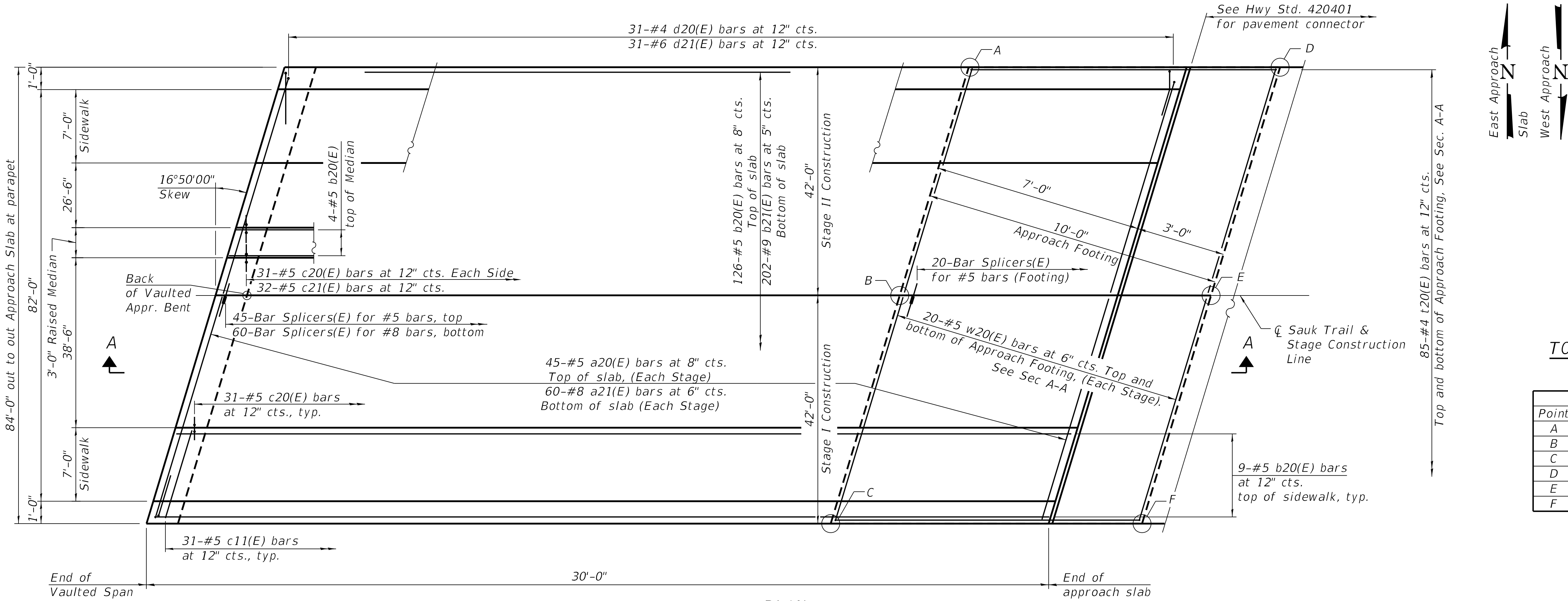
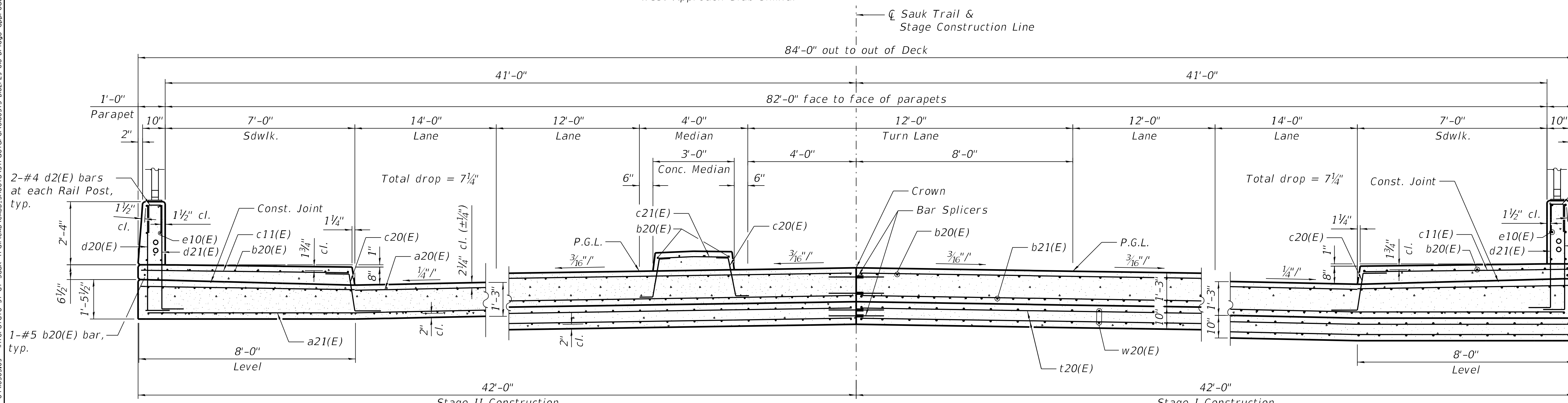


PLAN

East Approach Slab shown
West Approach Slab similar

TOP AND BOTTOM ELEVATIONS FOR APPROACH FOOTING

	East Approach		West Approach	
Point	Top	Bottom	Top	Bottom
A	748.44	747.61	749.89	749.05
B	749.39	748.56	750.24	749.41
C	749.11	748.28	749.37	748.53
D	748.13	747.30	749.68	748.85
E	749.11	748.27	750.02	749.19
F	748.85	748.01	749.12	748.29



CROSS SECTION

(Looking East)

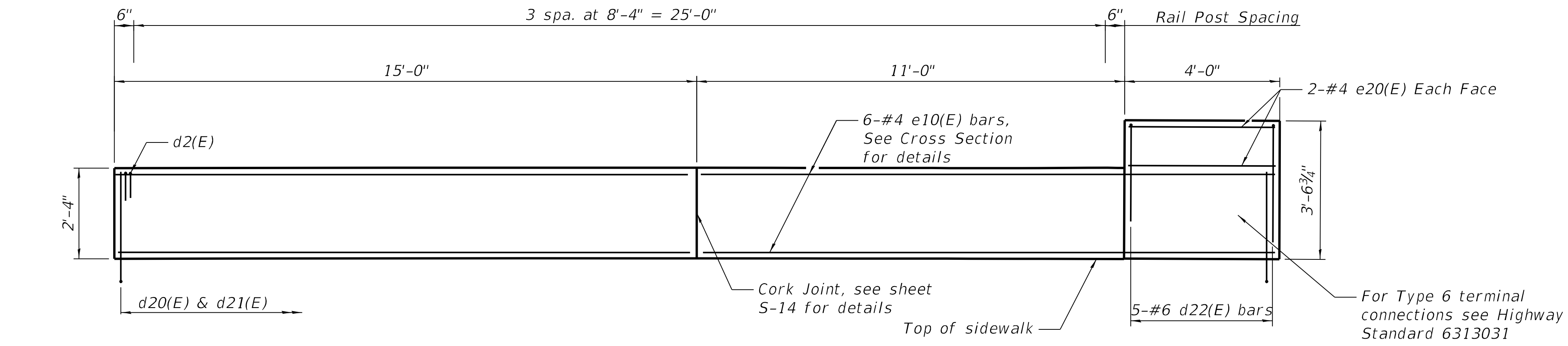
(Sheet 1 of 2)

COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - EKM	REVISED -	
	PLOT SCALE =	DRAWN - PRH	REVISED -	
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -	

BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 016-0575
SHEET NO. S-18 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	101

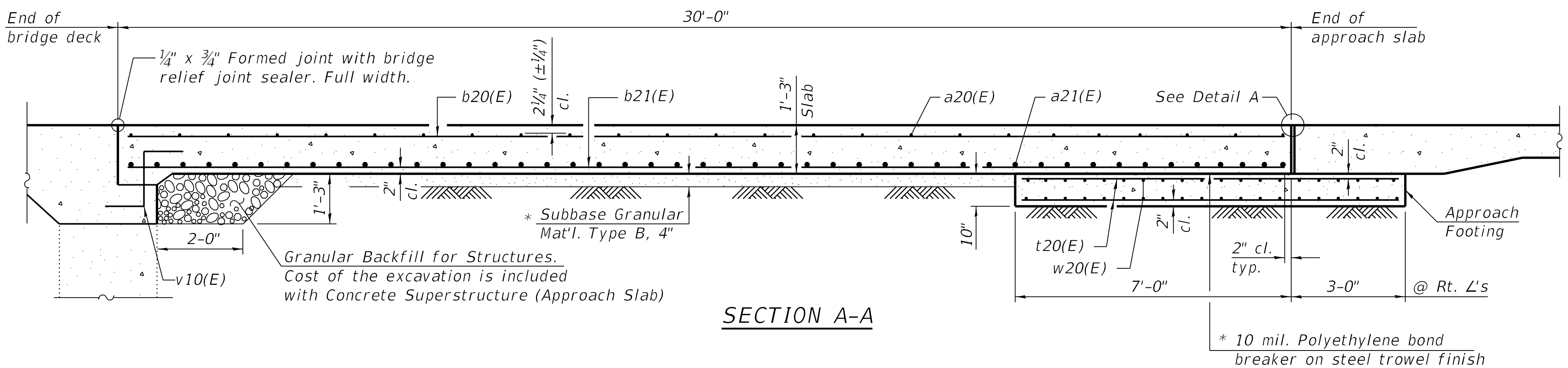
CONTRACT NO. 62F29
ILLINOIS FED. AID PROJECT



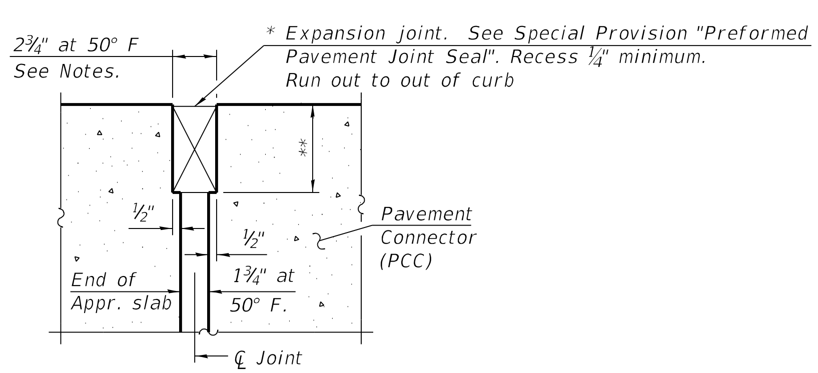
INSIDE ELEVATION OF PARAPET AND CURB

Notes:

Median, sidewalk and parapet concrete shall be paid for as Concrete Superstructure.
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 (Qmax) = 2.0 ksf.
Cost of excavation for approach footing included with Concrete Structures.



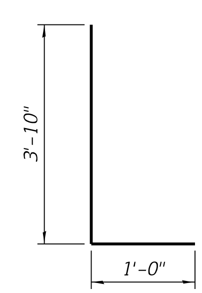
SECTION A-A



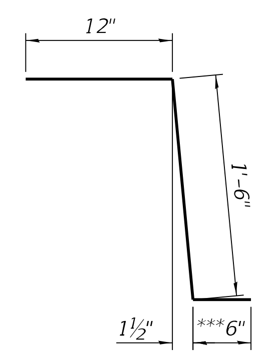
DETAIL A
(@ Rt. ∠'s)

* Cost included with Concrete Superstructure (Approach Slab).

** Per manufacturer recommendations

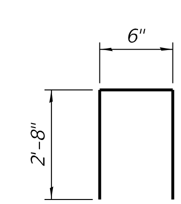


BARS d20(E) & d21(e)



BAR c20(E)

*** In lieu of bottom leg, c(E) bars may be drilled and set according to Article 509.06 of the Standard Specifications. Drilled holes shall be roughened or scored per manufacturer's recommendations. Maximum depth of drilled hole shell not exceed 6". The Contractor shall take all necessary precautions to prevent drilled hole interference with deck reinforcement bars. Locate longitudinal bars to miss drilled locations. Located drilled holes to miss transverse bars in deck.



BAR d22(E)

TWO APPROACHES
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a20(E)	180	#5	43'-7"	——
a21(E)	240	#8	43'-7"	——
b20(E)	300	#5	29'-8"	——
b21(E)	404	#9	29'-8"	——
c2(E)	62	#5	2'-7"	——
c20(E)	248	#5	3'-0"	˥
c11(E)	124	#5	8'-0"	——
d2(E)	32	#4	2'-0"	⊓
d20(E)	124	#4	4'-10"	L
d21(E)	124	#6	4'-10"	L
d22(E)	20	#6	5'-10"	⊓
e10(E)	168	#4	14'-8"	——
e20(E)	16	#4	3'-8"	——
t20(E)	340	#4	10'-1"	——
w20(E)	80	#5	43'-7"	——
Concrete Superstructure		Cu. Yd.	86.6	
Concrete Superstructure (Approach Slab)		Cu. Yd.	237.0	
Concrete Structures		Cu. Yd.	51.9	
Reinforcement Bars, Epoxy Coated		Pound	97,260	
Granular Backfill for Structures		Cu. Yd.	21.0	
Bridge Deck Grooving		Sq. Yd.	427	
Protective Coat		Sq. Yd.	638	

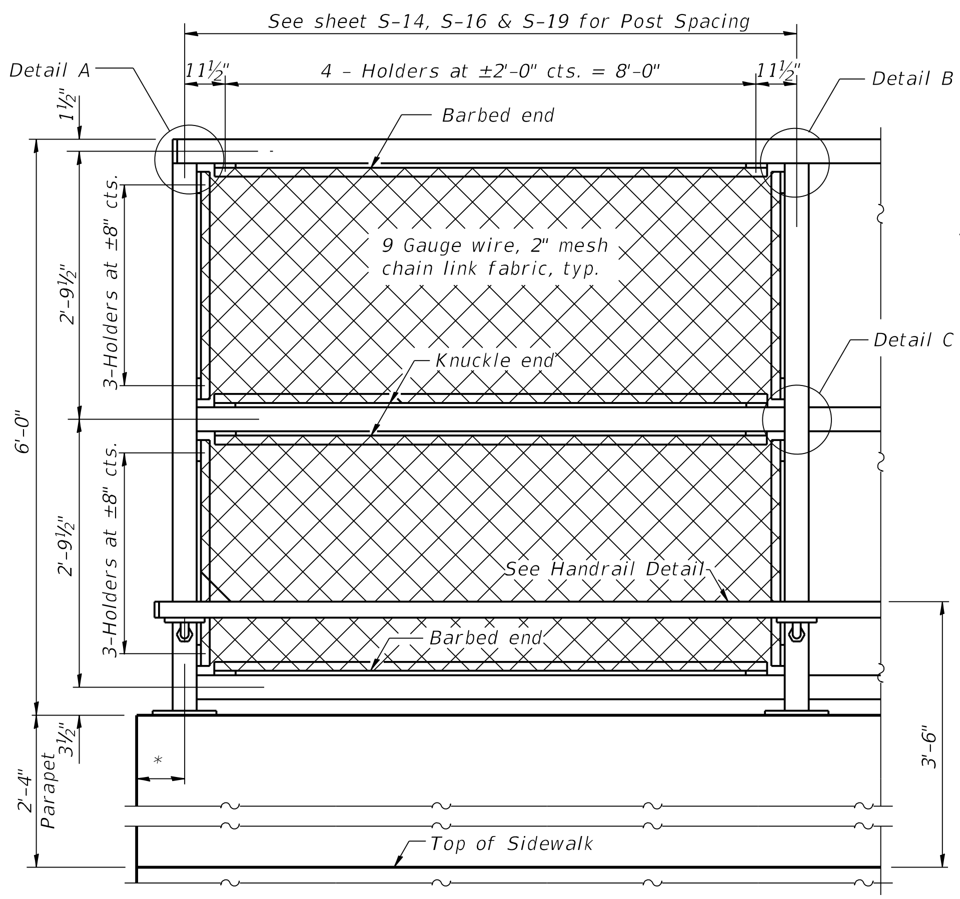
(Sheet 2 of 2)

COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -
		CHECKED - EKM	REVISED -
	PLOT SCALE =	DRAWN - PRH	REVISED -
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

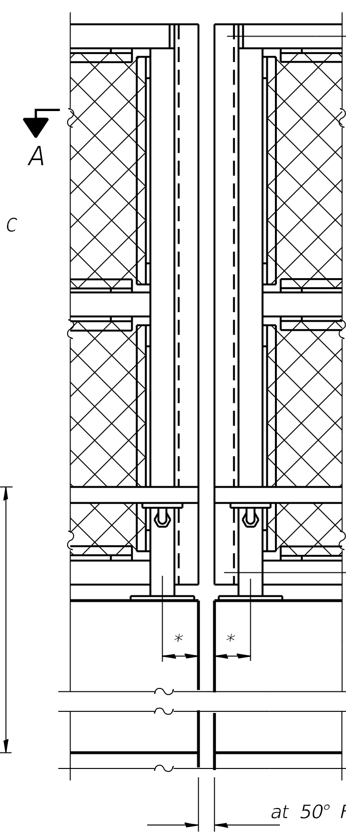
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 016-0575
SHEET NO. S-19 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	102
		CONTRACT NO. 62F29		
		ILLINOIS FED. AID PROJECT		

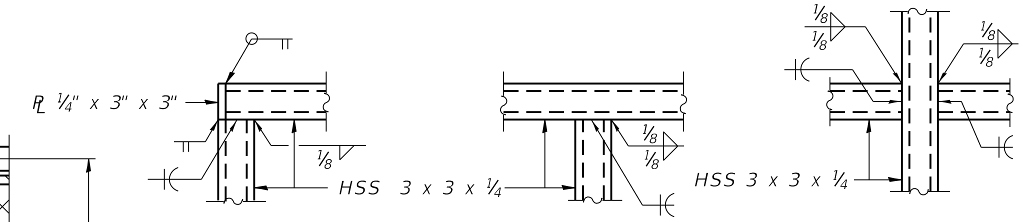


ELEVATION
(Inside Face)

* See sheets S-14, S16 & S-19 for dimensions



ELEVATION
(At Expansion Joint)

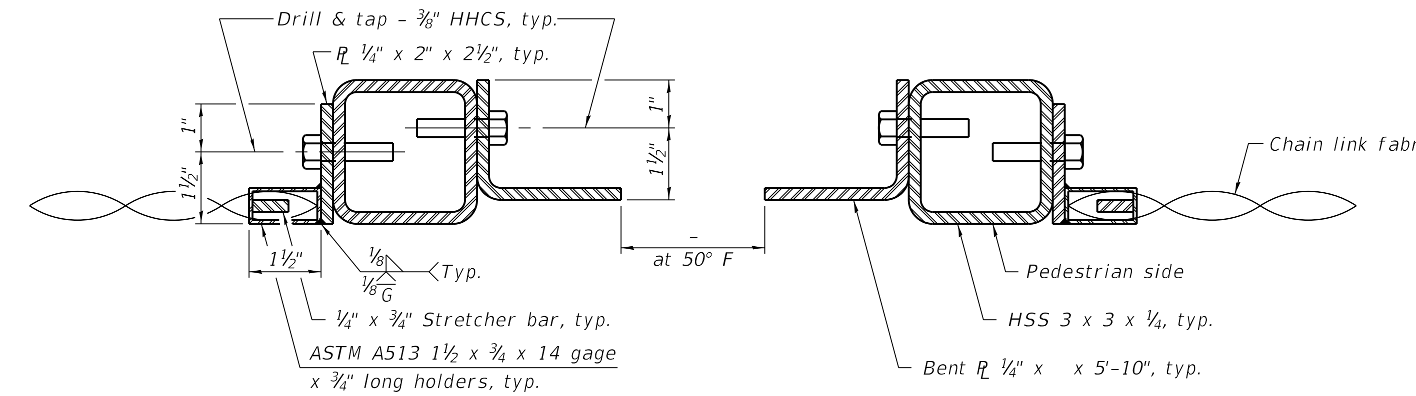


DETAIL A

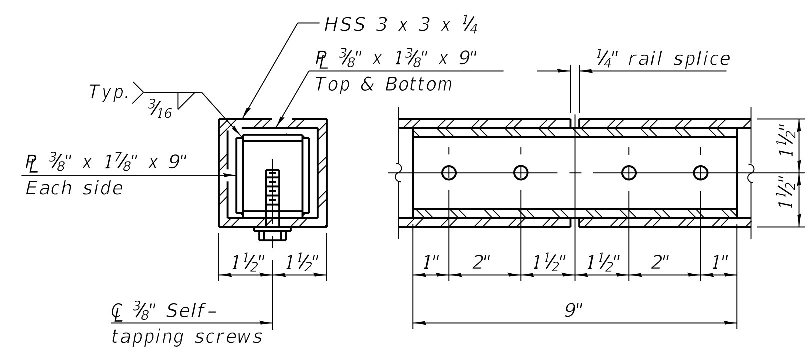
DETAIL B

DETAIL C

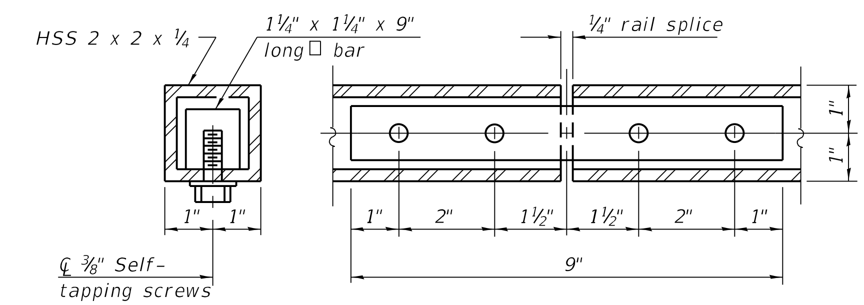
Note:
All chain link fabric, posts, railings, splices, anchor devices, and bent plates shall be vinyl coated. The color of the coat shall be black.



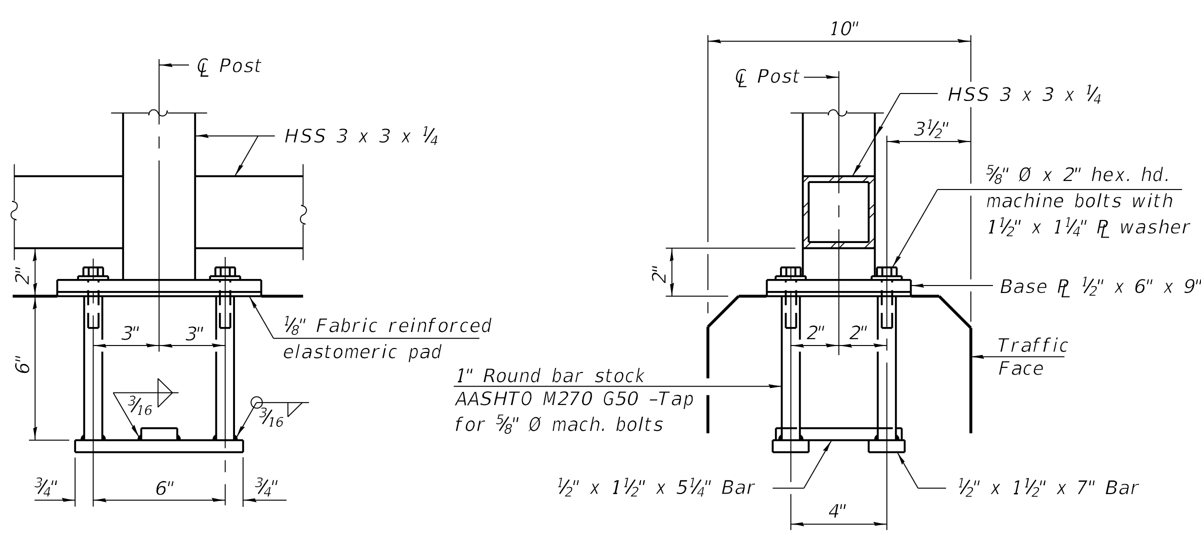
SECTION A-A



RAIL SPLICE

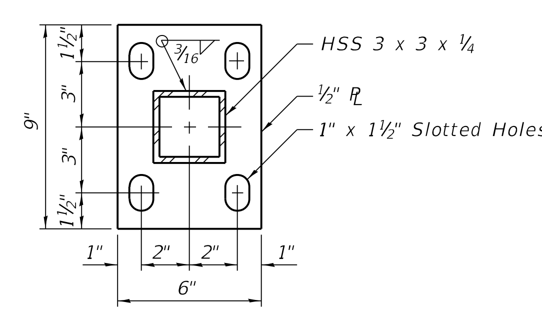


HANDRAIL SPLICE

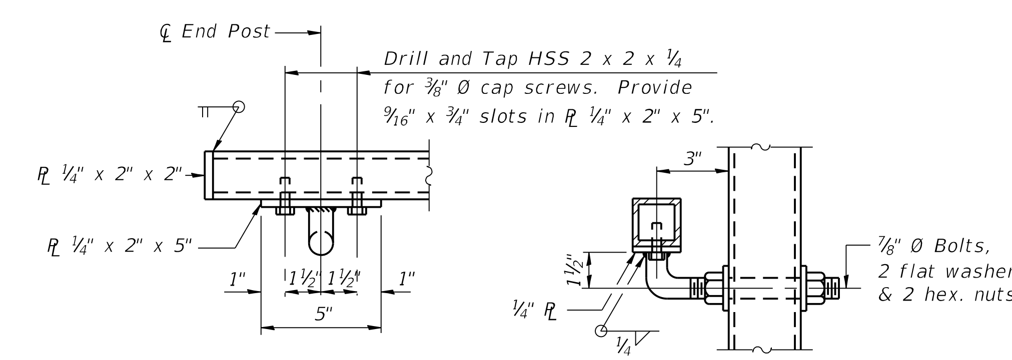


ANCHOR BOLT DETAILS

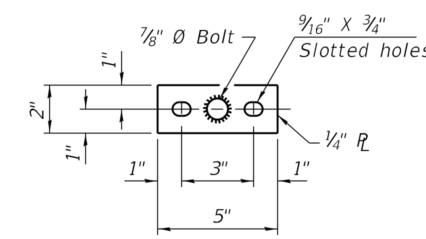
In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting ⅝" Ø anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.



BASE PL



HANDRAIL DETAIL



BASE PL
(Handrail)

Note:
CVN testing may be omitted for the railing.

BILL OF MATERIAL

Item	Unit	Quantity
Bridge Fence Railing	Foot	586

R-28 8-11-2017 (10'-0" Maximum Post Spacing)

COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -
		CHECKED - EKM	REVISED -
	PLOT SCALE =	DRAWN - PRH	REVISED -
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

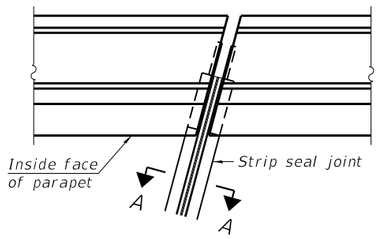
BRIDGE FENCE RAILING, PARAPET MOUNTED
STRUCTURE NO. 016-0575

SHEET NO. S-20 OF S-38 SHEETS

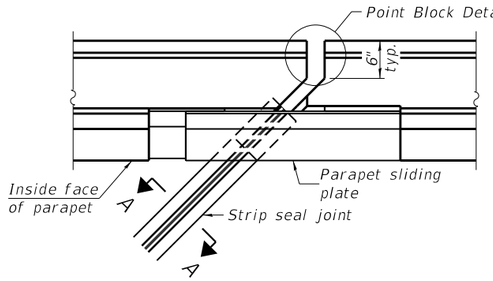
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	103

CONTRACT NO. 62F29

ILLINOIS FED. AID PROJECT

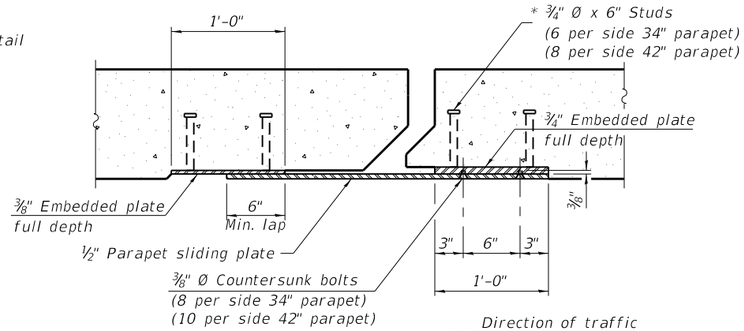


FOR SKEWS ≤ 30°

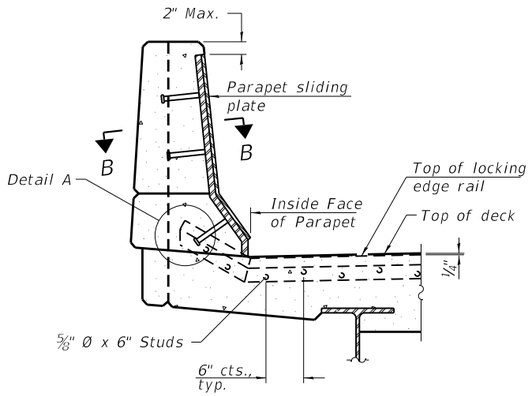


FOR SKEWS > 30°

PLAN AT PARAPET

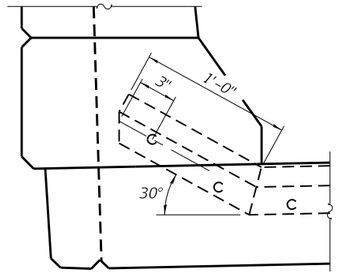


SECTION B-B

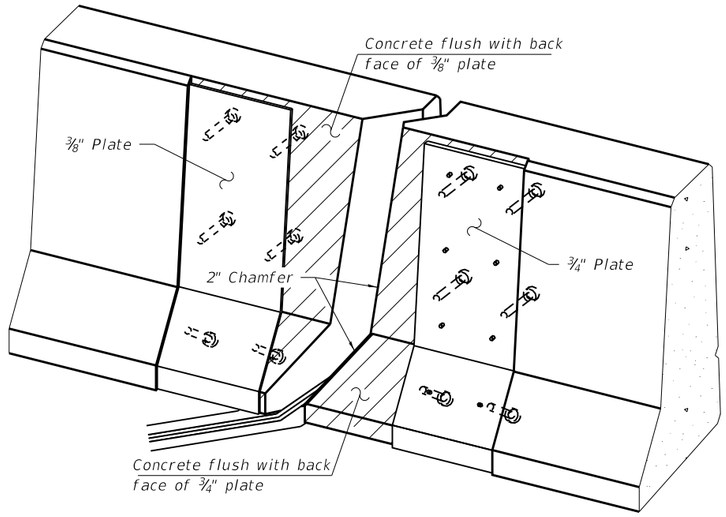


ELEVATION AT PARAPET

(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)

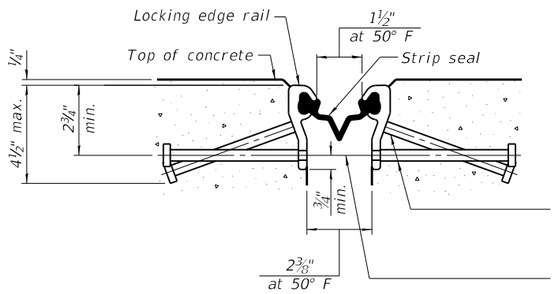


DETAIL A

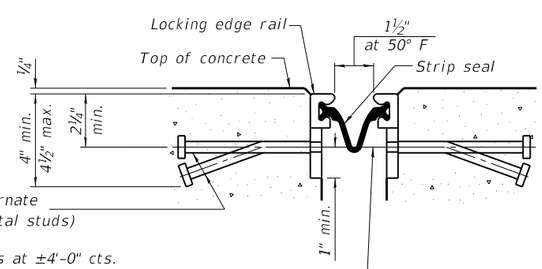


TRIMETRIC VIEW

(Showing embedded plates only)



SHOWING ROLLED RAIL JOINT



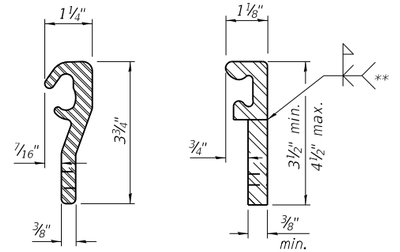
SHOWING WELDED RAIL JOINT

* ⅜" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

⅜" ϕ threaded rods in 7/16" ϕ holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

SECTION A-A

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

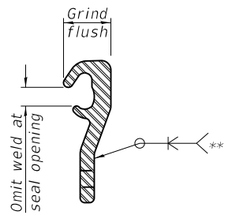


ROLLED (EXTRUDED) RAIL

WELDED RAIL

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.

