

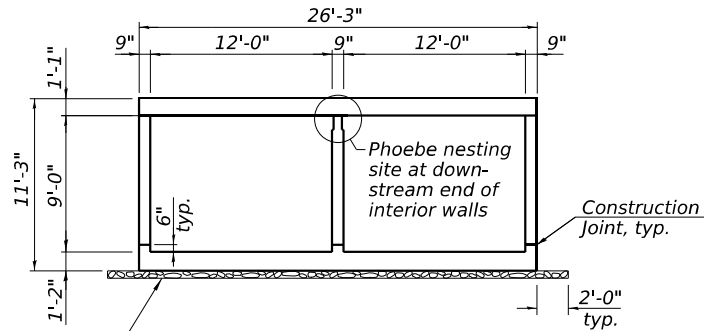
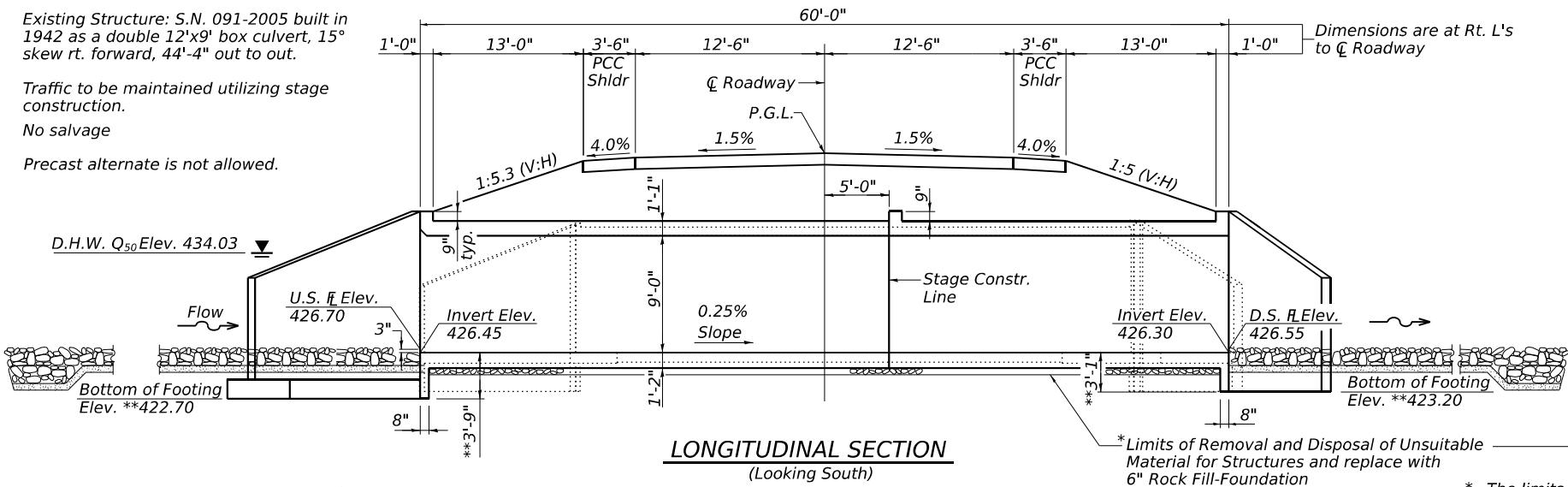
Bench Mark: Chiseled "□" top of wing wall
South end of East side of Str. #091-2005.
Elev. 436.99

Existing Structure: S.N. 091-2005 built in
1942 as a double 12'x9' box culvert, 15°
skew rt. forward, 44'-4" out to out.

Traffic to be maintained utilizing stage
construction.

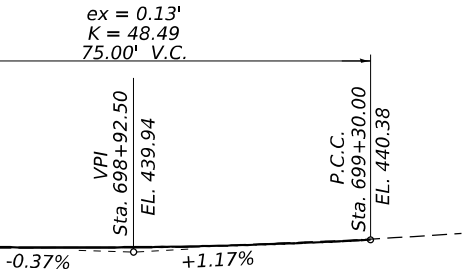
No salvage

Precast alternate is not allowed.



SHEET LIST

- 1 General Plan and Elevation
- 2 General Data
- 3 - 4 Stage Construction Details
- 5 Temporary Concrete Barrier
- 6 Culvert Details - Top Slab Plan
- 7 Culvert Details - Bottom Slab Plan
- 8 Culvert Details
- 9 Bar Splicer Assembly and Mechanical Splicer Details
- 10 Soil Boring Logs



DESIGN SPECIFICATIONS

2024 AASHTO LRFD Bridge Design
Specifications, 10th Edition

LOADING HL-93

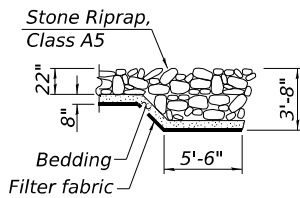
Allow 50#/sq. ft. for future
wearing surface

DESIGN STRESSES

FIELD UNITS
Pc = 3,500 psi
fy = 60,000 psi (Reinforcement)

ALLOWABLE SOIL BEARING PRESSURE

(FOR WING WALL DESIGN)
qu = 4033 Lbs./sf
Bearing on existing weathered limestone layer

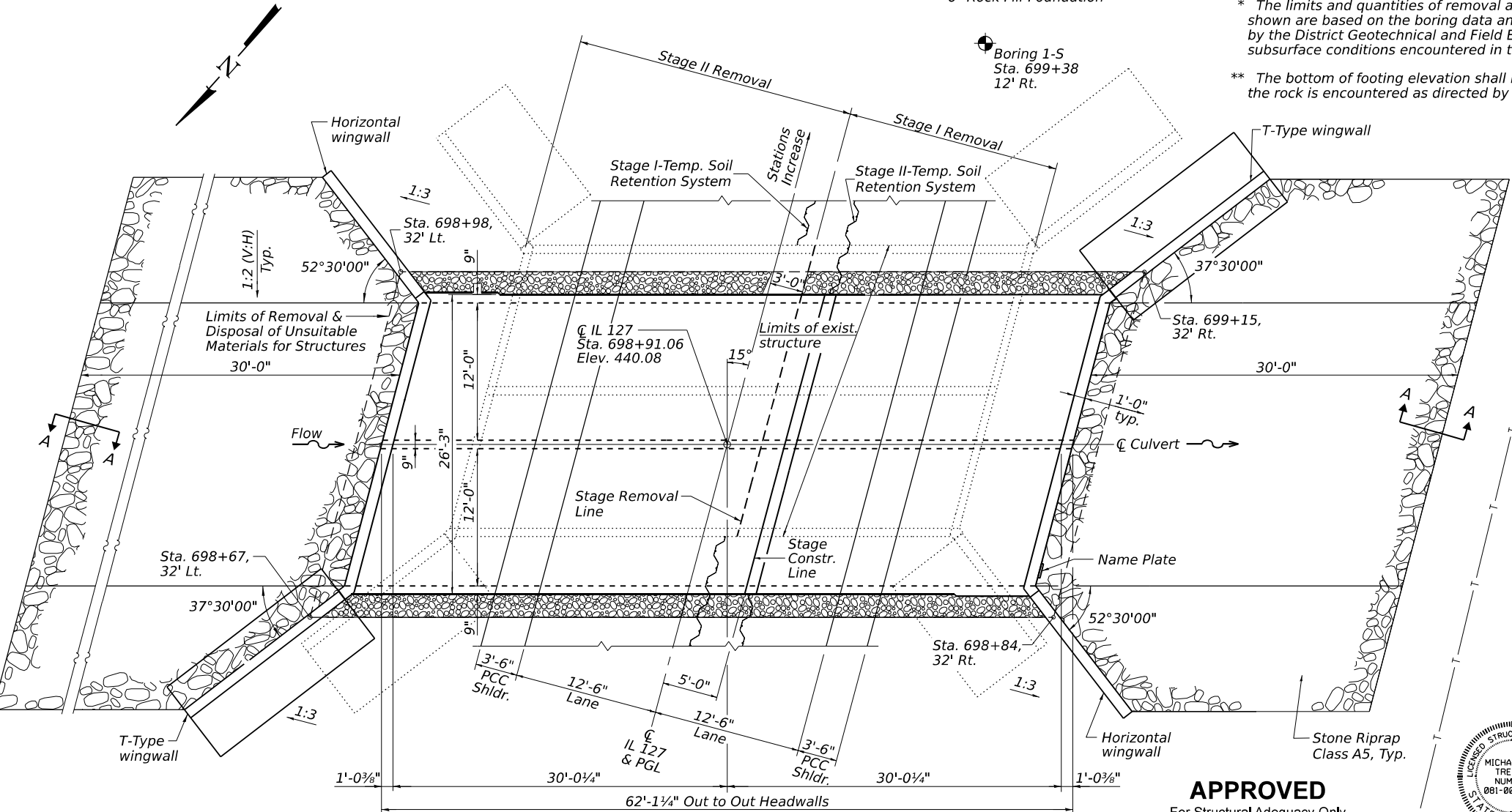


SECTION A-A

WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
10	10	983	146.04	152.04	432.79	0.45	0.35	433.24	433.14
Design	50	1550	175.98	181.98	434.03	1.10	0.96	435.13	434.99
Base	100	1830	186.29	192.29	434.46	1.53	1.37	435.99	435.83
Max. Calc.	500	2610	210.75	216.75	435.48	3.69	3.41	439.17	438.89

