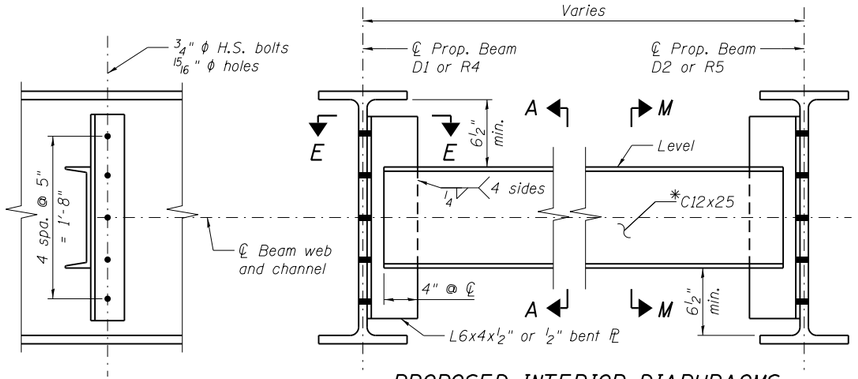
SECTION J-J

(Above detail is for diaphragm connections at Unit D



PROPOSED END DIAPHRAGMS UNIT C

Pier 5 Diaphragm shown looking North
Pier 7 similar
(No. of Locations = 2)

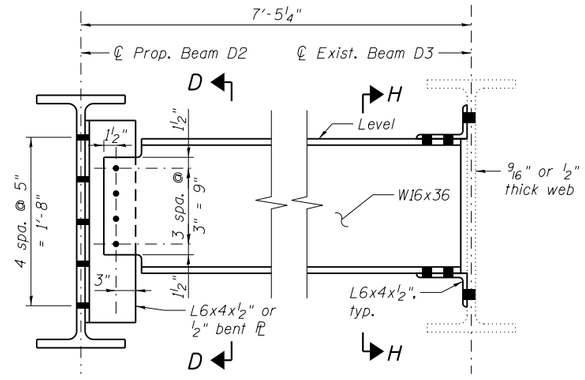


SECTION A-A
SECTION M-M SIMILAR
SECTION N-N SIMILAR

PROPOSED INTERIOR DIAPHRAGMS BETWEEN TWO PROPOSED BEAMS UNIT D & RAMP F

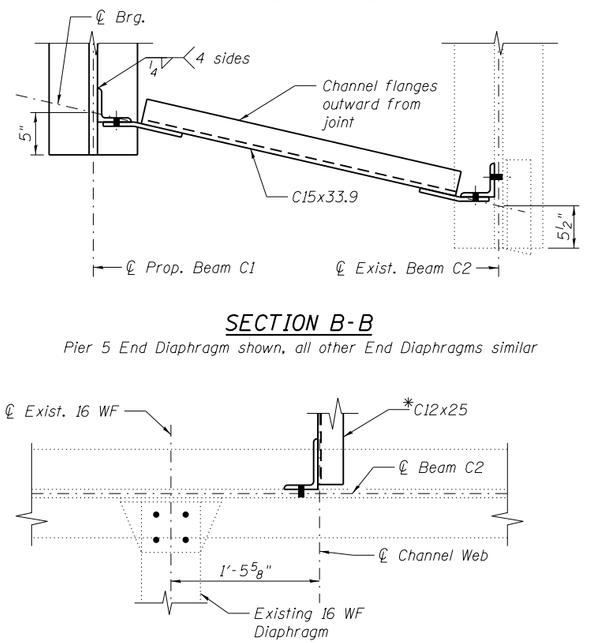
See Framing Plan for diaphragm orientation
(No. of Locations = 13)

SECTION D-D
SECTION K-K SIMILAR



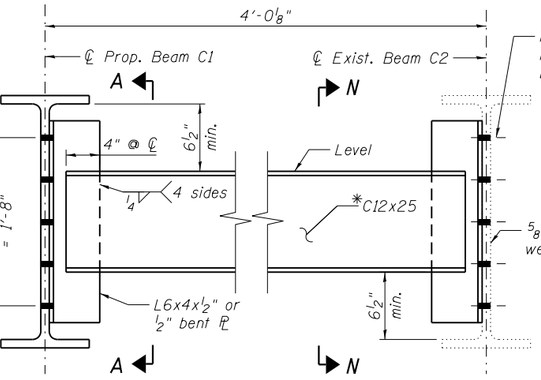
PROPOSED INTERIOR DIAPHRAGMS BETWEEN EXIST. & PROP. BEAMS UNIT D

(No. of Locations = 12)



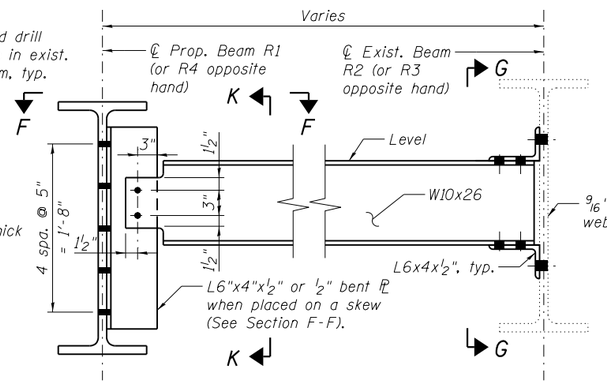
SECTION B-B

Pier 5 End Diaphragm shown, all other End Diaphragms similar



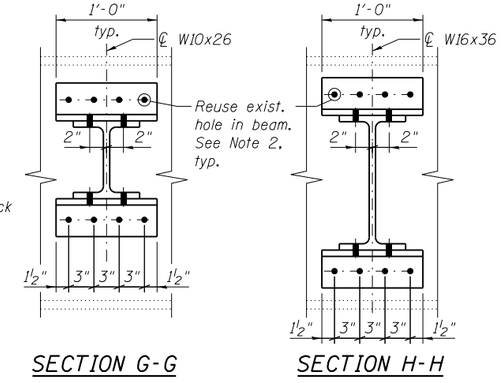
PROPOSED INTERIOR DIAPHRAGMS UNIT C

(No. of Locations = 5)



PROPOSED INTERIOR DIAPHRAGMS BETWEEN EXIST. & PROP. BEAMS RAMP F

(No. of Locations = 5)



SECTION G-G

SECTION H-H

*C15x30 is permitted as an alternate channel. Calculated weight of structural steel is based on the C15x25. If C15x30 is used, it shall be provided at no extra cost to the Department.

PARTIAL PLAN OF EXISTING BEAM C2 AT DIAPHRAGM CONNECTIONS

FILE NAME = ...\0160486-60W87-028-D.Sht.Diaphragm_Details.dgn

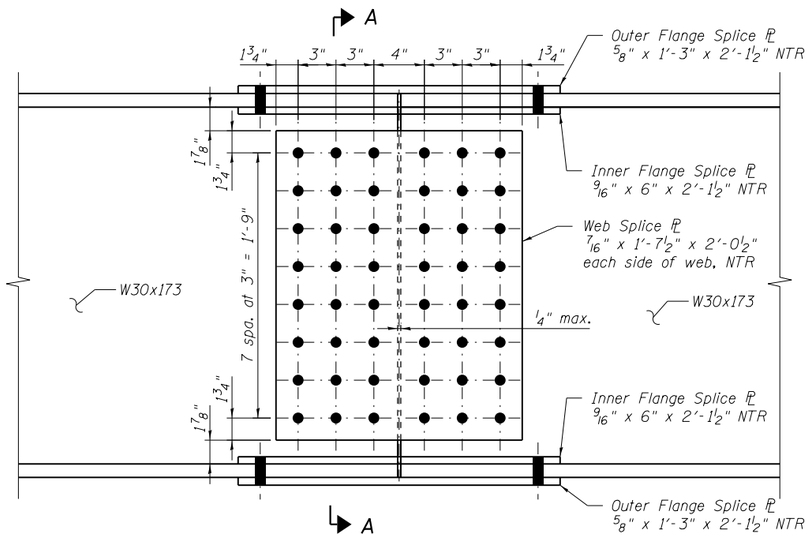
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:13:07 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

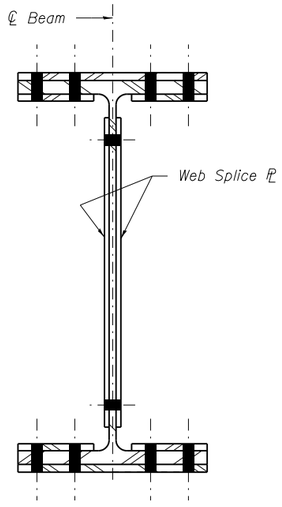
REHAB. UNIT D STEEL DIAPHRAGM DETAILS – LOCATION 1
STRUCTURE NO. 016–0486
SHEET NO. SA-28 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	34
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

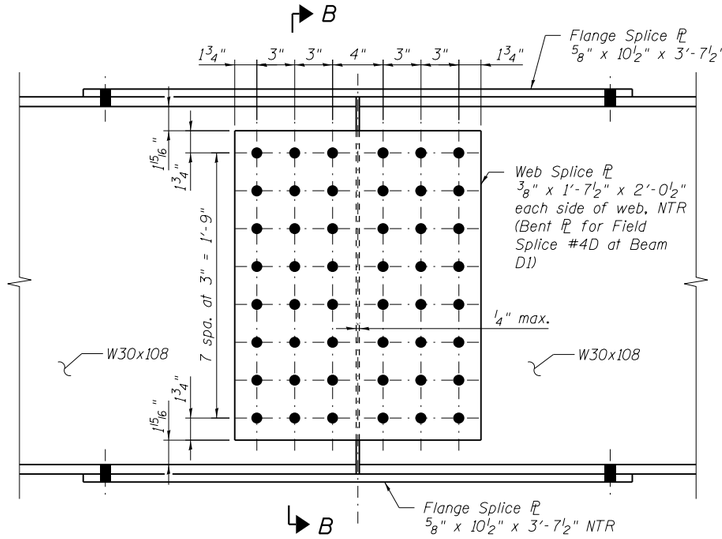


ELEVATION - FIELD SPLICE - BEAM C1

(48 Bolts per Web Splice)

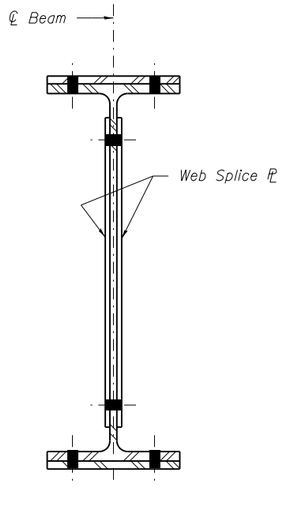


SECTION A-A

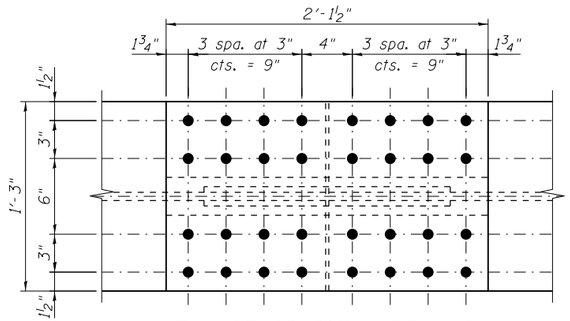


ELEVATION - FIELD SPLICE - BEAMS D1 & D2

(48 Bolts per Web Splice)

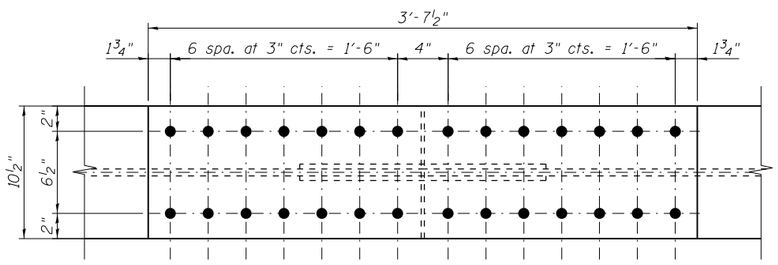


SECTION B-B



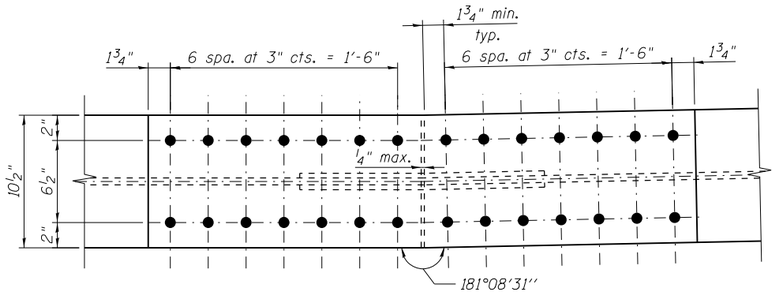
FLANGE SPLICE - BEAM C1

(Top & Bottom Flanges)
(32 Bolts per Flange Splice)



TYPICAL FLANGE SPLICE - BEAMS D1 & D2

(Top & Bottom Flanges)
(28 Bolts per Flange Splice)



FLANGE SPLICE - FIELD SPLICE #4D - BEAM D1

(Top & Bottom Flanges)
(28 Bolts per Flange Splice)

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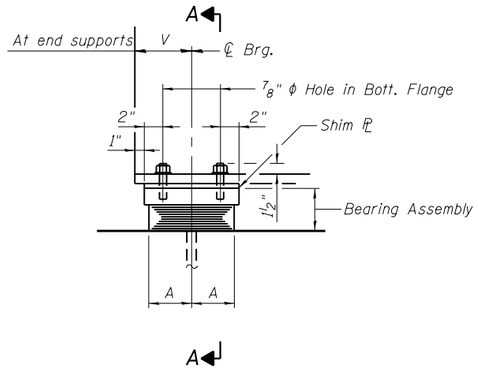
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN -	REVISED -
	PLOT DATE = 12/05/2018 2:13:13 PM	CHECKED -	REVISED -

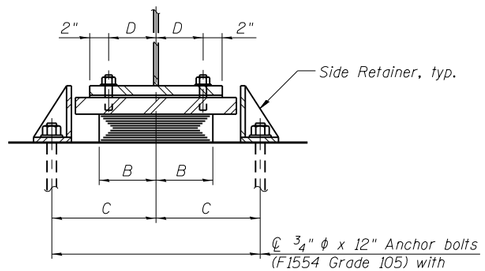
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. GIRDER SPLICE DETAILS – LOCATION 1
STRUCTURE NO. 016–0486
SHEET NO. SA-29 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	35
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



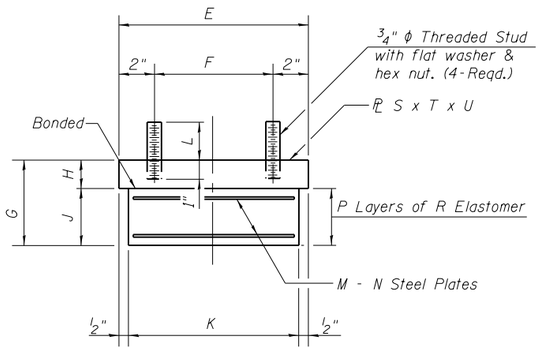
ELEVATION



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

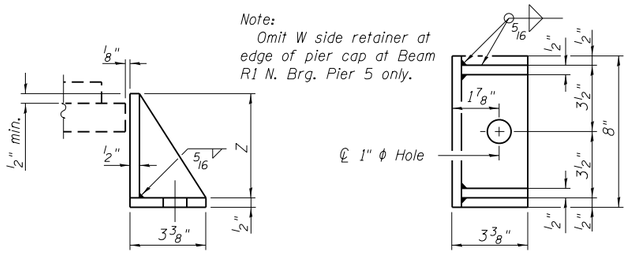
(11 required, see table)



BEARING ASSEMBLY

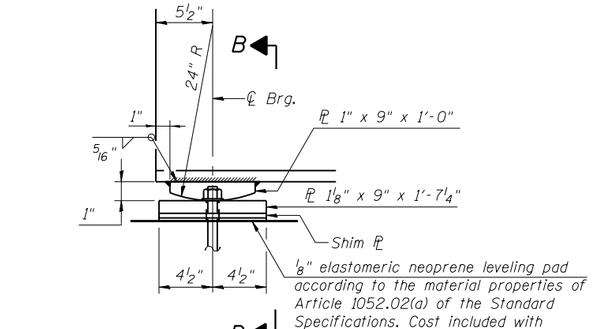
Note:
Shim plates shall not be placed under Bearing Assembly.

Note:
Omit W side retainer at edge of pier cap at Beam R1 N. Brg. Pier 5 only.



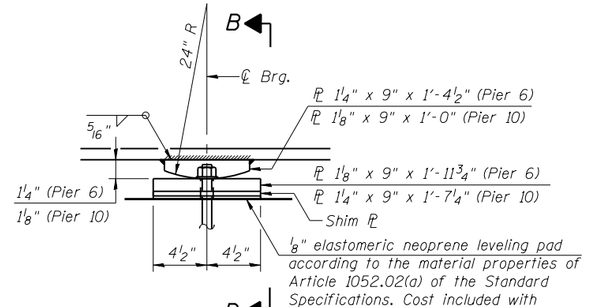
SIDE RETAINER

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



ELEVATION - END SUPPORT

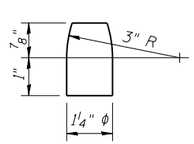
(1 required at Ramp F Beam R1, S Brg. Pier 6, Span 6)
(1 required at Ramp F Beam R4, S Brg. Pier 6, Span 6)
(1 required at Ramp F Beam R5, S Brg. Pier 6, Span 6)
(1 required at Ramp F Beam R1, N Brg. Pier 6, Span 7)



ELEVATION - CONTINUOUS SUPPORT

(1 required at Pier 6, Beam C1)
(1 required at Pier 10, Beam D1)
(1 required at Pier 10, Beam D2)

FIXED BEARING

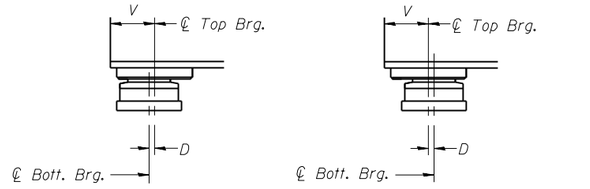


PINTLE

SECTION B-B

TYPE I ELASTOMERIC EXPANSION BEARINGS

Location	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	Z
Beams D1 & D2 Pier 8	5"	7"	10"	3 1/4"	11"	7"	5 11/16"	1 7/8"	3 13/16"	10"	2 3/4"	6	1/8"	7	7/16"	1 7/8"	11"	1'-4"	--	6"
Beams D1 & D2 Piers 9 & 11	5 1/2"	8"	11"	3 1/4"	12"	8"	4 1/4"	1 7/8"	2 3/8"	11"	2 3/4"	3	1/8"	4	1/2"	1 7/8"	12"	1'-6"	--	4 1/2"
Beam C1 N. Brg. Pier 5	3 1/2"	6"	9 1/2"	5 1/2"	8"	4"	3 1/4"	1 1/2"	1 3/4"	7"	2 7/8"	3	3/32"	4	3/8"	1 1/2"	8"	1'-3"	5"	3 1/2"
Beam C1 S. Brg. Pier 7	3 1/2"	6"	9 1/2"	5 1/2"	8"	4"	3 3/4"	1 1/2"	2 1/4"	7"	2 7/8"	4	3/32"	5	3/8"	1 1/2"	8"	1'-3"	5"	4"
Beam R1 N. Brg. Pier 5 & Ramp F Abut.	4 1/2"	6"	9"	3 1/4"	10"	6"	3 3/4"	1 1/2"	2 1/4"	9"	2 3/4"	4	3/32"	5	3/8"	1 1/2"	10"	1'-2"	6"	4"
Beam R5 N. Brg. Pier 5	5"	7"	10"	3 1/4"	11"	7"	4 5/16"	1 5/8"	2 11/16"	10"	2 3/4"	4	1/8"	5	7/16"	1 5/8"	11"	1'-4"	6 1/2"	4 5/8"



BELOW 50°F.
(Move bott. brg. away from fixed brg.)

ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

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.

I-2E-1

1-27-12

FILE NAME = ...\0160486-60W87-030-Brg_Dtls.dgn

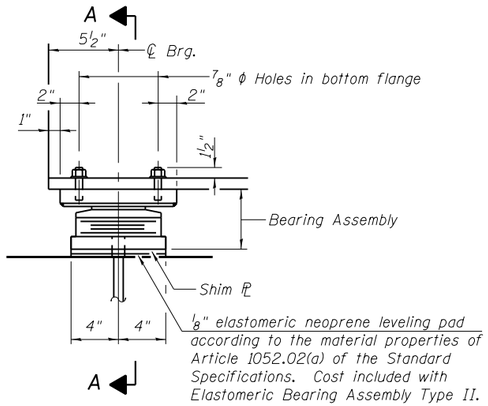
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:13:19 PM	CHECKED -	REVISED -

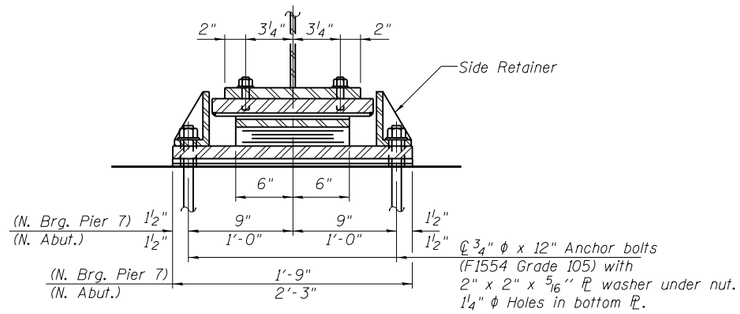
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. BEARING DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-30 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	36
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



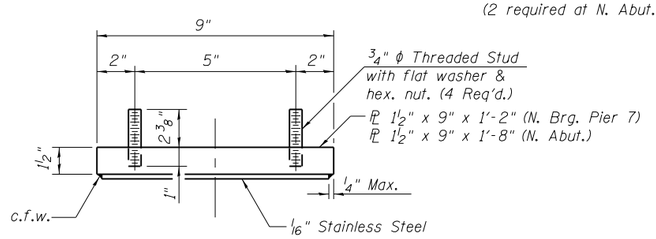
ELEVATION



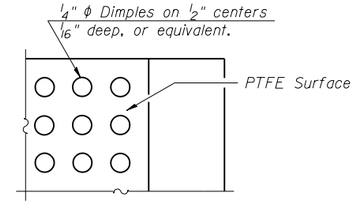
SECTION A-A

TYPE II ELASTOMERIC EXP. BRG.

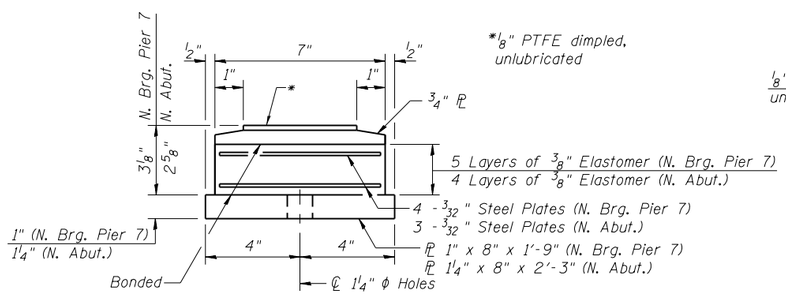
(2 required at N. Brg. Pier 7)
(2 required at N. Abut.)



TOP BEARING ASSEMBLY

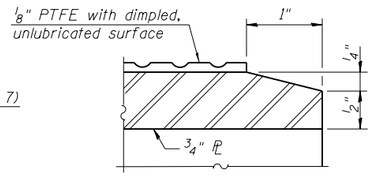


PLAN-PTFE SURFACE

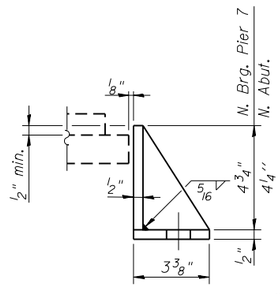


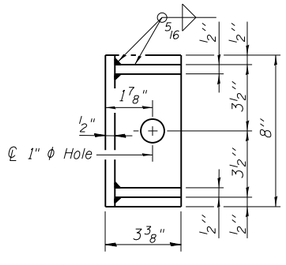
*⅛" PTFE dimpled, unlubricated

BOTTOM BEARING ASSEMBLY



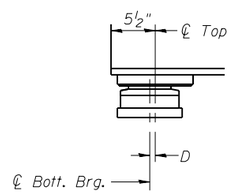
SECTION THRU PTFE



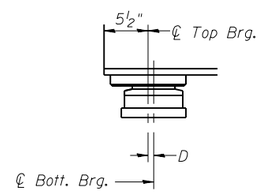


SIDE RETAINER

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



BELOW 50°F.
(Move bott. brg. away from fixed brg.)



ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

D=⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

I-2E-1

1-27-12

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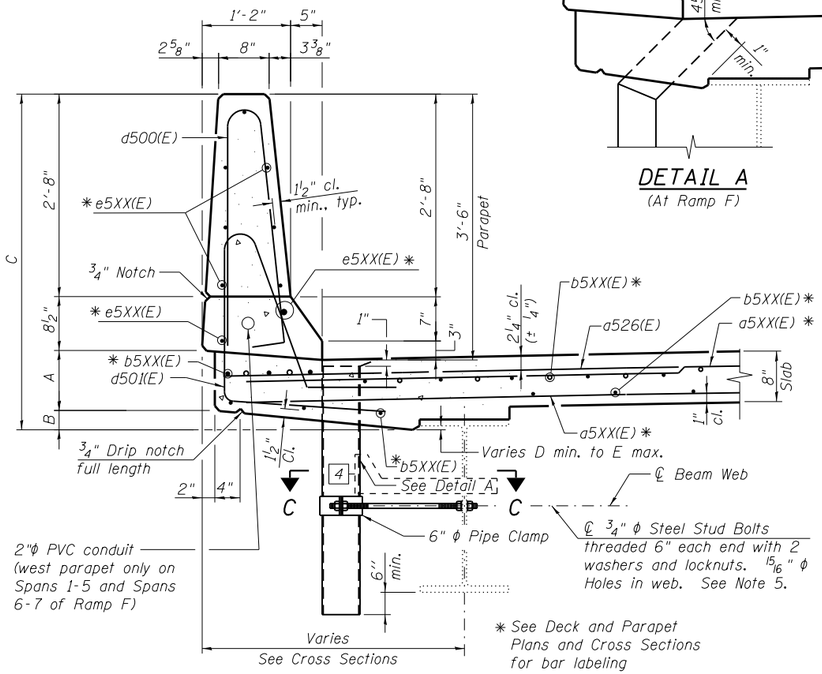
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:13:25 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. BEARING DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-31 OF SA-32 SHEETS

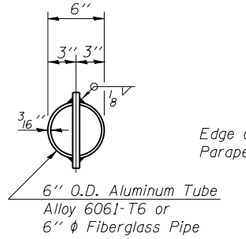
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	37
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



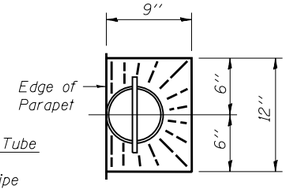
SECTION THRU PARAPET

Location	A	B	C	D	E
Spans 1-2	9 1/2"	3"	4'-5"	1/2"	1 5/8"
Spans 3-5	9 1/2"	4 1/2"	4'-6 1/2"	3/8"	3 5/8"
Spans 6-7 (Ramp F)	9 1/2"	5"	4'-7"	1/4"	3 3/4"
Spans 6-7 (Mainline)	9 1/2"	4"	4'-6"	3/4"	4"
Spans 8-12	9 1/2"	3"	4'-5"	7/8"	2 7/8"

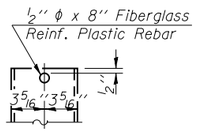
DETAIL A
(At Ramp F)



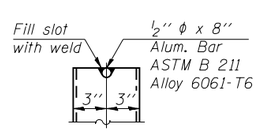
TOP PLAN
(Showing Aluminum Tube)



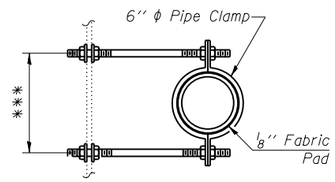
TOP PLAN



FIBERGLASS PIPE



ALUMINUM TUBE



SECTION C-C
*** Dimension as required by Pipe Clamp

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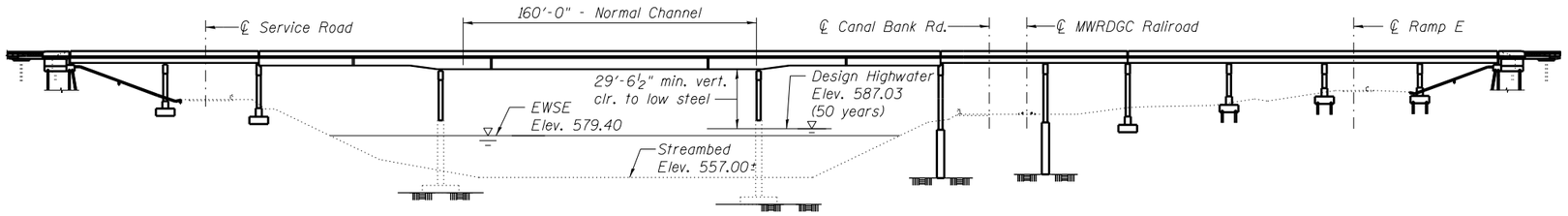
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN -	REVISED -
	PLOT DATE = 12/05/2018 2:13:31 PM	CHECKED -	REVISED -

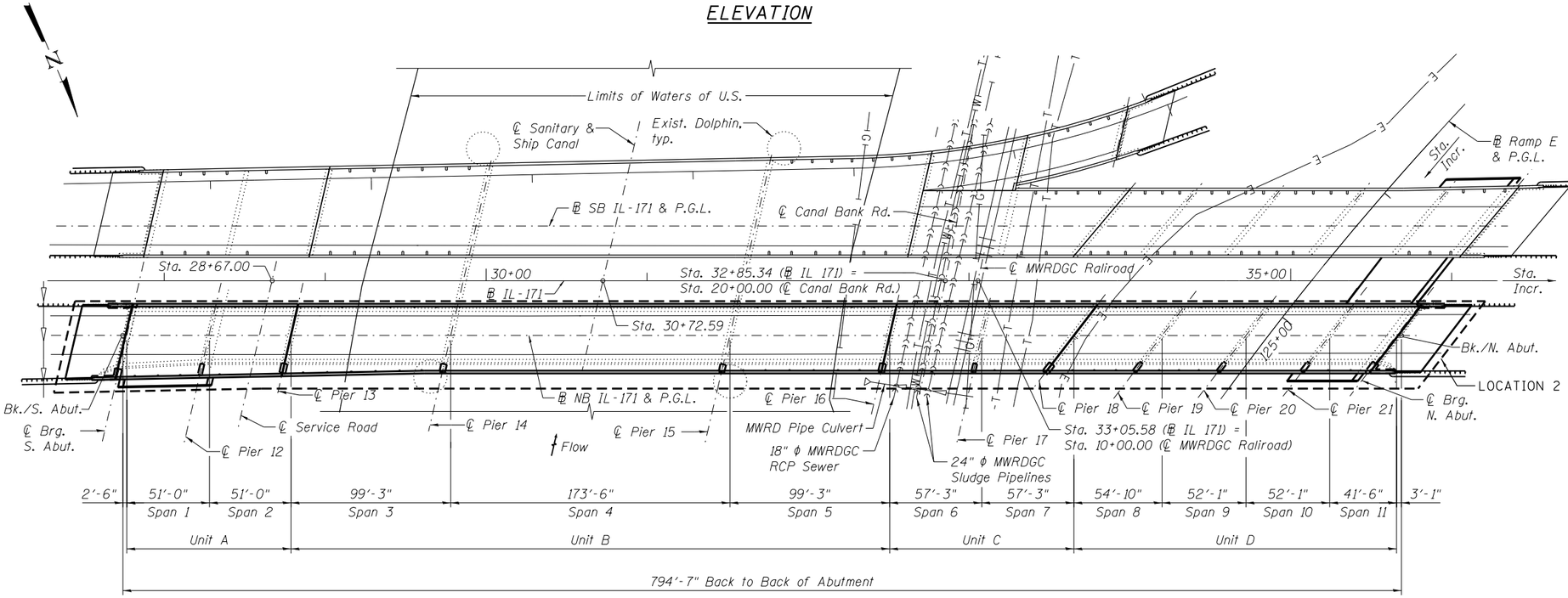
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. DRAIN PIPE DETAILS – LOCATION 1
STRUCTURE NO. 016-0486
SHEET NO. SA-32 OF SA-32 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	38
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION



PLAN

GENERAL NOTES

1. THE EXISTING STRUCTURAL STEEL COATING CONTAINS LEAD. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO DEAL WITH THE PRESENCE OF LEAD ON THIS PROJECT.

2. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES".

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. STRUCTURAL SHEETS TAKEN FROM EXISTING PLANS CONTAIN INFORMATION NOT PERTAINING TO THIS CONTRACT AND ARE FOR INFORMATION ONLY.

4. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SB-18 THRU SB-34 HAS BEEN PRIMED WITH AN INORGANIC ZINC RICH PRIMER UNDER A PREVIOUS CONTRACT. THESE STEEL SURFACES SHALL BE PRESSURE WASHED CLEAN AND POWER TOOL CLEANED (SSPC SP-3 MODIFIED) AS NECESSARY PRIOR TO THE APPLICATION OF THE INTERMEDIATE AND TOP COATS. THE INORGANIC ZINC RICH PRIMER / ACRYLIC / ACRYLIC PAINT SYSTEM SHALL BE USED FOR FIELD PAINTING OF THESE LOCATIONS. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

5. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SB-2 THRU SB-17 SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SP10. THESE LOCATIONS SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF THE EPOXY MASTIC / EPOXY MASTIC / ACRYLIC PAINT SYSTEM. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

6. A MINIMUM OF 3 AIR MONITORS WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THIS SITE. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".

7. THE ELASTOMERIC PADS OF THE EXISTING BEARINGS SHALL BE MASKED OFF FOR PROTECTION DURING PAINTING AND REMOVED WHEN PAINTING IS FINISHED. COST INCLUDED WITH "CLEANING AND PAINTING STEEL BRIDGE NO. 2".

8. IF APPLICABLE, THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS DEMONSTRATING THE STRUCTURAL INTEGRITY OF THE BRIDGE IS MAINTAINED UNDER THE ADDITIONAL IMPOSED LOADS OF THE CONTAINMENT SYSTEM. SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
CLEANING AND PAINTING STEEL BRIDGE NO. 2	L. SUM	1
CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 2	L. SUM	1

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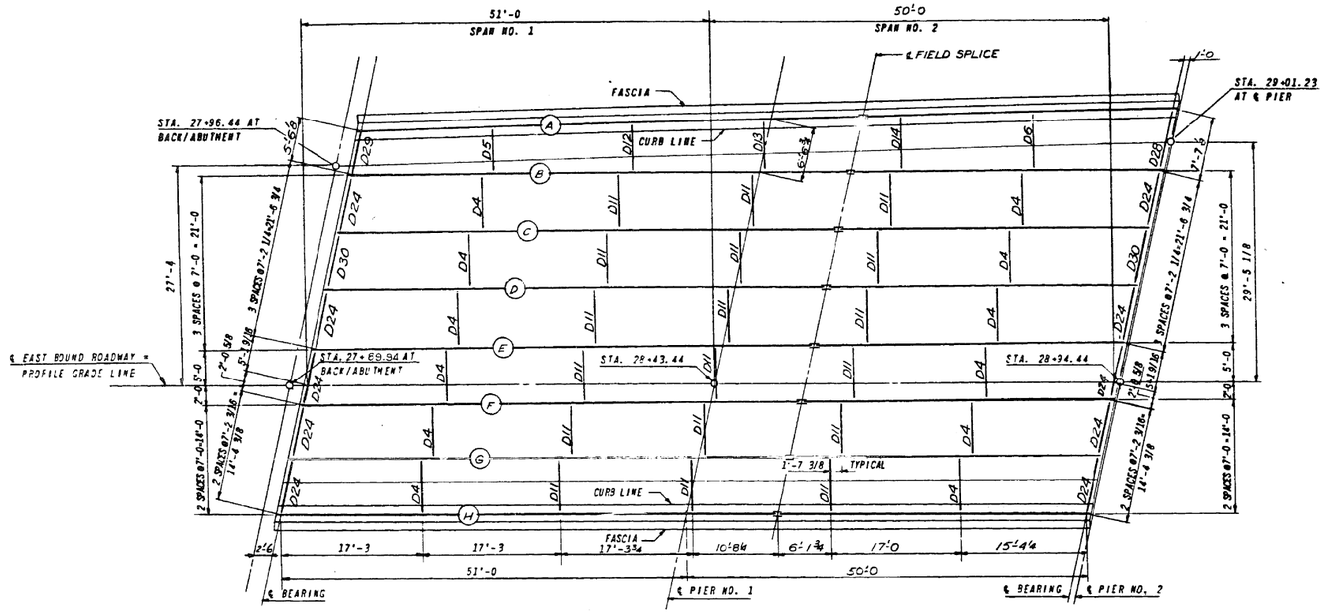
LIN ENGINEERING,LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:14:16 PM	CHECKED -	REVISED -

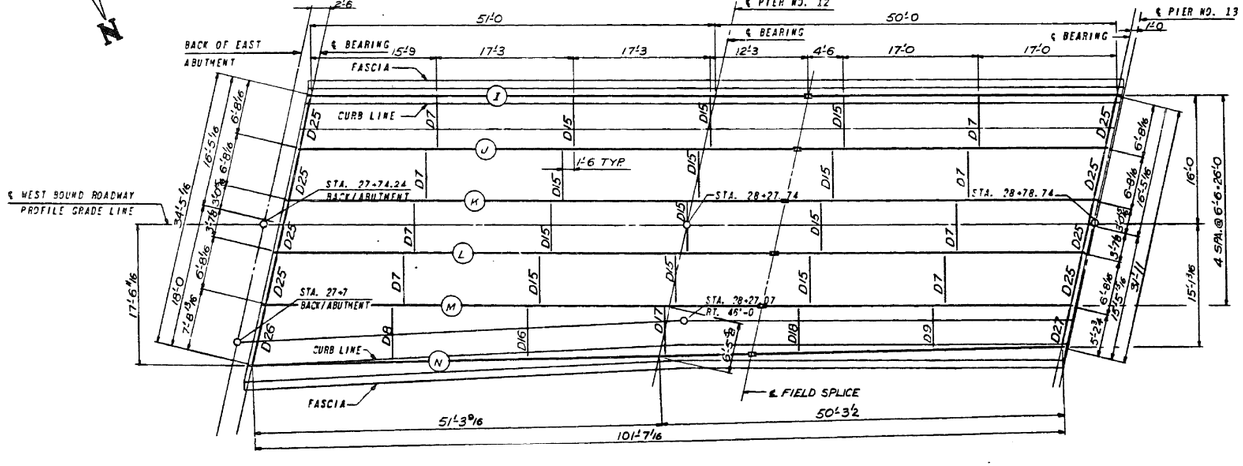
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-1 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	39
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN SPANS NO.1 & NO.2
EAST BOUND



FRAMING PLAN SPANS NO. 1 & NO. 2
WEST BOUND

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LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. UNIT A FRAMING PLAN – LOCATION 2 STRUCTURE NO. 016–0487	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED -	REVISED -			373	2013-040BP	COOK	122	40
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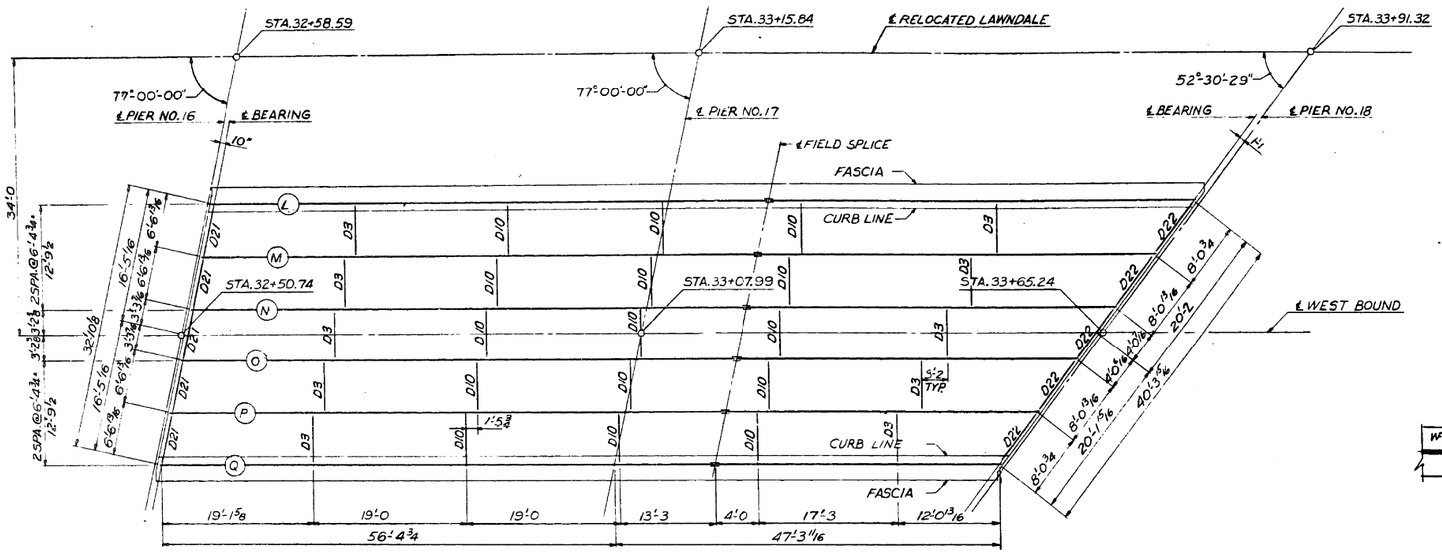
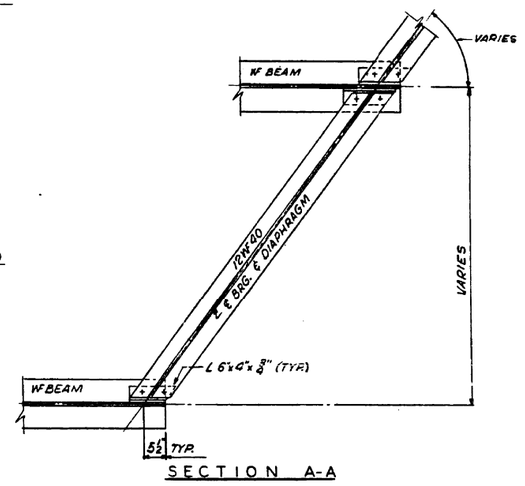
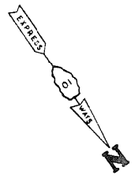
	PLOT DATE = 12/05/2018 2:14:22 PM	CHECKED -	REVISED -		SHEET NO. SB-2 OF SB-34 SHEETS		ILLINOIS	FED. AID PROJECT		

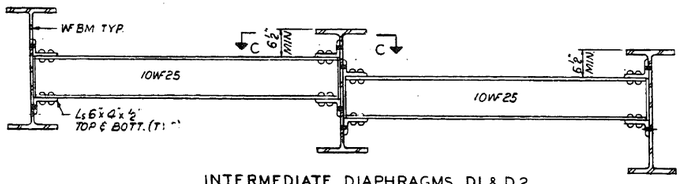


FRAMING PLAN SPAN NO. 6 & NO. 7 WEST BOUND

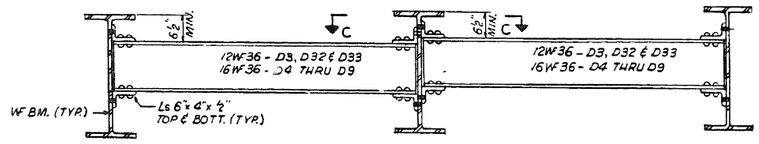


SECTION A-A

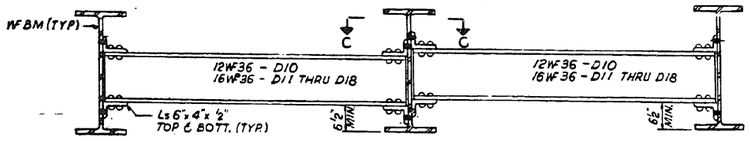




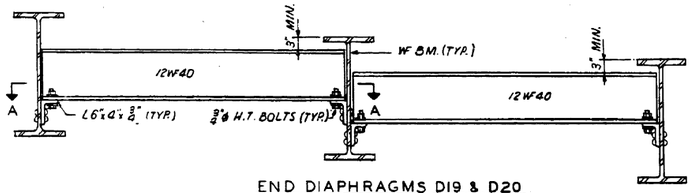
INTERMEDIATE DIAPHRAGMS D1 & D2
8-D1 & 8-D2 DIAPHRAGMS



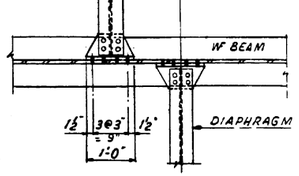
INTERMEDIATE DIAPHRAGMS D3 THRU D9 & D32, D33
20-D3, 12-D4, 8-D7. ALL OTHERS 1 EACH



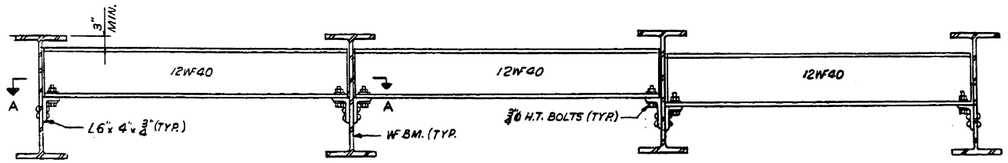
INTERMEDIATE DIAPHRAGMS D10 THRU D18
30-D10, 18-D11, 12-D15 ALL OTHERS 1 EACH



END DIAPHRAGMS D19 & D20
8-D19 & 8-D20

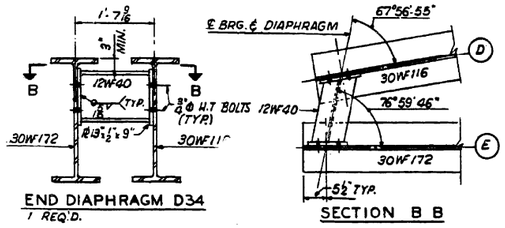


SECTION C-C



END DIAPHRAGMS D21 THRU D29
10-D21, 5-D22 & D23, 10-D24, 8-D25 ALL OTHERS 1 EACH

END DIAPHRAGMS D30 & D31
2-D30 & 1-D31



END DIAPHRAGM D34
1 REQ'D.

SECTION B B

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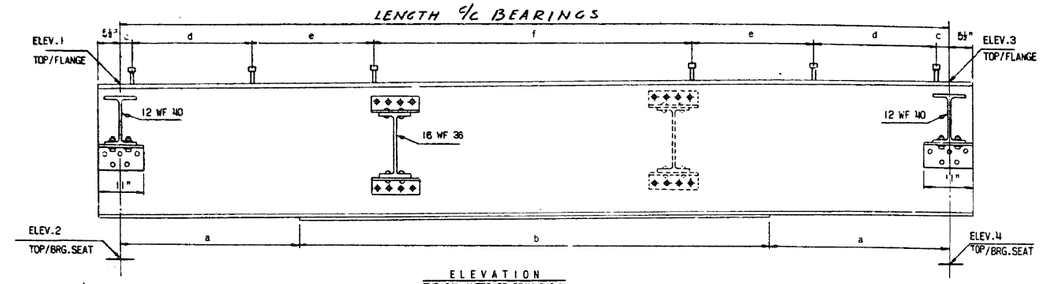
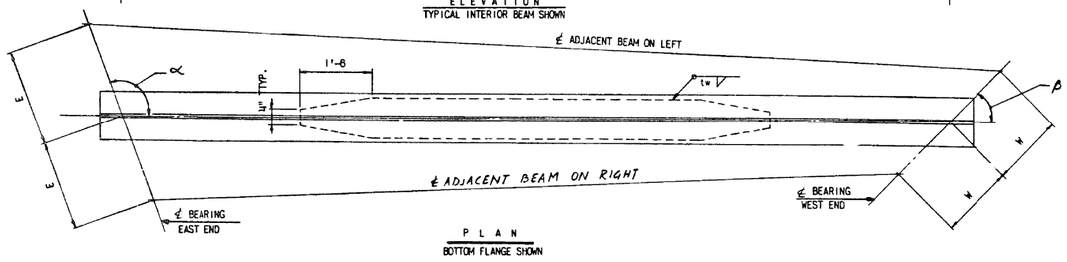
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SB-3 OF SB-34 SHEETS
	PLOT DATE = 12/05/2018 2:14:55 PM	CHECKED -	REVISED -		

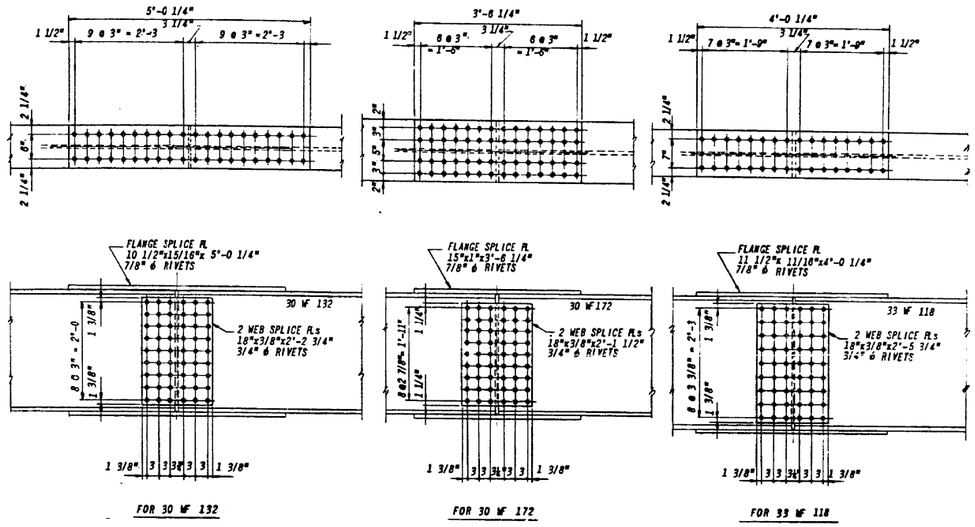
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	41
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		

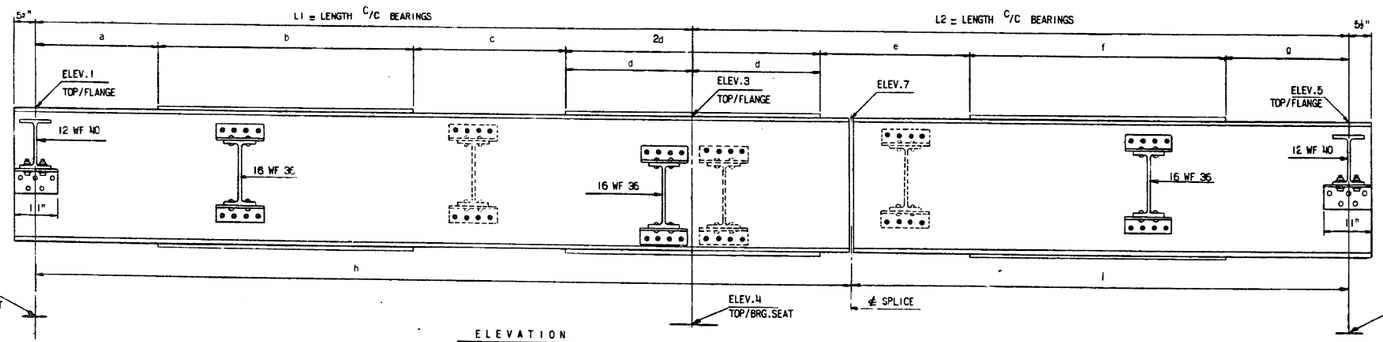


ELEVATION
TYPICAL INTERIOR BEAM SHOWN

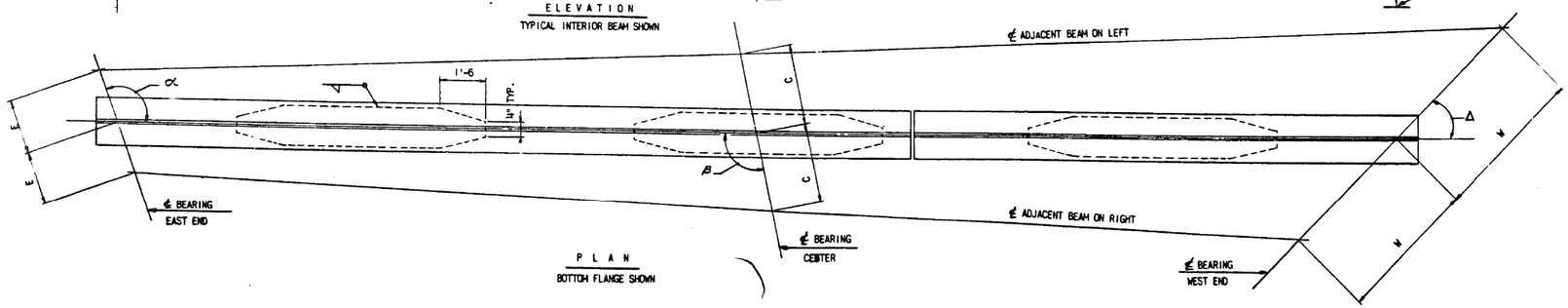


P L A N
BOTTOM FLANGE SHOWN



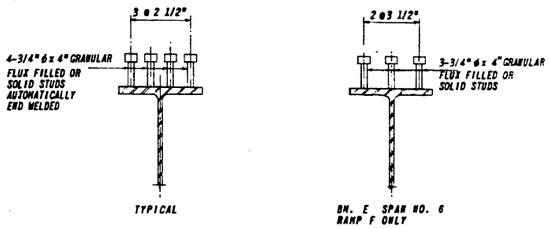


ELEVATION
TYPICAL INTERIOR BEAM SHOWN



P L A N
BOTTOM FLANGE SHOWN

SPLICE DETAILS



SHEAR CONNECTOR DETAILS

NOTE: SEE SHEET "ELECTRICAL DETAILS" FOR BRACKET SUPPORTS FOR CONDUITS ATTACHED TO STRUCTURE.

FILE NAME = ...\016\0487-60W87-004-AC_Beam_Dtls.dgn

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNITS A & C BEAM DETAILS – LOCATION 2
STRUCTURE NO. 016–0487
SHEET NO. SB-4 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	42
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		

SPAN	BEAM	EAST END DATA				WEST END DATA				BEAM DATA																	BEAM	REMARKS
		E	ELEVATION 1	ELEVATION 2	ANGLE α	W	ELEVATION 3	ELEVATION 4	ANGLE β	BEAM SIZE	LENGTH C/C BEARING	FLANGE PLATES SIZE	FLANGE PLATES WELD "t_w"	FLANGE PLATES a	FLANGE PLATES b	SHEAR CONNECTOR SPACING c	SHEAR CONNECTOR SPACING d	SHEAR CONNECTOR SPACING e	SHEAR CONNECTOR SPACING f	EAST END BRG. TYPE	EAST END SHIMPLATE	WEST END BRG. TYPE	WEST END SHIMPLATE			
RAMP F SPAN NO. 6	A	7'-3	623.217	619.581	67°-56'-55"	7'-3	622.701	619.017	67°-56'-55"	30 WF 116	58'-6 13/16"	9 1/2"x7/8"	5/16"	12'-9"	33'-0 13/16"	3 3/8"	1 @ 6"	12 @ 1'-0"	22 @ 1'-6"	E 3	-	F 5	11/16"				A	
	B	7'-3	623.595	619.960	do	7'-3	623.175	619.550	do	do	do	do	do	8'-9"	41'-0 13/16"	3 3/8"	20 @ 6"	12 @ 9"	20 @ 1'-0"	E 3	-	F 5	-				B	
	C	7'-3	623.965	620.329	do	7'-3	623.638	620.013	do	30 WF 116	do	9 1/2x7/8"	do	8'-9"	41'-0 13/16"	3 3/8"	20 @ 6"	12 @ 9"	20 @ 1'-0"	E 3	-	F 5	-				C	
	D	11'-7 9/16	624.326	620.677	67°-56'-55"	11'-1	624.091	620.453	67°-56'-55"	30 WF 124	58'-6 13/16"	9 1/2x1"	5/16"	10'-3"	38'-0 13/16"	3 3/8"	23 @ 6"	10 @ 9"	20 @ 1'-0"	E 3	-	F 5	-				D	
	E		624.287	620.677	76°-59'-46"		624.210	620.600	76°-59'-46"	30 WF 108	55'-8 9/16"	-	-	-	-	4 1/4"	-	14 @ 1'-0"	18 @ 1'-6"	E 3	-	F 5	-				E	3 STUDS EACH ROW ONLY
RAMP F SPAN NO. 7	A	6'-6	622.642	619.017	61°-54'-10"	6'-6	622.118	618.483	61°-54'-10"	30 WF 116	62'-4 11/16"	9 1/2"x7/8"	5/16"	13'-8"	35'-0 11/16"	5 5/8"	1 @ 9"	12 @ 1'-0"	12 @ 1'-6"	F 5	-	E 3	-				A	
	B	do	623.070	619.445	do	do	622.590	618.555	do	do	do	do	do	10'-8"	41'-0 11/16"	2 5/8"	20 @ 6"	12 @ 9"	12 @ 1'-0"	F 5	-	E 3	-				B	
	C	do	623.490	619.865	do	do	623.063	619.428	do	do	do	do	do	do	do	do	do	do	do	F 5	-	E 3	-				C	
	D	6'-6	623.901	620.276	do	do	623.538	619.902	do	do	do	do	do	10'-8"	41'-0 11/16"	2 5/8"	20 @ 6"	12 @ 9"	12 @ 1'-0"	F 5	-	E 3	-				D	
	E		624.244	620.600	61°-54'-10"	6'-6	623.993	620.258	61°-54'-10"	30 WF 116	62'-4 11/16"	9 1/2x7/8"	5/16"	13'-8	35'-0 11/16	5 5/8"	1 @ 9"	12 @ 1'-0"	12 @ 1'-6"	F 5	1/4"	E 3	-				E	

SPAN	BEAM	EAST END DATA				CENTER DATA				WEST END DATA				BEAM DATA																									BEAM	REMARKS
		E	ELEVATIONS 1	ELEVATIONS 2	ANGLE α	C	ELEVATIONS 3	ELEVATIONS 4	ANGLE β	W	ELEVATIONS 5	ELEVATIONS 6	ANGLE Δ	BEAM SIZE	LENGTH C/C BEARING L1	LENGTH C/C BEARING L2	COVER PLATES SIZE	COVER PLATES a	COVER PLATES b	COVER PLATES c	COVER PLATES d	COVER PLATES e	COVER PLATES f	COVER PLATES g	SPLICE h	SPLICE i	SPLICE ELEV. 7	EAST END BRG. TYPE	EAST END SHIMPLATE	CENTER BRG. TYPE	CENTER SHIMPLATE	WEST END BRG. TYPE	WEST END SHIMPLATE		
EAST BOUND SPAN NO. 1 & NO. 2	A	5'-6 1/8	625.912	622.039	75°-51'-13"	5'-6 3/4	625.703	621.840	75°-51'-13"	7'-7 1/8	625.498	621.625	75°-51'-13"	33 WF 118	51'-2 15/16	50'-2 7/8	-	51'-2 15/16	-	-	-	-	-	50'-2 7/8	62'-9 9/16	38'-8 1/4"	625.656	E 2	-	F 4	-	E 2	-	A	
	B	7'-2 1/4	626.024	622.151	77°-00'-00"	7'-2 1/4	625.837	621.932	77°-00'-00"	7'-2 1/4	625.653	621.779	77°-00'-00"	do	do	do	9" x 3/8"	46'-9"	-	-	4'-3"	-	-	45'-9	62'-6"	38'-6"	625.794	E 2	-	F 1	-	E 2	-	B	
	C	do	626.170	622.297	do	do	625.983	622.078	do	do	625.799	621.925	do	do	do	do	do	do	-	-	do	-	-	do	do	do	625.940	E 2	-	F 1	-	E 2	-	C	
	D	7'-2 1/4	626.316	622.443	do	7'-2 1/4	626.129	622.224	do	7'-2 1/4	625.945	622.071	do	do	do	do	do	do	-	-	do	-	-	do	do	do	626.086	E 2	-	F 1	-	E 2	-	D	
	E	7'-2 3/16	626.392	622.519	do	7'-2 3/16	626.205	622.300	do	7'-2 3/16	626.021	622.147	do	do	do	do	do	do	-	-	do	-	-	do	do	do	626.162	E 2	-	F 1	-	E 2	-	E	
	F	do	626.428	622.519	do	do	626.241	622.300	do	do	626.057	622.147	do	do	do	do	do	do	-	-	do	-	-	do	do	do	626.198	E 2	7/16"	F 1	11/16"	E 2	7/16"	F	
	G	7'-2 3/16	626.364	622.456	do	7'-2 3/16	626.177	622.237	do	7'-2 3/16	625.993	622.084	do	do	do	do	9" x 3/8"	46'-9"	-	-	4'-3"	-	-	45'-9	do	do	626.134	E 2	3/8"	F 1	7/16"	E 2	7/16"	G	
	H		626.280	622.393	77°-00'-00"		626.092	622.174	77°-00'-00"		625.908	622.021	77°-00'-00"	33 WF118	51'-0"	50'-0"	-	51'-0"	-	-	-	-	-	50'-0"	62'-6"	38'-6"	626.050	E 2	1/8"	F 4	3/16"	E 2	3/16"	H	
WEST BOUND SPAN NO. 1 & NO. 2	I	6'-8 1/16	626.311	622.437	77°-00'-00"	6'-8 1/16	626.123	622.260	77°-00'-00"	6'-8 1/16	625.939	622.065	77°-00'-00"	33 WF 118	51'-0"	50'-0"	-	51'-0"	-	-	-	-	-	50'-0"	62'-6"	38'-6"	626.081	E 2	-	F 4	-	E 2	-	I	
	J	do	626.401	622.528	do	do	626.214	622.350	do	do	626.030	622.156	do	do	do	do	-	do	-	-	-	-	-	60	do	do	626.171	E 2	-	F 4	-	E 2	-	J	
	K	do	626.472	622.598	do	do	626.284	622.421	do	do	626.100	622.226	do	do	do	do	-	do	-	-	-	-	-	do	do	do	626.242	E 2	-	F 4	-	E 2	-	K	
	L	6'-8 1/16	626.472	622.598	do	6'-8 1/16	626.285	622.421	do	6'-8 1/16	626.101	622.226	do	do	do	do	-	do	-	-	-	-	-	do	do	do	626.242	E 2	-	F 4	-	E 2	-	L	
	M	7'-8 13/16	626.413	622.528	77°-00'-00"	6'-5 5/8	626.225	622.338	77°-00'-00"	5'-2 3/4	626.041	622.155	77°-00'-00"	do	51'-0"	50'-0"	-	51'-0"	-	-	-	-	-	50'-0"	62'-6"	38'-6"	626.183	E 2	1/8"	F 4	3/16"	E 2	1/8"	M	
	N		626.339	622.465	75°-37'-33"		626.150	622.285	75°-37'-33"		625.965	622.092	75°-37'-33"	33 WF118	51'-3 9/16	50'-3 1/2	-	51'-3 9/16	-	-	-	-	-	50'-3 1/2	62'-10 3/8"	38'-8 11/16	626.108	E 2	-	F 4	-	E 2	-	N	
EAST BOUND SPAN NO. 6 & NO. 7	F	6'-6 13/16	624.505	620.490	77°-00'-00"	6'-6 13/16	624.298	620.600	77°-00'-00"	8'-4 3/8	624.056	620.430	49°-53'-25"	30 WF 172	58'-4 3/4	65'-7 7/16	-	56'-4 3/4"	-	-	-	-	-	65'-7 7/16	70'-5 5/8	51'-7 9/16	624.246	E 4	5/8"	F 2	-	E 4	1/8"	F	
	G	6'-6 13/16	624.595	620.661	do	6'-6 13/16	624.387	620.741	do	8'-4 7/16	624.180	620.540	do	30 WF 172	do	61'-8 7/16	-	56'-4 3/4"	-	-	-	-	-	61'-8 7/16	do	47'-8 9/16	624.335	E 4	1/4"	F 2	-	E 4	-	G	
	H	6'-6 7/8	624.664	620.661	do	6'-6 7/8	624.457	620.807	do	do	624.244	do	do	30 WF 132	do	57'-9 1/2	9"x3/8"	15'-10 3/4	19'-6"	21'-0"	6'-0"	21'-9 1/2"	13'-6"	16'-6"	do	43'-9 5/8	624.405	E 3	1/2"	F 3	-	E 3	1/2"	H	
	I	6'-6 13/16	624.670	620.661	do	6'-6 13/16	624.462	620.807	do	do	624.264	do	do	do	do	53'-10 1/2	9"x3/8"	52'-4 3/4"	-	-	4'-0"	-	-	49'-10 1/2	do	39'-10 5/8	624.410	E 3	1/2"	F 3	-	E 3	3/4"	I	
	J	6'-6 13/16	624.611	620.498	do	6'-6 13/16	624.404	620.744	do	8'-4 3/8	624.220	620.540	do	do	do	49'-11 9/16	-	56'-4 3/4"	-	-	-	-	-	49'-11 9/16	do	35'-11 11/16	624.352	E 3	5/8"	F 5	1/8"	E 3	1/4"	J	
	K		624.533	620.435	77°-00'-00"		624.325	620.675	77°-00'-00"		624.156	620.480	49°-53'-25"	30 WF 132	58'-4 3/4	48'-0 5/8	-	56'-4 3/4	-	-	-	-	-	46'-0 5/8	70'-4 5/8	32'-0 3/4	624.273	E 3	7/16"	F 5	-	E 3	3/16"	K	
WEST BOUND SPAN NO. 6 & NO. 7	L	6'-6 13/16	624.583	620.848	77°-00'-00"	6'-6 13/16	624.356	620.709	77°-00'-00"	8'-0 3/4	624.118	620.503	52°-30'-29"	30 WF 172	56'-4 3/4	64'-5 9/16	-	56'-4 3/4"	-	-	-	-	-	64'-5 9/16	70'-4 5/8	50'-5 11/16	624.304	E 4	-	F 2	-	E 4	-	L	
	M	6'-6 13/16	624.653	621.009	do	6'-6 13/16	624.445	620.799	do	8'-0 13/16	624.221	620.579	do	30 WF172	do	61'-0 3/8	-	56'-4 3/4"	-	-	-	-	-	61'-0 3/8"	do	47'-0 1/2	624.393	E 4	3/8"	F 2	-	E 4	5/16"	M	
	N	6'-6 7/8	624.722	621.009	do	6'-6 7/8	624.515	620.864	do	do	624.303	620.642	do	30 WF 132	do	57'-7 3/16	9"x3/8"	15'-10 3/4"	13'-6"	21'-0"	6'-0"	21'-10 3/16	13'-6	16'-3	do	43'-7 5/16	624.463	E 3	11/16"	F 3	-	E 3	-	N	
	O	6'-6 13/16	624.728	621.009	do	6'-6 13/16	624.520	620.864	do	8'-0 13/16	624.321	620.642	do	do	do	54'-9	9"x3/8"	52'-4 3/4"	-	-	4'-0	-	-	50'-2	do	40'-2 1/8	624.468	E 3	11/16"	F 3	1/16"	E 3	3/16"	O	
	P	6'-6 13/16	624.689	621.009	do	6'-6 13/16	624.461	620.801	do	8'-0 3/4	624.275	620.579	do	do	do	50'-8 13/16	-	56'-4 3/4"	-	-	-	-	-	50'-8 13/16	do	36'-8 15/16	624.409	E 3	-	F 5	1/8"	E 3	1/2"	P	
	Q		624.590	620.830	77°-00'-00"		624.383	620.733	77°-00'-00"		624.209	620.300	52°-30'-29"	30 WF 132	56'-4 3/4	47'-3 11/16	-	56'-4 3/4"	-	-	-	-	-	47'-3 11/16	70'-4 5/8	33'-3 13/16	624.331	E 3	-	F 5	-	E 3	9/16"	Q	

STRUCTURAL STEEL SPANS NO. 1, NO. 2, NO. 6 & NO. 7 EAST BOUND
SPANS NO. 1, NO. 2, NO. 6 & NO. 7 WEST BOUND, SPANS NO. 6 & NO. 7 RAMP F

FILE NAME = ...\0160487-60W87-005-AC_Beam_Data.dgn

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -	
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PLOT SCALE =	DRAWN -	REVISED -	
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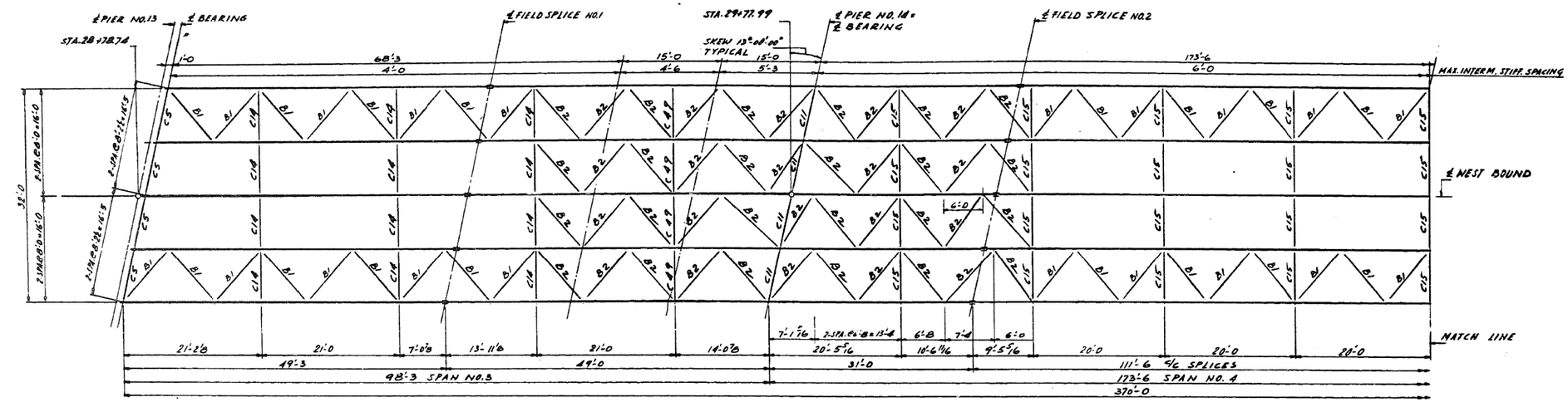
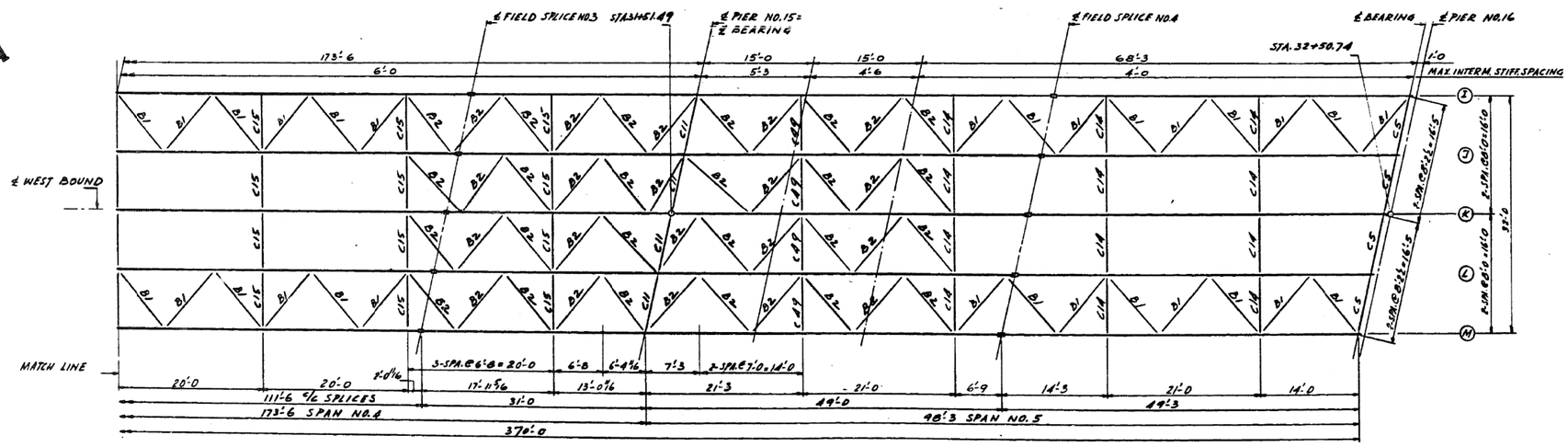
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNITS A & C BEAM DATA – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-5 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	43
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		





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LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. UNIT B FRAMING PLAN – LOCATION 2 STRUCTURE NO. 016–0487	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED -	REVISED -			373	2013-040BP	COOK	122	44
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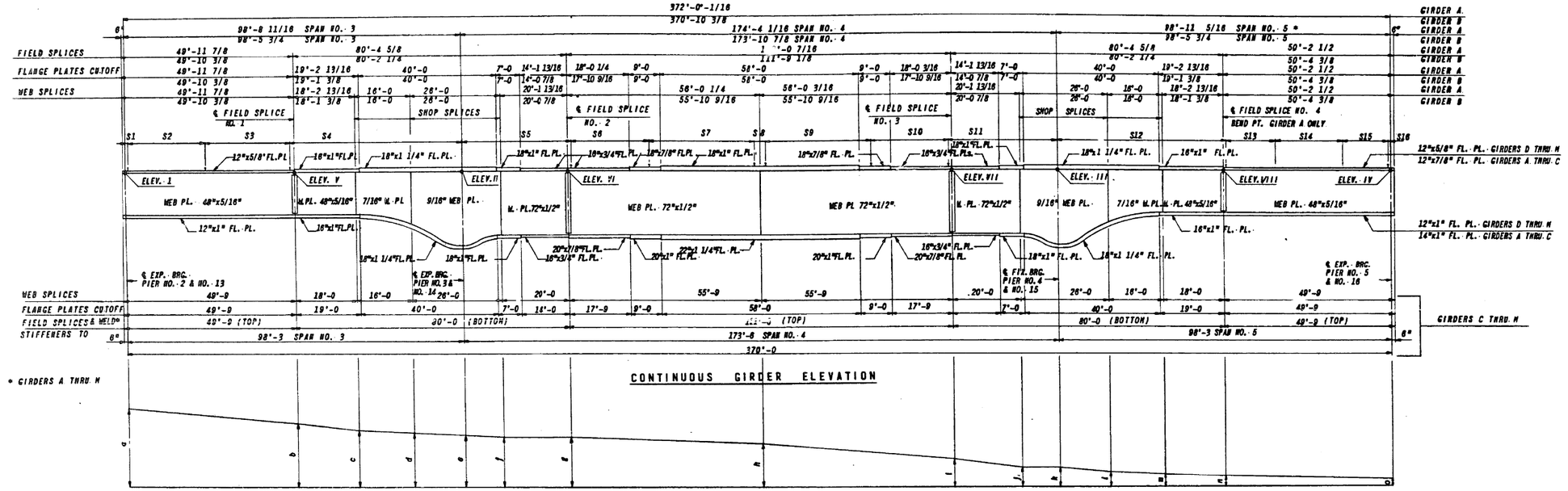
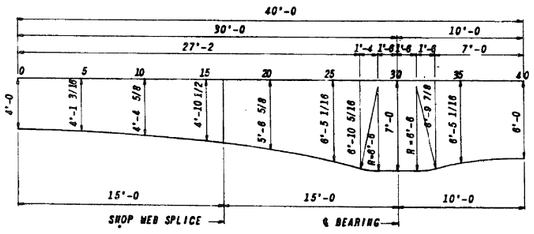


BLOCKING DIAGRAM



HAUNCH DETAIL

CONTINUOUS GIRDER BLOCKING DIAGRAM SPAN NO. 3 THRU NO. 5 EAST BOUND & WEST BOUND

GIRDER	TOP OF WEB ELEVATIONS* AT								BLOCKING AT														
	I	II	III	IV	V	VI	VII	VIII	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
A	5.385	4.983	3.949	3.118	5.191	4.967	4.332	3.650	2'-3 3/16	2'-0 7/8	1'-11 7/16	1'-10 5/8	1'-10 3/8	1'-10 9/16	1'-10 3/16	1'-9 7/16	1'-2 9/16	0'-11 3/16	0'-10	0'-8 3/8	0'-6 13/16	0'-5 3/16	0
B	5.497	5.116	4.225	3.658	5.304	5.085	4.523	3.913	1'-10 1/16	1'-7 3/4	1'-6 5/8	1'-5 13/16	1'-5 1/2	1'-5 1/4	1'-5 1/8	1'-3 11/16	0'-10 3/8	0'-7 7/8	0'-6 13/16	0'-5 3/8	0'-4 1/4	0'-3 7/16	0
C	5.609	5.247	4.493	4.131	5.428	5.220	4.735	4.230	1'-5 3/4	1'-3 9/16	1'-2 3/16	1'-1 9/16	1'-1 3/8	1'-1 1/4	1'-1 1/16	1'-0	0'-7 1/4	0'-5 5/16	0'-4 3/8	0'-3 1/8	0'-2 5/16	0'-1 3/16	0
D	5.771	5.409	4.171	4.409	5.597	5.367	4.966	4.607	1'-4 5/16	1'-2 1/4	1'-1 3/16	1'-0 11/16	1'-0	0'-11 1/2	0'-11 1/2	0'-10 9/16	0'-6 11/16	0'-4 15/16	0'-4 5/16	0'-3 7/16	0'-2 15/16	0'-2 3/8	0
E	5.885	5.523	4.885	4.523	5.711	5.481	5.080	4.721	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
F	5.959	5.597	4.959	4.597	5.785	5.555	5.154	4.795	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
G	5.888	5.526	4.888	4.626	5.714	5.484	5.083	4.724	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
H	5.797	5.435	4.797	4.435	5.623	5.393	4.992	4.633	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
I	5.827	5.466	4.827	4.466	5.654	5.424	5.023	4.664	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
J	5.934	5.573	4.934	4.753	5.941	5.711	5.310	4.951	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
K	6.021	5.659	5.021	4.659	5.847	5.617	5.216	4.857	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
L	5.948	5.586	4.948	4.586	5.774	5.544	5.143	4.784	do	do	do	do	do	do	do	do	do	do	do	do	do	do	do
M	5.855	5.493	4.855	4.493	5.681	5.451	5.050	4.691	1'-4 5/16	1'-2 1/4	1'-1 3/16	1'-0 11/16	1'-0	0'-11 1/2	0'-11 1/2	0'-10 9/16	0'-6 11/16	0'-4 15/16	0'-4 5/16	0'-3 7/16	0'-2 15/16	0'-2 3/8	0

* ADD 620 TO ALL ELEVATIONS

SHEAR CONNECTOR SPACINGS

GIRDER	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16
A	– 0'-3	28 @ 0'-9 21'-0	21 @ 1'-3 26'-3	– 51'-2 11/16	– 33'-3	28 @ 0'-11 25'-8	–	34 @ 1'-6 51'-0	–	34 @ 0'-11 31'-2	– 33'-3 1/16	– 51'-2 11/16	13 @ 1'-9 18'-3	12 @ 1'-0 12'-0	29 @ 0'-8 18'-4	– 0'-1 5/8
B	– do	do	do	– 51'-11 3/4	– 33'-0 1/2	do	do	do	do	do	– 33'-0 3/8	– 51'-1 3/8	do	do	28 @ 0'-8 18'-8	– 0'-5 3/8
C	– do	28 @ 0'-9 21'-0	21 @ 1'-3 26'-3	– 51'-9	– 32'-10	28 @ 0'-11 25'-8	–	1'-6 -0	–	34 @ 0'-11 31'-2	– 32'-10	– 51'-9	13 @ 1'-3 18'-3	12 @ 1'-0 12'-0	28 @ 0'-8 18'-8	– 0'-7
D thru H	– 0'-3	33 @ 0'-9 24'-9	18 @ 1'-3 22'-6	– 51'-9	– 33'-0	48 @ 9" =36'-0	10 @ 1'-6 = 15'-0	3 @ 1'-10 = 5'-6	10 @ 1'-6 = 15'-0	48 @ 9" =36'-0	– 33'-0	– 51'-9	18 @ 1'-3 22'-6	33 @ 0'-9 24'-9	–	– 0'-3

STRUCTURAL STEEL SPAN NO. 3 THRU NO. 5 EAST BOUND AND WEST BOUND:

WEIGHT OF STUDS	7,499 LBS.
WEIGHT OF BEARING DEVICES	62,114 LBS.
WEIGHT OF EXPANSION GUARDS	21,734 LBS.
FRAMING STEEL	1,380,470 LBS.