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of ¼". 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 4½" 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 top surface of sidewalk sliding plates shall have a raised pattern according to ASTM A786.

Cost of parapet sliding plates, sidewalk sliding plates, embedded plates, anchorage studs, and expansion anchors included with Preformed Joint Strip Seal.

34" F-shape barrier shown, 42" F-shape similar as noted.

The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet 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.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	172

EJ-SS-S 8-11-17

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ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993

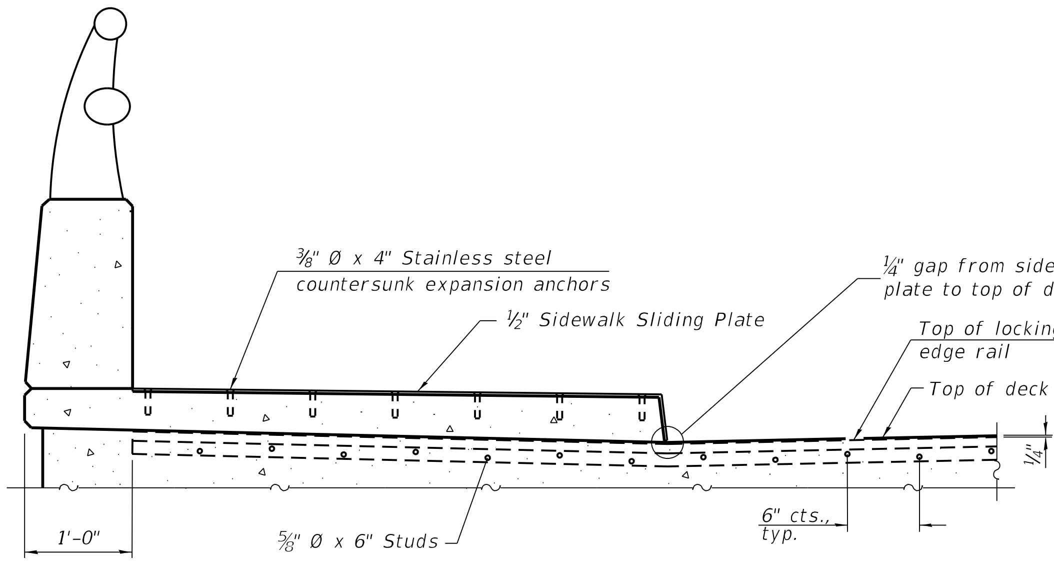
USER NAME =	DESIGNED - BMS	REVISED -	
	CHECKED - EKM	REVISED -	
PLOT SCALE =	DRAWN - PRH	REVISED -	
PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

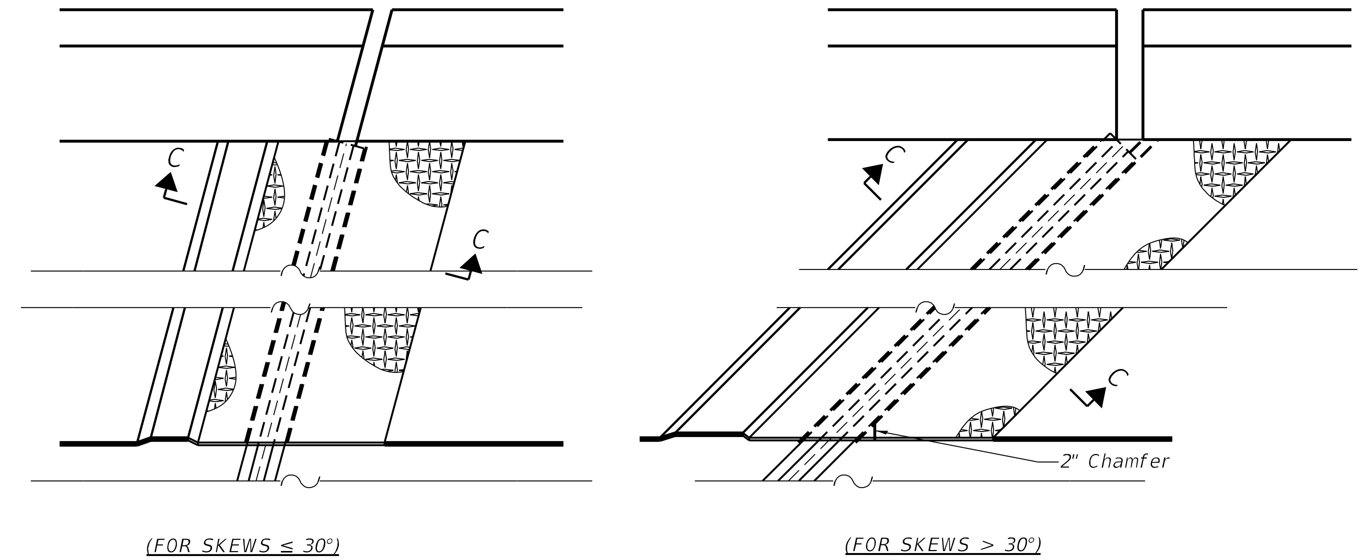
PREFORMED JOINT STRIP SEAL – SIDEWALK
STRUCTURE NO. 016-0575

SHEET NO. S-21 OF S-38 SHEETS

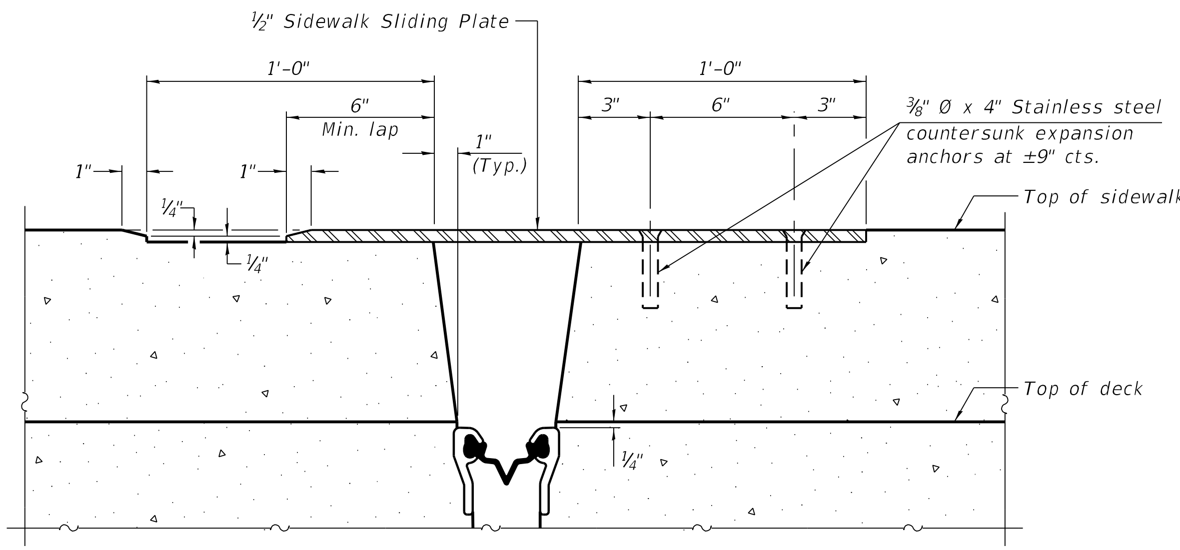
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	104
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



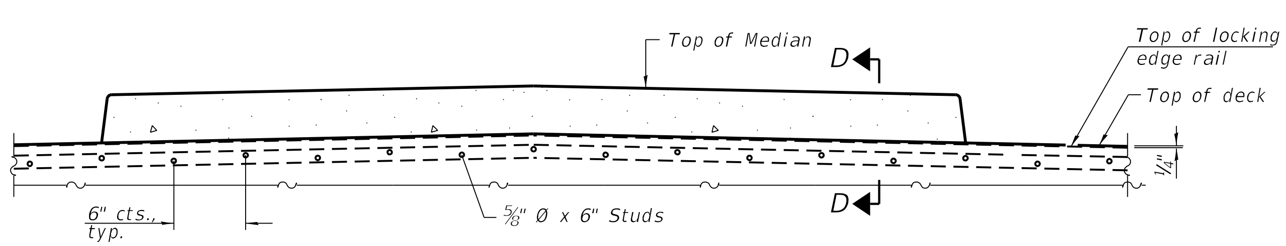
ELEVATION AT RAISED SIDEWALK



PLAN AT RAISED SIDEWALK

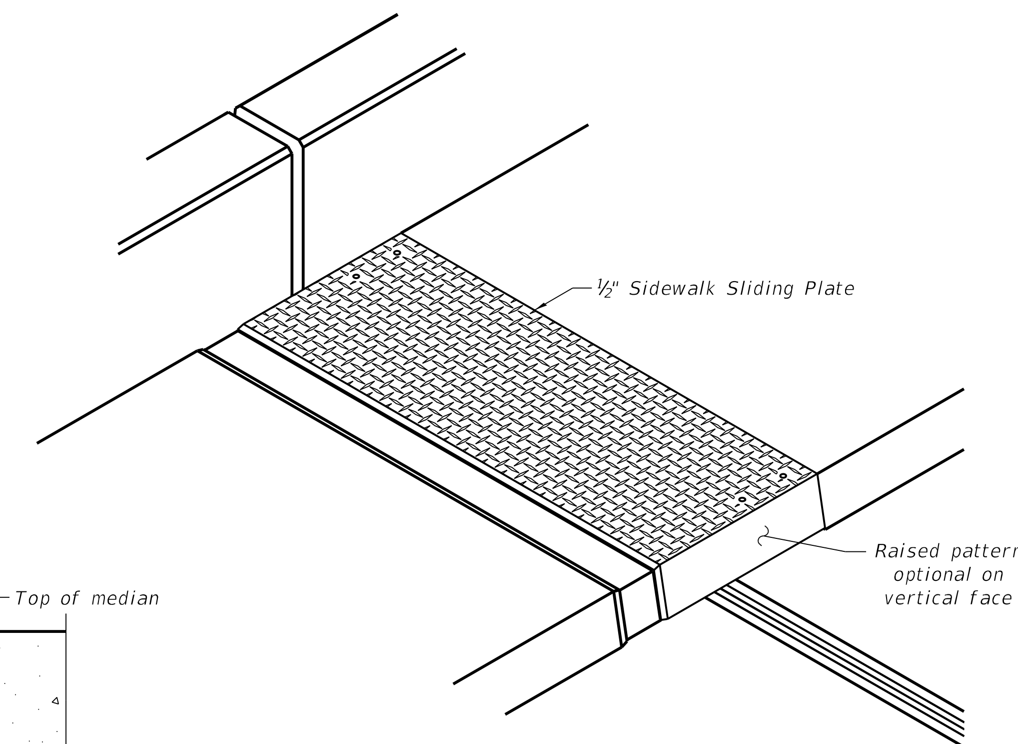


SECTION C-C

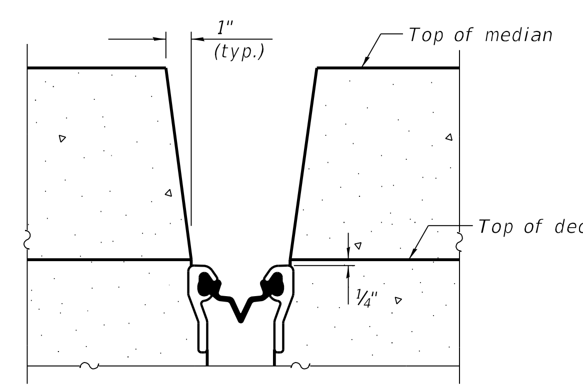


ELEVATION AT MEDIAN

For skews > 30°, chamfer acute corners 2" similar to sidewalk.



TRIMETRIC VIEW



SECTION D-D
(at Rt. ∠'s)

EJ-SS-S

8-11-17

(Sheet 2 of 3)

COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -
		CHECKED - EKM	REVISED -
	PLOT SCALE =	DRAWN - PRH	REVISED -
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PREFORMED JOINT STRIP SEAL – SIDEWALK
STRUCTURE NO. 016–0575
SHEET NO. S-22 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	105
		CONTRACT NO. 62F29		
		ILLINOIS FED. AID PROJECT		

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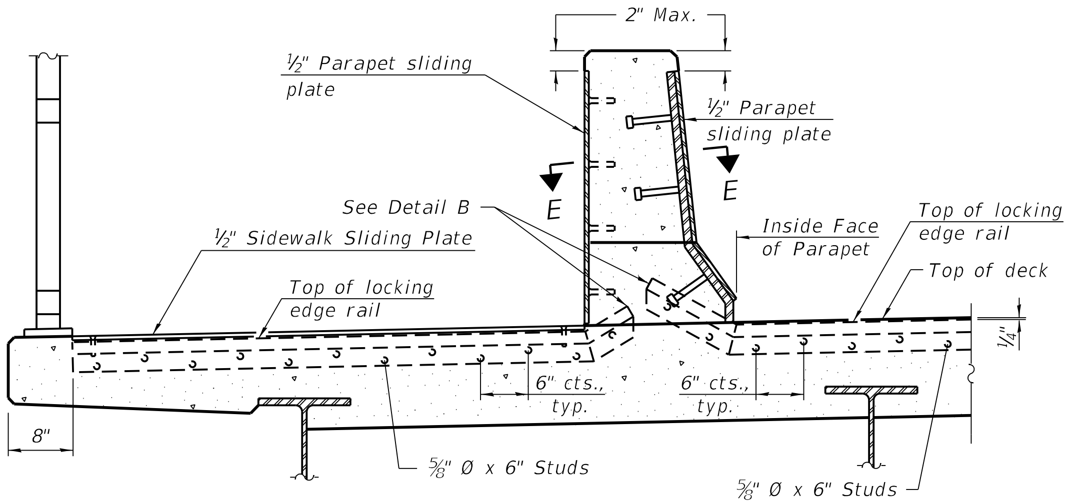
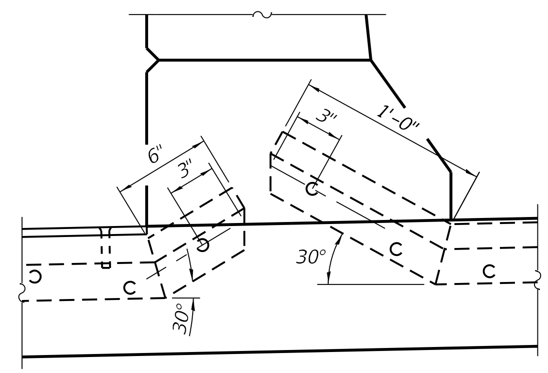
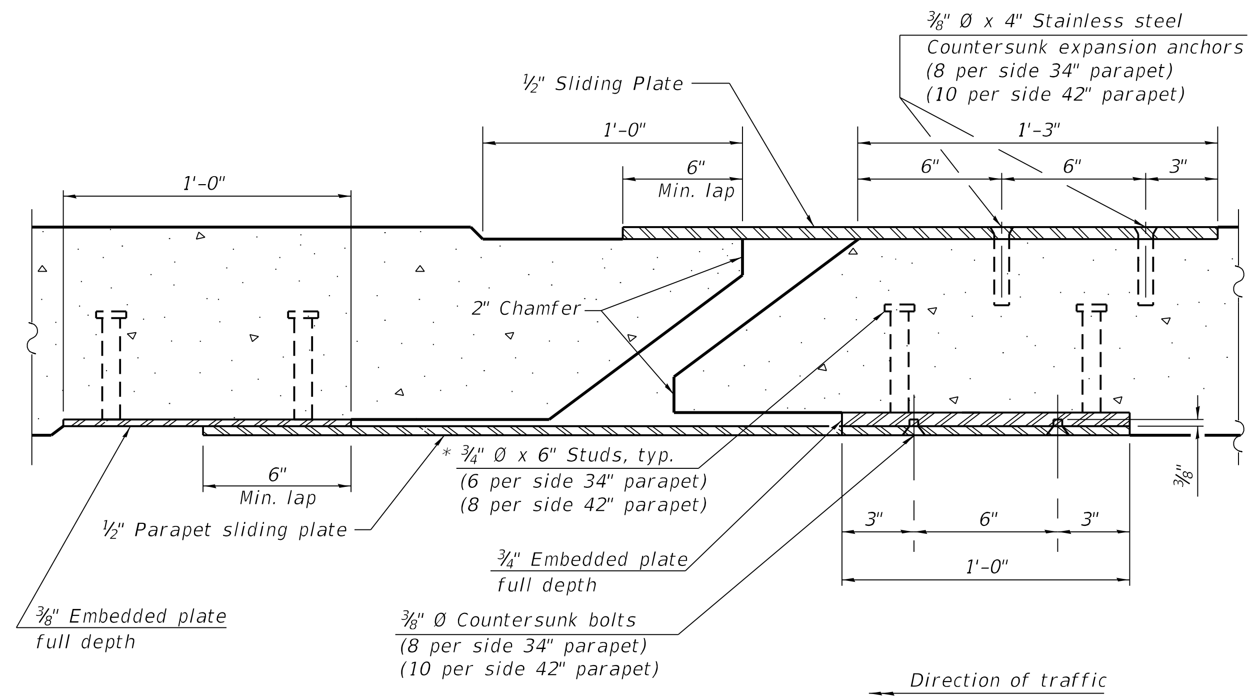


ELEVATION AT DECK LEVEL SIDEWALK

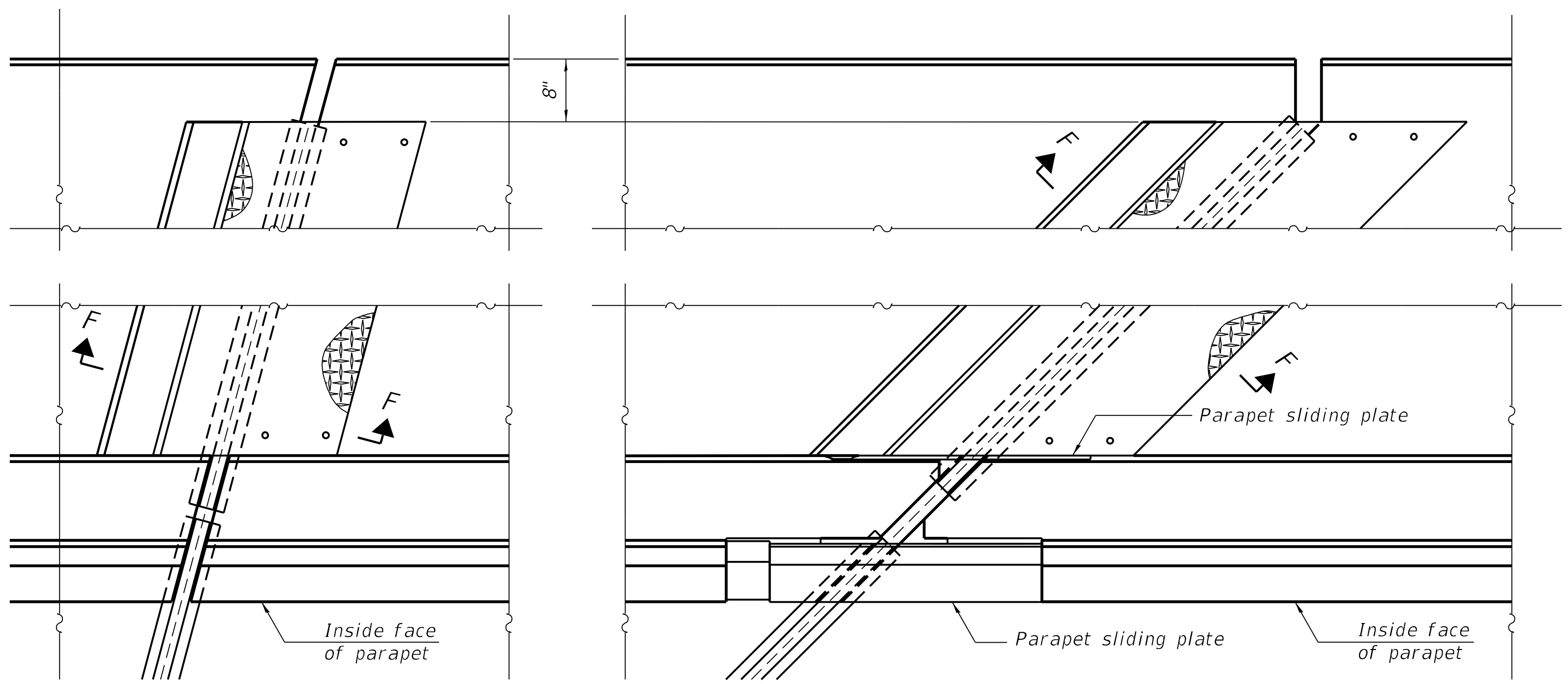
(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)



DETAIL B


⅜" Ø x 4" Stainless steel Countersunk expansion anchors (8 per side 34" parapet) (10 per side 42" parapet)
½" Sliding Plate
1'-0"
6" Min. lap
1'-3"
6"
6"
3"
1'-0"
2" Chamfer
6" Min. lap
½" Parapet sliding plate
* ¾" Ø x 6" Studs, typ. (6 per side 34" parapet) (8 per side 42" parapet)
¾" Embedded plate full depth
3"
6"
3"
1'-0"
⅜"
⅜" Embedded plate full depth
⅜" Ø Countersunk bolts (8 per side 34" parapet) (10 per side 42" parapet)
Direction of traffic

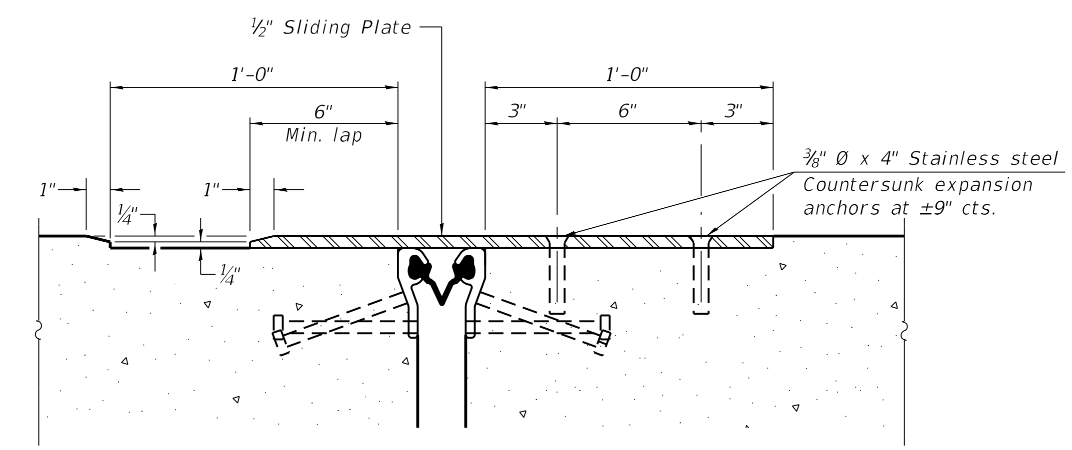
SECTION E-E



(FOR SKEWS ≤ 30°)

(FOR SKEWS > 30°)

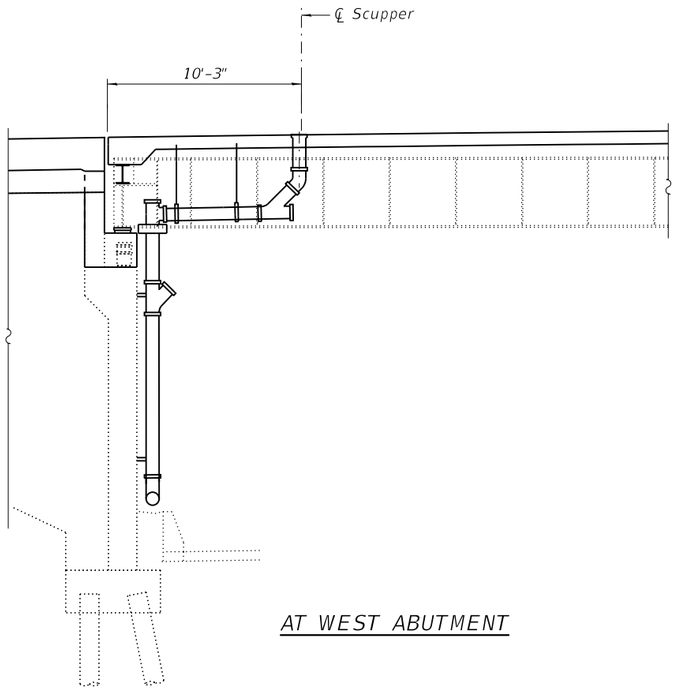
PLAN AT DECK LEVEL SIDEWALK



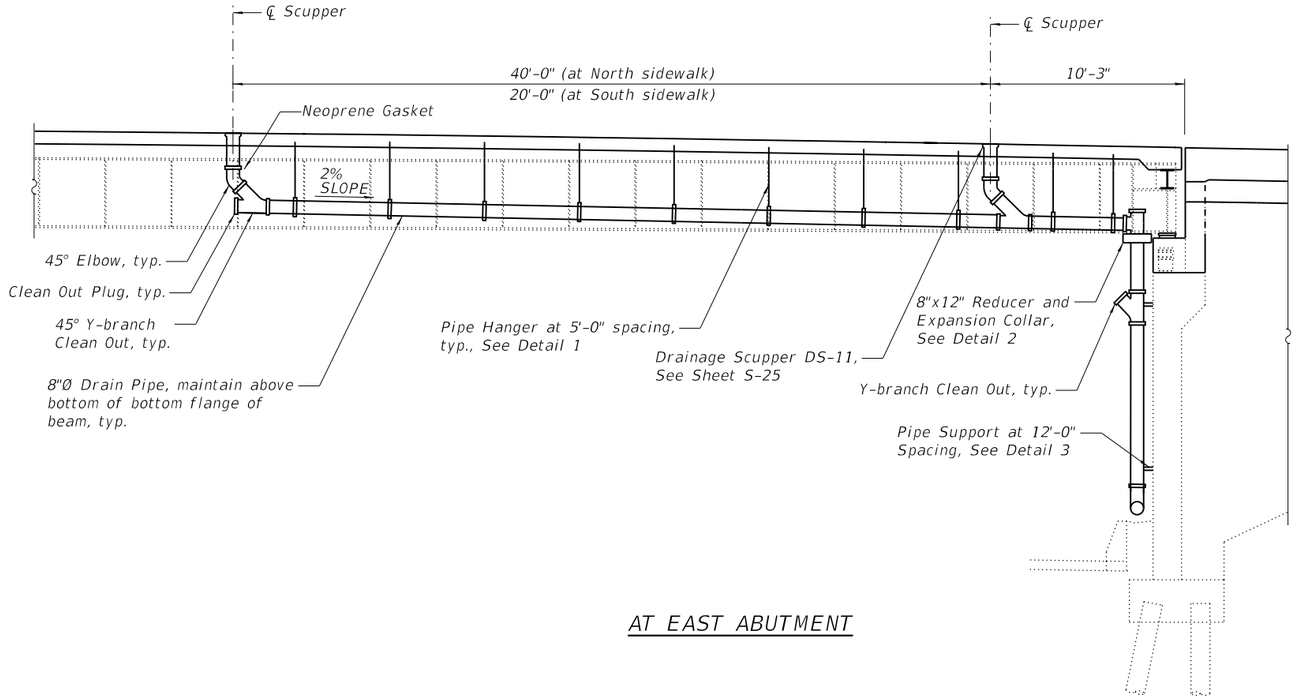
SECTION F-F

EJ-SS-S 8-11-17

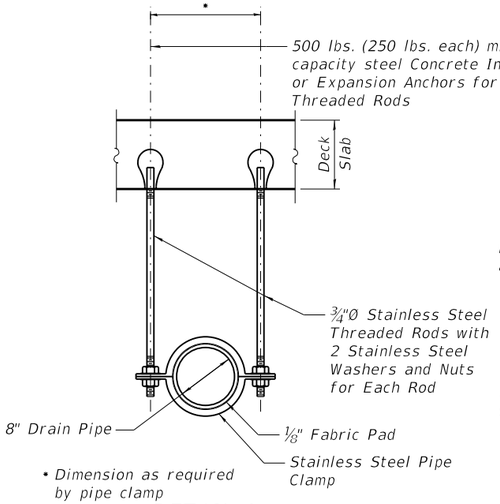
(Sheet 3 of 3)



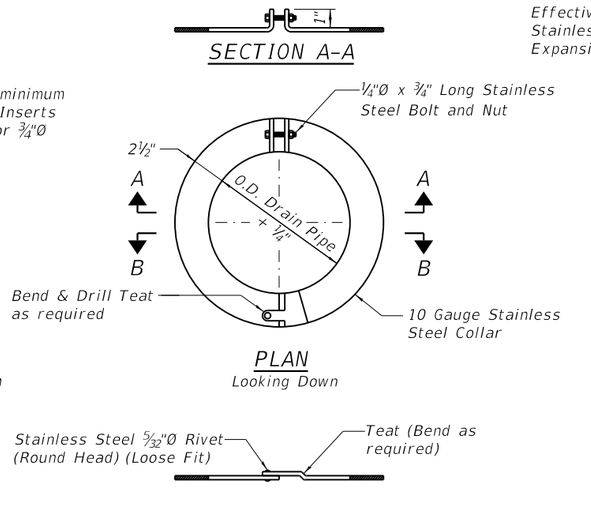
AT WEST ABUTMENT



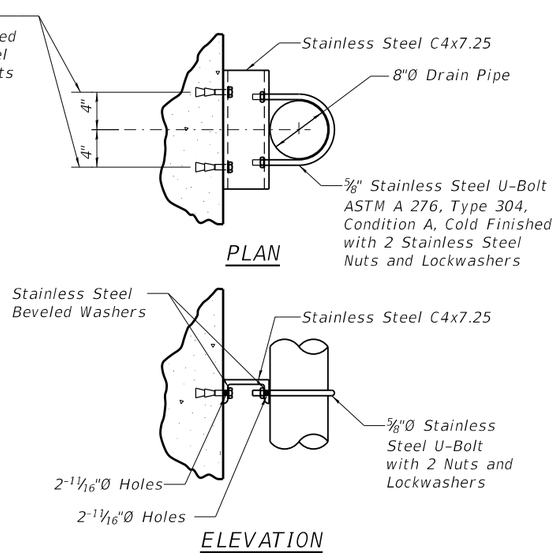
AT EAST ABUTMENT



DETAIL 1



DETAIL 2



DETAIL 3

DARINAGE

Drain pipe for bridge drainage system, including all piping, fittings, support brackets, inserts, bolts, and splash blocks shown, shall be as specified in the latest idot gbsp for drainage system, except as modified herein. drain pipe may be polyvinyl chloride (pvc) pipe, reinforced fiberglass pipe or galvanized steel pipe. the pipe supports and associated hardware shall be stainless steel as shown on the plans.

