

04-24-2020 LETTING ITEM 153

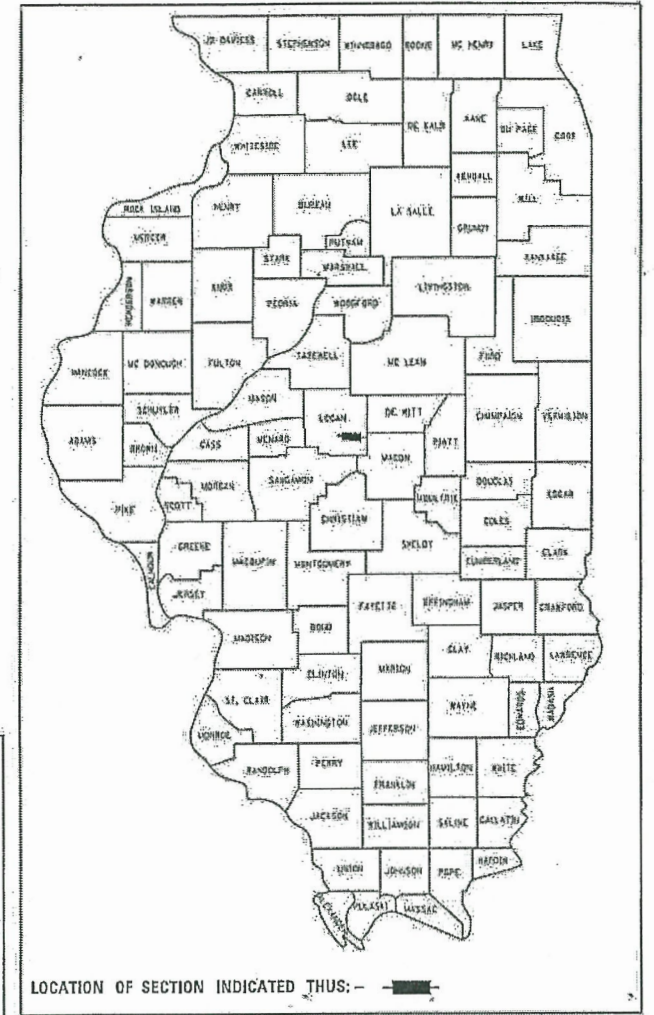
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM

FAS 557 (CH 6 / BEASON-CHESTNUT ROAD)
OVER SALT CREEK
SECTION 16-00059-01-BR
PROJECT 2YPC(578)
JOB C-96-003-20
LOGAN COUNTY

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	1
FEDERAL AID PROJECT		ILLINOIS	CONTRACT NO. 93738	

SEE SHEET 2 FOR
INDEX OF SHEETS AND
LIST OF ILLINOIS DOT HIGHWAY STANDARDS



UTILITY CONTACTS:

UTILITY TYPE:

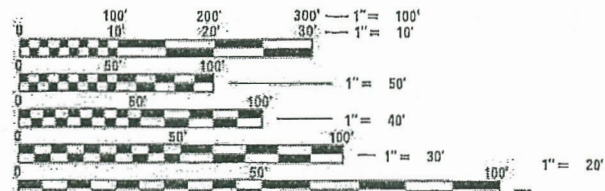
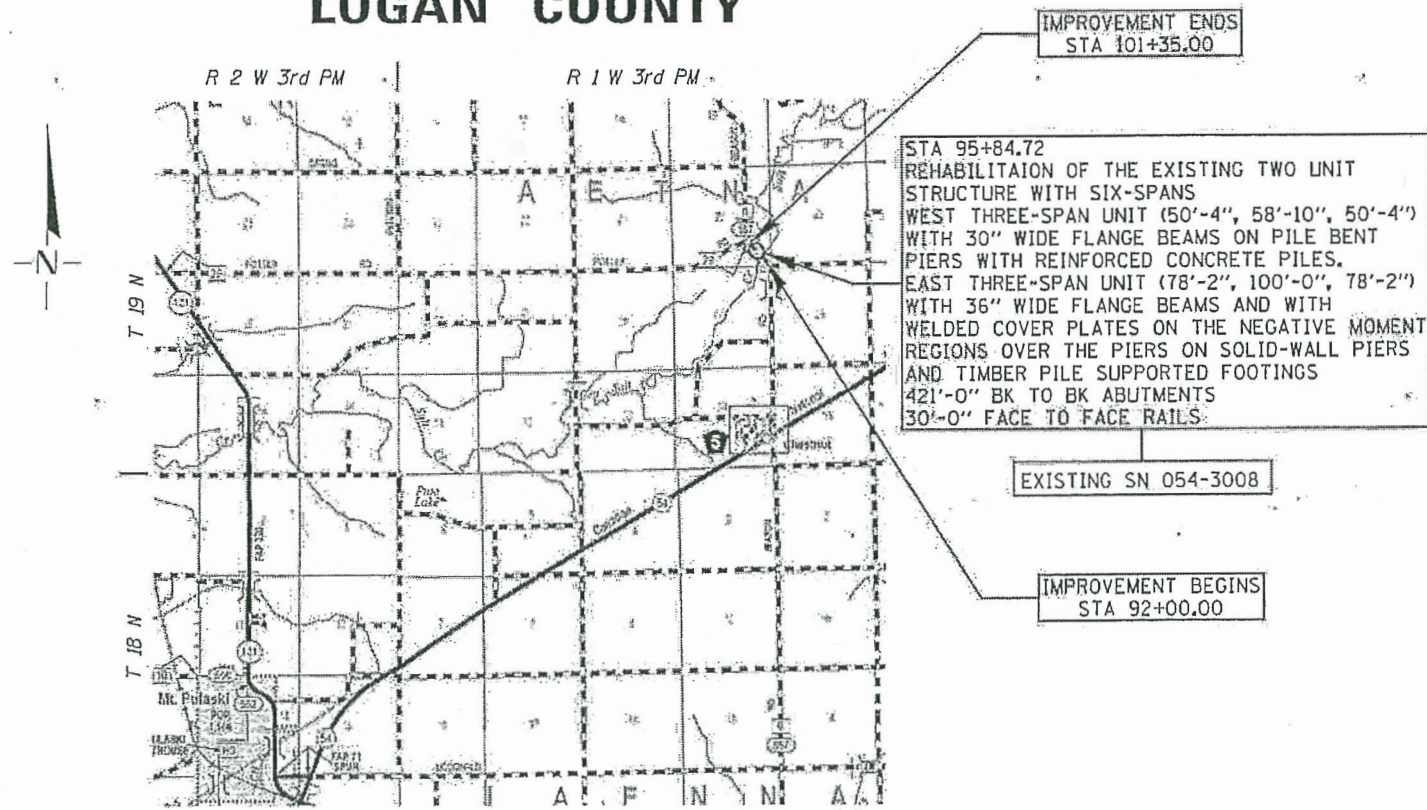
ELECTRIC / GAS
AMEREN CILCO (NORTH)
ATTN: NATHAN HILL
(618) 301-5327

UTILITY TYPE:

WATER
BEASON-CHESTNUT PWD
ATTN: STEVE HYDE / MARK CARLIN
(217) 871-5011 / (217) 891-8102

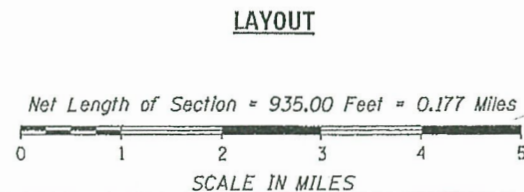
UTILITY TYPE:

TELEPHONE
FRONTIER COMMUNICATIONS (NORTH)
ATTN: KALIN HINSHAW
(815) 895-1515



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



FUNCTIONAL CLASSIFICATION : MAJOR COLLECTOR
DESIGN SPEED 40 MPH
CURRENT ADT= 325



Michael D. Cummins 1-17-20

ILLINOIS PROFESSIONAL NO. 43244
(Expires 11/30/19) 21

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

APPROVED: Jan 14, 2020
LOGAN COUNTY ENGINEER

PASSED: February 7, 2020
DISTRICT SIX ENGINEER OF LOCAL ROADS AND STREETS

RELEASED FOR BID BASED ON LIMITED REVIEW: February 7, 2020
REGION FOUR ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

INDEX OF SHEETS

SHEET NO.	TITLE
1	COVER SHEET
2	INDEX OF SHEETS, HIGHWAY STANDARDS AND GENERAL NOTES
3-5	SUMMARY OF QUANTITIES
6	TYPICAL SECTIONS
7	SCHEDULE OF QUANTITIES
8	ALIGNMENT, CROSS TIES AND BENCHMARKS
9	PLAN AND PROFILE
10	GUARDRAIL AND SHOULDER WIDENING DETAILS
11	TRAFFIC CONTROL - ADVANCE WARNING SIGNS (ROAD CLOSURE)
12-34	BRIDGE PLANS
35-40	CROSS SECTIONS

GENERAL NOTES

- WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE ANY SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR, OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.
- THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AS DIRECTED BY THE ENGINEER.

SEEDING CLASS 2 (SPECIAL) = 0.75 ACRES
- ALL ELEVATIONS SHOWN ON THE PLANS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
- THE LOCATION OF THOSE BURIED AND ABOVE GROUND UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITY PROPERTY FROM CONSTRUCTION OPERATIONS AS OUTLINED IN ARTICLE 107.39 OF THE STANDARD SPECIFICATIONS. THE J.U.L.I.E NUMBER IS 1 (800) 892-0123. A MINIMUM 48 HOURS ADVANCE NOTICE IS REQUIRED. SEE SPECIAL PROVISIONS FOR STATUS OF UTILITIES WITH UTILITY COMPANIES LISTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRS TO ANY UTILITY LINES AND EXISTING IMPROVEMENTS TO REMAIN THAT ARE DAMAGED AS A RESULT OF THE WORK.
- BEFORE ORDERING PIPE CULVERTS, THE CONTRACTOR SHALL CONSULT THE ENGINEER FOR THE EXACT PIPE LENGTHS.
- LAYOUT OF EROSION CONTROL ITEMS MAY BE VARIED IN THE FIELD TO SUIT GROUND CONDITIONS AS DIRECTED BY THE ENGINEER.

LIST OF ILLINOIS DOT HIGHWAY STANDARDS

000001-07	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
515001-04	NAME PLATE FOR BRIDGES
630001-12	STEEL PLATE BEAM GUARDRAIL
630301-09	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631032-09	TRAFFIC BARRIER TERMINAL, TYPE 6A
701001-02	OFF-ROAD OPERATIONS, 2L, 2W, MORE THAN 15' (4.5 M) AWAY FROM PAVEMENT EDGE
701006-05	OFF-ROAD OPERATIONS, 2L, 2W, 15' (4.5 M) TO 24" (600 MM) FROM PAVEMENT EDGE
701901-08	TRAFFIC CONTROL DEVICES
725001-01	OBJECT AND TERMINAL MARKERS
782006-01	GUARDRAIL AND BARRIER WALL REFLECTOR MOUNTING DETAILS
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

APPLICATION RATES USED IN QUANTITY CALCULATIONS

GRANULAR MATERIALS ————— 2.05 TONS/CU YD
 RIPRAP ————— 1.7 TONS/CU YD
 TEMPORARY EROSION CONTROL SEEDING ——— 100 LB/ACRE

MODEL: Default
 FILE NAME: 2531-shl-gen.dgn



JOB = 2531
FILE NAME = 2531-shl-gen.dgn
PLOT SCALE = 100,0000' / in.
PLOT DATE = 1/17/2020

DESIGNED - CGF
DRAWN - CGF
CHECKED - NAK
DATE - 8/12/2019

REVISED -
REVISED -
REVISED -
REVISED -

**LOGAN COUNTY
 CH 6 IMPROVEMENTS**

INDEX OF SHEETS, HIGHWAY STANDARDS AND GENERAL NOTES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	2
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

SUMMARY OF QUANTITIES				CONSTRUCTION CODE					
				80% FEDERAL 20% LOCAL					
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	0013					
20200100	EARTH EXCAVATION	CU YD	290	290					
20400800	FURNISHED EXCAVATION	CU YD	915	915					
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	51	51					
28000400	PERIMETER EROSION BARRIER	FOOT	618	618					
28100207	STONE RIPRAP, CLASS A4	TON	1,510	1,510					
28200200	FILTER FABRIC	SQ YD	1,040	1,040					
35100100	AGGREGATE BASE COURSE, TYPE A	TON	505	505					
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	52	52					
48101200	AGGREGATE SHOULDERS, TYPE B	TON	143	143					
50102400	CONCRETE REMOVAL	CU YD	4.4	4.4					
50104720	REMOVAL OF EXISTING CONCRETE DECK	EACH	1	1					
50200100	STRUCTURE EXCAVATION	CU YD	127	127					
50300225	CONCRETE STRUCTURES	CU YD	44.8	44.8					
50300255	CONCRETE SUPERSTRUCTURE	CU YD	356.2	356.2					

• SEE SPECIAL PROVISIONS Δ SPECIALTY ITEMS



JOB = 2531	DESIGNED - CGF	REVISED -
FILE NAME = 2531-shr-500.dgn	DRAWN - CGF	REVISED -
PLOT SCALE = 20,0000' / 1" =	CHECKED - NAK	REVISED -
PLOT DATE = 1/17/2020	DATE - 8/12/2019	REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

SUMMARY OF QUANTITIES

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	3
CONTRACT NO. 93738				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

SUMMARY OF QUANTITIES				CONSTRUCTION CODE					
				80% FEDERAL 20% LOCAL					
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	0013					
50300260	BRIDGE DECK GROOVING	SQ YD	1,491	1,491					
50300300	PROTECTIVE COAT	SQ YD	1,734	1,734					
50301350	CONCRETE SUPERSTRUCTURE (APPROACH SLAB)	CU YD	84.6	84.6					
50500405	FURNISHING AND ERECTING STRUCTURAL STEEL	POUND	3,650	3,650					
50500505	STUD SHEAR CONNECTORS	EACH	3,870	3,870					
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	137,400	137,400					
Δ 50901050	STEEL RAILING, TYPE SM	FOOT	898	898					
51500100	NAME PLATES	EACH	1	1					
52000110	PREFORMED JOINT STRIP SEAL	FOOT	99	99					
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE 1	EACH	10	10					
52100505	ANCHOR BOLTS, 5/8"	EACH	20	20					
58600101	GRANULAR BACKFILL FOR STRUCTURES	CU YD	64	64					
Δ 63000003	STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS	FOOT	200.0	200.0					
Δ 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4	4					

• SEE SPECIAL PROVISIONS Δ SPECIALTY ITEMS



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FILE NAME = 2531-sh-t-500.dgn	DRAWN - CGF	REVISED -
PLOT SCALE = 20.0000' / 1"	CHECKED - NAK	REVISED -
PLOT DATE = 2/14/2020	DATE - 8/12/2019	REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

SUMMARY OF QUANTITIES			
SCALE:	SHEET NO.	OF SHEETS	STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	4
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT			CONTRACT NO. 93738	

SUMMARY OF QUANTITIES				CONSTRUCTION CODE					
				80% FEDERAL 20% LOCAL					
CODE NO.	ITEM	UNIT	TOTAL QUANTITY	0013					
Δ 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4	4					
63200310	GUARDRAIL REMOVAL	FOOT	100	100					
67100100	MOBILIZATION	L SUM	1	1					
Δ 72501000	TERMINAL MARKER - DIRECT APPLIED	EACH	4	4					
Δ 78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	16	16					
• X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.75	0.75					
• X7011800	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	1					
• Z0001899	JACK AND REMOVE EXISTING BEARINGS	EACH	10	10					
• Z0001903	STRUCTURAL STEEL REMOVAL	POUND	2,340	2,340					
• Z0001905	STRUCTURAL STEEL REPAIR	POUND	520	520					
• Z0012754	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SO FT	25	25					
# • Z0076600	TRAINEES	HOUR	1,000	1,000					
# • Z0076604	TRAINEES TRAINING PROGRAM GRADUATE	HOUR	1,000	1,000					

• SEE SPECIAL PROVISIONS Δ SPECIALTY ITEMS
0042

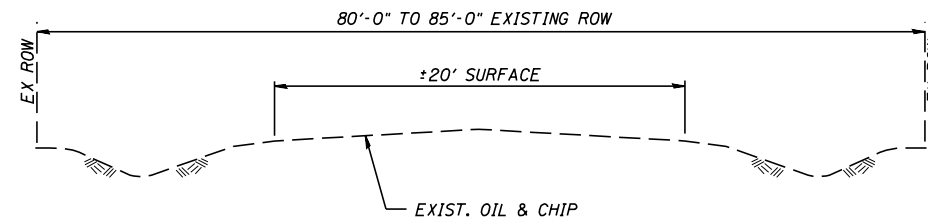


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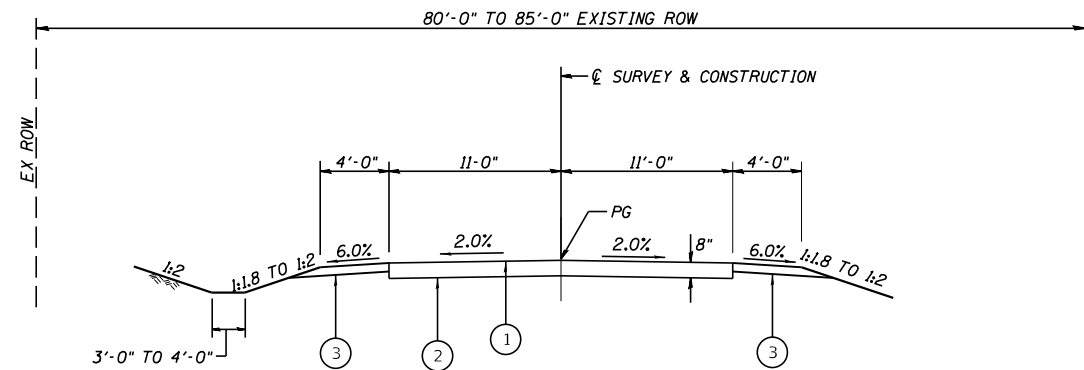
**LOGAN COUNTY
CH 6 IMPROVEMENTS**

SUMMARY OF QUANTITIES			
SCALE:	SHEET NO.	OF SHEETS	STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	5
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	
			CONTRACT NO. 93738	



TYPICAL EXISTING ROADWAY CROSS SECTION



FILL SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

CUT SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

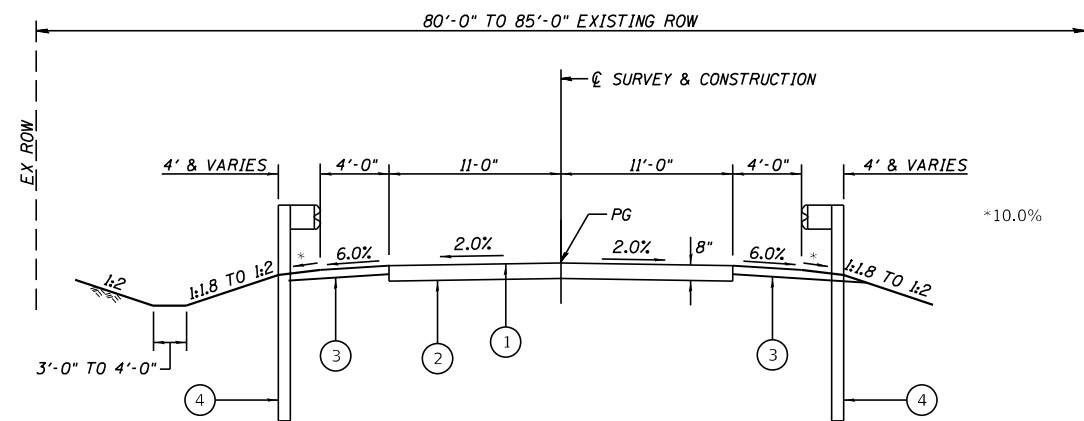
PROPOSED TYPICAL SECTION - NO GUARDRAIL

LT STA 92+00.00 TO STA 92+72.57
 RT STA 92+00.00 TO STA 92+60.07
 RT STA 98+96.87 TO STA 101+35.00
 LT STA 100+84.37 TO STA 101+35.00

NOTE:
 TRANSITION FROM EXISTING ROADWAY TO PROPOSED AS FOLLOWS:
 STA 92+00.00 TO STA 92+25.00
 STA 101+10.00 TO STA 101+35.00

OMISSIONS
 BRIDGE APPROACH PAVEMENT
 STA 93+45.22 TO STA 93+75.22
 STA 97+94.22 TO STA 98+24.22
 BRIDGE
 STA 93+75.22 TO STA 97+94.22

NOTES:
 SEE SHEET 11 FOR SHOULDER WIDENING DETAILS



FILL SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

CUT SECTION-CONSTRUCT AS SHOWN ON STATION CROSS SECTIONS

PROPOSED TYPICAL SECTION - WITH GUARDRAIL

LT STA 92+72.57 TO STA 93+45.22
 RT STA 92+60.07 TO STA 93+45.22
 LT STA 98+24.22 TO STA 100+84.37
 RT STA 98+24.22 TO STA 98+96.87

NOTE:
 GUARDRAIL AND AGGREGATE SHOULDER CONTINUES ALONG APPROACH PAVEMENT AS FOLLOWS:
 LT & RT STA 93+45.22 TO STA 93+60.22
 LT & RT STA 98+09.22 TO STA 98+24.22

LEGEND

- ① PROPOSED BITUMINOUS SURFACE TREATMENT A2 (BY OTHERS)
- ② PROPOSED AGGREGATE BASE COURSE, TYPE A - 8"
- ③ PROPOSED AGGREGATE SHOULDERS, TYPE B - 6"
- ④ STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS

EARTHWORK

LOCATION	20200100 EXCAVATION	EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	20400800 EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
				CU YD
STA 92+00.00 TO STA 93+74.22	120	90	300	-210
STA 97+95.22 TO STA 101+35.00	170	130	835	-705
TOTAL	290	220	1,135	-915

SHRINKAGE = 25%

28000250 TEMPORARY EROSION CONTROL SEEDING

LOCATION	POUND
LT STA 92+00.00 TO STA 93+74.00	7
LT STA 97+95.00 TO STA 101+35.00	18
RT STA 92+00.00 TO STA 93+74.00	9
RT STA 97+95.00 TO STA 101+35.00	17
TOTAL	51

28000400 PERIMETER EROSION BARRIER

LOCATION	FOOT
LT STA 93+45.00 TO STA 93+74.00	29
LT STA 97+95.00 TO STA 100+99.00	304
RT STA 93+50.00 TO STA 93+74.00	24
RT STA 97+95.00 TO STA 100+57.00	261
TOTAL	618

35100100 AGGREGATE BASE COURSE, TYPE A

LOCATION	WIDTH	TON
STA 92+00.00 TO STA 92+25.00	20 TO 22	26.57
STA 92+25.00 TO STA 93+45.22	22	133.87
STA 98+24.22 TO STA 101+10.00	22	318.24
STA 101+10.00 TO STA 101+35.00	22 TO 20	26.57
TOTAL		505.25
USE		505

40200800 AGGREGATE SURFACE COURSE, TYPE B

LOCATION	TYPE	WIDTH	TON
RT STA 100+83.00	F.E	24	28.29
LT STA 101+13.00	F.E	24	23.71
TOTAL			52.00
ROUNDED TOTAL			52

48101200 AGGREGATE SHOULDERS, TYPE B

LOCATION	WIDTH	TON
LT STA 92+00.00 TO STA 92+39.00	VARIES	4.44
LT STA 92+39.00 TO STA 93+45.22	4.0	17.14
LT STA 98+24.22 TO STA 101+30.00	4.0	49.34
LT STA 101+30.00 TO STA 101+35.00	VARIES	0.57
RT STA 92+00.00 TO STA 92+22.00	VARIES	2.51
RT STA 92+22.00 TO STA 93+45.22	4.0	19.88
RT STA 98+24.22 TO STA 101+10.00	4.0	46.11
RT STA 101+10.00 TO STA 101+35.00	VARIES	2.85
TOTAL		142.84
USE		143

63000003 STEEL PLATE BEAM GUARDRAIL, TYPE A, 9 FOOT POSTS

LOCATION	FOOT
LT STA 98+46.87 TO STA 100+34.37	187.5
RT STA 93+10.07 TO STA 93+22.57	12.5
TOTAL	200.0

63100087 TRAFFIC BARRIER TERMINAL, TYPE 6A

LOCATION	EACH
LT STA 93+22.57 TO STA 93+60.22	1
LT STA 98+09.22 TO STA 98+46.87	1
RT STA 93+22.57 TO STA 93+60.22	1
RT STA 98+09.22 TO STA 98+46.87	1
TOTAL	4

63100167 TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

LOCATION	EACH
LT STA 92+72.57 TO STA 93+22.57	1
LT STA 100+34.37 TO STA 100+84.37	1
RT STA 92+60.07 TO STA 93+10.07	1
RT STA 98+46.87 TO STA 98+96.87	1
TOTAL	4

63200310 GUARDRAIL REMOVAL

LOCATION	FOOT
LT STA 93+44.00 TO STA 93+72.00	25
LT STA 97+98.00 TO STA 98+24.00	25
RT STA 93+46.00 TO STA 93+72.00	25
RT STA 97+97.00 TO STA 98+24.00	25
TOTAL	100

78201000 TERMINAL MARKER - DIRECT APPLIED

LOCATION	EACH
LT STA 92+72.57	1
LT STA 100+84.37	1
RT STA 92+60.07	1
RT STA 98+96.87	1
TOTAL	4

78200005 GUARDRAIL REFLECTORS, TYPE A

LOCATION	EACH
LT STA 93+22.57 TO STA 93+60.22	4
LT STA 98+09.22 TO STA 100+34.37	4
RT STA 93+10.07 TO STA 93+60.22	4
RT STA 98+09.22 TO STA 98+46.87	4
TOTAL	16

X2501000 SEEDING, CLASS 2 (SPECIAL)

LOCATION	ACRE
LT STA 92+00.00 TO STA 93+74.00	0.07
LT STA 97+95.00 TO STA 101+35.00	0.18
RT STA 92+00.00 TO STA 93+74.00	0.09
RT STA 97+95.00 TO STA 101+35.00	0.17
TOTAL	0.51
USE	0.75

MODEL: Default
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JOB = 2531
FILE NAME = 2531-16-00059-01-CH6-Schedule.dgn
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PLOT DATE = 1/17/2020

DESIGNED - CGF
DRAWN - CGF
CHECKED - NAK
DATE - 8/12/2019

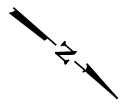
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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

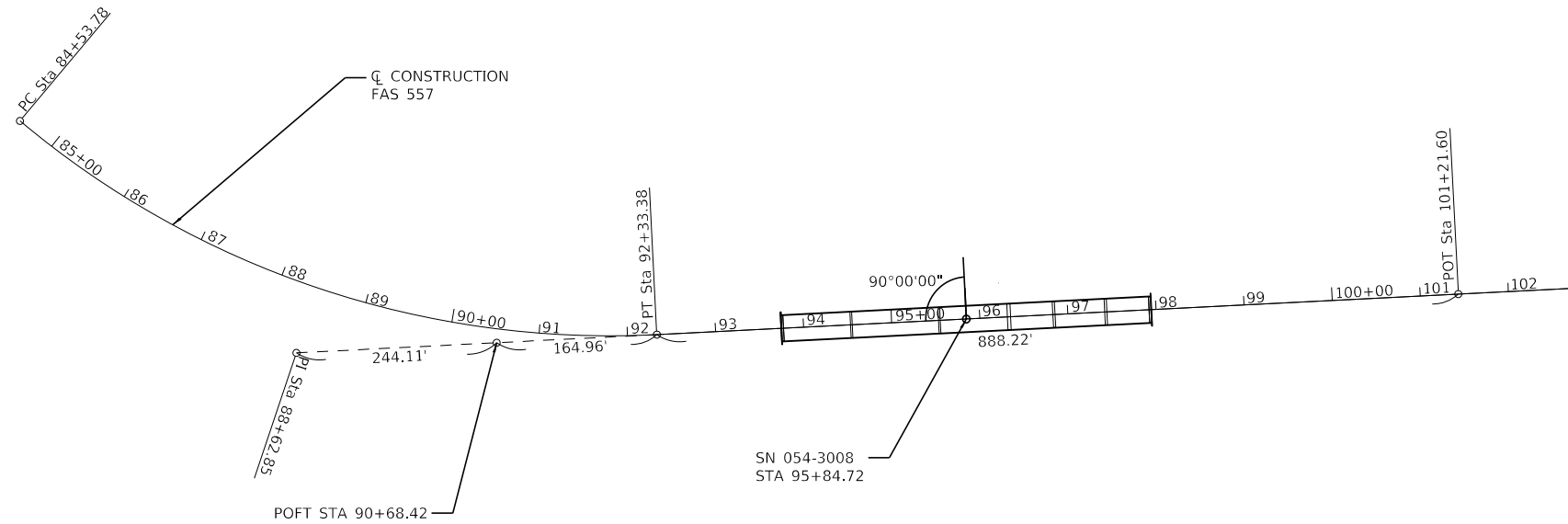
SCHEDULE OF QUANTITIES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	7
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				



EXIST. CURVE
 PI STA. = 88+62.85
 $\Delta = 42^\circ 52' 30''$
 $D = 5^\circ 30' 00''$
 $R = 1041.81'$
 $T = 409.07'$
 $L = 799.60'$
 $E = 77.43'$
 P.C. STA. = 84+53.78
 P.T. STA. = 92+33.38



BM#1 - MAG NAIL IN TOP OF CMP
 STA. 91+55, 34' LT
 ELEV. 604.09

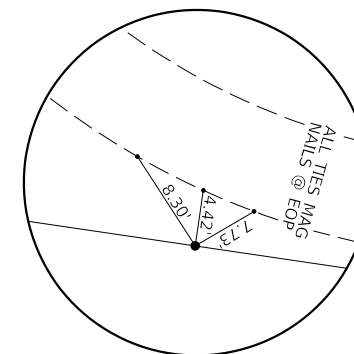
BM#2 - CUT "□" ON TOP OF WINGWALL
 STA. 93+75, 15.6' LT
 ELEV. 611.76

BM#3 - MAG SPIKE IN TELEPHONE POLE
 STA. 95+65, 43' RT
 ELEV. 601.50

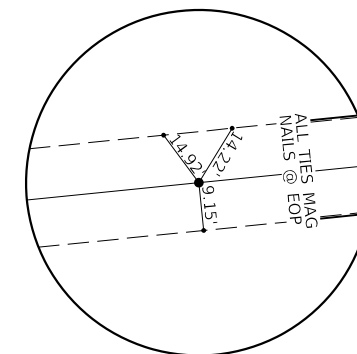
BM#4 - CUT "□" ON TOP OF WINGWALL
 STA. 97+94, 15.6' RT
 ELEV. 611.71