FURNISHING AND ERECTING STRUCTURAL STEEL 1,471,817 LBS.

FILE NAME = ...\D1604487-60W87-007-B_Girder_Elev.dgn

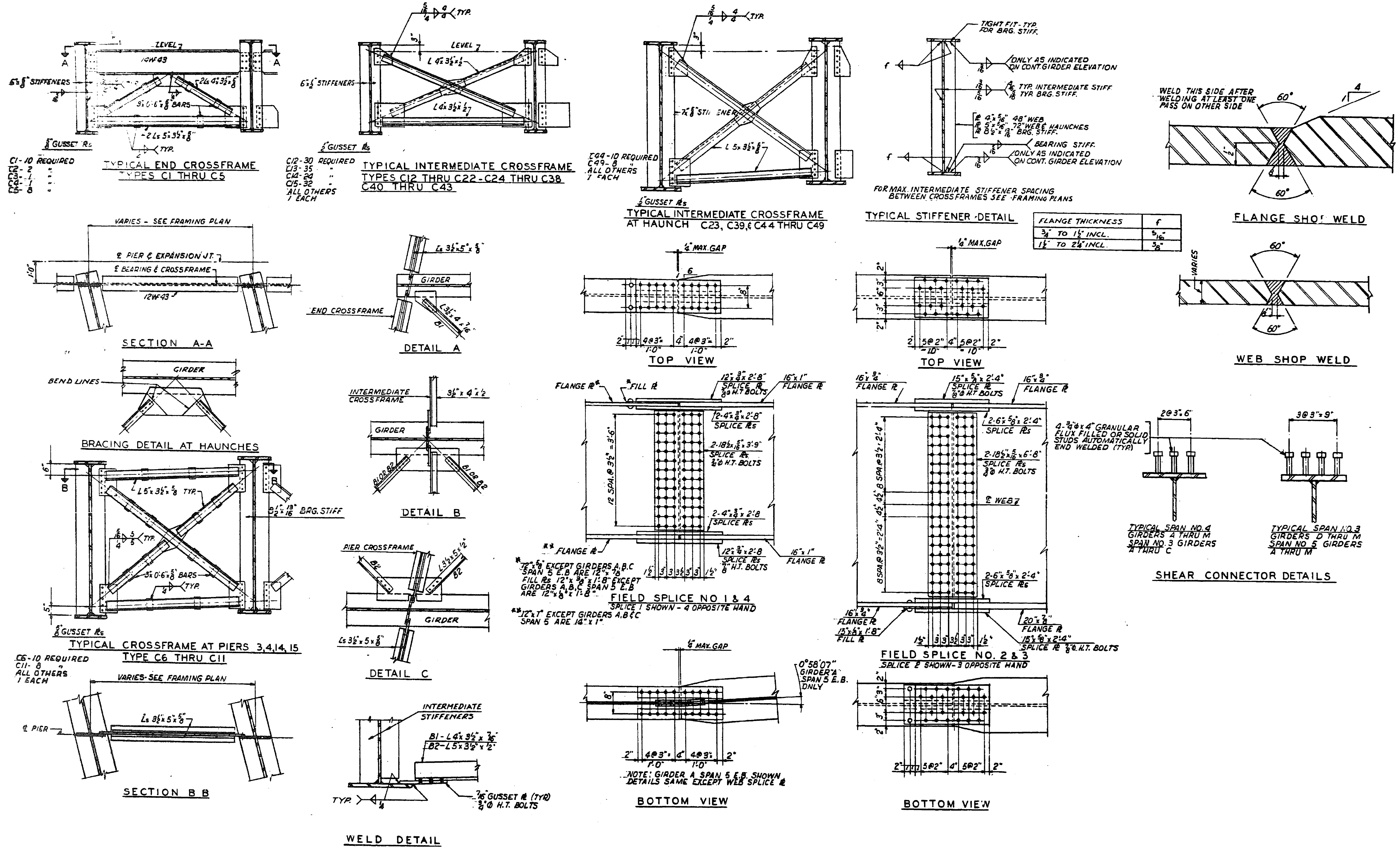
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:17:29 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT B GIRDER ELEVATION – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-7 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	45
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



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LIN ENGINEERING,LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. UNIT B STEEL DETAILS – LOCATION 2 STRUCTURE NO. 016–0487	F.A.P. RTE. 373	SECTION 2013-040BP	COUNTY COOK	TOTAL SHEETS 122 / SHEET NO. 46
		CHECKED -	REVISED -					CONTRACT NO. 60W87	
	PLOT SCALE =	DRAWN -	REVISED -				ILLINOIS FED. AID PROJECT		
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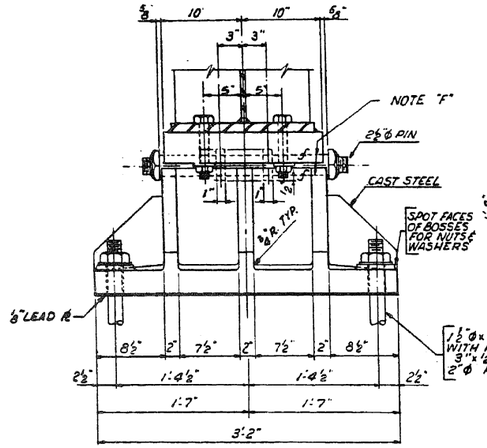
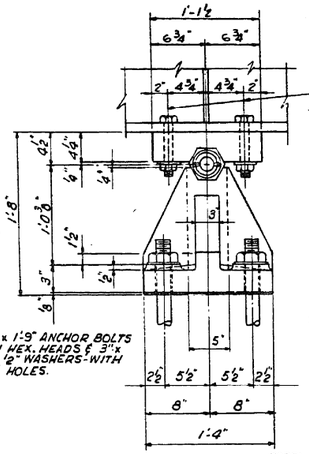
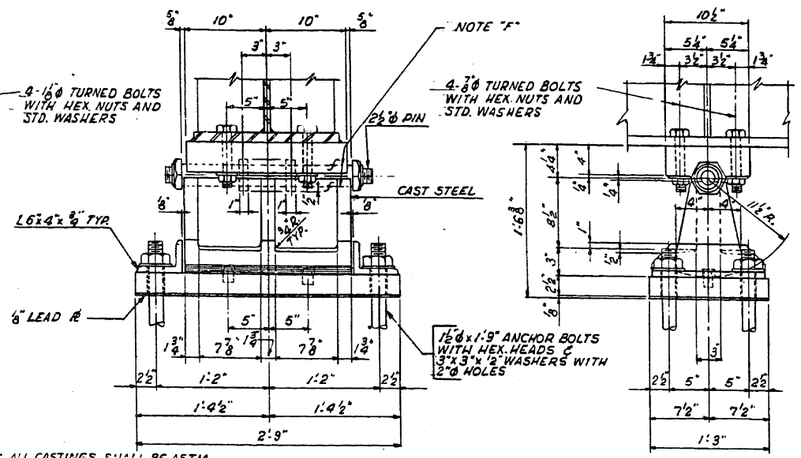




TYPE A - TYPICAL ALL GIRDERS - PIERS 4 & 15

FIXED BEARING

13 REQUIRED



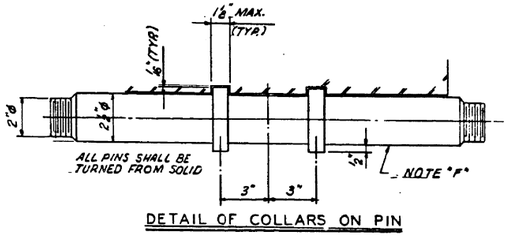
TYPE B - TYPICAL ALL GIRDERS - PIERS 3 & 14

EXPANSION BEARING

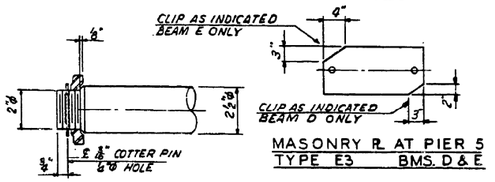
13 REQUIRED

NOTE: ALL CASTINGS SHALL BE ASTM A27-60 GRADE 65-35, FULLY ANNEALED ALL PINS SHALL BE FORGED & SHALL BE ASTM A235, CLASS F

NOTE "F"
COAT WITH ANTI-RUST COMPOUND OR LACQUER.

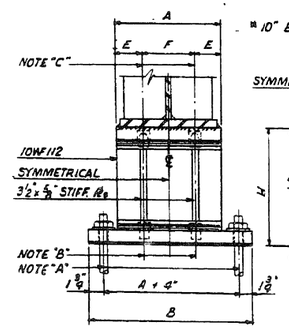


DETAIL OF COLLARS ON PIN

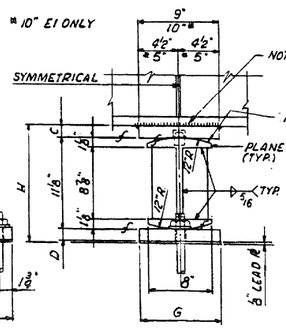


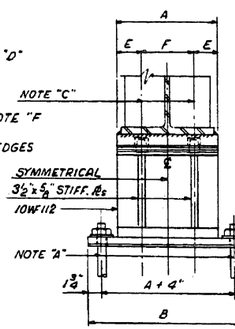
MASONRY PL AT PIER 5
TYPE E3 BMS. D & E

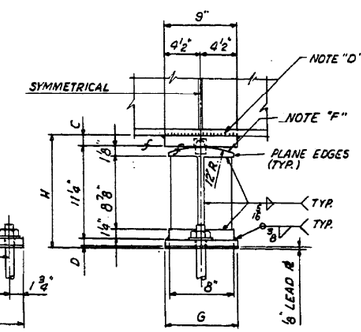
PIN DETAIL



* 10" EI ONLY

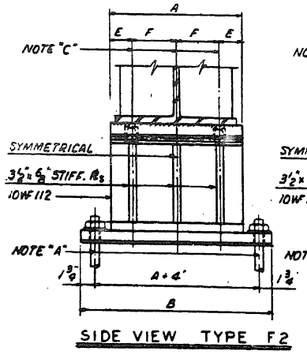




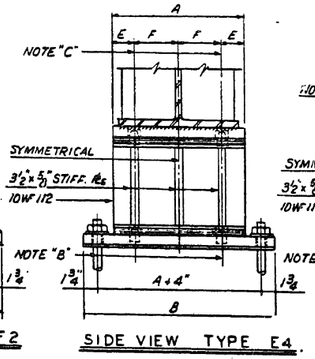


EXPANSION BEARING - TYPE E1, E2, E3, E4

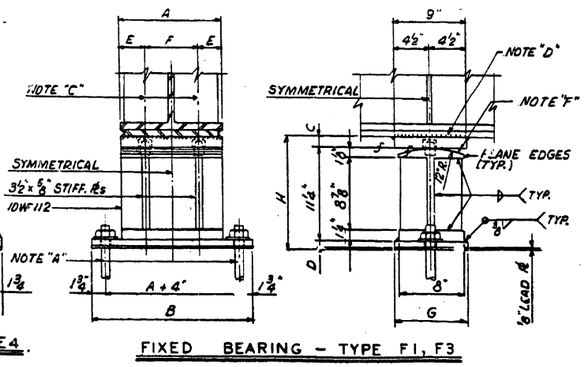
FIXED BEARING - TYPE F2, F4, F5



SIDE VIEW TYPE F2



SIDE VIEW TYPE E4



FIXED BEARING - TYPE F1, F3

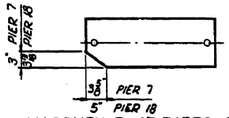
TABLE OF DIMENSIONS & LOCATIONS												
LOCATION	A	B	C	D	E	F	G	H	C.F.W.	REQ.	WT.	TYPE
EAST ABUT. - ALL BEAMS	12½"	20"	1"	1⅜"	3"	6½"	9"	13⅝"	½	14	268	E2
PIER 1 BEAMS B THRU G	11½"	19"	1¼"	1"	3"	5½"	9"	13⅜"	½	6	240	F1
PIERS 1 & 12 - BMS. A & H & 1 THRU N	12½"	20"	1⅜"	⅝"	3"	6½"	9"	13½"	½	8	248	F4
PIERS 2 & 13 ALL BEAMS - EAST	12½"	20"	1"	1⅜"	3	6½"	9"	13⅜"	½	14	268	E2
PIERS 2 & 13 ALL BEAMS - WEST	13"	20½"	1⅝"	1⅜"	3¼"	6½"	10"	14¼"	½	13		E1
PIERS 3 & 16 ALL BEAMS - EAST	13"	20½"	1⅝"	1⅜"	3¼"	6½"	10"	14¼"	½	13		E1
PIER 5 RAMP "E" BEAMS A THRU E	11½"	19	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	5	250	E3
PIERS 5 & 16 WEST BEAMS F, G, L & M	17"	24½"	1"	1¼"	3"	5½"	9"	13½"	½	4	343	E4
PIERS 5 & 16 WEST BEAMS H, I, J, K, N, O, P & Q	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	8	250	E3
PIER 6 RAMP "F" BEAMS A THRU E	11½"	19"	1⅜"	¾"	3	5½"	9"	13½"	½	10	231	F5
PIERS 6 & 17 BEAMS F, G, L & M	16½"	24"	1½"	1"	2⅜"	5½"	9"	13⅞"	⅝	4	344	F2
PIERS 6 & 17 BEAMS H, I, N, O	10½"	18	1"	¾"	2½"	5½"	9"	13⅝"	½	4	207	F3
PIERS 6 & 17 BMS. J, K, P, Q	11½"	19"	⅜"	⅝"	3"	5½"	9"	13½"	½	4	231	F5
RAMP "F" ABUTMENT BEAMS A THRU E	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	5	250	E3
PIER 7 - BEAMS F & G	17"	24½"	1"	1¼"	3"	5½"	9"	13½"	½	2	343	E4
PIER 7 - BEAMS H, I, J & K	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	4	250	E3
PIER 18 - BEAMS L & M	17"	24½"	1"	1¼"	3"	5½"	9"	13½"	½	2	343	E4
PIER 18 BEAMS N, O, P, & Q	11½"	19"	1"	1⅜"	3"	5½"	9"	13⅜"	⅜	4	250	E3

NOTE "A"
1½"ø HOLES FOR 1"ø x 1'-2" ANCHOR BOLTS 2½" x 2½" x ⅜" PL WASHER UNDER NUT - TYP. FOR BEARINGS E2 THRU E4.
1¾"ø HOLES FOR 1¼"ø x 1'-6" ANCHOR BOLTS 2½" x 2½" x ⅜" PL WASHER UNDER NUT - TYP. FOR BEARING TYPE E1 ONLY.

NOTE "B"
1⅞"ø HOLES - 1" DEEP IN ROCKER FOR 1¼"ø PINTLES
1⅛"ø PINTLES - 1⅞" LONG IN BOTT. PL THREAD OR PRESS FIT.

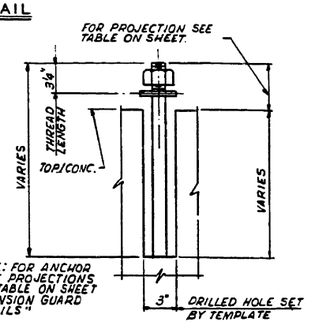
NOTE "C"
1⅞"ø HOLES IN TOP PL FOR 1¼"ø PINTLES. 1⅛" PINTLES - 1⅞" LONG IN ROCKER OR BOTTOM PL - THREAD OR PRESS FIT.

NOTE "D"
CONT. FILLET WELD 4 SIDES - SEE "TABLE OF DIMENSIONS & LOCATIONS" THIS SHEET FOR SIZE.

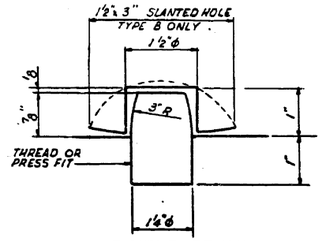


MASONRY PL AT PIERS 7 & 18
TYPE E4 - BMS. F, G, L, M.
SET CUT SIDE TO EDGE OF PIER

NOTE "E"
FOR THICKNESS OF REQUIRED SHIMPLATES, SEE "SUMMARY OF BEAMS".



ANCHOR BOLT



PINTLE DETAIL

WEIGHT OF BEARING DEVICES = 88,360 LBS.
(SHIMPLATES INCLUDED)

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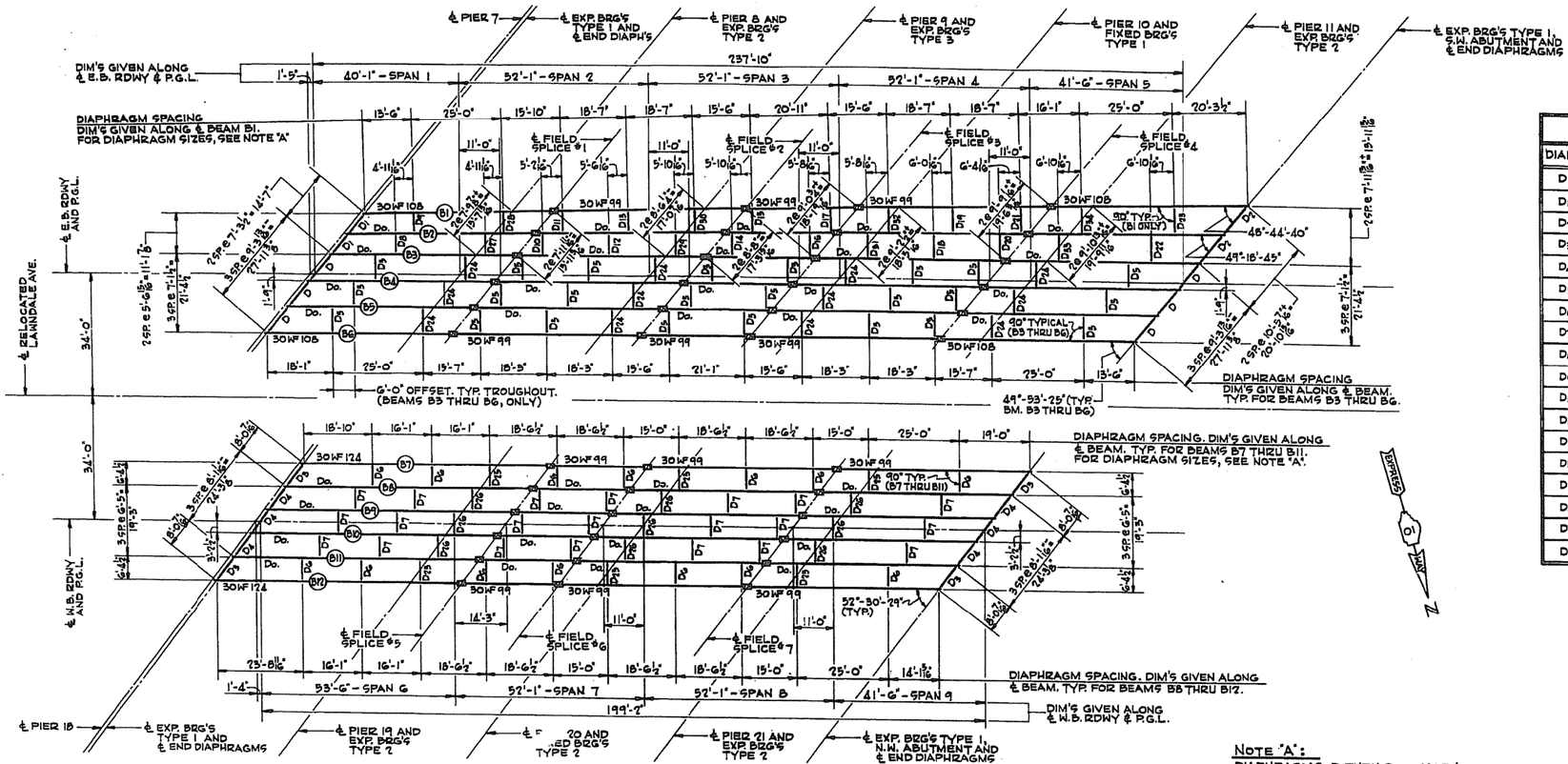
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -	
	CHECKED -	REVISED -	
PLOT SCALE =	DRAWN -	REVISED -	
PLOT DATE = 12/05/2018 2:18:37 PM	CHECKED -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT B BEARING DETAILS - LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-9 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	47
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	



FRAMING PLAN

SCALE: 1/16" = 1'-0"

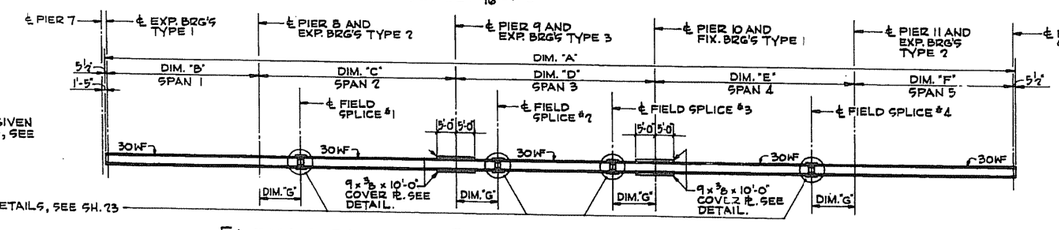
TABLE I					
DIAPH.	LENGTH * *	NO. REQ'D	DIAPH.	LENGTH * *	NO. REQ'D
D	9'-5 13/16"	6	D18	7'-2 3/8"	1
D1	7'-3 1/2"	2	D19	7'-1 5/8"	1
D2	10'-5 7/16"	2	D20	7'-4 9/16"	1
D3	8'-0 7/16"	4	D21	7'-3 13/16"	1
D4	8'-1 1/16"	6	D22	7'-9 1/2"	1
D5	7'-1 1/2"	24	D23	7'-8 3/4"	1
D6	6'-4 1/2"	14	D24	7'-1 1/2"	12
D7	6'-5"	21	D25	6'-4 1/2"	6
D8	5'-8 9/16"	1	D26	6'-5"	9
D9	5'-7 15/16"	1	D27	5'-11 9/16"	1
D10	6'-1 7/16"	1	D28	5'-10 15/16"	1
D11	6'-0 15/16"	1	D29	6'-5 7/16"	1
D12	6'-3 11/16"	1	D30	6'-5 1/4"	1
D13	6'-3"	1	D31	7'-0 5/16"	1
D14	6'-7 3/4"	1	D32	6'-11 7/16"	1
D15	6'-7 1/16"	1	D33	7'-6 1/2"	1
D16	6'-10 15/16"	1	D34	7'-5 3/4"	1
D17	6'-9 9/16"	1			

* * DIMENSION GIVEN IS ℄ TO ℄ OF BEAMS.

TABLE II			
BEAM / DIM.	B1	B2	B3 THRU B6
"A"	242'-10 1/2"	240'-9 3/8"	238'-9"
"B"	40'-9 1/4"	40'-5 1/8"	40'-1"
"C"	52'-11 7/8"	52'-6 3/8"	52'-1"
"D"	52'-11 7/8"	52'-6 3/8"	52'-1"
"E"	52'-11 7/8"	52'-6 3/8"	52'-1"
"F"	42'-2 5/8"	41'-10 3/8"	41'-6"
"G"	11'-2 5/16"	11'-1 1/8"	11'-0"

NOTE "A":
DIAPHRAGMS D THRU D4 - 12 WF 40
DIAPHRAGMS D5 THRU D34 - 16 WF 36
FOR DIAPHRAGM LENGTHS, SEE TABLE I.

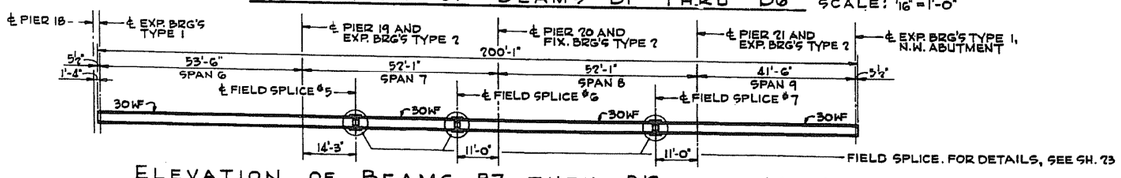
NOTE:
FOR DIMENSIONS NOT GIVEN ON BEAM ELEVATIONS, SEE TABLE II.



FIELD SPLICE. FOR DETAILS, SEE SH. 23

ELEVATION OF BEAMS B1 THRU B6

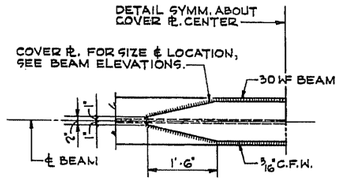
SCALE: 1/16" = 1'-0"



FIELD SPLICE. FOR DETAILS, SEE SH. 23

ELEVATION OF BEAMS B7 THRU B12

SCALE: 1/16" = 1'-0"



PLAN DETAIL OF COVER PL'S
TYPICAL - NOT TO SCALE

NOTES:
FOR STRUCTURAL STEEL DESIGNATION, SEE "GENERAL NOTES", SH. 3
FOR TABLES OF MOMENTS & REACTIONS, SEE SH. 23
FOR TABLE "TOP / WF ELEVATIONS", SEE SH. 23
FOR DIAPHRAGM DETAILS, SEE SH. 23

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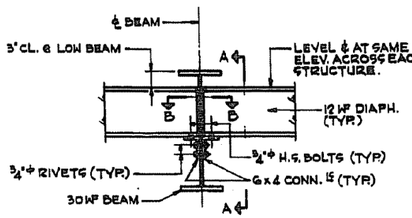
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. UNIT D FRAMING PLAN – LOCATION 2 STRUCTURE NO. 016–0487
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SB-10 OF SB-34 SHEETS
	PLOT DATE = 12/05/2018 2:19:09 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	48
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	

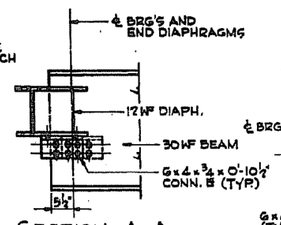


END DIAPHRAGM DETAIL

DIAPHRAGMS D THRU D4

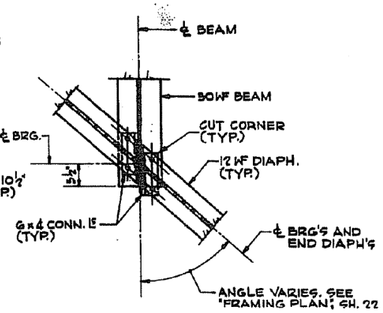
FOR NO. REQ'D, SEE "TABLE I" SH. 22

SCALE: ¾"=1'-0"



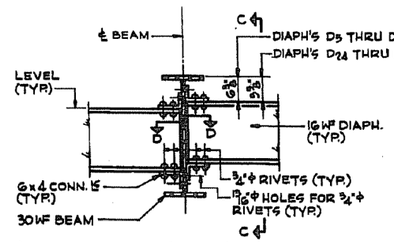
SECTION A-A

SCALE: ¾"=1'-0"



SECTION B-B

SCALE: ¾"=1'-0"

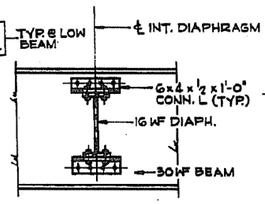


INTERMEDIATE DIAPHRAGM DETAIL

DIAPHRAGMS D5 THRU D34

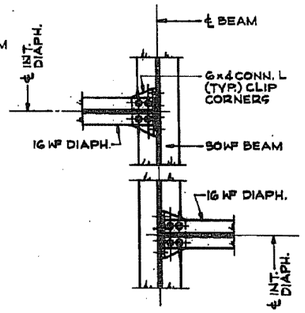
FOR NO. REQ'D, SEE "TABLE I" SH. 22

SCALE: ¾"=1'-0"



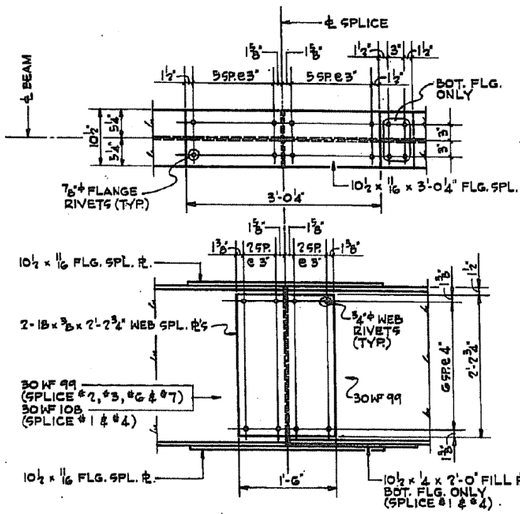
SECTION C-C

SCALE: ¾"=1'-0"



SECTION D-D

SCALE: ¾"=1'-0"

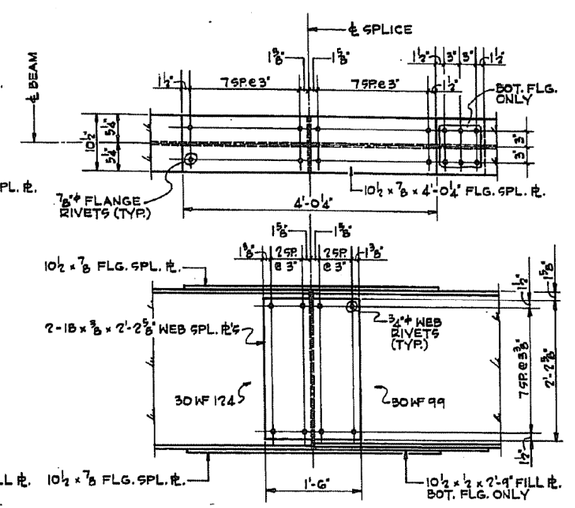


DETAIL - FIELD SPLICE #1 THRU #4, #6 & #7

SPLICES SIMILAR EXCEPT AS NOTED OTHERWISE

FIELD SPLICE #1, #2, #3, #6 & #7 - AS SHOWN

FIELD SPLICE #4 - OPPOSITE HAND



DETAIL - FIELD SPLICE #5

FIELD SPLICE DETAILS

SCALE: 1" = 1'-0"

TOP/WF ELEVATIONS*

LOCATION \ BEAM	B1	B2	B3	B4	B5	B6
E.B. ROADWAY ℄ BRG'S, PIER 7	3.886	4.050	4.169	4.227	4.178	4.109
℄ PIER 8	3.738	3.903	4.021	4.080	4.030	3.961
℄ FIELD SPLICE #1	3.698	3.862	3.981	4.039	3.990	3.921
℄ PIER 9	3.546	3.711	3.830	3.888	3.839	3.770
℄ FIELD SPLICE #2	3.506	3.671	3.789	3.847	3.798	3.729
℄ FIELD SPLICE #3	3.395	3.560	3.678	3.737	3.687	3.618
℄ PIER 10	3.355	3.519	3.638	3.696	3.647	3.578
℄ FIELD SPLICE #4	3.204	3.368	3.487	3.545	3.496	3.427
℄ PIER 11	3.163	3.328	3.446	3.504	3.455	3.386
℄ BRG'S, S.W. ABUT.	3.010	3.175	3.293	3.352	3.303	3.233

LOCATION \ BEAM	B7	B8	B9	B10	B11	B12
℄ BRG'S, PIER 18	4.056	4.158	4.240	4.259	4.213	4.147
℄ PIER 19	3.860	3.961	4.044	4.062	4.016	3.950
℄ FIELD SPLICE #5	3.807	3.909	3.991	4.009	3.963	3.897
℄ FIELD SPLICE #6	3.708	3.810	3.892	3.911	3.865	3.799
℄ PIER 20	3.668	3.770	3.852	3.870	3.824	3.758
℄ FIELD SPLICE #7	3.517	3.618	3.701	3.719	3.673	3.607
℄ PIER 21	3.476	3.578	3.660	3.678	3.632	3.567
℄ BRG'S, N.E. ABUT.	3.324	3.425	3.508	3.526	3.480	3.414

* ADD 620.000 TO ALL TOP/WF ELEVATIONS GIVEN.

FILE NAME = ...\0160487-60W87-011-D-Sti.01s.dgn

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin..31 | PLOT SCALE = | PLOT DATE = 12/05/2018 2:19:46 PM

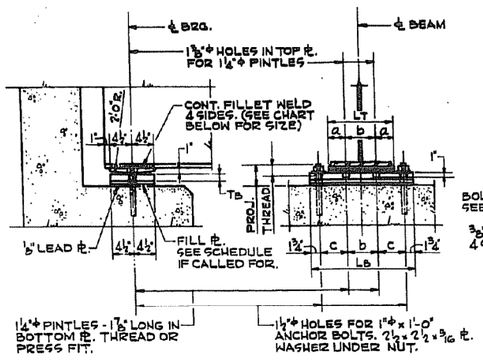
DESIGNED - | CHECKED - | DRAWN - | CHECKED -

REVISED - | REVISED - | REVISED - | REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT D STEEL DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-11 OF SB-34 SHEETS

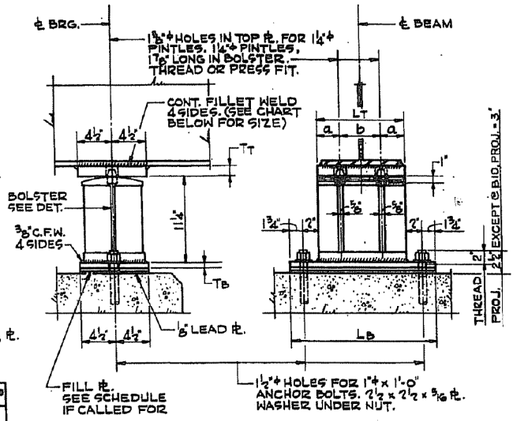
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	49
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		



TYPE	NO. REQ'D	LT	LB	C.F.W.	TB	a	b	c	TOTAL WEIGHT*
	NONE								

FIXED BEARINGS AT ABUTMENTS

SCALE: 1"=1'-0"

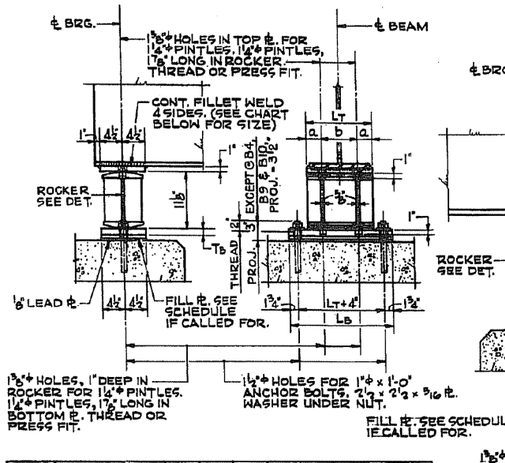


TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	C.F.W.	TOTAL WEIGHT*
F2	6	11½"	1'-7"	1⅜"	¾"	3"	5½"	½"	231 LBS.

FIXED BEARINGS AT PIER 20

BEAM WITHOUT COVER PLATES

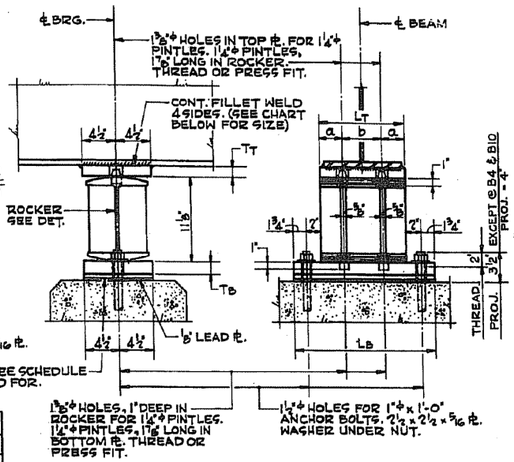
SCALE: 1½"=1'-0"



TYPE	NO. REQ'D	LT	LB	C.F.W.	TB	a	b	TOTAL WEIGHT*
E1	24	11½"	1'-7"	⅜"	1⅜"	3"	5½"	250 LBS.

EXPANSION BEARINGS AT ABUTMENTS AND AT PIERS 7 & 18

SCALE: 1"=1'-0"

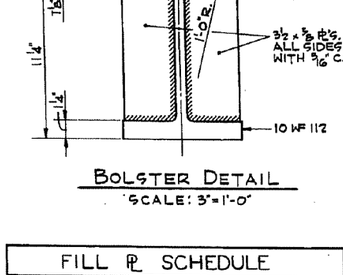


TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	C.F.W.	TOTAL WEIGHT*
E2	24	11½"	1'-7"	1⅜"	1¾"	3"	5½"	½"	280 LBS.

EXPANSION BEARINGS AT PIERS 8,11,19 & 21

BEAM WITHOUT COVER PLATES

SCALE: 1½"=1'-0"

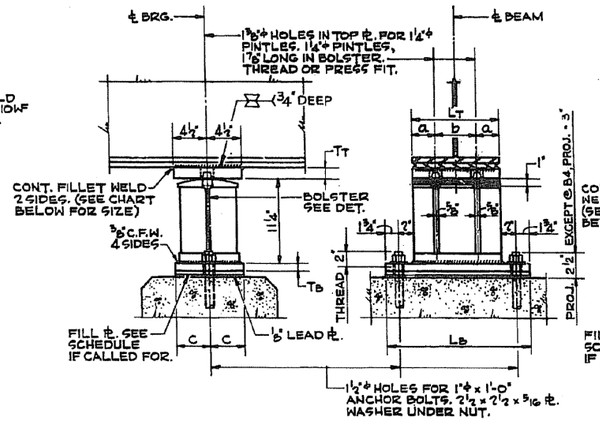


BOLSTER DETAIL

SCALE: 3"=1'-0"

FILL PL SCHEDULE		
LOCATION	BEAM	FILL PL THICKNESS
E.B. ROADWAY, ALL SUPPORTS	B4	3/4"
	B5	1/8"
W.B. ROADWAY, ALL SUPPORTS	B9	5/16"
	B10	1/2"

TOTAL WEIGHT OF FILL PL'S = 455 LBS.

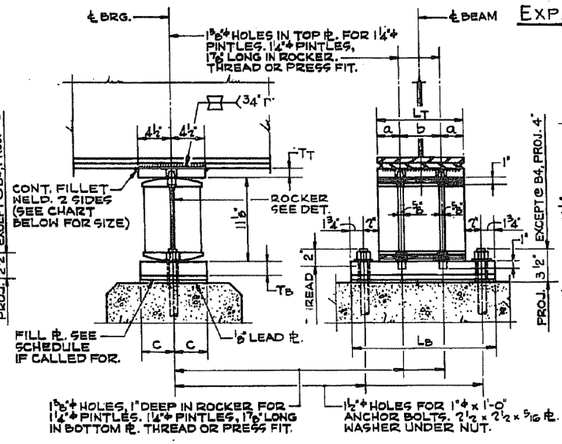


TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	c	C.F.W.	TOTAL WEIGHT*
F1	6	10½"	1'-6"	1"	¾"	2½"	5½"	4½"	½"	207 LBS.

FIXED BEARINGS AT PIER 10

BEAM WITH COVER PLATES

SCALE: 1½"=1'-0"

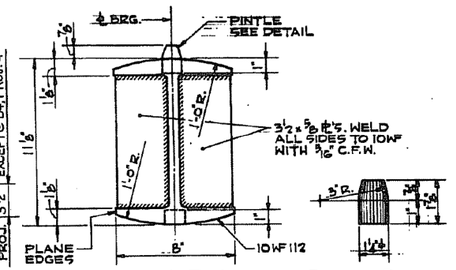


TYPE	NO. REQ'D	LT	LB	TT	TB	a	b	c	C.F.W.	TOTAL WEIGHT*
E3	6	10½"	1'-6"	1"	1¾"	2½"	5½"	4½"	½"	253 LBS.

EXPANSION BEARINGS AT PIER 9

BEAM WITH COVER PLATES

SCALE: 1½"=1'-0"



ROCKER DETAIL

SCALE: 3"=1'-0"

PINTLE DETAIL

NOT TO SCALE

✳ TOTAL WEIGHT OF ONE ASSEMBLY INCLUDES TOP PL., ROCKER OR BOLSTER, BOTTOM PL., ANCHOR BOLTS, PL. WASHERS AND LEAD PL. DOES NOT INCLUDE THE WEIGHT OF ANY FILL PL.

FILE NAME = ...\0160487-60W87-012-D_Brg_Dtls.dgn

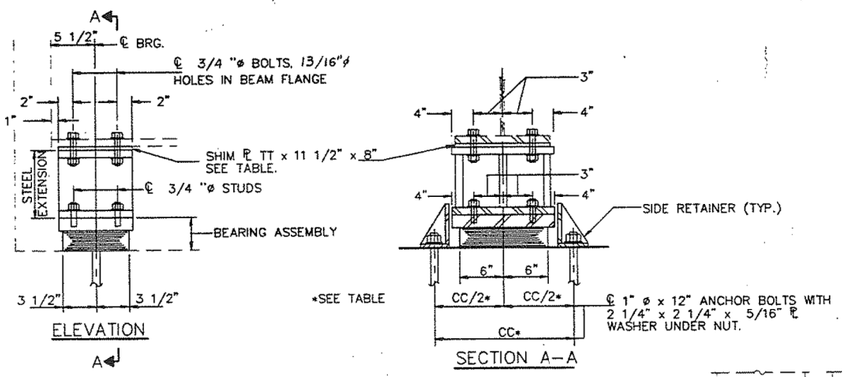
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:20:41 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. UNIT D BEARING DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-12 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	50
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



TYPE I ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

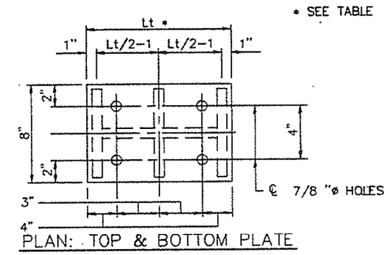
SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

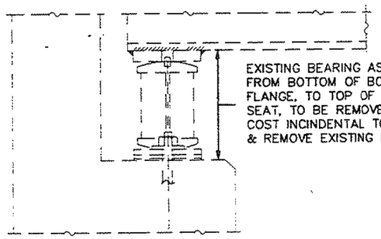
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

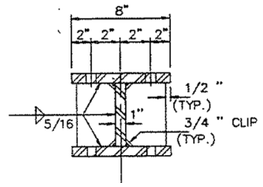
SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.



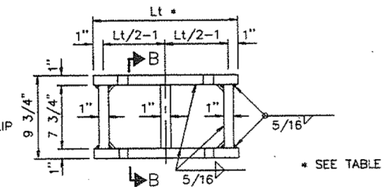
PLAN: TOP & BOTTOM PLATE



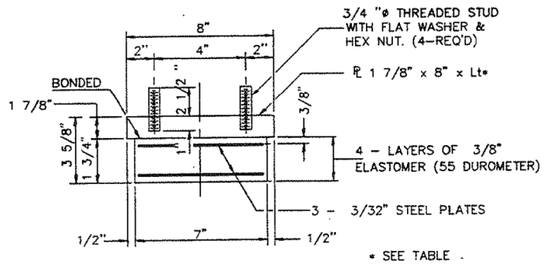
EXISTING ELEVATION



SECTION B–B

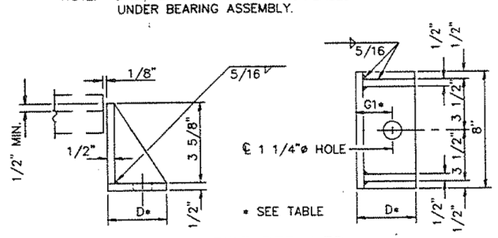


STEEL EXTENSION DETAIL



BEARING ASSEMBLY

NOTE: SHIM PLATES SHALL NOT BE PLACED UNDER BEARING ASSEMBLY.

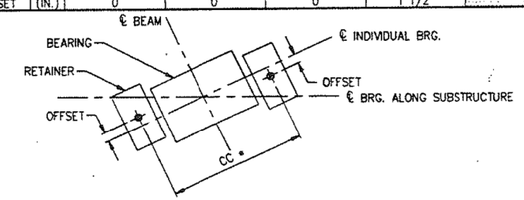


SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.

SHIM ℙ THICKNESS, TT: SIZES SHOWN ARE IN ADDITION TO THE 1/8" SHIM ℙ TO BE FURNISHED @ ALL LOCATIONS.

LOCATION / BEAM	DIM.	EAST BOUND				RAMP F	LOCATION / BEAM	WEST BOUND			
		EAST ABUTMENT	PIER 2 EAST	PIER 5 WEST	PIER 7 EAST	WEST ABUTMENT		EAST ABUTMENT	PIER 13 EAST	PIER 16 WEST	PIER 18 EAST
A–E	(IN.)	1/8	1/8			1/8	I–K	1/8	1/8		
F	(IN.)	9/16	9/16	5/8	1/8		L	1/8	1/8	0	0
G	(IN.)	1/2	9/16	1/4	0		M	1/4	1/4	3/8	5/16
H	(IN.)	1/4	5/16	5/8	5/8		N	1/8	1/8	13/16	1/8
I	(IN.)			5/8	7/8		O			13/16	5/16
J	(IN.)			3/4	3/8		P			1/8	5/8
K	(IN.)			9/16	5/16		Q			1/8	11/16
REACTIONS											
DL	(K)	21.7	21.7	23.6	27.4	31		20.1	20.1	23.6	27.4
LL	(K)	40.2	40.2	37.7	37.7	33.4		37.4	37.4	37.7	37.7
IMP	(K)	11.4	11.4	10.4	10.4	8.9		10.8	10.8	10.4	10.4
TOTAL	(K)	73.3	73.3	71.7	75.5	73.3		68.3	68.3	71.7	75.5
VARIABLE DIMENSIONS:											
BEAMS		A–H	A–H	F,G	H–K	F–K	A–E	I–N	I–N	L,M	N–Q	L–Q
CC	(IN.)	22 1/2	22 1/2	27	21 1/2	19 1/2	21 1/2	22 1/2	22 1/2	27	21 1/2	19 1/2
G1	(IN.)	4 1/8	4 1/8	5 7/8	3 1/8	2 1/8	3 5/8	4 1/8	4 1/8	5 7/8	3 1/8	2 1/8
D	(IN.)	6	6	7 3/4	5	4	5 1/2	6	6	7 3/4	5	4
Lt		1'–2"	1'–2"	1'–3"		1'–3"	1'–2"	1'–2"	1'–2"	1'–3"		1'–3"
OFFSET	(IN.)	0	0	0		1 1/2"				0		2

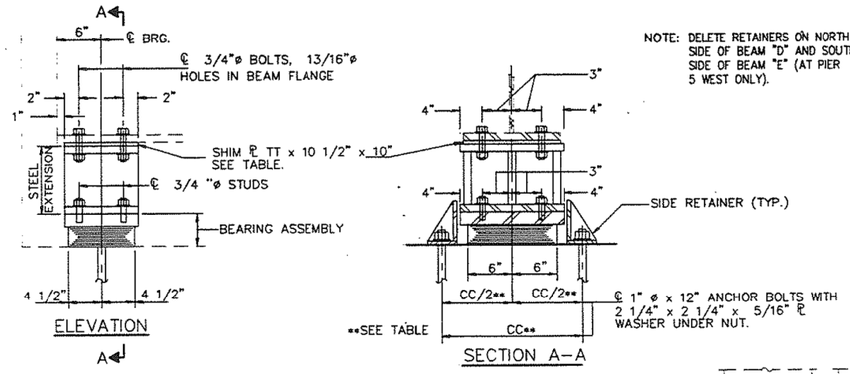


* SEE TABLE

FILE NAME = ...\0160487-60W87-013-Brg_Dtls.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	1993 BEARING REPLACEMENT DETAILS – LOCATION 2 STRUCTURE NO. 016–0487
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SB-13 OF SB-34 SHEETS
	PLOT DATE = 12/05/2018 2:21:34 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	51
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		



TYPE I ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

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SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

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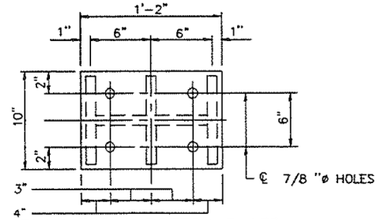
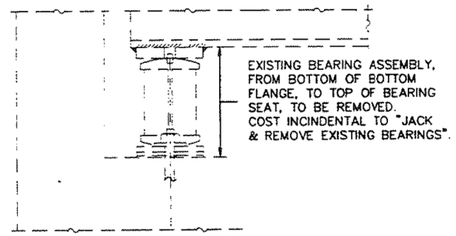
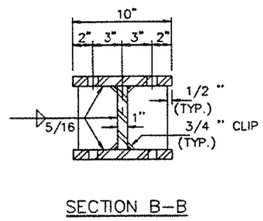


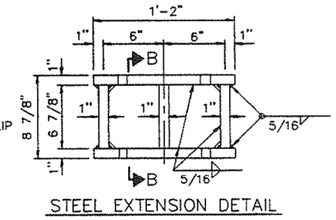
PLAN TOP & BOTTOM PLATE



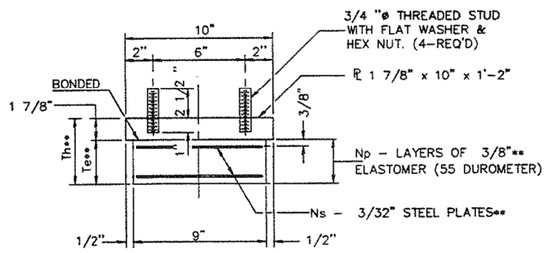
EXISTING ELEVATION



SECTION B–B

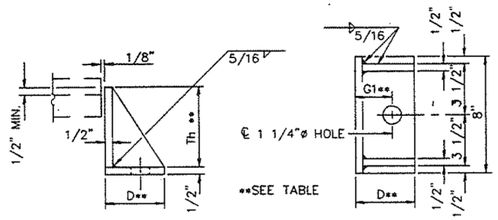


STEEL EXTENSION DETAIL



BEARING ASSEMBLY **SEE TABLE

NOTE: SHIM PLATES SHALL NOT BE PLACED UNDER BEARING ASSEMBLY.



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.

LOCATION / BEAM	DIM.	SHIM ℙ THICKNESS, TT: * EAST BOUND PIER 5 WEST RAMP F	WEST BOUND LOCATION / BEAM	WEST BOUND PIER 16 EAST
A	(IN.)	1/2	I	3/16
B	(IN.)	1/2	J	3/16
C	(IN.)	1/2	K	3/16
D	(IN.)	1/2	L	3/16
E	(IN.)	1/2	M	3/16
REACTIONS				
DL	(K)	42.9		34.0
LL	(K)	37.0		50.2
IMP	(K)	10.0		11.2
TOTAL	(K)	89.9		95.4
VARIABLE DIMENSIONS:				
BEARING TYPE		9x12,I.a		9x12,I.b
CC	(IN.)	21 1/2		23
G1	(IN.)	3 5/8		4 3/8
D	(IN.)	5 1/2		6 1/4
Np	(IN.)	5		7
Ns	(IN.)	4		6
Te	(IN.)	2 1/4		3 3/16
Th	(IN.)	4 1/8		5 1/16

* SIZES SHOWN ARE IN ADDITION TO THE 1/8" SHIM ℙ TO BE FURNISHED AT ALL LOCATIONS

FILE NAME = ...\0160487-60W87-014-Brg_Dtls.dgn

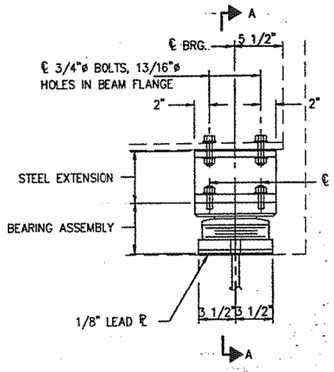
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:22:29 PM	CHECKED -	REVISED -

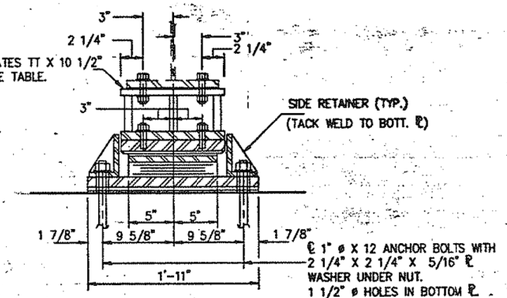
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

1993 BEARING REPLACEMENT DETAILS – LOCATION 2
STRUCTURE NO. 016–0487
SHEET NO. SB-14 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	52
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION



SECTION A–A

TYPE II TFE ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

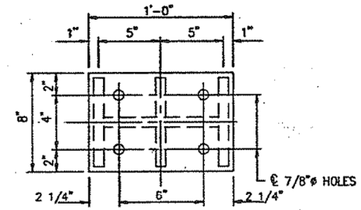
SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

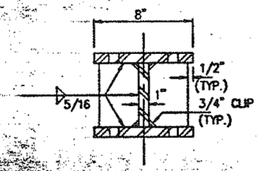
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

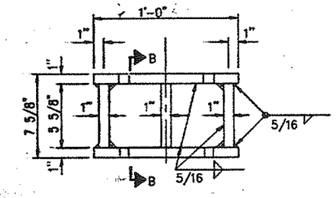
SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.



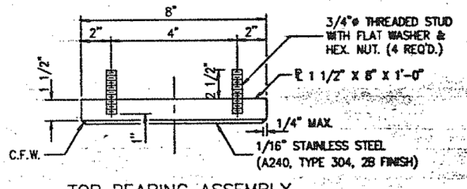
PLAN TOP & BOTTOM PLATES



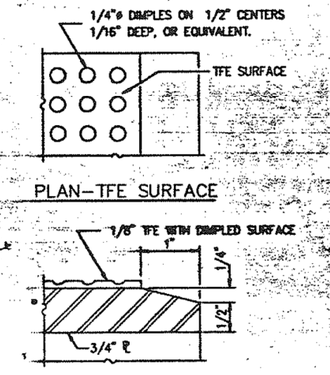
SECTION B–B



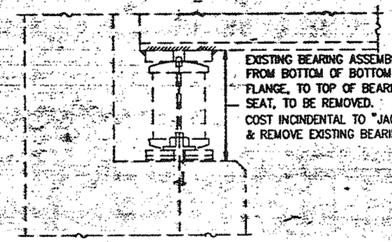
STEEL EXTENSION DETAIL



TOP BEARING ASSEMBLY



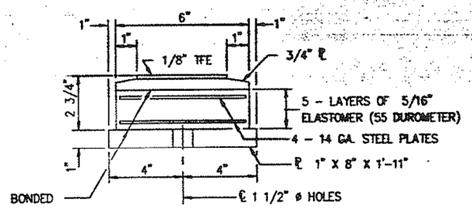
PLAN–TFE SURFACE



EXISTING ELEVATION

SHIM ℙ THICKNESS, TT: *	
LOCATION	WEST ABUTMENT
BEAM	WEST BOUND
B7,B8,B11,B12	1/2"
B9	13/16"
B10	1"
REACTIONS	
R D (K)	14.6
R L (K)	31.0
IMP. (K)	9.0
R (TOTAL) (K)	54.6

* IN ADDITION TO 1/8" SHIMS TO BE PROVIDED AT ALL BEARING LOCATIONS

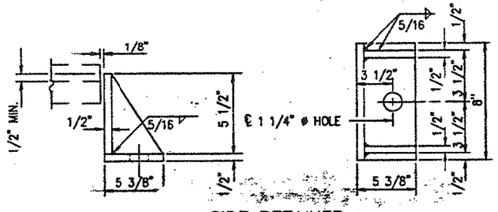


BOTTOM BEARING ASSEMBLY

SECTION THRU TFE

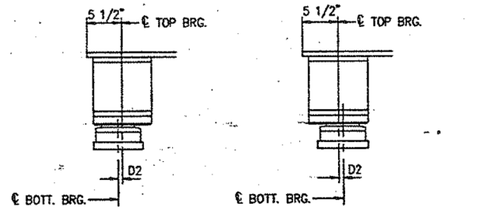
NOTE: THE 1/8 " TFE SHEET SHALL BE BONDED DIRECTLY TO THE TOP STEEL PLATE WITH A TWO–COMPONENT, MEDIUM VISCOSITY EPOXY RESIN, CONFORMING TO THE REQUIREMENTS OF THE FEDERAL SPECIFICATION MMM–A–134, TYPE I. THE BOND AGENT SHALL BE APPLIED ON THE FULL AREA OF THE CONTACT SURFACES.

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.



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



SETTING ANCHOR BOLTS AT EXP. BRG.

D2= 1/8 " PER EACH 100° OF EXPANSION FOR EVERY 15° TEMP. CHANGE FROM THE NORMAL TEMP. OF 50°F.

FILE NAME = ...\0160487-60W87-015-Brg_Dtls.dgn

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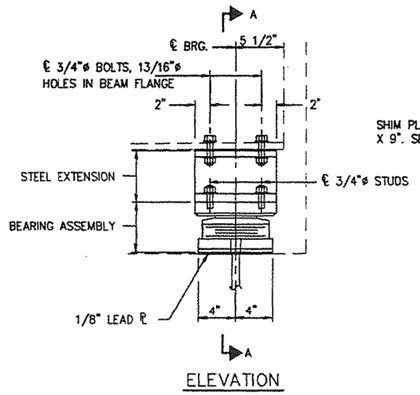
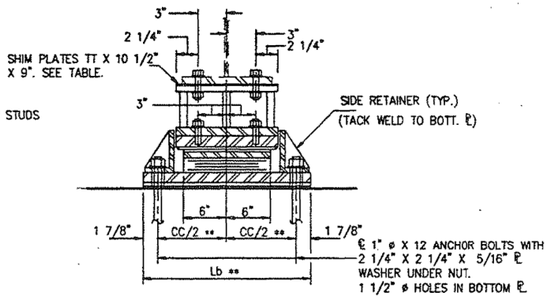
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SB-15 OF SB-34 SHEETS
	PLOT DATE = 12/05/2018 2:23:25 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	53
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	



ELEVATION



SECTION A–A

TYPE II TFE ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

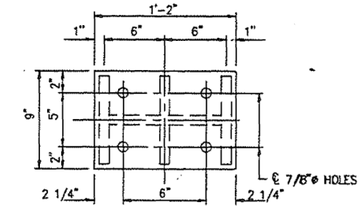
SEE SHEET 52 OF 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

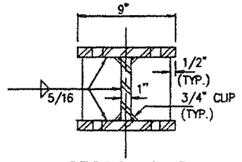
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

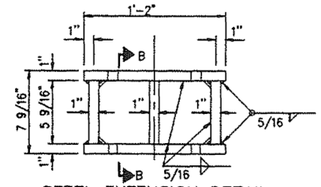
SEE SUPER STRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCAATIONS.



PLAN TOP & BOTTOM PLATES



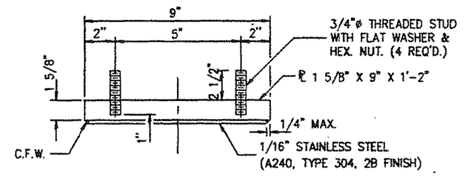
SECTION B–B



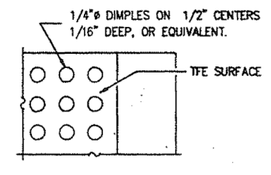
STEEL EXTENSION DETAIL

LOCATION	DIM.	SHIM ℄ THICKNESS, TT: *			
		EAST BOUND		LOCATION	WEST BOUND
BEAM		PIER 7 WEST	WEST ABUTMENT	BEAM	PIER 18 WEST
B1	(IN.)	0	1/2	B7	1/2
B2	(IN.)	0	1/2	B8	1/2
B3	(IN.)	0	1/2	B9	13/16
B4	(IN.)	3/4	1 1/4	B10	1
B5	(IN.)	1/8	5/8	B11	1/2
B6	(IN.)	0	1/2	B12	1/2
REACTIONS					
DL	(K)	14.6	15.7		20.2
LL	(K)	34.0	34.0		33.0
IMP	(K)	10.0	10.0		9.0
TOTAL	(K)	58.6	59.7		62.2
VARIABLE DIMENSIONS:					
BEARING TYPE		7x12,II,C	7x12,II,B		7x12,II,B
Np	(IN.)	5	4		4
Ns	(IN.)	4	3		3
Te	(IN.)	3 1/8	2 5/8		2 5/8
CC	(IN.)	18 1/2	19 1/4		18 1/2
Lb	(IN.)	22 1/4	23		22 1/4
G1	(IN.)	2 1/8	2 1/2		2 1/8
D	(IN.)	4	4 3/8		4

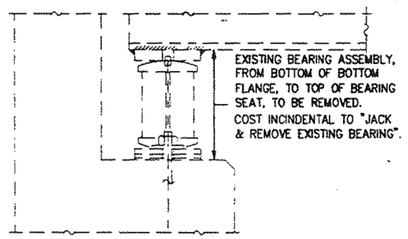
* IN ADDITION TO 1/8" SHIMS TO BE PROVIDED @ ALL BEARING LOCATIONS.



