11-9-12 LETTING ITEM 071

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	1
	ILLINOIS	CONTRACT NO. 60V68		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS
F.A.P. 330 (US 12/45)

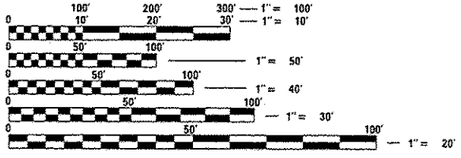
MANNHEIM ROAD SOUTH (IRVING PARK ROAD (IL 19) TO I–190)
BALMORAL AVENUE FLYUNDER RAMP
BEAM AND BEARING FABRICATION

SECTION: 0105–F
PROJECT: ACNHF-0330(068)

COOK COUNTY
C–91–056–13

D–91–399–09

LOCATION OF SECTION INDICATED THUS: –



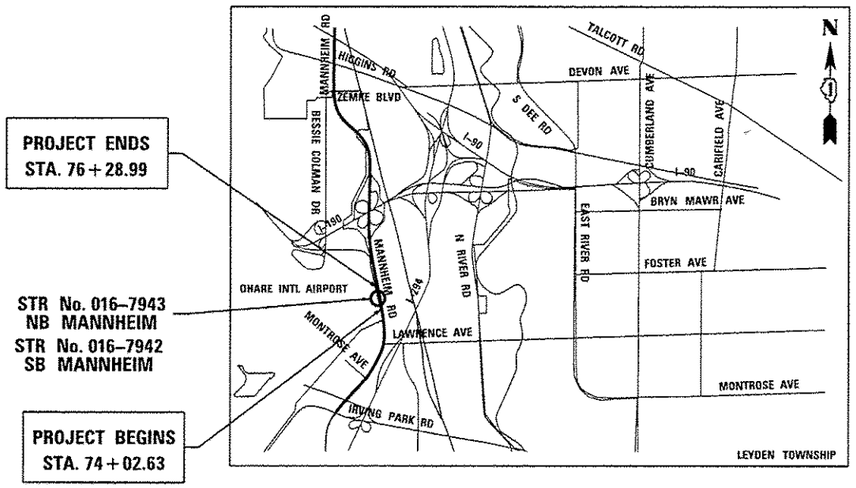
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

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

INDEX OF SHEETS

STATE OF ILLINOIS
MAJID MOBASSERI
081-005058
CHAMPAIGN, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Majid Mobasseri 8/20/2012
MAJID MOBASSERI
ILLINOIS REGISTRATION No. 081-005058 STRUCTURAL ENGINEER
EXPIRATION DATE: 11/30/12



LAYOUT MAP
N.T.S.

GROSS LENGTH = 226.36 FT. = 0.04 MILE
NET LENGTH = 226.36 FT. = 0.04 MILE

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED August 20, 20 12

DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

October 5 20 12

acting ENGINEER OF DESIGN AND ENVIRONMENT

October 5 20 12

acting DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

PROJECT ENGINEER: JOE SACCOMANNO (847) 705–4594
PROJECT MANAGER: SERIN KELLER (847) 705–4556

CONTRACT NO. 60V68

DISTRICT ONE DESIGN CONSULTANT SERVICES MANAGER: SERIN KELLER (847) 705–4556

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

SUMMARY OF QUANTITIES

URBAN
80% FED.
20% STATE

CODE NO.	ITEM	UNIT	TOTAL	STRUCTURAL 0013
50500205	FURNISHING STRUCTURAL STEEL	L SUM	1	1
50500455	STORAGE OF STRUCTURAL STEEL	CAL DAY	90	90
52100110	FURNISHING ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	20	20
52100300	STORAGE OF ELASTOMERIC BEARING ASSEMBLIES	CAL DAY	90	90

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

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	CHECKED - JMB	REVISED	
PLOT SCALE =	DRAWN - PDR	REVISED	
PLOT DATE =	CHECKED - MM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES
MANNHEIM ROAD BRIDGE OVER SOUTHBOUND EXIT RAMP
SHEET NO. 2 OF S-26 SHEETS

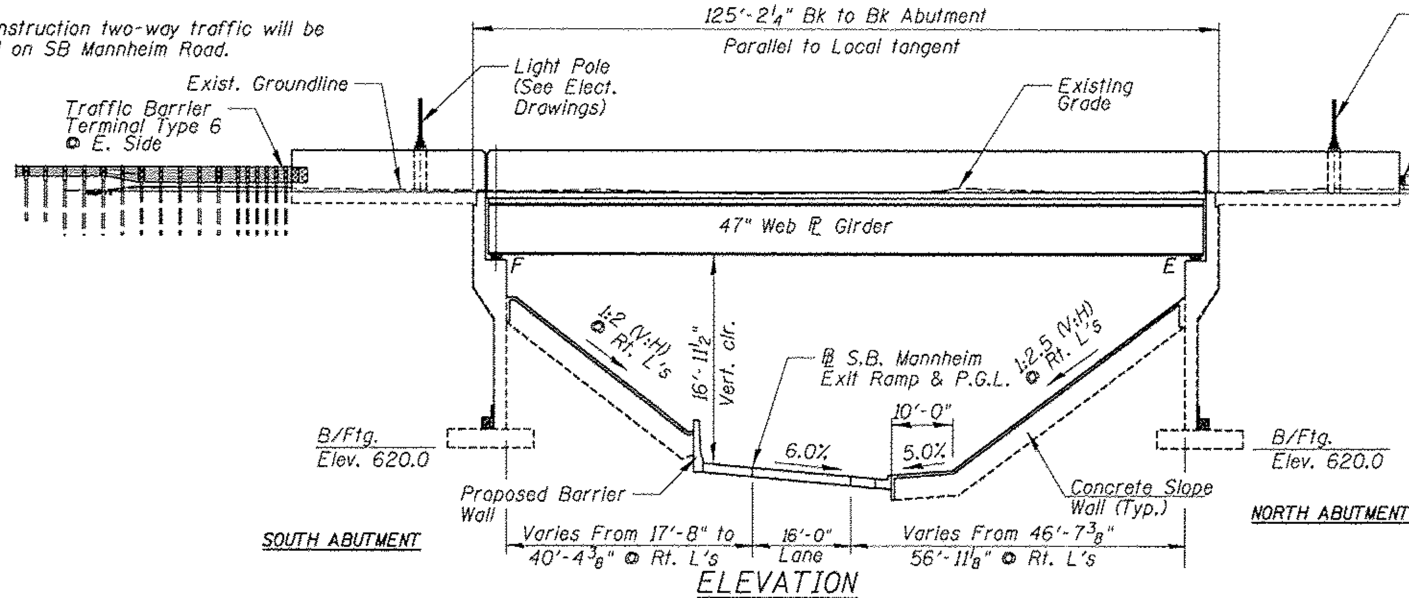
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	2
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

N:\ROSEMONT\1189\CADD\Sheets\Fabrication CADD Sheets\60-0187443-0180237-001_Sum_Quads.dgn

Bench Mark: MON 144 - Located East of Spine Road and West of Mannheim Road at the Southeasterly side of O'Hare Airport. Elev. 643.22

Existing Structure: None

During construction two-way traffic will be maintained on SB Mannheim Road.



ELEVATION

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications with 2010 Interim

LOADING HL-93

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

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.037g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.090g
Soil Site Class = C

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 50,000 psi (structural steel) (M270 Grade 50)
f_y = 60,000 psi (Reinf.)

CURVE DATA ALONG PGL RAMP A

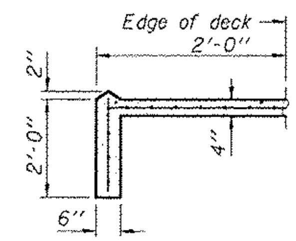
PROP. CURVE PRRAMPA-3
PI STA. = 14+55.27
Δ = 2° 03' 31" (LT)
D = 1° 43' 04"
R = 3,335.55'
T = 59.93'
L = 119.85'
E = 0.54'
e = ____
T.R. = ____
S.E. Run = ____
P.C. STA. = 13+95.34
P.T. STA. = 15+15.18

CURVE DATA ALONG ℄ MANNHEIM ROAD

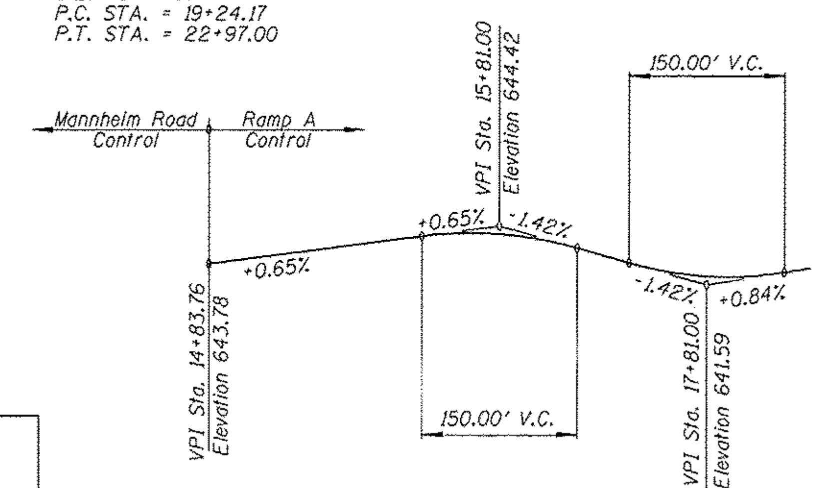
PROP. CURVE MANN2
PI STA. = 60+87.10
Δ = 55° 18' 45" (LT)
D = 1° 45' 00"
R = 3,274.04'
T = 1,715.72'
L = 3,160.72'
E = 422.32'
e = 3.20%
T.R. = 99'
S.E. Run = 154'
P.C. STA. = 43+71.38
P.T. STA. = 75+32.09
N.C. STA. = 79+09
FULL S.E. STA. = 76+60

CURVE DATA ALONG PL SB MANNHEIM EXIT RAMP

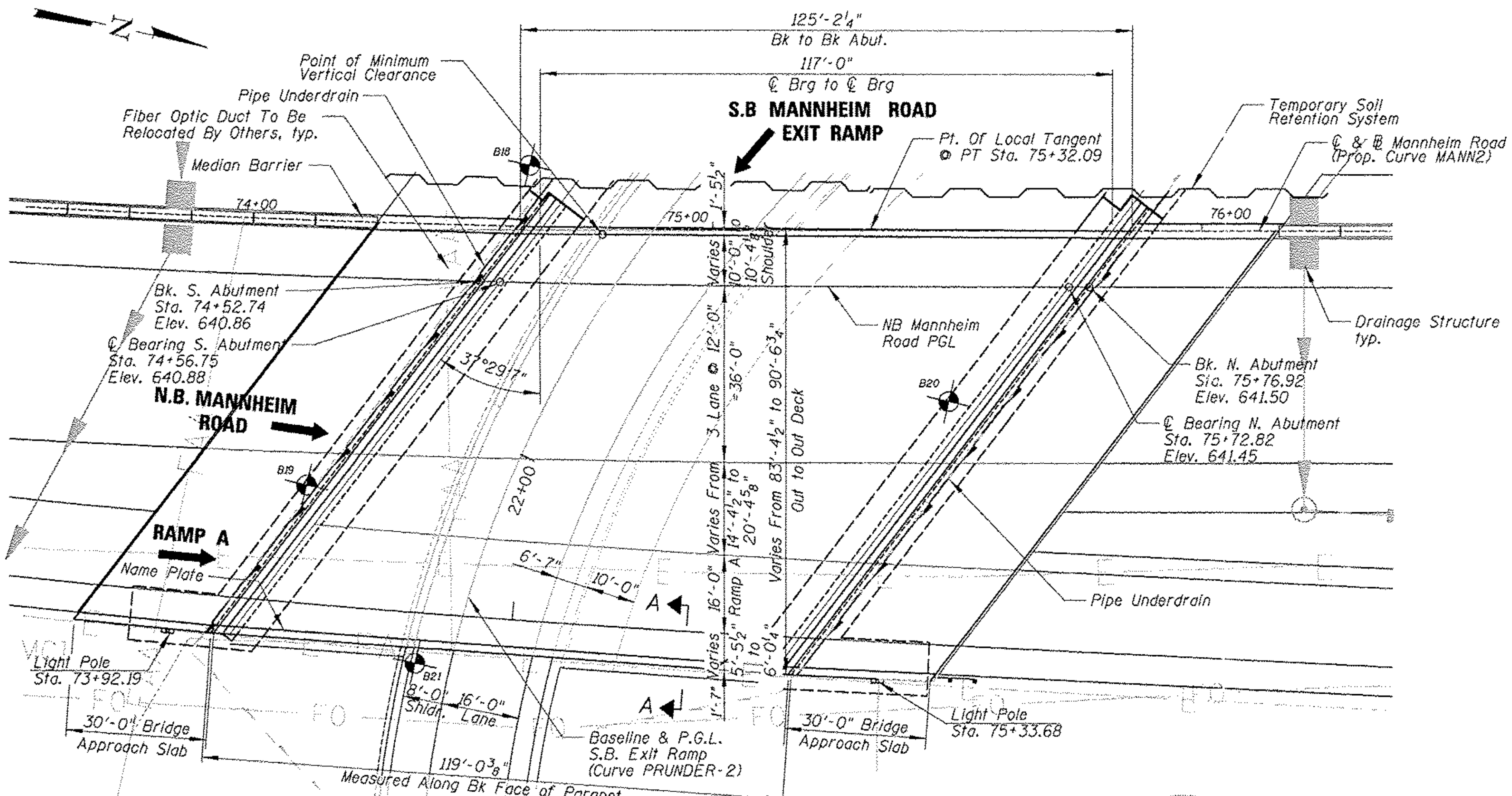
PROP. CURVE PRUNDER-2
PI STA. = 21+60.04
Δ = 89° 00' 23" (LT)
D = 23° 52' 24"
R = 240.00'
T = 235.87'
L = 372.83'
E = 96.51'
e = -6.0%
T.R. = 0'
S.E. Run = 97'
P.C. STA. = 19+24.17
P.T. STA. = 22+97.00



SECTION A-A



PROFILE GRADE-RAMP A

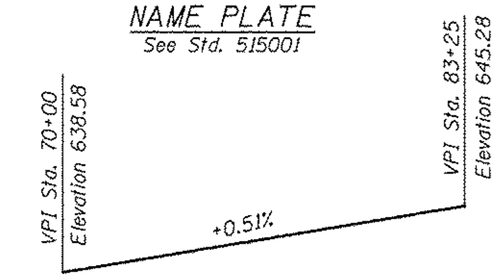


PLAN

STATION 75+14.79
BUILT BY
STATE OF ILLINOIS
F.A.P. RT. 330 SEC. 0105-WRS-1
LOADING HL-93
STRUCTURE NO. 016-7943

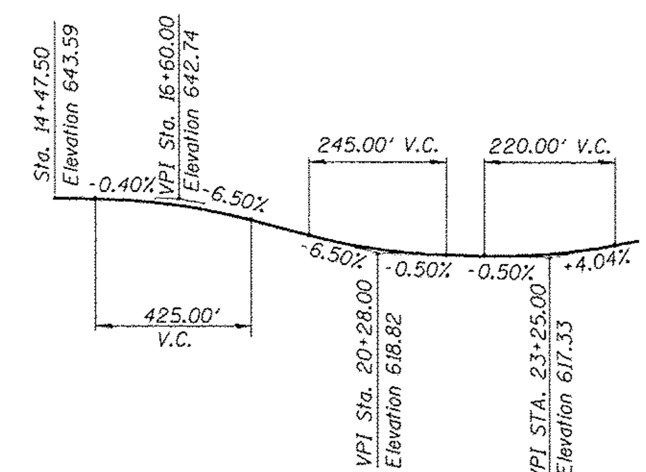
NAME PLATE

See Std. 515001

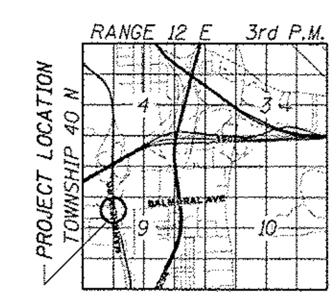


PROFILE GRADE-
N.B. MANNHEIM ROAD BRIDGE

Bridge Elevations Are Controlled by Mannheim Road Profile



PROFILE GRADE-S.B. MANNHEIM ROAD EXIT RAMP



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
N.B. MANNHEIM ROAD BRIDGE OVER SOUTHBOUND EXIT RAMP
F.A.P. RTE. 330-SEC 0105-WRS-1
COOK COUNTY
STATION 75+14.79
STRUCTURE NO. 016-7943

APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

STATE OF ILLINOIS MAJID MOBASSERI 081-005058 CHAMPAIGN, ILLINOIS LICENSED STRUCTURAL ENGINEER

8/20/12
MAJID MOBASSERI
ILLINOIS REGISTRATION No. 081-005058
STRUCTURAL ENGINEER
EXPIRATION DATE: 11/30/12

CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. Higgins Road, Suite 600 Rosemont, Illinois 60018 (847) 823-0500	USER NAME =	DESIGNED - MM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN AND ELEVATION NB MANNHEIM ROAD BRIDGE - STRUCTURE NO. 016-7943	F.A. RTE. 330	SECTION 0105-F	COUNTY COOK	TOTAL SHEETS 55	SHEET NO. 3
		CHECKED - JMB	REVISED							
	PLOT SCALE =	DRAWN - PDR	REVISED			CONTRACT NO. 60V68				
	PLOT DATE =	CHECKED - MM	REVISED		SHEET NO. S-1 OF S-26 SHEETS	ILLINOIS FED. AID PROJECT				

GENERAL NOTES

1. Fasteners shall be ASTM 325 Type 1, mechanically galvanized bolts. Bolts $\frac{3}{4}$ in. dia., holes $\frac{13}{16}$ in. dia., unless otherwise noted.

2. Calculated weight of Structural Steel = 306,990 lbs Grade 50
   29,800 lbs Grade 36

3. The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green Munsell No. 7.5G 4/8.

INDEX OF SHEETS

N.B. MANNHEIM ROAD BRIDGE
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER.	SUB.	TOTAL
FURNISHING STRUCTURAL STEEL	L SUM	0.6	———	0.6
FURNISHING ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	12	———	12
STORAGE OF STRUCTURAL STEEL	CAL DA	45	———	45
STORAGE OF ELASTOMERIC BEARING ASSEMBLIES	CAL DA	45	———	45

N:\ROSEMONT\11009\CADD_Sheets\Fabrication CADD_Sheets\04-0167943-D1608037-002_Gnotes.dgn

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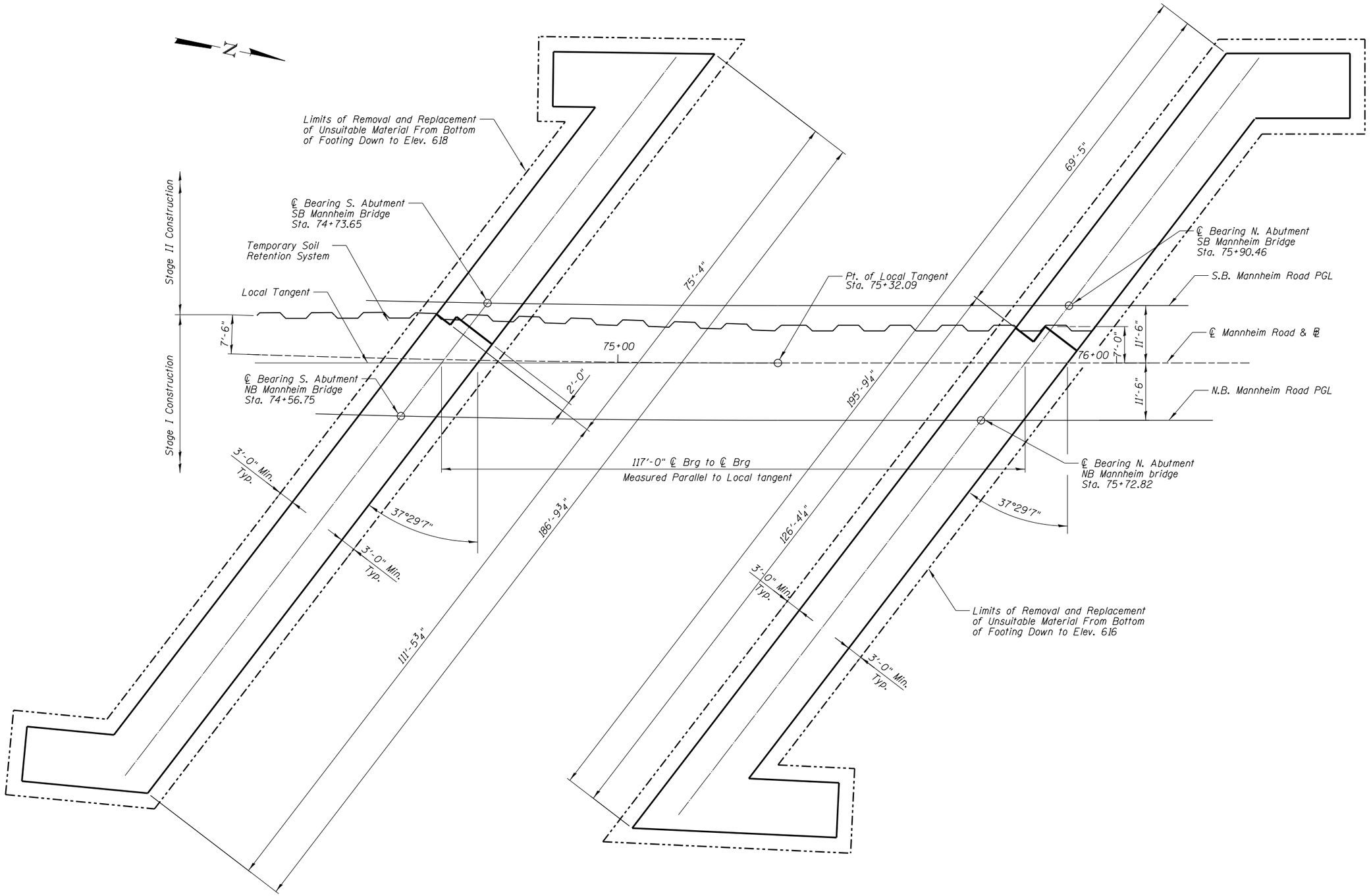
PLOT DATE =	CHECKED - MM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES & BILL OF MATERIAL
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7943
SHEET NO. S-2 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	4
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		



FOOTING LAYOUT

THIS SHEET IS FOR INFORMATION ONLY

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FOOTING LAYOUT AND DETAIL
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7943
SHEET NO. S-3 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	5
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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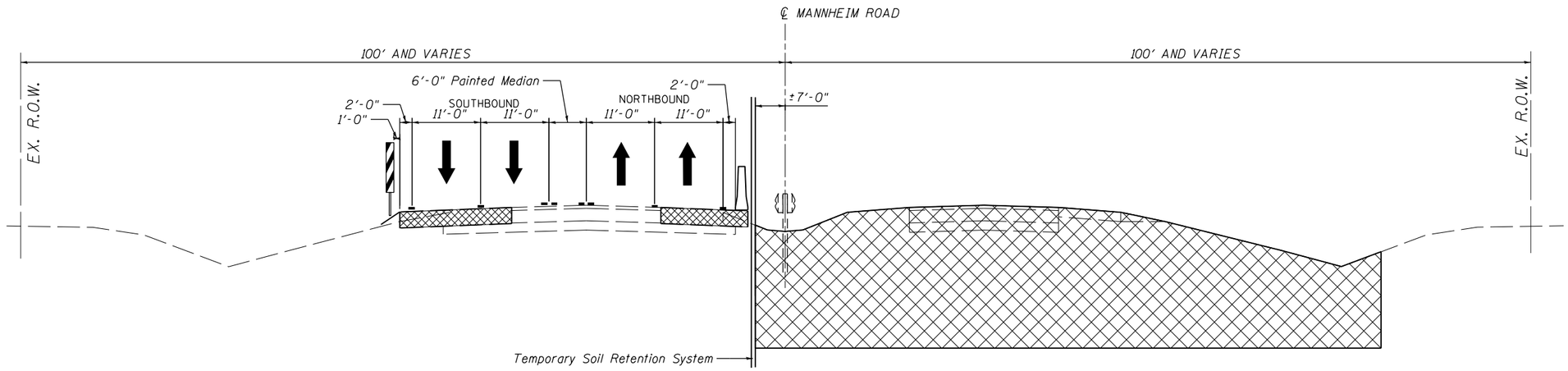
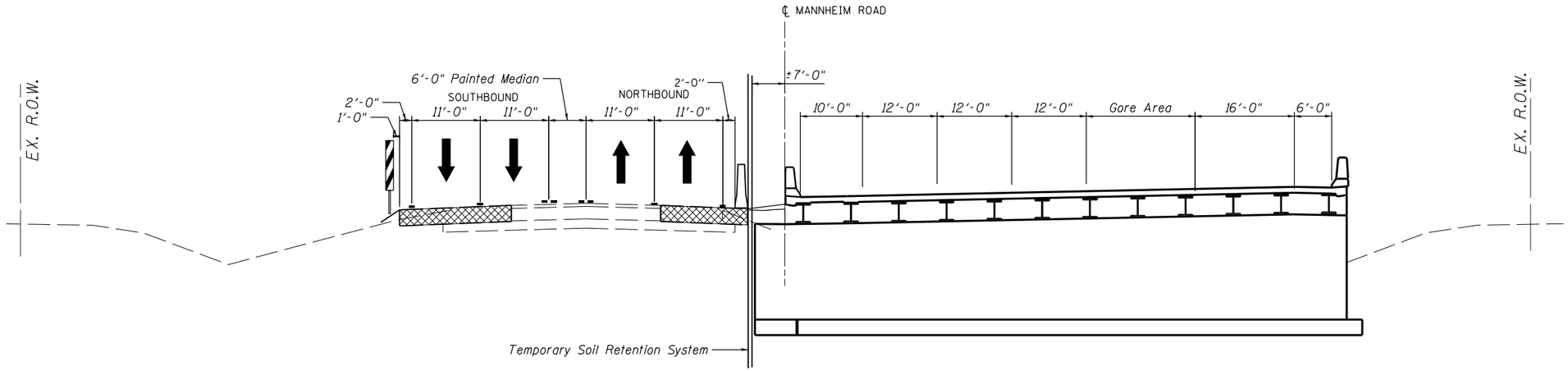


STAGE 1 REMOVAL

Looking North



STAGE 1 CONSTRUCTION

Looking North

Notes:

1. *Cross Hatched Area Indicates Removal.*
2. *See Roadway Plans for Removal Detail.*

THIS SHEET IS FOR INFORMATION ONLY

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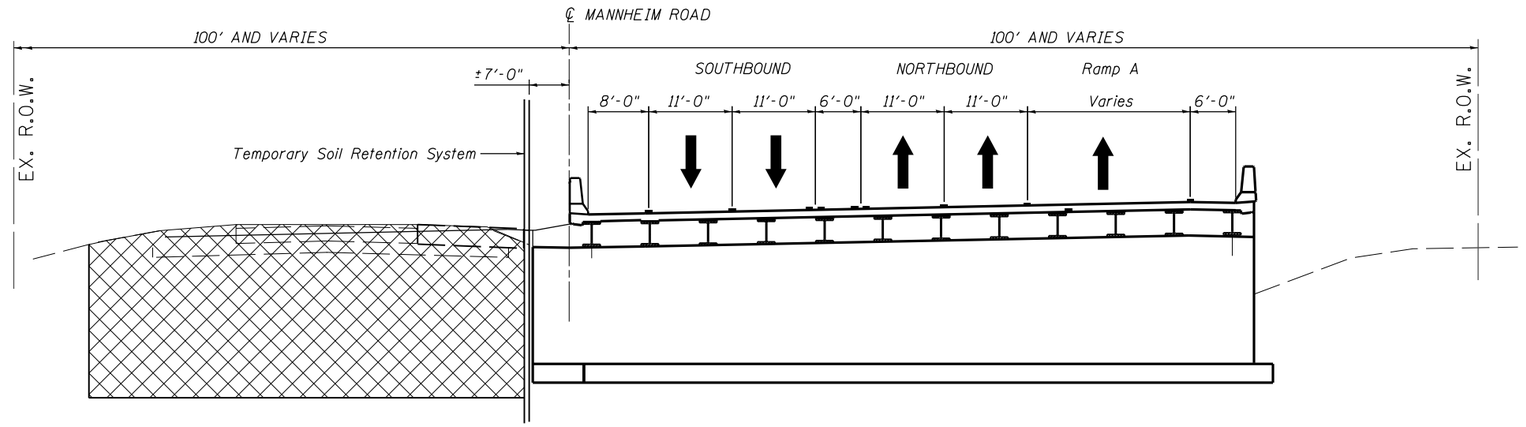
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

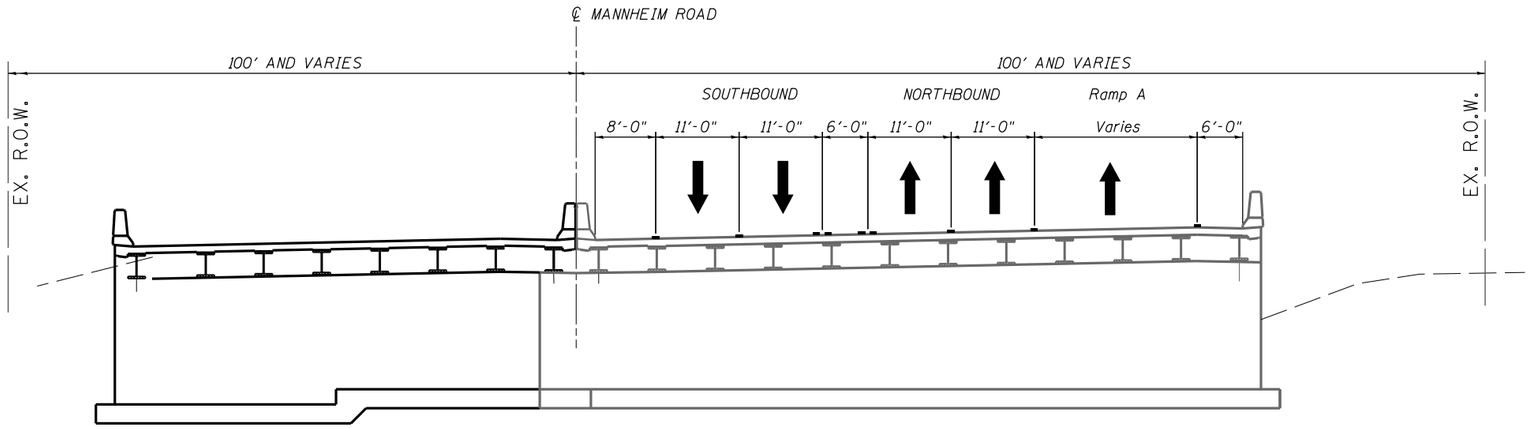
STAGE CONSTRUCTION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-4 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	6
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		



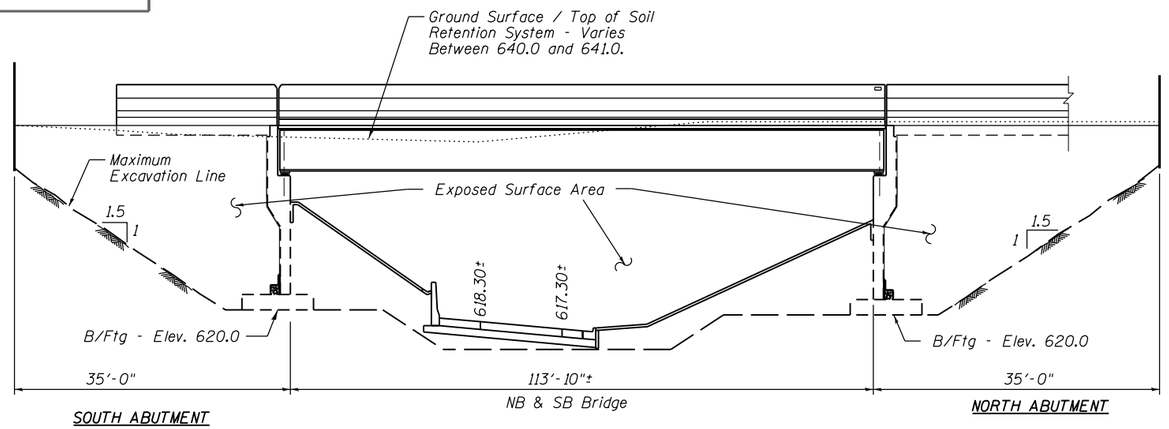
STAGE II REMOVAL

Looking North



STAGE II CONSTRUCTION

Looking North



LIMITS OF SOIL RETENTION SYSTEM

THIS SHEET IS FOR INFORMATION ONLY

Note: A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

Notes:

1. *Cross Hatched Area Indicates Removal.*
2. *See Roadway Plans for Removal Detail.*

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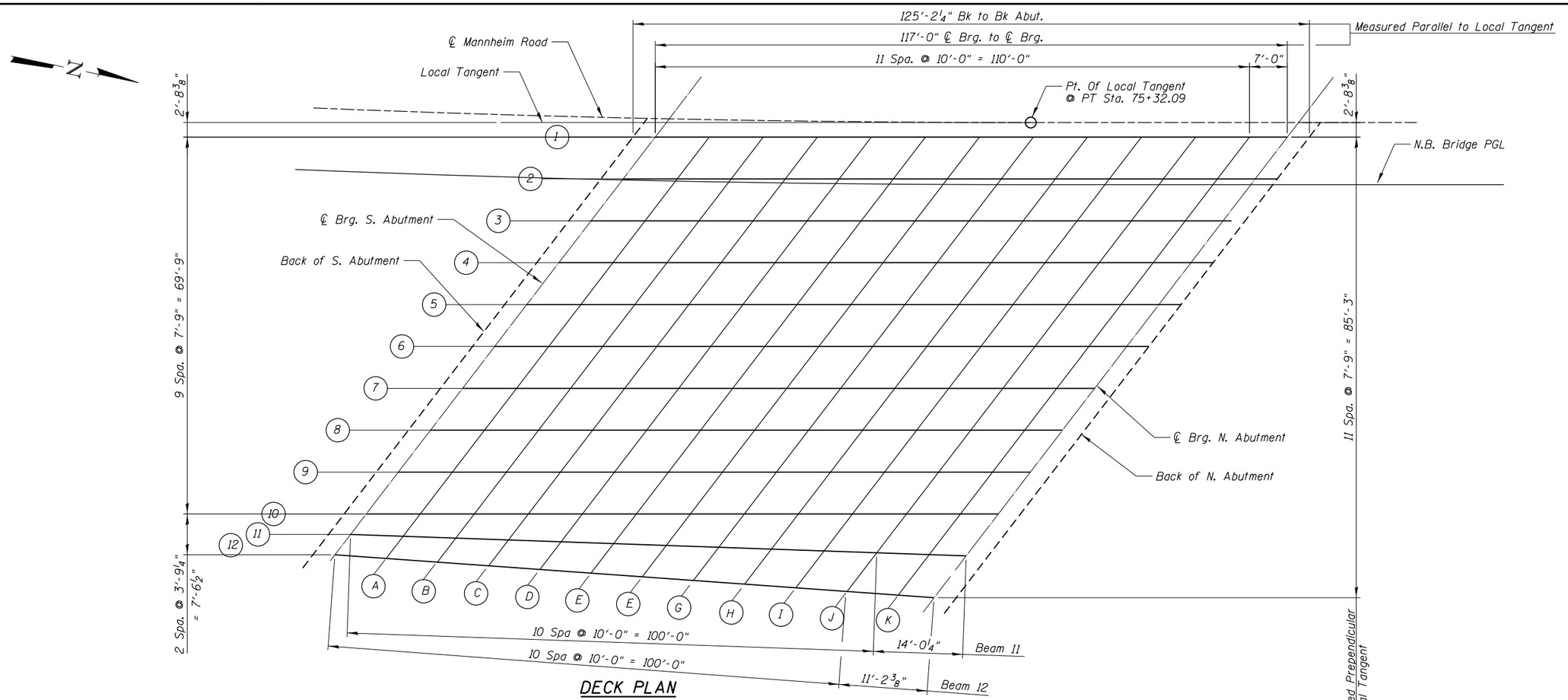
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7943

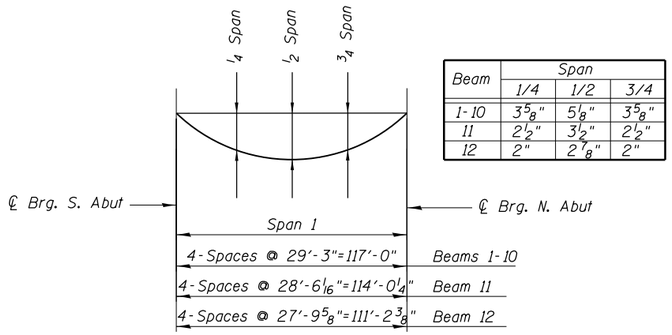
SHEET NO. S-5 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	7
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			



DECK PLAN

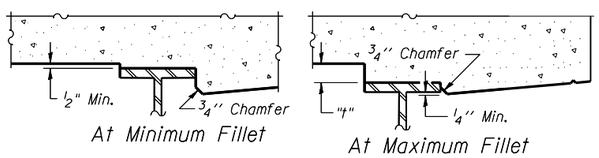
Note: All dimensions are Relative to the Local Tangent.



Beam	Span		
	1/4	1/2	3/4
1-10	3 5/8"	5 1/8"	3 5/8"
11	2½"	3½"	2½"
12	2"	2 7/8"	2"

DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)



NOTE:

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Drawing Nos. S-7 and S-8 minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

NOTE: All Dimensions Are Relative To The Local Tangent. Dimensions Are Measured Along Beams.

NOTE:

The deflections given above are not to be used in the field if the Engineer is working from the theorhetical grade elevations adjusted for dead load deflection.

N:\ROSEMONT\11008\CADD\Sheets\Fabrication CADD Sheets\08-0167943-D1680137-006 TOS Elevs.dgn

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Rosemont, Illinois 60018
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PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF DECK ELEVATION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-6 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	8
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

BEAM 1

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+58.55	-7.98	640.58	640.58
CL of Brg S. Abut.	74+62.64	-8.07	640.60	640.60
A	74+72.63	-8.27	640.64	640.75
B	74+82.62	-8.43	640.68	640.90
C	74+92.61	-8.57	640.73	641.03
D	75+02.60	-8.67	640.77	641.15
E	75+12.59	-8.75	640.82	641.23
F	75+22.59	-8.79	640.87	641.29
G	75+32.58	-8.81	640.92	641.32
H	75+42.58	-8.81	640.97	641.33
I	75+52.58	-8.81	641.02	641.30
J	75+62.58	-8.81	641.07	641.26
K	75+72.58	-8.81	641.12	641.20
CL of Brg N. Abut.	75+79.58	-8.81	641.16	641.16
Bck of N. Abut.	75+83.67	-8.81	641.18	641.18

BEAM 2

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+52.81	-0.09	640.86	640.86
CL of Brg S. Abut.	74+56.89	-0.19	640.88	640.88
A	74+66.85	-0.40	640.92	641.04
B	74+76.82	-0.59	640.97	641.19
C	74+86.78	-0.74	641.01	641.32
D	74+96.75	-0.86	641.06	641.43
E	75+06.72	-0.96	641.10	641.52
F	75+16.68	-1.02	641.15	641.57
G	75+26.65	-1.05	641.20	641.60
H	75+36.63	-1.06	641.25	641.61
I	75+46.63	-1.06	641.30	641.58
J	75+56.63	-1.06	641.35	641.54
K	75+66.63	-1.06	641.40	641.48
CL of Brg N. Abut.	75+73.63	-1.06	641.44	641.44
Bck of N. Abut.	75+77.73	-1.06	641.46	641.46

N.B. BRIDGE PGL

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+52.74	0.00	640.87	640.87
CL of Brg S. Abut.	74+56.75	0.00	640.89	640.77
A	74+66.56	0.00	640.94	641.05
B	74+76.38	0.00	640.99	641.21
C	74+86.23	0.00	641.04	641.35
D	74+96.10	0.00	641.09	641.46
E	75+06.00	0.00	641.14	641.55
F	75+15.91	0.00	641.19	641.61
G	75+25.85	0.00	641.24	641.64
H	75+35.82	0.00	641.29	641.64
I	75+45.82	0.00	641.34	641.62
J	75+55.82	0.00	641.39	641.58
K	75+65.82	0.00	641.44	641.52
CL of Brg N. Abut.	75+72.82	0.00	641.48	641.48
Bck of N. Abut.	75+76.92	0.00	641.50	641.50

BEAM 3

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+47.09	7.81	641.09	641.09
CL of Brg S. Abut.	74+51.16	7.70	641.11	641.11
A	74+61.10	7.47	641.15	641.26
B	74+71.04	7.27	641.19	641.41
C	74+80.98	7.10	641.24	641.55
D	74+90.92	6.96	641.28	641.66
E	75+00.86	6.84	641.33	641.74
F	75+10.81	6.76	641.38	641.80
G	75+20.75	6.71	641.43	641.83
H	75+30.70	6.70	641.48	641.83
I	75+40.69	6.70	641.53	641.81
J	75+50.69	6.70	641.58	641.77
K	75+60.69	6.70	641.63	641.71
CL of Brg N. Abut.	75+67.69	6.70	641.66	641.66
Bck of N. Abut.	75+71.79	6.70	641.68	641.68

BEAM 4

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+41.39	15.71	641.31	641.31
CL of Brg S. Abut.	74+45.45	15.60	641.33	641.33
A	74+55.37	15.35	641.37	641.49
B	74+65.29	15.13	641.42	641.63
C	74+75.20	14.94	641.46	641.77
D	74+85.12	14.78	641.50	641.88
E	74+95.04	14.66	641.55	641.96
F	75+04.96	14.56	641.60	642.02
G	75+14.88	14.49	641.65	642.05
H	75+24.80	14.45	641.70	642.05
I	75+34.75	14.45	641.75	642.03
J	75+44.75	14.45	641.80	641.99
K	75+54.75	14.45	641.85	641.93
CL of Brg N. Abut.	75+61.75	14.45	641.88	641.88
Bck of N. Abut.	75+65.84	14.45	641.90	641.90

BEAM 5

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+35.73	23.63	641.54	641.54
CL of Brg S. Abut.	74+39.78	23.51	641.55	641.55
A	74+49.67	23.24	641.60	641.71
B	74+59.56	23.01	641.64	641.86
C	74+69.46	22.80	641.68	641.99
D	74+79.35	22.62	641.73	642.10
E	74+89.25	22.48	641.77	642.18
F	74+99.14	22.36	641.82	642.24
G	75+09.04	22.28	641.87	642.27
H	75+18.94	22.22	641.91	642.27
I	75+28.84	22.20	641.96	642.25
J	75+38.80	22.20	642.01	642.20
K	75+48.80	22.20	642.06	642.14
CL of Brg N. Abut.	75+55.80	22.20	642.10	642.10
Bck of N. Abut.	75+59.90	22.20	642.12	642.12

BEAM 6

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+30.09	31.55	641.76	641.76
CL of Brg S. Abut.	74+34.13	31.43	641.78	641.78
A	74+44.00	31.15	641.82	641.93
B	74+53.86	30.89	641.86	642.08
C	74+63.73	30.67	641.90	642.21
D	74+73.61	30.47	641.95	642.32
E	74+83.48	30.31	641.99	642.41
F	74+93.35	30.18	642.04	642.46
G	75+03.23	30.07	642.09	642.49
H	75+13.10	30.00	642.13	642.49
I	75+22.97	29.96	642.18	642.46
J	75+32.86	29.95	642.23	642.42
K	75+42.86	29.95	642.28	642.36
CL of Brg N. Abut.	75+49.86	29.95	642.32	642.32
Bck of N. Abut.	75+53.96	29.95	642.34	642.34

BEAM 7

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+24.48	39.49	641.99	641.99
CL of Brg S. Abut.	74+28.51	39.36	642.00	642.00
A	74+38.35	39.06	642.05	642.16
B	74+48.19	38.79	642.09	642.31
C	74+58.04	38.55	642.13	642.44
D	74+67.89	38.33	642.17	642.54
E	74+77.74	38.15	642.22	642.63
F	74+87.59	38.00	642.26	642.68
G	74+97.44	37.88	642.31	642.71
H	75+07.29	37.79	642.35	642.71
I	75+17.14	37.73	642.40	642.68
J	75+26.99	37.70	642.45	642.64
K	75+36.92	37.70	642.50	642.58
CL of Brg N. Abut.	75+43.92	37.70	642.54	642.54
Bck of N. Abut.	75+48.01	37.70	642.56	642.56

*Note: All offsets are relative to PGL. Offsets are positive east of PGL and negative west of PGL.

