

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	1
		ILLINOIS	CONTRACT NO. 76M21	

FOR INDEX OF SHEETS, SEE SHEET NO. 2
FOR LIST OF HIGHWAY STANDARDS, SEE SHEET NO. 2

**PROPOSED
HIGHWAY PLANS**

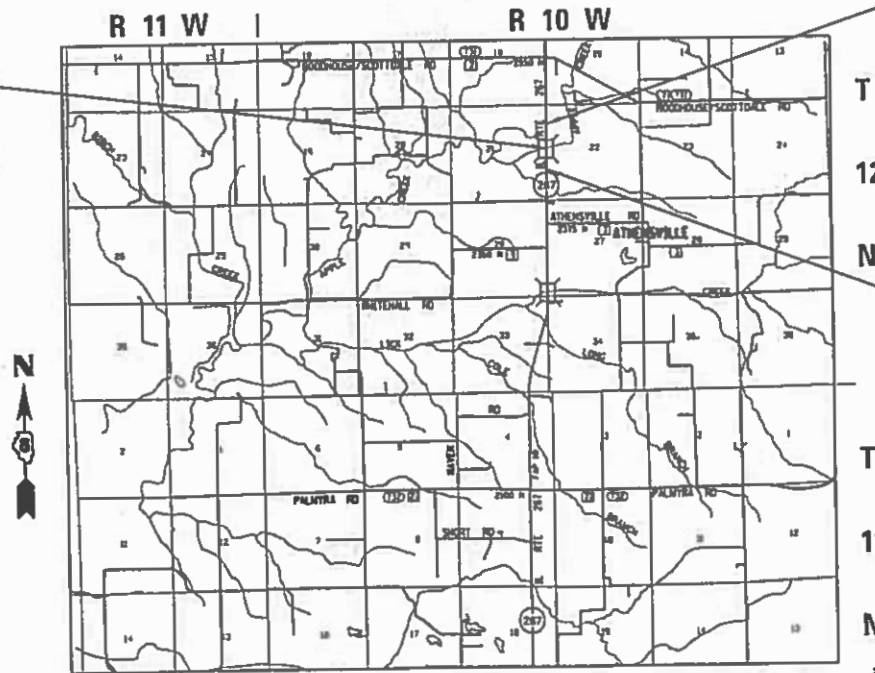
FAP ROUTE 10 (IL RTE 267)
SECTION 3BR-2
PROJECT STP-U197(439)
BRIDGE DECK REPLACEMENT
GREENE COUNTY

C-98-040-19

DESIGN DESIGNATION
FAP ROUTE 10 (IL RTE 267)
FEDERAL AIDE
ADT 2,050 (2020 ESTIMATED)
80.2% PV
4.7% SU
15.1% MU
DESIGN SPEED: 55 MPH

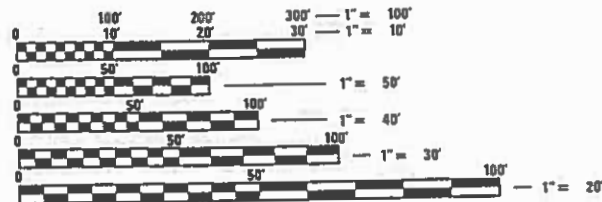


STA. 466 + 09.00
SN 031-0015
IL RTE 267 OVER APPLE CREEK
528'-7" BK TO BK ABUTMENTS
32"-6" 0-0
IMPROVEMENT INCLUDES
DECK REPLACEMENT



END SECTION
STA 470 + 95.18
LAT 39° 28' 11"
LON 90° 12' 28"

BEGIN SECTION
STA 460 + 46.00
LAT 39° 28' 19"
LON 90° 12' 28"



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

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

PROJECT ENGINEER: TIM PADGETT (618) 346-3325
PROJECT MANAGER: PHIL FREIMUTH (618) 346-3194

GROSS LENGTH = 1049.18 FT. = 0.199 MILE
NET LENGTH = 1049.18 FT. = 0.199 MILE



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED March 7 2019
Keith Roberts REGIONAL ENGINEER

May 10 2019
E.A. Elk ENGINEER OF DESIGN AND ENVIRONMENT

May 19 2019
Paul P. Chaf DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

[Signature] 3/1/19
EXPIRES 11/30-2019
BA
BENTON & ASSOCIATES INC.

INDEX OF SHEETS

1	COVER SHEET
2	INDEX OF SHEETS, GENERAL NOTES & HIGHWAY STANDARDS
3-8	SUMMARY OF QUANTITIES
9-10	TYPICAL SECTIONS
11	SCHEDULE OF QUANTITIES
12	ALIGNMENT, TIES & BENCHMARKS
13-14	PLAN AND PROFILE IL ROUTE 267
15	STAGING TRAFFIC CONTROL PLAN IL ROUTE 267
16	WIDE LOAD SIGNING PLAN
17	CONSTRUCTION DETAILS
18-41	STRUCTURAL SHEETS

GENERAL NOTES

- ALL ELEVATIONS SHOWN ON THE PLANS ARE BASED ON NAVD 88 DATUM.
- ILLINOIS STATE LAW REQUIRES A 48-HOUR NOTICE BE GIVEN TO ALL UTILITIES WITHIN THE PROJECT AREA BEFORE DIGGING. FIELD MARKING OF FACILITIES MAY BE OBTAINED BY CONTACTING J.U.L.I.E. OR FOR NON-MEMBERS, THE UTILITY COMPANY DIRECTLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT AREA ARE AS FOLLOWS:
 - *GREENE COUNTY RURAL WATER DISTRICT - POTABLE WATER (BURIED)
 - *ILLINOIS RURAL ELECTRIC COOPERATIVE - ELECTRIC (AERIAL)

MEMBERS OF J.U.L.I.E. CALL TOLL FREE (800) 892-0123 OR 811 AND ARE INDICATED BY AN *. NON-J.U.L.I.E. MEMBERS MUST BE NOTIFIED INDIVIDUALLY.
- THE THICKNESS OF THE HOT-MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE BITUMINOUS MIXTURE IS PLACED.
- PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING PLANS ARE SUBJECT TO VARIATIONS FOUND IN THE FIELD. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. ANY ADJUSTMENTS PROPOSED BY THE CONTRACTOR MUST BE APPROVED BY THE ENGINEER. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF WORK, HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED BASED UPON THE UNIT PRICES.
- EXCEPT WHERE DESIGNATED OTHERWISE, THE LOCATIONS AND/OR DEPTHS OF UNDERGROUND UTILITIES SHOWN HAVE BEEN TAKEN FROM OFFICE RECORD INFORMATION FURNISHED BY THE UTILITY OWNERS AND MUST BE CONSIDERED APPROXIMATE.
- TWO CHANGEABLE MESSAGE SIGNS SHALL BE PROVIDED ALONG IL ROUTE 267 TO ALERT DRIVERS OF THE ROAD CONSTRUCTION. CHANGEABLE MESSAGE SIGNS SHALL BE PLACED 14 DAYS PRIOR TO BEGINNING ANY WORK. EXACT LOCATIONS OF THE CHANGEABLE MESSAGE SIGN SHALL BE DETERMINED BY THE ENGINEER.

HIGHWAY STANDARDS

000001-07	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
442101-09	CLASS B PATCHES
515001-03	NAME PLATE FOR BRIDGES
630001-12	STEEL PLATE BEAM GUARDRAIL
630301-09	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631032-09	TRAFFIC BARRIER TERMINAL, TYPE 6A
642006	SHOULDER RUMBLE STRIPS, 8 IN.
701001-02	OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
701006-05	OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
701201-05	LANE CLOSURE, 2L, 2W, DAY ONLY FOR SPEEDS >= 45 MPH
701301-04	LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS
701321-17	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701326-04	LANE CLOSURE, 2L, 2W, PAVEMENT WIDENING
701901-08	TRAFFIC CONTROL DEVICES FOR SPEEDS >= 45 MPH
704001-08	TEMPORARY CONCRETE BARRIER
725001-01	OBJECT AND TERMINAL MARKERS
780001-05	TYPICAL PAVEMENT MARKINGS
782006	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS

COMMITMENTS:

COMMITMENTS FOR THIS PROJECT ARE AS FOLLOWS:

NONE

MIXTURE REQUIREMENTS

ROUTE	FAP 10 (IL 267)
SECTION	3BR-2
COUNTY	GREENE
CONTRACT	76M21

DESCRIPTION:	DECK REPLACEMENT - IL 267 OVER APPLE CREEK 8.6 MI N OF GREENFIELD - SN 031-0015
--------------	---

ADT (CONST YR):	2150
MUP%:	15
SUP%	5
20 YR ESAL'S:	1.84

MIXTURE USE	SHOULDERS ≥ 2.25"	SHOULDERS < 2.25"
AC/PG	PG 64-22	PG 64-22
RAP % (MAX)	SEE SPECIAL PROVISION	SEE SPECIAL PROVISION
DESIGN AIR VOIDS	4.0% @ Ndes=30	4.0% @ Ndes=30
MIX COMPOSITION (GRADATION)	IL 19.0L	IL 9.5L
FRICTION AGG		
QUALITY MGMT PROGRAM	QC/QA	QC/QA

MODEL Dwg: IL 267 3BR-2 Apple Creek 76M21 (CAD) Sheets: 0876M21-1-18-hwystd.gemores.dgn



USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED -
	DRAWN - W. SLEEMAN	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED - M. McEVERS	REVISED -
PLOT DATE = 3/1/2019	DATE - 3/2019	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

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

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	2
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

MODEL: D:\64\it
 FILE NAME: P:\1\02166-2\9\10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\0876M21-1-10-500.dgn

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				BRIDGE	
				0013	
				SN 031-0015	
50300300	PROTECTIVE COAT	SQ YD	1909	1909	
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	11,230	11,230	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	127,380	127,380	
50800515	BAR SPLICERS	EACH	1521	1521	
50901050	STEEL RAILING, TYPE SM	FOOT	1055	1055	
51500100	NAME PLATES	EACH	1	1	
52000110	PREFORMED JOINT STRIP SEAL	FOOT	98	98	
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	18	18	
52100020	ELASTOMERIC BEARING ASSEMBLY, TYPE II	EACH	6	6	
52100505	ANCHOR BOLTS, 5/8"	EACH	48	48	
52200010	TEMPORARY SHEET PILING	SQ FT	103	103	
58600101	GRANULAR BACKFILL FOR STRUCTURES	CU YD	7.0	7.0	
58700300	CONCRETE SEALER	SQ FT	72	72	
* 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	137.5	137.5	

* SPECIALTY ITEM

REV. - MS



BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1910 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4148 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000832

USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED - 3/6/19
	DRAWN - W. SLEEMAN	REVISED -
PLOT SCALE = 100.0000' / in.	CHECKED - M. MCEVERS	REVISED -
PLOT DATE = 3/6/2019	DATE - 3/2019	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES			
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS
10	3BR-2	GREENE	41
			SHEET NO. 4
CONTRACT NO. 76M21			

SCALE: SHEET 2 OF 6 SHEETS STA. TO STA.

ILLINOIS	FED. AID PROJECT
----------	------------------

MODEL: D:\64\it
 FILE NAME: P:\02\166-29\EP-10_IL_267_3BR-2_Apple_Creek_76M21\CADD_Sheets\0876M21-1-10-500.dgn

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE	
				BRIDGE	
				0013	
				SN 031-0015	
X4420682	CLASS B PATCHES, TYPE II, 10 INCH (SPECIAL)	SQ YD	44	44	
X7010202	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)	EACH	1	1	
X7040125	PINNING TEMPORARY CONCRETE BARRIER	EACH	30	30	
X7200200	WIDE LOAD SIGNING	L SUM	1	1	
X7830070	GROOVING FOR RECESSED PAVEMENT MARKING 5"	FOOT	1221	1221	
Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	12	12	
Z0001903	STRUCTURAL STEEL REMOVAL	POUND	7640	7640	
Z0001905	STRUCTURAL STEEL REPAIR	POUND	2040	2040	
Z0003802	REMOVAL OF EXISTING BEARINGS	EACH	12	12	
Z0005900	BRIDGE CURB OR HUBGUARD REPAIR	FOOT	56	56	
Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	12	12	
Z0013798	CONSTRUCTION LAYOUT	L SUM	1	1	

80% FED
20% STATE

CONSTRUCTION CODE	
BRIDGE	
0013	
SN 031-0015	

*** SPECIALTY ITEM**

REV. - MS



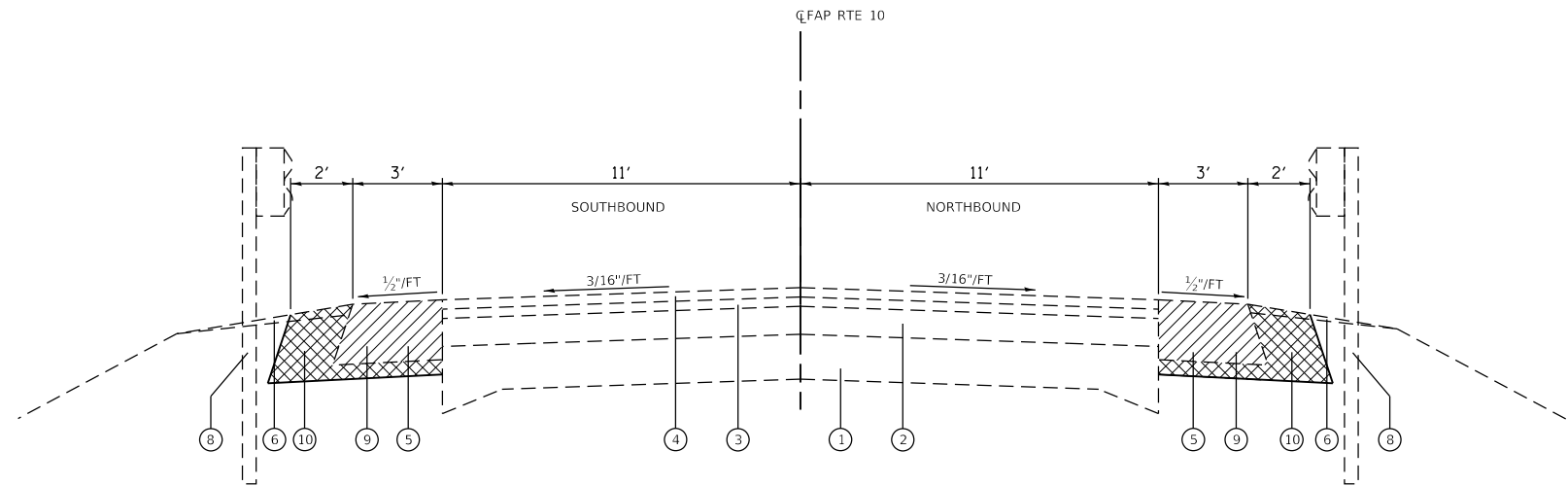
BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1910 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4148 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000832

USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN - W. SLEEMAN	REVISED -
PLOT DATE = 3/4/2019	CHECKED - M. MCEVERS	REVISED -
	DATE - 3/2019	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES			
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS
10	3BR-2	GREENE	41
			SHEET NO. 7
			CONTRACT NO. 76M21

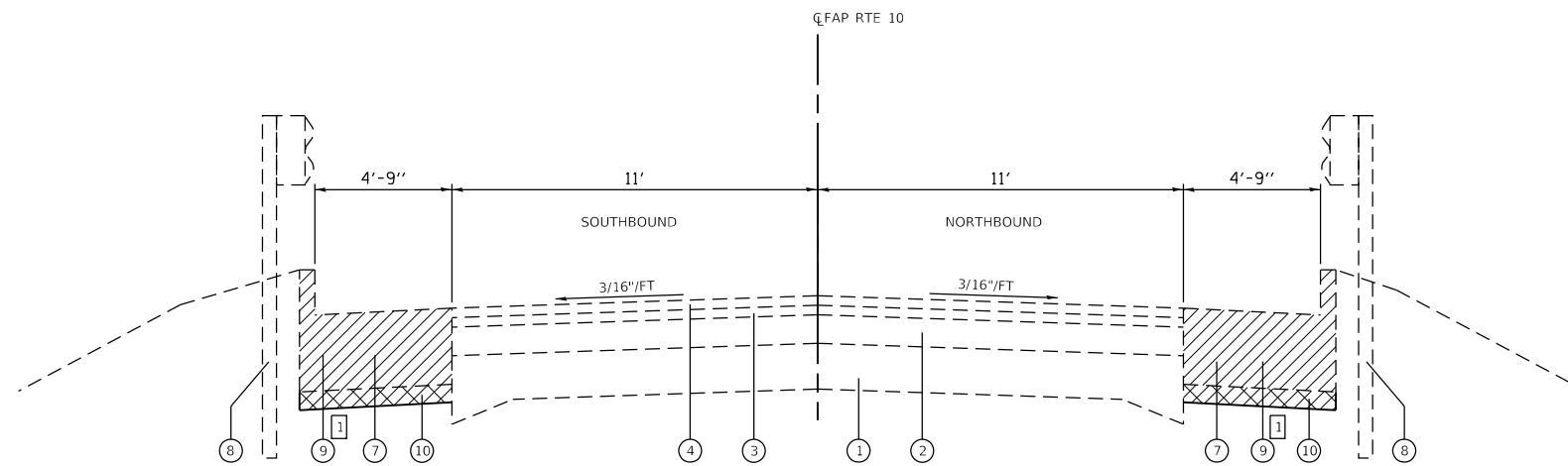
SCALE:	SHEET 5 OF 6 SHEETS	STA. TO STA.	ILLINOIS FED. AID PROJECT
--------	---------------------	--------------	---------------------------



**EXISTING TYPICAL SECTION
FAP ROUTE 10 (IL ROUTE 267)**

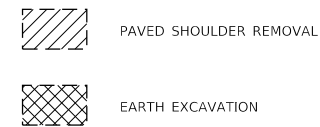
LEFT
STA. 460+53.00 TO STA. 463+33.96
STA. 468+84.43 TO STA. 470+12.00

RIGHT
STA. 460+46.00 TO STA. 463+33.96
STA. 468+84.43 TO STA. 470+18.00



**EXISTING TYPICAL SECTION
FAP ROUTE 10 (IL ROUTE 267)**

STA. 463+33.96 TO STA. 463+44.96
STA. 468+73.05 TO STA. 468+84.43



S/N 031-0015 - STA. 463+44.71 TO 468+73.30

LEGEND

- ① EXISTING CONCRETE PAVEMENT 9"-6"-9"
- ② EXISTING HMA SURFACE COURSE
- ③ EXISTING LEVEL BINDER (MACHINE METHOD), IL-9.5 FG, N70, 3/4"
- ④ EXISTING HMA SURFACE COURSE, MIX "C", N70, 1 1/2"
- ⑤ EXISTING HMA SHOULDER, 8"
- ⑥ EXISTING AGGREGATE SHOULDER WEDGE
- ⑦ EXISTING BRIDGE APPROACH SHOULDER PAVEMENT
- ⑧ EXISTING STEEL PLATE BEAM GUARDRAIL REMOVAL
- ⑨ PROPOSED PAVED SHOULDER REMOVAL
- ⑩ PROPOSED EARTH EXCAVATION
- ⑪ PROPOSED HOT-MIX ASPHALT SHOULDER, 10"
- ⑫ PROPOSED AGGREGATE WEDGE SHOULDER, TYPE B
- ⑬ PROPOSED SHOULDER RUMBLE STRIPS, 8"
- ⑭ PROPOSED CLASS B PATCHES, TYPE II, 10" (SPECIAL)
- ⑮ PROPOSED STEEL PLATE BEAM GUARDRAIL
- ⑯ PROPOSED SAWED LONGITUDINAL CONTRACTION JOINT
- ⑰ PROPOSED PREFORMED PLASTIC PAVEMENT MARKING, TYPE D - LINE 4" (WHITE EDGE LINE)
- ⑱ PROPOSED PREFORMED PLASTIC PAVEMENT MARKING, TYPE D - LINE 4" (YELLOW SKIP-DASH)

NOTE:

- ① PAVED SHOULDER REMOVAL MATERIAL = CONCRETE 8"
- ② PAVED SHOULDER REMOVAL FOR CONSTRUCTION OF CLASS B PATCH (SPECIAL)
STA. 463+38.71 TO STA. 463+44.96 LT & RT
STA. 468+73.05 TO STA. 468+79.30 LT & RT
- ③ AGGREGATE WEDGE SHOULDER, TYPE B
STA. 460+46.00 TO STA. 460+84.00 RT
STA. 460+53.00 TO STA. 462+09.50 LT
STA. 462+09.50 TO STA. 462+37.50 LT ACROSS FE
STA. 462+22.00 TO STA. 462+57.00 RT ACROSS FE
STA. 462+89.00 TO STA. 463+45.00 LT
STA. 463+00.00 TO STA. 463+45.00 RT
STA. 468+73.00 TO STA. 469+54.00 RT
STA. 468+73.00 TO STA. 470+03.00 LT
- ④ TWO (2) APPLICATIONS OF BITUMINOUS MATERIALS (TACK COAT) HAS BEEN CALCULATED FOR USE BETWEEN LIFTS

MODEL Dwg.rvt
FILE NAME: P:\031-0015\031-0015-2019\FAP_10_IL_267_3BR-2_Archie_Creek_76M21\CADD_Sheets\0876M21-SP-CP-SCALE.dgn



USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED -
PLOT SCALE = 100,0000' / in.	DRAWN - W. SLEEMAN	REVISED -
PLOT DATE = 3/1/2019	CHECKED - M. MCEVERS	REVISED -
	DATE - 3/2019	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

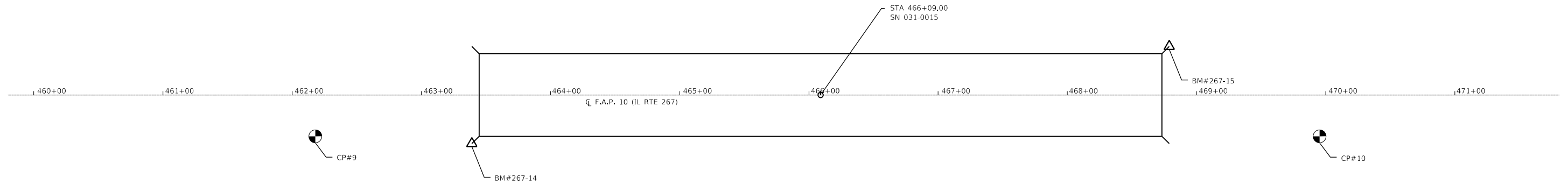
TYPICAL SECTIONS

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

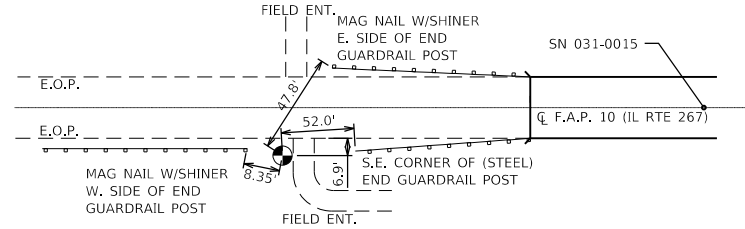
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	9
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				



NOT TO SCALE



NOT TO SCALE

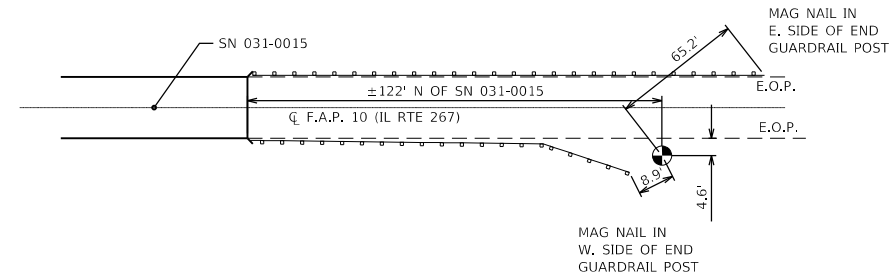


CP#8

5/8" REBAR
W/ IDOT CAP



NOT TO SCALE

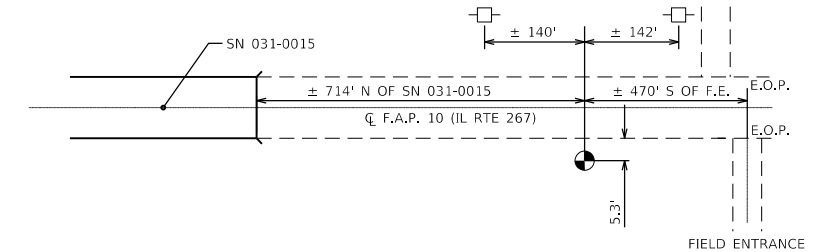


CP#10

5/8" REBAR
W/ IDOT CAP



NOT TO SCALE



CP#11

5/8" REBAR
W/ IDOT CAP

GROUND COORDINATES

DESCRIPTION	NORTHING	EASTING
FAP RTE. 10 (IL RT 267)		
CP#9	1020714.9654	285023.9547
CP#10	1021492.2520	285023.7718
CP#11	1022083.6577	285025.7271
POT STA 460+00.00	1020497.7335	285004.7557
POT STA 466+09.00	1021106.7323	285005.9846
POT STA 472+00.00	1021697.7311	285007.1772

BM-267-14 FOUND CUT "□", SOUTHEAST WINGWALL OF IL 267 BRIDGE (SN 031-0015) OVER APPLE CREEK ELEV=511.16	BM-267-16 (NOT SHOWN) RAILROAD SPIKE IN EAST SIDE OF POWER POLE ON THE WEST SIDE OF IL 267. ±'1120' NORTH OF SN 031-0016. ±'38' WEST OF E.O.P. ELEV=515.57
BM-267-15 FOUND CUT "□" NORTHWEST WINGWALL OF IL267 BRIDGE (SN 031-0015) OVER APPLE CREEK ELEV=510.85	

MODEL Dwg: 11
FILE NAME: P:\162166-29\FAP_10_IL_267_3BR-2_Apple_Creek_76M21\CADD_Sheets\0876M21-CP-ATB.dgn

BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1910 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62150
PHONE: 217-245-4166 FAX: 217-245-4149
IL DESIGN FIRM REGISTRATION NO. 184-000832

USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED -
PLOT SCALE = 200.0000' / in.	DRAWN - W. SLEEMAN	REVISED -
PLOT DATE = 3/1/2019	CHECKED - M. MCEVERS	REVISED -
	DATE - 3/2019	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

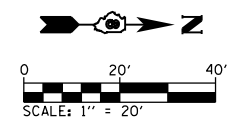
**ALIGNMENT, TIES
& BENCHMARKS**

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

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	12
CONTRACT NO. 76M21				
		ILLINOIS	FED. AID PROJECT	

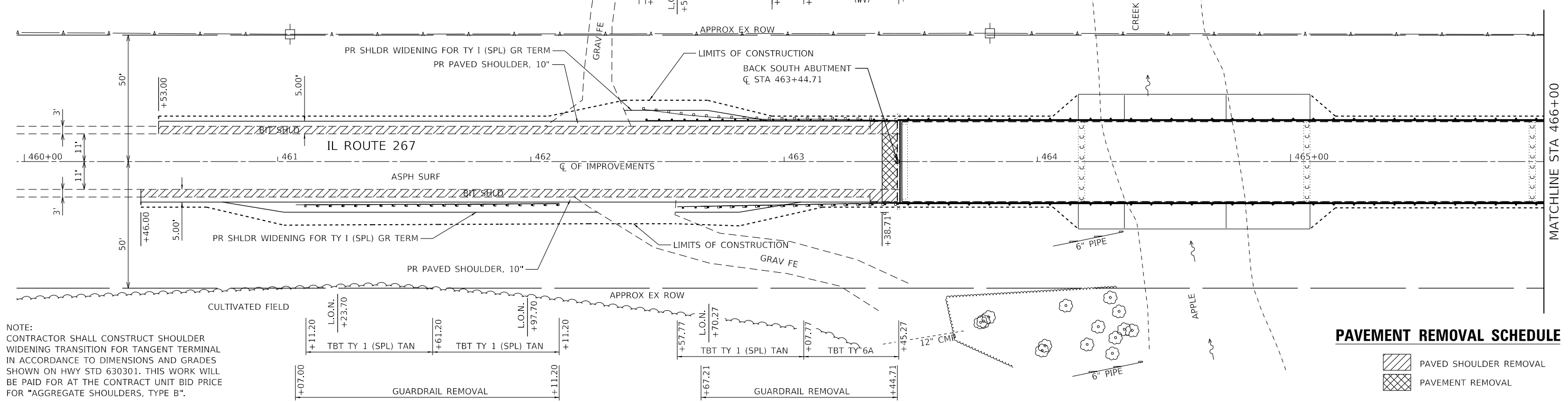
BM #267-14
 FOUND CUT SQUARE, SOUTHEAST WINGWALL OF IL 267 BRIDGE
 (SN 031-0015) OVER APPLE CREEK. ELEV=511.16

BM #267-15
 FOUND CUT SQUARE, NORTHWEST WINGWALL OF IL 267 BRIDGE
 (SN 031-0015) OVER APPLE CREEK. ELEV=510.85



PLAN	SURVEYED	DATE
	PLOTTED	
	ALIGNED	
	CHECKED	
	FILED	
	NO.	