BM#5 - MAG NAIL IN TOP OF CMP
 STA. 100+62, 39' RT
 ELEV. 599.00

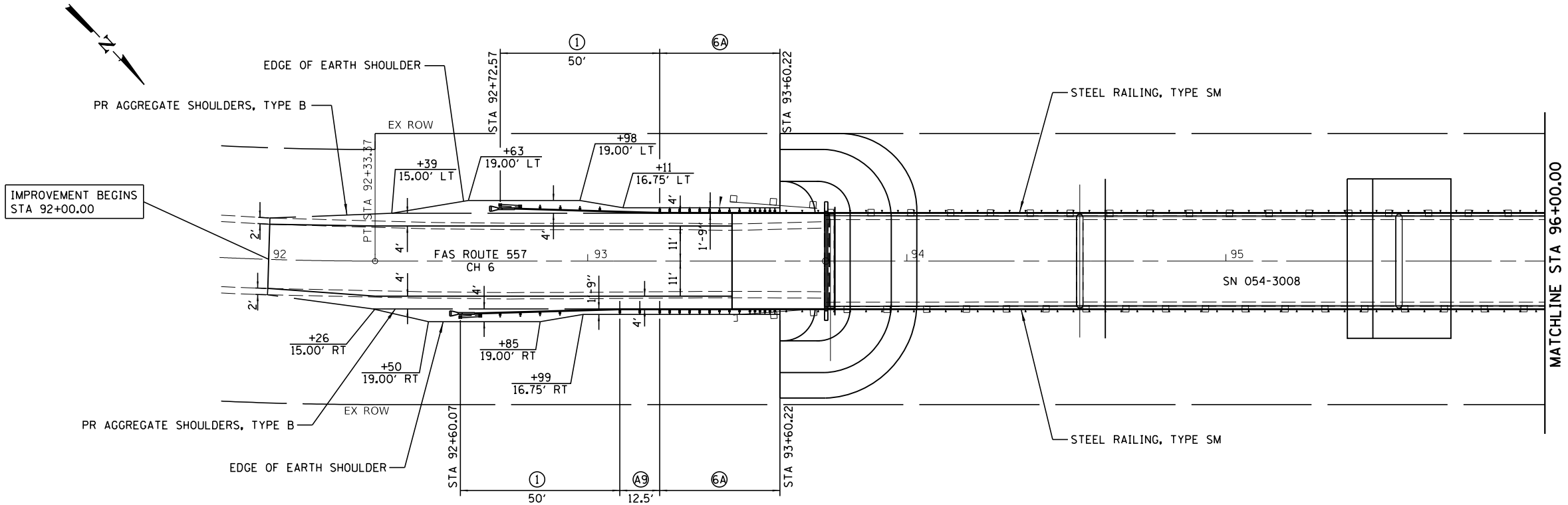
CENTERLINE CONSTRUCTION			
CONTROL POINT	STATION	COORDINATES	
		NORTHING	EASTING
PC	84+53.78	1243140.94	2571954.88
PI	88+62.85	1243549.94	2571947.17
POFT	90+68.42	1243725.67	2571777.73
PT	92+33.38	1243844.41	2571663.23
POT	101+21.60	124483.82	2571046.71



POFT STA 90+68.42
 1/2" DIA. IRON PIN (SET)

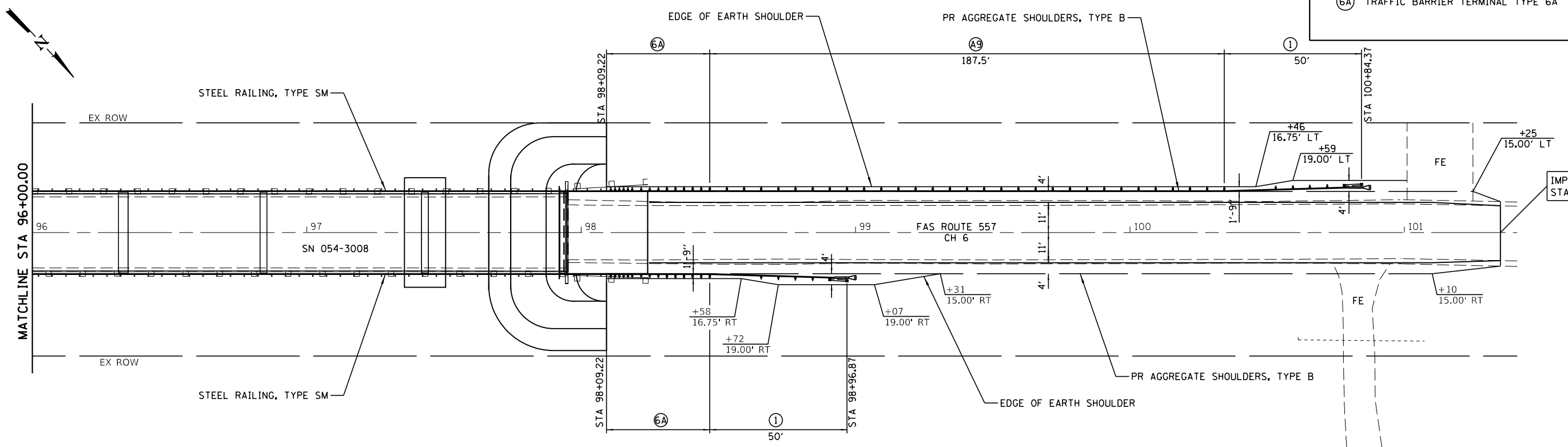


POT STA 101+21.60
 MAG NAIL (SET)



LEGEND

- (A9) STEEL PLATE BEAM GUARDRAIL, TYPE A, 9' POSTS
- (1) TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT
- (6A) TRAFFIC BARRIER TERMINAL TYPE 6A



MODEL: \\MODELS\FILES
FILE NAME: STILES

CEC Cummins
Engineering
Corporation
Civil and Structural Engineering

JOB = 2531
FILE NAME = \$FILES\$
PLOT SCALE = \$SCALES\$
PLOT DATE = \$DATES\$

DESIGNED - CGF
DRAWN - CGF
CHECKED - NAK
DATE - 8/12/2019

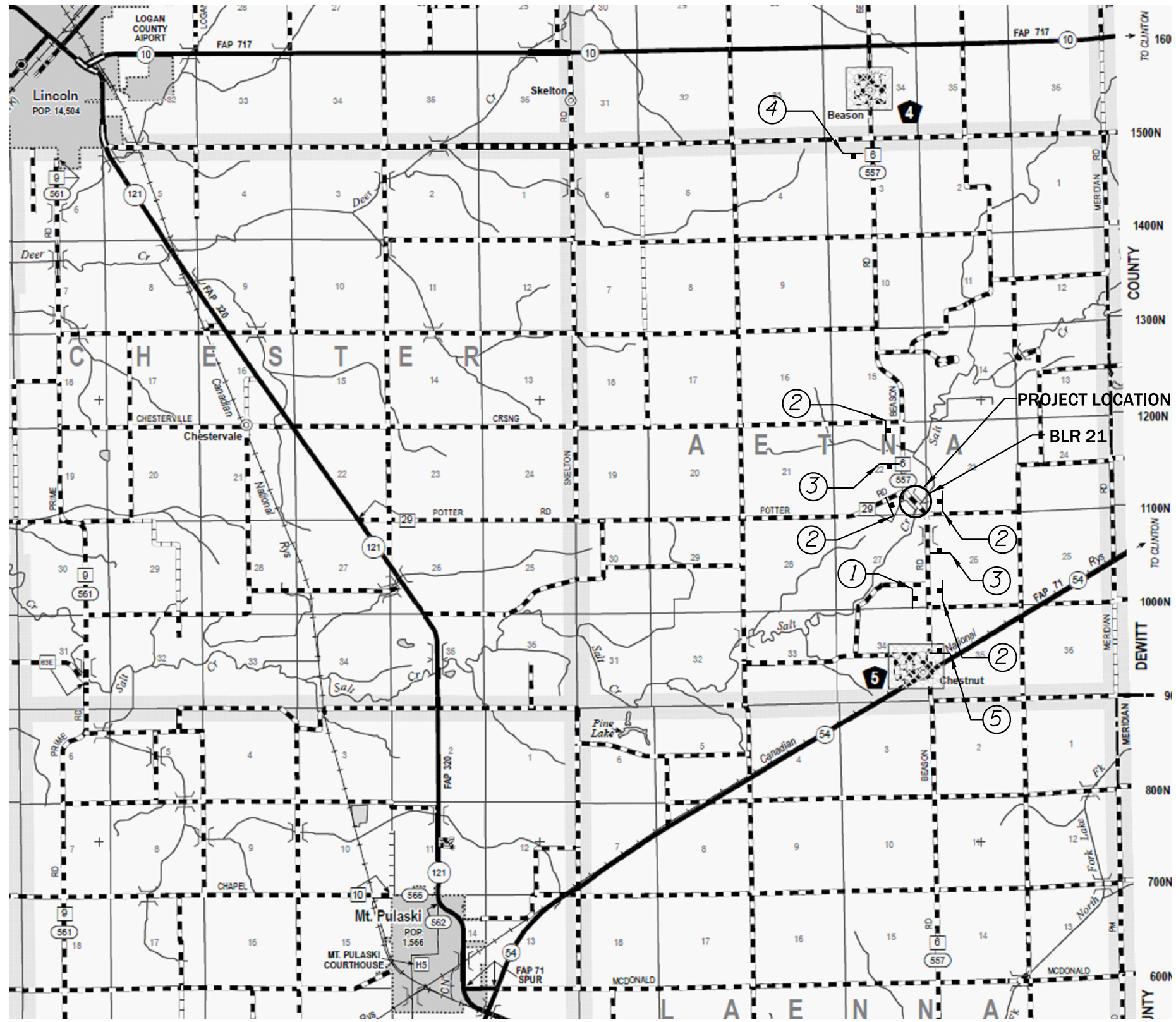
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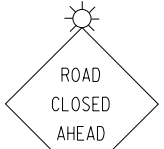

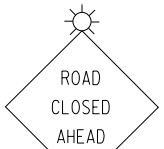

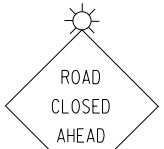


**LOGAN COUNTY
CH 6 IMPROVEMENTS**

GUARDRAIL AND SHOULDER WIDENING DETAILS

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	10
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				



- 
 ROAD CLOSED AHEAD

 W20-3(0)-48
 M5-1(L)
 POST MOUNTED
 W/ LIGHT
 SIGN PANEL ①
- 
 ROAD CLOSED AHEAD

 W20-3(0)-48
 M5-1(R)
 POST MOUNTED
 W/ LIGHT
 SIGN PANEL ②
- 
 ROAD CLOSED AHEAD
 W20-3(0)-48
 POST MOUNTED
 W/ LIGHT
 SIGN PANEL ③
- 
 ROAD CLOSED
 5 MILES
 AHEAD
 W20-3(0)-48
 POST MOUNTED
 W/ LIGHT
 SIGN PANEL ④
- 
 ROAD CLOSED
 2 MILES
 AHEAD
 W20-3(0)-48
 POST MOUNTED
 W/ LIGHT
 SIGN PANEL ⑤

MODEL: Default
 FILE NAME: 2531-AltRoute_Route.dgn

CEC Cummins
 Engineering
 Corporation
 Civil and Structural Engineering

JOB = 2531
 FILE NAME = 2531-AltRoute_Route.dgn
 PLOT SCALE = 100,0000' / in.
 PLOT DATE = 1/17/2020

DESIGNED - CGF
 DRAWN - CGF
 CHECKED - NAK
 DATE - 5/28/2019

REVISED -
 REVISED -
 REVISED -
 REVISED -

**LOGAN COUNTY
 CH 6 IMPROVEMENTS**

**TRAFFIC CONTROL
 ADVANCE WARNING SIGNS (ROAD CLOSURE)**

SCALE: SHEET OF SHEETS STA. TO STA.

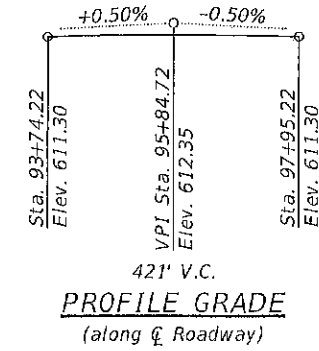
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	11
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

Benchmark: # 2 Chisled Square on top of wing wall at the SE corner of SN 054-3008, 15.6' Lt. Sta. 93+75, Elev. 611.76

Existing Structure: SN 054-3008 was originally built in 1961 under Section 59-B and consists of a two-unit superstructure. The west three span unit has 30" wide flange beams on pile bent piers with RC piles. The east three span unit over the main channel has 36" wide flange beams, with welded cover plates in the negative moment regions over the piers, on solid-wall piers with timber pile supported footings. The abutments are stub abutments on concrete pile supported spread footings. The existing structure is 421'-0" bk. to bk. of abutments and 26'-0" fc. to fc. curbs. The overall bridge width is 28'-6" out to out of deck.

INDEX OF SHEETS

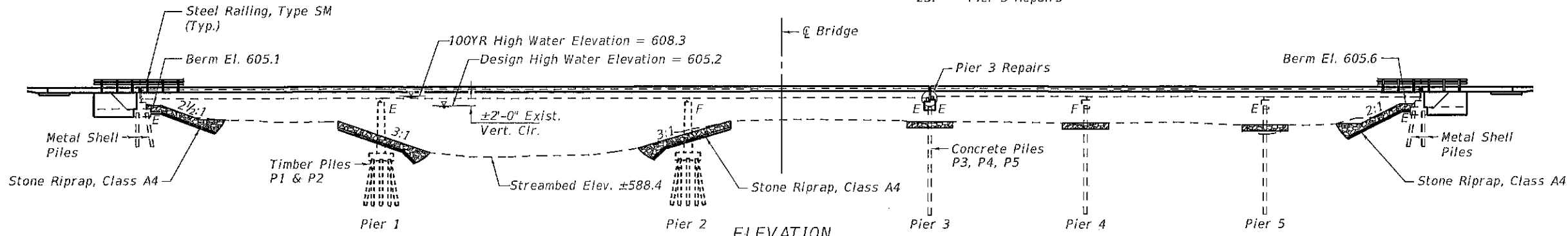
1. General Plan & Elevation
2. General Data
3. Riprap Details
- 4.-6. Top of Slab Elevations
7. Top of Approach Slab Elevations
- 8.-9. Superstructure
10. Superstructure Details
- 11.-12. Bridge Approach Slab Details
13. Steel Railing, Type SM
14. Modified Prefomed Joint Strip Seal
- 15.-16. Structural Steel
17. Structural Steel Repair Details
- 18.-19. Bearing Details
20. Abutment Concrete Removal
- 21.-22. Abutment Details
23. Pier 3 Repairs



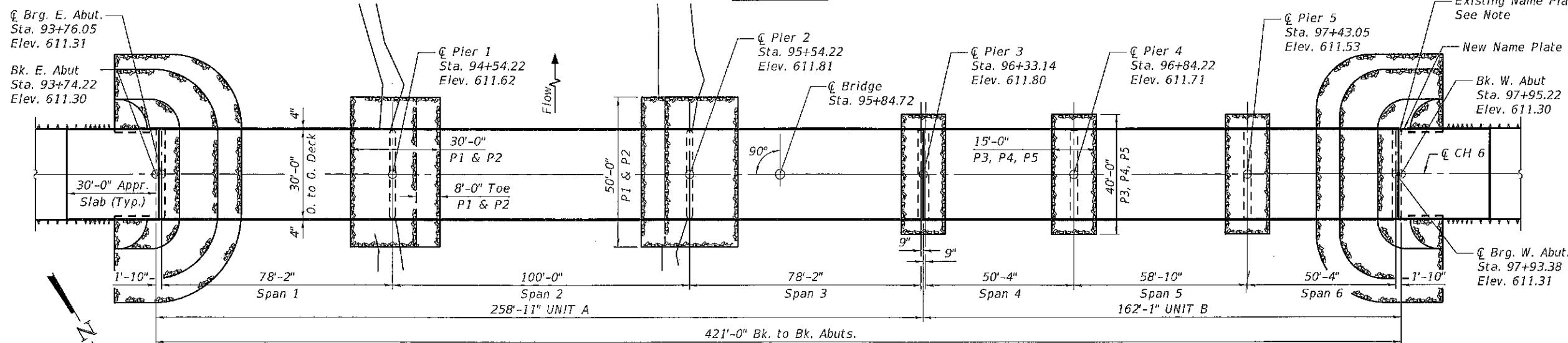
SALT CREEK
RE-BUILT 20XX BY
LOGAN COUNTY
SEC. 16-00059-01-BR
F.A.S. RTE. 557 STA. 95+84.72
STR. NO. 054-3008 LOADING HS-20

NAME PLATE
See Std. 515001

Note: Existing Name Plate shall be cleaned and relocated next to the new Name Plate on the southwest wingwall. Cost included with Name Plates.



ELEVATION



PLAN

DESIGN SPECIFICATIONS

1995 FHWA Seismic Retrofit Manual
2002 AASHTO Standard Specifications for Highway Bridges (New Construction)
2017 AASHTO LRFD Bridge Design Specification, 8th Edition (New Deck)

LOADING HS-20

No future wearing surface allowed.

DESIGN STRESSES

FIELD UNITS (New Construction)
f_c = 3,500 psi (Substructure)
f_c = 5,000 psi (Superstructure)
f_y = 60,000 psi (Reinforcement)
f_y = 36,000 psi (M270 Grade 36)

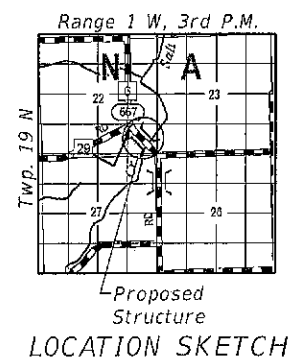
FIELD UNITS (Existing Construction)
f_c = 1,400 psi (Substructure)
f_s = 20,000 psi (Reinforcement)
f_s = 18,000 psi (Structural Steel)

WATERWAY INFORMATION

Drainage Area	420 Sq. Mi.
Existing Opening (100 Yr.)	4,220 Sq. Ft.
Proposed Opening (100 Yr.)	4,220 Sq. Ft.
100 Year Discharge	18,200 C.F.S.
Existing Opening (15 Yr.)	2,600 Sq. Ft.
Proposed Opening (15 Yr.)	2,600 Sq. Ft.
Design Discharge (15 Yr.)	10,400 C.F.S.

DESIGN SCOUR ELEVATION TABLE

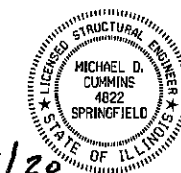
Event / Limit State	Design Scour Elevations (ft.)							Item 113
	E. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	W. Abut.	
Q100	601.6	585.5	585.3	591.7	591.2	588.6	602.0	5



LOCATION SKETCH

"I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current 'AASHTO Bridge Design Specifications'."

Michael D. Cummins 11/7/20
ILLINOIS STRUCTURAL NO. 4822 (Expires 11/30/20)



GENERAL PLAN AND ELEVATION

CH 6 OVER SALT CREEK
SECTION 16-00059-01-BR

LOGAN COUNTY
STA 95+84.72

STRUCTURE NO. 054-3008



JOB # 2531
FILE NAME = 054-3008-0000-01-GPE.dgn
PLOT DATE = 1/17/2020

DESIGNED - AAN
CHECKED - MDC
DRAWN - SJS
CHECKED - MDC

LOGAN COUNTY
CH 6 IMPROVEMENTS

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 054-3008
SHEET 1 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	12
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

MODEL: Default
FILE NAME: 054-3008-0000-01-GPE.dgn

GENERAL NOTES:

Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts (in painted areas and ASTM A325 Type 3 in unpainted areas). Bolts 3/4 in. Ø, holes 13/16 in. Ø, unless otherwise noted.

No field welding is permitted except as specified in the contract documents. The Contractor shall test the existing welds by non-destructive methods within 2 ft. of the end of the existing cover plates for cracks after removal of the existing concrete deck. Dye penetrant (PT), magnetic particle (MT), or other approved testing method shall be performed by qualified personnel approved by the Engineer. If cracks are found, report them to the Bureau of Bridges and Structures for disposition. The cost of testing is included in Removal of Existing Concrete Deck. The cost of crack repair, if necessary, will be paid for according to Article 109.04 of the Standard Specifications.

Reinforcement bars designated (E) shall be epoxy coated. Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer.

Any cracks that cannot be removed by grinding 1/4 inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Concrete Sealer shall be applied to the designated areas of the abutments.

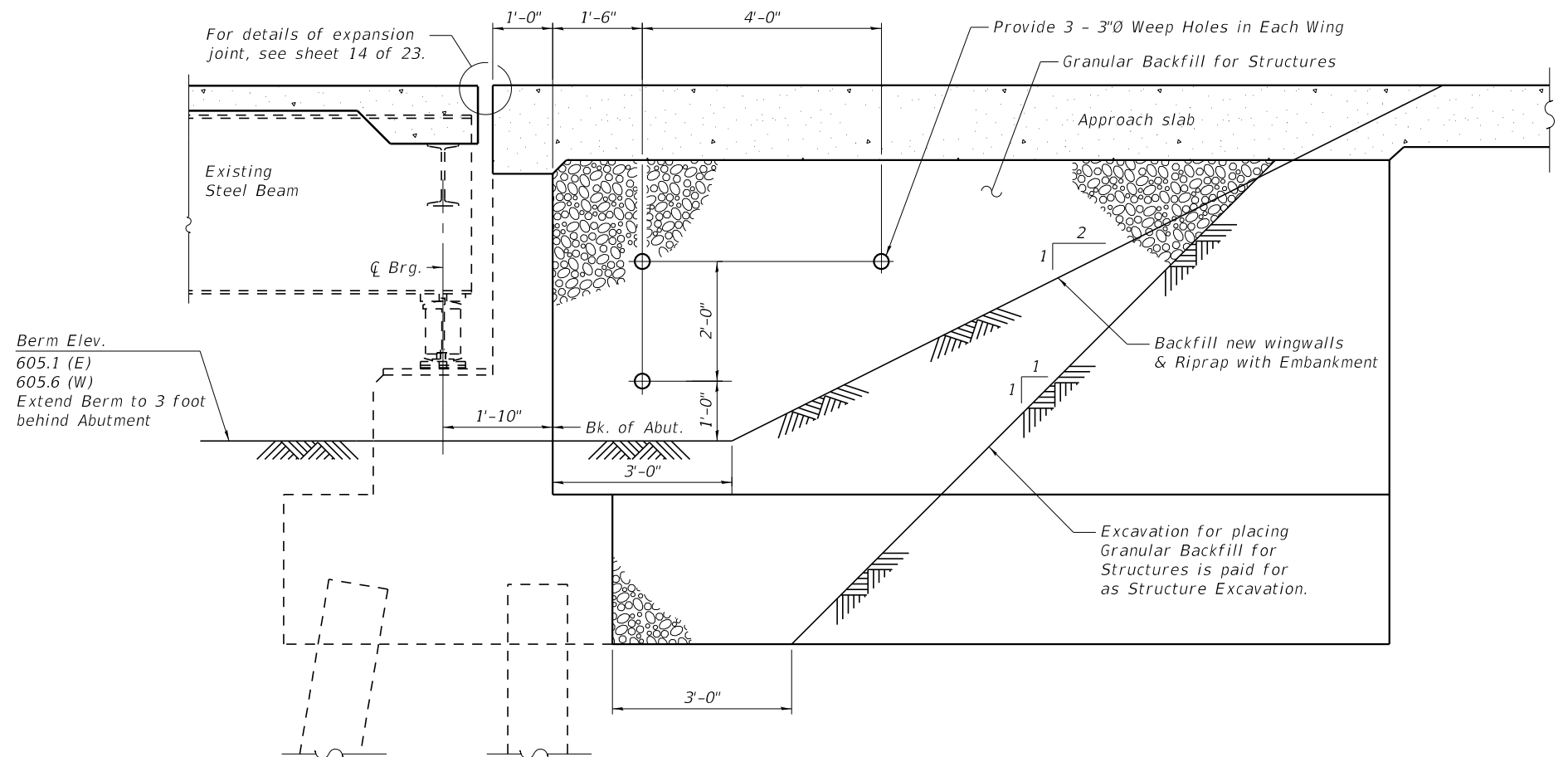
The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

All new fasteners shall be high strength bolts. Holes shall be subpunched or subdrilled 11/16" dia. and reamed in the field to 13/16" dia. for 3/4" dia. bolts, unless otherwise noted.

The removal of existing bridge decks for both Unit A and Unit B are considered a single location and shall not be measured separately for payment.



**SECTION THRU STUB ABUTMENT
WITH NEW WINGWALLS**

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Stone Riprap, Class A4	Ton		1510	1510
Filter Fabric	Sq. Yd.		1040	1040
Concrete Removal	Cu. Yd.		4.4	4.4
Removal of Existing Concrete Deck	Each	1		1
Structure Excavation	Cu. Yd.		127	127
Concrete Structures	Cu. Yd.		44.8	44.8
Concrete Superstructures	Cu. Yd.	356.2		356.2
Bridge Deck Grooving	Sq. Yd.	1491		1491
Protective Coat	Sq. Yd.	1734		1734
Concrete Superstructures (Approach Slab)	Cu. Yd.	84.6		84.6
Furnishing and Erecting Structural Steel	Pound	3650		3650
Stud Shear Connectors	Each	3870		3870
Reinforcement Bars, Epoxy Coated	Pound	133,970	3430	137,400
Steel Railing, Type SM	Foot	898		898
Name Plates	Each	1		1
Preformed Joint Strip Seal	Foot	99		99
Elastomeric Bearing Assembly, Type I	Each	10		10
Anchor Bolts, 5/8"	Each	20		20
Granular Backfill for Structures	Cu. Yd.		64	64
Jack and Remove Existing Bearings	Each		10	10
Containment and Disposal of Lead	L. Sum	1		1
Paint Cleaning Residues				
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)	Sq. Ft.		25	25
Structural Steel Removal	Pound	2340		2340
Structural Steel Repair	Pound	520		520

MODEL: \$MODELNAMES
FILE NAME: \$FILES



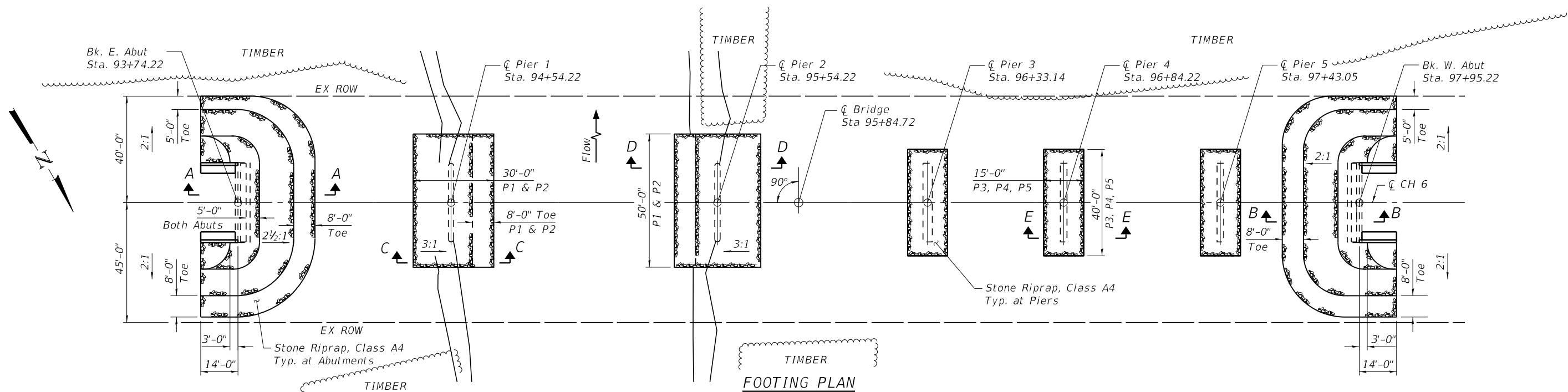
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FILE NAME = \$FILES\$	CHECKED - MDC	REVISED -
PLOT DATE = \$DATE\$	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

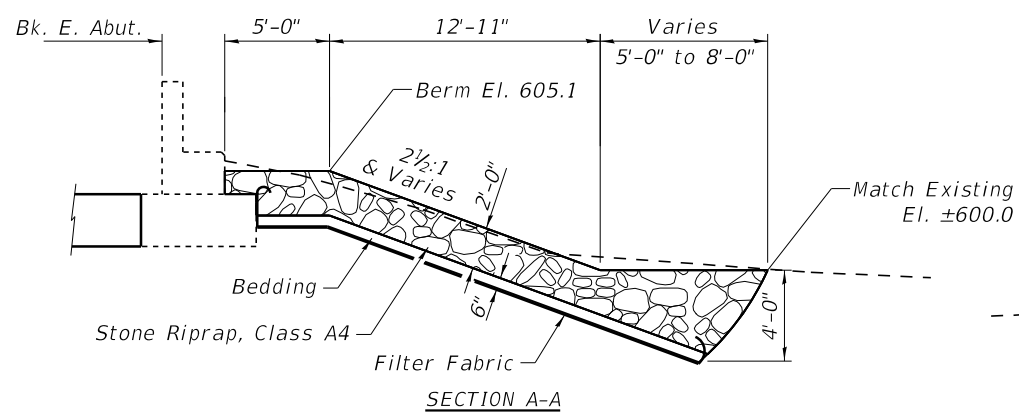
**GENERAL DATA
STRUCTURE NO. 054-3008**

SHEET 2 OF 23 SHEETS

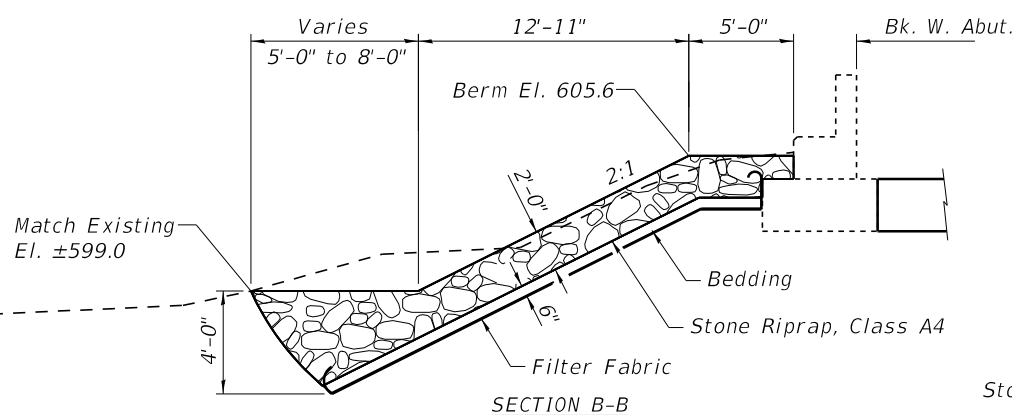
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	13
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				