Polyvinyl Chloride (PVC) pipe and fittings shall be 8" diameter schedule 80 meeting the requirements of ASTM D1785 (F441), D2464 and D2467 colored to match the adjacent beam and/or column as approved by the Engineer.

All stainless steel hardware for drainage systems shall be coated with antiseize compound.

Reinforced fiberglass pipe and fittings shall be 8" diameter, meeting the requirements of ASTM D2996 RTRP with a 30,000 psi minimum short-time rupture strength hoop tensile stress. The exterior surfaces of fiberglass pipe and fittings shall be pigmented in accordance with the pipe manufacturer's recommendations or cleaned, given a prewash in accordance with MIL - P - 15328 and top coated with an epoxy-based coating recommended for outdoor applications by the prewash manufacturer. Final color shall be submitted to the Engineer for approval.

The exterior surfaces of aluminum tubes shall be cleaned and given a wash coat pretreatment in accordance with SSPC - SP1 and SSPC - Paint 27. The pretreated surfaces shall be painted with an adhesion bonding primer and top coat per the system recommended by the pretreatment manufacturer for painting aluminum surfaces in an exterior environment.

BILL OF MATERIAL

Item	Unit	Total
Drainage System	L Sum	1

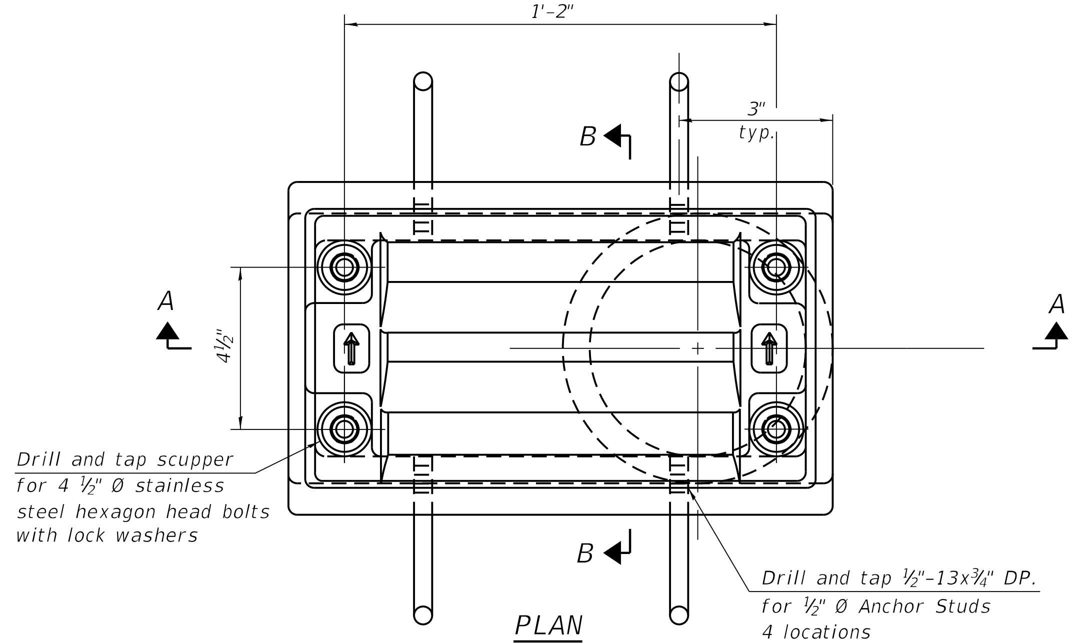
COLLINS ENGINEERS
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993

USER NAME =	DESIGNED - BMS	REVISED -	
	CHECKED - EKM	REVISED -	
PLOT SCALE =	DRAWN - PRH	REVISED -	
PLOT DATE = 6/18/2019	CHECKED - BMS	REVISED -	

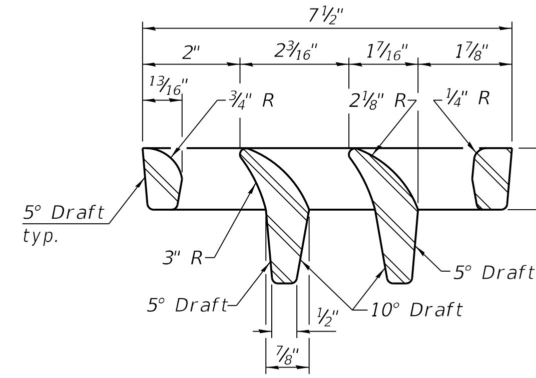
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRAINAGE DETAILS
STRUCTURE NO. 016-0575
SHEET NO. S-24 OF S-38 SHEETS

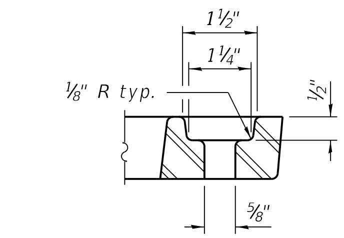
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	107
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



PLAN

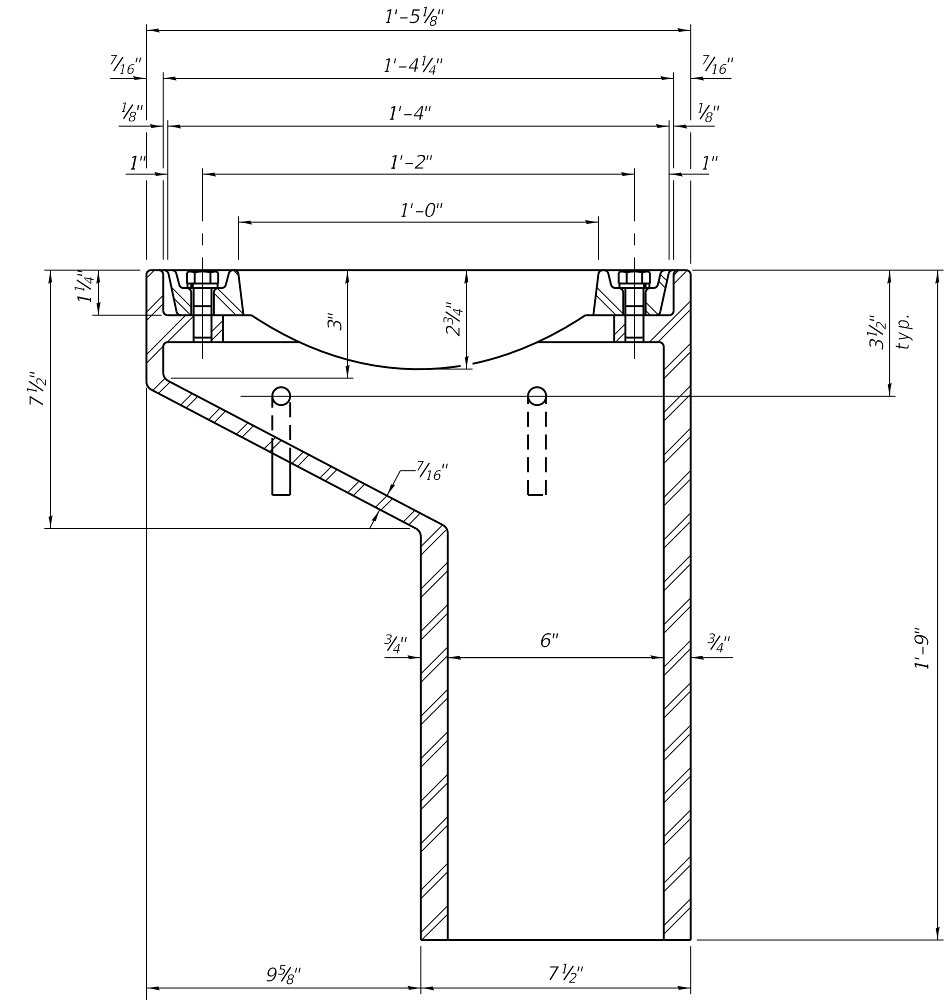


VANE GRATE DETAIL



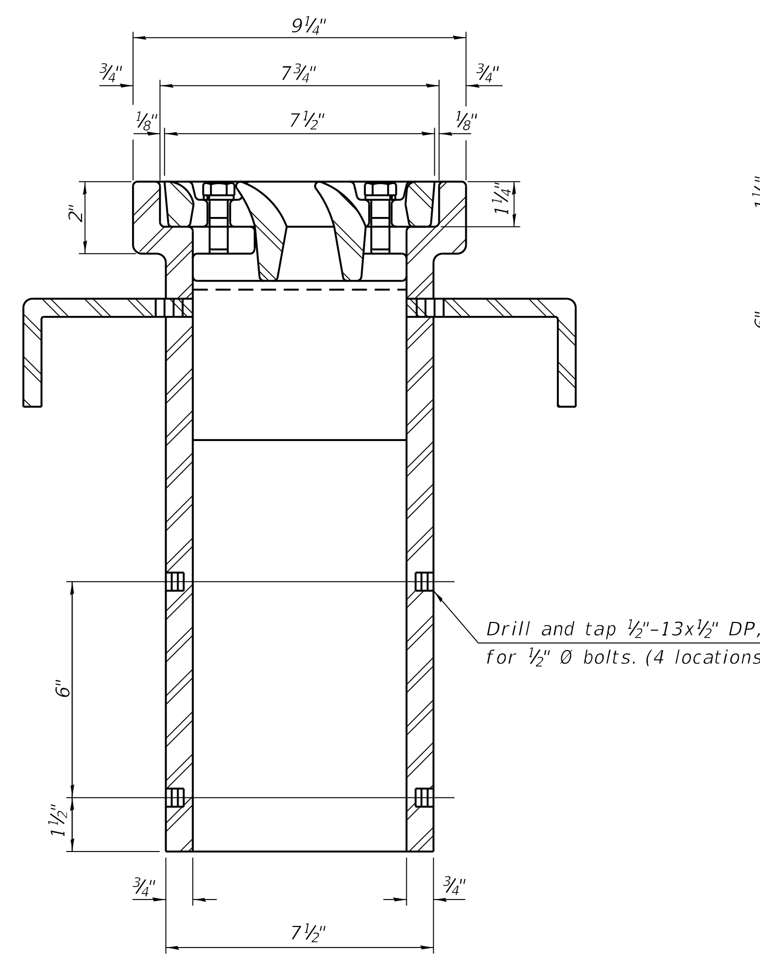
BOLT HOLE DETAIL

Notes:
All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.
Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.
Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.
Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.
The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-11.
Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

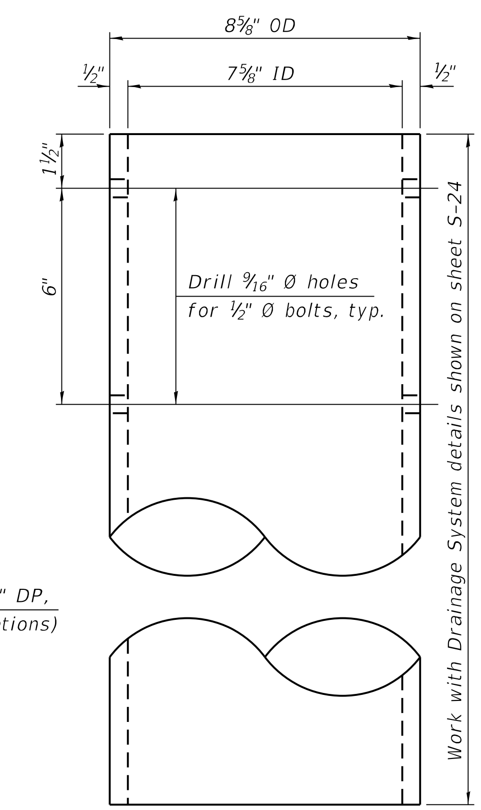


SECTION A-A

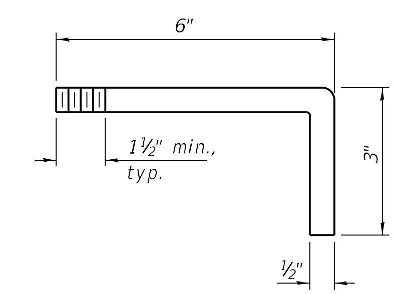
See sheet S-14 for scupper location relative to parapet.



SECTION B-B



DOWNSPOUT

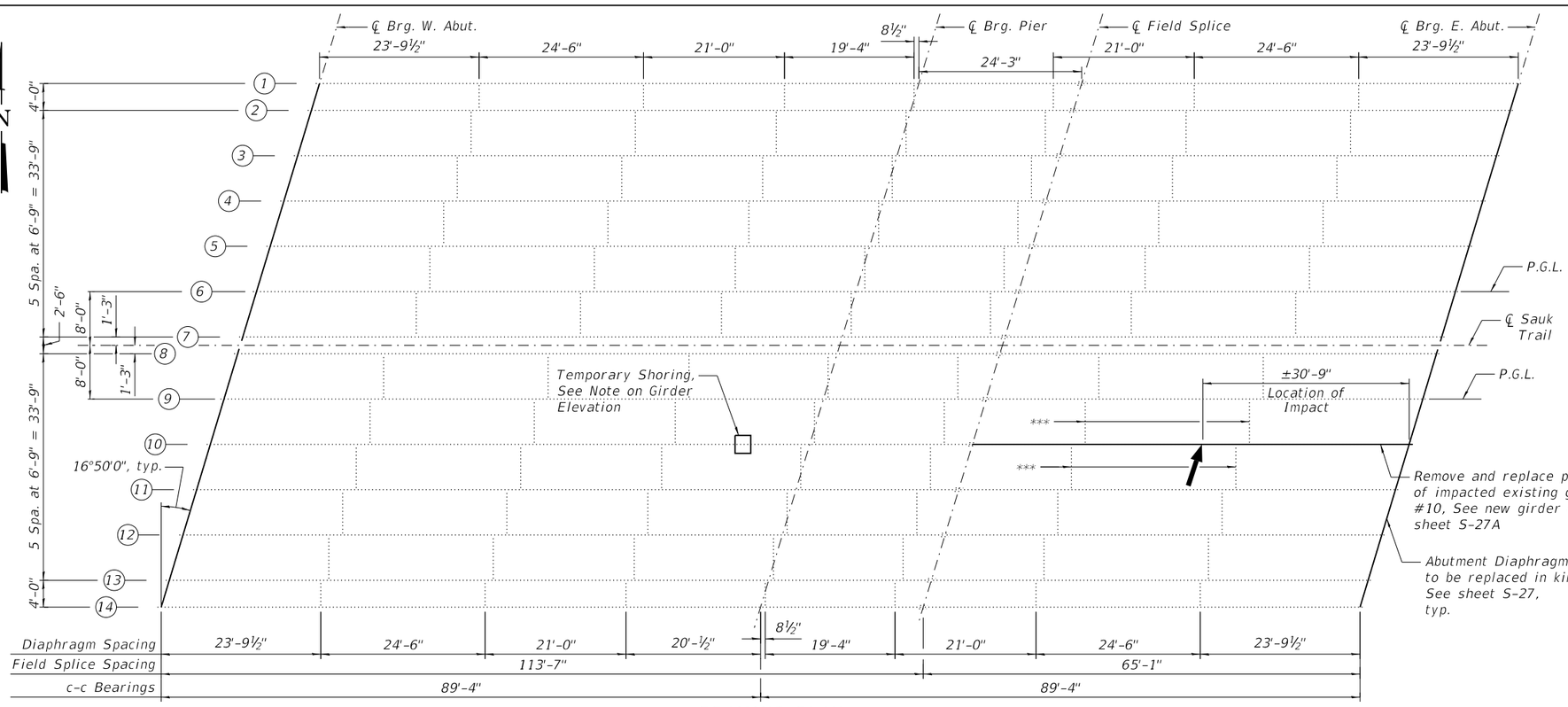


ANCHOR STUD DETAIL

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	6

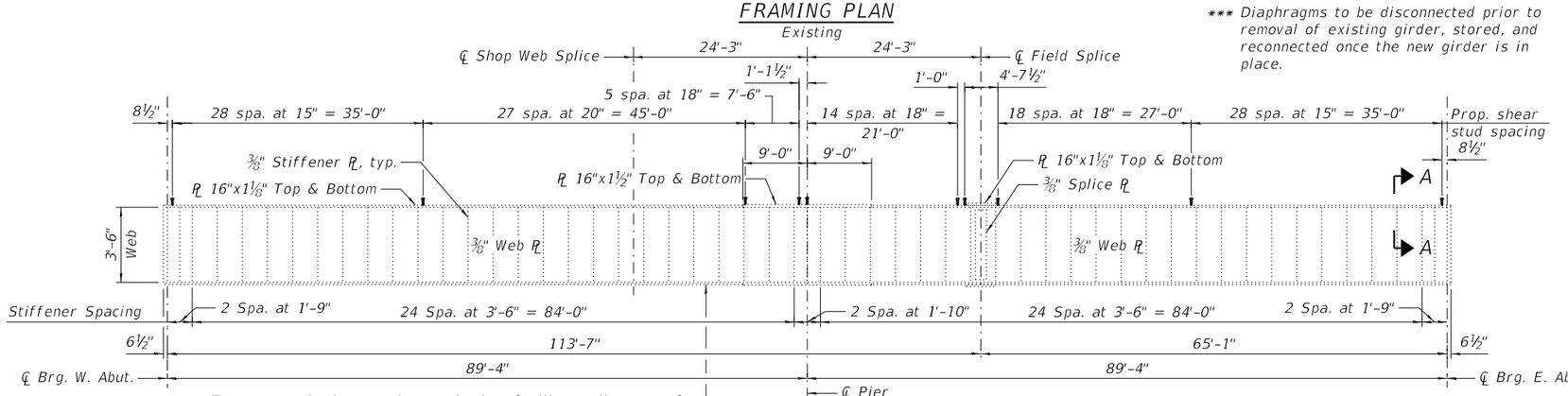
DS-11 2-17-2017



FRAMING PLAN

Existing

*** Diaphragms to be disconnected prior to removal of existing girder, stored, and reconnected once the new girder is in place.



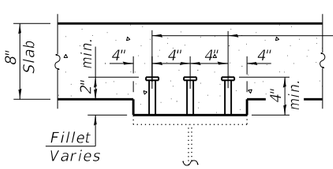
GIRDER ELEVATION

Existing

Girders 1 & 14 shown

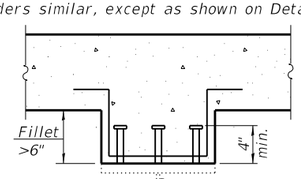
Other girders similar, except as shown on Detail 2

Temporary shoring may be required to facilitate alignment of Girder #10 existing splice. Use 12"x12" Timbers or HP's to be paid for as Temporary Shoring and Cribbing. See Special Provision.



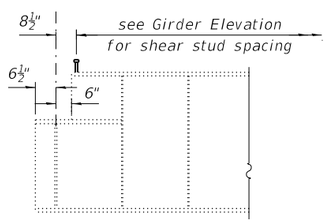
¾" Ø Granular or solid flux filled headed studs, automatically end welded to flange. (372 Required per Beam) (5,208 Required Total)

SECTION A-A



SECTION A-A

For Fillets with reinforcement



DETAIL 2

End of Girder, typical for Girders 2 through 13.

LEGEND:

Impact Line

INTERIOR GIRDER MOMENT TABLE			
		0.4 Sp. 1 or 0.6 Sp. 2	Pier
Is	(in^4)	19,057	25,031
Ic(n)	(in^4)	41,040	50,515
Ic(3n)	(in^4)	31,311	38,495
Ic(cr)	(in^4)	–	29,284
Ss	(in^3)	861	1,113
Sc(n)	(in^3)	1.078	1,353
Sc(3n)	(in^3)	1,007	1,267
Sc(cr)	(in^3)	–	1,171
℘	(k/')	0.92	0.92
M℘	('k)	477	-931
s℘	(k/')	0.15	0.15
Ms℘	('k)	77	-142
M℄	('k)	583	-568
MI	('k)	136	-133
$^5/_3$ [M℄ + I]	('k)	1,199	-1,168
Ma	('k)	2,279	-2,913
* Mu	('k)	3,903	–
fs℘ (non-comp)	(ksi)	6.65	-10.04
fs℘ (comp)	(ksi)	0.92	-1.34
fs $^5/_3$ [M℄ + I]	(ksi)	13.34	-11.96
fs(Overload)	(ksi)	20.91	-23.35
** fs(Total)	(ksi)	–	-30.35
VR	(k)	59.15	–

INTERIOR GIRDER REACTION TABLE			
		Abut.	Pier
R℘	(k)	30.3	113.4
R℄	(k)	43.1	60.6
RI	(k)	10.1	14.1
R_{Total}	(k)	83.5	188.1

* Compact section

** Braced non-compact and partially braced section

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(cr), Sc(cr): Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total and Overload in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) 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.

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

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

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

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

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

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

Ma: Factored design moment (kip-ft.). $1.3\ [M℘ + Ms℘ + \frac{5}{3}(M℄ + MI)]$

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). $M℘ + Ms℘ + \frac{5}{3}(M℄ + MI)$

fs(Total): Sum of stresses as computed from the moments below (ksi). $1.3\ [M℘ + Ms℘ + \frac{5}{3}(M℄ + MI)]$

VR: Maximum℄ + impact shear range within span for stud shear connector design (kips).

COLLINS ENGINEERS
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993

USER NAME =	DESIGNED - BMS	REVISED -
	CHECKED - EKM	REVISED -
PLOT SCALE =	DRAWN - PRH	REVISED -
PLOT DATE = 6/18/2019	CHECKED - BMS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL FRAMING PLAN AND DETAILS
STRUCTURE NO. 016-0575
SHEET NO. S-26 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	109
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			

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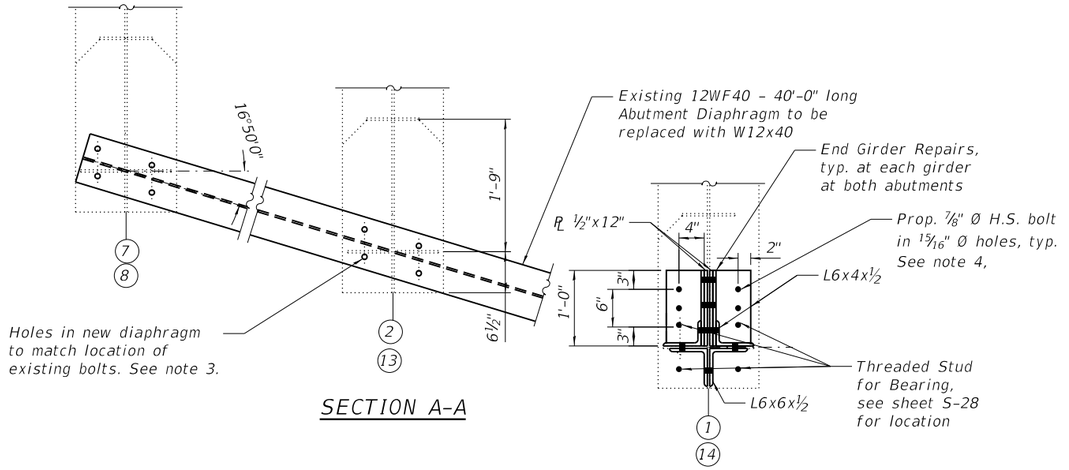
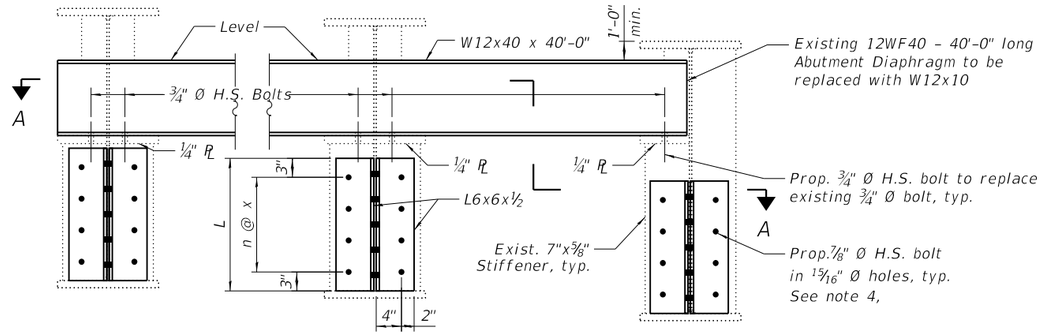
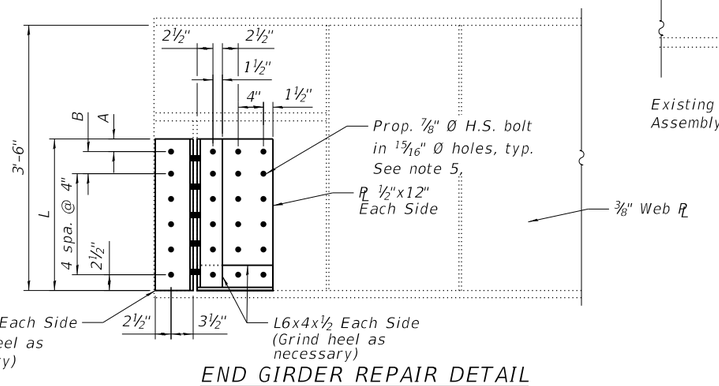


SECTION A–A



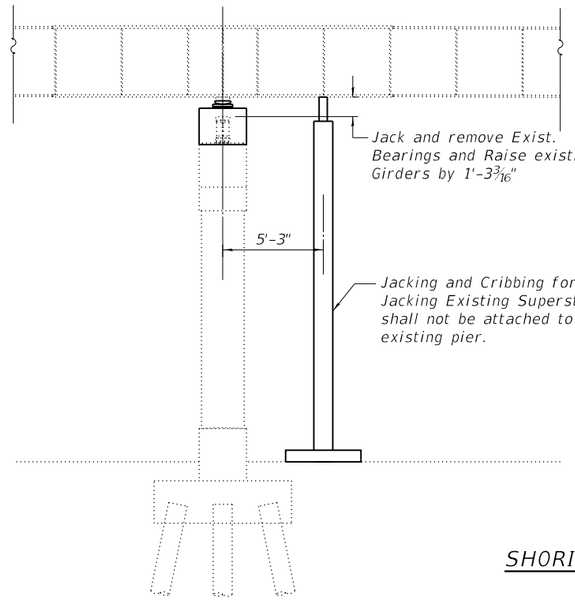
END GIRDER REPAIR DETAIL

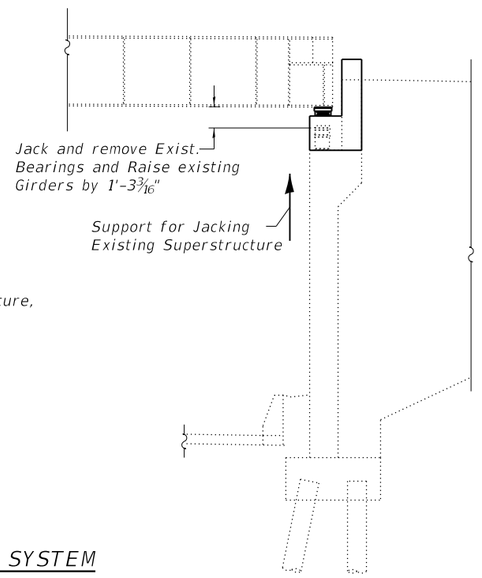


END GIRDER REPAIR DETAIL

Typ. at both abutments

DIMENSION TABLE														
Girder	1	2	3	4	5	6	7	8	9	10*	11	12	13	14
L	2'-0"	2'-0"	1'-9"	1'-9"	1'-9"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-9"	1'-9"	2'-0"	2'-0"
A	2"	2"	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2½"	2"	2"
B	3½"	3½"	0"	0"	0"	5"	5"	5"	5"	5"	0"	0"	3½"	3½"
n	4	4	3	3	3	3	3	3	3	3	3	3	4	4
x	4½"	4½"	5"	5"	5"	4"	4"	4"	4"	4"	5"	5"	4½"	4½"



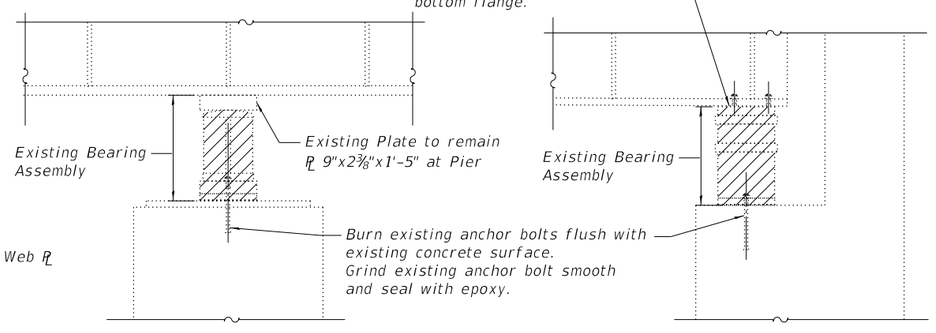


SHORING SYSTEM

JACKING LOADS

Per Girder

	Abutments	Pier
R_{DL} (Steel only) (Service)	7k	25k
Min. Jacking Load (k)	11k	40k



AT PIER

AT ABUTMENTS

EXISTING BEARING REMOVAL DETAIL

Quantity for the existing bearings to be removed is included in the quantity for Structural Steel Removal.