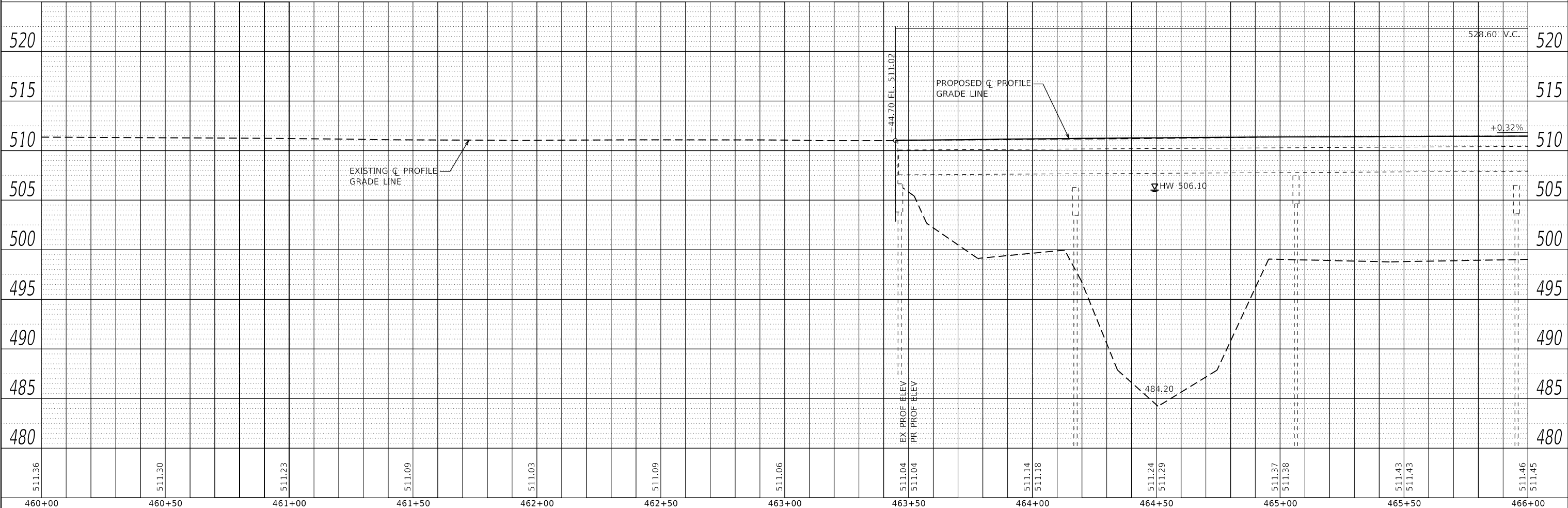
PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES	
	CHECKED	
	STRUCTURE	
	NOTATION	
	NO.	



NOTE:
 CONTRACTOR SHALL CONSTRUCT SHOULDER
 WIDENING TRANSITION FOR TANGENT TERMINAL
 IN ACCORDANCE TO DIMENSIONS AND GRADES
 SHOWN ON HWY STD 630301. THIS WORK WILL
 BE PAID FOR AT THE CONTRACT UNIT BID PRICE
 FOR "AGGREGATE SHOULDERS, TYPE B".

PAVEMENT REMOVAL SCHEDULE

- PAVED SHOULDER REMOVAL
- PAVEMENT REMOVAL



MODEL: Default
 FILE NAME: P:\02\166-29\9\AP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\076M21-511planprofile.dgn

USER NAME	= mmcevers	DESIGNED -	W. SLEEMAN	REVISED -	4/16/19
		DRAWN -	W. SLEEMAN	REVISED -	
PLOT SCALE	= 40.0000' / in.	CHECKED -	M. McEVERS	REVISED -	
PLOT DATE	= 4/16/2019	DATE	= 3/2019	REVISED	=

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

PLAN & PROFILE IL ROUTE 267

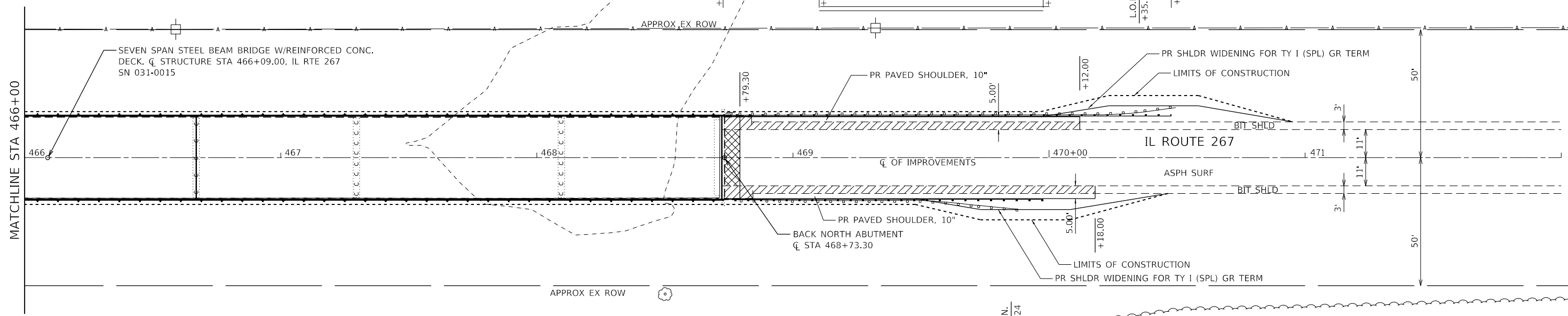
SCALE: SHEET 1 OF 2 SHEETS STA. 460+00.00 TO STA. 466+00.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	13
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

BM #267-14
 FOUND CUT SQUARE, SOUTHEAST WINGWALL OF IL 267 BRIDGE
 (SN 031-0015) OVER APPLE CREEK. ELEV=511.16

BM #267-15
 FOUND CUT SQUARE, NORTHWEST WINGWALL OF IL 267 BRIDGE
 (SN 031-0015) OVER APPLE CREEK. ELEV=510.85

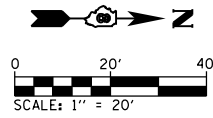
PLAN	SURVEYED	DATE
	PLOTTED	
	ALIGNMENT CHECKED	
	NOTE BOOK NO.	
	CADD FILE NAME	



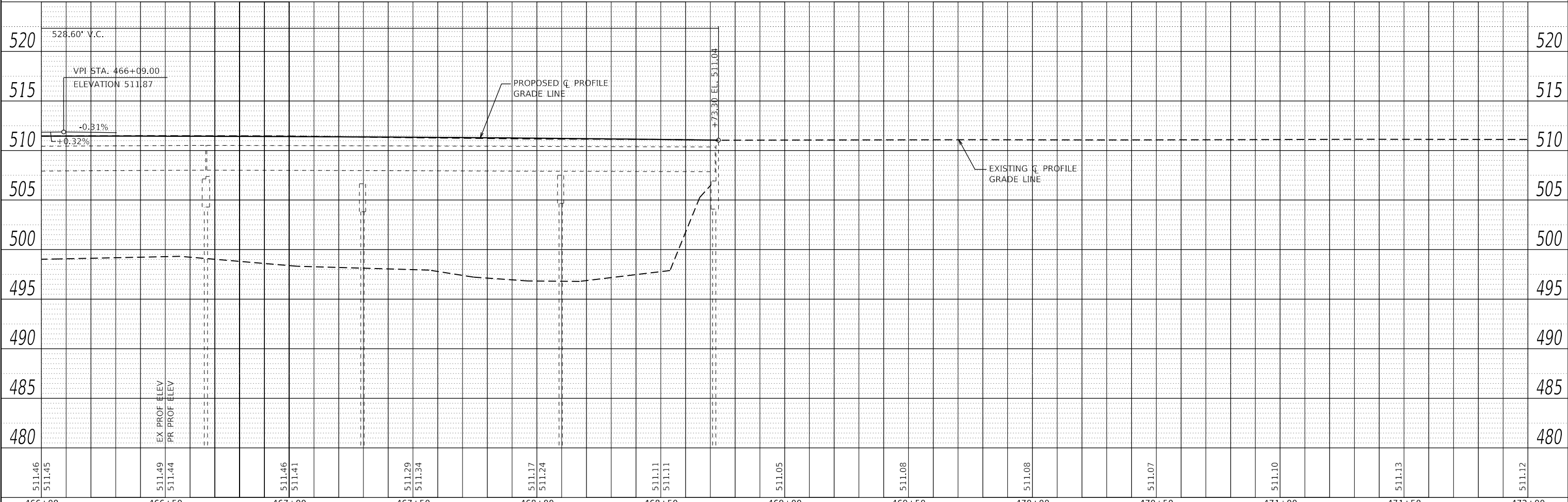
PAVEMENT REMOVAL SCHEDULE

- PAVED SHOULDER REMOVAL
- PAVEMENT REMOVAL

NOTE:
 CONTRACTOR SHALL CONSTRUCT SHOULDER WIDENING TRANSITION
 FOR TANGENT TERMINAL IN ACCORDANCE TO DIMENSIONS AND GRADES
 SHOWN ON HWY STD 630301. THIS WORK WILL BE PAID FOR AT THE
 CONTRACT UNIT BID PRICE FOR "AGGREGATE SHOULDERS, TYPE B".



PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATION	
	NO.	



466+00	466+50	467+00	467+50	468+00	468+50	469+00	469+50	470+00	470+50	471+00	471+50	472+00						
511.46	511.45	511.49	511.44	511.46	511.41	511.29	511.34	511.17	511.24	511.11	511.11	511.05	511.08	511.08	511.07	511.10	511.13	511.12

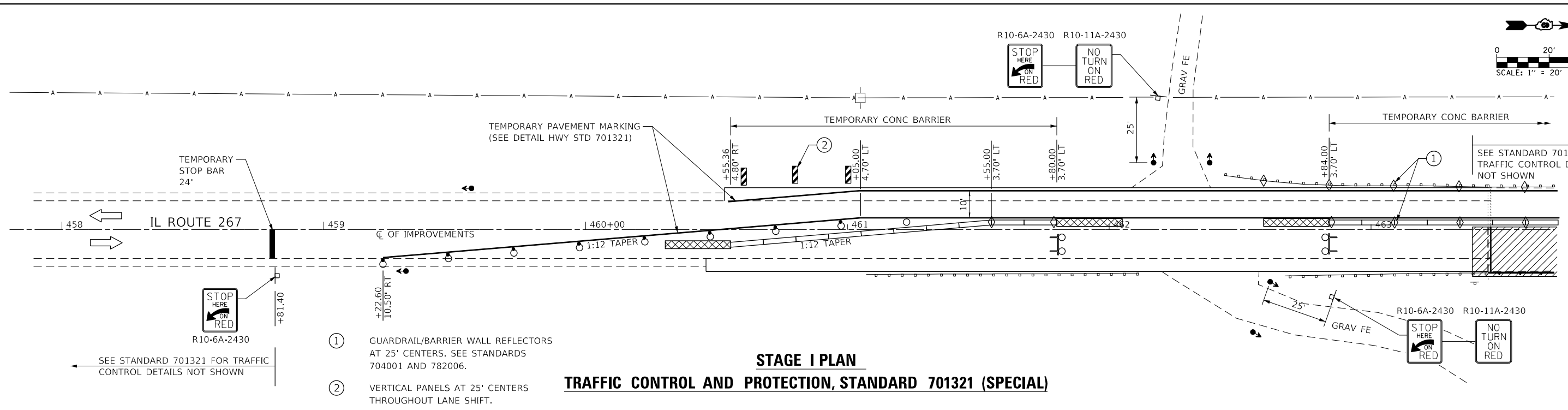
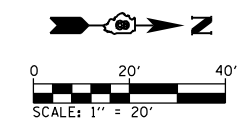
BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 61830
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-00952

DESIGNED -	W. SLEEMAN	REVISED -	4/16/19
DRAWN -	W. SLEEMAN	REVISED -	
CHECKED -	M. McEVERS	REVISED -	
DATE -	3/2019	REVISED -	

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

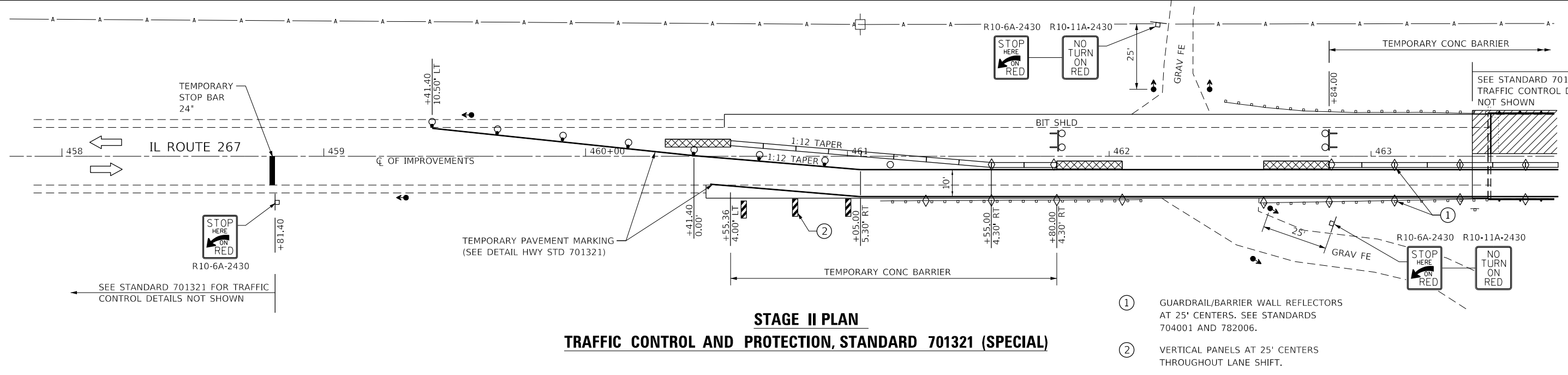
PLAN & PROFILE IL ROUTE 267			
SCALE:	SHEET 1	OF 2	SHEETS
	STA. 466+00.00	TO STA. 472+00.00	

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	14
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				



- ① GUARDRAIL/BARRIER WALL REFLECTORS AT 25' CENTERS. SEE STANDARDS 704001 AND 782006.
- ② VERTICAL PANELS AT 25' CENTERS THROUGHOUT LANE SHIFT.

STAGE I PLAN
TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)



- ① GUARDRAIL/BARRIER WALL REFLECTORS AT 25' CENTERS. SEE STANDARDS 704001 AND 782006.
- ② VERTICAL PANELS AT 25' CENTERS THROUGHOUT LANE SHIFT.

STAGE II PLAN
TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 (SPECIAL)

SYMBOL

	WORK AREA
	SIGN
	TYPE III BARRICADE WITH FLASHING LIGHTS
	TRAFFIC SIGNAL
	IMPACT ATTENUATOR
	TEMPORARY CONCRETE BARRIER
	DRUM WITH STEADY BURNING BI-DIRECTIONAL LIGHT
	DRUM
	DOUBLE VERTICAL PANEL
	CRYSTAL, BIDIRECTIONAL GUARDRAIL/BARRIER WALL REFLECTOR

PRE STAGE - SEQUENCE OF CONSTRUCTION

- CONSTRUCT HMA SHOULDERING WIDENING UTILIZING TRAFFIC CONTROL STANDARD 701326
- PLACE "MAX WIDTH" SIGNING AT LOCATIONS SHOWN IN THE PLANS.
- SET UP STAGE I TRAFFIC CONTROL UTILIZING THESE PLANS AND IN CONJUNCTION WITH STANDARD 701321.

STAGE I - SEQUENCE OF CONSTRUCTION

- PERFORM STAGE I REMOVAL AND PROPOSED CONSTRUCTION FOR APPLE CREEK STRUCTURE (S/N 031-0015).

STAGE II - SEQUENCE OF CONSTRUCTION

- FOLLOWING COMPLETION OF STAGE I CONSTRUCTION, REMOVE STAGE I TEMPORARY PAVEMENT MARKINGS.
- SET UP STAGE II TRAFFIC CONTROL UTILIZING THESE PLANS AND IN CONJUNCTION WITH STANDARD 701321.
- PERFORM STAGE II REMOVAL AND PROPOSED CONSTRUCTION FOR APPLE CREEK STRUCTURE (S/N 031-0015).

POST STAGE - SEQUENCE OF CONSTRUCTION

- FOLLOWING COMPLETION OF THE PROPOSED CONSTRUCTION WORK FOR THE APPLE CREEK STRUCTURE, REMOVE TEMPORARY CONCRETE BARRIERS, ATTENUATORS, TEMPORARY PAVEMENT MARKING, STOP BARS, ETC. PLACE SHORT TERM PAVEMENT MARKING PRIOR TO OPENING TO TWO-WAY TRAFFIC. PLACE PERMANENT PAVEMENT MARKINGS AND PAINT STEEL ON STRUCTURE UTILIZING THE APPROPRIATE HIGHWAY STANDARD.

TRAFFIC CONTROL NOTES:

- THIS TRAFFIC CONTROL PLAN SHALL BE USED IN CONJUNCTION WITH STANDARD 701321. TEMPORARY RUMBLE STRIPS, TEMPORARY SIGNING AND TEMPORARY PAVEMENT MARKING NOT SHOWN IN THIS DETAIL WILL BE REQUIRED AND SHALL BE INSTALLED AS SHOWN IN STANDARD 701321. TRAFFIC CONTROL DEVICES NOT SHOWN IN THIS DETAIL SHALL BE PER STANDARD 701321.

TRAFFIC CONTROL NOTES (CONT):

- ALL OFFSETS GIVEN IN THIS DETAIL REFER TO THE EDGE OF THE BARRIER OR PAVEMENT MARKING LINE NEAREST TO LIVE TRAFFIC. OUTSIDE PAVEMENT MARKING LINE SHALL BE OFFSET 10' PARALLEL.
- A QUANTITY OF 1700 FEET OF TEMPORARY PAVEMENT MARKING LINE, 6" HAS BEEN INCLUDED IN THE PLANS FOR PAINTING THE BOTTOM VERTICAL 6" OF THE TEMPORARY CONCRETE BARRIERS ON BOTH SIDES. COLOR OF MARKING LINE SHALL BE YELLOW.
- WHERE PERMANENT RRPMS ARE PRESENT AND CONFLICT WITH THE REVISED TRAFFIC PATTERNS, ONLY THE REFLECTORS SHALL BE REMOVED.
- TEMPORARY TRAFFIC SIGNALS AT FIELD ENTRANCES SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
- NO TURN ON RED SIGNS (R10-11A) SHALL BE INSTALLED IN ADDITION TO THE STOP HERE ON RED SIGNS (R10-6A) AT THE SIDE ROADS TO THE SATISFACTION OF THE ENGINEER.

MODEL: D:\m\11... FILE NAME: P:\03\166-29\03\10_IL_267_3BR-2_Apple_Creek_76M21\0300_Sheets\0876M21-01-01.dwg T: rbandp



USER NAME = mmcevers	DESIGNED - W. SLEEMAN	REVISED -
	DRAWN - W. SLEEMAN	REVISED -
PLOT SCALE = 40,0000' / in.	CHECKED - M. MCEVERS	REVISED -
PLOT DATE = 3/1/2019	DATE - 3/2019	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

STAGING TRAFFIC CONTROL PLAN IL ROUTE 267			
SCALE:	SHEET 1	OF 1	SHEETS
STA.		TO STA.	

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	15
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

B.M.: BM#14; Chiseled Square on Southeast abut. wingwall of SN 031-0015 on IL 267 over Apple Creek, Elev. 511.16'
 BM#15; Chiseled Square on Northwest abut. wingwall of SN 031-0015 on IL 267 over Apple Creek, Elev. 510.85'

Traffic: Traffic shall be maintained during construction by Staged Construction.

Existing Structure: SN 031-0015, 7-span Reinforced concrete slab on wide flange steel beams with expansion joints at abutments and Pier 4 (Bent 5), Reinforced concrete piers, Reinforced concrete abutments, Built as F.A.I. 64 Sec. 3-B-D-F Sta. 464+62.00 in 1938, Deck replacement and existing wide flange beams made composite 528'-7" long x 32'-6" wide as F.A.Rte. 164 Sec. 3BY-2 Sta. 464+62.00 in 1969, Deck Overlay & Joint Replacement as F.A.Rte. 10 Sec. 3BI-2 in 1987.

Salvage: None.

STATION 466+09.00
 RE-BUILT 20__ BY
 STATE OF ILLINOIS
 F.A.P. RT. 10 SEC. 3BR-2
 LOADING HS20
 STRUCTURE NO. 031-0015

NAME PLATE
 See Std. 515001

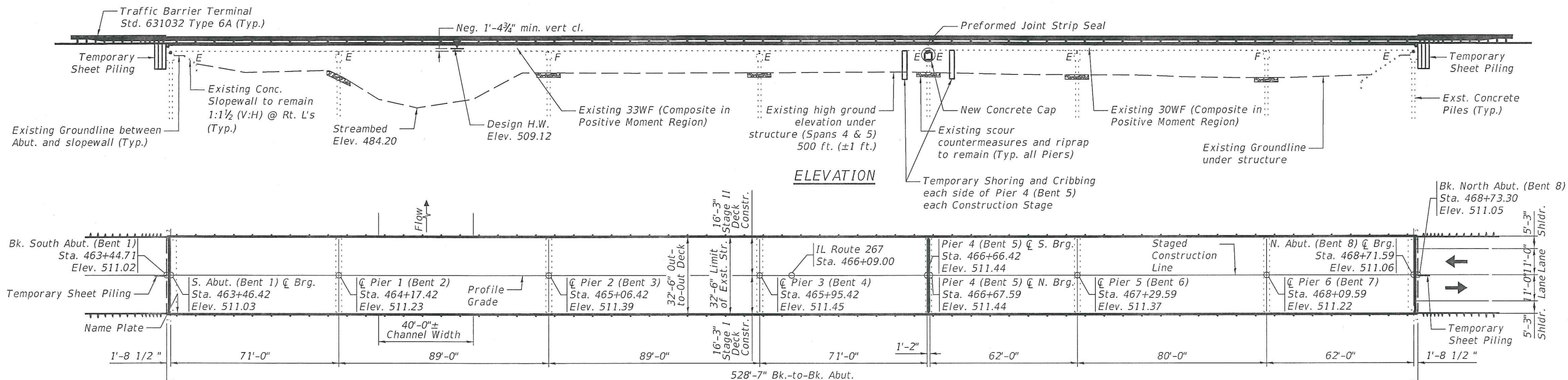
Existing Name Plate shall be cleaned and relocated next to new Name Plate. Cost included with Name Plates.

SCOPE OF WORK

- 1) Pre-Stage deck repair, interior diaphragm replacement, and end beam repairs at abutments and Pier 4 (Bent 5) for Stage I Traffic.
- 2) Remove and replace concrete deck and steel railing.
- 3) Remove and replace deteriorated diaphragms & all end diaphragms.
- 4) Remove and replace abutment and Pier 4 (Bent 5) bearings.
- 5) Repair beam ends where required with steel plate retrofitting and add galvanized angle bearing stiffeners.
- 6) Reset Pier bearings that are rotated.
- 7) Remove and replace pier cap at Pier 4 (Bent 5). Provide temporary support system to facilitate pier cap replacement.
- 8) Repair deteriorated parts of concrete substructures.
- 9) Clean Abut. & Pier seats.

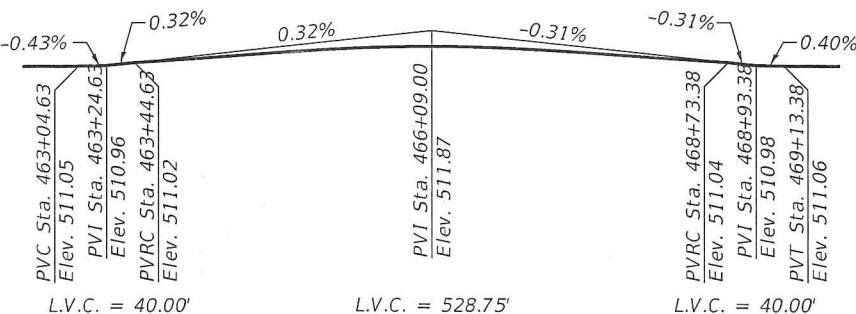
SHEET INDEX

General Plan & Elevation	1
General Data	2
Pre-Stage Repairs	3
Staging	4
Temporary Concrete Barrier	5
Top of Slab Elevations	6-9
Superstructure	10-11
Superstructure Details	12
Steel Railing, Type SM	13
Preformed Joint Strip Seal	14
Abutment Backwall Replacement	15
Pier Concrete Repair	16
Pier Cap Replacement	17
Structural Steel	18-20
Bearing Removal	21
Bearing Details	22-23
Bar Splicer Assembly	24



ELEVATION

PLAN



PROFILE GRADE
 IL ROUTE 267

DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications

LOADING HS-20-44

Future wearing surface not allowed.

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (S_D) = .162
 Design Spectral Acceleration at 0.2 sec. (S_D) = .304
 Soil Site Class = D

DESIGN STRESSES

FIELD UNITS

f'_c = 5,000 psi (Superstructure)
 f'_c = 3,500 psi (Substructure)
 f_y = 60,000 psi (Reinforcement)
 f_y = 36,000 psi (M270 Grade 36)

FIELD UNITS (Exist. Const.)

f'_c superstructure = 2,400 psi
 f'_c substructure = 2,400 psi
 f_y substructure = 40,000 psi (Reinforcement)
 f_y = 33,000 psi (A7), Beam Strength limited to yield strength subject to bracing req.

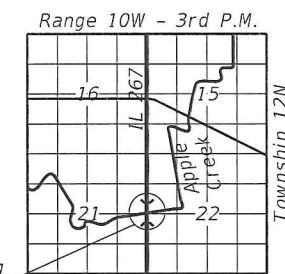
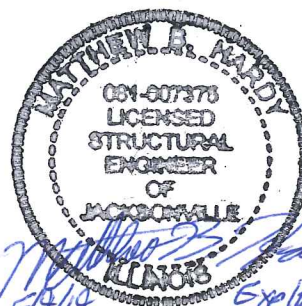
DESIGN SCOUR ELEVATION TABLE

Event / Limit State	Design Scour Elevations (ft.)								Item 113
	S. Abut. (Bent 1)	Pier 1 (Bent 2)	Pier 2 (Bent 3)	Pier 3 (Bent 4)	Pier 4 (Bent 5)	Pier 5 (Bent 6)	Pier 6 (Bent 7)	N. Abut. (Bent 8)	
Q100	504.14	496.34	499.69	499.49	499.27	499.19	494.92	504.41	8
Q200	504.14	496.20	499.55	499.35	499.13	499.05	494.78	504.41	
Design	504.14	496.34	499.69	499.49	499.27	499.19	494.92	504.41	

WATERWAY INFORMATION

Drainage Area = 146.85 sq.mi. Low Grade Elev. 511.37 @ Sta. 462+00

Flood	Freq. Yr.	Q C.F.S.	Opening Ft ²		Nat. H.W.E.	Head - Ft.		Headwater El. Exist. Prop.	
			Exist.	Prop.		Exist.	Prop.		
Design	50	15,981	2,989	2,989	506.10	3.02	3.02	509.12	509.12
Base	100	18,269	3,116	3,116	506.35	3.26	3.26	509.61	509.61
Overtopping									
Max. Calc.	500	23,720			506.87	3.77	3.77	510.64	510.64



LOCATION SKETCH

GENERAL PLAN & ELEVATION
 IL ROUTE 267 OVER APPLE CREEK
 F.A.P. RTE. 10 - SECTION 3BR-2
 GREENE COUNTY
 IL ROUTE 267 STA. 466+09.00
 STRUCTURE NO. 031-0015

BA
 BENTON & ASSOCIATES, INC.
 Consulting Engineers / Land Surveyors
 1970 West Lafayette Ave. Jacksonville, IL 62650
 Phone: 217-245-4146 Fax: 217-245-4149
 IL Design Firm Registration No. 184-000852

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
 STRUCTURE NO. 031-0015

SHEET 1 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	18
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

GENERAL NOTES

1. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8" ϕ , holes 15/16" ϕ , unless otherwise noted.
2. No field welding is permitted except as specified in the contract documents.
3. The Contractor shall test the existing welds by non-destructive methods within 2 ft. of the end of the existing cover plates for cracks after removal of the existing concrete deck. After deck removal, the Contractor shall test all existing top coverplate welds for cracks using non-destructive methods. Dye penetrant (PT), magnetic particle (MT), or other approved testing method shall be performed by qualified personnel approved by the Engineer. If cracks are found, report them to the Bureau of Bridges and Structures for disposition. The cost of testing is included in the Removal of Existing Concrete Deck. The cost of crack repair, if necessary, will be paid for according to Article 109.04 of the Standard Specifications.
4. Reinforcement bars designated (E) shall be epoxy coated.
5. Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete. As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.
6. Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
7. Concrete Sealer shall be applied to the designated areas of the Abutments.
8. The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.
9. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
10. Structural Steel shall be galvanized, where noted in the plans, in accordance with Hot-Dip Galvanizing for Structural Steel Special Provision. Cost included with Furnishing and Erecting Structural Steel.
11. Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provisions "Cleaning & Painting Contact Surface Areas of Existing Steel Structures".
12. "The Organic Zinc Rich Primer/Epoxy/Urethane" paint system shall be used for painting of new non-galvanized structural steel except where otherwise noted. The entire system shall be shop applied, masked off connection surfaces, and field installed fasteners, all of which shall be touched up and finish coated in the field. Cost included with Furnishing and Erecting Structural Steel.
13. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.