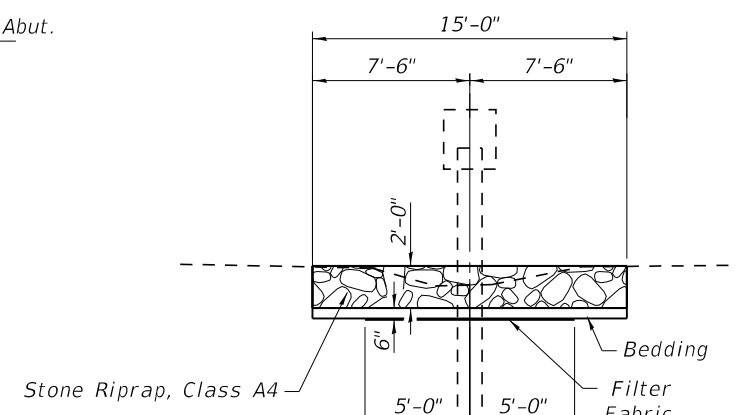
FOOTING PLAN



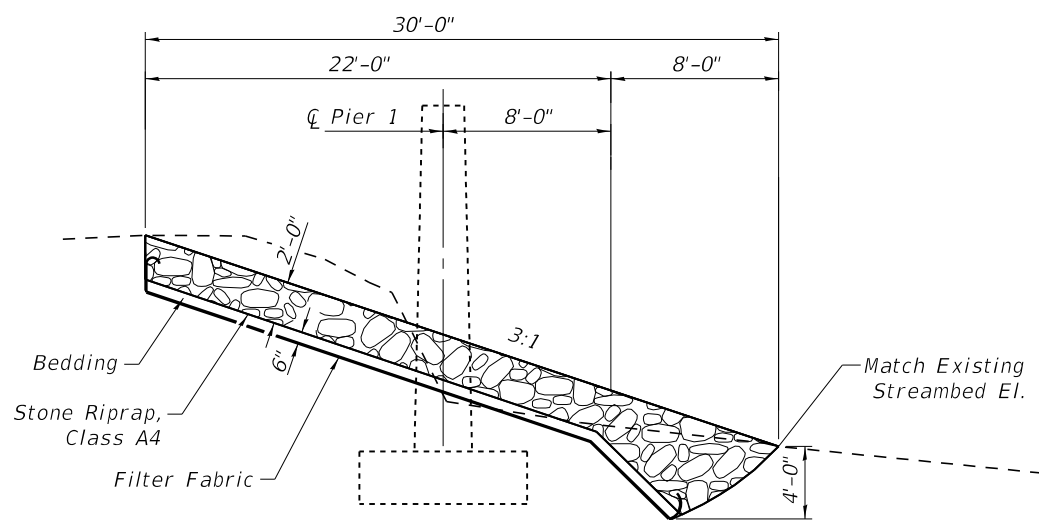
SECTION A-A



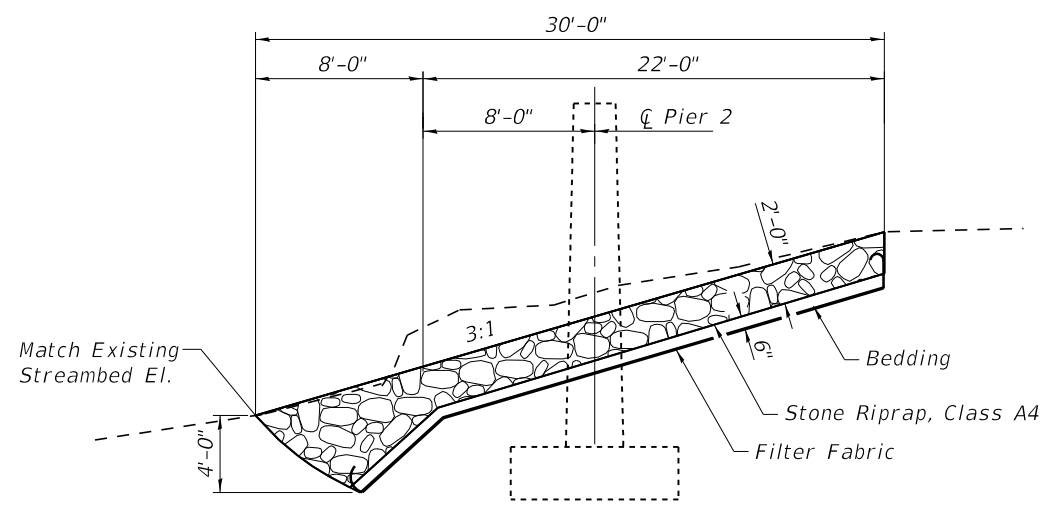
SECTION B-B



SECTION E-E
TYP. AT PIERS 3, 4 & 5



SECTION C-C



SECTION D-D

BILL OF MATERIAL

Item	Unit	Qty.
Stone Riprap, Class A4	Ton	1510
Filter Fabric	Sq. Yd.	1040

Notes:
Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

MODEL: \$MODELNAME\$
FILE NAME: \$FILEL\$

CEC Cummins
Engineering
Corporation
Civil and Structural Engineering

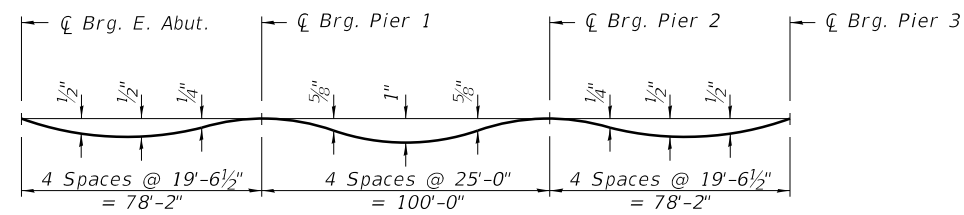
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FILE NAME = \$FILEL\$	CHECKED - MDC	REVISED -
PLOT DATE = \$DATE\$	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**RIPRAP DETAILS
STRUCTURE NO. 054-3008**

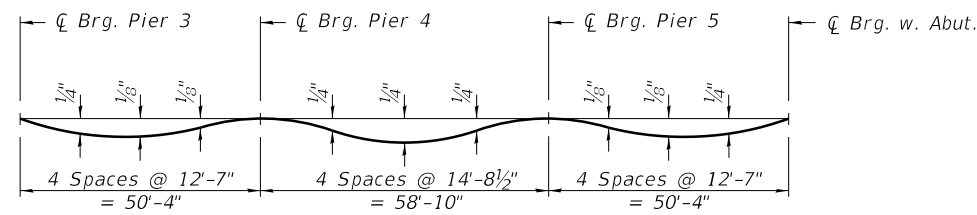
SHEET 3 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	14
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				



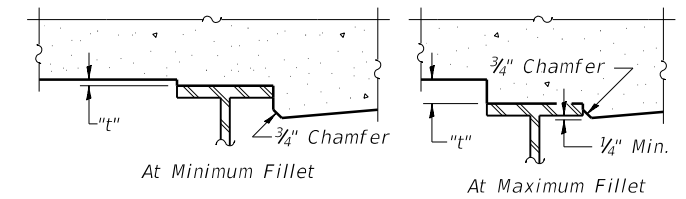
DEAD LOAD DEFLECTION DIAGRAM-UNIT A
(Includes weight of concrete only.)

Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.



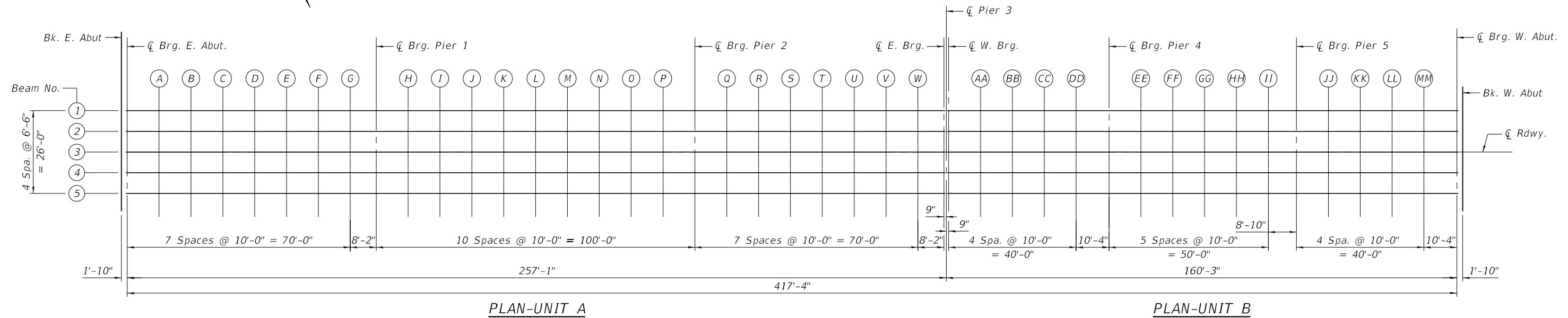
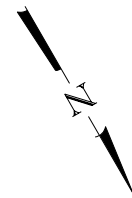
DEAD LOAD DEFLECTION DIAGRAM-UNIT B
(Includes weight of concrete only.)

Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below.



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

FILLET HEIGHTS



MODEL: \$MODELNAME\$
FILE NAME: \$FILES\$



JOB = 2531	DESIGNED - AAN	REVISED -
FILE NAME = \$FILES\$	CHECKED - MDC	REVISED -
PLOT DATE = \$DATES\$	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**TOP OF SLAB ELEVATIONS
STRUCTURE NO. 054-3008**

SHEET 4 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	15
CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. E. Abut	93+74.22	-13.00	611.03	611.03
☒ Brg. E. Abut.	93+76.05	-13.00	611.03	611.03
A	93+86.05	-13.00	611.08	611.11
B	93+96.05	-13.00	611.13	611.18
C	94+06.05	-13.00	611.17	611.23
D	94+16.05	-13.00	611.21	611.27
E	94+26.05	-13.00	611.25	611.29
F	94+36.05	-13.00	611.29	611.31
G	94+46.05	-13.00	611.32	611.33
☒ Pier 1	94+54.22	-13.00	611.35	611.35
H	94+64.22	-13.00	611.38	611.39
I	94+74.22	-13.00	611.41	611.44
J	94+84.22	-13.00	611.43	611.49
K	94+94.22	-13.00	611.46	611.53
L	95+04.22	-13.00	611.48	611.55
M	95+14.22	-13.00	611.48	611.56
N	95+24.22	-13.00	611.51	611.56
O	95+34.22	-13.00	611.52	611.55
P	95+44.22	-13.00	611.52	611.53
☒ Pier 2	95+54.22	-13.00	611.54	611.54
Q	95+64.22	-13.00	611.55	611.56
R	95+74.22	-13.00	611.55	611.58
S	95+84.22	-13.00	611.55	611.60
T	95+94.22	-13.00	611.55	611.61
U	96+04.22	-13.00	611.55	611.60
V	96+14.22	-13.00	611.54	611.59
W	96+24.22	-13.00	611.54	611.56
☒ E. Brg. Pier 3	96+32.38	-13.00	611.53	611.53
☒ W. Brg. Pier 3	96+33.88	-13.00	611.54	611.54
AA	96+43.88	-13.00	611.52	611.54
BB	96+53.88	-13.00	611.51	611.53
CC	96+63.88	-13.00	611.49	611.51
DD	96+73.88	-13.00	611.47	611.48
☒ Pier 4	96+84.22	-13.00	611.45	611.45
EE	96+94.22	-13.00	611.42	611.43
FF	97+04.22	-13.00	611.39	611.40
GG	97+14.22	-13.00	611.36	611.37
HH	97+24.22	-13.00	611.33	611.35
II	97+34.22	-13.00	611.30	611.30
☒ Pier 5	97+43.05	-13.00	611.27	611.27
JJ	97+53.05	-13.00	611.23	611.24
KK	97+63.05	-13.00	611.19	611.21
LL	97+73.05	-13.00	611.14	611.17
MM	97+83.05	-13.00	611.10	611.12
☒ Brg. W. Abut.	97+93.38	-13.00	611.05	611.05
Bk. W. Abut	97+95.22	-13.00	611.04	611.04

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. E. Abut	93+74.22	-6.50	611.16	611.16
☒ Brg. E. Abut.	93+76.05	-6.50	611.17	611.17
A	93+86.05	-6.50	611.22	611.24
B	93+96.05	-6.50	611.26	611.31
C	94+06.05	-6.50	611.31	611.36
D	94+16.05	-6.50	611.35	611.40
E	94+26.05	-6.50	611.39	611.43
F	94+36.05	-6.50	611.43	611.45
G	94+46.05	-6.50	611.46	611.46
☒ Pier 1	94+54.22	-6.50	611.49	611.49
H	94+64.22	-6.50	611.52	611.52
I	94+74.22	-6.50	611.54	611.57
J	94+84.22	-6.50	611.57	611.62
K	94+94.22	-6.50	611.59	611.66
L	95+04.22	-6.50	611.61	611.69
M	95+14.22	-6.50	611.62	611.69
N	95+24.22	-6.50	611.65	611.70
O	95+34.22	-6.50	611.66	611.69
P	95+44.22	-6.50	611.66	611.67
☒ Pier 2	95+54.22	-6.50	611.68	611.68
Q	95+64.22	-6.50	611.68	611.69
R	95+74.22	-6.50	611.69	611.71
S	95+84.22	-6.50	611.69	611.73
T	95+94.22	-6.50	611.69	611.74
U	96+04.22	-6.50	611.69	611.74
V	96+14.22	-6.50	611.68	611.72
W	96+24.22	-6.50	611.67	611.69
☒ E. Brg. Pier 3	96+32.38	-6.50	611.66	611.66
☒ W. Brg. Pier 3	96+33.88	-6.50	611.67	611.67
AA	96+43.88	-6.50	611.65	611.67
BB	96+53.88	-6.50	611.64	611.66
CC	96+63.88	-6.50	611.62	611.64
DD	96+73.88	-6.50	611.60	611.61
☒ Pier 4	96+84.22	-6.50	611.58	611.58
EE	96+94.22	-6.50	611.55	611.56
FF	97+04.22	-6.50	611.52	611.53
GG	97+14.22	-6.50	611.49	611.50
HH	97+24.22	-6.50	611.46	611.48
II	97+34.22	-6.50	611.43	611.43
☒ Pier 5	97+43.05	-6.50	611.40	611.40
JJ	97+53.05	-6.50	611.36	611.37
KK	97+63.05	-6.50	611.32	611.34
LL	97+73.05	-6.50	611.27	611.30
MM	97+83.05	-6.50	611.23	611.25
☒ Brg. W. Abut.	97+93.38	-6.50	611.18	611.18
Bk. W. Abut	97+95.22	-6.50	611.17	611.17

BEAM 3 & PROFILE GRADE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. E. Abut	93+74.22	0.00	611.30	611.30
☒ Brg. E. Abut.	93+76.05	0.00	611.31	611.31
A	93+86.05	0.00	611.35	611.38
B	93+96.05	0.00	611.40	611.45
C	94+06.05	0.00	611.44	611.50
D	94+16.05	0.00	611.49	611.54
E	94+26.05	0.00	611.52	611.56
F	94+36.05	0.00	611.56	611.58
G	94+46.05	0.00	611.60	611.60
☒ Pier 1	94+54.22	0.00	611.62	611.62
H	94+64.22	0.00	611.65	611.66
I	94+74.22	0.00	611.68	611.71
J	94+84.22	0.00	611.70	611.76
K	94+94.22	0.00	611.73	611.80
L	95+04.22	0.00	611.75	611.83
M	95+14.22	0.00	611.76	611.83
N	95+24.22	0.00	611.78	611.84
O	95+34.22	0.00	611.79	611.83
P	95+44.22	0.00	611.80	611.80
☒ Pier 2	95+54.22	0.00	611.81	611.81
Q	95+64.22	0.00	611.82	611.83
R	95+74.22	0.00	611.82	611.85
S	95+84.22	0.00	611.82	611.87
T	95+94.22	0.00	611.82	611.88
U	96+04.22	0.00	611.82	611.88
V	96+14.22	0.00	611.81	611.86
W	96+24.22	0.00	611.81	611.83
☒ E. Brg. Pier 3	96+32.38	0.00	611.80	611.80
☒ W. Brg. Pier 3	96+33.88	0.00	611.80	611.80
AA	96+43.88	0.00	611.78	611.80
BB	96+53.88	0.00	611.77	611.79
CC	96+63.88	0.00	611.75	611.77
DD	96+73.88	0.00	611.73	611.74
☒ Pier 4	96+84.22	0.00	611.71	611.71
EE	96+94.22	0.00	611.68	611.69
FF	97+04.22	0.00	611.65	611.66
GG	97+14.22	0.00	611.62	611.63
HH	97+24.22	0.00	611.59	611.61
II	97+34.22	0.00	611.56	611.56
☒ Pier 5	97+43.05	0.00	611.53	611.53
JJ	97+53.05	0.00	611.49	611.50
KK	97+63.05	0.00	611.45	611.47
LL	97+73.05	0.00	611.40	611.43
MM	97+83.05	0.00	611.36	611.38
☒ Brg. W. Abut.	97+93.38	0.00	611.31	611.31
Bk. W. Abut	97+95.22	0.00	611.30	611.30

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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**TOP OF SLAB ELEVATIONS
STRUCTURE NO. 054-3008**

SHEET 5 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	16
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. E. Abut	93+74.22	-6.50	611.16	611.16
☐ Brg. E. Abut.	93+76.05	-6.50	611.17	611.17
A	93+86.05	-6.50	611.22	611.24
B	93+96.05	-6.50	611.26	611.31
C	94+06.05	-6.50	611.31	611.36
D	94+16.05	-6.50	611.35	611.40
E	94+26.05	-6.50	611.39	611.43
F	94+36.05	-6.50	611.43	611.45
G	94+46.05	-6.50	611.46	611.46
☐ Pier 1	94+54.22	-6.50	611.49	611.49
H	94+64.22	-6.50	611.52	611.52
I	94+74.22	-6.50	611.54	611.57
J	94+84.22	-6.50	611.57	611.62
K	94+94.22	-6.50	611.59	611.66
L	95+04.22	-6.50	611.61	611.69
M	95+14.22	-6.50	611.62	611.69
N	95+24.22	-6.50	611.65	611.70
O	95+34.22	-6.50	611.66	611.69
P	95+44.22	-6.50	611.66	611.67
☐ Pier 2	95+54.22	-6.50	611.68	611.68
Q	95+64.22	-6.50	611.68	611.69
R	95+74.22	-6.50	611.69	611.71
S	95+84.22	-6.50	611.69	611.73
T	95+94.22	-6.50	611.69	611.74
U	96+04.22	-6.50	611.69	611.74
V	96+14.22	-6.50	611.68	611.72
W	96+24.22	-6.50	611.67	611.69
☐ E. Brg. Pier 3	96+32.38	-6.50	611.66	611.66
☐ W. Brg. Pier 3	96+33.88	-6.50	611.67	611.67
AA	96+43.88	-6.50	611.65	611.67
BB	96+53.88	-6.50	611.64	611.66
CC	96+63.88	-6.50	611.62	611.64
DD	96+73.88	-6.50	611.60	611.61
☐ Pier 4	96+84.22	-6.50	611.58	611.58
EE	96+94.22	-6.50	611.55	611.56
FF	97+04.22	-6.50	611.52	611.53
GG	97+14.22	-6.50	611.49	611.50
HH	97+24.22	-6.50	611.46	611.48
II	97+34.22	-6.50	611.43	611.43
☐ Pier 5	97+43.05	-6.50	611.40	611.40
JJ	97+53.05	-6.50	611.36	611.37
KK	97+63.05	-6.50	611.32	611.34
LL	97+73.05	-6.50	611.27	611.30
MM	97+83.05	-6.50	611.23	611.25
☐ Brg. W. Abut.	97+93.38	-6.50	611.18	611.18
Bk. W. Abut	97+95.22	-6.50	611.17	611.17

BEAM 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. E. Abut	93+74.22	-13.00	611.03	611.03
☐ Brg. E. Abut.	93+76.05	-13.00	611.03	611.03
A	93+86.05	-13.00	611.08	611.11
B	93+96.05	-13.00	611.13	611.18
C	94+06.05	-13.00	611.17	611.23
D	94+16.05	-13.00	611.21	611.27
E	94+26.05	-13.00	611.25	611.29
F	94+36.05	-13.00	611.29	611.31
G	94+46.05	-13.00	611.32	611.33
☐ Pier 1	94+54.22	-13.00	611.35	611.35
H	94+64.22	-13.00	611.38	611.39
I	94+74.22	-13.00	611.41	611.44
J	94+84.22	-13.00	611.43	611.49
K	94+94.22	-13.00	611.46	611.53
L	95+04.22	-13.00	611.48	611.55
M	95+14.22	-13.00	611.48	611.56
N	95+24.22	-13.00	611.51	611.56
O	95+34.22	-13.00	611.52	611.55
P	95+44.22	-13.00	611.52	611.53
☐ Pier 2	95+54.22	-13.00	611.54	611.54
Q	95+64.22	-13.00	611.55	611.56
R	95+74.22	-13.00	611.55	611.58
S	95+84.22	-13.00	611.55	611.60
T	95+94.22	-13.00	611.55	611.61
U	96+04.22	-13.00	611.55	611.60
V	96+14.22	-13.00	611.54	611.59
W	96+24.22	-13.00	611.54	611.56
☐ E. Brg. Pier 3	96+32.38	-13.00	611.53	611.53
☐ W. Brg. Pier 3	96+33.88	-13.00	611.54	611.54
AA	96+43.88	-13.00	611.52	611.54
BB	96+53.88	-13.00	611.51	611.53
CC	96+63.88	-13.00	611.49	611.51
DD	96+73.88	-13.00	611.47	611.48
☐ Pier 4	96+84.22	-13.00	611.45	611.45
EE	96+94.22	-13.00	611.42	611.43
FF	97+04.22	-13.00	611.39	611.40
GG	97+14.22	-13.00	611.36	611.37
HH	97+24.22	-13.00	611.33	611.35
II	97+34.22	-13.00	611.30	611.30
☐ Pier 5	97+43.05	-13.00	611.27	611.27
JJ	97+53.05	-13.00	611.23	611.24
KK	97+63.05	-13.00	611.19	611.21
LL	97+73.05	-13.00	611.14	611.17
MM	97+83.05	-13.00	611.10	611.12
☐ Brg. W. Abut.	97+93.38	-13.00	611.05	611.05
Bk. W. Abut	97+95.22	-13.00	611.04	611.04

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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**TOP OF SLAB ELEVATIONS
STRUCTURE NO. 054-3008**

SHEET 6 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	17
ILLINOIS			CONTRACT NO. 93738	
FED. AID PROJECT				

SOUTH EDGE OF EAST APPROACH

Location	Station	Offset	Theoretical Grade Elevations
E. End E. Approach	93+45.22	-15.00	610.84
A1	93+55.22	-15.00	610.89
A2	93+65.22	-15.00	610.94
W. End E. Approach (Expansion Joint)	93+75.22	-15.00	610.99

CL PROFILE GRADE EAST APPROACH

Location	Station	Offset	Theoretical Grade Elevations
E. End E. Approach	93+45.22	0.00	611.15
A1	93+55.22	0.00	611.20
A2	93+65.22	0.00	611.25
W. End E. Approach (Expansion Joint)	93+75.22	0.00	611.30

NORTH OF EAST APPROACH

Location	Station	Offset	Theoretical Grade Elevations
E. End E. Approach	93+45.22	15.00	610.84
A1	93+55.22	15.00	610.89
A2	93+65.22	15.00	610.94
W. End E. Approach (Expansion Joint)	93+75.22	15.00	610.99

SOUTH EDGE OF WEST APPROACH

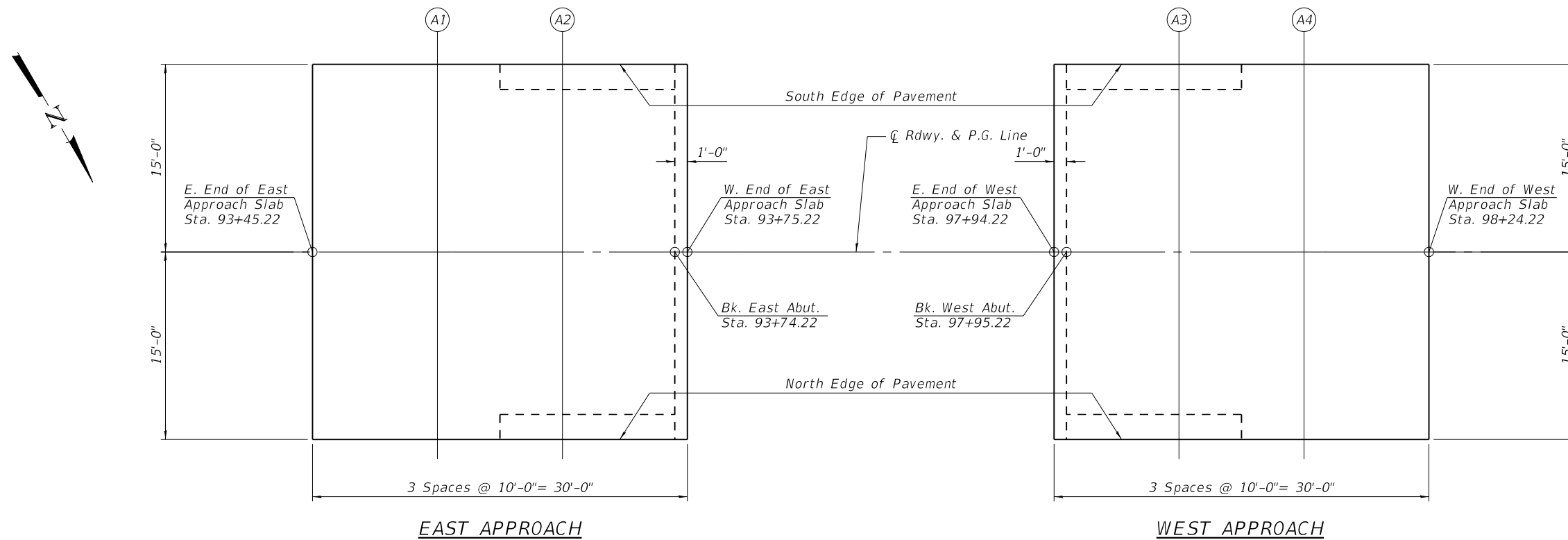
Location	Station	Offset	Theoretical Grade Elevations
E. End W. Approach (Expansion Joint)	97+94.22	-15.00	610.99
A3	98+04.22	-15.00	610.94
A4	98+14.22	-15.00	610.89
W. End W. Approach	98+24.22	-15.00	610.84

CL PROFILE GRADE WEST APPROACH

Location	Station	Offset	Theoretical Grade Elevations
E. End W. Approach (Expansion Joint)	97+94.22	0.00	611.30
A3	98+04.22	0.00	611.25
A4	98+14.22	0.00	611.20
W. End W. Approach	98+24.22	0.00	611.15

NORTH OF WEST APPROACH

Location	Station	Offset	Theoretical Grade Elevations
E. End W. Approach (Expansion Joint)	97+94.22	15.00	610.99
A3	98+04.22	15.00	610.94
A4	98+14.22	15.00	610.89
W. End W. Approach	98+24.22	15.00	610.84



E-AS

2-17-2017

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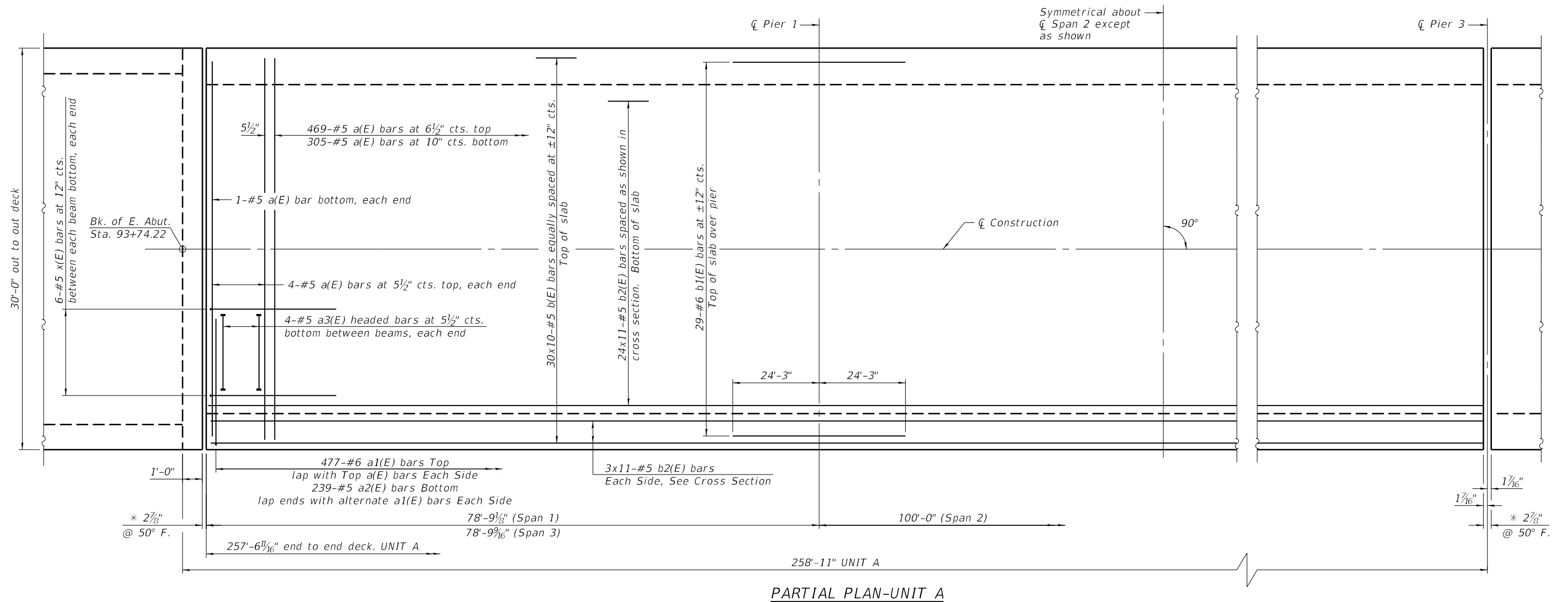
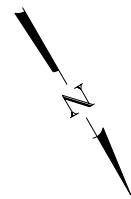
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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**TOP OF APPROACH SLAB ELEVATIONS
STRUCTURE NO. 054-3008**

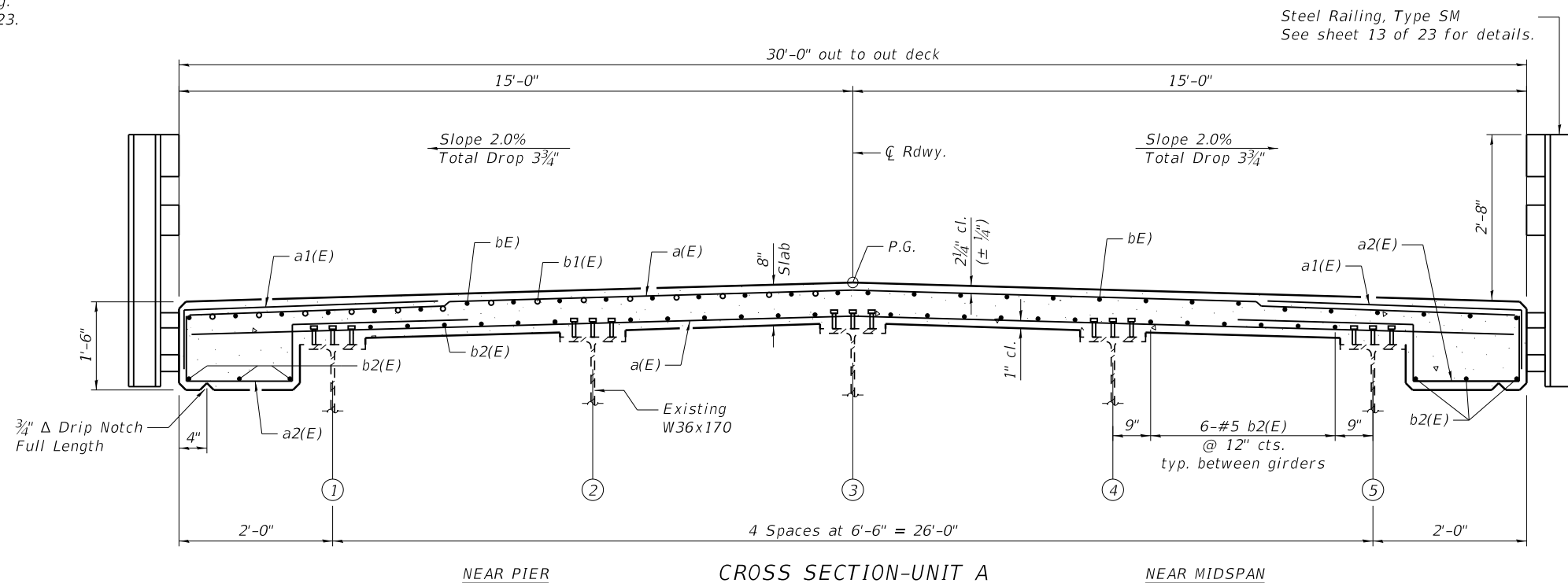
SHEET 7 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	18
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				



* Dimension showing concrete opening.
For joint opening see sheet 14 of 23.