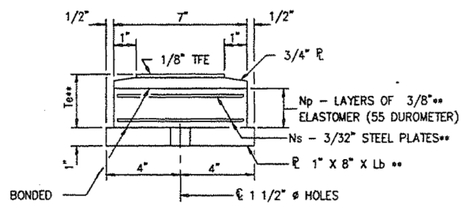
TOP BEARING ASSEMBLY



PLAN–TFE SURFACE



EXISTING ELEVATION



BOTTOM BEARING ASSEMBLY

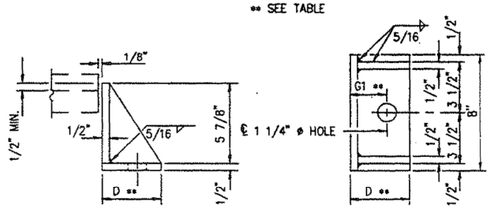
SECTION THRU TFE

** SEE TABLE

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.

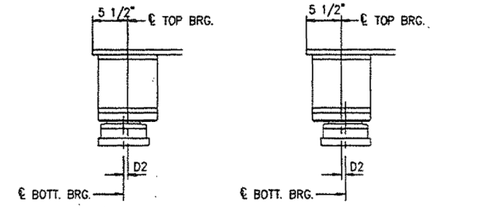
BONDING OF 1/8 " TFE SHEET DURING VULCANIZING PROCESS WILL BE PERMITTED PROVIDED THE PROCESS AND METHOD OF ADJUSTING ASSEMBLY HEIGHT IS APPROVED BY THE ENGINEER.

** SEE TABLE



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



SETTING ANCHOR BOLTS AT EXP. BRG.

D2= 1/8 " PER EACH 100° OF EXPANSION FOR EVERY 15° TEMP. CHANGE FROM THE NORMAL TEMP. OF 50°F

FILE NAME = ...\0160487-60W87-016-Brg_Dtls.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -
		CHECKED -	REVISED -
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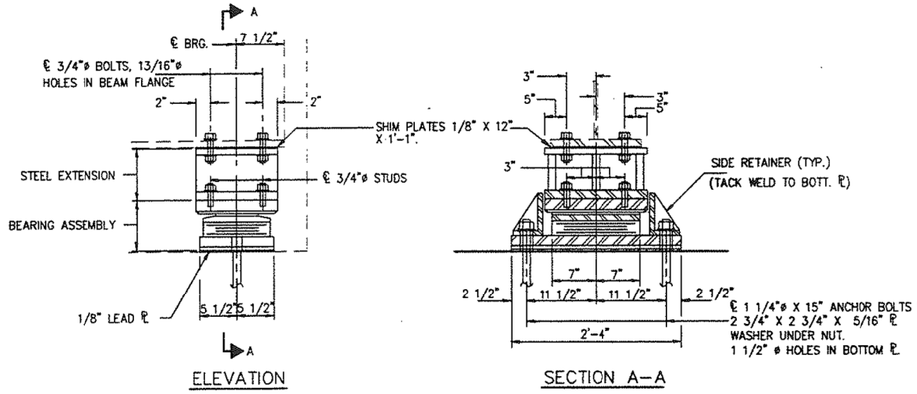
	PLOT DATE = 12/05/2018 2:24:19 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

1993 BEARING REPLACEMENT DETAILS – LOCATION 2
STRUCTURE NO. 016–0487
SHEET NO. SB-16 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	54
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION

SECTION A–A

TYPE II TFE ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

SEE SHEET 52 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

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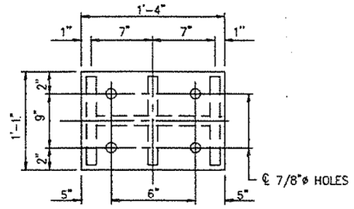
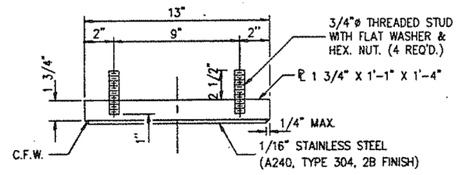
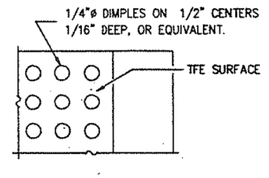
SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.



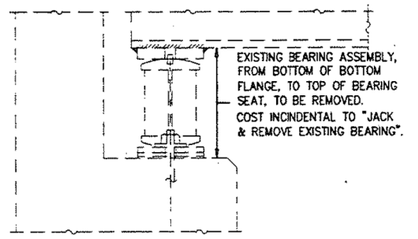
PLAN TOP & BOTTOM PLATES



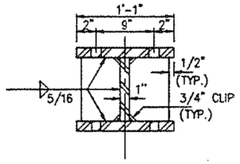
TOP BEARING ASSEMBLY



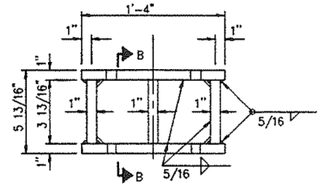
PLAN–TFE SURFACE



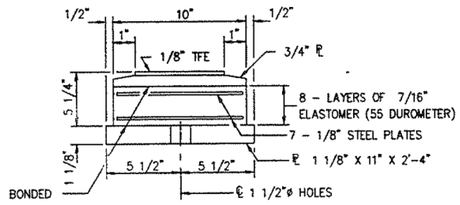
EXISTING ELEVATION



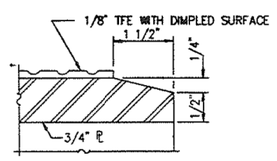
SECTION B–B



STEEL EXTENSION DETAIL



BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

REACTIONS		
R D	(K)	34.0
R L	(K)	50.2
IMP.	(K)	11.2
R (TOTAL)	(K)	95.4

NOTE: REACTIONS ARE THE SAME FOR BOTH LOCATIONS

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.

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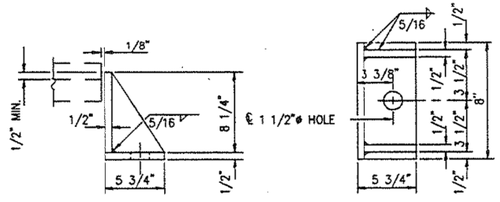

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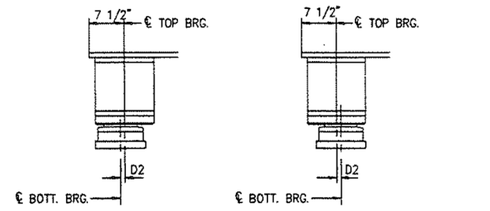
EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



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LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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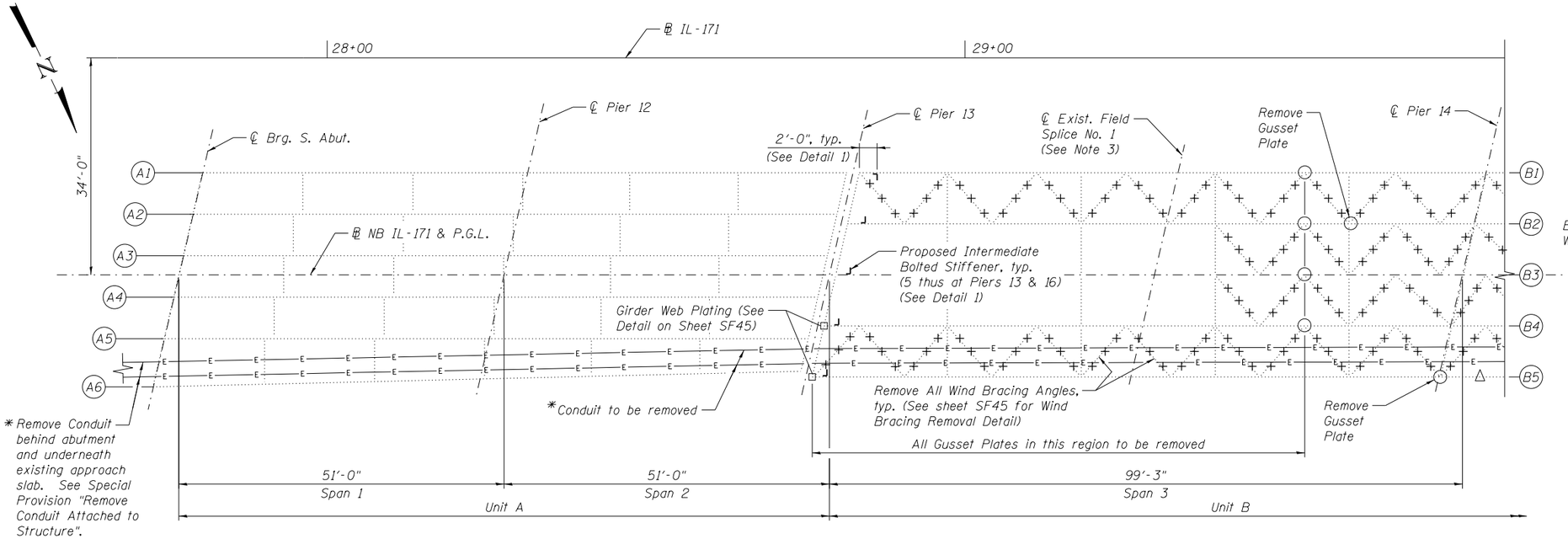
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:25:13 PM	CHECKED -	REVISED -

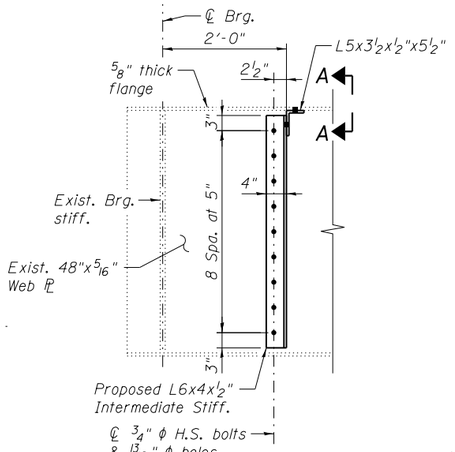
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

1993 BEARING PLACEMENT DETAILS – LOCATION 2
STRUCTURE NO. 016–0487
SHEET NO. SB-17 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	55
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		

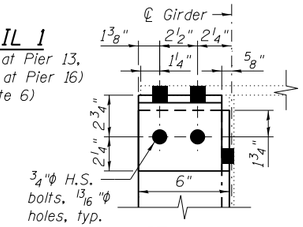


EXISTING FRAMING PLAN - SPANS 1-3

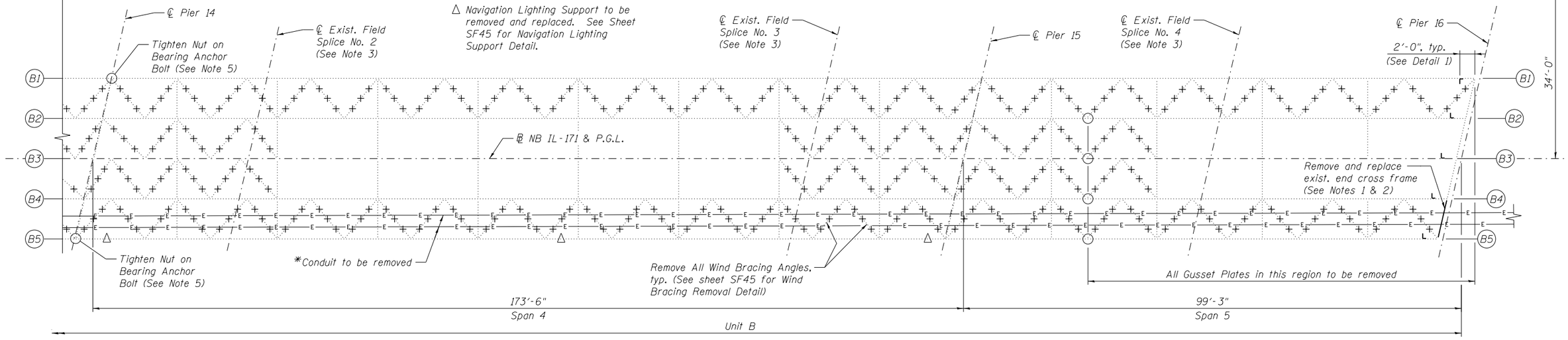


DETAIL 1

(Detail shown at Pier 13, opposite hand at Pier 16) (See Note 6)



VIEW A-A



EXISTING FRAMING PLAN - SPANS 4 & 5

LEGEND

×···×···× Remove existing steel

FILE NAME = ...\0160487-60W87-018-AB_Stl_Repair_Plan.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STEEL REPAIR PLAN UNITS A & B – LOCATION 2 STRUCTURE NO. 016-0487
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	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SB-18 OF SB-34 SHEETS
	PLOT DATE = 12/05/2018 2:26:07 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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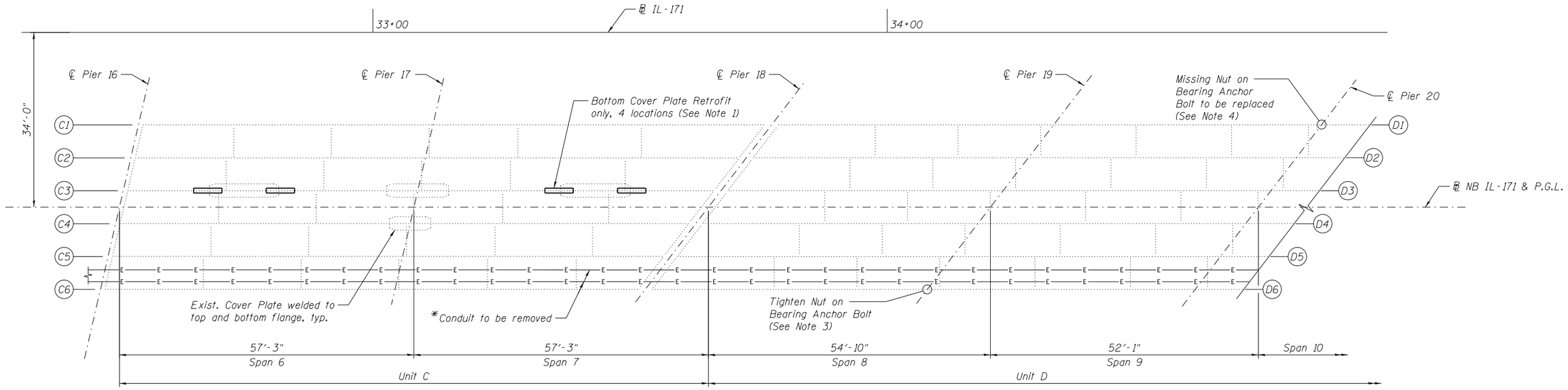
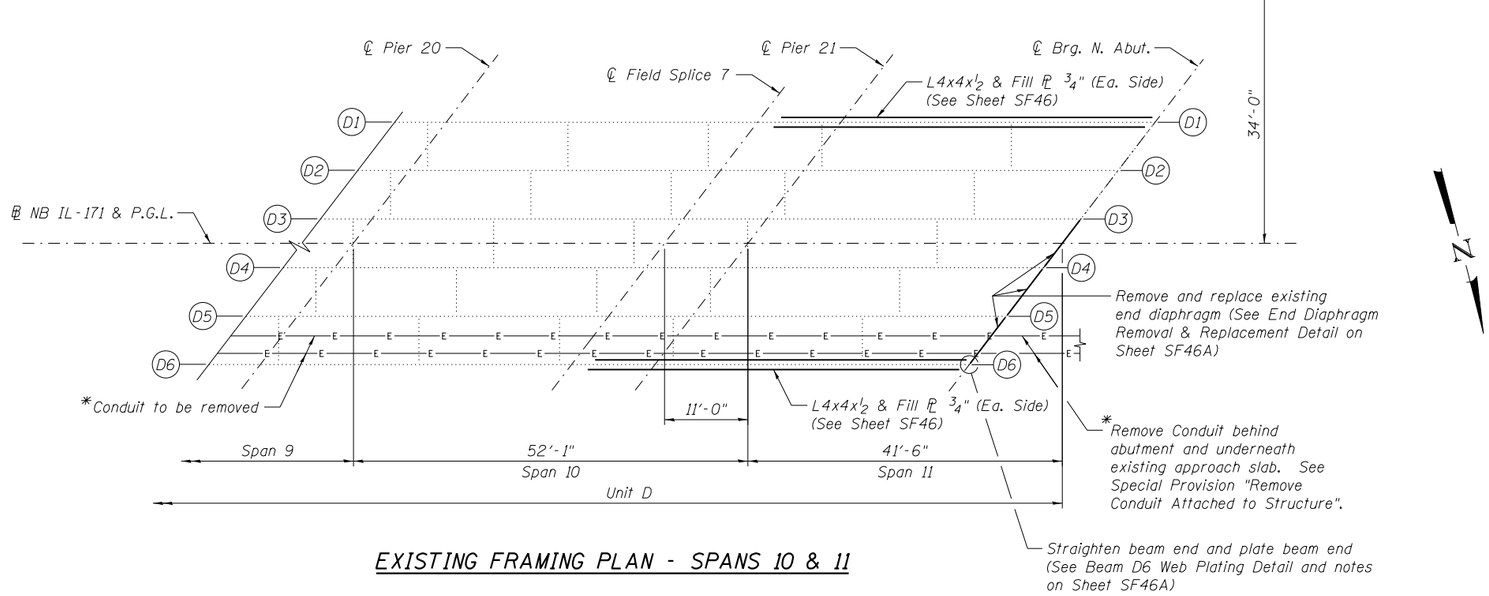
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	



EXISTING FRAMING PLAN - SPANS 6-9



EXISTING FRAMING PLAN - SPANS 10 & 11

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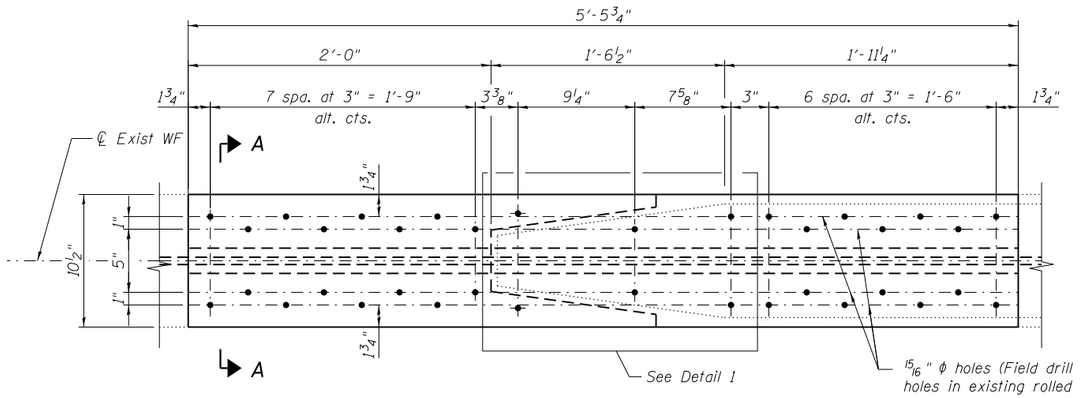
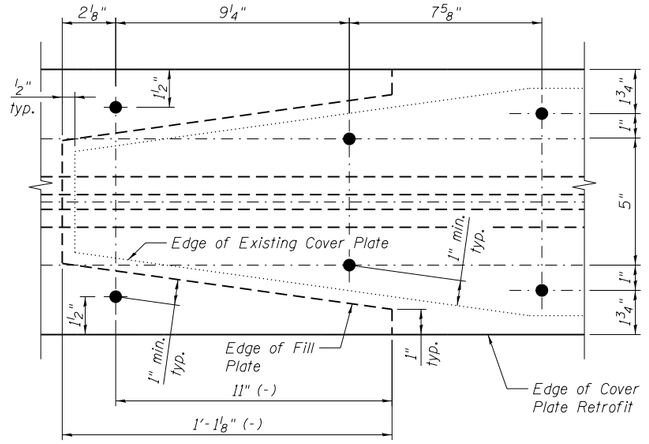


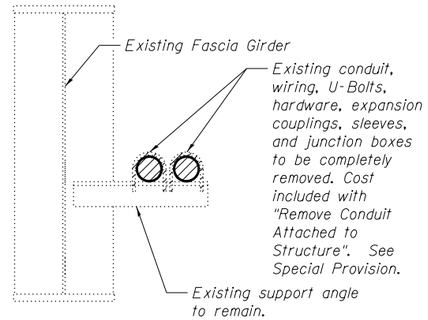
COVER PLATE RETROFIT

(See Note 2)
(36 bolts per retrofit)
(4 Locations, Bottom Flange only)

Note: Locations of Cover Plate Retrofit are symmetrical about the ℄ of the existing cover plate.

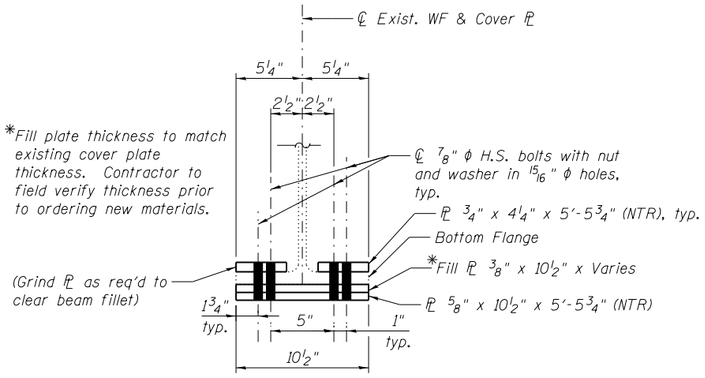


DETAIL 1

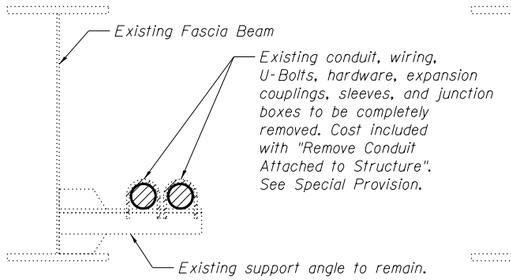


CONDUIT REMOVAL DETAIL

(Plate Girder Detail - Spans 3 thru 5)

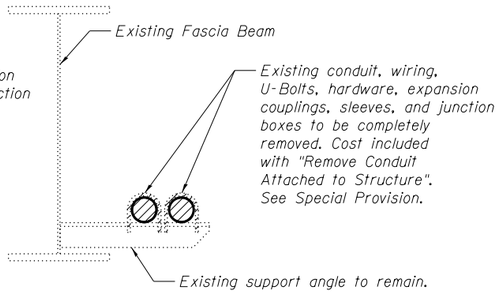


SECTION A-A



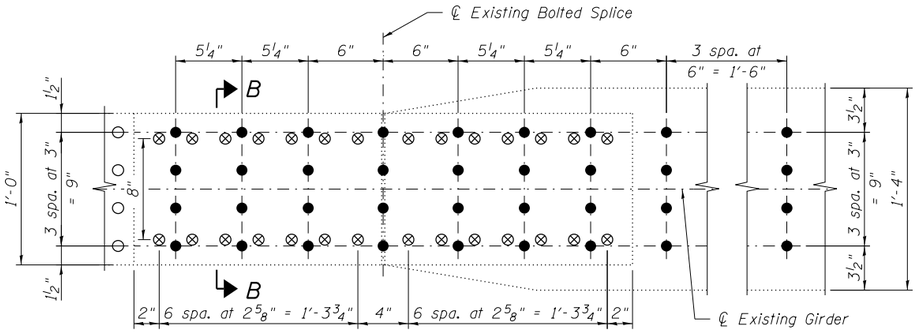
CONDUIT REMOVAL DETAIL

(Wide Flange Detail - Spans 1, 2, 6 & 7)



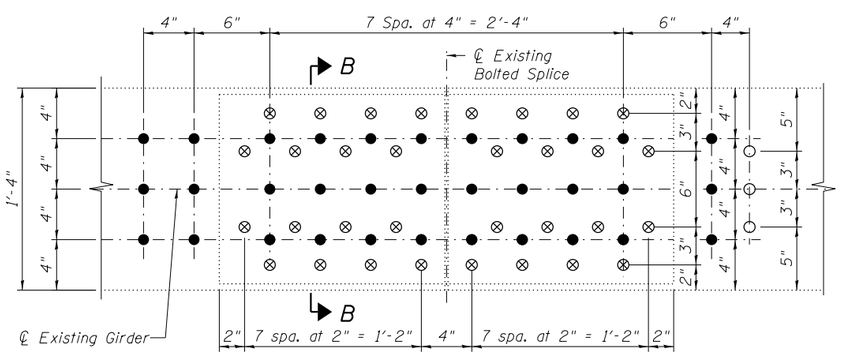
CONDUIT REMOVAL DETAIL

(Wide Flange Detail - Spans 8 thru 11)



NEW STUD SPACING AT EXISTING BOLTED SPLICES SPANS 3 & 5

(Existing Field Splice No. 1 in Span 3 shown, Field Splice No. 4 in Span 5 opposite hand)
(10 Locations)



NEW STUD SPACING AT EXISTING BOLTED SPLICES SPAN 4

(Existing Field Splice No. 2 in Span 4 shown, Field Splice No. 3 in Span 4 opposite hand)
(10 Locations)

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STRUCTURAL STEEL REPAIR DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-20 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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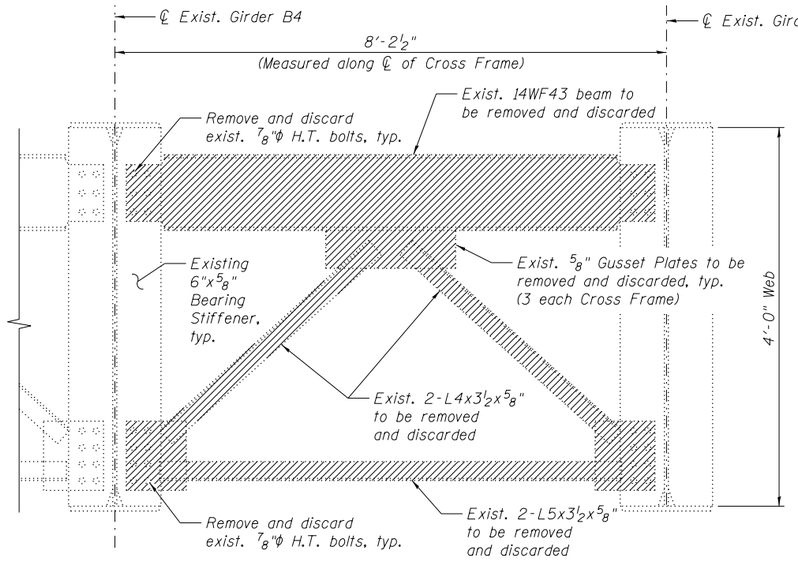
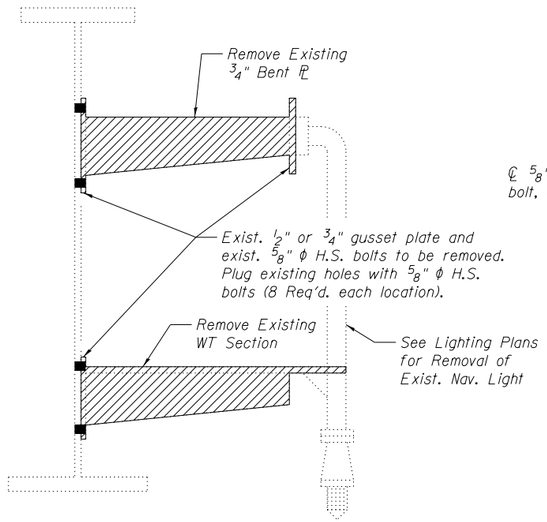
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		



EXIST. END CROSS FRAME REMOVAL AT PIER 16

(One location)

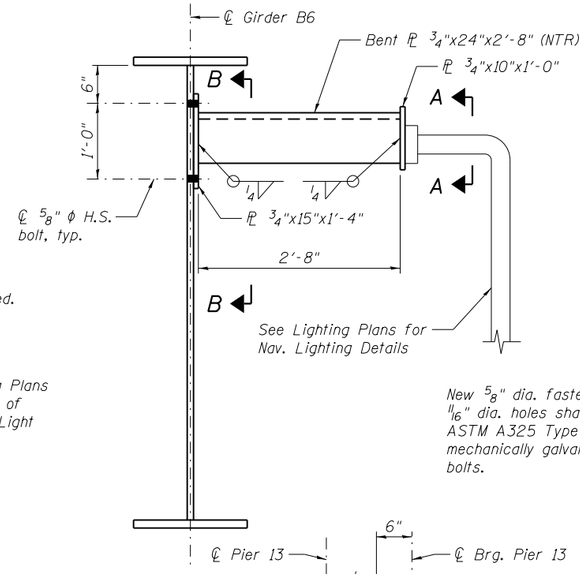
(Steel removal is paid for as "Structural Steel Removal". See Special Provision.)

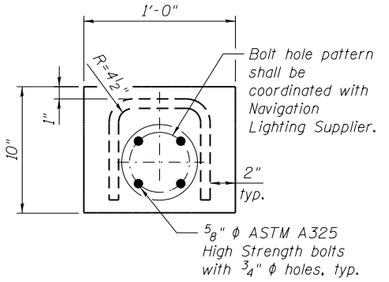


NAVIGATION LIGHTING SUPPORT DETAIL

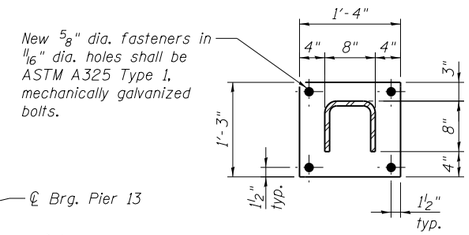
(3 Locations)

Note: All Navigational Lighting Support Details shall be coordinated with Navigational Light Supplier. Steel removal is paid for as "Structural Steel Removal". See Special Provision. New steel is paid for as "Furnishing and Erecting Structural Steel".

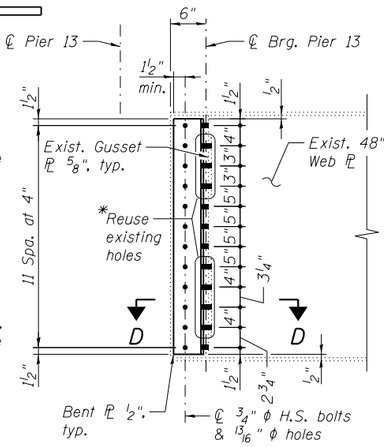




SECTION A-A



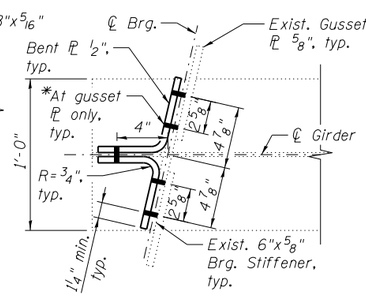
SECTION B-B



GIRDER WEB PLATING DETAIL

(Girders B4 & B5 at Pier 13)

(See Note 6)

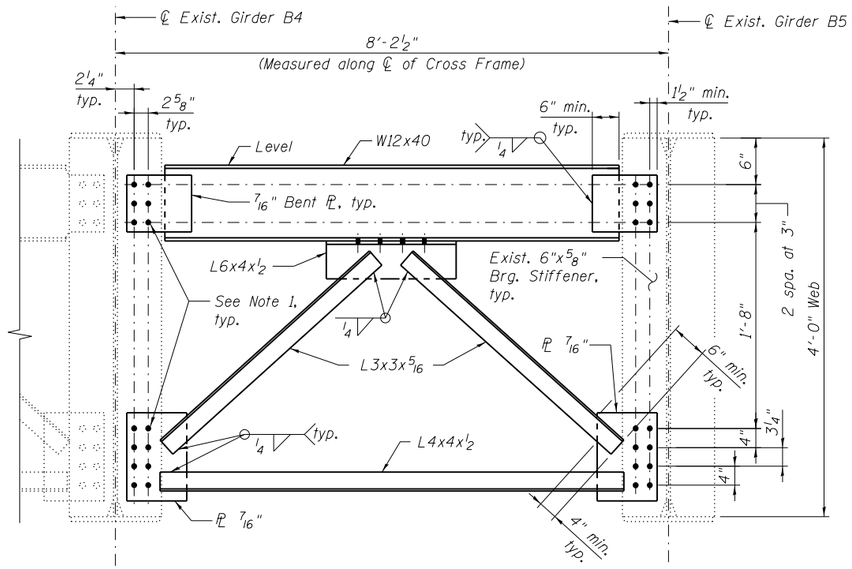


SECTION D-D

*Field drill holes using holes in existing bearing stiffener as a template. Use 7/8" dia. bolts in 15/16" dia. holes to match existing. Two rows of bolts at existing connections only.

GIRDER WEB PLATING CONSTRUCTION SEQUENCE

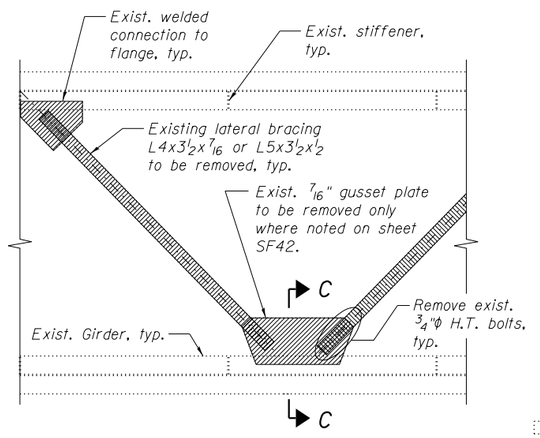
1. Remove existing cross frames in Bays B3-B4 and B4-B5.
2. Install girder web plating detail at Girders B4 and B5 by connecting to web only.
3. Reinstall existing cross frames in Bays B3-B4 and B4-B5 on the stiffener face opposite of ℄ Pier 13. Install proposed cross frame in Bay B5-B6 similarly.



NEW END CROSS FRAME AT PIER 16

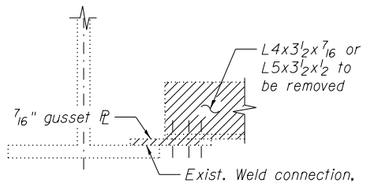
(One location)

(New steel is paid for as "Furnishing and Erecting Structural Steel".)



WIND BRACING REMOVAL DETAIL

(Removal of lateral bracing and gusset plates paid for as "Structural Steel Removal")



SECTION C-C

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL REPAIR DETAILS – LOCATION 2
STRUCTURE NO. 016–0487

SHEET NO. SB-21 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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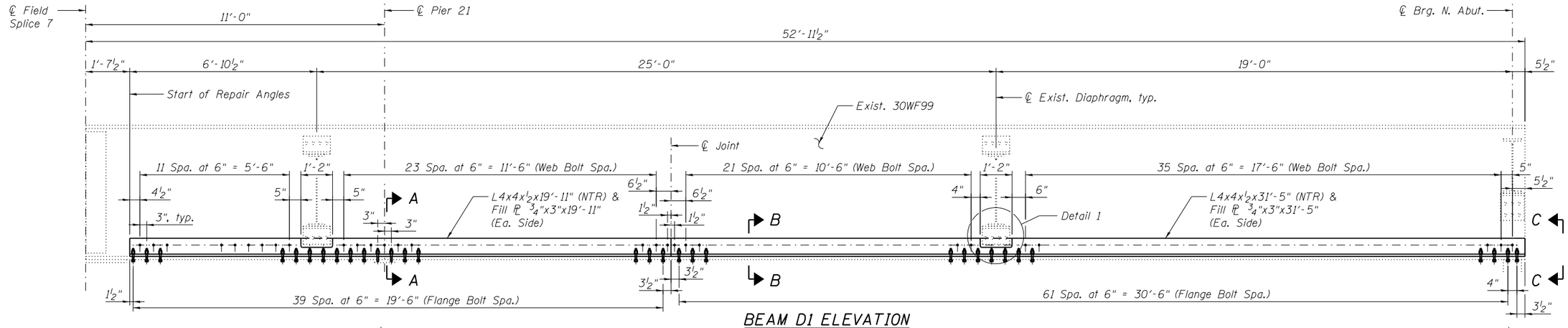
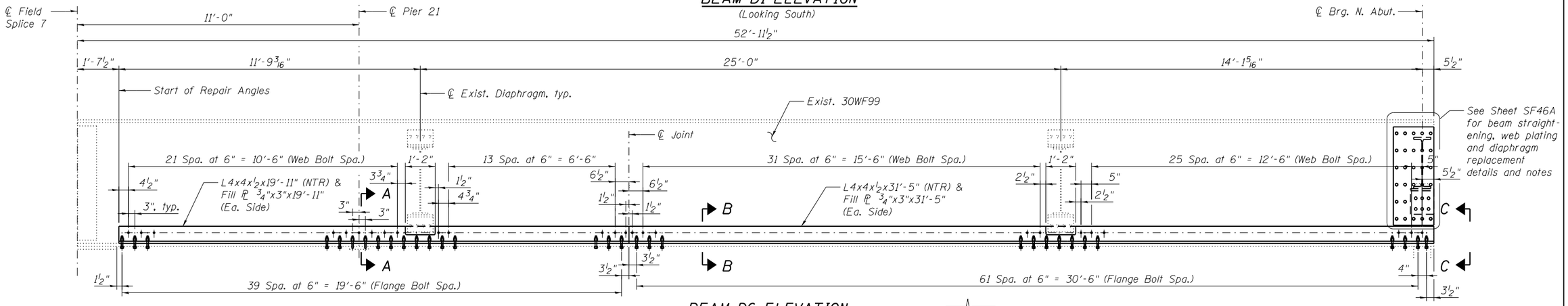
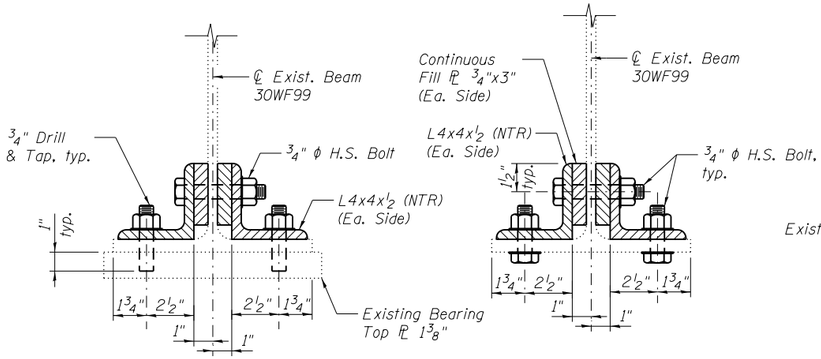
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



BEAM D1 ELEVATION
(Looking South)

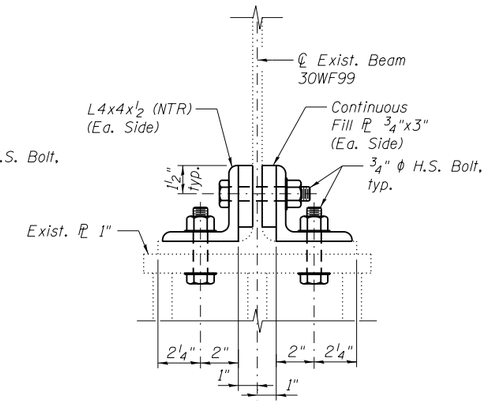


BEAM D6 ELEVATION
(Looking South)

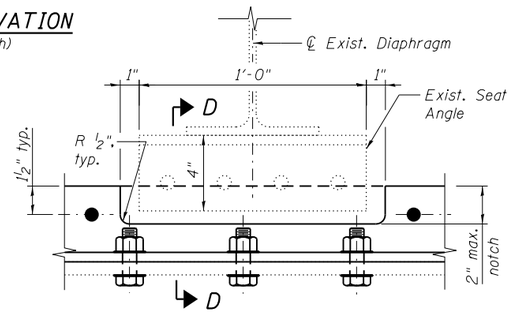


SECTION A-A

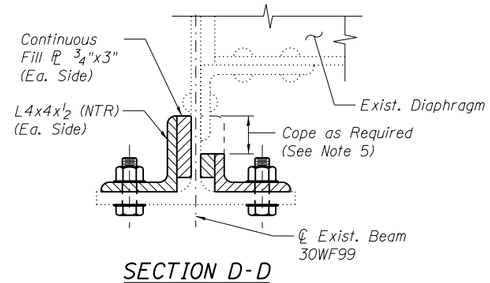
SECTION B-B



SECTION C-C
(Web plating at Beam D6 not shown for clarity)



DETAIL 1
(typical at diaphragms)



SECTION D-D

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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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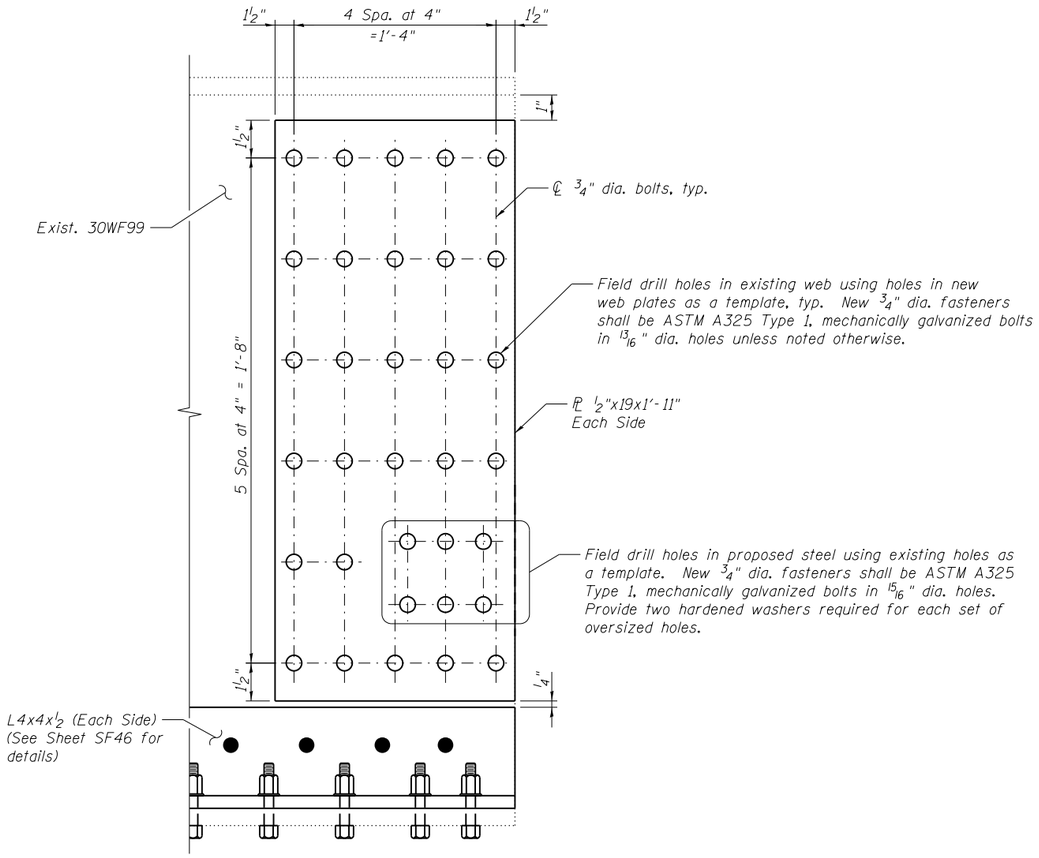
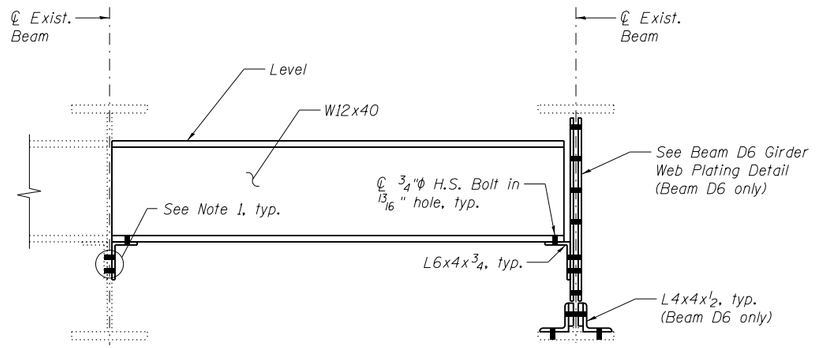
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	



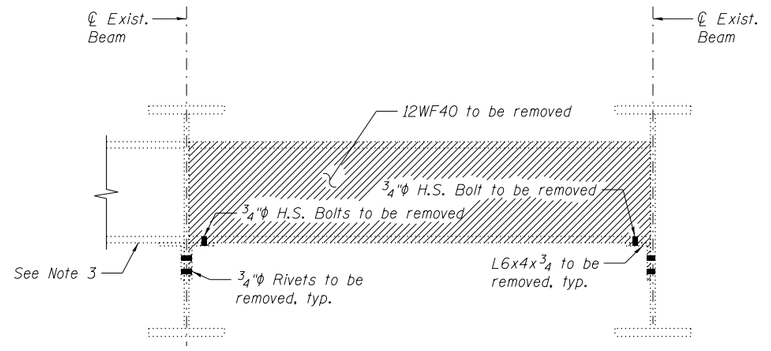
BEAM D6 WEB PLATING DETAIL

(Straighten beam end prior to web plating. See Beam Straightening Notes.)



END DIAPHRAGM REPLACEMENT DETAIL

(No. of Locations = 3)



EXISTING END DIAPHRAGM REMOVAL DETAIL

(No. of Locations = 3)

BEAM STRAIGHTENING NOTES:

1. Beam web is bent approximately 1 foot in length (along the ℄ of the beam) from the end of the beam with an approximate maximum deflection of ⅜".
2. Remove existing end diaphragm prior to beam straightening operations. See Existing End Diaphragm Removal Detail.
3. Contractor shall furnish all material, equipment and labor to straighten the deformed beam as directed by the Engineer.
4. Contractor shall mechanically straighten the beam utlizing jacking, pulling and/or bolting methods. The use of heat will not be allowed to facilitate the beam straightening process.
5. Contractor is responsible for the means and methods to straighten the beam end. The beam web shall be straightened as near plumb as practical as directed by the Engineer. The Contractor is responsible for supporting the flanges of the damaged beam and supporting any other beams used in the straightening process.
6. Method of beam straightening shall be approved by the Engineer prior to ordering of materials and straightening.

NOTES:

1. New ¾" dia. fasteners for the end diaphragm replacement shall be ASTM A325 Type 1, mechanically galvanized bolts in 15/16" dia. holes unless noted otherwise. Field drill holes in W12 flange using holes in horizontal angle leg as a template. Field drill holes in vertical angle leg using holes in existing beam web as a template. Provide two hardened washers required for each set of oversized holes. Contractor to verify location, size and spacing of existing holes prior to ordering new materials. Cost included with "Furnishing and Erecting Structural Steel".
2. See Sheet SF43 for location of diaphragm replacement and removal and Beam D6 web plating.
3. Contractor shall ensure that the adjacent existing diaphragm is supported during angle replacement under proposed diaphragm. Cost included with "Structural Steel Removal".
4. Cost of field drilling included with "Furnishing and Erecting Structural Steel".
5. Removal of steel paid for as "Structural Steel Removal". Replacement of steel and new steel paid for as "Furnishing and Erecting Structural Steel".
6. Contractor shall field verify existing dimensions and hole locations and make necessary adjustments prior to construction or ordering of materials.

FILE NAME = ...\016@487-60W87-023-Stl.Repair-Dtls.dgn

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Springfield, Illinois

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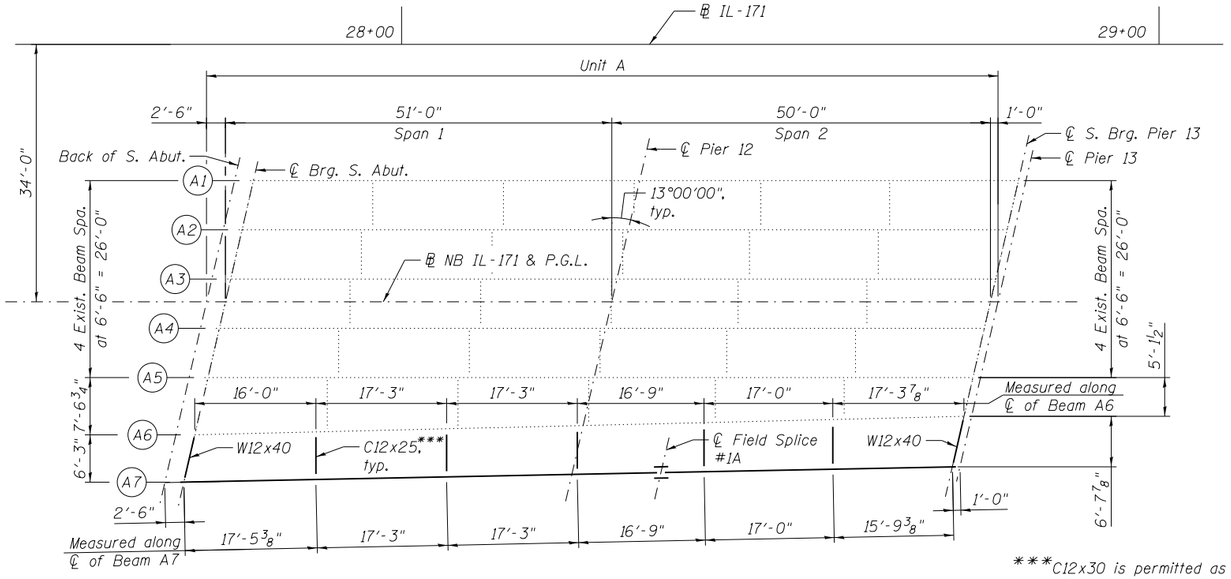
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

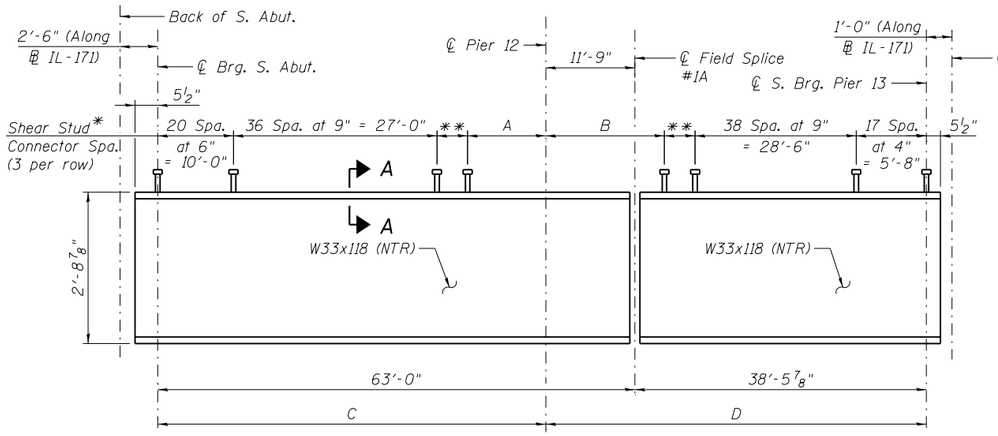
STRUCTURAL STEEL REPAIR DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-23 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	61
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN (SPANS 1 & 2)

*** C12x30 is permitted as an alternate channel. Calculated weight of structural steel is based on the C12x25. If C12x30 is used, it shall be provided at no extra cost to the Department.



* Dimension String measured along ℄ of Beam
** 6 Spa. at 4" = 2'-0"

BEAM A7 ELEVATION

(Shear Stud Connector spacing also applicable for existing Beams A1-A6)

SHEAR STUD DIMENSIONS TABLE

Beam	A	B	C	D
A1-A5	12'-0"	13'-10"	51'-0"	50'-0"
A6	12'-3 9/16"	14'-1 1/2"	51'-3 9/16"	50'-3 1/2"
A7	12'-3"	14'-0 7/8"	51'-3"	50'-2 7/8"

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LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. UNIT A FRAMING PLAN AND GIRDER ELEVATION – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-24 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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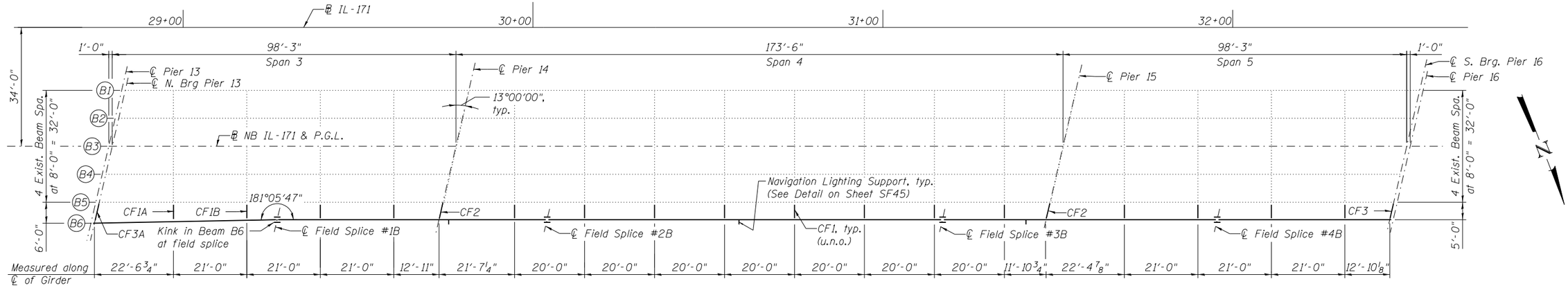
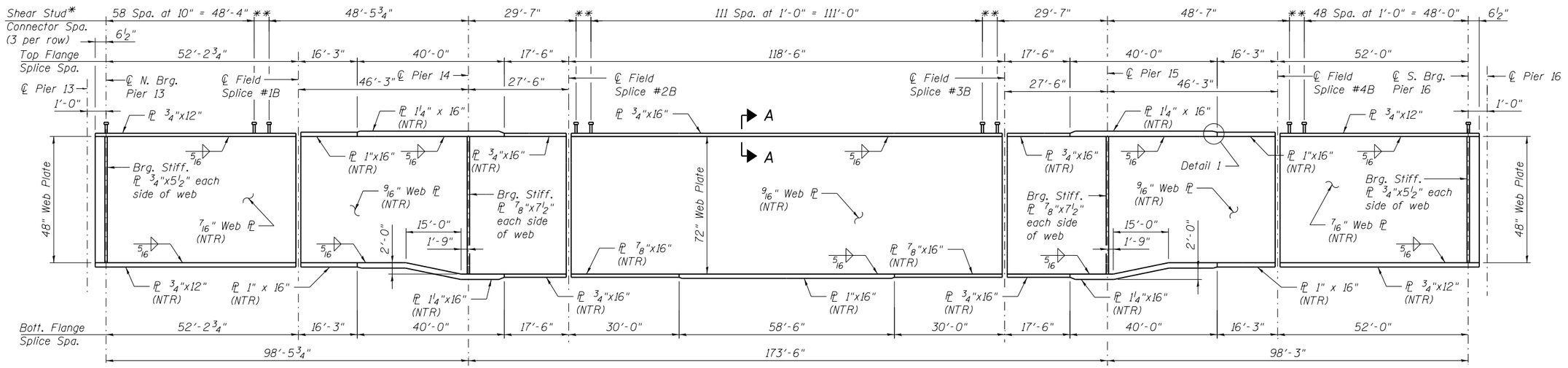


FRAMING PLAN (SPANS 3 THRU 5)

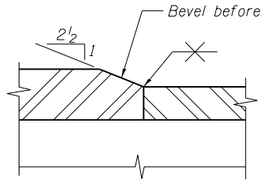


* Dimension String measured along ℄ of Girder

** 5 Spa. at 4" = 1'-8"

GIRDER B6 ELEVATION

(See Sheet SF44 for additional proposed Shear Studs for existing Girders B1-B5)



DETAIL 1

(Typ. for all Flange Splices)

FILE NAME = ...\016\0487-60W87-025-B_Fram_Plan.dgn

LIN ENGINEERING, LTD.
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Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
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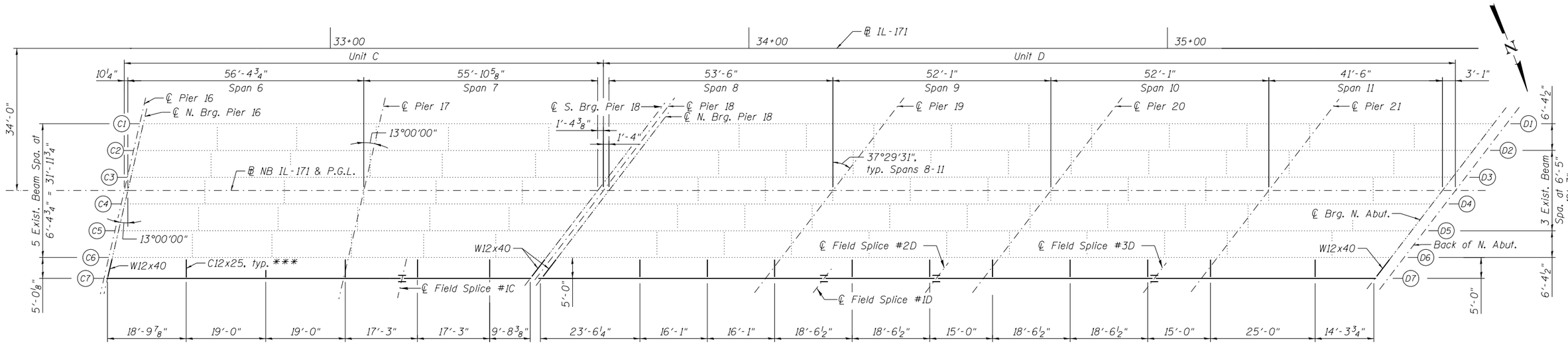
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:26:49 PM	CHECKED -	REVISED -

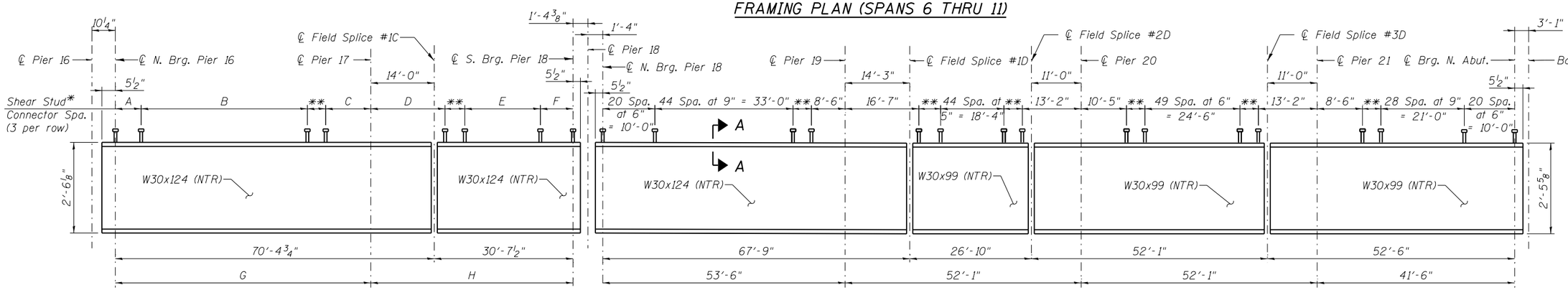
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. UNIT B FRAMING PLAN AND GIRDER ELEVATION – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-25 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	63
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN (SPANS 6 THRU 11)



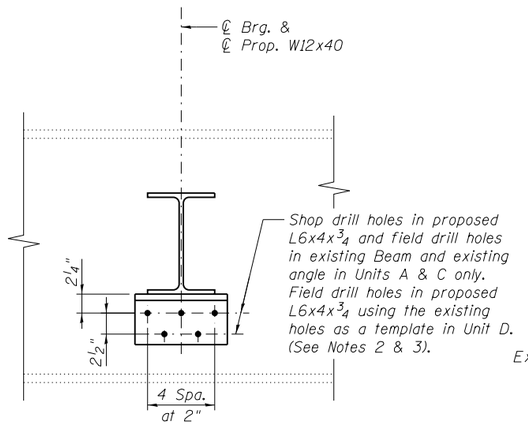
* Dimension String measured along ℄ of Beam

** 6 Spa. at 4" = 2'-0"

BEAM C7 & D7 ELEVATION

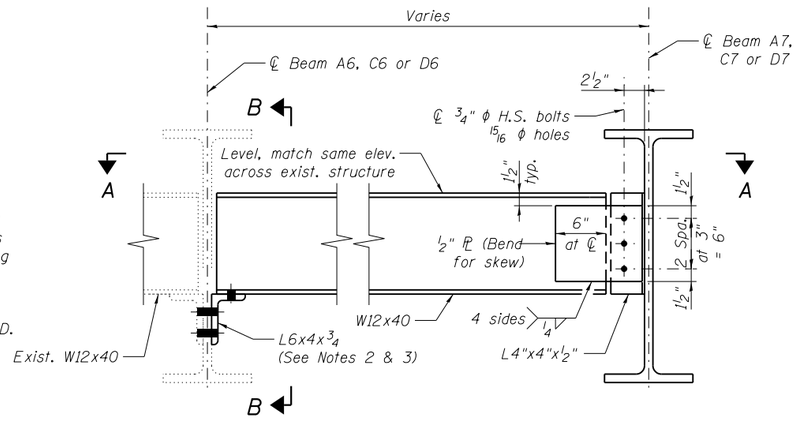
(Shear Stud Connector spacing also applicable for existing Beams C1-C6 & D1-D6)

*** C12x30 is permitted as an alternate channel. Calculated weight of structural steel is based on the C12x25. If C12x30 is used, it shall be provided at no extra cost to the Department.



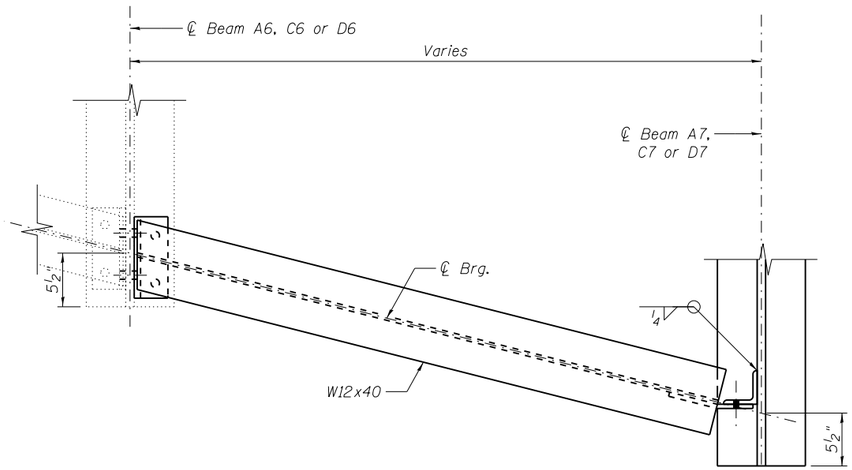
SECTION B-B

(Web plating at Beam D6 not shown for clarity. See Sheet SF46A for details.)



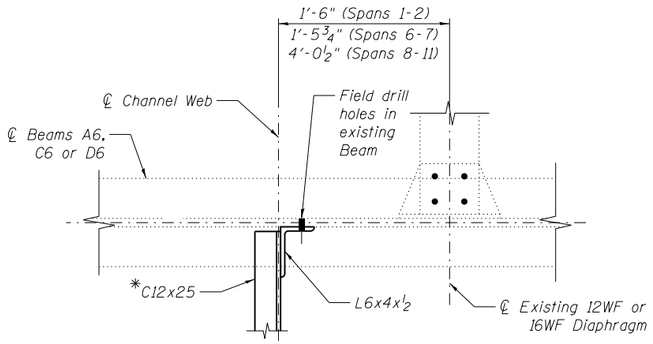
PROPOSED END DIAPHRAGMS UNITS A, C & D

(No. of Locations = 6)
(Web plating at Beam D6 not shown for clarity. See Sheet SF46A for details.)



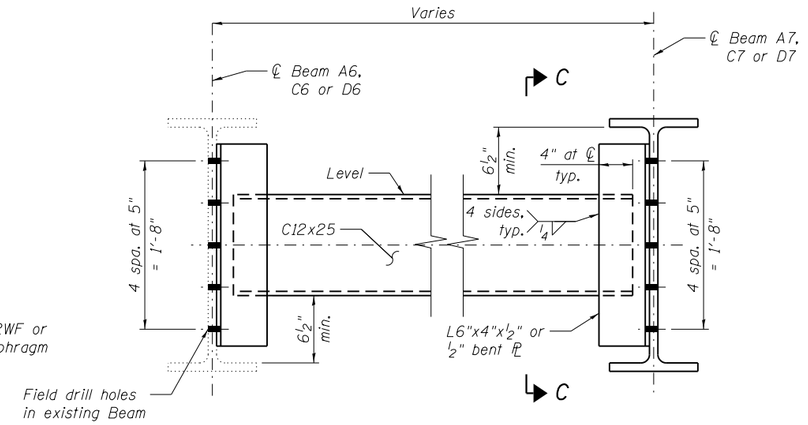
VIEW A-A

(S. Abutment End Diaphtagm shown, all other End Diaphragms similar.)
(Web plating at Beam D6 not shown for clarity. See Sheet SF46A for details.)



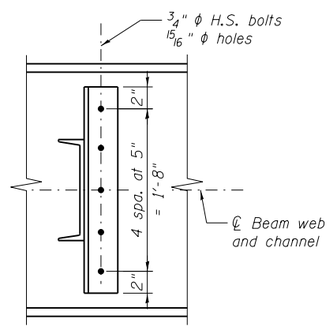
PARTIAL PLAN OF EXISTING BEAM AT DIAPHRAGM CONNECTIONS

*C12x30 is permitted as an alternate channel. Calculated weight of structural steel is based on the C12x25. If C12x30 is used, it shall be provided at no extra cost to the Department.



PROPOSED INTERIOR DIAPHRAGMS UNITS A, C & D

(No. of Locations = 20)



SECTION C-C

NOTES:

1. Field verify all bolt hole locations in existing connection elements of end diaphragms to verify fit up before fabricating proposed diaphragms.
2. For new structural steel elements connected to existing structural steel elements with preexisting holes, fasteners shall be Type 1, mechanically galvanized bolts. Holes in new steel shall be field drilled using the 13/16" dia. holes in the existing steel as a template. Contractor to verify size of existing fasteners and holes prior to ordering new materials.
3. Existing connection angles for end diaphragms are welded to Beam web in Units A & C and bolted to Beam web in Unit D. Contractor shall ensure that the adjacent existing diaphragm in Unit D is supported during installation of proposed diaphragm. Cost included with "Furnishing and Erecting Structural Steel".
4. All diaphragms shall be installed as steel is erected and secured with erection pins and bolts. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
5. Cost of all field drilling included with "Furnishing Erecting Structural Steel".
6. For framing plans, see Sheets SF47 & SF49.
7. Provide two hardened washers for each set of oversized holes.