10-Year Velocity Through Existing Structure = 6.97 fps
10-Year Velocity Through Proposed Structure = 6.68 fps



REVISD SHEET 5-27-2026

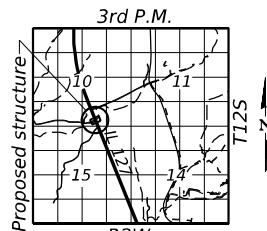
APPROVED

For Structural Adequacy Only

Engineer of Bridges & Structures



DATE: APRIL 29 2026
EXPIRES: NOVEMBER 30 2026



LOCATION SKETCH

GENERAL PLAN AND ELEVATION FAS ROUTE 1909 (IL 127) OVER

UNNAMED STREAM

SECTION 30G(B-1)

UNION COUNTY

STATION 698+91.06

STRUCTURE NO. 091-2027

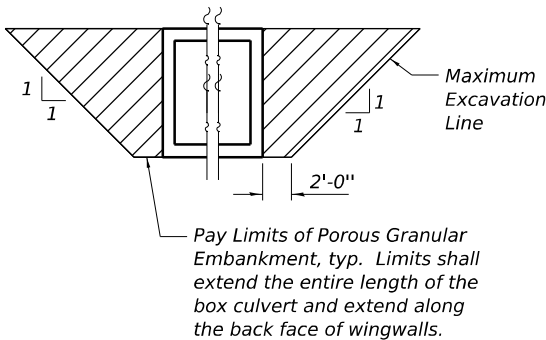


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PLOT DATE =	DRAWN - MMY/JDC	REVISED -
	CHECKED - MJT	REVISED -

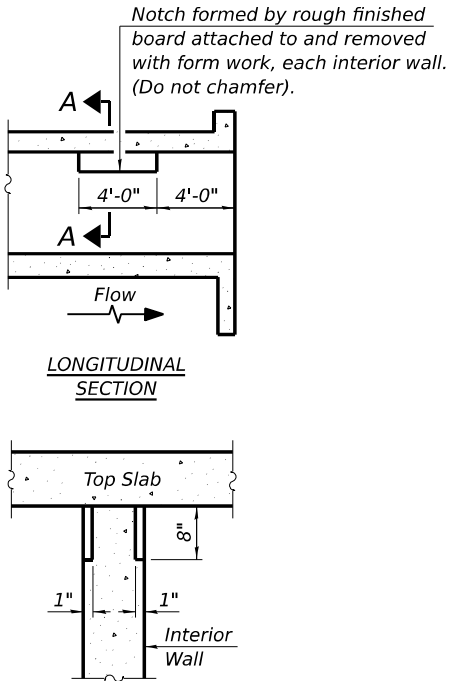
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET 1 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1909	30G(B-1)	UNION	114	26
CONTRACT NO. 78A13				
ILLINOIS FED. AID PROJECT				



**PAY LIMITS FOR POROUS
GRANULAR EMBANKMENT**



SECTION A-A

**PHOEBE NESTING
SITE DETAILS
(Downstream End Only)**

GENERAL NOTES

- Reinforcement bars designated (E) shall be epoxy coated.
- Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- The Rock Fill shall be capped according to the Rock Fill – Foundation Special Provision. The cost of the capping material shall be included in the pay item for Rock Fill – Foundation.

STA. 698+91.06
BUILT 20__ BY
STATE OF ILLINOIS
F.A.S. Rt. 1909 SEC. 30G(B-1)
LOADING HL-93
STR. NO. 091-2027

NAME PLATE
See Std. 515001

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	240
Stone Riprap, Class A5	Sq. Yd.	294
Filter Fabric	Sq. Yd.	294
Removal of Existing Structures No. 1	Each	1
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	37
Reinforcement Bars	Pound	48,450
Reinforcement Bars, Epoxy Coated	Pound	770
Bar Splicers	Each	134
Name Plates	Each	1
Temporary Soil Retention System	Sq. Ft.	702
Geotextile Retaining Wall	Sq. Ft.	74
Concrete Box Culverts	Cu. Yd.	241.1
* Rock Fill - Foundation	Ton	60
* Temporary Support System	L. Sum	1
Porous Granular Embankment	Cu. Yd.	396

* Special Provisions

1 REVISED SHEET 5-27-2026

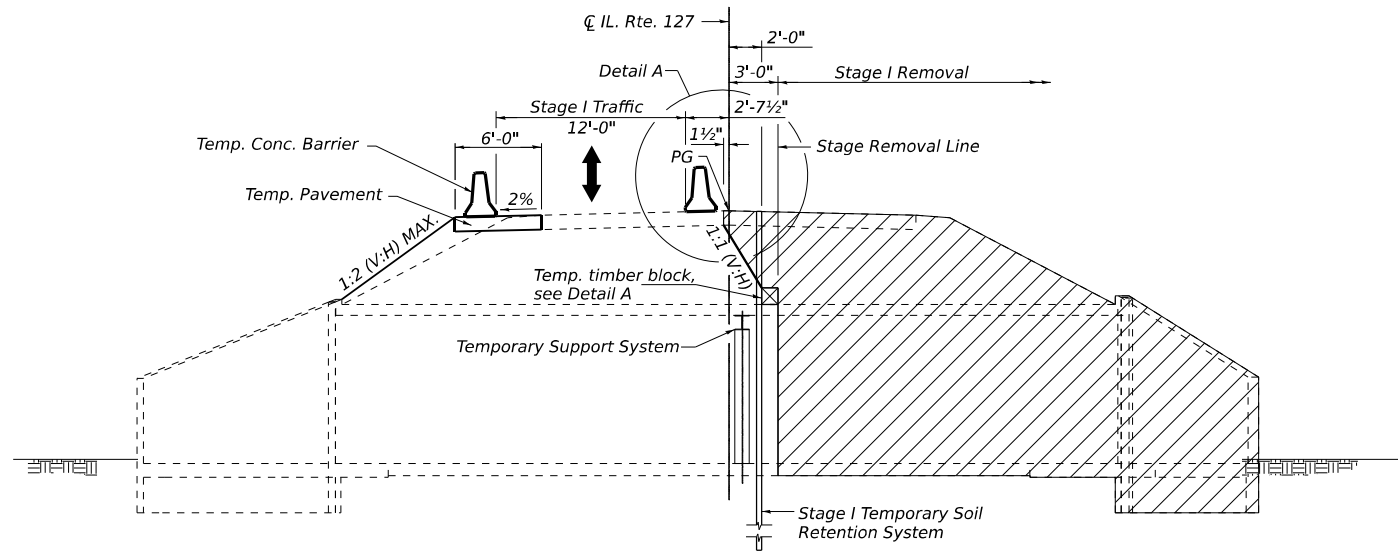
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GENERAL DATA
STRUCTURE NO. 091-2027**

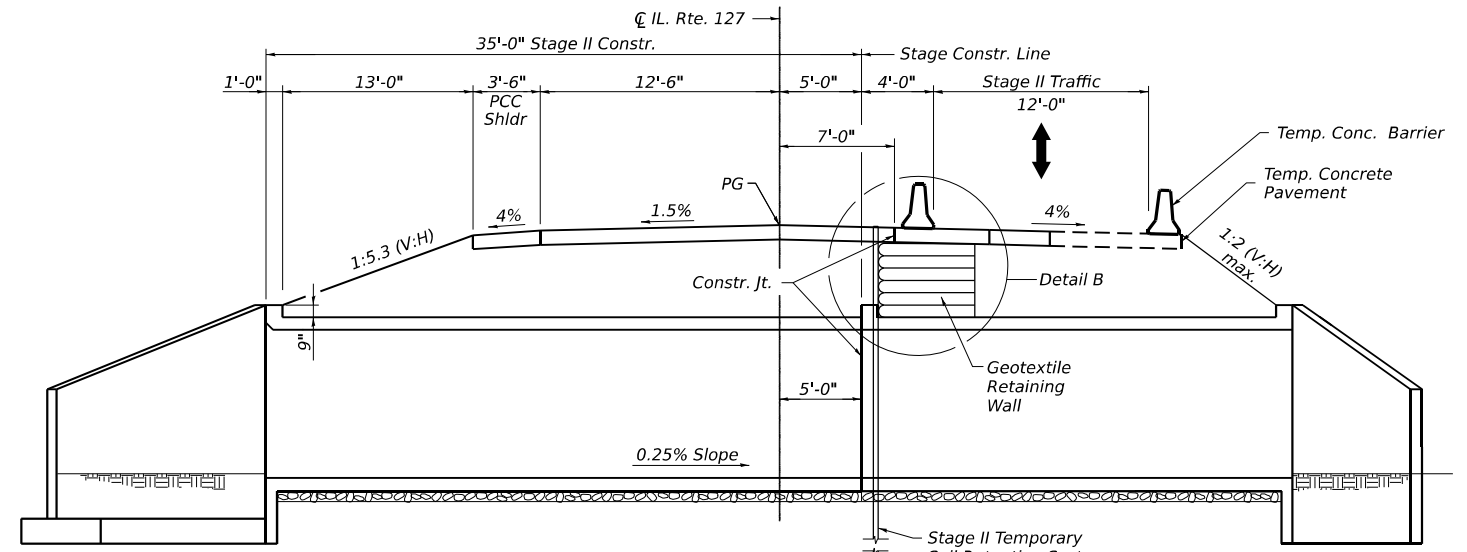
SHEET 2 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 78A13				
ILLINOIS FED. AID PROJECT				