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF DECK ELEVATION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-7 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	9
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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BEAM 8

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+18.89	47.44	642.21	642.21
CL of Brg S. Abut.	74+22.91	47.30	642.23	642.23
A	74+32.73	46.98	642.27	642.38
B	74+42.55	46.69	642.31	642.53
C	74+52.37	46.43	642.35	642.66
D	74+62.20	46.20	642.39	642.77
E	74+72.02	46.01	642.44	642.85
F	74+81.85	45.84	642.48	642.91
G	74+91.68	45.70	642.53	642.93
H	75+01.50	45.59	642.57	642.93
I	75+11.33	45.51	642.62	642.90
J	75+21.16	45.46	642.67	642.86
K	75+30.99	45.45	642.72	642.80
CL of Brg N. Abut.	75+37.97	45.45	642.75	642.75
Bck of N. Abut.	75+42.07	45.45	642.77	642.77

BEAM 9

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+13.33	55.39	642.44	642.44
CL of Brg S. Abut.	74+17.34	55.25	642.46	642.46
A	74+27.14	54.91	642.50	642.61
B	74+36.94	54.61	642.54	642.75
C	74+46.73	54.33	642.58	642.88
D	74+56.54	54.08	642.62	642.99
E	74+66.34	53.87	642.66	643.07
F	74+76.14	53.68	642.70	643.13
G	74+85.94	53.53	642.75	643.15
H	74+95.75	53.40	642.79	643.15
I	75+05.55	53.30	642.84	643.12
J	75+15.36	53.24	642.89	643.08
K	75+25.17	53.20	642.94	643.02
CL of Brg N. Abut.	75+32.03	53.20	642.97	642.97
Bck of N. Abut.	75+36.12	53.20	642.99	642.99

BEAM 10

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+07.80	63.36	642.67	642.67
CL of Brg S. Abut.	74+11.80	63.21	642.68	642.68
A	74+21.57	62.85	642.72	642.84
B	74+31.35	62.53	642.76	642.98
C	74+41.12	62.24	642.80	643.11
D	74+50.90	61.97	642.84	643.22
E	74+60.68	61.74	642.88	643.30
F	74+70.46	61.54	642.93	643.35
G	74+80.24	61.36	642.97	643.38
H	74+90.02	61.22	643.02	643.37
I	74+99.80	61.11	643.06	643.34
J	75+09.58	61.02	643.11	643.30
K	75+19.37	60.97	643.16	643.24
CL of Brg N. Abut.	75+26.21	60.95	643.19	643.19
Bck of N. Abut.	75+30.22	60.95	643.21	643.21

BEAM 11

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+05.21	67.10	642.71	642.71
CL of Brg S. Abut.	74+09.11	67.09	642.75	642.75
A	74+18.87	67.08	642.83	642.91
B	74+28.64	67.09	642.89	643.05
C	74+38.41	67.14	642.94	643.16
D	74+48.17	67.22	643.00	643.26
E	74+57.93	67.32	643.05	643.34
F	74+67.70	67.46	643.10	643.39
G	74+77.46	67.63	643.16	643.43
H	74+87.22	67.82	643.21	643.45
I	74+96.98	68.05	643.27	643.45
J	75+06.74	68.31	643.33	643.44
CL of Brg N. Abut.	75+20.43	68.72	643.41	643.41
Bck of N. Abut.	75+24.32	68.84	643.43	643.43

BEAM 12

Location	Station	*Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+02.63	70.85	642.54	642.54
CL of Brg S. Abut.	74+06.42	70.97	642.57	642.57
A	74+16.17	71.32	642.64	642.71
B	74+25.92	71.70	642.71	642.84
C	74+35.66	72.10	642.78	642.96
D	74+45.40	72.54	642.84	643.06
E	74+55.14	73.00	642.91	643.15
F	74+64.88	73.50	642.97	643.21
G	74+74.61	74.02	643.03	643.25
H	74+84.34	74.57	643.10	643.29
I	74+94.06	75.16	643.16	643.30
J	75+03.79	75.77	643.22	643.30
CL of Brg N. Abut.	75+14.67	76.49	643.28	643.28
Bck of N. Abut.	75+18.45	76.75	643.30	643.30

*Note: All offsets are relative to PGL. Offsets are positive east of PGL and negative west of PGL.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF DECK ELEVATION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7943
SHEET NO. S-8 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	10
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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WEST EDGE OF SHOULDER

Location	Station	*Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	74+30.72	-10.00	640.36
A	74+40.71	-10.01	640.41
B	74+50.67	-9.99	640.46
N. End S. Appr. Pav't	74+60.61	-9.94	640.51

PGL & WEST EDGE OF PAVEMENT

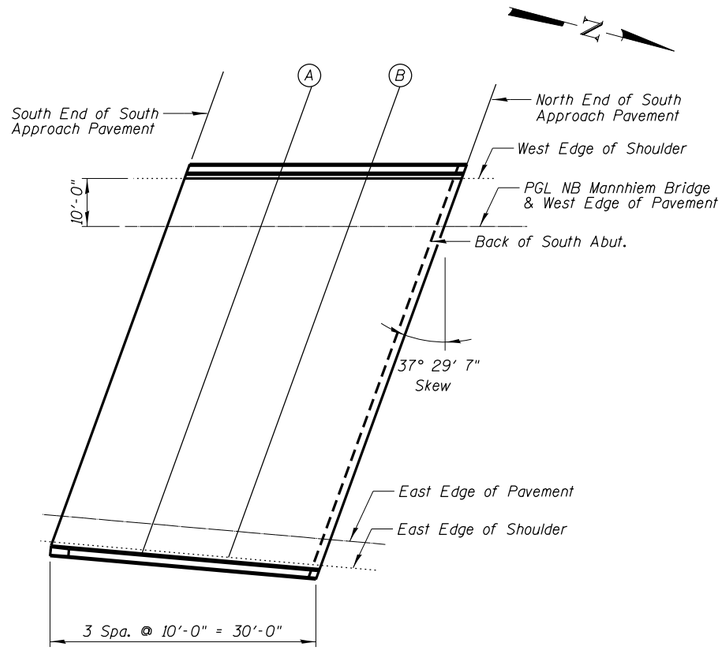
Location	Station	*Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	74+23.56	0.00	640.72
A	74+33.50	0.00	640.77
B	74+43.43	0.00	640.82
N. End S. Appr. Pav't	74+53.36	0.00	640.87

EAST EDGE OF PAVEMENT

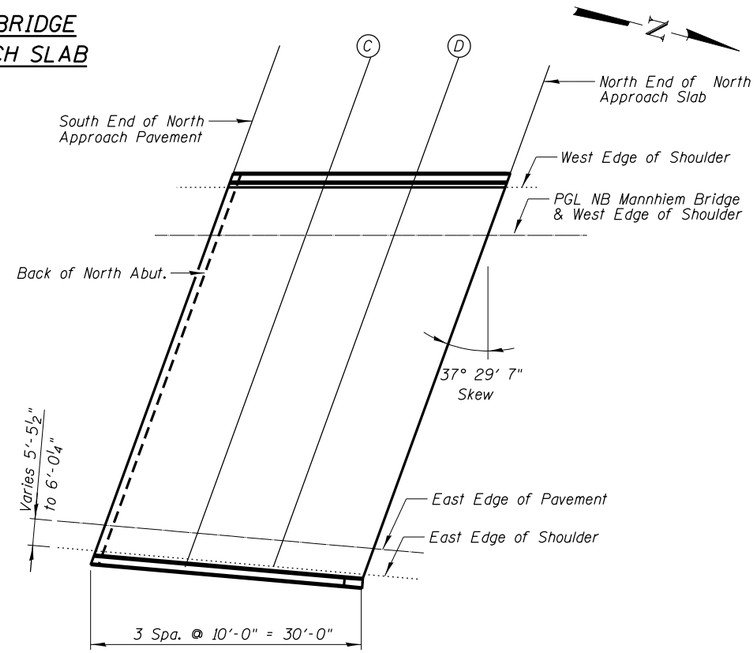
Location	Station	*Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	73+78.41	64.89	642.57
A	73+87.74	65.36	642.63
B	73+97.06	65.82	642.69
N. End S. Appr. Pav't	74+06.37	66.28	642.76

EAST EDGE OF SHOULDER

Location	Station	*Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	73+74.48	70.69	642.30
A	73+83.78	71.16	642.36
B	73+93.06	71.65	642.43
N. End S. Appr. Pav't	74+02.34	72.13	642.49



NB MANNHEIM ROAD BRIDGE
PLAN SOUTH APPROACH SLAB



NB MANNHEIM ROAD BRIDGE
PLAN NORTH APPROACH SLAB

WEST EDGE OF SHOULDER

Location	Station	*Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	75+83.95	-9.99	641.13
C	75+93.95	-9.98	641.18
D	76+03.95	-9.99	641.23
N. End N. Appr. Pav't	76+13.96	-10.00	641.36

PGL & WEST EDGE OF PAVEMENT

Location	Station	*Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	75+76.29	0.00	641.49
C	75+86.29	0.00	641.54
D	75+96.29	0.00	641.59
N. End N. Appr. Pav't	76+06.29	0.00	641.65

EAST EDGE OF PAVEMENT

Location	Station	*Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	75+21.36	71.99	643.52
C	75+30.75	72.46	643.58
D	75+40.37	72.92	643.65
N. End N. Appr. Pav't	75+50.02	73.38	643.71

EAST EDGE OF SHOULDER

Location	Station	*Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	75+17.02	77.85	643.25
C	75+26.43	78.27	643.31
D	75+35.93	78.71	643.38
N. End N. Appr. Pav't	75+45.58	79.15	643.44

*Note: All offsets are relative to PGL. Offsets are positive east of PGL and negative west of PGL.

THIS SHEET IS FOR INFORMATION ONLY

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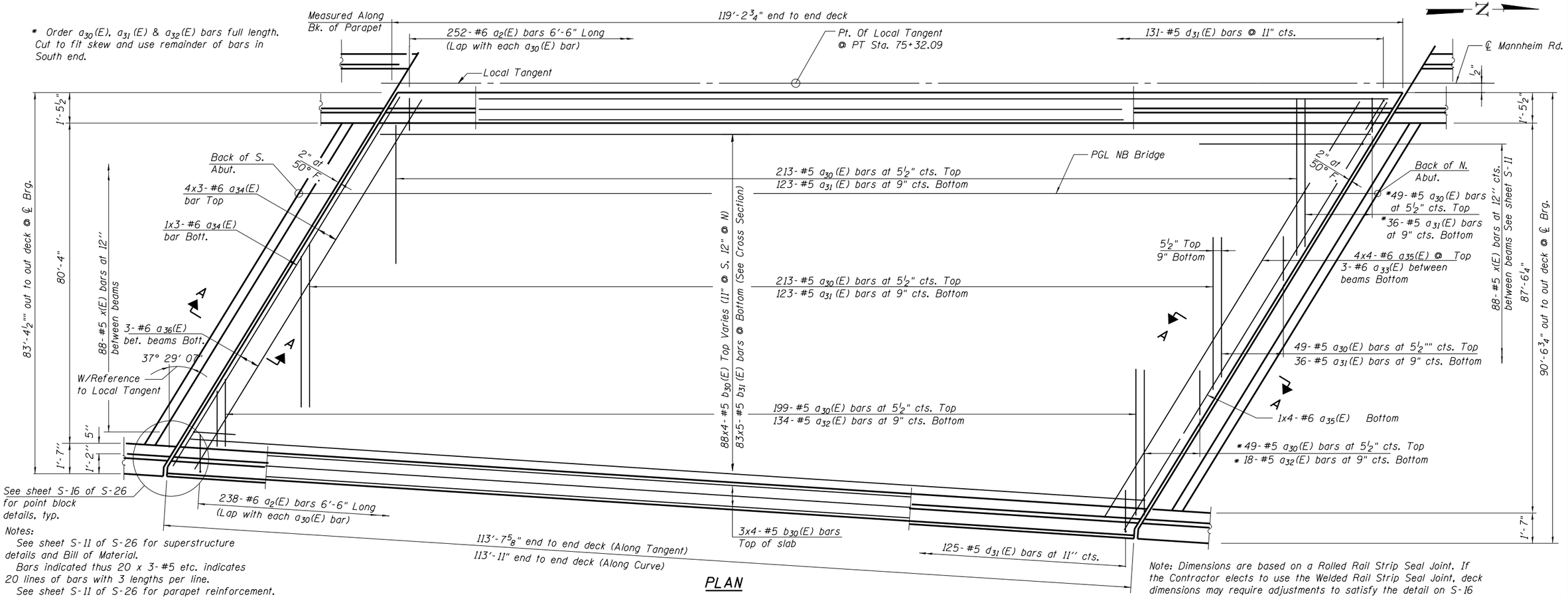
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF APPROACH SLAB ELEVATIONS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-9 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	11
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

* Order a_{30}(E), a_{31}(E) & a_{32}(E) bars full length. Cut to fit skew and use remainder of bars in South end.



PLAN

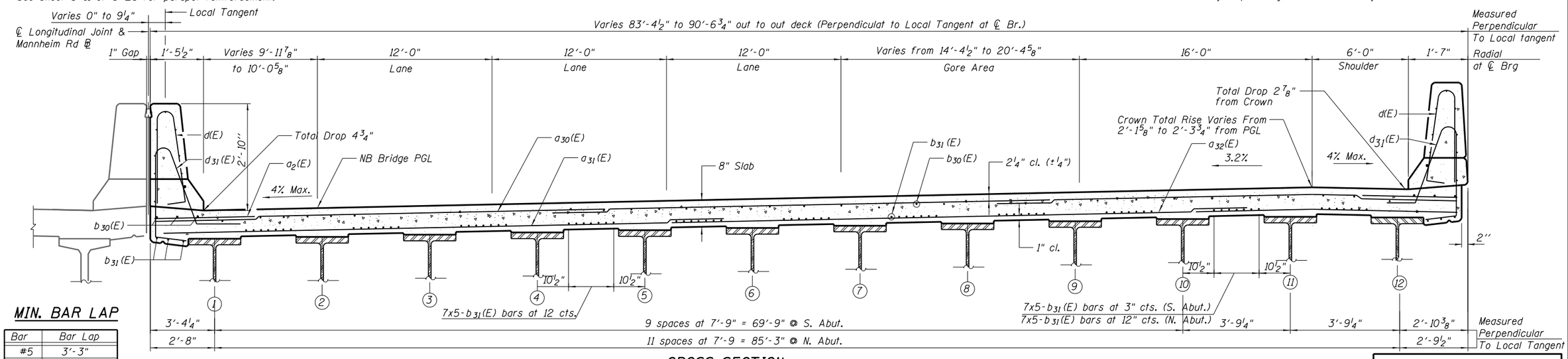
Notes:

See sheet S-11 of S-26 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.

See sheet S-11 of S-26 for parapet reinforcement.

Note: 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 detail on S-16



CROSS SECTION

(Looking North)

MIN. BAR LAP

Bar	Bar Lap
#5	3'-3"
#6	3'-10"

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE PLAN AND CROSS SECTION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-10 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	12
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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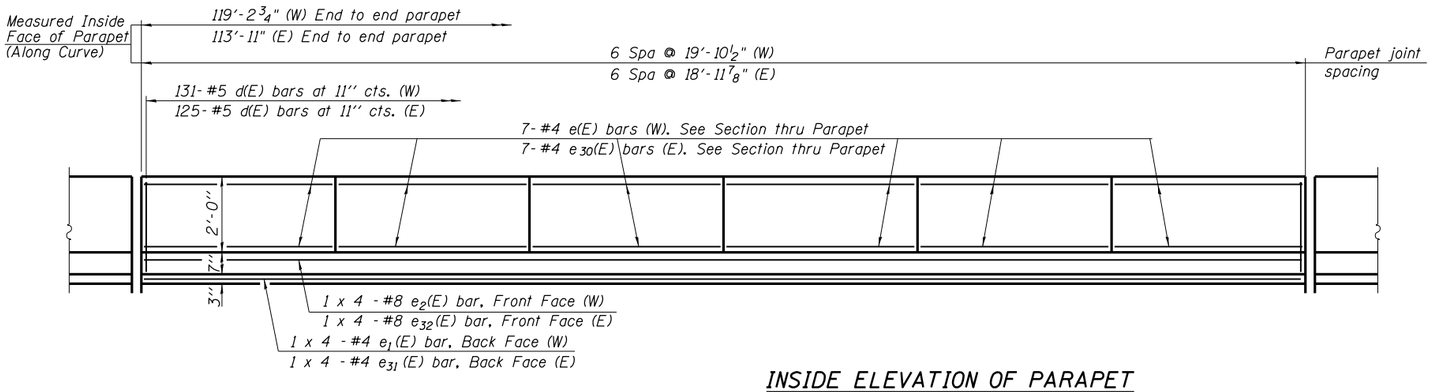
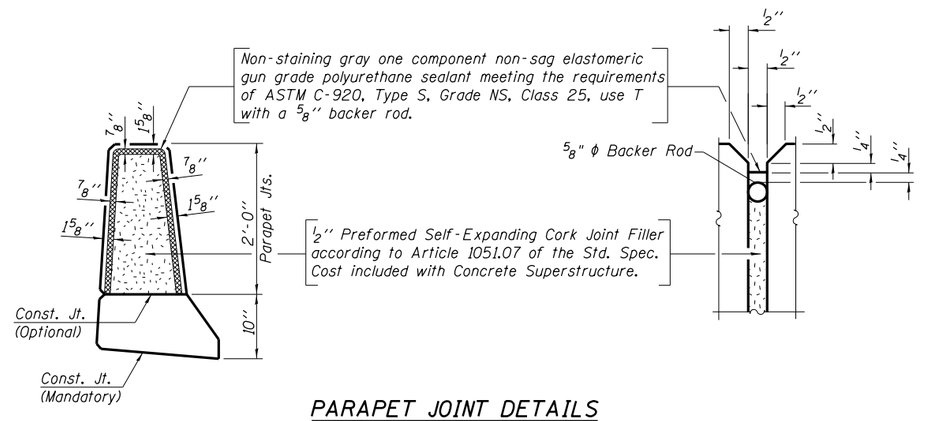


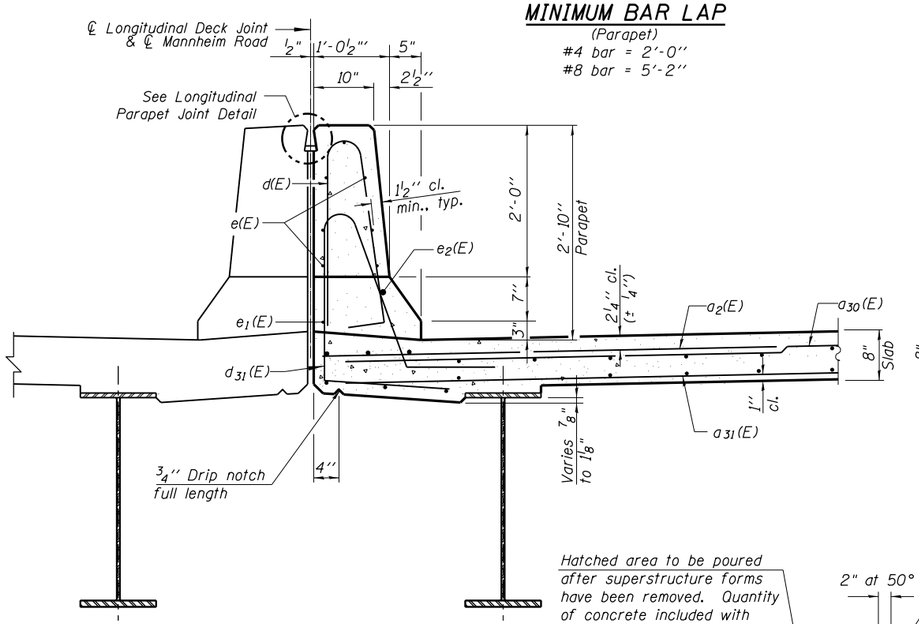
INSIDE ELEVATION OF PARAPET



PARAPET JOINT DETAILS

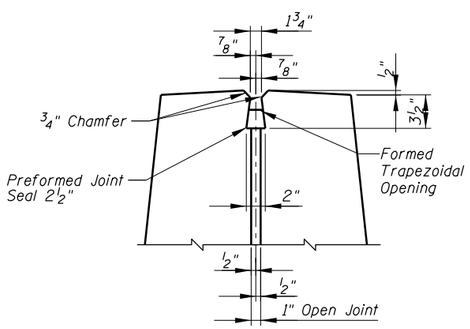
MINIMUM BAR LAP

(Parapet)
#4 bar = 2'-0"
#8 bar = 5'-2"



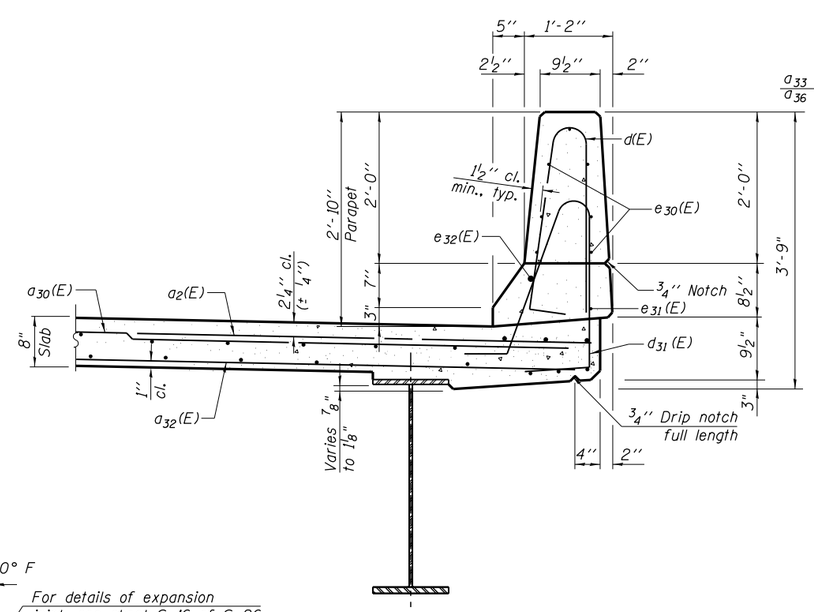
SECTION THRU W. PARAPET

(Looking North)



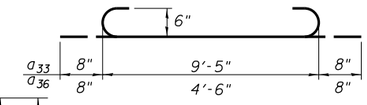
LONGITUDINAL PARAPET JOINT DETAIL

2 1/2" Preformed Joint Seal Shall Be Installed at Stage II Construction.

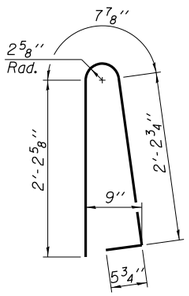


SECTION THRU EAST PARAPET

(Looking North)



a33(E) & a36(E) BAR

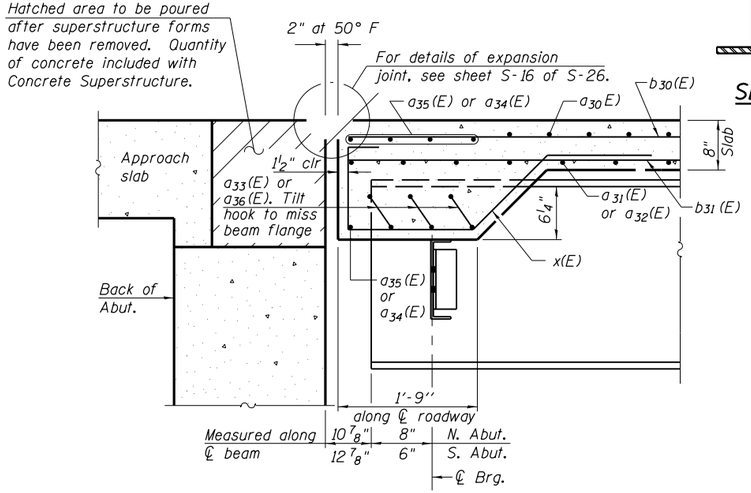


BAR d(E)

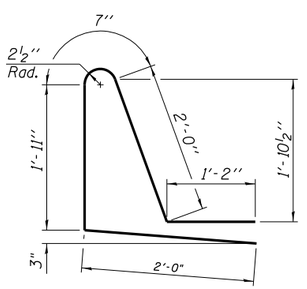
SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$a_2(E)$	490	#6	6'-6"	
$a_{30}(E)$	695	#5	32'-0"	
$a_{31}(E)$	318	#5	37'-8"	
$a_{32}(E)$	152	#5	19'-6"	
$a_{33}(E)$	60	#6	10'-5"	
$a_{34}(E)$	16	#6	37'-6"	
$a_{35}(E)$	20	#6	31'-4"	
$a_{36}(E)$	6	#6	5'-10"	
$b_{30}(E)$	376	#5	32'-3"	
$b_{31}(E)$	415	#5	26'-9"	
d(E)	256	#5	5'-7"	
$d_{31}(E)$	256	#5	7'-8"	
e(E)	42	#4	19'-7"	
$e_1(E)$	4	#4	31'-6"	
$e_2(E)$	4	#8	33'-10"	
$e_{30}(E)$	42	#4	18'-8"	
$e_{31}(E)$	4	#4	30'-0"	
$e_{32}(E)$	4	#8	32'-5"	
x (E)	176	#5	6'-5"	
Reinforcement Bars, Epoxy Coated			Lbs.	77,290
Concrete Superstructure			Cu. Yds.	292.9

Bars indicated thus 1 x 4-#8 etc. indicates 1 lines of bars with 4 lengths per line.

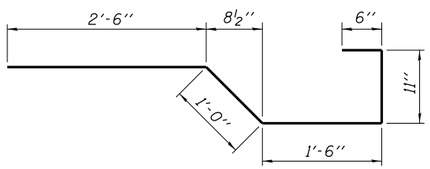


SECTION A-A



BAR d31(E)

THIS SHEET IS FOR INFORMATION ONLY



BAR x(E)

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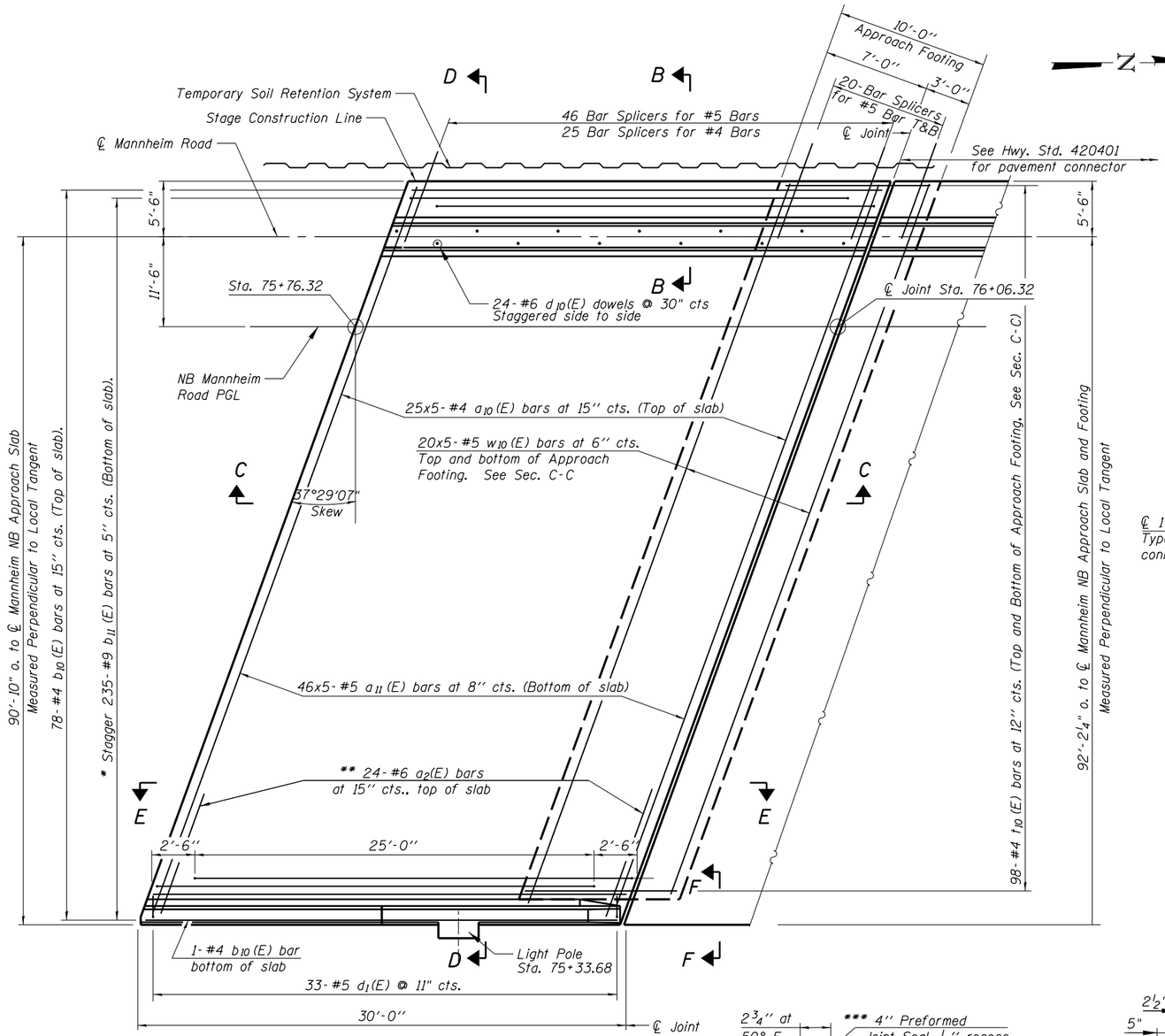
	CHECKED - JMB	REVISED
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-11 OF S-26 SHEETS

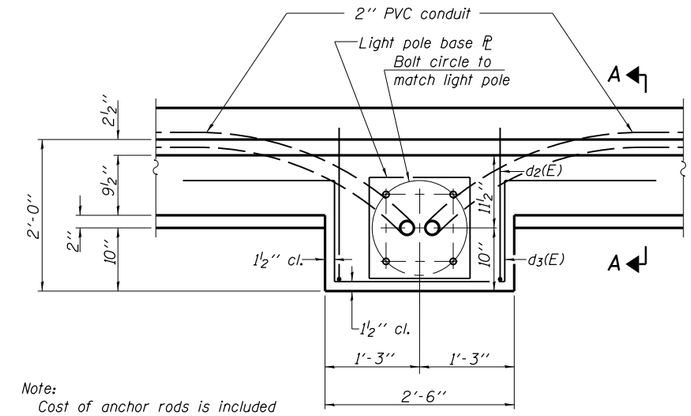
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	13
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		



PLAN

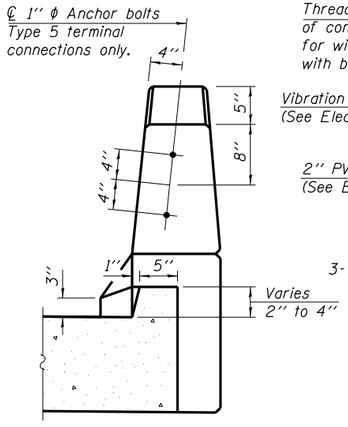
* Tilt #9 b_{11} (E) bars as required to maintain clearance.
** Space between a_{10}(E) bars, typ. each parapet.

Notes:
See sheet S-13 of S-26 for Sections C-C & D-D and View E-E.
a_{10}(E) and a_{11} (E) bar spacings measured along ℄ Rdwy.

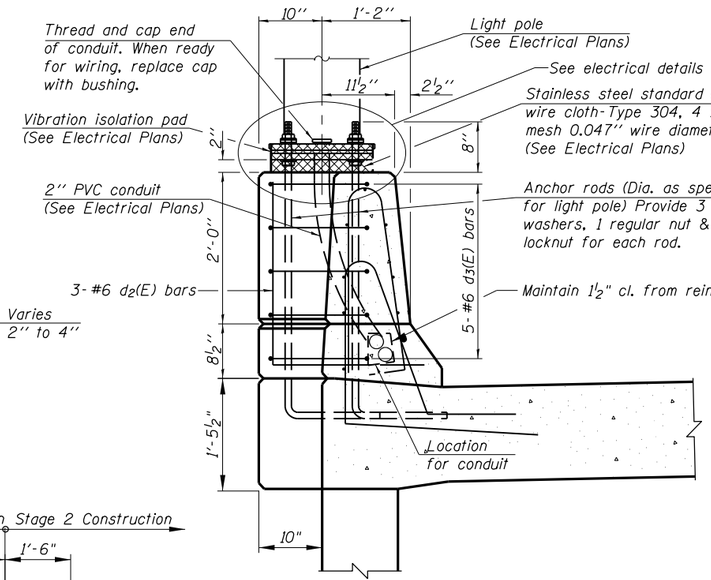


Note:
Cost of anchor rods is included with Concrete Superstructure.

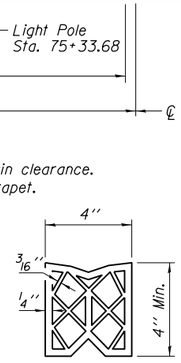
PLAN



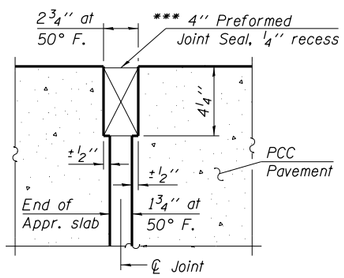
VIEW F-F



SECTION A-A

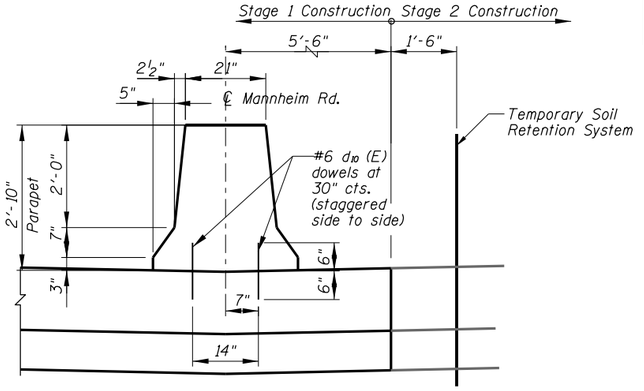


PREFORMED JOINT SEAL



RIGID PAVEMENT DETAIL A

*** Cost included with Concrete Superstructure.



VIEW B-B

THIS SHEET IS FOR INFORMATION ONLY

MINIMUM BAR LAP

#4 bar = 2'-3"
#5 bar = 3'-3"
#8 bar = 5'-2"

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE NORTH APPROACH SLAB DETAILS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO.S-12 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	14
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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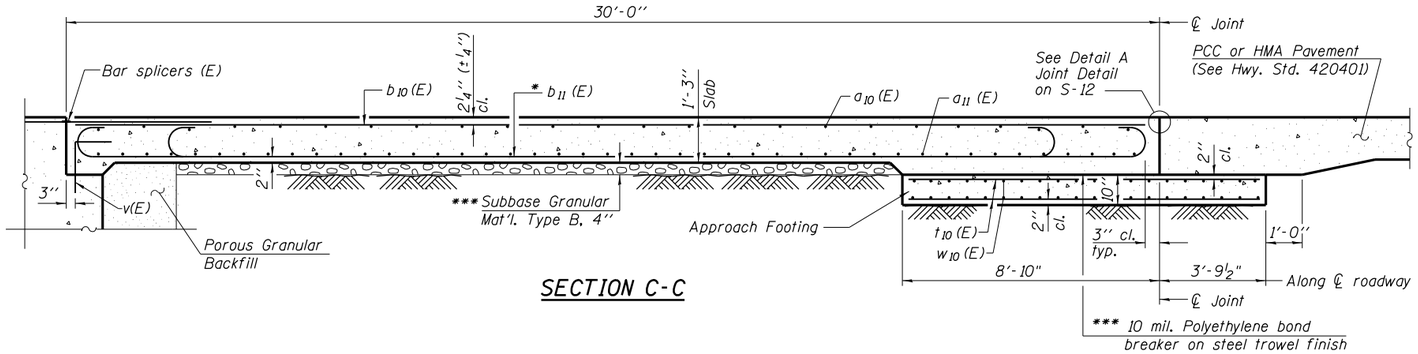
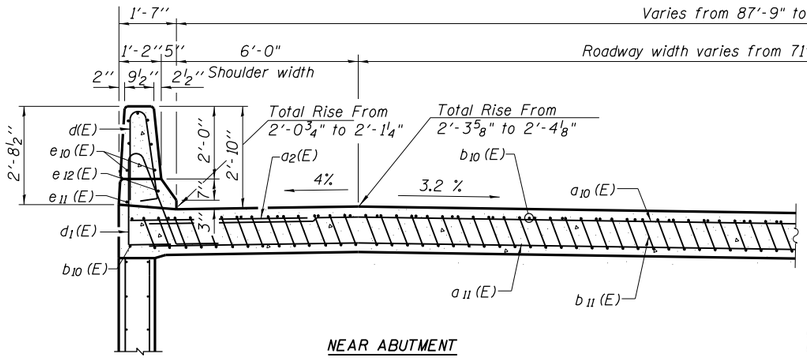
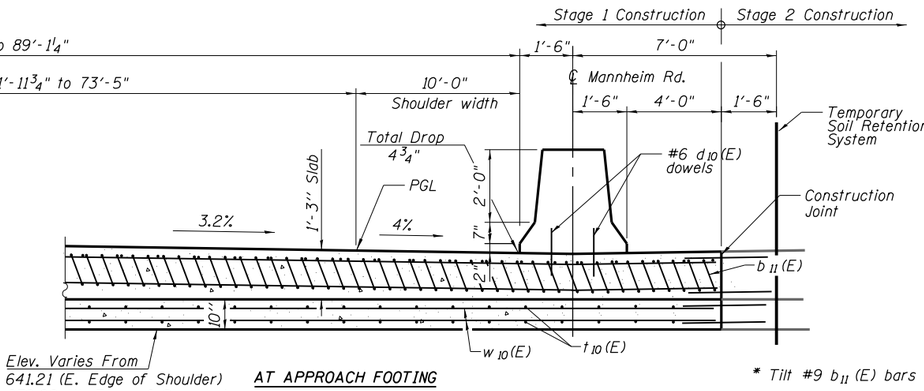


SECTION C-C



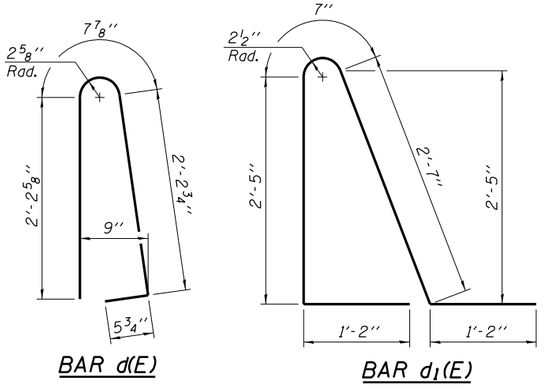
NEAR ABUTMENT



AT APPROACH FOOTING

SECTION D-D

(See Plan for dimensions not shown)



BAR d(E)

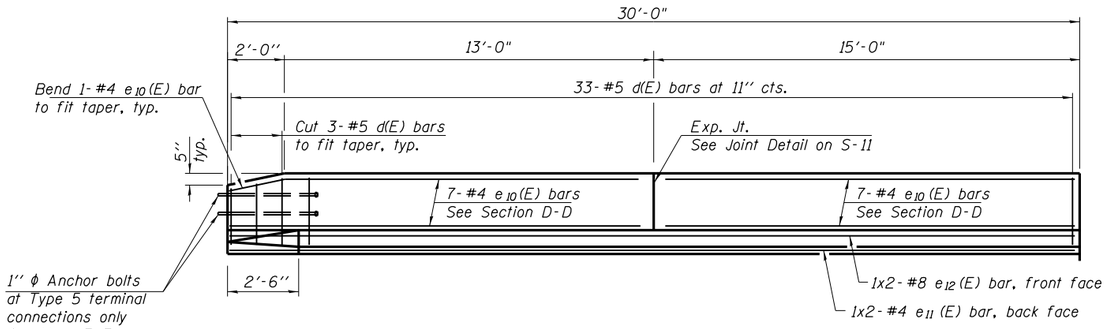
BAR d_1(E)

Notes:

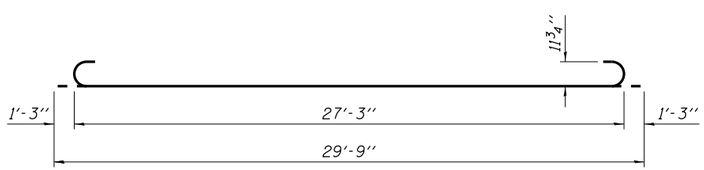
Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For v(E) bar details, see sheet S-21 and S-23 of S-26.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For bar splicer details, see sheet S-24 of S-26.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Backfill and drainage treatment details, see sheet S-2 of S-26.

* Tilt #9 b_{11} (E) bars as required to maintain clearance.

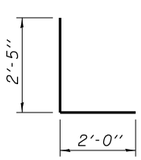
*** Cost included with Concrete Superstructure.



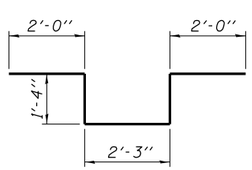
VIEW E-E



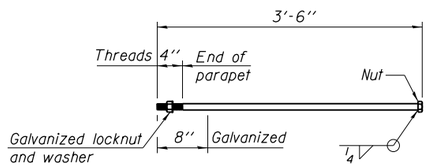
BAR b_{11}(E)



BAR d_2(E)

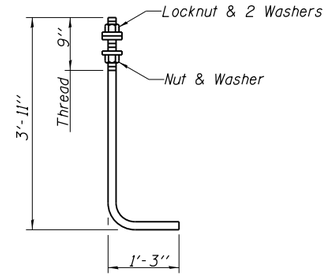


BAR d_3(E)



1"ϕ ANCHOR BOLT

(Cost included with Concrete Superstructure)



ANCHOR ROD

Diameter as specified for light poles.
(ASTM F 1554 Grade 105) Full Length
Hot Dipped Galvanized

NORTH APPROACH BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	a_2E)	24	#6	6'-6"	
	d_{10} (E)	125	#4	26'-6"	
	a_{11} (E)	230	#5	26'-9"	
	b_{10} (E)	79	#4	29'-8"	
	b_{11} (E)	235	#9	29'-9"	
	d(E)	33	#5	5'-7"	
	d_1(E)	33	#5	7'-11"	
	d_2(E)	3	#6	4'-5"	
	d_3(E)	5	#6	8'-11"	
**	d_{10}(E)	24	#6	1'-0"	
	e_{10} (E)	14	#4	14'-8"	
	e_{11} (E)	2	#4	16'-0"	
	e_{12}(E)	2	#8	17'-7"	
	t_{10}(E)	194	#4	12'-4"	
	w_{10} (E)	200	#5	26'-9"	
	Concrete Superstructure		Cu. Yd.	160.1	
	Concrete Structures		Cu. Yd.	36.9	
	Reinforcement Bars, Epoxy Coated		Pound	42,220	

** Epoxy grout #6 d_{10}(E) bars in 6" drilled holes according to Section 584 of the Standard Specifications.

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DEPARTMENT OF TRANSPORTATION

BRIDGE NORTH APPROACH SLAB DETAILS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-13 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	15
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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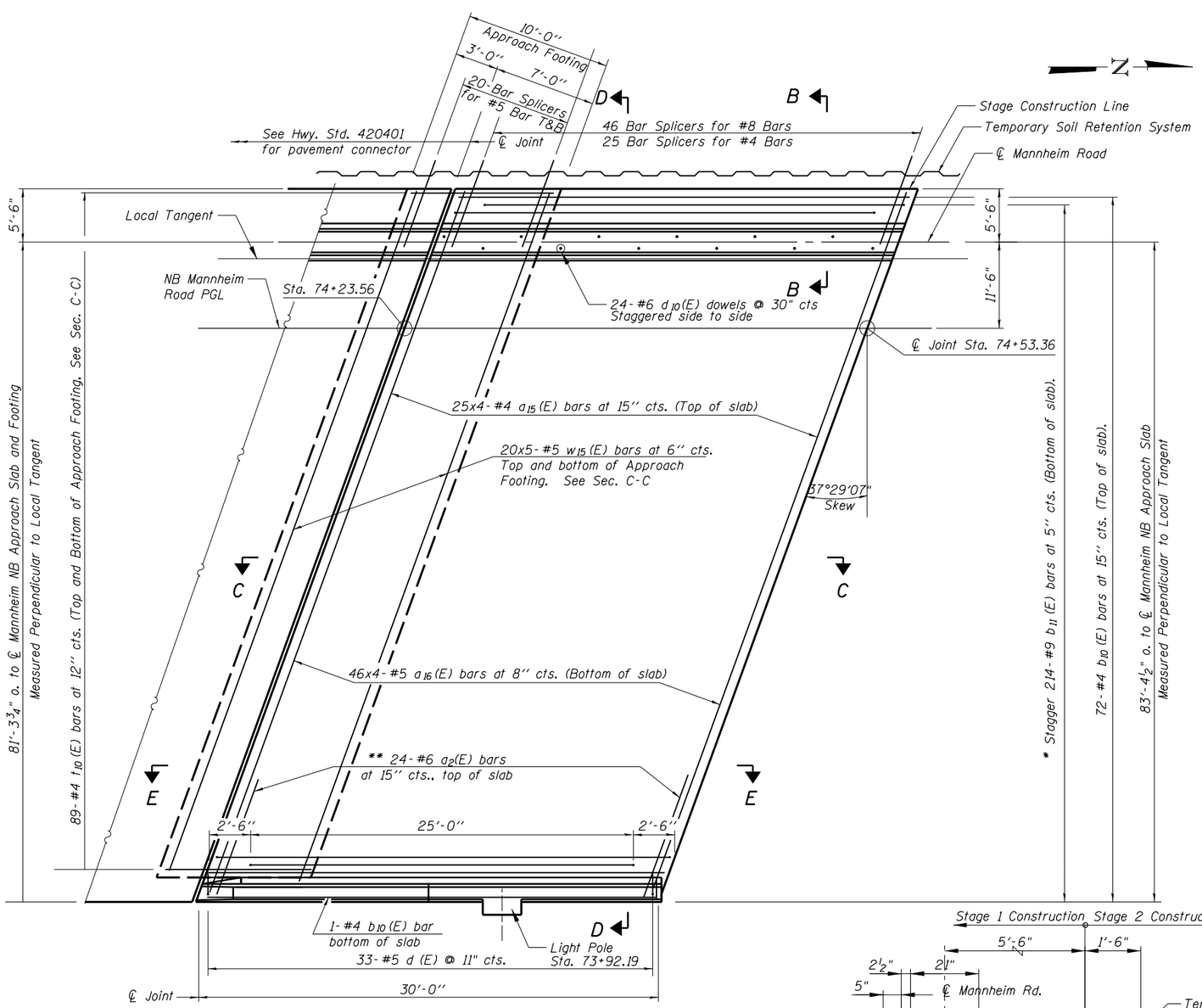


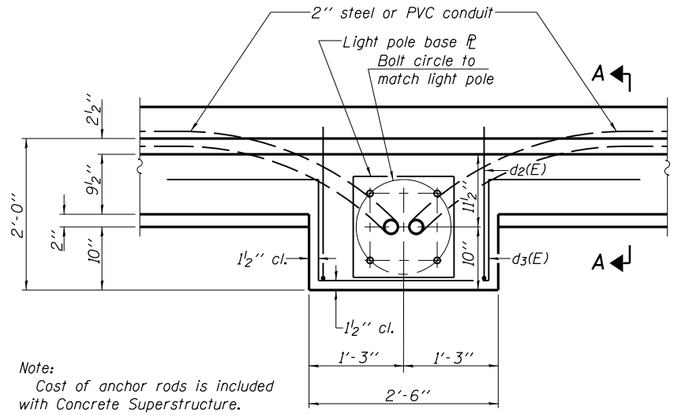
PLAN

* Tilt #9 b_{11} (E) bars as required to maintain clearance.
** Space between a(E) bars, typ. each parapet.