*Girder 10 End Repairs at West Abutment only.

Notes:

1. Jacking and Bearing Removal shall be done after the removal of the existing bridge deck is complete (for each stage).
2. Prior to ordering any material, the Contractor shall verify in the field all existing dimensions.
3. Diaphragm connection holes shall be 15/16"Ø for ¾"Ø bolts. Holes in new diaphragms will be field drilled to match locations of existing bolts. Two hardened washers shall be required at diaphragm connections. Cost included with Furnishing and Erecting Structural Steel.
4. For the End Girder Repairs, Holes in existing girder will be field drilled, using the holes in new plates and angles as a template. Cost included with Furnishing and Erecting Structural Steel.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Structural Steel Removal	Pound	29,500
Furnishing and Erecting Structural Steel	Pound	13,440
Jacking Existing Superstructure	L Sum	1

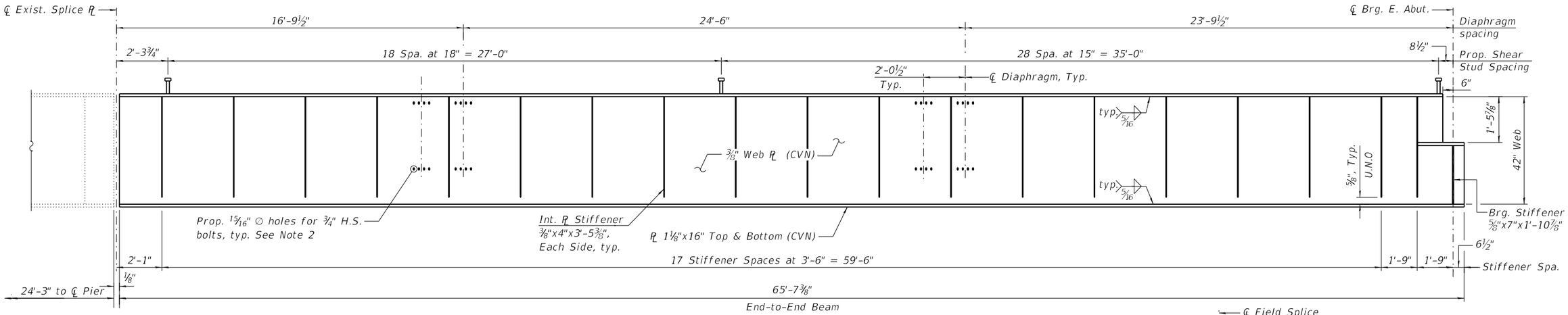
COLLINS ENGINEERS
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993

USER NAME =	DESIGNED - BMS	REVISED -
	CHECKED - EKM	REVISED -
PLOT SCALE =	DRAWN - PRH	REVISED -
PLOT DATE = 6/18/2019	CHECKED - BMS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL FRAMING PLAN AND DETAILS
STRUCTURE NO. 016–0575
SHEET NO. S-27 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	110
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



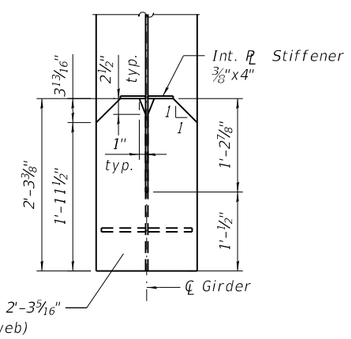
TOP OF WEB ELEVATION*

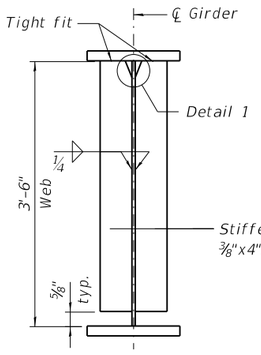
Girder	℄ Brg. E. Abut	℄ Splice
10	750.69	751.19

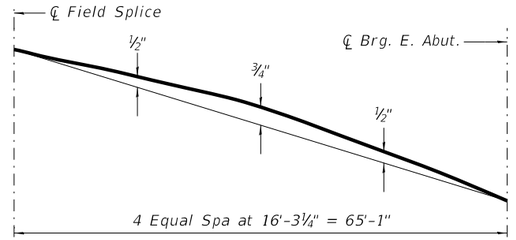
*For fabrication use only.

BEAM 10 ELEVATION

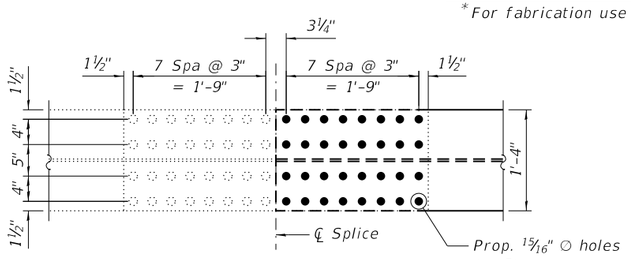
(Connection and splice Pℓ's not shown for clarity)



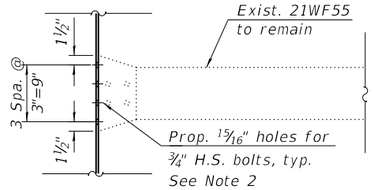




BEAM 10 CAMBER DIAGRAM



TOP & BOTTOM FLANGE SPLICE



DIAPHRAGM CONNECTION DETAIL - PLAN

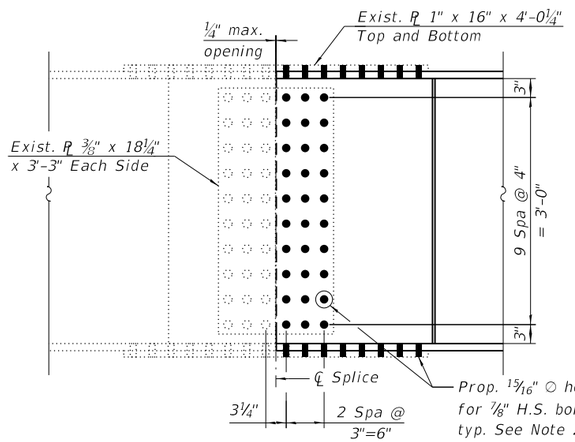
SECTION A-A

STIFFENER PLATE DETAIL

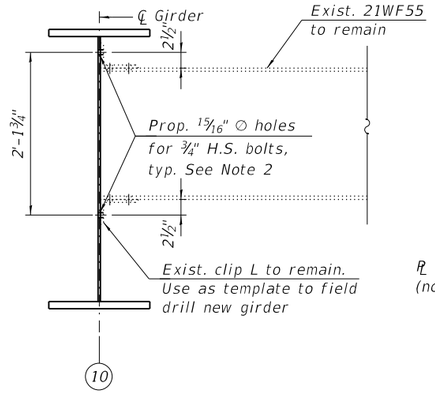
(No. Req'd = 38)

ELEVATION AT ABUT.

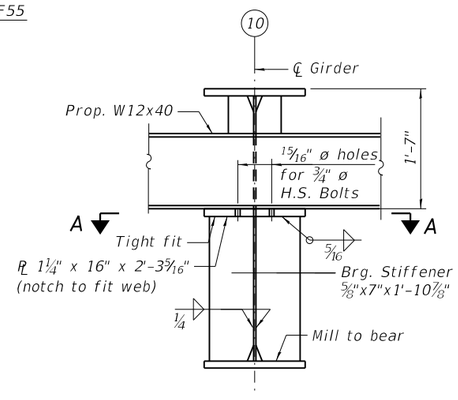
SECTION B-B



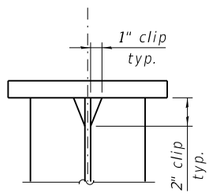
WEB SPLICE



DIAPHRAGM CONNECTION DETAIL ELEVATION



GIRDER END ELEVATION



DETAIL 1

** Location of proposed bolts to match existing bolt location. Contractor to verify location of existing holes in bottom flanges prior to submitting shop drawings.

NOTES:

1. "CVN" denotes Charpy-V-Notch Impact Energy Requirements, Zone 2.
2. Holes will be field drilled, using the holes in existing plates and angles as a template. Cost included with Furnishing and Erecting Structural Steel.
3. Holes in existing steel plates shall be field reamed to obtain diameter required for bolt installation, using holes in new elements as a template. Cost included with Furnishing and Erecting Structural Steel.

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Furnishing And Erecting Structural Steel	Pound	12,370
Structural Steel Removal	Pound	12,370

FILE NAME: P:\17710-746 IDOT District 1\WO 13 I-57 @ Sauk Trail\Sheet\0160575-D162F29-027A-steel repair details.dgn
9:39:42 AM

HBM ENGINEERING GROUP, LLC

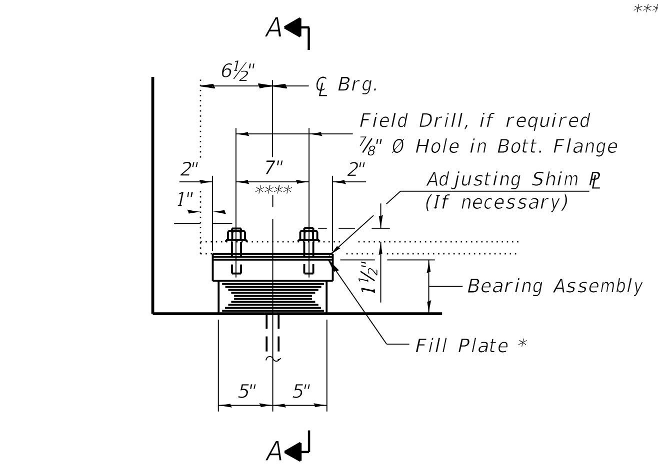
USER NAME = robert.boro	DESIGNED - WM, LAB	REVISED -	
	CHECKED - MI, LAB	REVISED -	
PLOT SCALE = N.T.S	DRAWN - WM, EK	REVISED -	
PLOT DATE = 6/18/2019	CHECKED - MI, MAJ	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL REPAIR PLAN
STRUCTURE NO. 016-0575
SHEET S-27A OF S-38 SHEETS

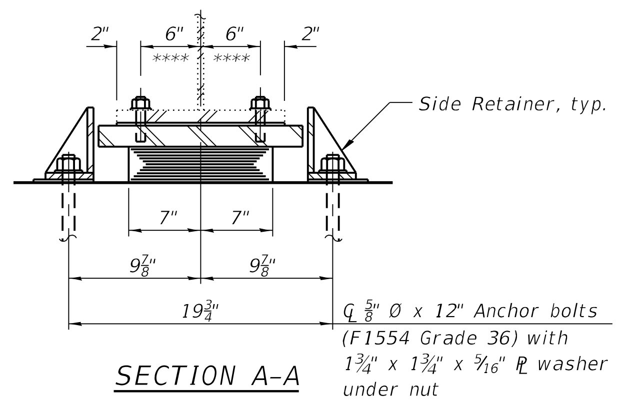
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	111
			CONTRACT NO. 62F29	
	ILLINOIS	FED. AID PROJECT		

**** Location of proposed bolts to match existing bolt location. Contractor to verify location of existing holes in bottom flanges prior to submitting shop drawings.



ELEVATION AT ABUT.

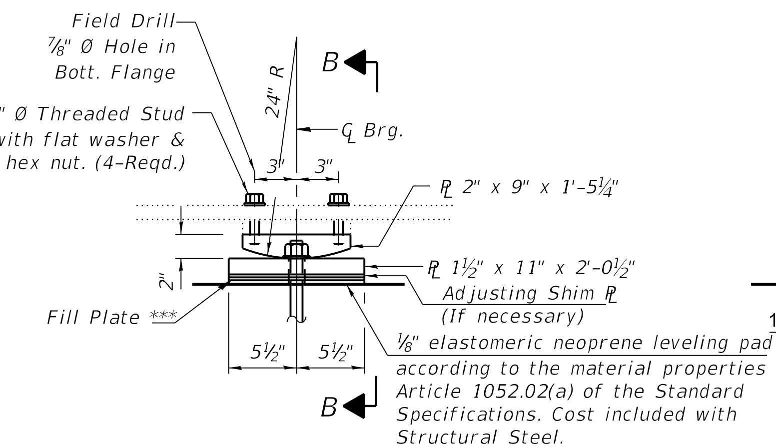
* Fill ℙ 1" x 11" x 1'-4" (at Girder 10 only)



SECTION A-A

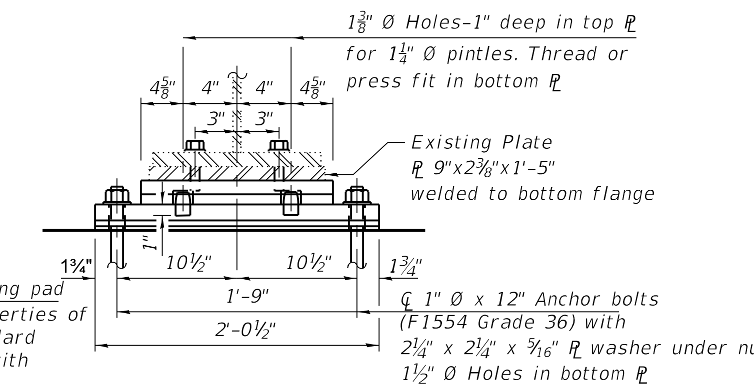
TYPE I ELASTOMERIC EXP. BRG.

(28 Required)



ELEVATION AT PIER

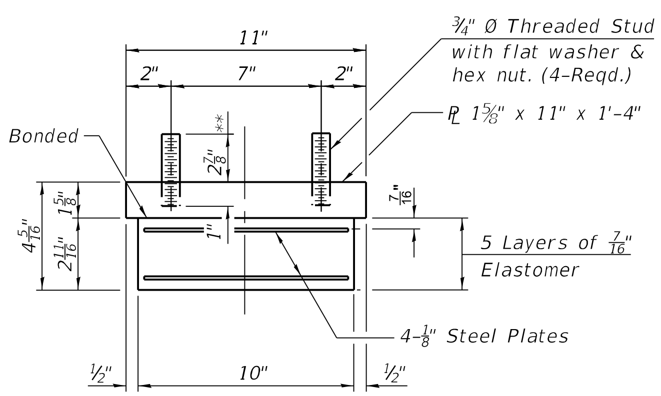
*** Fill ℙ 1" x 11" x 2'-0½" (at Girder 10 only)



SECTION B-B

FIXED BEARING

(14 Required)

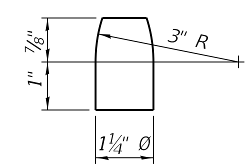


BEARING ASSEMBLY

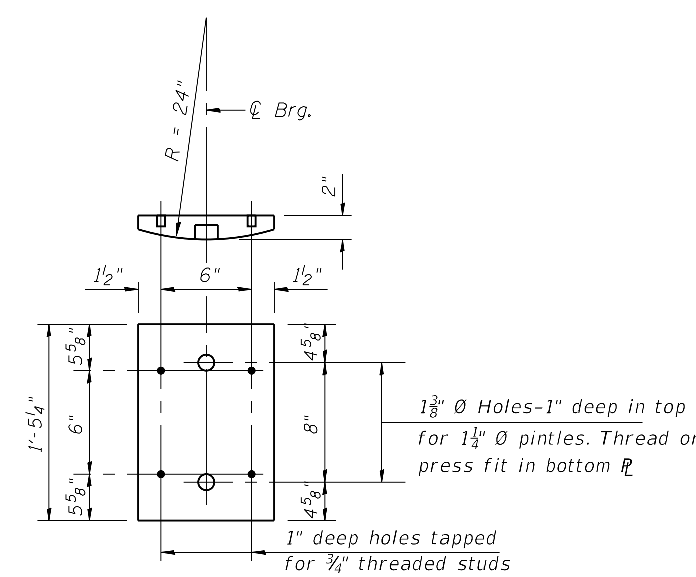
** 3⅞" (at Girder 10 only)

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

Notes:
Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.
Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
See sheet S-27 for dimensions of the exisitng bearing plate to remain.
Cost of field drilling is included with Elastomeric Bearing Assembly Type I or with Furnishing and Erecting Structural Steel depending on location.

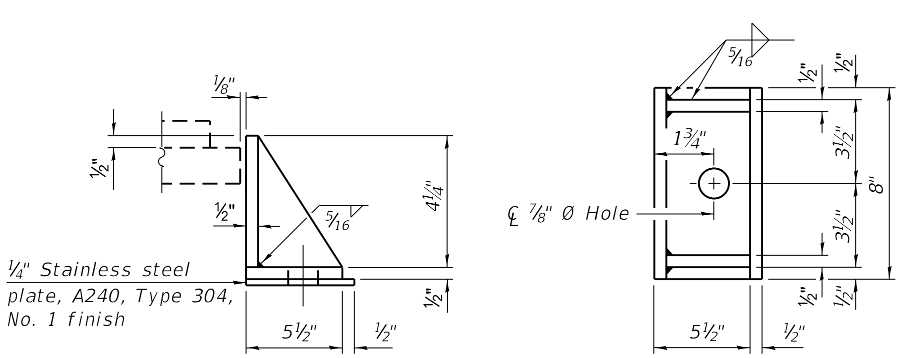


PINTLE



PLAN - TOP PLATE

ℙ 2" x 9" x 1'-5¼"



SIDE RETAINER

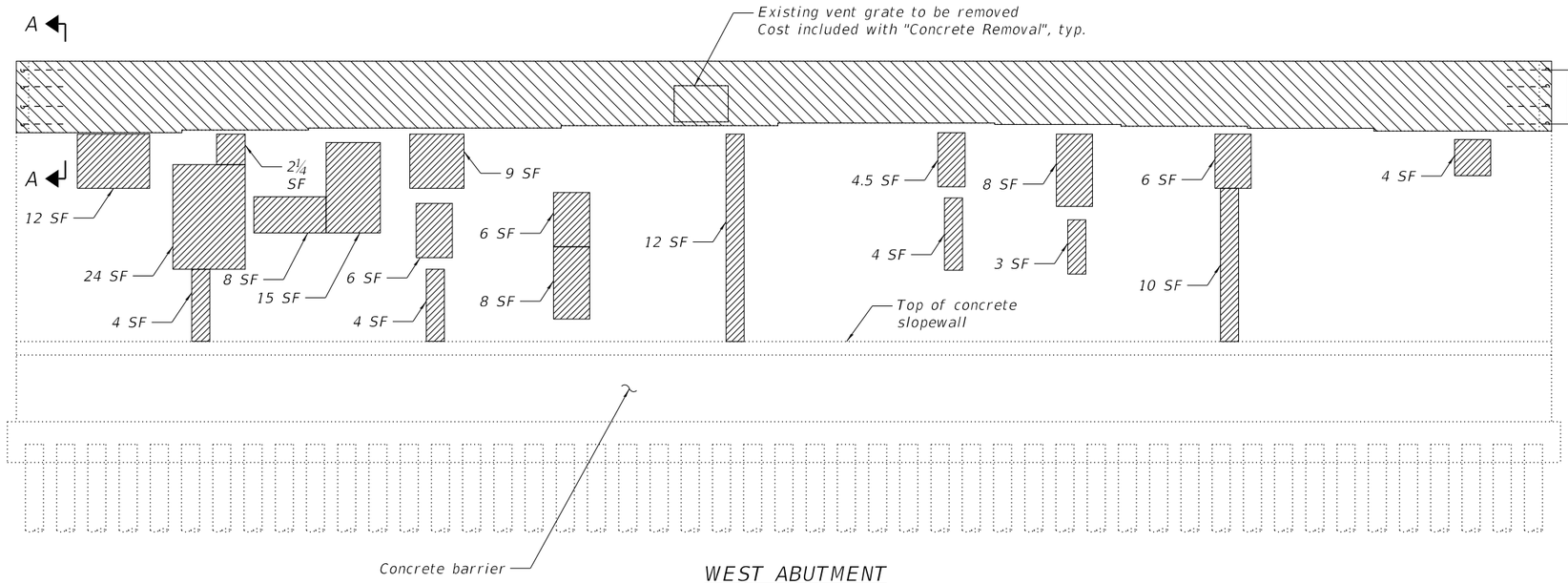
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

BILL OF MATERIAL

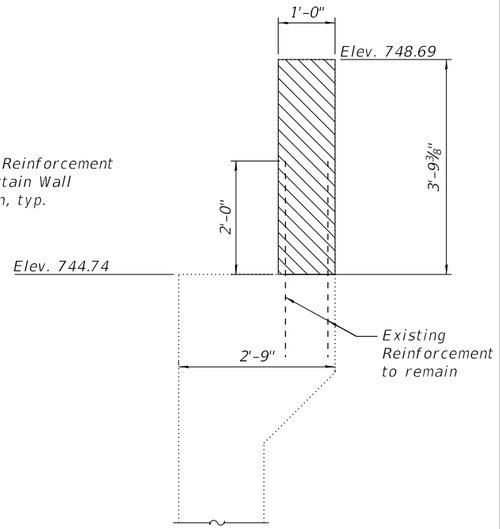
Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	2,980
Elastomeric Bearing Assembly Type I	Each	28
Anchor Bolts, ⅝"	Each	56
Anchor Bolts, 1"	Each	28

I-2E-1 8-11-2017

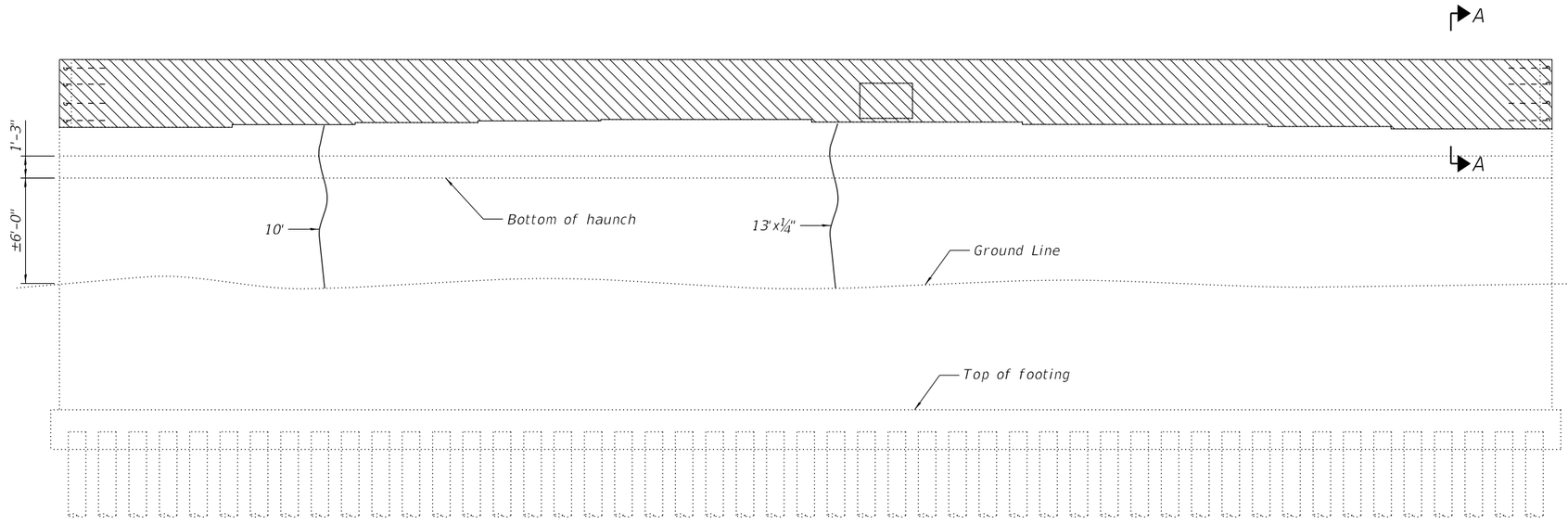
COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING DETAILS STRUCTURE NO. 016-0575	F.A.U. RTE. 1632	SECTION 0203-1001-HB-BR
		CHECKED - EKM	REVISED -			COUNTY COOK	TOTAL SHEETS 137 / SHEET NO. 112
	PLOT SCALE =	DRAWN - PRH	REVISED -			CONTRACT NO. 62F29	
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -		SHEET NO. S-28 OF S-38 SHEETS	ILLINOIS FED. AID PROJECT	



WEST ABUTMENT
Front Face



SECTION A-A



WEST ABUTMENT
Inside Face, Inside Vault

Note:
Crack widths are ⅛" ±1/16" unless otherwise noted.

LEGEND

6'	Epoxy Crack Sealing
H.L.	Hairline Crack – Not to be sealed
	Concrete Removal

Notes:
1. Repair areas are estimated based on inspection completed in 2015. actual repair areas and locations shall be determined by the Engineer and shown as as-built plans.
2. Concrete sealer shall be applied to all repaired concrete areas on all abutment faces. Cost included with Structural Repair of Concrete.
3. Any reinforcement bars to remain that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost included with "Concrete Removal".

BILL OF MATERIAL

Symbol	Item	Unit	Quantity
	Structural Repair of Concrete, (Depth Equal to or Less Than 5")	Sq. Ft.	150
	Concrete Removal	Cu. Yd.	12.5
	Epoxy Crack Injection	Foot	23

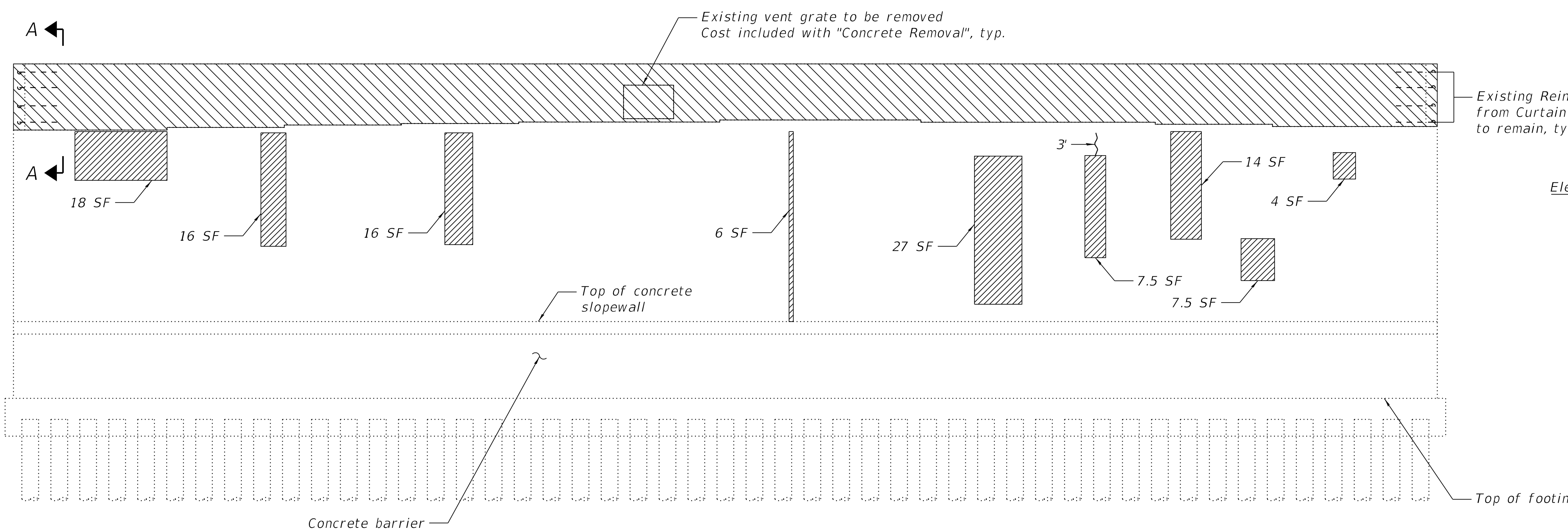
COLLINS ENGINEERS
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993

USER NAME =	DESIGNED - BMS	REVISED -	
	CHECKED - EKM	REVISED -	
PLOT SCALE =	DRAWN - PRH	REVISED -	
PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -	

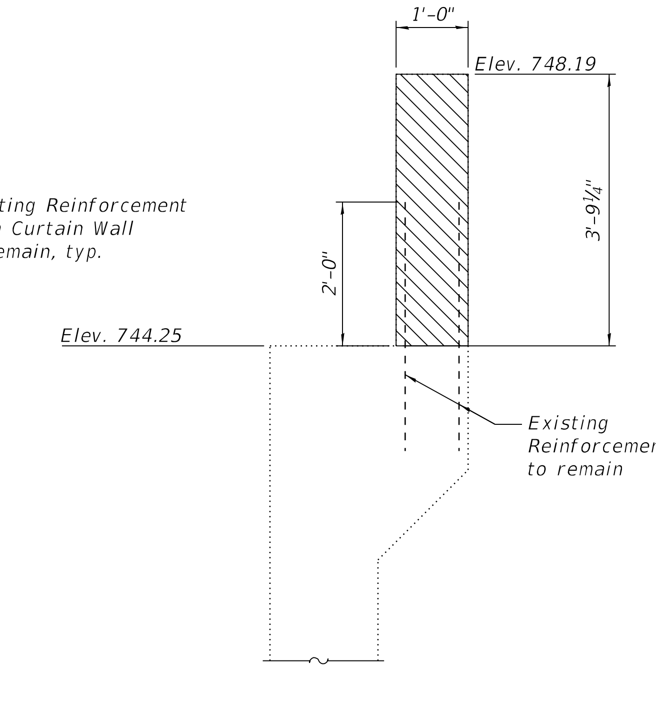
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT REMOVAL AND REPAIRS
STRUCTURE NO. 016-0575
SHEET NO. S-29 OF S-38 SHEETS

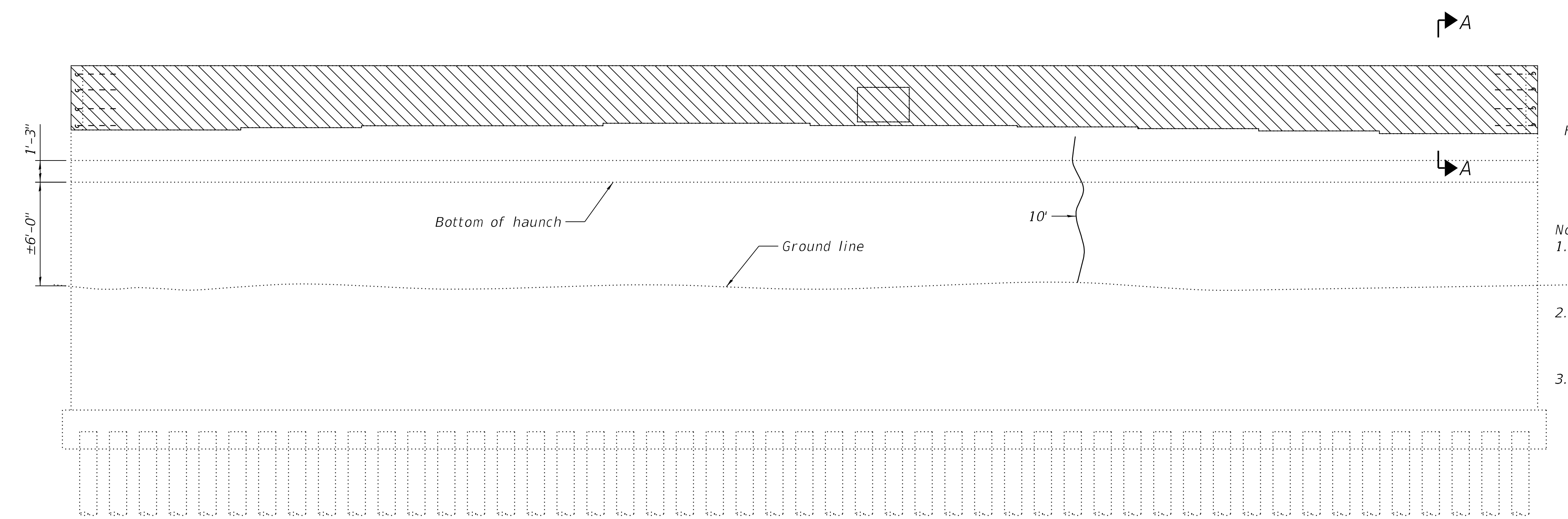
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	113
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



EAST ABUTMENT
Front Face



SECTION A-A



EAST ABUTMENT
Inside Face, Inside Vault

Note:
Crack widths are ⅛" ±1/16"
unless otherwise noted.