FILE NAME = ...\0160487-60W87-027-Stl.Diaphragm_Dtls.dgn

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Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
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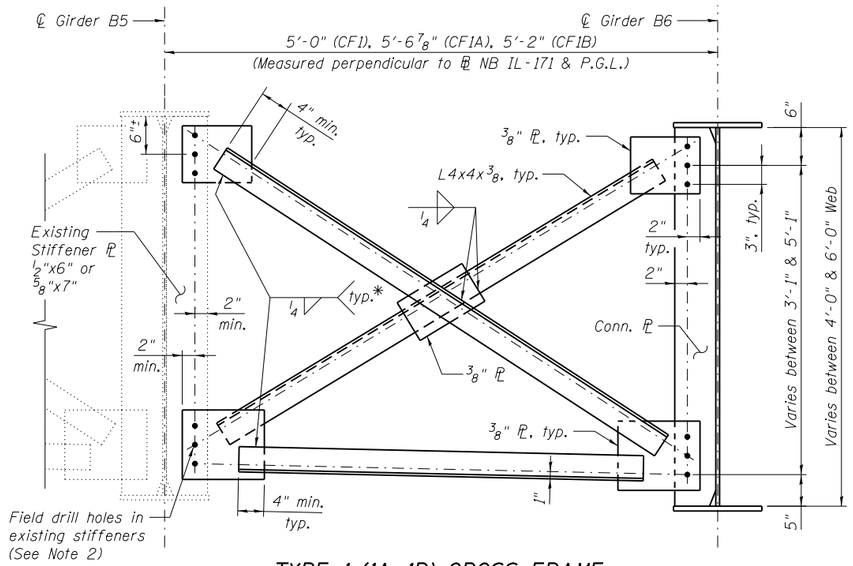
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

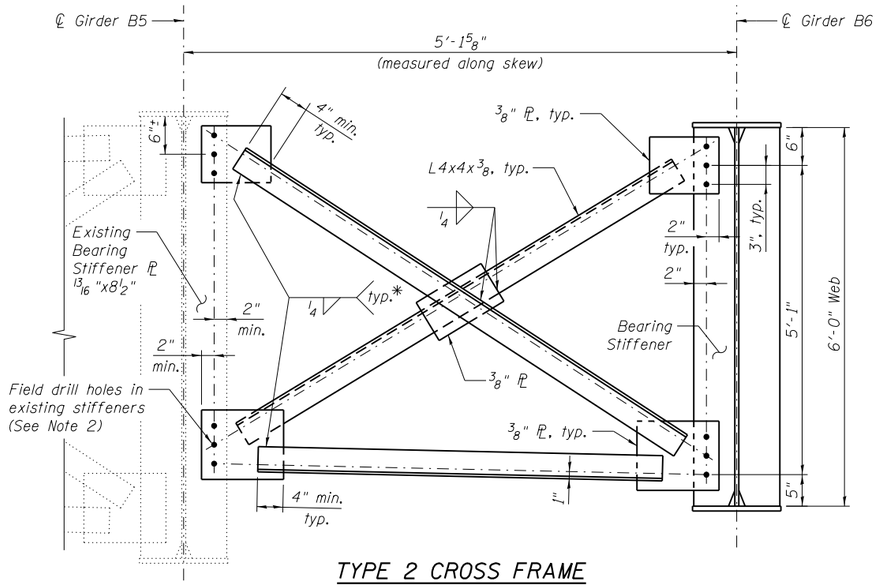
REHAB. STEEL DIAPHRAGM DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-27 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	65
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



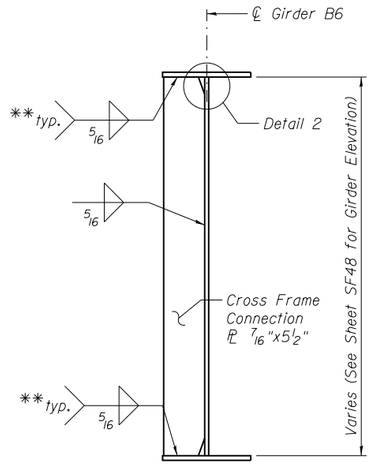
TYPE 1 (1A-1B) CROSS FRAME

(CF1 - 14 Req'd)
(CF1A - 1 Req'd)
(CF1B - 1 Req'd)



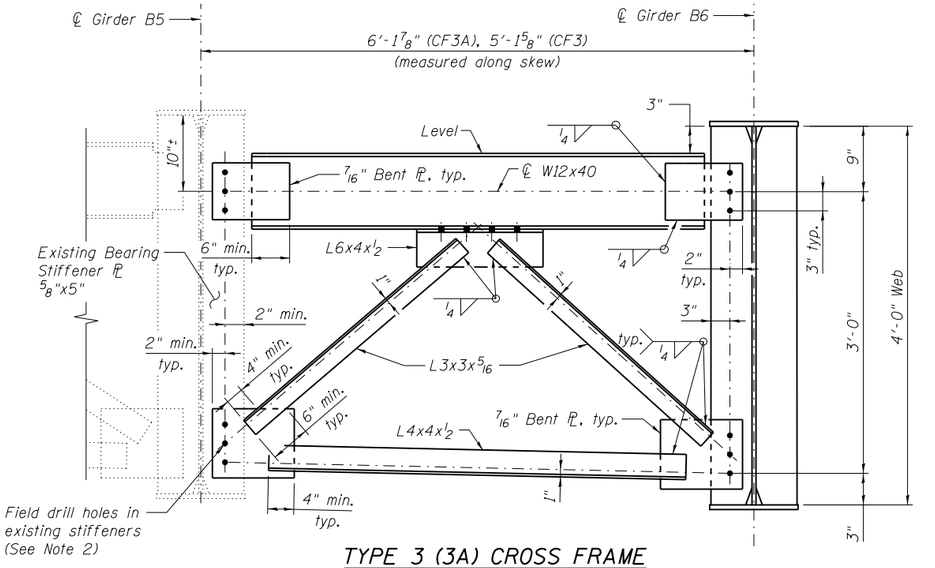
TYPE 2 CROSS FRAME AT PIERS 14 & 15

(CF2 - 2 Req'd)



CONNECTION PLATE DETAIL

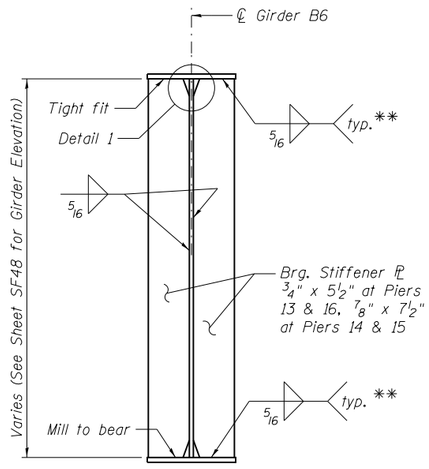
(No. of Connection Plates Req'd = 16)



TYPE 3 (3A) CROSS FRAME AT PIERS 13 & 16

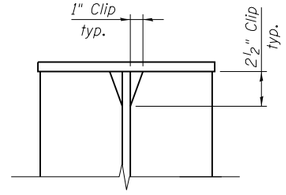
(CF3 - 1 Req'd)
(CF3A - 1 Req'd)

Note: Pier 16 shown. Gusset plates shall be connected to stiffener face opposite of ℄ Pier and horizontal angle legs shall face away from ℄ Pier. See Sheet SF45 for girder web plating detail at Pier 13.



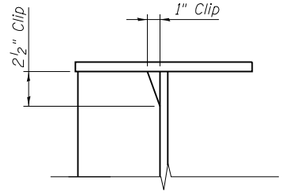
BEARING STIFFENER

(No. of 3/4" x 5 1/2" Plates Required = 4)
(No. of 7/8" x 7 1/2" Plates Required = 4)



DETAIL 1

(Typical top & bottom flanges)



DETAIL 2

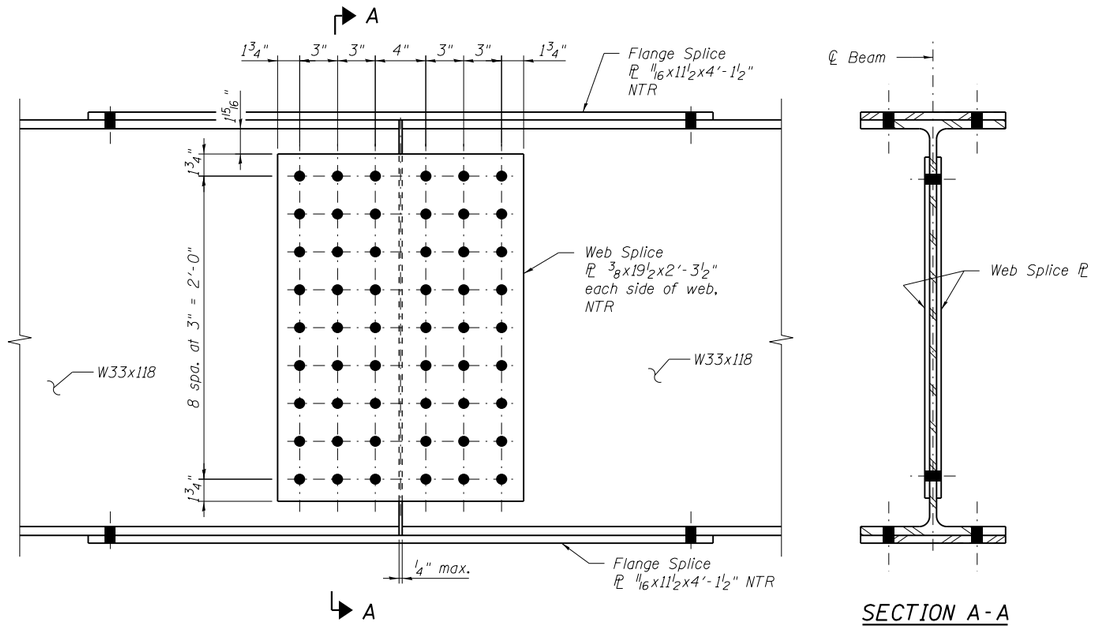
(Typical top & bottom flanges)

* Fillet weld angles along 3 sides on one face of gusset plate.
** Terminate weld 1/4" from edges of stiffener PL.

FILE NAME = ...\0160487-60w87-028-Sti_CFrame_Dtls.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REHAB. STEEL PLATE GIRDER CROSS FRAMES – LOCATION 2 STRUCTURE NO. 016–0487
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SB-28 OF SB-34 SHEETS
	PLOT DATE = 12/05/2018 2:27:06 PM	CHECKED -	REVISED -		

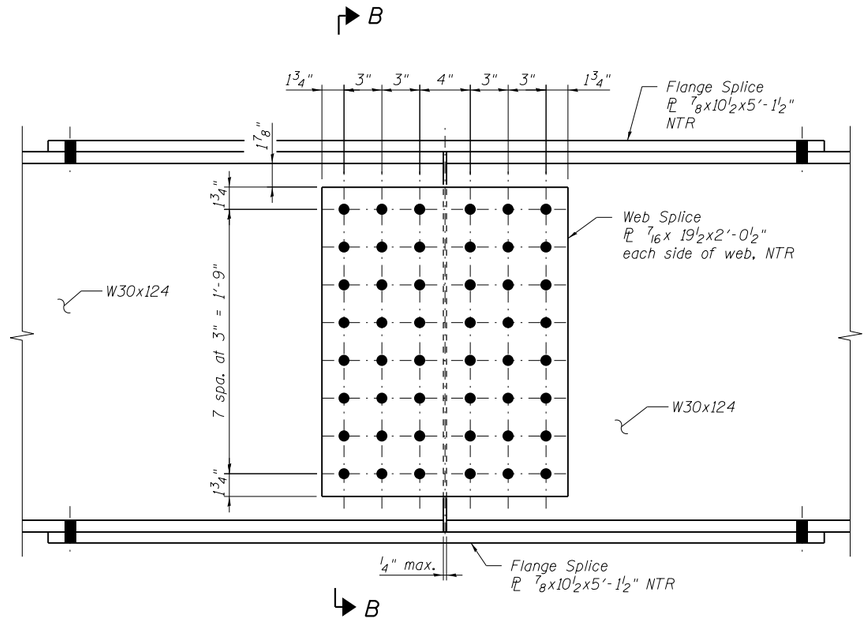
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	66
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		

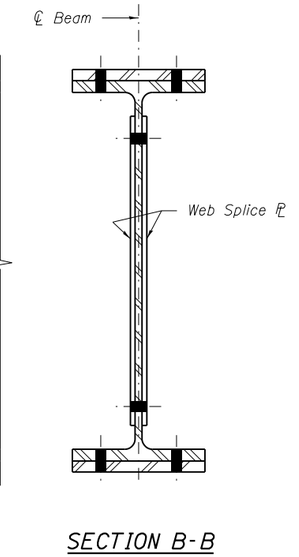


SECTION A-A

ELEVATION - FIELD SPLICE #1A - BEAM A7

(54 Bolts per Web Splice)

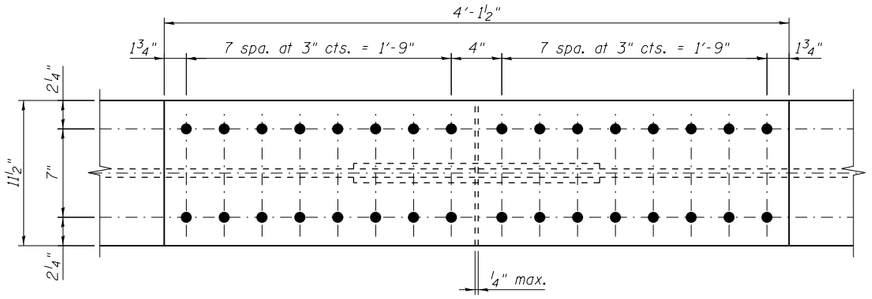




SECTION B-B

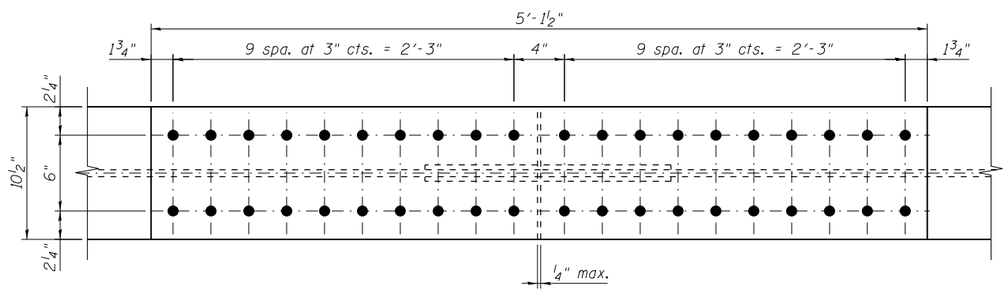
ELEVATION - FIELD SPLICE #1C - BEAM C7

(48 Bolts per Web Splice)



FLANGE SPLICE #1A - BEAM A7

(Top & Bottom Flanges)
(32 Bolts per Flange Splice)



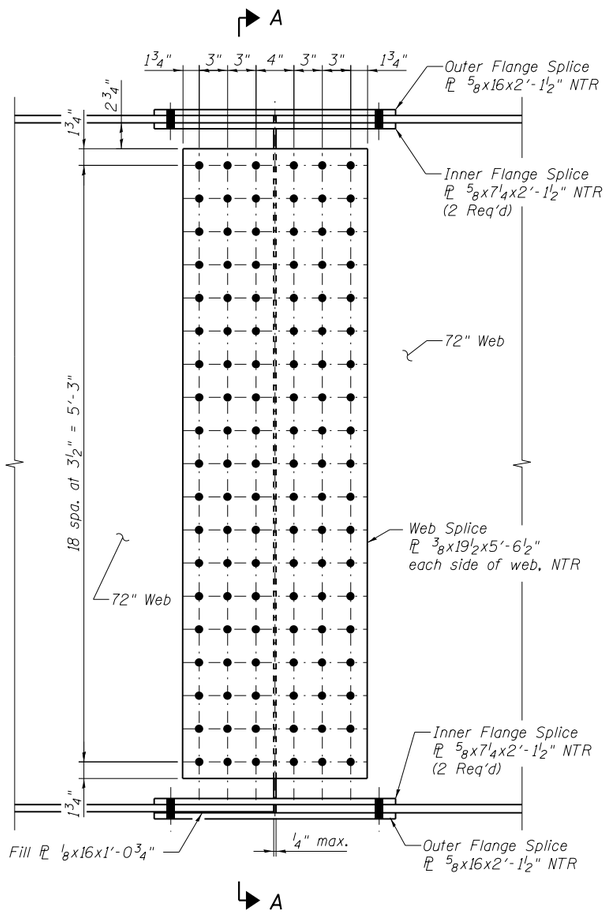
FLANGE SPLICE #1C - BEAM C7

(Top & Bottom Flanges)
(40 Bolts per Flange Splice)

FILE NAME = ...\D1604B7-60W87-029-Girder_Dtls.dgn

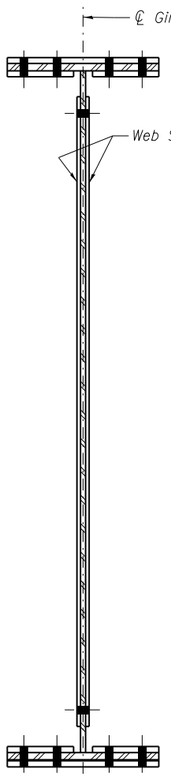
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REHAB. GIRDER SPLICE DETAILS – LOCATION 2 STRUCTURE NO. 016-0487
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SB-29 OF SB-34 SHEETS
	PLOT DATE = 12/05/2018 2:27:12 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	67
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

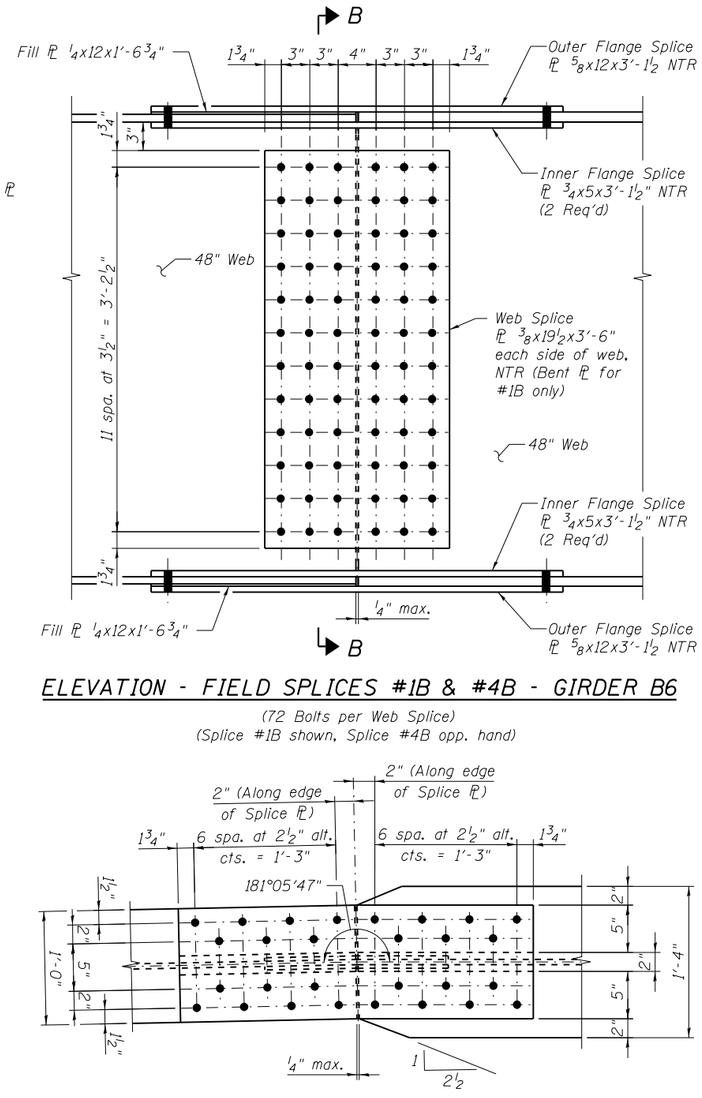


ELEVATION - FIELD SPLICES #2B & #3B - GIRDER B6

(114 Bolts per Web Splice)
(Splice #2B shown, Splice #3B opp. hand)

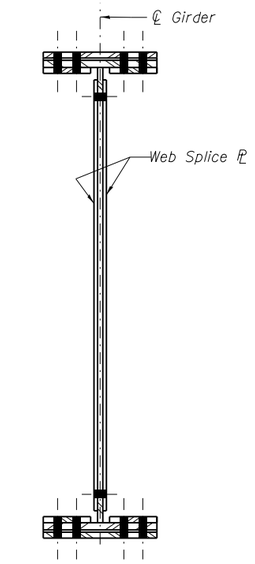


SECTION A-A

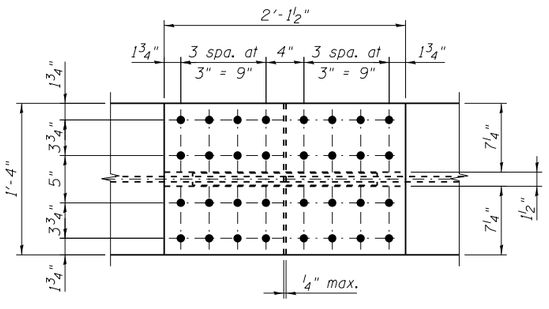


ELEVATION - FIELD SPLICES #1B & #4B - GIRDER B6

(72 Bolts per Web Splice)
(Splice #1B shown, Splice #4B opp. hand)



SECTION B-B

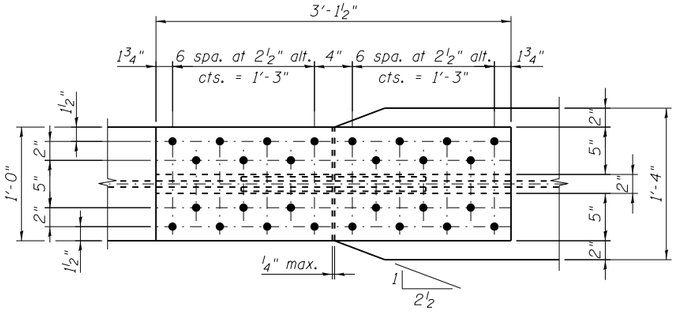


FLANGE SPLICES #2B & #3B - GIRDER B6

(Top & Bottom Flanges)
(32 Bolts per Flange Splice)

FLANGE SPLICE #1B - GIRDER B6

(Top & Bottom Flanges)
(28 Bolts per Flange Splice)



FLANGE SPLICE #4B - GIRDER B6

(Top & Bottom Flanges)
(28 Bolts per Flange Splice)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. GIRDER SPLICE DETAILS – LOCATION 2
STRUCTURE NO. 016–0487
SHEET NO. SB-30 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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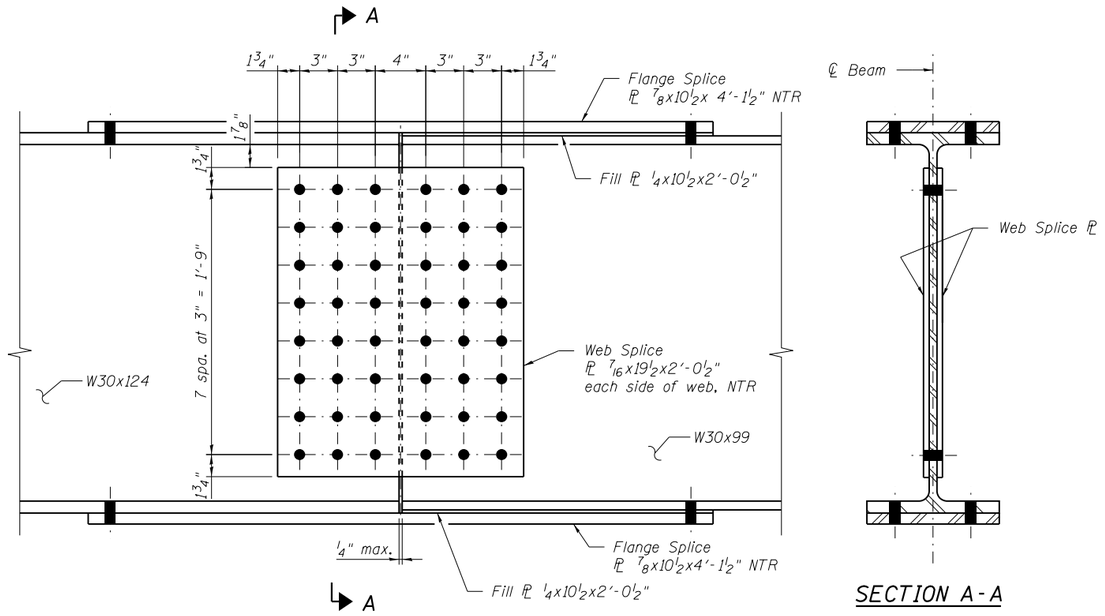
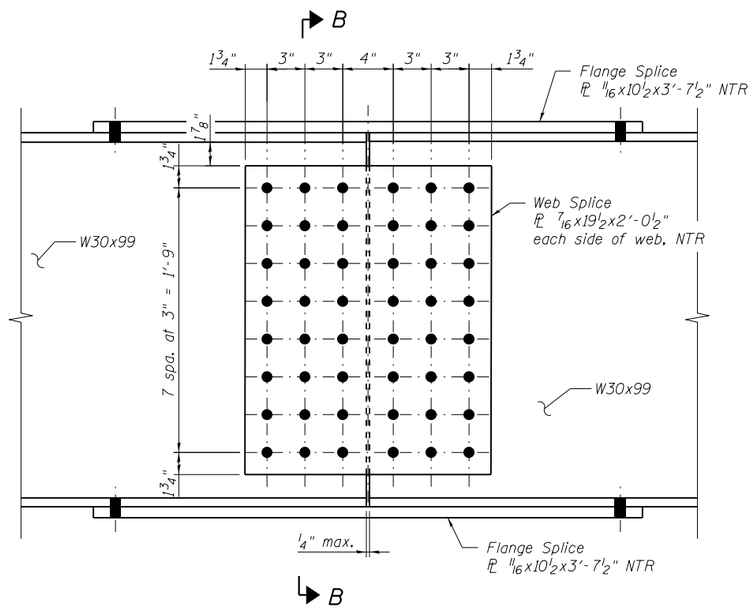
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION - FIELD SPLICE #1D - BEAM D7

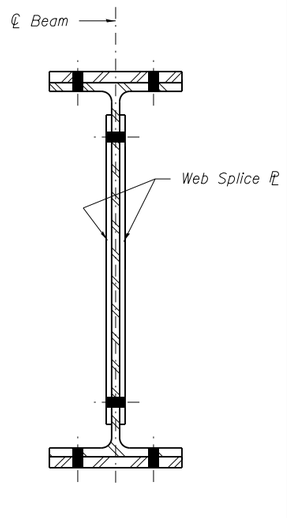
(48 Bolts per Web Splice)

SECTION A-A

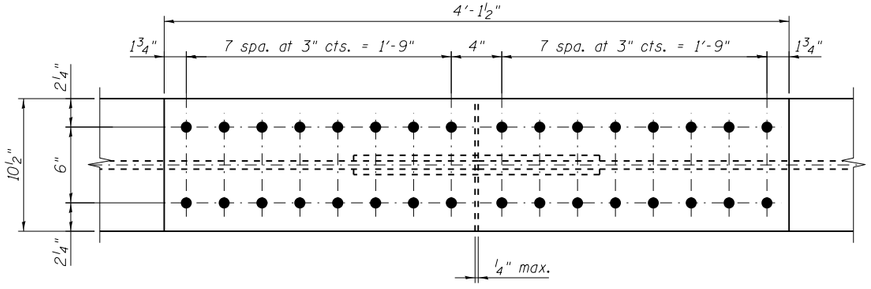


ELEVATION - FIELD SPLICES #2D & #3D - BEAM D7

(48 Bolts per Web Splice)



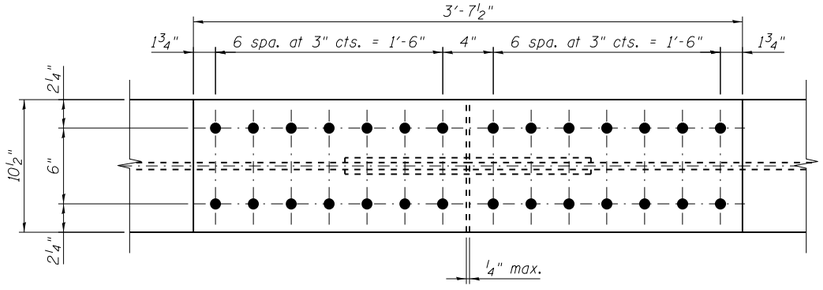
SECTION B-B



FLANGE SPLICE #1D - BEAM D7

(Top & Bottom Flanges)

(32 Bolts per Flange Splice)



FLANGE SPLICES #2D & #3D - BEAM D7

(Top & Bottom Flanges)

(28 Bolts per Flange Splice)

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LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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PLOT SCALE =	DRAWN -	REVISED -
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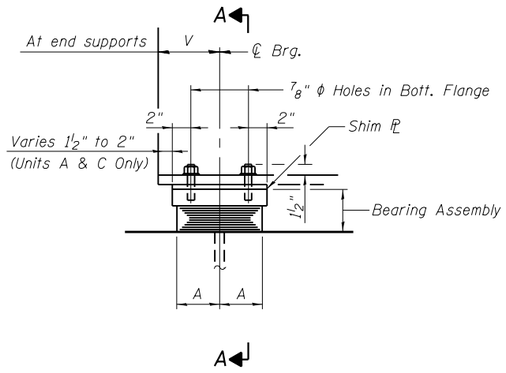
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

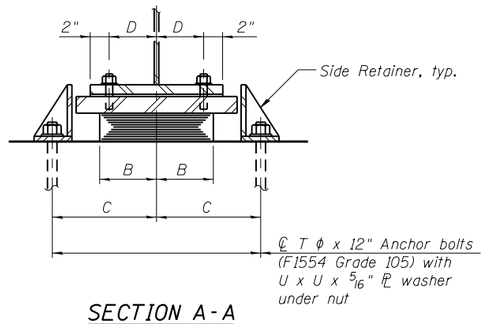
REHAB. GIRDER SPLICE DETAILS – LOCATION 2
STRUCTURE NO. 016-0487

SHEET NO. SB-31 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	69
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



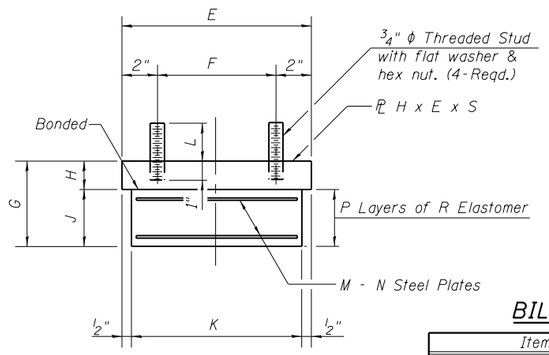
ELEVATION



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

(7 required, see Table)

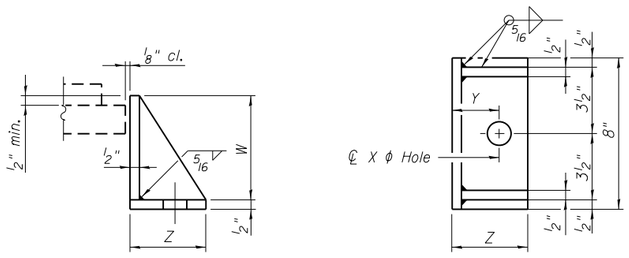


BEARING ASSEMBLY

BILL OF MATERIAL

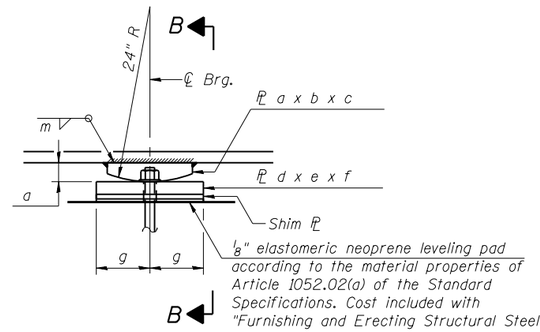
Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	7
Anchor Bolts, 3/4"	Each	18
Anchor Bolts, 1"	Each	4

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



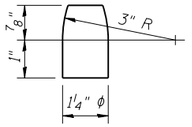
SIDE RETAINER

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



ELEVATION

(1 required at Pier 12, Beam A7)
(1 required at Pier 15, Girder B6)
(1 required at Pier 17, Beam C7)
(1 required at Pier 20, Beam D7)



PINTLE

SECTION B-B

FIXED BEARING

Location	a	b	c	d	e	f	g	h	j	k	m	n	p	q
Pier 12	1 1/4"	9"	13"	1 1/8"	9"	18 1/4"	4 1/2"	3 5/8"	2 7/8"	7 3/8"	5/16"	3/4"	2"	1 1/4"
Pier 15	1 1/2"	9"	17 1/2"	1 1/2"	10 1/4"	23 1/2"	5 1/8"	4 3/4"	4"	10"	1/2"	1"	2 1/4"	1 1/2"
Pier 17	1"	9"	12"	1 1/8"	9"	17 1/4"	4 1/2"	3 3/8"	2 5/8"	6 7/8"	5/16"	3/4"	2"	1 1/4"
Pier 20	1"	9"	12"	1"	9"	17 1/4"	4 1/2"	3 3/8"	2 5/8"	6 7/8"	5/16"	3/4"	2"	1 1/4"

TYPE I ELASTOMERIC EXPANSION BEARINGS

Location	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
Beam A7 S. Abut.	3 1/2"	6"	9"	3 3/4"	8"	4"	3 1/4"	1 1/2"	1 3/4"	7"	2 1/2"	3	3/32"	4	3/8"	14"	3/4"	2"	5 1/2"	3 1/2"	1"	1 7/8"	3 3/8"
Beam A7 S. Brg. Pier 13	3 1/2"	6"	9"	3 3/4"	8"	4"	3 1/4"	1 1/2"	1 3/4"	7"	2 1/2"	3	3/32"	4	3/8"	14"	3/4"	2"	5 1/2"	3 1/2"	1"	1 7/8"	3 3/8"
Girder B6 Pier 14	7 1/2"	12"	15 1/4"	6"	16"	12"	7 9/16"	2 1/8"	5 7/16"	15"	3"	5	3/16"	6	3/4"	26"	1"	2 1/4"	---	7 7/8"	1 1/4"	2 1/8"	4"
Beam C7 N. Brg. Pier 16	3 1/2"	6"	9"	3 1/4"	8"	4"	3 1/4"	1 1/2"	1 3/4"	7"	2 3/4"	3	3/32"	4	3/8"	14"	3/4"	2"	5 1/2"	3 1/2"	1"	1 7/8"	3 3/8"
Beam C7 S. Brg. Pier 18	3"	5"	8"	3 1/4"	7"	3"	3 3/8"	1 1/2"	1 7/8"	6"	2 3/4"	4	14 ga.	5	5/16"	12"	3/4"	2"	5 1/2"	3 5/8"	1"	1 7/8"	3 3/8"
Beam D7 Pier 19	4 1/2"	6"	9"	3 1/4"	10"	6"	3 3/4"	1 1/2"	2 1/4"	9"	2 3/4"	4	3/32"	5	3/8"	14"	3/4"	2"	---	4"	1"	1 7/8"	3 3/8"
Beam D7 Pier 21	4 1/2"	6"	9"	3 1/4"	10"	6"	3 3/4"	1 1/2"	2 1/4"	9"	2 1/2"	4	3/32"	5	3/8"	14"	3/4"	2"	---	4"	1"	1 7/8"	3 3/8"

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Springfield, Illinois

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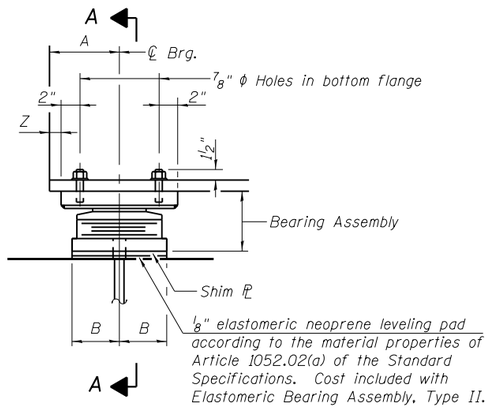
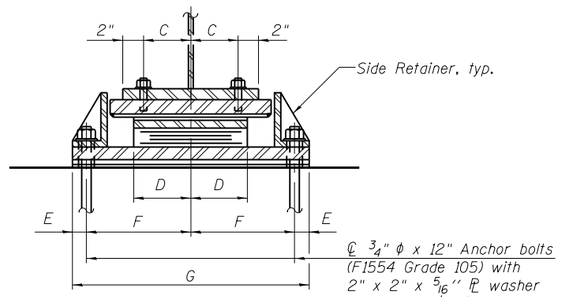
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. BEARING DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-32 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	70
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	



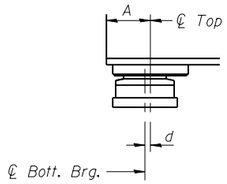
ELEVATION



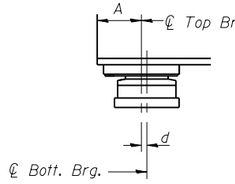
SECTION A-A

TYPE II ELASTOMERIC EXP. BRG.

(4 required, see Table)



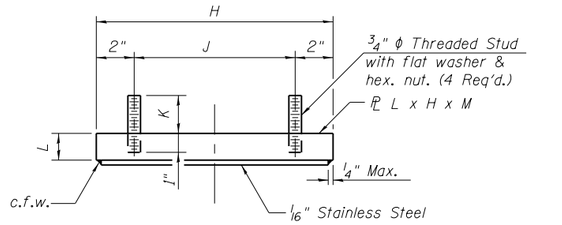
BELOW 50°F.
(Move bott. brg. away from fixed brg.)



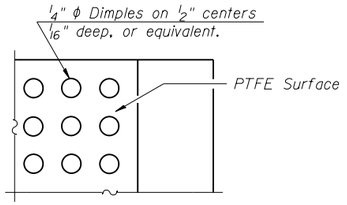
ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

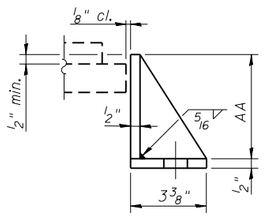
d=1/8'' per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

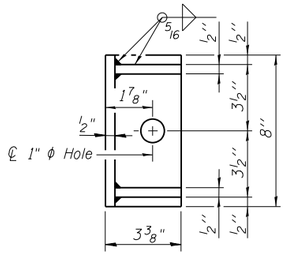


TOP BEARING ASSEMBLY



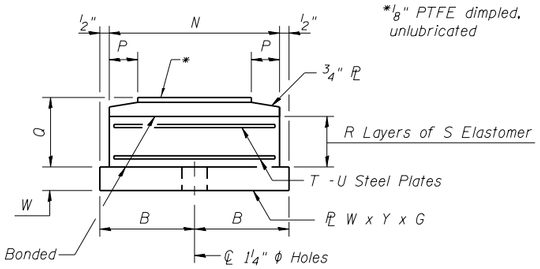
PLAN-PTFE SURFACE



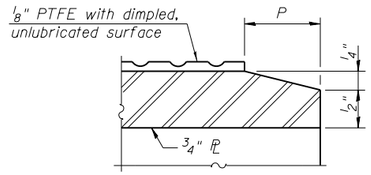


SIDE RETAINER

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



BOTTOM BEARING ASSEMBLY



SECTION THRU PTFE

TYPE II ELASTOMERIC EXPANSION BEARINGS

Location	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	W	Y	Z	AA
Girder B6 N. Brg. Pier 13	6 1/2"	5 1/2"	4"	7"	1 1/2"	10"	23"	12 1/2"	8 1/2"	2 1/4"	1 1/2"	16"	10"	1 1/2"	5 1/4"	8	7/16"	7	1/8"	1"	11"	1/4"	6 7/8"
Girder B6 S. Brg. Pier 16	6 1/2"	4"	4"	6"	1 1/2"	9"	21"	8 1/4"	4 1/4"	2 1/4"	1 1/2"	14"	7"	1"	2 5/8"	4	3/8"	3	3/32"	1"	8"	2 3/8"	4 1/4"
Beam D7 N. Brg. Pier 18	5 1/2"	3 1/2"	3 1/4"	5"	1 1/2"	8"	19"	8"	4"	2 1/2"	1 1/2"	12"	6"	1"	2 3/4"	5	3/16"	4	14 ga.	1"	7"	1 1/2"	4 3/8"
Beam D7 N. Abut.	5 1/2"	3 1/2"	3 1/4"	5"	1 1/2"	8"	19"	8"	4"	2 1/4"	1 1/2"	12"	6"	1"	2 3/4"	5	3/16"	4	14 ga.	1"	7"	1 1/2"	4 3/8"

I-2E-2

1-27-12

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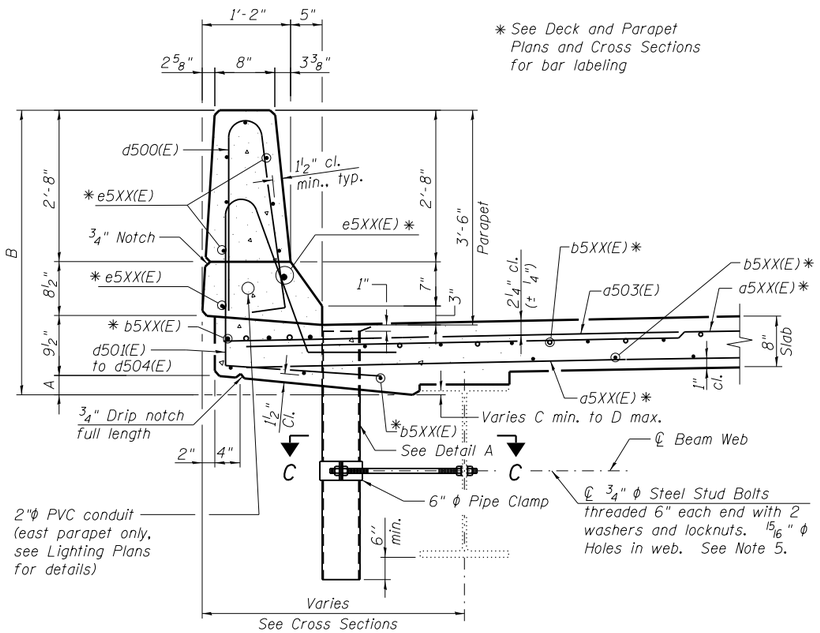
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. BEARING DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-33 OF SB-34 SHEETS

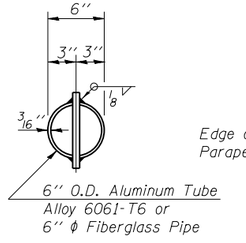
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	71
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



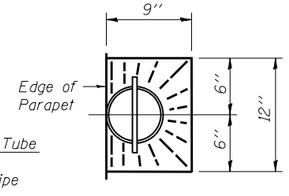
* See Deck and Parapet Plans and Cross Sections for bar labeling

SECTION THRU PARAPET

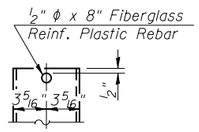
Location	A	B	C	D
Spans 1-2	4"	4'-6"	1 1/2"	2 3/8"
Spans 3-5	5"	4'-7"	1"	3 3/8"
Spans 6-7	4"	4'-6"	1 1/4"	2 1/2"
Spans 8-11	4"	4'-6"	1 1/4"	2 5/8"



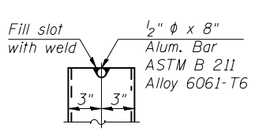
TOP PLAN
(Showing Aluminum Tube)



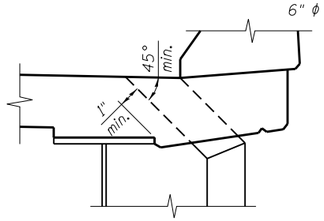
TOP PLAN



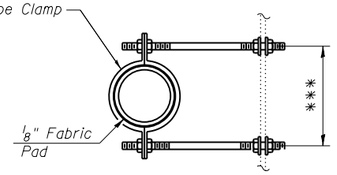
FIBERGLASS PIPE



ALUMINUM TUBE



DETAIL A
(Angle drain when necessary to maintain 1" cl. as shown)



SECTION C-C
*** Dimension as required by Pipe Clamp

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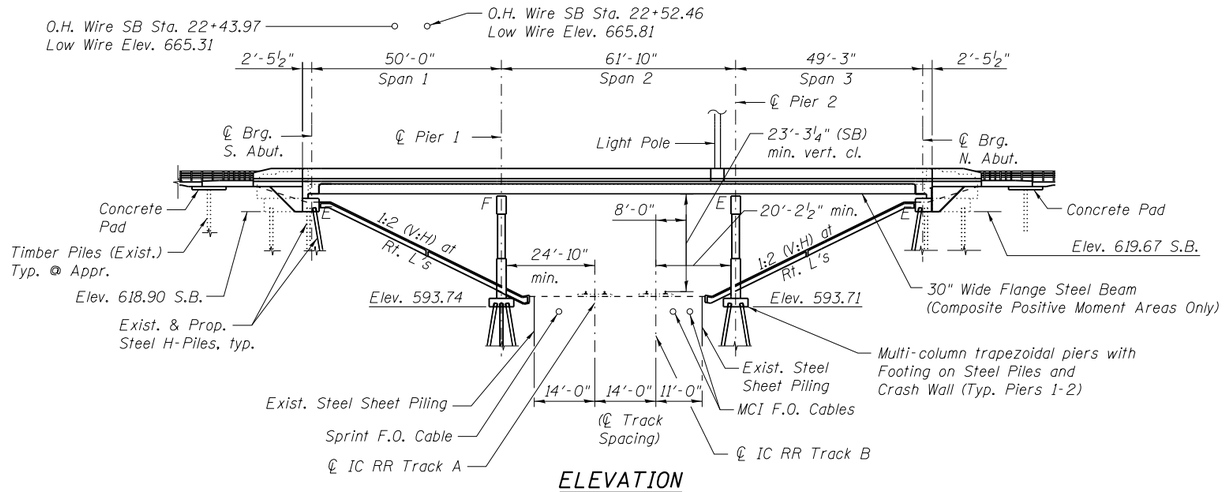
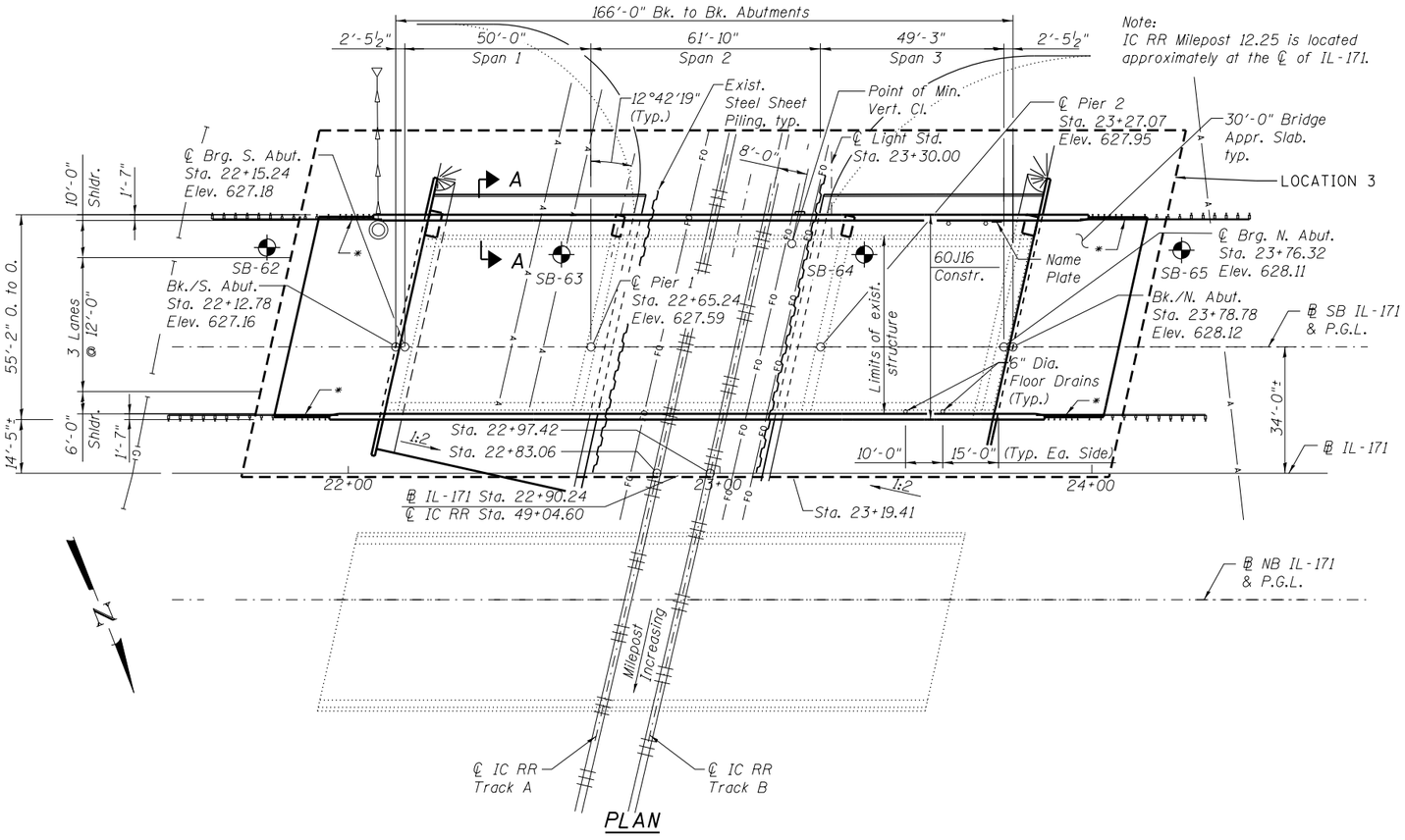
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. DRAIN PIPE DETAILS – LOCATION 2
STRUCTURE NO. 016-0487
SHEET NO. SB-34 OF SB-34 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	72
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION



PLAN

Note:
IC RR Milepost 12.25 is located approximately at the ℄ of IL-171.

GENERAL NOTES

1. THE EXISTING STRUCTURAL STEEL COATING CONTAINS LEAD. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO DEAL WITH THE PRESENCE OF LEAD ON THIS PROJECT.

2. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES".

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. STRUCTURAL SHEETS TAKEN FROM EXISTING PLANS CONTAIN INFORMATION NOT PERTAINING TO THIS CONTRACT AND ARE FOR INFORMATION ONLY.

4. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SC-6 THRU SC-10 HAS BEEN PRIMED WITH AN INORGANIC ZINC RICH PRIMER UNDER A PREVIOUS CONTRACT. THESE STEEL SURFACES SHALL BE PRESSURE WASHED CLEAN AND POWER TOOL CLEANED (SSPC SP-3 MODIFIED) AS NECESSARY PRIOR TO THE APPLICATION OF THE INTERMEDIATE AND TOP COATS. THE INORGANIC ZINC RICH PRIMER / ACRYLIC / ACRYLIC PAINT SYSTEM SHALL BE USED FOR FIELD PAINTING OF THESE LOCATIONS. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

5. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SC-2 THRU SC-5 SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SP10. THESE LOCATIONS SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF THE EPOXY MASTIC / EPOXY MASTIC / ACRYLIC PAINT SYSTEM. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

6. A MINIMUM OF 3 AIR MONITORS WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THIS SITE. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".

7. THE ELASTOMERIC PADS OF THE EXISTING BEARINGS SHALL BE MASKED OFF FOR PROTECTION DURING PAINTING AND REMOVED WHEN PAINTING IS FINISHED. COST INCLUDED WITH "CLEANING AND PAINTING STEEL BRIDGE NO. 3".

8. IF APPLICABLE, THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS DEMONSTRATING THE STRUCTURAL INTEGRITY OF THE BRIDGE IS MAINTAINED UNDER THE ADDITIONAL IMPOSED LOADS OF THE CONTAINMENT SYSTEM. SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
CLEANING AND PAINTING STEEL BRIDGE NO. 3	L. SUM	1
CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 3	L. SUM	1

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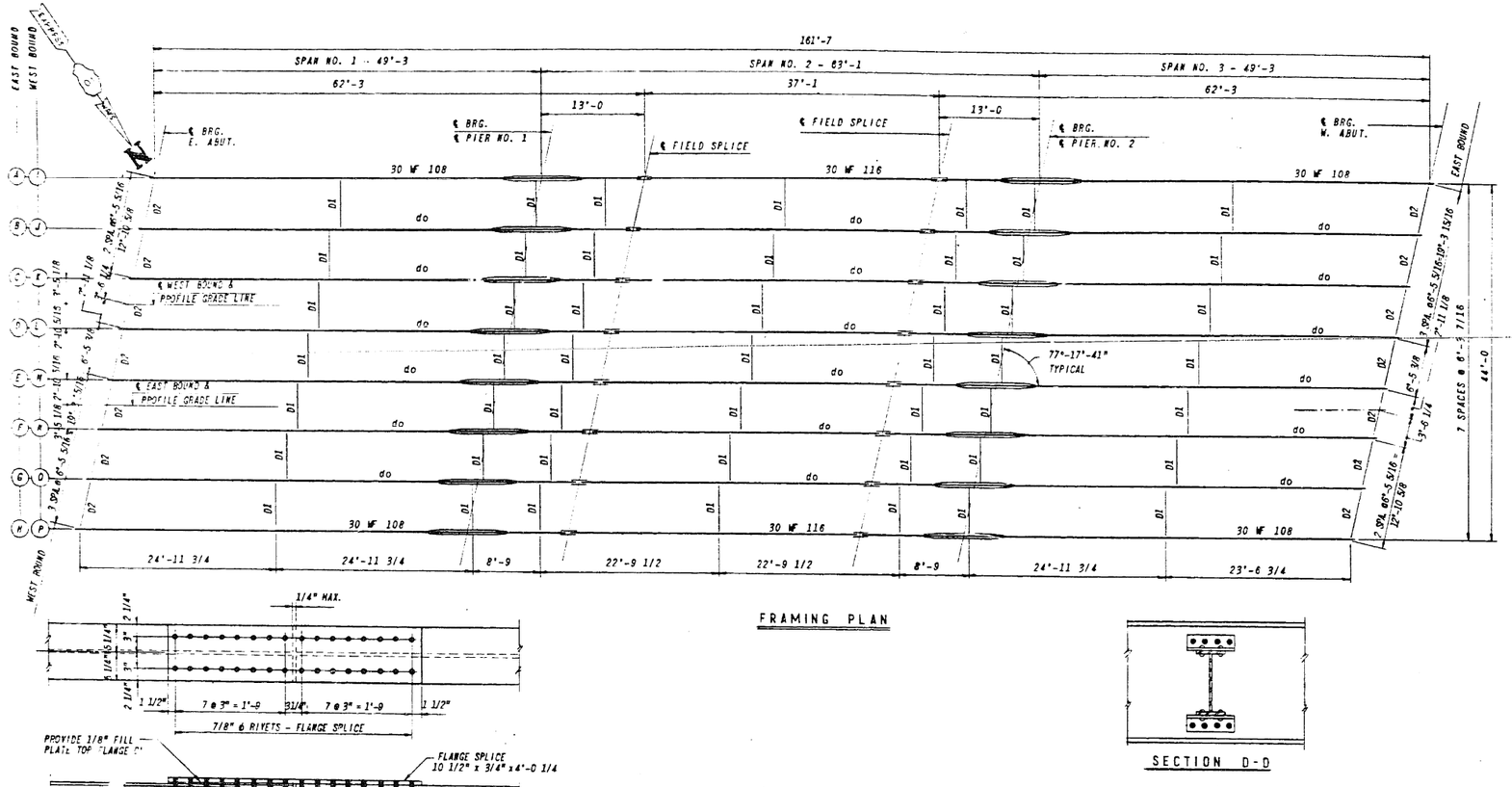
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

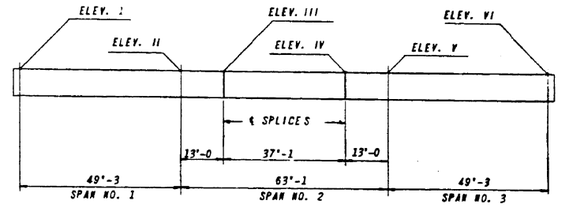
GENERAL PLAN & ELEVATION – LOCATION 3
STRUCTURE NO. 016-0488
SHEET NO. SC-1 OF SC-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	73
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN

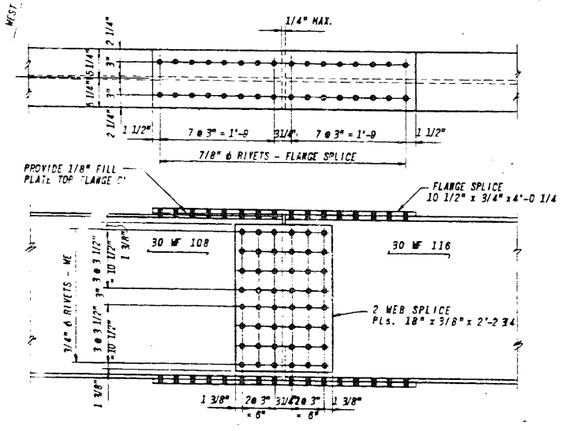
ELEVATION TOP OF STEEL (FLANGE) 30 WF 108							
	POINT	I	II	III	IV	V	VI
WEST BOUND EAST BOUND	STRINGER A	626.304	626.629	626.690	626.865	626.926	627.065
	" B	626.399	626.727	626.789	626.965	627.027	627.166
	" C	626.514	626.844	626.906	627.085	627.147	627.291
	" D	626.600	626.933	626.996	627.176	627.239	627.385
	" E	626.652	626.987	627.051	627.233	627.297	627.445
	" F	626.636	626.973	627.037	627.221	627.285	627.436
	" G	626.562	626.902	626.967	627.152	627.217	627.370
	" H	626.468	626.810	626.876	627.063	627.129	627.284
EAST BOUND WEST BOUND	" I	626.395	626.751	626.820	627.018	627.087	627.258
	" J	626.467	626.875	626.895	627.094	627.164	627.335
	" K	626.518	626.879	626.949	627.150	627.220	627.394
	" L	626.512	626.875	626.946	627.149	627.220	627.396
	" M	626.438	626.803	626.875	627.079	627.151	627.329
	" N	626.329	626.696	626.768	626.975	627.047	627.228
	" O	626.191	626.561	626.634	626.842	626.915	627.098
	STRINGER P	626.070	626.446	626.520	626.729	626.803	626.988



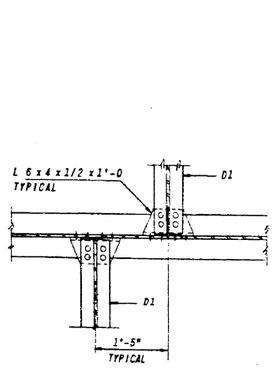
ELEVATION KEY

NOTE: ELEVATIONS FOR FABRICATION USE ONLY, DOES NOT INCLUDE DEFLECTIONS.

SECTION D-D

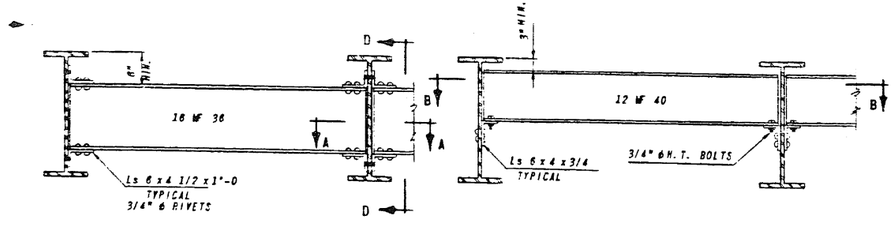


BEAM SPLICE DETAIL



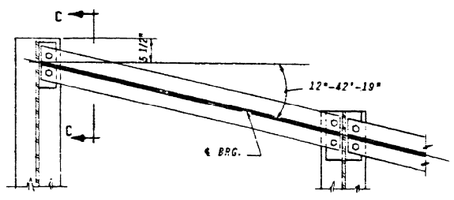
SECTION A-A

COVER PLATE DETAIL
64 REQUIRED - 2 BRIDGES

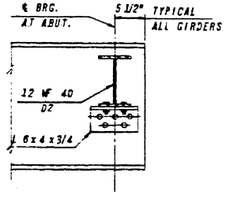


DIAPHRAGM D1
98 REQUIRED - 2 BRIDGES

DIAPHRAGM D2
28 REQUIRED - 2 BRIDGES



SECTION B-B

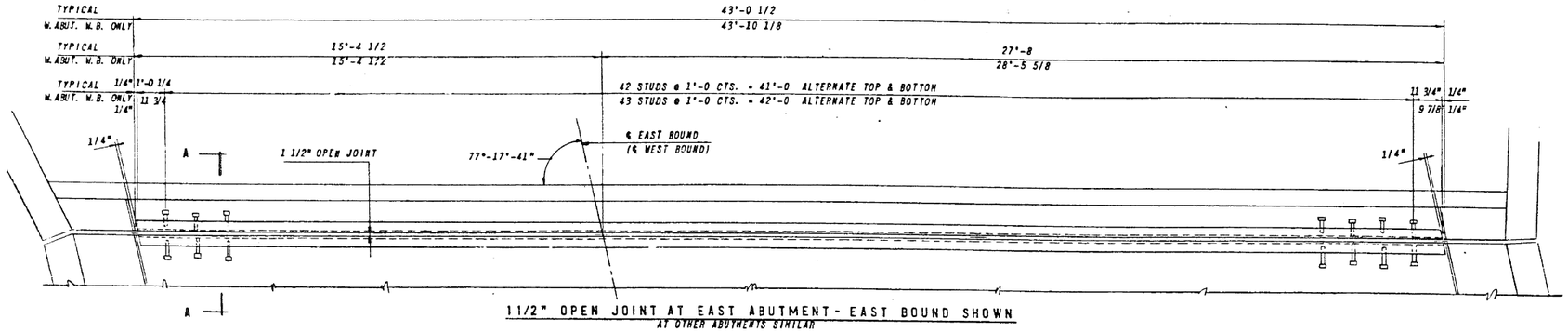


SECTION C-C

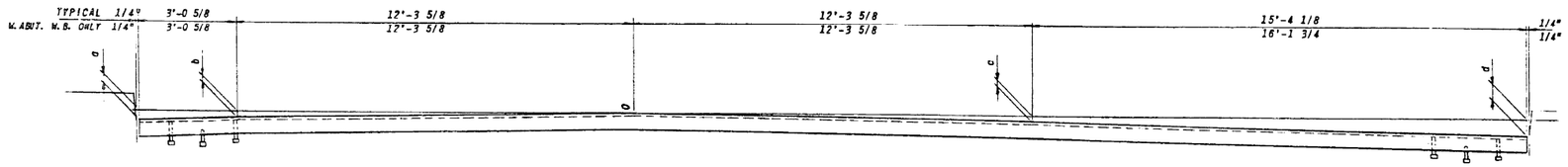
FILE NAME = ...\B160488-60W87-002-Stl_D1k.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. STEEL DETAILS – LOCATION 3 STRUCTURE NO. 016–0488
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SC-2 OF SC-10 SHEETS
	PLOT DATE = 12/05/2018 2:28:33 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	74
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



11/2" OPEN JOINT AT EAST ABUTMENT - EAST BOUND SHOWN
AT OTHER ABUTMENTS SIMILAR



1 1/2" OPEN JOINT BLOCKING					
LOCATION		a	b	c	d
EAST ABUT.	E.B.	2 1/2"	1 11/16"	1 3/16"	4 1/2"
WEST ABUT.	E.B.	2 1/4"	1 1/2"	1 3/8"	4 7/8"
EAST ABUT.	W.B.	1 13/16"	1 3/16"	1 11/16"	5 5/8"
WEST ABUT.	W.B.	2 1/16"	1 3/8"	1 1/2"	5 7/16"

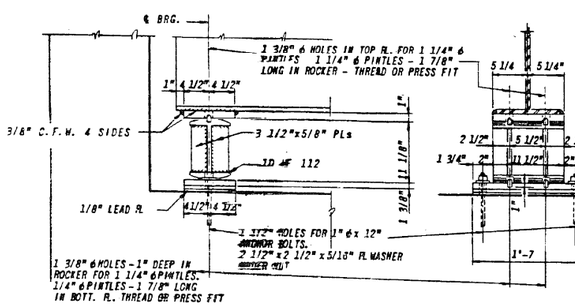
SHIM PLATES THICKNESS - EAST BOUND (INCH)								
LOCATION	A	B	C	D	E	F	G	H
EAST ABUT.	-	-	-	-	5/8"	7/16"	5/16"	-
PIER NO. 1	-	-	-	-	5/8"	1/2"	3/8"	-
PIER NO. 2	-	-	-	-	11/16"	9/16"	1/2"	3/16"
WEST ABUT.	-	-	-	-	3/4"	5/8"	9/16"	5/16"

SHIM PLATES THICKNESS - WEST BOUND (INCH)								
LOCATION	I	J	K	L	M	N	O	P
EAST ABUT.	1/8"	3/16"	1/8"	-	-	-	-	-
PIER NO. 1	-	3/16"	1/8"	-	-	-	-	-
PIER NO. 2	-	1/8"	-	-	-	-	-	-
WEST ABUT.	-	-	-	-	-	-	-	-

ANCHOR BOLT PROJECTION - EAST BOUND (INCH)								
LOCATION	A	B	C	D	E	F	G	H
EAST ABUT.	3"	3"	3"	3"	3 5/8"	3 1/2"	3 3/8"	3"
PIER NO. 1	2 3/8"	2 3/8"	2 3/8"	2 3/8"	3"	2 7/8"	2 3/4"	2 3/8"
PIER NO. 2	3 3/8"	3 3/8"	3 3/8"	3 3/8"	4"	4"	3 7/8"	3 5/8"
WEST ABUT.	3"	3"	3"	3"	3 3/4"	3 5/8"	3 5/8"	3 3/8"

ANCHOR BOLT PROJECTION - WEST BOUND (INCH)								
LOCATION	I	J	K	L	M	N	O	P
EAST ABUT.	3 1/8"	3 1/4"	3 1/8"	3"	3"	3"	3"	3"
PIER NO. 1	2 3/8"	2 5/8"	2 1/2"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
PIER NO. 2	3 3/8"	3 1/2"	3 3/8"	3 3/8"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
WEST ABUT.	3"	3"	3"	3"	3"	3"	3"	3"

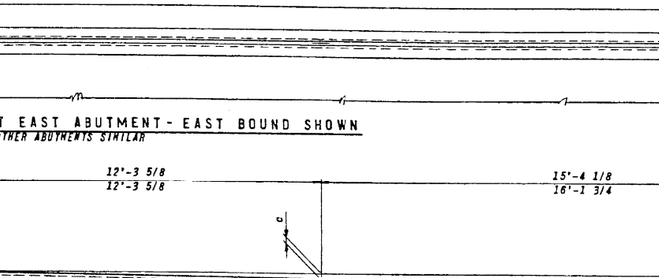
BLOCKING DIAGRAM



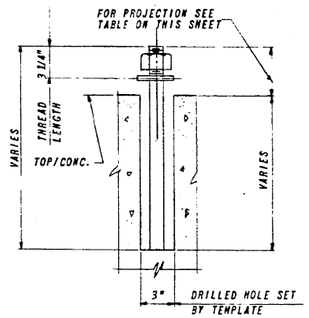
EXPANSION BEARING DETAIL AT ABUTMENTS
32 - REQ'D.

EXPANSION BEARING DETAIL AT PIER NO. 2
16 - REQ'D.

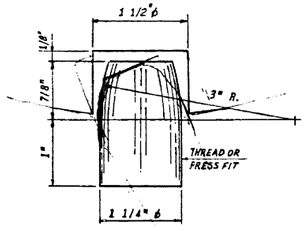
SECTION A-A



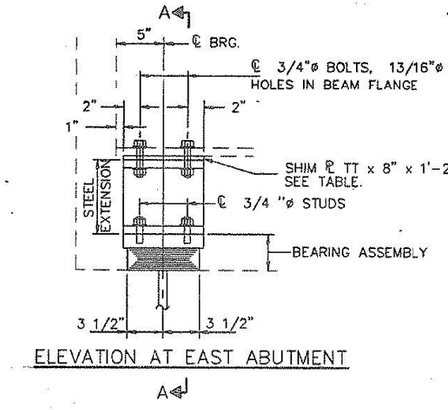
FIXED BEARING DETAIL AT PIER NO. 1
16 - REQ'D.



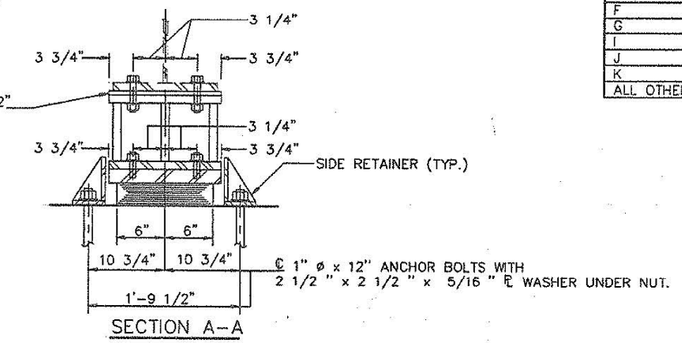
ANCHOR BOLT



PINTLE DETAIL



ELEVATION AT EAST ABUTMENT



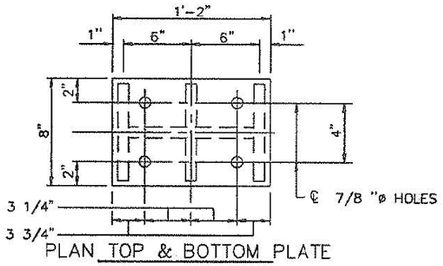
SECTION A–A

TYPE I ELASTOMERIC EXP. BRG.

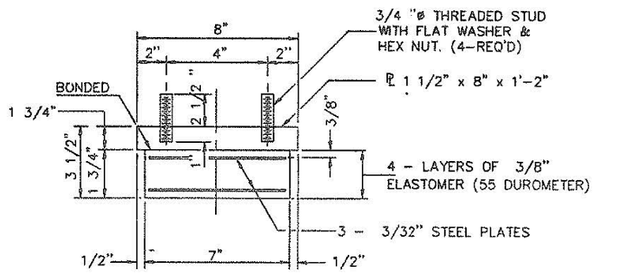
SHIM ℙ TT	
STRINGER	TT
E	1/8" + 5/8"
F	1/8" + 7/16"
G	1/8" + 5/16"
I	1/8" + 1/8"
J	1/8" + 3/16"
K	1/8" + 1/8"
ALL OTHERS	1/8"

BEAM REACTIONS

RP	(K)	18.7
RL	(K)	36.0
IMPACT	(K)	10.3
R (TOTAL)	(K)	65.0



PLAN TOP & BOTTOM PLATE



BEARING ASSEMBLY

NOTE: SHIM PLATES SHALL NOT BE PLACED UNDER BEARING ASSEMBLY.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, SHIM PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

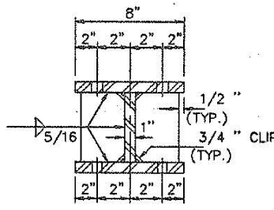
SEE SHEET 18 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

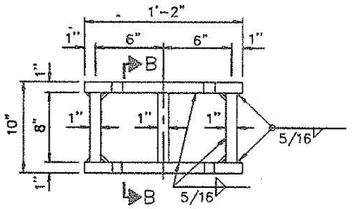
TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

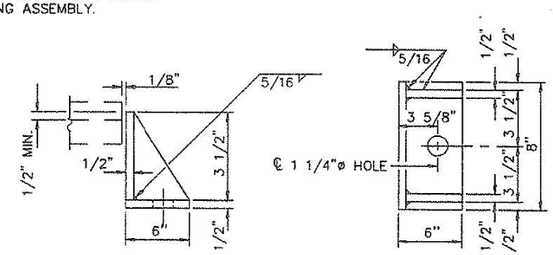
SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.



SECTION B–B

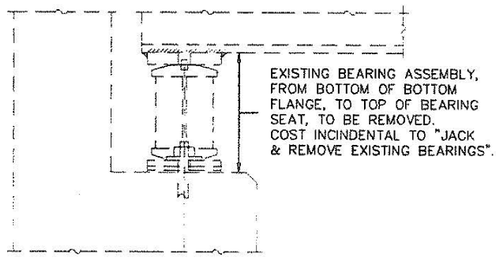


STEEL EXTENSION DETAIL



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



EXISTING ELEVATION

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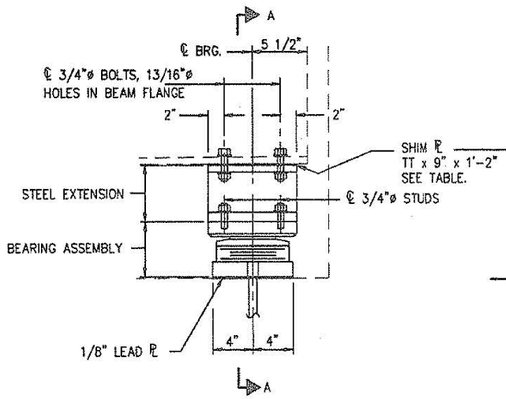
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:29:44 PM	CHECKED -	REVISED -

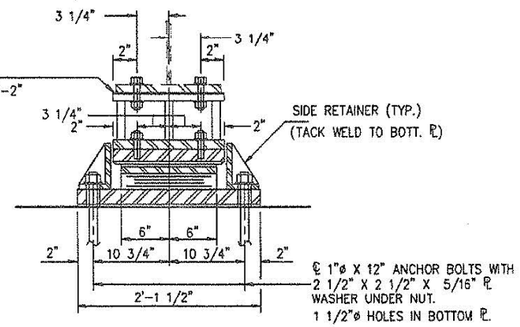
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING REPLACEMENT DETAILS – LOCATION 3
STRUCTURE NO. 016–0488
SHEET NO. SC-4 OF SC-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	76
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION AT WEST ABUTMENT



SECTION A–A

TYPE II TFE ELASTOMERIC EXP. BRG.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

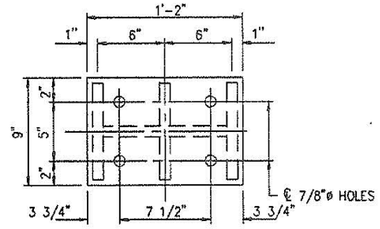
SEE SHEET 18 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR-ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

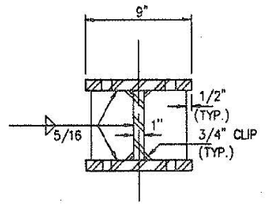
PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.