MINIMUM BAR LAP

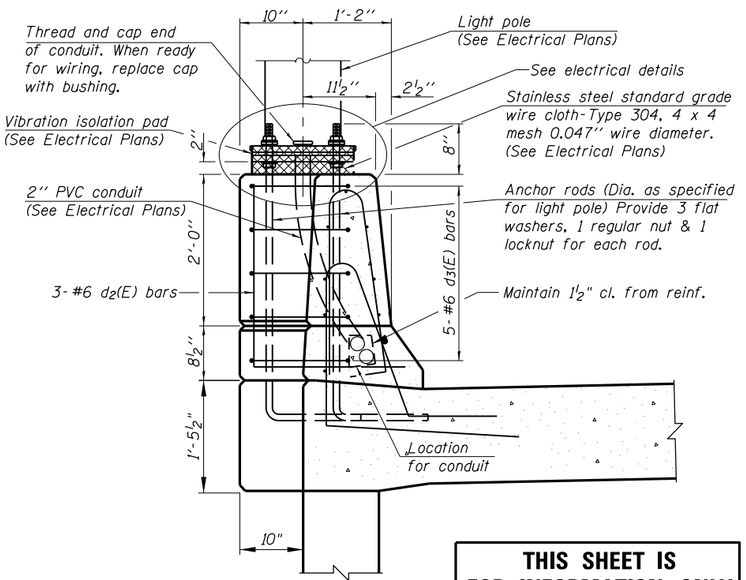
#4 bar = 2'-3"
#5 bar = 3'-3"
#8 bar = 5'-2"

Notes:
See sheet S-15 of S-26 for Sections C-C & D-D and View E-E.
a_{15}(E) and a_{16}(E) bar spacings measured along ℄ Rdwy.



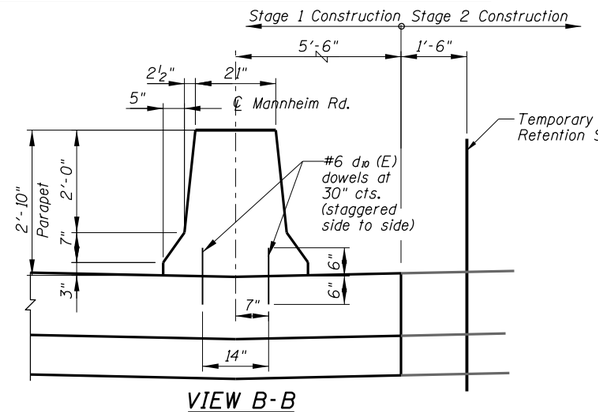
Note:
Cost of anchor rods is included with Concrete Superstructure.

PLAN

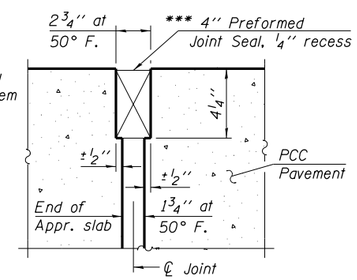


SECTION A-A

THIS SHEET IS FOR INFORMATION ONLY

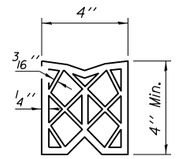


VIEW B-B



RIGID PAVEMENT DETAIL A

*** Cost included with Concrete Superstructure.



PREFORMED JOINT SEAL

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BRIDGE SOUTH APPROACH SLAB DETAILS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7943
SHEET NO.S-14 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	16
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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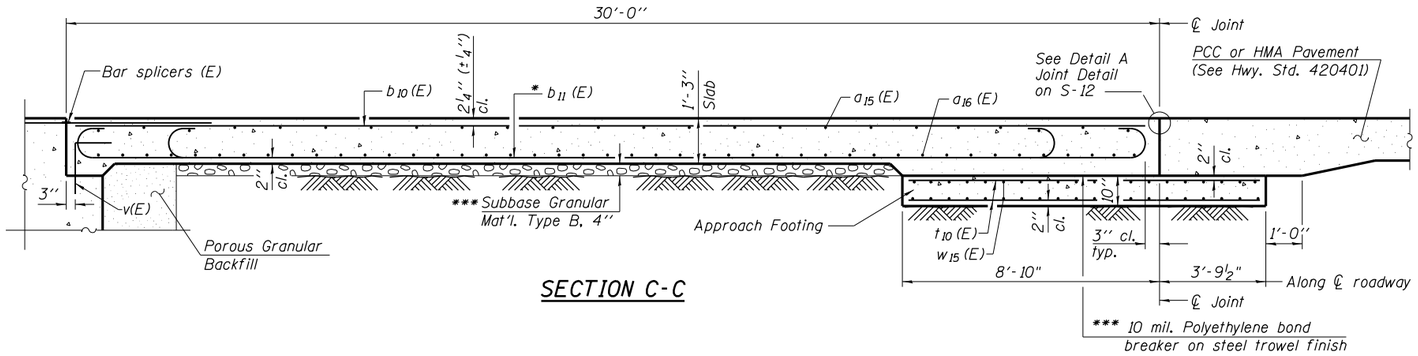
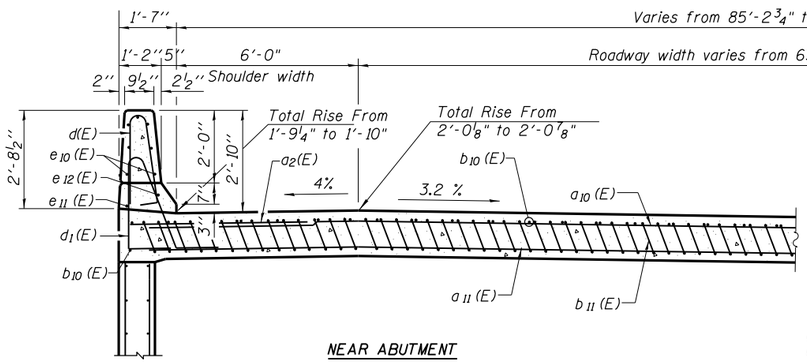
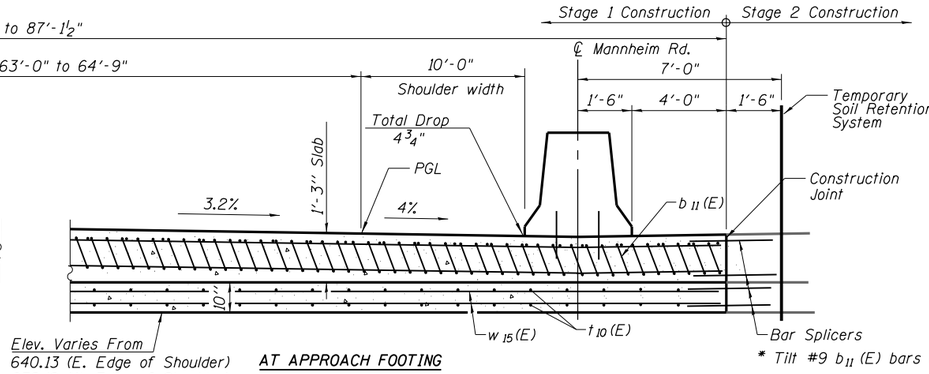


SECTION C-C



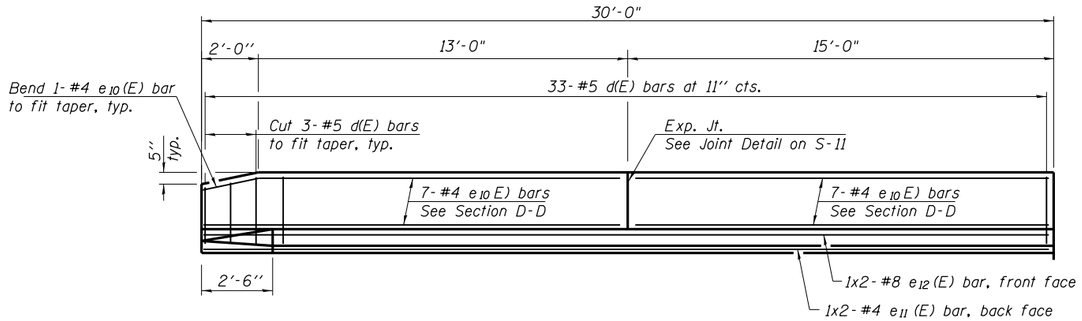
NEAR ABUTMENT



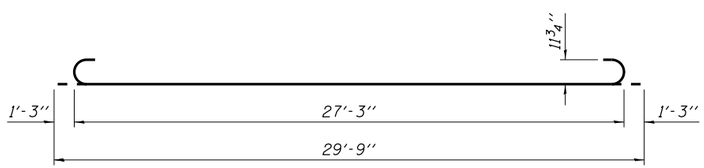
AT APPROACH FOOTING

SECTION D-D

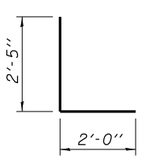
(See Plan for dimensions not shown)



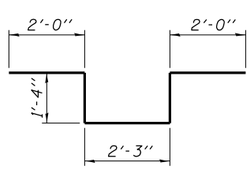
VIEW E-E



BAR b_{11}(E)



BAR d_2(E)



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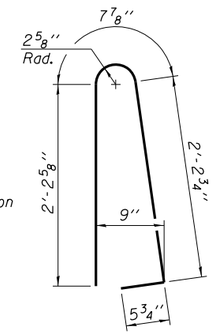
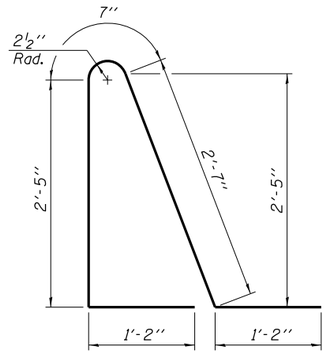


BAR d(E)



BAR d_1(E)

Notes:
Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For v(E) bar details, see sheet S-21 and S-23 of S-26.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For bar splicer details, see sheet S-26 of S-26.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Backfill and drainage treatment details, see sheet S-2 of S-26.

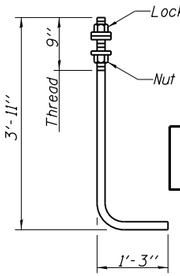
* Tilt #9 b_{11} (E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

SOUTH APPROACH BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	a_2E)	24	#6	6'-6"	
	d_{15} (E)	100	#4	29'-9"	
	a_{16}(E)	184	#5	30'-0"	
	b_{10} (E)	73	#4	29'-8"	
	b_{11} (E)	214	#9	29'-9"	
	d(E)	33	#5	5'-7"	
	d_1(E)	33	#5	7'-11"	
	d_2(E)	3	#6	4'-5"	
	d_3(E)	5	#6	8'-11"	
**	d_{10}(E)	24	#6	1'-0"	
	e_{10} (E)	14	#4	14'-8"	
	e_{11} (E)	2	#4	16'-0"	
	e_{12}(E)	2	#8	17'-0"	
	t_{10}(E)	178	#4	12'-4"	
	w_{15} (E)	200	#5	19'-6"	
	Concrete Superstructure		Cu. Yd.	144.0	
	Concrete Structures		Cu. Yd.	33.2	
	Reinforcement Bars, Epoxy Coated		Pound	37,450	

** Epoxy grout #6 d_{10}(E) bars in 6" drilled holes according to Section 584 of the Standard Specifications.



ANCHOR ROD

Diameter as specified for light poles.
(ASTM F 1554 Grade 105) Full Length
Hot Dipped Galvanized

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

BRIDGE SOUTH APPROACH SLAB DETAILS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO.S-15 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	17
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		

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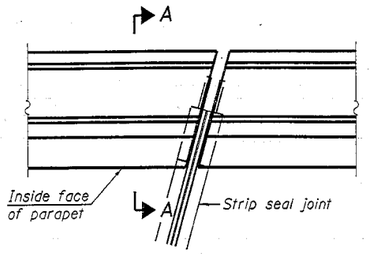
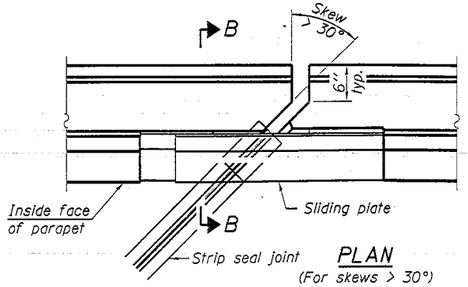
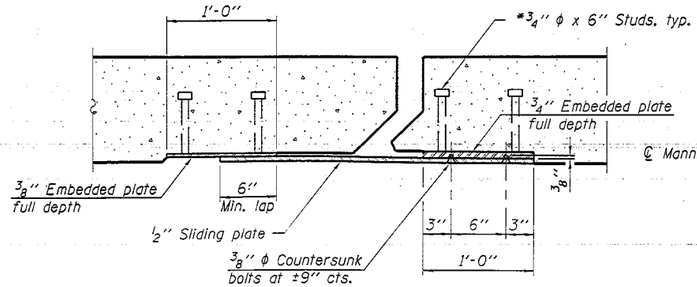


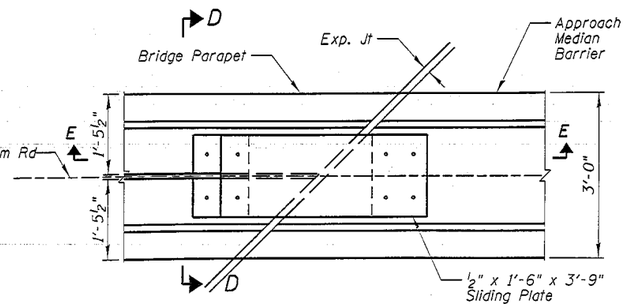
PLAN
(For skews ≤ 30°)



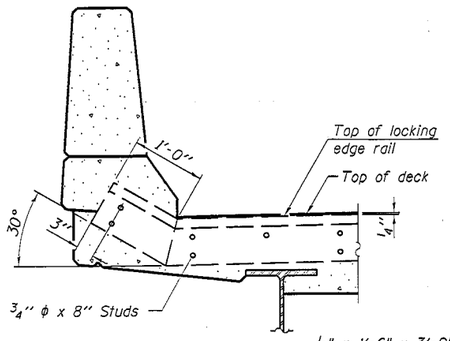
PLAN
(For skews > 30°)
Showing point block



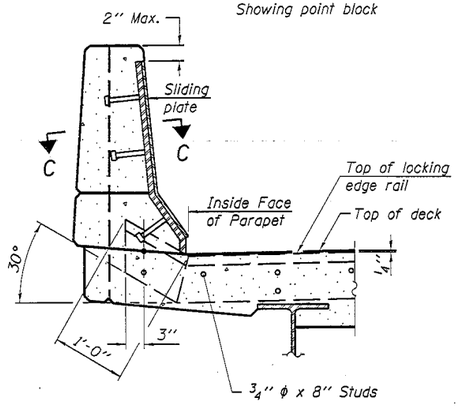
SECTION C-C



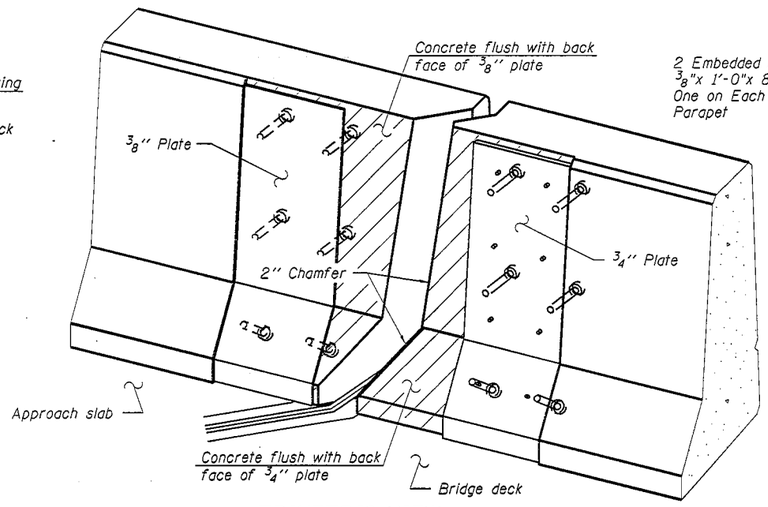
MIDDLE PARAPET CORNER DETAIL



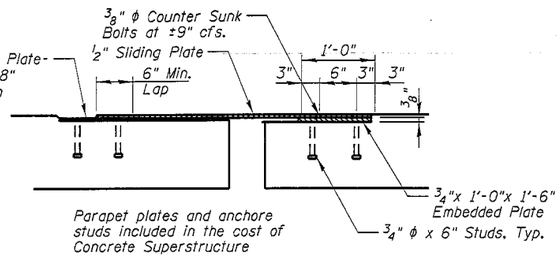
SECTION A-A



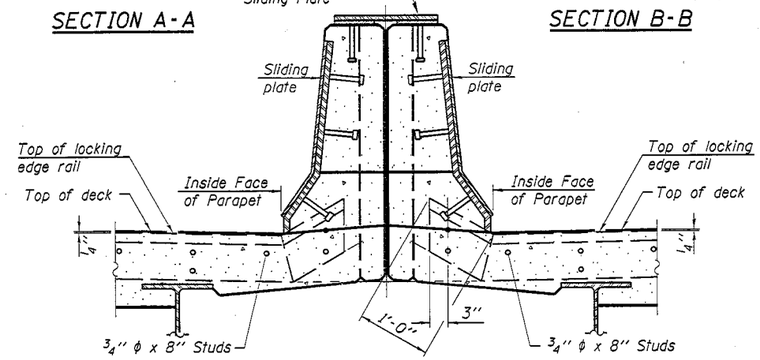
SECTION B-B



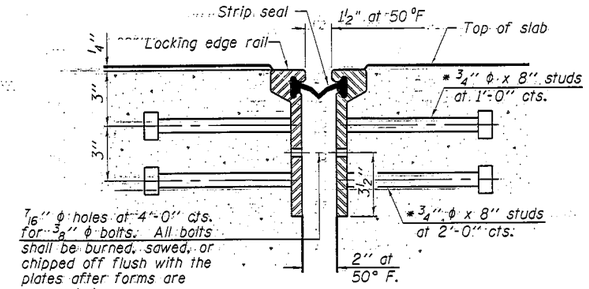
TRIMETRIC VIEW
(Showing back plates only)



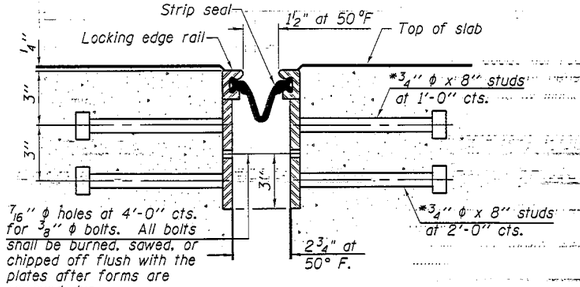
SECTION E-E



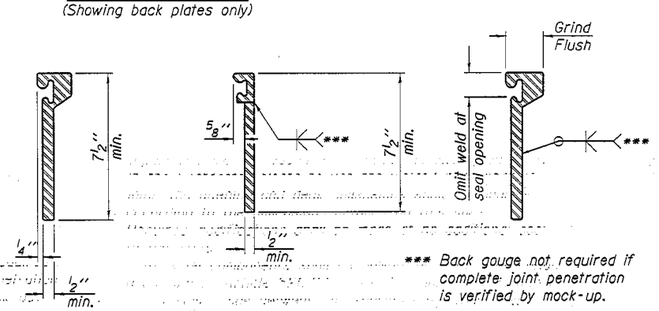
SECTION D-D



SECTION THRU ROLLED RAIL JOINT



SECTION THRU WELDED RAIL JOINT



ROLLED EXTRUDED RAIL

WELDED RAIL

*** 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.

LOCKING EDGE RAILS

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.

The manufacturer's recommended installation methods shall be followed.

The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.

Parapet plates and anchorage studs for skews > 30° included in the cost of Preformed Joint Strip Seal.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	219

THIS SHEET IS FOR INFORMATION ONLY

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

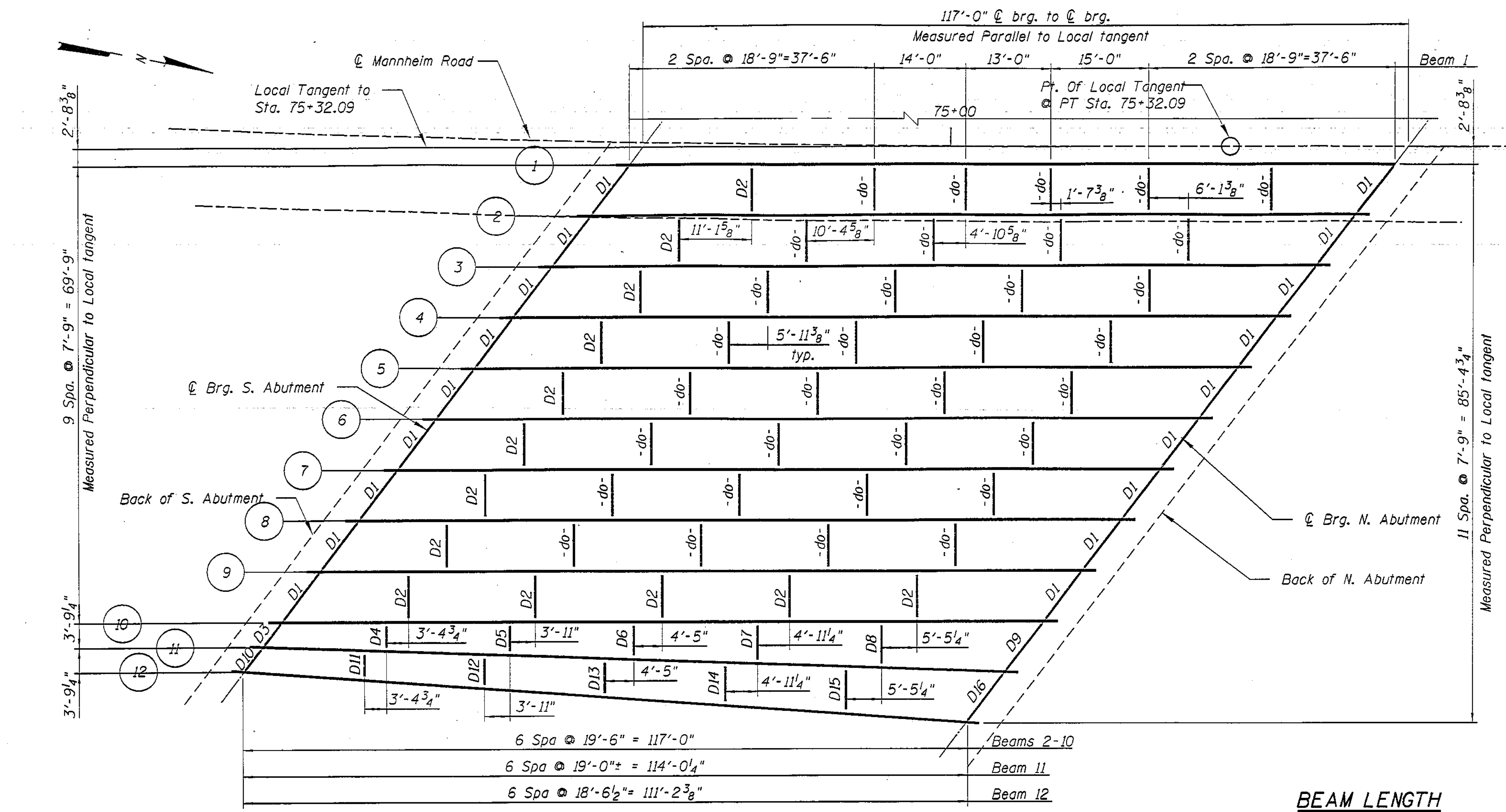
USER NAME =	DESIGNED - MM	REVISED
	CHECKED - JMB	REVISED
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

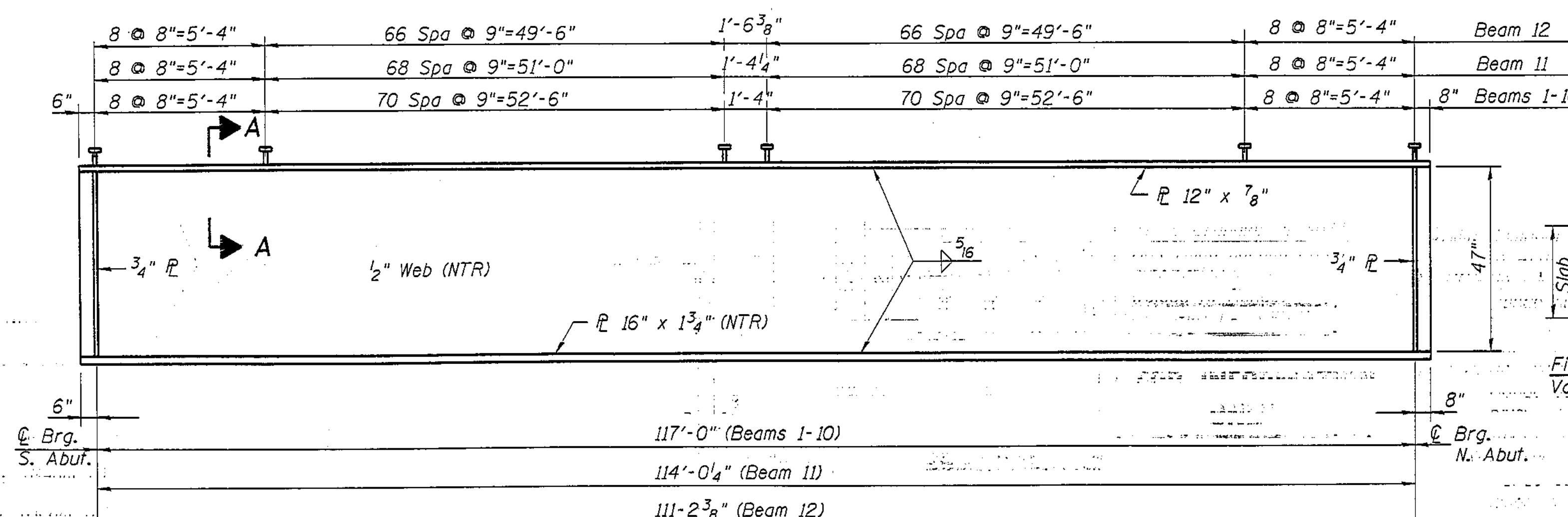
PREFORMED JOINT STRIP SEAL
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-16 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	18
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

N:\ROSEMONT\S1609FA\CADD\Sheets\Fabrication CADD Sheets\18-016-7943-01609237-BIESSJoint.dgn

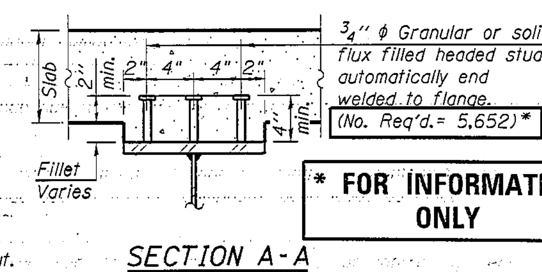


FRAMING PLAN



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

GIRDER ELEVATION



SECTION A-A

*** FOR INFORMATION ONLY**

NOTES:

1. All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
2. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

BEAM LENGTH

Beam	Length *
1-10	117'-0"
11	114'-0 1/4"
12	111'-2 3/8"

* ℄ brg to ℄ brg

INTERIOR GIRDER REACTION TABLE

		Abut.
R_{DC1}	(k)	59.8
R_{DC2}	(k)	4.7
R_{DW}	(k)	22.8
R_{LL+IM}	(k)	114.3
R_{Total}	(k)	201.6

INTERIOR GIRDER MOMENT TABLE

		0.5 Span
I_s	(in⁴) → (in^4)	23,988
$I_c(n)$	(in^4)	68,514
$I_c(3n)$	(in^4)	47,789
$I_c(cr)$	(in^4)	———
S_s	(in^3)	1,311
$S_c(n)$	(in^3)	1,784.4
$S_c(3n)$	(in^3)	1,643.4
$S_c(cr)$	(in^3)	———
DC1	(k/')	1.02
M_{DC1}	('k)	1,748
DC2	(k/')	0.080
M_{DC2}	('k)	136.9
DW	(k/')	0.39
M_{DW}	('k)	667.3
M_{LL+IM}	('k)	2,023
M_u (Strength I)	('k)	6,897
$\phi_f M_n$	('k)	8,486
f_s DC1	(ksi)	16.00
f_s DC2	(ksi)	1.00
f_s DW	(ksi)	4.81
f_s (LL+IM)	(ksi)	13.6
f_s (Service II)	(ksi)	39.6
$0.95R_hF_{yf}$	(ksi)	47.5
f_s (Total)(Strength I)	(ksi)	52.4
$\phi_f F_n$	(ksi)	———
V_f	(k)	66.9

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

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

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

$I_c(cr)$, $S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite dead loads (in.⁴ and in.³).

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

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

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

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

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

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

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

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

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

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (LL+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{LL+IM} / S_c(3n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(LL+IM)$

$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_{sLL+IM}$

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).

V_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

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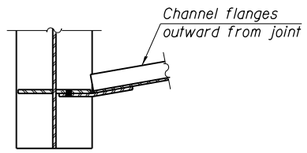
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

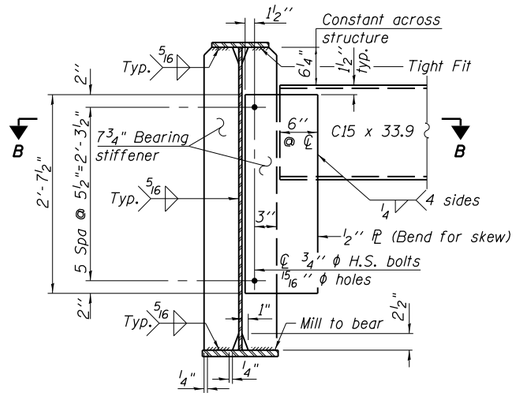
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-17 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	19
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

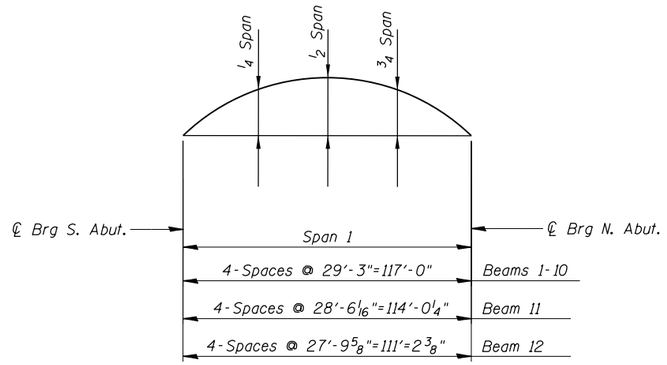


SECTION B-B



END DIAPHRAGM D1, D3, D9, D10, D16

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



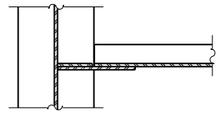
CAMBER DIAGRAM

Beam	Span		
	1/4	1/2	3/4
1-10	4 5/8"	6 3/8"	4 5/8"
11	3 3/8"	4 3/4"	3 3/8"
12	2 7/8"	4"	2 7/8"

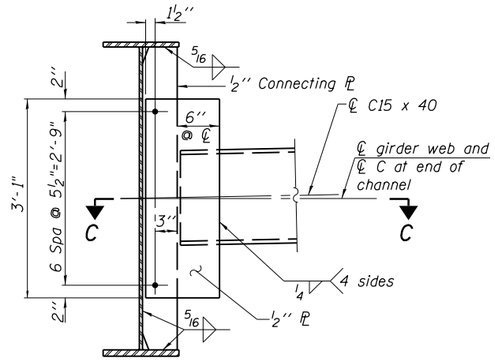
TOP OF WEB ELEVATION FOR FABRICATION ONLY

Beam	S. Abutment	N. Abutment
Beam 1	639.736	640.298
Beam 2	640.022	640.578
Beam 3	640.247	640.804
Beam 4	640.471	641.022
Beam 5	640.695	641.240
Beam 6	640.920	641.458
Beam 7	641.146	641.676
Beam 8	641.371	641.894
Beam 9	641.597	642.112
Beam 10	641.824	642.331
Beam 11	641.887	642.550
Beam 12	641.708	642.422

NOTES:
1. All structure steel for Plate Girder and Bearing Stiffeners, shall be AASHTO M270 Grade 50.
2. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
3. Clip all cross frame connection plates 1" horizontally and 2½" vertically at web to flange connection.
4. All Bearing Stiffeners, and Cross Frame Connection Plates Shall be perpendecular to the centerline of the plate girders.

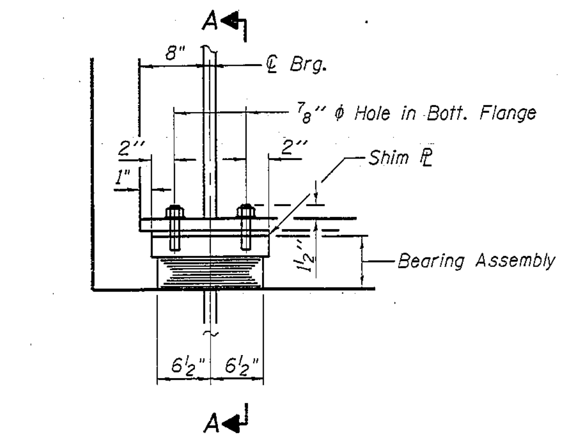


SECTION C-C

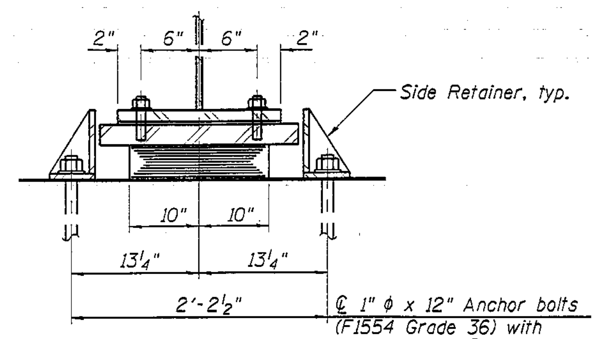


INTERIOR DIAPHRAGM D2, D4-D8, & D11-D15

Note:
Two hardened washers required for each set of oversized holes.
*¾" ϕ HS bolts, 15/16" ϕ holes

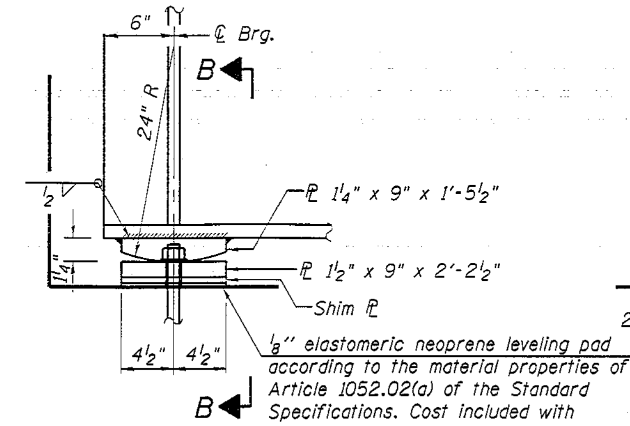


ELEVATION AT NORTH ABUT.

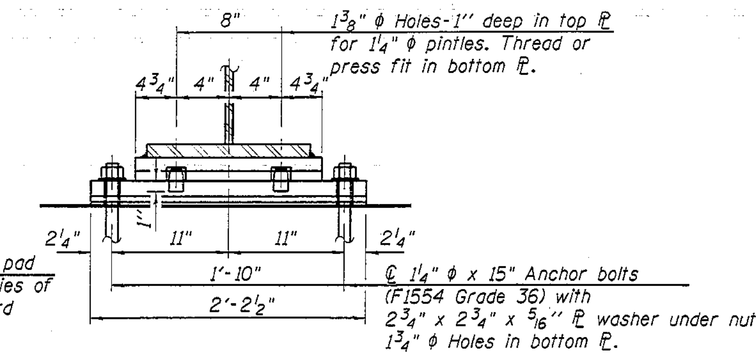


SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

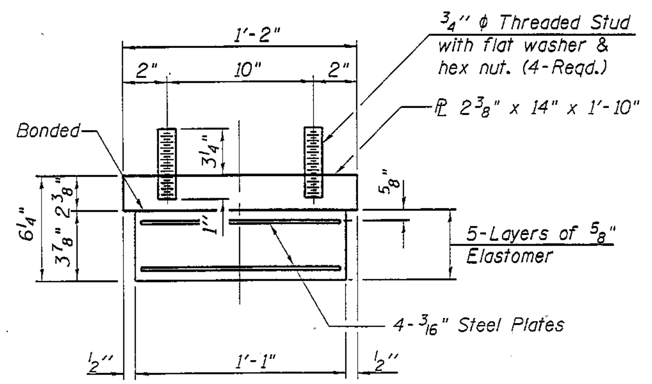


ELEVATION AT SOUTH ABUT.



SECTION B-B

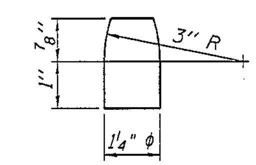
FIXED BEARING



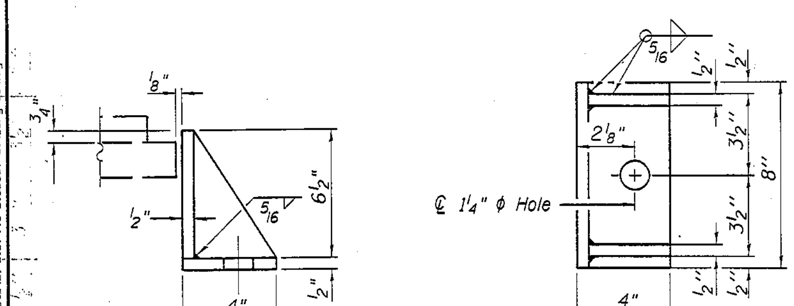
BEARING ASSEMBLY

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

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Furnishing Elastomeric Bearing Assembly, Type I.



PINTLE



SIDE RETAINER

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

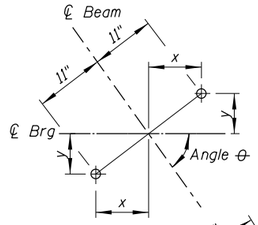
BILL OF MATERIAL

Item	Unit	Total
Furnishing Elastomeric Bearing Assembly Type I	Each	12
* Anchor Bolts, 1"	Each	24
* Anchor Bolts, 1 1/4"	Each	24

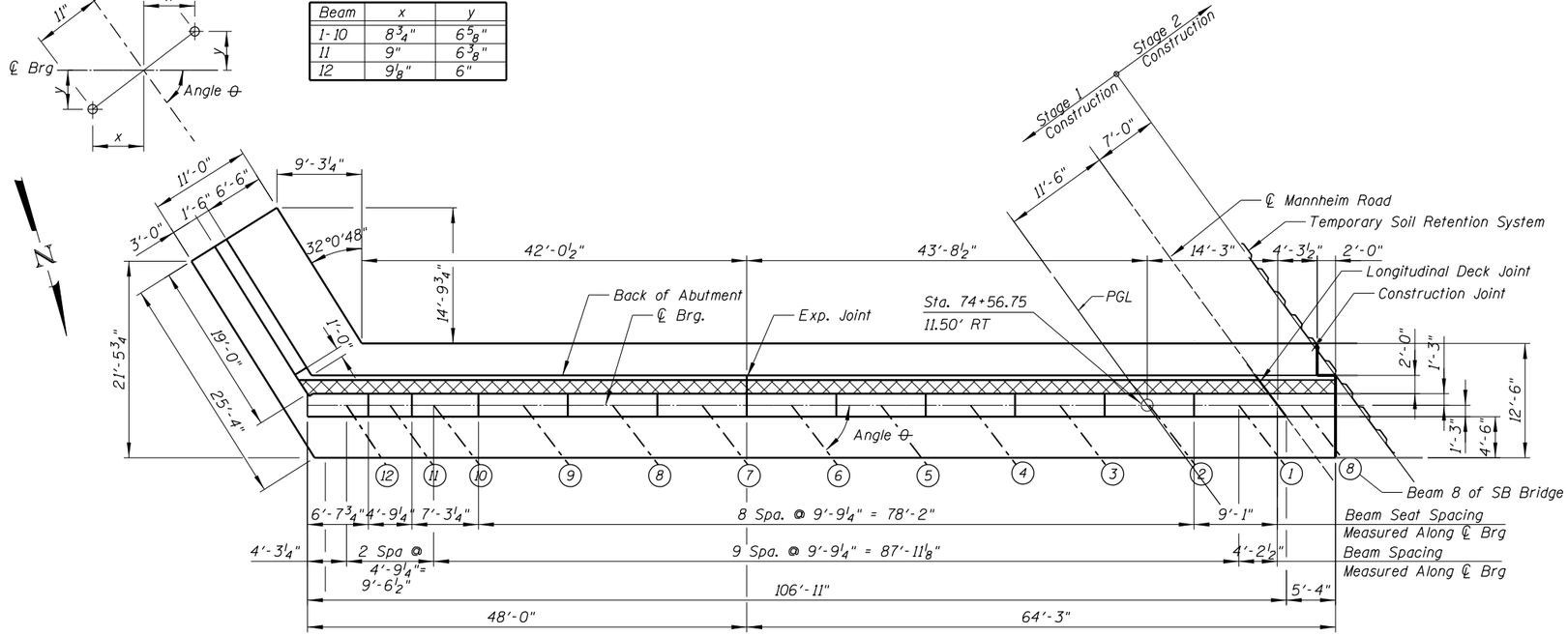
*** FOR INFORMATION ONLY**

CHRISTOPHER B. BURKE ENGINEERING, LTD.	USER NAME =	DESIGNED - MM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING DETAILS NB MANNHEIM ROAD BRIDGE - STRUCTURE NO. 016-7943	F.A. RTE. 330	SECTION 0105-F	COUNTY COOK	TOTAL SHEETS 55	SHEET NO. 21
		CHECKED - JMB	REVISED					CONTRACT NO. 60V68		
	PLOT SCALE =	DRAWN - PDR	REVISED		SHEET NO. S-19 OF S-26 SHEETS			ILLINOIS FED. AID PROJECT		
	PLOT DATE =	CHECKED - MM	REVISED							

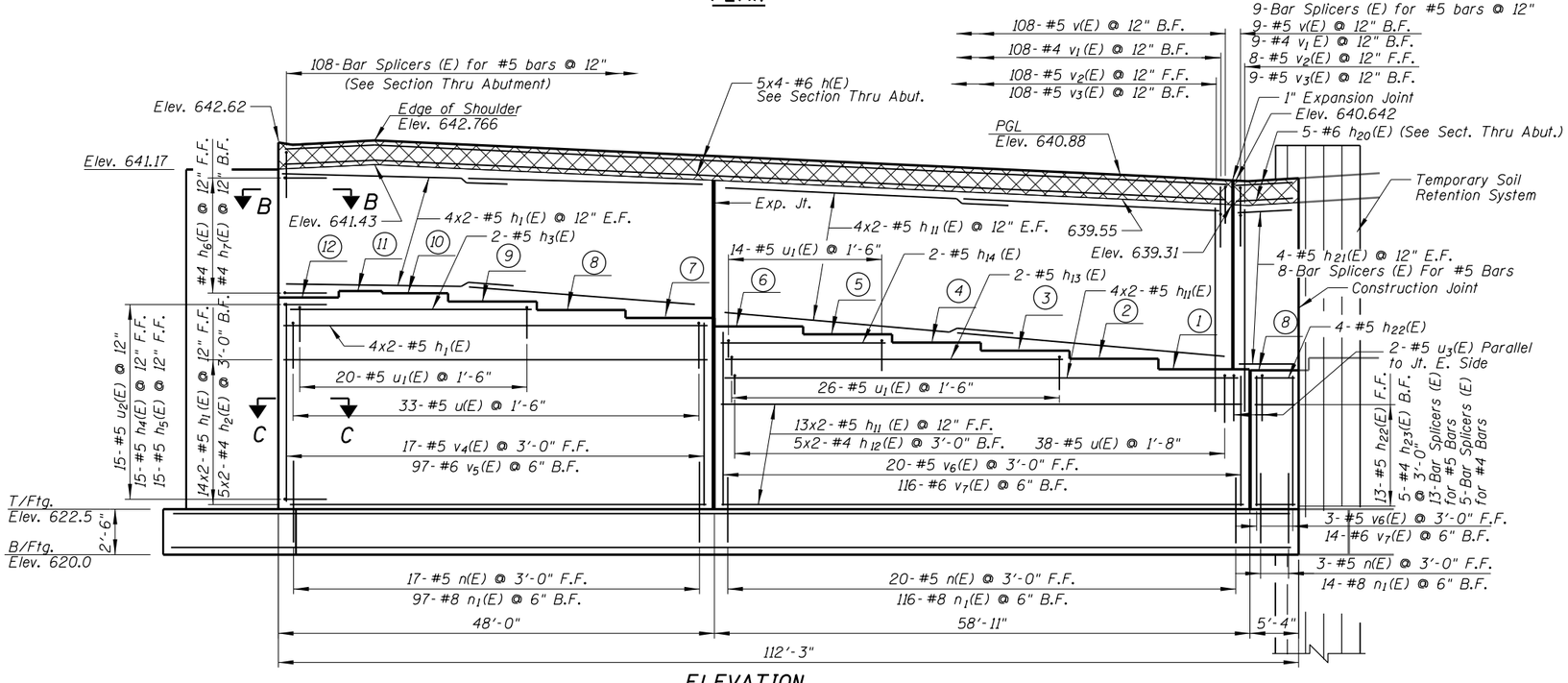
ANCHOR BOLT LOCATION



Beam	x	y
1-10	$8\frac{3}{4}$"	$6\frac{5}{8}$"
11	9"	$6\frac{3}{8}$"
12	$9\frac{1}{8}$"	6"



PLAN



Maximum Applied Service Bearing Pressure (Q_{max})= 5.8 ksf

ELEVATION
Looking South

NOTES:

1. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
2. Space reinforcement in cap to miss anchor bolts.
3. Pour steps monolithically with cap.
4. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".