MINIMUM BAR LAP
#5 bar = 3'-6"



Notes:
See sheet 10 of 23 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.

MODEL: \$MODELNAME\$
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CEC Cummins
Engineering
Corporation
Civil and Structural Engineering

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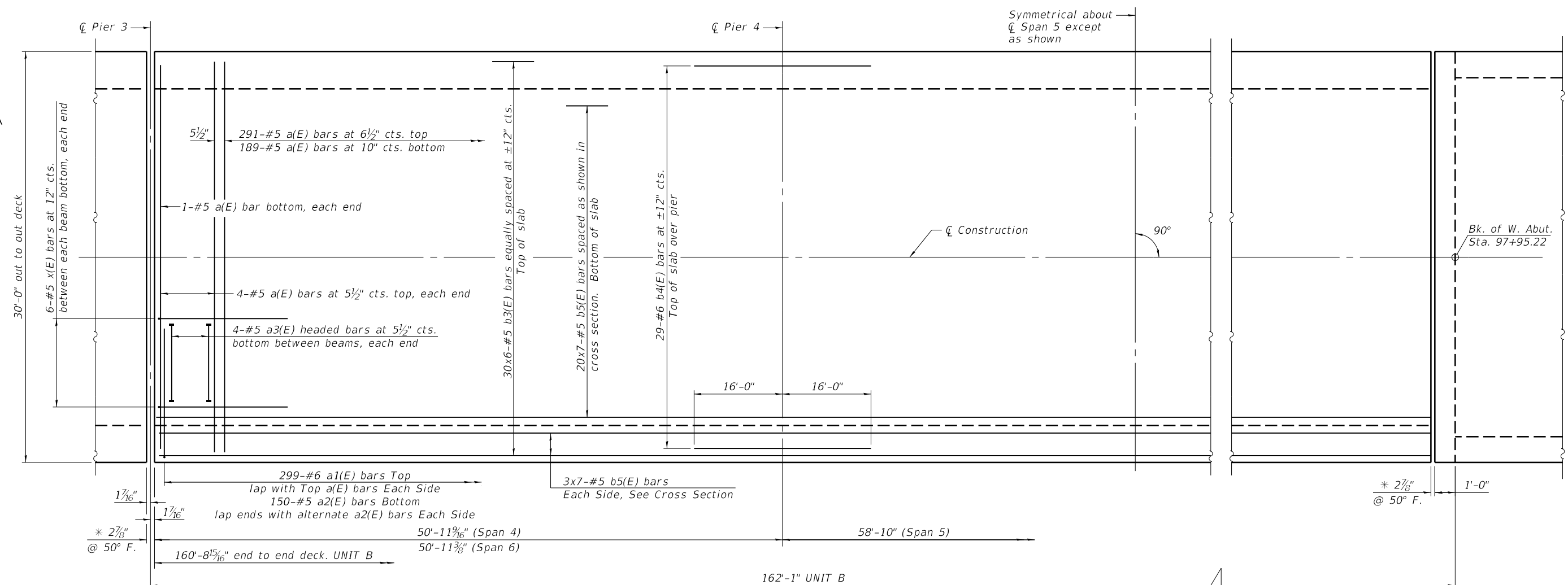
**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**SUPERSTRUCTURE (UNIT A)
STRUCTURE NO. 054-3008**

SHEET 8 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	19
CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT

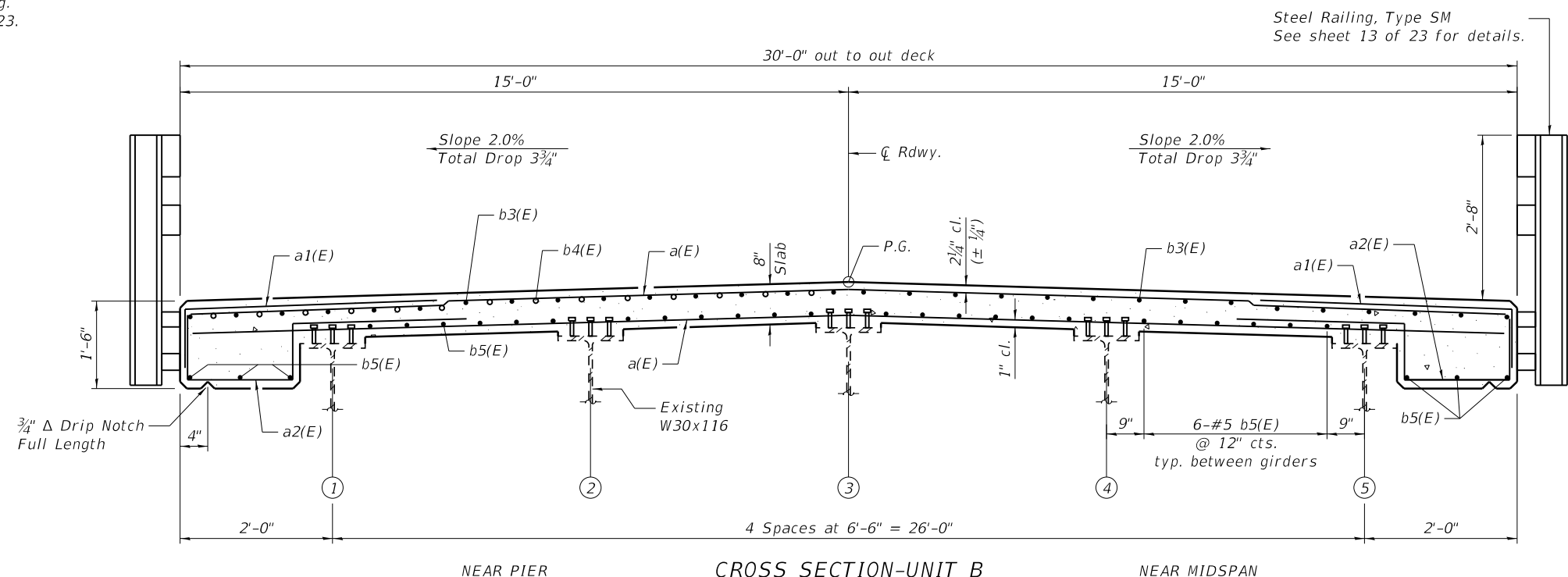


PARTIAL PLAN-UNIT B

* Dimension showing concrete opening.
For joint opening see sheet 14 of 23.

Notes:
See sheet 10 of 23 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.

MINIMUM BAR LAP
#5 bar = 3'-6"



CROSS SECTION-UNIT B

MODEL: \$MODELNAME\$
FILE NAME: \$FILEL\$



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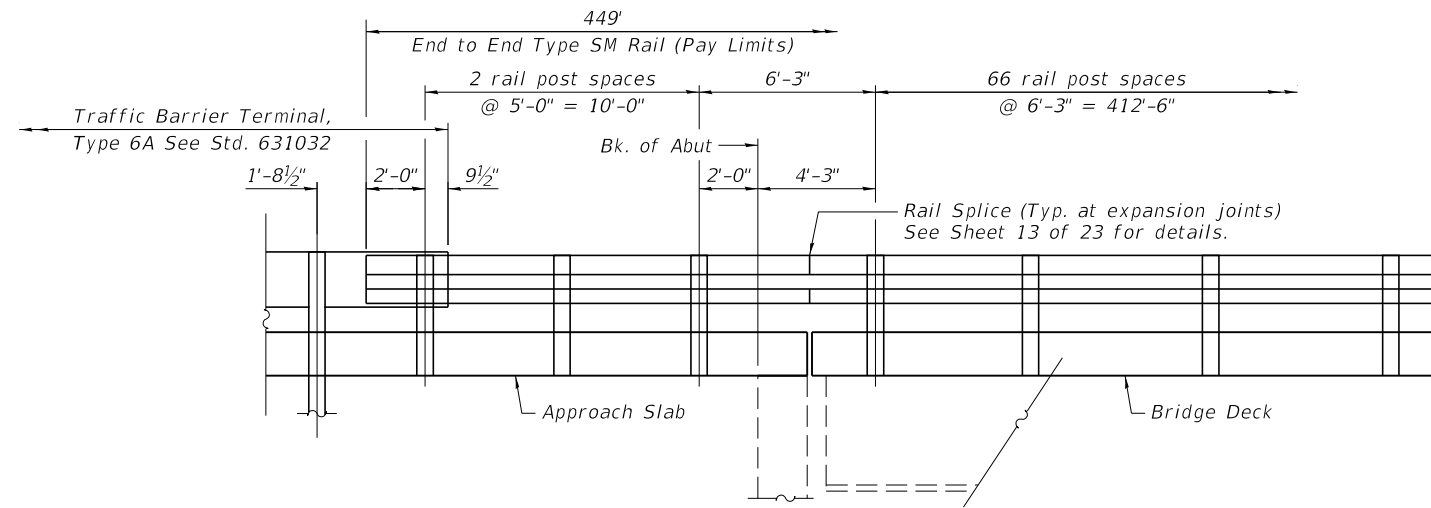
**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**SUPERSTRUCTURE (UNIT B)
STRUCTURE NO. 054-3008**

SHEET 9 OF 23 SHEETS

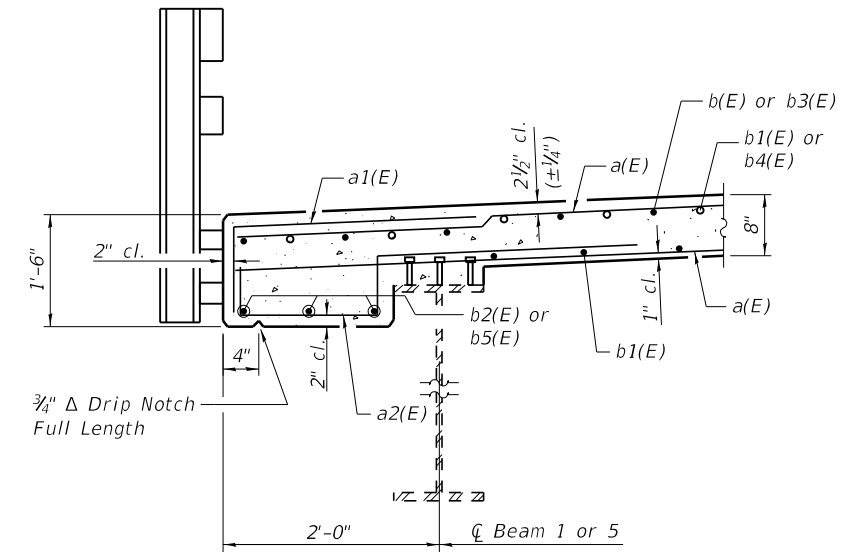
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	20
CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT



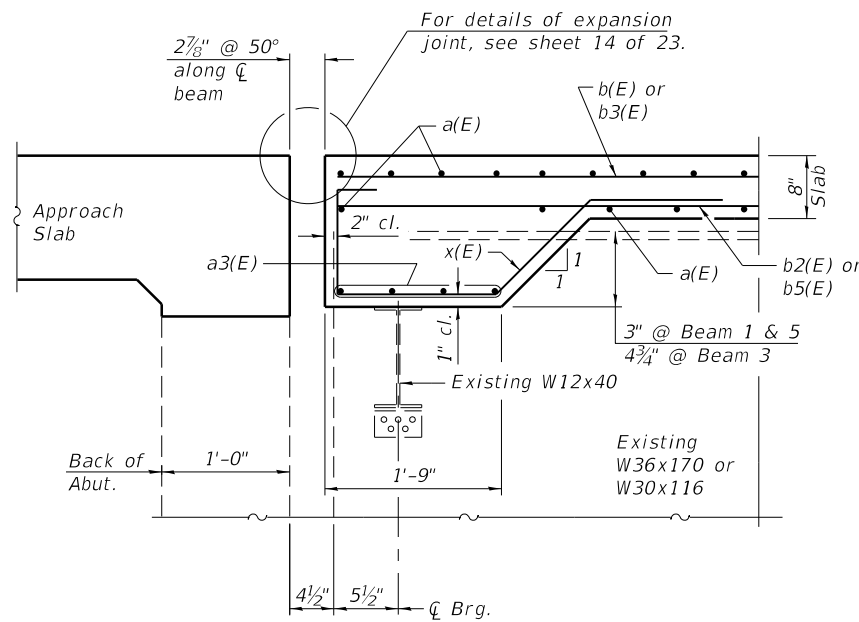
BRIDGE RAILING ELEVATION

Note:
 Dimensions shown are along edge of bridge deck.
 See Sheet 13 of 23 for railing details.

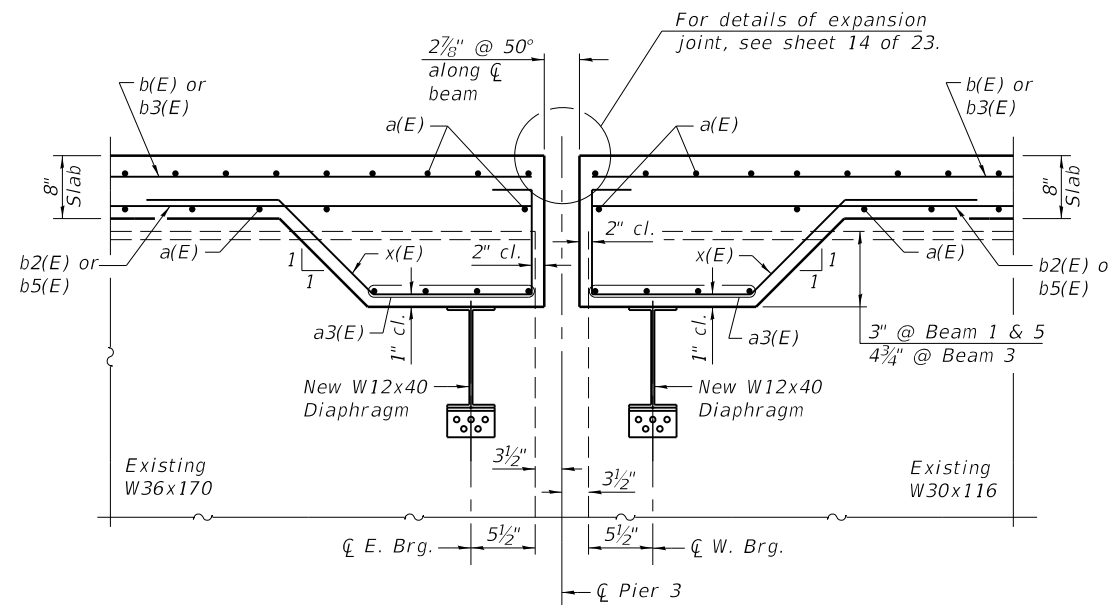


SECTION THRU EDGE OF SLAB

Reinforcement bars in the top of the deck may be placed with a 1 1/2" minimum clearance in the area of the rail post anchor devices. The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



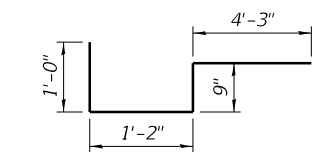
SECTION AT ABUTMENTS



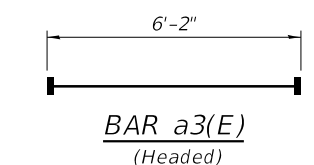
SECTION AT PIER 3



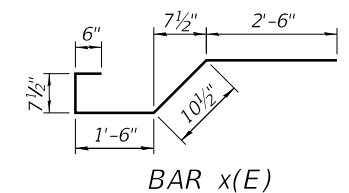
BAR a1(E)



BAR a2(E)



**BAR a3(E)
 (Headed)**



BAR x(E)

**SUPERSTRUCTURE
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	1274	#5	29'-8"	—
a1(E)	1552	#6	7'-6"	┌
a2(E)	778	#5	7'-2"	┌
a3(E)	64	#5	6'-2"	┌
b(E)	300	#5	28'-11"	—
b1(E)	58	#6	48'-6"	—
b2(E)	330	#5	26'-7"	—
b3(E)	180	#5	29'-8"	—
b4(E)	58	#6	32'-0"	—
b5(E)	210	#5	26'-2"	—
x(E)	96	#5	6'-0"	┌
Reinforcement Bars, Epoxy Coated			Pound	100,390
Concrete Superstructure			Cu. Yds.	356.2

Notes:
 Reinforcement bars designated (E) shall be epoxy coated.
 Bars indicated thus 32x3-#5 etc. indicates 32 lines of bars with 3 lengths per line.
 Headed bars shall conform to ASTM A970 with threaded attachment; Class HA; and reinforcement bars conforming to ASTM A706. Cost included with Reinforcement Bars, Epoxy Coated.

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CEC Cummins
 Engineering
 Corporation
 Civil and Structural Engineering

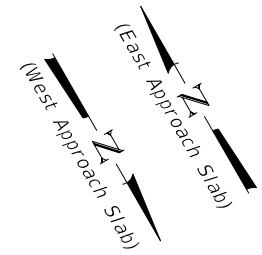
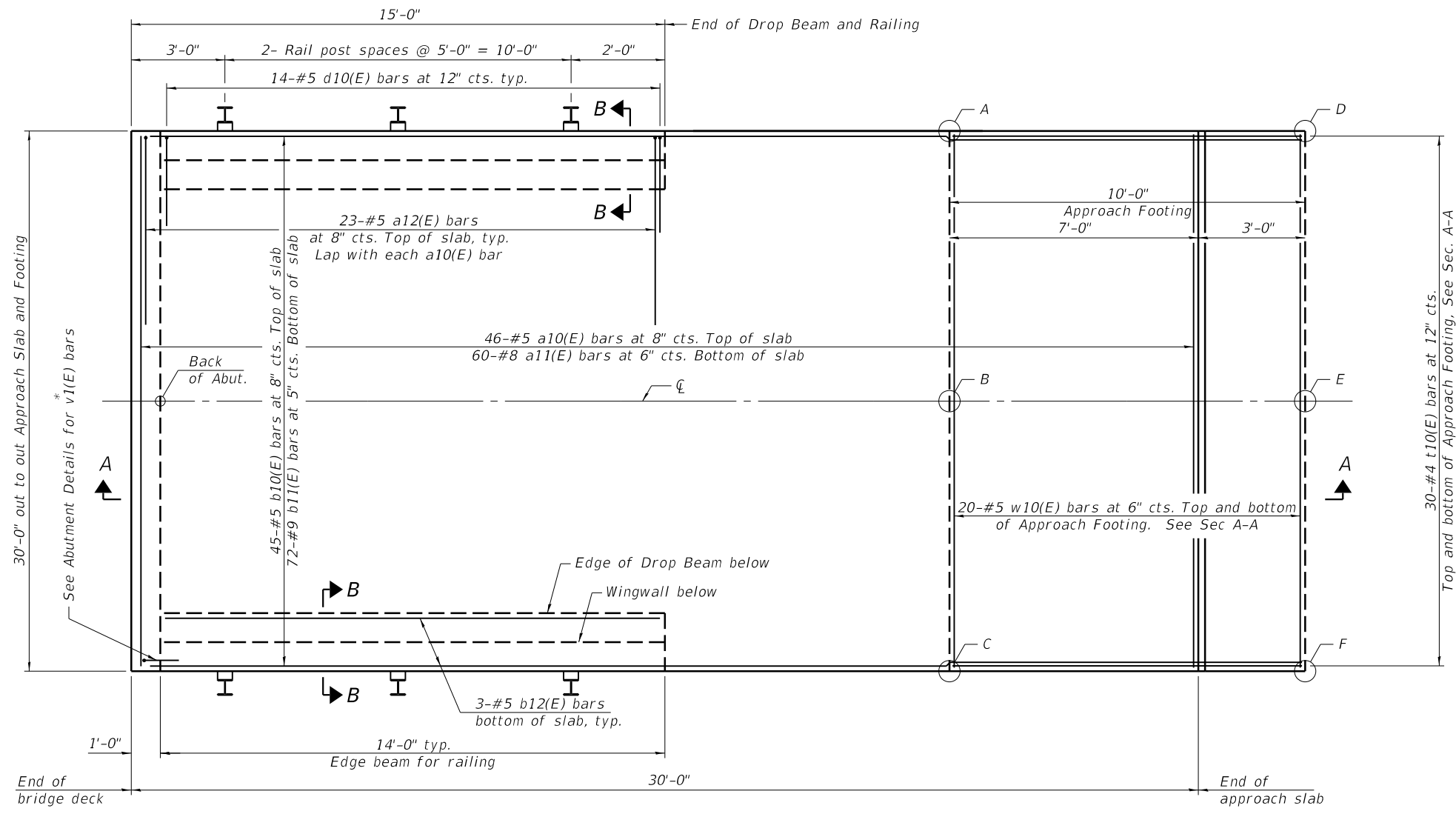
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**LOGAN COUNTY
 CH 6 IMPROVEMENTS**

**SUPERSTRUCTURE DETAILS
 STRUCTURE NO. 054-3008**

SHEET 10 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	21
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

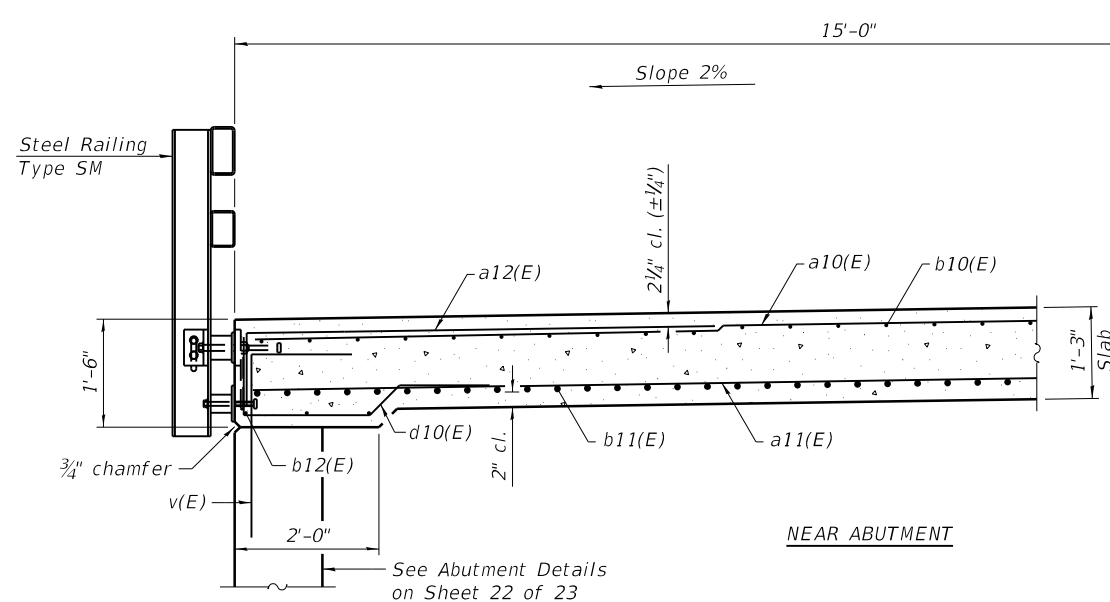


TOP AND BOTTOM ELEVATIONS FOR APPROACH FOOTING

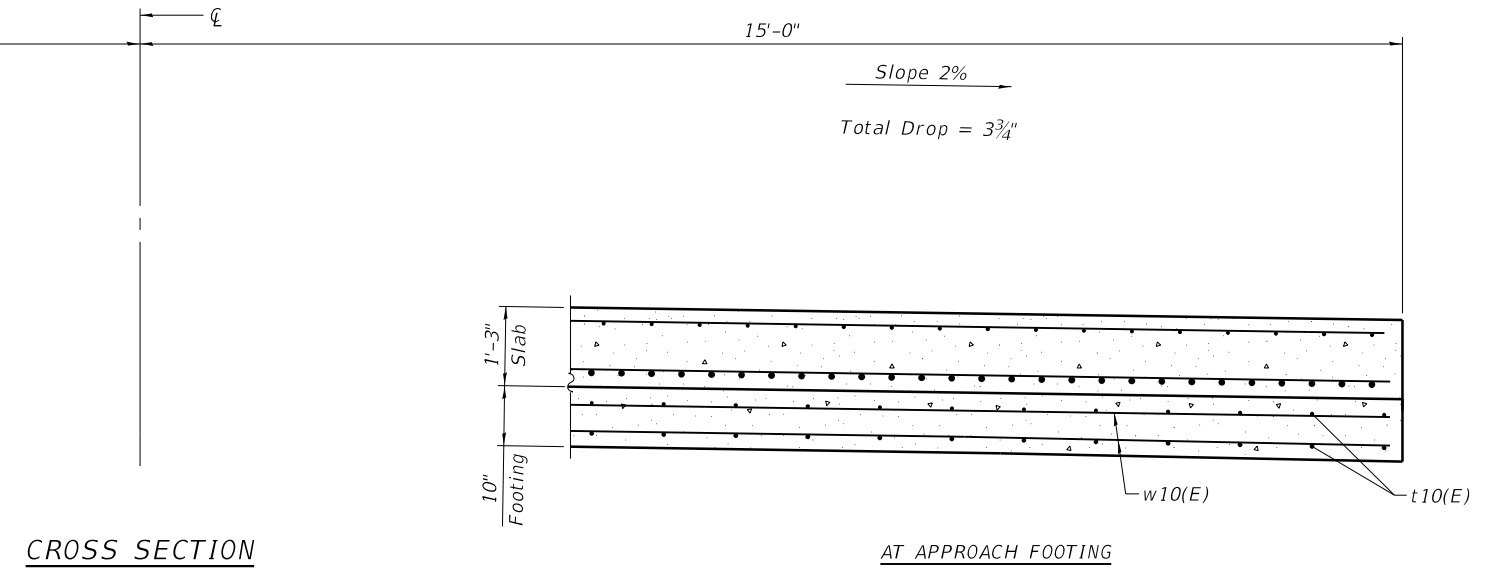
Point	East Approach		West Approach	
	Top	Bottom	Top	Bottom
A	609.63	608.80	609.63	608.80
B	609.94	609.11	609.94	609.11
C	609.63	608.80	609.63	608.80
D	609.58	608.75	609.58	608.75
E	609.89	609.06	609.89	609.06
F	609.58	608.75	609.58	608.75

See Sheet 12 of 23 for Section A-A & B-B

PLAN



NEAR ABUTMENT



CROSS SECTION

AT APPROACH FOOTING

BA-CIP-R34-0 8-11-2017

(Sheet 1 of 2)

MODEL: \$MODEL\$
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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

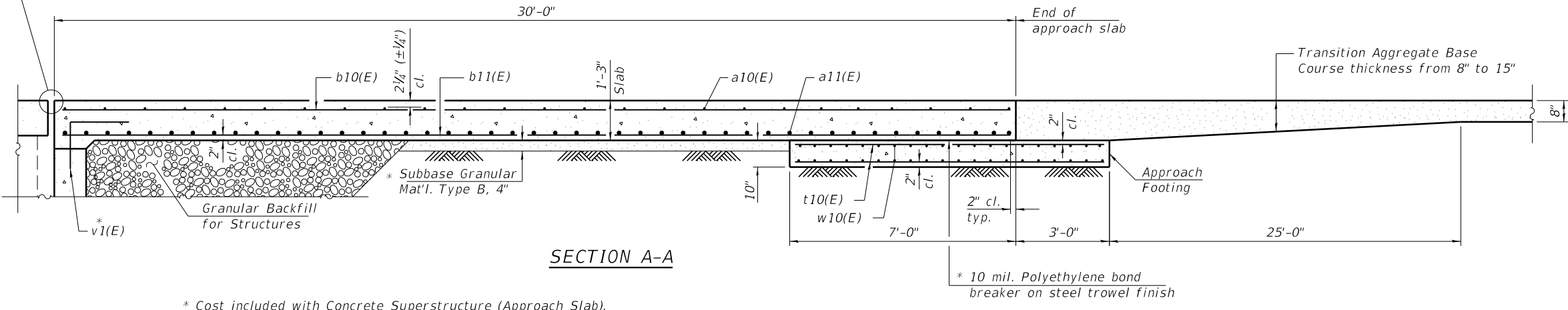
**BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 054-3008**

SHEET 11 OF 23 SHEETS

F.A.S. RTE. 557	SECTION 16-00059-01-BR	COUNTY LOGAN	TOTAL SHEETS 40	SHEET NO. 22
CONTRACT NO. 93738			ILLINOIS FED. AID PROJECT	

Notes:
 Approach slab shall be paid for as Concrete Superstructure (Approach Slab).
 Approach footing concrete shall be paid for as Concrete Structures.
 The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.
 Cost of excavation for approach footing included with Concrete Structures.
 For Granular Backfill for Structures and drainage treatment details, see sheet 2 of 23.
 For railing details, see sheet 11 of 23.