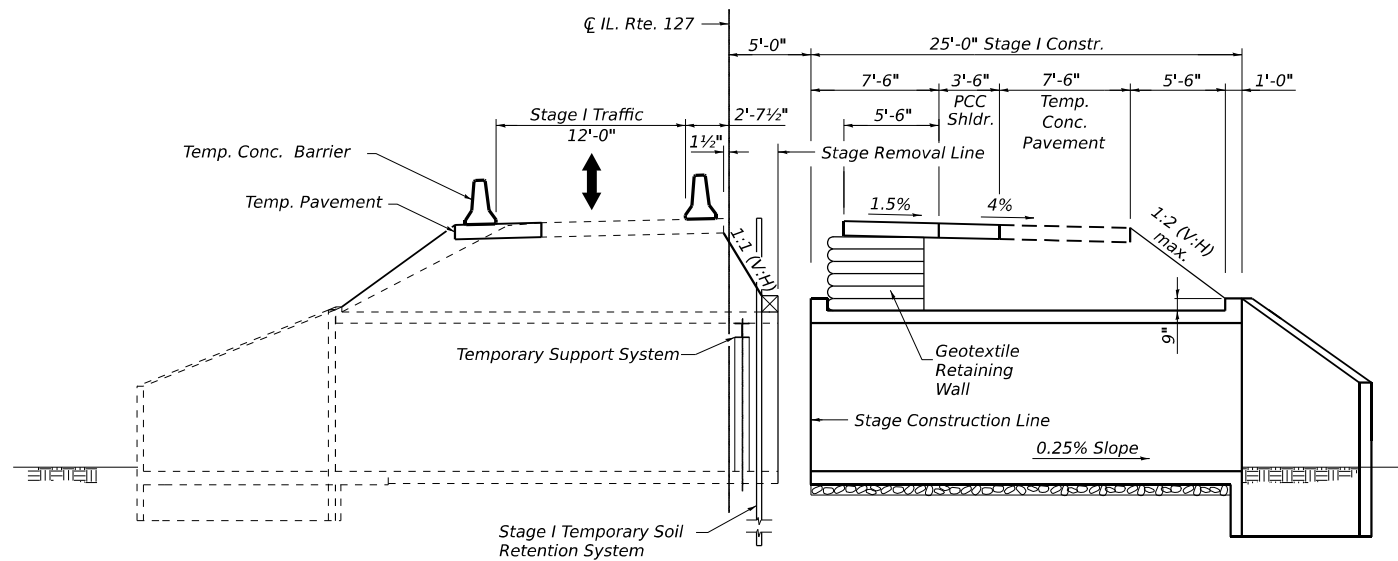
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PLOT SCALE =	DRAWN - MMY/JDC	REVISED -
PLOT DATE =	CHECKED - MJT	REVISED -



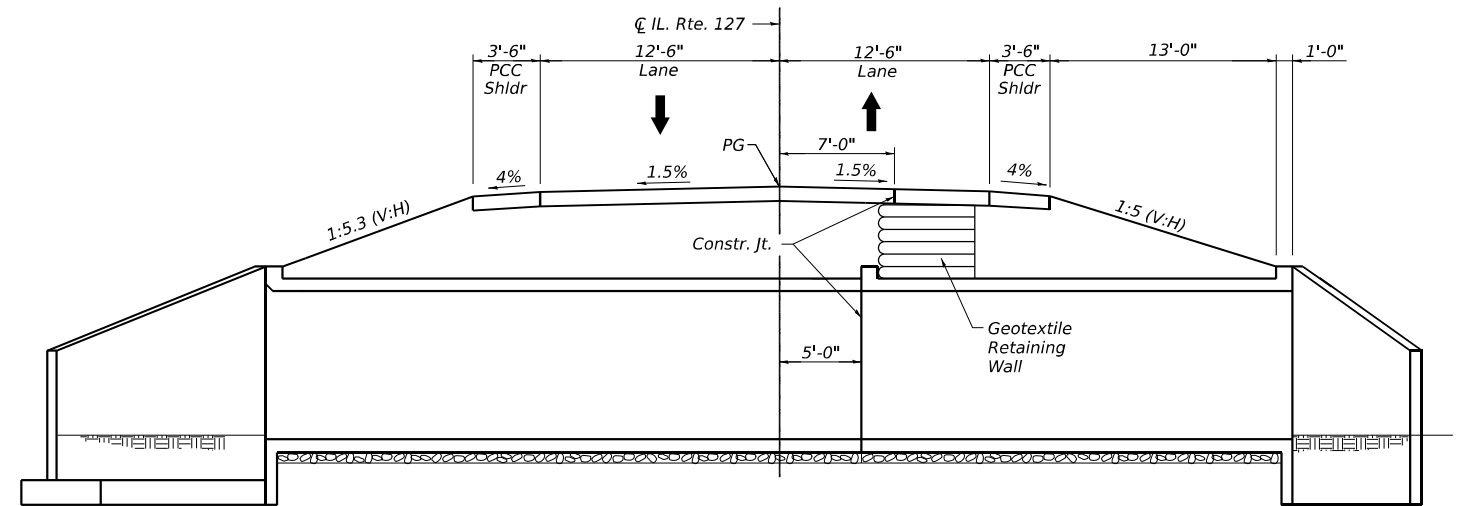
STAGE I REMOVAL



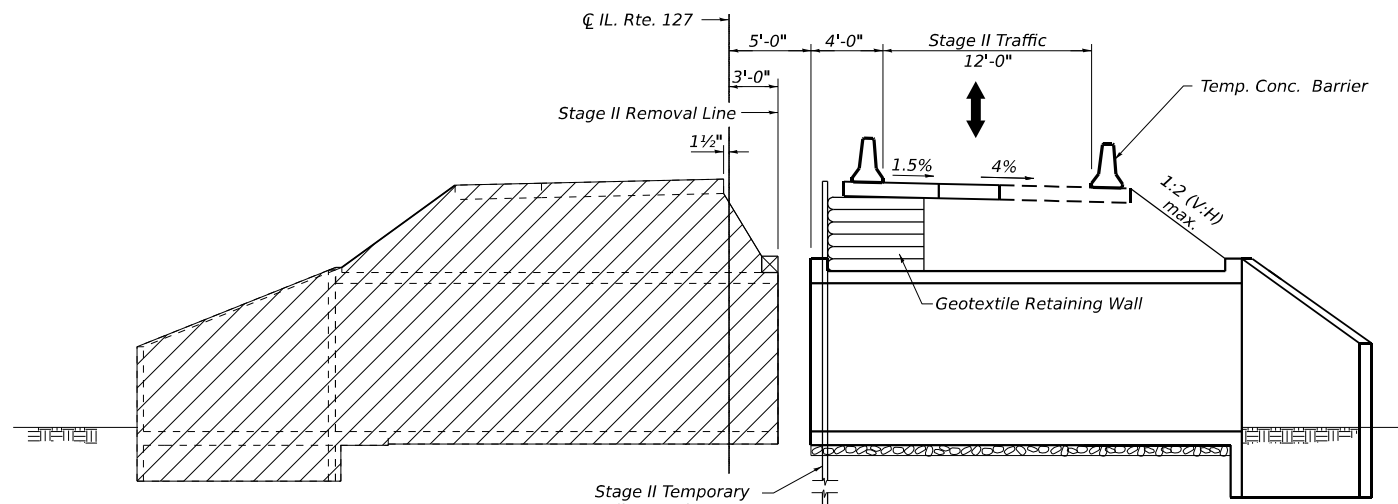
STAGE II CONSTRUCTION



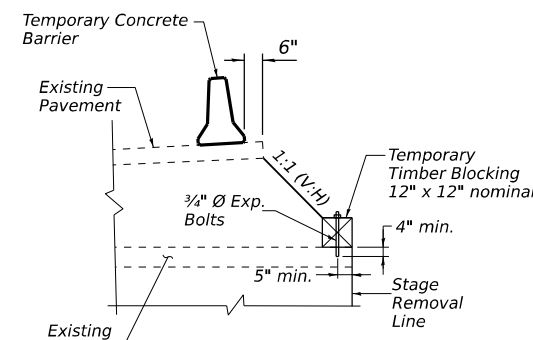
STAGE I CONSTRUCTION



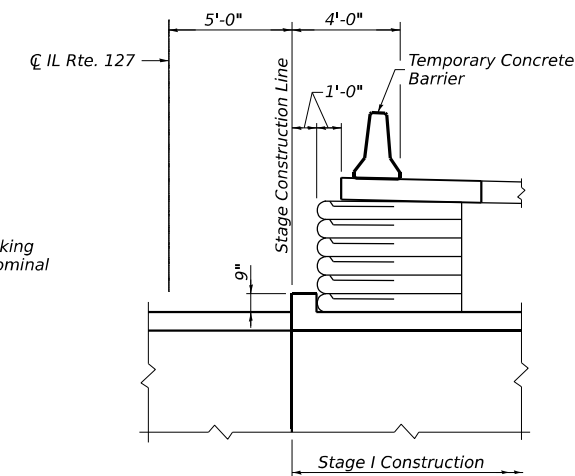
FINAL ROADWAY RECONFIGURATION



STAGE II REMOVAL



**DETAIL A
TEMPORARY TIMBER BLOCKING**



**DETAIL B
GEOTEXTILE RETAINING WALL**

Note:
Dimensions are at Rt. L's to ∇ Roadway.
All culvert staging sections are looking
upstation.
See Roadway for quantities of Temporary
Concrete Barrier.