BEAM STEPS

Beam	Step Height
1-2	$3\frac{3}{8}$"
2-3	$2\frac{3}{4}$"
3-4	$2\frac{5}{8}$"
4-5	$2\frac{3}{4}$"
5-6	$2\frac{3}{4}$"
6-7	$2\frac{3}{4}$"
7-8	$2\frac{3}{4}$"
8-9	$2\frac{3}{4}$"
9-10	$2\frac{3}{4}$"
10-11	$\frac{3}{4}$"
11-12	$-2\frac{1}{8}$"

ANGLE TABLE

Beam	Angle Θ *
1	52°-30'-53"
2	52°-30'-53"
3	52°-30'-53"
4	52°-30'-53"
5	52°-30'-53"
6	52°-30'-53"
7	52°-30'-53"
8	52°-30'-53"
9	52°-30'-53"
10	52°-30'-53"
11	54°-30'-36"
12	56°-36'-35"

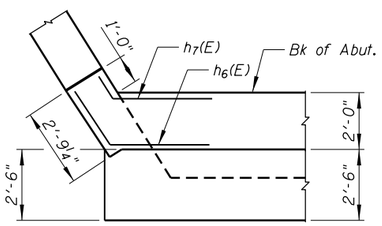
* Measured Relative to ℄ Bearing

BEAM SEAT ELEVATION

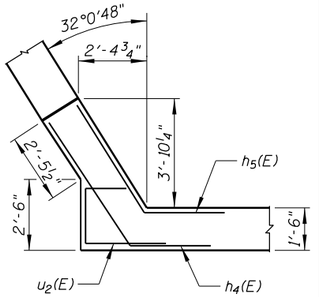
Beam	Elevation
1	635.43
2	635.71
3	635.94
4	636.16
5	636.39
6	636.61
7	636.84
8	637.06
9	637.29
10	637.52
11	637.58
12	637.40

MIN. BAR LAP

Bar	Bar Lap
#4	2'-3"
#5	2'-10"



SECTION B-B



SECTION C-C

LEGEND:

F.F Front Face
B.F. Back face
E.F. Each face

THIS SHEET IS FOR INFORMATION ONLY

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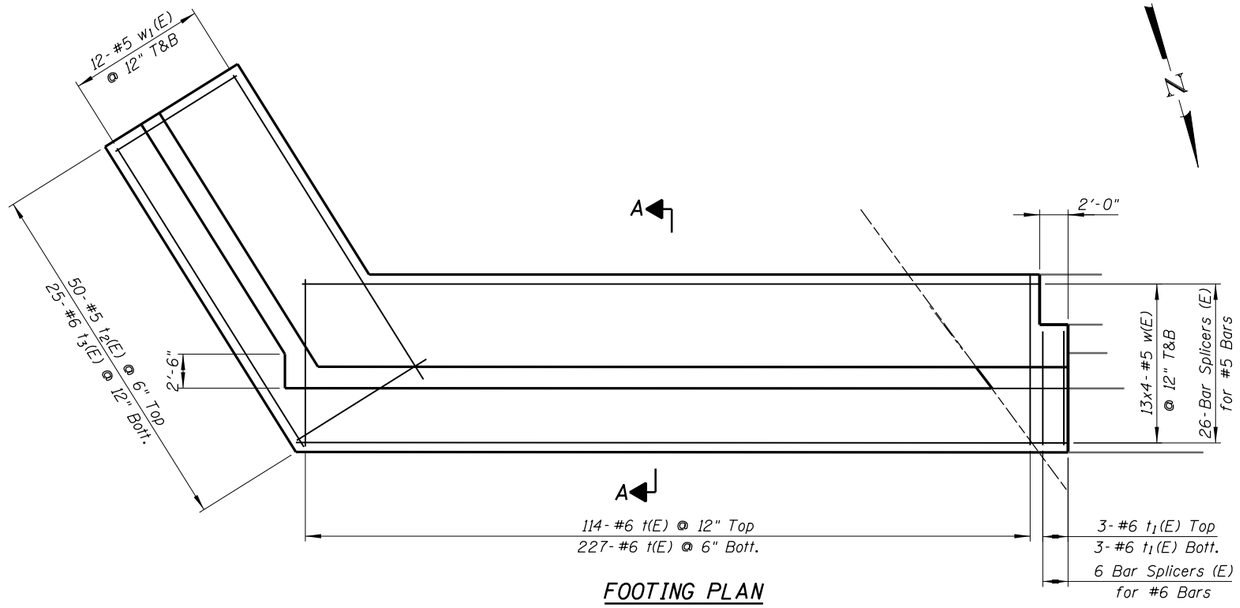
PLOT DATE =	CHECKED - MM	REVISED

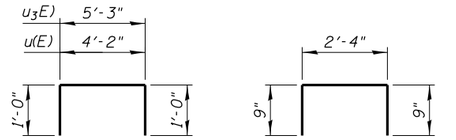
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT – PLAN AND ELEVATION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO.S-20 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	22
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

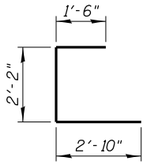


FOOTING PLAN

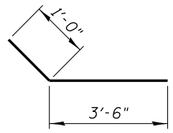


BAR u(E), u3 (E)

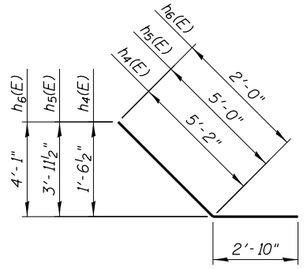
BAR u1 (E)



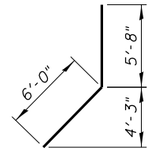
BAR u2 (E)



BAR h7 (E)



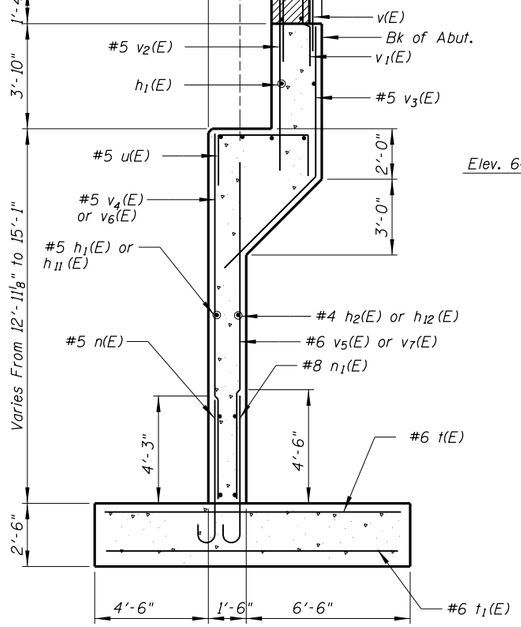
BARS h4 (E), h5 (E), h6 (E)



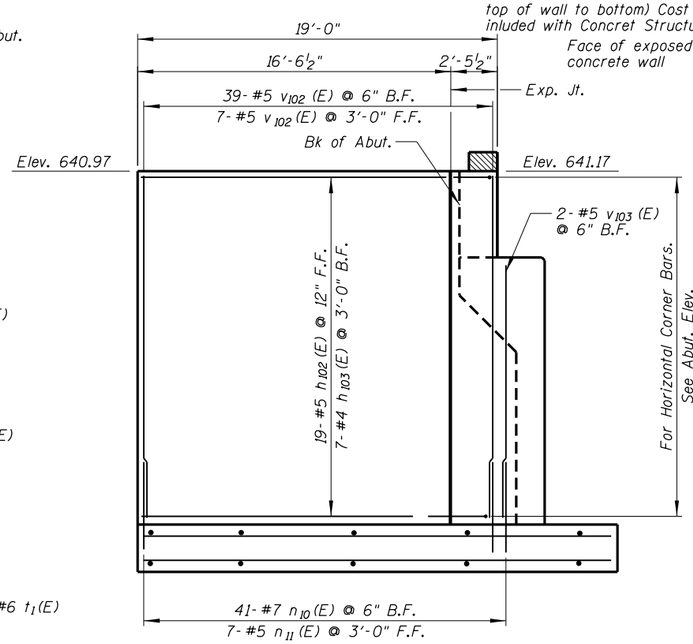
BAR v3(E)

SOUTH ABUTMENT
BILL OF MATERIAL

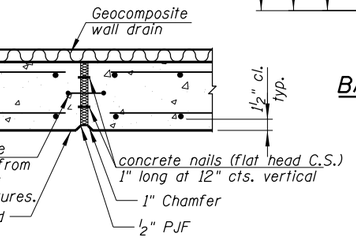
Bar	No.	Size	Length	Shape
h (E)	20	#6	27'-9"	
h1 (E)	52	#5	25'-5"	
h2 (E)	10	#4	25'-5"	
h3 (E)	2	#5	28'-0"	
h4 (E)	15	#5	8'-0"	
h5 (E)	15	#5	7'-10"	
h6 (E)	4	#5	4'-10"	
h7 (E)	4	#5	4'-6"	
h11 (E)	50	#5	30'-10"	
h12 (E)	10	#4	30'-10"	
h13 (E)	2	#5	38'-9"	
h14 (E)	2	#5	19'-0"	
h20 (E)	5	#6	8'-0"	
h21 (E)	8	#5	7'-0"	
h22 (E)	17	#5	5'-0"	
h23 (E)	5	#4	6'-2"	
h102 (E)	19	#5	16'-2"	
h103 (E)	7	#4	16'-2"	
n (E)	40	#5	7'-1"	
n1 (E)	227	#8	7'-8"	
n10 (E)	41	#7	9'-1"	
n11 (E)	7	#5	4'-9"	
t (E)	341	#6	12'-2"	
t1 (E)	6	#6	8'-8"	
t2 (E)	50	#5	10'-8"	
t3 (E)	25	#6	10'-8"	
u (E)	71	#5	6'-2"	
u1 (E)	60	#5	3'-8"	
u2 (E)	15	#5	6'-6"	
U3 (E)	4	#5	7'-3"	
v (E)	117	#5	3'-10"	
v1 (E)	117	#4	3'-0"	
v2 (E)	116	#5	6'-2"	
v3 (E)	117	#5	11'-8"	
v4 (E)	17	#5	14'-2"	
v5 (E)	97	#6	14'-2"	
v6 (E)	23	#5	12'-9"	
v7 (E)	130	#6	12'-9"	
v102 (E)	46	#5	18'-0"	
v103 (E)	2	#5	14'-6"	
w (E)	104	#5	30'-0"	
w1 (E)	24	#5	24'-6"	
Concrete Superstructure		Cu. Yd.	9.4	
Concrete Structures		Cu. Yd.	335.4	
Reinforcement Bars, Epoxy Coated		Pound	31,840	
Structure Excavation		Cu. Yd.	1,696	
Concrete Sealer		Sq. Ft.	718	
Removal and Disposal of Unsuitable Material for Structures		Cu. Yd.	182	



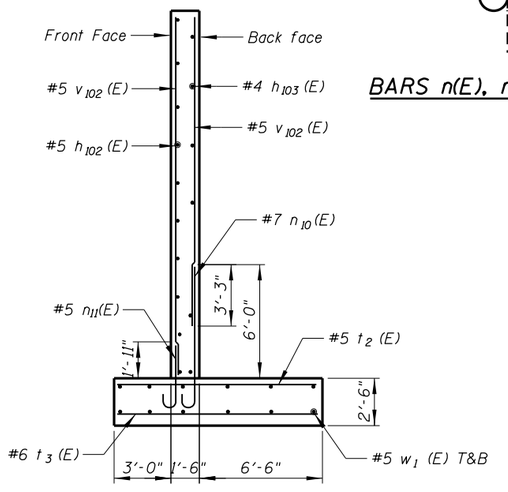
SECTION A-A



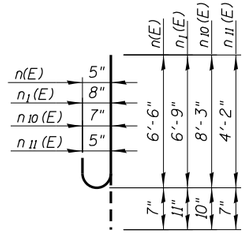
ELEVATION-WINGWALL



EXPANSION JOINT



WINGWALL TYPICAL SECTION



BARS n(E), n1(E), n10(E) & n11 (E)

NOTES:

1. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
2. Space reinforcement in cap to miss anchor bolts.
3. Pour steps monolithically with cap.
4. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".
5. For Limits of Removal and Disposal of Unsuitable Material for Structures, See S-3 of S-26.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT – FOOTING PLAN AND SECTION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO.S-21 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	23
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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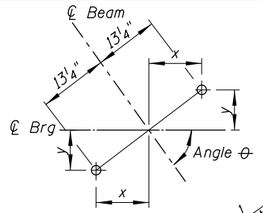
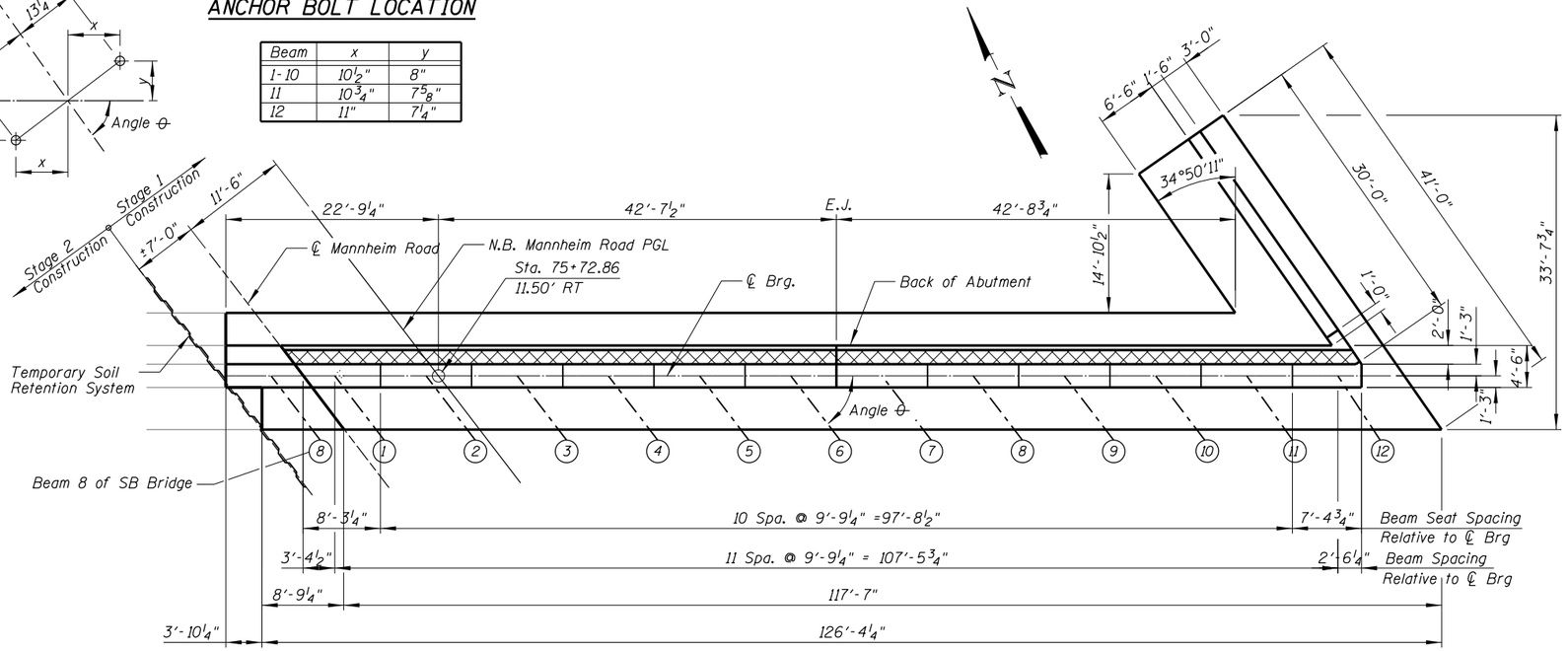
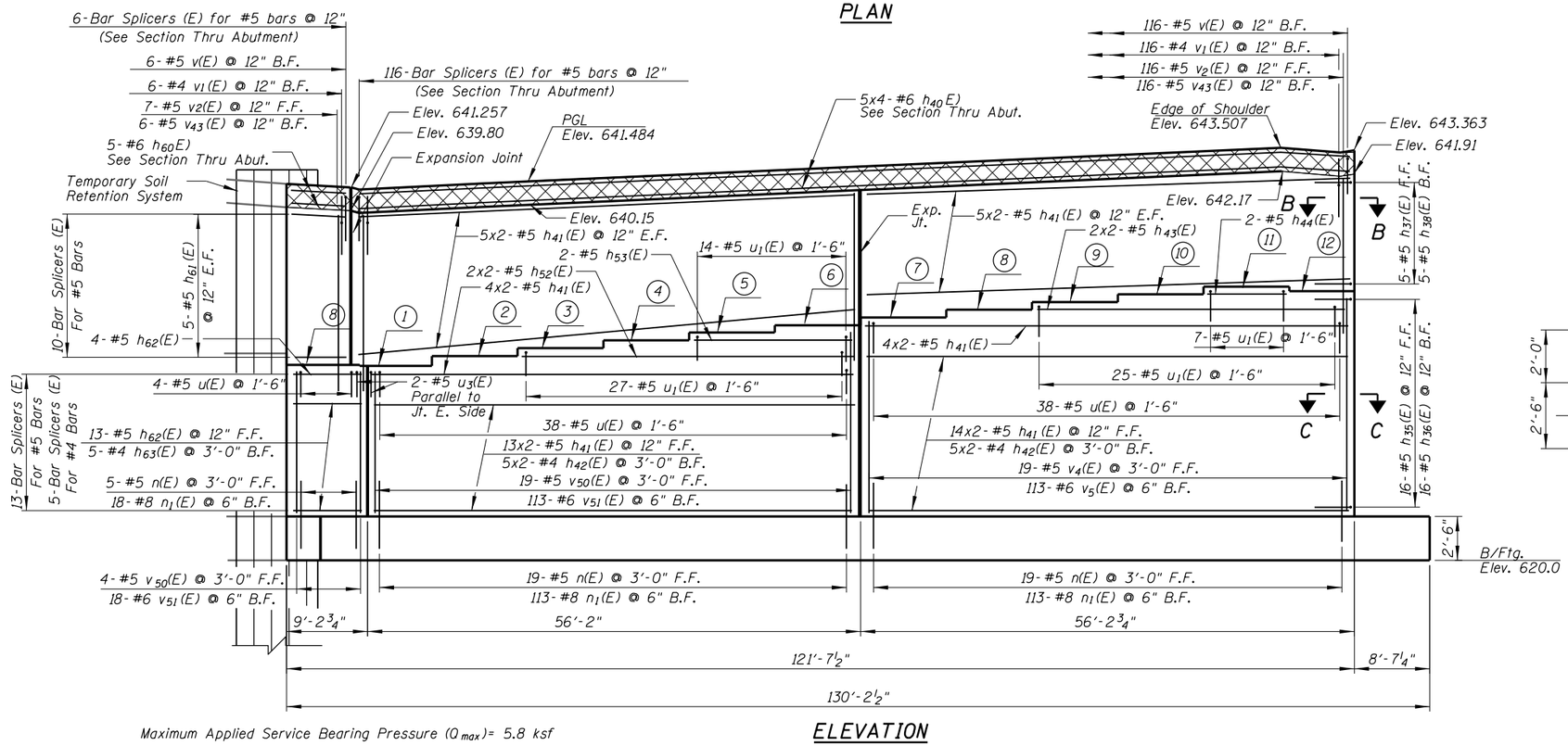
ANCHOR BOLT LOCATION



Beam	x	y
1-10	10½"	8"
11	10¾"	7⅝"
12	11"	7¼"



PLAN



Maximum Applied Service Bearing Pressure (Q_{max})= 5.8 ksf

ELEVATION

NOTES:

1. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
2. Space reinforcement in cap to miss anchor bolts.
3. Pour steps monolithically with cap.
4. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".

BEAM STEPS

Beam	Step Height
1-2	3⅜"
2-3	2¾"
3-4	2⅝"
4-5	2⅝"
5-6	2⅝"
6-7	2⅝"
7-8	2⅝"
8-9	2⅝"
9-10	2⅝"
10-11	2⅝"
11-12	-1½"

BEAM SEAT ELEVATION

Beam	Elevation
1	635.70
2	635.98
3	636.21
4	636.42
5	636.64
6	636.86
7	637.08
8	637.30
9	637.51
10	637.73
11	637.95
12	637.82

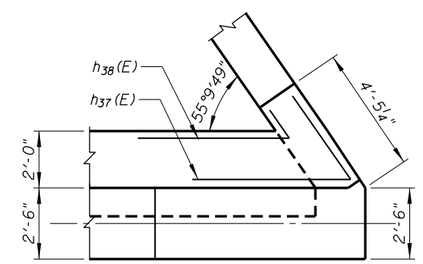
MIN. BAR LAP

Bar	Bar Lap
#4	2'-3"
#5	2'-10"

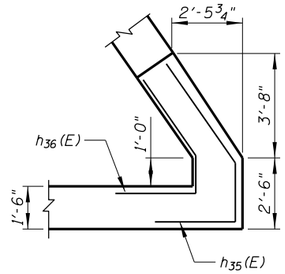
SKEW ANGLE TABLE

Beam	Angle Θ *
1	52°-30'-53"
2	52°-30'-53"
3	52°-30'-53"
4	52°-30'-53"
5	52°-30'-53"
6	52°-30'-53"
7	52°-30'-53"
8	52°-30'-53"
9	52°-30'-53"
10	52°-30'-53"
11	54°-30'-36"
12	56°-36'-35"

* Measured Relative to ℄ Bearing



SECTION B-B



SECTION C-C

LEGEND:

F.F Front Face
B.F. Back face
E.F. Each face

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT – PLAN AND ELEVATION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7943
SHEET NO.S-22 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	24
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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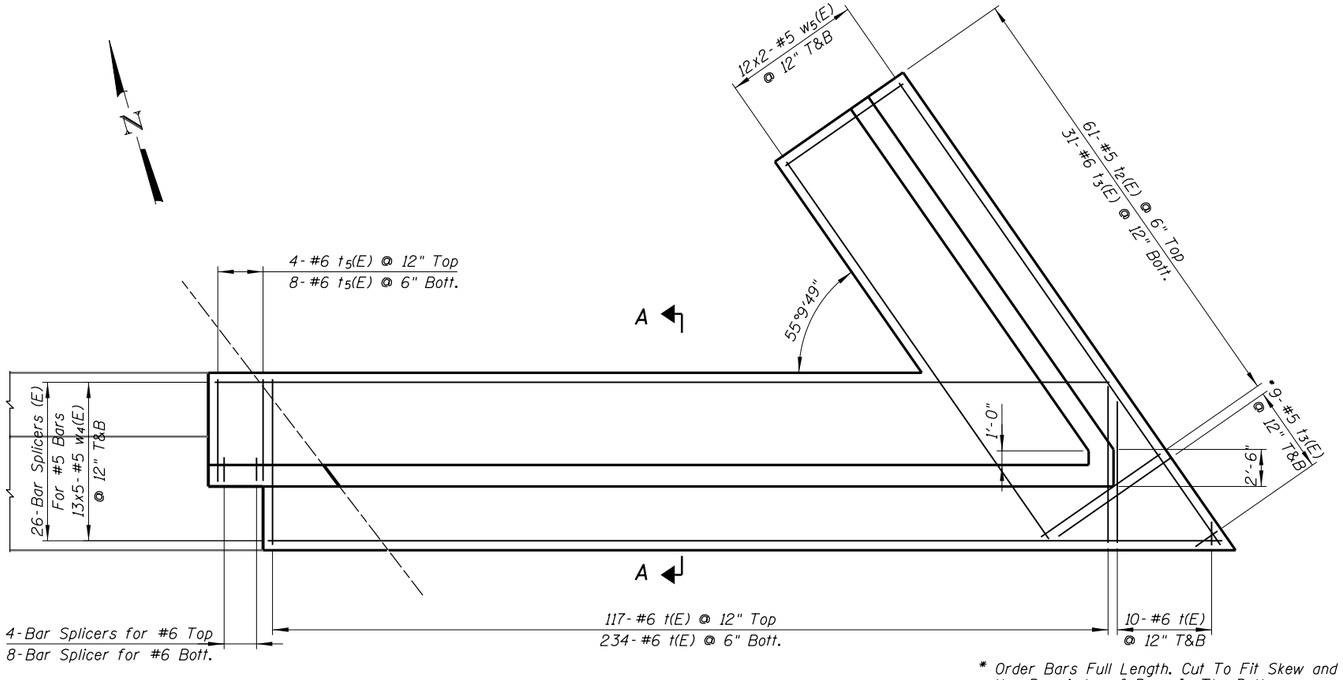
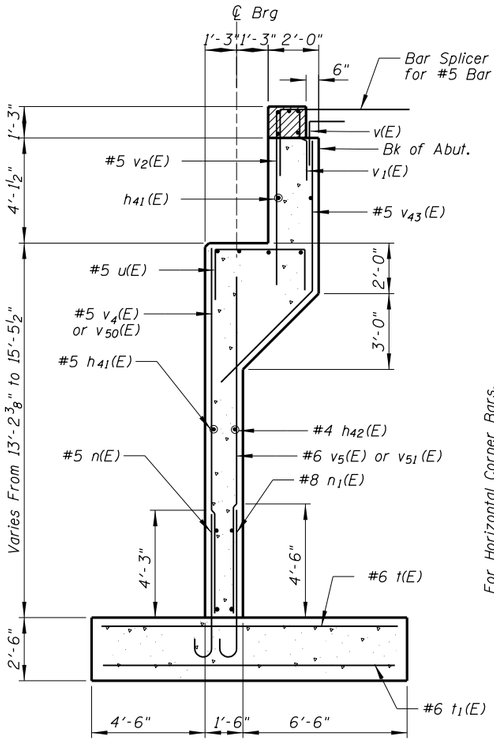
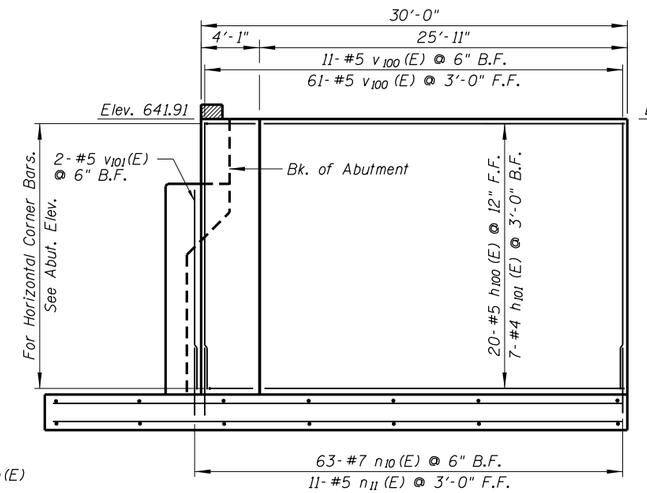


* Order Bars Full Length. Cut To Fit Skew and Use Remainder of Bars In The Bottom.

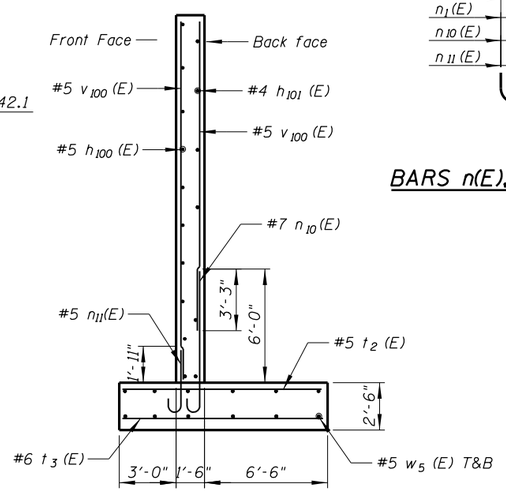
FOOTING PLAN



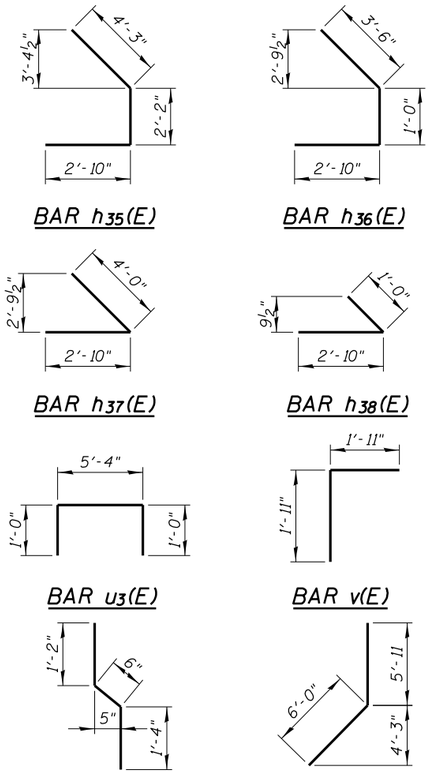
SECTION A-A

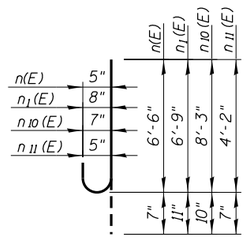


ELEVATION-WINGWALL



WINGWALL TYPICAL SECTION





BARS n(E), n1(E), n10(E) & n11(E)

NORTH ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h35(E)	16	#5	9'-3"	
h36(E)	16	#5	7'-4"	
h37(E)	5	#5	6'-10"	
h38(E)	5	#5	3'-10"	
h40(E)	20	#6	31'-6"	
h41(E)	110	#5	29'-6"	
h42(E)	20	#4	29'-6"	
h43(E)	4	#5	19'-9"	
h44(E)	2	#5	9'-5"	
h52(E)	4	#5	21'-0"	
h53(E)	2	#5	19'-3"	
h60(E)	5	#6	7'-0"	
h61(E)	10	#5	7'-0"	
h62(E)	17	#5	8'-10"	
h63(E)	5	#4	7'-8"	
h100(E)	20	#5	25'-7"	
h101(E)	7	#4	25'-7"	
n(E)	43	#5	7'-1"	
n1(E)	244	#8	7'-8"	
n10(E)	63	#7	9'-1"	
n11(E)	11	#5	4'-9"	
t(E)	361	#6	12'-2"	
t2(E)	61	#5	10'-8"	
t3(E)	40	#6	10'-8"	
t5(E)	12	#6	7'-10"	
u(E)	80	#5	6'-2"	
u1(E)	73	#5	3'-8"	
u3(E)	4	#5	7'-4"	
v(E)	122	#5	3'-10"	
v1(E)	122	#4	3'-0"	
v2(E)	123	#5	6'-2"	
v43(E)	122	#5	11'-11"	
v4(E)	19	#5	14'-2"	
v5(E)	113	#6	14'-2"	
v50(E)	23	#5	13'-0"	
v51(E)	131	#6	13'-0"	
v100(E)	72	#5	19'-0"	
v101(E)	2	#5	15'-0"	
w4(E)	130	#5	27'-6"	
w5(E)	48	#5	20'-10"	
Concrete Superstructure		Cu. Yd.	9.5	
Concrete Structures		Cu. Yd.	387.3	
Reinforcement Bars, Epoxy Coated		Pound	36,490	
Structure Excavation		Cu. Yd.	1,911	
Concrete Sealer		Sq. Ft.	813	
Removal and Disposal of Unsuitable Material for Structures		Cu. Yd.	404	

NOTES:

1. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
2. Space reinforcement in cap to miss anchor bolts.
3. Pour steps monolithically with cap.
4. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".
5. For Limits of Removal and Disposal of Unsuitable Material for Structures, See S-3 of S-26.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT – PLAN AND ELEVATION
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO.S-23 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	25
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		

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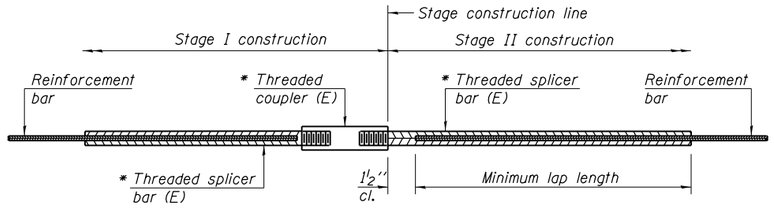


** STANDARD BAR SPLICER ASSEMBLY

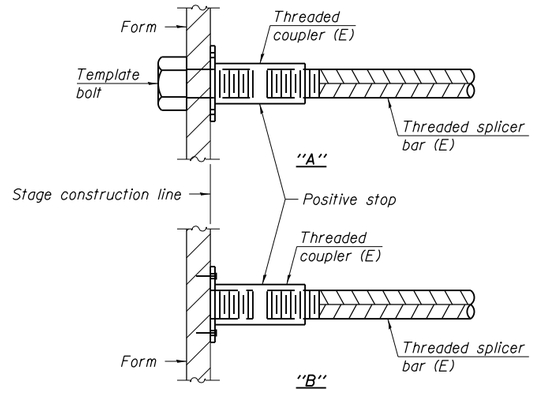
Minimum Lap Lengths					
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Top bar lap, Class B

Threaded splicer bar length = min. lap length + 1½" + thread length

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

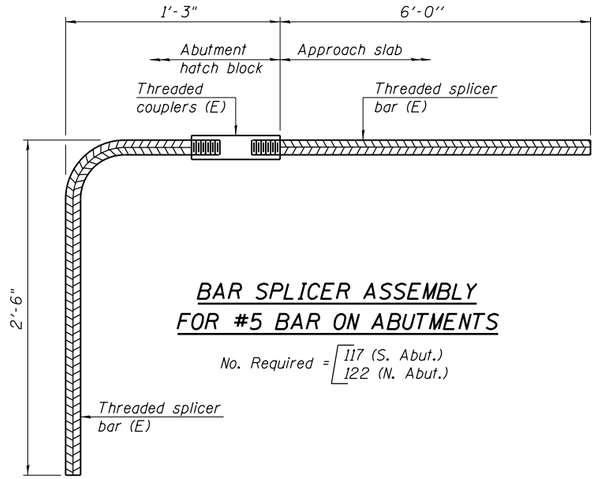
Location	Bar size	No. assemblies required	Table for minimum lap length
S. Abutment	#5	21	Table 4
S. Abutment	#4	5	Table 4
S. Abutment	#6	2	Table 4
S. Abutment	#6	4	Table 3
S. Abutment	#5	13	Table 4
S. Abutment	#5	13	Table 3
N. Abutment	#5	23	Table 4
N. Abutment	#4	5	Table 4
N. Abutment	#6	4	Table 4
N. Abutment	#5	8	Table 3
N. Abutment	#5	13	Table 4
N. Abutment	#5	13	Table 3
S. Approach Slab	#4	25	Table 4
S. Approach Slab	#5	46	Table 3
S. Approach Footing	#5	40	Table 3
N. Approach Slab	#4	25	Table 4
N. Approach Slab	#5	46	Table 3
N. Approach Footing	#5	40	Table 3



INSTALLATION AND SETTING METHODS

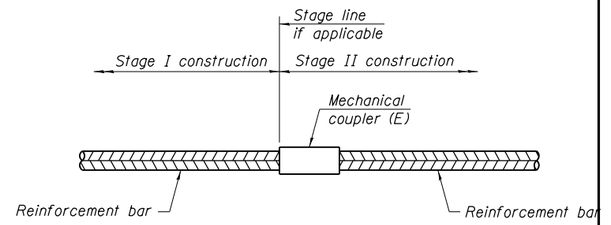
"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

** Bar splicers shall be furnished and paid for during Stage I construction. Bar Splicer coupler ends shall be furnished and installed during Stage I construction (SN 016-7943). Bar splicer rod ends shall be furnished during Stage I construction and stored by the Department until installation during Stage II construction (SN 016-7942). The Contractor shall obtain the Bar Splicer rod ends from the Department and install them during Stage II construction. Bar Splicers will be paid for at the unit cost per each Bar Splicers, where each bar splicer includes both the coupler and the rod end. Bar Splicer rod ends will not be measured for payment separately from coupler ends and the cost for installing the Bar Splicer rod ends shall be included with the pay item for Reinforcement Bars, Epoxy Coated during Stage II Construction.



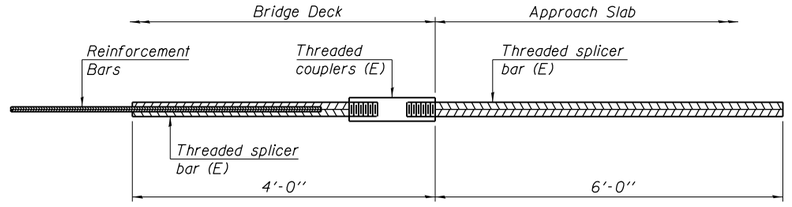
BAR SPLICER ASSEMBLY FOR #5 BAR ON ABUTMENTS

No. Required = 117 (S. Abut.), 122 (N. Abut.)



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL 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.

THIS SHEET IS FOR INFORMATION ONLY

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

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PLOT DATE =	CHECKED - MM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY DETAILS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO.S-24 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	26
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

N:\ROSEMONT\1080\CADD_Sheets\Fabrication CADD_Sheets\26-0167943-D1680237-024_Bar_Splicer.dgn

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 19 DATE STARTED 10-7-02 DATE COMPLETED 10-7-02 JOB L-52,653

ELEVATIONS
GROUND SURFACE 641.5
END OF BORING 576.5

WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING
▽ AT END OF BORING Dry to 10.0'
▼ 24 HOURS Rotary Wash

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0.4	641.1	4" Bituminous Concrete
							1.1	640.4	9" Crushed Stone
	1	AS	12	22.9	2.5•		2.5	639.0	Black clayey TOPSOIL, moist (OL) SILTY CLAY (topsoil) A-7-5
	2	SS	9	23.6	1.9 B 2.5•				Tough to very tough brown and gray silty CLAY, trace sand and gravel, moist (CL) CLAY A-6
	3	SS	13	21.4	2.8 B 2.5•				
							8.0	633.5	
	4	SS	14	20.1	5.2 B 4.5+•				Hard brown and gray silty CLAY, trace sand and gravel, moist (CL) CLAY A-6
							10.5	631.0	
	5	SS	11	21.6	3.3 B 2.25•				Very tough gray silty CLAY, trace sand and gravel, moist (CL) CLAY A-6
							13.0	628.5	
	6	SS	7	28.4	1.5 B 0.75•				Stiff to tough gray silty CLAY, trace sand, trace to little organic, very moist (CL/CH) CLAY A-7-6
	7	SS	9	31.0	1.2 B 0.75•				
							18.0	623.5	
	8	SS	11	17.0	2.5 B 2.0•				Very tough to tough gray silty CLAY, little sand and gravel, occasional silt seams, moist (CL) CLAY A-6
	9	SS	5	17.2	1.3 B 2.5•				
	10	SS	9	16.8	1.3 B 2.0•				
							25.5	616.0	
	A 11 B	SS	17	8.9 3.8	3.3 B 3.0•		27.0	614.5	Very tough gray sandy CLAY, trace to little gravel, moist (CL-ML) LOAM A-4
	12	SS	58	9.6					Firm to very dense gray SILT, trace sand, moist (ML) SILT A-4
	13	SS	49	39.3					
	A 14 B	SS	27	28.3 10.2	4.0 S @ 10%		34.0	607.5	Very tough to hard gray very silty CLAY, trace sand, occasional silt seams, moist (CL-ML) SILTY CLAY LOAM A-4
	15	SS	10	8.1			35.0	606.5	Firm gray SILT, trace sand, moist (ML) SILT A-4
							38.0	603.5	
	16	SS	19	16.3	10.3 B 4.5+•				See Page 2 for Description

DISTANCE BELOW SURFACE IN FEET

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

DRILL RIG NO. 144

BORING NO. 19
Station 74+18.77
Offset 54.18' RT

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 19 DATE STARTED 10-7-02 DATE COMPLETED 10-7-02 JOB L-52,653

ELEVATIONS
GROUND SURFACE 641.5
END OF BORING 576.5

WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING
▽ AT END OF BORING Dry to 10.0'
▼ 24 HOURS Rotary Wash

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
	17	SS	42	12.0	10.3 B 4.5+•				Hard gray very silty CLAY, little sand and gravel, moist (CL-ML) SILTY CLAY LOAM A-4
	18	SS	39	14.3	8.8 B 4.25•				
							47.0	594.5	
	19	SS	34	14.9					Dense gray silty SAND, occasional silt seams, moist (SM) SANDY LOAM A-2-4
							52.0	589.5	Hard gray silty CLAY, little sand and gravel, moist (CL) CLAY A-6
	A 20 B	SS	55	18.0 18.8	4.8 S @ 10% 4.5+•		54.0	587.5	Very dense gray clayey SILT, trace sand, moist (ML) SILTY LOAM A-4
	21	SS	16	21.0	2.1 B 3.25•		57.0	584.5	Very tough gray silty CLAY, trace to little sand, moist (CL) CLAY A-6
							62.0	579.5	Hard gray sandy CLAY, trace to little gravel, moist (CL-ML) LOAM A-4
	22	SS	69	9.0	4.5 S @ 10% 4.5+•				End of Boring at 65.0' • Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer. S = Shear Failure B = Bulge Failure at 15% Strain

DISTANCE BELOW SURFACE IN FEET

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

DRILL RIG NO. 144

BORING NO. 19
Station 74+18.77
Offset 54.18' RT

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 20 DATE STARTED 10-1-02 DATE COMPLETED 10-1-02 JOB L-52,653

ELEVATIONS
GROUND SURFACE 642.0
END OF BORING 582.0

WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING
▽ AT END OF BORING Dry to 10.0'
▼ 24 HOURS Rotary Wash

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0.5	641.5	6" Bituminous Concrete
	A 1 B	SS	14	4.9 23.3	3.0•		1.8	640.2	FILL - Brown Sand, Gravel and Crushed Stone SAND A-1-b
							2.5	639.5	Black clayey TOPSOIL, moist (OL) SILTY CLAY (topsoil) A-7-5
	2	SS	8	26.6	2.0•				Tough to very tough brown and gray silty CLAY, trace to little sand, moist (CL/CH) CLAY A-7-6
	3	SS	9	18.2	2.0•		5.5	636.5	
	4	SS	13	20.4	4.5+•				Very tough to hard brown and gray silty CLAY, trace to little sand and gravel, moist (CL) CLAY A-6
							10.5	631.5	
	5	SS	10	21.1	3.0•				Very tough to tough gray silty CLAY, trace sand and gravel, moist (CL) CLAY A-6
	6	SS	8	21.8	2.0•				
							15.5	626.5	
	7	SS	7	24.1	1.0•				Stiff to tough gray silty CLAY, trace to little sand, very moist (CL) CLAY A-6
	8	SS	10	16.8	4.5•		18.0	624.0	Hard gray very silty CLAY, little sand and gravel, moist (CL-ML) SILTY CLAY LOAM A-4
							20.5	621.5	
	9	SS	8	16.2	1.5 B 2.25•				Tough to very tough gray silty CLAY, little sand and gravel, moist (CL) CLAY LOAM A-6
	10	SS	18	17.6	2.6 B 3.25•				
							25.5	616.5	
	11	SS	32	12.4	4.3 B				Dense gray clayey SILT, trace sand, moist (ML) SILTY LOAM A-4
	12	SS	35	13.4	4.6 B				
							30.5	611.5	
	13	SS	45	14.9					Dense to very dense gray SILT, trace sand, moist (ML) SILT A-4
	14	SS	65	15.4					
							36.0	606.0	
	15	SS	17	21.4	3.8 S @ 5%				Firm gray clayey SILT, trace to little sand, occasional clay seams, moist (ML) SILTY LOAM A-4
							38.0	604.0	
	16	SS	14	14.2	4.4 B				See Page 2 for Description

DISTANCE BELOW SURFACE IN FEET

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

DRILL RIG NO. 275

BORING NO. 20
Station 75+48.25
Offset 34.94' RT

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CHRISTOPHER B. BURKE ENGINEERING, LTD.
8575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

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	CHECKED - JMB	REVISED
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO.S-25 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	27
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois

CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois

BORING 20 DATE STARTED 10-1-02 DATE COMPLETED 10-1-02 JOB L-52,653

ELEVATIONS

GROUND SURFACE 642.0

END OF BORING 582.0

WATER LEVEL OBSERVATIONS

▽ WHILE DRILLING Dry to 10.0'

▽ AT END OF BORING Rotary Wash

▼ 24 HOURS

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
	17	SS	17	13.8	6.0 B 4.5+•				Hard gray silty CLAY, little to some sand and gravel, moist (CL) CLAY LOAM/LOAM A-6
	18	SS	20	11.6	9.1 B 4.5+•				
	A 19 B	SS	31	14.2 9.9	5.6 B 4.5+•		49.0	593.0	Dense gray silty SAND, trace gravel, moist (SM) SANDY LOAM A-2-4
							52.0	590.0	
	20	SS	24	18.0	6.5 B 4.5+•				Hard gray silty CLAY, little sand and gravel, moist (CL) CLAY A-6
							57.0	585.0	Dense gray silty SAND, trace gravel, moist (SM) SANDY LOAM A-2-4
	A 21B	SS	31	10.1 8.2	3.72 B @ 5%		59.0	583.0	Very tough gray sandy CLAY, trace to little gravel, moist (CL-ML) LOAM A-4
									~~End of Boring at 60.0'~~

DISTANCE BELOW SURFACE IN FEET: 40, 45, 50, 55, 60, 65, 70, 75, 80

• Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

B = Bulge Failure at 15% Strain

15C 52653.GPJ 15C-ALL.GDT 4/12/04

DRILL RIG NO. 275

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

BORING NO. 20
Station 75+48.25
Offset 34.94' RT

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois

CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois

BORING 21 DATE STARTED 4-11-02 DATE COMPLETED 4-11-02 JOB L-52,653

ELEVATIONS

GROUND SURFACE 641.5

END OF BORING 628.5

WATER LEVEL OBSERVATIONS

▽ WHILE DRILLING Dry

▽ AT END OF BORING Dry

▼ 24 HOURS Grouted

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0.3	641.2	4" Bituminous Concrete
				7.4			1.3	640.2	12" P.C. Concrete
							1.8	639.7	5" Crushed Asphalt
							2.5	639.0	FILL - Crushed Stone with Asphalt
	1	SS	18	22.8	2.07 B 2.0•	104			FILL - Brown and gray silty CLAY, trace to little sand and gravel, moist to very moist (CL) CLAY A-6
	2	SS	6	30.9	0.5•	92			
	3	SS	6	23.4	0.75•	103			
							10.5	631.0	
	4	SS	5	27.7	0.86 B 0.5•				Soft to stiff brown and gray silty CLAY, trace sand, very moist (CL/CH) [Possible Fill] CLAY A-7-6
									End of Boring at 13.0' Auger Refusal at 13.0' - Possible concrete obstruction (utility line?)