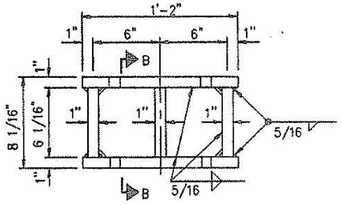


PLAN TOP & BOTTOM PLATES

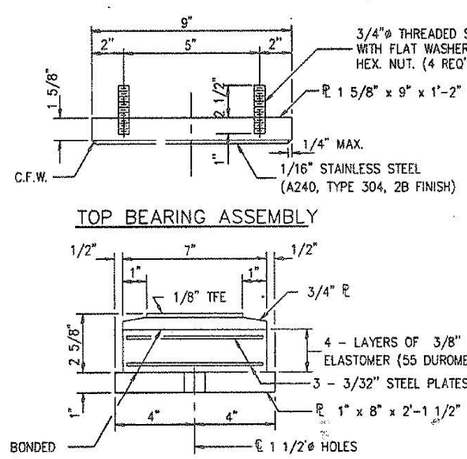
SHIM ℙ TT	
STRINGER	TT
E	1/8" + 3/4"
F	1/8" + 5/8"
G	1/8" + 9/16"
H	1/8" + 5/16"
ALL OTHERS	1/8"



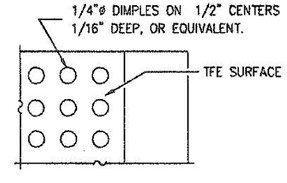
SECTION B–B



STEEL EXTENSION DETAIL

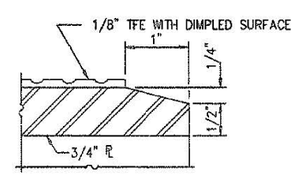


TOP BEARING ASSEMBLY



PLAN–TFE SURFACE

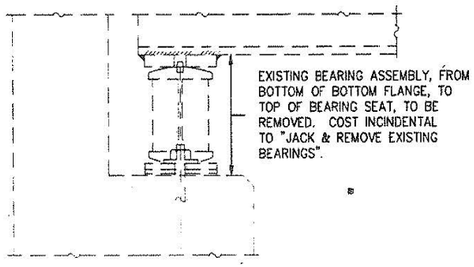
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

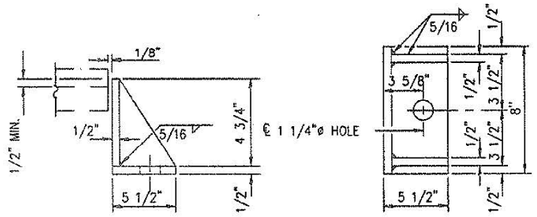
NOTE: THE 1/8 " TFE SHEET SHALL BE BONDED DIRECTLY TO THE TOP STEEL PLATE WITH A TWO-COMPONENT, MEDIUM VISCOSITY EPOXY RESIN, CONFORMING TO THE REQUIREMENTS OF THE FEDERAL SPECIFICATION MMM-A-134, TYPE I. THE BOND AGENT SHALL BE APPLIED ON THE FULL AREA OF THE CONTACT SURFACES.

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.



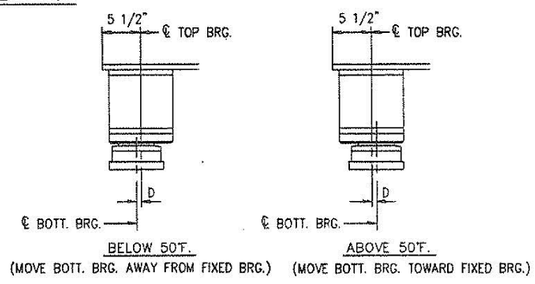
EXISTING ELEVATION

BEAM REACTIONS		
RD	(K)	18.7
RL	(K)	36.0
IMP.	(K)	10.3
R (TOTAL)	(K)	65.0



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



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.

FILE NAME = ...\016@488-60W87-005-18-rg_D1s.dgn

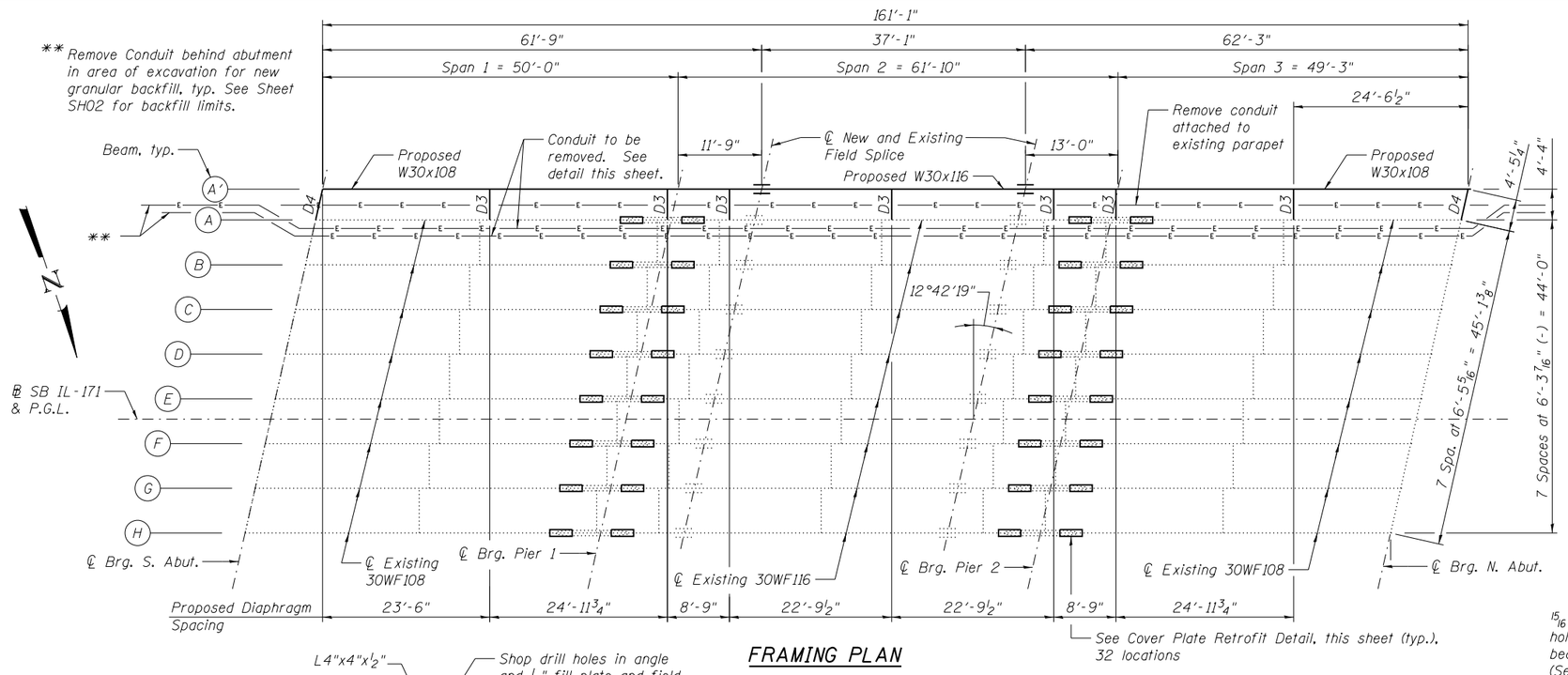
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -	
	CHECKED -	REVISED -	
PLOT SCALE =	DRAWN -	REVISED -	
PLOT DATE = 12/05/2018 2:30:24 PM	CHECKED -	REVISED -	

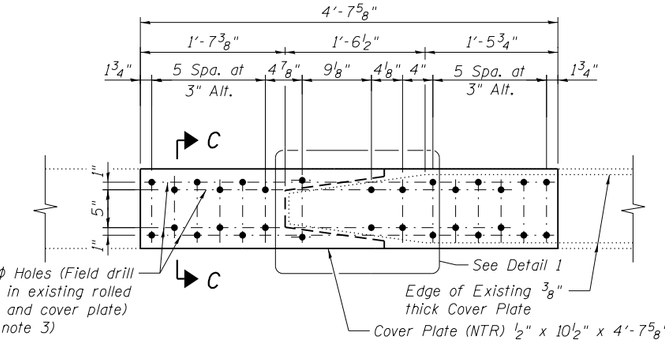
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING REPLACEMENT DETAILS – LOCATION 3
STRUCTURE NO. 016-0488
SHEET NO. SC-5 OF SC-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	77
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

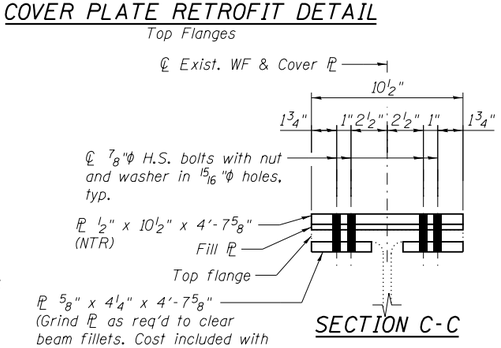


FRAMING PLAN

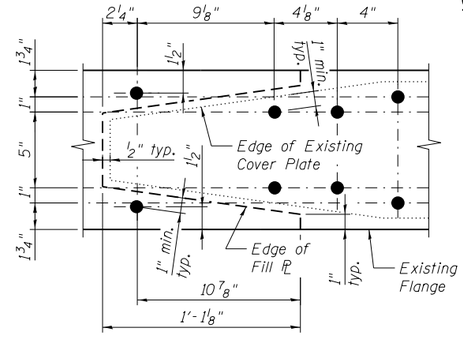


COVER PLATE RETROFIT DETAIL

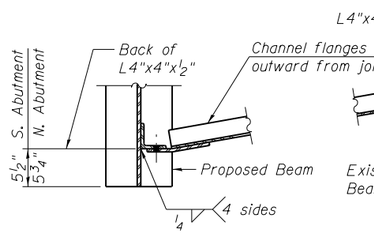
Top Flanges



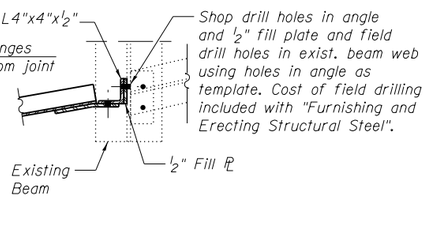
SECTION C-C

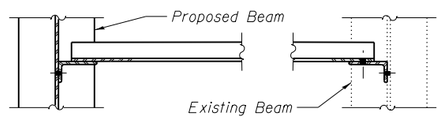


DETAIL 1

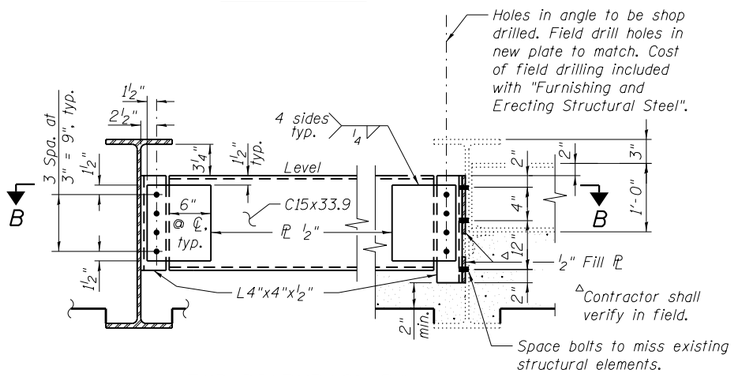


SECTION B-B





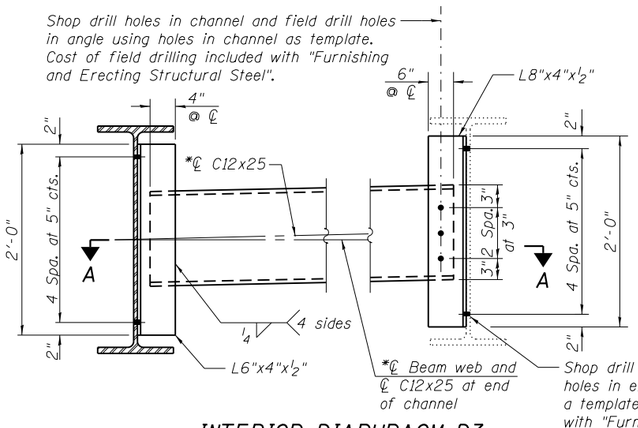
SECTION A-A



END DIAPHRAGM D4

2 Required

Note:
All bolts shall be ¾" ϕ HS bolts in 15/16" ϕ holes. Two hardened washers required for each set of oversized holes.



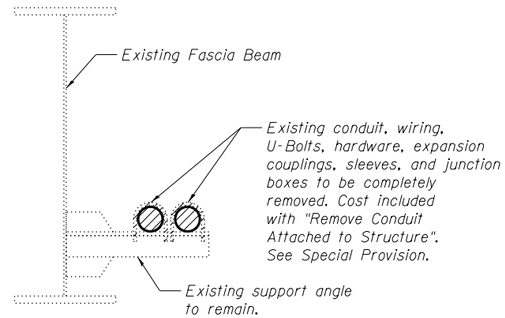
INTERIOR DIAPHRAGM D3

7 Required

Notes:
All bolts shall be ¾" ϕ HS bolts in 15/16" ϕ holes.

Two hardened washers required for each set of oversized holes.

*Alternate C12x30 channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.



CONDUIT REMOVAL DETAIL

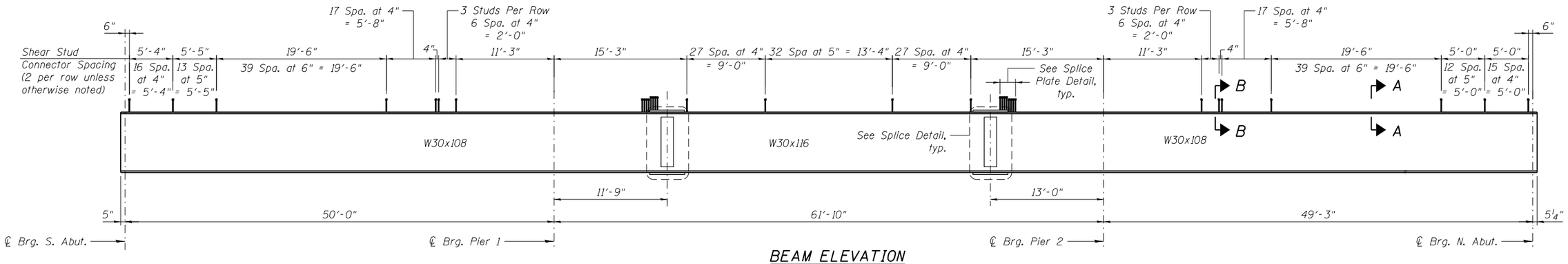
FILE NAME = ...\016@488-60W87-005-Sti_Repairs.dgn

LIN ENGINEERING, LTD. Consulting Engineers, Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN -	REVISED -
	PLOT DATE = 12/05/2018 2:31:04 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL REPAIRS – LOCATION 3
STRUCTURE NO. 016-0488
SHEET NO. SC-6 OF SC-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	78
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



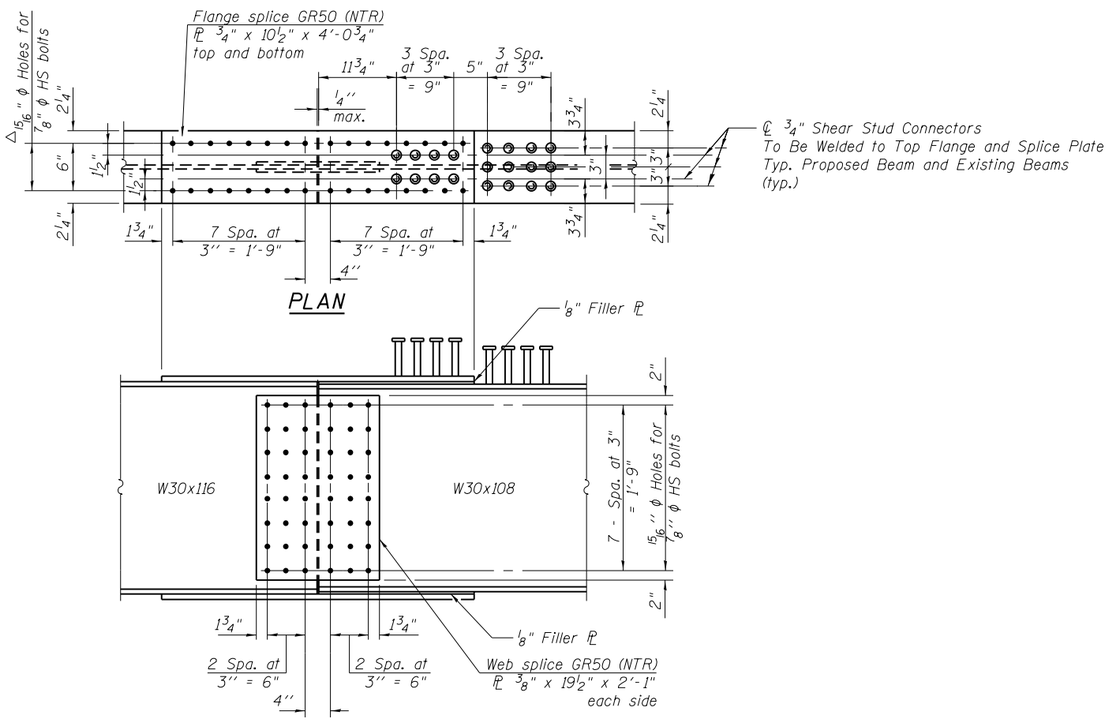
BEAM ELEVATION

(Proposed Beam)
(Existing Beams to have same Shear Stud Spacing)
New beam shall be AASHTO M270 Grade 50 and NTR

*TOP OF BEAM ELEVATIONS	
Location	Beam A'
CL. BRG. S. ABUT.	625.95
CL. BRG. PIER 1	626.18
FS #1	626.24
FS #2	626.42
CL. BRG. PIER 2	626.48
CL. BRG. N. ABUT.	626.70

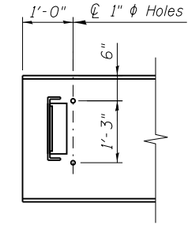
*For Fabrication Only

△ ⅞"φ rivets on existing beams



ELEVATION
SPLICE DETAIL

(2 Required)
North splice shown, South splice opposite hand



END ELEVATION

(typ E.E.)
Proposed beam shown
Existing beams similar

FILE NAME = ...\016@488-60W87-007-Sil.01s.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED -	REVISED -	
	PLOT SCALE =	DRAWN -	REVISED -	
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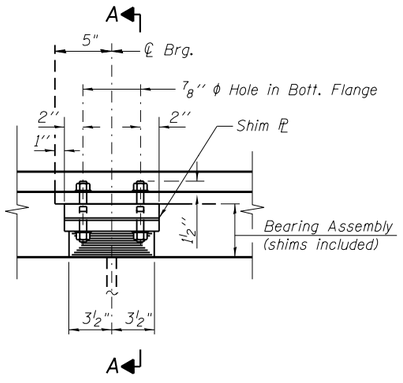
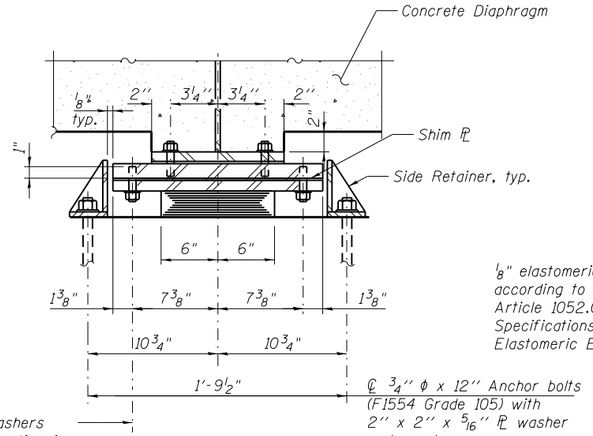
REHAB. STEEL DETAILS – LOCATION 3
STRUCTURE NO. 016–0488
SHEET NO. SC-7 OF SC-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	79
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		

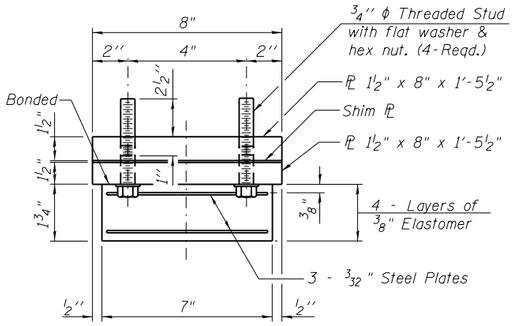


ELEVATION



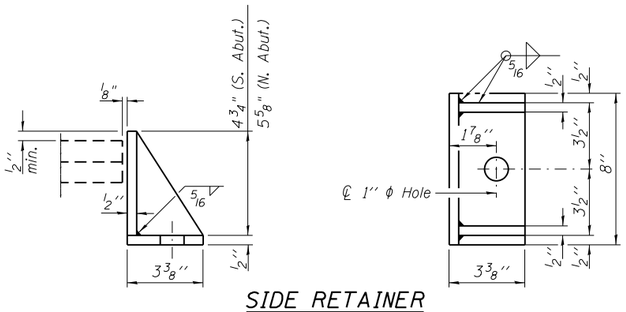
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG. SOUTH ABUTMENT



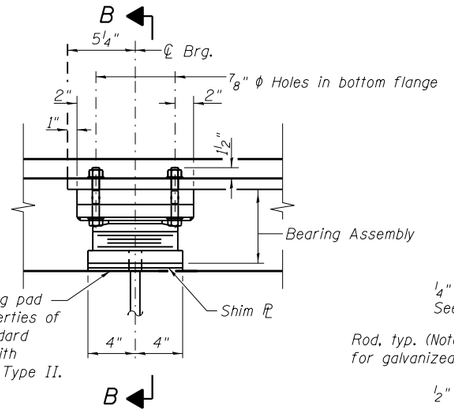
Note:
Shim plates shall not be placed under Bearing Assembly.

BEARING ASSEMBLY



SIDE RETAINER

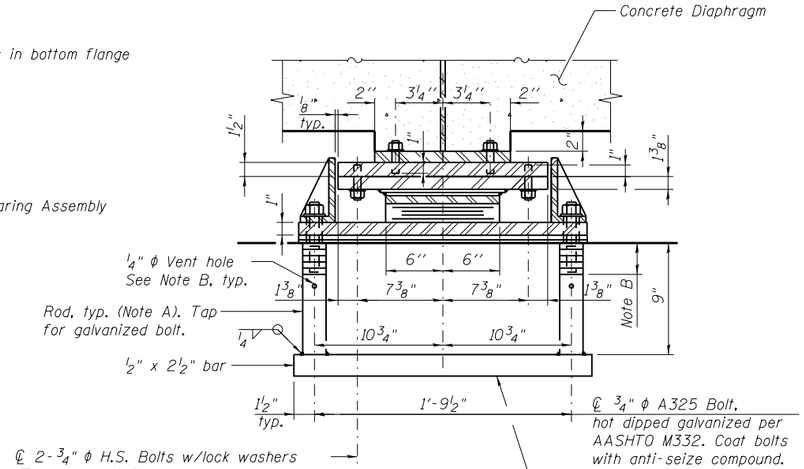
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



ELEVATION AT ABUT.

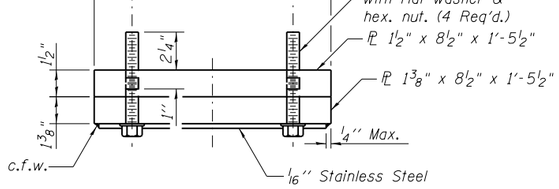
Note A:
ASTM A572 Gr. 50, A588 or similar material with Fy ≥ 50 ksi.
Rod dia. = 1 1/2"

Note B:
Bolt engagement 1 1/4" min., 1 5/8" max., allowing up to 3/8" adjustment shims. Tap full threads in rod 1 3/4" deep. Provide 1/4" ϕ galvanized vent hole below full thread.

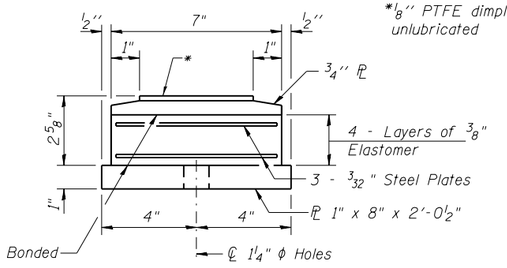


SECTION B-B

TYPE II ELASTOMERIC EXP. BRG. NORTH ABUTMENT

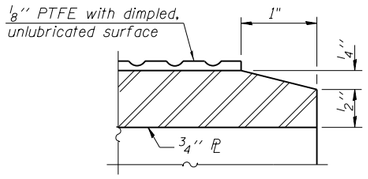


TOP BEARING ASSEMBLY

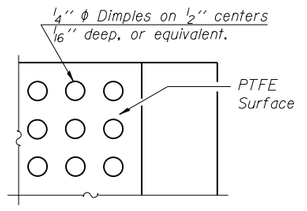


*1/8" PTFE dimpled, unlubricated

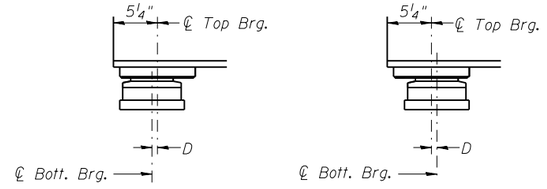
BOTTOM BEARING ASSEMBLY



SECTION THRU PTFE



PLAN-PTFE SURFACE



BELOW 50°F.
(Move bott. brg. away from fixed brg.)

ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

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.

FILE NAME = ...\0160488-60W87-008-Brg Dtls.dgn

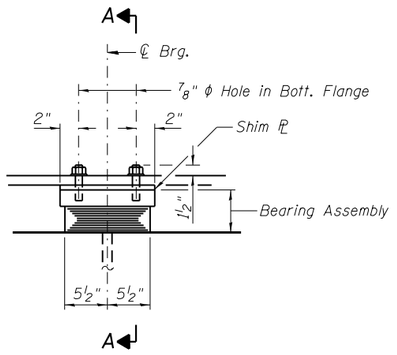
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:31:16 PM	CHECKED -	REVISED -

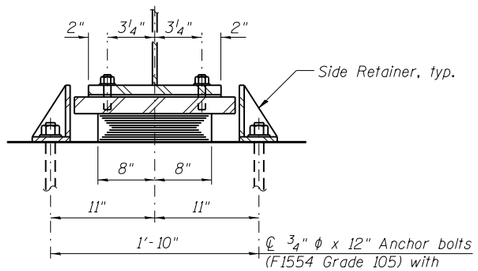
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. BEARING DETAILS – LOCATION 3
STRUCTURE NO. 016-0488
SHEET NO. SC-8 OF SC-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	80
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

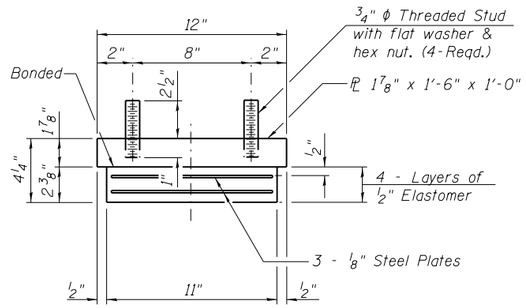


ELEVATION



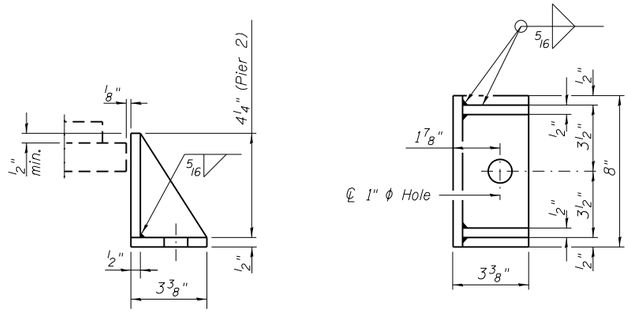
SECTION A-A

TYPE I ELASTOMERIC EXP. BRG. PIER 2



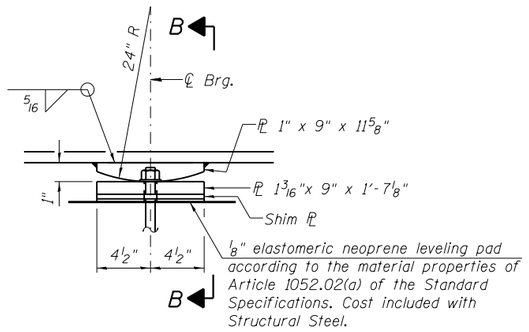
BEARING ASSEMBLY

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

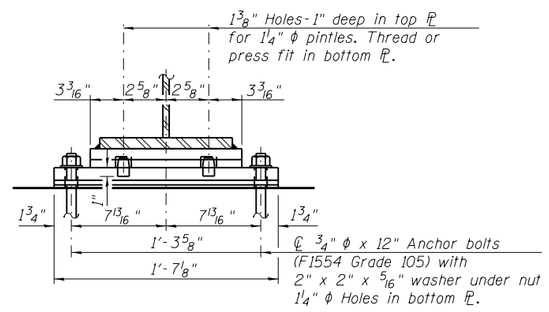


SIDE RETAINER

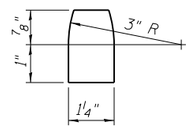
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



ELEVATION AT PIER



SECTION B-B



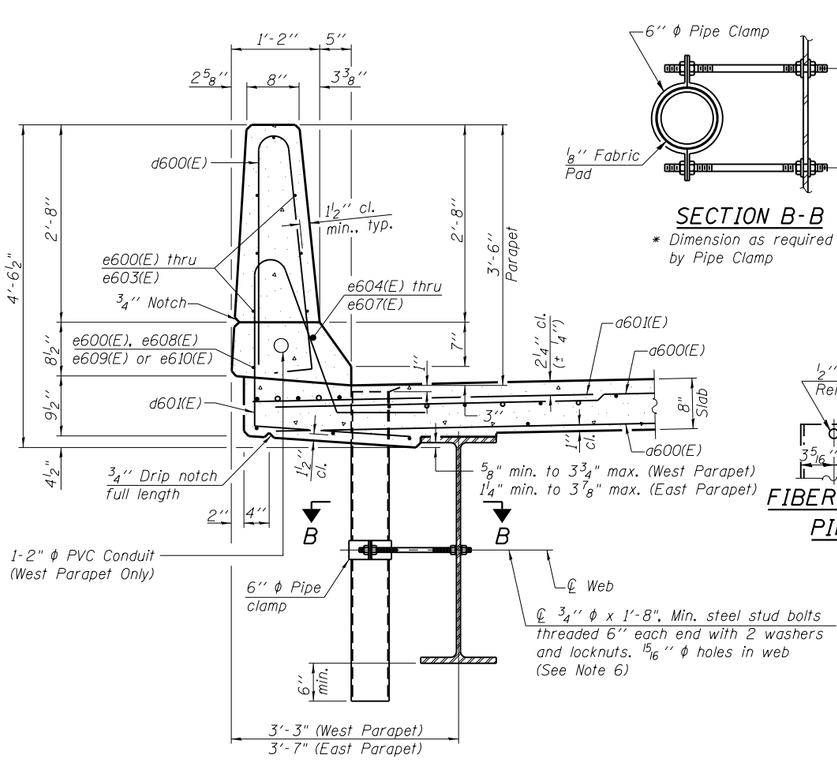
PINTLE

FIXED BEARING AT PIER 1

FILE NAME = ...\016O488-60W87-2019-B-g Dtls.dgn

LIN ENGINEERING,LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REHAB. BEARING DETAILS – LOCATION 3 STRUCTURE NO. 016–0488
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SC-9 OF SC-10 SHEETS
	PLOT DATE = 12/05/2018 2:31:21 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	81
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	

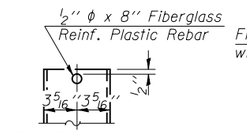


SECTION THRU PARAPET

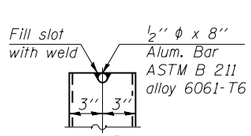
SECTION B-B

* Dimension as required by Pipe Clamp

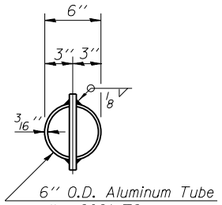
TOP PLAN



FIBERGLASS PIPE



ALUMINUM TUBE



TOP PLAN

(Showing Aluminum Tube)

FILE NAME = ...\0160488-60W87-010-Drain_Pipe_Dtls.dgn

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		CHECKED -	REVISED -
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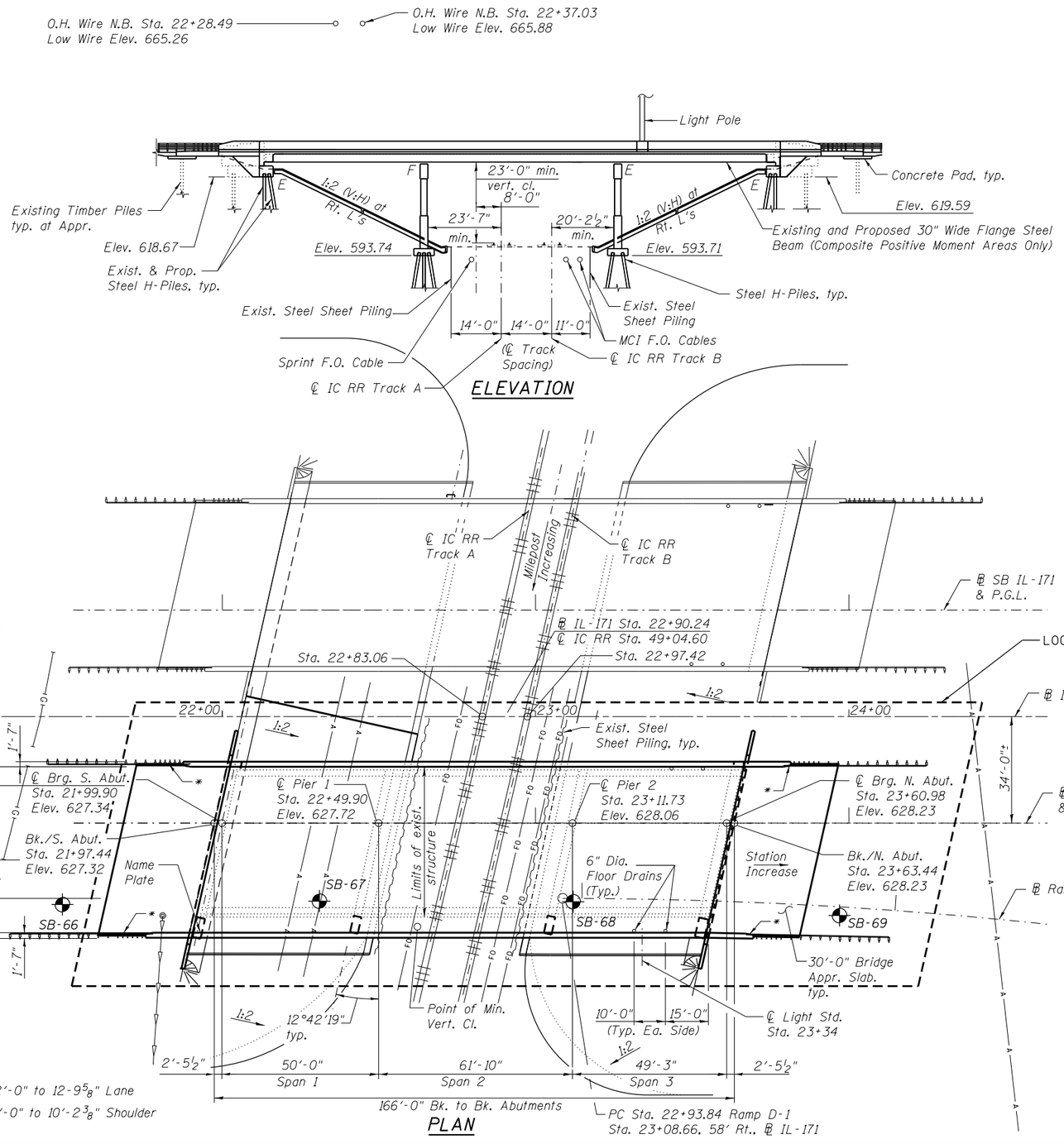
	PLOT DATE = 12/05/2018 2:31:27 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. DRAIN PIPE DETAILS – LOCATION 3
STRUCTURE NO. 016-0488
SHEET NO. SC-10 OF SC-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	82
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



GENERAL NOTES

1. THE EXISTING STRUCTURAL STEEL COATING CONTAINS LEAD. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO DEAL WITH THE PRESENCE OF LEAD ON THIS PROJECT.

2. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES".

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. STRUCTURAL SHEETS TAKEN FROM EXISTING PLANS CONTAIN INFORMATION NOT PERTAINING TO THIS CONTRACT AND ARE FOR INFORMATION ONLY.

4. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SD-6 THRU SD-10 HAS BEEN PRIMED WITH AN INORGANIC ZINC RICH PRIMER UNDER A PREVIOUS CONTRACT. THESE STEEL SURFACES SHALL BE PRESSURE WASHED CLEAN AND POWER TOOL CLEANED (SSPC SP-3 MODIFIED) AS NECESSARY PRIOR TO THE APPLICATION OF THE INTERMEDIATE AND TOP COATS. THE INORGANIC ZINC RICH PRIMER / ACRYLIC / ACRYLIC PAINT SYSTEM SHALL BE USED FOR FIELD PAINTING OF THESE LOCATIONS. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

5. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SD-2 THRU SD-5 SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SP10. THESE LOCATIONS SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF THE EPOXY MASTIC / EPOXY MASTIC / ACRYLIC PAINT SYSTEM. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

6. A MINIMUM OF 3 AIR MONITORS WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THIS SITE. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".

7. THE ELASTOMERIC PADS OF THE EXISTING BEARINGS SHALL BE MASKED OFF FOR PROTECTION DURING PAINTING AND REMOVED WHEN PAINTING IS FINISHED. COST INCLUDED WITH "CLEANING AND PAINTING STEEL BRIDGE NO. 4".

8. IF APPLICABLE, THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS DEMONSTRATING THE STRUCTURAL INTEGRITY OF THE BRIDGE IS MAINTAINED UNDER THE ADDITIONAL IMPOSED LOADS OF THE CONTAINMENT SYSTEM. SEE SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
CLEANING AND PAINTING STEEL BRIDGE NO. 4	L. SUM	1
CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 4	L. SUM	1

FILE NAME = ...\D1608489-60W87-001-GPE.dgn

LIN ENGINEERING,LTD.
Consulting Engineers
Springfield, Illinois

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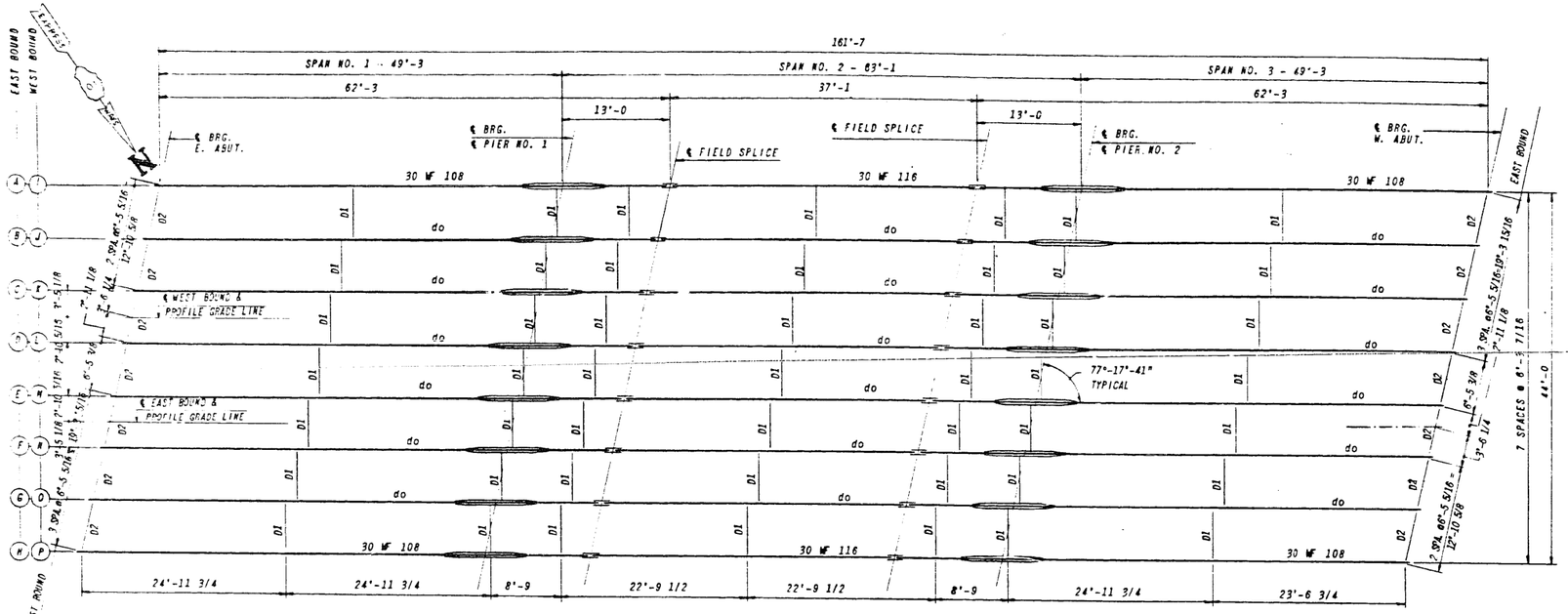
	CHECKED -	REVISED -	
PLOT SCALE =	DRAWN -	REVISED -	
PLOT DATE = 12/05/2018 2:32:12 PM	CHECKED -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

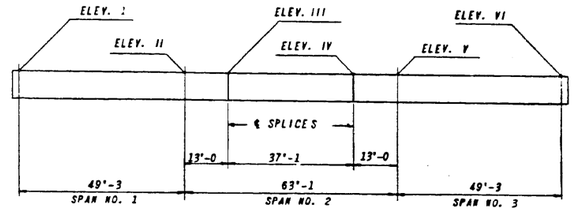
GENERAL PLAN & ELEVATION – LOCATION 4
STRUCTURE NO. 016-0489
SHEET NO. SD-1 OF SD-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	83
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		



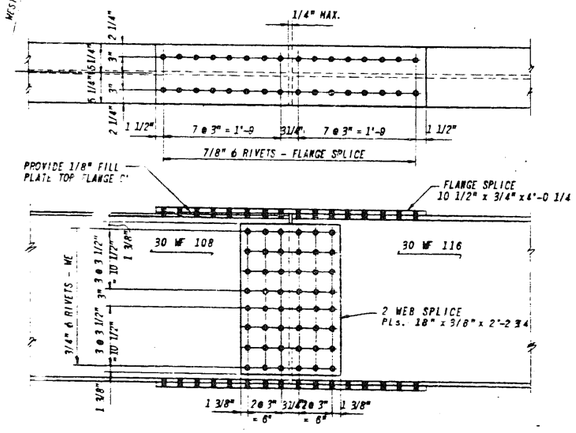
FRAMING PLAN

ELEVATION TOP OF STEEL (FLANGE) 30 WF 108							
	POINT	I	II	III	IV	V	VI
EAST BOUND	STRINGER A	626.304	626.629	626.690	626.865	626.926	627.065
	" B	626.399	626.727	626.789	626.965	627.027	627.166
	" C	626.514	626.844	626.908	627.085	627.147	627.291
	" D	626.600	626.933	626.998	627.176	627.239	627.385
	" E	626.652	626.987	627.051	627.233	627.297	627.445
	" F	626.636	626.973	627.037	627.221	627.285	627.436
	" G	626.562	626.902	626.967	627.152	627.217	627.370
	" H	626.468	626.810	626.876	627.063	627.129	627.284
WEST BOUND	" I	626.395	626.751	626.820	627.018	627.087	627.258
	" J	626.467	626.825	626.895	627.094	627.164	627.335
	" K	626.518	626.879	626.949	627.150	627.220	627.394
	" L	626.512	626.875	626.946	627.149	627.220	627.396
	" M	626.438	626.803	626.875	627.079	627.151	627.329
	" N	626.329	626.696	626.768	626.975	627.047	627.228
	" O	626.191	626.561	626.634	626.842	626.915	627.098
	STRINGER P	626.070	626.446	626.520	626.729	626.803	626.988

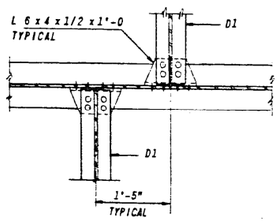


ELEVATION KEY

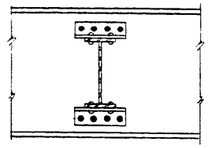
NOTE: ELEVATIONS FOR FABRICATION USE ONLY, DOES NOT INCLUDE DEFLECTIONS.



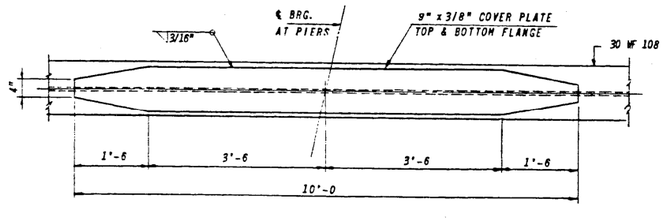
BEAM SPLICE DETAIL



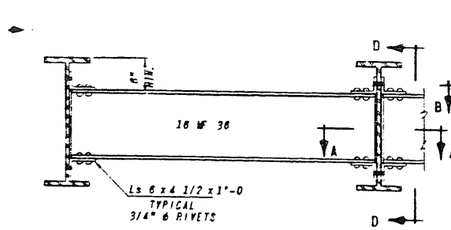
SECTION A-A



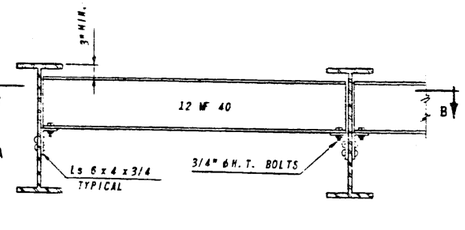
SECTION D-D



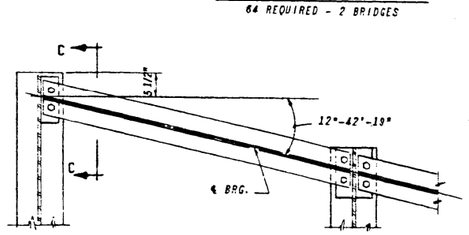
COVER PLATE DETAIL
64 REQUIRED - 2 BRIDGES



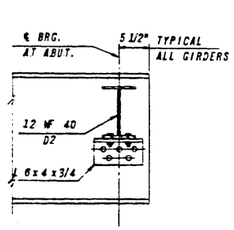
DIAPHRAGM D1
98 REQUIRED - 2 BRIDGES



DIAPHRAGM D2
28 REQUIRED - 2 BRIDGES



SECTION B-B



SECTION C-C

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. STEEL DETAILS – LOCATION 4 STRUCTURE NO. 016-0489	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED -	REVISED -			373	2013-040BP	COOK	122	84
	PLOT SCALE =	DRAWN -	REVISED -					CONTRACT NO. 60W87		
	PLOT DATE = 12/05/2018 2:32:18 PM	CHECKED -	REVISED -		SHEET NO. SD-2 OF SD-10 SHEETS		ILLINOIS	FED. AID PROJECT		

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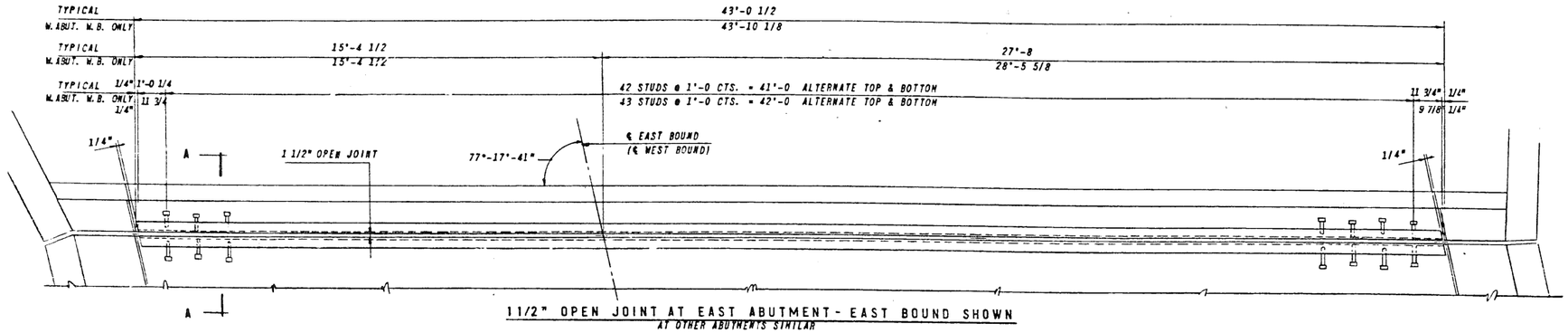
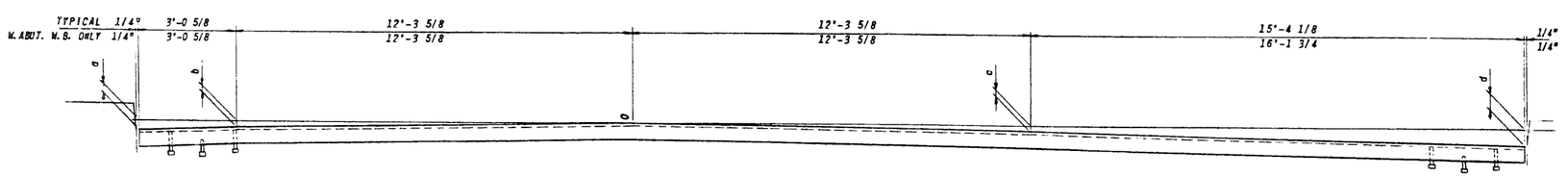


11/2" OPEN JOINT AT EAST ABUTMENT - EAST BOUND SHOWN

AT OTHER ABUTMENTS SIMILAR

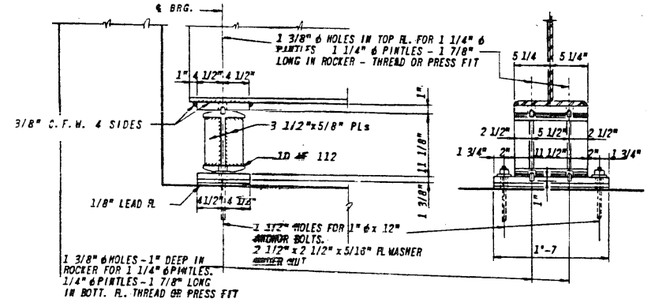
1 1/2" OPEN JOINT BLOCKING				
LOCATION	a	b	c	d
EAST ABUT. E.B.	2 1/2"	1 11/16"	1 3/16"	4 1/2"
WEST ABUT. E.B.	2 1/4"	1 1/2"	1 3/8"	4 7/8"
EAST ABUT. W.B.	1 13/16"	1 3/16"	1 11/16"	5 5/8"
WEST ABUT. W.B.	2 1/16"	1 3/8"	1 1/2"	5 7/16"



SHIM PLATES THICKNESS - EAST BOUND (INCH)								
LOCATION	A	B	C	D	E	F	G	H
EAST ABUT.	-	-	-	-	5/8"	7/16"	5/16"	-
PIER NO. 1	-	-	-	-	5/8"	1/2"	3/8"	-
PIER NO. 2	-	-	-	-	11/16"	9/16"	1/2"	3/16"
WEST ABUT.	-	-	-	-	3/4"	5/8"	9/16"	5/16"

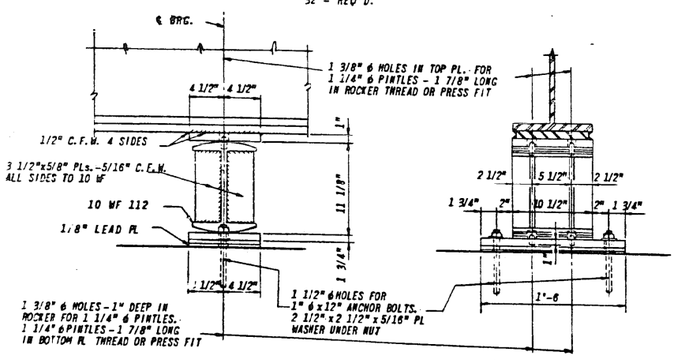
SHIM PLATES THICKNESS - WEST BOUND (INCH)								
LOCATION	I	J	K	L	M	N	O	P
EAST ABUT.	1/8"	3/16"	1/8"	-	-	-	-	-
PIER NO. 1	-	3/16"	1/8"	-	-	-	-	-
PIER NO. 2	-	1/8"	-	-	-	-	-	-
WEST ABUT.	-	-	-	-	-	-	-	-

BLOCKING DIAGRAM



EXPANSION BEARING DETAIL AT ABUTMENTS

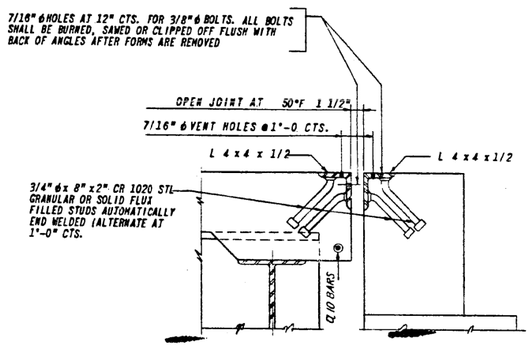
32 - REQ'D.



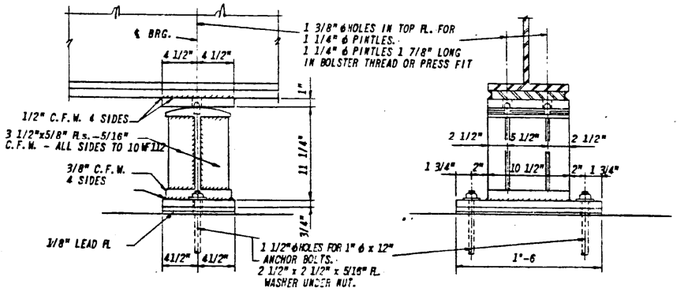
EXPANSION BEARING DETAIL AT PIER NO. 2

18 - REQ'D.

7/16" 6 HOLES AT 12" CTS. FOR 3/8" 6 BOLTS. ALL BOLTS SHALL BE BURNED, SAWED OR CLIPPED OFF FLUSH WITH BACK OF ANGLES AFTER FORMS ARE REMOVED

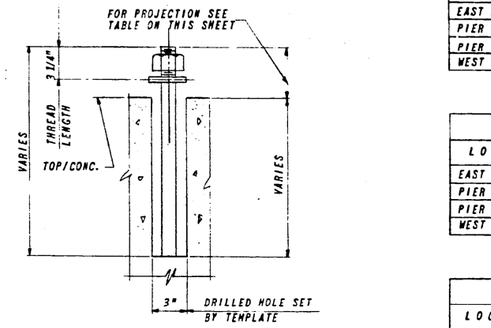


SECTION A-A



FIXED BEARING DETAIL AT PIER NO. 1

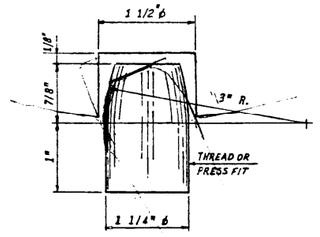
16 - REQ'D.



ANCHOR BOLT

ANCHOR BOLT PROJECTION - EAST BOUND (INCH)								
LOCATION	A	B	C	D	E	F	G	H
EAST ABUT.	3"	3"	3"	3"	3 5/8"	3 1/2"	3 3/8"	3"
PIER NO. 1	2 3/8"	2 3/8"	2 3/8"	2 3/8"	3"	2 7/8"	2 3/4"	2 3/8"
PIER NO. 2	3 3/8"	3 3/8"	3 3/8"	3 3/8"	4"	4"	3 7/8"	3 5/8"
WEST ABUT.	3"	3"	3"	3"	3 3/4"	3 5/8"	3 5/8"	3 3/8"

ANCHOR BOLT PROJECTION - WEST BOUND (INCH)								
LOCATION	I	J	K	L	M	N	O	P
EAST ABUT.	3 1/8"	3 1/4"	3 1/8"	3"	3"	3"	3"	3"
PIER NO. 1	2 3/8"	2 5/8"	2 1/2"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
PIER NO. 2	3 3/8"	3 1/2"	3 3/8"	3 3/8"	3 3/8"	3 3/8"	3 3/8"	3 3/8"
WEST ABUT.	3"	3"	3"	3"	3"	3"	3"	3"



PINTLE DETAIL

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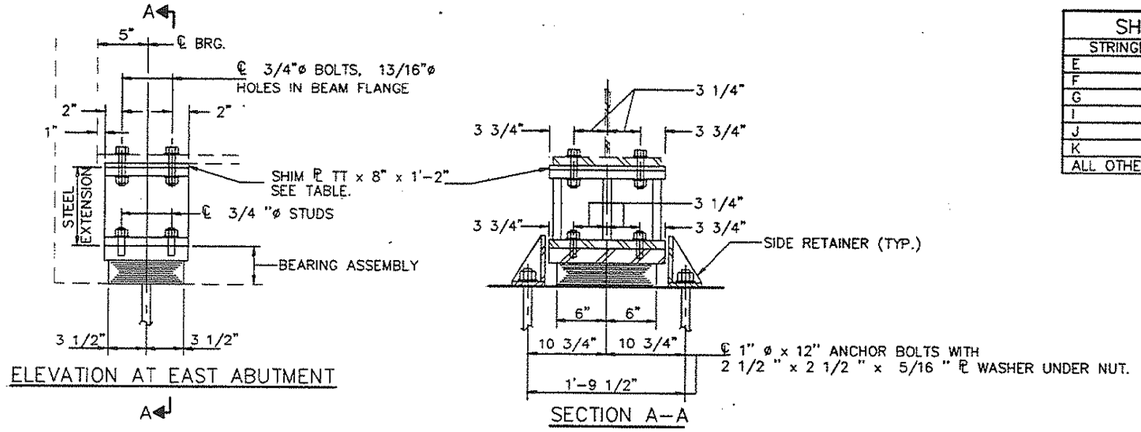
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:33:01 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. BEARING DETAILS – LOCATION 4
STRUCTURE NO. 016-0489
SHEET NO. SD-3 OF SD-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	85
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION AT EAST ABUTMENT

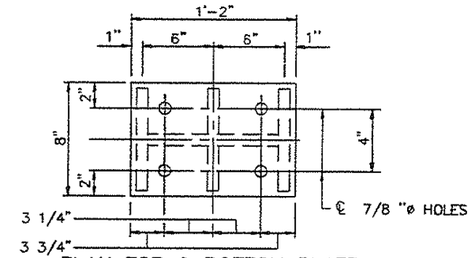
SECTION A–A

TYPE I ELASTOMERIC EXP. BRG.

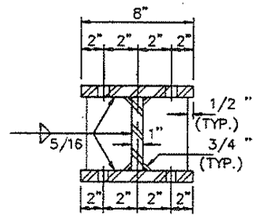
SHIM ℙ TT	
STRINGER	TT
E	1/8" + 5/8"
F	1/8" + 7/16"
G	1/8" + 5/16"
I	1/8" + 1/8"
J	1/8" + 3/16"
K	1/8" + 1/8"
ALL OTHERS	1/8"

BEAM REACTIONS

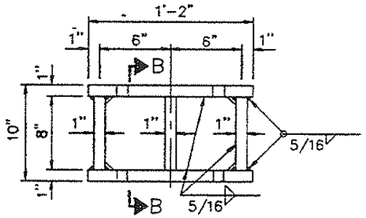
RP	(K)	18.7
RL	(K)	36.0
IMPACT	(K)	10.3
R (TOTAL)	(K)	65.0



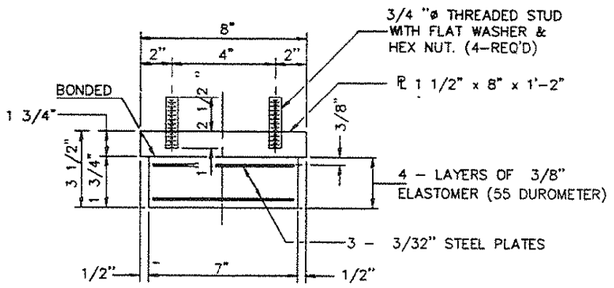
PLAN TOP & BOTTOM PLATE



SECTION B–B



STEEL EXTENSION DETAIL



BEARING ASSEMBLY

NOTE: SHIM PLATES SHALL NOT BE PLACED UNDER BEARING ASSEMBLY.

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, SHIM PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

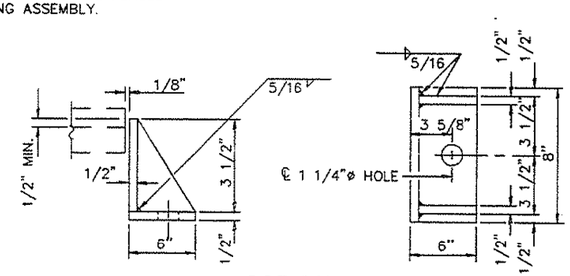
SEE SHEET 18 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR-ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

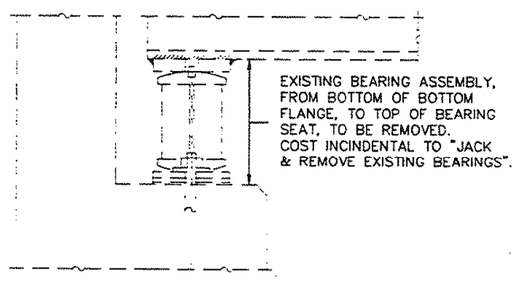
PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.



EXISTING ELEVATION

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LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
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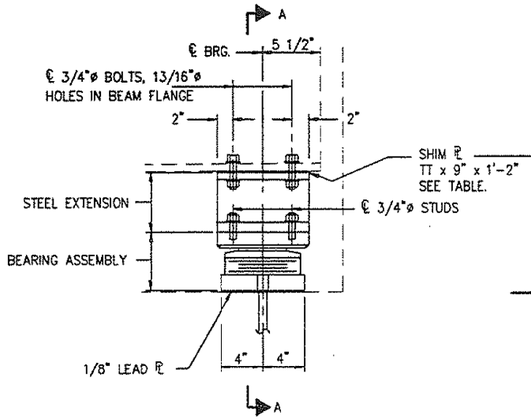
PLOT DATE = 12/05/2018 2:33:44 PM	CHECKED -	REVISED -

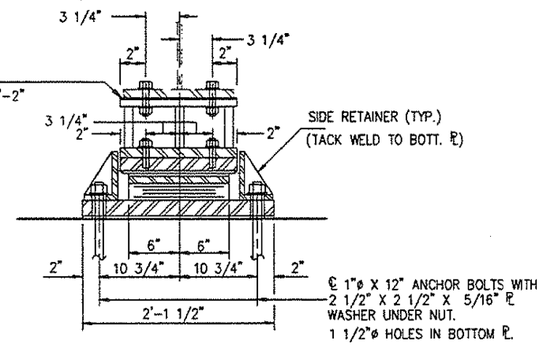
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING REPLACEMENT DETAILS – LOCATION 4
STRUCTURE NO. 016-0489
SHEET NO. SD-4 OF SD-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	86
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



ELEVATION AT WEST ABUTMENT



SECTION A–A

NOTES: DIAPHRAGM REMOVAL AND REPLACEMENT MAY BE REQUIRED TO FACILITATE DRILLING HOLES IN THE BOTTOM FLANGE FOR BEARING ATTACHMENT. COST IS INCIDENTAL TO "FURNISHING AND ERECTING STRUCTURAL STEEL".

NEW STEEL EXTENSIONS, SIDE RETAINERS, LEAD PLATES, CONNECTION BOLTS AND ANCHOR BOLTS ARE INCLUDED IN "FURNISHING AND ERECTING STRUCTURAL STEEL".

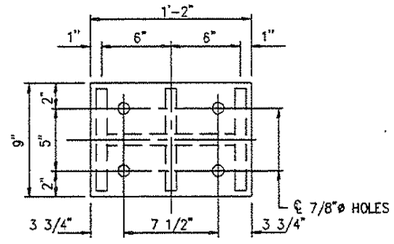
SEE SHEET 18 FOR ANCHOR BOLT INSTALLATION.

BEFORE INSTALLING THE NEW BEARING, THE TOP PLATE OF THE EXISTING BEARING ASSEMBLY SHALL BE REMOVED FROM THE BOTTOM FLANGE USING THE AIR–ARC METHOD. GRIND SMOOTH ALL WELD MATERIAL REMAINING ON THE BOTTOM FLANGE. BURN EXISTING ANCHOR BOLTS FLUSH WITH EXISTING CONCRETE SURFACE. GRIND EXISTING ANCHOR BOLT SMOOTH AND SEAL WITH EPOXY. COST IS INCIDENTAL TO FURNISHING AND ERECTING STRUCTURAL STEEL.

TRAFFIC SHALL BE REMOVED FROM THE PORTION OF THE STRUCTURE TO BE JACKED PRIOR TO COMMENCING JACKING OPERATIONS. TRAFFIC SHALL BE KEPT OFF THAT PORTION OF THE STRUCTURE DURING THE ENTIRE BEARING REPLACEMENT OPERATION. DIFFERENTIAL JACKING HEIGHT NOT TO EXCEED 1/8" TRANSVERSELY BETWEEN ADJACENT BEAMS OR 1/4" LONGITUDINALLY BETWEEN ADJACENT SUPPORTS.

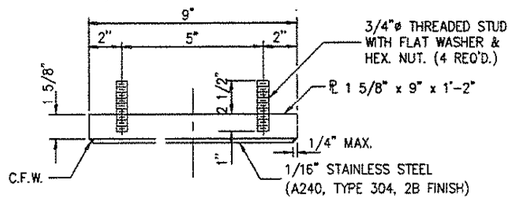
PRIOR TO ORDERING ANY MATERIAL, THE CONTRACTOR SHALL VERIFY IN THE FIELD ALL BEARING HEIGHT AND SHIM DIMENSIONS.

SEE SUPERSTRUCTURE OVERLAY & REPAIR PLANS FOR BEAM LOCATIONS.

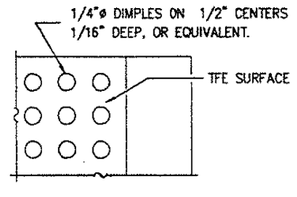


PLAN TOP & BOTTOM PLATES

TYPE II TFE ELASTOMERIC EXP. BRG.

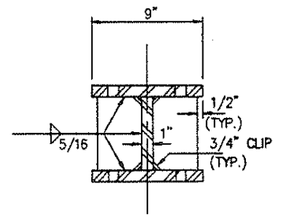


TOP BEARING ASSEMBLY

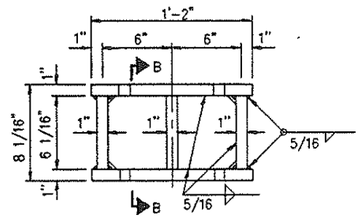


PLAN–TFE SURFACE

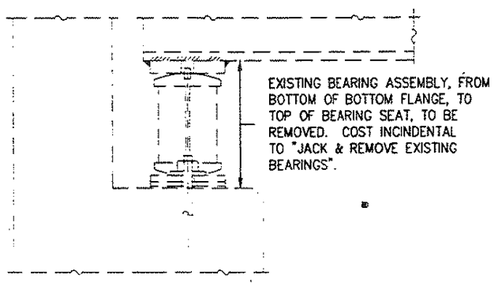
SHIM ℙ TT	
STRINGER	TT
E	1/8" + 3/4"
F	1/8" + 5/8"
G	1/8" + 9/16"
H	1/8" + 5/16"
ALL OTHERS	1/8"



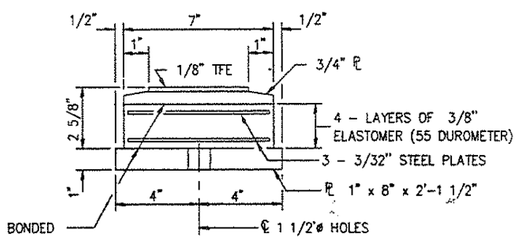
SECTION B–B



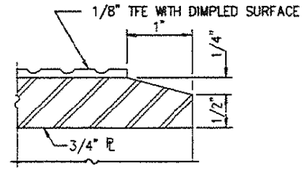
STEEL EXTENSION DETAIL



BEAM REACTIONS		
R ℙ	(K)	18.7
R ℄	(K)	36.0
IMP.	(K)	10.3
R (TOTAL)	(K)	65.0



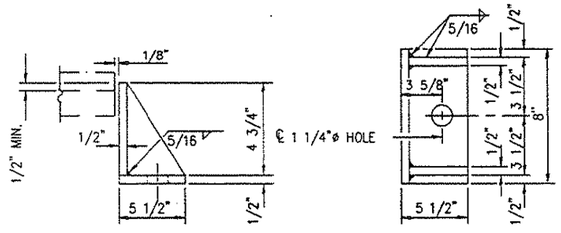
BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

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.