REVISED SHEET 5-27-2026

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STAGE CONSTRUCTION DETAILS
STRUCTURE NO. 091-2027**

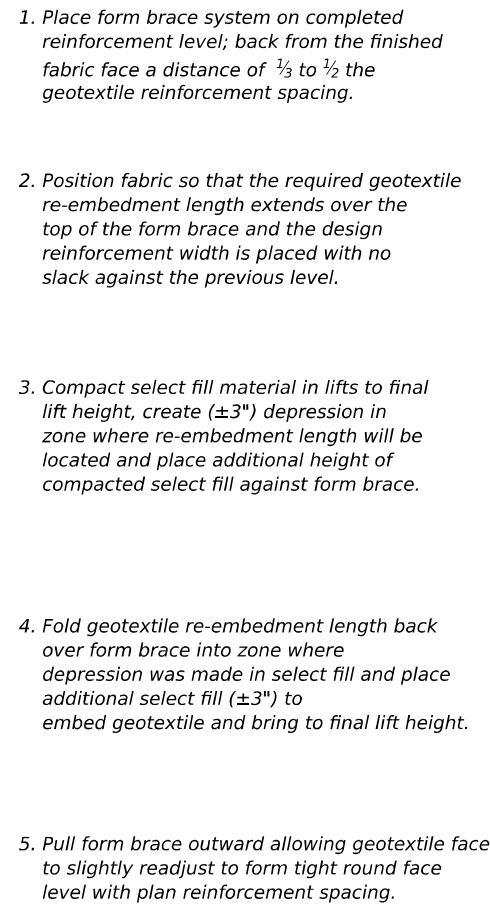
SHEET 3 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 78A13				
ILLINOIS FED. AID PROJECT				

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KUHN & TRELLO
CONSULTING ENGINEERS
A Limited Liability Company
109 N. 7th Street, 2nd Floor
Springfield, IL 62761
Phone: 217-670-0044
Professional Design Firm No. 284-006556

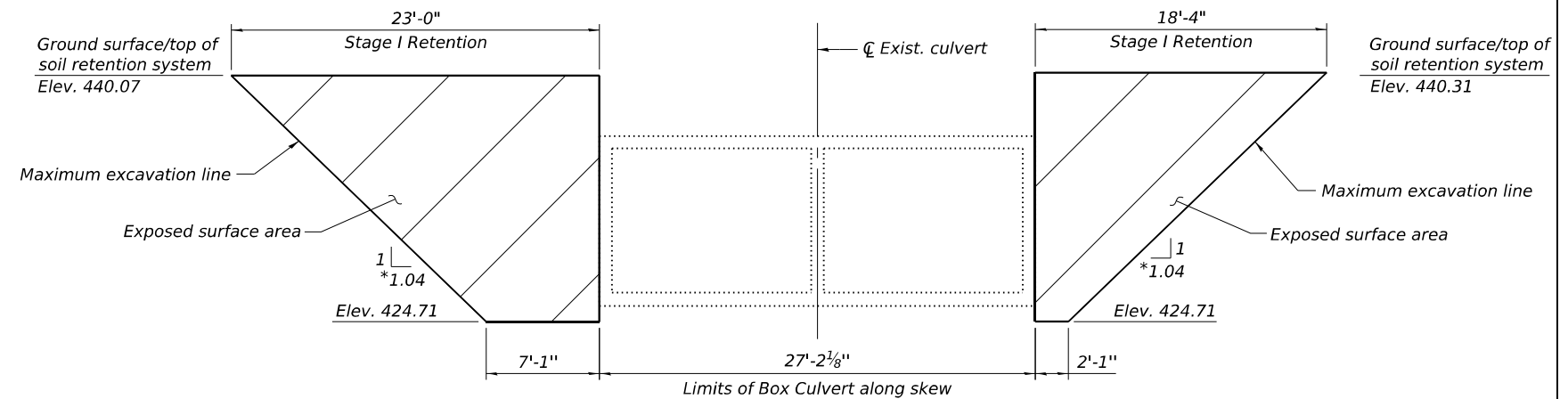
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	CHECKED - MJT	REVISED -



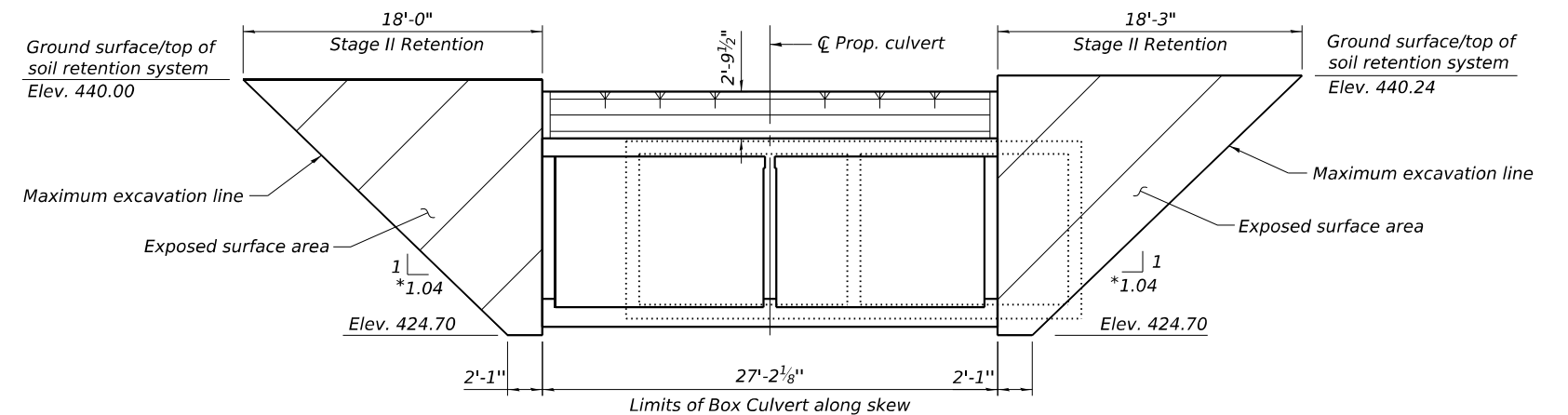
Note:
The geotextile soil reinforcement shall have a minimum allowable tensile strength (T min.) of 24 lb./in. as determined by the procedure described in the Standard Specifications. The computations supporting the determination of (T min.) shall be submitted to the engineer for approval.



Note:
This is a suggested detail, the Contractor is responsible for the design of the form brace system to be used.



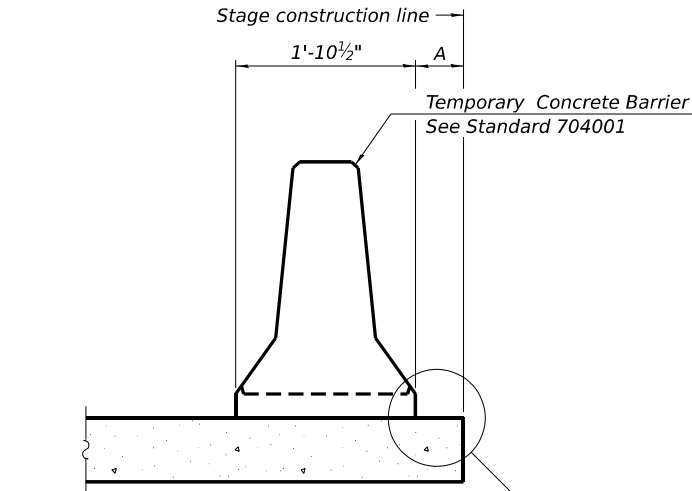
STAGE I RETENTION SYSTEM
(Looking East)



STAGE II RETENTION SYSTEM
(Looking East)

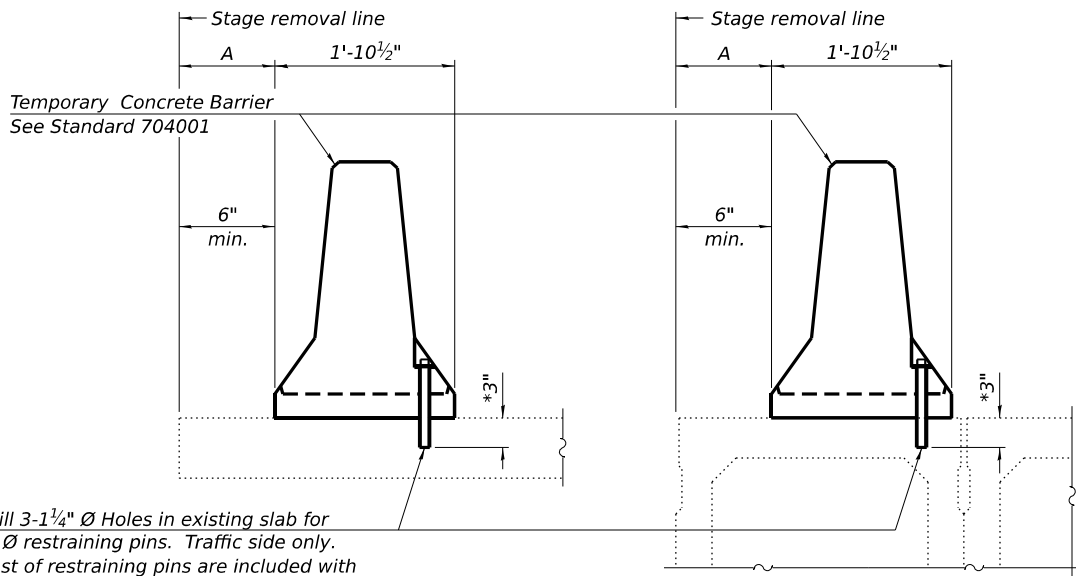
*Excavation shown is along the face of the Temporary Soil Retention System. The 1:1.04 slope shown is consistent with the 1:1 construction excavation.