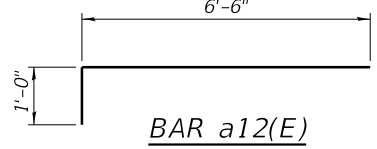
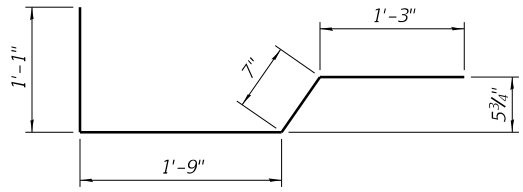
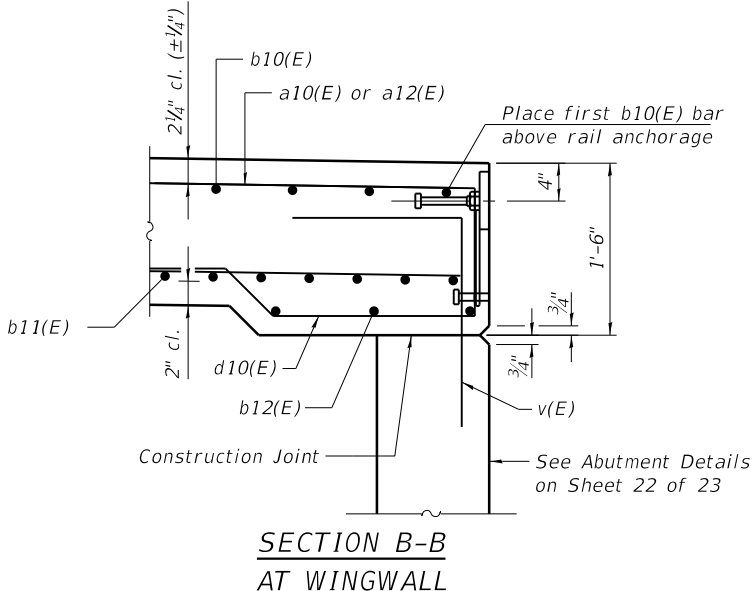
For Expansion Joint Details
 See Sheet 14 of 23.



* Cost included with Concrete Superstructure (Approach Slab).

**TWO APPROACHES
 BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a10(E)	92	#5	28'-8"	—
a11(E)	120	#8	28'-8"	—
a12(E)	92	#5	7'-6"	—
b10(E)	90	#5	29'-8"	—
b11(E)	144	#9	29'-8"	—
b12(E)	12	#5	13'-8"	—
d10(E)	56	#5	4'-8"	┘
t10(E)	120	#4	9'-8"	—
w10(E)	80	#5	28'-8"	—
Concrete Superstructure (Approach Slab)		Cu. Yd.	84.6	
Concrete Structures		Cu. Yd.	18.6	
Reinforcement Bars, Epoxy Coated		Pound	33,580	



BAR d10(E)

BAR a12(E)

(Sheet 2 of 2)

MODEL: \$MODELNAME\$
 FILE NAME: \$FILES\$

CEC Cummins Engineering Corporation
 Civil and Structural Engineering

JOB = 2531	DESIGNED - AAN	REVISED -
FILE NAME = \$FILES\$	CHECKED - MDC	REVISED -
PLOT DATE = \$DATES\$	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

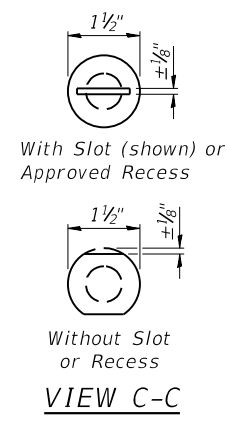
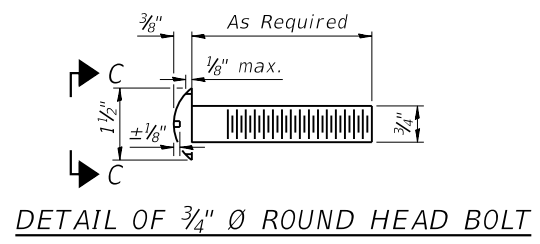
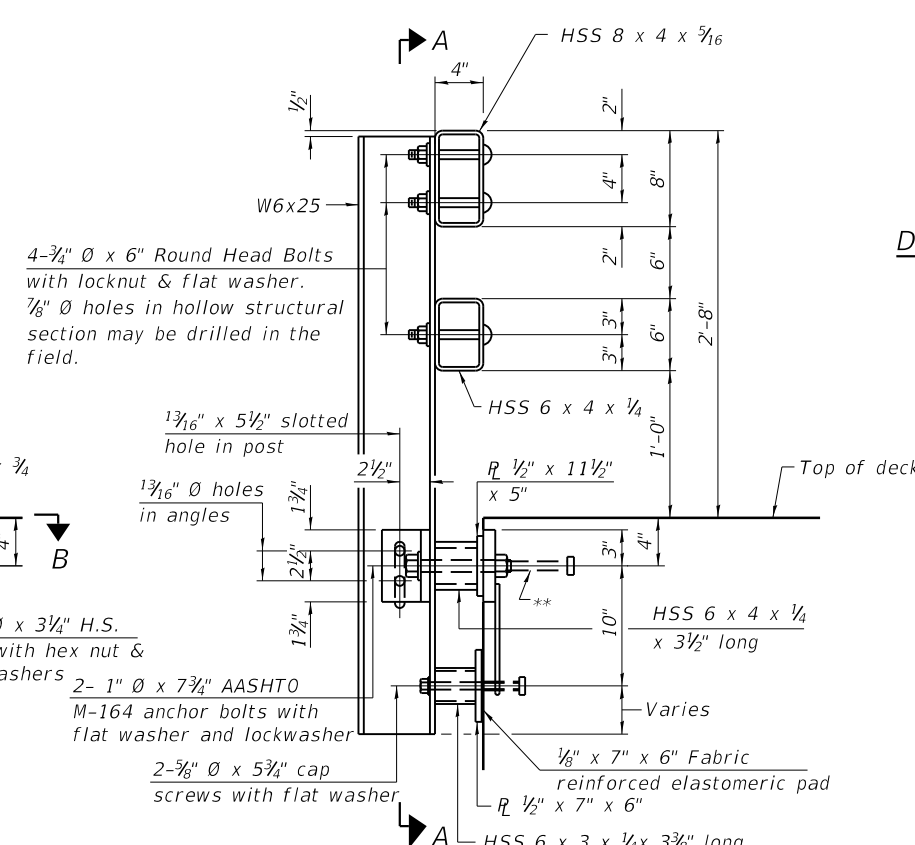
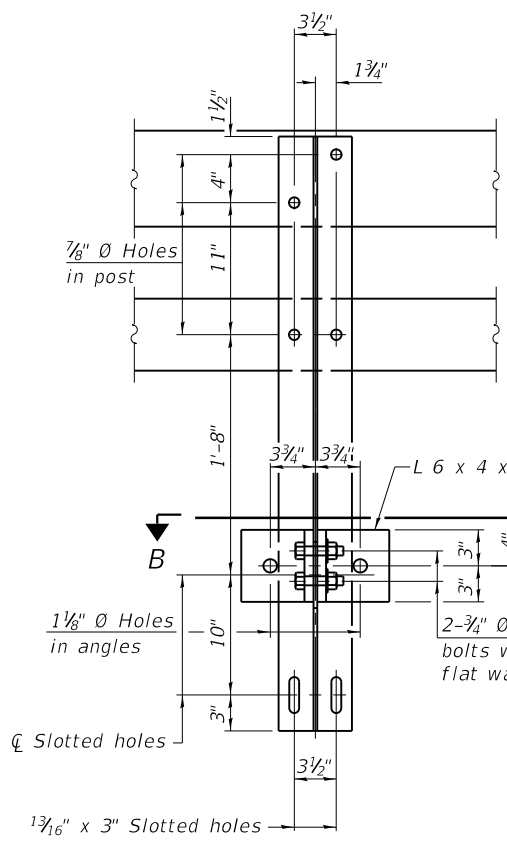
**LOGAN COUNTY
 CH 6 IMPROVEMENTS**

**BRIDGE APPROACH SLAB DETAILS
 STRUCTURE NO. 054-3008**

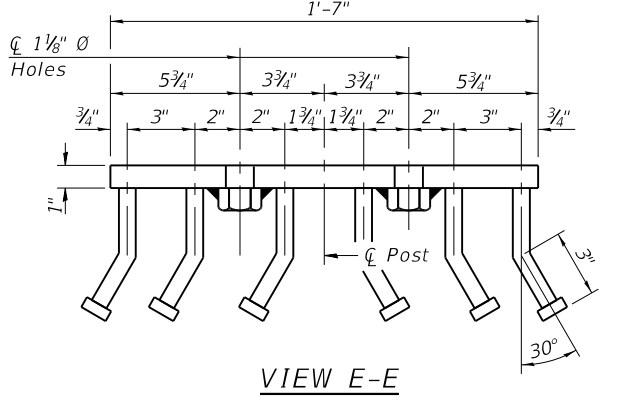
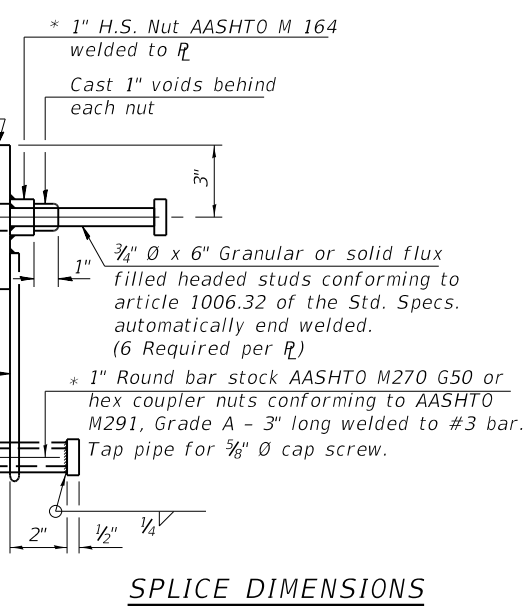
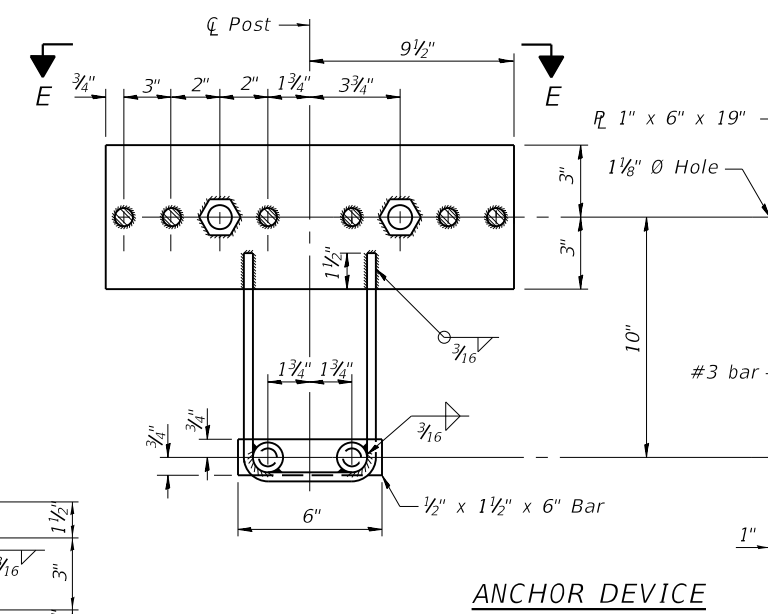
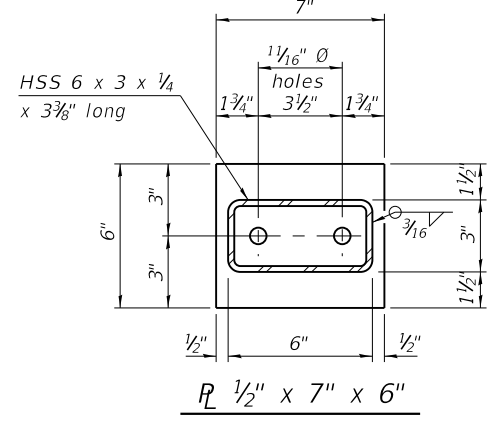
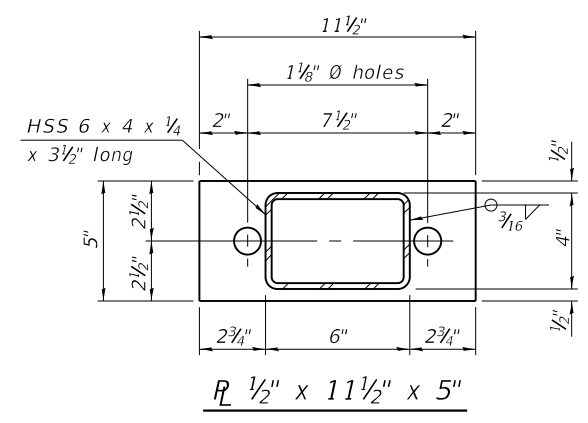
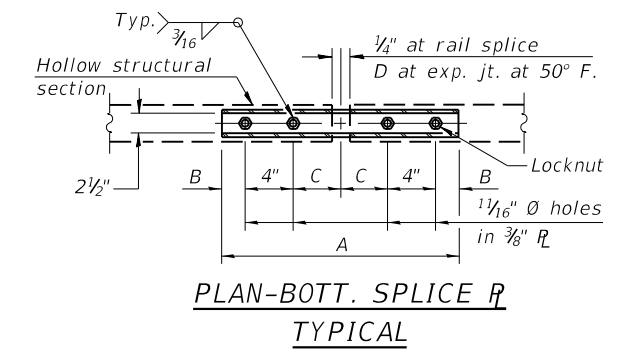
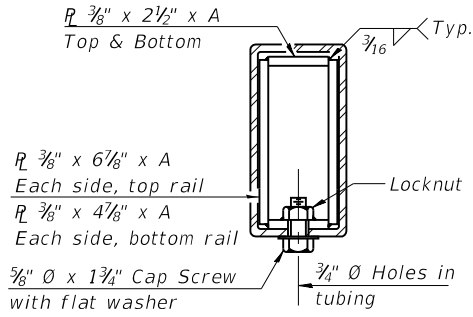
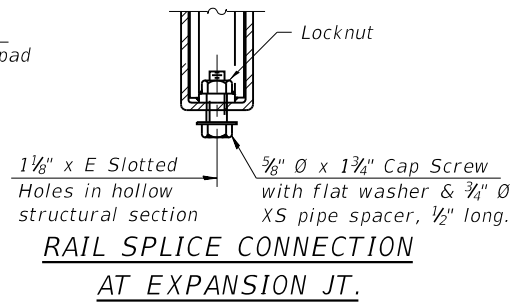
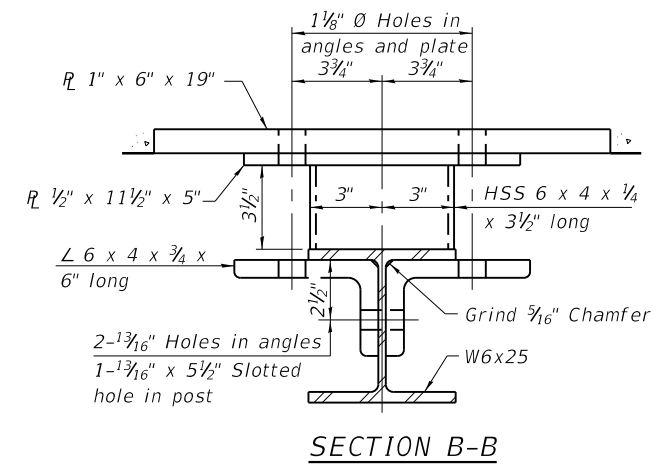
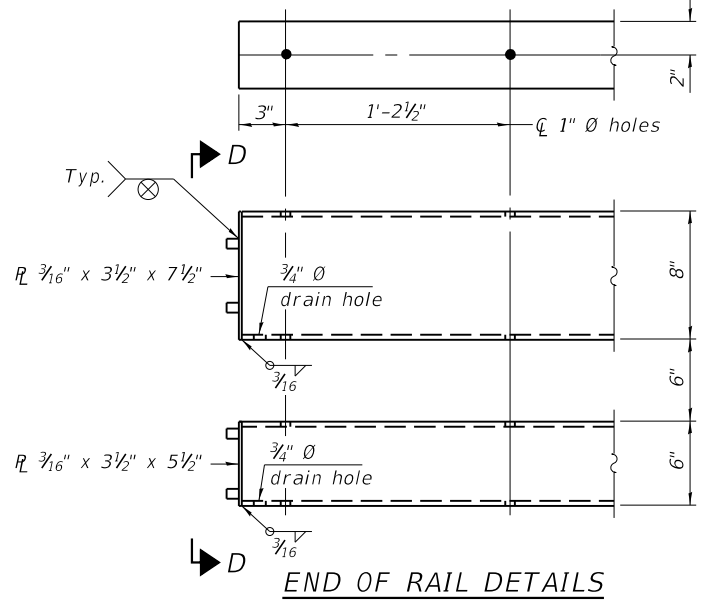
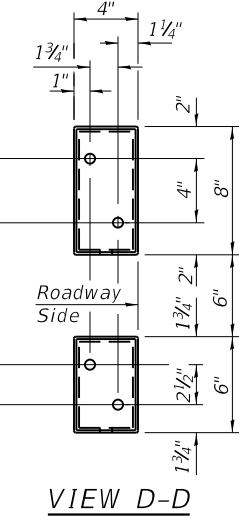
SHEET 12 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	23
CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT



4-5/8" reduced base welded studs. Provide 4-5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032.



Notes:
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device. The anchorage studs may be bent down 1/2" to accommodate the top reinforcement bar placement.

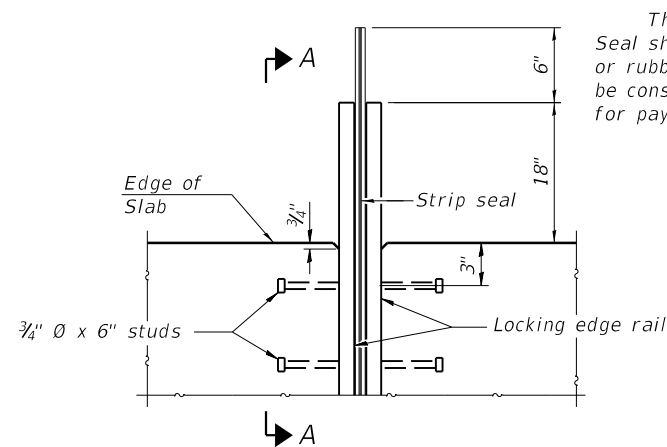
T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	

T = Total movement at expansion joint as shown on the design plans.

BILL OF MATERIAL

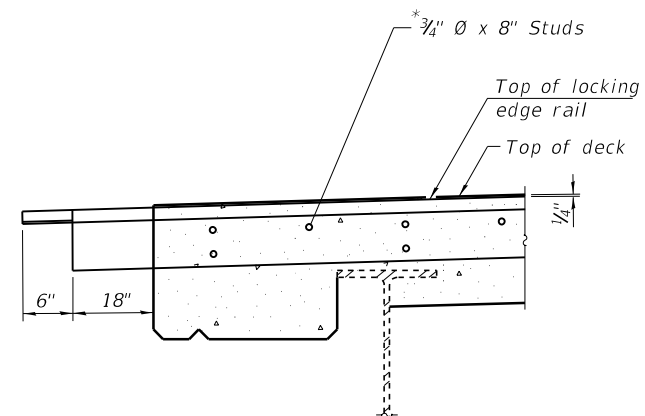
Item	Unit	Quantity
Steel Railing, Type SM	Foot	898

(6'-3" Maximum Post Spacing) (1 1/4" minimum to 3 3/8" maximum HMA thickness)



END TREATMENT - PLAN

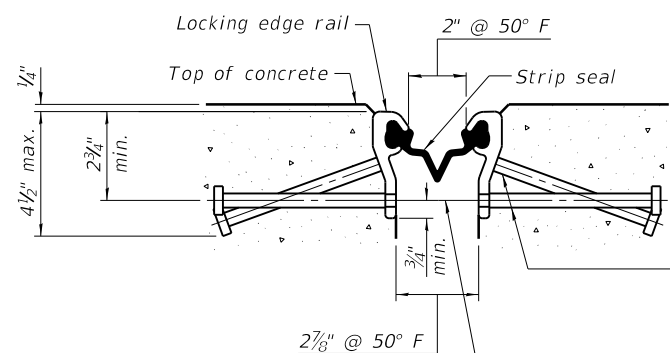
The pay limits for Preformed Joint Strip Seal shall be to the end of the steel plate. The 6" or rubber extending past the end of the steel shall be considered incidental and shall not be measured for payment.



SECTION A-A

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

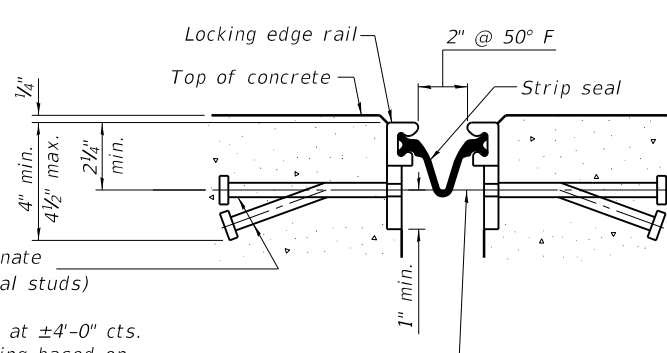
Notes:
 The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the locking edge rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.
 The locking edge rails depicted are configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the 4 1/2" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.
 The manufacturer's recommended installation methods shall be followed.
 All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.
 The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.
 The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.



SHOWING ROLLED RAIL JOINT

* 3/8" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

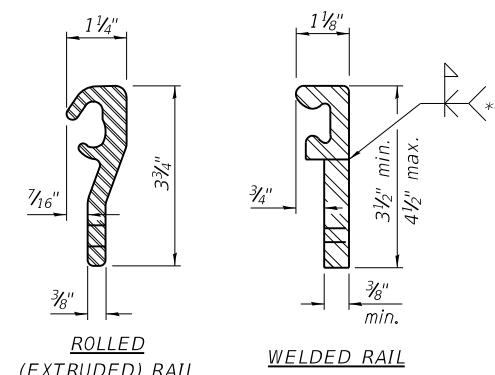
3/8" Ø threaded rods in 7/16" Ø holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.



SHOWING WELDED RAIL JOINT

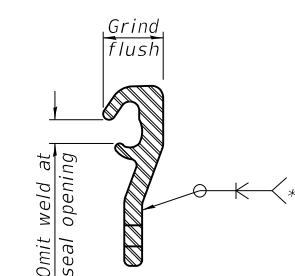
SECTION A-A

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



LOCKING EDGE RAILS

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



LOCKING EDGE RAIL SPLICE

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

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	99

MODEL: \$MODELNAME\$
 FILE NAME: \$FILES\$

EJ-SS

8-11-17

CEC Cummins Engineering Corporation
 Civil and Structural Engineering

JOB #	2531
FILE NAME	= \$FILES\$
PLOT DATE	= \$DATE\$

DESIGNED	- AAN	REVISED	-
CHECKED	- MDC	REVISED	-
DRAWN	- SJS	REVISED	-
CHECKED	- MDC	REVISED	-

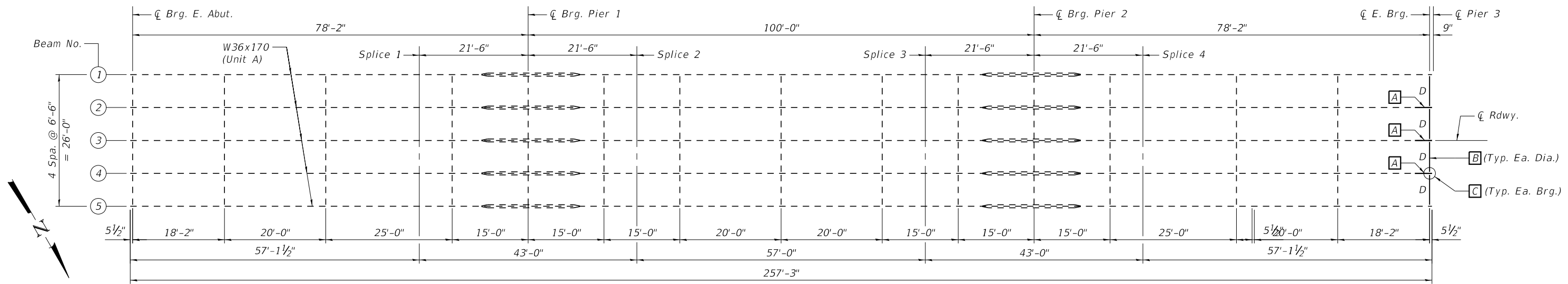
**LOGAN COUNTY
 CH 6 IMPROVEMENTS**

**MODIFIED PREFORMED JOINT STRIP SEAL
 STRUCTURE NO. 054-3008**

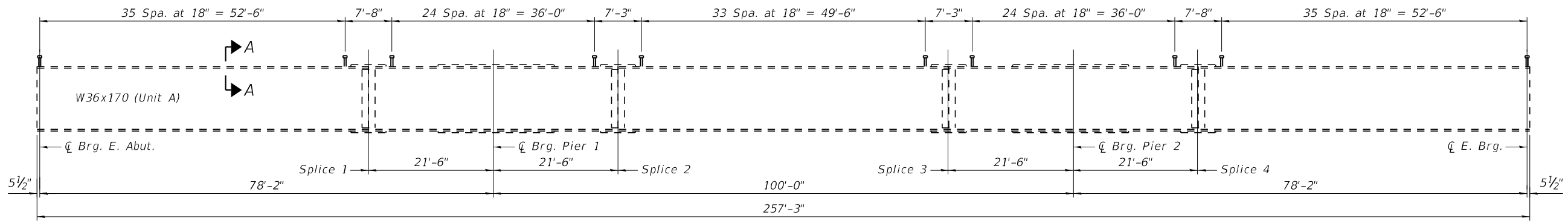
SHEET 14 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	25
CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT



PLAN-UNIT A



ELEVATION-UNIT A

	0.4 Sp. 1 or 0.6 Sp. 3	Pier	0.5 Sp. 2
I_s	10,500	15,162	10,500
$I_c(n)$	27,337	-	27,337
$I_c(3n)$	20,178	-	20,178
$I_c(cr)$	-	18,468	-
S_s	581	810	581
$S_c(n)$	840	-	840
$S_c(3n)$	760	-	760
$S_c(cr)$	-	888	-
Z	-	-	-
\bar{p}	0.870	0.870	0.870
$M\bar{p}$	345	732	356
$s\bar{p}$	0.030	0.030	0.030
$M_s\bar{p}$	12	25	13
$M\bar{L}$	538	537	522
$M\bar{I}$	135	123	122
$^5_3 [M\bar{L} + \bar{I}]$	1,122	1,100	1,123
$M\bar{a}$	1,923	2,414	1,940
$M\bar{u}$	2,109	-	2,109
$f_s \bar{p}$ non-comp	7.1	10.8	7.40
$f_s \bar{p}$ (comp)	0.2	0.3	0.2
$f_s ^5_3 [M\bar{L} + \bar{I}]$	16	14.9	16
f_s (Overload)	23.3	26	23.6
f_s (Total)	-	-	-
VR	51.1	50.2	40.7

	Abut.	Pier
$R\bar{p}$	25.5	89.9
$R\bar{L}$	36.6	41.7
$R\bar{I}$	9.2	9.6
R_{Total}	71.3	141.2

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

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

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

Z: Plastic Section Modulus of the steel section in non-composite areas (in.³).

\bar{p} : Un-factored non-composite dead load (kips/ft.).

$M\bar{p}$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\bar{p}$: Un-factored long-term composite (superimposed) dead load (kips/ft.).

$M_s\bar{p}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

$M\bar{L}$: Un-factored live load moment (kip-ft.).

$M\bar{I}$: Un-factored moment due to impact (kip-ft.).

$M\bar{a}$: Factored design moment (kip-ft.).

$1.3 [M\bar{p} + M_s\bar{p} + \frac{5}{3} (M\bar{L} + M\bar{I})]$

$M\bar{u}$: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f_s (Overload): Sum of stresses as computed from the moments below (ksi).

$M\bar{p} + M_s\bar{p} + \frac{5}{3} (M\bar{L} + M\bar{I})$

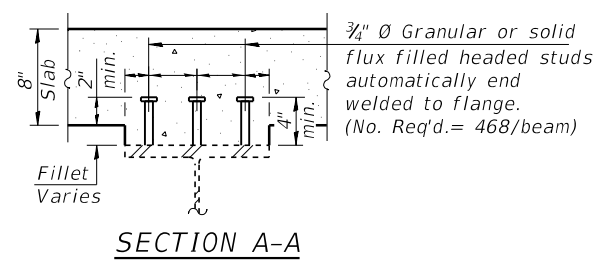
f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).

$1.3 [M\bar{p} + M_s\bar{p} + \frac{5}{3} (M\bar{L} + M\bar{I})]$

VR : Maximum \bar{L} + impact shear range within the composite portion of the span for stud shear connector design (kips).

BEAM REPAIR NOTES:

- A** - Repair the beam ends of Unit A, Beams 2, 3 and 4. See Beam End Repair Detail sheet 17 of 23.
- B** - Remove and replace all end diaphragms at Pier 3
- C** - Remove and replace all bearings at Pier 3



SECTION A-A

NOTES

Plan elevations relative to the existing structure have been taken from existing plans and reduced by 0.61 feet to match benchmark datum.