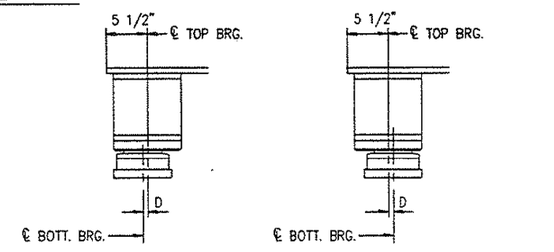
BONDING OF 1/8 " TFE SHEET DURING VULCANIZING PROCESS WILL BE PERMITTED PROVIDED THE PROCESS AND METHOD OF ADJUSTING ASSEMBLY HEIGHT IS APPROVED BY THE ENGINEER.



SIDE RETAINER

EQUIVALENT ROLLED ANGLE WITH STIFFENERS WILL BE ALLOWED IN LIEU OF WELDED PLATES.

EXISTING ELEVATION



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.

FILE NAME = ...\0160489-60W87-005-BRG_Dtls.dgn

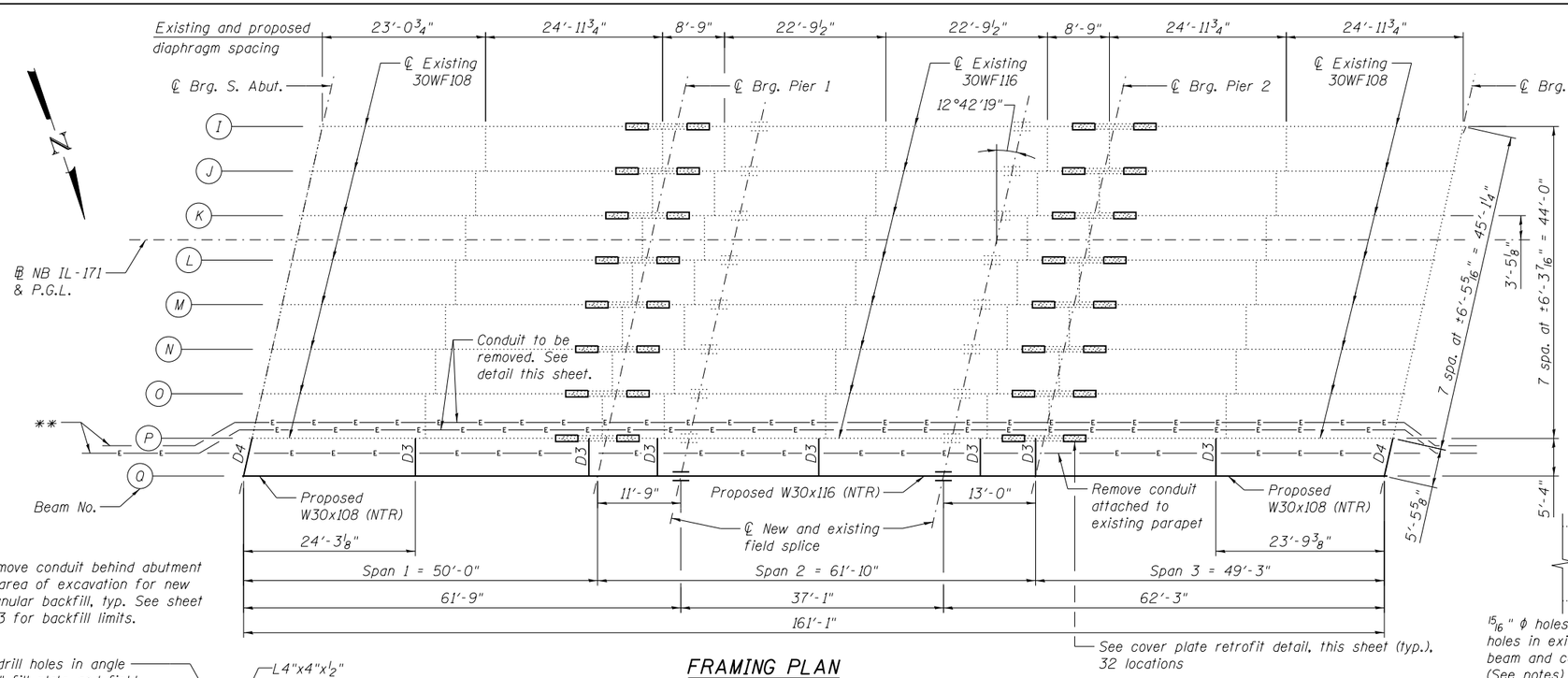
LIN ENGINEERING,LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:34:33 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

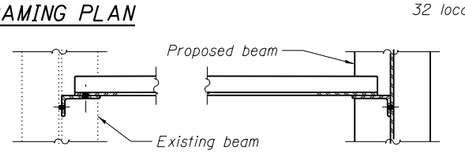
BEARING REPLACEMENT DETAILS – LOCATION 4
STRUCTURE NO. 016–0489
SHEET NO. SD-5 OF SD-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	87
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

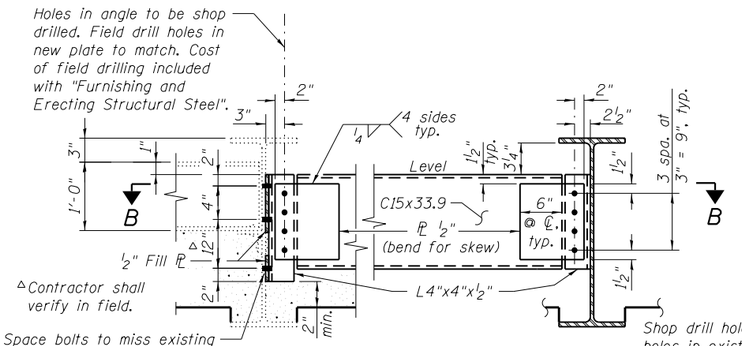


** Remove conduit behind abutment in area of excavation for new granular backfill, typ. See sheet SG3 for backfill limits.

FRAMING PLAN



SECTION A-A



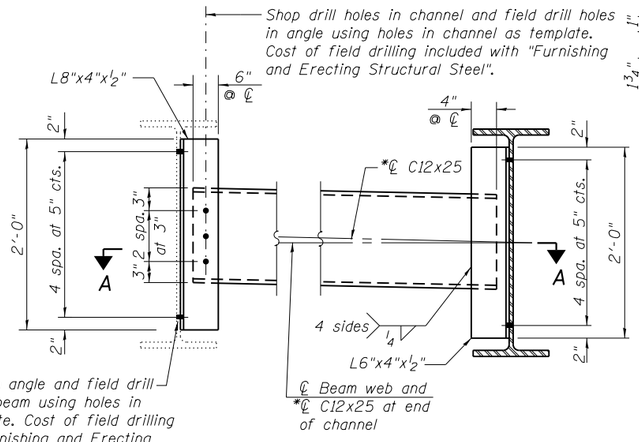
SECTION B-B

△ Contractor shall verify in field.

END DIAPHRAGM D4

2 Required

All bolts shall be 3/4" ϕ HS bolts in 15/16" ϕ holes. Two hardened washers required for each set of oversized holes.

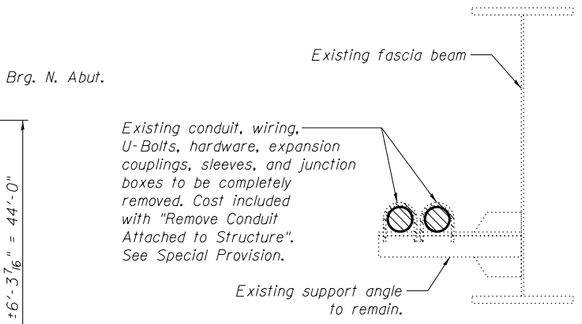


INTERIOR DIAPHRAGM D3

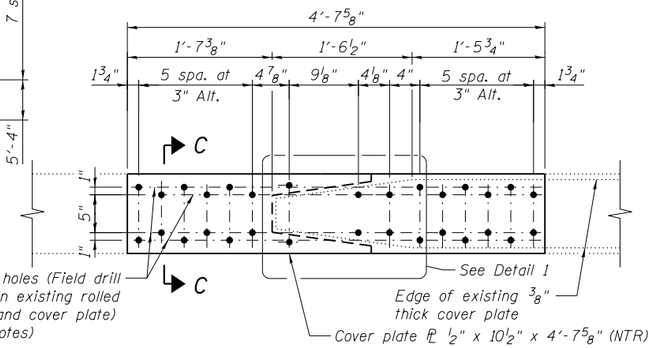
7 Required

Notes:
All bolts shall be 3/4" ϕ HS bolts in 15/16" ϕ holes.
Two hardened washers required for each set of oversized holes.

*Alternate C12x30 channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.

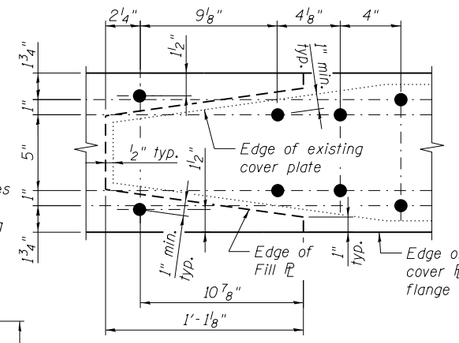


CONDUIT REMOVAL DETAIL

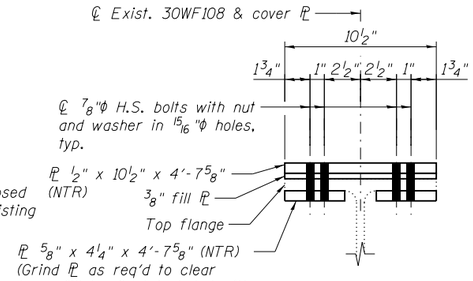


COVER PLATE RETROFIT DETAIL

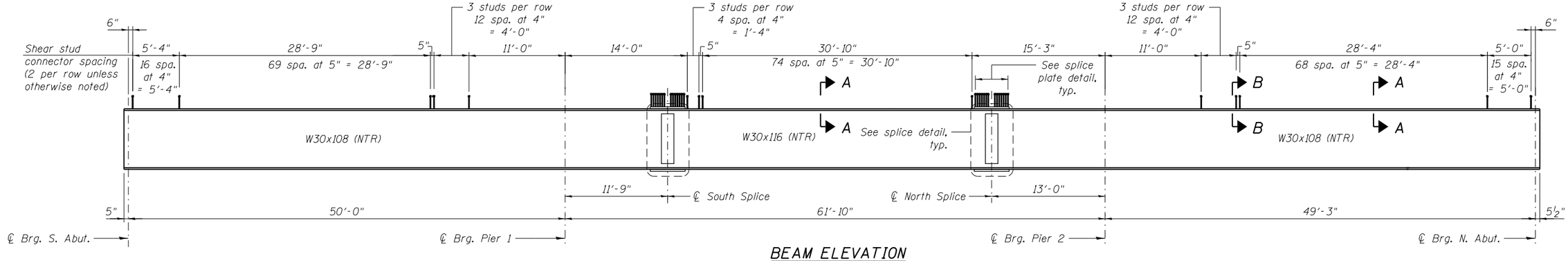
Top flanges



DETAIL 1



SECTION C-C



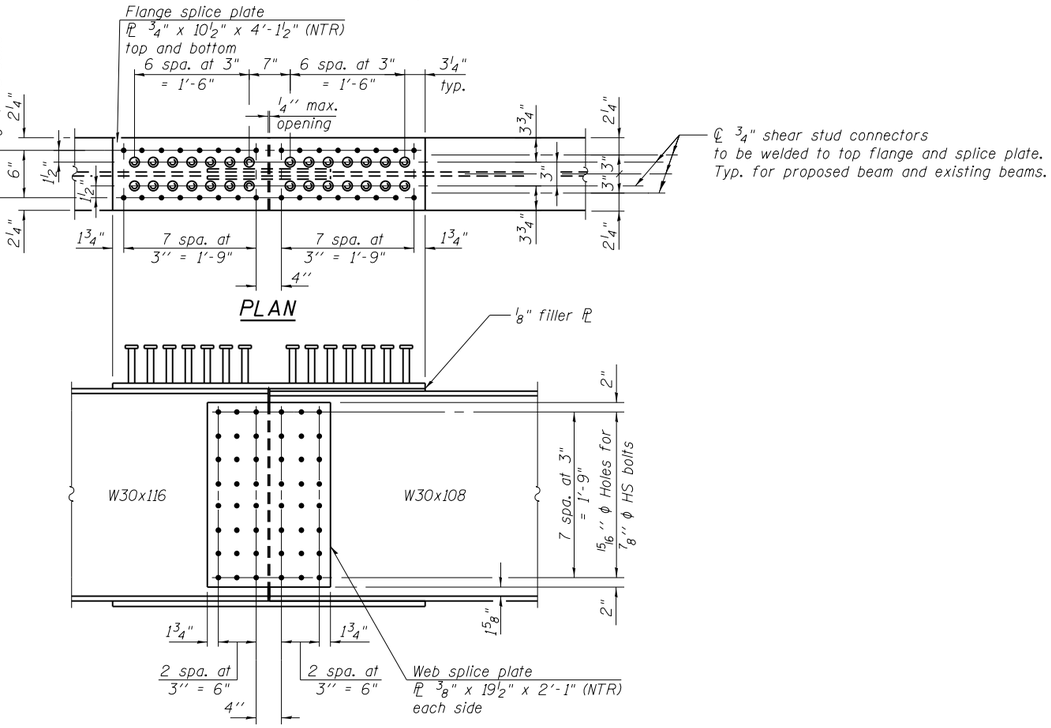
BEAM ELEVATION

(Proposed beam)
New beam shall be AASHTO M270 Grade 50

*TOP OF BEAM ELEVATIONS	
Location	Beam 0
CL. Brg. S. Abut.	625.79
CL. Brg. Pier 1	626.16
South Splice	626.25
North Splice	626.48
CL. Brg. Pier 2	626.52
CL. Brg. N. Abut.	626.70

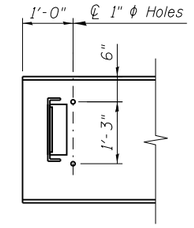
*For Fabrication Only

△ ⅞"φ rivets on existing beams



SPLICE DETAIL

(2 Required)
All splice plates shall be AASHTO M270 Grade 50.
North splice shown, South splice opposite hand.



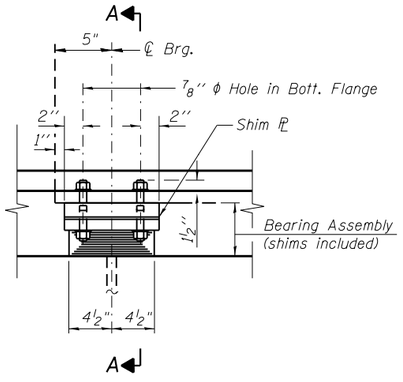
END ELEVATION

Proposed beam shown
Existing beams similar

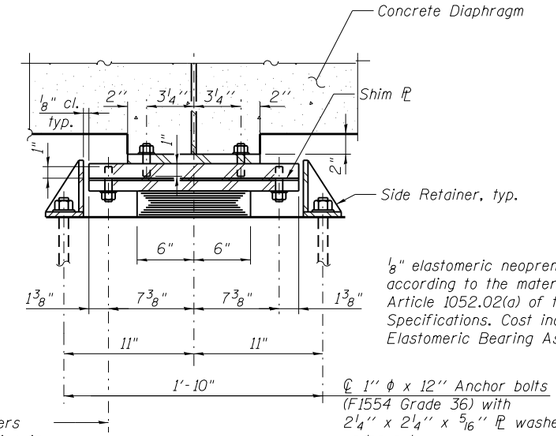
FILE NAME = ...\016D489-60W87-007-Sht.Dtls.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REHAB. STEEL DETAILS – LOCATION 4 STRUCTURE NO. 016–0489
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		
	PLOT DATE = 12/05/2018 2:35:28 PM	CHECKED -	REVISED -		SHEET NO. SD-7 OF SD-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	89
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



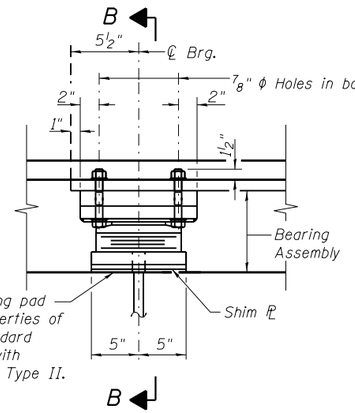
ELEVATION AT ABUT.



℄ 2-3/4" ϕ H.S. Bolts w/lock washers (Typ. ea. side) (Coat bolts with anti-seize compound)
Tapped holes in top PL:
7/8" ϕ holes in bearing PL

℄ 1" ϕ x 12" Anchor bolts (F1554 Grade 36) with 2 1/4" x 2 1/4" x 5/16" PL washer under nut

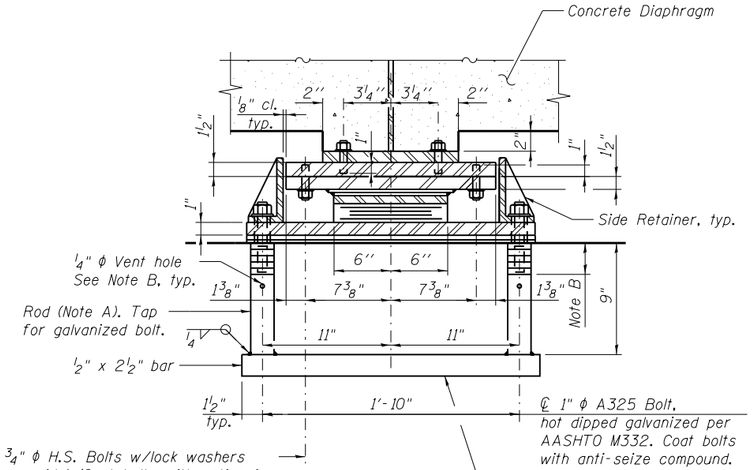
SECTION A-A



ELEVATION AT ABUT.

Note A:
AASHTO M270 Gr. 50, 50W or similar material.
Rod dia. = 1 3/4"

Note B:
Bolt engagement 1 1/4" min., 1 5/8" max., allowing up to 3/8" adjustment shims. Tap full threads in rod 1 3/4" deep. Provide 1/4" ϕ galvanized vent hole below full thread.



℄ 2-3/4" ϕ H.S. Bolts w/lock washers (Typ. ea. side) (Coat bolts with anti-seize compound) Tapped holes in top PL:
7/8" ϕ holes in bearing PL

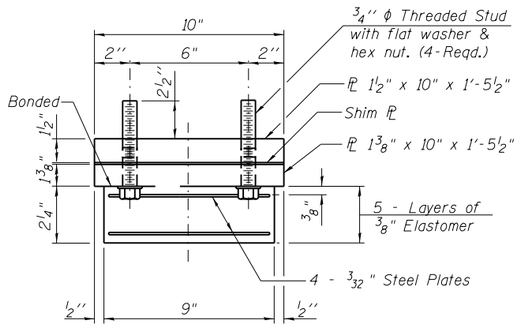
℄ 1" ϕ A325 Bolt, hot dipped galvanized per AASHTO M332. Coat bolts with anti-seize compound.

Anchorage assembly to be galvanized after fabrication according to AASHTO M 111 or M232 (as applicable). Anchorage assembly shall be paid for as Furnishing and Erecting Structural Steel.

SECTION B-B

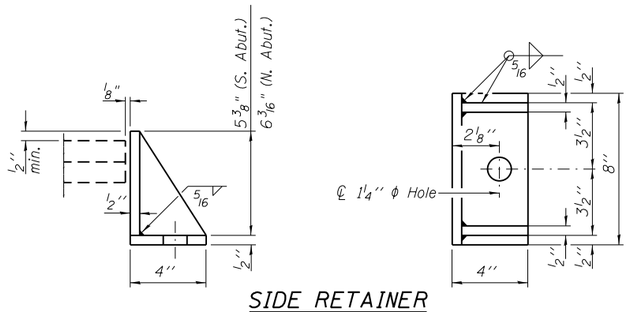
TYPE I ELASTOMERIC EXP. BRG. SOUTH ABUTMENT

(1 Required)



BEARING ASSEMBLY

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

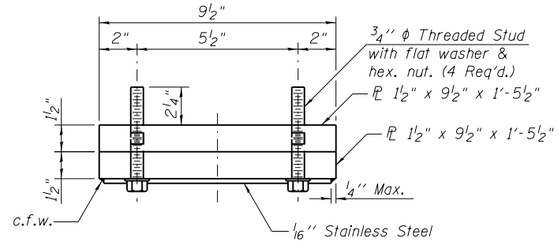


SIDE RETAINER

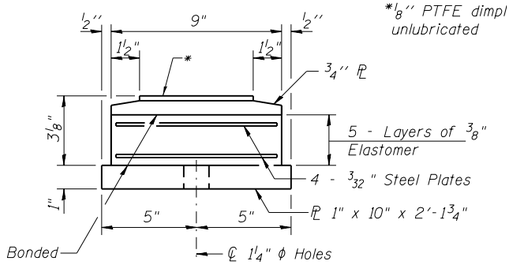
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

TYPE II ELASTOMERIC EXP. BRG. NORTH ABUTMENT

(1 Required)

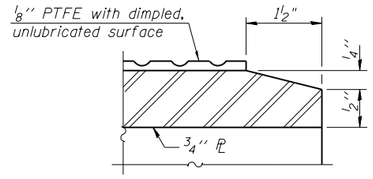


TOP BEARING ASSEMBLY

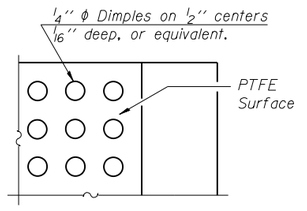


*1/8" PTFE dimpled, unlubricated

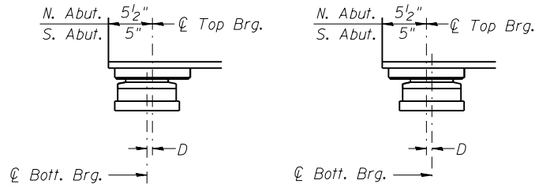
BOTTOM BEARING ASSEMBLY



SECTION THRU PTFE



PLAN-PTFE SURFACE



BELOW 50°F.
(Move bott. brg. away from fixed brg.)

ABOVE 50°F.
(Move bott. brg. toward fixed brg.)

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.

FILE NAME = ...\016@489-60W87-000-Brg_Dtls.dgn

LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

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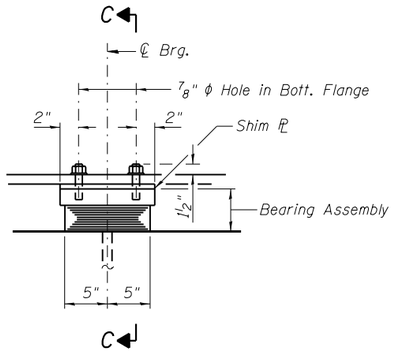
	CHECKED -	REVISED -	
PLOT SCALE =	DRAWN -	REVISED -	
PLOT DATE = 12/05/2018 2:35:33 PM	CHECKED -	REVISED -	

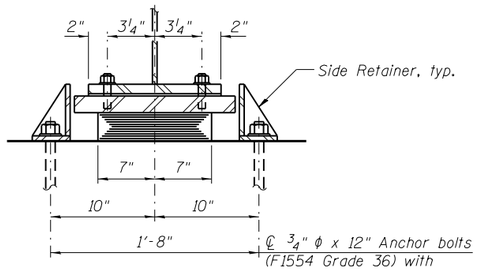
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. BEARING DETAILS – LOCATION 4
STRUCTURE NO. 016-0489
SHEET NO. SD-8 OF SD-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	90
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			



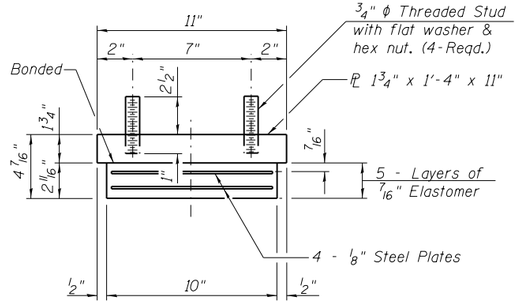
ELEVATION AT PIER



SECTION C-C

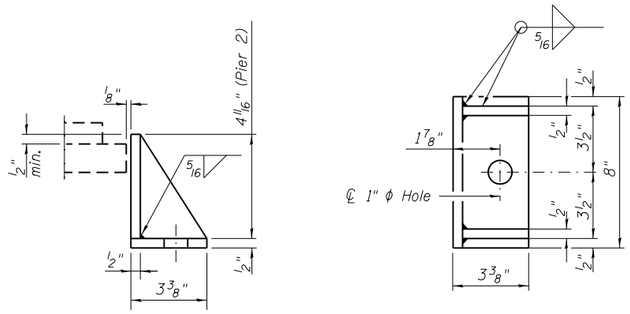
TYPE I ELASTOMERIC EXP. BRG. PIER 2

(1 Required)



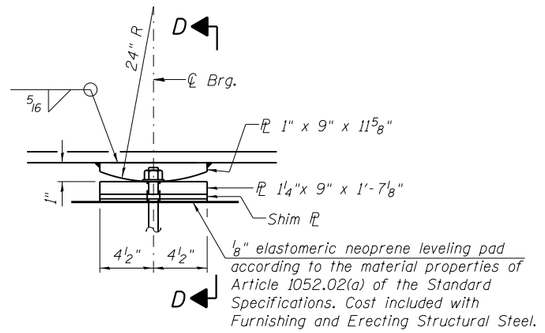
BEARING ASSEMBLY

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

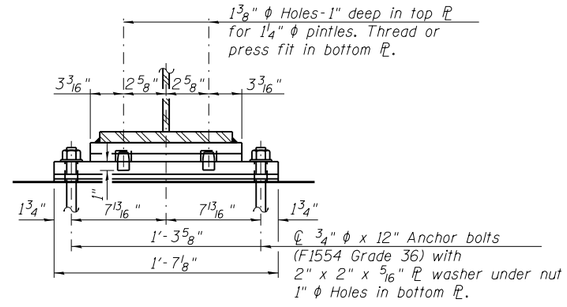


SIDE RETAINER

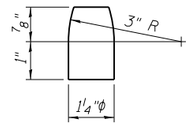
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



ELEVATION AT PIER



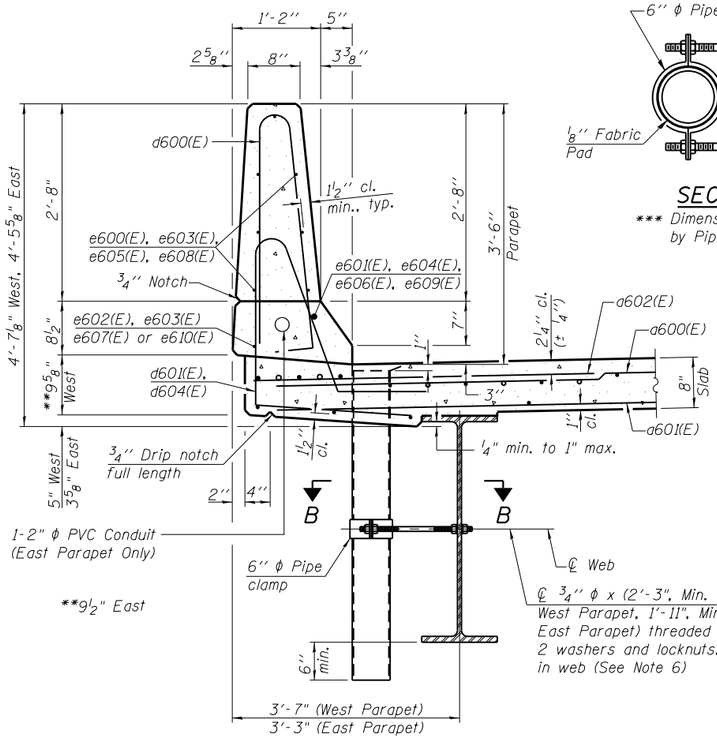
SECTION D-D



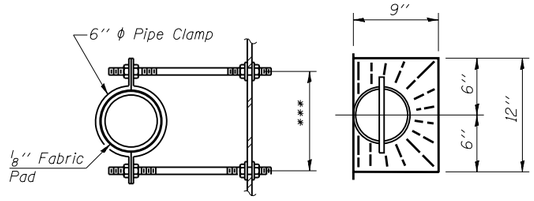
PINTLE

FIXED BEARING AT PIER 1

(1 Required)



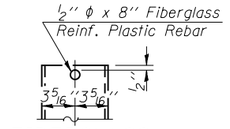
SECTION THRU PARAPET



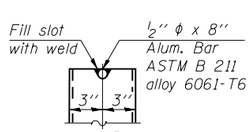
SECTION B-B

*** Dimension as required by Pipe Clamp

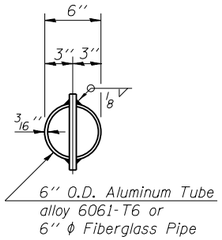
TOP PLAN



FIBERGLASS PIPE



ALUMINUM TUBE



TOP PLAN

(Showing Aluminum Tube)

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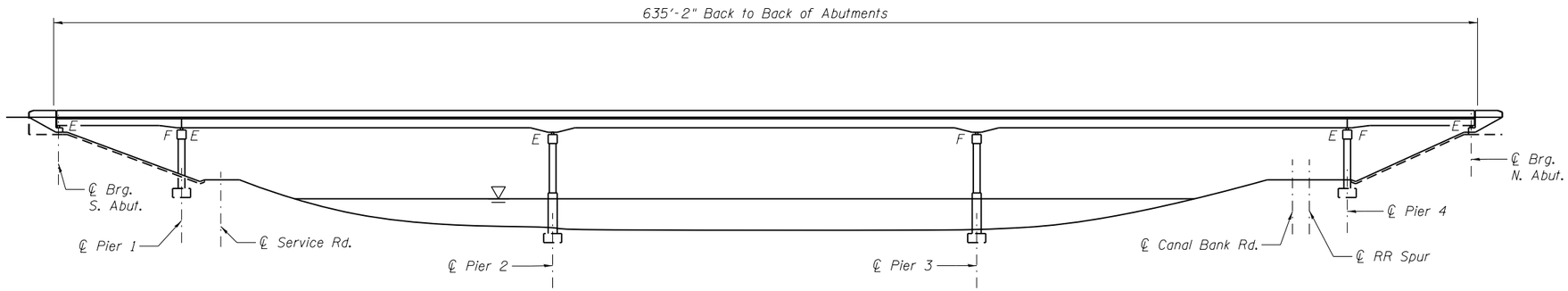
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN -	REVISED -
	PLOT DATE = 12/05/2018 2:35:45 PM	CHECKED -	REVISED -

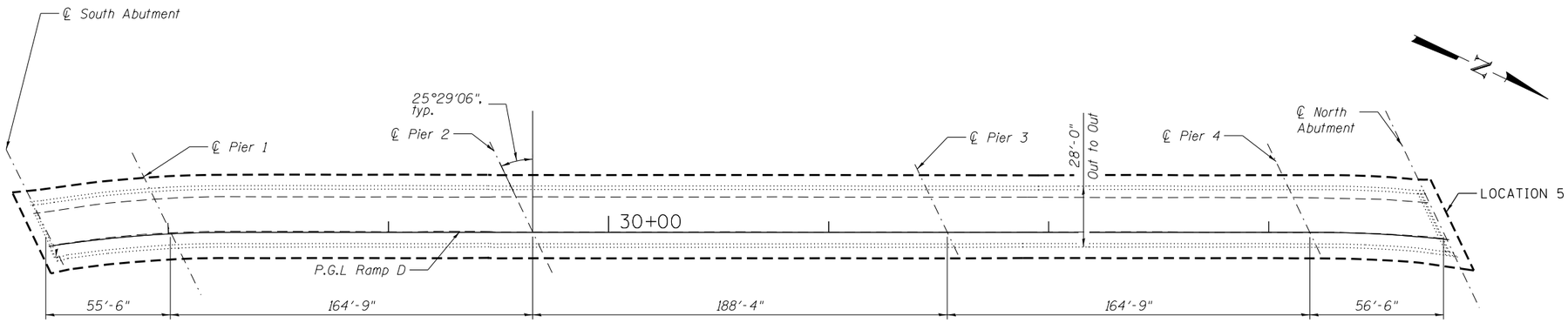
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

REHAB. DRAIN PIPE DETAILS – LOCATION 4
STRUCTURE NO. 016-0489
SHEET NO. SD-10 OF SD-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	92
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



ELEVATION



PLAN

GENERAL NOTES

1. THE EXISTING STRUCTURAL STEEL COATING CONTAINS LEAD. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO DEAL WITH THE PRESENCE OF LEAD ON THIS PROJECT.

2. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES".

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. STRUCTURAL SHEETS TAKEN FROM EXISTING PLANS CONTAIN INFORMATION NOT PERTAINING TO THIS CONTRACT AND ARE FOR INFORMATION ONLY.

4. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SE-9 AND SE-10 HAS BEEN PRIMED WITH AN INORGANIC ZINC RICH PRIMER UNDER A PREVIOUS CONTRACT. THESE STEEL SURFACES SHALL BE PRESSURE WASHED CLEAN AND POWER TOOL CLEANED (SSPC SP-3 MODIFIED) AS NECESSARY PRIOR TO THE APPLICATION OF THE INTERMEDIATE AND TOP COATS. THE INORGANIC ZINC RICH PRIMER / ACRYLIC / ACRYLIC PAINT SYSTEM SHALL BE USED FOR FIELD PAINTING OF THESE LOCATIONS. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

5. ALL EXISTING STRUCTURAL STEEL IDENTIFIED ON SHEETS SE-2 THRU SE-8 SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC-SP10. THESE LOCATIONS SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF THE EPOXY MASTIC / EPOXY MASTIC / ACRYLIC PAINT SYSTEM. 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 REDDISH BROWN, MUNSELL NO. 2.5YR 3/4.

6. A MINIMUM OF 2 AIR MONITORS WILL BE REQUIRED TO MONITOR ABRASIVE BLASTING OPERATIONS AT THIS SITE. SEE SPECIAL PROVISION FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".

7. THE ELASTOMERIC PADS OF THE EXISTING BEARINGS SHALL BE MASKED OFF FOR PROTECTION DURING PAINTING AND REMOVED WHEN PAINTING IS FINISHED. COST INCLUDED WITH "CLEANING AND PAINTING STEEL BRIDGE NO. 5".

8. IF APPLICABLE, THE CONTRACTOR SHALL SUBMIT CALCULATIONS AND DETAILS DEMONSTRATING THE STRUCTURAL INTEGRITY OF THE BRIDGE IS MAINTAINED UNDER THE ADDITIONAL IMPOSED LOADS OF THE CONTAINMENT SYSTEM. SEE SPECIAL PROVISIONS.

9. ONLY ACCESSIBLE AREAS OF STEEL ON THE UNDERSIDE OF THE FINGER PLATE EXPANSION JOINT SYSTEM SHALL BE PAINTED. TOP SURFACE OF THE FINGER PLATES AND PARAPET PLATES SHALL NOT BE PAINTED.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
CLEANING AND PAINTING STEEL BRIDGE NO. 5	L. SUM	1
CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 5	L. SUM	1

FILE NAME = ...\0162408-60W87-001-GPE.dgn

LIN ENGINEERING,LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:36:30 PM	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION – LOCATION 5
STRUCTURE NO. 016-2408
SHEET NO. SE-1 OF SE-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	93
		CONTRACT NO. 60W87		
ILLINOIS	FED. AID PROJECT			

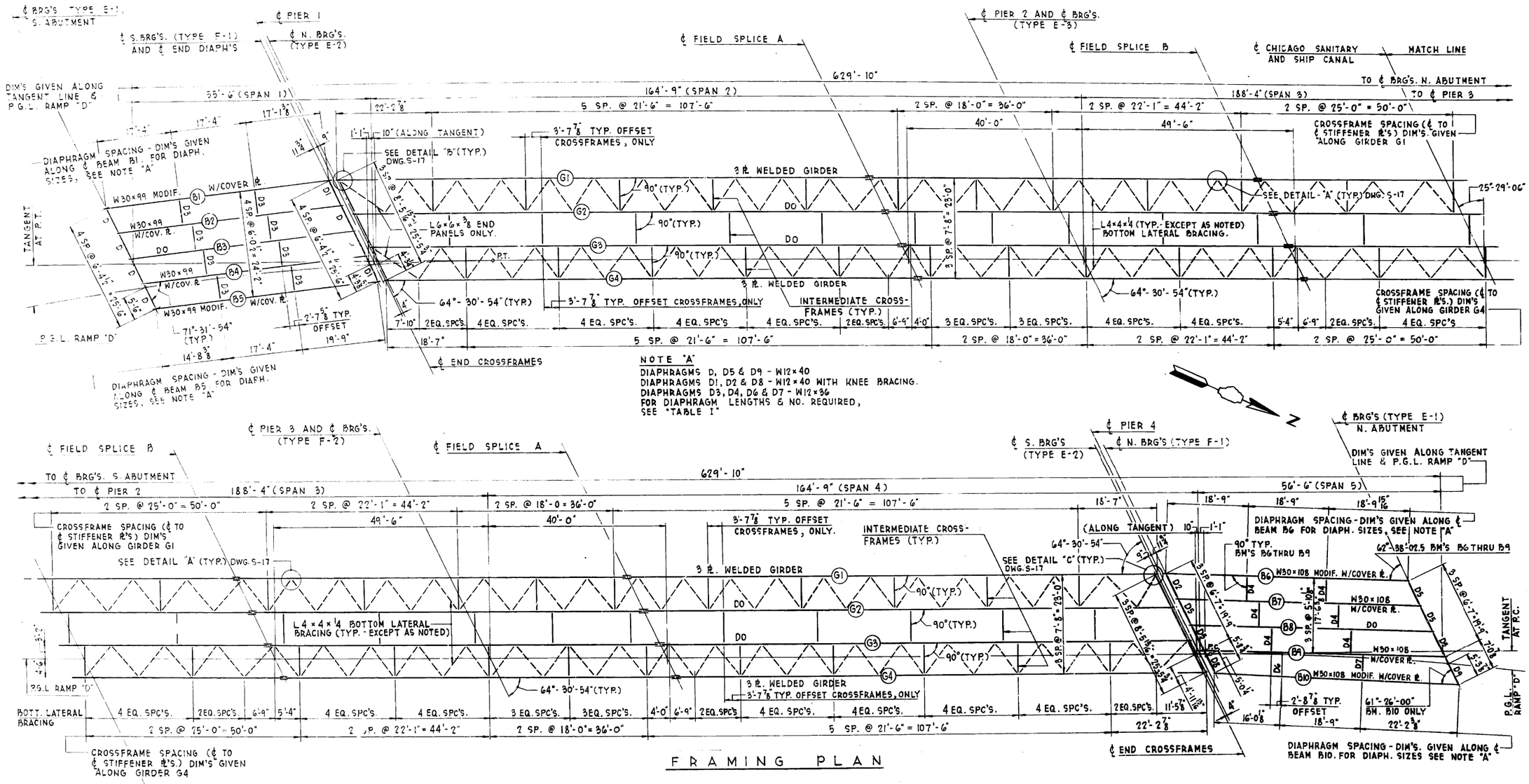


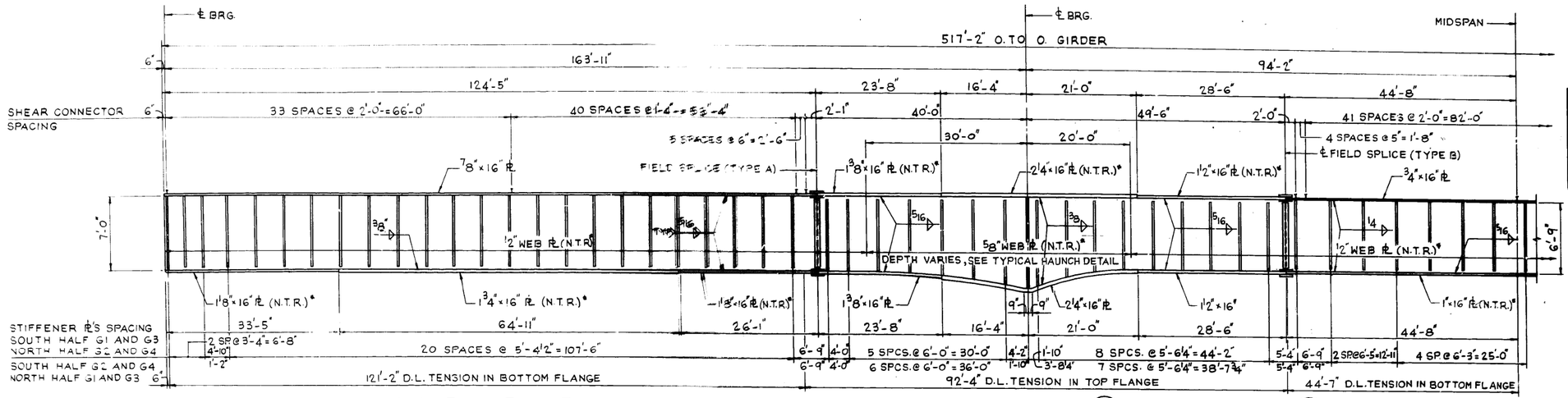
TABLE I					
DIAPH.	LENGTH*	NO. REQ'D.	DIAPH.	LENGTH*	NO. REQ'D.
D	6'-4½"	6	D5	6'-7"	5
D1	6'-4½"	2	D6	5'-5⅛"	1
D2	6'-7"	1	D7	5'-9¾"	1
D3	6'-0½"	8	D8	5'-8¾"	1
D4	5'-10⅛"	6	D9	7'-0⅞"	1

*LENGTH GIVEN IS ℄ TO ℄ BEAMS ON THE HORIZONTAL.

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. FRAMING PLAN – LOCATION 5 STRUCTURE NO. 016-2408
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SE-2 OF SE-10 SHEETS
	PLOT DATE = 12/05/2018 2:36:35 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	94
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		

FILE NAME = ...\016240B-60W87-002-Fram_Plan.dgn



HALF ELEVATION OF GIRDERS (G1) THRU (G4)

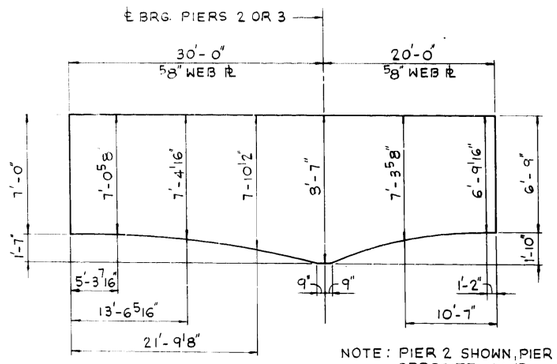
FIELD SPLICE ℄ SCHEDULE		
PLATE	FIELD SPLICE A	FIELD SPLICE B
C	16"×1/2"×2'-8"	16"×1/2"×2'-8"
D	16"×1/4"×1'-3 3/4"	16"×1/2"×1'-3 3/4"
E	16"×1/2"×1'-3 3/4"	16"×3/4"×1'-3 3/4"
F	7"×1/2"×2'-8"	7"×1/2"×2'-8"

NOTE "A"

FOR LOCATION OF TENSION FLANGE SEE HALF ELEVATION OF GIRDER THIS SHEET.

*N.T.R. DENOTES MAIN LOAD CARRYING MEMBERS SUBJECT TO SUPPLEMENTAL NOTCH TOUGHNESS REQUIREMENTS.

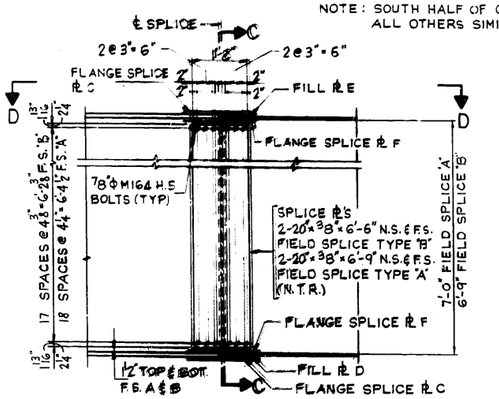
F.S. DENOTES FIELD SPLICE



NOTE: PIER 2 SHOWN, PIER 3 OPPOSITE HAND.

TYPICAL HAUNCH DETAIL

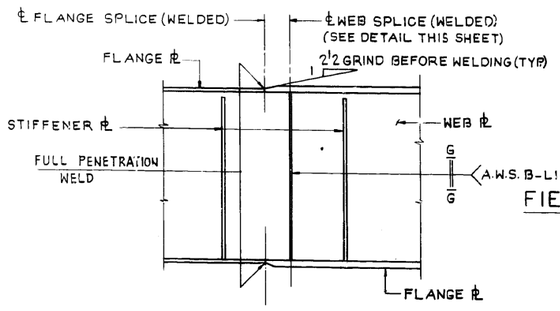
GIRDERS G1 THRU G4



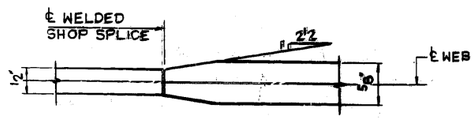
VIEW D-D

FIELD SPLICE DETAILS TYPE A & B

TYPE "B" SHOWN TYPE "A" OPPOSITE HAND

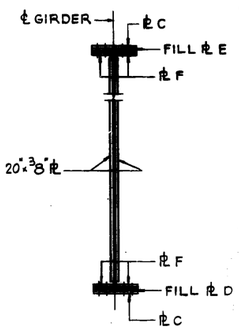


TYPICAL GIRDER SHOP SPLICE DETAILS

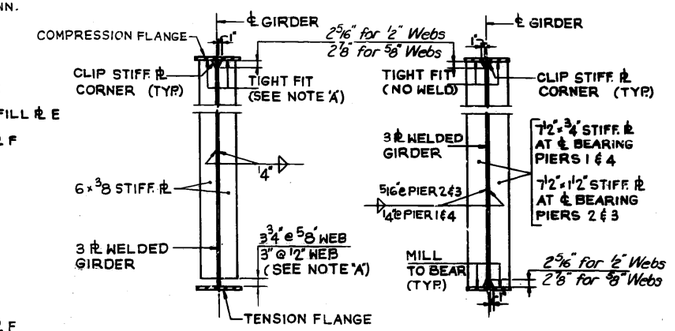


WEB SPLICE DETAIL

NOTE: SOUTH HALF OF GIRDERS G1 AND G3 SHOWN. ALL OTHERS SIMILAR.



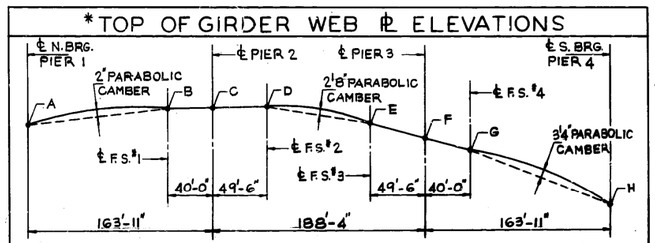
SECTION C – C



INTERMEDIATE BEARING

STIFFENER DETAILS

*TOP OF GIRDER WEB PL ELEVATIONS

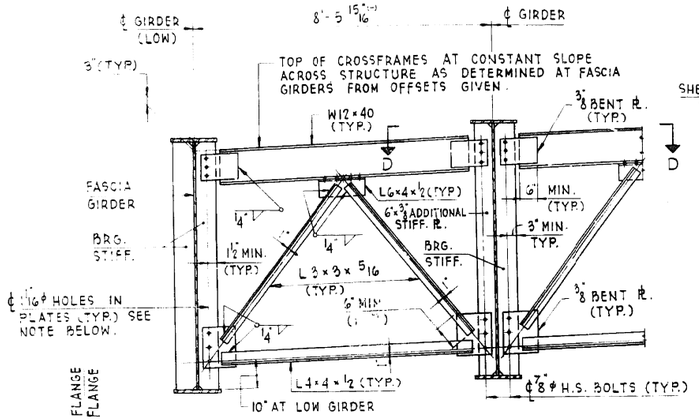


GIRDER	A	B	C	D	E	F	G	H
G1	627.372	628.202	628.295	628.410	627.485	626.345	625.424	621.425
G2	627.007	628.101	628.167	628.248	627.274	626.115	625.177	620.882
G3	626.638	627.980	628.024	628.078	627.056	625.870	624.912	620.323
G4	626.264	627.834	627.867	627.900	626.830	625.605	624.616	619.749

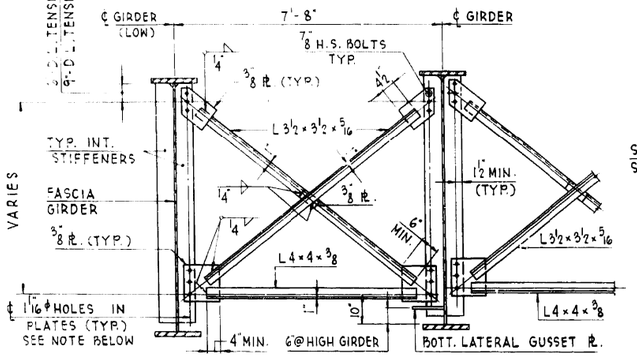
*FOR FABRICATION ONLY.

FILE NAME = ...\0162408-60W87-003-Girder_Elev_Dtls.dgn

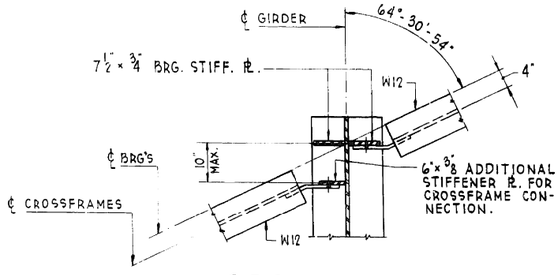
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. GIRDER ELEVATION & DETAILS – LOCATION 5 STRUCTURE NO. 016-2408	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED -	REVISED -			373	2013-040BP	COOK	122	95
	PLOT SCALE =	DRAWN -	REVISED -						CONTRACT NO. 60W87	
	PLOT DATE = 12/05/2018 2:37:12 PM	CHECKED -	REVISED -		SHEET NO. SE-3 OF SE-10 SHEETS			ILLINOIS	FED. AID PROJECT	



END CROSSFRAME DETAIL

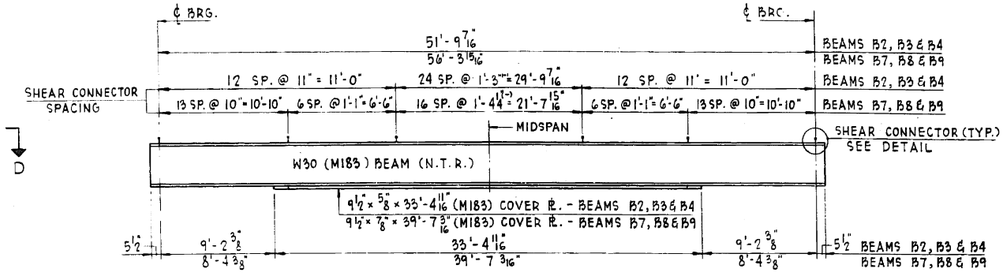


INTERMEDIATE CROSSFRAME DETAIL



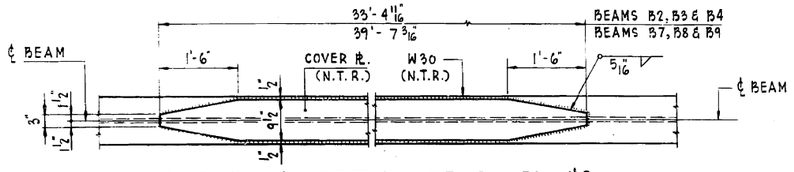
SECTION D-D

NOTE:
HARDENED WASHERS SHALL BE REQUIRED OVER 1 1/16ϕ HOLES IN PLATES.

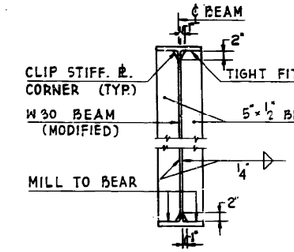


TYPICAL INTERIOR BEAM ELEVATION
SPANS 1 AND 5

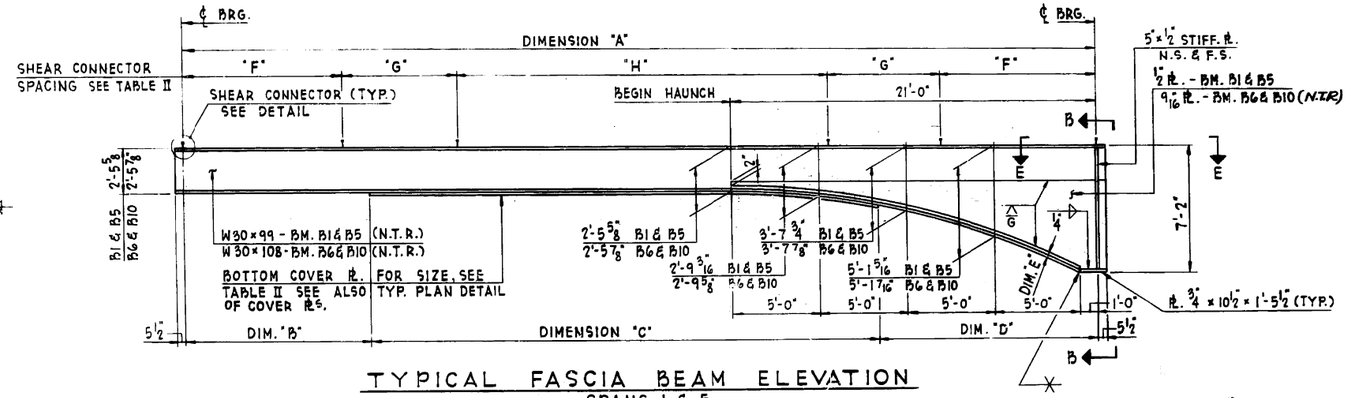
TOP/WF ELEVATIONS					
SPAN 1			SPAN 5		
LOCATION / BEAM	℄ BRG'S. S. ABUT.	℄ BRG'S. PIER 1	LOCATION / BEAM	℄ BRG'S. PIER 4	℄ BRG'S. N. ABUT.
B1	627.11	627.55	B6	621.50	619.51
B2	626.72	627.22	B7	620.04	618.00
B3	626.33	626.93	B8	620.60	618.48
B4	625.95	626.65	B9	620.16	617.95
B5	625.58	626.43	B10	619.81	617.36



TYP. PLAN DETAIL OF COVER PLS



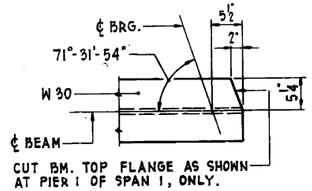
SECTION B-B



TYPICAL FASCIA BEAM ELEVATION
SPANS 1 & 5

TABLE II									
SPAN	BEAM	DIMENSIONS *					SHEAR CONNECTOR SPACING			COVER PL. SIZE
		"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	
1	B1	51'-9 7/16"	9'-2 3/8"	33'-4 11/16"	9'-2 3/8"	1 3/4"	6 SP. @ 11"	6 SP. @ 11"	24 SP. @ 1'-3"(c-c)	9 1/2"×5/8"
1	B5	51'-9 7/16"	9'-2 3/8"	33'-4 11/16"	9'-2 3/8"	1 3/4"	6 SP. @ 11"	6 SP. @ 11"	24 SP. @ 1'-3"(c-c)	9 1/2"×5/8"
5	B6	56'-3 15/16"	8'-4 3/8"	39'-7 1/16"	8'-4 3/8"	1 3/4"	13 SP. @ 10"	6 SP. @ 1'-1"	16 SP. @ 1'-4 1/4"(c-c)	9 1/2"×7/8"
5	B10	56'-11 1/2"	8'-4 3/8"	40'-2 5/8"	8'-4 3/8"	1 3/4"	13 SP. @ 10"	6 SP. @ 1'-1"	16 SP. @ 1'-4 1/4"(c-c)	9 1/2"×7/8"

*DIMENSIONS GIVEN ALONG BEAM.



SECTION E-E
(SPAN 1 ONLY)

FILE NAME = ...\016240B-60W87-004-CFrame_Beam_Dtls.dgn

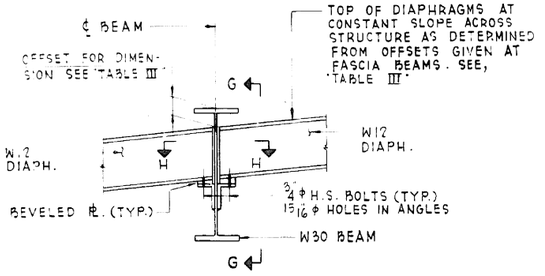
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -	
	CHECKED -	REVISED -	
PLOT SCALE =	DRAWN -	REVISED -	
PLOT DATE = 12/05/2018 2:37:55 PM	CHECKED -	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

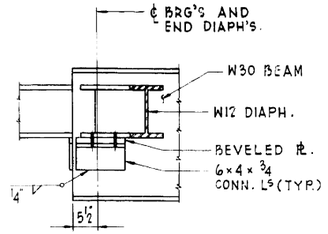
ORIG. CROSS FRAME & BEAM DETAILS – LOCATION 5
STRUCTURE NO. 016-2408
SHEET NO. SE-4 OF SE-10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	96
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

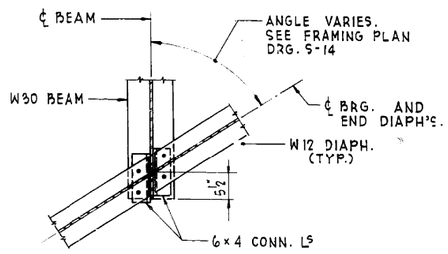


END DIAPHRAGM DETAIL

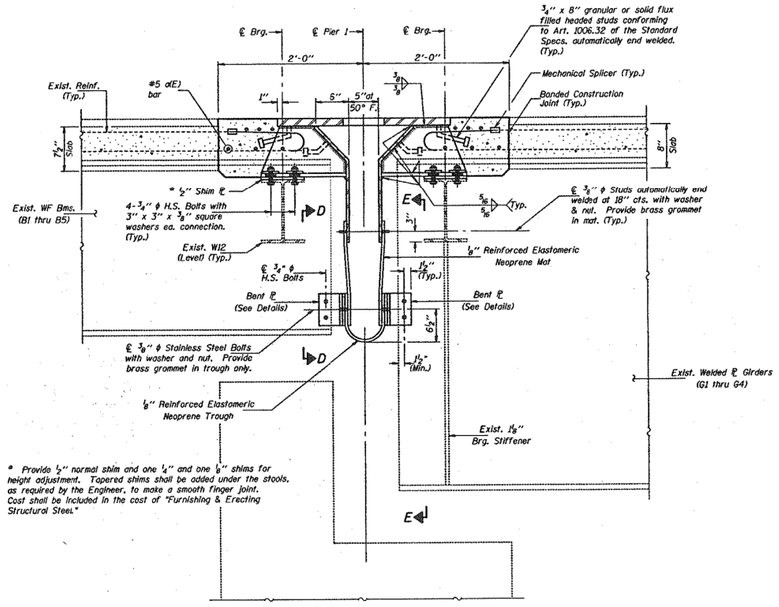
DIAPHRAGMS D1,D5&D9



SECTION G-G

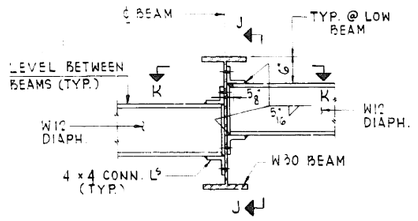


SECTION H-H



SECTION C-C

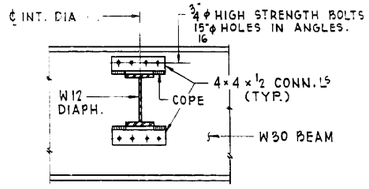
(See Sheet 5 of 8 for Views D-D & E-E.)



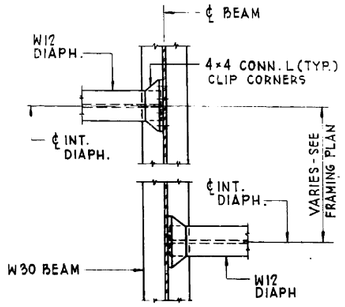
INTERMEDIATE DIAPHRAGM DETAIL

DIAPHRAGMS D3,D4,D6&D7

NOTE: HARDENED WASHERS SHALL BE REQUIRED OVER 15/16" HOLES IN ANGLES.

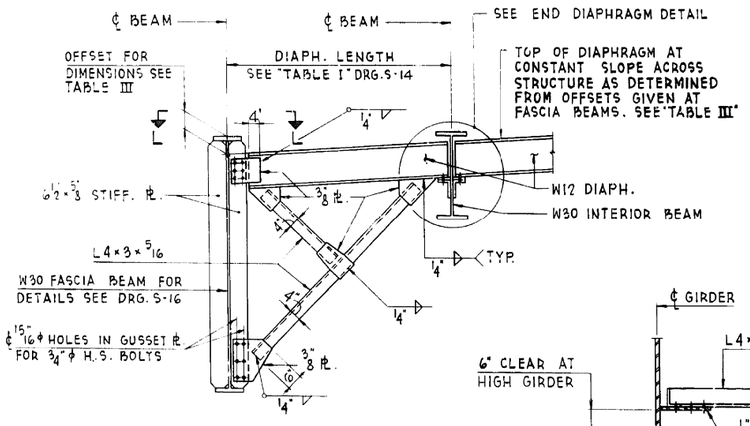


SECTION J-J



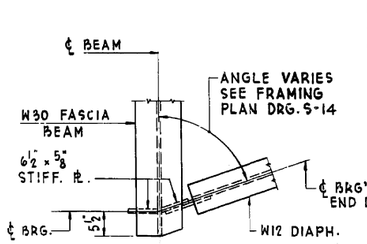
SECTION K-K

TABLE III		
SPAN 1		
LOCATION	B1	B5
S. ABUTMENT	3"	3 3/4"
PIER 1	3"	3 1/2"
SPAN 5		
LOCATION	B6	B10
N. ABUTMENT	3"	3"
PIER 4	3"	3"



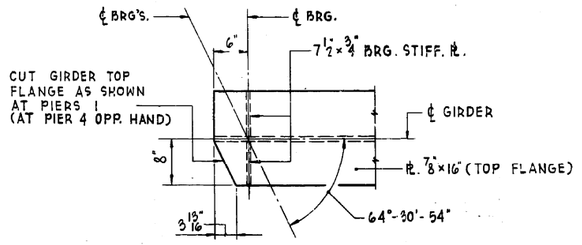
DETAIL END DIAPHRAGM WITH KNEE BRACE

DIAPHRAGMS D1, D2 & D8



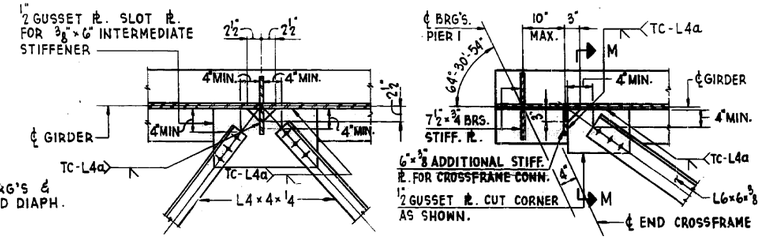
SECTION L-L

SECTION M-M



SECTION F-F

REFER TO GIRDER ELEVATION, DRG.

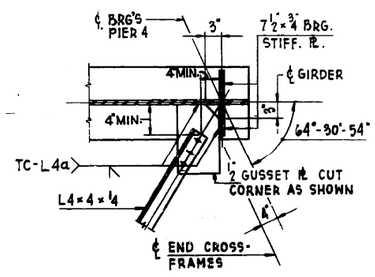


* DETAIL - "A"

* DETAIL - "B"

CONN. DETAILS OF BOT. LATERAL BRACING

FOR LOCATION OF DETAILS, SEE FRAMING PLAN DRG.



DETAIL - "C"

* FOR LOCATION OF DETAILS "A", "B" & "C" SEE DWG. S-14.

FILE NAME = ...\B162408-60W87-005-Diaphragm_D1s.dgn

LIN ENGINEERING, LTD.
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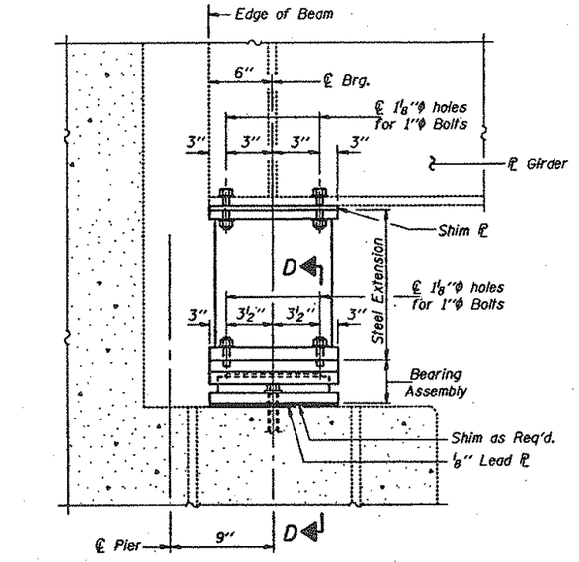
Springfield, Illinois

USER NAME = Lin_31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:38:35 PM	CHECKED -	REVISED -

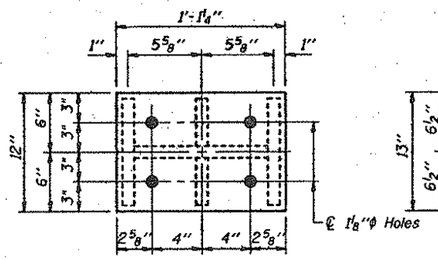
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ORIG. DIAPHRAGM & BRACING DETAILS – LOCATION 5
STRUCTURE NO. 016-2408
SHEET NO. SE-5 OF SE-10 SHEETS

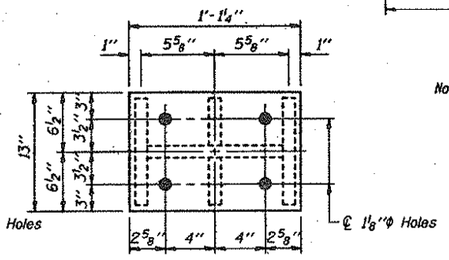
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	97
		CONTRACT NO. 60W87		
	ILLINOIS	FED. AID PROJECT		



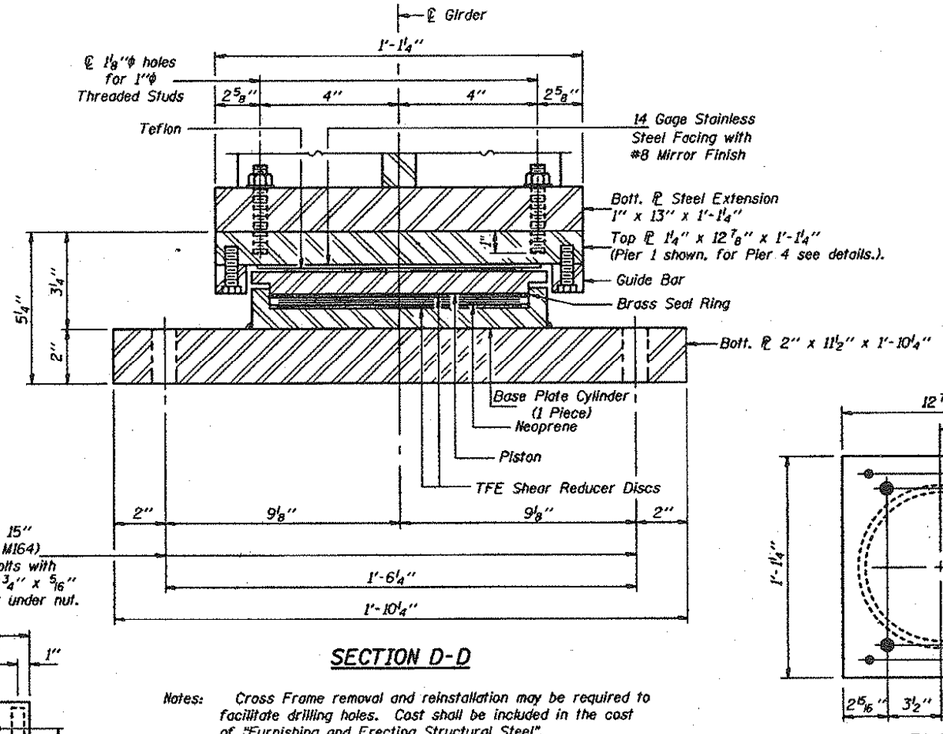
ELEVATION AT PIER
EXPANSION FLOATING BEARING
(Pier 1 shown. Pier 4 opposite hand)



PLAN TOP PLATE



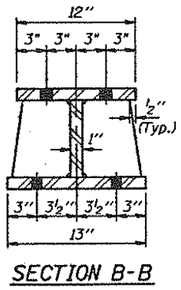
PLAN BOTTOM PLATE



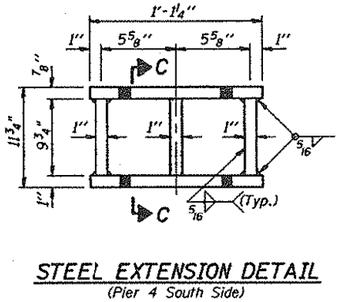
SECTION D-D

Notes: Cross Frame removal and reinstallation may be required to facilitate drilling holes. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".
New steel extensions, connection bolts and anchor bolts are included in "Furnishing and Erecting Structural Steel"
See sheet 8 of 8 for Anchor Bolt installation.
Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

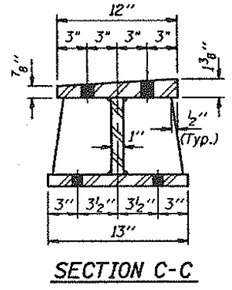
STEEL EXTENSION DETAIL
(Pier 1 North Side)



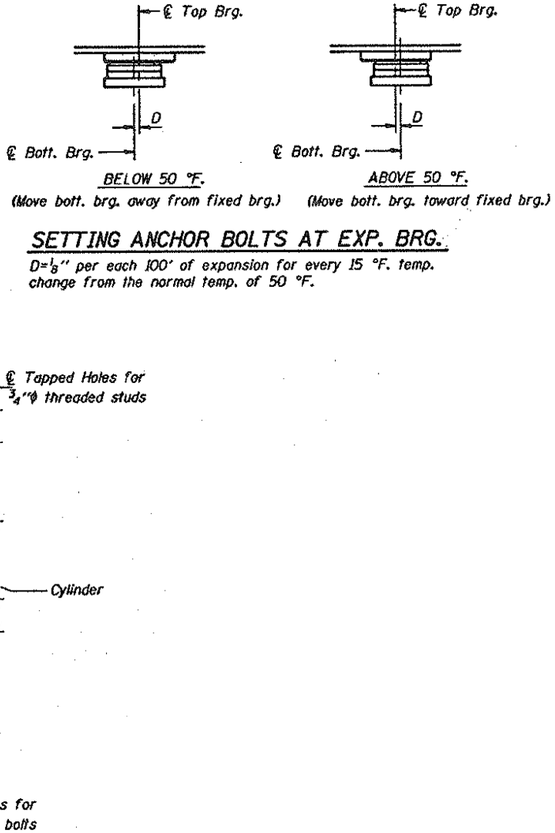
SECTION B-B



STEEL EXTENSION DETAIL
(Pier 4 South Side)

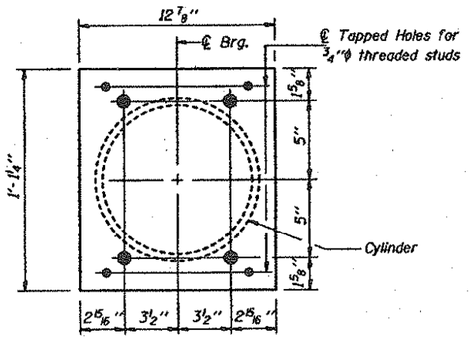


SECTION C-C

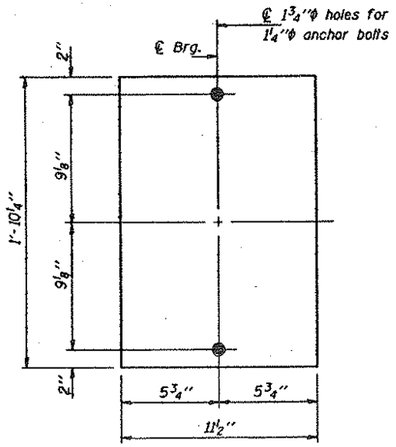


SETTING ANCHOR BOLTS AT EXP. BRG.