Notes:
A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.
Elevations and dimensions are approximate based on plan data. Exact elevations and dimensions required shall be field verified by the Contractor.



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

NEW SLAB OR NEW DECK BEAM

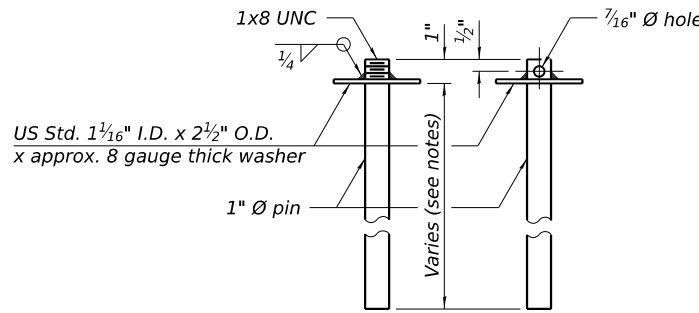


Drill 3-1 1/4" Ø Holes in existing slab for 1" Ø restraining pins. Traffic side only. Cost of restraining pins is included with Temporary Concrete Barrier. No restraint is required when "A" is greater than 3'-1".

EXISTING SLAB

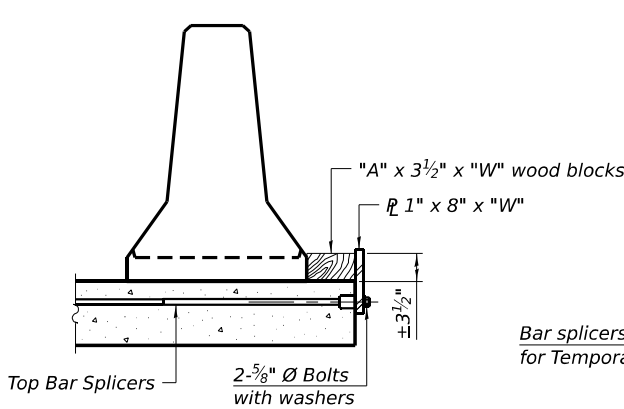
* When hot-mix asphalt wearing surface is present, embedment shall be 3" plus the wearing surface depth.

EXISTING DECK BEAM

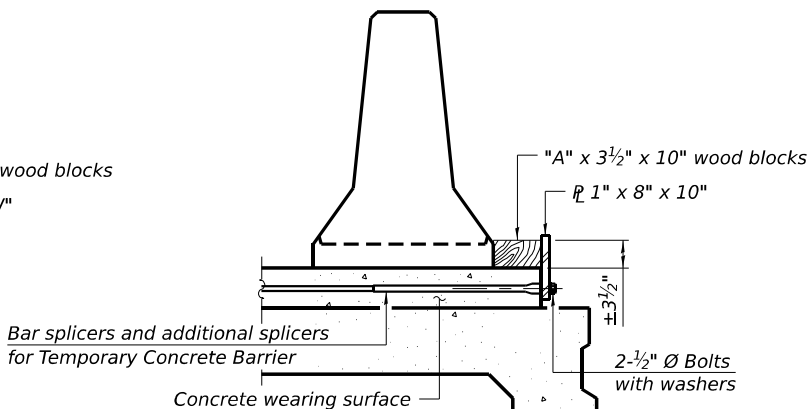


RESTRAINING PIN

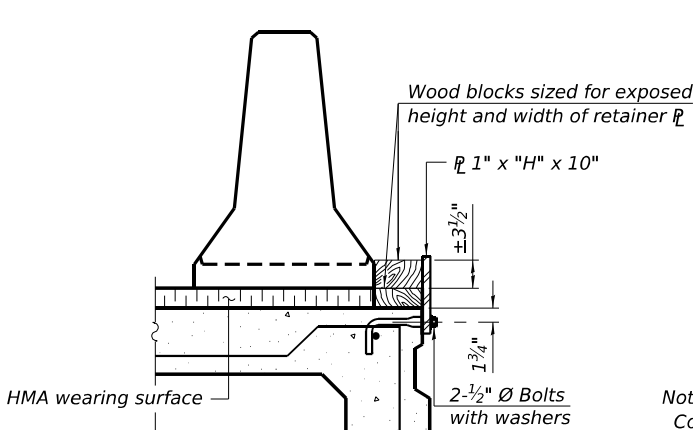
SECTIONS THRU SLAB OR DECK BEAM



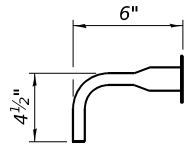
DETAIL I



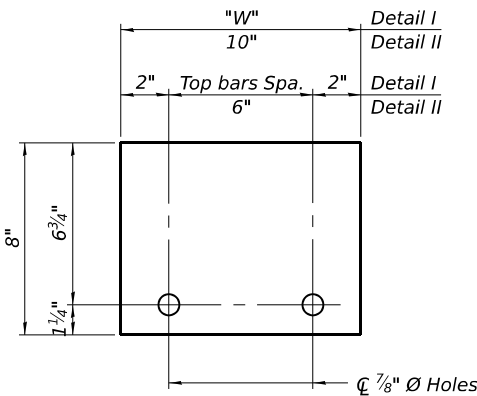
DETAIL II



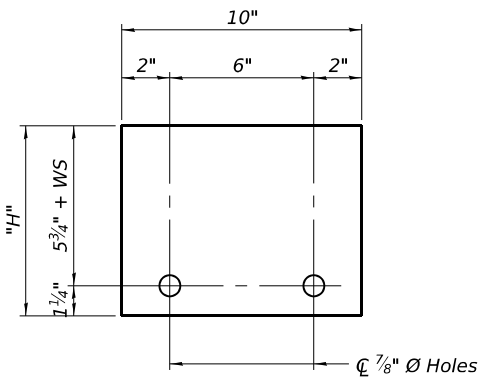
DETAIL III



BAR SPLICER FOR #4 BAR - DETAIL III



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



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

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

Detail I - Installation for a new bridge deck or bridge slab.

Detail II - Installation for a new deck beam with an initial concrete wearing surface. Additional bar splicers shall be provided at 6'-0" centers and paired with the bar splicers of the concrete wearing surface reinforcement to accommodate the installation of the retainer assemblies. The cost of the additional bar splicers is included with the concrete wearing surface.