MODEL: \$MODELNAME\$
FILE NAME: \$FILES\$



JOB = 2531
FILE NAME = \$FILES\$
PLOT DATE = \$DATES\$

DESIGNED - AAN
CHECKED - MDC
DRAWN - SJS
CHECKED - MDC

REVISED -
REVISED -
REVISED -
REVISED -

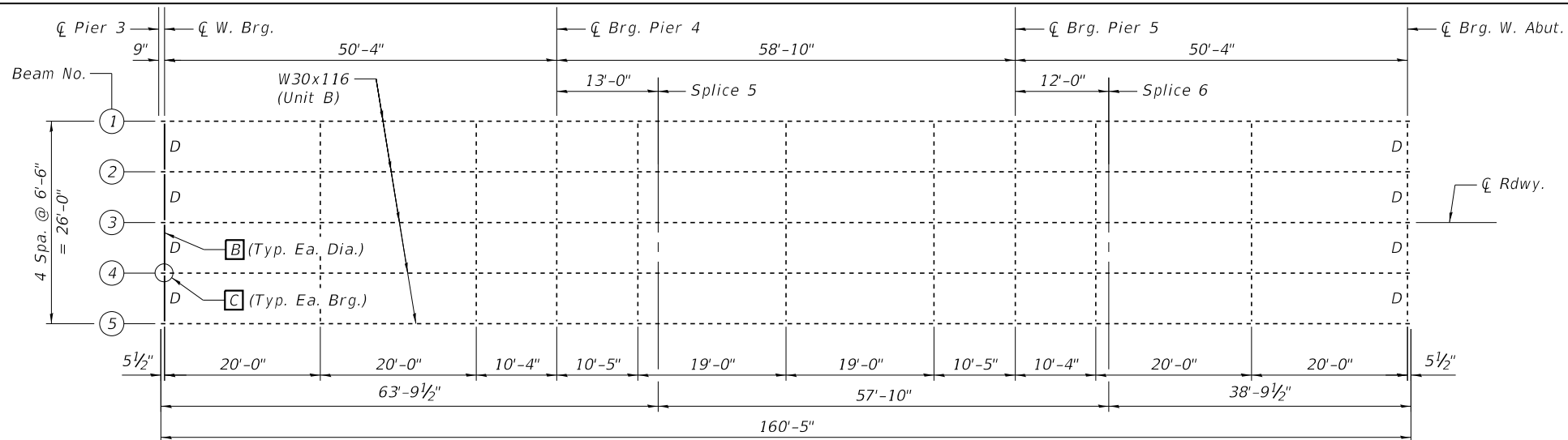
**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**STRUCTURAL STEEL (UNIT A)
STRUCTURE NO. 054-3008**

SHEET 15 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	26
CONTRACT NO. 93738				

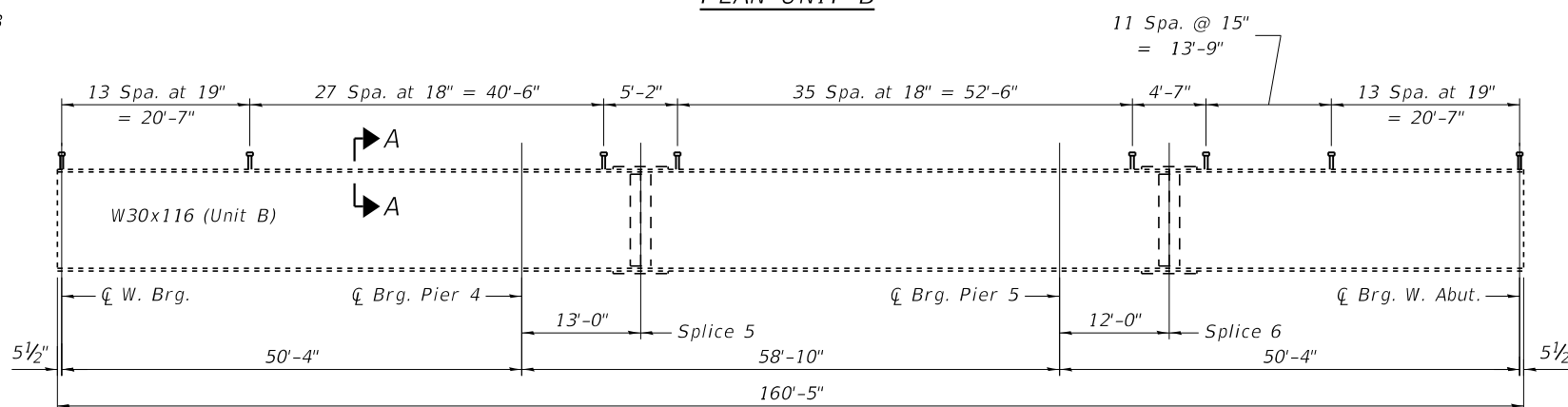
ILLINOIS FED. AID PROJECT



PLAN-UNIT B

BEAM REPAIR NOTES:

- B - Remove and replace all end diaphragms at Pier 3
- C - Remove and replace all bearings at Pier 3



ELEVATION-UNIT B

INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 4 or 0.6 Sp. 6	Pier	0.5 Sp. 5
Is	(in ⁴)	4,930	4,930	4,930
Ic(n)	(in ⁴)	14,804	-	14,804
Ic(3n)	(in ⁴)	11,124	-	11,124
Ic(cr)	(in ⁴)	-	8,278	-
Ss	(in ³)	329	329	329
Sc(n)	(in ³)	509	-	509
Sc(3n)	(in ³)	463	-	463
Sc(cr)	(in ³)	-	416	-
Z	(in ³)	-	-	-
ϕ	(k/')	0.796	0.796	0.796
Mϕ	(k)	148	236	109
sϕ	(k/')	0.030	0.030	0.030
Msϕ	(k)	6	9	4
M _L	(k)	298	233	288
MI	(k)	87	65	78
⁵ / ₃ [M _L + I]	(k)	642	497	610
Ma	(k)	1,035	965	940
Mu	(k)	1,299	-	1,299
fs ϕ non-comp	(ksi)	-	8.6	4.00
fs ϕ (comp)	(ksi)	0.2	0.3	0.1
fs ⁵ / ₃ [M _L + M _I]	(ksi)	15.1	14.3	14.4
fs (Overload)	(ksi)	20.7	23.2	18.5
fs (Total)	(ksi)	-	-	-
VR	(k)	47	48.4	35.4

INTERIOR GIRDER REACTION TABLE			
	Abut.	Pier	
R _ϕ	(k)	16.0	49.9
R _L	(k)	33.1	40.1
R _I	(k)	9.6	11.2
R _{Total}	(k)	58.7	101.2

Is, Ss: Non-composite moment of inertia and section modulus of the steel section used for computing fs(Total and Overload) due to non-composite dead loads (in.⁴ and in.³).

Ic(n), Sc(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing fs(Total and Overload) due to short-term composite live loads (in.⁴ and in.³).

Ic(3n), Sc(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing fs(Total and Overload) due to long-term composite (superimposed) dead loads (in.⁴ and in.³).

Z: Plastic Section Modulus of the steel section in non-composite areas (in.³).

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

Mϕ: Un-factored moment due to non-composite dead load (kip-ft.).

sϕ: Un-factored long-term composite (superimposed) dead load (kips/ft.).

Msϕ: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

M_L: Un-factored live load moment (kip-ft.).

MI: Un-factored moment due to impact (kip-ft.).

Ma: Factored design moment (kip-ft.).

1.3 [Mϕ + Msϕ + ⁵/₃ (M_L + MI)]

Mu: Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

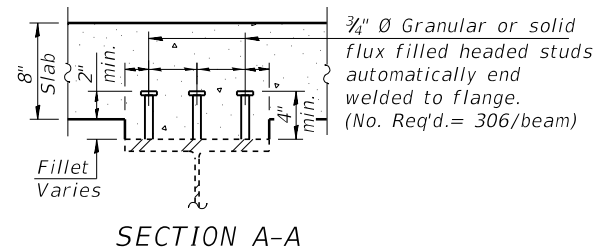
fs (Overload): Sum of stresses as computed from the moments below (ksi).

Mϕ + Msϕ + ⁵/₃ (M_L + MI)

fs (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).

1.3 [Mϕ + Msϕ + ⁵/₃ (M_L + MI)]

VR: Maximum_L + impact shear range within the composite portion of the span for stud shear connector design (kips).



SECTION A-A

NOTES

Plan elevations relative to the existing structure have been taken from existing plans and reduced by 0.61 feet to match benchmark datum.

MODEL: \$MODELNAME\$
FILE NAME: \$FILES\$



JOB = 2531
FILE NAME = \$FILES\$
PLOT DATE = \$DATES\$

DESIGNED - AAN
CHECKED - MDC
DRAWN - SJS
CHECKED - MDC

REVISED -
REVISED -
REVISED -
REVISED -

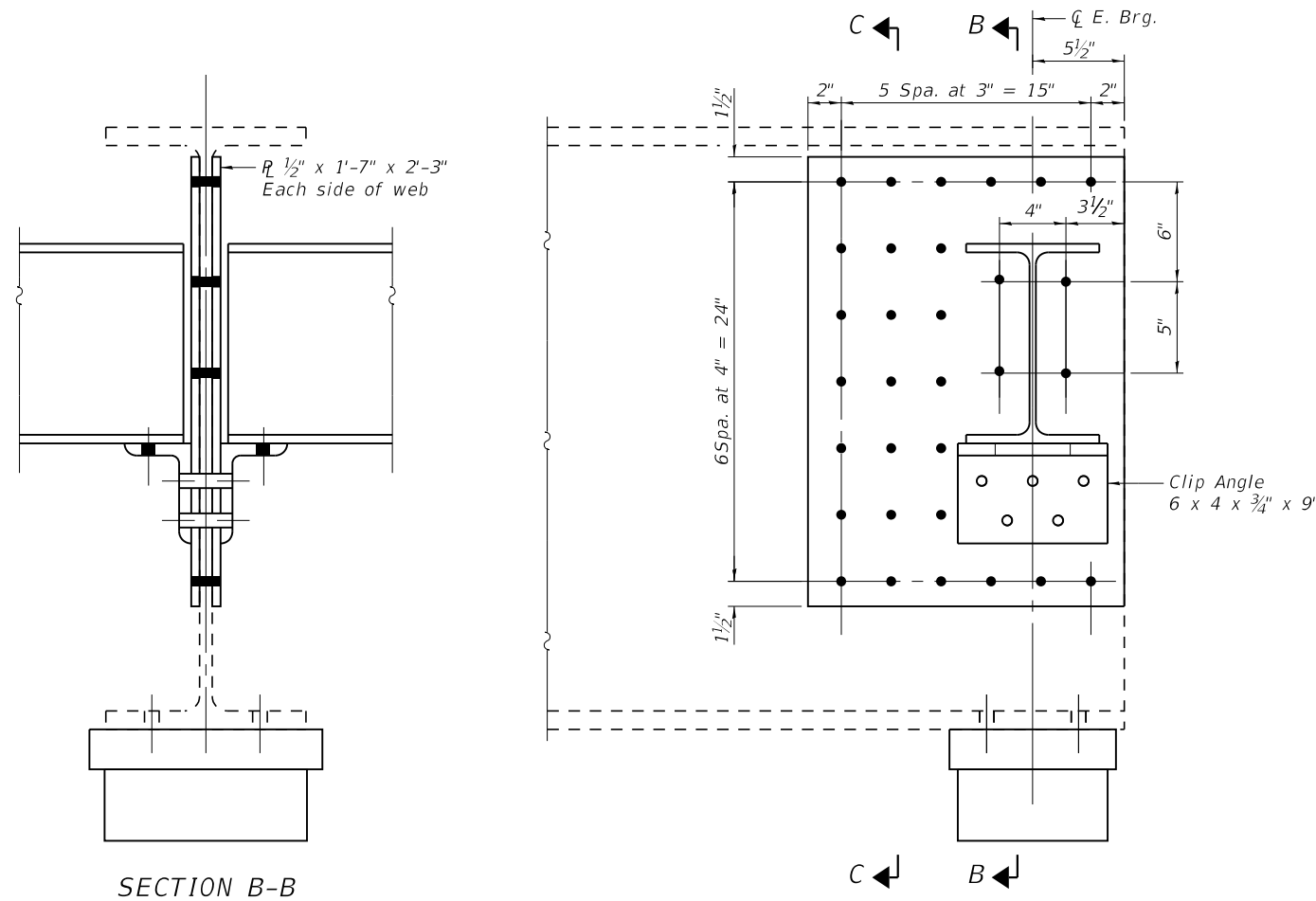
**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**STRUCTURAL STEEL (UNIT B)
STRUCTURE NO. 054-3008**

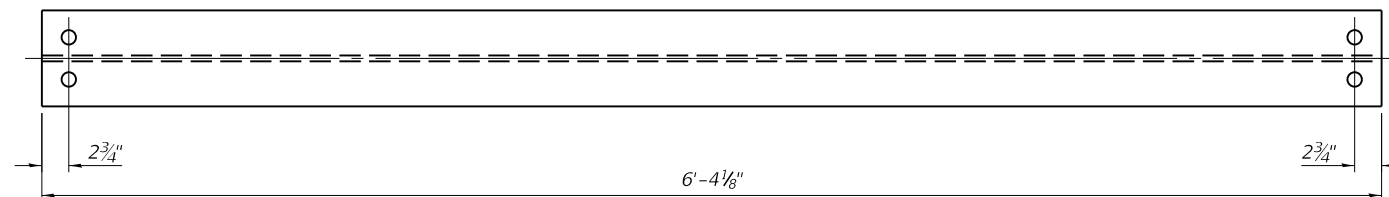
SHEET 16 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	27
CONTRACT NO. 93738				

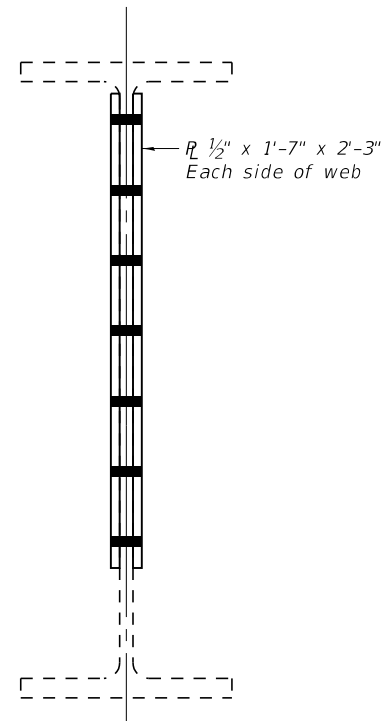
ILLINOIS FED. AID PROJECT



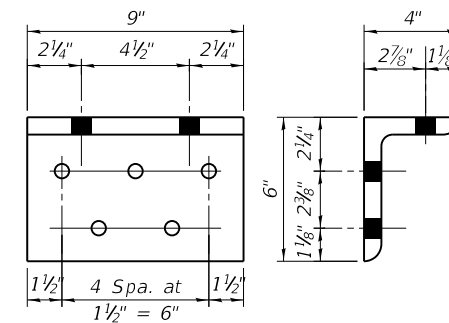
BEAM END REPAIR DETAIL - A
 (3 locations)
 At interior beams at the
 East/Unit A bearing at Pier 3.



DIAPHRAGM D - B
 W12x40 (8 Required)
 Diaphragm replacement at Pier 3



SECTION C-C



CLIP ANGLE
 \angle 6 x 4 x 3/4" x 9"
 (16 Required)

BEAM REPAIR NOTES:

- A** - Repair the beam ends of Unit A, Beams 2, 3 and 4. See Beam End Repair Detail
- B** - Remove and replace all end diaphragms at Pier 3
- C** - Remove and replace all bearings at Pier 3

For bearing details see sheets
 18 and 19 of 23

BOLT HOLE LEGEND

- - Field Drill holes in new steel using existing steel as template.
- - Shop Drilled holes in new steel. Use new steel as template to field drill holes on existing steel.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Furnishing and Erecting Structural Steel	Pound	2370
Structural Steel Removal	Pound	2340
Structural Steel Repair	Pound	520

Notes:

All structural steel shall conform to AASHTO Classification M-270 Gr. 36, unless otherwise noted.

Fasteners shall be high strength bolts. Bolts 3/4" ϕ , open holes 13/16" ϕ , unless otherwise noted.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Existing structural steel that will be in contact with new structural steel shall be cleaned and painted prior to erection as required by the Special Provision "Cleaning and Painting Contact Surface Areas of Existing Steel Structures". Cost included with Furnishing and Erecting Structural Steel.

All structural steel shall be shop painted with the inorganic zinc rich primer per AASHTO M300, Type 1. Cost included with Structural Steel Repair.

MODEL: \$MODELNAME\$
 FILE NAME: \$FILEL\$



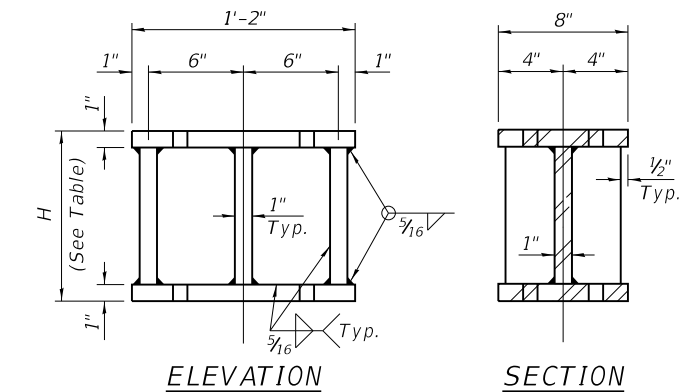
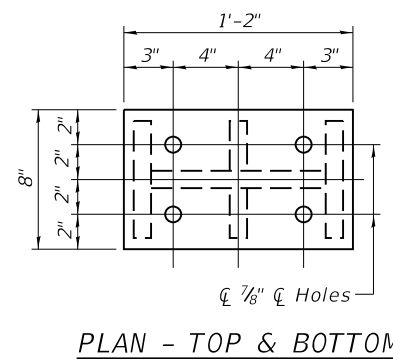
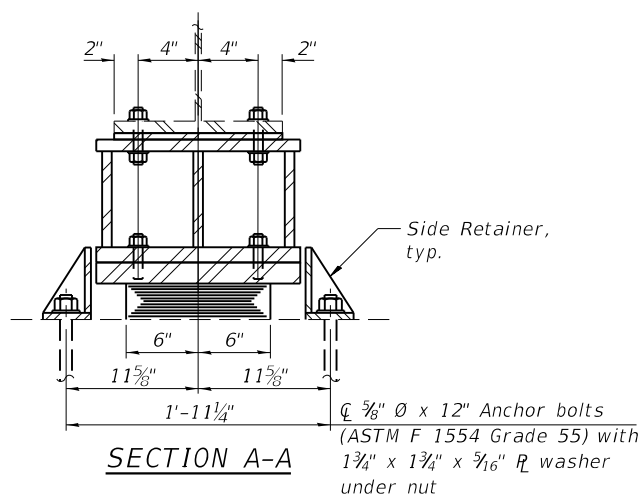
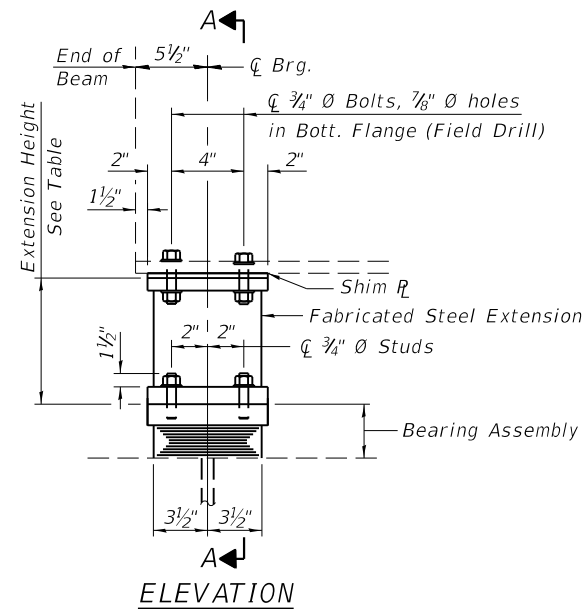
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	CHECKED - MDC	REVISED -

**LOGAN COUNTY
 CH 6 IMPROVEMENTS**

**STRUCTURAL STEEL REPAIR DETAILS
 STRUCTURE NO. 054-3008**

SHEET 17 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	28
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

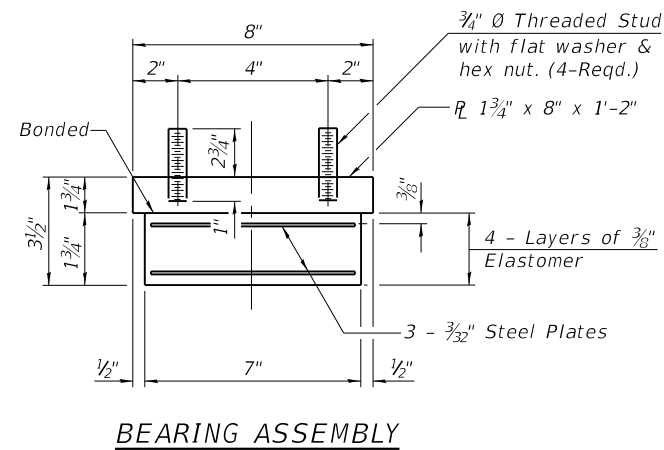


FABRICATED STEEL EXTENSION
(5 Required)

TYPE I ELASTOMERIC EXPANSION BEARING WITH FABRICATED STEEL EXTENSION

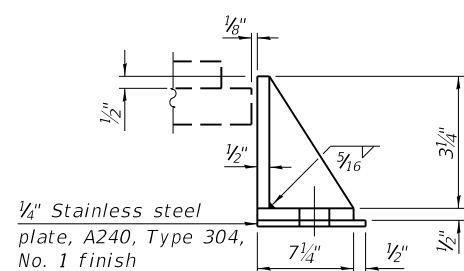
EXTENSION HEIGHT

Beam No.	H
1, 2, 4 & 5	10"
3	10 1/2"

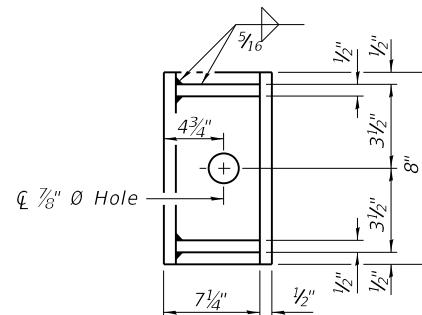


BEARING ASSEMBLY

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



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

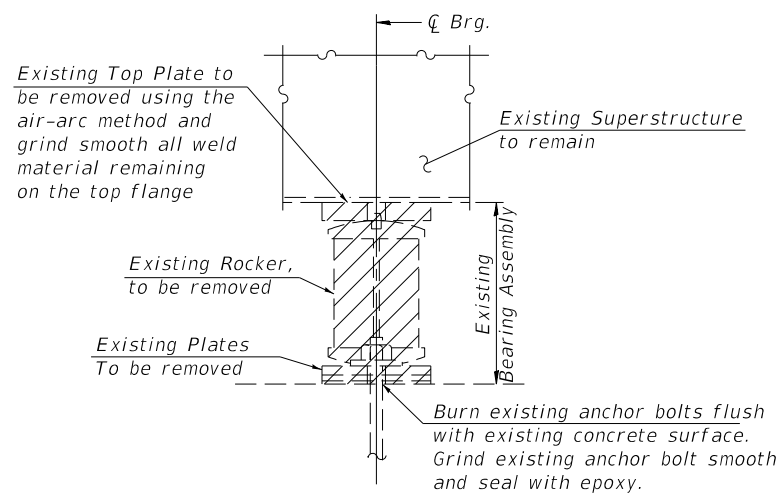


Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
The structural steel plates of the bearing assembly, side retainers, tapered plates and steel extensions shall conform to the requirements of AASHTO M270 Grade 50W.
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
Side retainers and shim plates required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
Drilling holes in flange, steel extensions and connection bolts included with Furnishing and Erecting Structural Steel.
Minimum jack capacity = 10 tons.

BEAM REACTIONS

R _P	(k)	8
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(Includes weight of steel only)



EXISTING BEARING REMOVAL AT PIERS AND ABUTMENTS

Work is included with the cost for Jack and Remove Existing Bearings

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	5
Anchor Bolts, 5/8"	Each	10
Furnishing and Erecting Structural Steel	Pound	640
Jack and Remove Existing Bearings	Each	5

MODEL: \$MODELNAMES
FILE NAME: \$FILES

CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2531	DESIGNED - AAN	REVISED -
FILE NAME = \$FILESS	CHECKED - MDC	REVISED -
PLOT DATE = \$DATES	DRAWN - SJS	REVISED -
	CHECKED - MDC	REVISED -

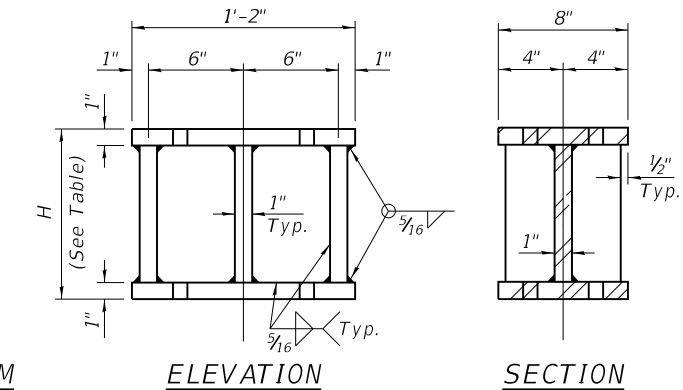
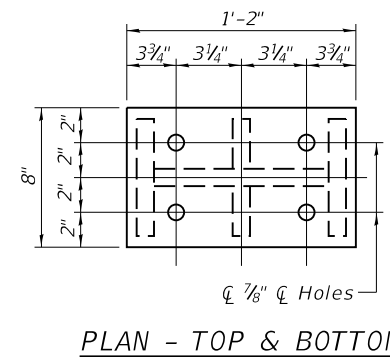
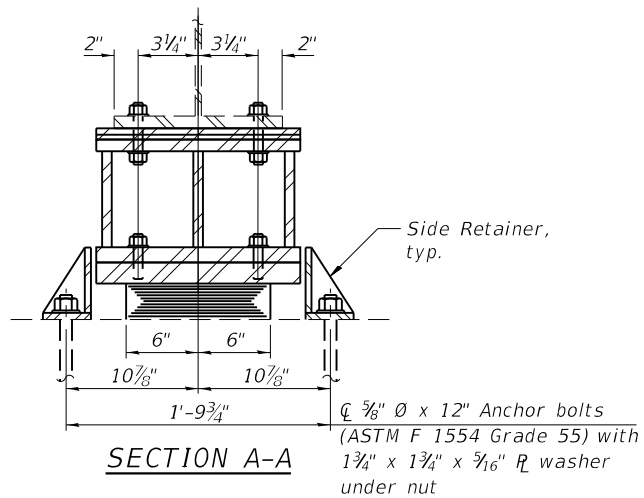
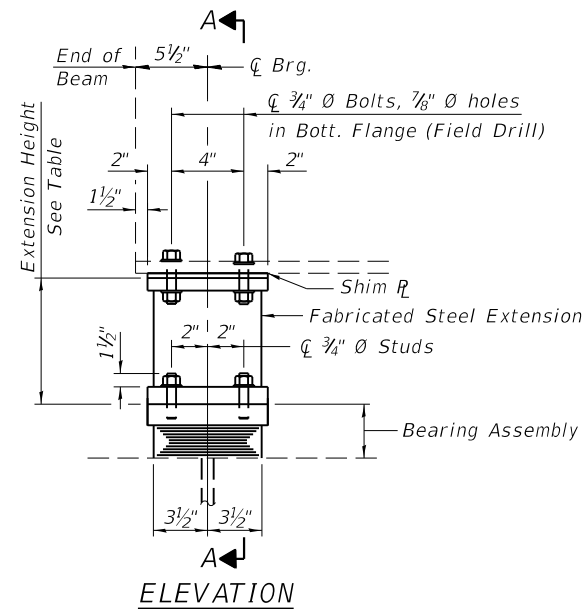
LOGAN COUNTY CH 6 IMPROVEMENTS

BEARING DETAILS (UNIT A, PIER 3) STRUCTURE NO. 054-3008

SHEET 18 OF 23 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT

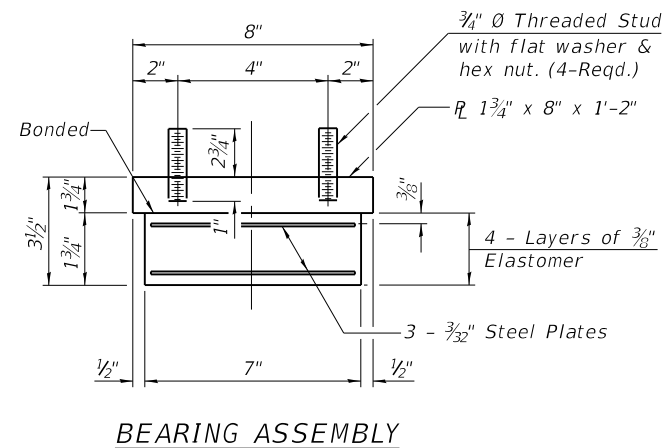


FABRICATED STEEL EXTENSION
(5 Required)

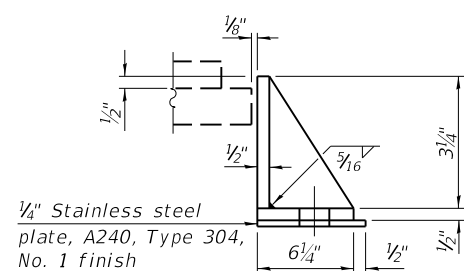
TYPE I ELASTOMERIC EXPANSION BEARING WITH FABRICATED STEEL EXTENSION

EXTENSION HEIGHT

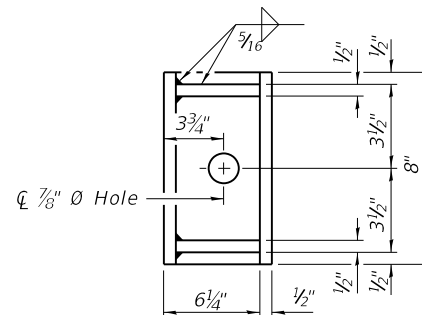
Beam No.	H
1, 2, 4 & 5	10"
3	10 1/2"



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



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



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.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

The structural steel plates of the bearing assembly, side retainers, tapered plates and steel extensions shall conform to the requirements of AASHTO M270 Grade 50W.

Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

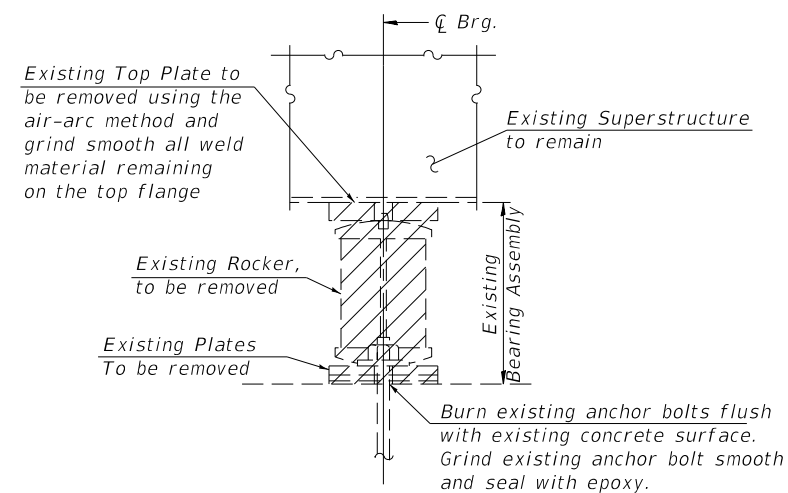
Side retainers and shim plates required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

Drilling holes in flange, steel extensions and connection bolts included with Furnishing and Erecting Structural Steel. Minimum jack capacity = 5 tons.