LEGEND

Symbol	Description
6'	Epoxy Crack Sealing
H.L.	Hairline Crack - Not to be sealed
(hatch)	Concrete Removal

Notes:

1. Repair areas are estimated based on inspection completed in 2015. actual repair areas and locations shall be determined by the Engineer and shown as as-built plans.
2. Concrete sealer shall be applied to all repaired concrete areas on all abutment faces. Cost included with Structural Repair of Concrete.
3. Any reinforcement bars to remain that are damaged during concrete removal operations shall be repaired or replaced using an approved bar splicer or anchorage system. Cost included with "Concrete Removal".

BILL OF MATERIAL

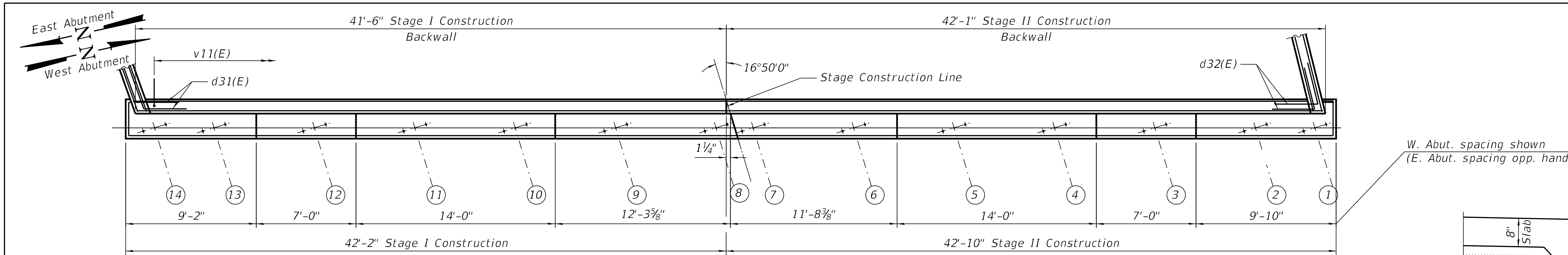
Symbol	Item	Unit	Quantity
(hatch)	Structural Repair of Concrete, (Depth Equal to or Less Than 5")	Sq. Ft.	116
(hatch)	Concrete Removal	Cu. Yd.	12.5
	Epoxy Crack Injection	Foot	13

COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -
		CHECKED - EKM	REVISED -
	PLOT SCALE =	DRAWN - PRH	REVISED -
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

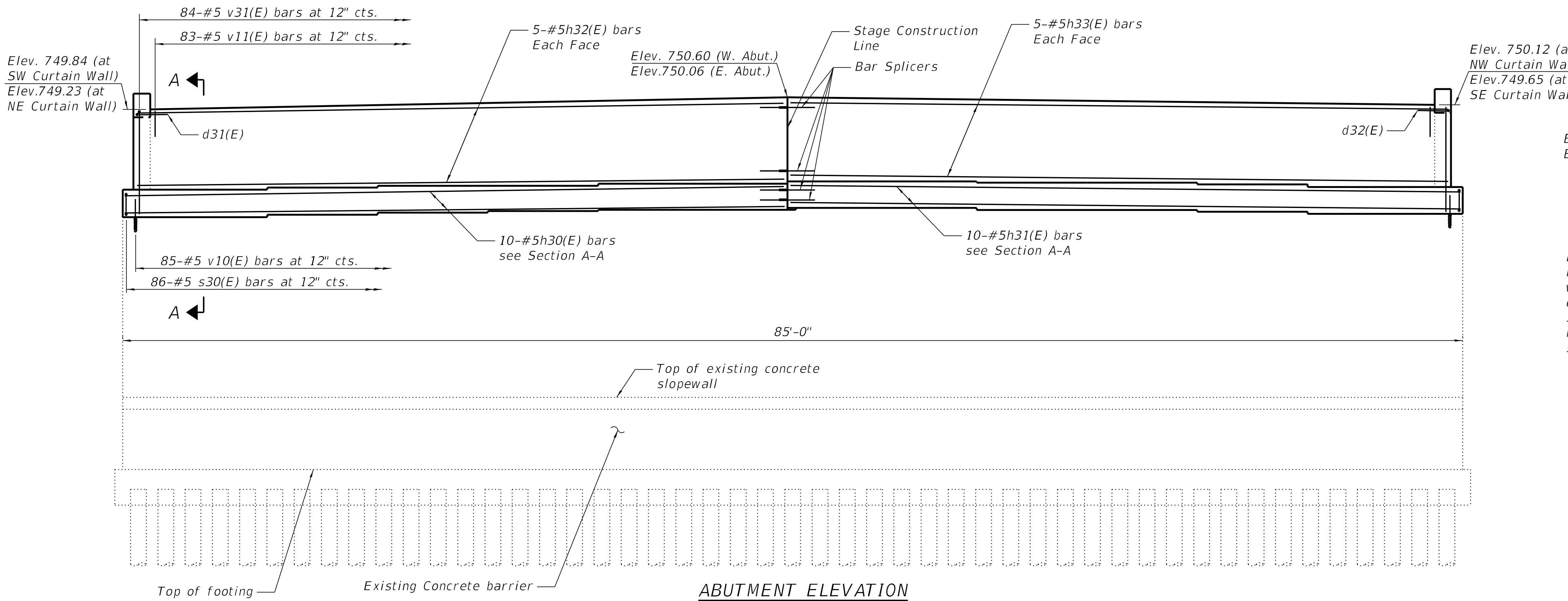
EAST ABUTMENT REMOVAL AND REPAIRS
STRUCTURE NO. 016-0575
SHEET NO. S-30 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	114
		CONTRACT NO. 62F29		
		ILLINOIS FED. AID PROJECT		



East Abutment
West Abutment
41'-6" Stage I Construction
Backwall
42'-1" Stage II Construction
Backwall
v11(E)
d31(E)
16°50'0"
Stage Construction Line
d32(E)
1¼"
W. Abut. spacing shown
(E. Abut. spacing opp. hand)
14
13
12
11
10
9
8
7
6
5
4
3
2
1
9'-2"
7'-0"
14'-0"
12'-3⅝"
11'-8⅜"
14'-0"
7'-0"
9'-10"
42'-2" Stage I Construction
42'-10" Stage II Construction

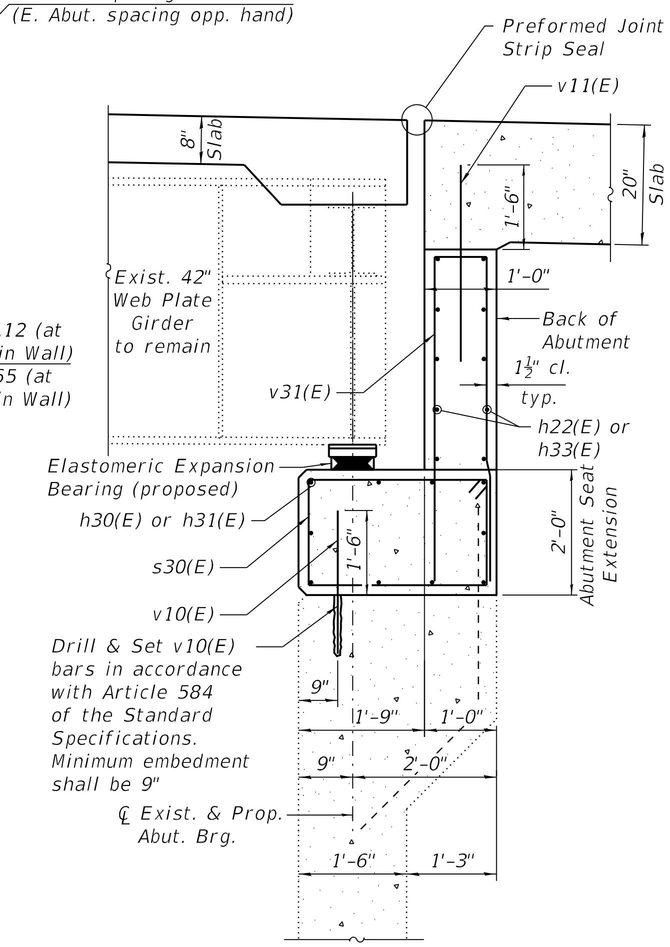
ABUTMENT PLAN



84-#5 v31(E) bars at 12" cts.
83-#5 v11(E) bars at 12" cts.
5-#5h32(E) bars
Each Face
Stage Construction
Line
Bar Splicers
5-#5h33(E) bars
Each Face
Elev. 749.84 (at
SW Curtain Wall)
Elev.749.23 (at
NE Curtain Wall)
Elev. 750.60 (W. Abut.)
Elev.750.06 (E. Abut.)
Elev. 750.12 (at
NW Curtain Wall)
Elev.749.65 (at
SE Curtain Wall)
A
d31(E)
d32(E)
10-#5h30(E) bars
see Section A-A
10-#5h31(E) bars
see Section A-A
85-#5 v10(E) bars at 12" cts.
86-#5 s30(E) bars at 12" cts.
A
85'-0"
Top of existing concrete
slopewall
Top of footing
Existing Concrete barrier

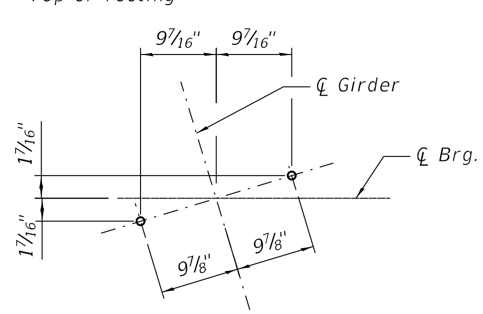
ABUTMENT ELEVATION

Front Face of West Abutment shown
East Abutment similar

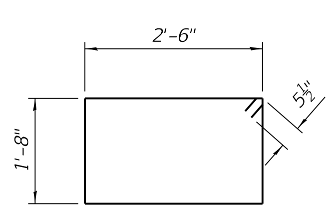


Preformed Joint
Strip Seal
v11(E)
8"
Slab
20"
Slab
1'-6"
1'-0"
Exist. 42"
Web Plate
Girder
to remain
Back of
Abutment
1½" cl.
typ.
v31(E)
h22(E) or
h33(E)
Elastomeric Expansion
Bearing (proposed)
h30(E) or h31(E)
s30(E)
1'-6"
2'-0"
Abutment Seat
Extension
v10(E)
Drill & Set v10(E)
bars in accordance
with Article 584
of the Standard
Specifications.
Minimum embedment
shall be 9"
9"
1'-9"
1'-0"
9"
2'-0"
℄ Exist. & Prop.
Abut. Brg.
1'-6"
1'-3"

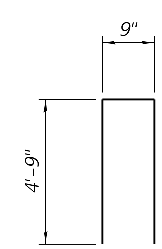
SECTION A-A



ANCHOR BOLT PLAN



BAR s30(E)



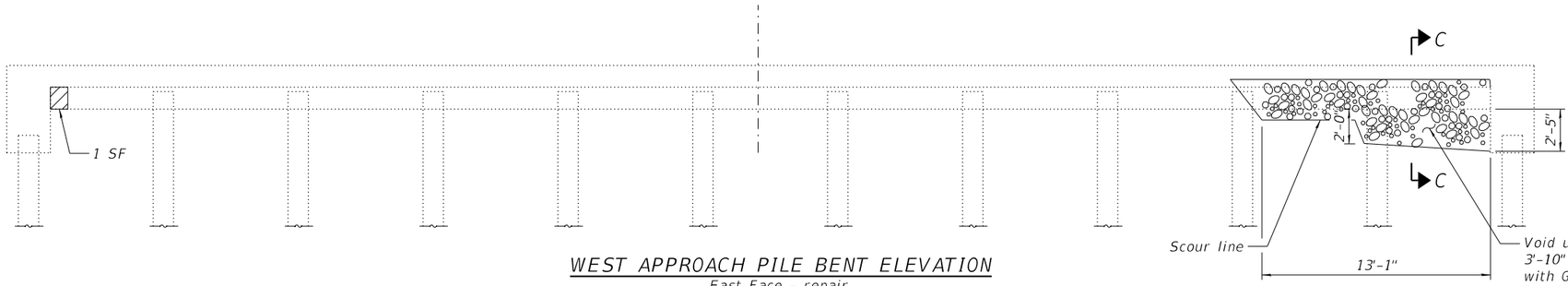
BAR v31(E)

WEST ABUTMENT SEAT ELEVATIONS

Beam No.	Seat Elev.	Step (in)
Beam 1	746.66	
Beam 2	746.66	
Beam 3	746.82	1⅞
Beam 4	746.95	1½
Beam 5	747.05	1¼
Beam 6	747.13	1
Beam 7	747.13	
Beam 8	746.99	-1⅝
Beam 9	746.99	
Beam 10	746.93	-¾
Beam 11	746.85	-1
Beam 12	746.74	-1⅜
Beam 13	746.60	-1⅝
Beam 14	746.00	

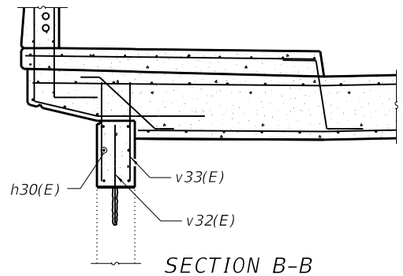
EAST ABUTMENT SEAT ELEVATIONS

Beam No.	Seat Elev.	Step (in)
Beam 1	746.11	
Beam 2	746.11	
Beam 3	746.27	1⅞
Beam 4	746.40	1½
Beam 5	746.50	1¼
Beam 6	746.58	1
Beam 7	746.58	
Beam 8	746.71	-1½
Beam 9	746.71	
Beam 10	746.65	-¾
Beam 11	746.57	-1
Beam 12	746.46	-1⅜
Beam 13	746.32	-1⅝
Beam 14	746.32	



WEST APPROACH PILE BENT ELEVATION

East Face – repair

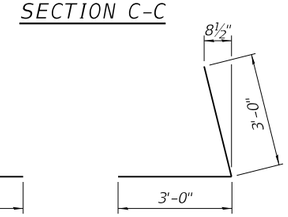


SECTION B-B

LEGEND

Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)

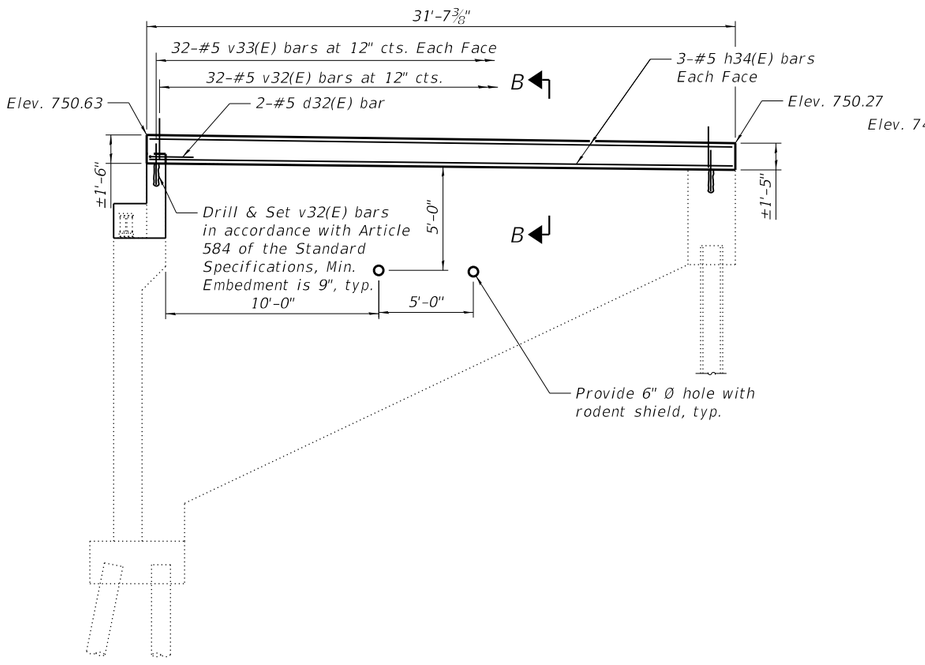
Concrete Removal



SECTION C-C

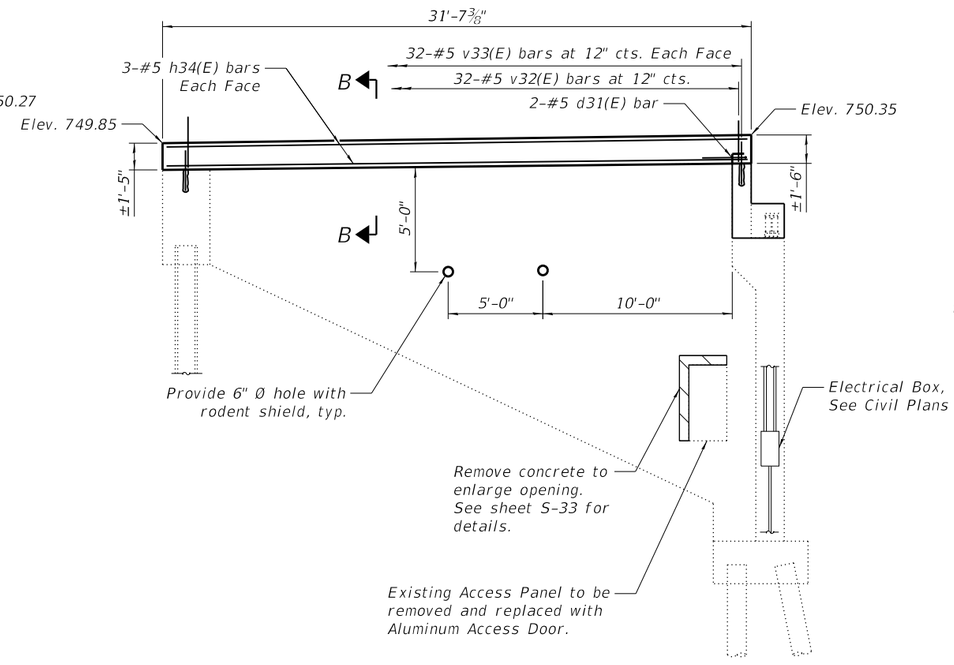
BAR d31(E)

BAR d32(E)



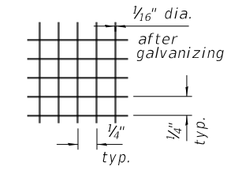
NORTHWEST WINGWALL ELEVATION

Front Face

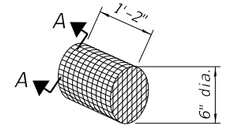


SOUTHWEST WINGWALL ELEVATION

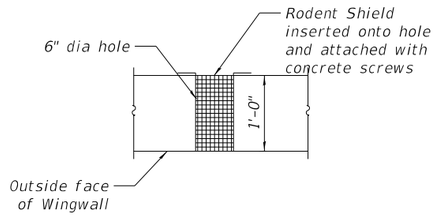
Front Face



SECTION A-A



RODENT SHIELD DETAIL



RODENT SHIELD PLACEMENT

NOTE:

Cost of rodent shield and drilling holes is included with Concrete Removal.

5/23/2019 5:45:02 PM i:\0303 PTB 182 04\0303.09 - Interstate 57 at Sauk Trail\C4D\C400_Sheets\Structural\060575-D62F29-032- w_vaulted appr_bent removal & repair.dgn

COLLINS ENGINEERS 122 N. Wacker Dr. Suite 800 Chicago, IL 60606 Office: (312) 704-1500 Fax: (312) 704-9300 www.collinsengr.com ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO.184-000990

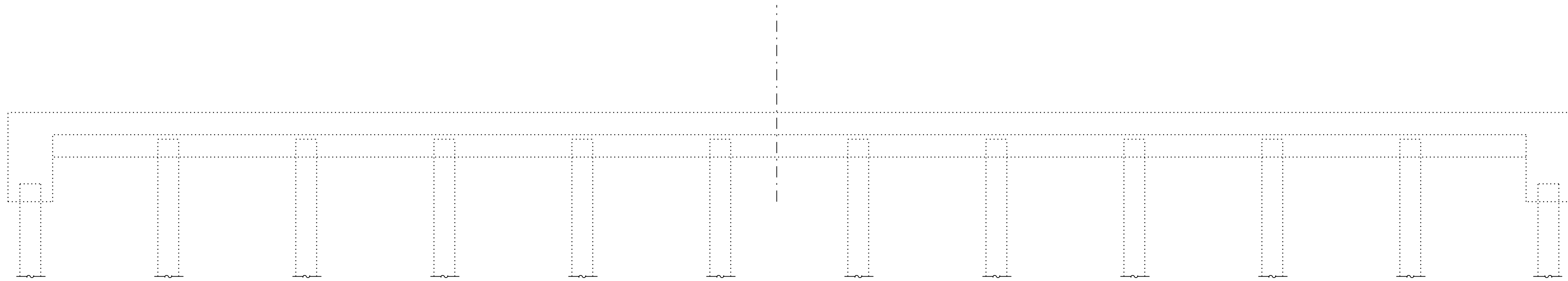
USER NAME =	DESIGNED - BMS	REVISED -	
	CHECKED - EKM	REVISED -	
PLOT SCALE =	DRAWN - PRH	REVISED -	
PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

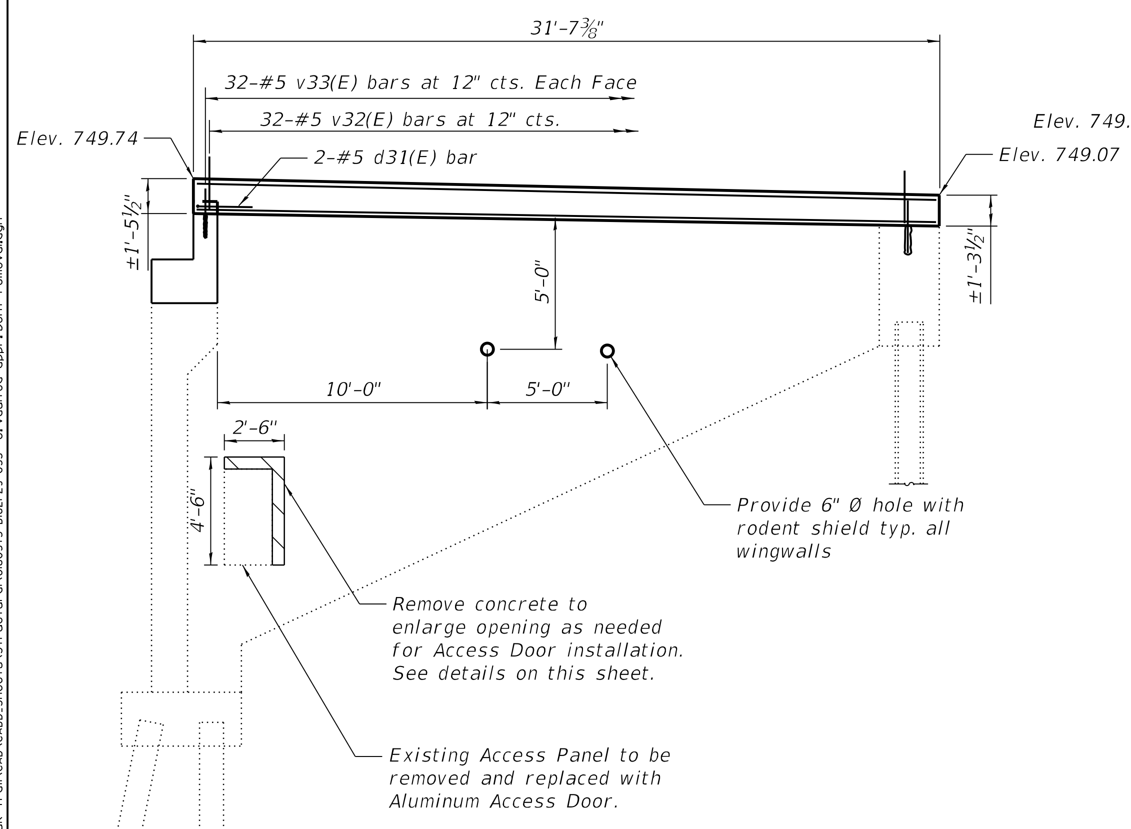
WEST VAULTED APPROACH BENT AND CURTAIN WALLS
STRUCTURE NO. 016-0575

SHEET NO. S-32 OF S-38 SHEETS

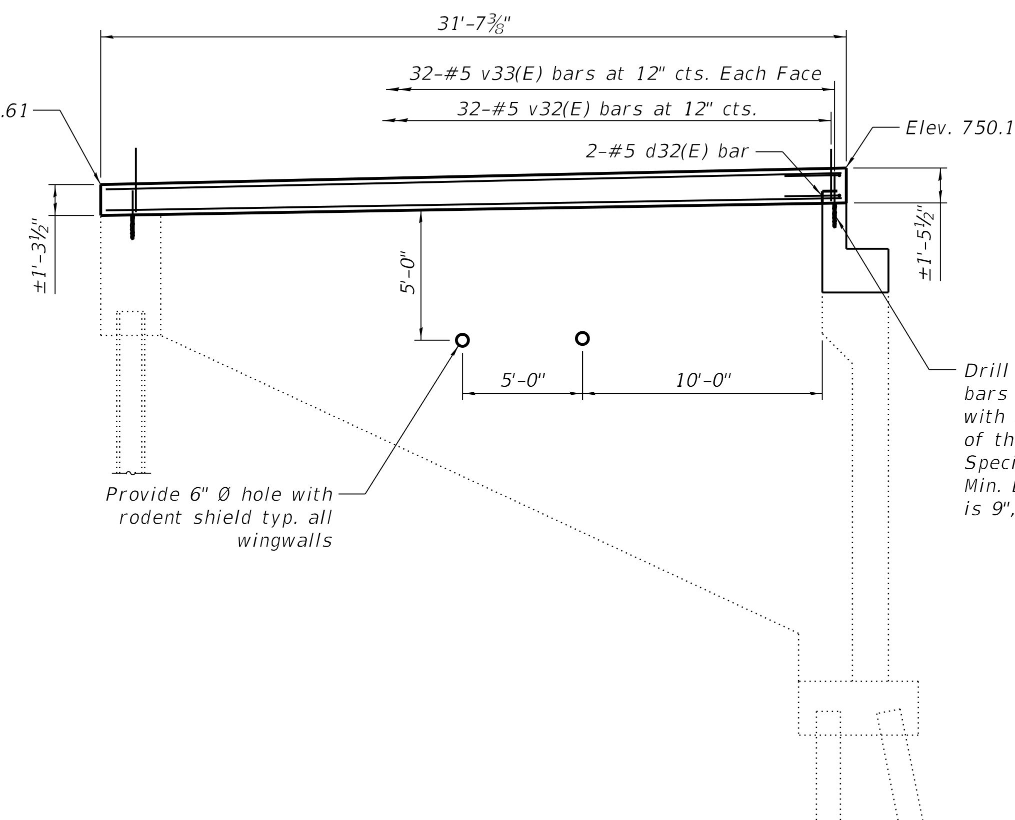
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	116
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



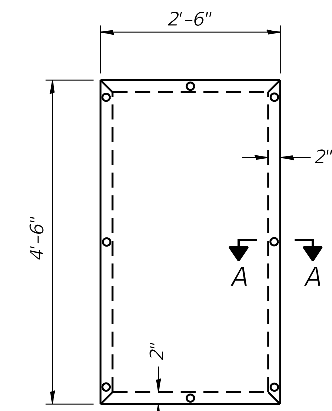
EAST APPROACH PILE BENT ELEVATION
West Face



NORTHEAST WINGWALL ELEVATION
Back Face

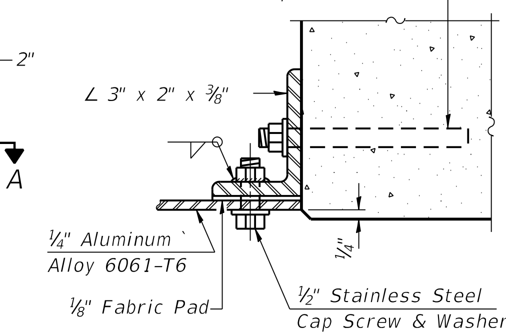


SOUTHEAST WINGWALL ELEVATION
Back Face



DOOR ELEVATION

Cost of door and frame are included with Concrete Structures.