$D = \frac{1}{8}$" per each 100' of expansion for every 15 °F. temp. change from the normal temp. of 50 °F.



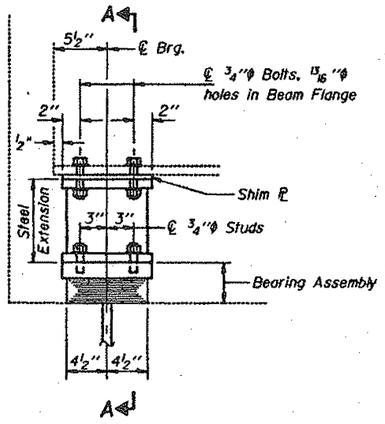
PLAN
TOP BRG. ℄
℄ ⅞" x 12⅞" x 1'-1¼"



PLAN
BOTTOM BRG. ℄
℄ 2" x 11½" x 1'-10"

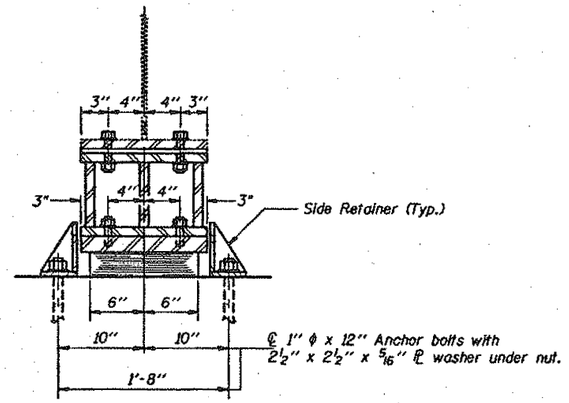
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING REPLACEMENT DETAILS – LOCATION 5 STRUCTURE NO. 016-2408
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SE-6 OF SE-10 SHEETS
	PLOT DATE = 12/05/2018 2:39:17 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	98
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	

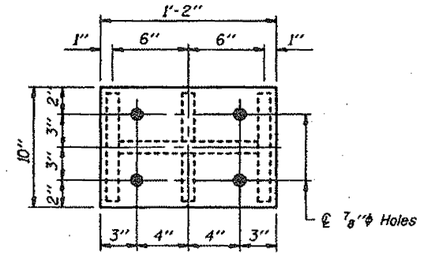


ELEVATION AT S. ABUTMENT

(North Abutment, opposite hand)

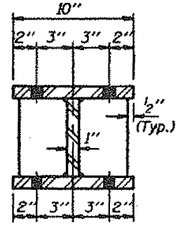


SECTION A-A

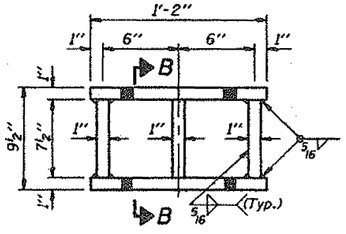


PLAN TOP AND BOTTOM PLATE

TYPE I ELASTOMERIC EXP. BRG.



SECTION B-B



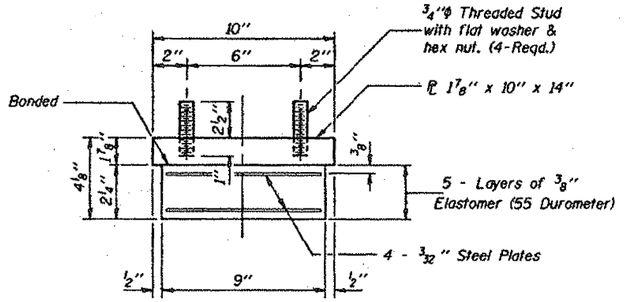
STEEL EXTENSION DETAIL

Notes: Diaphragm removal and reinstallation may be required to facilitate drilling holes. Cost shall be included in the cost of "Furnishing and Erecting Structural Steel".

New steel extensions, side retainers, connection bolts, and anchor bolts are included in "Furnishing and Erecting Structural Steel". See sheet 8 of 8 for Anchor Bolt installation.

Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions.

For existing bearing removal detail see sheet 1 of 8.

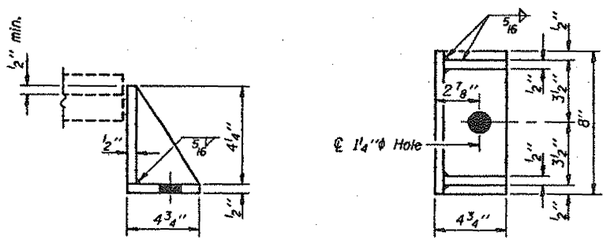


BEARING ASSEMBLY

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

GIRDER REACTIONS

R℄	(K)	33.6
R4	(K)	33.5
Imp.	(K)	9.2
R (Total)	(K)	76.3



SIDE RETAINER

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

FILE NAME = ...\0162408-60W87-007-Brg_Dtls.dgn

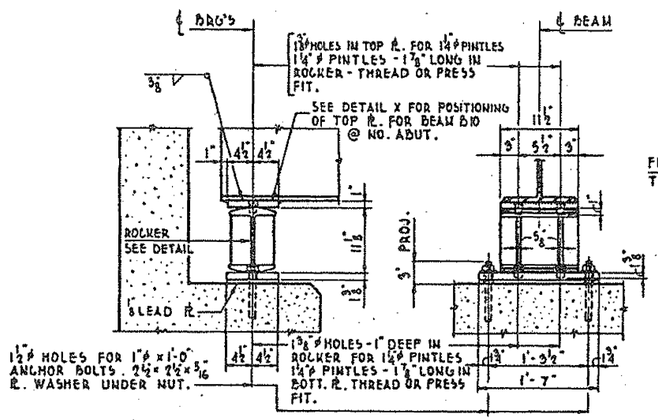
LIN ENGINEERING, LTD.
Consulting Engineers
Springfield, Illinois

USER NAME = Lin.31	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/05/2018 2:40:07 PM	CHECKED -	REVISED -

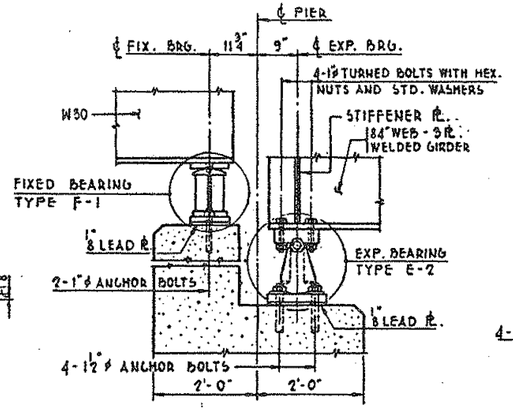
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING REPLACEMENT DETAILS – LOCATION 5
STRUCTURE NO. 016-2408
SHEET NO. SE-7 OF SE-10 SHEETS

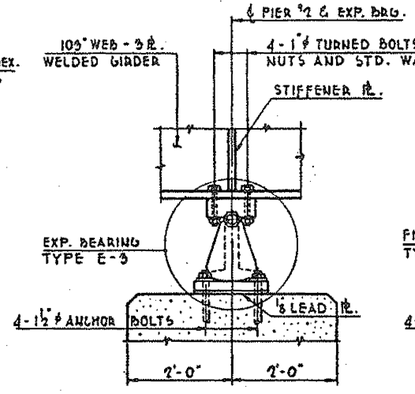
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	99
		CONTRACT NO. 60W87		
ILLINOIS	FED. AID PROJECT			



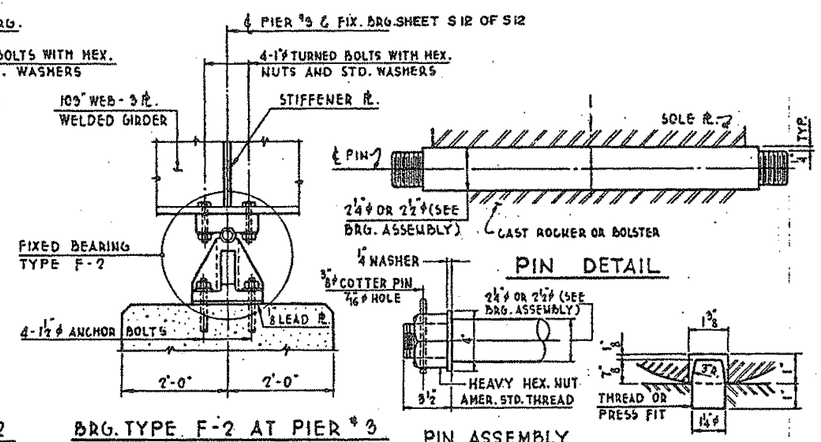
EXPANSION BEARINGS TYPE E-1 AT S. & N. ABUTMENTS



BRG. TYPE F-1 & E-2 AT PIER ⁹1 AS SHOWN AT PIER ⁹4 OPP. HAND



BRG. TYPE E-3 AT PIER ⁹2

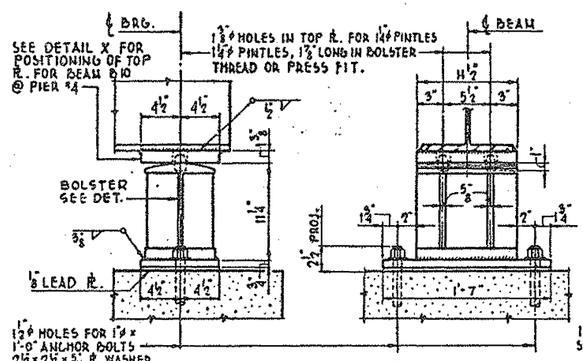


BRG. TYPE F-2 AT PIER ⁹3

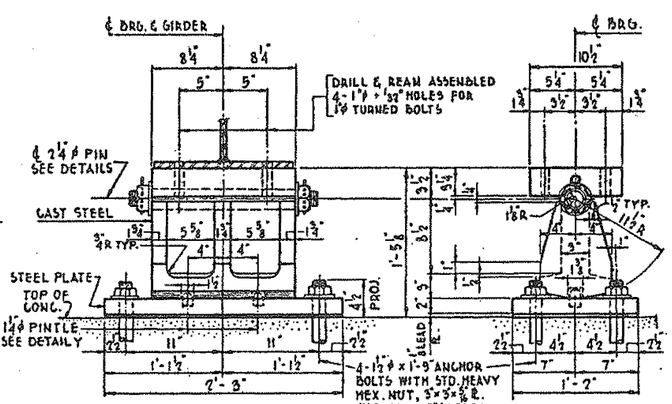
PIN DETAIL

PIN ASSEMBLY DETAIL

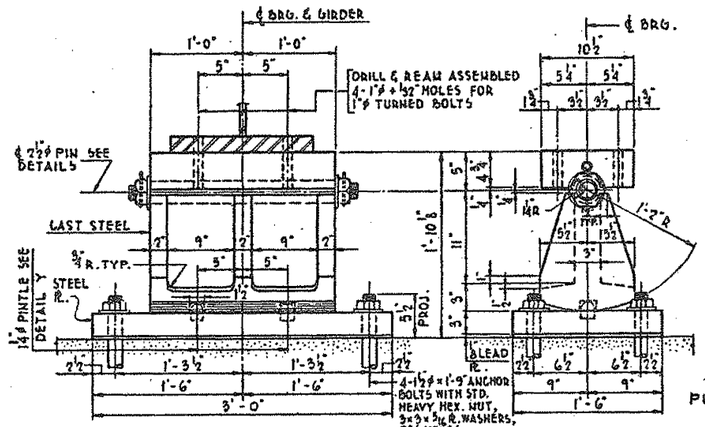
DETAIL Y



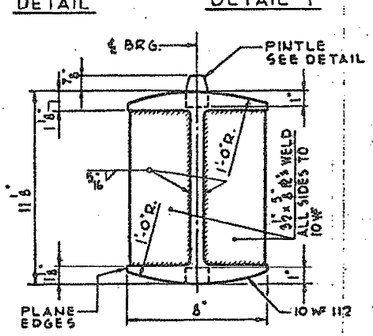
FIXED BEARING TYPE F-1 AT PIERS ⁹1 & ⁹4



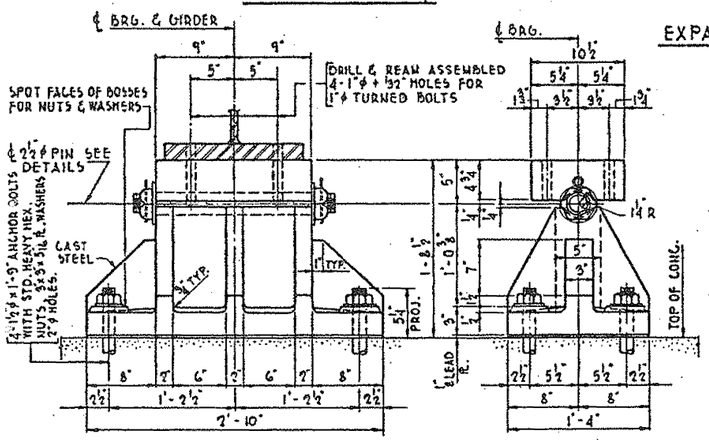
EXPANSION BEARING TYPE E-2 AT PIERS ⁹1 & ⁹4



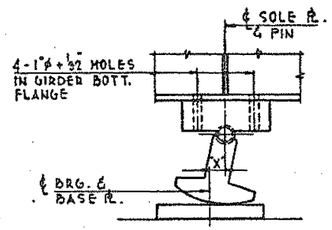
EXPANSION BEARING TYPE E-3 AT PIER ⁹2



ROCKER DETAIL

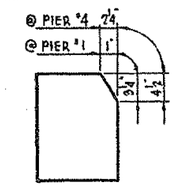


FIXED BEARING TYPE F-2 AT PIER ⁹3

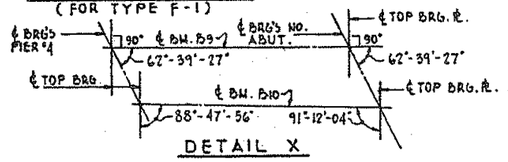


BEARING SCHEDULE			
BRG. TYPE	WT. PER BRG.	NO. REQ'D	TOTAL WT.
E-1	250	10	2500
E-2	821	8	6568
E-3	1647	4	6588
F-1	231	10	2310
F-2	1406	4	5624

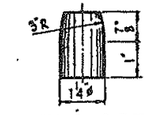
NOTES:
ALL CASTINGS SHALL BE AASHTO M192 CLASS 70 CAST STEEL.



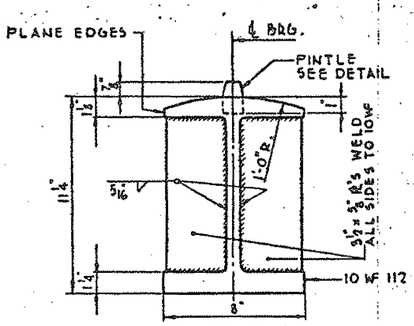
BEARING PL. DETAIL (FOR TYPE F-1)



DETAIL X



PINTLE DETAIL



BOLSTER DETAIL

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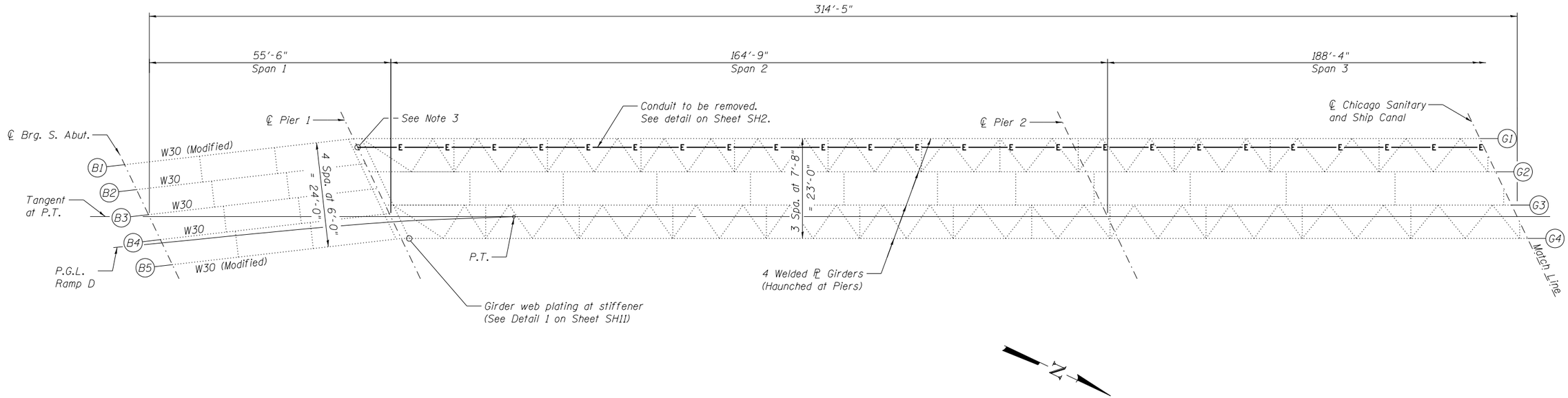
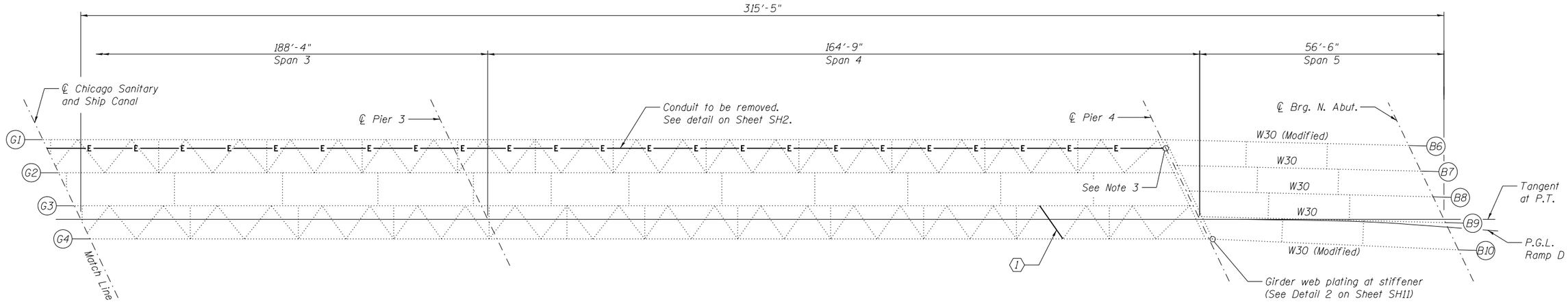
LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ORIG. BEARING DETAILS – LOCATION 5 STRUCTURE NO. 016-2408
		CHECKED -	REVISED -		
	PLOT SCALE =	DRAWN -	REVISED -		SHEET NO. SE-8 OF SE-10 SHEETS
	PLOT DATE = 12/05/2018 2:40:57 PM	CHECKED -	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	100
		CONTRACT NO. 60W87		
		ILLINOIS	FED. AID PROJECT	





FRAMING PLAN

(1) Remove buckled lateral bracing angle and replace in kind (L4x4x1/4)
(See Sheet SHX7 - For Information Only)

FILE NAME = ...\016-2408-60W87-003-Fram_Plan.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin_31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	REPAIR FRAMING PLAN – LOCATION 5 STRUCTURE NO. 016-2408	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED -	REVISED -			373	2013-040BP	COOK	122	101
	PLOT SCALE =	DRAWN -	REVISED -						CONTRACT NO. 60W87	
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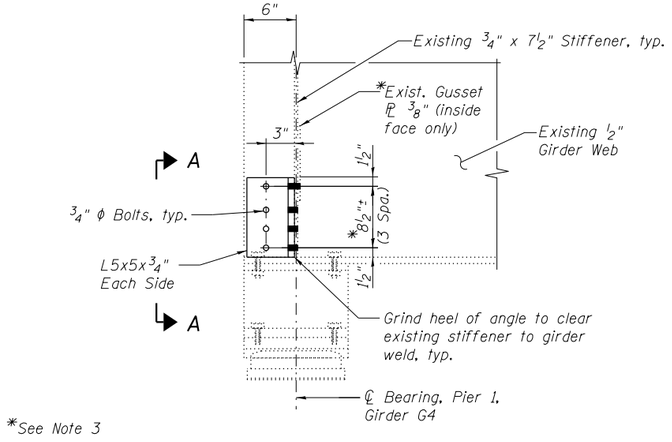
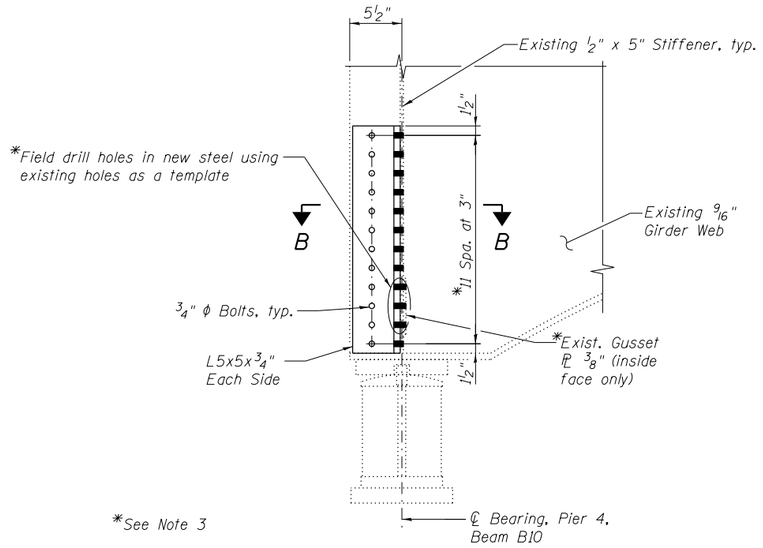
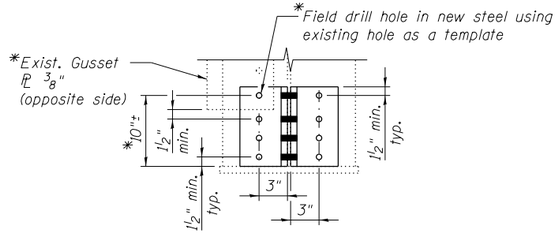


DETAIL 1

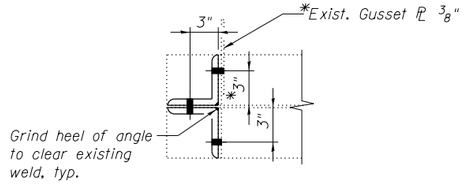


DETAIL 2



VIEW A-A

(Bearing not shown for clarity)



SECTION B-B

FILE NAME = ...\0162408-60W87-010-Repair_Frame_Plan.dgn

LIN ENGINEERING, LTD. Consulting Engineers Springfield, Illinois	USER NAME = Lin.31	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STEEL REPAIR DETAILS – LOCATION 5 STRUCTURE NO. 016–2408
		CHECKED -	REVISED -		
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	102
		CONTRACT NO. 60W87		
		ILLINOIS FED. AID PROJECT		

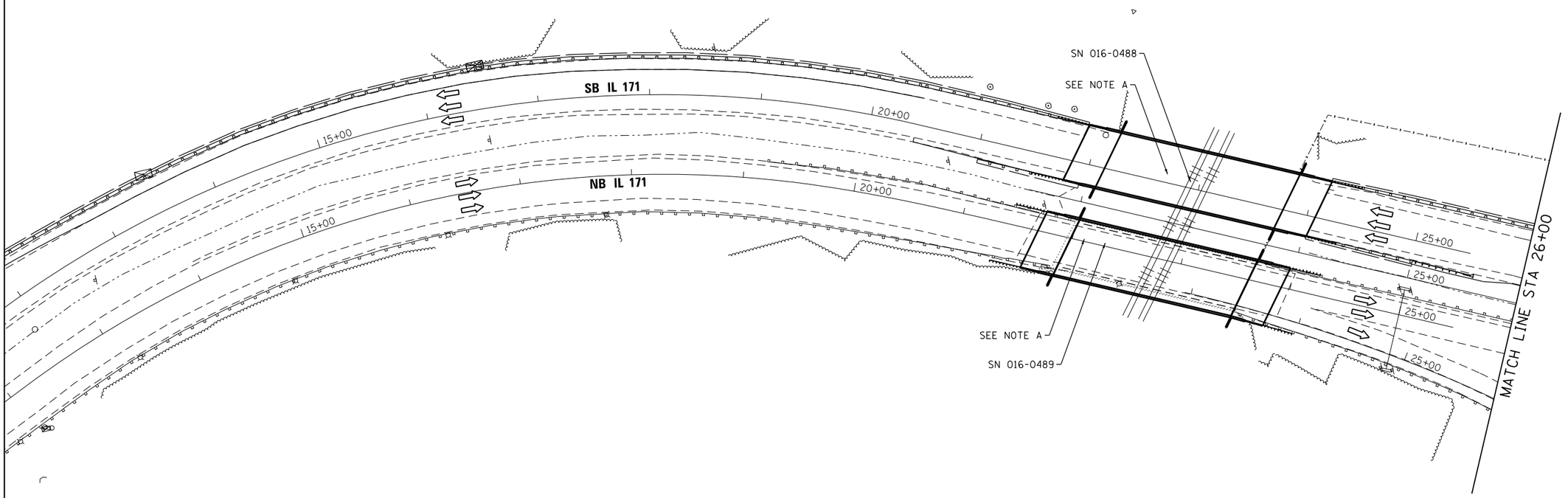
MAINTENANCE OF TRAFFIC GENERAL NOTES

1. NB IL 171 RAMP TO NB I-55 IS TO BE ADDRESSED BY DISTRICT DETAIL TC-08 DEPENDING IF FULL RAMP OR PARTIAL CLOSURE.
2. CONTRACT MUST SUBMIT A LANE CLOSURE REQUEST THROUGH THE LCS (LANE CLOSURE SYSTEM) TO GAIN APPROVAL FROM OPERATIONS SUPERVISOR AND TO SAFELY PERFORM THE BRIDGE PAINTING.
3. TRAFFIC CONTROL ON THE RAMPS SHALL BE ACCORDING TO DISTRICT DETAIL TC-17 AND STATE STANDARD 701411.
4. LANE AND RAMP CLOSURE HOURS SHALL BE AS SHOWN IN THE CONTRACT SPECIAL PROVISIONS.
5. CONTRACTOR SHALL REVIEW THE GENERAL NOTES ON SHEET 3 OF THE PLANS DUE TO THE SURROUNDING ENVIRONMENT OF A RAILROAD AND SANITARY AND SHIP CANAL.
6. STATE STANDARDS 701106, 701400, 701401, AND 701428 SHALL BE UTILIZED FOR ALL EXPRESSWAY LANE CLOSURES.
7. ALL TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE CONTRACT SPECIAL PROVISIONS.

N

0′ 25′ 50′ 100′

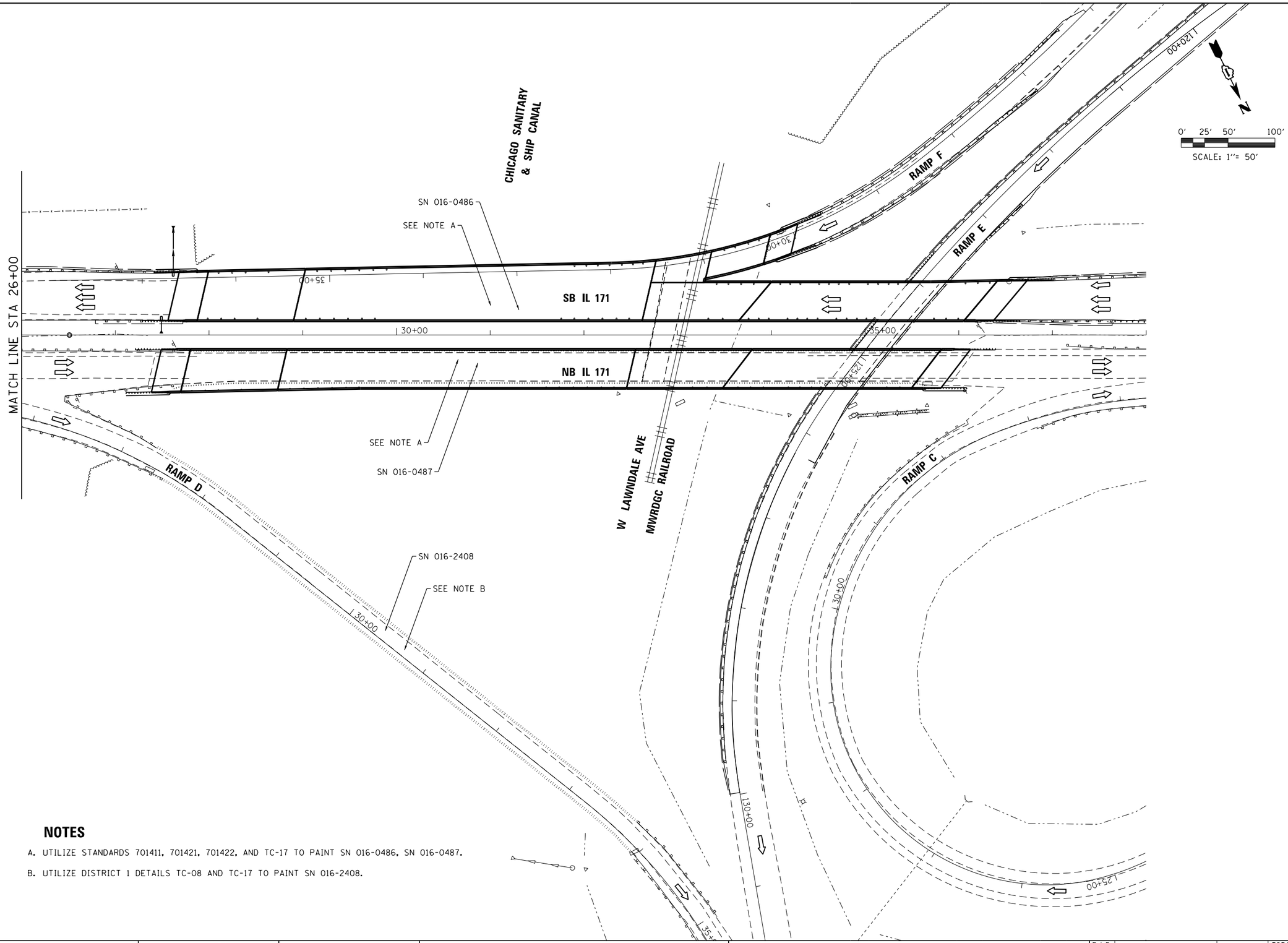
SCALE: 1"= 50′



NOTES

A. UTILIZE STANDARDS 701411, 701421, 701422, AND TC-17 TO PAINT SN 016-0488 AND SN 016-0489.

LIN ENGINEERING,LTD. Consulting Engineers Westmont, Illinois		DESIGNED - RC	REVISED - -- -------	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	OVERALL MAINTENANCE OF TRAFFIC	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - RC	REVISED - -- -------			373	2013-040BP	COOK	122	103
	PLOT SCALE = 100.0000 ' / in.	CHECKED - ST	REVISED - -- -------						CONTRACT NO. 60W87	
	PLOT DATE = 12/13/2018	DATE - 12/2018	REVISED - -- -------		SCALE: 1"=50′ SHEET NO. 1 OF 2 SHEETS STA. 12+00 TO STA. 26+00			ILLINOIS	FED. AID PROJECT	



NOTES

A. UTILIZE STANDARDS 701411, 701421, 701422, AND TC-17 TO PAINT SN 016-0486, SN 016-0487.

B. UTILIZE DISTRICT 1 DETAILS TC-08 AND TC-17 TO PAINT SN 016-2408.

LIN ENGINEERING,LTD.
Consulting Engineers
Westmont, Illinois

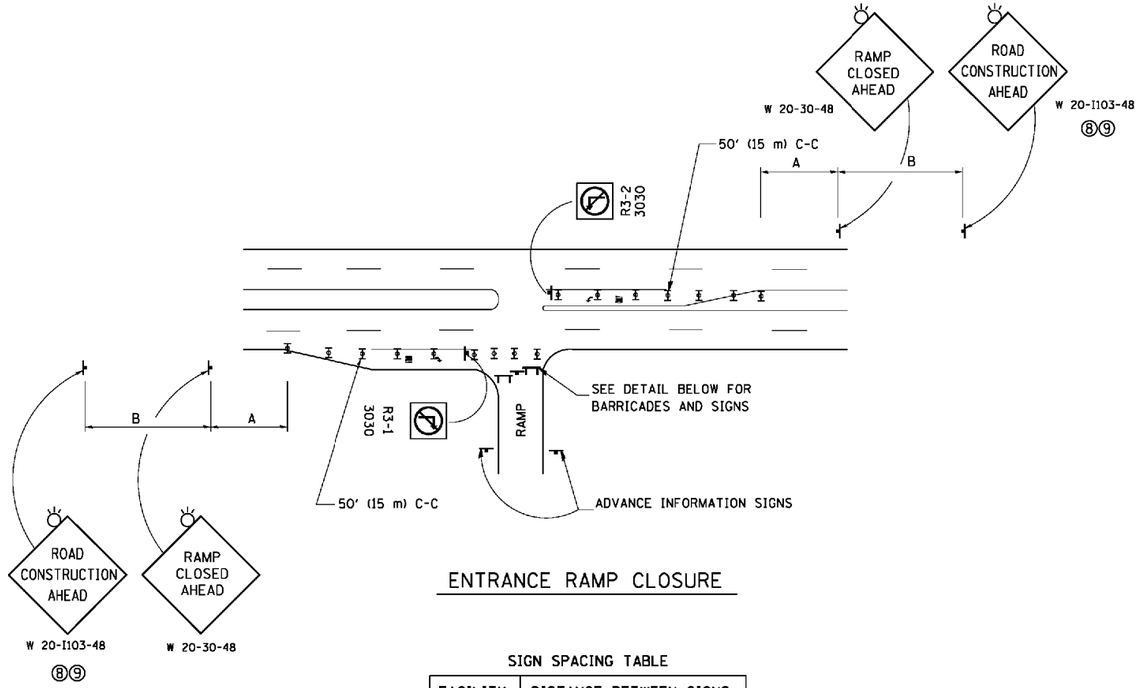
	DESIGNED - RC	REVISED - --	-------
	DRAWN - RC	REVISED - --	-------
PLOT SCALE = 100.0000 ' / in.	CHECKED - ST	REVISED - --	-------
PLOT DATE = 12/13/2018	DATE - 12/2018	REVISED - --	-------

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

OVERALL MAINTENANCE OF TRAFFIC

SCALE: 1"=50' | SHEET NO. 2 OF 2 SHEETS | STA. 26+00 TO STA. 38+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	104
		CONTRACT NO. 60W87		
	ILLINOIS FED. AID PROJECT			

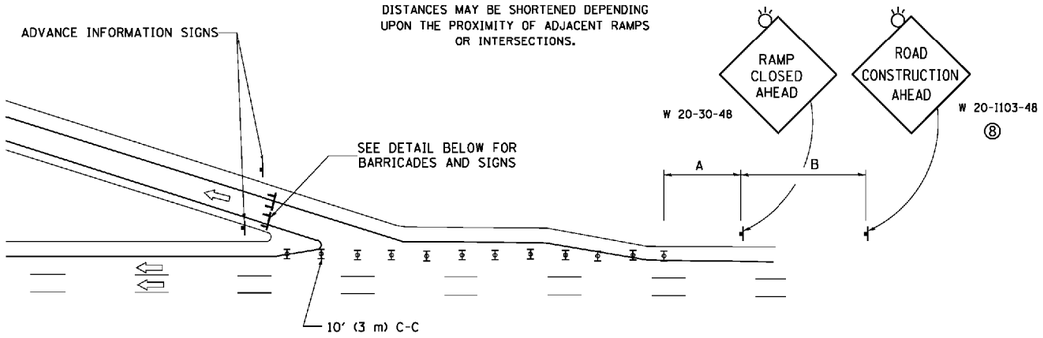


ENTRANCE RAMP CLOSURE

SIGN SPACING TABLE

FACILITY	DISTANCE BETWEEN SIGNS	
	A	B
EXPRESSWAY >24 HOURS	1000' (300 m)	1500' (450 m)
EXPRESSWAY ≤24 HOURS	500' (150 m)	500' (150 m)
ARTERIAL 55 MPH	500' (150 m)	500' (150 m)
ARTERIAL 50-45 MPH	350' (100 m)	350' (100 m)
ARTERIAL <45 MPH	200' (60 m)	200' (60 m)

DISTANCES MAY BE SHORTENED DEPENDING UPON THE PROXIMITY OF ADJACENT RAMPS OR INTERSECTIONS.

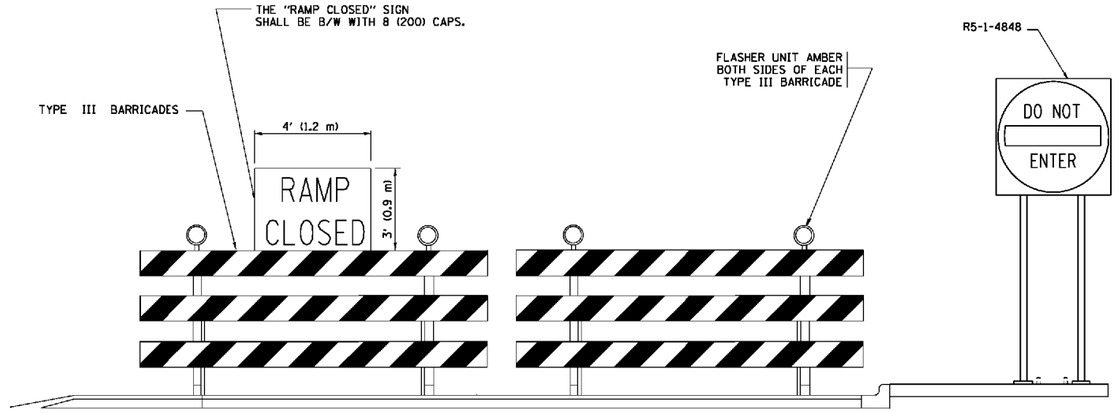


EXIT RAMP CLOSURE

SYMBOLS

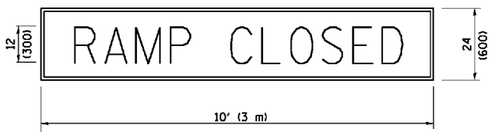
TYPE II BARRICADE OR DRUM

TYPE III BARRICADE WITH 2 FLASHING LIGHTS



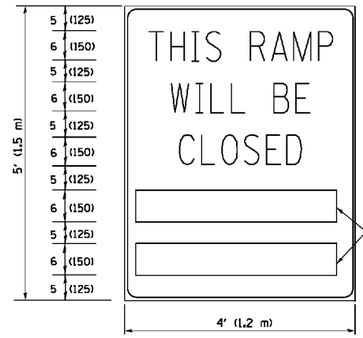
DETAIL FOR REQUIRED BARRICADES & SIGNS

RAMP CLOSURE ADVANCE WARNING SIGN



BLACK LEGEND ON ORANGE BACKGROUND MOUNTED DIAGONALLY
E MOD FONT
1 (25) BORDER
THESE SIGNS ARE REQUIRED ON ALL THE EXIT GUIDE SIGNS FOR EXIT RAMPS THAT WILL BE CLOSED FOR MORE THAN FOUR (4) CONSECUTIVE DAYS.

RAMP CLOSURE ADVANCE INFORMATION SIGN



BLACK LEGEND ON WHITE BACKGROUND

½ (12) BORDER

E MOD FONT

THESE BLANK AREAS SHALL BE FILLED WITH THE DATES AND THE TIME THAT THE RAMP WILL BE CLOSED.

THESE SIGNS ARE REQUIRED ON BOTH SIDES OF THE RAMP, MINIMUM OF 1 WEEK IN ADVANCE OF THE CLOSURE.

THESE SIGNS SHALL BE FABRICATED AND PAID FOR ACCORDING TO THE TEMPORARY INFORMATION SIGNING SPECIAL PROVISION

GENERAL NOTES:

1. CONES MAY BE SUBSTITUTED FOR DRUMS OR TYPE II BARRICADES DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (700) HIGH.
2. VERTICAL BARRICADES SHALL NOT BE USED FOR RAMP CLOSURES.
3. A FLAGGER SHALL BE POSITIONED AT EACH CLOSED RAMP THAT IS OPEN TO CONSTRUCTION VEHICLES, PRECEEDED BY A W20-7 FLAGGER WARNING SIGN.
4. ALL ROUTE MARKERS AND TRAILBLAZER ASSEMBLIES WHICH DIRECT MOTORISTS TO A CLOSED ENTRANCE RAMP SHALL BE COVERED WHEN THE RAMP IS CLOSED FOR MORE THAN FOUR (4) DAYS.
5. THE SIGNING AND BARRICADING WHICH IS REQUIRED BY THIS DETAIL SHALL BE INCLUDED IN THE COST OF TRAFFIC CONTROL AND PROTECTION (EXPRESSWAYS).
6. AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL RAMP CLOSURES.
7. THE RAMP CLOSURE ADVANCE INFORMATION SIGNS SHALL BE ERECTED IF THE CLOSURE TIME EXCEEDS TWENTY-FOUR (24) HOURS. ADDITIONAL ADVANCE WARNING SIGNS ON EXIT GUIDE SIGNING WILL BE REQUIRED FOR EXIT RAMP CLOSURES THAT EXCEED FOUR (4) DAYS IN LENGTH
8. ROAD CONSTRUCTION AHEAD SIGNS MAY BE OMITTED WHEN THIS DETAIL IS USED IN CONJUNCTION WITH OTHER TRAFFIC CONTROL THAT ALREADY INCLUDES A ROAD CONSTRUCTION AHEAD SIGN.
9. ARTERIAL ROAD CONSTRUCTION AHEAD SIGNS SHALL BE INSTALLED ON THE LEFT SIDE OF TRAFFIC IF THE MEDIAN IS MORE THAN 10 FT WIDE.

ALL DIMENSIONS ARE IN INCHES (M)ILLIMETERS UNLESS OTHERWISE SHOWN.

	DESIGNED - DWS	REVISED - SPB 01-07
	DRAWN -	REVISED - SPB 12-09
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED - MD 06-13
PLOT DATE = 12/13/2018	DATE - 02-83	REVISED - MD 01-18

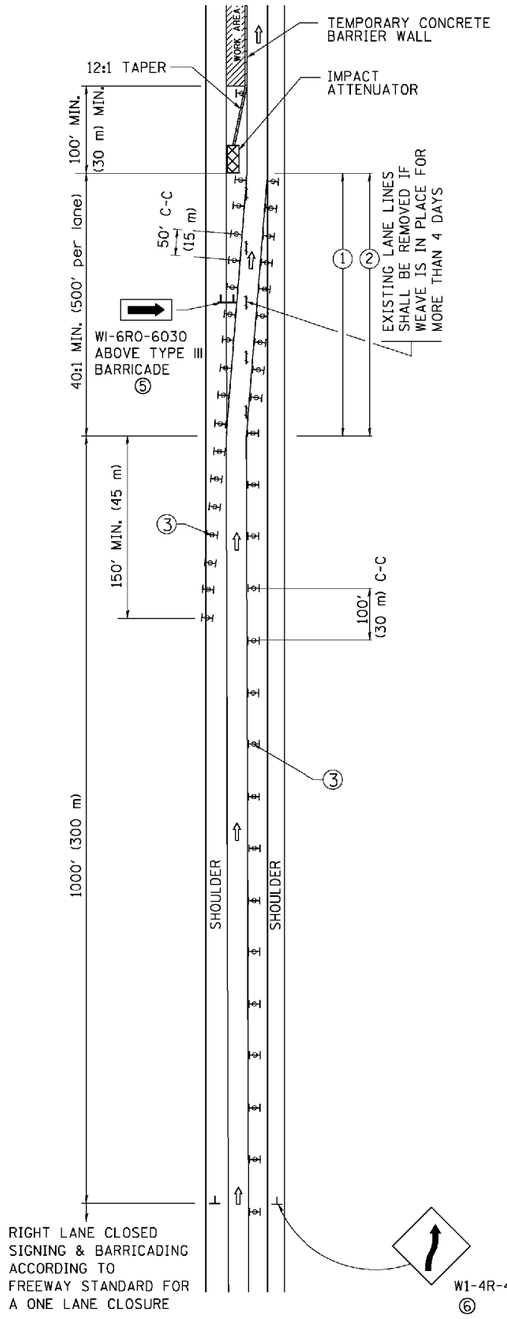
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ENTRANCE AND EXIT RAMP CLOSURE DETAILS

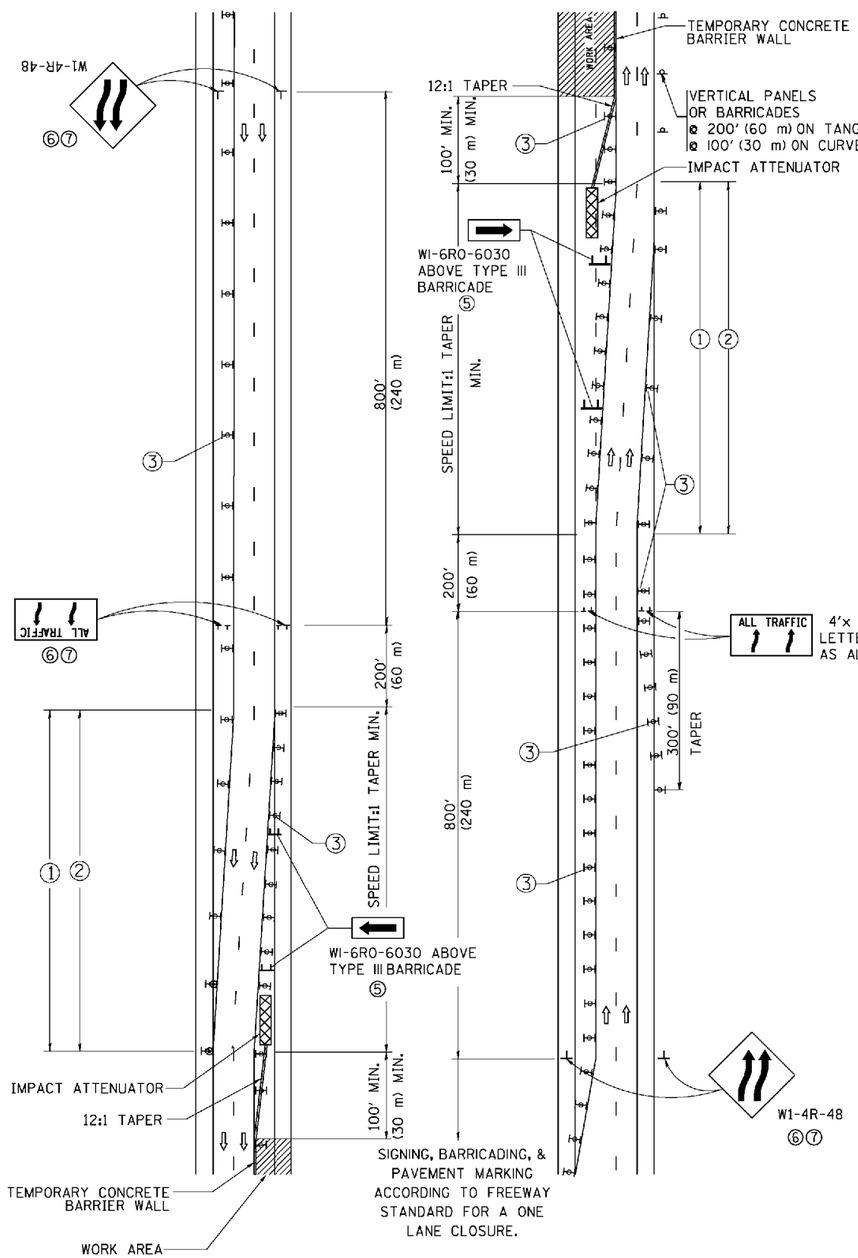
SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	105
	TC-08	CONTRACT NO. 60W87		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

SINGLE LANE WEAVE



MULTI-LANE WEAVE



ALL TRAFFIC 4'x 8' (1.2 m x 2.4 m); 1 (25) BORDER; 10 (250) CAPITAL LETTERS BACKGROUND SHEETING SHALL BE THE SAME AS ALL DIAMOND SHAPED CONSTRUCTION SIGNS.

GENERAL NOTES

① EXISTING CONFLICTING PAVEMENT MARKING LINES SHALL BE REMOVED. PAVEMENT MARKING REMOVAL SHALL NOT BE REQUIRED FOR SINGLE LANE WEAVES UNDER 4 DAYS IN DURATION.

② CONTINOUS REFLECTIVE TEMPORARY PAVEMENT MARKING TAPE SHALL BE PLACED THROUGHOUT THE TAPER AND FOR 300' (90 m) ALONG SIDE THE WORK AREA WHERE THE CLOSURE TIME IS GREATER THAN FOURTEEN DAYS. THE LEFT EDGE LINE SHALL BE YELLOW AND THE RIGHT EDGE LINE SHALL BE WHITE. FOR MULTI-LANE WEAVES LANE LINES SHALL BE 5 INCH, 10'-30' (3 m-9 m) SKIP DASH, WHITE.

③ PLASTIC DRUMS WITH STEADY BURN LIGHTS AT 50' (15 m) C-C SPACING IN TAPERS AND 100' (30 m) C-C SPACING IN TANGENTS.

④ ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.

⑤ TYPE III BARRICADES MAY BE OMMITTED FOR SINGLE-LANE WEAVES UNDER 24-HOURS IN DURATION. W1-6 SIGNS WILL STILL BE REQUIRED. IF THE WIDTH OF OFFSET IS LESS THAN 6' THEN THE TYPE III BARRICADE WITH ATTACHED ARROW SIGN PANEL CAN BE ELIMINATED IN THE TAPER AREAS.

⑥ WHEN THE LENGTH OF THE SHIFTED SEGMENT (DISTANCE BETWEEN WEAVE POINTS) IS LESS THAN 1500', DOUBLE REVERSE CURVE SIGNS (W24-1) SHOULD BE USED INSTEAD OF THE REVERSE CURVE (W1-4) SIGNS. ARROWS ON THE 4'X8' "ALL TRAFFIC" SIGNS SHALL BE THE SAME SHAPE.

⑦ THE NUMBER OF ARROWS ON THESE SIGNS SHALL MATCH THE NUMBER OF LANES OPEN TO TRAFFIC.

SYMBOLS

- DIRECTION OF TRAFFIC
- WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- TYPE II BARRICADE OR DRUM WITH MONO-DIRECTIONAL STEADY BURNING LIGHT
- TEMPORARY CONCRETE BARRIER WALL
- IMPACT ATTENUATOR

W24-1-48 ⑦

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

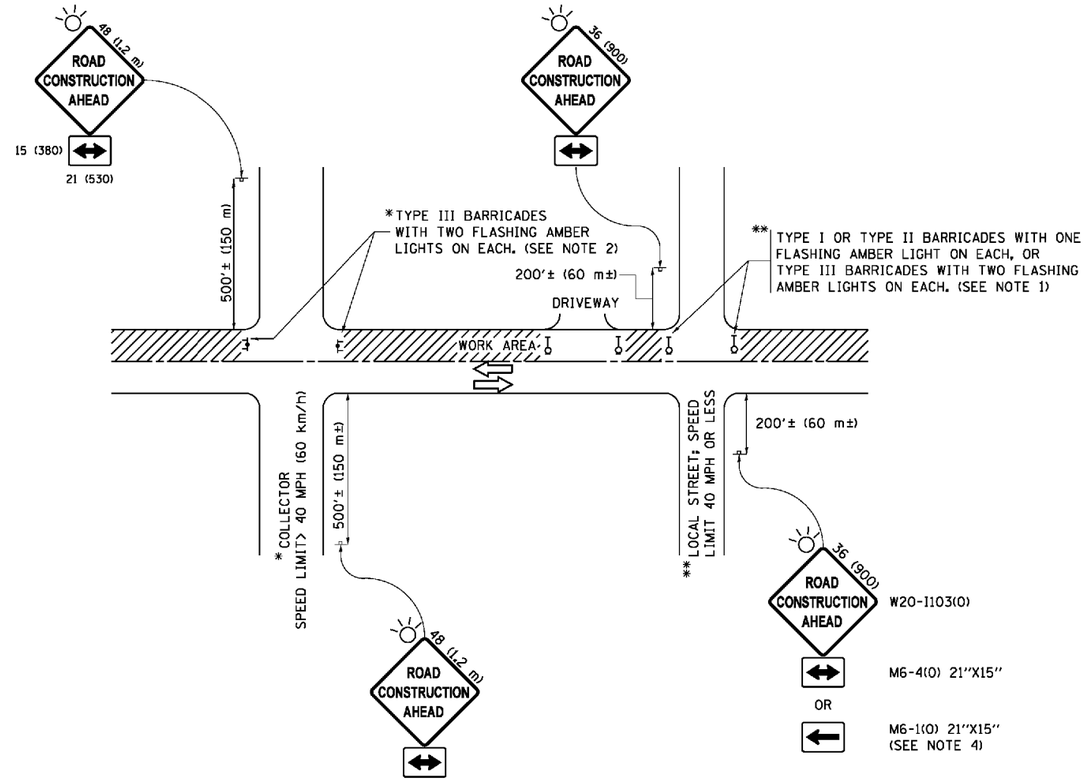
	DESIGNED - DWS	REVISED - JAF 02-06
	DRAWN -	REVISED - SPB 01-07
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED - SPB 12-09
PLOT DATE = 12/13/2018	DATE - 02-87	REVISED - MD 06-13

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS FOR FREEWAY SINGLE & MULTI-LANE WEAVE

SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	106
	TC-09	CONTRACT NO. 60W87		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



NOTES:

1. SIDE ROAD WITH A SPEED LIMIT OF 40 MPH (60 km/h) OR LESS AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
   a) ONE "ROAD CONSTRUCTION AHEAD" SIGN 36 x 36 (900x900) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 200' (60 m) IN ADVANCE OF THE MAIN ROUTE.
   b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE I, TYPE II OR TYPE III BARRICADES, 1/3 OF THE CROSS SECTION OF THE CLOSED PORTION.
2. SIDE ROAD WITH A SPEED LIMIT GREATER THAN 40 MPH (60 km/h) AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
   a) ONE "ROAD CONSTRUCTION AHEAD" SIGN 48 x 48 (1.2 m x 1.2 m) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 500' (150 m) IN ADVANCE OF THE MAIN ROUTE.
   b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE III BARRICADES, 1/2 OF THE CROSS SECTION OF THE CLOSED PORTION.
3. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (710) IN HEIGHT.
4. WHEN THE SIDE ROAD LIES BETWEEN THE BEGINNING OF THE MAINLINE SIGNING AND THE WORK ZONE, A SINGLE HEADED ARROW (M6-1) SHALL BE USED IN LIEU OF THE DOUBLE HEADED ARROW (M6-4).
5. WHEN WORK IS BEING PERFORMED ON A SIDE ROAD OR DRIVEWAY, FOLLOW THE APPLICABLE STANDARD(S). THE DIRECTIONAL ARROW (M6-1 OR M6-4) SHALL BE COVERED OR REMOVED WHEN NO LONGER CONSISTENT WITH THE TRAFFIC CONTROL SET-UP.
6. ADVANCE WARNING SIGNS ARE TO BE OMITTED ON DRIVEWAYS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR BY THE ENGINEER.
7. THE TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS SHALL BE INCLUDED IN THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.

All dimensions are in inches (millimeters) unless otherwise shown.

	DESIGNED - L.H.A.	REVISED - A. HOUSEH 10-15-96
	DRAWN -	REVISED - T. RAMMACHER 01-06-00
PLOT SCALE = 100.0001 ' / in.	CHECKED -	REVISED - A. SCHUETZE 07-01-13
PLOT DATE = 12/13/2018	DATE - 06-89	REVISED - A. SCHUETZE 09-15-16

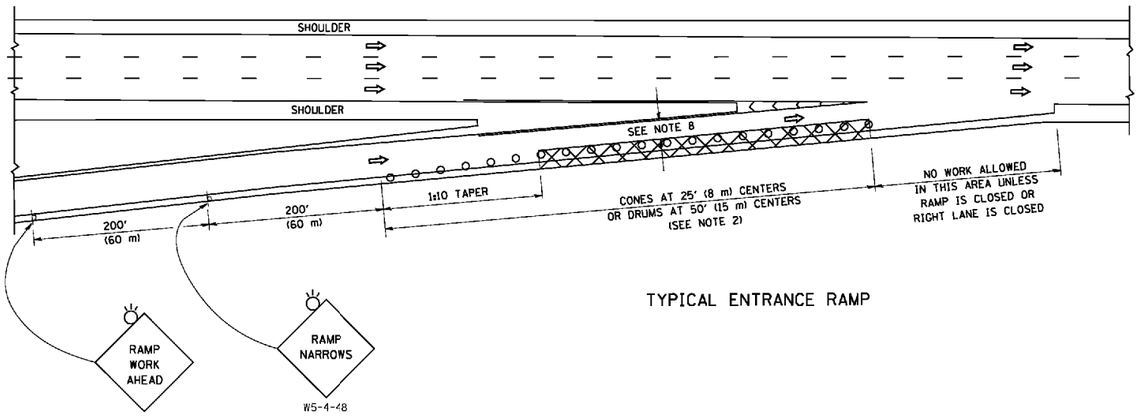
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

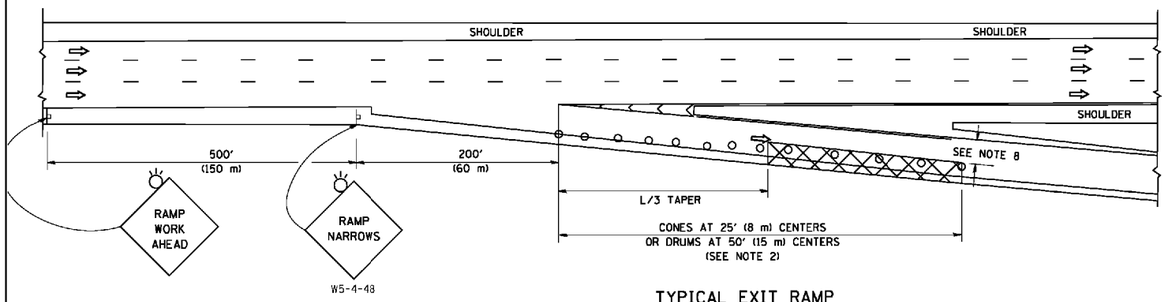
SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	107
	TC-10	CONTRACT NO. 60W87		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

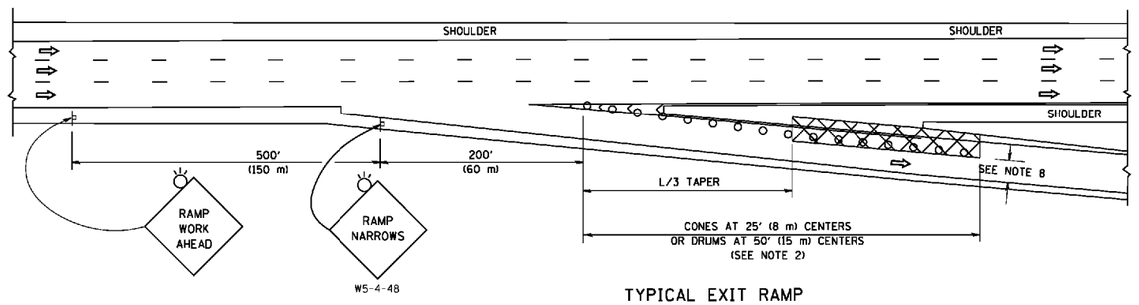
PARTIAL RAMP CLOSURE DETAILS



TYPICAL ENTRANCE RAMP

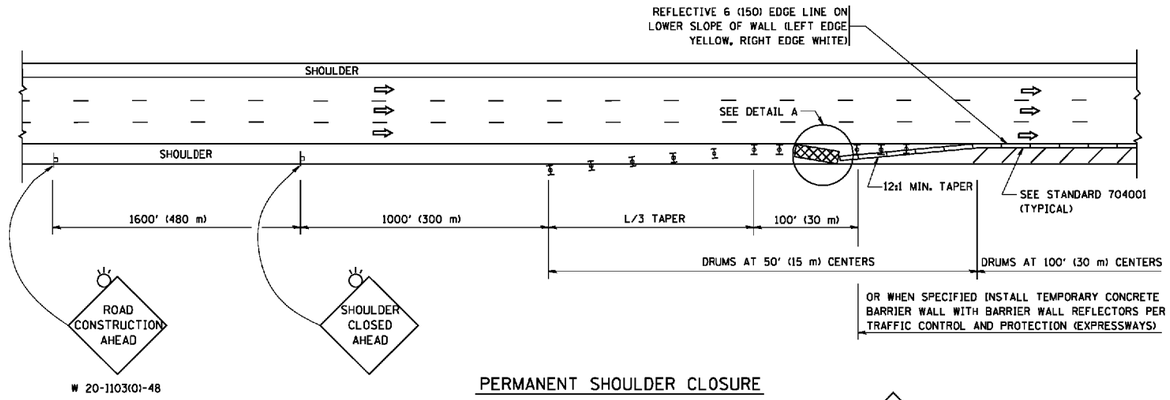


TYPICAL EXIT RAMP

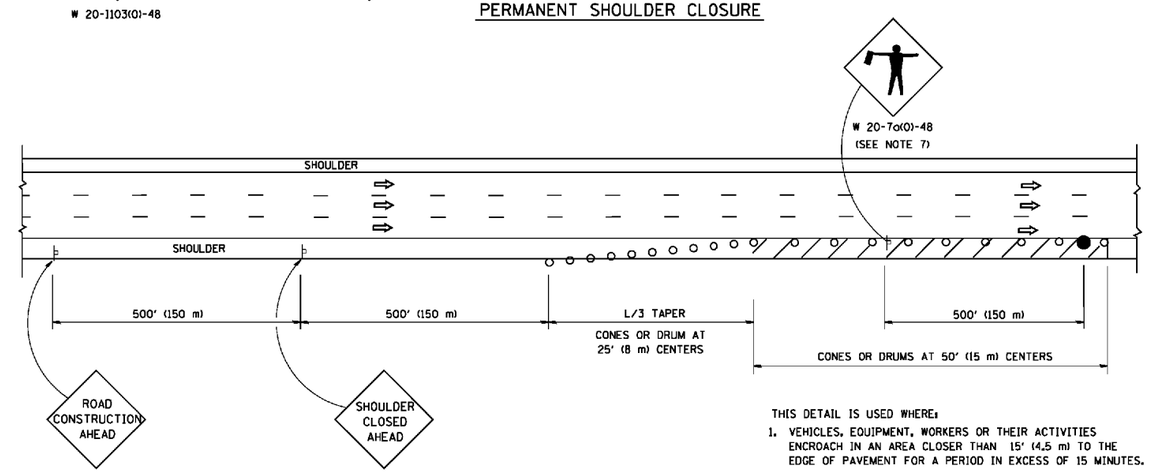


TYPICAL EXIT RAMP

SHOULDER CLOSURE DETAILS



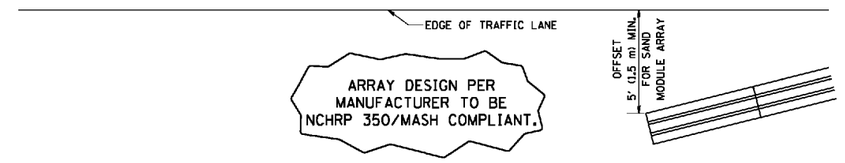
PERMANENT SHOULDER CLOSURE



THIS DETAIL IS USED WHERE:

1. VEHICLES, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH IN AN AREA CLOSER THAN 15' (4.5 m) TO THE EDGE OF PAVEMENT FOR A PERIOD IN EXCESS OF 15 MINUTES.

DAYTIME SHOULDER CLOSURE



DETAIL "A"
IMPACT ATTENTUATOR, TEMPORARY
(SEE NOTE 5)

SYMBOLS

- ACTIVE WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- FLAGGER WITH CONTROL SIGN
- TYPE II BARRICADE OR DRUM
- CONE, DRUM OR BARRICADE
- IMPACT ATTENUATOR OF TYPE AND TEST LEVEL SPECIFIED

GENERAL NOTES

1. THE "L" DISTANCE EQUALS:

SPEED LIMIT	FORMULAS	
	METRIC	ENGLISH
45 mph (80 km/h) OR GREATER:	L=0.65(W)(S)	L=(W)(S)

W = WIDTH OF OFFSET IN FEET (METERS)
S = NORMAL POSTED SPEED MPH (KM/H)

2. TYPE II BARRICADES OR DRUMS ARE REQUIRED FOR ALL NIGHTIME CLOSURES. TYPE II BARRICADES OR DRUMS WITH MONODIRECTIONAL STEADY BURN LIGHTS ARE REQUIRED FOR DELINEATING OBSTICLES, EXCAVATIONS, OR HAZARDS EXCEEDING 100 FT (30m) IN LENGTH AT NIGHT.
3. ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
4. FLASHING LIGHTS SHALL BE USED DURING THE HOURS OF DARKNESS AND SHALL BE INSTALLED ABOVE THE FIRST TWO SETS OF SIGNS.
5. THE IMPACT ATTENTUATOR, TEMPORARY IS NOT REQUIRED WHEN THE TEMPORARY CONCRETE BARRIER WALL IS PROTECTED BY OR IS TIED INTO THE EXISTING GUARDRAIL. IF OFFSET IS LESS THAN 5 FEET USE NARROW USE TYPE DEVICE TO MEET NCHRP350/MASH.
6. AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL FREEWAY CLOSURES.
7. THE FLAGGER AND FLAGGER SIGN ARE REQUIRED AT THE ABOVE WORK SITES WHEN:
   a. FOUR OR MORE WORK VEHICLES ENTER THE TRAFFIC LANES IN A ONE HOUR PERIOD.
   b. THE WORK AVTIVITY REQUIRES FREQUENT ENCROACHMENT INTO THE LANE OPEN TO TRAFFIC.