**SN 031-0015
TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Concrete Removal	Cu. Yd.		15.0	15.0
Removal of Existing Concrete Deck	Each	1		1
Structure Excavation	Cu. Yd.		7.0	7.0
Concrete Structures	Cu. Yd.		12.3	12.3
Concrete Superstructure	Cu. Yd.	488		488
Bridge Deck Grooving	Sq. Yd.	1783		1783
Protective Coat	Sq. Yd.	1909		1909
Furnishing and Erecting Structural Steel	Pound	11,230		11,230
Reinforcement Bars, Epoxy Coated	Pound	124,610	2770	127,380
Bar Splicers	Each	1495	26	1521
Steel Railing, Type SM	Foot	1055		1055
Name Plates	Each	1		1
Prefomed Joint Strip Seal	Foot	98		98
Elastomeric Bearing Assembly, Type I	Each	18		18
Elastomeric Bearing Assembly, Type II	Each	6		6
Anchor Bolts, 5/8"	Each		48	48
Temporary Sheet Piling	Sq. Ft.		103	103
Concrete Sealer	Sq. Ft.		72	72
Granular Backfill for Structures	Cu. Yd.		7.0	7.0
Jack and Remove Existing Bearings	Each	12		12
Structural Steel Removal	Pound	7640		7640
Structural Steel Repair	Pound	2040		2040
Removal of Existing Bearings	Each	12		12
Bridge Curb or Hubguard Repair	Foot	56		56
Structural Repair of Concrete (Depth <=5")	Sq. Ft.		12	12
Deck Slab Repair (Full Depth, Type I)	Sq. Yd.	5		5
Temporary Shoring and Cribbing	Each	12	1	13

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-002-Data.dgn

BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62650
PHONE: 217-245-4146 FAX: 217-245-4149
IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME =	DESIGNED - MBH	REVISED - 3/6/19
	CHECKED - RHB	REVISED - 4/11/19
PLOT SCALE =	DRAWN - MBH	REVISED - 5/9/19
PLOT DATE =	CHECKED - RHB	REVISED -

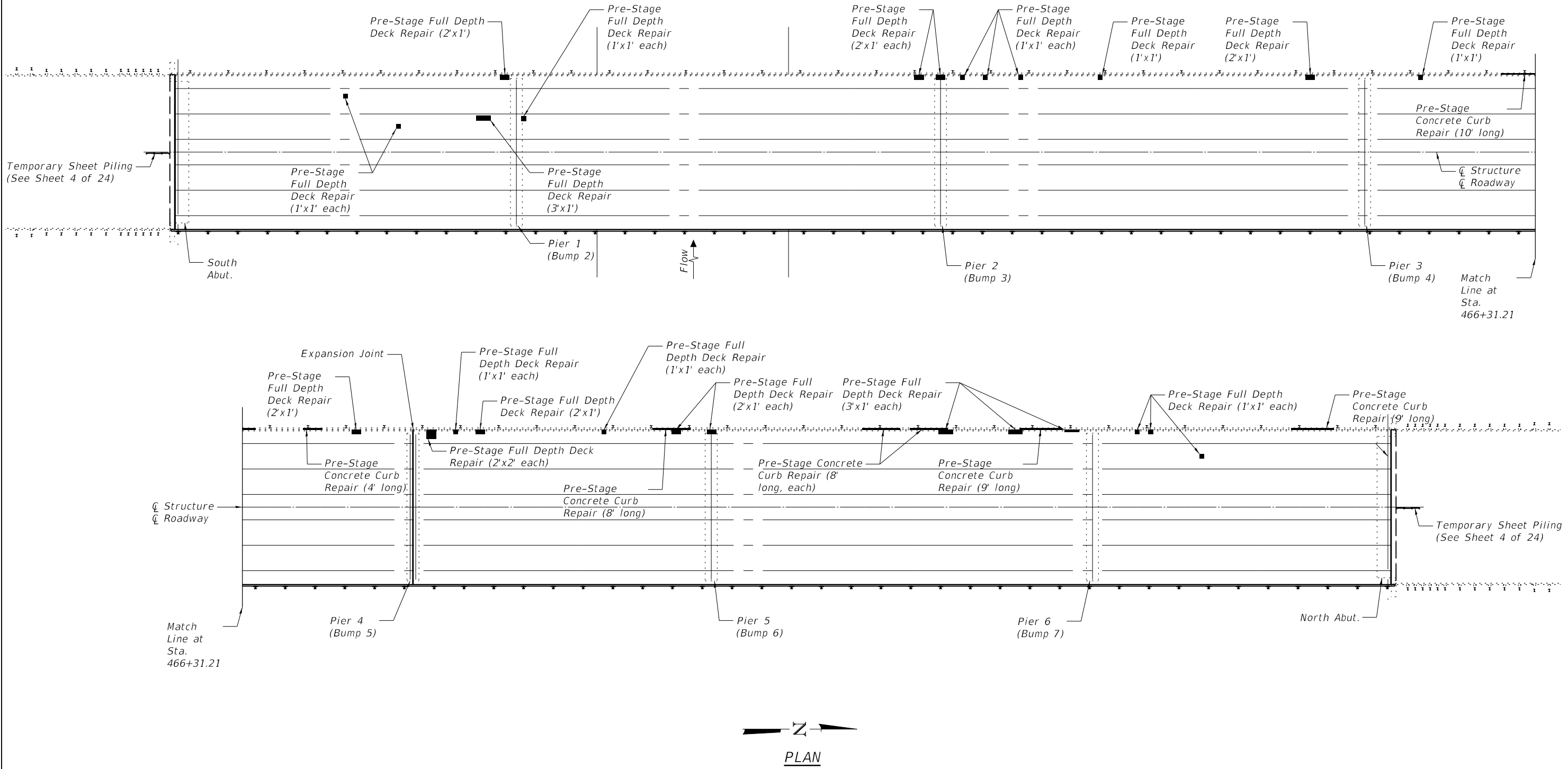
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA
STRUCTURE NO. 031-0015**

SHEET 2 OF 24 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	19
CONTRACT NO. 76M21				
		ILLINOIS	FED. AID PROJECT	

MODEL: Layout1
 FILE NAME: P:\110E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-003-Prestage.dgn



BILL OF MATERIAL

Item	Unit	Total
Deck Slab Repair (Full Depth, Type 1)	Sq. Yd.	5
Bridge Curb or Hubguard Repair	Ft.	56

BA BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

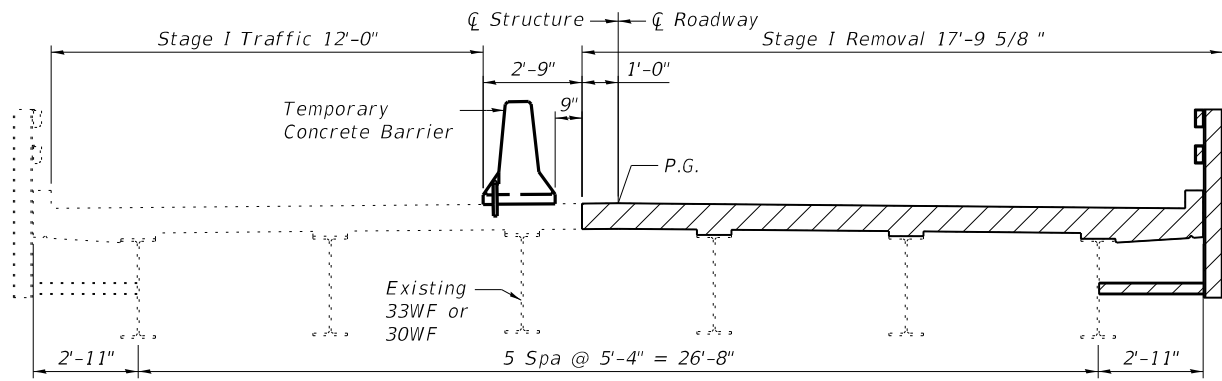
USER NAME =	DESIGNED - MBH	REVISED -
	CHECKED - RHB	REVISED -
PLOT SCALE =	DRAWN - MBH	REVISED -
PLOT DATE =	CHECKED - RHB	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

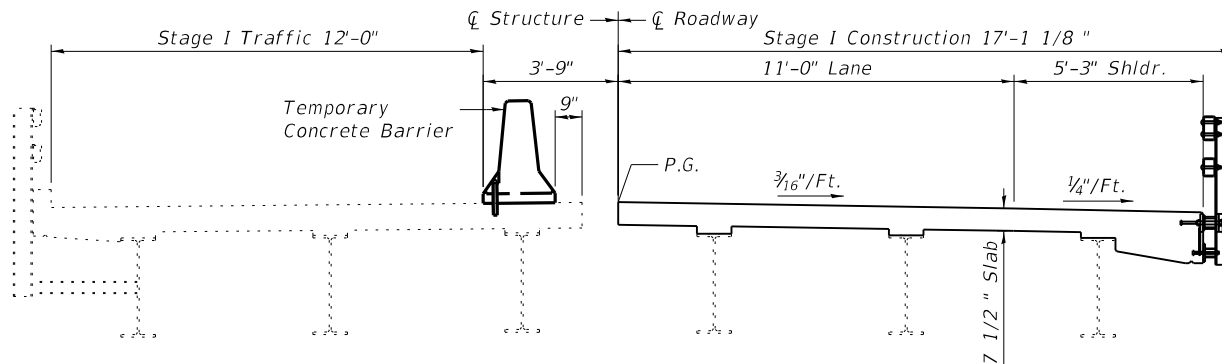
**PRE-STAGE PLAN DECK & SUPERSTRUCTURE REPAIRS
 STRUCTURE NO. 031-0015**

SHEET 3 OF 24 SHEETS

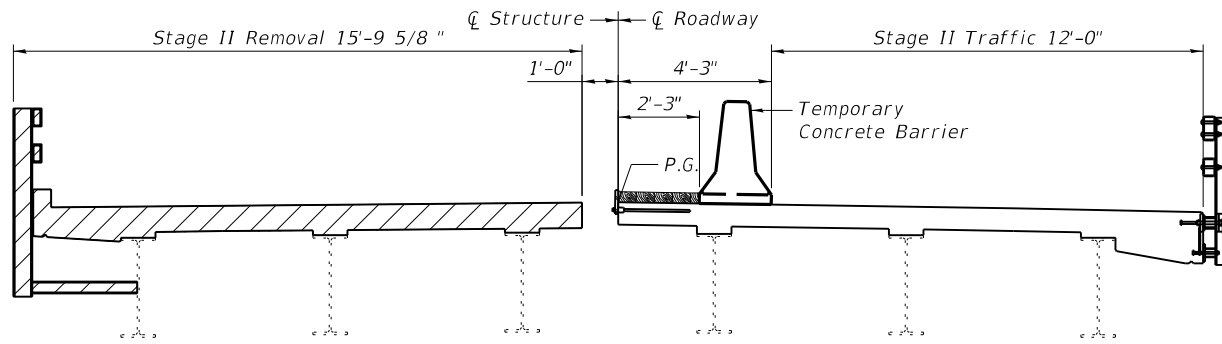
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	20
CONTRACT NO. 76M21				
		ILLINOIS	FED. AID PROJECT	



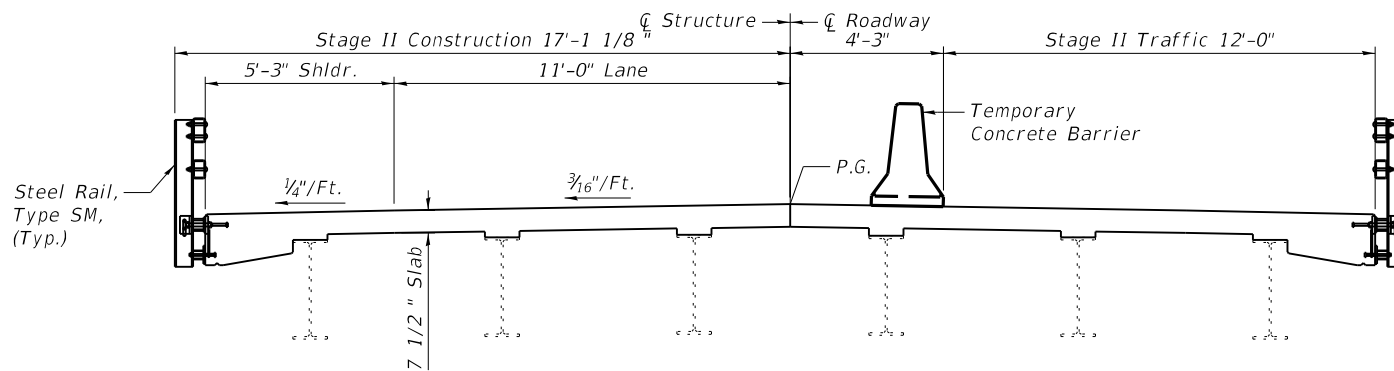
STAGE I REMOVAL
(Looking North)



STAGE I CONSTRUCTION
(Looking North)

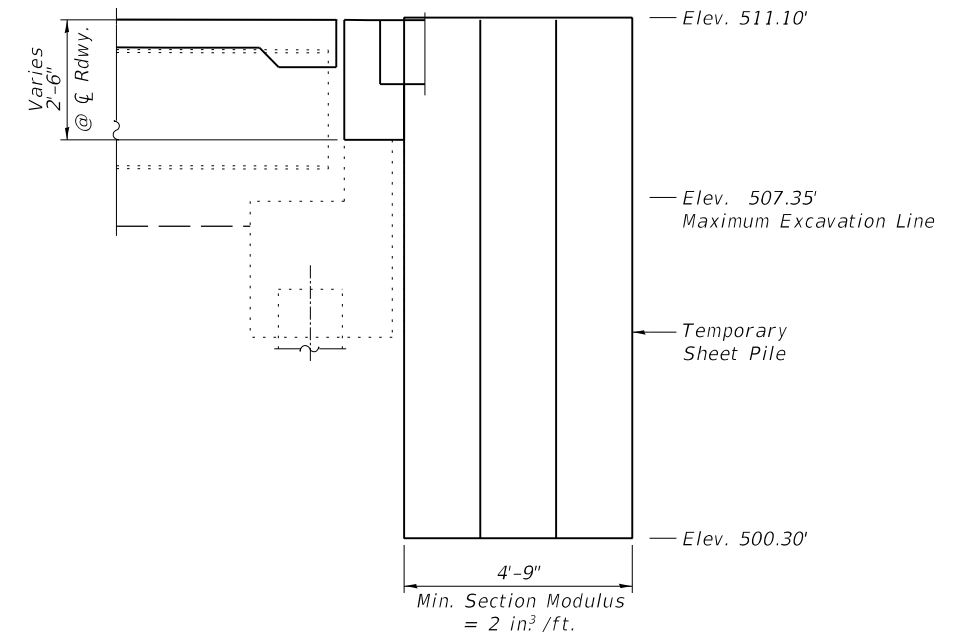


STAGE II REMOVAL
(Looking North)



STAGE II CONSTRUCTION
(Looking North)

- Notes:
1. See Standard 704001 for details of Temporary Concrete Barrier.
 2. See Roadway Plans for quantity of Temporary Concrete Barrier.



SHEET PILING ELEVATION
(North Abut. shown: South Abut. similar)

- Notes:
1. Minimum section modulus of temporary sheet piling shall be as shown in the Elevation View of this sheet.
 2. If the contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.

BILL OF MATERIAL

Item	Unit	Quantity
Temporary Sheet Piling	Sq. Ft.	103

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267_3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-004-Staging.dgn

BA BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62650
PHONE: 217-245-4146 FAX: 217-245-4149
IL DESIGN FIRM REGISTRATION NO. 184-000852

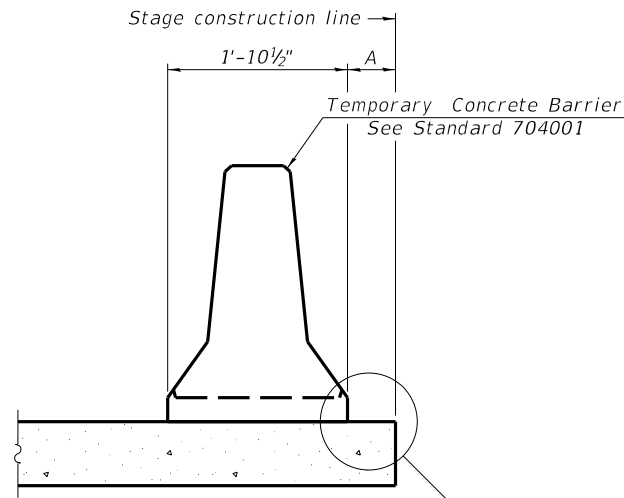
USER NAME =	DESIGNED - MBH	REVISED -
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGING
STRUCTURE NO. 031-0015

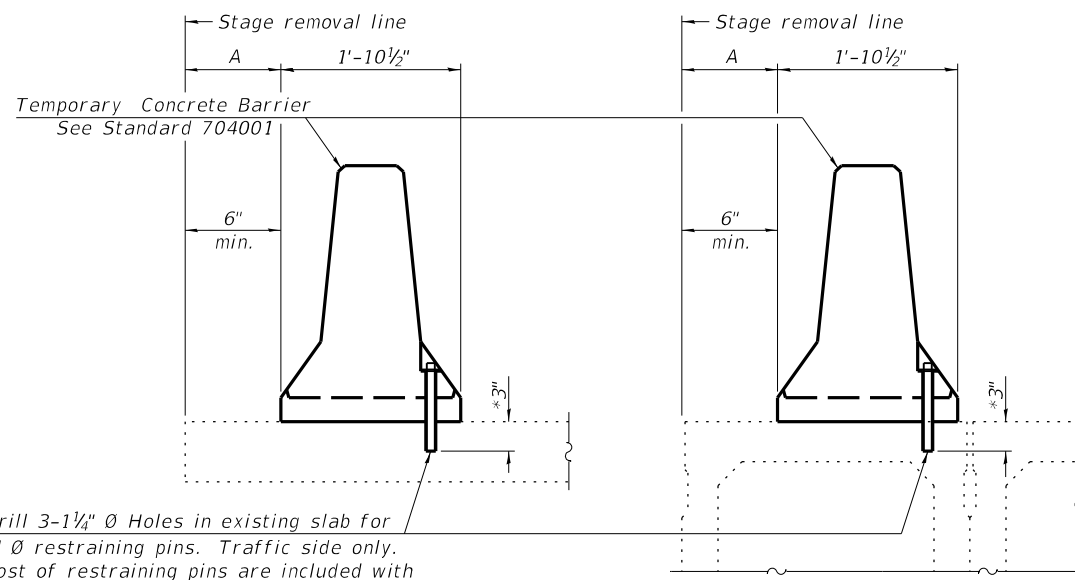
SHEET 4 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	21
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				



When "A" is 3'-1" or less, the temporary concrete barrier shall be restrained to the new slab according to Detail I, II or III. No restraint is required when "A" is greater than 3'-1".

NEW SLAB OR NEW DECK BEAM

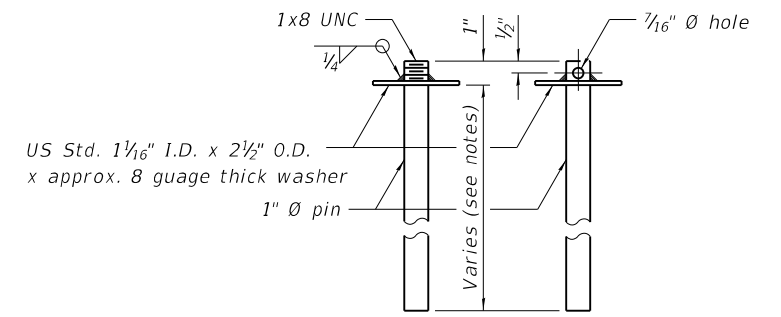


Drill 3-1 1/4" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins are included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

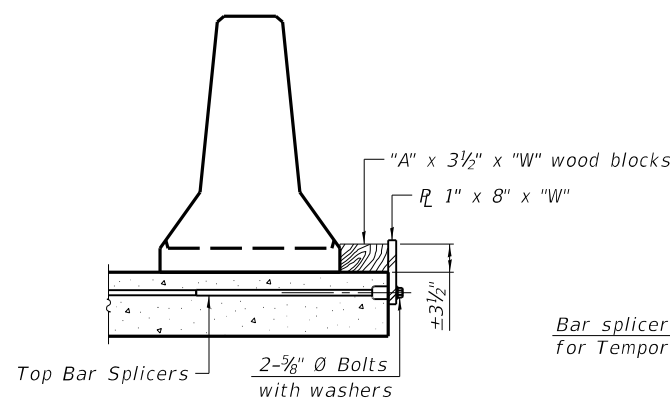
EXISTING DECK BEAM

SECTIONS THRU SLAB OR DECK BEAM

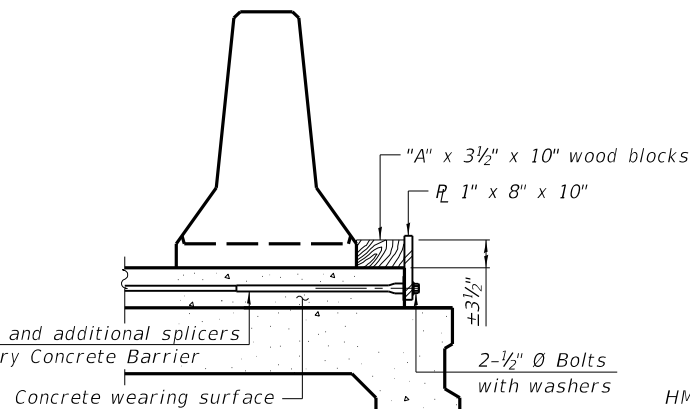


RESTRAINING PIN

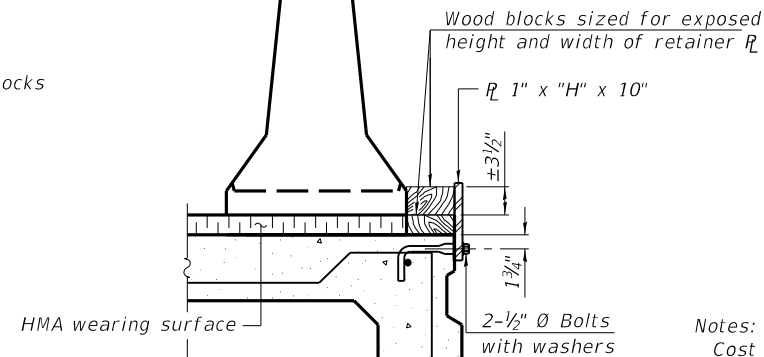
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.



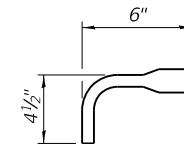
DETAIL I



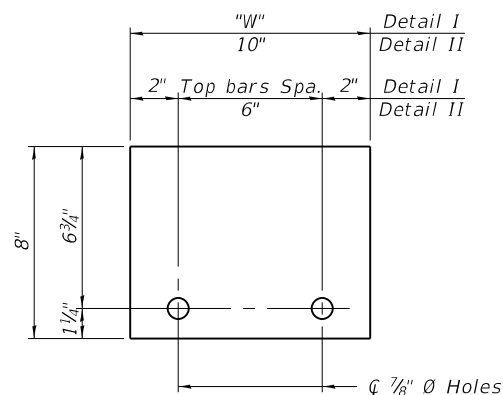
DETAIL II



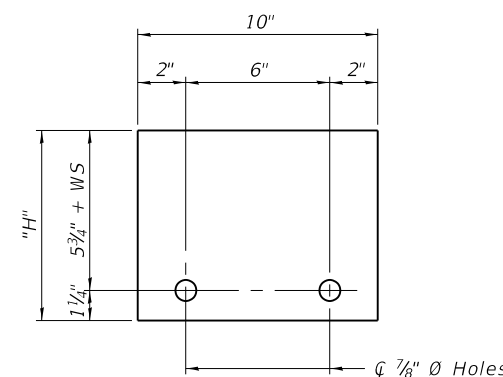
DETAIL III



BAR SPLICER FOR #4 BAR - DETAIL III



STEEL RETAINER R 1" x 8" x "W"
(Detail I and II)



STEEL RETAINER R 1" x "H" x 10"
(Detail III)

Notes:
 Cost of retainer assembly is included with Temporary Concrete Barrier.
 A retainer assembly shall be located at the approximate \bar{c} of each temporary concrete barrier.
 The retainer plate shall not be removed until the concrete on the adjacent stage is ready to be poured. For Detail III applications the retainer plate shall not be removed until just prior to placing the adjacent beam.
 When the 'A' dimension is less than 1 1/2', the wood block shall be omitted and the barrier shall be placed in direct contact with the steel retainer plate. For deck beam applications the minimum required 'A' distance is 6" to accommodate the shear key clamping device.

- Detail I - Installation for a new bridge deck or bridge slab.
- Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.
- Detail III - Installation for a new deck beam with no initial wearing surface or with an initial hot-mix asphalt (HMA) wearing surface present. The deck beam directly beneath the temporary concrete barrier shall be fabricated with bar splicer inserts in the side of the beam, as detailed, to accommodate the installation of the retainer assemblies. A pair of bar splicers, 6" apart, shall be placed at 6'-0" centers along the length of the beam. The cost of the bar splicers is included with the deck beam.