DISTANCE BELOW SURFACE IN FEET: 0, 5, 10, 15, 20, 25, 30, 35, 40

• Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

15C 52653.GPJ 15C-ALL.GDT 4/12/04

DRILL RIG NO. 217

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

BORING NO. 21
Station 74+41.51
Offset 89.91' RT

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9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
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PLOT SCALE =	DRAWN - PDR	REVISED	
PLOT DATE =	CHECKED - MM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
NB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7943
SHEET NO. S-26 OF S-26 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	28
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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Bench Mark: MON 144 - Located East of Spine Road and West of Mannheim Road at the Southeasterly side of O'Hare Airport. Elev. 643.22

Existing Structure: None

During Stage II construction two-way traffic will be maintained on N.B. Mannheim Road.

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications with 2010 Interims

LOADING HL-93

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

SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 0.037g
Design Spectral Acceleration at 0.2 sec. (S_{DS}) = 0.090g
Soil Site Class = C

CURVE DATA ALONG ℄ MANNHEIM ROAD

PROP. CURVE MANN2
PI STA. = 60+87.10
Δ = 55° 18' 45" (LT)
D = 1° 45' 00"
R = 3,274.04'
T = 1,715.72'
L = 3,160.72'
E = 422.32'
e = 3.20%
T.R. = 99'
S.E. Run = 154'
P.C. STA. = 43+71.38
P.T. STA. = 75+32.09
N.C. STA. = 79+09
FULL S.E. STA. = 76+60

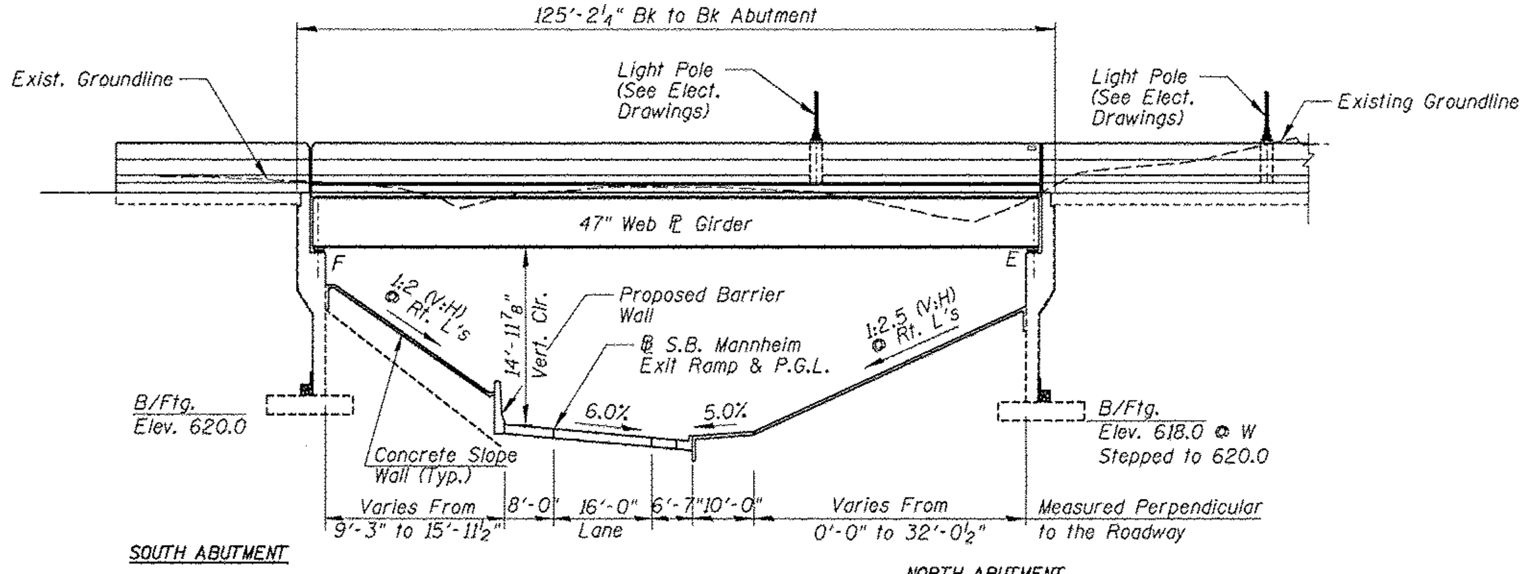
CURVE DATA ALONG ℄ SB MANNHEIM EXIT RAMP

PROP. CURVE PRUNDER-2
PI STA. = 21+60.04
Δ = 89° 00' 23" (LT)
D = 23° 52' 24"
R = 240.00'
T = 235.87'
L = 372.83'
E = 96.51'
e = -6.0%
T.R. = 0'
S.E. Run = 97'
P.C. STA. = 19+24.17
P.T. STA. = 22+97.00

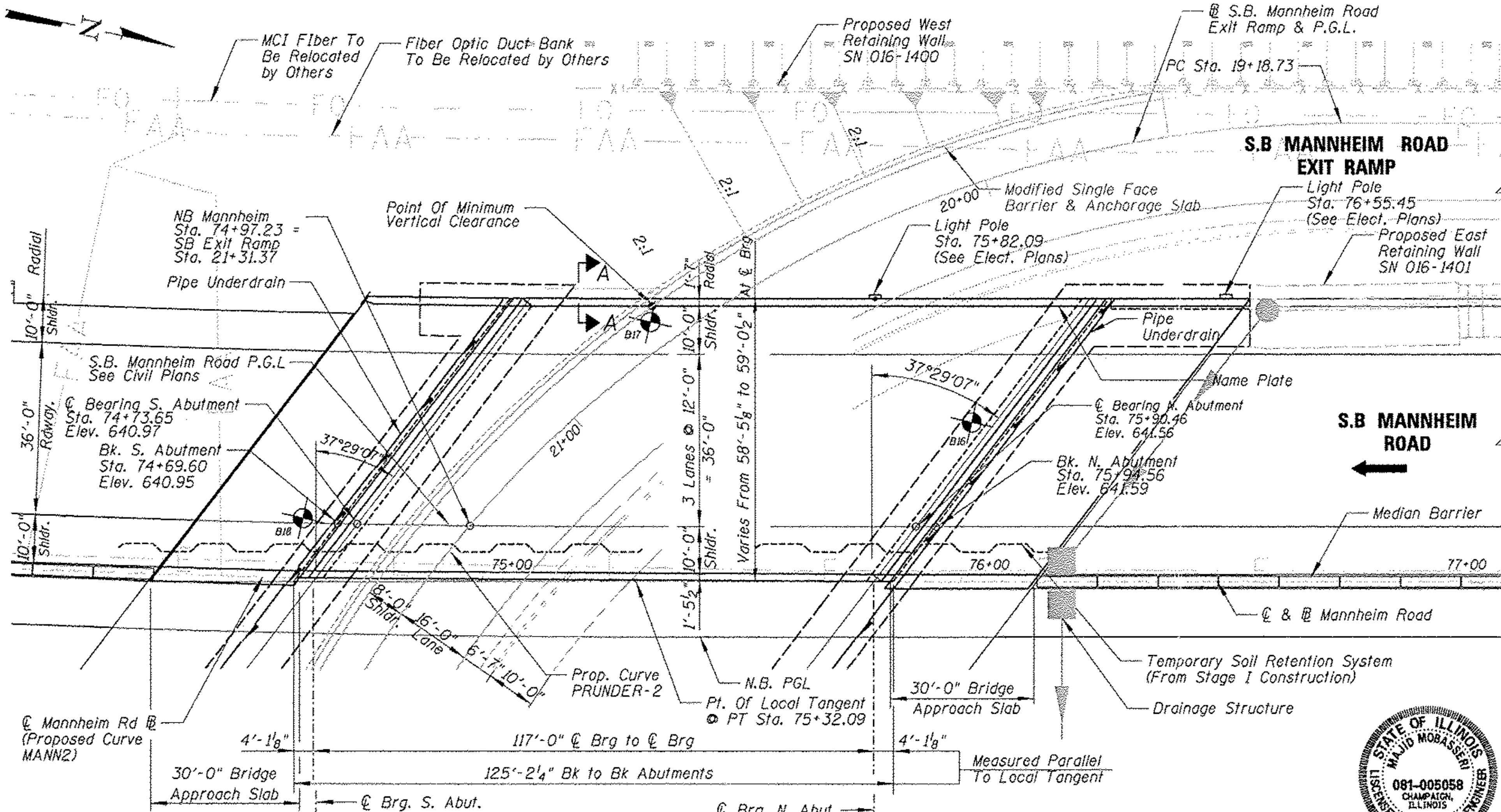
DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 50,000 psi (structural steel) (M270 Grade 50)
f_y = 60,000 psi (Reinf.)

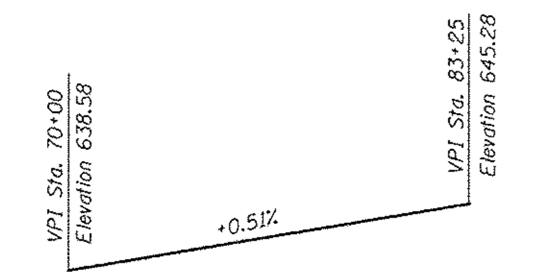


ELEVATION

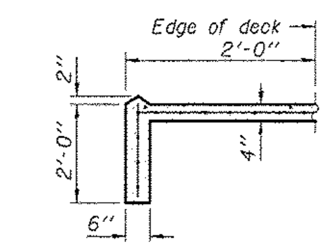


PLAN

Note: All Stations Are Measured Along The Proposed ℄ Of Mannheim Road.



PROFILE GRADE-S.B. MANNHEIM ROAD

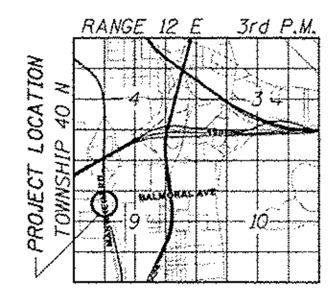


SECTION A-A

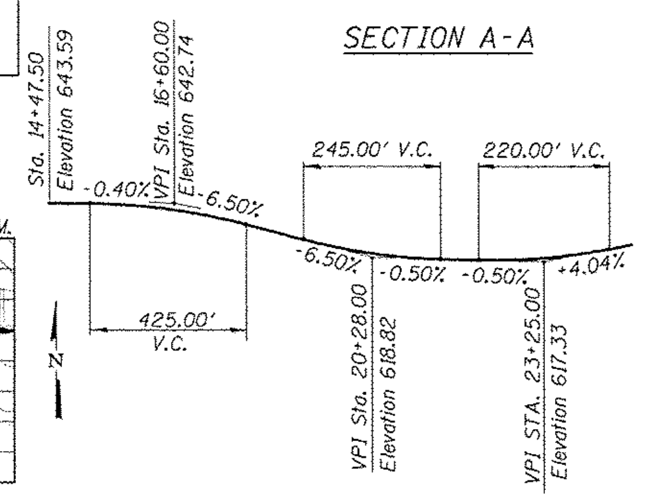
APPROVED
For Structural Adequacy Only
Engineer of Bridges & Structures

STATION 75+32.08
BUILT BY
STATE OF ILLINOIS
F.A.P. RT. 330 SEC. 0105-WRS-1
LOADING HL-93
STRUCTURE NO. 016-7942

NAME PLATE
See Std. 515001



LOCATION SKETCH



PROFILE GRADE-S.B. MANNHEIM ROAD EXIT RAMP

STATE OF ILLINOIS MAJID MOBASSERI 081-005058 CHAMPAIGN, ILLINOIS LICENSED STRUCTURAL ENGINEER

8/20/12

MAJID MOBASSERI
ILLINOIS REGISTRATION No. 081-005058
STRUCTURAL ENGINEER
EXPIRATION DATE: 11/30/12

GENERAL PLAN AND ELEVATION
S.B MANNHEIM ROAD BRIDGE OVER SOUTHBOUND EXIT RAMP
F.A.P. RTE. 330-SEC 0105-WRS-1
COOK COUNTY
STATION 75+32.08
STRUCTURE NO. 016-7942

CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. Higgins Road, Suite 600 Rosemont, Illinois 60018 (847) 823-0500	USER NAME =	DESIGNED - MM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN AND ELEVATION SB MANNHEIM ROAD BRIDGE - STRUCTURE NO. 016-7942	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS / SHEET NO.
		CHECKED - JMB	REVISED			330	0105-F	COOK	55 / 29
	PLOT SCALE =	DRAWN - PDR	REVISED					CONTRACT NO. 60V68	
	PLOT DATE =	CHECKED - MM	REVISED		SHEET NO. S-1 OF S-26 SHEETS		ILLINOIS FED. AID PROJECT		

GENERAL NOTES

1. Fasteners shall be ASTM 325 Type 1, mechanically galvanized bolts. Bolts $\frac{3}{4}$ in. dia., holes $\frac{13}{16}$ in. dia., unless otherwise noted.

2. Calculated weight of Structural Steel = 205,550 lbs Grade 50
   20,650 lbs Grade 36

3. The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Interstate Green Munsell No. 7.5G 4/8.

INDEX OF SHEETS

S.B. MANNHEIM ROAD BRIDGE
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER.	SUB.	TOTAL
FURNISHING STRUCTURAL STEEL	L SUM	0.4	———	0.4
FURNISHING ELASTOMERIC BEARING ASSEMBLY, TYPE I	EACH	8	———	8
STORAGE OF STRUCTURAL STEEL	CAL DA	45	———	45
STORAGE OF ELASTOMERIC BEARING ASSEMBLIES	CAL DA	45	———	45

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES AND BILL OF MATERIAL
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-2 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	30
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

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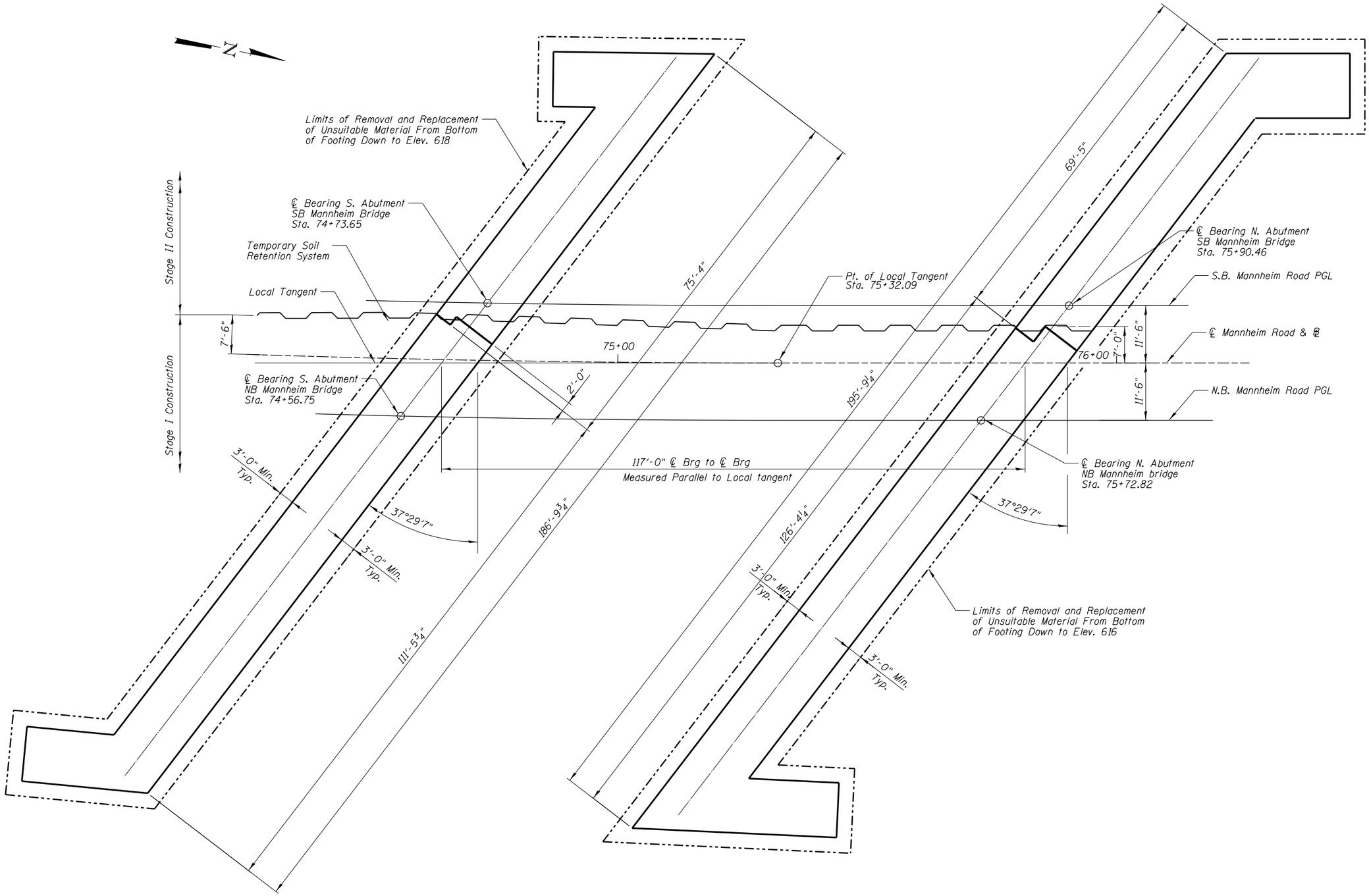

FOOTING LAYOUT

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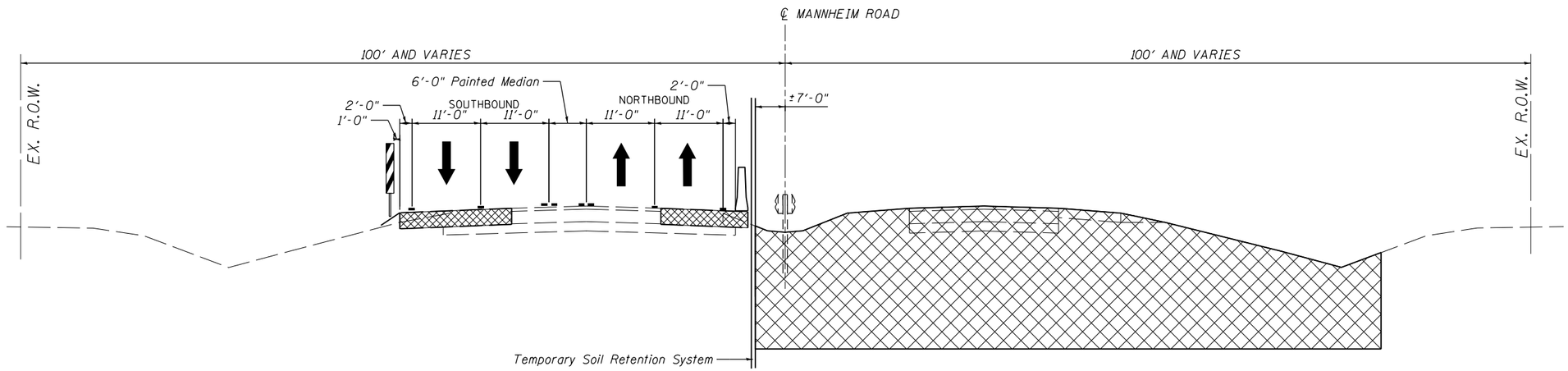
	CHECKED - JMB	REVISED
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

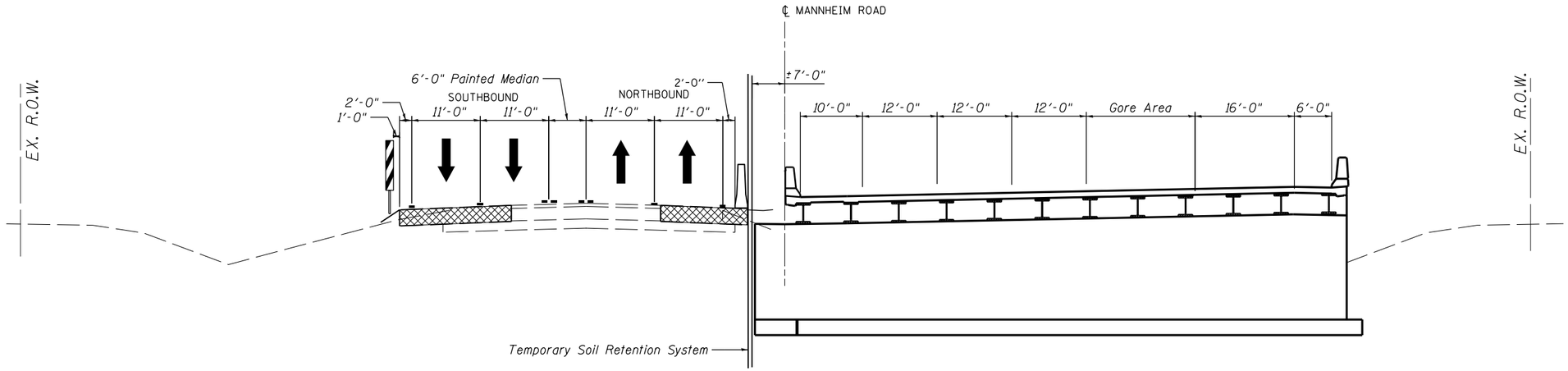
FOOTING LAYOUT AND DETAIL
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-3 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	31
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			



STAGE 1 REMOVAL

(Looking North)



STAGE 1 CONSTRUCTION

(Looking North)

Notes:

1. Cross Hatched Area Indicates Removal.
2. See Roadway Plans for Removal Detail.

THIS SHEET IS FOR INFORMATION ONLY

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Rosemont, Illinois 60018
(847) 823-0500

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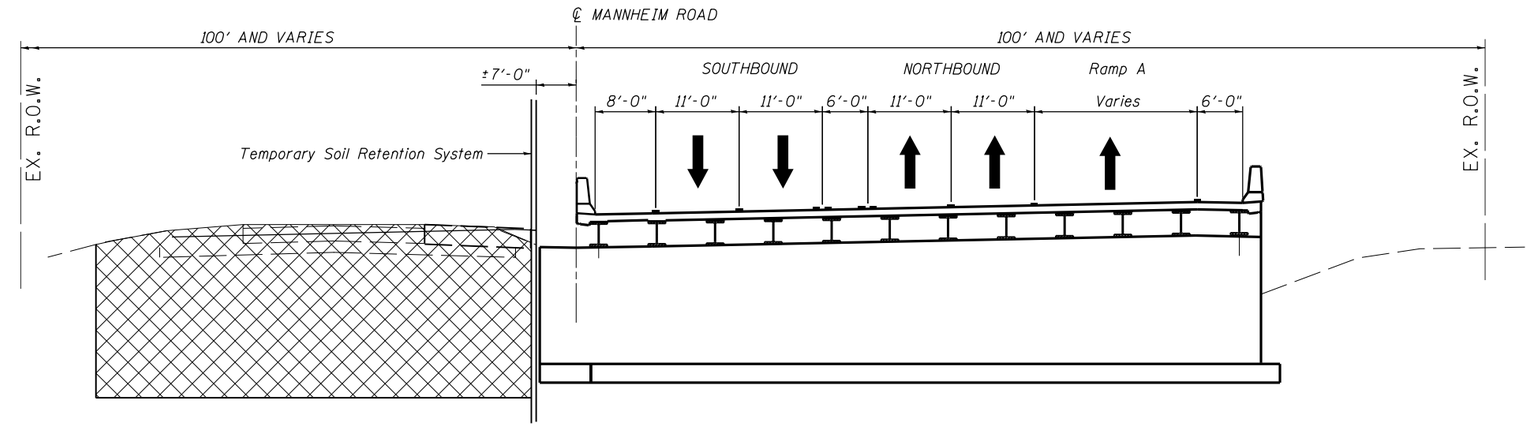
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

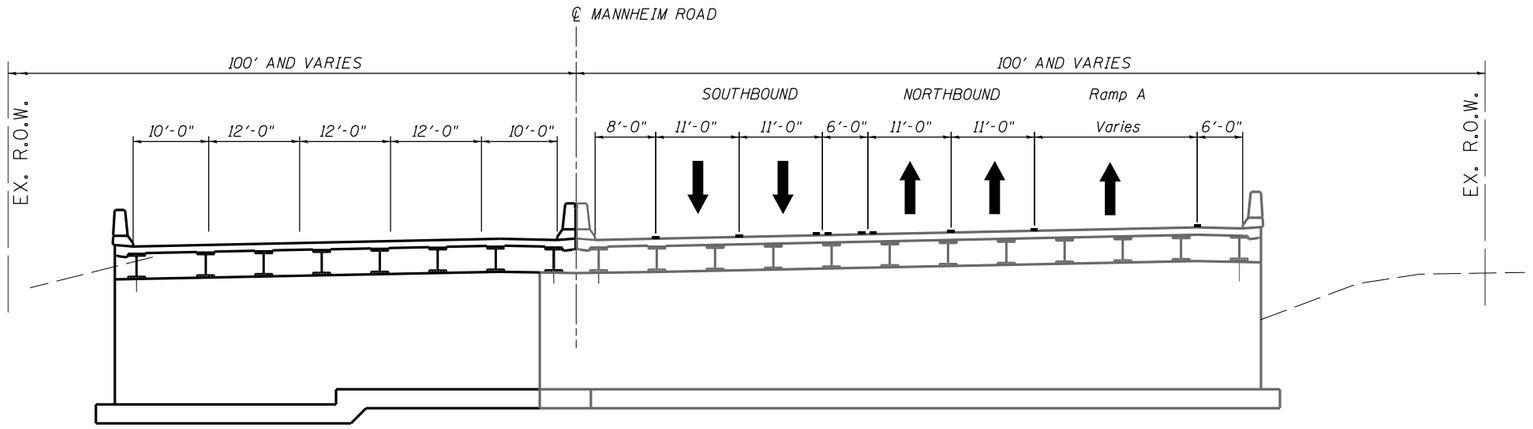
STAGE CONSTRUCTION
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-4 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	32
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		



STAGE II REMOVAL

Looking North

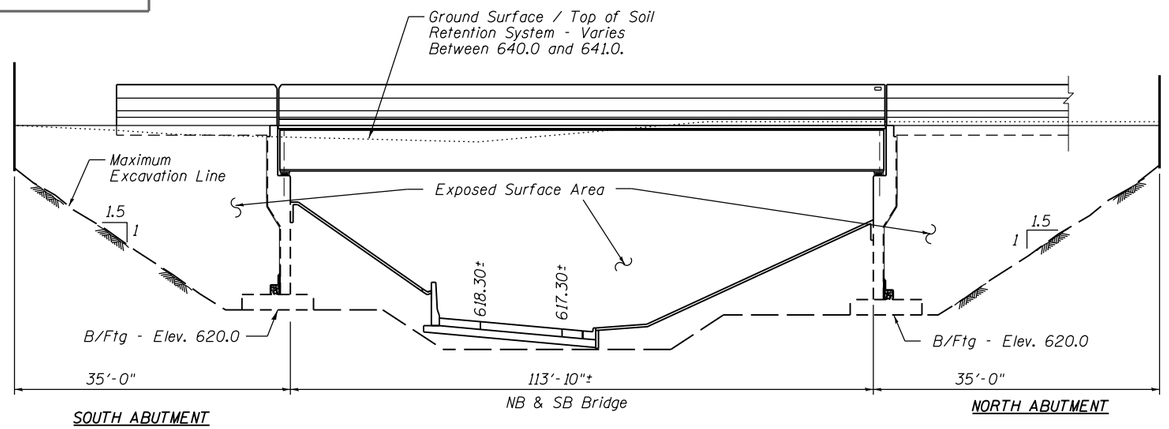


STAGE II CONSTRUCTION

Looking North

Notes:

1. Cross Hatched Area Indicates Removal.
2. See Roadway Plans for Removal Detail.



LIMITS OF SOIL RETENTION SYSTEM

Note: A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

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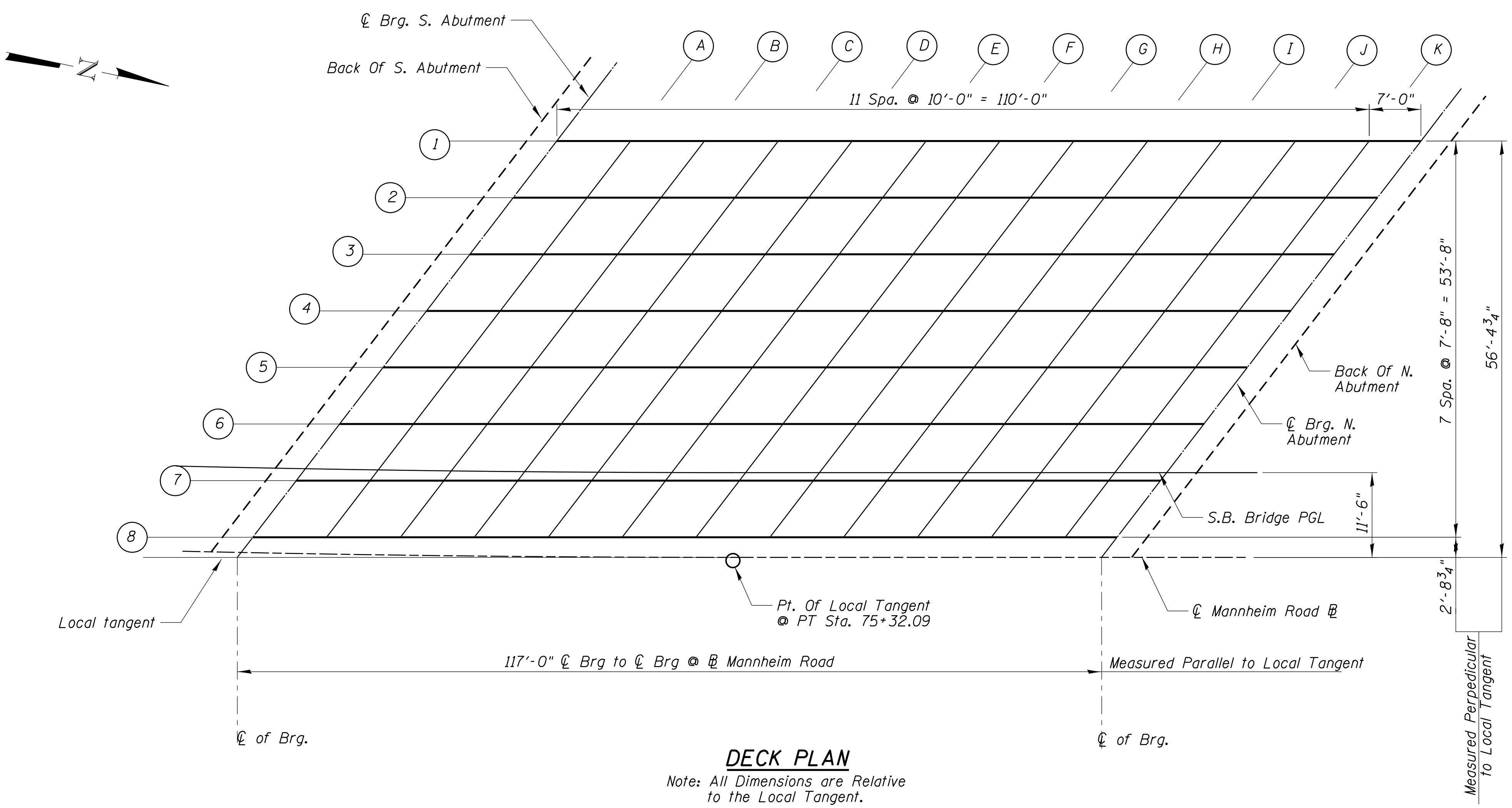
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942

SHEET NO. S-5 OF S-27 SHEETS

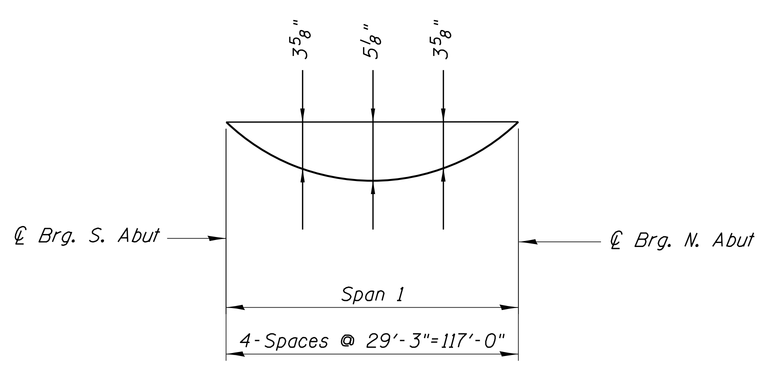
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	33
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			



DECK PLAN

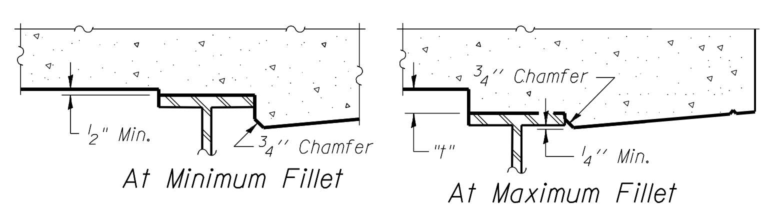
Note: All Dimensions are Relative to the Local Tangent.

NOTE: All Dimensions Are Relative To The Local Tangent.



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only)



NOTE:

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown above. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on Drawing Nos. S-7 and S-8 minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

NOTE:

The deflections given above are not to be used in the field if the Engineer is working from the theoritical grade elevations adjusted for dead load deflection.

N:\ROSEMONT\11009\CADD_Sheets\Fabrication CADD_Sheets\34-0167942-0160037-006_TOS_Elevs.dgn

CHRISTOPHER B. BURKE ENGINEERING, LTD. 9575 W. Higgins Road, Suite 600 Rosemont, Illinois 60018 (847) 823-0500	USER NAME =	DESIGNED - MM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TOP OF SLAB ELEVATION LOCATIONS SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
		CHECKED - JMB	REVISED		
	PLOT SCALE =	DRAWN - PDR	REVISED		
	PLOT DATE =	CHECKED - MM	REVISED		SHEET NO. S-6 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	34
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		

BEAM 1

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	75+03.30	-44.77	639.62	639.62
CL of Brg S. Abut.	75+07.47	-44.81	639.64	639.64
A	75+17.65	-44.87	639.69	639.80
B	75+27.82	-44.89	639.74	639.94
C	75+37.89	-44.90	639.79	640.08
D	75+47.89	-44.90	639.84	640.19
E	75+57.89	-44.90	639.89	640.28
F	75+67.89	-44.90	639.94	640.34
G	75+77.89	-44.90	639.99	640.37
H	75+87.89	-44.90	640.04	640.38
I	75+97.89	-44.90	640.09	640.36
J	76+07.89	-44.90	640.14	640.32
K	76+17.89	-44.90	640.20	640.27
CL of Brg N. Abut.	76+24.89	-44.90	640.23	640.23
Bck of N. Abut.	76+28.99	-44.90	640.25	640.25

BEAM 2

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+97.40	-37.05	639.90	639.90
CL of Brg S. Abut.	75+01.56	-37.09	639.92	639.92
A	75+11.71	-37.17	639.97	640.08
B	75+21.86	-37.21	640.02	640.24
C	75+32.01	-37.23	640.07	640.38
D	75+42.02	-37.23	640.12	640.50
E	75+52.02	-37.23	640.17	640.59
F	75+62.02	-37.23	640.22	640.65
G	75+72.02	-37.23	640.27	640.68
H	75+82.02	-37.23	640.32	640.68
I	75+92.02	-37.23	640.37	640.66
J	76+02.02	-37.23	640.42	640.61
K	76+12.02	-37.23	640.47	640.55
CL of Brg N. Abut.	76+19.02	-37.23	640.51	640.51
Bck of N. Abut.	76+23.11	-37.23	640.53	640.53

BEAM 3

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+91.53	-29.31	640.13	640.13
CL of Brg S. Abut.	74+95.68	-29.36	640.15	640.15
A	75+05.81	-29.46	640.19	640.31
B	75+15.93	-29.52	640.24	640.46
C	75+26.06	-29.56	640.29	640.60
D	75+36.14	-29.56	640.34	640.72
E	75+46.14	-29.56	640.39	640.81
F	75+56.14	-29.56	640.44	640.87
G	75+66.14	-29.56	640.50	640.90
H	75+76.14	-29.56	640.55	640.91
I	75+86.14	-29.56	640.60	640.88
J	75+96.14	-29.56	640.65	640.84
K	76+06.14	-29.56	640.70	640.78
CL of Brg N. Abut.	76+13.14	-29.56	640.73	640.73
Bck of N. Abut.	76+17.23	-29.56	640.75	640.75

BEAM 4

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+85.69	-21.57	640.34	640.34
CL of Brg S. Abut.	74+89.83	-21.63	640.36	640.36
A	74+99.93	-21.74	640.41	640.53
B	75+10.03	-21.82	640.46	640.68
C	75+20.13	-21.87	640.51	640.82
D	75+30.24	-21.90	640.56	640.94
E	75+40.26	-21.90	640.61	641.03
F	75+50.26	-21.90	640.66	641.09
G	75+60.26	-21.90	640.71	641.12
H	75+70.26	-21.90	640.76	641.12
I	75+80.26	-21.90	640.81	641.10
J	75+90.26	-21.90	640.86	641.05
K	76+00.26	-21.90	640.91	640.99
CL of Brg N. Abut.	76+07.26	-21.90	640.95	640.95
Bck of N. Abut.	76+11.35	-21.90	640.97	640.97

BEAM 5

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+79.87	-13.82	640.56	640.56
CL of Brg S. Abut.	74+84.00	-13.88	640.58	640.58
A	74+94.08	-14.01	640.63	640.74
B	75+04.16	-14.11	640.68	640.90
C	75+14.24	-14.18	640.73	641.04
D	75+24.31	-14.22	640.78	641.15
E	75+34.38	-14.23	640.83	641.24
F	75+44.38	-14.23	640.88	641.30
G	75+54.38	-14.23	640.93	641.34
H	75+64.38	-14.23	640.98	641.34
I	75+74.38	-14.23	641.03	641.31
J	75+84.38	-14.23	641.08	641.27
K	75+94.38	-14.23	641.13	641.21
CL of Brg N. Abut.	76+01.38	-14.23	641.16	641.16
Bck of N. Abut.	76+05.47	-14.23	641.19	641.19

BEAM 6

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+74.09	-6.05	640.78	640.78
CL of Brg S. Abut.	74+78.20	-6.12	640.80	640.80
A	74+88.26	-6.27	640.85	640.96
B	74+98.31	-6.39	640.89	641.12
C	75+08.37	-6.48	640.94	641.25
D	75+18.42	-6.53	640.99	641.37
E	75+28.48	-6.56	641.04	641.46
F	75+38.50	-6.56	641.09	641.52
G	75+48.50	-6.56	641.14	641.55
H	75+58.50	-6.56	641.19	641.55
I	75+68.50	-6.56	641.24	641.53
J	75+78.50	-6.56	641.29	641.49
K	75+88.50	-6.56	641.34	641.43
CL of Brg N. Abut.	75+95.50	-6.56	641.38	641.38
Bck of N. Abut.	75+99.59	-6.56	641.40	641.40

S.B. BRIDGE PGL

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+69.60	0.00	640.95	640.95
CL of Brg S. Abut.	74+73.65	0.00	640.97	640.97
A	74+83.57	0.00	641.02	641.14
B	74+93.50	0.00	641.07	641.30
C	75+03.46	0.00	641.12	641.44
D	75+13.44	0.00	641.18	641.55
E	75+23.44	0.00	641.23	641.64
F	75+33.46	0.00	641.28	641.70
G	75+43.46	0.00	641.33	641.74
H	75+53.46	0.00	641.38	641.74
I	75+63.46	0.00	641.43	641.71
J	75+73.46	0.00	641.48	641.67
K	75+83.46	0.00	641.53	641.61
CL of Brg N. Abut.	75+90.50	0.00	641.56	641.56
Bck of N. Abut.	75+94.56	0.00	641.59	641.59

BEAM 7

Location	Station	Offset*	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+68.33	1.72	640.88	640.88
CL of Brg S. Abut.	74+72.43	1.65	640.90	640.90
A	74+82.46	1.48	640.96	641.07
B	74+92.49	1.34	641.02	641.24
C	75+02.52	1.24	641.07	641.38
D	75+12.55	1.16	641.12	641.50
E	75+22.59	1.12	641.18	641.59
F	75+32.62	1.10	641.23	641.65
G	75+42.62	1.10	641.28	641.69
H	75+52.62	1.10	641.33	641.69
I	75+62.62	1.10	641.38	641.67
J	75+72.62	1.10	641.43	641.62
K	75+82.62	1.10	641.48	641.56
CL of Brg N. Abut.	75+89.62	1.10	641.52	641.52
Bck of N. Abut.	75+93.71	1.10	641.54	641.54

* NOTE: All Offsets Are Relative To The PGL. Offsets Are Positive East of PGL and Negative West of PGL.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATION TABLES
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-7 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	35
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

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BEAM 8

Location	Station	Offset *	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bck of S. Abut.	74+62.59	9.51	640.54	640.54
CL of Brg S. Abut.	74+66.69	9.42	640.56	640.56
A	74+76.70	9.24	640.62	640.73
B	74+86.70	9.09	640.68	640.88
C	74+96.71	8.96	640.73	641.02
D	75+06.71	8.87	640.79	641.13
E	75+16.72	8.81	640.84	641.22
F	75+26.74	8.78	640.89	641.28
G	75+36.74	8.77	640.94	641.32
H	75+46.74	8.77	640.99	641.32
I	75+56.74	8.77	641.04	641.31
J	75+66.74	8.77	641.09	641.27
K	75+76.74	8.77	641.14	641.22
CL of Brg N. Abut.	75+83.74	8.77	641.18	641.18
Bck of N. Abut.	75+87.83	8.77	641.20	641.20

* NOTE: All Offsets Are Relative To The PGL. Offsets Are Positive East of PGL and Negative West of PGL.