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

RAILING CRITERIA

NCHRP 350 Test Level	3
Railing Weight (plf)	440

R-27

5-15-2023

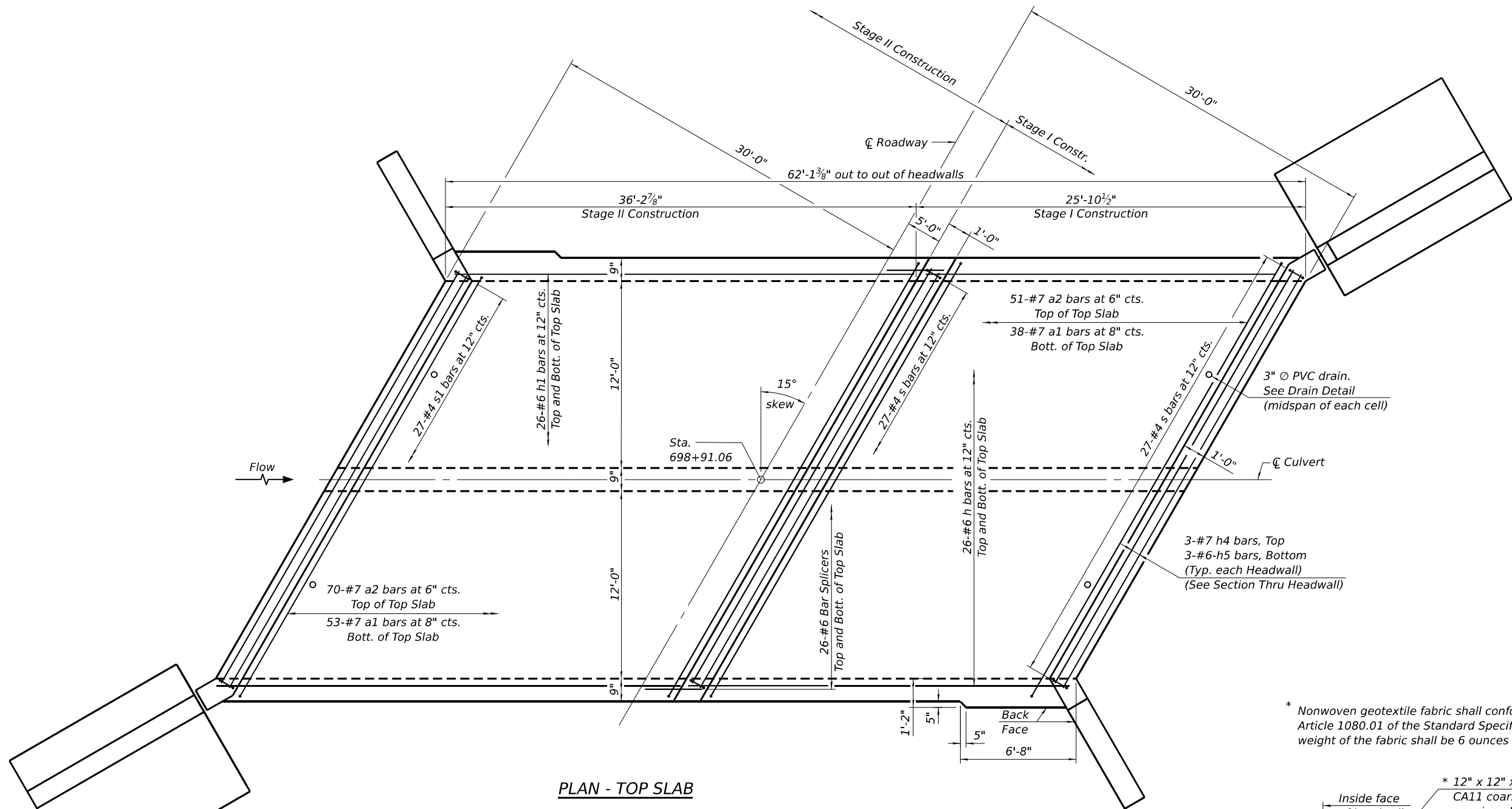
REVISD SHEET 5-27-2026

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER
STRUCTURE NO. 091-2027

SHEET 5 OF 10 SHEETS

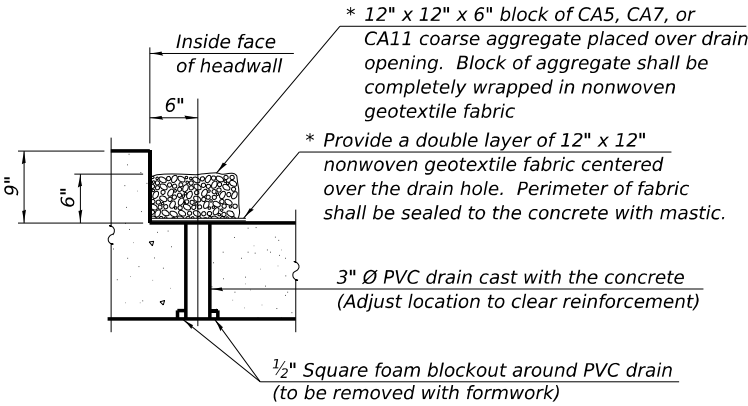
F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1909	30G(B-1)	UNION	114	30
CONTRACT NO. 78A13				
ILLINOIS FED. AID PROJECT				



PLAN - TOP SLAB

Notes:
A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.

* Nonwoven geotextile fabric shall conform to the requirements of Article 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.



DRAIN DETAIL

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.)

REVISI
REVISED SHEET 5-27-2026

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CULVERT DETAILS - TOP SLAB PLAN
STRUCTURE NO. 091-2027

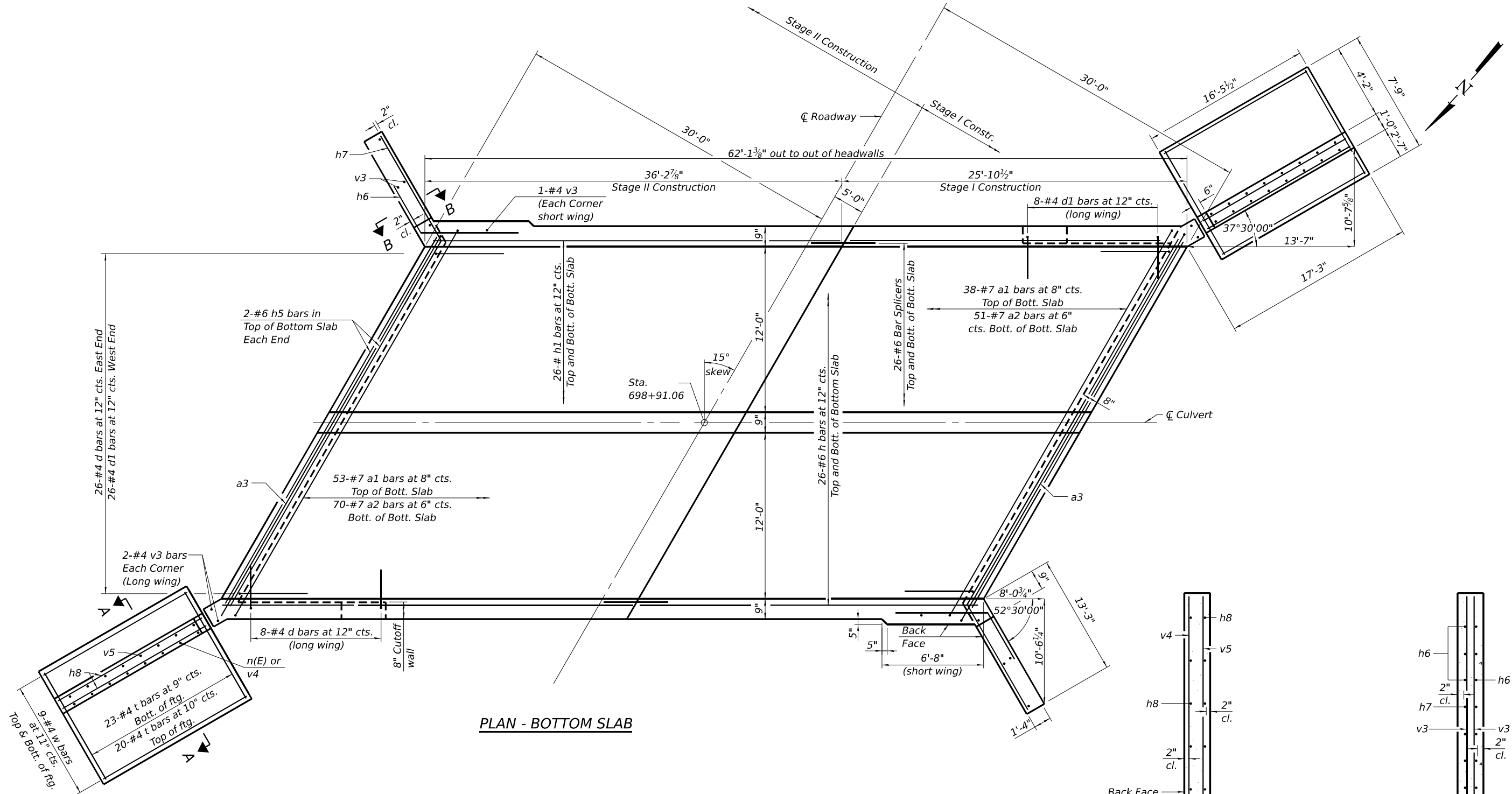
SHEET 6 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1909	30G(B-1)	UNION	114	31
CONTRACT NO. 78A13				
ILLINOIS FED. AID PROJECT				

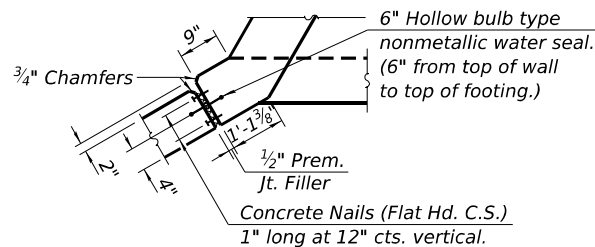
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KUHN & TRELLO
CONSULTING ENGINEERS
A Limited Liability Company
109 N. 7th Street, 2nd Floor
Springfield, IL 62761
Phone: 217-670-0044
Professional Design Firm No. 284-006556

USER NAME =	DESIGNED - PRR	REVISED -
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PLOT DATE =	CHECKED - MJT	REVISED -

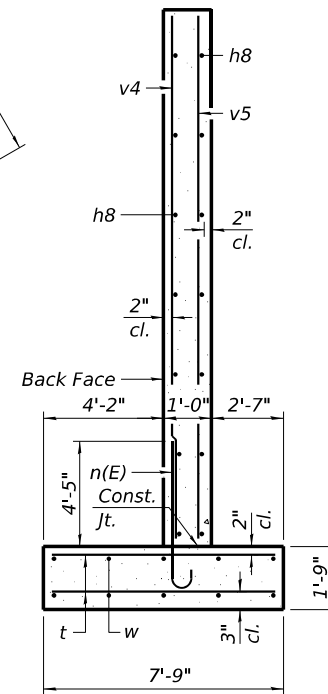


PLAN - BOTTOM SLAB



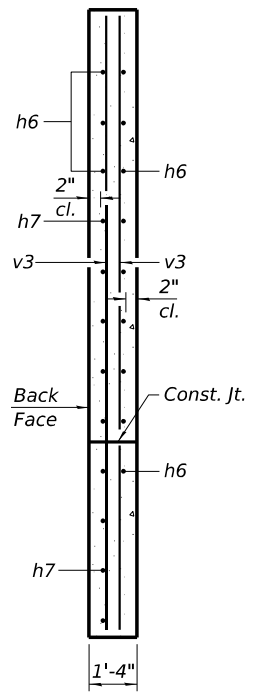
CORNER DETAIL - LONG WINGS

Notes:
A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.