MODEL: Layout1
 FILE NAME: P:\110E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-005-Barrier.dgn
 BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

R-27 8-11-2017

USER NAME =	DESIGNED - MBH	REVISED -
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

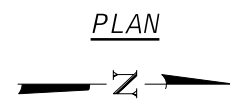
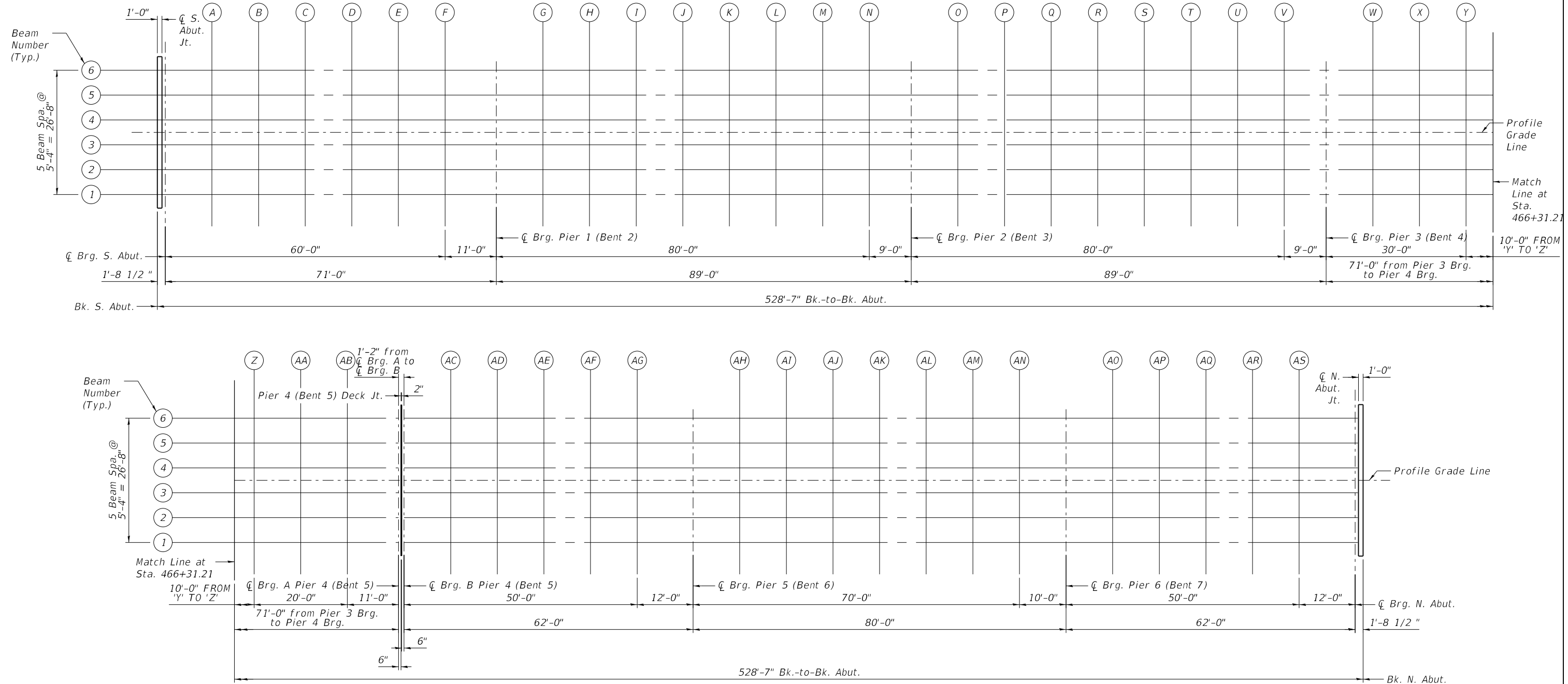
TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
 STRUCTURE NO. 031-0015

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	22
CONTRACT NO. 76M21				

SHEET 5 OF 24 SHEETS

ILLINOIS FED. AID PROJECT

MODEL: Layout1
 FILE NAME: P:\110E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-006-Elev1.dgn



BA
 BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

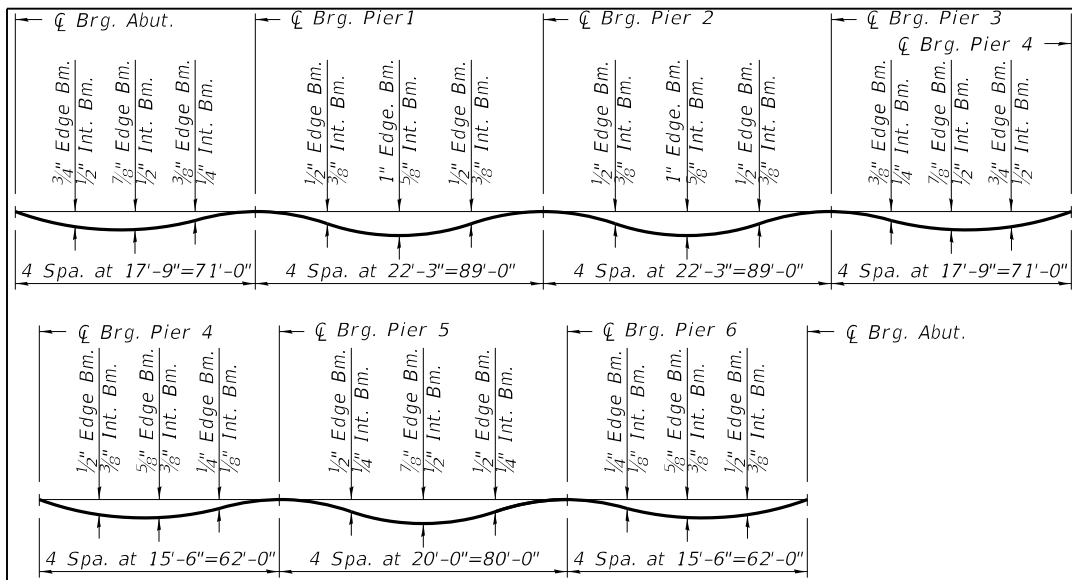
USER NAME =	DESIGNED - MBH	REVISED -
	CHECKED - RHB	REVISED -
PLOT SCALE =	DRAWN - MBH	REVISED -
PLOT DATE =	CHECKED - RHB	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS
 STRUCTURE NO. 031-0015**

SHEET 6 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	23
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

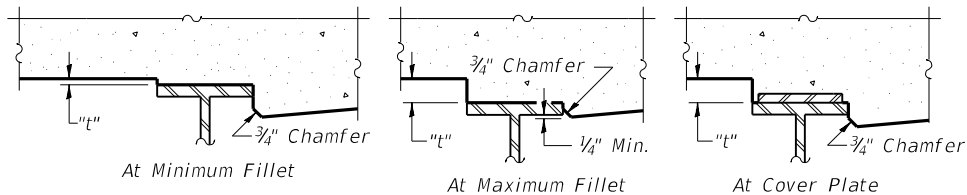


DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

Note:

The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on this page and next two pages.



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

FILLET HEIGHTS

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	463+44.71	13.33'	510.79	510.79
☐ S. Abut. Jt.	463+45.71	13.33'	510.80	510.80
☐ Brg. S. Abut.	463+46.42	13.33'	510.80	510.80
A	463+56.42	13.33'	510.83	510.87
B	463+66.42	13.33'	510.86	510.92
C	463+76.42	13.33'	510.89	510.96
D	463+86.42	13.33'	510.92	510.98
E	463+96.42	13.33'	510.94	510.98
F	464+06.42	13.33'	510.97	510.98
☐ Brg. PIER 1 (Bent 2)	464+17.42	13.33'	510.99	510.99
G	464+27.42	13.33'	511.02	511.03
H	464+37.42	13.33'	511.04	511.07
I	464+47.42	13.33'	511.06	511.12
J	464+57.42	13.33'	511.08	511.15
K	464+67.42	13.33'	511.10	511.17
L	464+77.42	13.33'	511.11	511.17
M	464+87.42	13.33'	511.13	511.16
N	464+97.42	13.33'	511.14	511.15
☐ Brg. PIER 2 (Bent 3)	465+06.42	13.33'	511.15	511.15
O	465+16.42	13.33'	511.17	511.18
P	465+26.42	13.33'	511.18	511.21
Q	465+36.42	13.33'	511.19	511.25
R	465+46.42	13.33'	511.20	511.27
S	465+56.42	13.33'	511.20	511.28
T	465+66.42	13.33'	511.21	511.27
U	465+76.42	13.33'	511.21	511.25
V	465+86.42	13.33'	511.22	511.23
☐ Brg. PIER 3 (Bent 4)	465+95.42	13.33'	511.22	511.22
W	466+05.42	13.33'	511.22	511.23
X	466+15.42	13.33'	511.22	511.26
Y	466+25.42	13.33'	511.22	511.28
Z	466+35.42	13.33'	511.22	511.29
AA	466+45.42	13.33'	511.22	511.28
AB	466+55.42	13.33'	511.21	511.25
☐ Brg. A PIER 4 (Bent 5)	466+66.42	13.33'	511.21	511.21
☐ PIER 4 (Bent 5) Jt.	466+67.00	13.33'	511.21	511.21
☐ Brg. B PIER 4 (Bent 5)	466+67.59	13.33'	511.20	511.20
AC	466+77.59	13.33'	511.20	511.23
AD	466+87.59	13.33'	511.19	511.24
AE	466+97.59	13.33'	511.18	511.23
AF	467+07.59	13.33'	511.17	511.20
AG	467+17.59	13.33'	511.16	511.17
☐ Brg. PIER 5 (Bent 6)	467+29.59	13.33'	511.14	511.14
AH	467+39.59	13.33'	511.13	511.14
AI	467+49.59	13.33'	511.11	511.15
AJ	467+59.59	13.33'	511.09	511.16
AK	467+69.59	13.33'	511.08	511.15
AL	467+79.59	13.33'	511.06	511.12
AM	467+89.59	13.33'	511.04	511.08
AN	467+99.59	13.33'	511.02	511.03
☐ Brg. PIER 6 (Bent 7)	468+09.59	13.33'	510.99	510.99
AO	468+19.59	13.33'	510.97	510.98
AP	468+29.59	13.33'	510.94	510.97
AQ	468+39.59	13.33'	510.92	510.96
AR	468+49.59	13.33'	510.89	510.94
AS	468+59.59	13.33'	510.86	510.90
☐ Brg. N. Abut.	468+71.59	13.33'	510.82	510.82
☐ N. Abut. Jt.	468+72.30	13.33'	510.82	510.82
Bk. N. Abut.	468+73.30	13.33'	510.82	510.82

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	463+44.71	8.00'	510.89	510.89
☐ S. Abut. Jt.	463+45.71	8.00'	510.90	510.90
☐ Brg. S. Abut.	463+46.42	8.00'	510.90	510.90
A	463+56.42	8.00'	510.93	510.95
B	463+66.42	8.00'	510.96	511.00
C	463+76.42	8.00'	510.99	511.03
D	463+86.42	8.00'	511.02	511.05
E	463+96.42	8.00'	511.04	511.06
F	464+06.42	8.00'	511.07	511.07
☐ Brg. PIER 1 (Bent 2)	464+17.42	8.00'	511.09	511.09
G	464+27.42	8.00'	511.12	511.12
H	464+37.42	8.00'	511.14	511.16
I	464+47.42	8.00'	511.16	511.20
J	464+57.42	8.00'	511.18	511.23
K	464+67.42	8.00'	511.19	511.24
L	464+77.42	8.00'	511.21	511.25
M	464+87.42	8.00'	511.23	511.25
N	464+97.42	8.00'	511.24	511.25
☐ Brg. PIER 2 (Bent 3)	465+06.42	8.00'	511.25	511.25
O	465+16.42	8.00'	511.27	511.27
P	465+26.42	8.00'	211.28	511.30
Q	465+36.42	8.00'	511.29	511.32
R	465+46.42	8.00'	211.29	511.34
S	465+56.42	8.00'	511.30	511.35
T	465+66.42	8.00'	511.31	511.35
U	465+76.42	8.00'	511.31	511.33
V	465+86.42	8.00'	511.32	511.32
☐ Brg. PIER 3 (Bent 4)	465+95.42	8.00'	511.32	511.32
W	466+05.42	8.00'	511.32	511.33
X	466+15.42	8.00'	511.32	511.34
Y	466+25.42	8.00'	511.32	511.36
Z	466+35.42	8.00'	511.32	511.36
AA	466+45.42	8.00'	511.32	511.36
AB	466+55.42	8.00'	511.31	511.34
☐ Brg. A PIER 4 (Bent 5)	466+66.42	8.00'	511.30	511.30
☐ PIER 4 (Bent 5) Jt.	466+67.00	8.00'	511.30	511.30
☐ Brg. B PIER 4 (Bent 5)	466+67.59	8.00'	511.30	511.30
AC	466+77.59	8.00'	511.30	511.32
AD	466+87.59	8.00'	511.29	511.32
AE	466+97.59	8.00'	511.28	511.31
AF	467+07.59	8.00'	511.27	511.29
AG	467+17.59	8.00'	511.26	511.26
☐ Brg. PIER 5 (Bent 6)	467+29.59	8.00'	511.24	511.24
AH	467+39.59	8.00'	511.23	511.23
AI	467+49.59	8.00'	511.21	511.24
AJ	467+59.59	8.00'	511.19	511.23
AK	467+69.59	8.00'	511.18	511.22
AL	467+79.59	8.00'	511.16	511.20
AM	467+89.59	8.00'	511.14	511.16
AN	467+99.59	8.00'	511.11	511.12
☐ Brg. PIER 6 (Bent 7)	468+09.59	8.00'	511.09	511.09
AO	468+19.59	8.00'	511.07	511.07
AP	468+29.59	8.00'	511.04	511.06
AQ	468+39.59	8.00'	511.02	511.05
AR	468+49.59	8.00'	510.99	511.02
AS	468+59.59	8.00'	510.96	510.98
☐ Brg. N. Abut.	468+71.59	8.00'	510.92	510.92
☐ N. Abut. Jt.	468+72.30	8.00'	510.92	510.92
Bk. N. Abut.	468+73.30	8.00'	510.92	510.92

E-S 2-17-2017

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2_Apple Creek 76M21\CADD_Sheets\Structure Sheets\0310015-76M21-007-Elev2.dgn

BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62601
PHONE: 217-245-4146 FAX: 217-245-4149
IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME =	DESIGNED - MBH	REVISED -
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS
STRUCTURE NO. 031-0015**

SHEET 7 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	24
CONTRACT NO. 76M21				
ILLINOIS		FED. AID PROJECT		

BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	463+44.71	2.66'	510.98	510.98
☉ S. Abut. Jt.	463+45.71	2.66'	510.98	510.98
☉ Brg. S. Abut.	463+46.42	2.66'	510.98	510.98
A	463+56.42	2.66'	511.01	511.04
B	463+66.42	2.66'	511.04	511.08
C	463+76.42	2.66'	511.07	511.12
D	463+86.42	2.66'	511.10	511.14
E	463+96.42	2.66'	511.13	511.15
F	464+06.42	2.66'	511.15	511.16
☉ Brg. PIER 1 (Bent 2)	464+17.42	2.66'	511.18	511.18
G	464+27.42	2.66'	511.20	511.21
H	464+37.42	2.66'	511.22	511.24
I	464+47.42	2.66'	511.24	511.28
J	464+57.42	2.66'	511.26	511.31
K	464+67.42	2.66'	511.28	511.33
L	464+77.42	2.66'	511.30	511.33
M	464+87.42	2.66'	511.31	511.33
N	464+97.42	2.66'	511.33	511.33
☉ Brg. PIER 2 (Bent 3)	465+06.42	2.66'	511.34	511.34
O	465+16.42	2.66'	511.35	511.36
P	465+26.42	2.66'	511.36	511.38
Q	465+36.42	2.66'	511.37	511.41
R	465+46.42	2.66'	511.38	511.43
S	465+56.42	2.66'	511.39	511.44
T	465+66.42	2.66'	511.39	511.43
U	465+76.42	2.66'	511.40	511.42
V	465+86.42	2.66'	511.40	511.41
☉ Brg. PIER 3 (Bent 4)	465+95.42	2.66'	511.40	511.40
W	466+05.42	2.66'	511.41	511.41
X	466+15.42	2.66'	511.41	511.43
Y	466+25.42	2.66'	511.41	511.44
Z	466+35.42	2.66'	511.40	511.45
AA	466+45.42	2.66'	511.40	511.44
AB	466+55.42	2.66'	511.40	511.42
☉ Brg. A PIER 4 (Bent 5)	466+66.42	2.66'	511.39	511.39
☉ PIER 4 (Bent 5) Jt.	466+67.00	2.66'	511.39	511.39
☉ Brg. B PIER 4 (Bent 5)	466+67.59	2.66'	511.39	511.39
AC	466+77.59	2.66'	511.38	511.40
AD	466+87.59	2.66'	511.37	511.40
AE	466+97.59	2.66'	511.36	511.39
AF	467+07.59	2.66'	511.35	511.37
AG	467+17.59	2.66'	511.34	511.35
☉ Brg. PIER 5 (Bent 6)	467+29.59	2.66'	511.33	511.33
AH	467+39.59	2.66'	511.31	511.32
AI	467+49.59	2.66'	511.30	511.32
AJ	467+59.59	2.66'	511.28	511.32
AK	467+69.59	2.66'	511.26	511.31
AL	467+79.59	2.66'	511.24	511.28
AM	467+89.59	2.66'	511.22	511.25
AN	467+99.59	2.66'	511.20	511.21
☉ Brg. PIER 6 (Bent 7)	468+09.59	2.66'	511.18	511.18
AO	468+19.59	2.66'	511.15	511.16
AP	468+29.59	2.66'	511.13	511.15
AQ	468+39.59	2.66'	511.10	511.13
AR	468+49.59	2.66'	511.07	511.11
AS	468+59.59	2.66'	511.05	511.07
☉ Brg. N. Abut.	468+71.59	2.66'	511.01	511.01
☉ N. Abut. Jt.	468+72.30	2.66'	511.01	511.01
Bk. N. Abut.	468+73.30	2.66'	511.00	511.00

PROFILE GRADE LINE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	463+44.71	0.00'	511.02	511.02
☉ S. Abut. Jt.	463+45.71	0.00'	511.02	511.02
☉ Brg. S. Abut.	463+46.42	0.00'	511.03	511.03
A	463+56.42	0.00'	511.06	511.08
B	463+66.42	0.00'	511.09	511.13
C	463+76.42	0.00'	511.12	511.16
D	463+86.42	0.00'	511.14	511.18
E	463+96.42	0.00'	511.17	511.19
F	464+06.42	0.00'	511.19	511.20
☉ Brg. PIER 1 (Bent 2)	464+17.42	0.00'	511.22	511.22
G	464+27.42	0.00'	511.24	511.25
H	464+37.42	0.00'	511.27	511.29
I	464+47.42	0.00'	511.29	511.32
J	464+57.42	0.00'	511.31	511.35
K	464+67.42	0.00'	511.32	511.37
L	464+77.42	0.00'	511.34	511.38
M	464+87.42	0.00'	511.36	511.38
N	464+97.42	0.00'	511.37	511.38
☉ Brg. PIER 2 (Bent 3)	465+06.42	0.00'	511.38	511.38
O	465+16.42	0.00'	511.39	511.40
P	465+26.42	0.00'	511.40	511.43
Q	465+36.42	0.00'	511.41	511.45
R	465+46.42	0.00'	511.42	511.47
S	465+56.42	0.00'	511.43	511.48
T	465+66.42	0.00'	511.44	511.47
U	465+76.42	0.00'	511.44	511.46
V	465+86.42	0.00'	511.45	511.45
☉ Brg. PIER 3 (Bent 4)	465+95.42	0.00'	511.45	511.45
W	466+05.42	0.00'	511.45	511.46
X	466+15.42	0.00'	511.45	511.47
Y	466+25.42	0.00'	511.45	511.49
Z	466+35.42	0.00'	511.45	511.49
AA	466+45.42	0.00'	511.44	511.49
AB	466+55.42	0.00'	511.44	511.47
☉ Brg. A PIER 4 (Bent 5)	466+66.42	0.00'	511.43	511.43
☉ PIER 4 (Bent 5) Jt.	466+67.00	0.00'	511.43	511.43
☉ Brg. B PIER 4 (Bent 5)	466+67.59	0.00'	511.43	511.43
AC	466+77.59	0.00'	511.43	511.44
AD	466+87.59	0.00'	511.42	511.45
AE	466+97.59	0.00'	511.41	511.44
AF	467+07.59	0.00'	511.40	511.42
AG	467+17.59	0.00'	511.38	511.39
☉ Brg. PIER 5 (Bent 6)	467+29.59	0.00'	511.37	511.37
AH	467+39.59	0.00'	511.35	511.36
AI	467+49.59	0.00'	511.34	511.36
AJ	467+59.59	0.00'	511.32	511.36
AK	467+69.59	0.00'	511.30	511.35
AL	467+79.59	0.00'	511.28	511.33
AM	467+89.59	0.00'	511.26	511.29
AN	467+99.59	0.00'	511.24	511.25
☉ Brg. PIER 6 (Bent 7)	468+09.59	0.00'	511.22	511.22
AO	468+19.59	0.00'	511.20	511.20
AP	468+29.59	0.00'	511.17	511.19
AQ	468+39.59	0.00'	511.14	511.17
AR	468+49.59	0.00'	511.12	511.15
AS	468+59.59	0.00'	511.09	511.11
☉ Brg. N. Abut.	468+71.59	0.00'	511.05	511.05
☉ N. Abut. Jt.	468+72.30	0.00'	511.05	511.05
Bk. N. Abut.	468+73.30	0.00'	511.05	511.05

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	463+44.71	-2.66'	510.98	510.98
☉ S. Abut. Jt.	463+45.71	-2.66'	510.98	510.98
☉ Brg. S. Abut.	463+46.42	-2.66'	510.98	510.98
A	463+56.42	-2.66'	511.01	511.04
B	463+66.42	-2.66'	511.04	511.08
C	463+76.42	-2.66'	511.07	511.12
D	463+86.42	-2.66'	511.10	511.14
E	463+96.42	-2.66'	511.13	511.15
F	464+06.42	-2.66'	511.15	511.16
☉ Brg. PIER 1 (Bent 2)	464+17.42	-2.66'	511.18	511.18
G	464+27.42	-2.66'	511.20	511.21
H	464+37.42	-2.66'	511.22	511.24
I	464+47.42	-2.66'	511.24	511.28
J	464+57.42	-2.66'	511.26	511.31
K	464+67.42	-2.66'	511.28	511.33
L	464+77.42	-2.66'	511.30	511.33
M	464+87.42	-2.66'	511.31	511.33
N	464+97.42	-2.66'	511.33	511.33
☉ Brg. PIER 2 (Bent 3)	465+06.42	-2.66'	511.34	511.34
O	465+16.42	-2.66'	511.35	511.36
P	465+26.42	-2.66'	511.36	511.38
Q	465+36.42	-2.66'	511.37	511.41
R	465+46.42	-2.66'	511.38	511.43
S	465+56.42	-2.66'	511.39	511.44
T	465+66.42	-2.66'	511.39	511.43
U	465+76.42	-2.66'	511.40	511.42
V	465+86.42	-2.66'	511.40	511.41
☉ Brg. PIER 3 (Bent 4)	465+95.42	-2.66'	511.40	511.40
W	466+05.42	-2.66'	511.41	511.41
X	466+15.42	-2.66'	511.41	511.43
Y	466+25.42	-2.66'	511.41	511.44
Z	466+35.42	-2.66'	511.40	511.45
AA	466+45.42	-2.66'	511.40	511.44
AB	466+55.42	-2.66'	511.40	511.42
☉ Brg. A PIER 4 (Bent 5)	466+66.42	-2.66'	511.39	511.39
☉ PIER 4 (Bent 5) Jt.	466+67.00	-2.66'	511.39	511.39
☉ Brg. B PIER 4 (Bent 5)	466+67.59	-2.66'	511.39	511.39
AC	466+77.59	-2.66'	511.38	511.40
AD	466+87.59	-2.66'	511.37	511.40
AE	466+97.59	-2.66'	511.36	511.39
AF	467+07.59	-2.66'	511.35	511.37
AG	467+17.59	-2.66'	511.34	511.35
☉ Brg. PIER 5 (Bent 6)	467+29.59	-2.66'	511.33	511.33
AH	467+39.59	-2.66'	511.31	511.32
AI	467+49.59	-2.66'	511.30	511.32
AJ	467+59.59	-2.66'	511.28	511.32
AK	467+69.59	-2.66'	511.26	511.31
AL	467+79.59	-2.66'	511.24	511.28
AM	467+89.59	-2.66'	511.22	511.25
AN	467+99.59	-2.66'	511.20	511.21
☉ Brg. PIER 6 (Bent 7)	468+09.59	-2.66'	511.18	511.18
AO	468+19.59	-2.66'	511.15	511.16
AP	468+29.59	-2.66'	511.13	511.15
AQ	468+39.59	-2.66'	511.10	511.13
AR	468+49.59	-2.66'	511.07	511.11
AS	468+59.59	-2.66'	511.05	511.07
☉ Brg. N. Abut.	468+71.59	-2.66'	511.01	511.01
☉ N. Abut. Jt.	468+72.30	-2.66'	511.01	511.01
Bk. N. Abut.	468+73.30	-2.66'	511.00	511.00

E-S 2-17-2017

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2_Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-008-Elev3.dgn

B&A
BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
LICKSCROVILE, IL 62550
PHONE: 217-245-4146 FAX: 217-245-4149
IL DESIGN FIRM REGISTRATION NO. 184-008952

USER NAME =	DESIGNED - MBH	REVISED -
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 031-0015

SHEET 8 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	25
CONTRACT NO. 76M21				
ILLINOIS		FED. AID PROJECT		

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	463+44.71	-8.00'	510.89	510.89
☉ S. Abut. Jt.	463+45.71	-8.00'	510.90	510.90
☉ Brg. S. Abut.	463+46.42	-8.00'	510.90	510.90
A	463+56.42	-8.00'	510.93	510.95
B	463+66.42	-8.00'	510.96	511.00
C	463+76.42	-8.00'	510.99	511.03
D	463+86.42	-8.00'	511.02	511.05
E	463+96.42	-8.00'	511.04	511.06
F	464+06.42	-8.00'	511.07	511.07
☉ Brg. PIER 1 (Bent 2)	464+17.42	-8.00'	511.09	511.09
G	464+27.42	-8.00'	511.12	511.12
H	464+37.42	-8.00'	511.14	511.16
I	464+47.42	-8.00'	511.16	511.20
J	464+57.42	-8.00'	511.18	511.23
K	464+67.42	-8.00'	511.19	511.24
L	464+77.42	-8.00'	511.21	511.25
M	464+87.42	-8.00'	511.23	511.25
N	464+97.42	-8.00'	511.24	511.25
☉ Brg. PIER 2 (Bent 3)	465+06.42	-8.00'	511.25	511.25
O	465+16.42	-8.00'	511.27	511.27
P	465+26.42	-8.00'	511.28	511.30
Q	465+36.42	-8.00'	511.29	511.32
R	465+46.42	-8.00'	511.29	511.34
S	465+56.42	-8.00'	511.30	511.35
T	465+66.42	-8.00'	511.31	511.35
U	465+76.42	-8.00'	511.31	511.33
V	465+86.42	-8.00'	511.32	511.32
☉ Brg. PIER 3 (Bent 4)	465+95.42	-8.00'	511.32	511.32
W	466+05.42	-8.00'	511.32	511.33
X	466+15.42	-8.00'	511.32	511.34
Y	466+25.42	-8.00'	511.32	511.36
Z	466+35.42	-8.00'	511.32	511.36
AA	466+45.42	-8.00'	511.32	511.36
AB	466+55.42	-8.00'	511.31	511.34
☉ Brg. A PIER 4 (Bent 5)	466+66.42	-8.00'	511.30	511.30
☉ PIER 4 (Bent 5) Jt.	466+67.00	-8.00'	511.30	511.30
☉ Brg. B PIER 4 (Bent 5)	466+67.59	-8.00'	511.30	511.30
AC	466+77.59	-8.00'	511.30	511.32
AD	466+87.59	-8.00'	511.29	511.32
AE	466+97.59	-8.00'	511.28	511.31
AF	467+07.59	-8.00'	511.27	511.29
AG	467+17.59	-8.00'	511.26	511.26
☉ Brg. PIER 5 (Bent 6)	467+29.59	-8.00'	511.24	511.24
AH	467+39.59	-8.00'	511.23	511.23
AI	467+49.59	-8.00'	511.21	511.24
AJ	467+59.59	-8.00'	511.19	511.23
AK	467+69.59	-8.00'	511.18	511.22
AL	467+79.59	-8.00'	511.16	511.20
AM	467+89.59	-8.00'	511.14	511.16
AN	467+99.59	-8.00'	511.11	511.12
☉ Brg. PIER 6 (Bent 7)	468+09.59	-8.00'	511.09	511.09
AO	468+19.59	-8.00'	511.07	511.07
AP	468+29.59	-8.00'	511.04	511.06
AQ	468+39.59	-8.00'	511.02	511.05
AR	468+49.59	-8.00'	510.99	511.02
AS	468+59.59	-8.00'	510.96	510.98
☉ Brg. N. Abut.	468+71.59	-8.00'	510.92	510.92
☉ N. Abut. Jt.	468+72.30	-8.00'	510.92	510.92
Bk. N. Abut.	468+73.30	-8.00'	510.92	510.92

BEAM 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	463+44.71	-13.33'	510.79	510.79
☉ S. Abut. Jt.	463+45.71	-13.33'	510.80	510.80
☉ Brg. S. Abut.	463+46.42	-13.33'	510.80	510.80
A	463+56.42	-13.33'	510.83	510.87
B	463+66.42	-13.33'	510.86	510.92
C	463+76.42	-13.33'	510.89	510.96
D	463+86.42	-13.33'	510.92	510.98
E	463+96.42	-13.33'	510.94	510.98
F	464+06.42	-13.33'	510.97	510.98
☉ Brg. PIER 1 (Bent 2)	464+17.42	-13.33'	510.99	510.99
G	464+27.42	-13.33'	511.02	511.03
H	464+37.42	-13.33'	511.04	511.07
I	464+47.42	-13.33'	511.06	511.12
J	464+57.42	-13.33'	511.08	511.15
K	464+67.42	-13.33'	511.10	511.17
L	464+77.42	-13.33'	511.11	511.17
M	464+87.42	-13.33'	511.13	511.16
N	464+97.42	-13.33'	511.14	511.15
☉ Brg. PIER 2 (Bent 3)	465+06.42	-13.33'	511.15	511.15
O	465+16.42	-13.33'	511.17	511.18
P	465+26.42	-13.33'	511.18	511.21
Q	465+36.42	-13.33'	511.19	511.25
R	465+46.42	-13.33'	511.20	511.27
S	465+56.42	-13.33'	511.20	511.28
T	465+66.42	-13.33'	511.21	511.27
U	465+76.42	-13.33'	511.21	511.25
V	465+86.42	-13.33'	511.22	511.23
☉ Brg. PIER 3 (Bent 4)	465+95.42	-13.33'	511.22	511.22
W	466+05.42	-13.33'	511.22	511.23
X	466+15.42	-13.33'	511.22	511.26
Y	466+25.42	-13.33'	511.22	511.28
Z	466+35.42	-13.33'	511.22	511.29
AA	466+45.42	-13.33'	511.22	511.28
AB	466+55.42	-13.33'	511.21	511.25
☉ Brg. A PIER 4 (Bent 5)	466+66.42	-13.33'	511.21	511.21
☉ PIER 4 (Bent 5) Jt.	466+67.00	-13.33'	511.21	511.21
☉ Brg. B PIER 4 (Bent 5)	466+67.59	-13.33'	511.20	511.20
AC	466+77.59	-13.33'	511.20	511.23
AD	466+87.59	-13.33'	511.19	511.24
AE	466+97.59	-13.33'	511.18	511.23
AF	467+07.59	-13.33'	511.17	511.20
AG	467+17.59	-13.33'	511.16	511.17
☉ Brg. PIER 5 (Bent 6)	467+29.59	-13.33'	511.14	511.14
AH	467+39.59	-13.33'	511.13	511.14
AI	467+49.59	-13.33'	511.11	511.15
AJ	467+59.59	-13.33'	511.09	511.16
AK	467+69.59	-13.33'	511.08	511.15
AL	467+79.59	-13.33'	511.06	511.12
AM	467+89.59	-13.33'	511.04	511.08
AN	467+99.59	-13.33'	511.02	511.03
☉ Brg. PIER 6 (Bent 7)	468+09.59	-13.33'	510.99	510.99
AO	468+19.59	-13.33'	510.97	510.98
AP	468+29.59	-13.33'	510.94	510.97
AQ	468+39.59	-13.33'	510.92	510.96
AR	468+49.59	-13.33'	510.89	510.94
AS	468+59.59	-13.33'	510.86	510.90
☉ Brg. N. Abut.	468+71.59	-13.33'	510.82	510.82
☉ N. Abut. Jt.	468+72.30	-13.33'	510.82	510.82
Bk. N. Abut.	468+73.30	-13.33'	510.82	510.82