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PLOT DATE =	CHECKED - MM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATION TABLES
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-8 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	36
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

WEST EDGE OF SHOULDER

Location	Station	* Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	74+74.10	-46.00	639.42
A	74+84.38	-46.02	639.48
B	74+94.63	-46.01	639.53
N. End S. Appr. Pav't	75+04.86	-45.97	639.58

WEST EDGE OF PAVEMENT

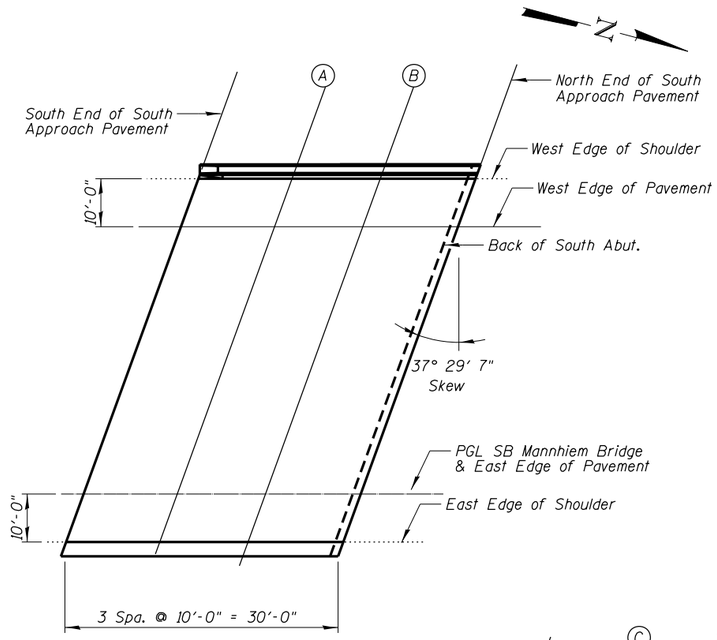
Location	Station	* Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	74+66.61	-36.00	639.79
A	74+76.82	-36.00	639.84
B	74+87.03	-36.00	639.89
N. End S. Appr. Pav't	74+97.24	-36.00	639.94

PGL & EAST EDGE OF PAVEMENT

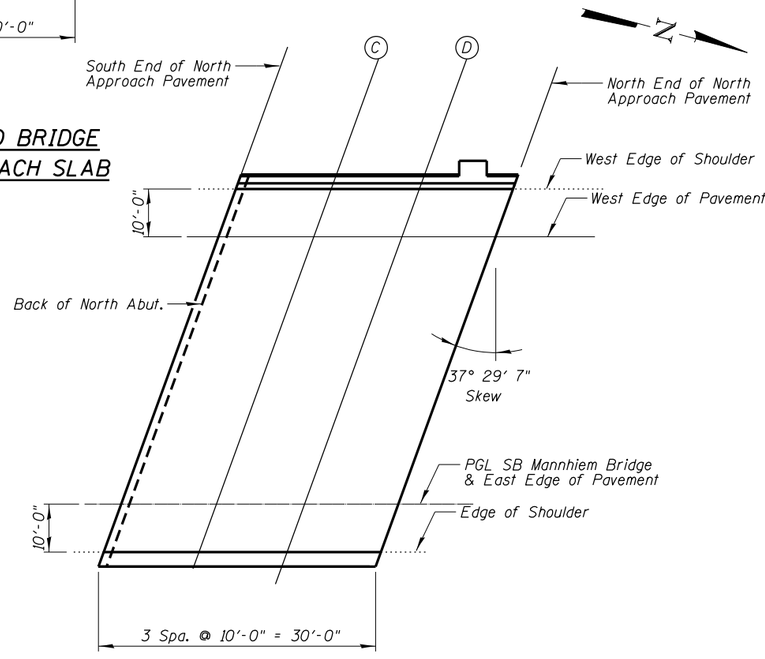
Location	Station	* Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	74+40.11	0.00	640.80
A	74+50.15	0.00	640.86
B	74+60.19	0.00	640.91
N. End S. Appr. Pav't	74+70.22	0.00	640.96

EAST EDGE OF SHOULDER

Location	Station	* Offset	Theoretical Grade Elevations
S. End S. Appr. Pav't	74+32.88	10.00	640.37
A	74+42.88	9.99	640.42
B	74+52.85	10.02	640.47
N. End S. Appr. Pav't	74+62.83	10.04	640.52



SB MANNHEIM ROAD BRIDGE
PLAN SOUTH APPROACH SLAB



SB MANNHEIM ROAD BRIDGE
PLAN NORTH APPROACH SLAB

WEST EDGE OF SHOULDER

Location	Station	* Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	76+29.21	-46.00	640.21
C	76+39.21	-46.00	640.26
D	76+49.21	-46.00	640.31
N. End N. Appr. Pav't	76+59.21	-46.00	640.44

WEST EDGE OF PAVEMENT

Location	Station	* Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	76+21.54	-36.00	640.57
C	76+31.54	-36.00	640.62
D	76+41.54	-36.00	640.67
N. End N. Appr. Pav't	76+51.54	-36.00	640.72

PGL & EAST EDGE OF PAVEMENT

Location	Station	* Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	75+93.93	0.00	641.58
C	76+03.93	0.00	641.63
D	76+13.93	0.00	641.68
N. End N. Appr. Pav't	76+23.93	0.00	641.73

EAST EDGE OF SHOULDER

Location	Station	* Offset	Theoretical Grade Elevations
S. End N. Appr. Pav't	75+86.24	10.03	641.14
C	75+96.25	10.02	641.19
D	76+06.25	10.01	641.25
N. End N. Appr. Pav't	76+16.26	10.00	641.30

* NOTE: All Offsets Are Relative To The PGL. Offsets Are Positive East of PGL and Negative West of PGL.

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF APPROACH SLAB ELEVATIONS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-9 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	37
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

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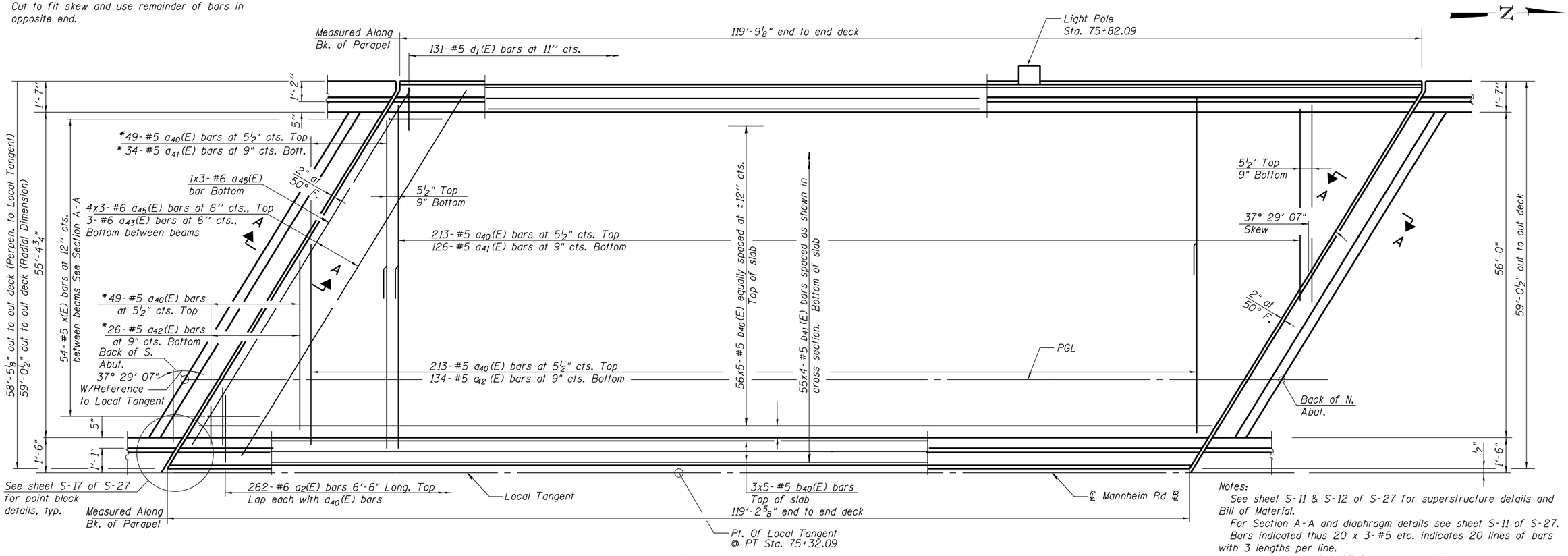
* Order a_{40}(E), a_{41}(E) & a_{42}(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.



PLAN

Notes:

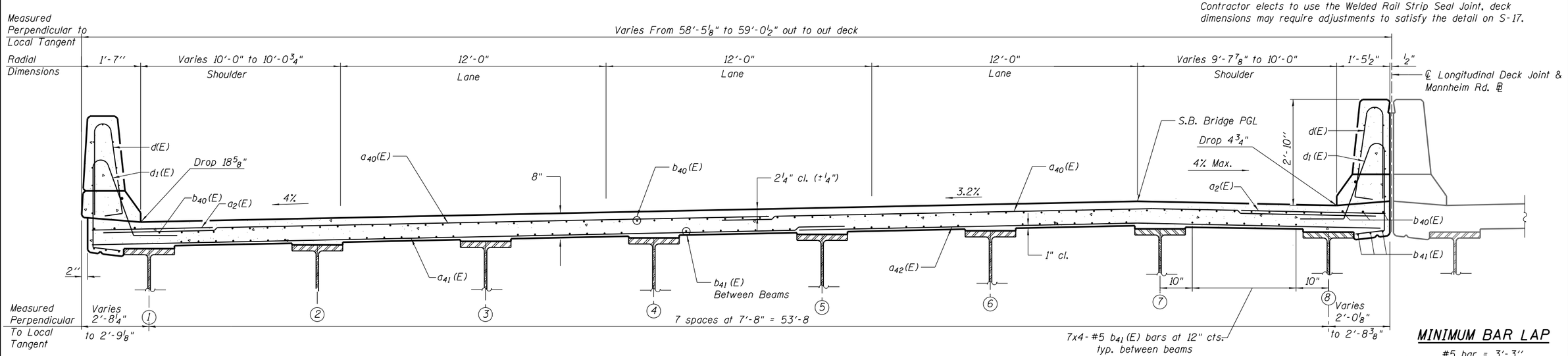
See sheet S-11 & S-12 of S-27 for superstructure details and Bill of Material.

For Section A-A and diaphragm details see sheet S-11 of S-27.

Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

See sheet S-11 of S-27 for parapet reinforcement.

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 detail on S-17.



CROSS SECTION

(Looking North)

MINIMUM BAR LAP

#5 bar = 3'-3"

#6 bar = 3'-10"

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8575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE PLAN AND CROSS SECTION
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-10 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	38
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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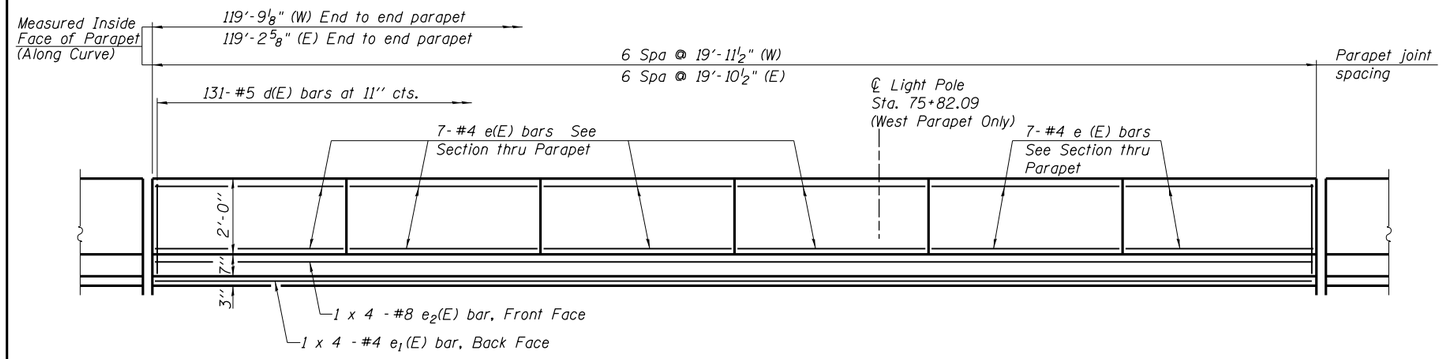
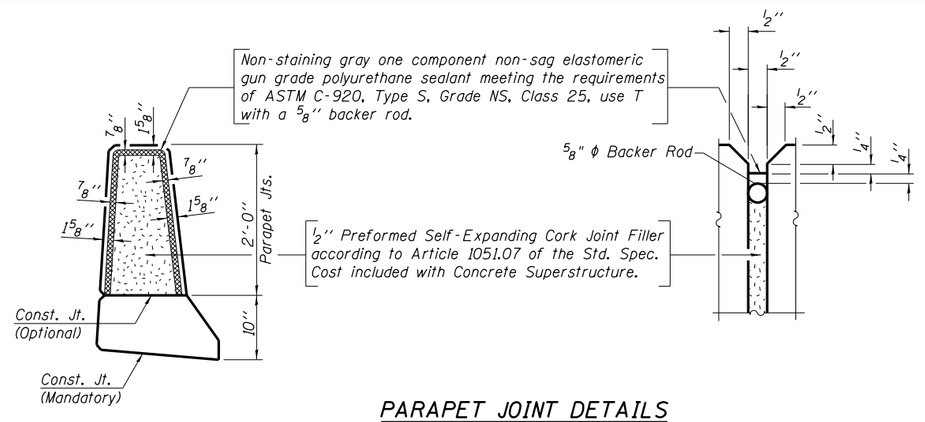


INSIDE ELEVATION OF PARAPET

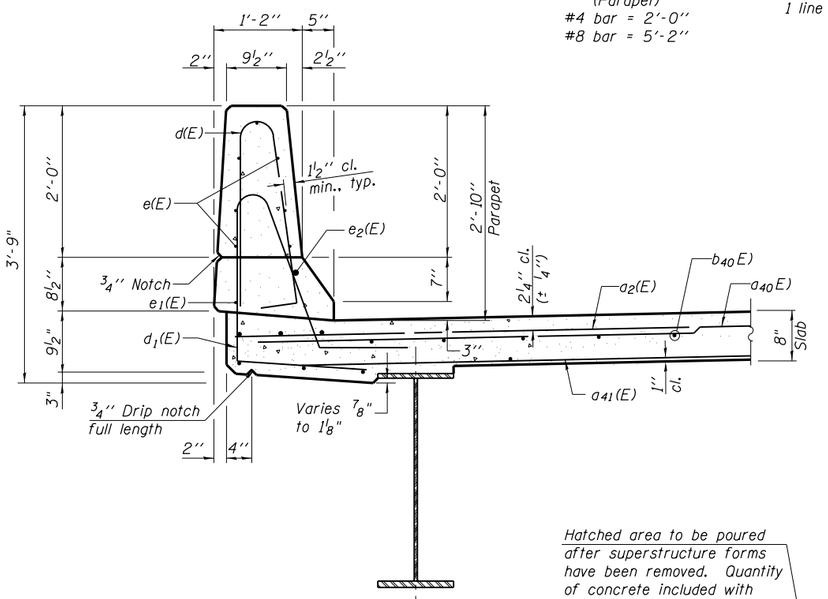


PARAPET JOINT DETAILS

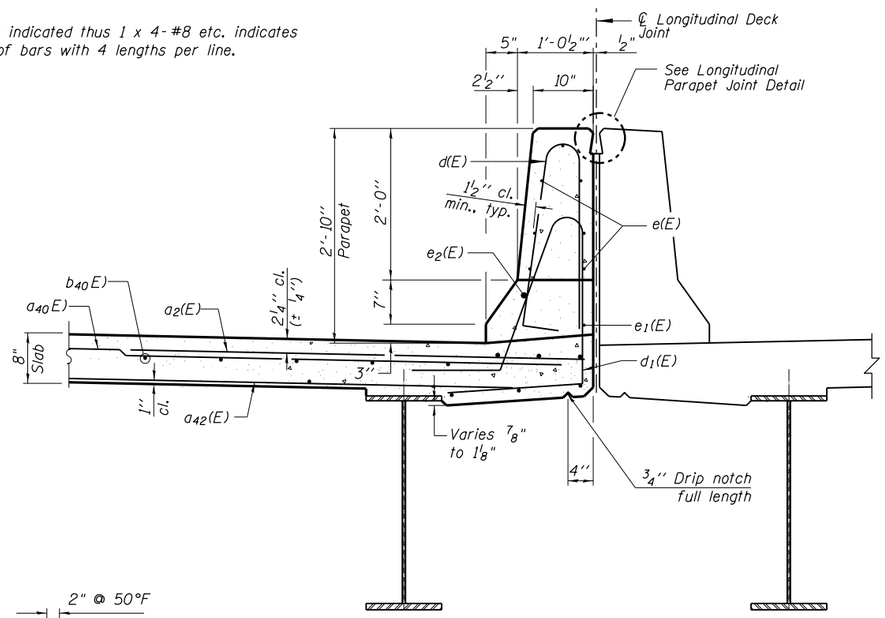
MINIMUM BAR LAP

(Parapet)
#4 bar = 2'-0"
#8 bar = 5'-2"

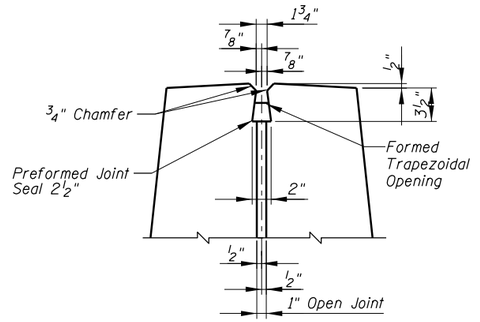
Note:
Bars indicated thus 1 x 4-#8 etc. indicates 1 line of bars with 4 lengths per line.



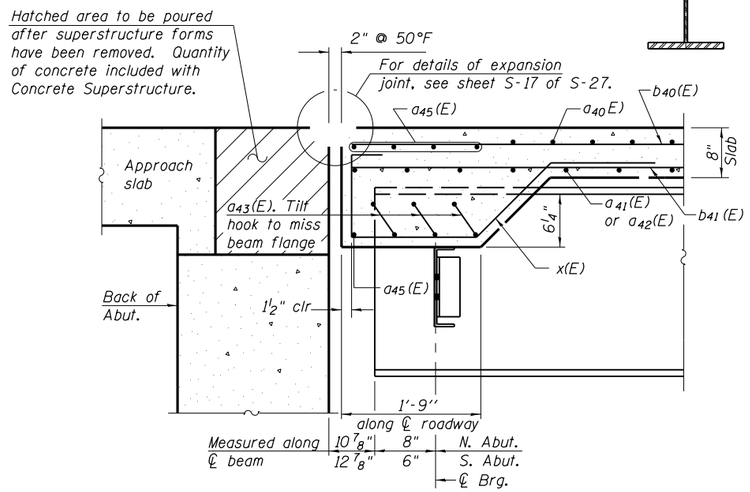
SECTION THRU WEST PARAPET



SECTION THRU MEDIAN PARAPET



LONGITUDINAL PARAPET JOINT DETAIL



SECTION A-A

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PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-11 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	39
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

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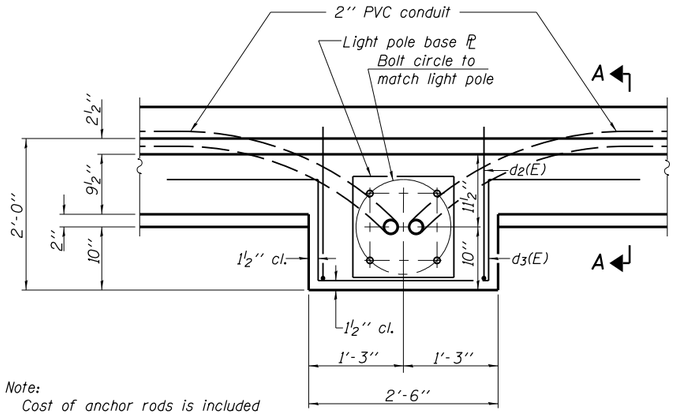
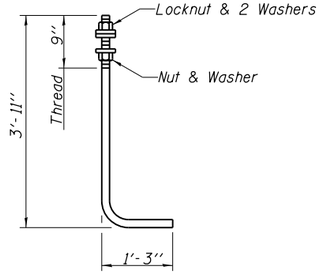


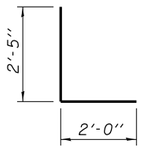
Note:
Cost of anchor rods is included with Concrete Superstructure.

PLAN

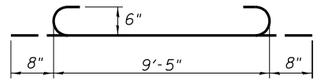


ANCHOR ROD

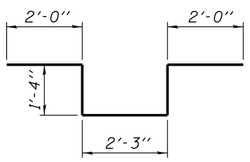
Diameter as specified for light poles. (ASTM F 1554 Grade 105) Full length Hot Dipped Galvanized.



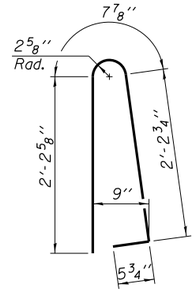
BAR d2(E)



d43(E) BAR



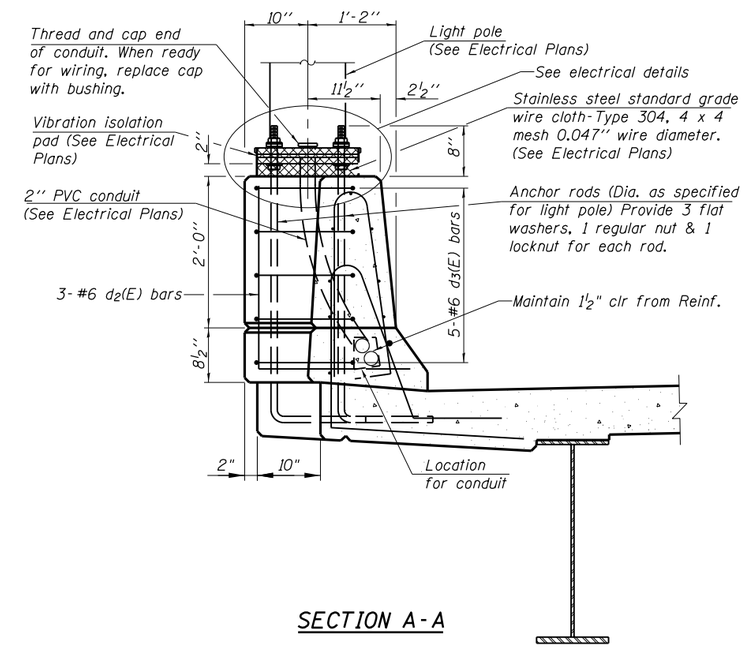
BAR d3(E)



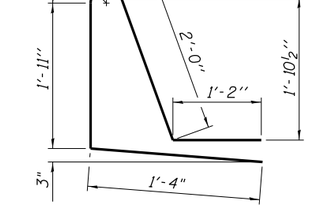
BAR d(E)

SUPERSTRUCTURE BILL OF MATERIAL

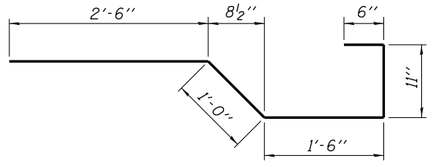
Bar	No.	Size	Length	Shape
$a_2(E)$	524	#6	6'-6"	
$a_{40}(E)$	524	#5	30'-10"	
$a_{41}(E)$	160	#5	34'-11"	
$a_{42}(E)$	160	#5	27'-3"	
$a_{43}(E)$	42	#6	10'-9"	
$a_{45}(E)$	30	#6	27'-4"	
$b_{40}(E)$	310	#5	26'-7"	
$b_{41}(E)$	220	#5	32'-5"	
d(E)	262	#5	5'-7"	
$d_1(E)$	262	#5	7'-0"	
$d_2(E)$	3	#6	4'-5"	
$d_3(E)$	5	#6	8'-11"	
e(E)	84	#4	19'-7"	
$e_1(E)$	8	#4	31'-6"	
$e_2(E)$	8	#8	33'-10"	
x (E)	108	#5	6'-5"	
Reinforcement Bars, Epoxy Coated			Lbs.	56,520
Concrete Superstructure			Cu. Yds.	212.9



SECTION A-A



BAR d1(E)



BAR x(E)

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PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUPERSTRUCTURE DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-12 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	40
		CONTRACT NO. 60V68		
		ILLINOIS	FED. AID PROJECT	

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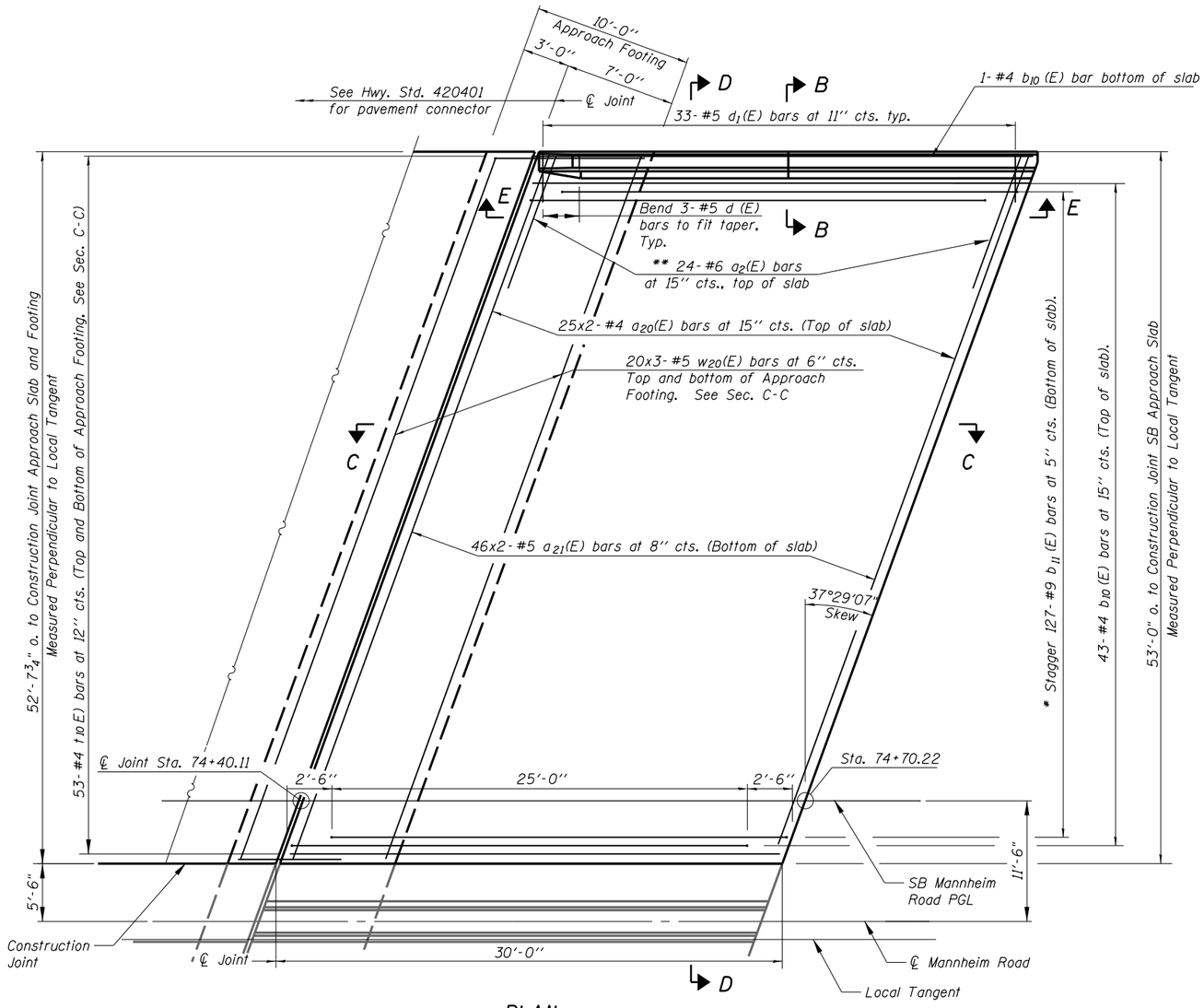
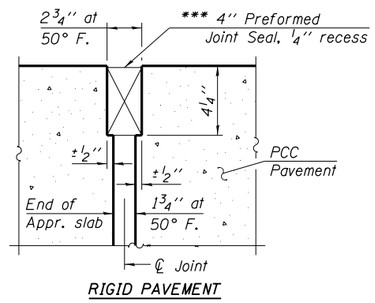
Notes:
See sheet S-14 of S-27 for Sections C-C & D-D and View E-E.
a_{20}(E) and a_{21}(E) bar spacings measured along ℄ Rdwy.



PLAN

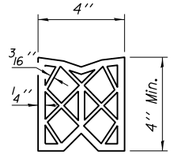
* Tilt #9 b_{11}(E) bars as required to maintain clearance.
** Space between a_{20}(E) bars, typ. each parapet.

*** Cost included with Concrete Superstructure.

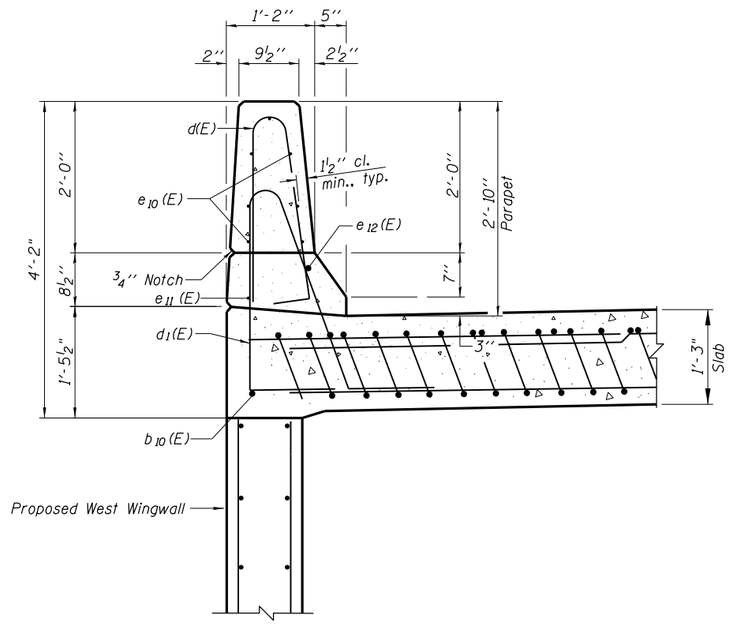


RIGID PAVEMENT

DETAIL A



PREFORMED JOINT SEAL



VIEW B-B

MINIMUM BAR LAP
#4 bar = 2'-3"
#5 bar = 3'-3"
#8 bar = 5'-2"

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8575 W. Higgins Road, Suite 600
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE SOUTH APPROACH SLAB DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-13 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	41
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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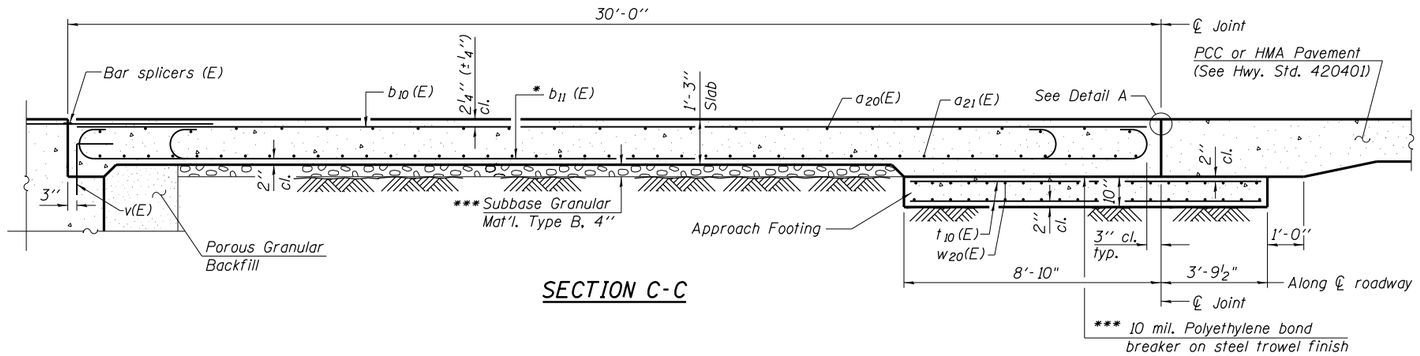
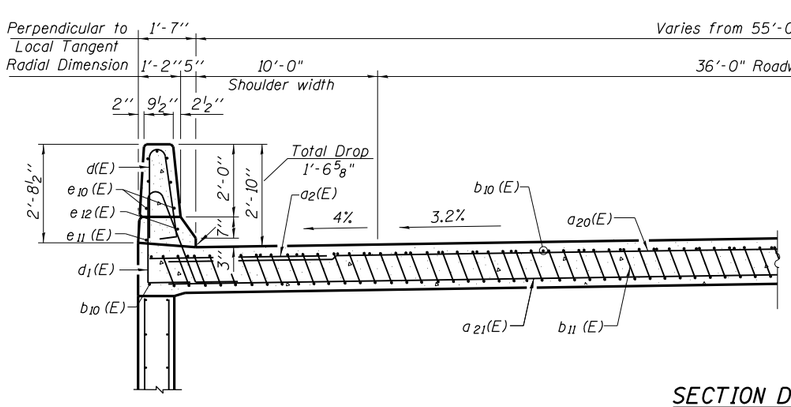
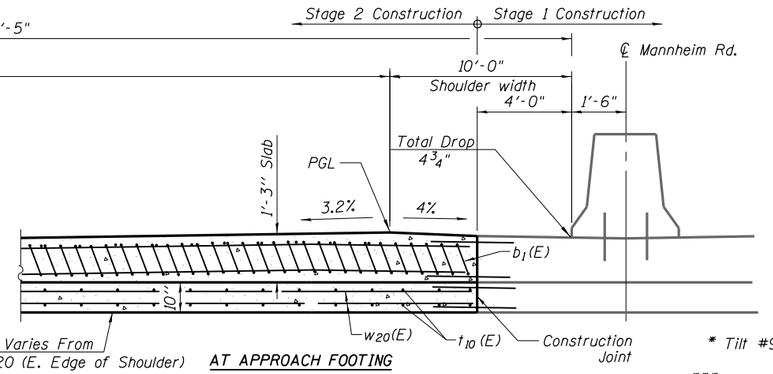


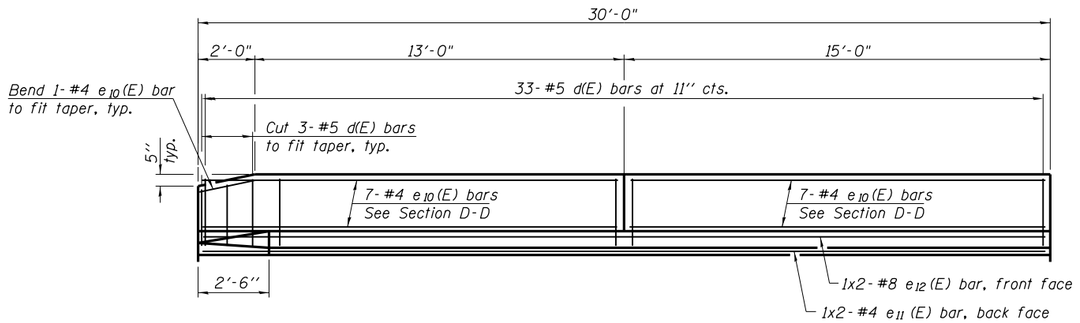
SECTION C-C





SECTION D-D

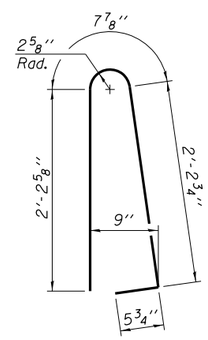
(See Plan for dimensions not shown)



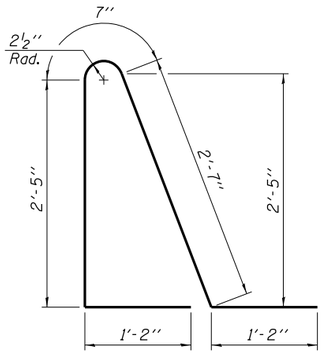
VIEW E-E

(See Parapet Joint Detail on Sheet S-11)

Notes:
- See sheet S-13 of S-27 for Detail A and View B-B.
- Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
- Approach footing concrete shall be paid for as Concrete Structures.
- Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
- For v(E) bar details, see sheet S-22 and S-24 of S-27.
- The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
- For bar splicer details, see sheet S-27 of S-27.
- Cost of excavation for approach footing included with Concrete Structures.
- For Porous Granular Backfill and drainage treatment details, see sheet S-2 of S-27.



BAR d(E)



BAR $d_1(E)$

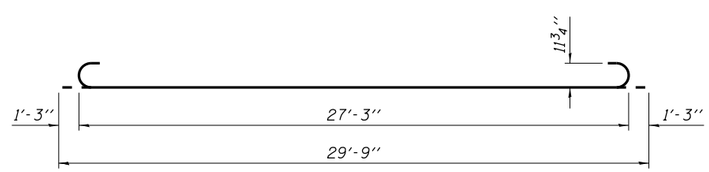
* Tilt #9 $b_{11}(E)$ bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.

SOUTH APPROACH BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$a_{2}E)$	24	#6	6'-6"	
$a_{20}(E)$	50	#4	34'-6"	
$a_{21}(E)$	92	#5	35'-0"	
$b_{10}(E)$	44	#4	29'-8"	
$b_{11}(E)$	127	#9	29'-9"	
d(E)	33	#5	5'-7"	
$d_1(E)$	33	#5	7'-11"	
$e_{10}(E)$	14	#4	14'-8"	
$e_{11}(E)$	2	#4	16'-0"	
$e_{12}(E)$	2	#8	17'-7"	
$t_{10}(E)$	106	#4	12'-4"	
$w_{20}(E)$	120	#5	24'-3"	
Concrete Superstructure			Cu. Yd.	84.3
Concrete Structures			Cu. Yd.	20.6
Reinforcement Bars, Epoxy Coated			Pound	22,190

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



BAR $b_{11}(E)$

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DEPARTMENT OF TRANSPORTATION

BRIDGE SOUTH APPROACH SLAB DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-14 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	42
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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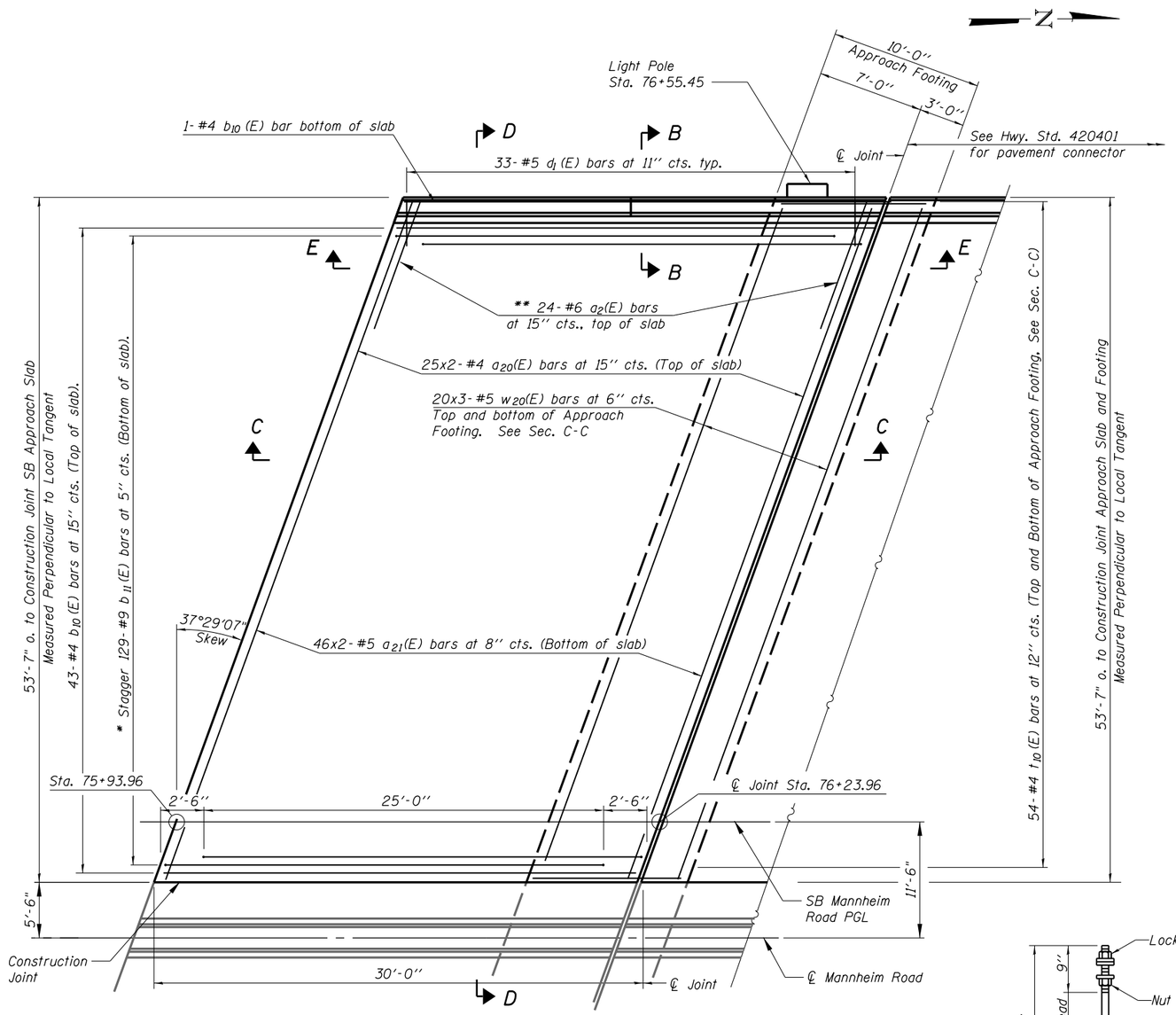
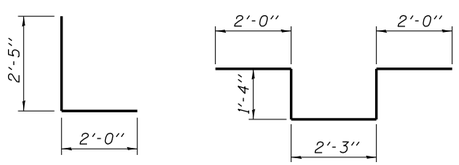


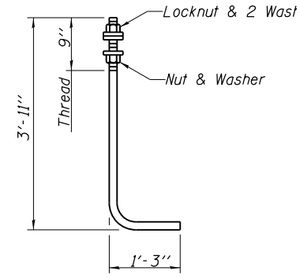
* Tilt #9 b_{11} (E) bars as required to maintain clearance.
** Space between a_{20}(E) bars, typ. each parapet.

PLAN



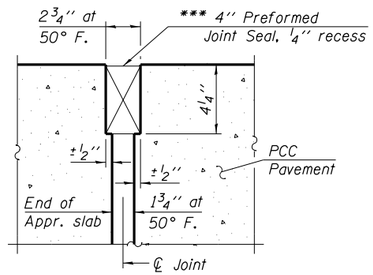
BAR d_2(E)

BAR d_3(E)

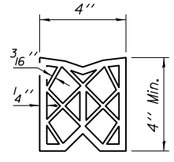


ANCHOR ROD

Diameter as specified for light poles. (ASTM F 1554 Grade 105) Full length Hot Dipped Galvanized.



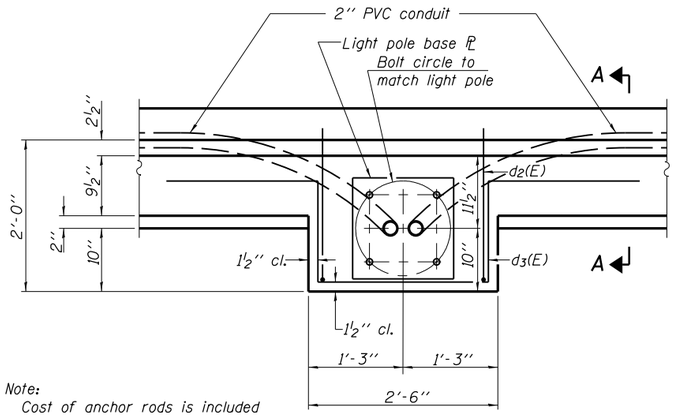
RIGID PAVEMENT DETAIL A



PREFORMED JOINT SEAL

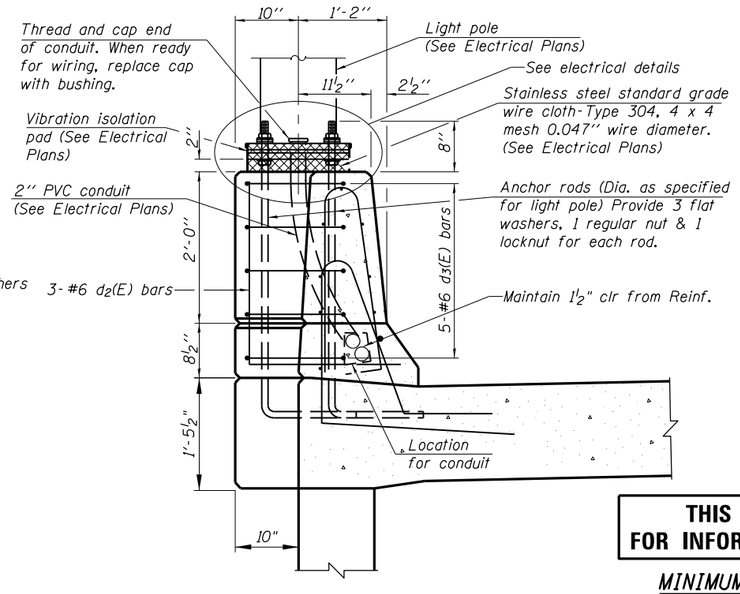
Notes:
See sheet S-16 of S-27 for Sections C-C & D-D and View E-E.
a_{20}(E) and a_{21}(E) bar spacings measured along ℄ Rdwy.

*** Cost included with Concrete Superstructure.



Note:
Cost of anchor rods is included with Concrete Superstructure.