BEAM REACTIONS

R ϕ	(k)	4
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(Includes weight of steel only)

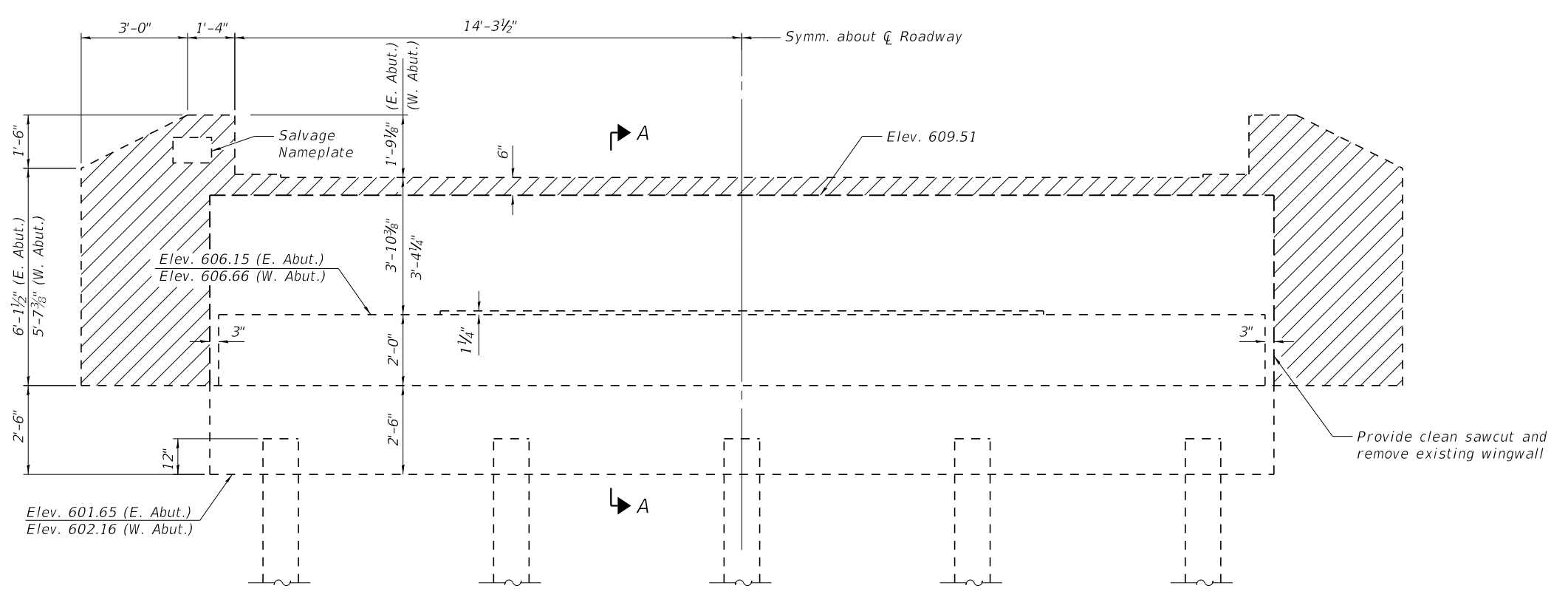


EXISTING BEARING REMOVAL AT PIERS AND ABUTMENTS

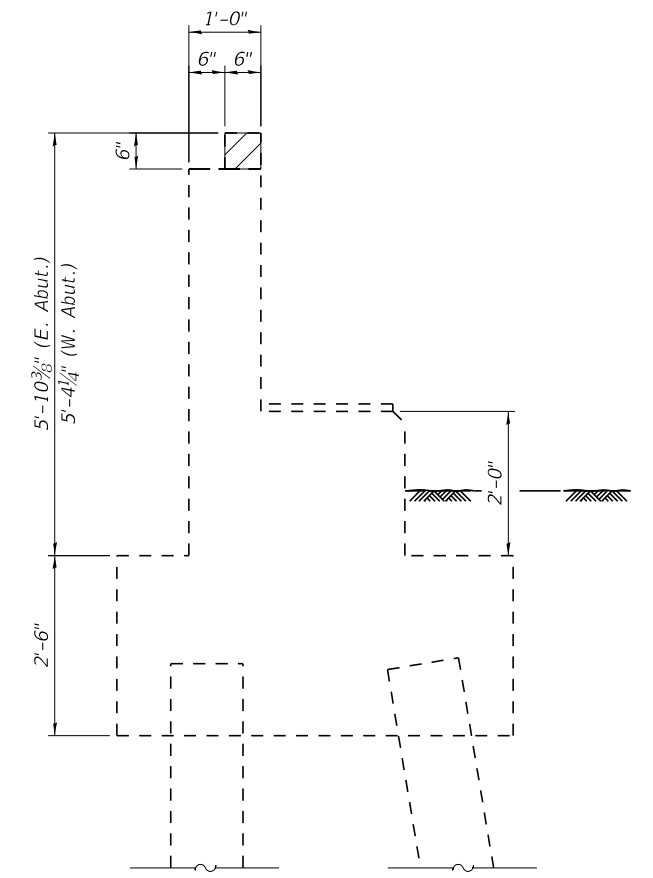
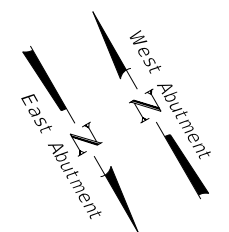
Work is included with the cost for Jack and Remove Existing Bearings

BILL OF MATERIAL

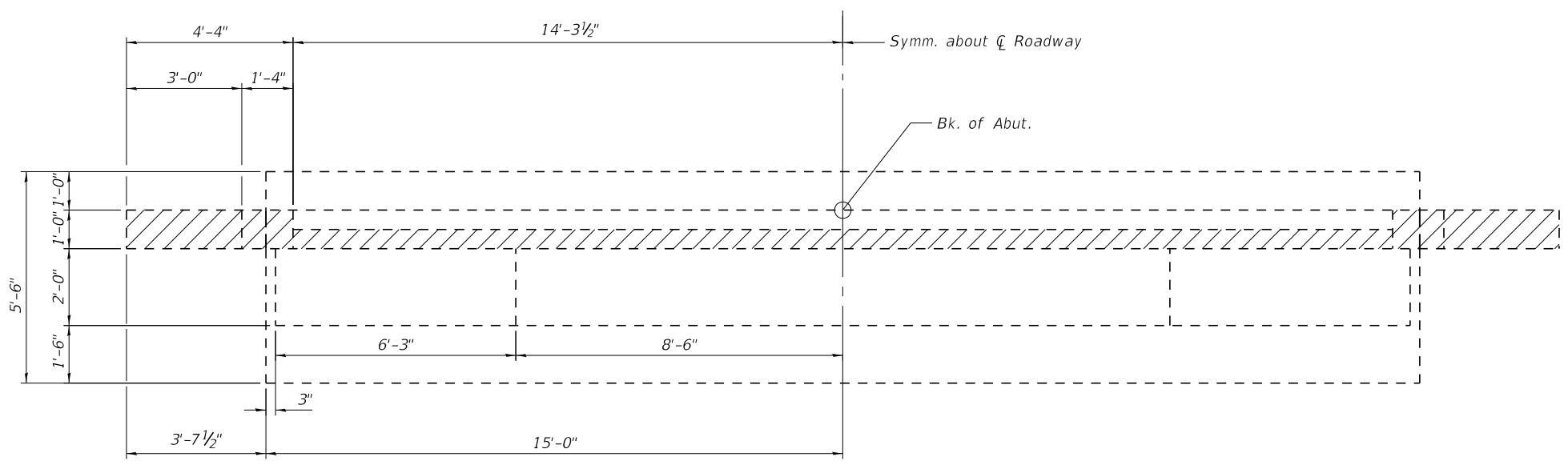
Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	5
Anchor Bolts, 5/8"	Each	10
Furnishing and Erecting Structural Steel	Pound	640
Jack and Remove Existing Bearings	Each	5



ELEVATION
 East Abutment Looking East
 West Abutment Looking West



SECTION A-A



PLAN

**TWO (2) ABUTMENTS
 BILL OF MATERIAL**

Item	Unit	Qty.
Concrete Removal	Cu. Yd.	4.4

Notes:
 Hatched area indicates Concrete Removal.
 Existing horizontal reinforcement extending from ends of cap shall be cut off flush and covered with a layer of epoxy.
 Save and relocate existing name plate. Cost included with Name Plates.

MODEL: \$MODELNAME\$
 FILE NAME: \$FILEL\$



JOB = 2531
 FILE NAME = \$FILEL\$
 PLOT DATE = \$DATE\$

DESIGNED - AAN
 CHECKED - MDC
 DRAWN - SJS
 CHECKED - MDC

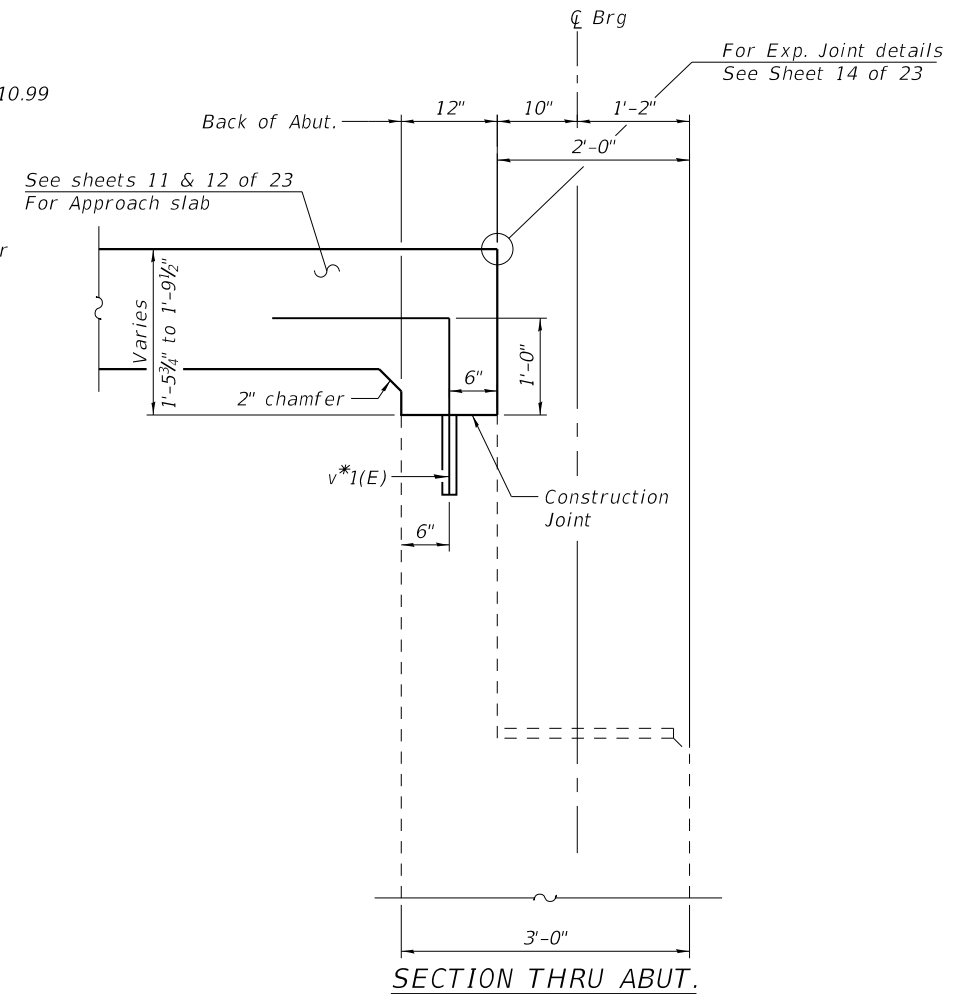
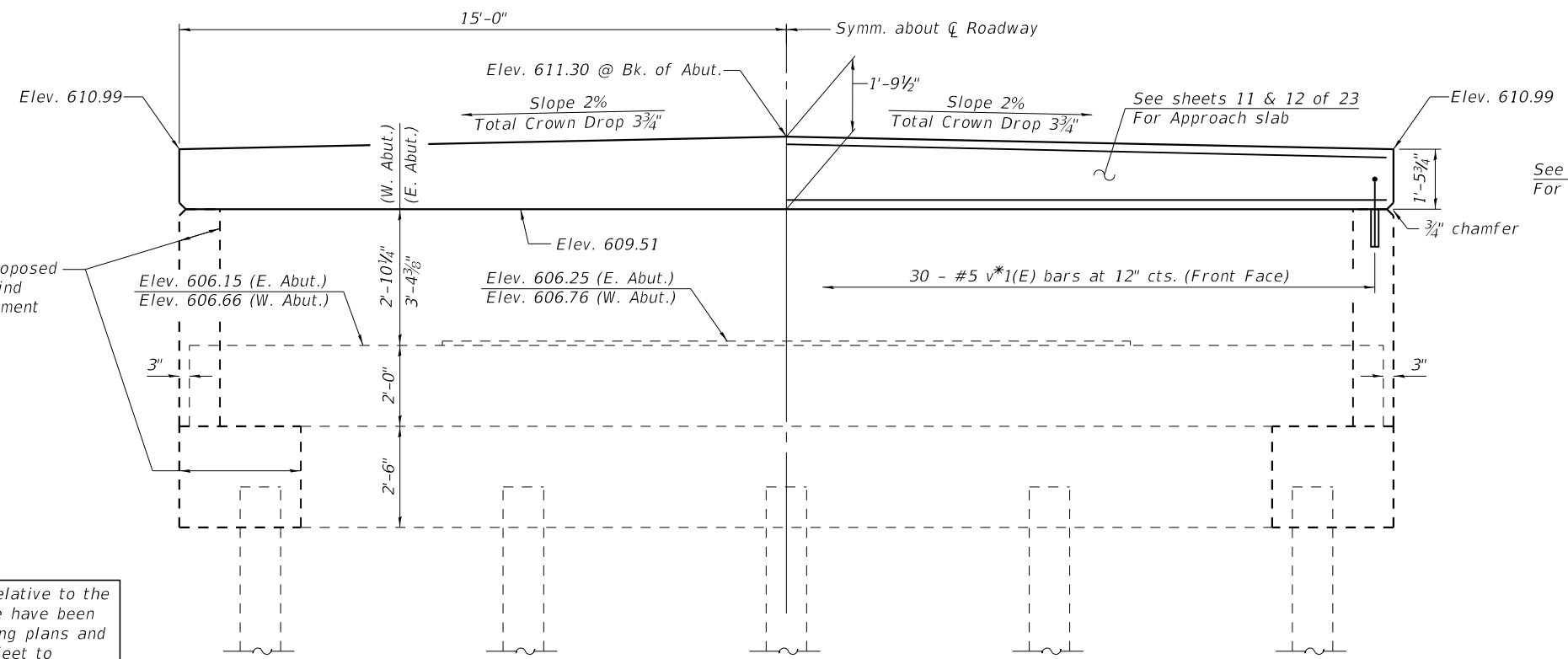
REVISED -
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**LOGAN COUNTY
 CH 6 IMPROVEMENTS**

**ABUTMENT CONCRETE REMOVAL
 STRUCTURE NO. 054-3008**

SHEET 20 OF 23 SHEETS

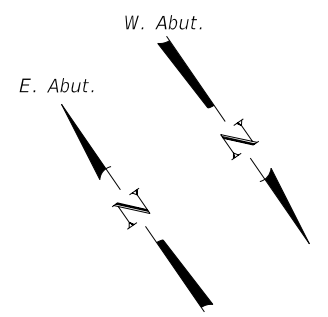
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557	16-00059-01-BR	LOGAN	40	31
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				



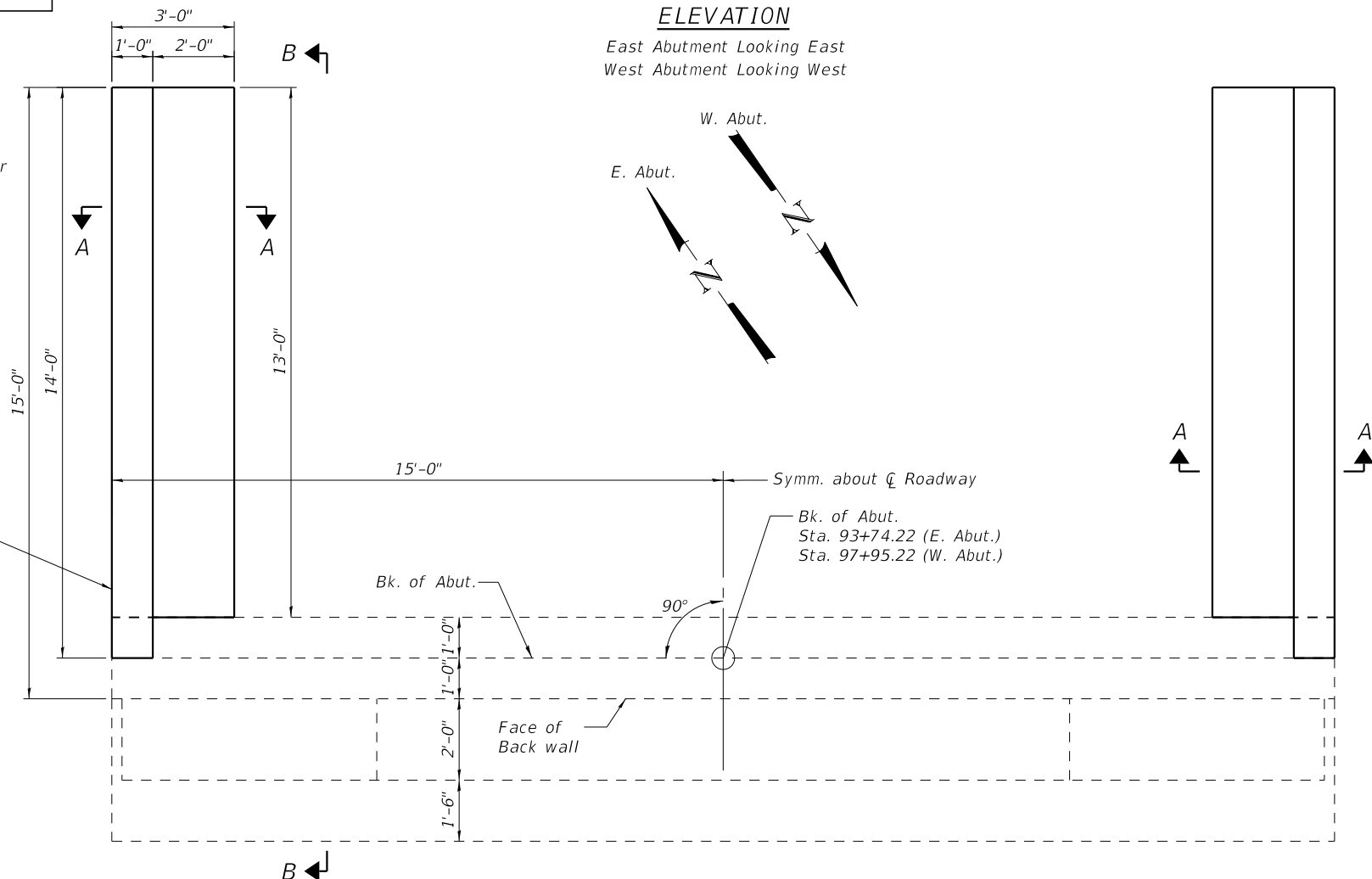
NOTE
Plan elevations relative to the existing structure have been taken from existing plans and reduced by 0.61 feet to match benchmark datum.

ELEVATION
East Abutment Looking East
West Abutment Looking West

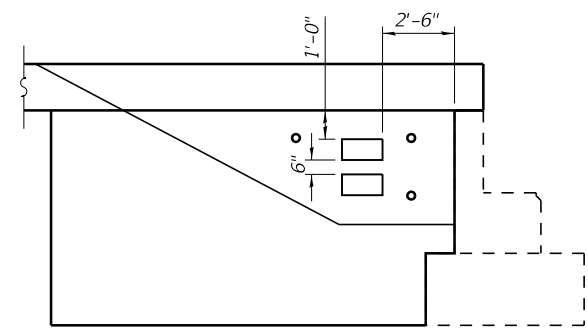
See Sheet 22 of 23 for Sections AA & BB



Locate Name Plates on Southwest Wingwall



PLAN
(Approach Slab not shown)



NAMEPLATE LOCATION
(View of Southwest Wingwall)

Notes:
All bars designated with an asterisk (ex: v*1(E)) shall be epoxy grouted in accordance with Section 584 of the Standard Specifications. Minimum embedment = 9". Locate bars to miss existing reinforcement.
Existing vertical bars in backwall shall be cut off and covered with a layer of epoxy. Cost included with Concrete Removal.

MODEL: \$MODELNAME\$
FILE NAME: \$FILES\$



JOB =	2531
FILE NAME =	\$FILES\$
PLOT DATE =	\$DATES\$

DESIGNED -	AAN	REVISED -	
CHECKED -	MDC	REVISED -	
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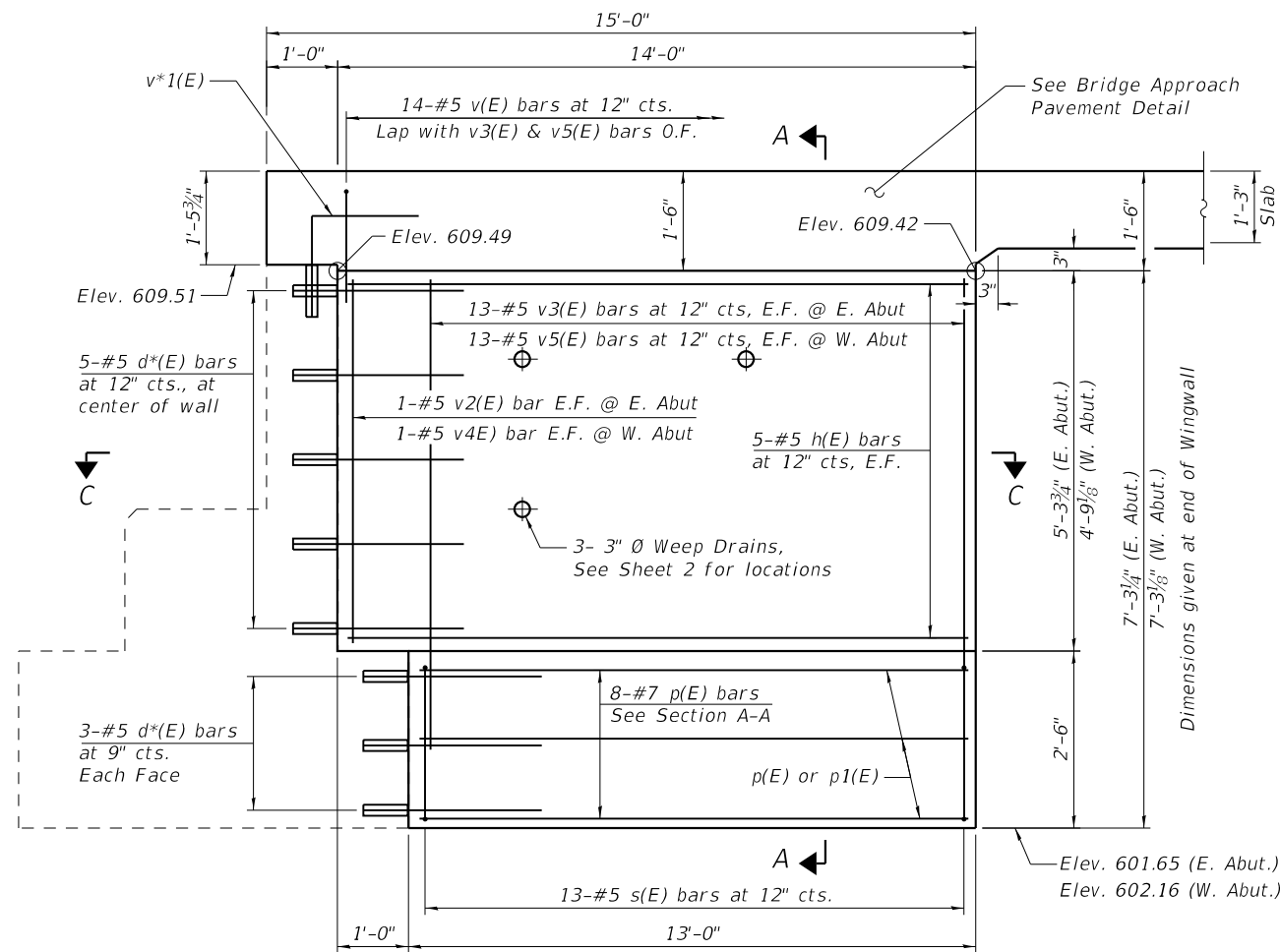
**LOGAN COUNTY
CH 6 IMPROVEMENTS**

**ABUTMENT DETAILS
STRUCTURE NO. 054-3008**

SHEET 21 OF 23 SHEETS

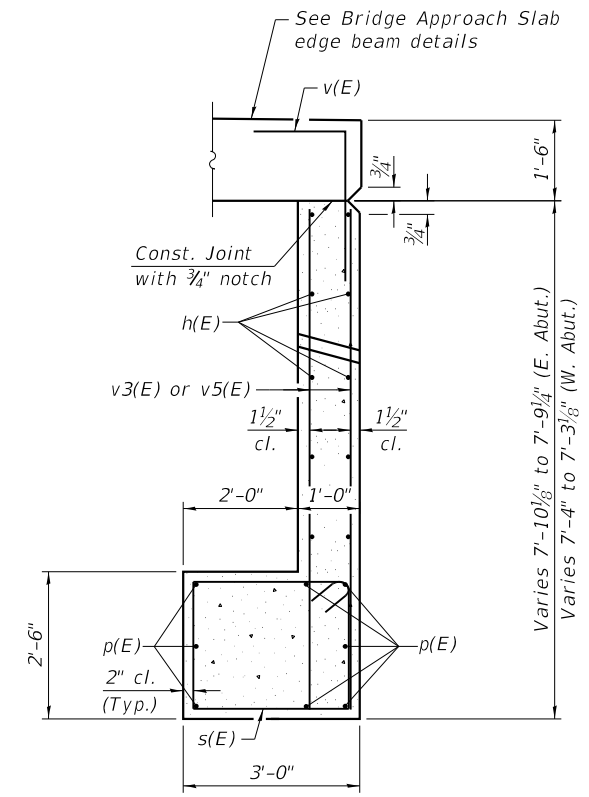
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CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT

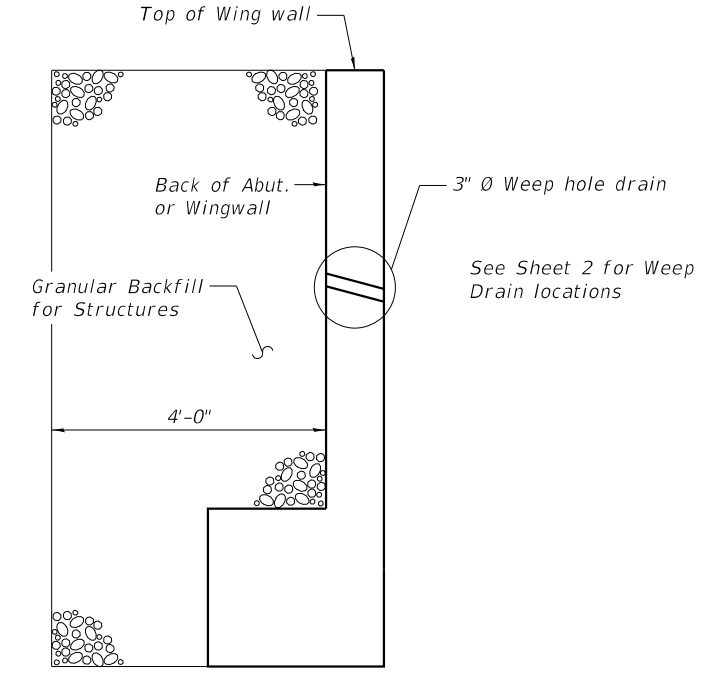


SECTION B-B
INSIDE WING WALL ELEVATION

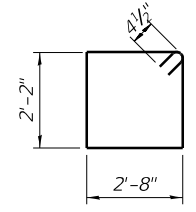
I.F. - Inside Face
O.F. - Outside Face
E.F. - Each Face



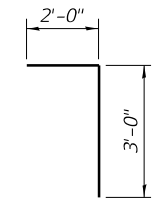
SECTION A-A



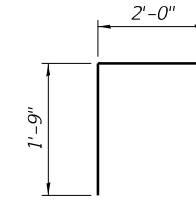
BACKFILL DETAIL



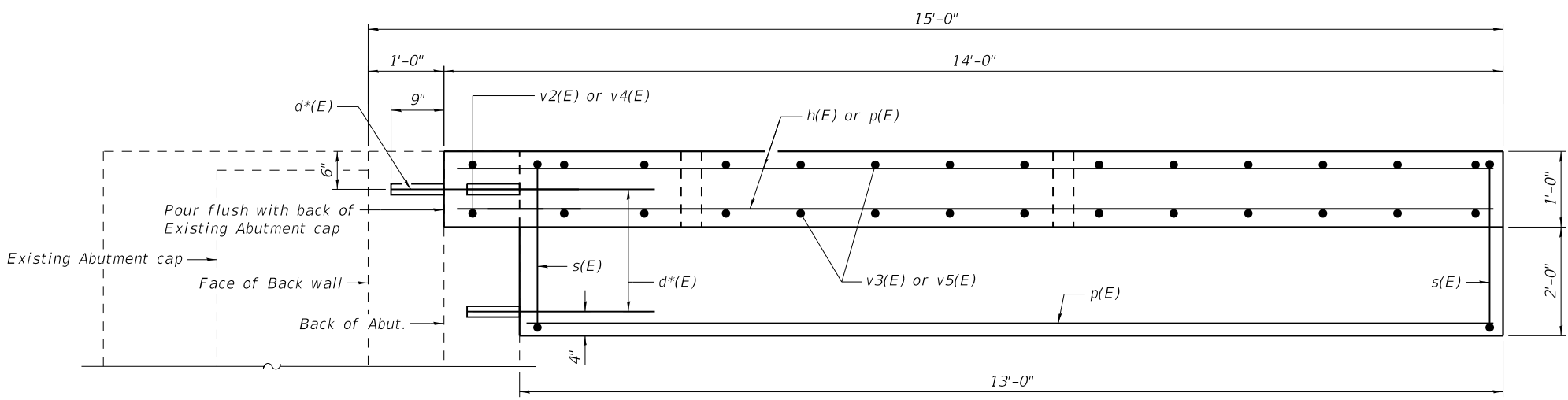
BARS s(E)



BAR v(E)



BAR v*1(E)



SECTION C-C
WINGWALL PLAN

(Bridge Approach Pavement Not Shown)

TWO (2) ABUTMENTS
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d*(E)	44	#5	2'-9"	—
h(E)	40	#5	13'-6"	—
p(E)	32	#7	12'-6"	—
s(E)	52	#5	10'-5"	□
v(E)	56	#5	5'-0"	┌
v*1(E)	60	#5	3'-9"	┌
v2(E)	4	#5	4'-6"	—
v3(E)	52	#5	7'-0"	—
v4(E)	4	#5	5'-0"	—
v5(E)	52	#5	7'-6"	—
Structure Excavation			Cu. Yd.	127
Concrete Structures			Cu. Yd.	26.2
Reinforcement Bars, Epoxy Coated			Pound	3430
Granular Backfill for Structures			Cu. Yd.	64

Notes:
All bars designated with an asterisk (ex: v*1(E)) shall be epoxy grouted in accordance with Section 584 of the Standard Specifications. Minimum embedment = 9". Locate bars to miss existing reinforcement.
Existing vertical bars in backwall shall be cut off and covered with a layer of epoxy. Cost included with Concrete Removal.