MODEL: Layout1
 FILE NAME: P:\10E2166-29\FAP 10_IL 267_3BR-2_Apple_Creek_76M21\CADD_Sheets\Structure_Sheets\0310015-76M21-009-Elev4.dgn
 3/1/2019 3:55:05 PM

E-S 2-17-2017



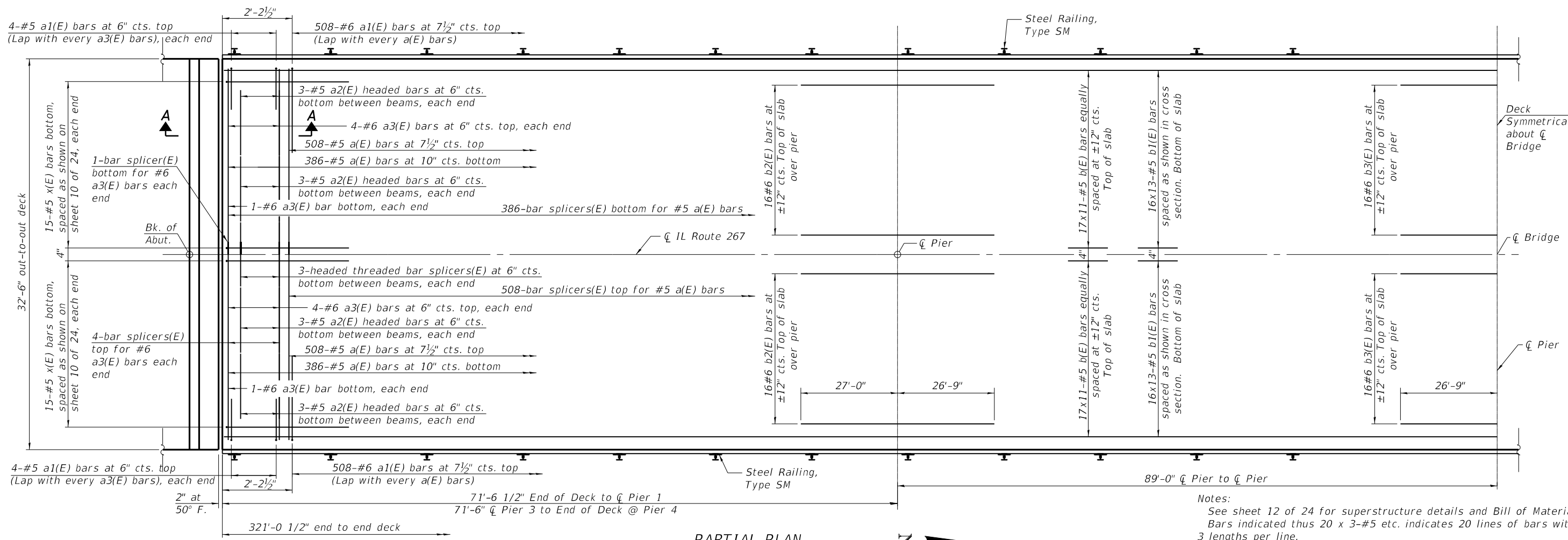
USER NAME =	DESIGNED - MBH	REVISED -
	CHECKED - RHB	REVISED -
PLOT SCALE =	DRAWN - MBH	REVISED -
PLOT DATE =	CHECKED - RHB	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**TOP OF SLAB ELEVATIONS
 STRUCTURE NO. 031-0015**

SHEET 9 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	26
CONTRACT NO. 76M21				
ILLINOIS		FED. AID PROJECT		

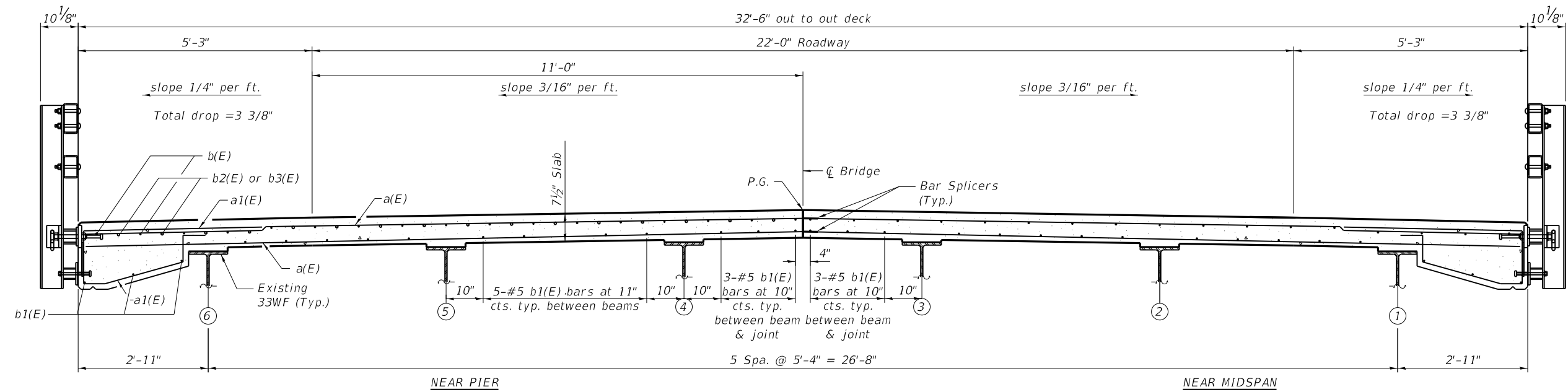


PARTIAL PLAN

Notes:
 See sheet 12 of 24 for superstructure details and Bill of Material.
 Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
 Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet 14 of 24.

MINIMUM BAR LAP

- #5 bar = 3'-2"
- #6 bar = 3'-2"



CROSS SECTION
(Looking North)

MODEL: Layout1
 FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-10-10-Suppcr1.dgn
 BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME =	DESIGNED - MBH	REVISED -
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

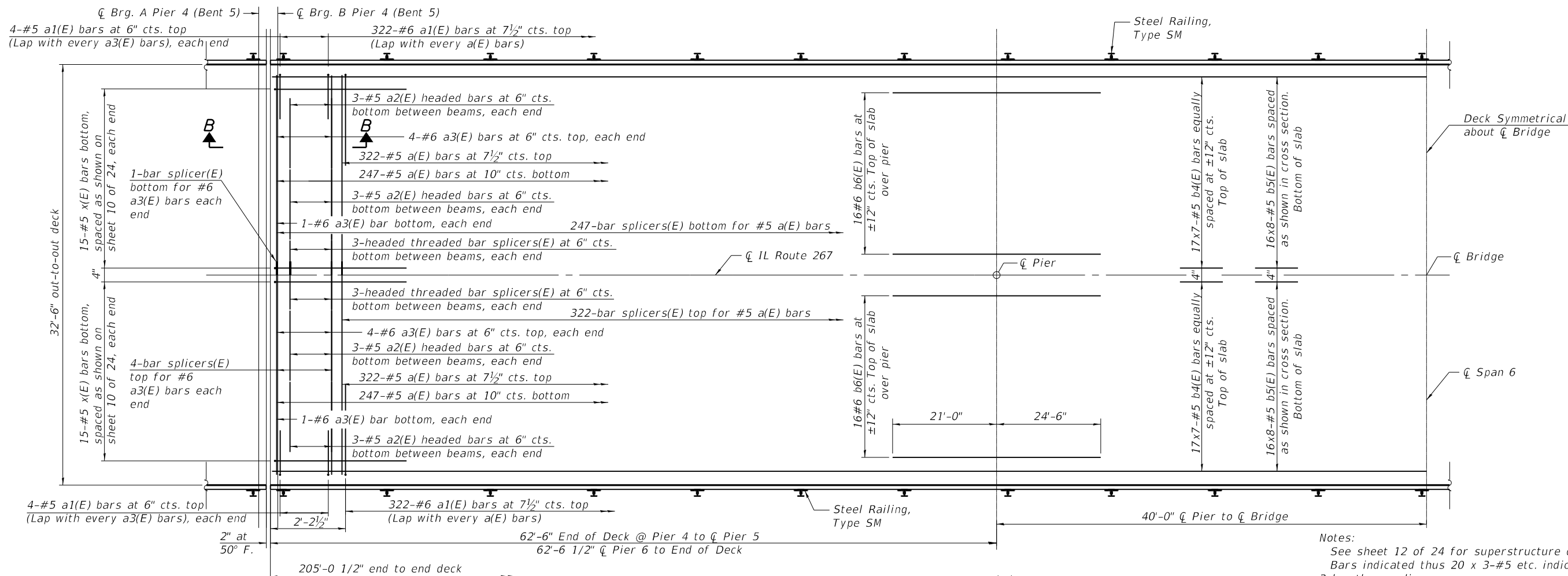
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
STRUCTURE NO. 031-0015

SHEET 10 OF 24 SHEETS

F.A.P. RTE. 10	SECTION 3BR-2	COUNTY GREENE	TOTAL SHEETS 41	SHEET NO. 27
CONTRACT NO. 76M21				

ILLINOIS FED. AID PROJECT

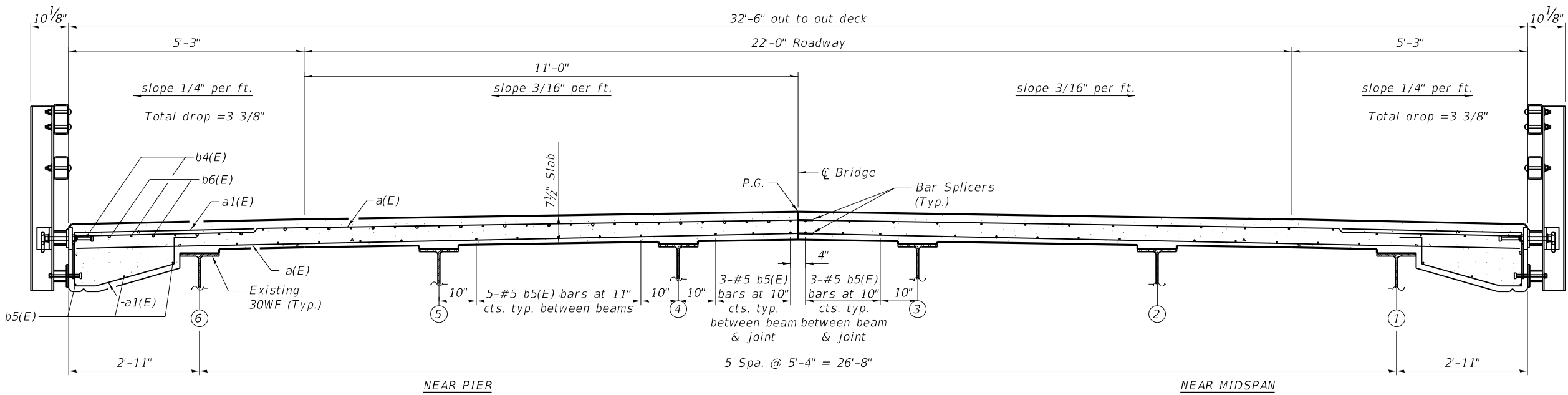


PARTIAL PLAN

Notes:
 See sheet 12 of 24 for superstructure details and Bill of Material. Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
 Dimensions are based on a Rolled Rail Strip Seal Joint. If the Contractor elects to use the Welded Rail Strip Seal Joint, deck dimensions may require adjustments to satisfy the details on Sheet 14 of 24.

MINIMUM BAR LAP

- #5 bar = 3'-2"
- #6 bar = 3'-2"



CROSS SECTION
(Looking North)

MODEL: Layout1
 FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-011-Super2.dgn

BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME =	DESIGNED - MBH	REVISED - 4/11/19
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

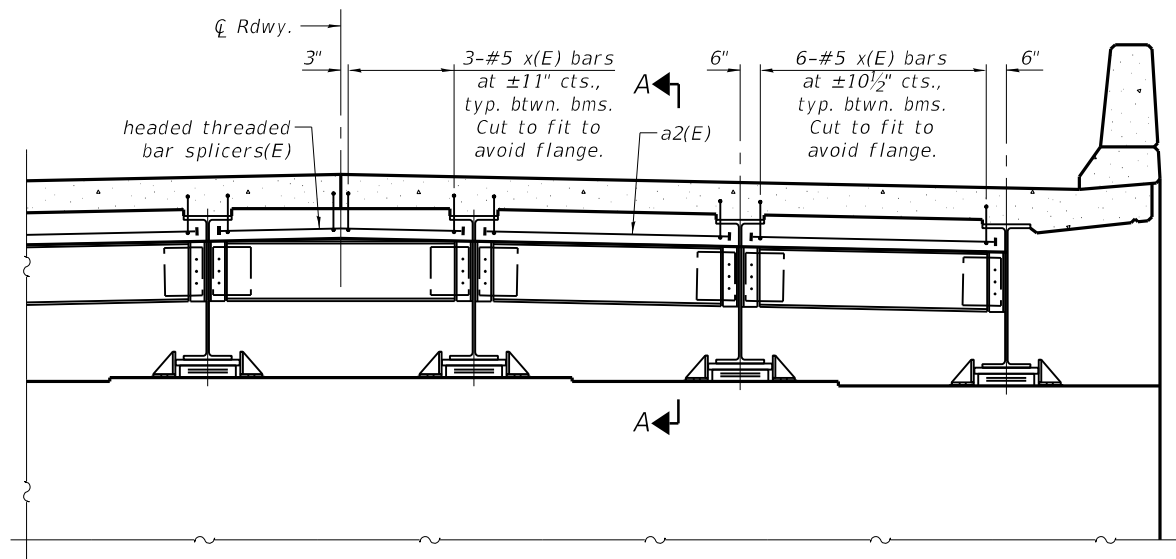
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE
STRUCTURE NO. 031-0015

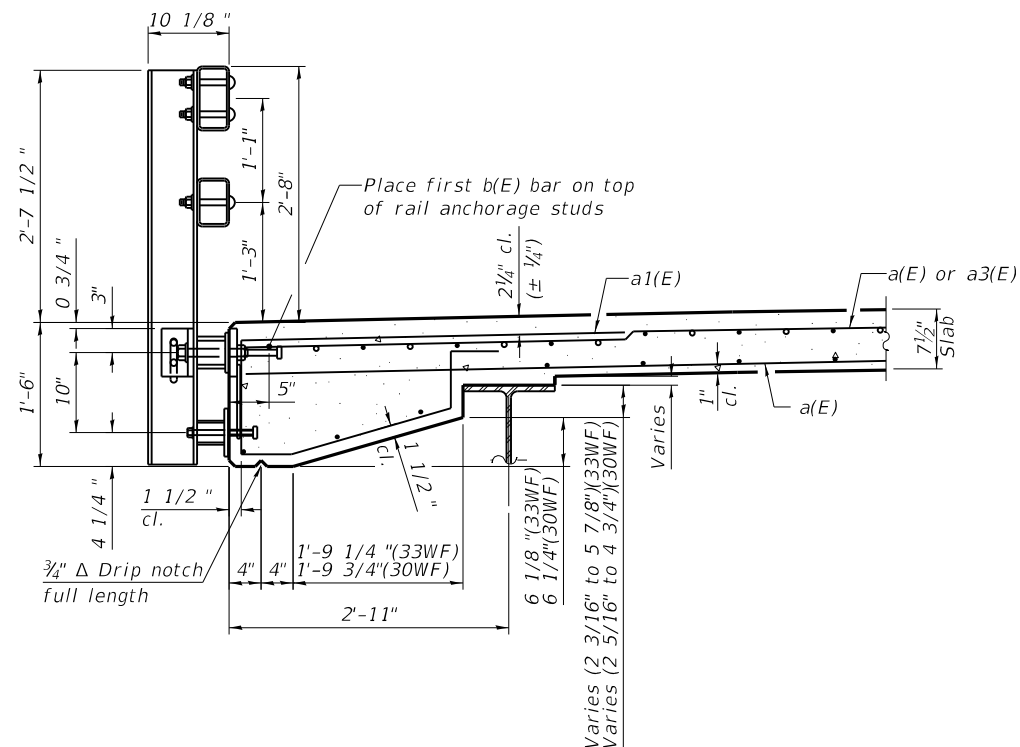
SHEET 11 OF 24 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	28
CONTRACT NO. 76M21				

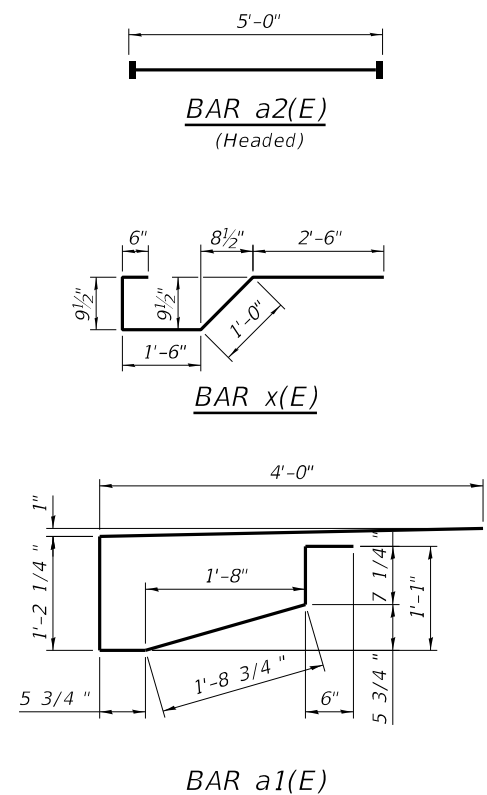
ILLINOIS FED. AID PROJECT



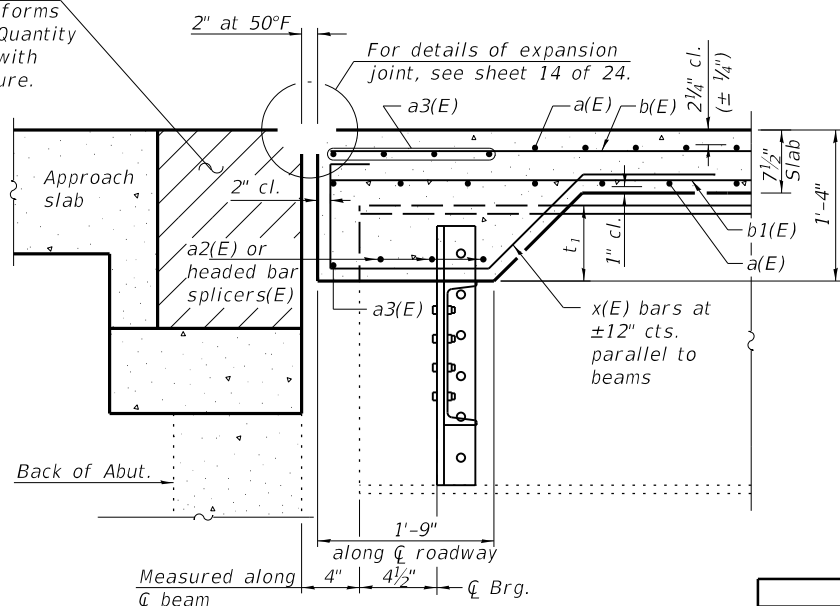
DIAPHRAGM AT ABUTMENT



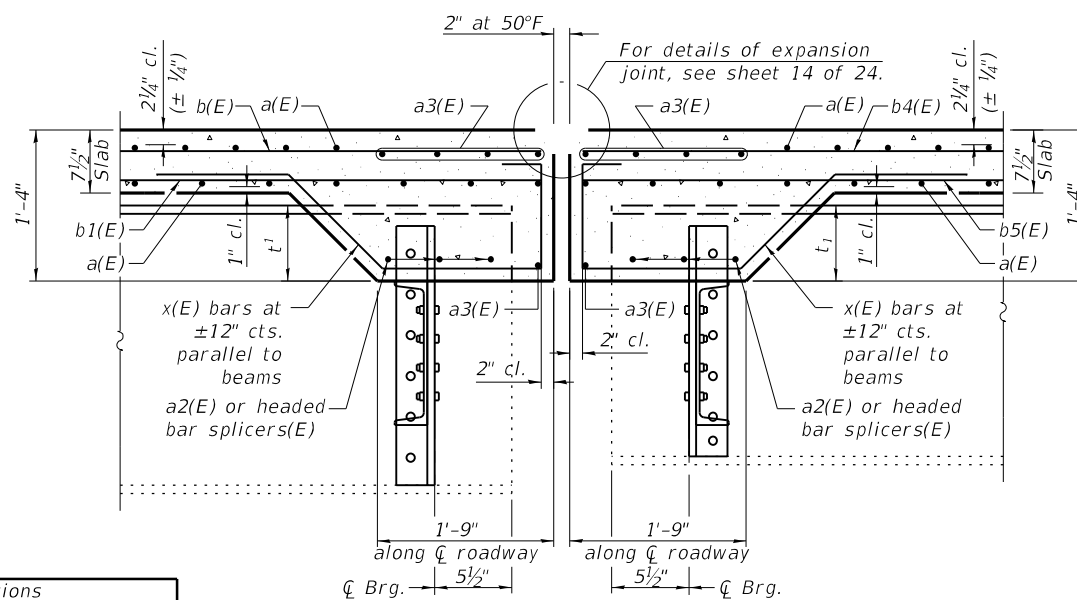
SECTION THRU GUARDRAIL



Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



SECTION A-A



SECTION B-B

Table of t ₁ Dimensions				
Bearing	S. Abut.	Pier 4A	Pier 4B	N. Abut.
Beam 1	5 ⁹ / ₁₆ "	5 ³ / ₁₆ "	6 ³ / ₈ "	6 ³ / ₄ "
Beam 2	6 ¹ / ₄ "	6 ³ / ₈ "	7 ¹ / ₄ "	6 ⁷ / ₈ "
Beam 3	6 ¹ / ₂ "	7"	6 ³ / ₈ "	6 ³ / ₈ "
Beam 4	6"	6 ³ / ₈ "	6 ³ / ₈ "	6 ¹ / ₁₆ "
Beam 5	6 ³ / ₈ "	6 ³ / ₄ "	7 ¹ / ₄ "	6 ³ / ₄ "
Beam 6	5 ⁹ / ₁₆ "	6 ¹ / ₄ "	7"	5 ⁹ / ₁₆ "

Note:
Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	2926	#5	16'-0"	—
a1(E)	1676	#6	8'-7"	┌
a2(E)	48	#5	5'-0"	—
a3(E)	40	#6	16'-0"	—
b(E)	374	#5	32'-1"	—
b1(E)	416	#5	27'-8"	—
b2(E)	64	#6	53'-9"	—
b3(E)	32	#6	53'-6"	—
b4(E)	238	#5	32'-0"	—
b5(E)	256	#5	28'-5"	—
b6(E)	64	#6	45'-6"	—
x(E)	120	#5	6'-4"	┌
Reinforcement Bars, Epoxy Coated			Lbs.	124,610
Concrete Superstructure			Cu. Yds.	488

Bars indicated thus 1 x 2-#8 etc. indicates 1 line of bars with 2 lengths per line.

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-012-Supcr3.dgn

BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62650
PHONE: 217-245-4146 FAX: 217-245-4149
ILL. DESIGN FIRM REGISTRATION NO. 184-000852

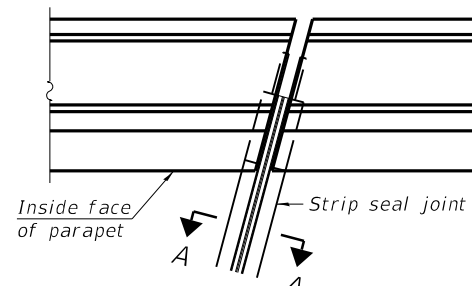
USER NAME =	DESIGNED - MBH	REVISED - 4/11/19
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 031-0015

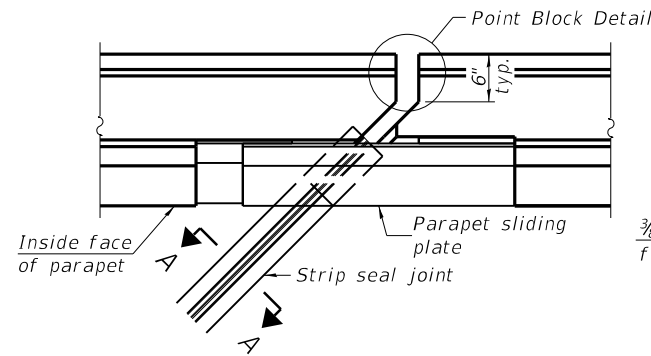
SHEET 12 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	29
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

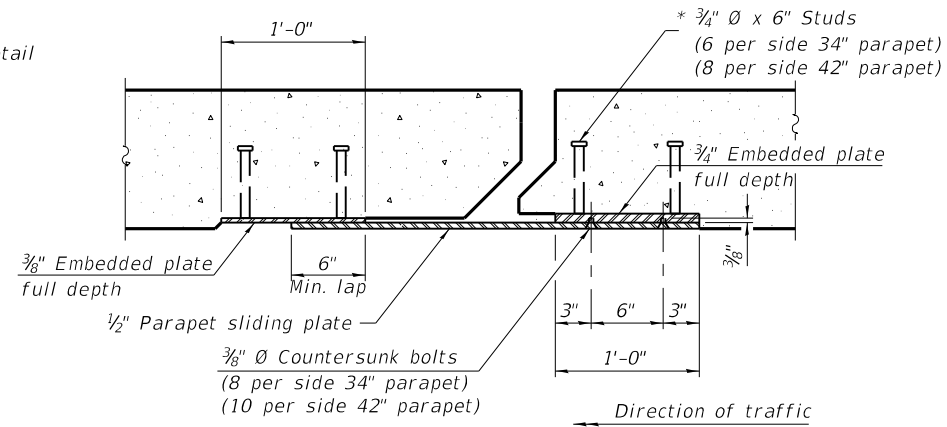


FOR SKEWS $\leq 30^\circ$

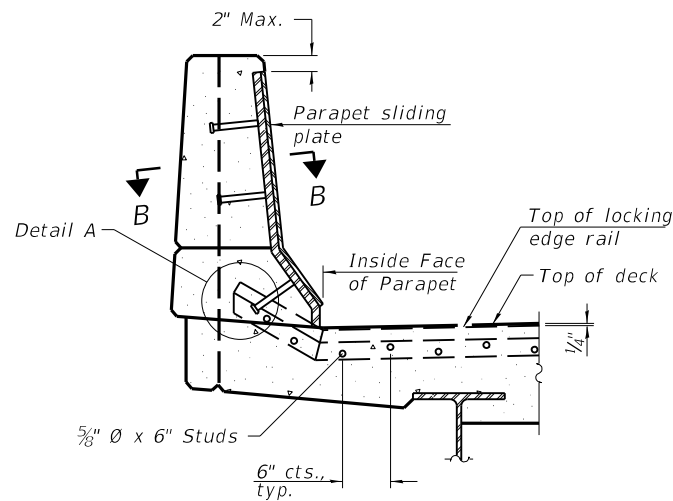
PLAN AT PARAPET



FOR SKEWS $> 30^\circ$

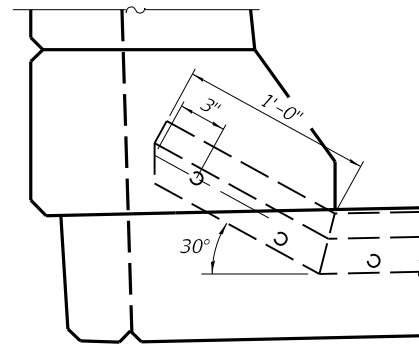


SECTION B-B

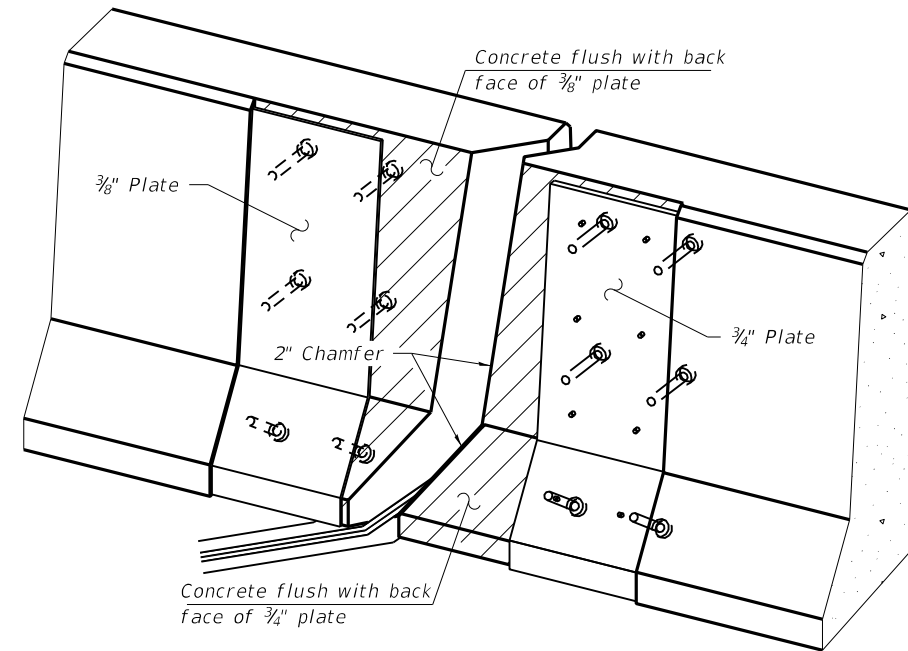


ELEVATION AT PARAPET

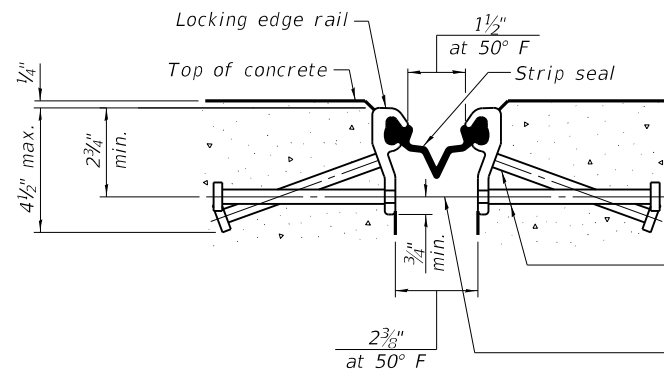
(Skews $> 30^\circ$ shown. Skews $\leq 30^\circ$ similar except as shown in plan view.)