SECTION A-A

TWO ABUTMENTS BILL OF MATERIAL

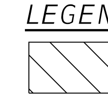
Bar	No.	Size	Length	Shape
d31(E)	4	#5	6'-0"	
d32(E)	4	#5	6'-0"	
h30(E)	20	#5	41'-10"	
h31(E)	20	#5	42'-6"	
h32(E)	20	#5	41'-2"	
h33(E)	20	#5	41'-6"	
h34(E)	12	#5	31'-3"	
s30(E)	172	#5	9'-3"	
v10(E)	170	#5	2'-3"	
v11(E)	332	#5	3'-0"	
v31(E)	168	#5	10'-3"	
v32(E)	128	#5	2'-0"	
v33(E)	128	#5	2'-9"	
Concrete Structures			Cu. Yd.	62.9
Reinforcement Bars, Epoxy Coated			Pound	9,460
Concrete Sealer			Sq. Yd.	1,130
Granular Backfill for Structures			Cu. Yd.	1.0
Structural Repair of Concrete (Depth Equal to or Less Than 5 Inches)			Sq. Ft.	1
Concrete Removal			Cu. Yd.	5.0

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

NOTE:

Cost of rodent shield and drilling holes is included with Concrete Removal.

LEGEND



Concrete Removal.

5/23/2019 5:15:12 PM I:\0303 PTB 182 04\0303.09 - Interstate 57 at Sauk Trail\CADD\CADD_Sheets\Structural\060575-D62F29-033- e_vaulted appr_bent removal.dgn

COLLINS ENGINEERS — ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO.184-000993

USER NAME =	DESIGNED - BMS	REVISED -
	CHECKED - EKM	REVISED -
PLOT SCALE =	DRAWN - PRH	REVISED -
PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

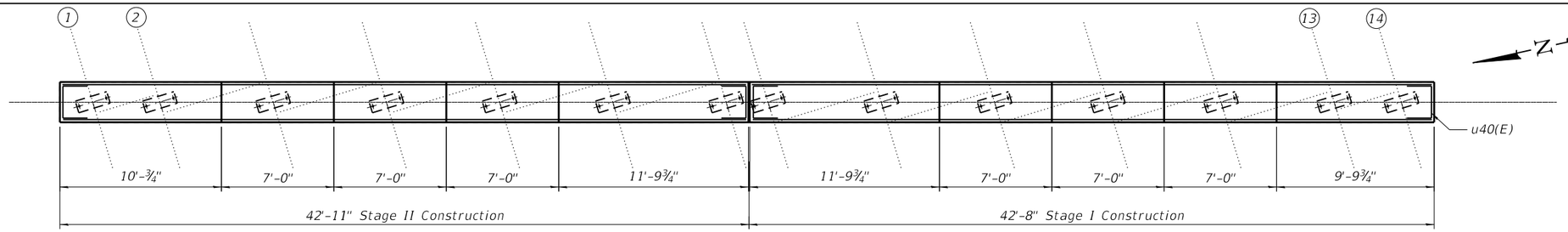
EAST VAULTED APPROACH BENT AND CURTAIN WALLS
STRUCTURE NO. 016-0575

SHEET NO. S-33 OF S-38 SHEETS

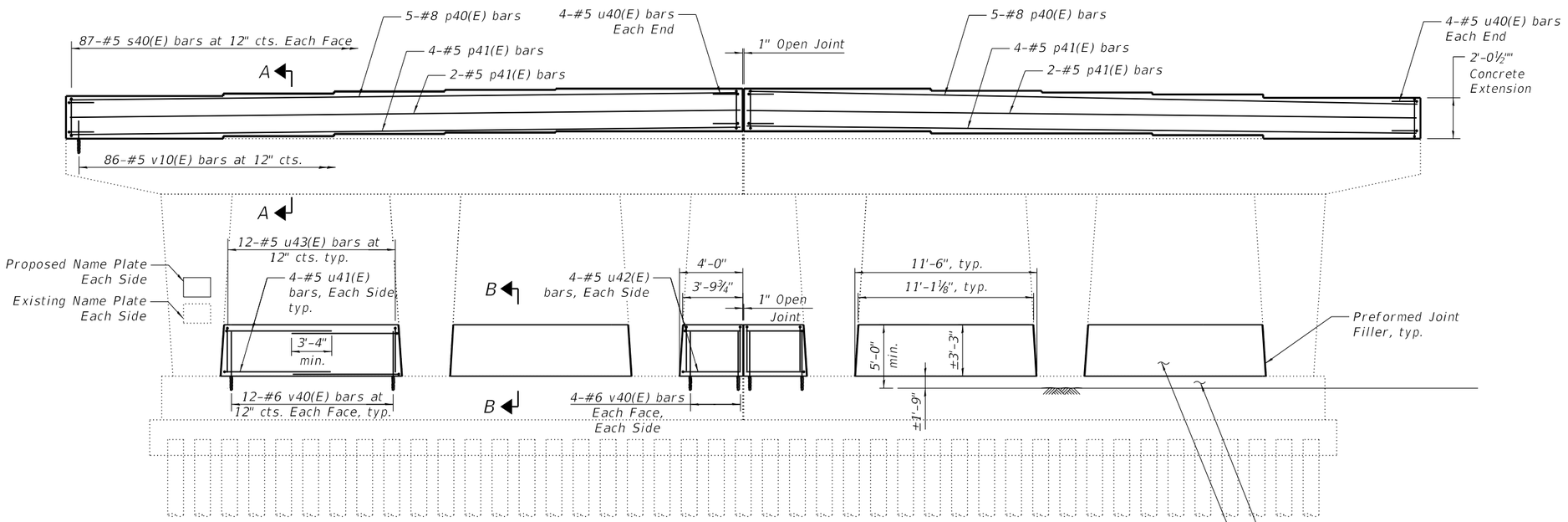
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	117

CONTRACT NO. 62F29

ILLINOIS FED. AID PROJECT

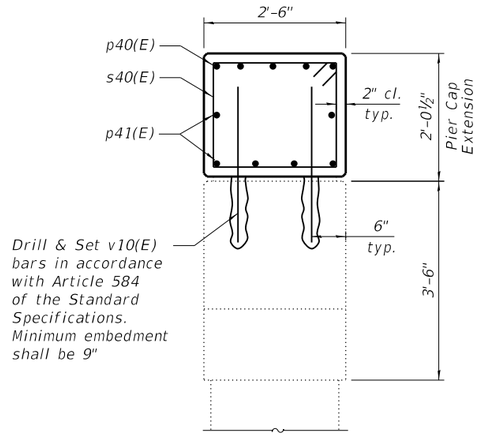


PIER CAP PLAN

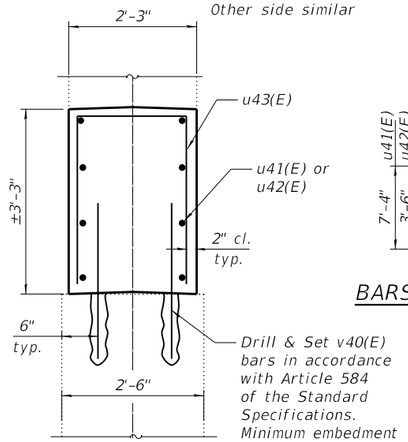


PIER ELEVATION

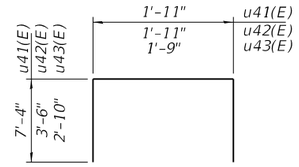
Looking East
Other side similar



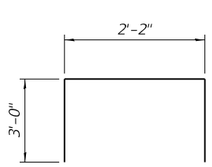
SECTION A-A



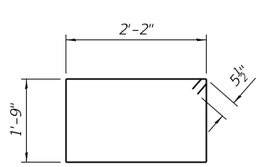
SECTION B-B



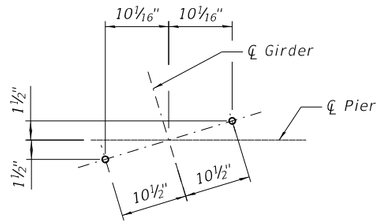
BARS u41(E), u42(E) & u43(E)



BAR u40(E)



BAR s40(E)



ANCHOR BOLT PLAN

TOP OF SEAT ELEVATIONS

Beam No.	Seat Elev.	Step (in)
Beam 1	746.88	
Beam 2	746.88	
Beam 3	747.03	1¾
Beam 4	747.17	1⅝
Beam 5	747.26	1⅛
Beam 6	747.34	1⅛
Beam 7	747.34	
Beam 8	747.34	
Beam 9	747.34	
Beam 10	747.29	-¾
Beam 11	747.21	-1
Beam 12	747.09	-1⅜
Beam 13	746.96	-1⅝
Beam 14	746.96	

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
p40(E)	10	#8	42'-4"	———
p41(E)	12	#5	42'-4"	———
s40(E)	87	#5	8'-9"	□
u40(E)	16	#5	8'-2"	⊓
u41(E)	32	#5	16'-7"	⊓
u42(E)	8	#5	8'-11"	⊓
u43(E)	56	#5	7'-5"	⊓
v10(E)	172	#5	2'-3"	———
v40(E)	112	#6	3'-9"	———
Concrete Structures		Cu. Yd.	28.2	
Reinforcement Bars, Epoxy Coated		Pound	3,630	
Name Plates		Each	2	

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

COLLINS ENGINEERS
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO. 184-000993

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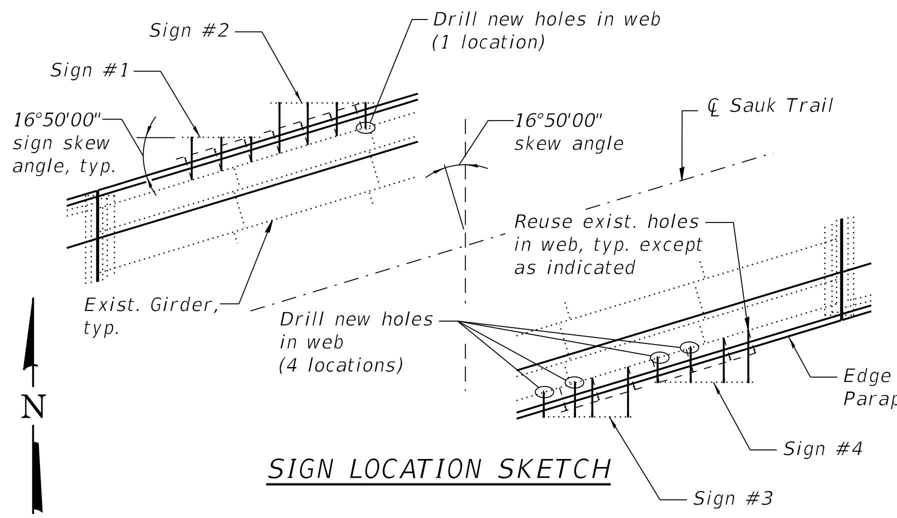
PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER CRASH WALL AND CAP EXTENSIONS
STRUCTURE NO. 016-0575
SHEET NO. S-34 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	118
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



SIGN LOCATION SKETCH

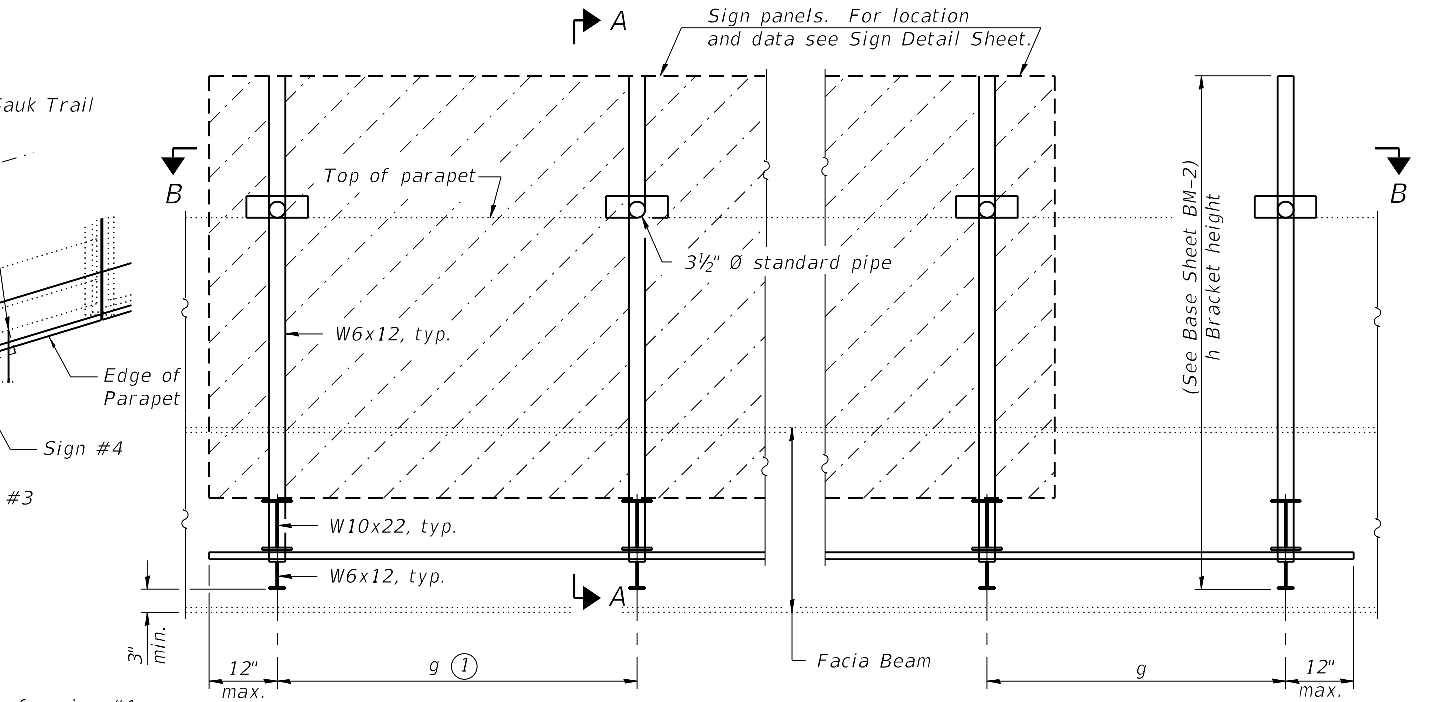
PROPOSED BRACKET SPACING

Sign Panel Number	Measured perpendicular to CL bracket (ft) (from west to east)		
1	5.13	5.20	-
2	4.91	5.05	5.00
3	5.42	3.00	6.22
4	5.75	5.75	4.27

***1'-7¾" max for sign #1
1'-6¾" max for sign #2
due to existing conditions

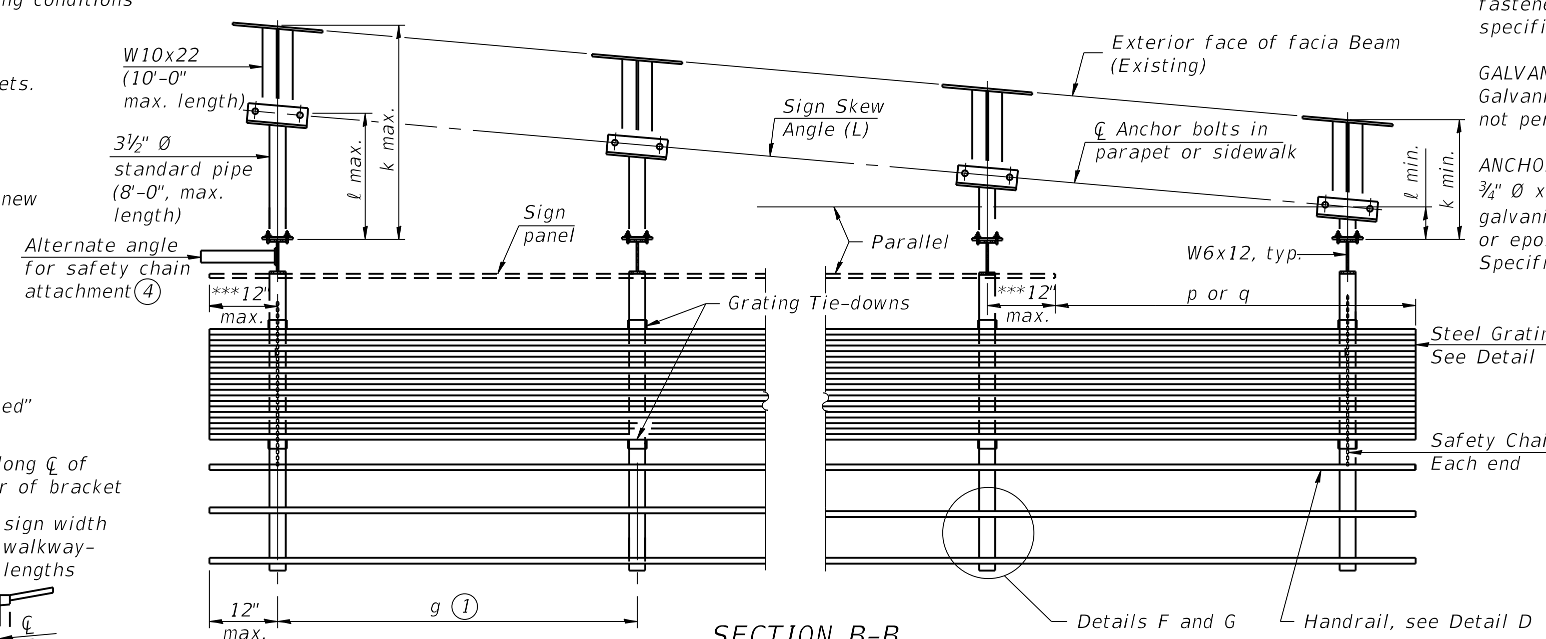
Notes:

1. Existing sign panels shall be removed, stored during construction and attached to existing girders and new parapets using new brackets. See Roadway Plans for additional information.
2. Proposed brackets shall match the existing bracket locations and shall be attached to the existing holes in girders, except as shown above. New holes shall be drilled at 5 locations, using the holes in new plates as a template. See notes on sheet S-36.
3. The Contractor to verify all existing dimensions before submitting shop drawings.
4. Walkways, light fixtures, handrails and all related hardware are not required; shop drawings shall be adjusted accordingly.
5. Refer to Special Provision "Overhead Sign Structure - Bridge Mounted" for limits of payment.



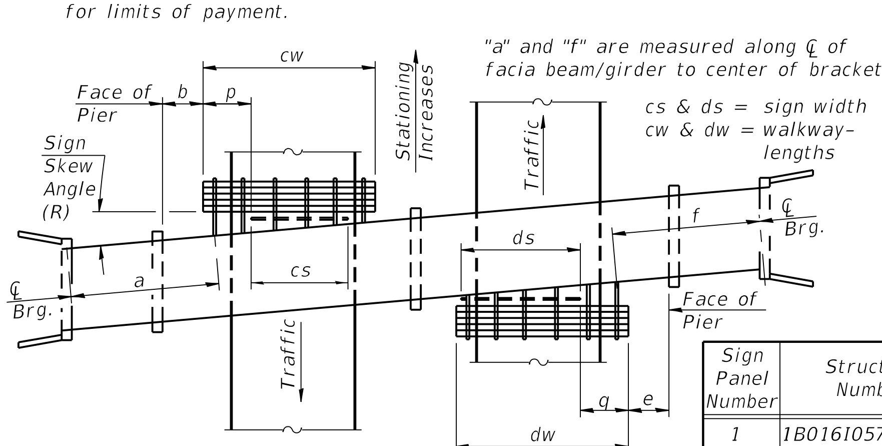
TYPICAL FRONT ELEVATION

(With lights, safety chain and handrail omitted for clarity.)



SECTION B-B

(Shown: Left Sign Skew > 15°)



PLAN
(Right Sign Skew > 15°)

WALKWAY AND HANDRAIL SKETCH

(Road plan beneath structure varies.)

Sign Panel Number	Structure Number	Sign Skew Angle (L) or (R)	Bridge Station	Bridge Structure Number	Contract Route Designation	* a (ft)	b (ft)	* cs (ft)	cw (ft)	* ds (ft)	dw (ft)	e (ft)	* f (ft)	g (average) (ft)	No. of Brackets (Total)	p (ft)	q (ft)	Total Grating/ Hndrl. Lengths (cw + dw)
1	1B016I057R339.2-a	16°50' R	45+00	016-0575	FAU 1632	16.14	-	13.63	-					5.16	3	-	-	-
2	1B016I057R339.2-b	16°50' R	45+00	016-0575	FAU 1632	32.41	-	18.08	-					4.99	4	-	-	-
3	1B016I057R339.2-c	16°50' R	45+00	016-0575	FAU 1632					15.79	-	-	37.76	4.88	4	-	-	-
4	1B016I057R339.2-d	16°50' R	45+00	016-0575	FAU 1632					17.54	-	-	15.97	5.26	4	-	-	-

Dimensions a, b, e, f & g may vary as approved by the Engineer, see ①.
When cw < cs and/or dw < ds, use alternate brackets without walkway supports where applicable, see ③.

GENERAL NOTES

SPECIFICATIONS:

DESIGN: AASHTO Standard Specifications for Structural Supports for ② Highway Signs, Luminaires and Traffic Signals. ("AASHTO Specifications")

CONSTRUCTION: Current (at time of letting) Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, Supplemental Specifications and Special Provisions. ("Standard Specifications")

LOADING: 90 M.P.H. WIND VELOCITY

WALKWAY LOADING: Dead load plus 500 lbs. concentrated live load.

MINIMUM CLEARANCE: 3" greater than bridge members at all locations. (All Obstructions)

WELDING: All welds to be continuous unless otherwise shown. All welding to be done in accordance with current AWS D1.1 Structural Welding Code (Steel) and the Standard Specificiations.

MATERIALS: All Structural Steel Pipe shall be ASTM A53 Grade B with a minimum yield of 35,000 p.s.i., or A500 Grade B or C with a minimum yield of 46,000 p.s.i. If A500 pipe is substituted for A53, then the outside diameter shall be as detailed and wall thickness greater than or equal to A53. All Structural Steel Plates and Shapes shall conform to AASHTO M270 Gr. 36, Gr. 50 (M183, M223 Gr. 50,).

HIGH STRENGTH BOLTS: All bolts, washers, nuts and locknuts shall satisfy the requirements of ASTM designation A307 unless noted as "H.S." which shall require AASHTO M164 (A325), ASTM A449, or approved alternate. All fasteners shall be hot dip galvanized per AASHTO M232 unless otherwise specified.

GALVANIZING: All Steel Grating, Plates, Shapes and Pipe shall be Hot Dip Galvanized after fabrication in accordance with AASHTO M111. Painting is not permitted.

ANCHOR RODS: All-threaded rod shall conform to ASTM F1554 Grade 105, ¾" Ø x 12" long, each with one plate washer and locknut and be hot dip galvanized per AASHTO M232. They shall be either cast into the concrete or epoxy grouted in accordance with Section 584 of the Standard Specifications. Minimum embedment in concrete shall be 9".

* ① Bracket spacing g ≤ 6'-0", max. Spacing shall be uniform if possible but may vary ±6" to miss existing obstruction (rail post, light poles, web stiffeners, splice plates, etc.). Adjust bracket lengths accordingly on skewed structures.

② Any design modifications shall be based on the current version of applicable specifications and submitted for the Engineer's approval.

** ③ Unit price includes grating, handrail, brackets, supports, anchor bolts, fasteners, fabrication, delivery, erection, field drilling and other necessary items. Limits of payment are based on grating length (cw, dw) unless otherwise specified. For Safety Chain Details and Details D, F and G, see Base Sheet BM-4.

④ If walkway bracket at safety chain location is behind sign, add angle to bracket. See detail on Base Sheet BM-4.

TOTAL BILL OF MATERIAL

** ③ OVERHEAD SIGN STRUCTURE-BRIDGE MOUNTED	Foot	71
REMOVE OVERHEAD SIGN STRUCTURE-BRIDGE MOUNTED	Each	4

* See Notes 2 and 3 on this sheet.
** See Notes 4 and 5 on this sheet.

(Sheet 1 of 3)

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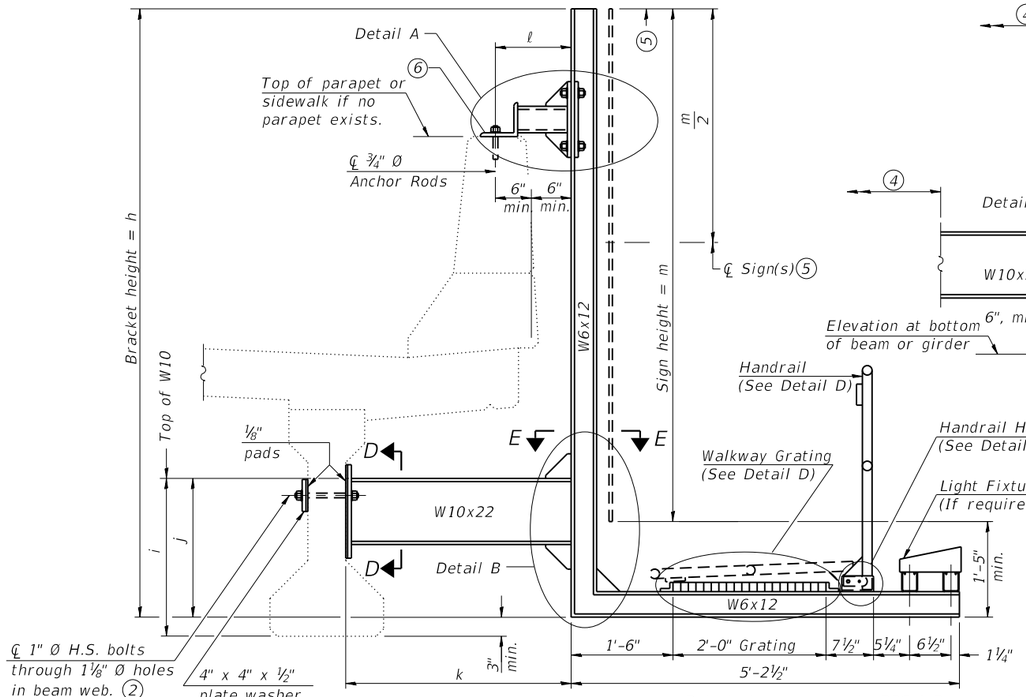
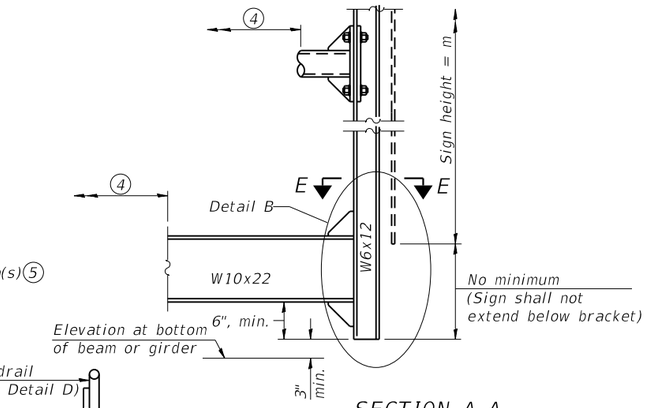
COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SIGN STRUCTURE DETAILS STRUCTURE NO. 016-0575	F.A.U. RTE. 1632	SECTION 0203-1001-HB-BR	COUNTY COOK	TOTAL SHEETS 137	SHEET NO. 119
		CHECKED - EKM	REVISED -					CONTRACT NO. 62F29		
	PLOT SCALE =	DRAWN - PRH	REVISED -							
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -		SHEET NO. S-35 OF S-38 SHEETS		ILLINOIS FED. AID PROJECT			



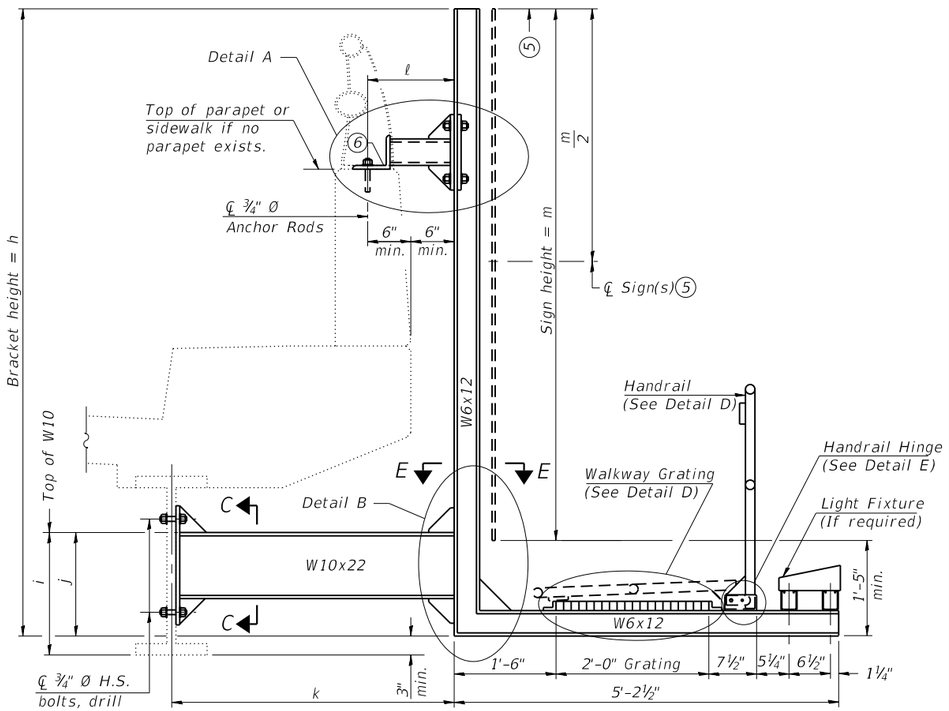
SECTION A-A

Details for mounting to PPC I Beam or Bulb "T" & Details for mounting to parapet w/o rail



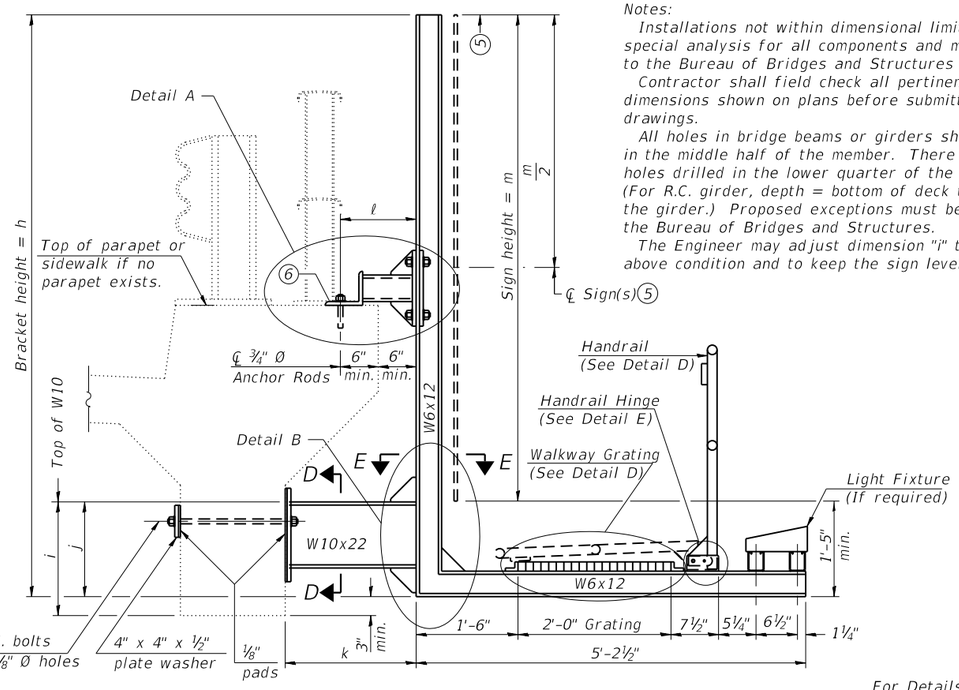
SECTION A-A

Alternate with no lights or walkways



SECTION A-A

Details for mounting to steel beam or girder & Details for mounting with existing parapet mounted rail



SECTION A-A

Details for mounting to integral reinforced concrete girder & Details for mounting on safety curb with surface-mount bridge rail

Notes:

Installations not within dimensional limits shown require special analysis for all components and must be submitted to the Bureau of Bridges and Structures for approval.