SECTION A-A

(Max. Applied Service Bearing Pressure = 2.84 ksf)



SECTION B-B

REVISD SHEET 5-27-2026

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

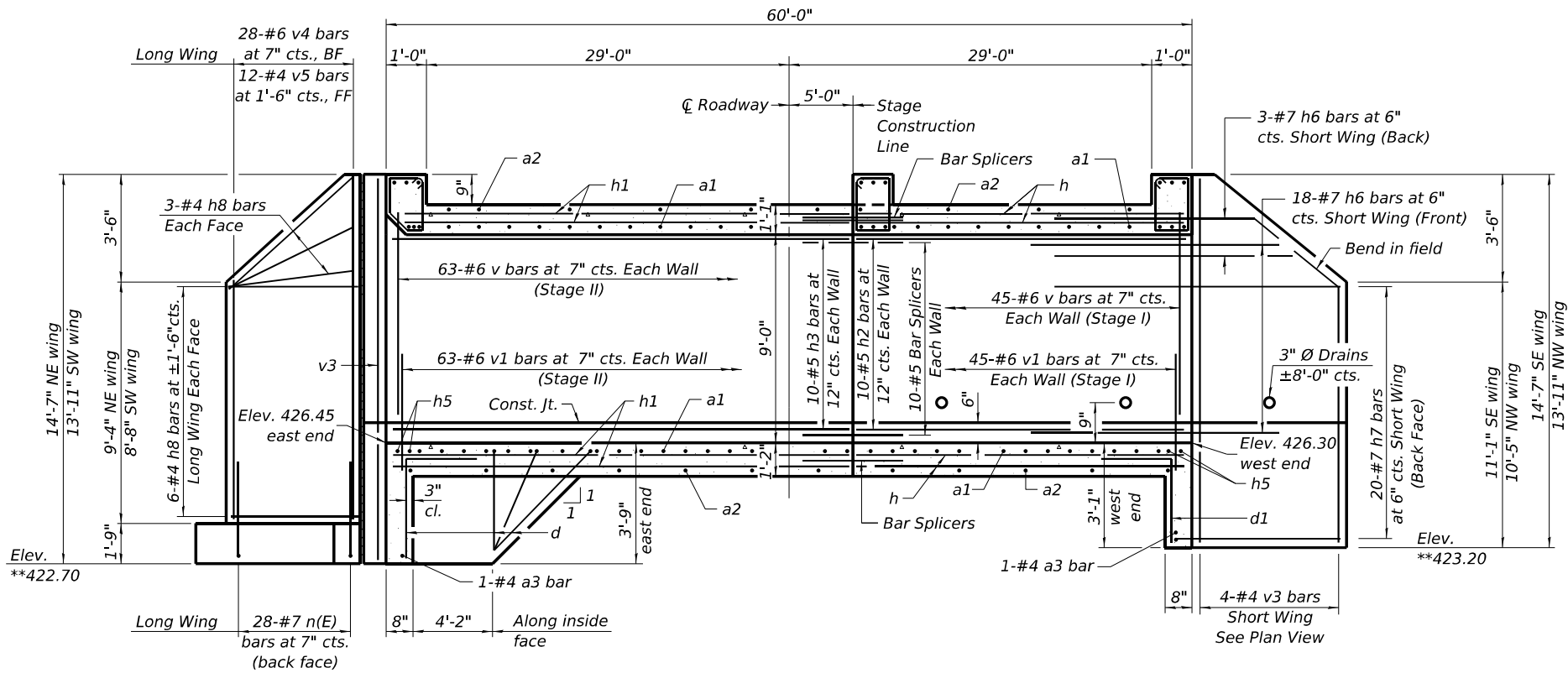
CULVERT DETAILS - BOTTOM SLAB PLAN
STRUCTURE NO. 091-2027

SHEET 7 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1909	30G(B-1)	UNION	114	32
CONTRACT NO. 78A13				

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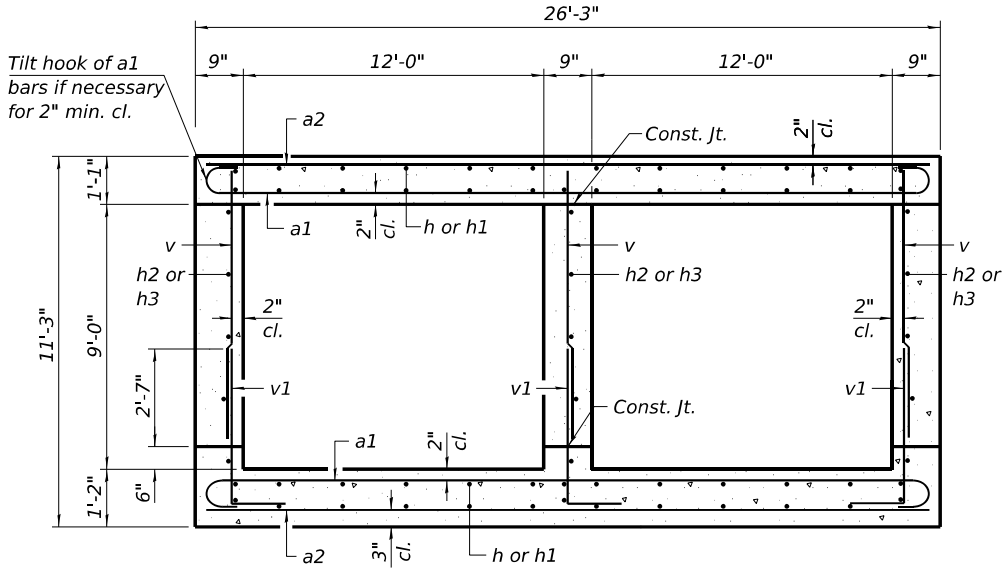
REINF. - T-TYPE WING

LONGITUDINAL SECTION
(Dimensions at Rt. L's to C Roadway)

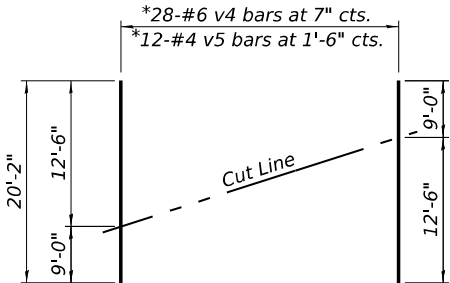
Notes:
At the Contractor's option, a longer v1 bar may be ordered to replace the v bar.
No reduction in quantities shall be made for this substitution.

** The bottom of footing elevation shall be adjusted to where the rock is encountered as directed by the Engineer.

REINF. - HORIZONTAL WING



SECTION THRU BARREL



FIELD CUTTING DIAGRAM

Order bars shown full length. Cut as shown and use remainder of bars in opposite wingwall.

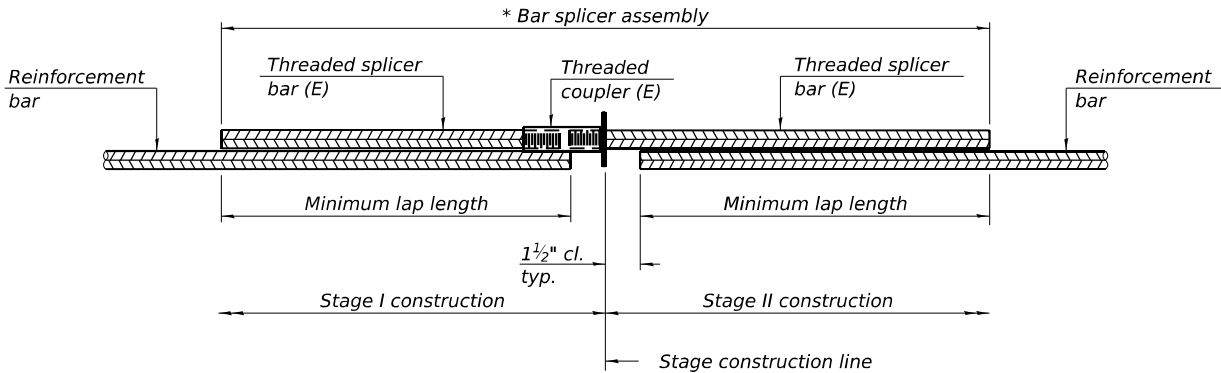
*Bars for shorter wing will need to be cut to fit.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a1	182	#7	28'-5"	
a2	242	#7	26'-10"	
a3	2	#4	26'-10"	
d	34	#4	5'-1"	
d1	34	#4	4'-4"	
h	104	#6	25'-6"	
h1	104	#6	35'-6"	
h2	30	#5	25'-6"	
h3	30	#5	35'-6"	
h4	9	#7	26'-4"	
h5	13	#6	26'-4"	
h6	42	#7	10'-5"	
h7	40	#7	17'-11"	
h8	36	#4	15'-9"	
n(E)	56	#7	6'-9"	
s	54	#4	5'-5"	
s1	27	#4	5'-3"	
t	86	#4	7'-5"	
v	324	#6	9'-3"	
v1	324	#6	5'-0"	
v3	14	#4	14'-3"	
v4	28	#6	21'-6"	
v5	12	#4	21'-6"	
w	36	#4	16'-2"	
Concrete Box Culverts			Cu. Yd.	241.1
Reinforcement Bars			Pound	48,450
Reinforcement Bars, Epoxy Coated			Pound	770