DETAIL A



TRIMETRIC VIEW
(Showing embedded plates only)



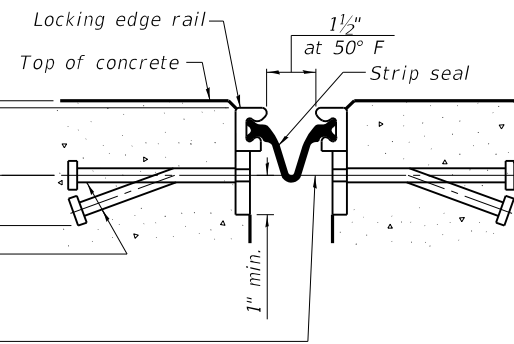
SHOWING ROLLED RAIL JOINT

* $5/8$ " ϕ x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

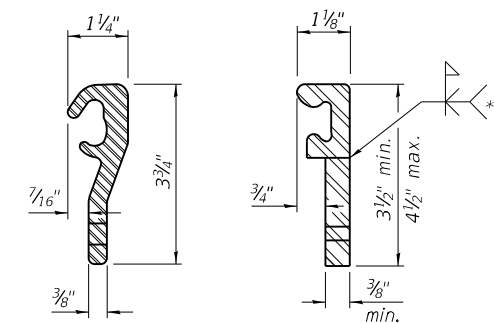
$3/8$ " ϕ threaded rods in $1/16$ " ϕ holes at ± 4 "-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

SECTION A-A

* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

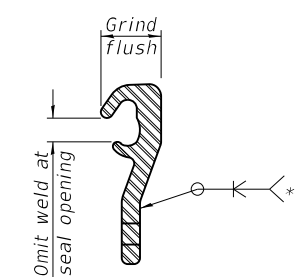


SHOWING WELDED RAIL JOINT



LOCKING EDGE RAILS

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	98

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-014-Joint.dgn
3/1/2019 3:57:06 PM

EJ-SS

8-11-17

BA BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
LACKSBURG, IL 62450
PHONE: 217-245-4146 FAX: 217-245-4149
ILL. DESIGN FIRM REGISTRATION NO. 184-000852

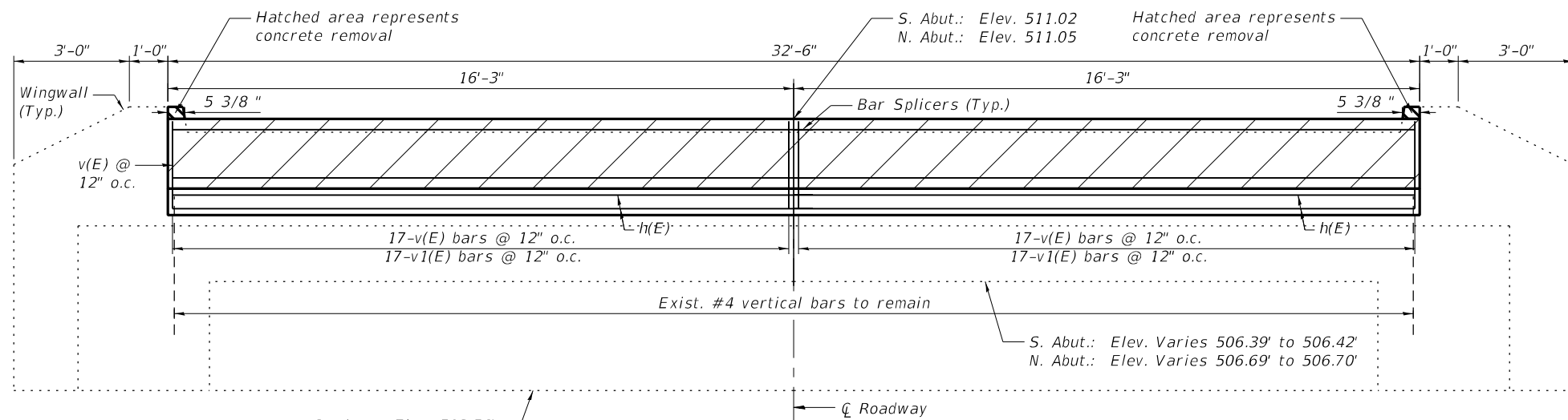
USER NAME =	DESIGNED - MBH	REVISED -
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

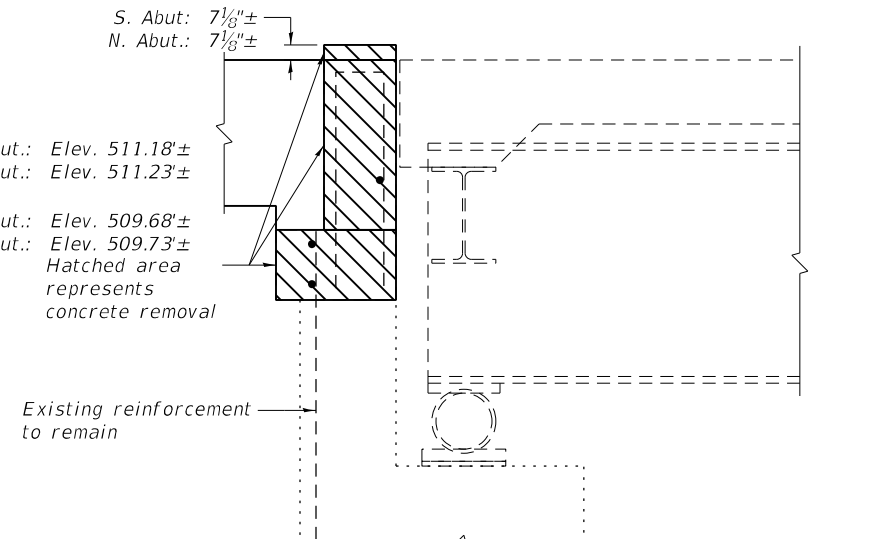
PREFORMED JOINT STRIP SEAL
STRUCTURE NO. 031-0015

SHEET 14 OF 24 SHEETS

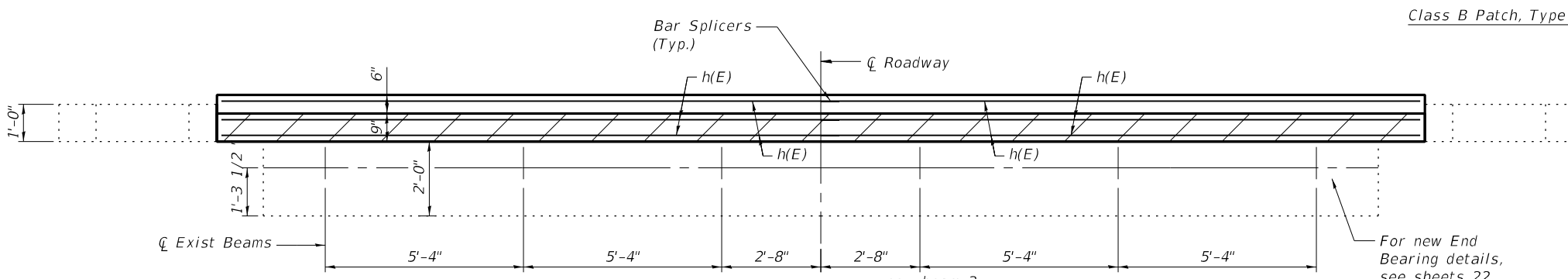
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	31
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				



SN 031-0015 NORTH ABUTMENT ELEVATION
(Looking North)
(South Abutment Similar)



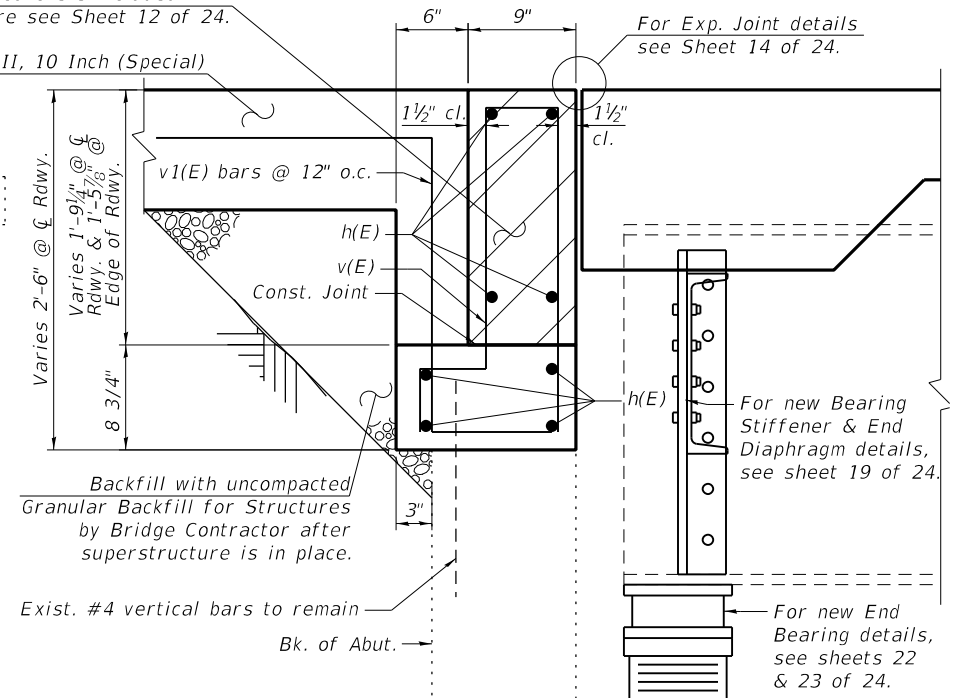
SECTION THRU ABUTMENT - CONCRETE REMOVAL
(Existing)



SN 031-0015 NORTH ABUTMENT PLAN
(Looking North)
(South Abutment Similar)

** Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure see Sheet 12 of 24.

Class B Patch, Type III, 10 Inch (Special)



SECTION THRU ABUTMENT - REBAR LAYOUT
(Proposed)

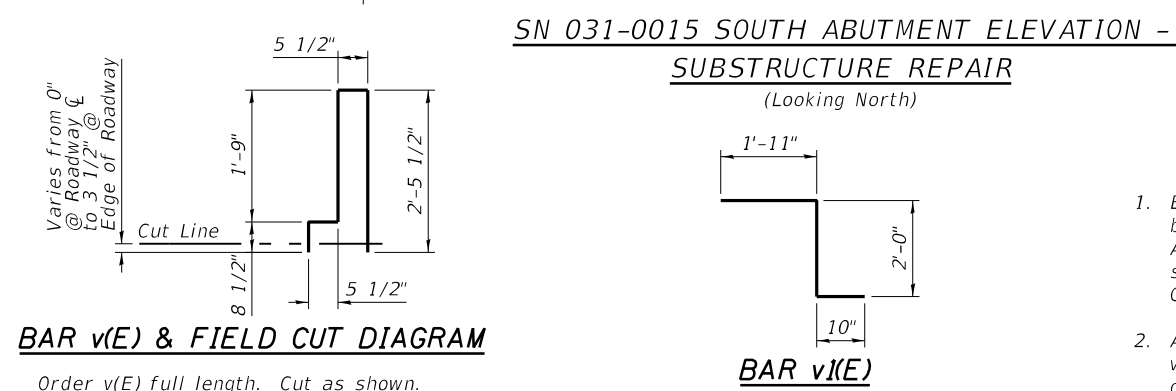
MINIMUM BAR LAP
(Abut.)
#5 bar = 2'-9"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape	
h(E)	32	#5	16'-0"	—	
v(E)	68	#5	5'-10"	⌋	
v1(E)	68	#5	4'-9"	⌋	
Reinforcement Bars, Epoxy Coated				Pound	1290
Concrete Structures				Cu. Yds.	2.2
Concrete Removal				Cu. Yds.	5.2
Structure Excavation				Cu. Yds.	7.0
Granular Backfill for Structures				Cu. Yds.	7.0
Concrete Sealer				Sq. Ft.	72
Structural Repair of Concrete (Depth <= 5")				Sq. Ft.	7.5

GENERAL NOTES

- Existing reinforcement bars extending into the removal area shall be cleaned, straightened and incorporated into the new construction. Any reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.
- Additional damage to the substructure may exist. Contractor to field verify amount of damage and repair what is needed. Engineer to confirm all related quantities.



BAR v(E) & FIELD CUT DIAGRAM

Order v(E) full length. Cut as shown.

BAR v1(E)

- LEGEND**
- Area of Structural Concrete Removal
 - Area of Structural Concrete Repair
 - Area of Concrete Superstructure poured after forms are removed

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT BACKWALL REPLACEMENT AND ABUTMENT REPAIR
STRUCTURE NO. 031-0015

SHEET 15 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	32

CONTRACT NO. 76M21

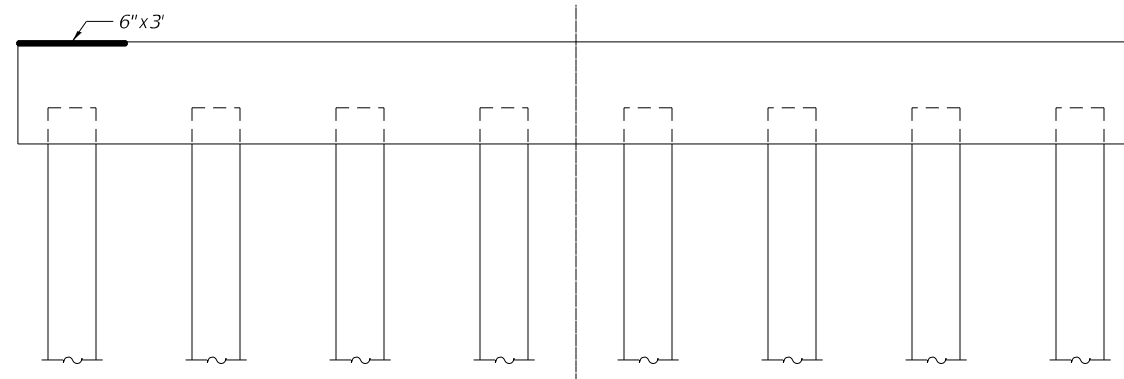
ILLINOIS FED. AID PROJECT

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP_10_IL_267_3BR-2_Apple_Creek_76M21\CADD_Sheets\Structure_Sheets\0310015-76M21-015-Abut.dgn
4/15/2019 4:28:21 PM

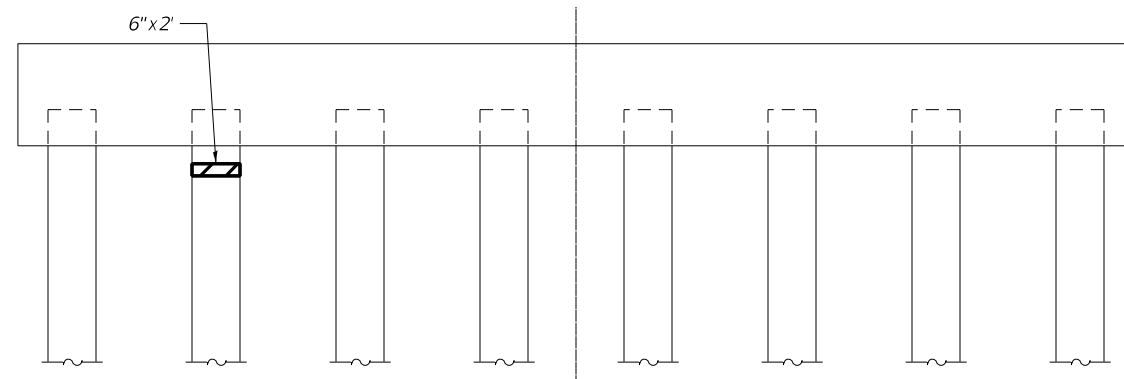
BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62650
PHONE: 217-245-4146 FAX: 217-245-4149
IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME	DESIGNED	REVISION
=	MBH	4/11/19
PLLOT SCALE	RHB	REVISION
=	MBH	REVISION
PLLOT DATE	RHB	REVISION
=	RHB	REVISION

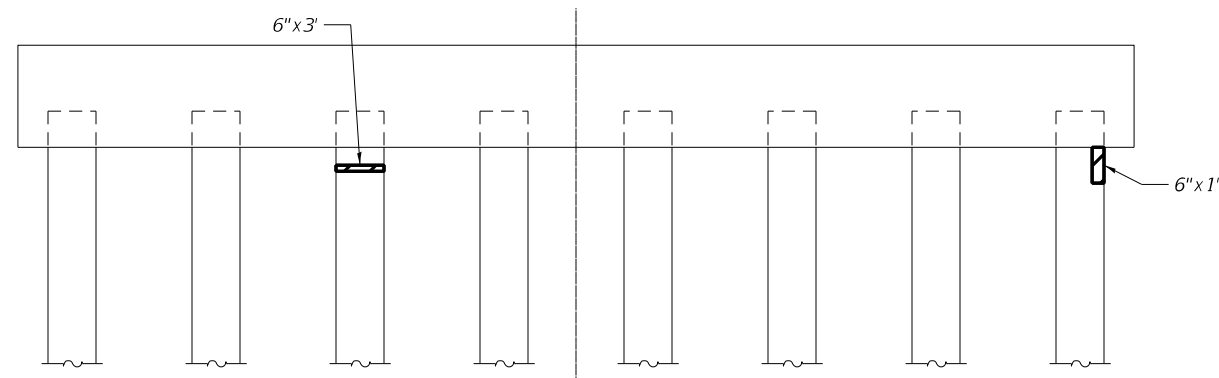
MODEL: Layout1
 FILE NAME: P:\10E2166-29\FAP_10_IL_267_3BR-2_Apple_Creek_76M21\CADD_Sheets\Structure_Sheets\0310015-76M21-016-Piers1.dgn



Pier 1 (Bent 2) - South Elevation
(Looking North)



Pier 3 (Bent 4) - North Elevation
(Looking South)



Pier 6 (Bent 7) - North Elevation
(Looking South)

LEGEND

▨ Area of Structural Concrete Repair

BILL OF MATERIAL

Item	Unit	Total
Structural Repair of Concrete (Depth <= 5")	Sq. Ft.	4.5

BA BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

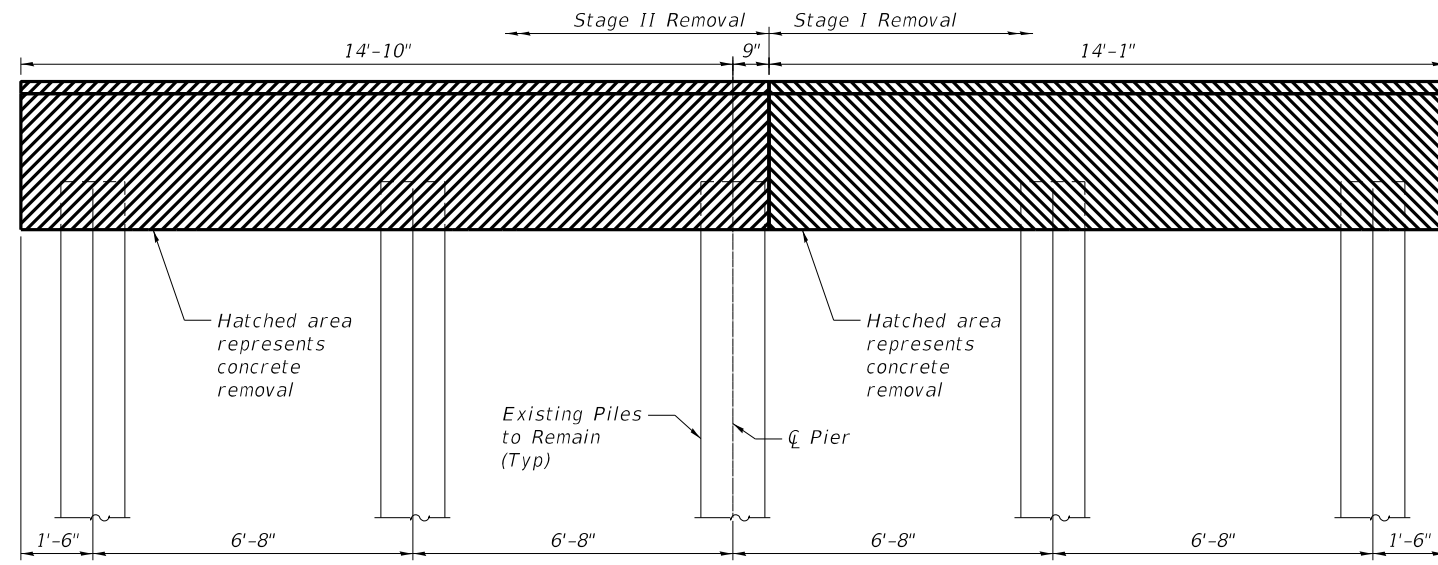
USER NAME =	DESIGNED - MBH	REVISED -
CHECKED - RHB	REVISED -	
PLOT SCALE =	DRAWN - MBH	REVISED -
PLOT DATE =	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

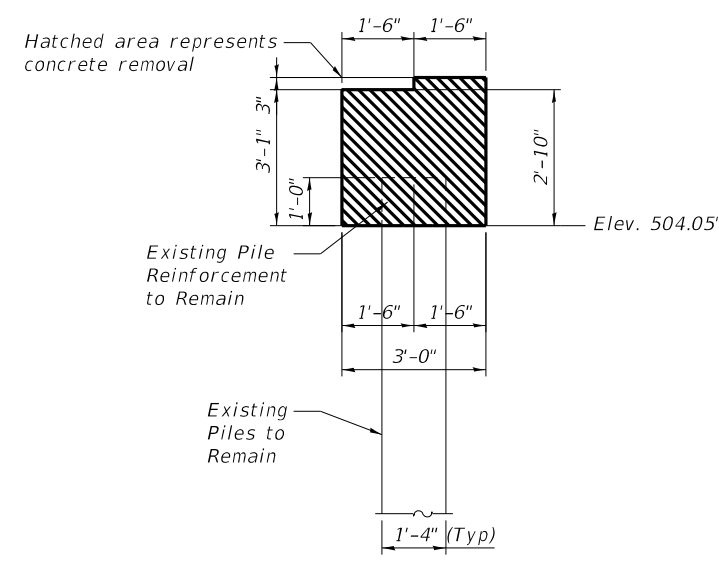
SUBSTRUCTURE REPAIRS
STRUCTURE NO. 031-0015

SHEET 16 OF 24 SHEETS

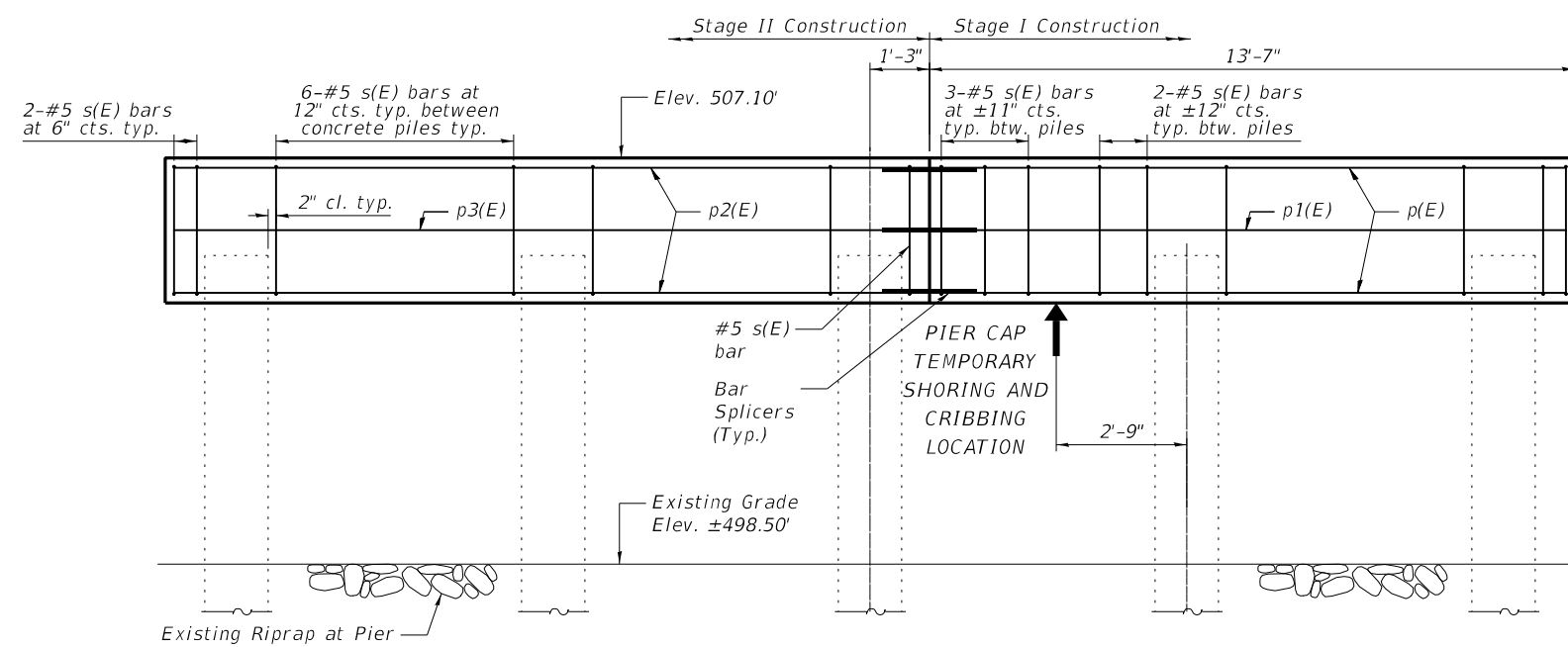
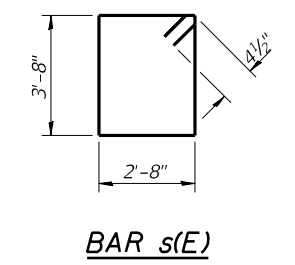
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	33
ILLINOIS FED. AID PROJECT			CONTRACT NO. 76M21	



Pier 4 (Bent 5) - South Elevation - Cap Removal
(Looking North)



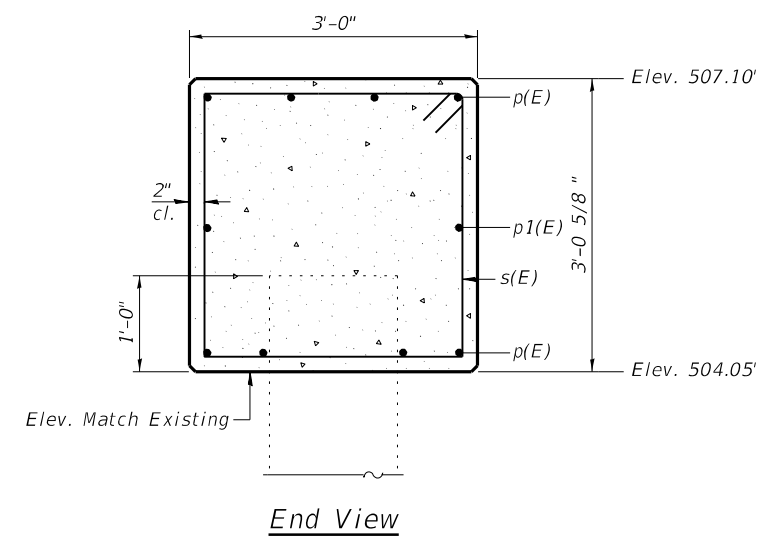
End View



Pier 4 (Bent 5) - South Elevation - Cap Replacement
(Looking North)

LEGEND

- Stage I Concrete Removal
- Stage II Concrete Removal



End View

PIER CAP REACTION TABLE

	R _Q * (k)	R _L (k)	R _I (k)	R _{Total} (k)
Temporary Support Reactions	45.2	55.9	14.5	115.6

Reactions include all superstructure loads during Stage 2 Traffic.
* Dead Load Reactions include loads from Pier Cap.