PLAN



SECTION A-A

THIS SHEET IS FOR INFORMATION ONLY

MINIMUM BAR LAP

#4 bar = 2'-3"
#5 bar = 3'-3"
#8 bar = 5'-2"

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE N. APPROACH SLAB DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-15 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	43
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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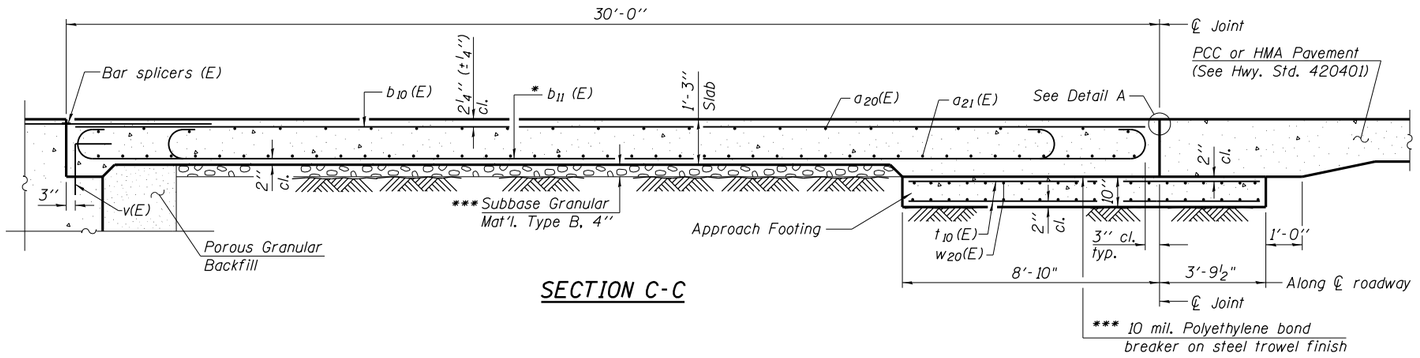
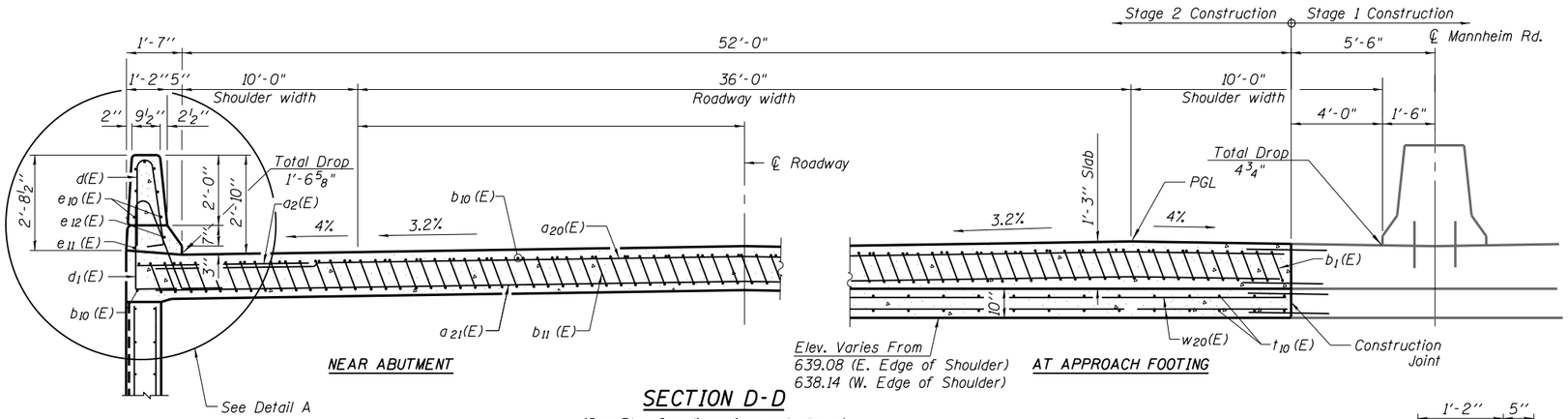
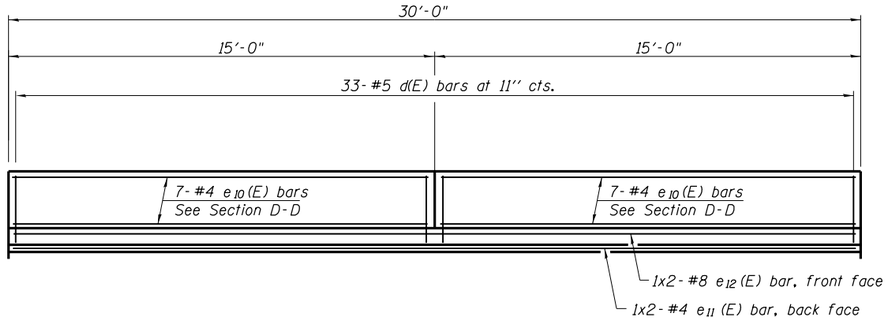


SECTION C-C



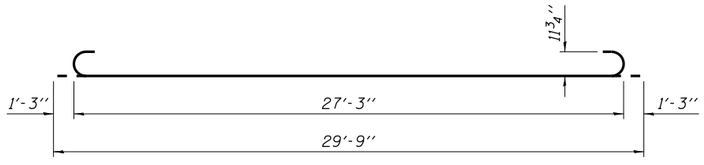
SECTION D-D

(See Plan for dimensions not shown)



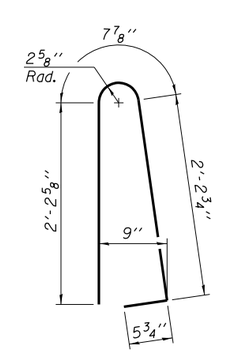
VIEW E-E

(See Parapet Joint Detail On Sheet S-11)

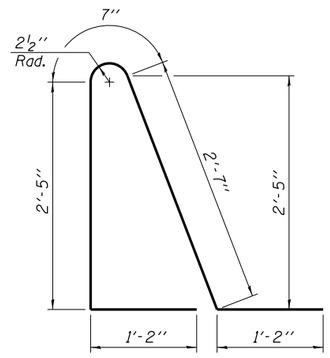


BAR b_{11} (E)

Notes:
See sheet S-15 of S-27 for Detail A and View B-B.
Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
Approach footing concrete shall be paid for as Concrete Structures.
Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
For v(E) bar details, see sheet S-22 and S-24 of S-27.
The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
For bar splicer details, see sheet S-27 of S-27.
Cost of excavation for approach footing included with Concrete Structures.
For Porous Granular Backfill and drainage treatment details, see sheet S-2 of S-27.



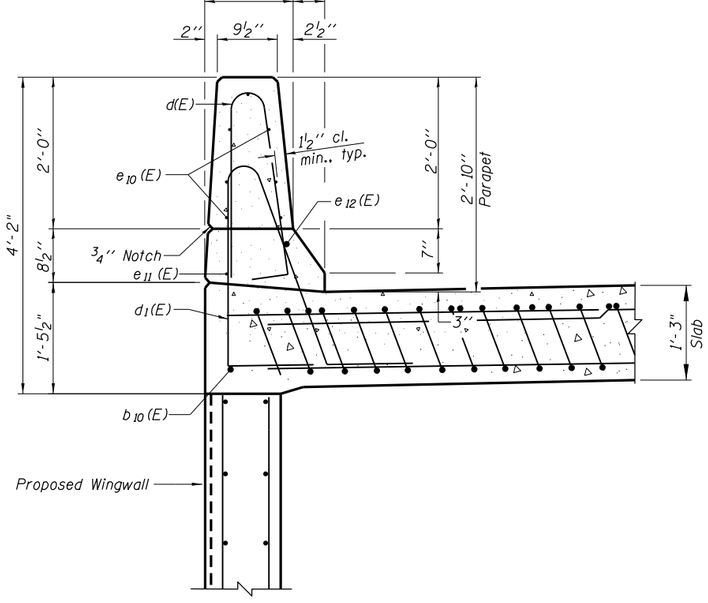
BAR d(E)



BAR d_1(E)

* Tilt #9 b_{11} (E) bars as required to maintain clearance.

*** Cost included with Concrete Superstructure.



DETAIL A

NORTH APPROACH BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a_2E)	24	#6	6'-6"	
a_{20}(E)	50	#4	34'-6"	
a_{21}(E)	92	#5	35'-0"	
b_{10} (E)	44	#4	29'-8"	
b_{11} (E)	129	#9	29'-9"	
d(E)	33	#5	5'-7"	
d_1(E)	33	#5	7'-11"	
d_2(E)	3	#6	4'-5"	
d_3(E)	5	#6	8'-11"	
e_{10}(E)	14	#4	14'-8"	
e_{11}(E)	2	#4	16'-0"	
e_{12}(E)	2	#8	17'-7"	
t_{10}(E)	108	#4	12'-4"	
w_{20}(E)	120	#5	24'-3"	
Concrete Superstructure			Cu. Yd.	85.4
Concrete Structures			Cu. Yd.	20.8
Reinforcement Bars, Epoxy Coated			Pound	23,390

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

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9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

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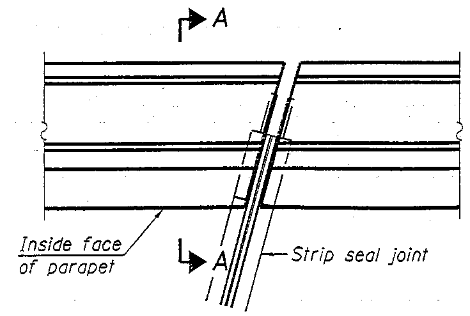
	CHECKED - JMB	REVISED
PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

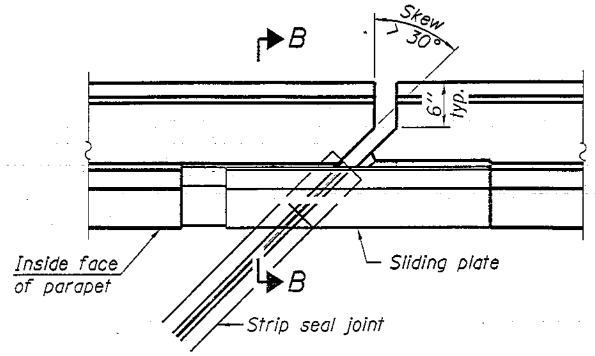
BRIDGE NORTH APPROACH SLAB DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-16 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	44
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

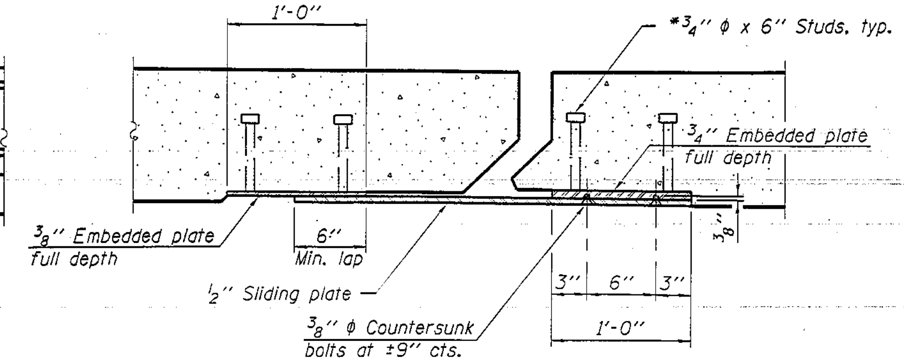
N:\ROSEMONT\11809\CADD_Sheets\Fabrication CADD_Sheets\44-0167942-D1608037-016_Appr_slabdet.dgn



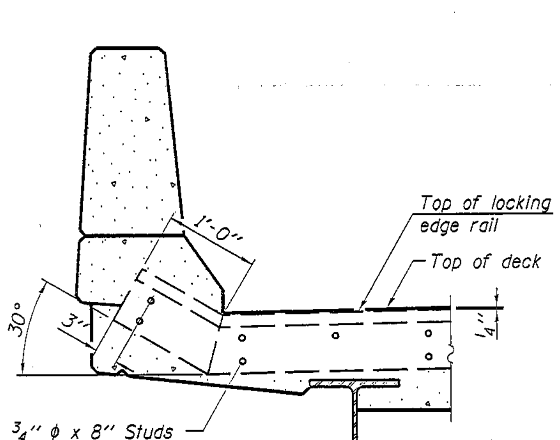
PLAN
(For skews ≤ 30°)



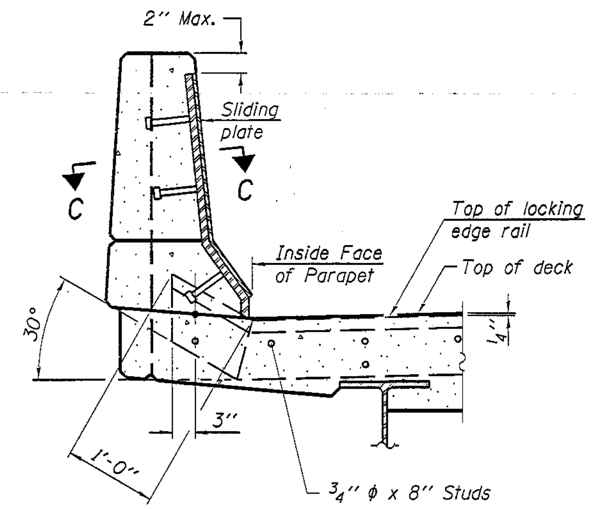
PLAN
(For skews > 30°)
Showing point block



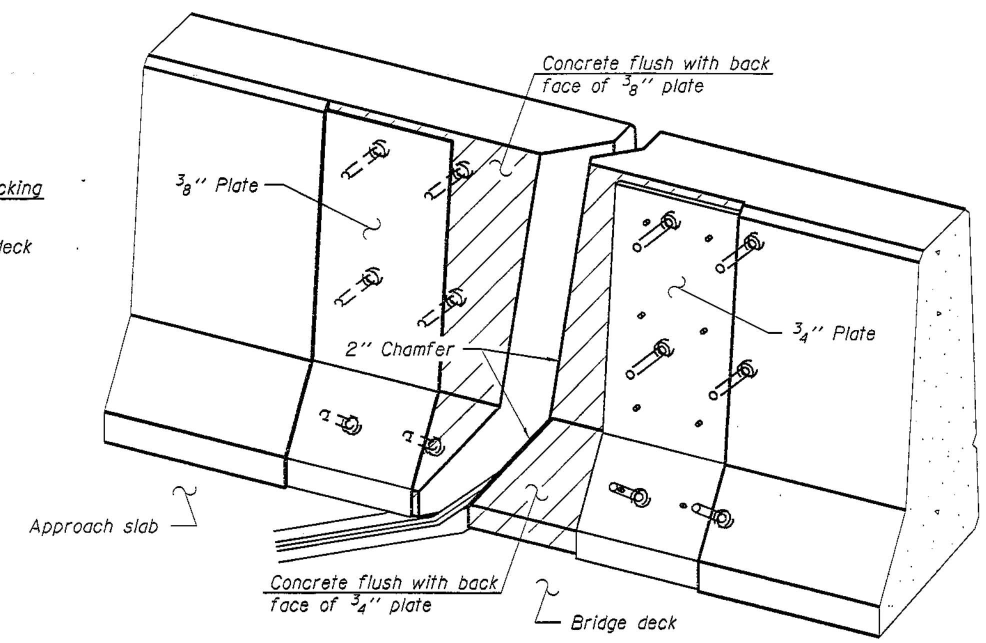
SECTION C-C



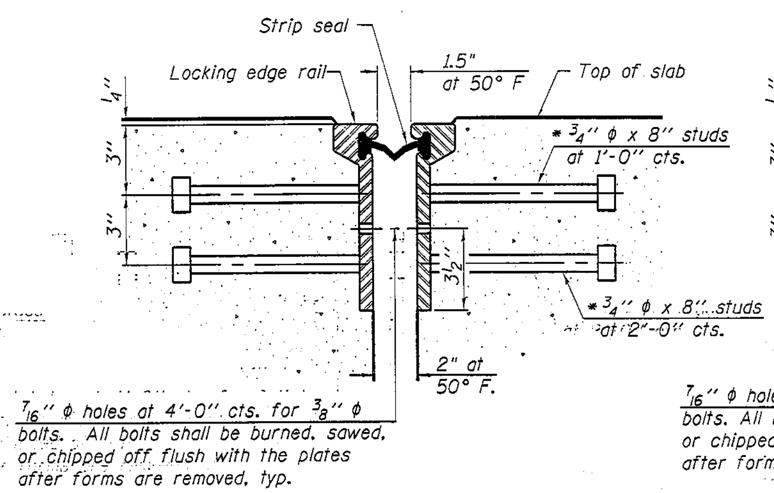
SECTION A-A



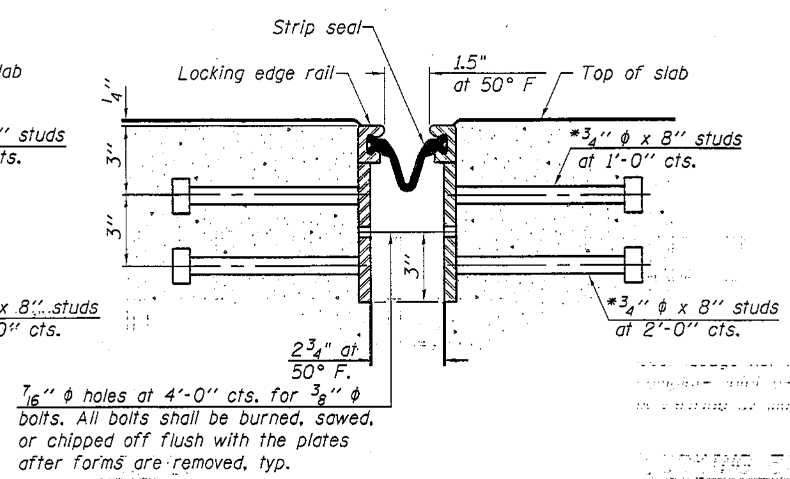
SECTION B-B



TRIMETRIC VIEW
(Showing back plates only)

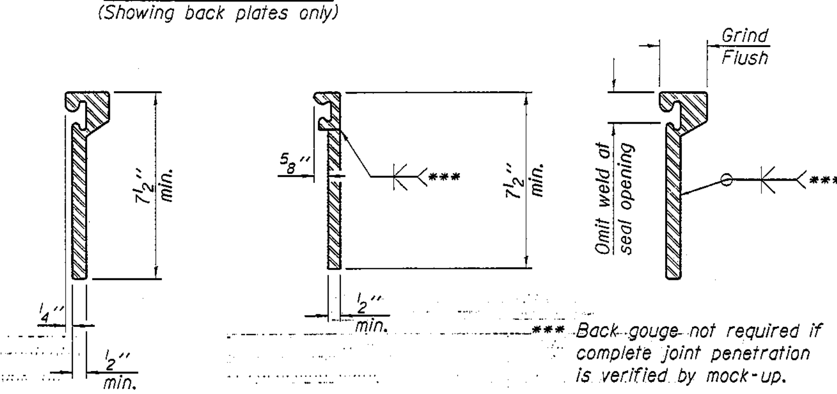


SECTION THRU
ROLLED RAIL JOINT



SECTION THRU
WELDED RAIL JOINT

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



ROLLED
EXTRUDED RAIL

WELDED RAIL

LOCKING EDGE
RAIL SPLICE

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

LOCKING EDGE RAILS

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.

The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.

The manufacturer's recommended installation methods shall be followed.

The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

Maximum space between rail segments at stage lines shall be 3/16", sealed with a suitable sealant.

Parapet plates and anchorage studs for skews > 30° included in the cost of Preformed Joint Strip Seal.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	149

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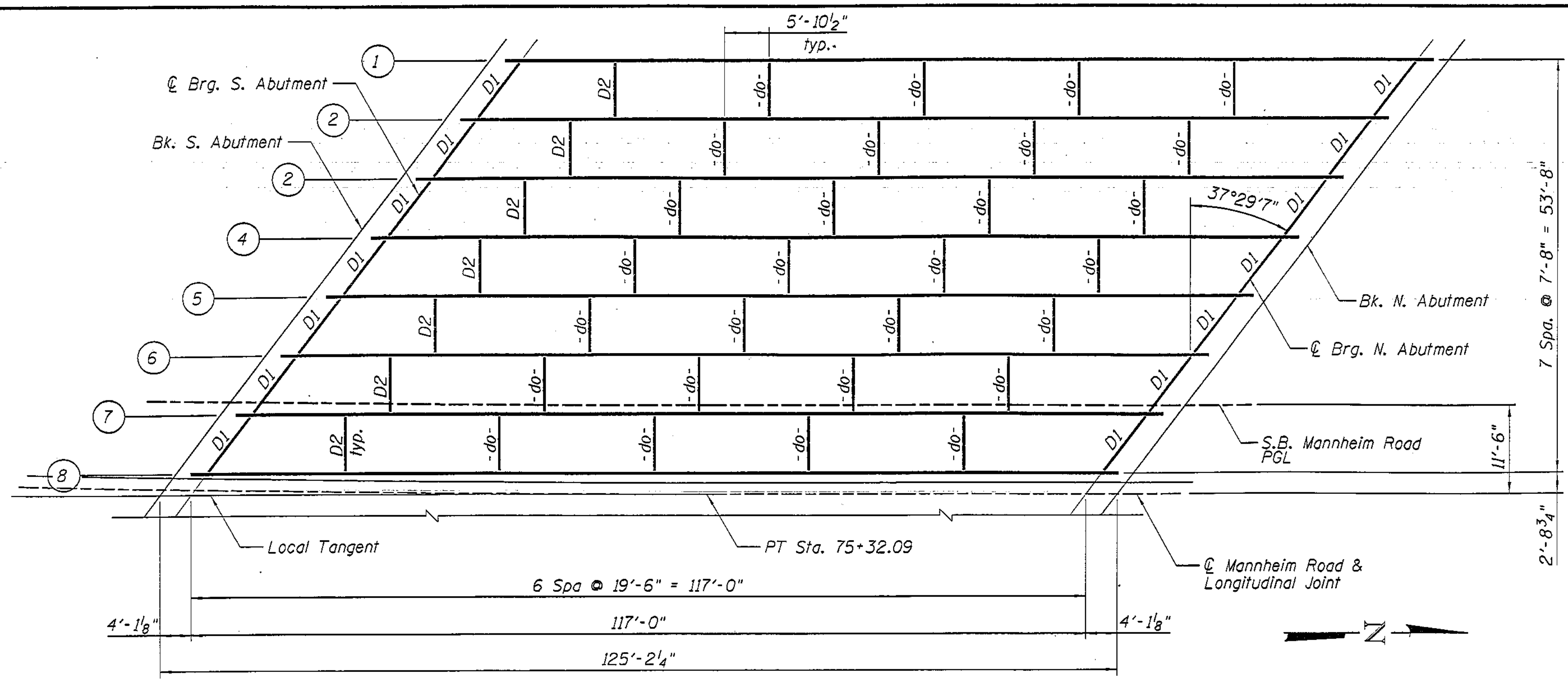
		CHECKED - JMB	REVISED		
	PLOT SCALE =	DRAWN - PDR	REVISED		
	PLOT DATE =	CHECKED - MM	REVISED		SHEET NO. S-17 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	45
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		



FRAMING PLAN

INTERIOR GIRDER MOMENT TABLE		
		0.5 Span
I_s	(in⁴)	23,988
$I_c(n)$	(in⁴)	68,303
$I_c(3n)$	(in⁴)	47,609
$I_c(cr)$	(in⁴)	———
S_s	(in³)	1,311
$S_c(n)$	(in³)	1,783
$S_c(3n)$	(in³)	1,642
$S_c(cr)$	(in³)	———
DC1	(k/')	1.01
M_{DC1}	('k)	1,730.8
DC2	(k/')	0.115
M_{DC2}	('k)	196.8
DW	(k/')	0.35
M_{DW}	('k)	598.9
M_{LL+IM}	('k)	2,011
M_u (Strength I)	('k)	6,827.6
$\phi_f M_n$	('k)	8,474.4
f_s DC1	(ksi)	15.84
f_s DC2	(ksi)	1.44
f_s DW	(ksi)	4.38
f_s (LL+IM)	(ksi)	13.53
f_s (Service II)	(ksi)	39.25
$0.95R_hF_{yf}$	(ksi)	47.5
f_s (Total)(Strength I)	(ksi)	51.85
$\phi_f F_n$	(ksi)	———
V_f	(k)	58.2

INTERIOR GIRDER REACTION TABLE		
		Abut.
R_{DC1}	(k)	59.2
R_{DC2}	(k)	6.7
R_{DW}	(k)	20.5
R_{LL+IM}	(k)	113.7
R_{Total}	(k)	200.0

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

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

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

$I_c(cr)$, $S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite dead loads (in.⁴ and in.³).

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

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

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

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

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

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

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

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

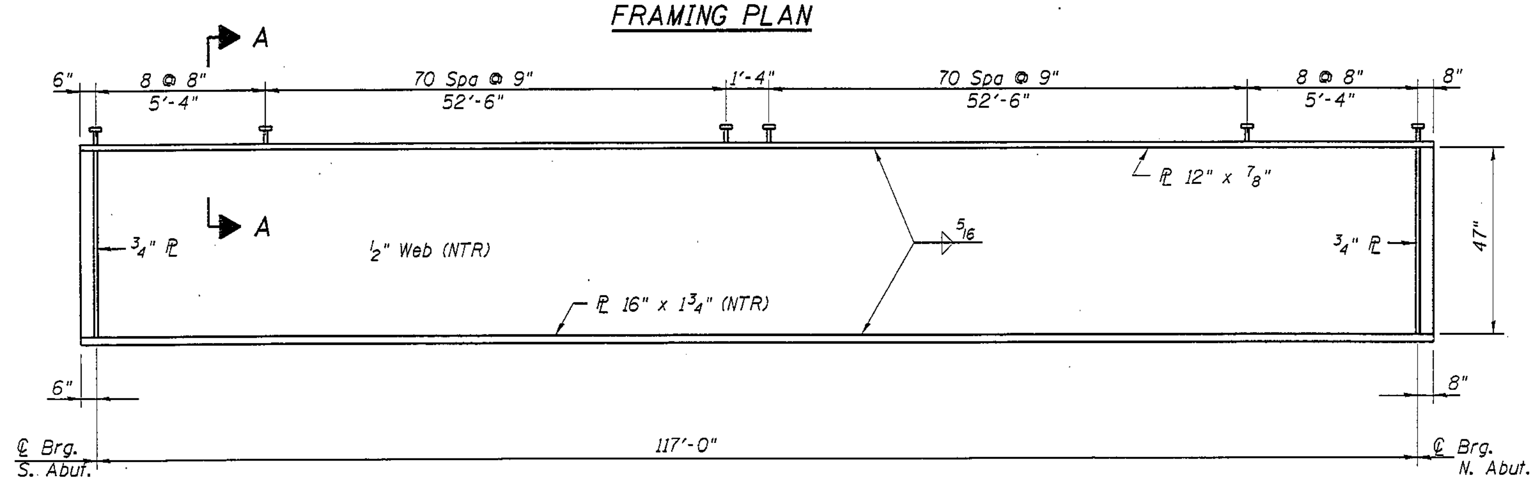
$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

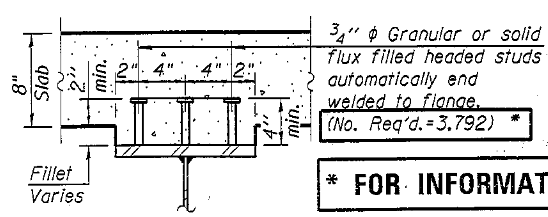
f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (LL+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).
$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.



GIRDER ELEVATION

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



SECTION A-A

*** FOR INFORMATION ONLY**

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(LL+IM)$

$0.95R_hF_{yf}$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_{sLL+IM}$

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).

V_f: Maximum factored shear range in composite portion of span computed according to Article 6.10.10.

Notes:

1. All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
2. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

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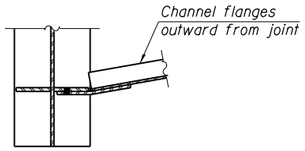
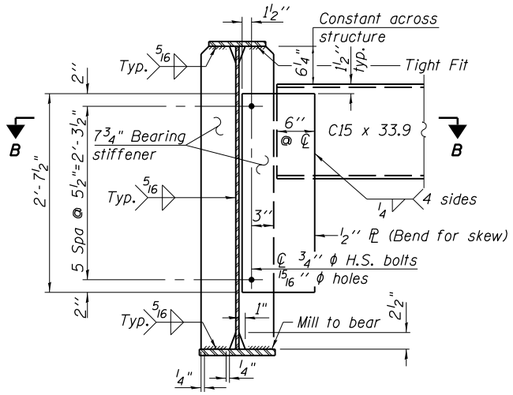
	PLOT SCALE =	CHECKED - JMB	REVISED		SHEET NO. S-18 OF S-27 SHEETS			CONTRACT NO. 60V68		
	PLOT DATE =	DRAWN - PDR	REVISED			ILLINOIS FED. AID PROJECT				
		CHECKED - MM	REVISED							



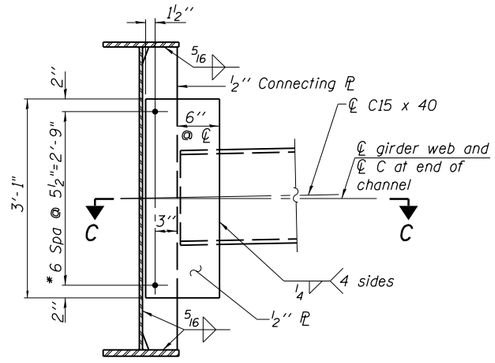
SECTION B-B



END DIAPHRAGM D1

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

SECTION C-C



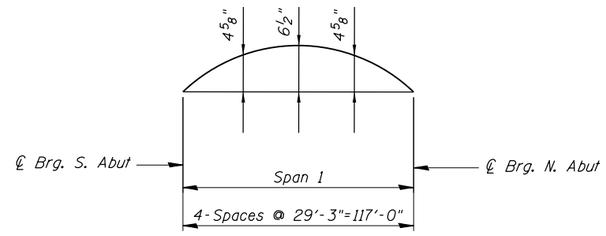
INTERIOR DIAPHRAGM D2

Note:
Two hardened washers required for each set of oversized holes.
* ¾" ϕ HS bolts, 15/16" ϕ holes

TOP OF WEB ELEVATION FOR FABRICATION ONLY

Beam	S. Abutment	N. Abutment
Beam 1	638.776	639.366
Beam 2	639.055	639.643
Beam 3	639.281	639.869
Beam 4	639.499	640.084
Beam 5	639.717	640.300
Beam 6	639.936	640.515
Beam 7	640.037	640.652
Beam 8	639.697	640.315

NOTES:
1. All structure steel for Plate and Bearing Stiffeners, shall be AASHTO M270 Grade 50.
2. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
3. Clip all cross frame connection plates 1" horizontally and 2½" vertically at web to flange connection.
4. All Bearing Stiffeners, and Cross Frame Connection Plates Shall be perpendecular to the centerline of the plate girders.



CAMBER DIAGRAM

N:\ROSEMONT\11009\CADD_Sheets\Fabrication CADD_Sheets\47-0167942-D1B0037-019_Framing.dgn

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8575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
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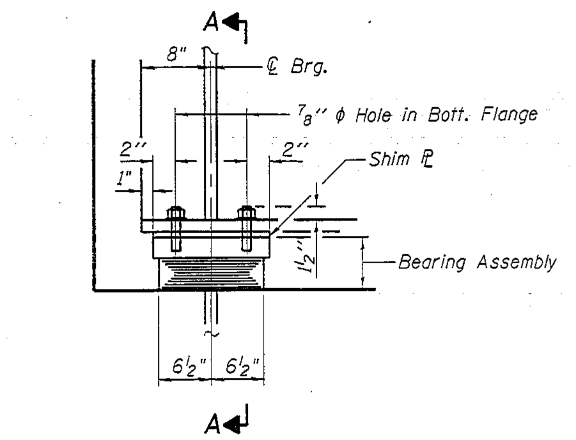
PLOT DATE =	CHECKED - MM	REVISED

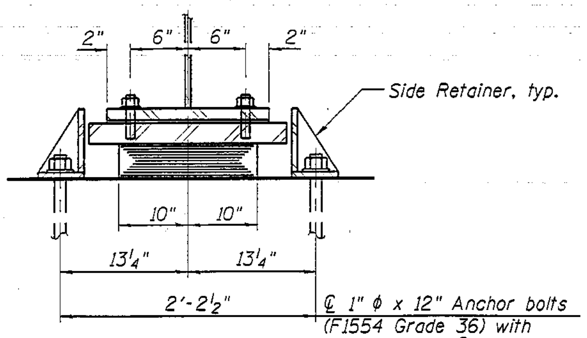
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DIAPHRAGM DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO.S-19 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	47
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

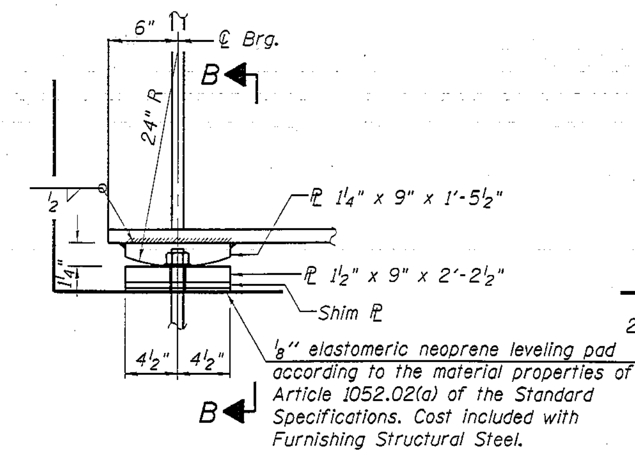


ELEVATION AT NORTH ABUT.

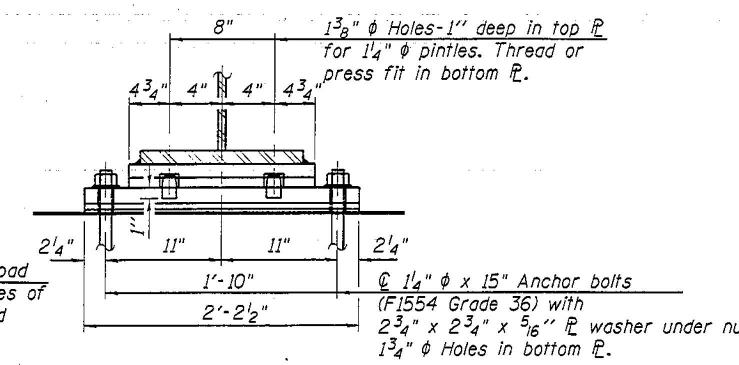


SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

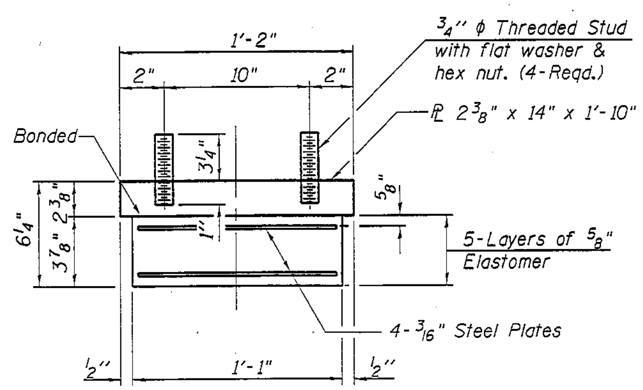


ELEVATION AT SOUTH ABUT.



SECTION B-B

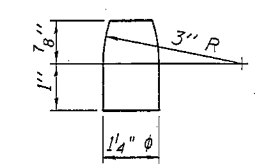
FIXED BEARING



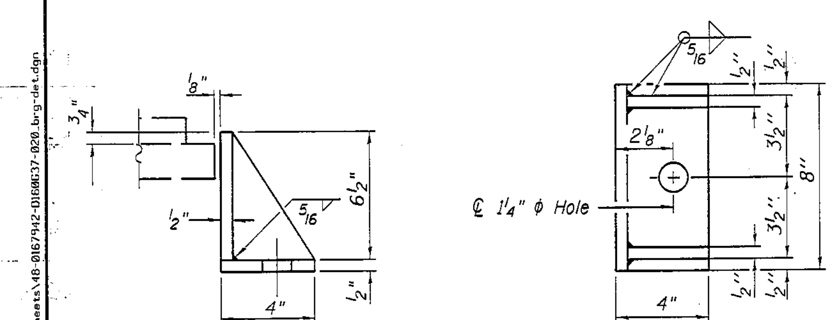
BEARING ASSEMBLY

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

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Furnishing Elastomeric Bearing Assembly, Type I.



PINTLE



SIDE RETAINER

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

BILL OF MATERIAL

Item	Unit	Total
Furnishing Elastomeric Bearing Assembly Type I	Each	8
* Anchor Bolts, 1"	Each	16
* Anchor Bolts, 1 1/4"	Each	16

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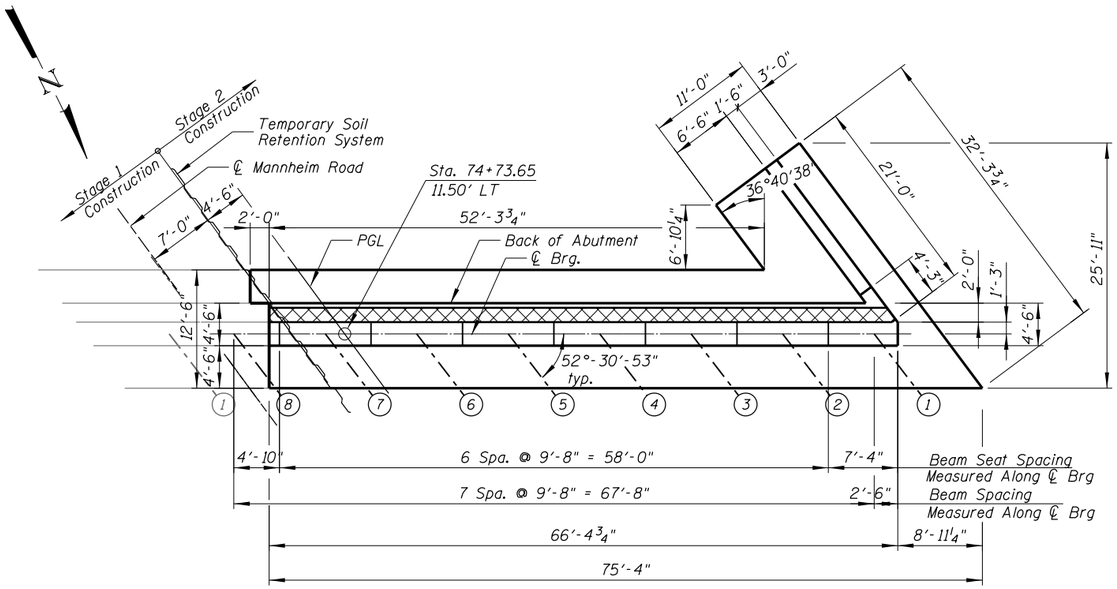
		CHECKED - JMB	REVISED
	PLOT SCALE =	DRAWN - PDR	REVISED
	PLOT DATE =	CHECKED - MM	REVISED

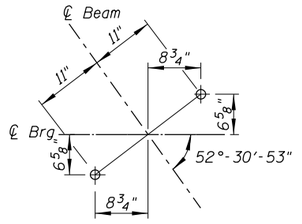
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING DETAILS
SB MANNHEIM ROAD BRIDGE - STRUCTURE NO. 016-7942
SHEET NO. S-20 OF S-27 SHEETS

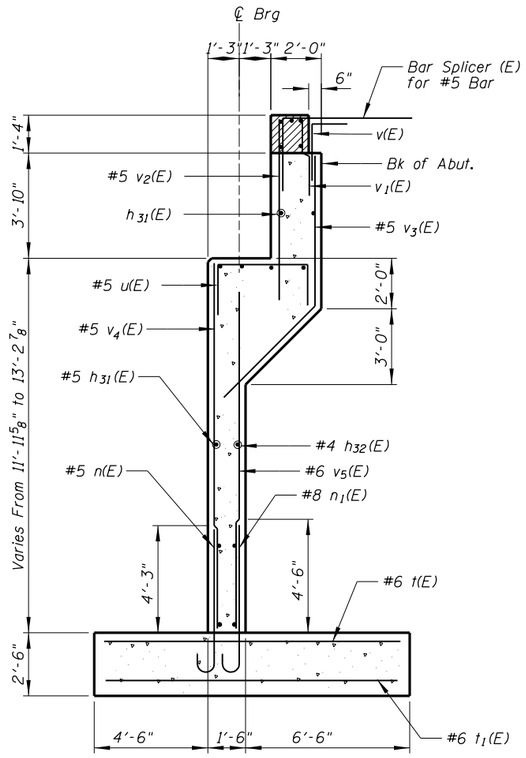
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	48
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		



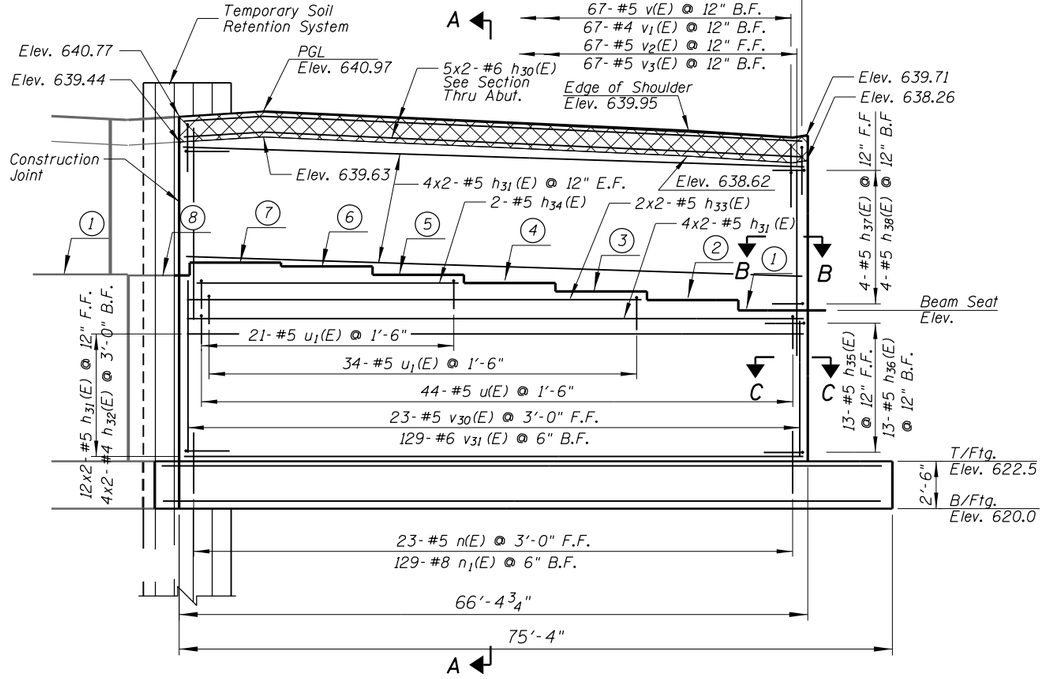
PLAN



ANCHOR BOLT LOCATION



SECTION A-A



ELEVATION

Maximum Applied Service Bearing Pressure (Q_{max})= 5.8 ksf

BEAM SEAT ELEVATION

Beam	Elevation
1	634.47
2	634.75
3	634.98
4	635.20
5	635.42
6	635.63
7	635.74
8	635.39

BEAM STEPS

Beam	Step Height (in.)
1-2	3 3/8
2-3	2 3/4
3-4	2 5/8
4-5	2 5/8
5-6	2 1/2
6-7	1 3/8
7-8	-4 1/4

NOTES:

1. Reinforcement bars designated (E) shall be epoxy coated.
2. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.
5. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".

LEGEND:

F.F Front Face
B.F. Back face
E.F. Each face

MINIMUM BAR LAP

#4 bar = 2'-3"
#5 bar = 2'-10"
#6 bar = 3'-10"
#8 bar = 6'-9"

THIS SHEET IS FOR INFORMATION ONLY

CHRISTOPHER B. BURKE ENGINEERING, LTD.
8575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

USER NAME =	DESIGNED - MM	REVISED	
	CHECKED - JMB	REVISED	
PLOT SCALE =	DRAWN - PDR	REVISED	
PLOT DATE =	CHECKED - MM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT - PLAN AND ELEVATION
SB MANNHEIM ROAD BRIDGE - STRUCTURE NO. 016-7942
SHEET NO. S-21 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	49
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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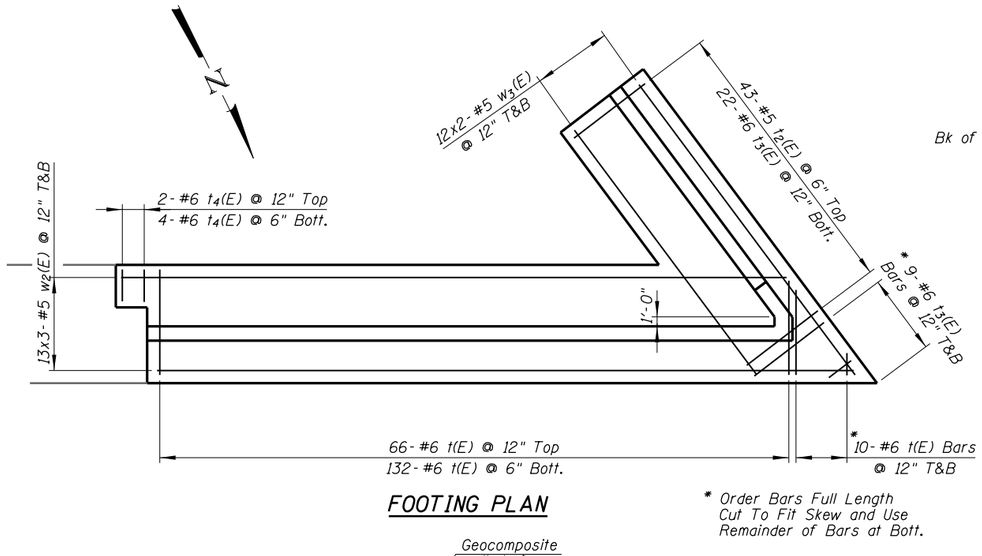
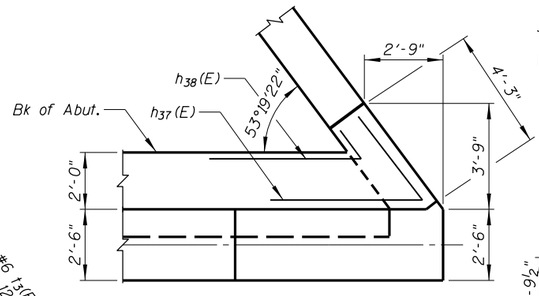
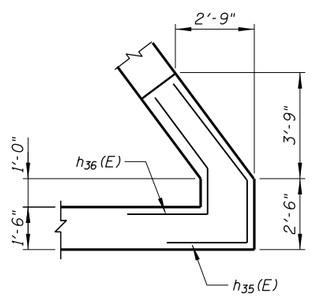


FOOTING PLAN

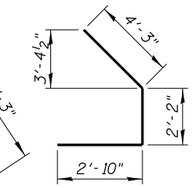
* Order Bars Full Length Cut To Fit Skew and Use Remainder of Bars at Bott.