REVISD SHEET 5-27-2026

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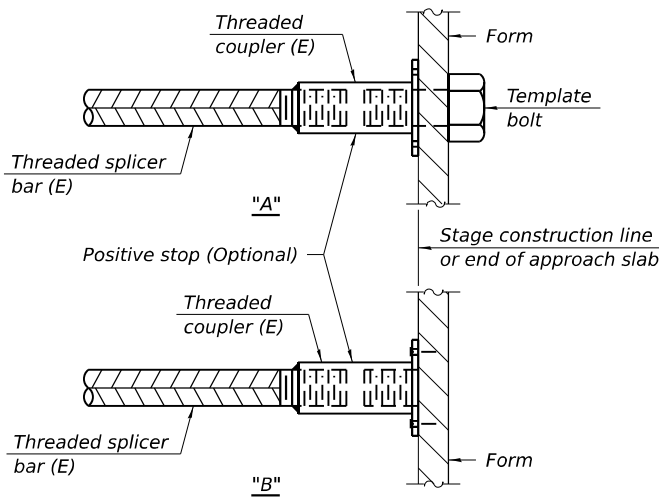
STANDARD BAR SPLICER ASSEMBLY PLAN

Only bar splicer assemblies as presented on the approved QPL list may be used.

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

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

Location	Bar size	No. assemblies required	Minimum lap length
Top slab	#6	52	3'-4"
Bottom slab	#6	52	3'-4"
N. Exterior wall	#5	10	2'-9"
Interior wall	#5	10	2'-9"
S. Exterior wall	#5	10	2'-9"

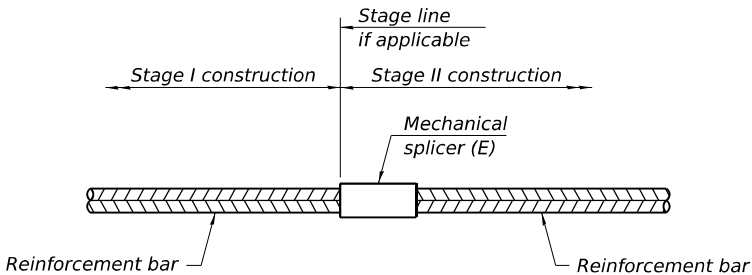


INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.

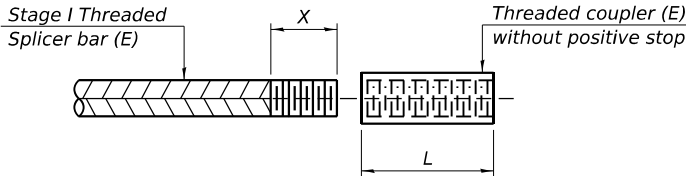
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.

(E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



THREADING OF ASSEMBLIES

The threaded length "X" shall be no more than L/2. The bar should be tightened until 0-1 thread(s) is/are exposed.

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

1 REVISED SHEET 5-27-2026

MODEL: Sheet
FILE NAME: I:\2023\23044 IDOT D9 - PTB 207-048 - PE HI BB\091-2027\CADD\at\CAD\sheet\0912027-78A13-009-splicer.dgn
3/17/2026 2:59:44 PM



KUHN & TRELLO

CONSULTING ENGINEERS

A Limited Liability Company

109 N. 7th Street, 2nd Floor

Springfield, IL 62761

Phone: 217-678-0844

Professional Design Firm No. 184-005516

USER NAME =	DESIGNED - PRR	REVISED -
	CHECKED - PDA	REVISED -
PLOT SCALE =	DRAWN - MMY/JDC	REVISED -
PLOT DATE =	CHECKED - MJT	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS
STRUCTURE NO. 091-2027

SHEET 9 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1909	30G(B-1)	UNION	114	34
CONTRACT NO. 78A13				
ILLINOIS FED. AID PROJECT				

MODEL: Sheet
FILE NAME: I:\2023\23044 IDOT D9 - PTB 207-048 - PE HI BB\091-2027\CADData\CADsheets\0912027-78A13-10-Borings.dgn

Assumed elevations modified per survey by KTCE 11/25/25

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation
Boring Log

Sheet 1 of 1

Route: ILL 127
Structure Number: 091-2005
Date: 1/18/2006

Section
Bored By: Bryan Keller

County: Union
Location: 1.2 MI N. ILL 146
Checked By: Rob Graeff

Boring No 1-S

Station 699+30

Offset 12' RT CL

Ground Surface 440.2 Ft

D
E
P
T
H

B
L
O
W

Qu
tsf

W%

Surf Wat Elev: 427.1

Ground Water Elevation when Drilling 423.2

At Completion

At: Hrs:

D
E
P
T
H

B
L
O
W

Qu
tsf

W%

Bituminous Shoulder

438.7

Very stiff, moist, brown, Clay A7-6 with Gravel

435.7

Stiff, very moist, brown, Clay A7-6 with Gravel and Boulders

430.7

Stiff, very moist, grey, Silty Clay Loam A-6 with Gravel

420.2

Medium, wet, grey, Sandy Gravel with Silty Clay Layers

423.2

Cored from 17.0 ft to 22.0 ft

418.2

Cored from 22.0 ft to 27.0 ft

Bottom of hole = 27.0 ft.

Free water observed at 17.0 ft

Elevation referenced to CL of Existing Structure: Elevation = 440.10 ft.

To convert "N" values to "N60" values multiply by 1.25

30.0

40.0

45.0

50.0

N-Std Pentr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

Assumed elevations modified per survey by KTCE 11/25/25

ILLINOIS DEPARTMENT OF TRANSPORTATION
District Nine Materials

Bridge Foundation
Boring Log

Sheet 1 of 1

Route: ILL 127
Structure Number: 091-2005
Date: 1/18/2006

Section
Bored By: Bryan Keller

County: Union
Location: 1.2 MI N. ILL 146
Checked By: Rob Graeff

Boring No 2-S

Station 698+52

Offset 12' LT CL

Ground Surface 439.7 Ft

D
E
P
T
H

B
L
O
W

Qu
tsf

W%

Surf Wat Elev: 427.0

Ground Water Elevation when Drilling 426.7

At Completion 427.7

At: Hrs:

D
E
P
T
H

B
L
O
W

Qu
tsf

W%

Bituminous Shoulder

438.2

Very stiff, very moist, brown, Silty Clay Loam A-6 with Gravel

435.2

Stiff, very moist, brown, Silty Clay Loam A-6 with Gravel

432.7

Very stiff, very moist, grey, Silt Loam to Silty Clay Loam A-6

430.2

Medium, very moist to wet, grey, Silty Clay Loam A-6

427.7

Loose, wet, grey, Sandy Gravel

426.2

Medium, wet, grey, Sandy Gravel

422.7

Hard, dry, grey, Limestone

Bottom of hole = 17.0 ft.

Free water observed at 12.0 ft

Elevation referenced to CL of Existing Structure: Elevation = 440.1 ft.

To convert "N" values to "N60" values multiply by 1.25

30.0

35.0

40.0

45.0

50.0

N-Std Pentr Test: 2" OD Sampler, 140# Hammer, 30" Fall (Type Fail. B-Bulge S-Shear E-Estimated P-Penetrometer)

1 REVISED SHEET 5-27-2026

KT

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Springfield, IL 62761
Phone: 217-678-0844
Professional Design Firm No. 284-006516

USER NAME =
DESIGNED - PRR
CHECKED - PDA
PLOT SCALE =
PLOT DATE =

DESIGNED - PRR
CHECKED - PDA
DRAWN - MMY/JDC
CHECKED - MJT

REVISED -
REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

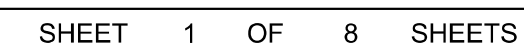
SOIL BORING LOGS
STRUCTURE NO. 091-2027

SHEET 10 OF 10 SHEETS

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1909	30G(B-1)	UNION	114	35
CONTRACT NO. 78A13				
ILLINOIS		FED. AID PROJECT		

No salvage

LOCATION SKETCH



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
885	104A(B-1)	UNION	114	65
		CONTRACT NO. 78A13		
ILLINOIS		FED. AID PROJECT		

1 REVISED SHEET 5-27-2026