   THE FLAGGER SHALL BE STATIONED APPROXIMATELY 100' (30 m) TO 200' (60 m) IN ADVANCE OF THE WORKERS.
8. 12' MIN. WIDTH TANGENT SECTION
   16' MIN. WIDTH CURVE SECTION.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

	DESIGNED -	REVISED -	S.P.B. 01-07
	DRAWN - D.W.S.	REVISED -	S.P.B. 12-09
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	M.D. 06-13
PLOT DATE = 12/13/2018	DATE - 11-96	REVISED -	M.D. 01-18

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

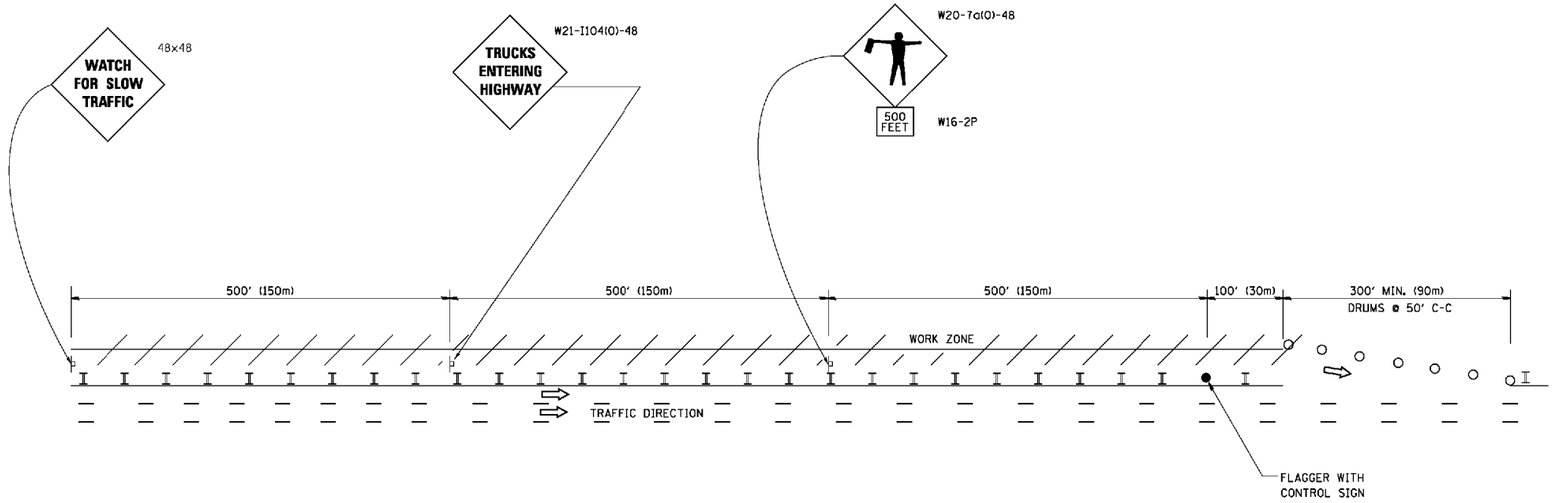
TRAFFIC CONTROL DETAILS FOR FREEWAY
SHOULDER CLOSURES AND PARTIAL RAMP CLOSURES

SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

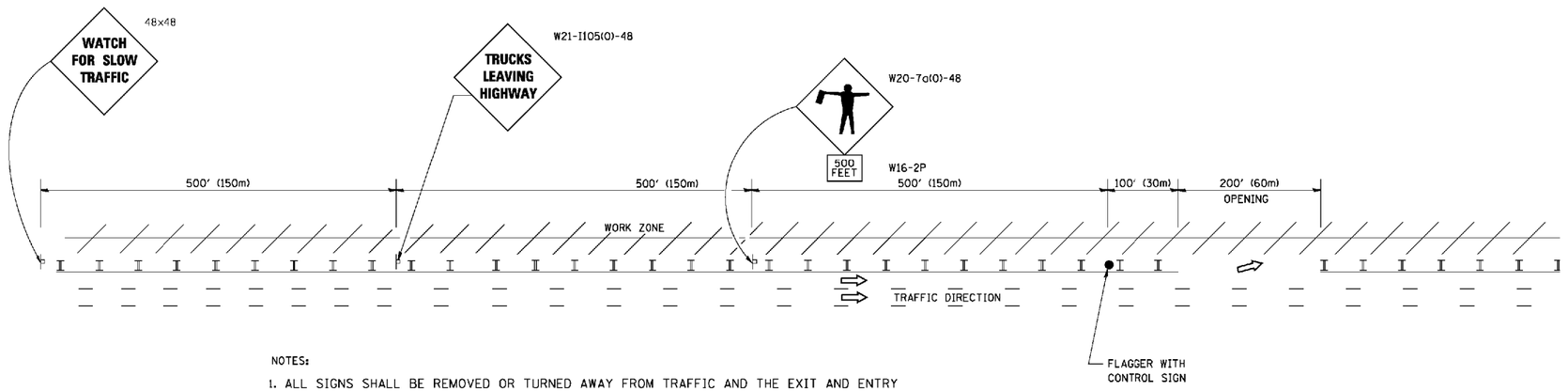
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	108
	TC-17	CONTRACT NO. 60W87		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS

WORK ZONE EXIT OPENING



WORK ZONE ENTRY OPENING



NOTES:

1. ALL SIGNS SHALL BE REMOVED OR TURNED AWAY FROM TRAFFIC AND THE EXIT AND ENTRY OPENINGS SHALL BE CLOSED WHEN THE FLAGGING OPERATION CEASES. NON OPERATING EQUIPMENT SHALL COMPLY WITH ARTICLE 701.11
2. WORK ZONE OPENINGS SHALL BE A MINIMUM OF ONE HALF MILE APART AND A MINIMUM OF ONE QUARTER MILE FROM ALL ENTRANCE AND EXIT RAMPS.
3. EXITING THE WORK ZONE AT ANY PLACE OTHER THAN AT A WORK ZONE EXIT OPENING WILL BE PROHIBITED.
4. ALL VEHICLES SHALL ENTER THE WORK ZONE AT ENTRY OPENINGS, USING THEIR TURN SIGNALS TO WARN MOTORISTS
5. FLAGGERS SHALL NOT STOP TRAFFIC OR DIRECT TRAFFIC INTO AN ADJACENT LANE.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN

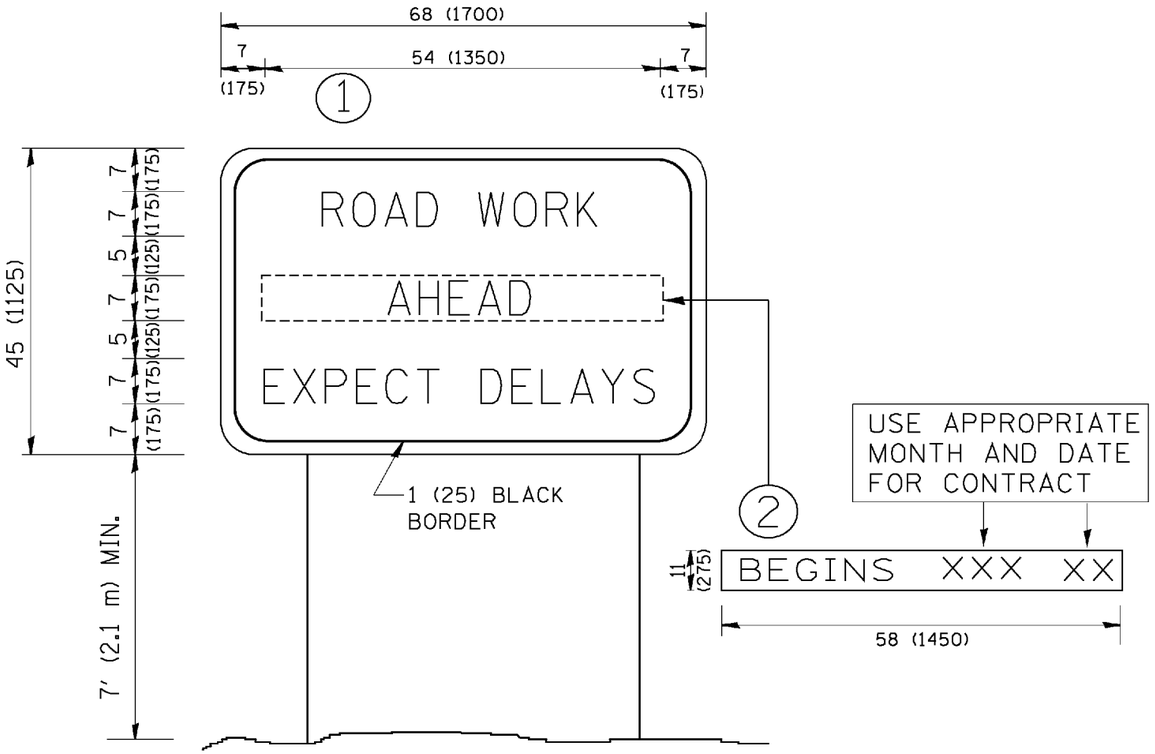
	DESIGNED -	REVISED - J.A.F. 02-06
	DRAWN -	REVISED - S.P.B. 01-07
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED - S.P.B. 12-09
PLOT DATE = 12/13/2018	DATE -	REVISED - M.D. 06-13

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FREEWAY/EXPRESSWAY SIGNING FOR FLAGGING OPERATIONS AT WORK ZONE OPENINGS ON FREEWAYS/EXPRESSWAYS

SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	109
	TC-18	CONTRACT NO. 60W87		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



NOTES:

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN (1) WITH INSTALLED PANEL (2) ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL (2) SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

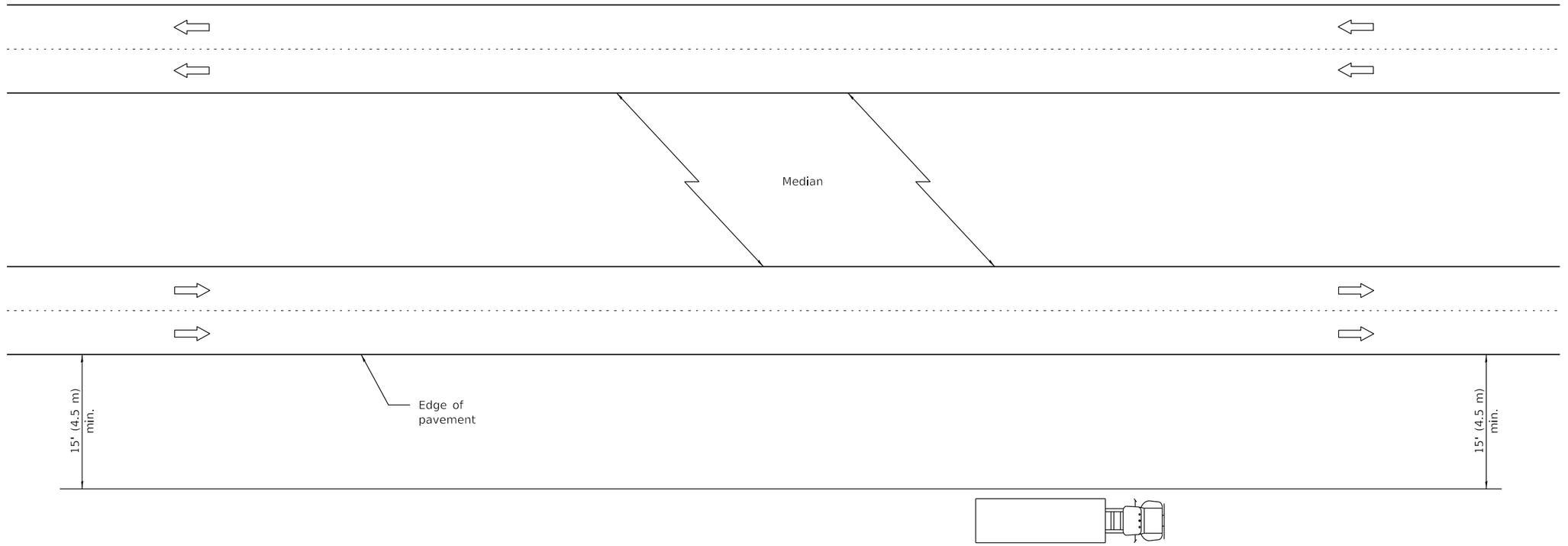
	DESIGNED -	REVISED - R. MIRS 09-15-97
	DRAWN -	REVISED - R. MIRS 12-11-97
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -T. RAMMACHER 02-02-99
PLOT DATE = 12/13/2018	DATE -	REVISED - C. JUCIUS 01-31-07

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ARTERIAL ROAD INFORMATION SIGN

SCALE: NONE | SHEET NO. 1 OF 1 SHEETS | STA. | TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
373	2013-040BP	COOK	122	110
	TC-22	CONTRACT NO. 60W87		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



TYPICAL APPLICATIONS

Landscaping work
Utility work
Fencing contracts

GENERAL NOTES

This Standard is used where at all times all vehicles, equipment, workers or their activities are more than 15' (4.5 m) from the edge of pavement.

When the work operation requires that two or more work vehicles cross the 15' (4.5 m) clear zone in any one hour, traffic control shall be according to Standard 701101.

This Standard also applies to work performed in the median more than 15' (4.5 m) from either pavement.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2009
ENGINEER OF OPERATIONS

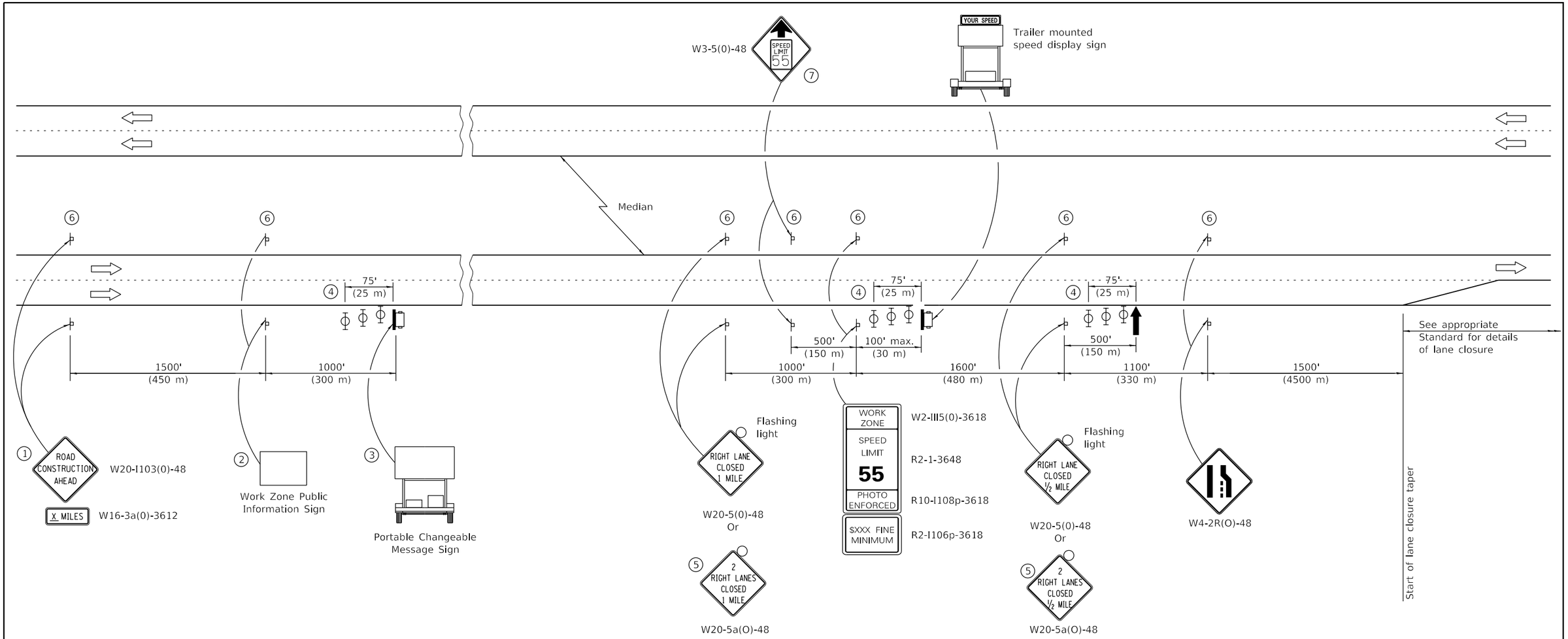
APPROVED January 1, 2009
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-05	Switched units to
	English (metric).
1-1-05	Revised title.

OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' (4.5 m) AWAY

STANDARD 701106-02



SYMBOLS

- Arrow board
- Trailer mounted sign
- Sign
- Type II barricade, drum, or vertical barricade with monodirectional flashing light

(1) The Road Construction Ahead sign shall be located 3 to 5 miles in advance of the project limits.

(2) The message and size of the Work Zone Public Information Sign shall be as specified by the Department.

(3) The message board shall be used to display status of lanes within the project. The primary messages shall be:

"Right Lane Closed" / " x Miles Ahead"
"Left Lane Closed" / " x Miles Ahead"
"All Lanes Open"

(4) Three, Type II barricades, drums, or vertical barricades at 25' (8 m) centers.

(5) This sign shall be used when 2 lanes are closed.

(6) This sign shall be omitted when median width is less than 10' (3 m).

(7) This sign shall only be used if the existing speed limit is greater than 65 mph.

GENERAL NOTES

This standard is used where at any time a lane is closed on a freeway/expressway. When the left lane is closed, LEFT LANE CLOSED signs shall be substituted for the RIGHT LANE CLOSED signs.

The first two signs and the message board are stationary.

The last four signs and arrow board shall be moved as necessary to maintain the required distance from the start of the lane closure taper(s).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

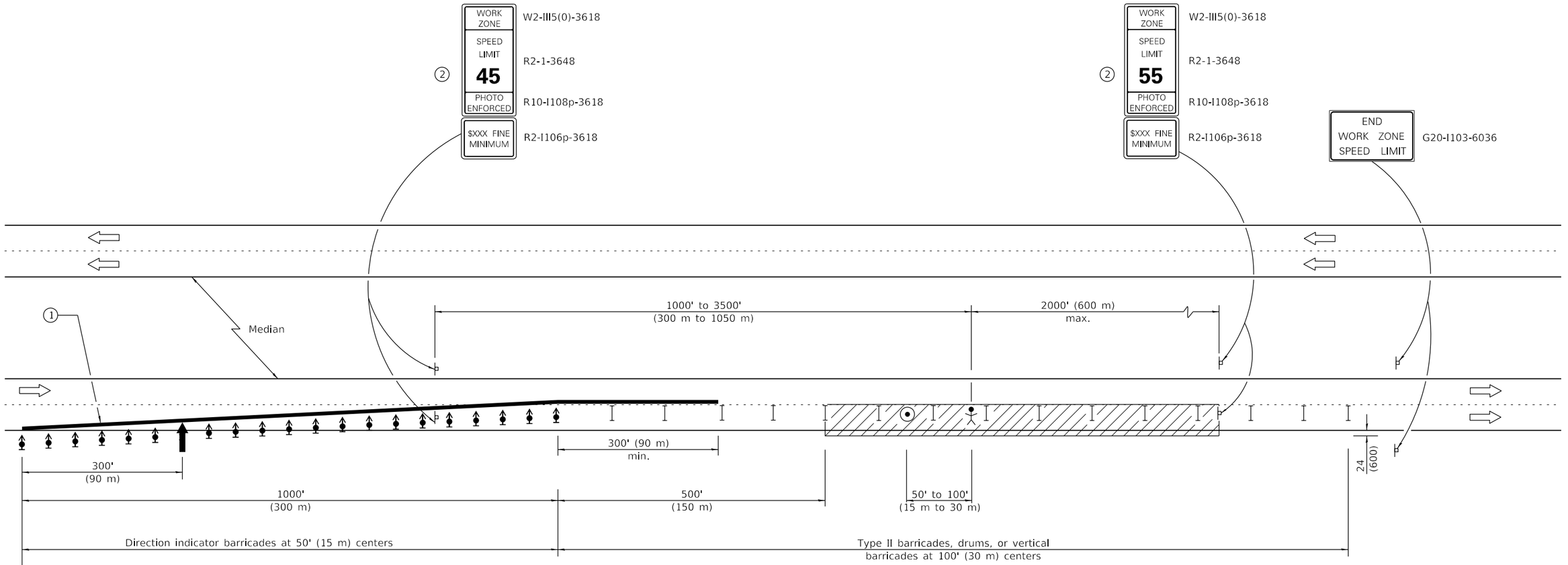
PASSED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-04

DATE	REVISIONS
1-1-17	Added trailer mounted speed
	display sign. Changed device
	spacing and note (4).
1-1-15	Revised '2 RIGHT LANES
	CLOSED X MILE' sign
	number.

APPROACH TO LANE CLOSURE, FREEWAY/EXPRESSWAY

STANDARD 701400-09



SYMBOLS

- Arrow board
- Work area
- Worker
- Sign
- Direction indicator barricade with steady burn monodirectional light
- Type II barricade, drum, or vertical barricade
- Spotter

(1) Reflectorized temporary pavement marking tape shall be placed throughout the taper and for 300' (90 m) along-side the work area when the closure time is greater than fourteen days. The edge line shall be white for right lane closure and yellow for left lane closures.

(2) Work Zone speed limit signs shall be moved as necessary to maintain the required spacing between the signs and the workers in each separate work activity. Work Zone Speed Limit 55 Photo Enforced sign shall be omitted when the work area dictates placement of the sign array within 500' (150 m) of the End Work Zone Speed Limit Sign.

GENERAL NOTES

This Standard is used where at any time any vehicle, equipment, workers or their activities will encroach on the lane adjacent to the shoulder, or on the shoulder within 24 (600) of the edge of pavement.

This Standard must always be used in combination with Standard 701400.

This Standard also applies when work is being performed in the left lane. Under these conditions, the setup would be a mirror image to what is shown.

A check barricade shall be placed in the middle of the closed lane and at the shoulder at 1000' (300 m) centers.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

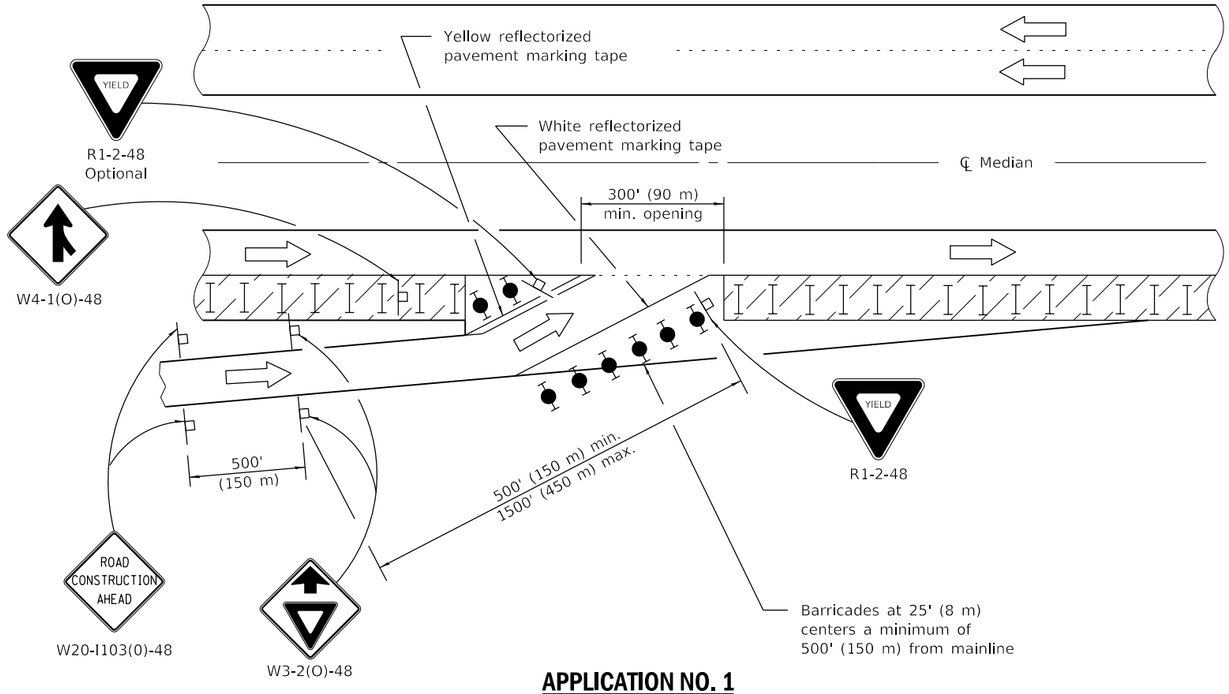
APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-19	Replaced flagger with spotter.
1-1-18	Omitted lights in tangent.

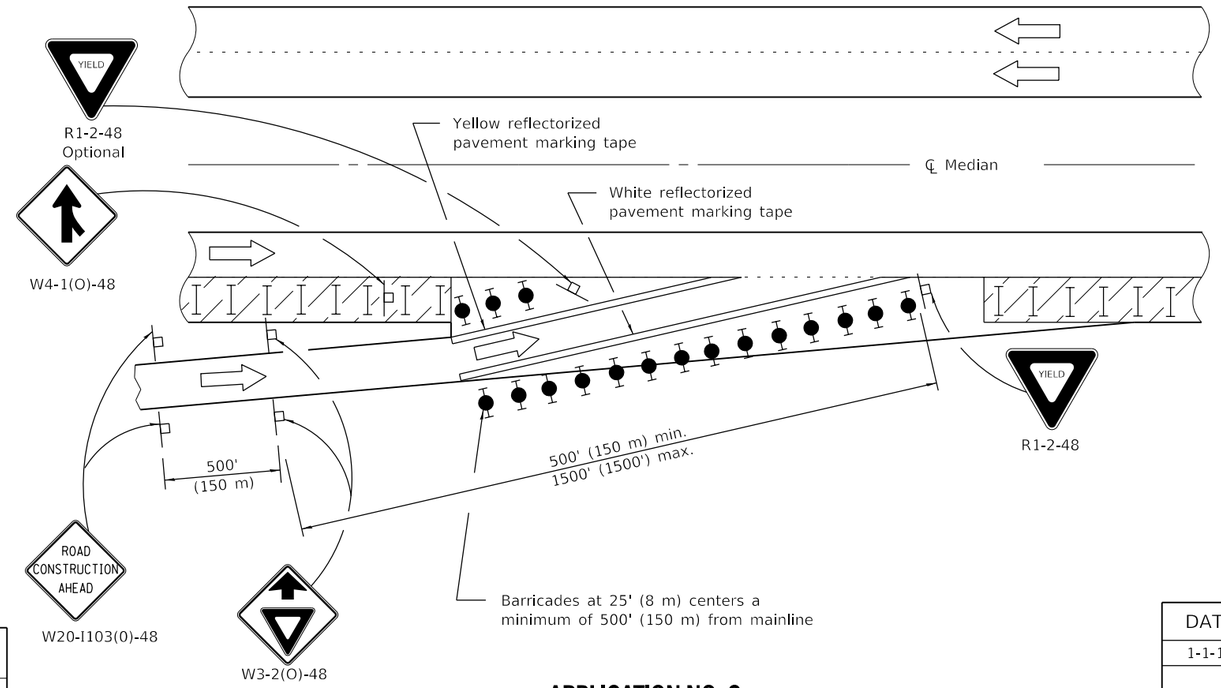
LANE CLOSURE, FREEWAY / EXPRESSWAY

STANDARD 701401-12



APPLICATION NO. 1

Application No. 1 depicts a modified entrance ramp. This method shall be utilized whenever existing entrance tapers cannot be retained due to the close proximity of the work zone. The entrance location may be shifted, with the approval of the Engineer, to perform work in the entrance area. Application No. 2 shall be put into effect as soon as possible.



APPLICATION NO. 2

Application No. 2 depicts a shortening of the normal entrance ramp. This method shall be used whenever the existing geometrics can be retained. Consideration should be given to the entering motorists' line of sight, through, between, or over the delineation devices.

SYMBOLS

- Work area
- Sign
- Type II barricades or drums with steady burning monodirectional light
- Type II barricades or drums
- Drums with steady burning monodirectional light

GENERAL NOTES

This Standard is used where, at any time any vehicle, equipment, workers or their activities require a lane closure in close proximity of an exit or entrance ramp and supplements other traffic control Standards for lane closures.

These applications also apply when work is being performed in the left lanes and the ramps enter and exit on the left. Under these conditions, the Exit sign arrow and the Side road symbol sign shall be changed.

Cones may be utilized during daylight operations, at one half the spacing of drums/barricades.

Use of these APPLICATION NO. 1 and APPLICATION NO. 3 shall be limited to five days per location.

When work does not exceed five days, pavement marking tape may be omitted.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2015
ENGINEER OF SAFETY ENGINEERING

APPROVED January 1, 2015
ENGINEER OF DESIGN AND ENVIRONMENT

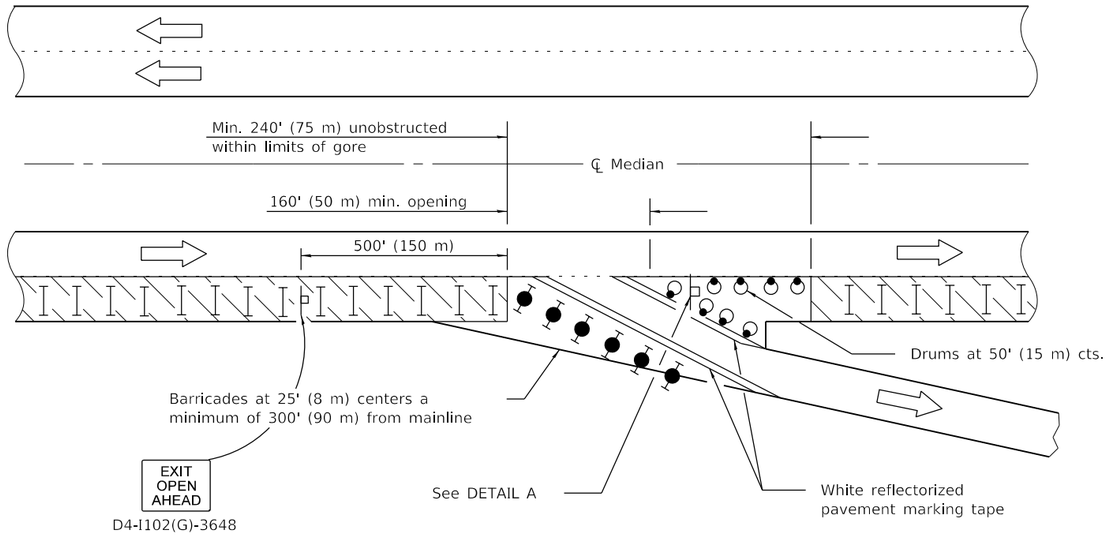
ISSUED 1-1-97

DATE	REVISIONS
1-1-15	Revised gen. notes to limit
	App's 1 and 3 to five days,
	omit pvt. tape for ≤ 5 days.
1-1-12	Revised merge sign to agree
	with MUTCD. Dimensioned EXIT
	OPEN AHEAD sign.

LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS ≥ 45 MPH

(Sheet 1 of 2)

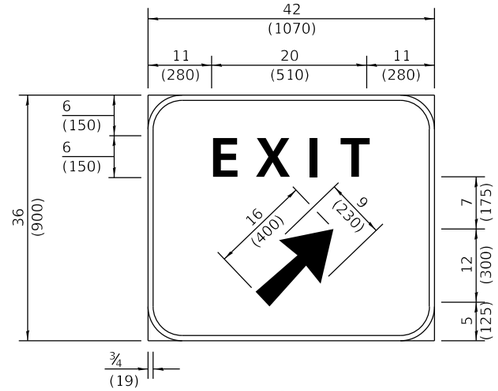
STANDARD 701411-09



D4-I102(G)-3648

APPLICATION NO. 3

Application No. 3 depicts a modified exit ramp. The channelizing devices shall provide a clearly defined path for the exiting motorists. The minimum dimensions shown shall be increased as soon as the progress of the work will permit. The open portion of the ramp may be shifted, with the approval of the Engineer, to perform work in stages on the area adjacent to the ramp exit. Application No. 4 shall be put into effect as soon as possible.

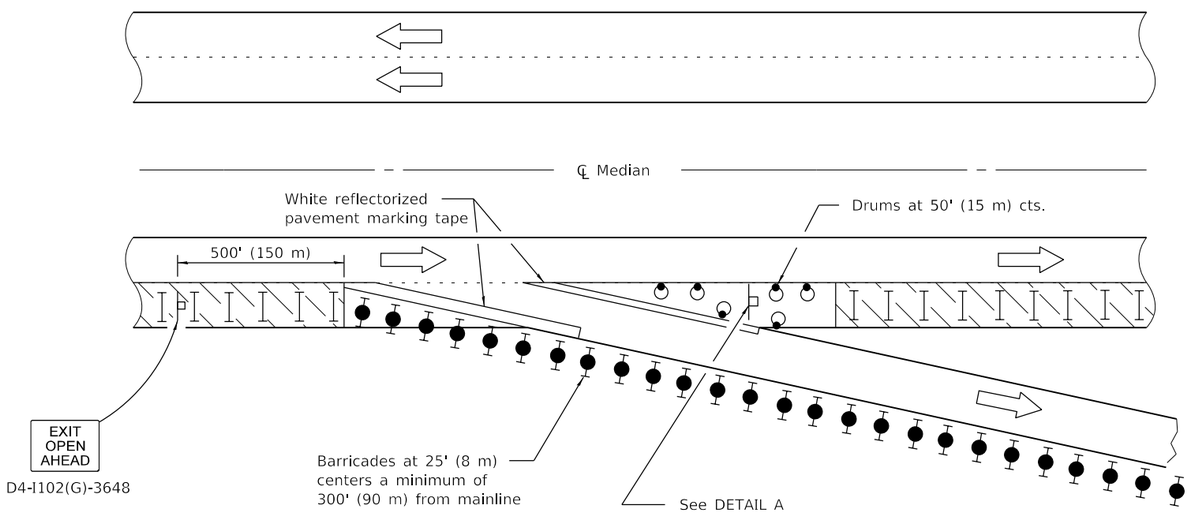


Background - Green
Border and legend - White
"D" size letters

EXIT SIGN - SPECIAL

DETAIL A

(To be utilized where distance between the two rows of channelizing devices is 6' (1.8 m) in width.)



D4-I102(G)-3648

APPLICATION NO. 4

Application No. 4 depicts an extension of the normal exit ramp. This method shall be used whenever existing geometrics can be retained. Consideration should be given to the exiting motorist's line of sight through, between or over the delineation devices.

Illinois Department of Transportation

PASSED January 1. 2015
ENGINEER OF SAFETY ENGINEERING

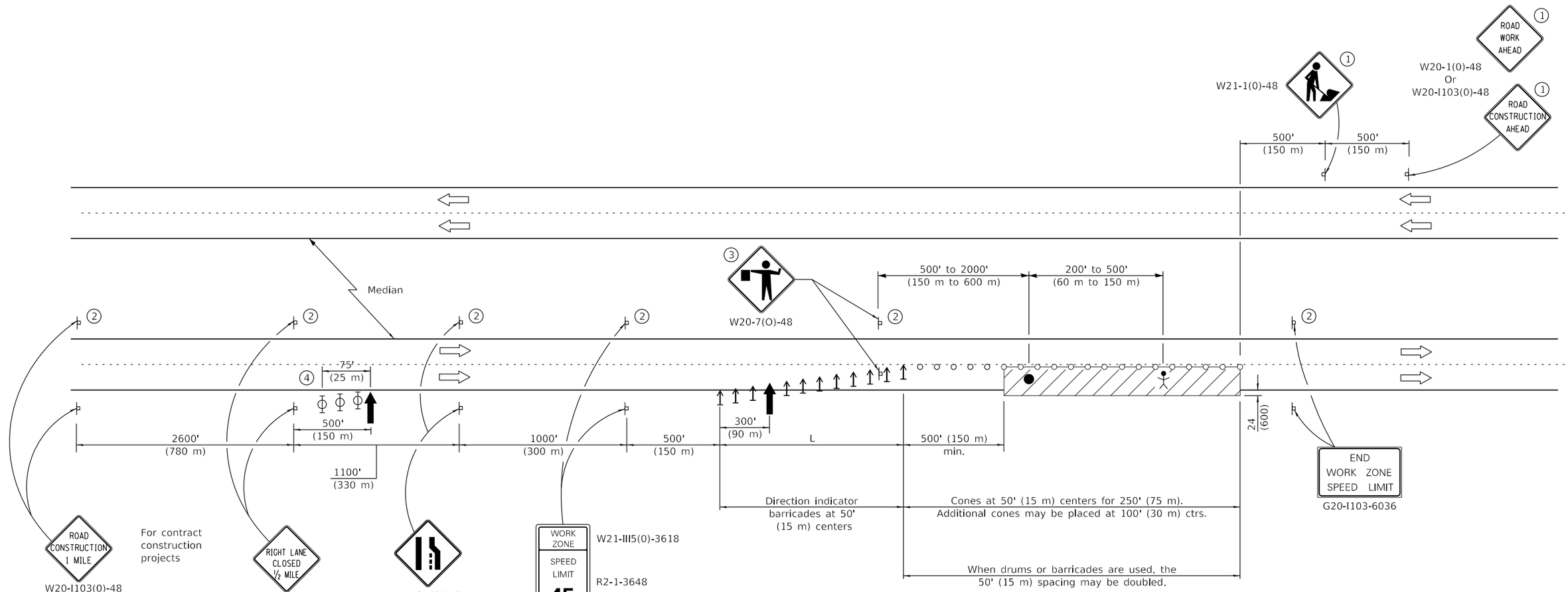
APPROVED January 1. 2015
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

LANE CLOSURE, MULTILANE, AT ENTRANCE OR EXIT RAMP, FOR SPEEDS ≥ 45 MPH

(Sheet 2 of 2)

STANDARD 701411-09



L = lane width X taper ratio	
Normal Posted Speed	Taper Ratio
mph	
55	55/1
45	45/1

TYPICAL APPLICATIONS

Pavement patch
Utility operations
Bituminous resurfacing

SYMBOLS

- Arrow board
- Work area
- Sign
- Direction indicator barricade
- Cone, drum or barricade
- Flagger with traffic control sign
- Worker
- Type II barricade, drum, or vertical barricade with monodirectional flashing light

(1) Undivided roadway only with left lane closure in opposite direction.

(2) Omitted when median is less than 10' (3 m).

(3) FLAGGER signs shall be moved as necessary to maintain the required spacing between the sign and each separate work activity.

(4) Three Type II barricades, drums, or vertical barricades at 25' (8 m) centers.

GENERAL NOTES

This Standard is used where at any time, any vehicle, equipment, workers or their activities will encroach on the lane adjacent to the shoulder, or on the shoulder within 24 (600) of the edge of pavement.

This Standard also applies when work is being performed in the left lane. Under these conditions, LEFT LANE CLOSED signs shall be substituted for RIGHT LANE CLOSED signs. On undivided highways, signs shall be added in the opposite direction as shown.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING

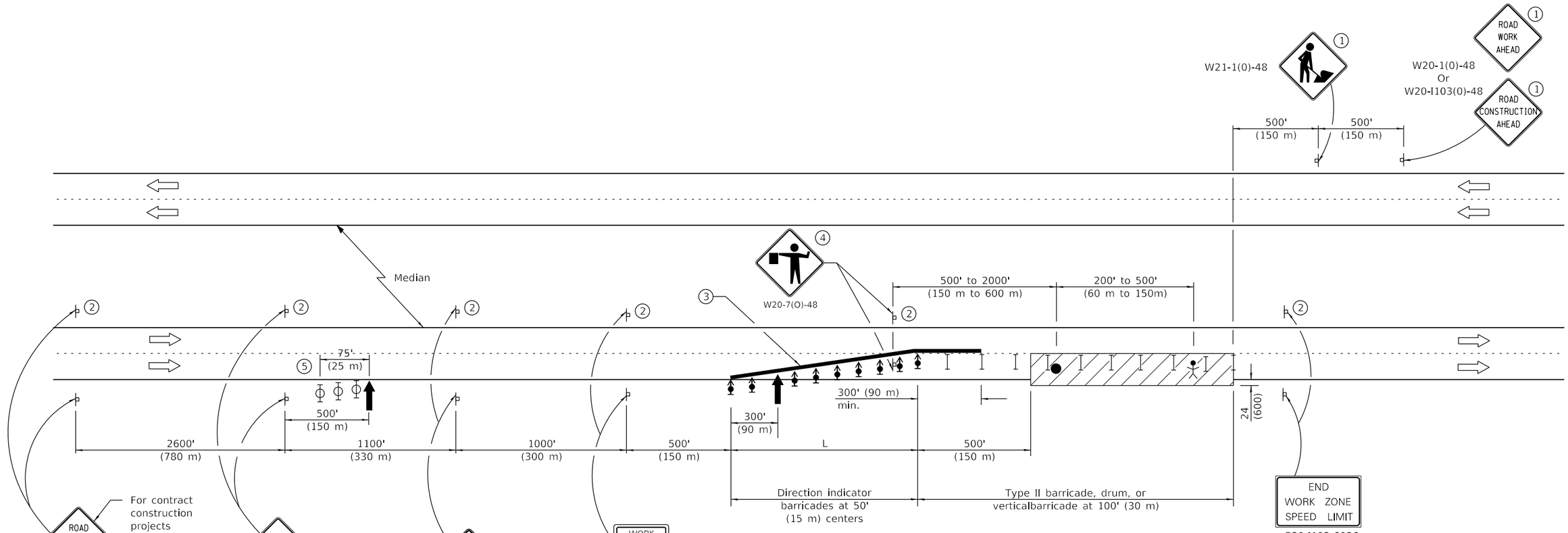
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-04

DATE	REVISIONS
1-1-17	Rev. END WORK ZONE SPEED
	LIMIT sign. Changed device
	spacing at first arr. brd.
1-1-15	Revised END WORK ZONE SPEED
	LIMIT sign dimensions.

LANE CLOSURE, MULTILANE, DAY OPERATIONS ONLY, FOR SPEEDS ≥ 45 MPH TO 55 MPH

STANDARD 701421-08



L = lane width X taper ratio	
Normal Posted Speed	Taper Ratio
mph	
55	55/1
45	45/1

SYMBOLS

- Arrow board
- Work area
- Sign
- Direction indicator barricade with steady burn monodirectional light
- Type II barricade, drum, or vertical barricade
- Flagger with traffic control sign
- Worker
- Type II barricade, drum, or vertical barricade with monodirectional flashing light

(1) Undivided roadway only with left lane closure in opposite direction.

(2) Omitted when median is less than 10' (3 m).

(3) Reflectorized temporary pavement marking tape shall be placed throughout the taper and for 300' (90 m) along-side the work area where the closure time is greater than fourteen days. The edge line shall be white for right lane closures and yellow for left lane closures.

(4) FLAGGER signs shall be moved as necessary to maintain the required spacing between the sign and each separate work activity.

(5) Three Type II barricades, drums, or vertical barricades at 25' (8 m) centers.

GENERAL NOTES

This standard is used where at any time any vehicle, equipment, workers or their activities will encroach on the lane adjacent to the shoulder, or on the shoulder within 24 (600) of the edge of pavement for daylight operation exceeding one day.

This standard also applies when work is being performed in the left lane. Under these conditions LEFT LANE CLOSED signs shall be substituted for RIGHT LANE CLOSED signs. On undivided highways, signs shall be added in the opposite direction as shown.

A check barricade shall be placed in the middle of the closed lane and at the shoulder at 1000' (300 m) centers.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

PASSED January 1, 2018
ENGINEER OF SAFETY PROG. AND ENGINEERING

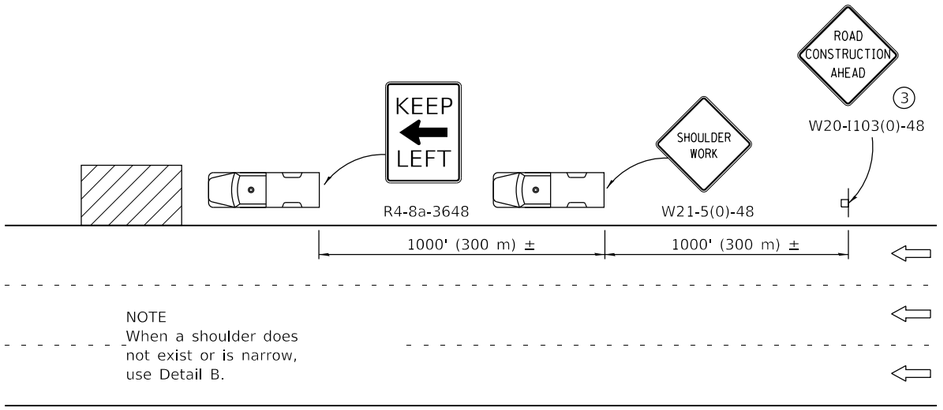
APPROVED January 1, 2018
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 4-1-04

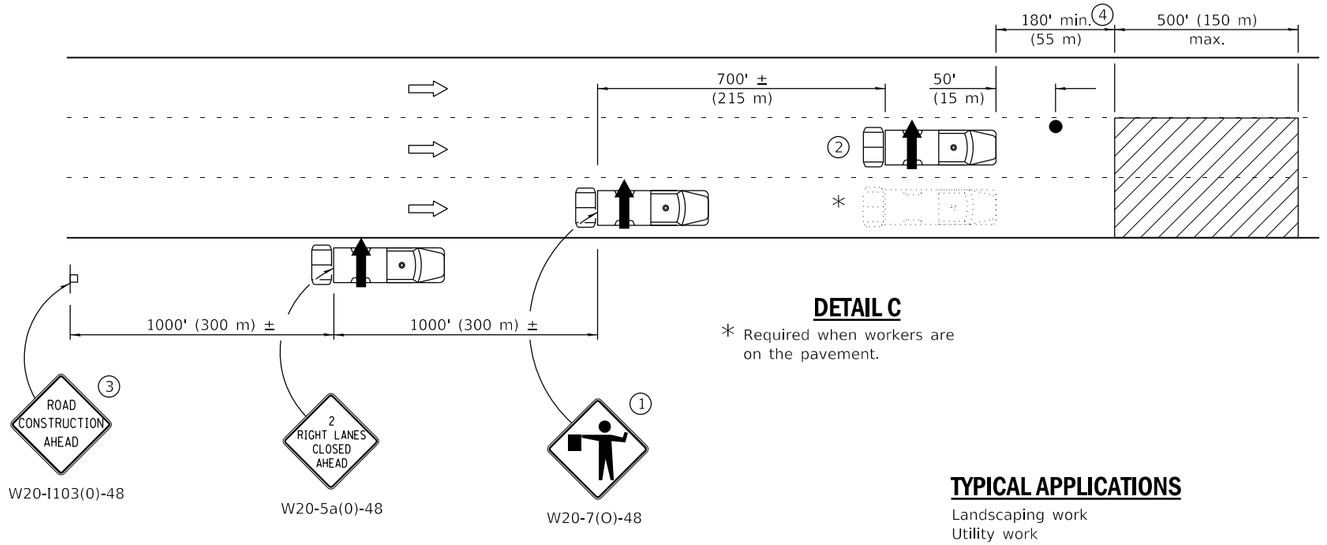
DATE	REVISIONS
1-1-18	Omitted lights in tangent.
1-1-17	Rev. END WORK ZONE SPEED
	LIMIT sign. Changed device
	spacing at first arr. brd.

LANE CLOSURE, MULTILANE, FOR SPEEDS ≥ 45 MPH TO 55 MPH

STANDARD 701422-10



DETAIL A

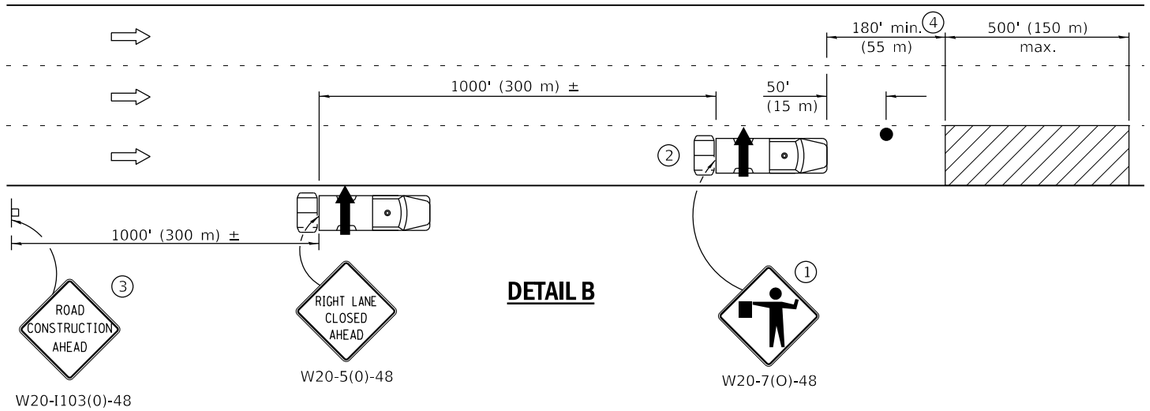


DETAIL C

* Required when workers are on the pavement.

TYPICAL APPLICATIONS

Landscaping work
Utility work
Pavement marking
Weed spraying
Roadometer measurements
Debris cleanup
Crack pouring



DETAIL B

SYMBOLS

- Arrow board
- Work area
- Truck with flashing amber light
- Truck/Trailer mounted attenuator
- Flaggers with traffic control sign
- Sign

1. Flaggers are required when workers are on the pavement.
2. For striping operations only. See sign arrow detail on this standard.
3. For stationary operations which are on the roadway or shoulder, greater than 15 minutes and up to 1 hour.
4. The distance between the work and the lead truck may vary according to terrain or paint/crack sealing drying time.

G20-I101-2430
(appropriate arrow)
(2)(when striping only)

GENERAL NOTES

This Standard is used where any vehicle, equipment, workers or their activities will require: 1) stationary operations up to 1 hour, or 2) a continuous or intermittent moving operation where the average speed of movement is greater than 1 mph (2 km/h).

This Standard is also applicable when work is being performed in the left lane(s) or on the median shoulder. Under these conditions, KEEP RIGHT signs shall be substituted for KEEP LEFT signs and arrow board indications shall be directed to the right.

All dimensions are in inches (millimeter) unless otherwise shown.

Illinois Department of Transportation

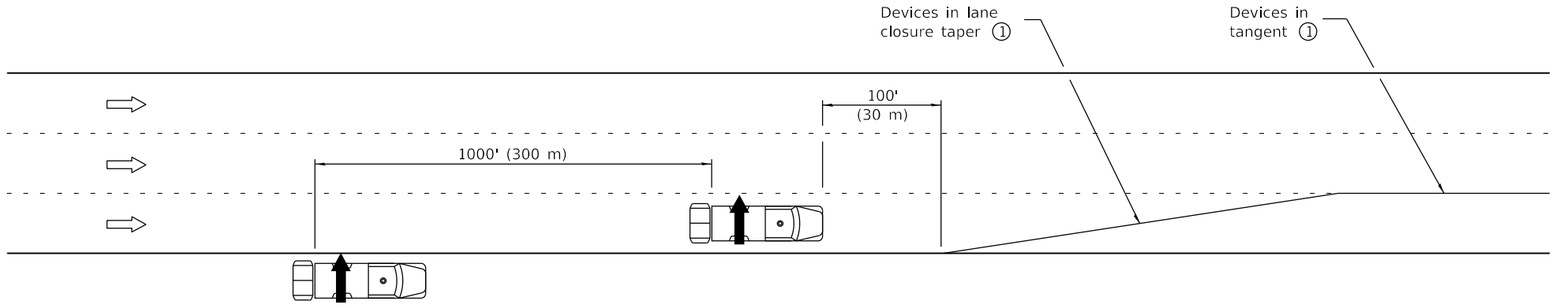
PASSED January 1, 2017
ENGINEER OF SAFETY PROG. AND ENGINEERING
APPROVED January 1, 2017
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
1-1-17	Revised 'NOTE' on DETAIL A
	to use DETAIL B in lieu
	of DETAIL C.
4-1-16	Added trailer option for
	attenuator symbol. Added
	note (4). Revised gen. notes.

LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS ≥ 45 MPH

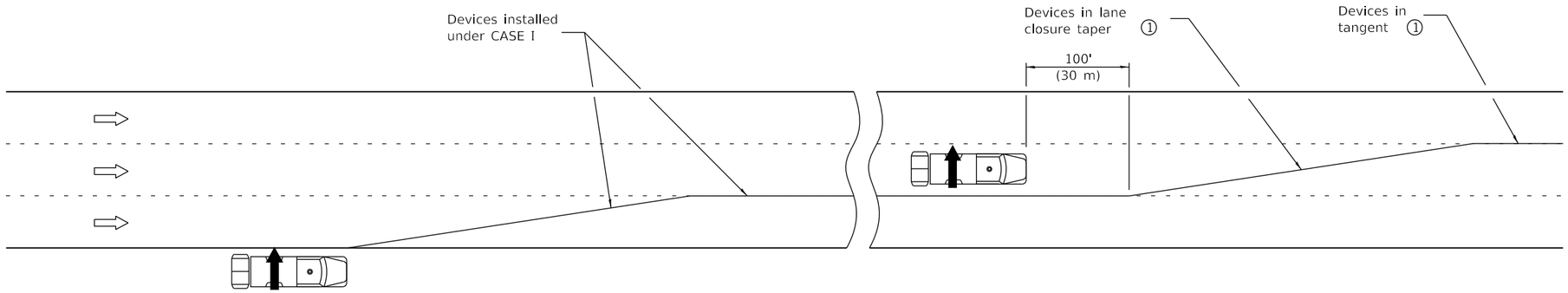
STANDARD 701426-09



(1) See plans or appropriate Standard for delineating devices, spacing and length of taper/tangent.

CASE I

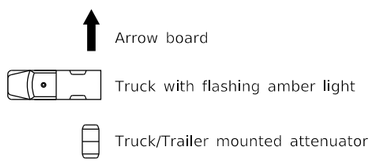
CASE I depicts the setup of delineating devices for a single outside lane closure.



CASE II

CASE II depicts the setup of delineating devices for a two lane closure. The single lane closure device setup as depicted in CASE I shall be performed prior to the setup for the second lane closure.

SYMBOLS



GENERAL NOTES

This Standard is used for setup and removal of lane closures on freeways/expressways having ADT greater than 25,000.

Trucks with arrow boards and truck-mounted-attenuators shall be in place as shown for the setup and removal of the lane closure taper(s) and the first 100' (30 m) of channelizing devices in the tangent(s).

This Standard is also applicable when work is being performed in the left lane(s) or on the median shoulder. Under these conditions arrow board indications shall be directed to the right.

All dimensions are in inches (millimeter) unless otherwise shown.

Illinois Department of Transportation

PASSED April 1, 2016
ENGINEER OF SAFETY ENGINEERING

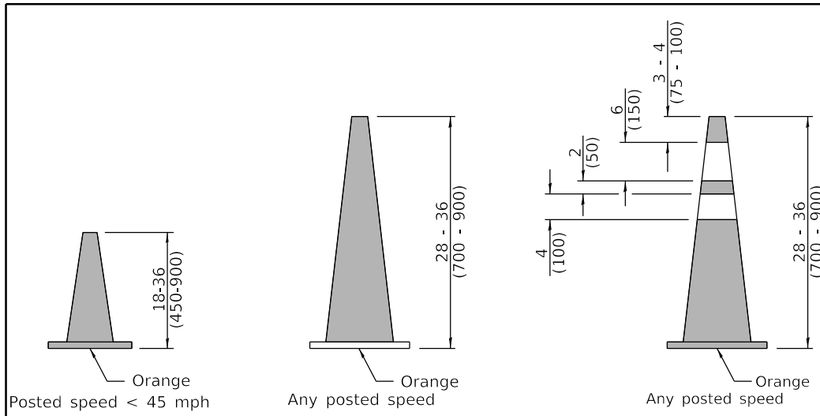
APPROVED April 1, 2016
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-97

DATE	REVISIONS
4-1-16	Added trailer option for
	attenuator symbol.
1-1-14	New Standard.

TRAFFIC CONTROL SETUP AND REMOVAL FREEWAY/EXPRESSWAY

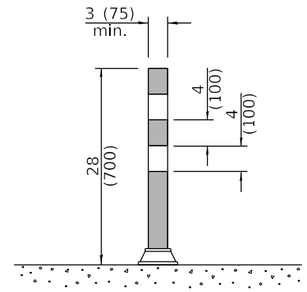
STANDARD 701428-01



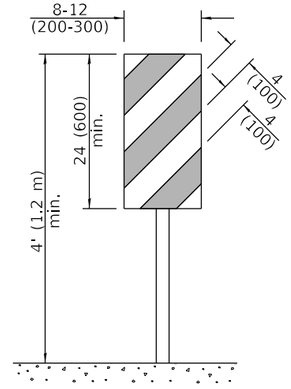
DAYTIME USE

DAY OR NIGHTTIME USE

CONES

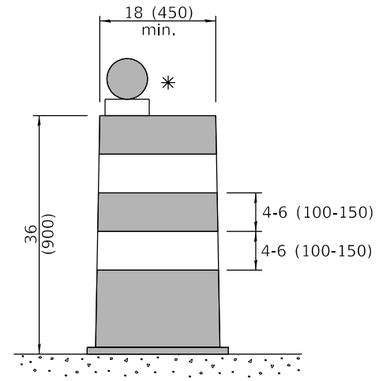


TUBULAR MARKER

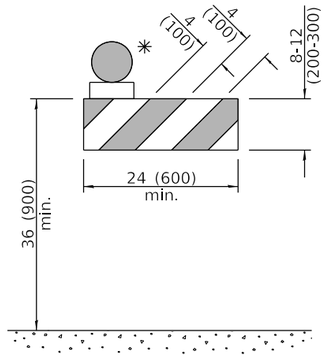


VERTICAL PANEL

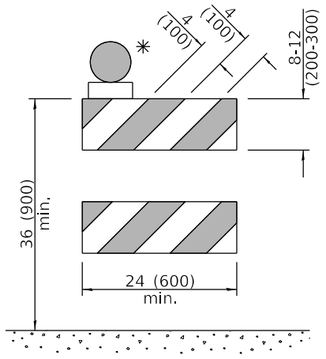
POST MOUNTED



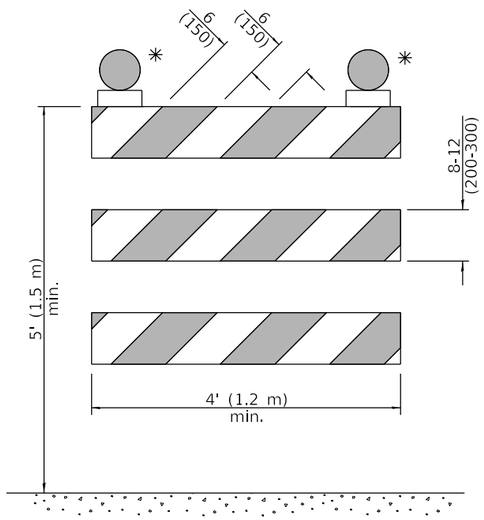
DRUM



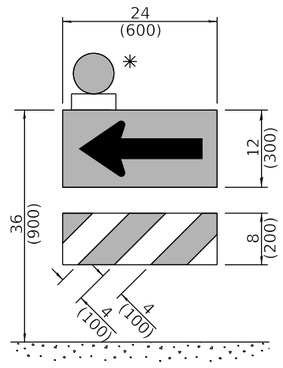
TYPE I BARRICADE



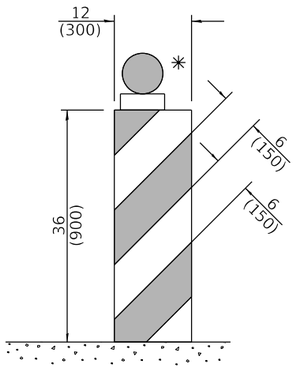
TYPE II BARRICADE



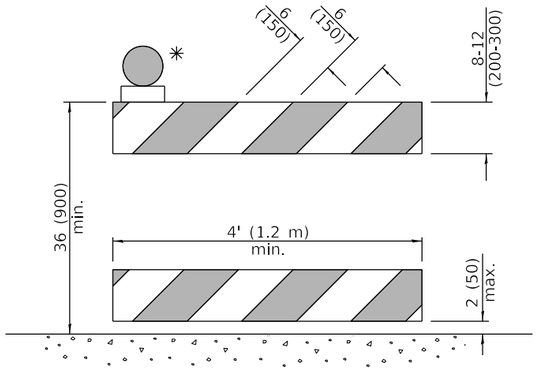
TYPE III BARRICADE



DIRECTION INDICATOR BARRICADE



VERTICAL BARRICADE



DETECTABLE PEDESTRIAN CHANNELIZING BARRICADE

✳ Warning lights (if required)

GENERAL NOTES

All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

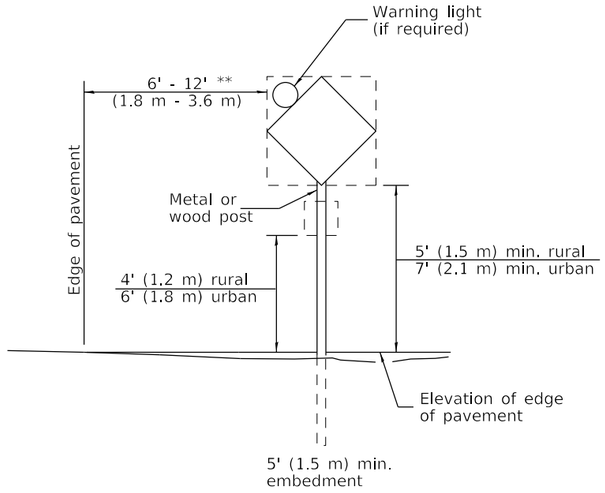
ISSUED 1-1-13

DATE	REVISIONS
1-1-19	Revised cone usage and
	added cones >36" (900 m) height.
1-1-18	Revised END WORK ZONE
	SPEED LIMIT sign from
	orange to white background.

TRAFFIC CONTROL DEVICES

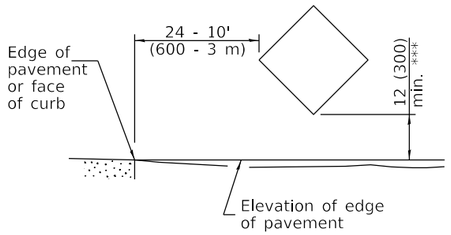
(Sheet 1 of 3)

STANDARD 701901-08



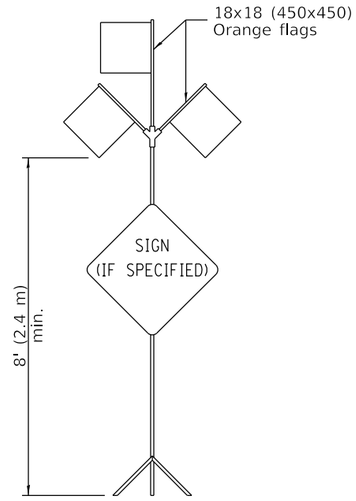
POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 24 (600) to the face of curb or 6' (1.8 m) to the outside edge of the paved shoulder.



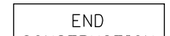
SIGNS ON TEMPORARY SUPPORTS

*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located behind other devices, the height shall be sufficient to be seen completely above the devices.



HIGH LEVEL WARNING DEVICE

G20-I104(0)-6036



G20-I105(0)-6024

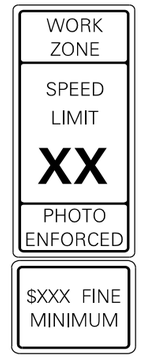
This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING



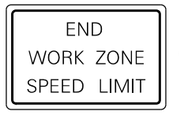
W21-III5(0)-3618

R2-1-3648

R10-I108p-3618 ****

R2-I106p-3618

Sign assembly as shown on Standards or as allowed by District Operations.

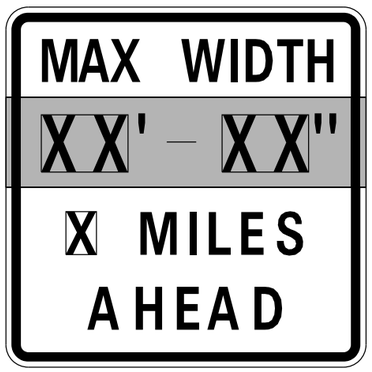


G20-I103-6036

This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

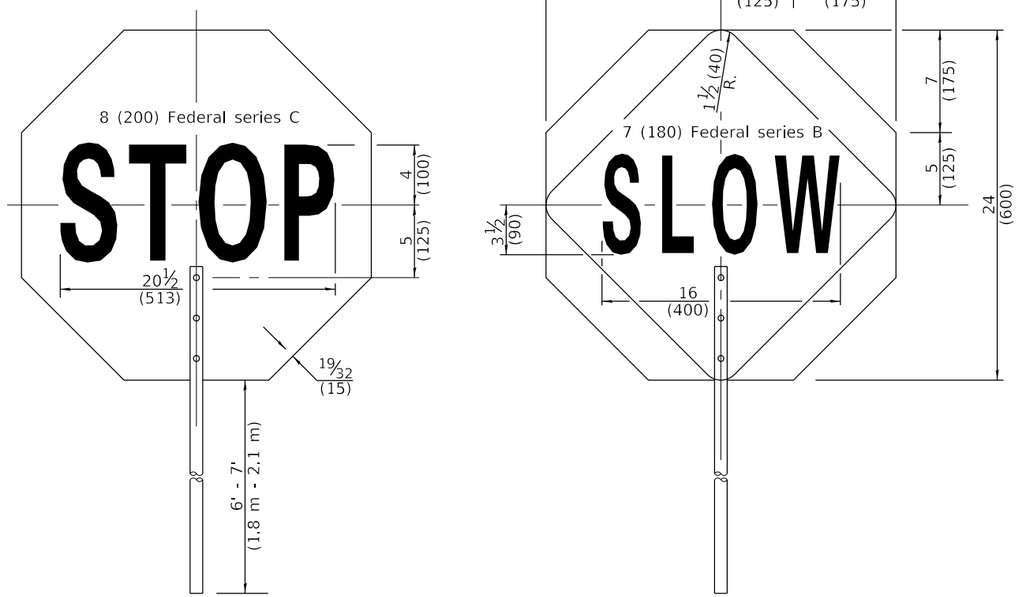
**** R10-I108p shall only be used along roadways under the juristiction of the State.



W12-I103-4848

WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.



FLAGGER TRAFFIC CONTROL SIGN

Illinois Department of Transportation

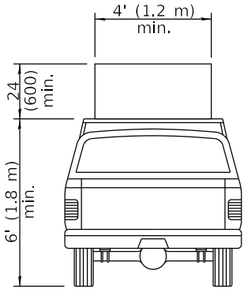
APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

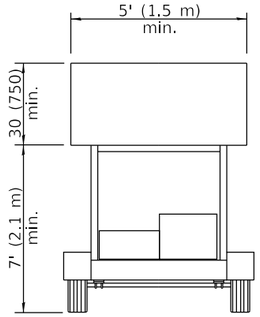
ISSUED 1-1-13

TRAFFIC CONTROL DEVICES

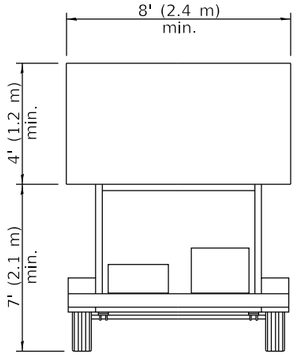
STANDARD 701901-08



**TYPE A
ROOF
MOUNTED**

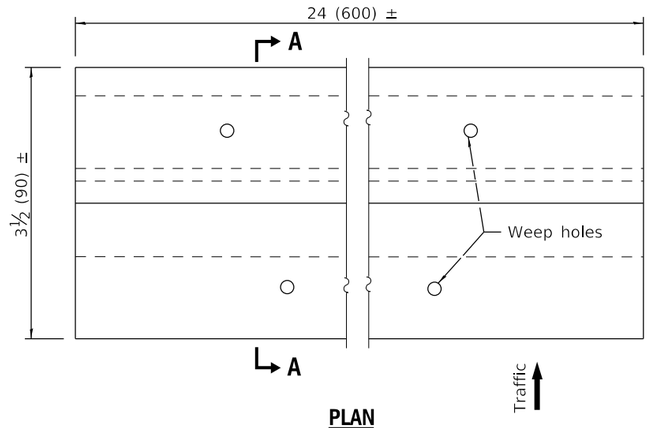


**TYPE B
ROOF OR TRAILER
MOUNTED**

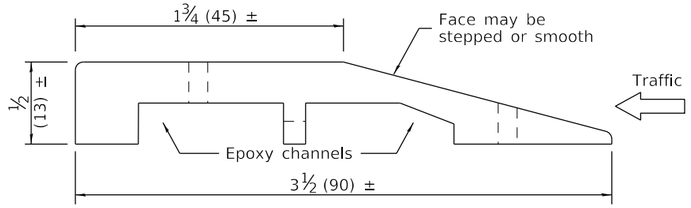


**TYPE C
TRAILER
MOUNTED**

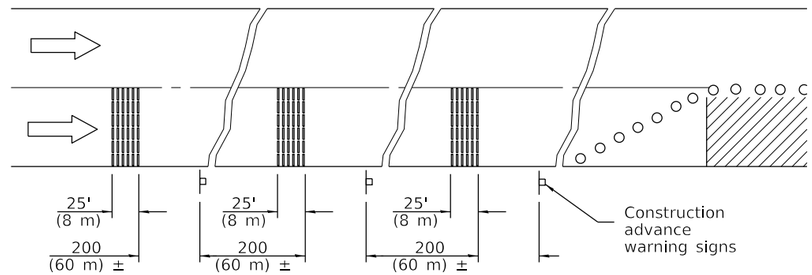
ARROW BOARDS

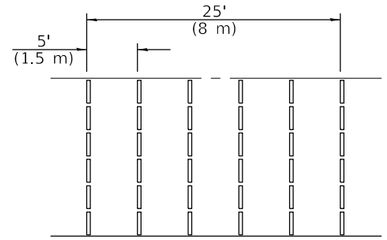


PLAN



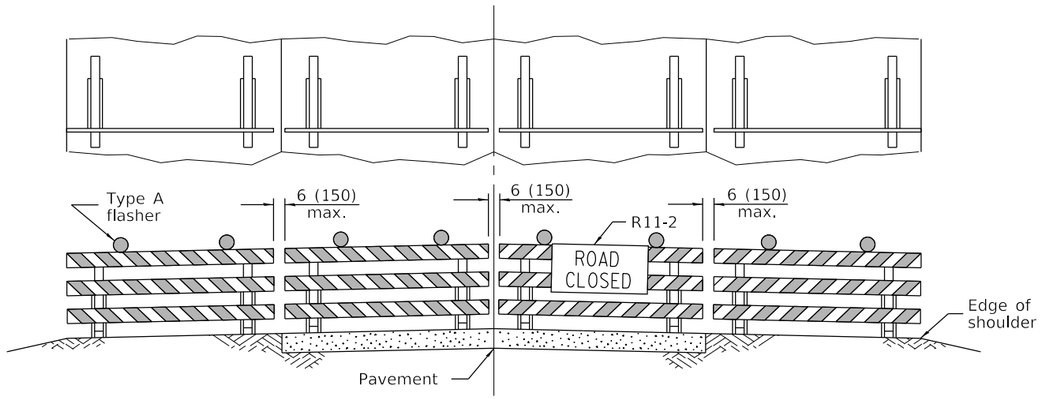
SECTION A-A





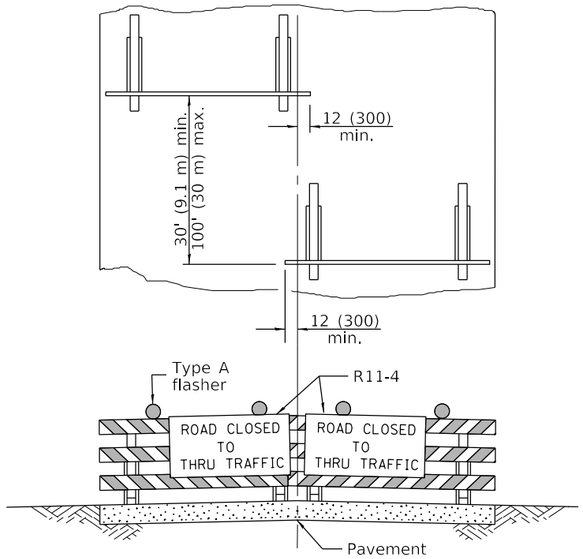
TYPICAL INSTALLATION

TEMPORARY RUMBLE STRIPS



ROAD CLOSED TO ALL TRAFFIC

Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.



ROAD CLOSED TO THRU TRAFFIC

Reflectorized striping shall appear on both sides of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the signs may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

Illinois Department of Transportation

APPROVED January 1, 2019
ENGINEER OF SAFETY PROG. AND ENGINEERING

APPROVED January 1, 2019
ENGINEER OF DESIGN AND ENVIRONMENT

ISSUED 1-1-13

TRAFFIC CONTROL DEVICES

(Sheet 3 of 3)

STANDARD 701901-08