TEMPORARY SHORING & CRIBBING PROCEDURE

1. Stage I deck removal and steel beam Temporary Shoring and Cribbing. See Bearing Removal on Sheet 21 of 24.
2. Removal of existing Pier Cap--Stage I Removal.
3. Install Temporary Shoring and Cribbing to support New Pier Cap. For reaction table see above.
4. Construct new Pier Cap--Stage I Construction.
5. Install new Bearings--Stage I Construction.
6. Jack existing beams to proposed position. See Bearing Removal on Sheet 21 of 24.
7. Install new concrete deck--Stage I Construction.
8. Complete Stage I Construction and move traffic to start Stage II.
9. Stage II deck removal and steel beam Temporary Shoring and Cribbing. See Bearing Removal on Sheet 21 of 24.
10. Removal of existing Pier Cap--Stage II Removal.
11. Construct new Pier Cap--Stage II Construction.
12. Remove Temporary Shoring and Cribbing for new Pier Cap and complete construction.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p(E)	16	#7	13'-5"	—
p1(E)	4	#5	13'-5"	—
p2(E)	16	#7	15'-11"	—
p3(E)	4	#5	15'-11"	—
s(E)	28	#5	13'-5"	☑
Concrete Structures	Cu. Yd.	10.1		
Reinforcement Bars, Epoxy Coated	Pound	1480		
Concrete Removal	Cu. Yd.	9.8		
Temporary Shoring and Cribbing	Each	1		

Cast steps monolithically with cap.
Space cap reinforcement to miss anchor bolts.

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-017-Piers2.dgn
3/1/2019 4:00:40 PM

BA BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62650
PHONE: 217-245-4146 FAX: 217-245-4149
ILLINOIS DESIGN FIRM REGISTRATION NO. 184-000852

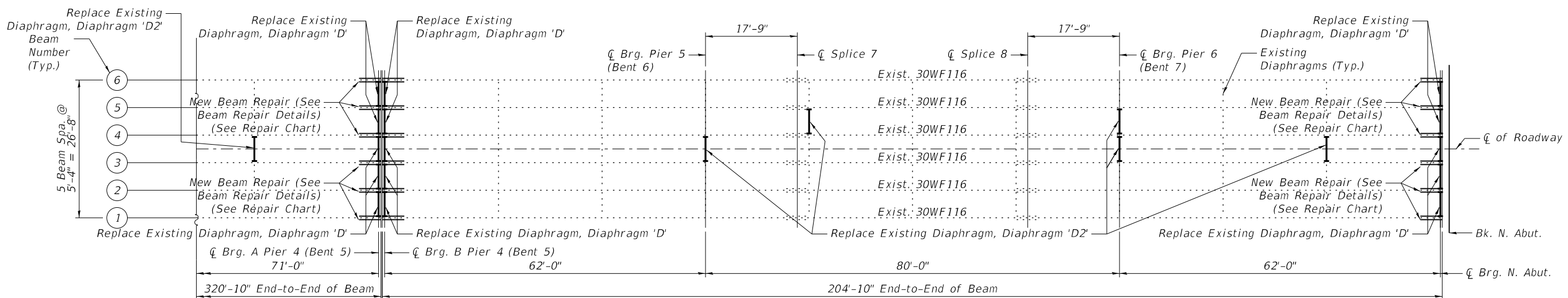
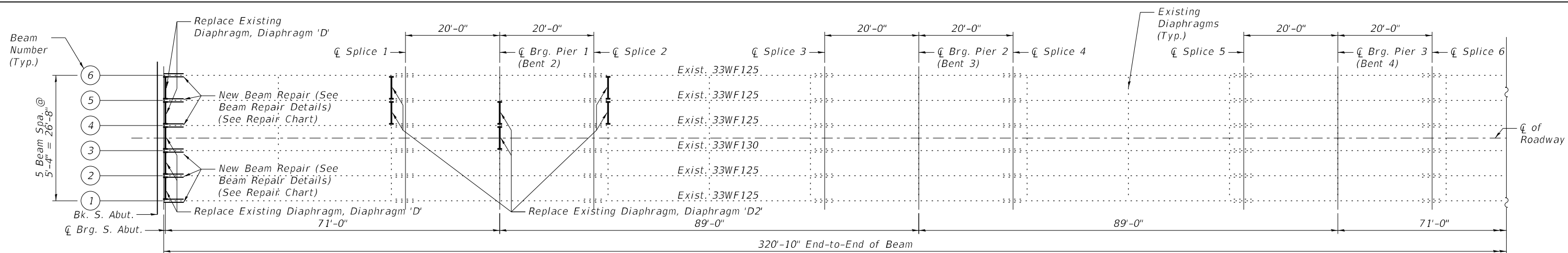
USER NAME =	DESIGNED - MBH	REVISED -
CHECKED - RHB	CHECKED - RHB	REVISED -
PLOT SCALE =	DRAWN - MBH	REVISED -
PLOT DATE =	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

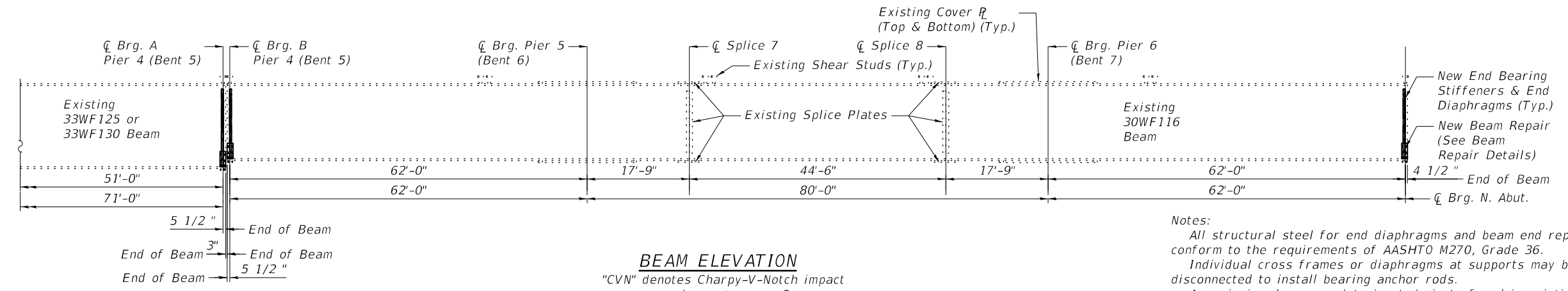
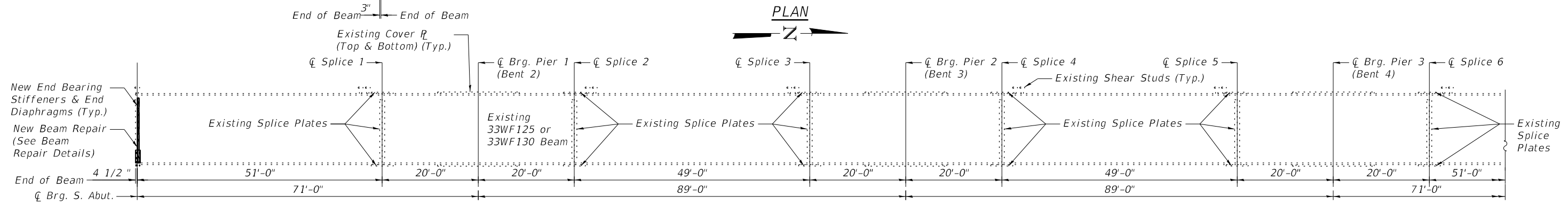
SUBSTRUCTURE REPAIRS
STRUCTURE NO. 031-0015

SHEET 17 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	34
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				



PLAN



BEAM ELEVATION
 "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

Notes:
 All structural steel for end diaphragms and beam end repairs shall conform to the requirements of AASHTO M270, Grade 36.
 Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
 Any missing, loose, or deteriorated rivets found in existing connections during construction shall be replaced with high strength bolts.

MODEL: Layout1
 FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-018-Frame1.dgn
 3/1/2019 4:01:01 PM

BA BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS & LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

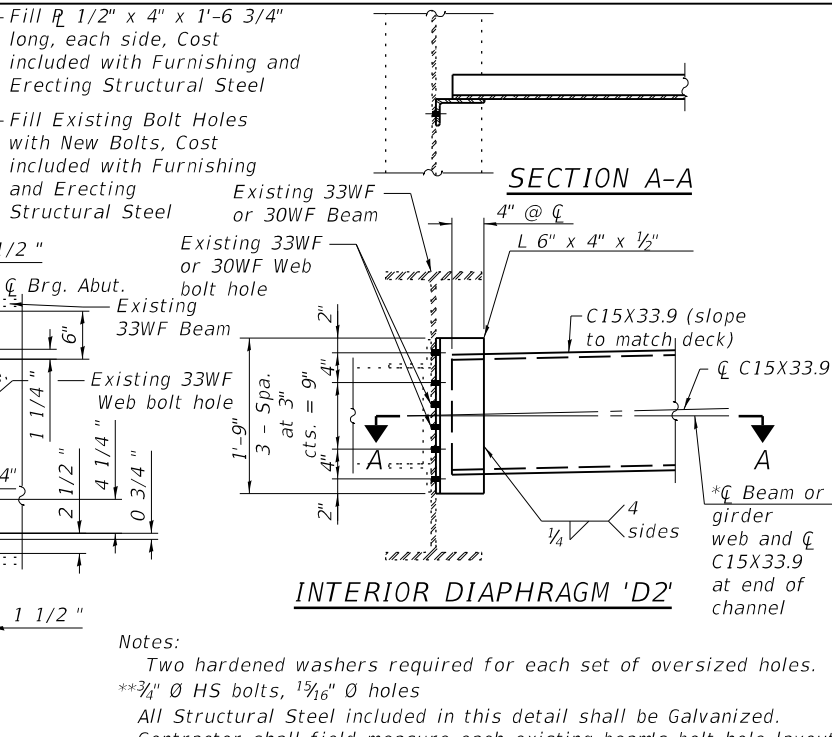
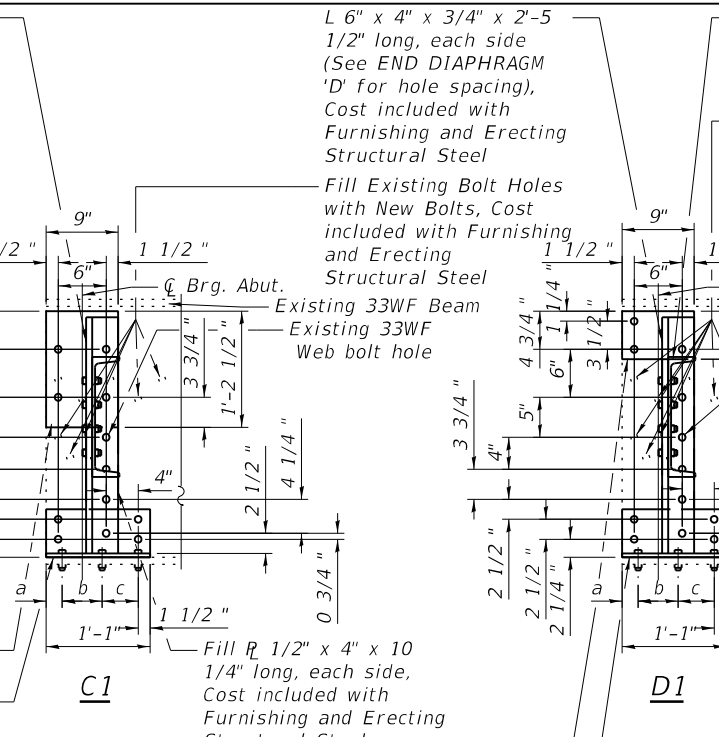
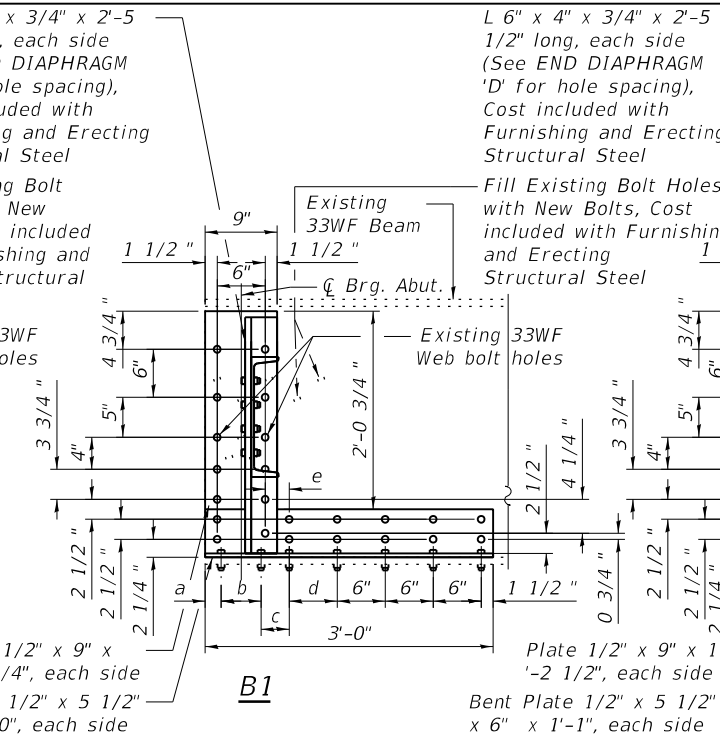
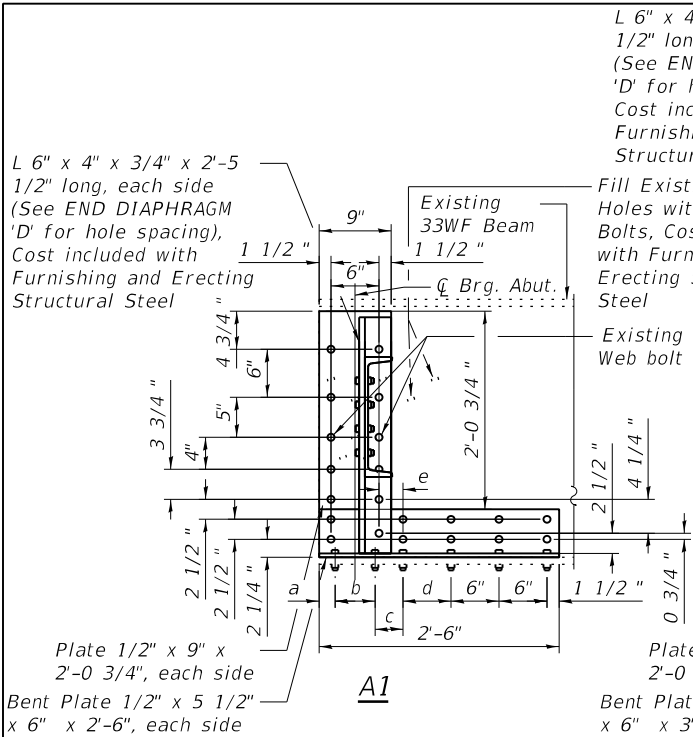
USER NAME =	DESIGNED - MBH	REVISED -
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

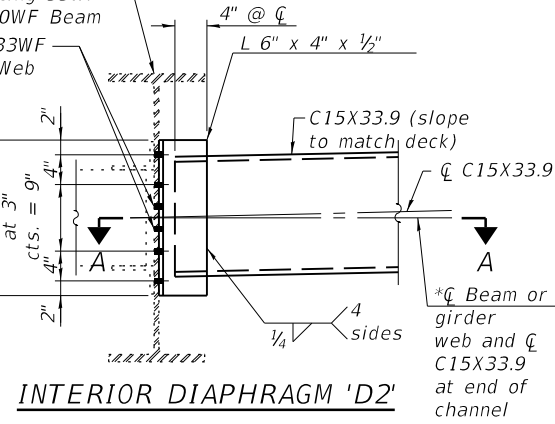
STRUCTURAL STEEL
STRUCTURE NO. 031-0015

SHEET 18 OF 24 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	35
CONTRACT NO. 76M21				
		ILLINOIS	FED. AID PROJECT	



SECTION A-A



INTERIOR DIAPHRAGM 'D2'

Notes:
 Two hardened washers required for each set of oversized holes.
 **3/4" Ø HS bolts, 1 1/16" Ø holes
 All Structural Steel included in this detail shall be Galvanized.
 Contractor shall field measure each existing beam's bolt hole layout prior to fabrication of bearing stiffener angles.
 Cost included with Furnishing and Erecting Structural Steel.

33WF Beam Repair Chart

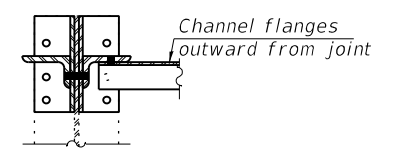
33WF Beams	Beam Repair Detail No.	S. Abut	Pier 4A S.
1	-	-	A1
2	-	-	D1
3	C1	-	D1
4	A1	-	D1
5	B1	-	D1
6	A1	-	A1

30WF Beam Repair Chart

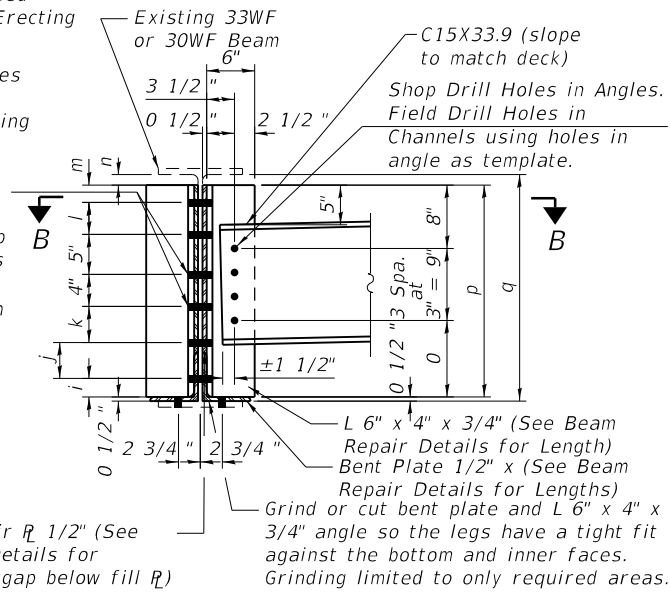
30WF Beams	Beam Repair Detail No.	Pier 4B N.	N. Abut.
1	A2	-	C2
2	D2	-	-
3	D2	-	-
4	D2	-	E2
5	D2	-	-
6	A2	-	D2

Beam Repair Dimensions Chart

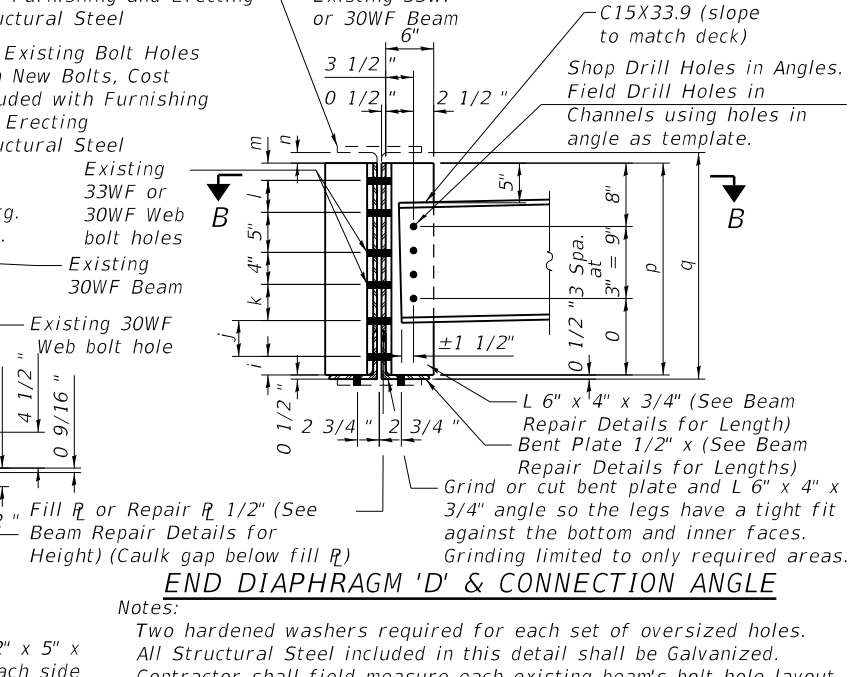
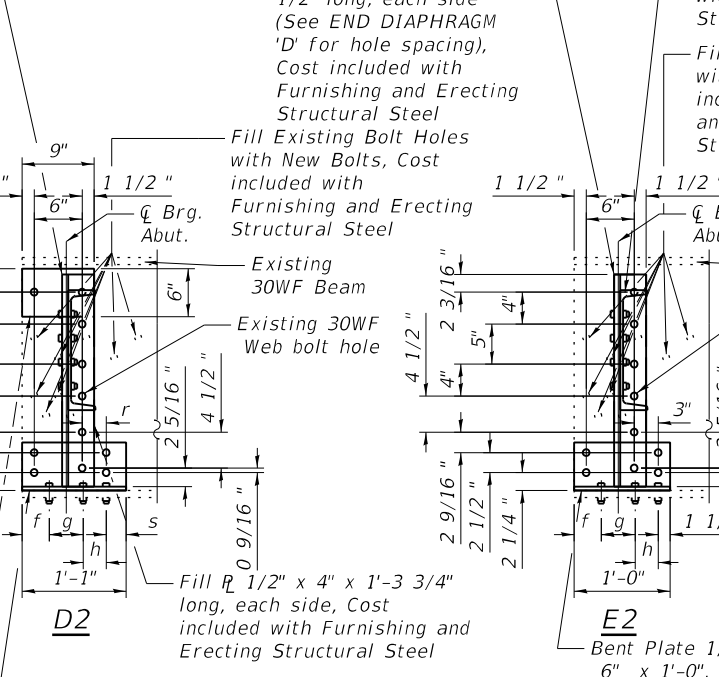
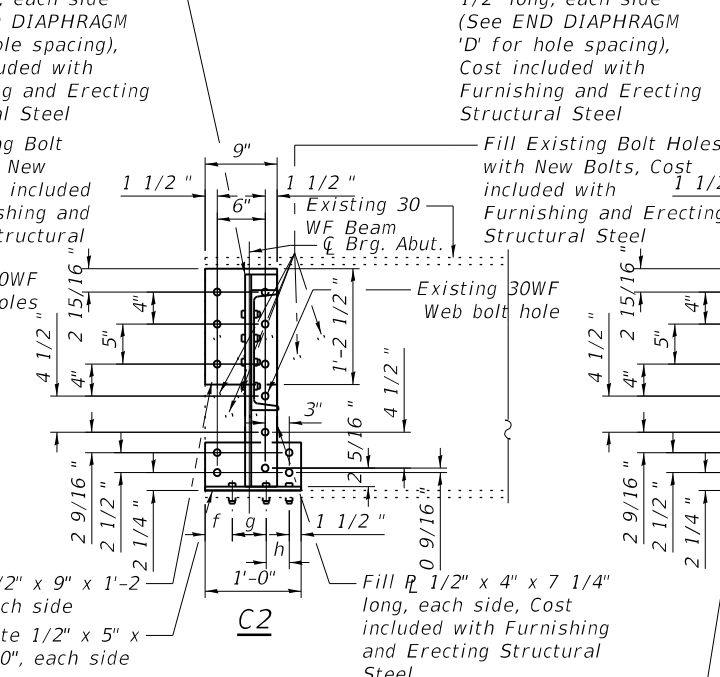
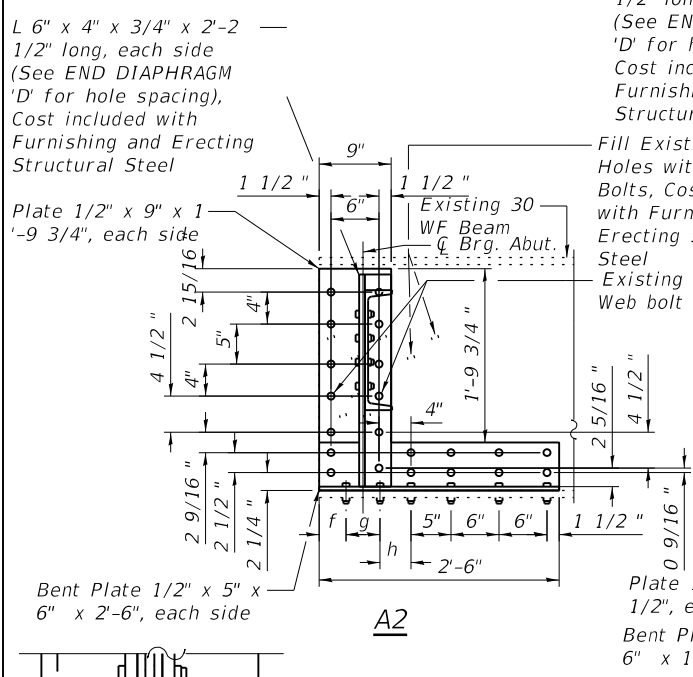
Dimensions	a	b	c	d	e	f	g	h	r	s
S. Abut. WF33 Beams	2"	5"	3 1/2"	6"	3"	-	-	-	-	-
Brg. A Pier 4 W33 Beams	3"	5"	3 1/2"	5"	4"	-	-	-	-	-
Brg. B Pier 4 W30 Beams	-	-	-	-	-	3"	5"	3 1/2"	4"	1 1/2"
N. Abut. WF30 Beams	-	-	-	-	-	2 1/2"	4"	4"	3"	2 1/2"



SECTION B-B



Notes:
 Two hardened washers required for each set of oversized holes.
 All Structural Steel included in this detail shall be Galvanized.
 Contractor shall field measure each existing beam's bolt hole layout prior to fabrication of bearing stiffener angles.
 Cost included with Furnishing and Erecting Structural Steel.



BEAM REPAIR AND CONNECTION ANGLE

Notes:
 Two hardened washers required for each set of oversized holes.
 All Structural Steel included in this detail shall be Galvanized.
 Contractor shall field measure each existing beam's bolt hole layout prior to fabrication of bearing stiffener angles and bent plates.
 Grind or cut bent plate and L 6" x 4" x 3/4" angle so the legs have a tight fit against the bottom and inner face of the bent plate.
 Cost included with Structural Steel Repair, unless noted otherwise.

End Diaphragm Dimensions Chart for 33WF Beams

Dimensions	i	j	k	l	m	n	o	p	q
Angle to Flange	2 1/2"	4 1/4"	3 3/4"	6"	4"	1 3/8"	-	-	-
Channel to Angle	-	-	-	-	-	-	1'-0 1/2"	2'-5 1/2"	2'-7 3/8"

End Diaphragm Dimensions Chart for 30WF Beams

Dimensions	i	j	k	l	m	n	o	p	q
Angle to Flange	2 5/16"	4 1/2"	4 1/2"	4"	2 3/16"	1 1/4"	-	-	-
Channel to Angle	-	-	-	-	-	-	9 1/2"	2'-2 1/2"	2'-4 1/4"

Furnishing and Erecting Structural Steel is for diaphragms only.
 Structural Steel Repair covers all other steel shown.