MODEL: \$MODELNAME\$
FILE NAME: \$FILEL\$



JOB = 2531
FILE NAME = \$FILEL\$
PLOT DATE = \$DATE\$

DESIGNED - AAN
CHECKED - MDC
DRAWN - SJS
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REVISED -
REVISED -
REVISED -
REVISED -

LOGAN COUNTY
CH 6 IMPROVEMENTS

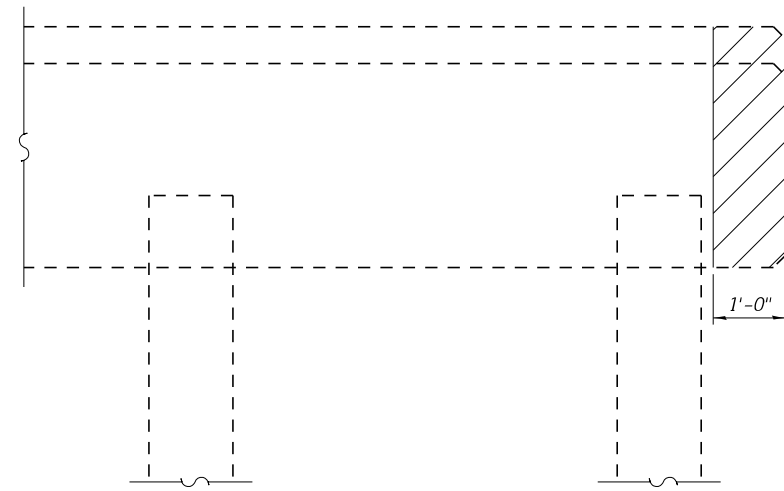
ABUTMENT DETAILS
STRUCTURE NO. 054-3008

SHEET 22 OF 23 SHEETS

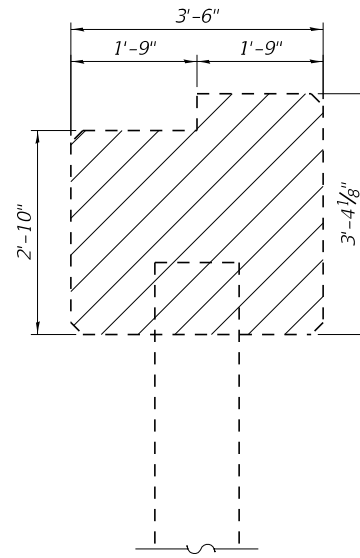
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557	16-00059-01-BR	LOGAN	40	33

CONTRACT NO. 93738

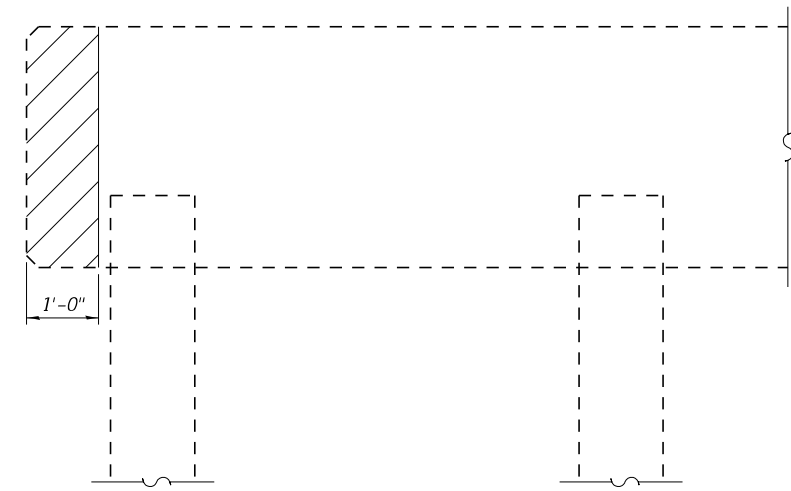
ILLINOIS FED. AID PROJECT



ELEVATION
(Looking West)



END VIEW



ELEVATION
(Looking East)

BILL OF MATERIAL

Item	Unit	Qty.
Structural Repair of Concrete (Depth Equal to or Less Than 5")	Sq. Ft.	25

Notes:
Hatched area indicate Structural Repair of Concrete.

MODEL: \$MODELNAME\$
FILE NAME: \$FILEL\$

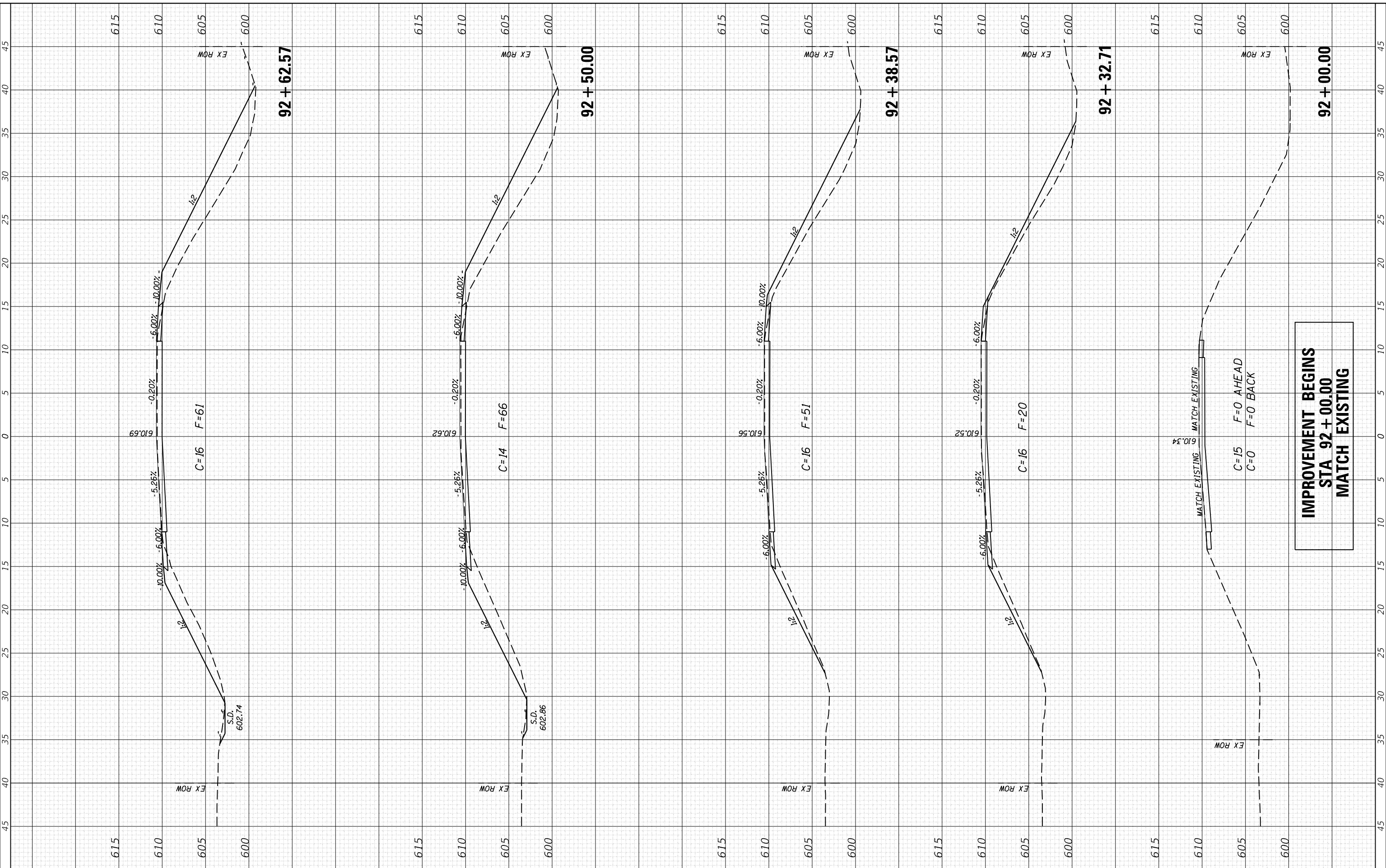
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F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
557	16-00059-01-BR	LOGAN	40	34
ILLINOIS FED. AID PROJECT			CONTRACT NO. 93738	

FINAL SURVEY NO.	SURVEYED PLOTTED TEMPLATE AREAS CHECKED	BY	DATE

ORIGINAL SURVEY NO.	SURVEYED PLOTTED TEMPLATE AREAS CHECKED	BY	DATE

MODEL: Defaultr
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CEC Cummins Engineering Corporation
Civil and Structural Engineering

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PLOT DATE = 1/17/2020

DESIGNED - CGF
DRAWN - CGF
CHECKED - NAK
DATE - 8/15/2019

REVISED -
REVISED -
REVISED -
REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

CROSS SECTIONS

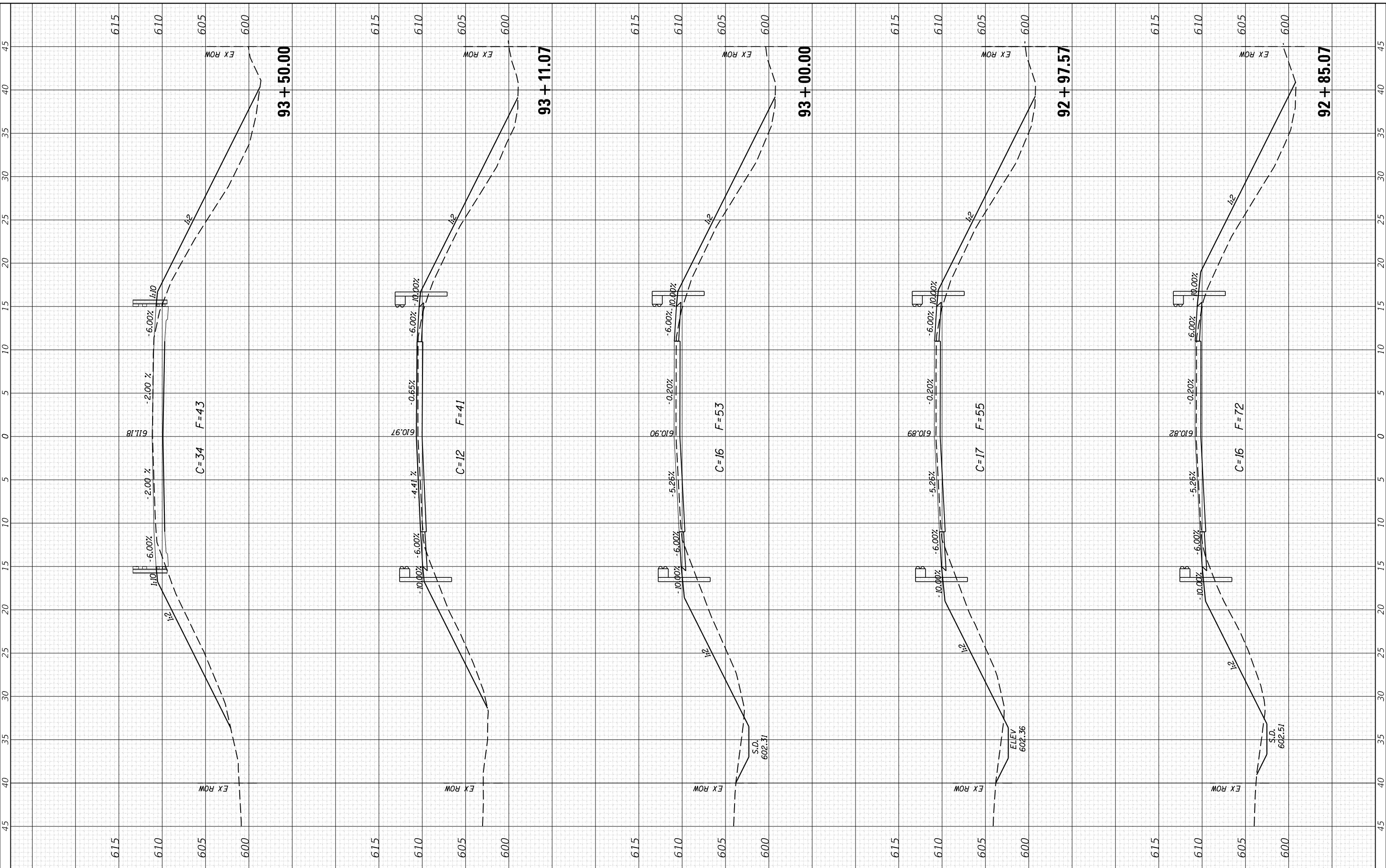
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F.A.S. RTE. 557	SECTION 16-00059-01-BR	COUNTY LOGAN	TOTAL SHEETS 40	SHEET NO. 35
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

FINAL SURVEY NO.	SURVEYED	DATE
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AREAS CHECKED	TEMPLATE	
	AREAS CHECKED	

ORIGINAL SURVEY NO.	SURVEYED	DATE
NOTE BOOK	PLOTTED	
AREAS CHECKED	TEMPLATE	
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CEC Cummins Engineering Corporation
Civil and Structural Engineering

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DESIGNED - CGF
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CHECKED - NAK
DATE - 9/13/2019

REVISED -
REVISED -
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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

CROSS SECTIONS

SCALE: SHEET OF SHEETS STA. 100+50.12 TO STA. 101+35.00

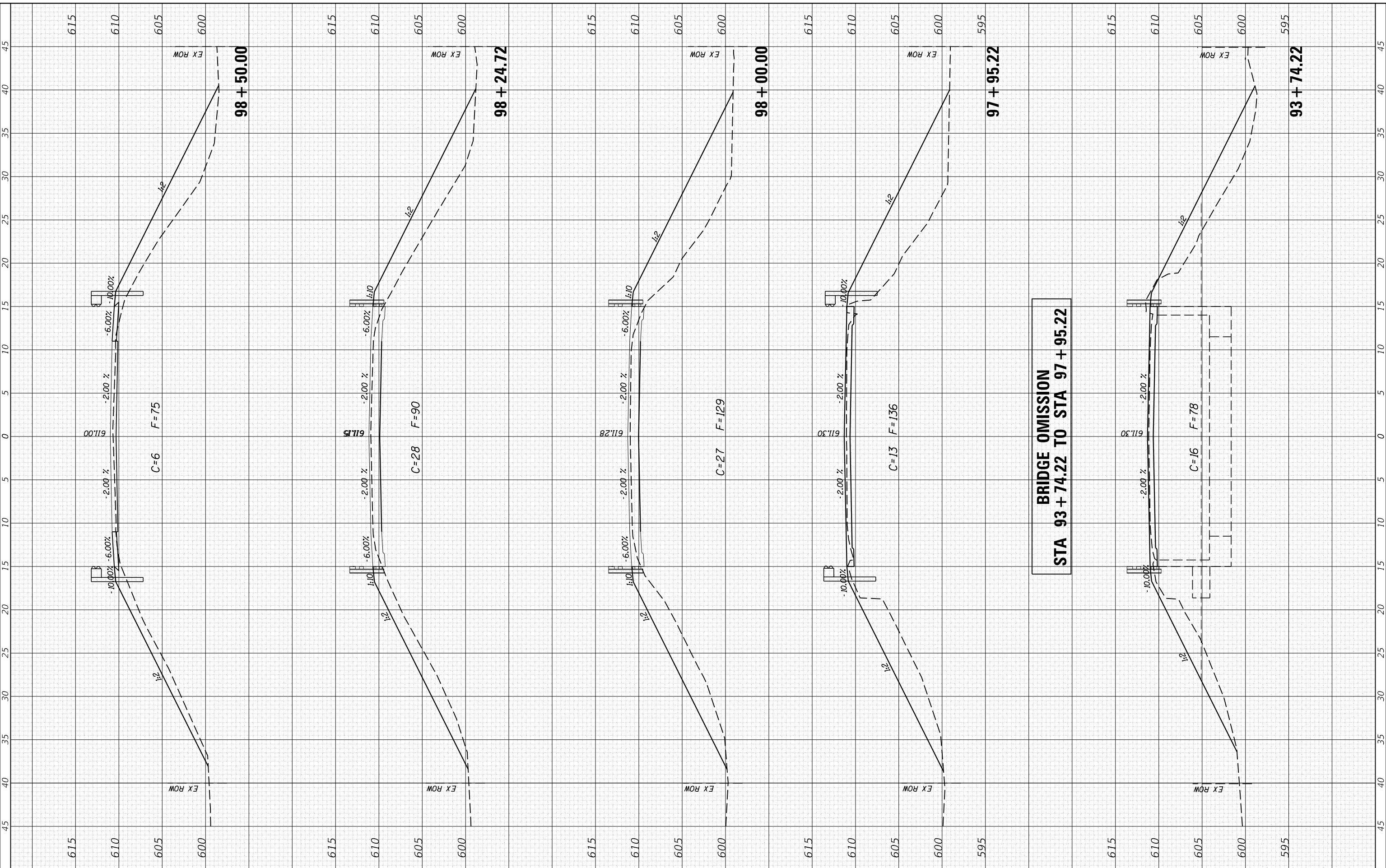
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CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT

FINAL SURVEY NO.	SURVEYED	DATE
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AREAS CHECKED	TEMPLATE	
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CEC Cummins Engineering Corporation
Civil and Structural Engineering

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DESIGNED - CGF
DRAWN - CGF
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REVISED -
REVISED -
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REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

CROSS SECTIONS

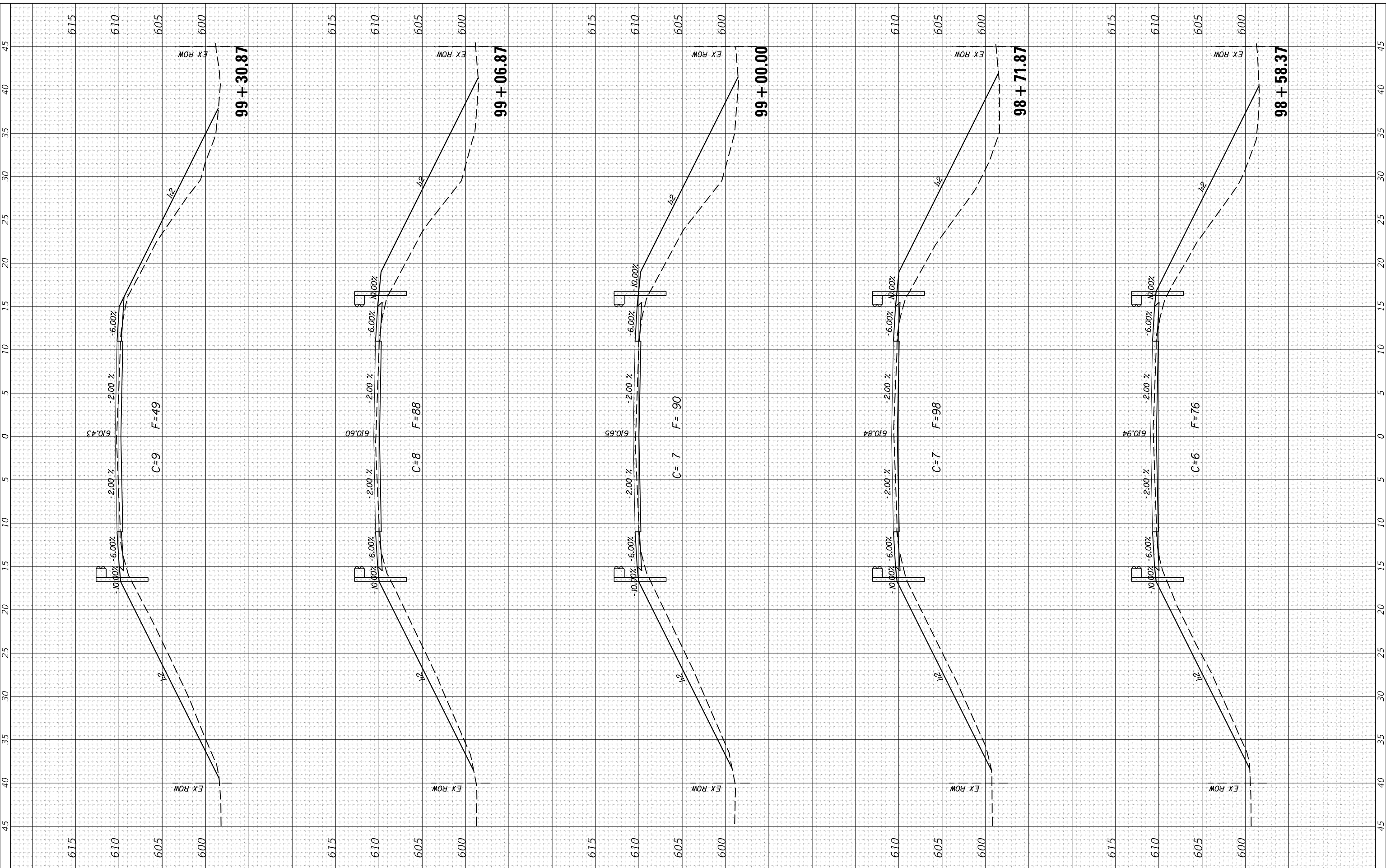
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CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

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CEC Cummins Engineering Corporation
Civil and Structural Engineering

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PLOT DATE = 1/17/2020

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CHECKED - NAK
DATE - 8/15/2019

REVISED -
REVISED -
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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

CROSS SECTIONS

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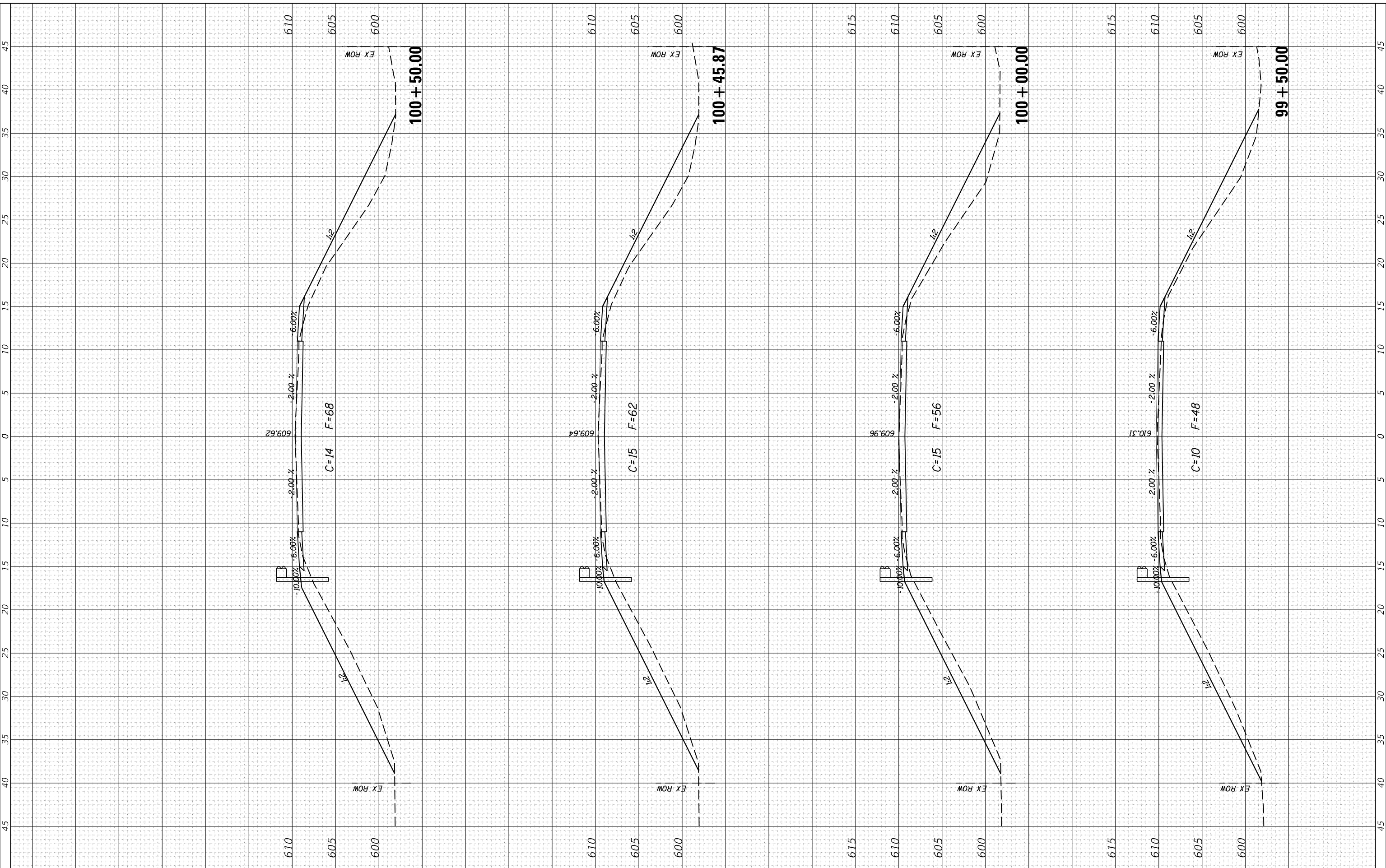
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CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT

FINAL SURVEY NO.	SURVEYED	DATE
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	AREAS CHECKED	

MODEL: Defaultr
FILE NAME: 2531-sh-xsec.dgn



CEC Cummins Engineering Corporation Civil and Structural Engineering	JOB = 2531 FILE NAME = 2531-sh-xsec.dgn PLOT SCALE = 10,0000' / in. PLOT DATE = 1/17/2020	DESIGNED - CGF DRAWN - CGF CHECKED - NAK DATE - 8/15/2019	REVISED - REVISED - REVISED - REVISED -
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**LOGAN COUNTY
CH 6 IMPROVEMENTS**

CROSS SECTIONS

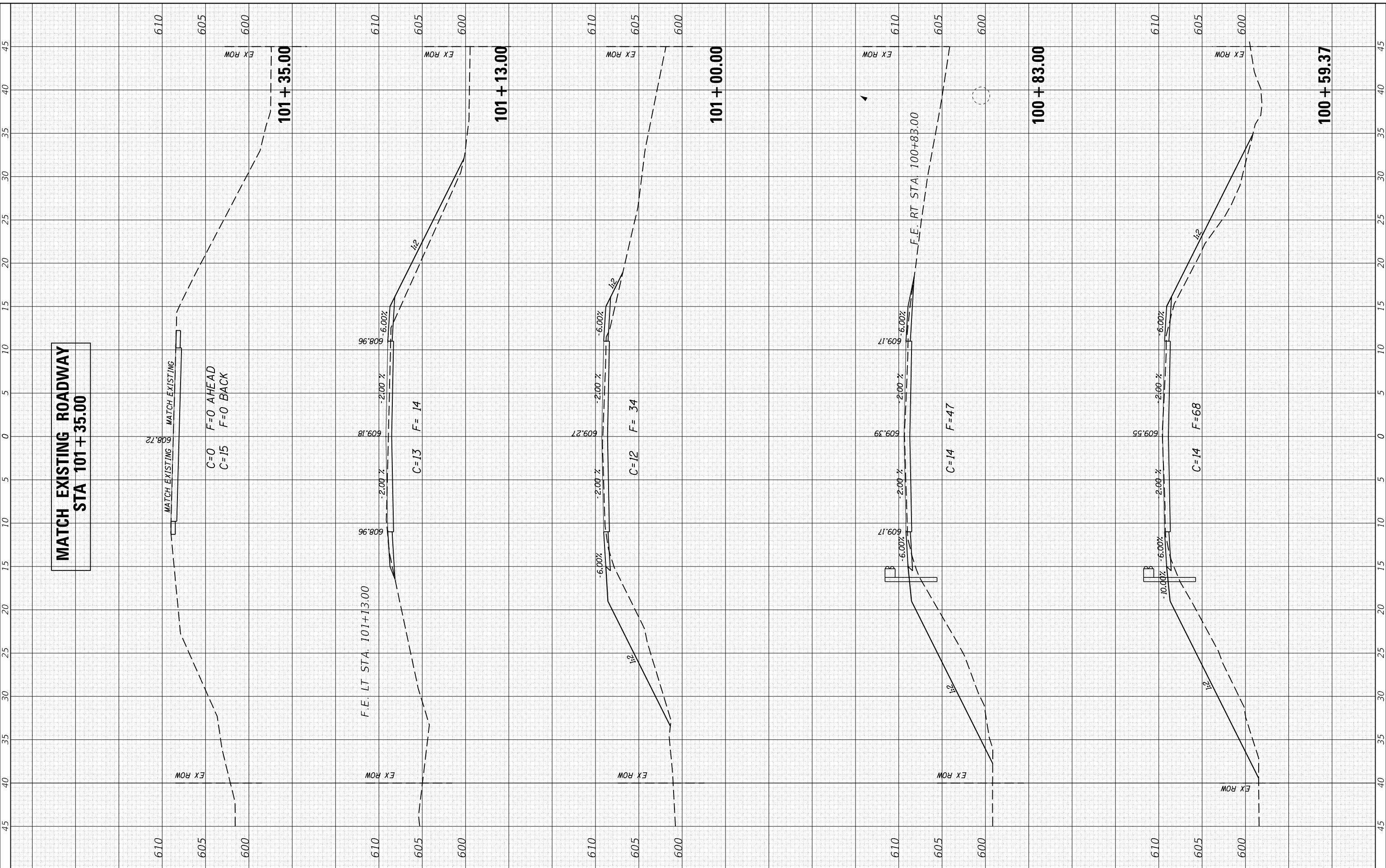
SCALE: SHEET OF SHEETS STA. 100+50.12 TO STA. 101+35.00

F.A.S. RTE. 557	SECTION 16-00059-01-BR	COUNTY LOGAN	TOTAL SHEETS 40	SHEET NO. 39
CONTRACT NO. 93738				
ILLINOIS FED. AID PROJECT				

FINAL SURVEY NO.	SURVEYED PLOTTED AREAS CHECKED	BY	DATE
NOTE BOOK	TEMPLATE		
	AREAS CHECKED		

ORIGINAL SURVEY NO.	SURVEYED PLOTTED AREAS CHECKED	BY	DATE
NOTE BOOK	TEMPLATE		
	AREAS CHECKED		

MODEL: Defaultr
FILE NAME: 2531-sh-xsec.dgn



**MATCH EXISTING ROADWAY
STA 101 + 35.00**

C=0
F=0 AHEAD
C=15
F=0 BACK

C=13
F=14

C=12
F=34

C=14
F=47

C=14
F=68

CEC Cummins Engineering Corporation
Civil and Structural Engineering

JOB = 2531
FILE NAME = 2531-sh-xsec.dgn
PLOT SCALE = 10,0000 ' / in.
PLOT DATE = 1/17/2020

DESIGNED - CGF
DRAWN - CGF
CHECKED - NAK
DATE - 8/15/2019

REVISED -
REVISED -
REVISED -
REVISED -

**LOGAN COUNTY
CH 6 IMPROVEMENTS**

CROSS SECTIONS

SCALE: SHEET OF SHEETS STA. 100+50.12 TO STA. 101+35.00

F.A.S. RTE. 557	SECTION 16-00059-01-BR	COUNTY LOGAN	TOTAL SHEETS 40	SHEET NO. 40
CONTRACT NO. 93738				

ILLINOIS FED. AID PROJECT