Contractor shall field check all pertinent existing bridge dimensions shown on plans before submitting shop drawings.

All holes in bridge beams or girders should be located in the middle half of the member. There shall be no holes drilled in the lower quarter of the member's depth. (For R.C. girder, depth = bottom of deck to bottom of the girder.) Proposed exceptions must be approved by the Bureau of Bridges and Structures.

The Engineer may adjust dimension "i" to meet the above condition and to keep the sign level.

(1) *Holes in new steel members may be drilled in the fabrication shop or in the field. Field drill existing members.*

(2) *For new PPC I beams, holes shall be formed during casting. For existing PPC I beams, prestressing strand locations shall be determined and spaced to miss strands by 6", min. Minimize spalling during field drilling of existing beams.*

(3) *For new construction, form holes. For existing RC beams, locate primary reinforcement and space holes to miss by 6", min. Minimize spalling and concrete fracturing/damage during field drilling of existing concrete. Spalls over ¼" deep or beyond the coverage of the 4x4 plate washer shall be repaired with epoxy mortar before installing washer.*

(4) *For attachment details of 3½" pipe and W10x22, see other sections as applicable.*

*See Notes 2 and 3 on sheet S-35

(5) *Sign shall not extend more than 6" above top of bracket, and this dimension may vary to keep sign level if bridge is on grade or vertical curve. Multiple signs of various heights shall share a common horizontal centerline and use equal bracket heights. If no sign is attached to a W6x12 vertical (bracket only supporting walkway), dimension h shall be the same as an adjacent bracket with a sign attached, unless Engineer specifically directs shorter brackets due to locational restraints on future uses. (See Detail A for minimum bracket height.)*

(6) *For bridge mounted sign structures installed on new bridges with railing, during design, bracket spacing must be coordinated with railing post spacing and the Contractor must install upper brackets prior to railing installation. For bridge mounted sign structures installed on existing bridges with railing, during design, brackets spacing must be coordinated with railing post spacing and the Contractor must temporarily remove sections of railing to facilitate upper bracket installation. If it is determined during design that existing railings can't be removed, alternate upper connection details must be developed for the contract plans and approved by the Bureau of Bridges and Structures.*

For Details A & B, Sections C-C, D-D and E-E, see Base Sheet BM-3.
For Details D & E, see Base Sheet BM-4.

Sign Panel Number	Structure Number	Station	h	i	j	k max. (10'-0" max.)	ℓ max. (8'-0" max.)	m (15'-0" max.)
1	1B016I057R339.2-a	45+00	11'-0"	*	*	7.41	4.80	9'-0"
2	1B016I057R339.2-b	45+00	11'-0"	*	*	8.75	6.14	10'-6"
3	1B016I057R339.2-c	45+00	13'-0"	*	*	8.67	6.06	12'-0"
4	1B016I057R339.2-d	45+00	10'-0"	*	*	9.00	6.39	7'-0"

BM-2 2-17-2017

COLLINS ENGINEERS 111 N. Wacker Dr., Suite 900, Chicago, IL 60606, Phone: (312) 704-1500, Fax: (312) 704-9320, www.collinsengr.com
ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE NO.184-000993

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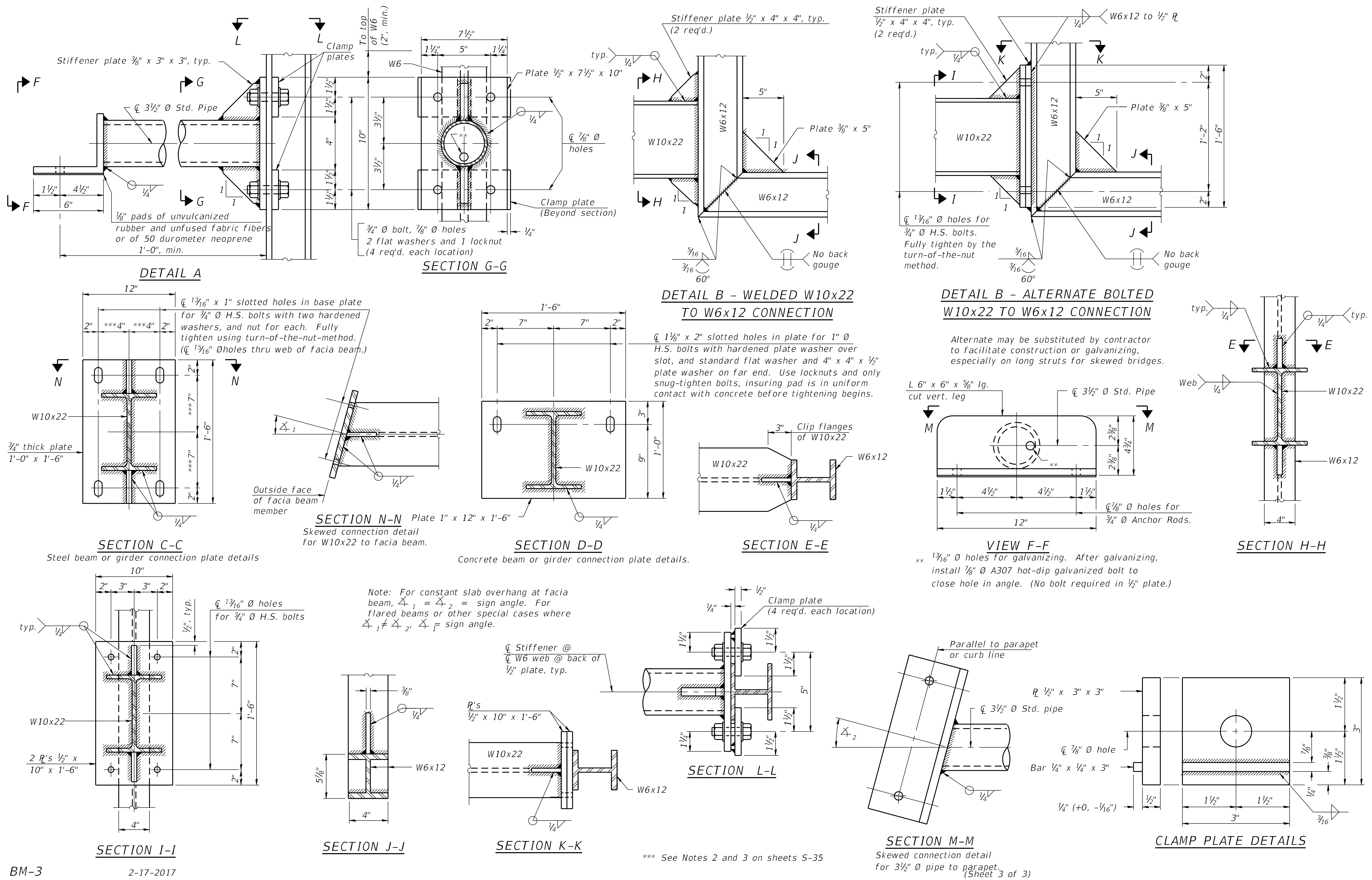
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SIGN STRUCTURE DETAILS
STRUCTURE NO. 016-0575
SHEET NO. S-36 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	120
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			


DETAIL A
Stiffener plate 3/8" x 3" x 3", typ.
Clamp plates
To top of W6 (2", min.)
℄ 3½" Ø Std. Pipe
1/8" pads of unvulcanized rubber and unfused fabric fibers or of 50 durometer neoprene
1'-0", min.
SECTION G-G
Plate ½" x 7½" x 10"
℄ 7/8" Ø holes
Clamp plate (Beyond section)
3/4" Ø bolt, 7/8" Ø holes
2 flat washers and 1 locknut
(4 req'd. each location)
DETAIL B - WELDED W10x22 TO W6x12 CONNECTION
Stiffener plate ½" x 4" x 4", typ. (2 req'd.)
Plate 3/8" x 5"
No back gouge
DETAIL B - ALTERNATE BOLTED W10x22 TO W6x12 CONNECTION
W6x12 to ½" PL
℄ 13/16" Ø holes for 3/4" Ø H.S. bolts. Fully tighten by the turn-of-the-nut method.
Alternate may be substituted by contractor to facilitate construction or galvanizing, especially on long struts for skewed bridges.
SECTION C-C
Steel beam or girder connection plate details
℄ 13/16" x 1" slotted holes in base plate for 3/4" Ø H.S. bolts with two hardened washers, and nut for each. Fully tighten using turn-of-the-nut-method. (℄ 13/16" Ø holes thru web of facia beam.)
3/4" thick plate 1'-0" x 1'-6"
SECTION N-N
Skewed connection detail for W10x22 to facia beam.
Outside face of facia beam member
SECTION D-D
Concrete beam or girder connection plate details.
Plate 1" x 12" x 1'-6"
℄ 1⅛" x 2" slotted holes in plate for 1" Ø H.S. bolts with hardened plate washer over slot, and standard flat washer and 4" x 4" x ½" plate washer on far end. Use locknuts and only snug-tighten bolts, insuring pad is in uniform contact with concrete before tightening begins.
SECTION E-E
Clip flanges of W10x22
VIEW F-F
L 6" x 6" x 5/8" lg. cut vert. leg
℄ 7/8" Ø holes for 3/4" Ø Anchor Rods.
** 13/16" Ø holes for galvanizing. After galvanizing, install 7/8" Ø A307 hot-dip galvanized bolt to close hole in angle. (No bolt required in ½" plate.)
SECTION H-H
SECTION I-I
℄ 13/16" Ø holes for 3/4" Ø H.S. bolts
2 PL's ½" x 10" x 1'-6"
Note: For constant slab overhang at facia beam, ∡1 = ∡2 = sign angle. For flared beams or other special cases where ∡1 ≠ ∡2, ∡1 = sign angle.
SECTION J-J
SECTION K-K
℄ Stiffener @ ℄ W6 web @ back of ½" plate, typ.
PL's ½" x 10" x 1'-6"
SECTION L-L
Clamp plate (4 req'd. each location)
*** See Notes 2 and 3 on sheets S-35
SECTION M-M
Skewed connection detail for 3½" Ø pipe to parapet.
Parallel to parapet or curb line
CLAMP PLATE DETAILS
PL ½" x 3" x 3"
℄ 7/8" Ø hole
Bar ¼" x ¼" x 3"
(Sheet 3 of 3)

BM-3 2-17-2017

COLLINS ENGINEERS	USER NAME =	DESIGNED - BMS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SIGN STRUCTURE DETAILS STRUCTURE NO. 016-0575
		CHECKED - EKM	REVISED -		
	PLOT SCALE =	DRAWN - PRH	REVISED -		
	PLOT DATE = 5/23/2019	CHECKED - BMS	REVISED -		SHEET NO. S-37 OF S-38 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	121
		CONTRACT NO. 62F29		
		ILLINOIS FED. AID PROJECT		

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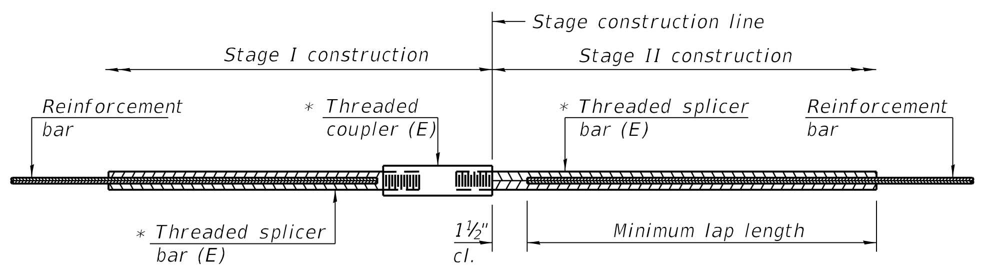
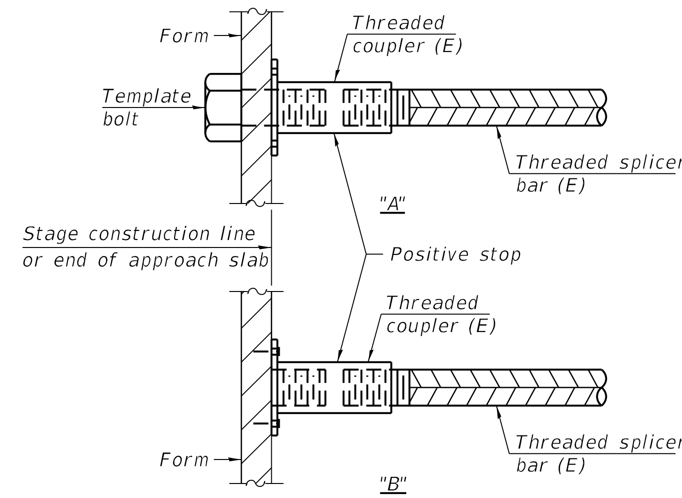


STANDARD BAR SPLICER ASSEMBLY

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

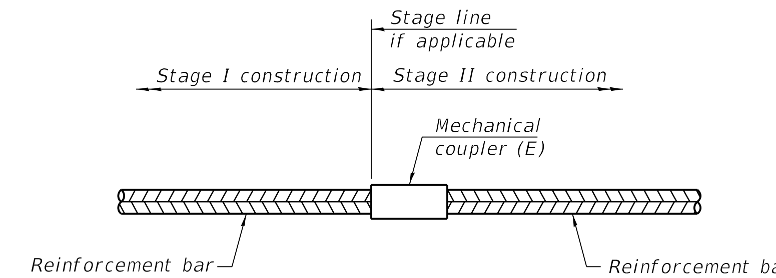
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Minimum lap length
Main Span	#5	521	3'-6"
Vaulted Span	#5	49	4'-0"
Vaulted Span	#8	61	7'-10"
Approach Slab	#5	45	3'-4"
Approach Slab	#8	60	4'-9"
Approach Slab Footing	#5	40	3'-0"
Abutments	#5	40	3'-7"



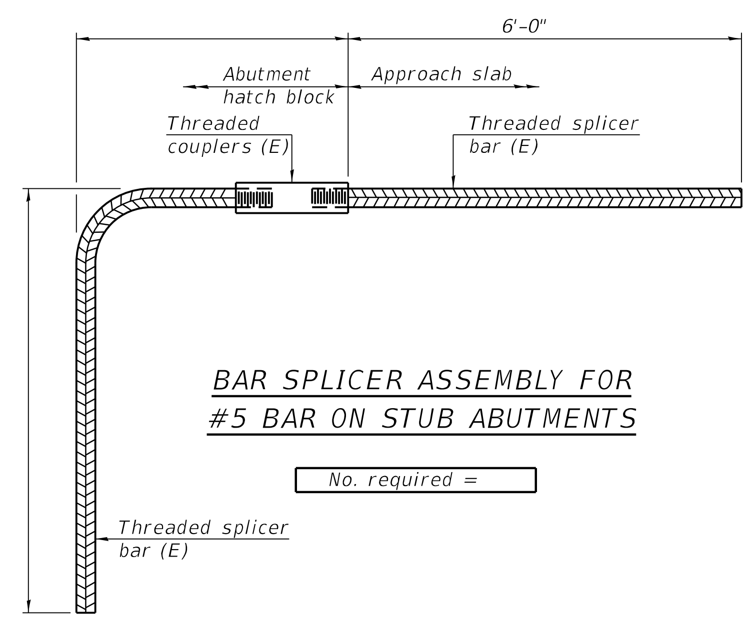
INSTALLATION AND SETTING METHODS

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



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

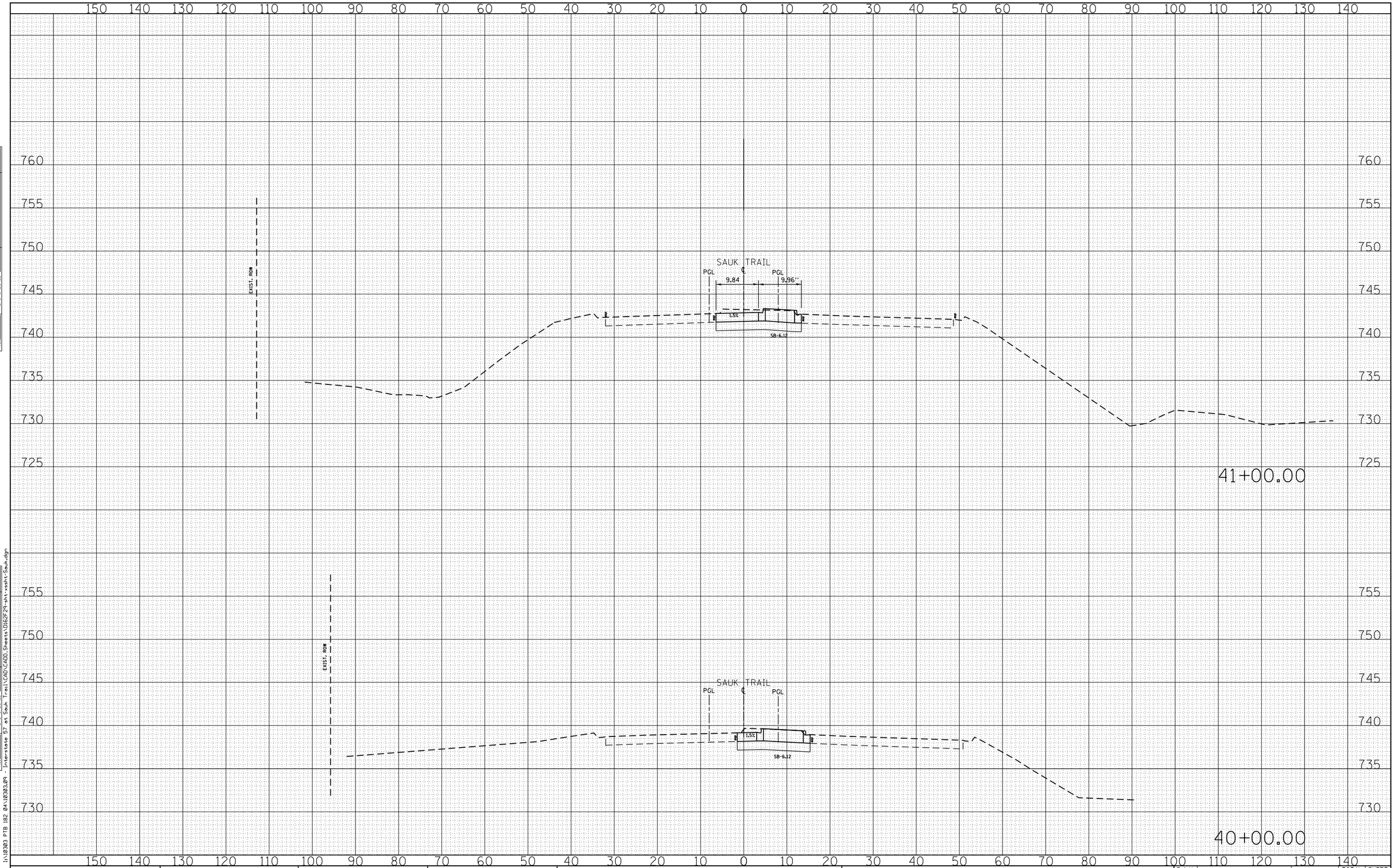
All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1 2-17-2017

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



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	PLOTTED		
	TEMPLATE		
NOTE BOOK	AREAS		
NO.	AREAS CHECKED		

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COLLINS ENGINEERS INC

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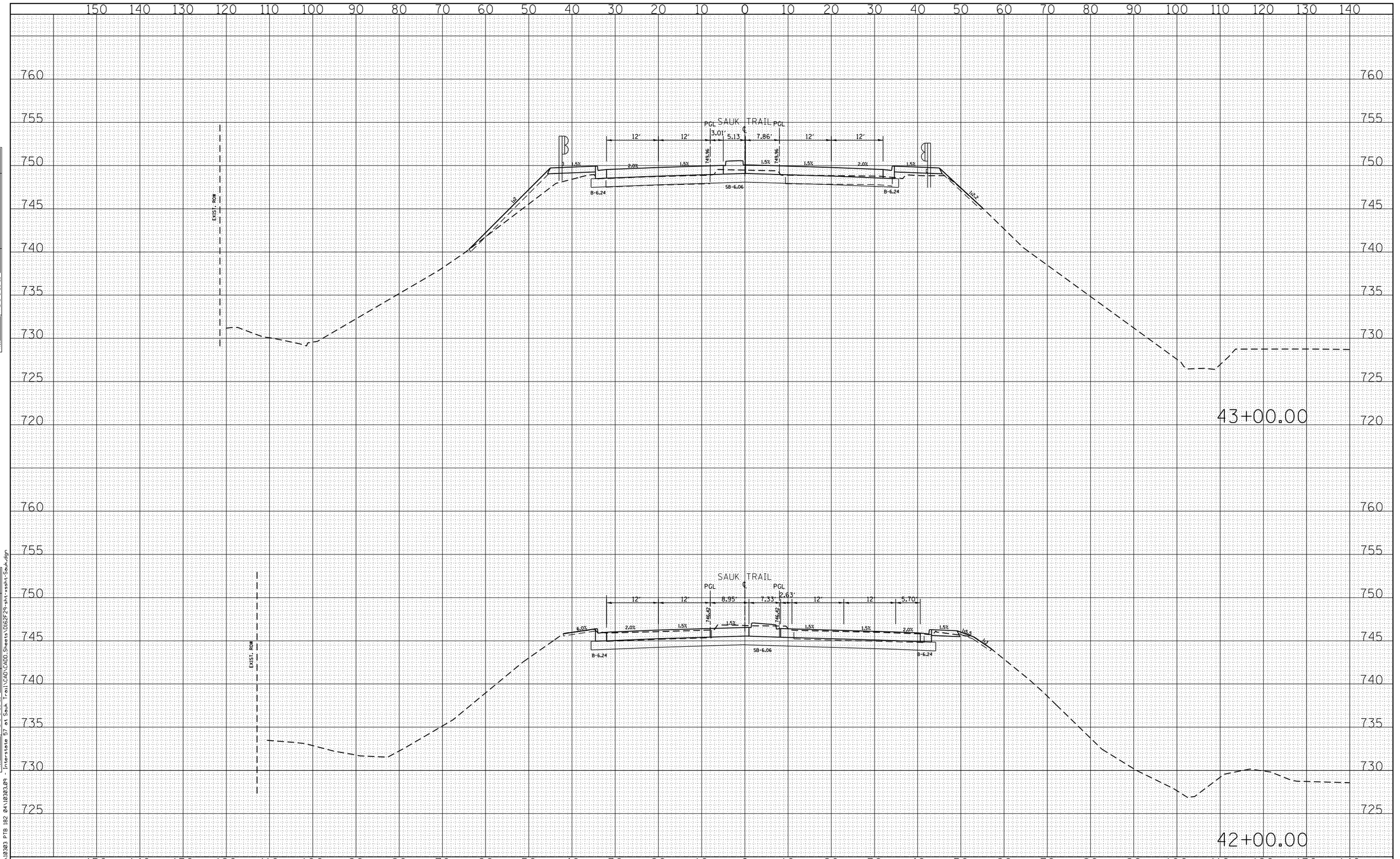
	DRAWN -	REVISED -
PLOT SCALE = 20.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 5/23/2019	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-57 OVER SAUK TRAIL
PROPOSED CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA. 40+00.00 | TO STA. 41+00.00

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001HB-BR	COOK	137	123
		CONTRACT NO. 62F29		
	ILLINOIS	FED. AID PROJECT		



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

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

FILE NAME = i:\10303 PTB 182 04\10303.09 - Interstate 57 at Sauk Trail\CADD\CADD_Sheets\D162F29-sht-xssht-Sauk.dgn

COLLINS ENGINEERS INC

USER NAME = ztanner	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 20.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 5/23/2019	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

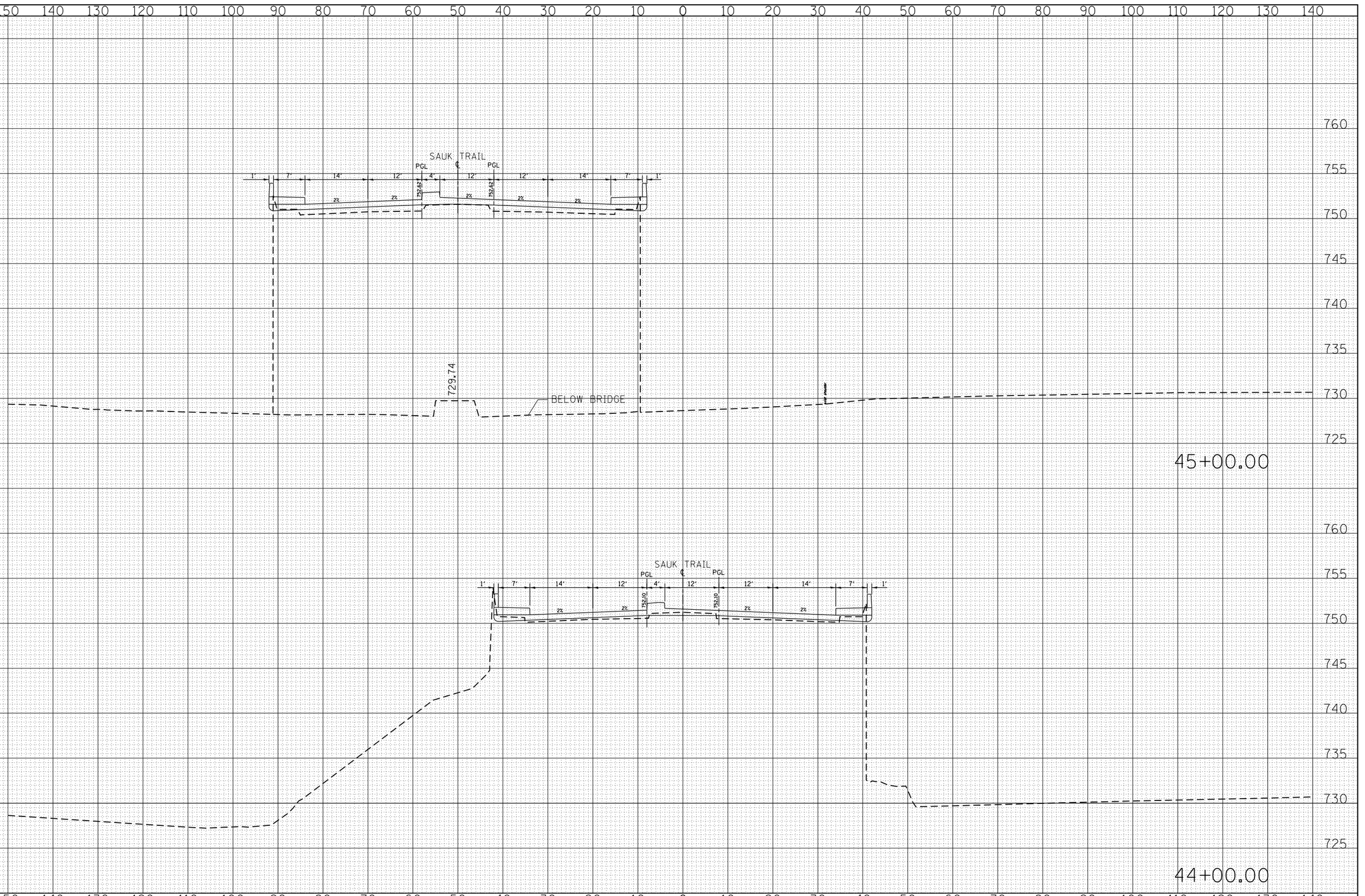
I-57 OVER SAUK TRAIL
PROPOSED CROSS SECTIONS

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

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001HB-BR	COOK	137	124
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			