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	9460
Structural Steel Removal	Pound	7640
Structural Steel Repair	Pound	2040

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**STRUCTURAL STEEL
 STRUCTURE NO. 031-0015**

SHEET 19 OF 24 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	36

CONTRACT NO. 76M21

MODEL: Layout1
 FILE NAME: P:\10E2166-29\FAP 10_IL 267_3BR-2_Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-019-Frame2.dgn
 4/15/2019 4:28:43 PM

BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN REGISTRATION NO. 184-000852

USER NAME	DESIGNED	REVISION
=	MBH	4/11/19
CHECKED	RHB	REVISED
PLOT SCALE	MBH	REVISED
PLOT DATE	RHB	REVISED

MODEL: Layout1
 FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-020-Steel.dgn

EXTERIOR GIRDER MOMENT TABLE								
		0.4 Sp. 1 or 0.6 Sp. 4	Pier 1 or 3	0.5 Sp. 2 or Sp. 3	Pier 2	0.4 Sp. 5 or 0.6 Sp. 7	Pier 5 or 6	0.5 Sp. 6
		33WF125	33WF125	33WF125	33WF125	30WF116	30WF116	30WF116
<i>I_s</i>	(in ⁴)	6355	10841	6355	10841	4930	8299	4930
<i>I_c(n)</i>	(in ⁴)	18145	-	18145	-	14709	-	14709
<i>I_c(3n)</i>	(in ⁴)	13278	-	13278	-	10764	-	10764
<i>S_s</i>	(in ³)	385	645	385	645	329	543	329
<i>S_c(n)</i>	(in ³)	589	-	589	-	513	-	513
<i>S_c(3n)</i>	(in ³)	531	-	531	-	463	-	463
<i>Z</i>	(in ³)	-	704	-	704	-	597	-
<i>ϕ</i>	(k')	0.94	1.00	0.94	1.00	0.93	0.98	0.93
<i>M_ϕ</i>	(k)	306.5	656.6	273.0	662.5	223.4	514.7	230.5
<i>s_ϕ</i>	(k')	0.025	0.025	0.025	0.025	0.025	0.025	0.025
<i>M_{sϕ}</i>	(k)	9.2	14.9	9.4	15.8	6.8	11.8	8.2
<i>M_l</i>	(k)	494.8	368.2	539.6	407.4	419.7	296.3	463.8
<i>M_{IM}</i>	(k)	126.2	93.9	126.1	95.2	112.2	79.2	113.1
<i>S₃ [M_l + i]</i>	(k)	1035.0	770.2	1109.4	837.6	886.6	625.9	961.5
<i>M_a</i>	(k)	1748.8	1859.7	1804.9	1958.3	1446.5	1487.1	1555.7
<i>M_u</i>	(k)	2355	2316	2355	2316	2062	1937	2062
<i>f_s ϕ non-comp</i>	(ksi)	9.55	12.22	8.51	12.33	8.15	11.37	8.41
<i>f_s ϕ (comp)</i>	(ksi)	0.21	-	0.21	-	0.18	-	0.21
<i>f_s S₃ [M_l + M_i]</i>	(ksi)	21.09	14.33	22.60	15.58	20.74	13.83	22.49
<i>f_s (Overload)</i>	(ksi)	30.85	26.55	31.32	27.91	29.07	25.20	31.11
<i>f_s (Total)</i>	(ksi)	-	-	-	-	-	-	-
<i>VR</i>	(k)	46.5	-	38.8	-	45.8	-	37.9

*
**

EXTERIOR GIRDER REACTION TABLE						
	S. Abut. or Pier 4	Pier 1 or 3	Pier 2	Pier 4 or N. Abut.	Pier 5 or 6	
	33WF125	33WF125	33WF125	30WF116	30WF116	
<i>R_ϕ</i>	(k)	24.4	86.1	85.6	20.7	75.8
<i>R_l</i>	(k)	35.7	50.0	52.3	34.9	45.9
<i>R_i</i>	(k)	9.1	12.8	12.2	9.3	12.3
<i>R_{Total}</i>	(k)	69.2	148.9	150.1	64.9	134.0

* Compact section
 ** Braced non-compact and partially braced section

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing *f_s*(Total and Overload) due to non-composite dead loads (in.⁴ and in.³).
I_c(n), S_c(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing *f_s*(Total and Overload) due to short-term composite live loads (in.⁴ and in.³).
I_c(3n), S_c(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing *f_s*(Total and Overload) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).
Z: Plastic Section Modulus of the steel section in non-composite areas (in.³).
ϕ: Un-factored non-composite dead load (kips/ft.).
M_ϕ: Un-factored moment due to non-composite dead load (kip-ft.).
s_ϕ: Un-factored long-term composite (superimposed) dead load (kips/ft.).
M_{sϕ}: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
M_l: Un-factored live load moment (kip-ft.).
M_i: Un-factored moment due to impact (kip-ft.).
M_a: Factored design moment (kip-ft.).
 1.3 [M_ϕ + M_{sϕ} + $\frac{5}{3}$ (M_l + M_i)]
M_u: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
f_s (Overload): Sum of stresses as computed from the moments below (ksi).
 M_ϕ + M_{sϕ} + $\frac{5}{3}$ (M_l + M_i)
f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 1.3 [M_ϕ + M_{sϕ} + $\frac{5}{3}$ (M_l + M_i)]
VR: Maximum *l* + impact shear range within the composite portion of the span for stud shear connector design (kips).

BA BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME =	DESIGNED - MBH	REVISED -
CHECKED - RHB	REVISED -	
PLOT SCALE =	DRAWN - MBH	REVISED -
PLOT DATE =	CHECKED - RHB	REVISED -

**STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION**

**STEEL DETAILS
 STRUCTURE NO. 031-0015**

SHEET 20 OF 24 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	37
CONTRACT NO. 76M21				
ILLINOIS		FED. AID PROJECT		

BEAM REACTION TABLE

Expansion Bearing Reactions	Pier 4 S. Brg. (kips) 33WF125	Pier 4 N. Brg. (kips) 33WF130	Pier 4 N. Brg. (kips) 30WF116
Dead Load	3.6	3.8	2.9

Reactions for Dead Load are for dead load of steel only.

BEAM REACTION TABLE

Expansion Bearing Reactions	S. Abut. Brg. (kips) 33WF125	N. Abut. Brg. (kips) 33WF130	N. Abut. Brg. (kips) 30WF116
Dead Load	3.6	3.8	2.9

Reactions for Dead Load are for dead load of steel only.

TEMPORARY SHORING & CRIBBING PROCEDURE

1. Removal of existing deck.
2. Jacking existing beams. Jack capacity provided should be between 50% and 100% greater than maximum expected loading. For reaction table see above.
3. Remove bearings.
4. Removal of existing Pier Cap.
5. Construct new Pier Cap (including Temporary Shoring and Cribbing where required).
6. Install new bearings.
7. Jack existing beams to proposed position and complete construction.

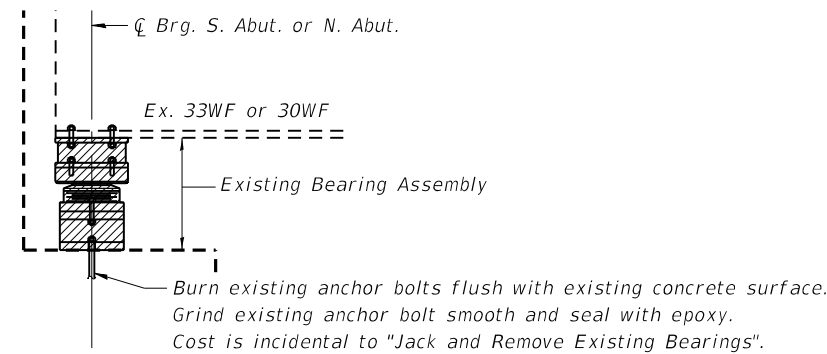
JACK & REMOVE EXISTING BEARING PROCEDURE

1. Removal of existing deck.
2. Jacking existing superstructure. Jack capacity provided should be between 50% and 100% greater than maximum expected loading. For reaction table see above.
3. Remove bearings.
4. Jack existing beams to proposed position and complete construction.

JACKING EXISTING SUPERSTRUCTURE & REMOVING BEARING NOTES

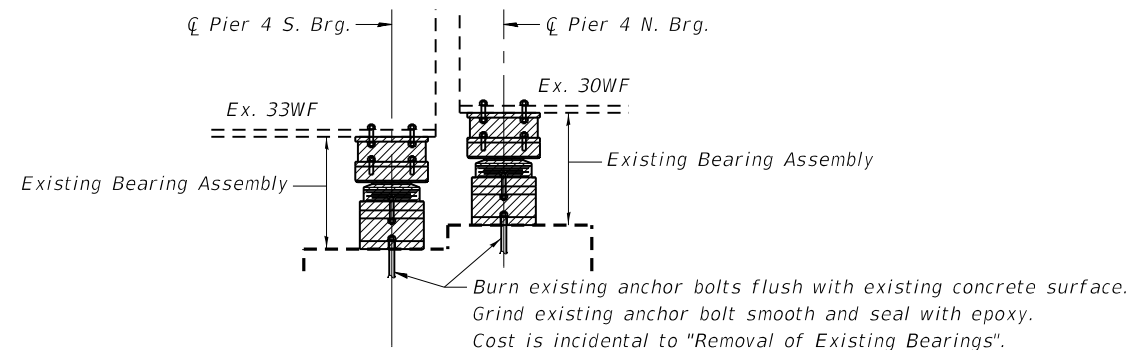
1. Jacking existing superstructure shall be done after the existing deck is removed.
2. The Contractor shall submit plans for jacking the existing superstructure for approval by the Engineer prior to commencing any work with the bearings. The submittal shall be prepared and sealed by a Licensed Structural Engineer in Illinois.
3. It shall be the Contractor's responsibility to verify beam elevations before and after the beams are jacked.
4. The lifting of the structure shall be controlled so that the relative elevation between adjacent beams does not vary more than 1/4 inch from their original elevation differential.
5. The relative elevations at adjacent substructure units shall not vary more than 3/4 inch from the original relative elevations.
6. A synchronous lifting system shall be used to control and equalize individual jack pressures to insure that the superstructure is lifted uniformly without exceeding the above stated relative elevation differentials.
7. The jack capacity provided shall be between 50% and 100% greater than the maximum expected loading. For reaction table see above.
8. The diaphragms shall not be used as load carrying members in the jacking and cribbing system.
9. When jacks are placed directly under a beam, the jack shall be centered under the web and a steel plate shall be placed between the top of the jack and the bottom flange of the beam. When web stiffeners bearing on the bottom flange do not exist directly over the location of the jack under a steel beam, hardwood timbers shall be installed tightly between the top and bottom flange to prevent flange rotation. Steel stiffening angles shall be attached to the web of the beam when the beam web thickness is not adequate to carry the jacking load. Steel plates shall be placed under jacks bearing directly on the existing substructure to distribute the jacking load and prevent damage to the existing concrete.
10. Jacks shall be placed in a manner and in locations that will ensure that the jacks will be equally loaded and the load will be uniformly distributed to the foundation of the jacking system.
11. The following maximum allowable pressures shall be used to determine the area of the timber mats supporting jacking systems.

Supporting Material	Max. Allowable Pressure
Natural Ground (Unsaturated).....	0.5 tons/sq. ft.
Conc. Slope walls & Bit. Shoulders.....	1.0 tons/sq. ft.
Bituminous Pavements.....	2.0 tons/sq. ft.
Concrete Pavements.....	4.0 tons/sq. ft.



JACK & REMOVE EXISTING BEARING DETAIL

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



REMOVAL OF EXISTING BEARING DETAIL

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

BILL OF MATERIAL

Item	Unit	Total
Jack and Remove Existing Bearings	Each	12
Removal of Existing Bearings	Each	12
Temporary Shoring and Cribbing	Each	12

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING REMOVAL DETAILS
STRUCTURE NO. 031-0015

SHEET 21 OF 24 SHEETS

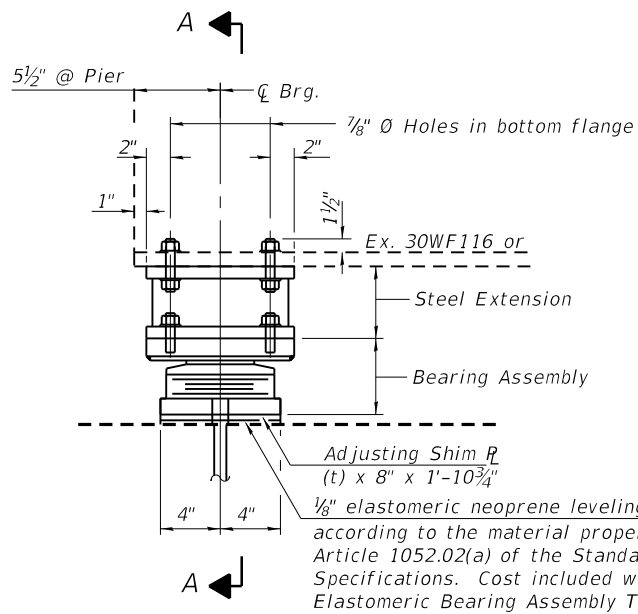
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	38
CONTRACT NO. 76M21				

ILLINOIS FED. AID PROJECT

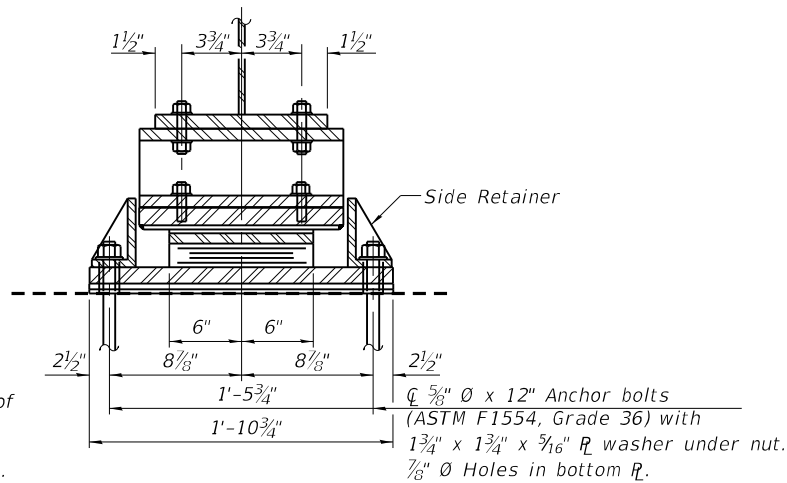
MODEL: Layout1
FILE NAME: P:\110E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-021-Removal.dgn
3/1/2019 4:02:12 PM

BA BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
JACKSONVILLE, IL 62650
PHONE: 217-245-4146 FAX: 217-245-4149
IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME =	DESIGNED - MBH	REVISED -
	CHECKED - RHB	REVISED -
PLOT SCALE =	DRAWN - MBH	REVISED -
PLOT DATE =	CHECKED - RHB	REVISED -

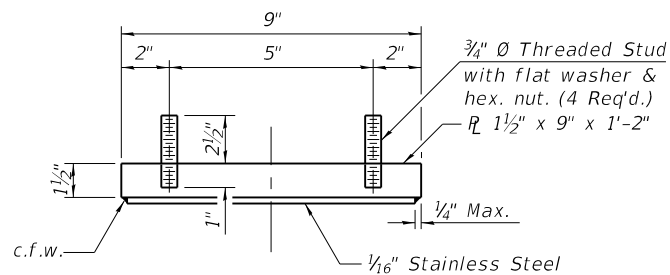


ELEVATION AT PIER 4 (BENT 5) NORTH BRG.

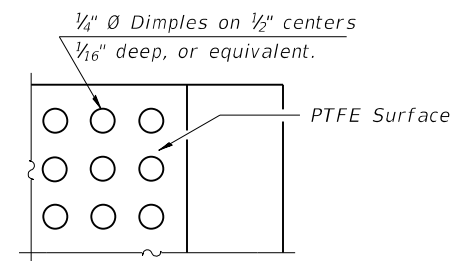


SECTION A-A

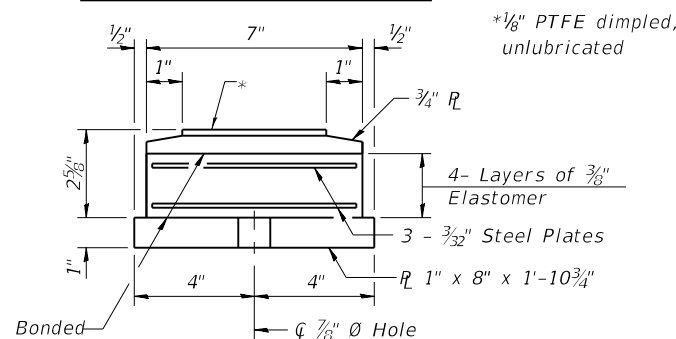
TYPE II ELASTOMERIC EXP. BRG.



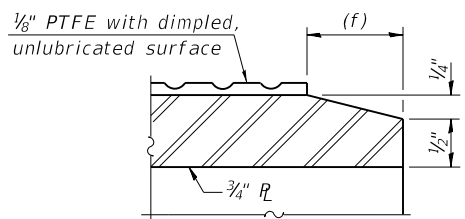
TOP BEARING ASSEMBLY



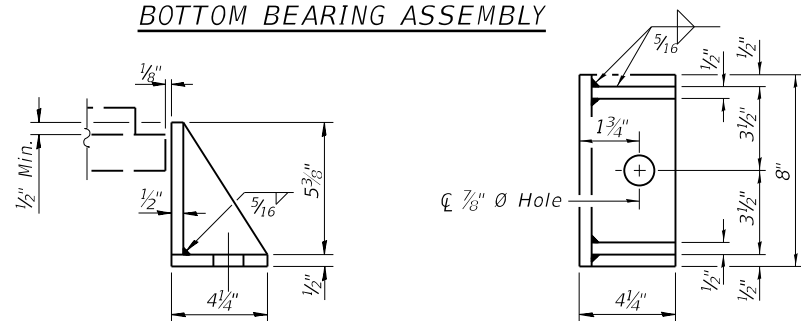
PLAN-PTFE SURFACE



BOTTOM BEARING ASSEMBLY

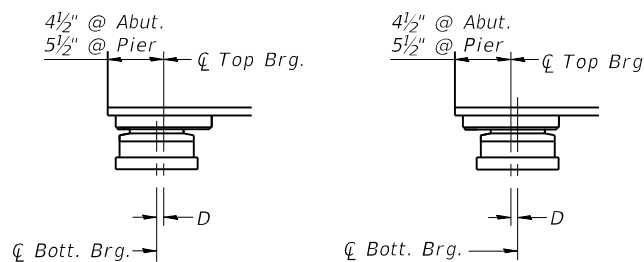


SECTION THRU PTFE



SIDE RETAINER

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

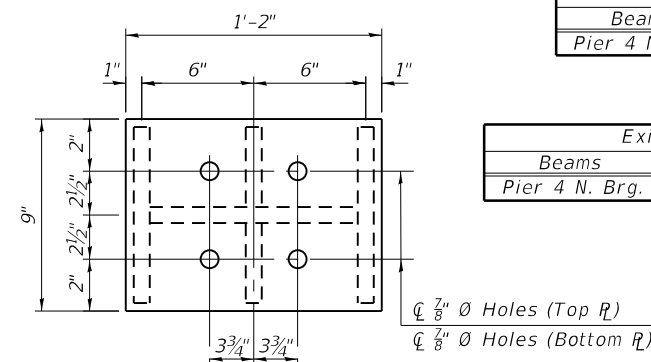


BELOW 50°F. ABOVE 50°F.
D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

EXPANSION BEARING ORIENTATION

The above diagrams are for informational purposes only to show the amount of expected offset "D" for the current temperature in the field.

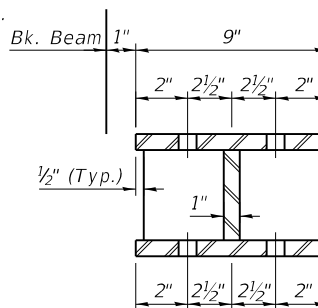
Pier 4 N. Brg. Bearing Properties		
Dimensions	a	b
Beam 1 Brg.	4 1/2"	2 1/2"
Beam 2 Brg.	6 3/16"	4 3/16"
Beam 3 Brg.	6 3/16"	4 3/16"
Beam 4 Brg.	6 3/16"	4 3/16"
Beam 5 Brg.	6 3/16"	4 3/16"
Beam 6 Brg.	4 1/2"	2 1/2"



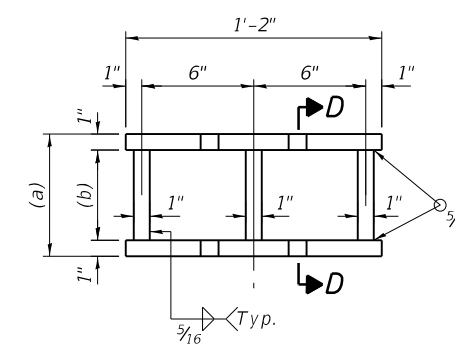
PLAN TOP & BOTTOM PLATE

Bearing Shim R Thickness - t (inches)						
Beams	1	2	3	4	5	6
Pier 4 N. Brg.	0"	0"	1/2"	1/4"	0"	3/8"

Existing Bearing Seat Elevation Table						
Beams	1	2	3	4	5	6
Pier 4 N. Brg.	507.10'	507.10'	507.10'	507.10'	507.10'	507.10'



SECTION D-D



STEEL EXTENSION DETAIL

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	600
Elastomeric Bearing Assembly Type II	Each	6
Anchor Bolts, 5/8"	Each	12

MODEL: Layout1
FILE NAME: P:\10E2166-29\FAP 10 IL 267 3BR-2 Apple Creek 76M21\CADD Sheets\Structure Sheets\0310015-76M21-023-Bearing2.dgn
3/6/2019 3:42:46 PM

BENTON & ASSOCIATES, INC.
CONSULTING ENGINEERS / LAND SURVEYORS
1970 WEST LAFAYETTE AVE.
LICKSVILLE, IL 62550
PHONE: 217-245-2146 FAX: 217-245-4149
ILLINOIS DESIGN FIRM REGISTRATION NO. 184-000852

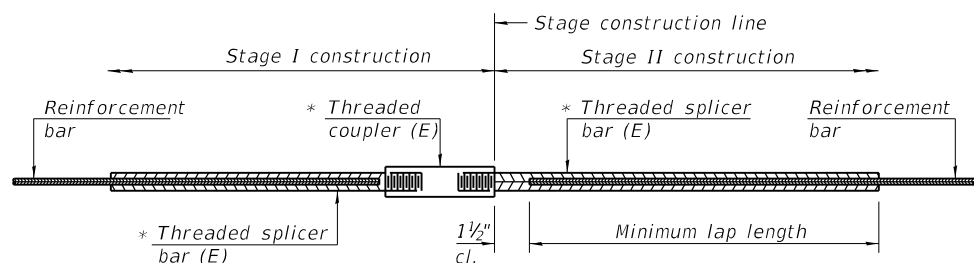
USER NAME	DESIGNED	REVISION
= MBH	- MBH	- 3/6/19
= RHB	- RHB	-
= MBH	- MBH	-
= RHB	- RHB	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS
STRUCTURE NO. 031-0015

SHEET 23 OF 24 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	40
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

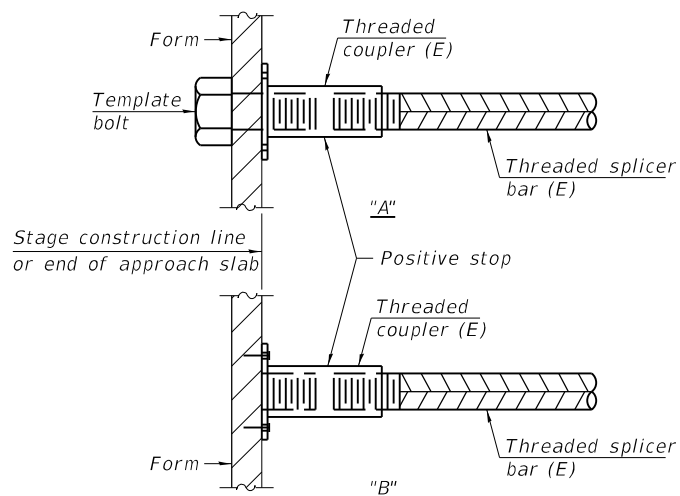


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

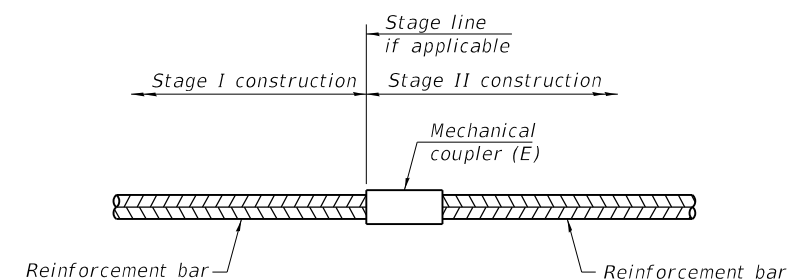
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Superstructure	#5	1463	3'-2"
Superstructure	#6	20	3'-2"
Abutments	#5	16	3'-2"
Pier 4	#7	8	5'-8"
Pier 4	#5	2	3'-7"



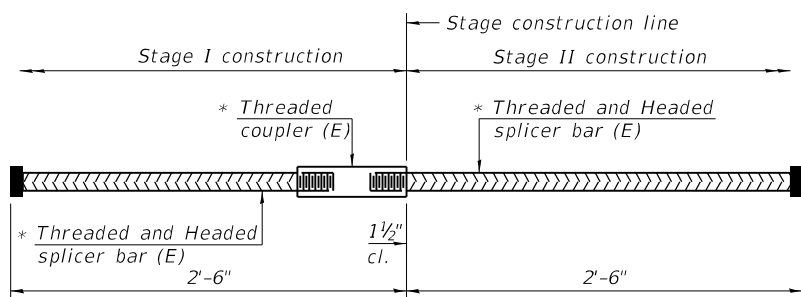
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
 (E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required

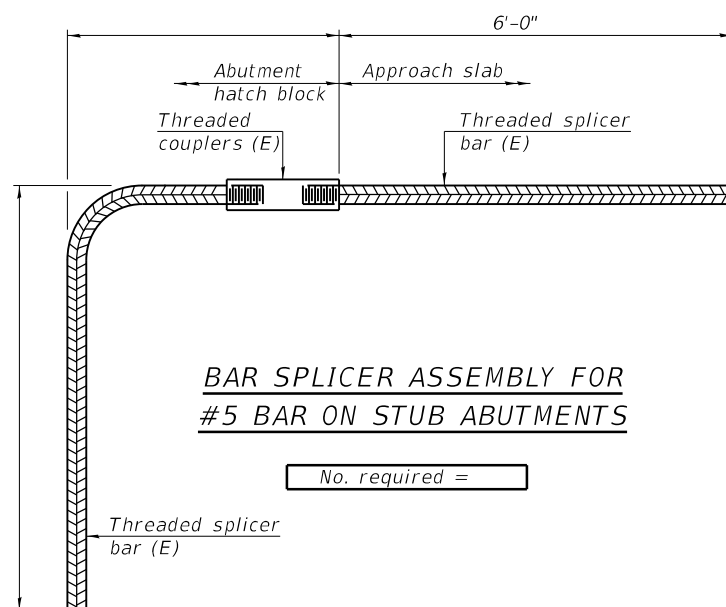


HEADED BAR SPLICER ASSEMBLY

Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706.

* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required
Superstructure	#5	12



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.
 All reinforcement shall be lapped and tied to the splicer bars.
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

MODEL: SMODELNAMES
 FILE NAME: SFILES

BA BENTON & ASSOCIATES, INC.
 CONSULTING ENGINEERS / LAND SURVEYORS
 1970 WEST LAFAYETTE AVE.
 JACKSONVILLE, IL 62650
 PHONE: 217-245-4146 FAX: 217-245-4149
 IL DESIGN FIRM REGISTRATION NO. 184-000852

USER NAME =	DESIGNED - MBH	REVISED - 3/7/19
PLOT SCALE =	CHECKED - RHB	REVISED -
PLOT DATE =	DRAWN - MBH	REVISED -
	CHECKED - RHB	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
 STRUCTURE NO. 031-0015

SHEET 24 OF 24 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
10	3BR-2	GREENE	41	41
CONTRACT NO. 76M21				
ILLINOIS FED. AID PROJECT				

SDATES STIMES