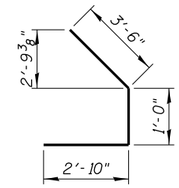
SECTION B-B



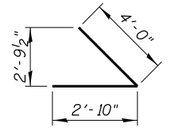
SECTION C-C



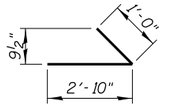
BAR h35(E)



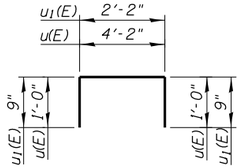
BAR h36(E)



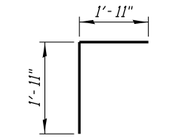
BAR h37(E)



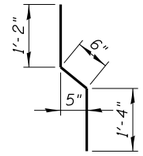
BAR h38(E)



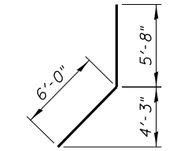
BARS u(E) & u1(E)



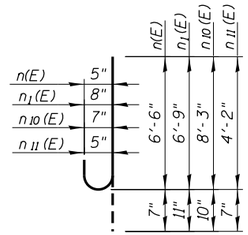
BAR v(E)



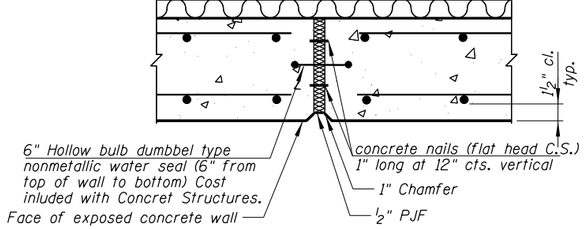
BAR v1(E)



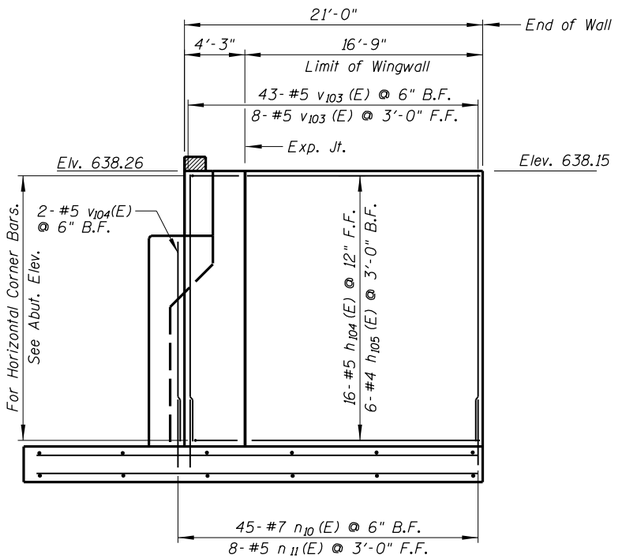
BAR v3(E)



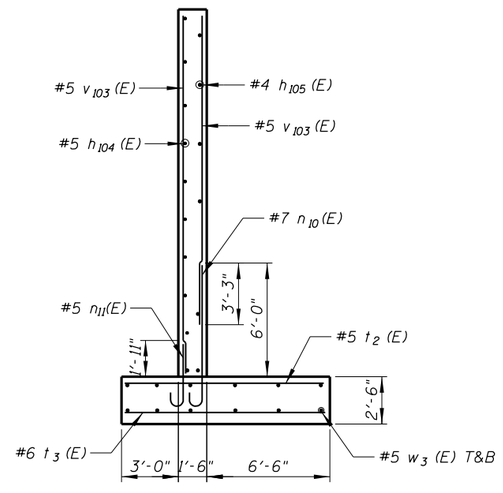
BARS n(E), n1(E), n10(E) & n11(E)



EXPANSION JOINT



SW WINGWALL ELEVATION



WINGWALL TYPICAL SECTION

SOUTH ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h30(E)	10	#6	34'-10"	
h31(E)	48	#5	34'-8"	
h32(E)	8	#4	34'-8"	
h33(E)	4	#5	26'-2"	
h34(E)	2	#5	29'-8"	
h35(E)	13	#5	9'-3"	
h36(E)	13	#5	7'-4"	
h37(E)	4	#5	6'-10"	
h38(E)	4	#5	3'-10"	
h104 (E)	16	#5	16'-4"	
h105 (E)	6	#4	16'-4"	
n (E)	23	#5	7'-1"	
n1 (E)	129	#8	7'-8"	
n10(E)	45	#7	9'-1"	
n11 (E)	8	#5	4'-9"	
t (E)	208	#6	12'-2"	
t2(E)	43	#5	10'-8"	
t3(E)	31	#6	10'-8"	
t4(E)	6	#6	3'-4"	
u (E)	44	#5	6'-2"	
u1 (E)	55	#5	3'-8"	
v (E)	67	#5	3'-10"	
v1 (E)	67	#4	3'-0"	
v2 (E)	67	#5	6'-2"	
v3 (E)	67	#5	11'-8"	
v30(E)	23	#5	11'-10"	
v31(E)	129	#6	11'-10"	
v103(E)	51	#5	15'-0"	
v104(E)	2	#5	11'-0"	
w2 (E)	78	#5	27'-0"	
w3 (E)	48	#5	16'-6"	
Concrete Superstructure		Cu. Yd.	5.5	
Concrete Structures		Cu. Yd.	208	
Reinforcement Bars, Epoxy Coated		Pound	20,280	
Structure Excavation		Cu. Yd.	1,160	
Concrete Sealer		Sq. Ft.	428	
Removal and Disposal of Unsuitable Material for Structures		Cu. Yd.	115	

NOTES:

1. Reinforcement bars designated (E) shall be epoxy coated.
2. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.
5. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".
6. For Limits of Removal and Disposal of Unsuitable Material for Structures, See S-3 of S-27.

LEGEND:

F.F Front Face
B.F. Back face
E.F. Each face

THIS SHEET IS FOR INFORMATION ONLY

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8575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
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PLOT SCALE =	DRAWN - PDR	REVISED
PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT - DETAILS
SB MANNHEIM ROAD BRIDGE - STRUCTURE NO. 016-7942
SHEET NO.S-22 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	50
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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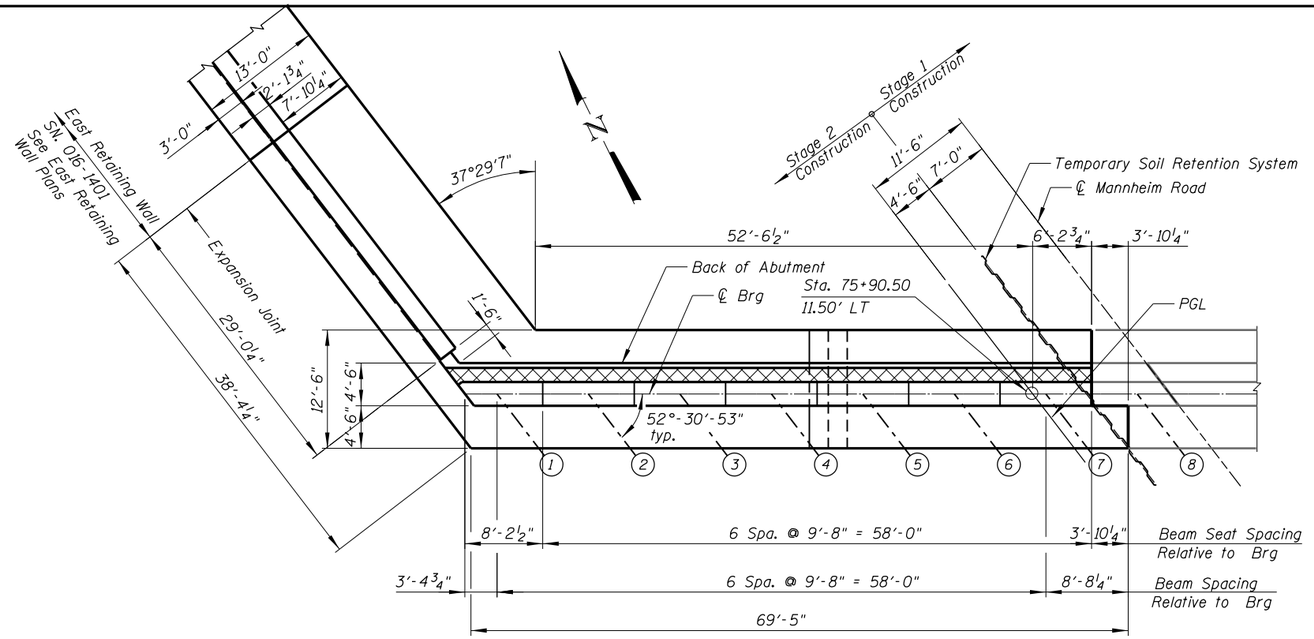
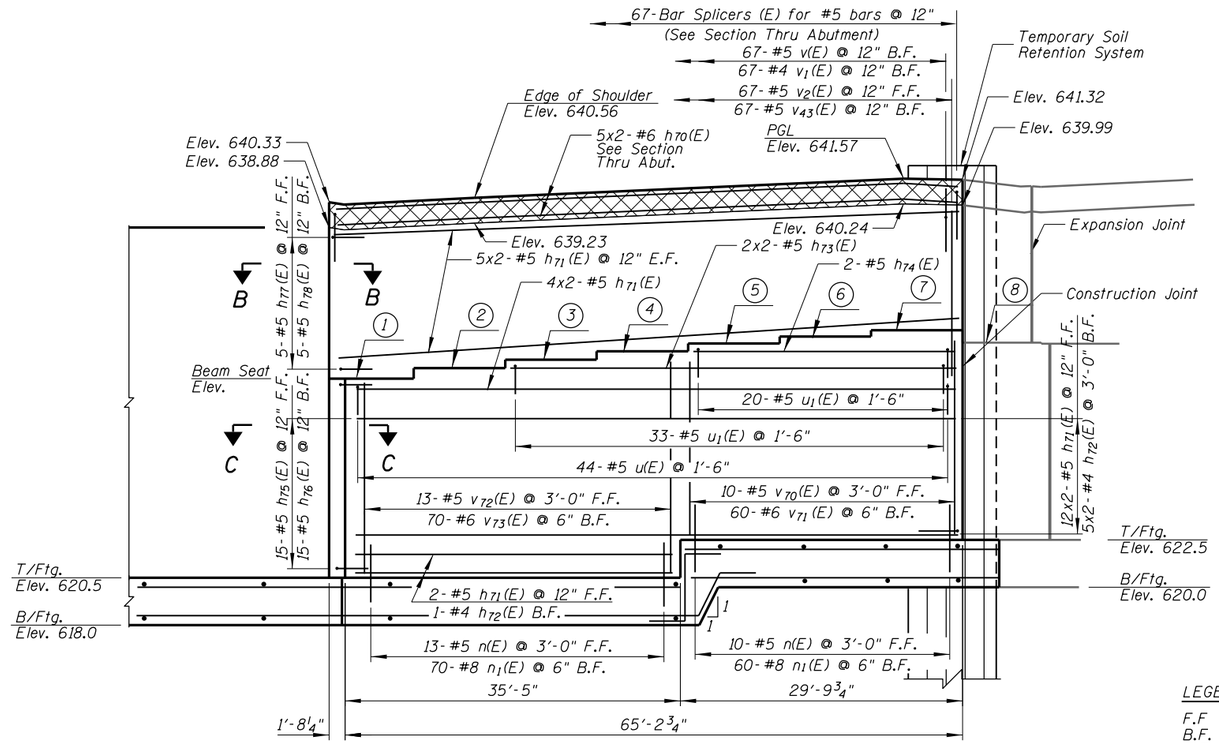
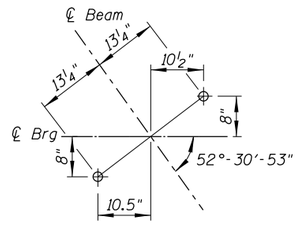


PLAN



ELEVATION

Maximum Applied Service Bearing Pressure (Q_{max})= 5.8 ksf



ANCHOR BOLT LOCATION

NOTES:

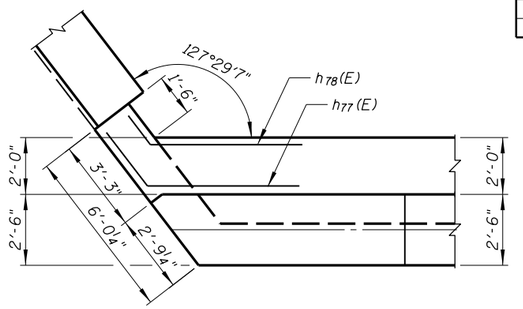
1. Reinforcement bars designated (E) shall be epoxy coated.
2. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.
5. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".

BEAM STEPS

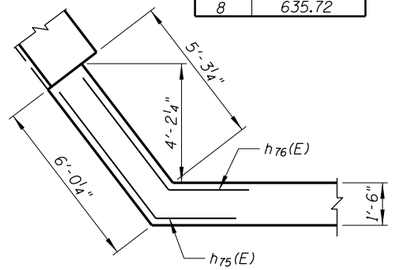
Beam	Step Height
1-2	3 3/8
2-3	2 5/8
3-4	2 5/8
4-5	2 5/8
5-6	2 1/2
6-7	1 5/8
7-8	-4 1/8

BEAM SEAT ELEVATION

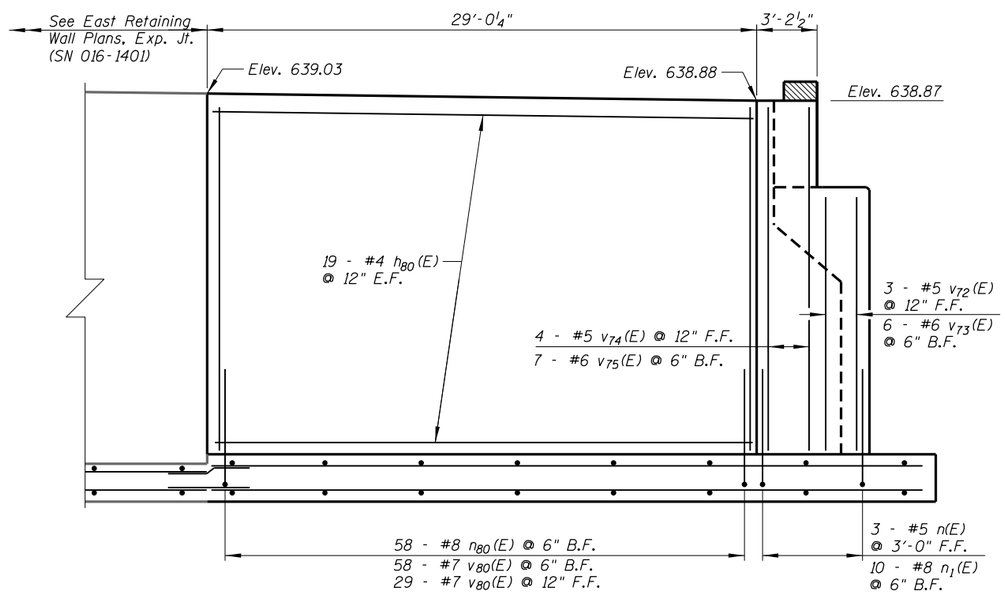
Beam	Elevation
1	634.77
2	635.05
3	635.27
4	635.49
5	635.71
6	635.92
7	636.06
8	635.72



SECTION B-B



SECTION C-C



ELEVATION - NE WINGWALL

LEGEND:

F.F Front Face
B.F. Back face
E.F. Each face

MINIMUM BAR LAP

#4 bar = 2'-3''
#5 bar = 2'-10''
#6 bar = 3'-10''
#8 bar = 6'-9''

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT – PLAN AND ELEVATION
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-23 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	51
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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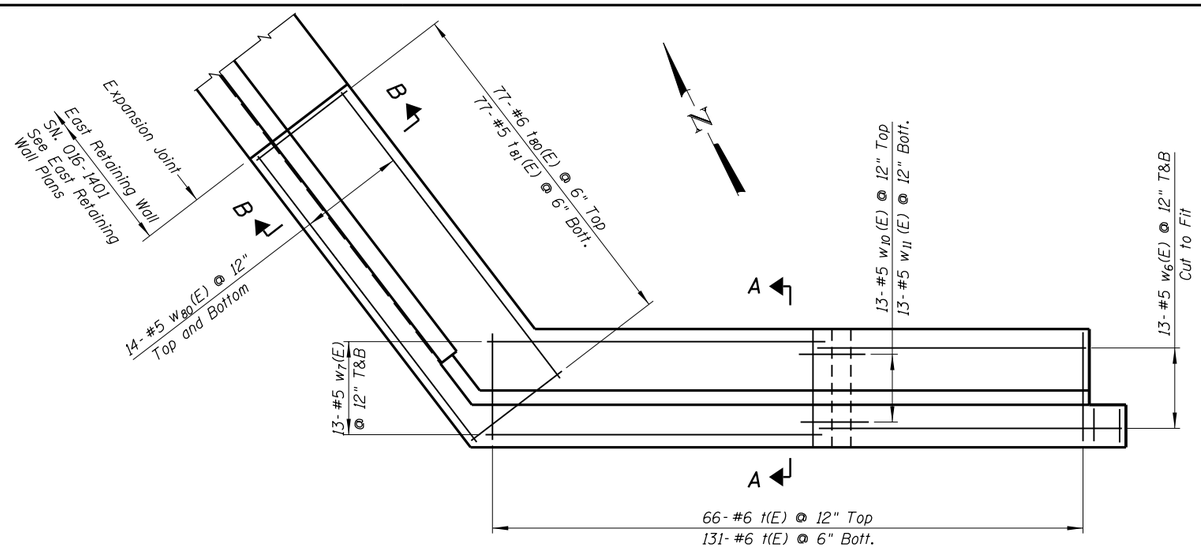
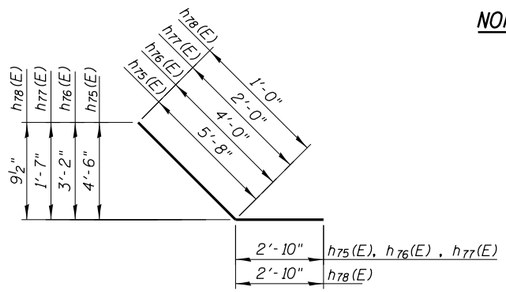
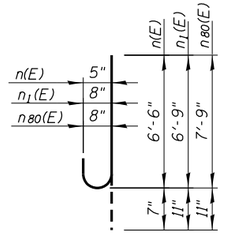


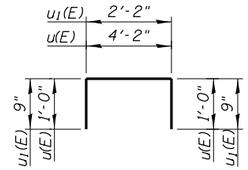
FOOTING PLAN



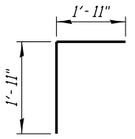
BARS $h_{75}(E)$, $h_{76}(E)$, $h_{77}(E)$ & $h_{78}(E)$



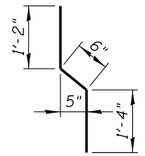
BARS n(E), $n_1(E)$ & $n_{80}(E)$



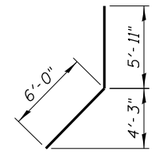
BARS u(E) & $u_1(E)$



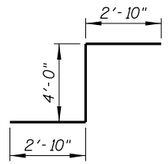
BAR v(E)



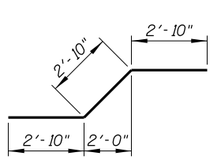
BAR $v_1(E)$



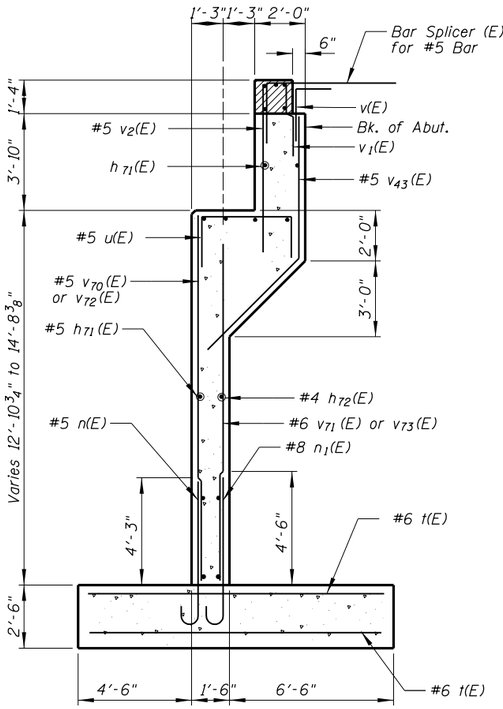
BAR $v_{43}(E)$



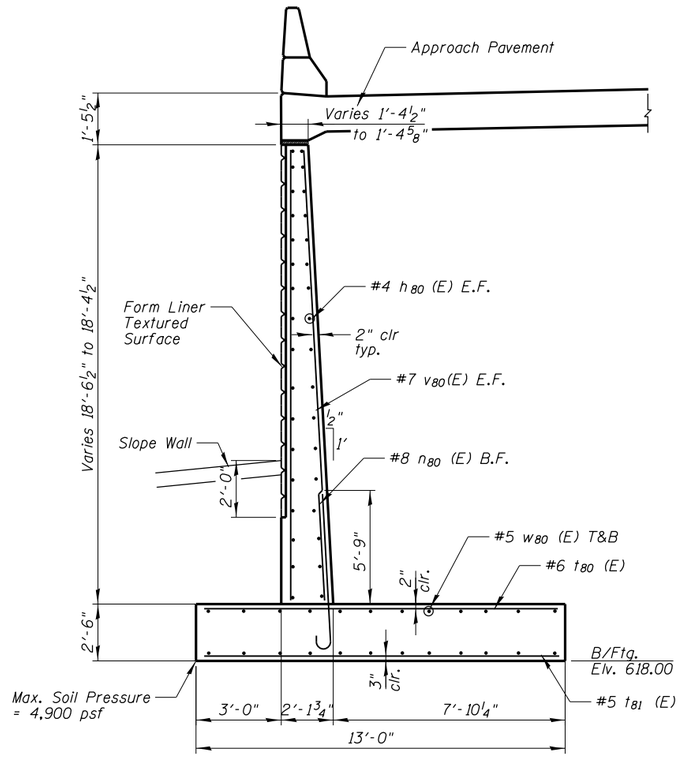
BAR $w_{10}(E)$



BAR $w_{11}(E)$

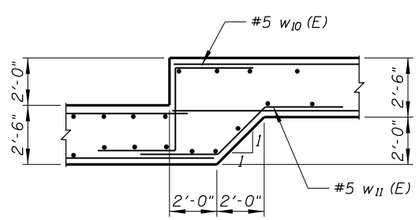


SECTION A-A



SECTION B-B - WINGWALL

Note: There Shall be a 6" ϕ Opening Near the Base of the Wingwall for the 6" ϕ Pipe Underdrain Penetration.



STEPPED FOOTING DETAIL

NORTH ABUTMENT - BILL OF MATERIAL

Bar	No.	Size	Length	Shape
$h_{70}(E)$	10	#6	35'-3"	
$h_{71}(E)$	54	#5	35'-0"	
$h_{72}(E)$	11	#4	35'-0"	
$h_{73}(E)$	4	#5	25'-7"	
$h_{74}(E)$	2	#5	28'-8"	
$h_{75}(E)$	15	#5	8'-6"	
$h_{76}(E)$	15	#5	6'-10"	
$h_{77}(E)$	5	#5	4'-10"	
$h_{78}(E)$	5	#5	3'-10"	
$h_{80}(E)$	38	#4	28'-7"	
$n(E)$	26	#5	7'-1"	
$n_1(E)$	140	#8	7'-8"	
$n_{80}(E)$	58	#8	8'-8"	
$t(E)$	197	#6	12'-2"	
$t_{80}(E)$	77	#6	12'-6"	
$t_{81}(E)$	77	#5	12'-6"	
$u(E)$	44	#5	6'-2"	
$u_1(E)$	53	#5	3'-8"	
$v(E)$	67	#5	3'-10"	
$v_1(E)$	67	#4	3'-0"	
$v_2(E)$	67	#5	6'-2"	
$v_{43}(E)$	67	#5	11'-11"	
$v_{70}(E)$	10	#5	12'-9"	
$v_{71}(E)$	60	#6	12'-9"	
$v_{72}(E)$	16	#5	13'-10"	
$v_{73}(E)$	76	#6	13'-10"	
$v_{74}(E)$	4	#5	18'-2"	
$v_{75}(E)$	7	#6	18'-2"	
$v_{80}(E)$	87	#7	18'-3"	
$w_6(E)$	26	#5	33'-4"	
$w_7(E)$	26	#5	35'-1"	
$w_{10}(E)$	13	#5	9'-8"	
$w_{11}(E)$	13	#5	8'-6"	
$w_{80}(E)$	28	#5	37'-10"	
Concrete Superstructure		Cu. Yd.	5.5	
Concrete Structures		Cu. Yd.	268.1	
Reinforcement Bars, Epoxy Coated		Pound	26,350	
Structure Excavation		Cu. Yd.	1,395	
Concrete Sealer		Sq. Ft.	451	
Form Liner Textured Surface		Sq. Ft.	510	
Removal and Disposal of Unsuitable Material for Structures		Cu. Yd.	184	

NOTES:

1. Reinforcement bars designated (E) shall be epoxy coated.
2. Bars indicated thus 1x2 - #5 etc. indicates 1 line of bars with 2 lengths per line.
3. Space reinforcement in cap to miss anchor bolts.
4. Pour steps monolithically with cap.
5. Hatched area to be poured after supestructure false work has been removed. Quatity of concrete included in "Concrete Superstructure".
6. For Limits of Removal and Disposal of Unsuitable Material for Structures, See S-3 of S-27.

LEGEND:

F.F Front Face
B.F. Back face
E.F. Each face

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Rosemont, Illinois 60018
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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT – DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016–7942
SHEET NO. S-24 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	52
		CONTRACT NO. 60V68		
	ILLINOIS FED. AID PROJECT			

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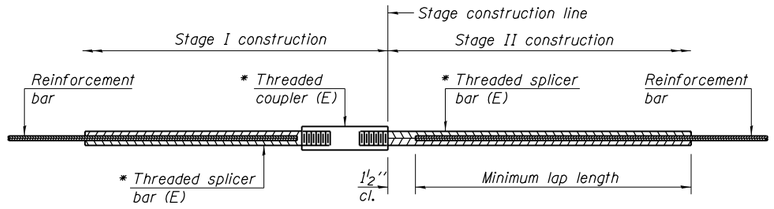


** STANDARD BAR SPLICER ASSEMBLY

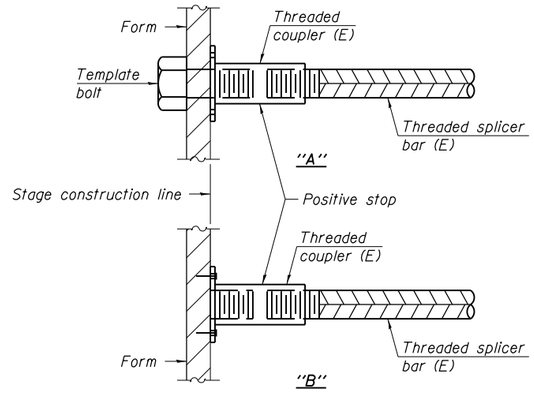
Minimum Lap Lengths					
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-3"
5	1'-9"	2'-5"	2'-7"	2'-11"	2'-10"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-4"
7	2'-9"	3'-10"	4'-2"	4'-8"	4'-6"
8	3'-8"	5'-1"	5'-5"	6'-2"	5'-10"
9	4'-7"	6'-5"	6'-10"	7'-9"	7'-5"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Top bar lap, Class B

Threaded splicer bar length = min. lap length + 1½" + thread length

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

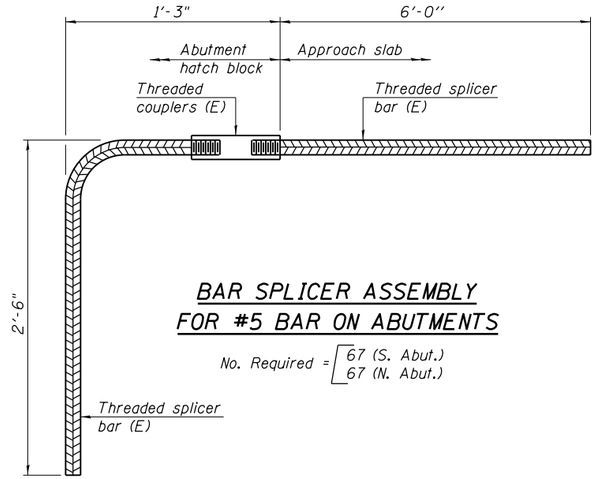
Location	Bar size	No. assemblies required	Table for minimum lap length
S. Abutment	#5	** 21	Table 4
S. Abutment	#4	** 5	Table 4
S. Abutment	#6	** 2	Table 4
S. Abutment	#6	** 4	Table 3
S. Abutment	#5	** 13	Table 4
S. Abutment	#5	** 13	Table 3
N. Abutment	#5	** 23	Table 4
N. Abutment	#4	** 5	Table 4
N. Abutment	#6	** 4	Table 4
N. Abutment	#5	** 8	Table 3
N. Abutment	#5	** 13	Table 4
N. Abutment	#5	** 13	Table 3
S. Approach Slab	#4	** 25	Table 4
S. Approach Slab	#5	** 46	Table 3
S. Approach Footing	#5	** 40	Table 3
N. Approach Slab	#4	** 25	Table 4
N. Approach Slab	#5	** 46	Table 3
N. Approach Footing	#5	** 40	Table 3



INSTALLATION AND SETTING METHODS

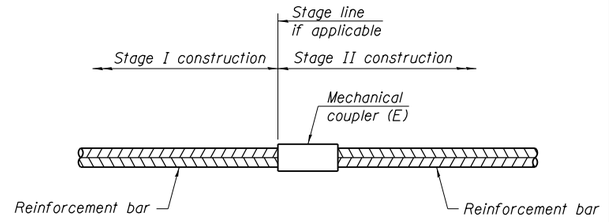
"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.

** Bar splicers shall be furnished and paid for during Stage I construction. Bar Splicer coupler ends shall be furnished and installed during Stage I construction (SN 016-7943). Bar splicer rod ends shall be furnished during Stage I construction and stored by the Department until installation during Stage II construction (SN 016-7942). The Contractor shall obtain the Bar Splicer rod ends from the Department and install them during Stage II construction. Bar Splicers will be paid for at the unit cost per each Bar Splicers, where each bar splicer includes both the coupler and the rod end. Bar Splicer rod ends will not be measured for payment separately from coupler ends and the cost for installing the Bar Splicer rod ends shall be included with the pay item for Reinforcement Bars, Epoxy Coated during Stage II Construction.



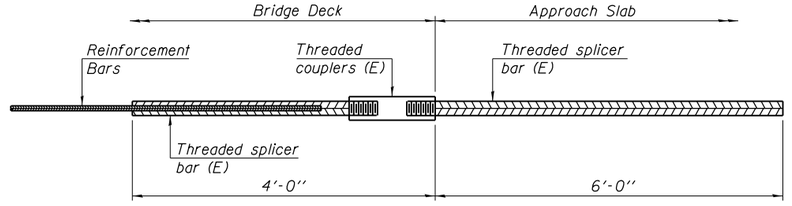
BAR SPLICER ASSEMBLY FOR #5 BAR ON ABUTMENTS

No. Required = 67 (S. Abut.), 67 (N. Abut.)



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL 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.

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N:\ROSEMONT\11089\CADD\Sheets\Fabrication CADD Sheets\53-0167942-D160037-025 Bar Splicer.dgn

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PLOT DATE =	CHECKED - MM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY DETAILS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-25 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	53
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 16 DATE STARTED 10-9-02 DATE COMPLETED 10-9-02 JOB L-52,653

ELEVATIONS
GROUND SURFACE 641.5
END OF BORING 581.5

WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING Dry to 10.0'
▽ AT END OF BORING Rotary Wash
▼ 24 HOURS

DISTANCE BELOW SURFACE IN FEET

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0.1	641.4	FILL - Crushed Limestone
	1	SS	7	9.3	4.5+•				FILL - Gray sandy CLAY, trace gravel, trace organic, moist (CL-ML) LOAM A-4
	2	SS	14	19.6	4.5+•		3.0	638.5	Hard brown silty CLAY, little sand and gravel, moist (CL) CLAY A-6
	3	SS	15	20.8	4.5+•				
	4	SS	15	18.5	4.5+•		8.0	633.5	Hard brown and gray silty CLAY, little sand and gravel, moist (CL) CLAY A-6
	5	SS	10	22.6	1.75•		10.5	631.0	Tough gray silty CLAY, trace sand and gravel, moist (CL) CLAY A-6
	6	SS	8	26.2	1.0•		13.0	628.5	Stiff to tough gray silty CLAY, trace to little sand, very moist (CL/CH) CLAY A-7-6
	7	SS	9	27.1	1.25•				
	8	SS	8	16.4	2.5•		18.0	623.5	Very tough gray very silty CLAY, little sand and gravel, occasional silt seams, moist (CL-ML) SILTY CLAY LOAM A-4
	9	SS	15	17.4	2.5 B 3.0•				
	10	SS	9	16.8	2.5 B 2.75•				
	11	SS	26	18.4	3.9 S @ 10%		25.5	616.0	Firm to dense gray clayey SILT, trace sand, occasional sand seams, moist (ML) SILTY LOAM A-4
	12	SS	43	15.1	2.1 S @ 10%				
	13	SS	48	16.8	2.1 S @ 10%				
	14	SS	27	22.1	2.9 S @ 15%		35.5	606.0	Hard gray silty CLAY, little to some sand and gravel, moist (CL) CLAY LOAM A-6
	15	SS	21	13.6	4.8 B 4.5+•				
	16	SS	23	13.2	6.1 B 4.5+•				

Division lines between deposits represent approximate boundaries between soil types: in-situ, the transition may be gradual.

TSC SOILS.GPJ TSC.ALL.GDT 4/12/04
DRILL RIG NO. 144
Page 1 of 2

BORING NO. 16
Station 76+02.25
Offset 33.27' LT

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 16 DATE STARTED 10-9-02 DATE COMPLETED 10-9-02 JOB L-52,653

ELEVATIONS
GROUND SURFACE 641.5
END OF BORING 581.5

WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING Dry to 10.0'
▽ AT END OF BORING Rotary Wash
▼ 24 HOURS

DISTANCE BELOW SURFACE IN FEET

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							40.5	601.0	See Page 1 for Description
	17	SS	37	12.9	8.0 S @ 10% 4.5+•				Hard gray very silty CLAY, little to some sand and gravel, moist (CL-ML) SILTY CLAY LOAM A-4
	18	SS	25	16.8	9.3 S @ 15% 4.5+•		46.0	595.5	Very dense gray clayey SILT, trace sand, occasional sand seams, moist (ML) SILTY LOAM A-4
	19	SS	51	11.3	5.9 S @ 10%		52.0	589.5	Hard gray silty CLAY, little sand and gravel, moist (CL) CLAY A-6
	20	SS	32	18.8	7.0 B 4.5+•		56.0	585.5	Firm gray clayey SILT, little sand and gravel, moist (ML) SILTY LOAM A-4
	21	SS	28	11.4	2.7 B				End of Boring at 60.0'

• Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

S = Shear Failure
B = Bulge Failure at 15% Strain

Division lines between deposits represent approximate boundaries between soil types: in-situ, the transition may be gradual.

TSC SOILS.GPJ TSC.ALL.GDT 4/12/04
DRILL RIG NO. 144
Page 2 of 2

BORING NO. 16
Station 76+02.25
Offset 33.27' LT

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 17 DATE STARTED 12-11-01 DATE COMPLETED 12-11-01 JOB L-52,653

ELEVATIONS
GROUND SURFACE 640.0
END OF BORING 580.0

Boring 17 was designated B-1 when originally drilled in December 2001.

WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING Dry to 10.0'
▽ AT END OF BORING Rotary Wash
▼ 24 HOURS Grouted

DISTANCE BELOW SURFACE IN FEET

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0.5	639.5	Black clayey TOPSOIL, moist (OL) SILTY CLAY A-7-6
	1	SS	9	18.5	3.25•		3.0	637.0	Very tough brown and gray silty CLAY, little sand, trace gravel, trace organic seams, moist (CL) CLAY A-6/A-7-6
	2	SS	6	19.0	0.7 B 0.75•				Stiff brown and gray very silty CLAY, little sand, trace gravel, moist (CL) CLAY LOAM A-4/A-6
	3	SS	13	20.3	4.1 B 4.5+•		5.5	634.5	Hard gray silty CLAY, little sand, trace gravel, moist (CL) CLAY A-6/A-7-6
	4	SS	14	20.6	2.2 B 2.5•		8.0	632.0	Very tough to tough gray silty CLAY, little sand, trace gravel, moist (CL) CLAY A-6/A-7-6
	5	SS	8	23.3	2.0 B 1.5•				
	6	SS	9	18.3	2.1 B 1.5•		13.0	627.0	Tough to very tough gray very silty CLAY, little sand, trace gravel, moist (CL) CLAY LOAM A-6
	7	SS	9	27.5	2.2 B 1.5•		15.0	625.0	Tough gray silty CLAY, trace sand, moist (CL) CLAY A-7-6
	8	SS	9	24.8	4.0 B 2.5•		18.0	622.0	Very tough gray silty CLAY, little sand, trace silt seams, moist (CL) CLAY A-7-6
	9	SS	8	21.8	0.8 B		20.5	619.5	Loose gray clayey SILT, little sand, very moist (ML) SILTY LOAM A-4
	10	SS	13	14.5	2.8 B 3.25•		23.0	617.0	Very tough gray silty CLAY, little to some sand, trace to little gravel, moist (CL) CLAY LOAM A-6
	11	SS	50	15.4	3.5 S @ 15%		25.5	614.5	
	12	SS	36	23.1	2.0 S @ 10%				Dense to very dense gray SILT, little sand, moist (ML) SILT A-4
	13	SS	69	17.0			33.0	607.0	
	14	SS	25	16.4	2.9 S @ 15%				Firm gray SILT, little sand, moist (ML) SILT A-4
	15	SS	14	14.8	2.3 S @ 15%		38.0	602.0	Hard gray very silty CLAY, little sand, trace gravel, occasional sand seams, moist (CL) CLAY LOAM A-6
	16	SS	18	13.8	2.9 S @ 10% 4.5+•				

Division lines between deposits represent approximate boundaries between soil types: in-situ, the transition may be gradual.

TSC SOILS.GPJ TSC.ALL.GDT 4/12/04
DRILL RIG NO. 144
Page 1 of 2

BORING NO. 17
Station 75+35.16
Offset 54.23' LT

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO.S-26 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	54
		CONTRACT NO. 60V68		
	ILLINOIS	FED. AID PROJECT		

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PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 17 DATE STARTED 12-11-01 DATE COMPLETED 12-11-01 JOB L-52,653
ELEVATIONS
GROUND SURFACE 640.0
END OF BORING 580.0
WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING Dry to 10.0'
▽ AT END OF BORING Rotary Wash
▼ 24 HOURS Grouted

Boring 17 was designated B-1 when originally drilled in December 2001.

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							40.5	599.5	See Description on Page 1
	17	SS	18				43.0	597.0	Firm gray SAND, trace gravel, saturated (SP) SAND A-1-b
	A 18 B	SS	21				44.5	595.5	Firm gray medium to fine SAND, saturated (SP) SAND A-3
	A 19 B	SS	31		3.7 S @ 15%		47.0	593.0	Firm to dense gray clayey SILT, little sand, moist (ML) SILTY LOAM A-4
	20	SS	16	15.6	4.3 B 4.5+		48.0	592.0	Dense gray medium to fine SAND, trace silt, wet (SP-SM) SAND A-1-b
	21	SS	21	19.8	5.2 B 4.5+		56.5	583.5	Hard gray silty CLAY, little to some sand, trace gravel, moist (CL) CLAY A-6
	22	SS	25	18.6	2.0 B 3.5+				Very tough gray very silty CLAY, little sand, moist (CL) CLAY A-6
									End of Boring at 60.0'

* Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

DISTANCE BELOW SURFACE IN FEET

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

DRILL RIG NO. 144 Page 2 of 2

BORING NO. 17
Station 75+35.16
Offset 54.23' LT

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 18 DATE STARTED 10-9-02 DATE COMPLETED 10-14-02 JOB L-52,653
ELEVATIONS
GROUND SURFACE 641.0
END OF BORING 581.0
WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING Dry to 10.0'
▽ AT END OF BORING Rotary Wash
▼ 24 HOURS

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							0.1	640.9	FILL - Crushed Limestone
	1	SS	9	24.7	2.0•		0.3	640.7	FILL - Black clayey TOPSOIL (OL) SILTY CLAY (topsoil) A-7-5
	A 2 B	SS	10	32.6 / 20.9	0.5• / 4.5+•		3.0	638.0	Tough to very tough brown and gray silty CLAY, trace sand and gravel, trace organic, moist (CL) CLAY A-6/A-7-6
	3	SS	11	11.9	4.5•		4.0	637.0	Soft brown and gray silty CLAY, trace sand, trace to little organic, very moist (CL/CH) CLAY A-7-6
	4	SS	13	20.7	2.5•		5.5	635.5	Hard brown and gray silty CLAY, trace sand and gravel, moist (CL) CLAY A-6
	5	SS	8	21.0	2.25•		8.0	633.0	Hard brown sandy CLAY, trace gravel, moist (CL-ML) LOAM A-4
	6	SS	8	25.1	1.75•		13.0	628.0	Very tough gray silty CLAY, trace sand and gravel, moist (CL) CLAY A-6
	A 7 B	SS	12	30.1 / 19.7	1.25• / 2.0•		16.5	624.5	Tough gray silty CLAY, trace to little sand, trace organic, moist to very moist (CL) CLAY A-7-6
	8	SS	9	21.4	1.0 B		18.0	623.0	Firm gray sandy SILT, trace gravel, occasional sand seams, moist (ML) SILTY LOAM A-4
	9	SS	15	15.4	3.7 B 3.25•		20.5	620.5	Loose gray clayey SILT, trace sand, very moist (ML) SILTY LOAM A-4
	10	SS	17	13.9	5.7 B 4.5•		25.5	615.5	Very tough to hard gray silty CLAY, little to some sand and gravel, moist (CL) CLAY/CLAY LOAM A-6
	11	SS	48	15.3	4.9 S @ 10%				
	12	SS	52	10.6	3.1 S @ 10%				
	13	SS	59	14.9	3.5 S @ 10%				Dense to very dense gray clayey SILT, trace sand, moist (ML) SILTY LOAM A-4
	14	SS	41	18.3	4.1 S @ 10%		36.0	605.0	
	15	SS	10	13.1	4.6 B 4.5+•				Hard gray very silty CLAY, little sand and gravel, moist (CL-ML) SILTY CLAY LOAM A-4
	16	SS	17	13.2	5.7 B 4.5+•				

DISTANCE BELOW SURFACE IN FEET

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

DRILL RIG NO. 144 Page 1 of 2

BORING NO. 18
Station 74+62.24
Offset 12.48' LT

PROJECT Balmoral Avenue Extension - Phase II, Rosemont, Illinois
CLIENT Christopher B. Burke Engineering, Ltd., Rosemont, Illinois
BORING 18 DATE STARTED 10-9-02 DATE COMPLETED 10-14-02 JOB L-52,653
ELEVATIONS
GROUND SURFACE 641.0
END OF BORING 581.0
WATER LEVEL OBSERVATIONS
▽ WHILE DRILLING Dry to 10.0'
▽ AT END OF BORING Rotary Wash
▼ 24 HOURS

LENGTH RECOVERY	SAMPLE NO.	SAMPLE TYPE	N	WC	Qu	γ_{DRY}	DEPTH	ELEV.	SOIL DESCRIPTIONS
							40.5	600.5	See Page 1 for Description
	17	SS	36	13.0	9.9 B 4.5+•				
	18	SS	39	13.0	6.8 B 4.5+•				Hard gray silty CLAY, little to some sand and gravel, moist (CL) CLAY/CLAY LOAM A-6
	19	SS	24	17.2	5.6 B 4.5+•				
	20	SS	27	19.8	6.5 B 4.5+•		57.0	584.0	
	21	SS	41	12.6					Dense gray SILT, trace sand and gravel, moist (ML) SILT A-4
									End of Boring at 60.0'

* Approximate unconfined compressive strength based on measurements with a calibrated pocket penetrometer.

S = Shear Failure
B = Bulge Failure at 15% Strain

DISTANCE BELOW SURFACE IN FEET

Division lines between deposits represent approximate boundaries between soil types; in-situ, the transition may be gradual.

DRILL RIG NO. 144 Page 2 of 2

BORING NO. 18
Station 74+62.24
Offset 12.48' LT

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PLOT DATE =	CHECKED - MM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
SB MANNHEIM ROAD BRIDGE – STRUCTURE NO. 016-7942
SHEET NO. S-27 OF S-27 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105-F	COOK	55	55
		CONTRACT NO. 60V68		
		ILLINOIS FED. AID PROJECT		

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