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

BY	DATE



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PLOTTED		
TEMPLATE		
AREAS		
AREAS CHECKED		

BY	DATE

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COLLINS ENGINEERS INC

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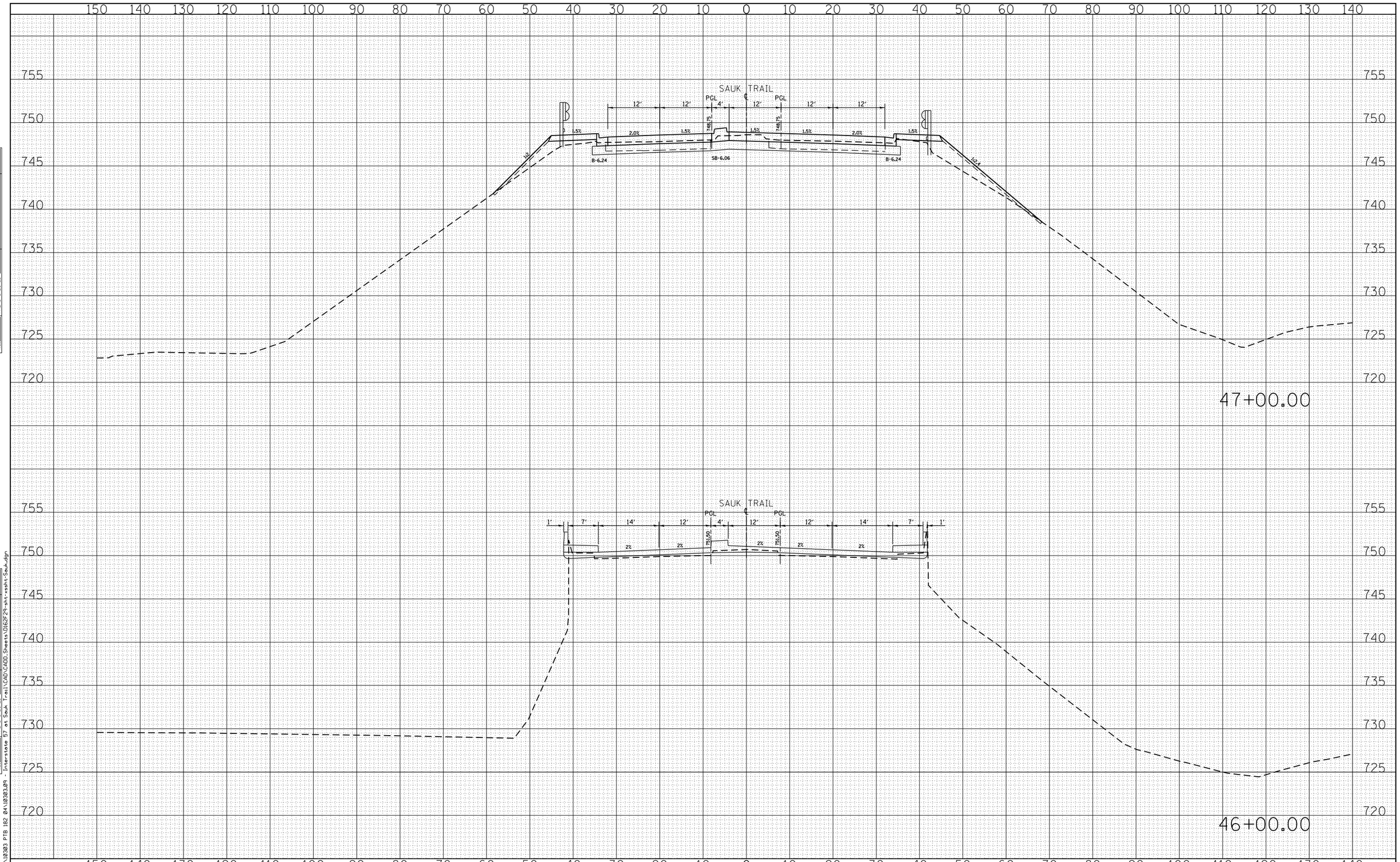
PLOT SCALE = 20.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 5/23/2019	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-57 OVER SAUK TRAIL
PROPOSED CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA. 44+00.00 TO STA. 45+00.00

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001HB-BR	COOK	137	125
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



FINAL SURVEY

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

ORIGINAL SURVEY

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

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COLLINS ENGINEERS INC

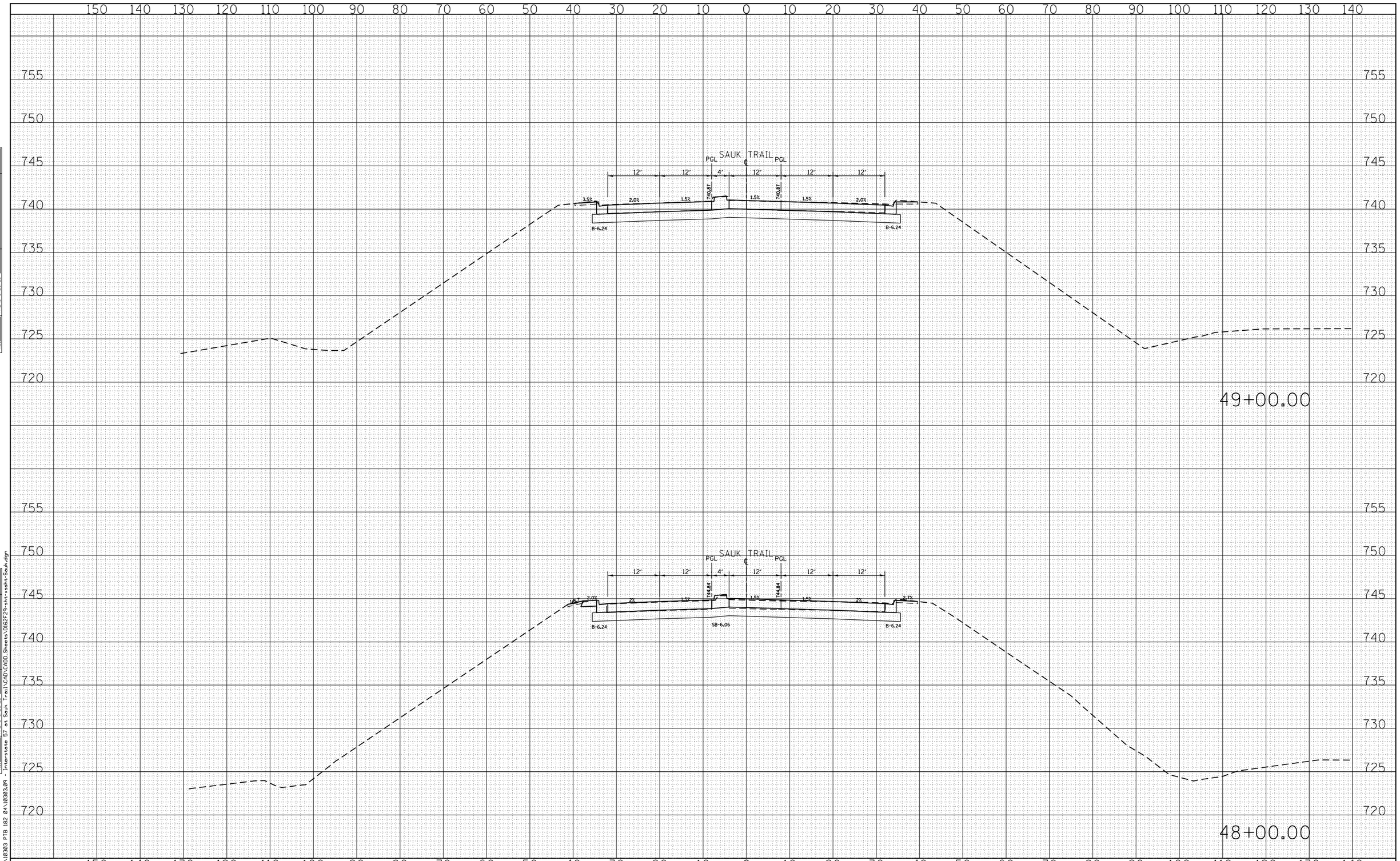
USER NAME = ztanner	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 20.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 5/23/2019	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-57 OVER SAUK TRAIL
PROPOSED CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA. 46+00.00 TO STA. 47+00.00

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001HB-BR	COOK	137	126
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



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

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

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COLLINS ENGINEERS INC

USER NAME = ztanner	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 20.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 5/23/2019	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-57 OVER SAUK TRAIL
EXISTING CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA. 48+00.00 TO STA. 49+00.00

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001HB-BR	COOK	137	127
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			

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

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NOTE BOOK	TEMPLATE		
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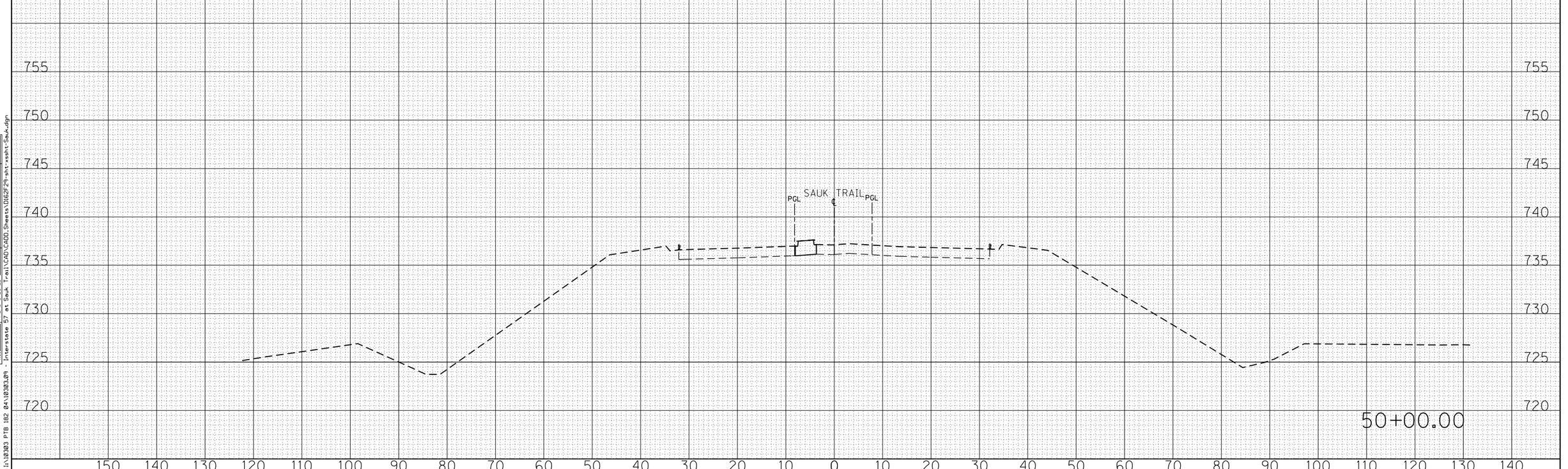
NO.	AREAS CHECKED		



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	DRAWN -	REVISED -	
PLOT SCALE = 20.0000 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 5/23/2019	DATE -	REVISED -	

COLLINS ENGINEERS INC

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

I-57 OVER SAUK TRAIL
PROPOSED CROSS SECTIONS

SCALE: | SHEET OF SHEETS | STA. 50+00.00 | TO STA. 50+00.00

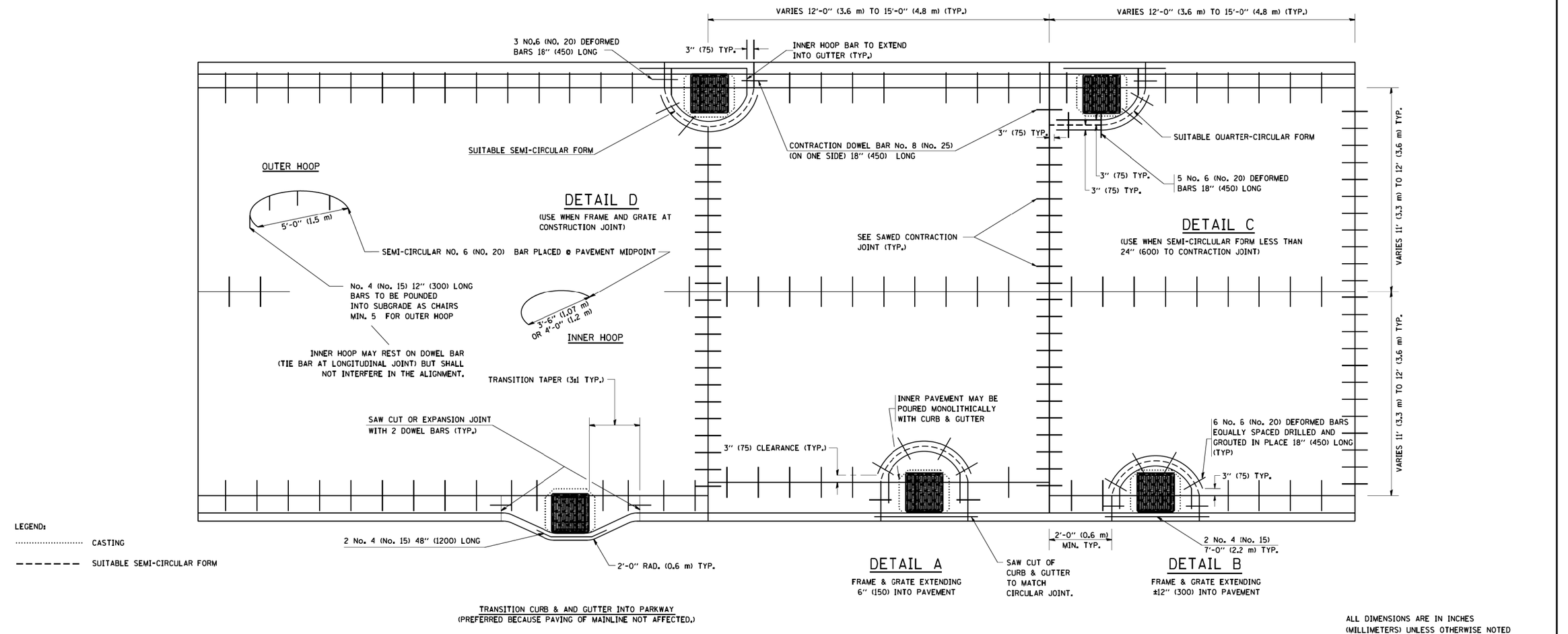
F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001HB-BR	COOK	137	128
		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			

FRAME EXTENSION INTO PAVEMENT	INNER HOOP REINFORCEMENT DIAMETER	SEMI CIRCULAR FORM DIAMETER	OUTER HOOP REINFORCEMENT DIAMETER
UP TO 8" (200)	3'-6" (1.1 m)	4'-0" (1.2 m)	5'-0" (1.5 m)
> 8" (200) TO 14" (360)	4'-0" (1.2 m)	4'-6" (1.4 m)	5'-0" (1.5 m)

DESIGNER NOTE:
THIS DETAIL IS TO BE USED WHEN THE GUTTER FLAG IS LESS THAN 24"

NOTES :

1. THE ROUNDOUT AND ADDED REINFORCEMENT WILL NOT BE PAID SEPARATELY, BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE PAVEMENT.
2. TRANSVERSE JOINTS MAY BE MOVED TO ACCOMMODATE ROUNDOUT, EDGE OF CIRCULAR JOINT SHALL BE MINIMUM 12" (300) FROM TRANSVERSE JOINT. RELOCATED TRANSVERSE JOINT SHALL BE CONTINUOUS FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
3. SEMI-CIRCULAR FORM SHALL BE REMOVED PRIOR TO DRILL AND GROUT OF TIE BARS.
4. ALL REINFORCED BARS SHALL BE EPOXY COATED.
5. DRILL AND GROUT IS PREFERRED, HOWEVER TIE BARS CAN BE POURED IN PLACE IF CLEARANCE IS PROVIDED TO OUTER EDGE OF FRAME. MINIMUM 2" (50) CLEARANCE.
6. WOOD SHIMS SHALL BE USED TO ADJUST ALL FRAMES. AFTER ADJUSTING MORTAR HAS CURED, THE WOOD SHIMS SHALL BE REMOVED AND THE VOIDS UNDER THE FRAMES FILLED WITH NON SHRINK GROUT.
7. HOOP REINFORCEMENT SHALL BE ONE PIECE CONSTRUCTION.
8. CIRCULAR FRAMES AND GRATES MAY BE SUBSTITUTED.
9. CURB DOWELS MUST BE PLACED LEVEL & TRUE TO ALLOW CONTRACTION MOVEMENT.



TRANSITION CURB & AND GUTTER INTO PARKWAY
(PREFERRED BECAUSE PAVING OF MAINLINE NOT AFFECTED.)

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE NOTED

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		DRAWN - TOM MATOUSEK	REVISED - T. MATOUSEK 10-02-00
	PLOT SCALE = 50.0000 ' / IN.	CHECKED - A. ABBAS	REVISED - T. MATOUSEK 04-25-02
	PLOT DATE = 1/4/2008	DATE - 01-04-99	REVISED - P. LAFLEUR 08-27-02

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PCC PAVEMENT ROUNDOUTS AT CURB AND GUTTER

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

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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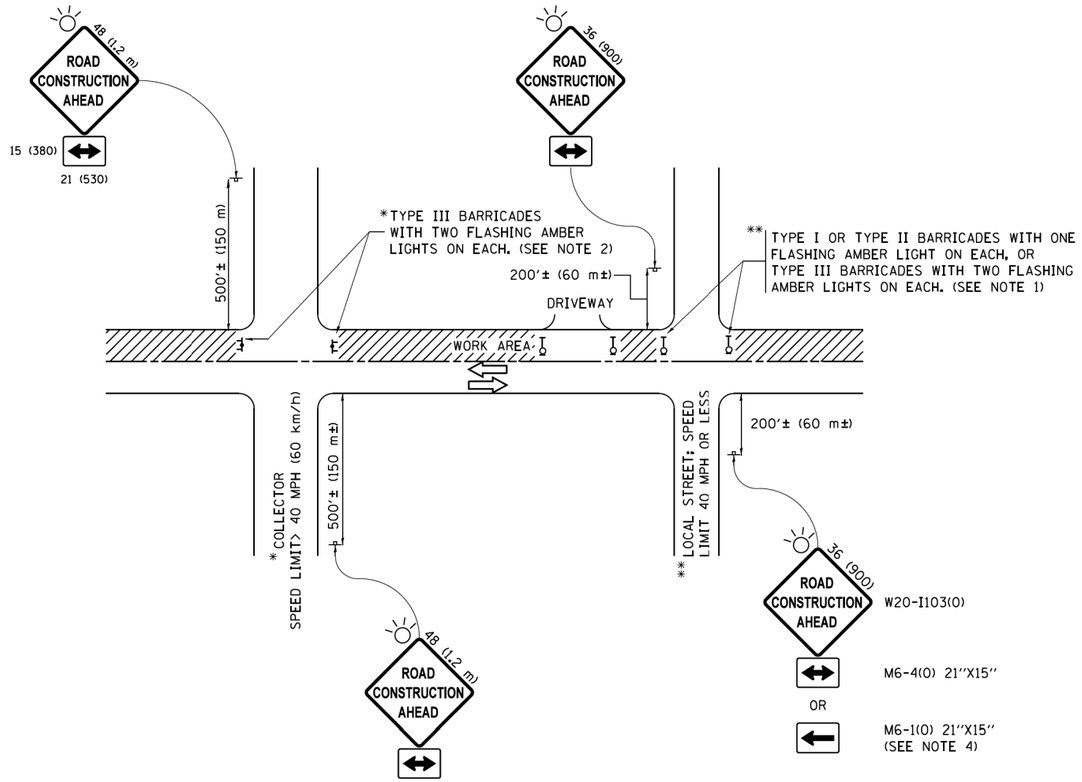
	BD-48	CONTRACT NO.		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



NOTES:

1. SIDE ROAD WITH A SPEED LIMIT OF 40 MPH (60 km/h) OR LESS AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
   a) ONE ''ROAD CONSTRUCTION AHEAD'' SIGN 36 x 36 (900x900) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 200' (60 m) IN ADVANCE OF THE MAIN ROUTE.
   b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE I, TYPE II OR TYPE III BARRICADES, 1/3 OF THE CROSS SECTION OF THE CLOSED PORTION.
2. SIDE ROAD WITH A SPEED LIMIT GREATER THAN 40 MPH (60 km/h) AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:
   a) ONE ''ROAD CONSTRUCTION AHEAD'' SIGN 48 x 48 (1.2 m x 1.2 m) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 500' (150 m) IN ADVANCE OF THE MAIN ROUTE.
   b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE III BARRICADES, 1/2 OF THE CROSS SECTION OF THE CLOSED PORTION.
3. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (710) IN HEIGHT.
4. WHEN THE SIDE ROAD LIES BETWEEN THE BEGINNING OF THE MAINLINE SIGNING AND THE WORK ZONE, A SINGLE HEADED ARROW (M6-1) SHALL BE USED IN LIEU OF THE DOUBLE HEADED ARROW (M6-4).
5. WHEN WORK IS BEING PERFORMED ON A SIDE ROAD OR DRIVEWAY, FOLLOW THE APPLICABLE STANDARD(S). THE DIRECTIONAL ARROW (M6-1 OR M6-4) SHALL BE COVERED OR REMOVED WHEN NO LONGER CONSISTENT WITH THE TRAFFIC CONTROL SET-UP.
6. ADVANCE WARNING SIGNS ARE TO BE OMITTED ON DRIVEWAYS UNLESS OTHERWISE SPECIFIED IN THE PLANS OR BY THE ENGINEER.
7. THE TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS SHALL BE INCLUDED IN THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.

All dimensions are in inches (millimeters) unless otherwise shown.

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		DRAWN	REVISED -T. RAMMACHER 01-06-00
	PLOT SCALE = 50.000 ' / in.	CHECKED -	REVISED - A. SCHUETZE 07-01-13
Default	PLOT DATE = 9/15/2016	DATE - 06-89	REVISED - A. SCHUETZE 09-15-16

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

SCALE: NONE | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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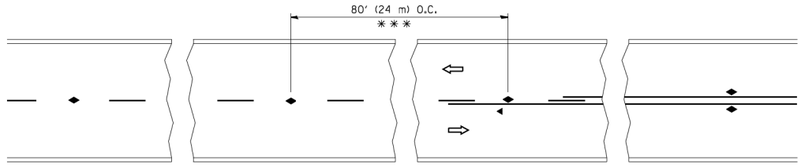
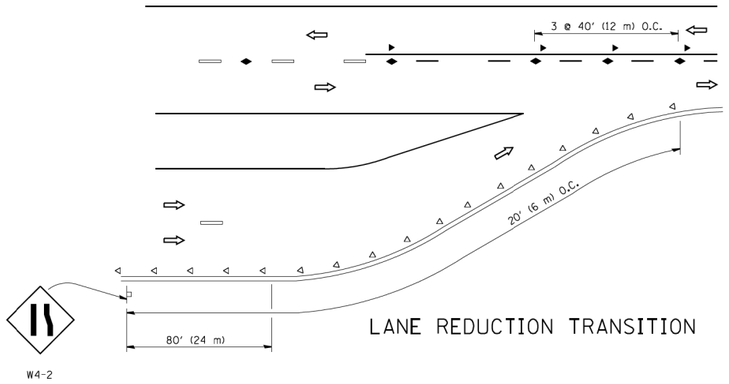
	TC-10	CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			

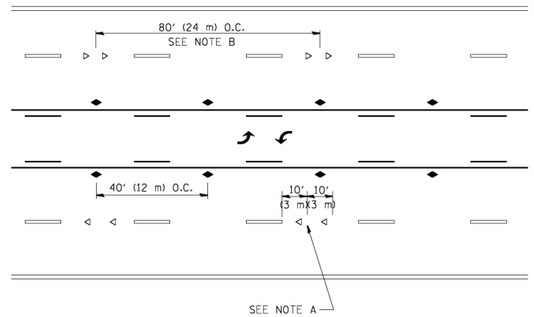


* * * REDUCE TO 40' (12 m) O.C. ON CURVES WITH POSTED OR ADVISORY SPEED 45 M.P.H. (70 km/h) OR LESS.

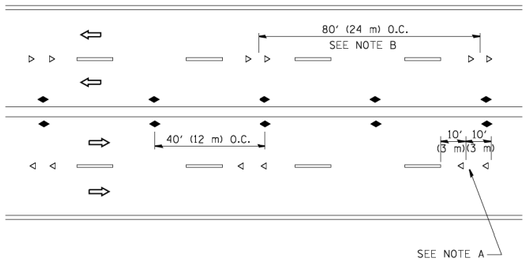
TWO-LANE/TWO-WAY



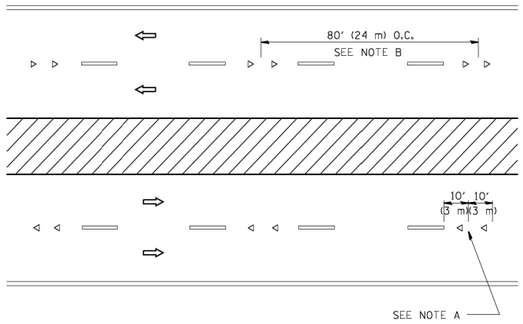
LANE REDUCTION TRANSITION



TWO-WAY LEFT TURN



MULTI-LANE/UNDIVIDED



MULTI-LANE/DIVIDED

GENERAL NOTES

1. MARKERS USED WITH DASHED LINES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS.
2. MARKERS USED ADJACENT TO SOLID LINES SHALL BE OFFSET 2 TO 3 (50 TO 75) TOWARD TRAFFIC AS SHOWN.
3. MARKERS THROUGH TANGENTS LESS THAN 500' (150 m) IN LENGTH BETWEEN CURVES SHALL BE INSTALLED AT THE LESSER OF THE TWO CURVE SPACINGS.

SYMBOLS

- YELLOW STRIPE
- WHITE STRIPE
- ONE-WAY AMBER MARKER
- ONE-WAY CRYSTAL MARKER (W/O)
- TWO-WAY AMBER MARKER

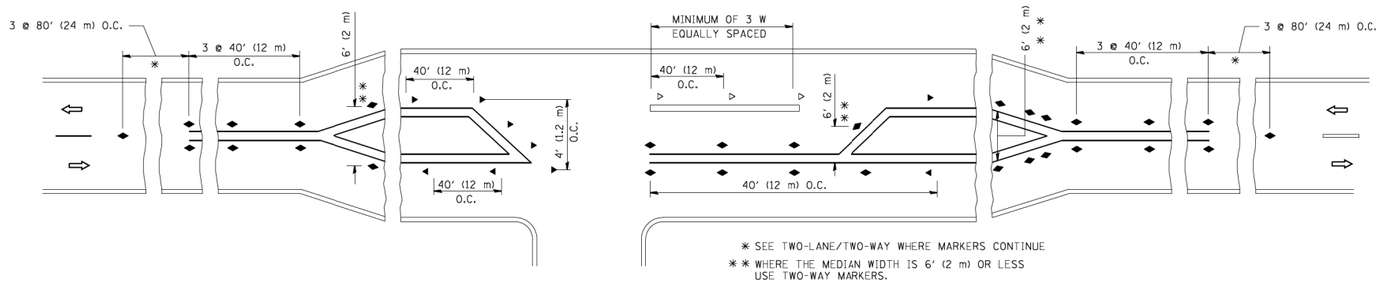
LANE MARKER NOTES

A. USE DOUBLE LANE LINE MARKERS SPACED AS SHOWN.

B. REDUCE TO 40' (12 m) O.C. ON CURVES WHERE ADVISORY SPEEDS ARE 10 M.P.H (20 km/h) LOWER THAN POSTED SPEEDS.

DESIGN NOTES

1. DOUBLE LANE LINE MARKERS SHALL BE USED UNLESS SPECIFIED OTHERWISE.
2. EXCEPT AS SHOWN ON THE LANE REDUCTION TRANSITION AND FREEWAY EXIT RAMP DETAIL, MARKERS ARE NOT TO BE SPECIFIED ON RIGHT EDGE LINES.
3. THE EXACT MARKER LIMITS, SPACING, AND COLOR SHALL BE INCLUDED IN THE PLANS WHEN STANDARD SPECIFICATIONS ARE NOT BEING USED.
4. MARKERS SHOULD NOT BE USED ALONGSIDE CURBS EXCEPT FOR EXTREMELY SHORT SECTIONS OF CURBS WHERE NOT MORE THAN TWO MARKERS WOULD BE INVOLVED.



LEFT TURN

All dimensions are in inches (millimeters) unless otherwise shown.

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		DRAWN -	REVISED - T. RAMMACHER 03-12-99
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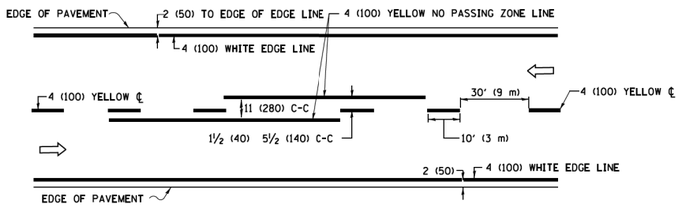
	PLOT DATE = 3/2/2011	DATE -	REVISED - C. JUCIUS 09-09-09

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

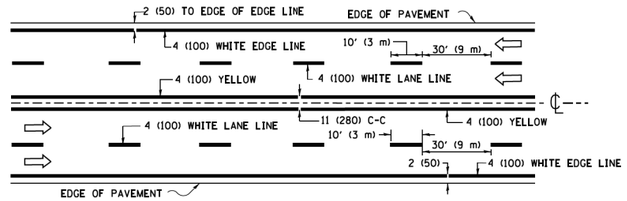
TYPICAL APPLICATIONS
RAISED REFLECTIVE PAVEMENT MARKERS (SNOW-PLOW RESISTANT)

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

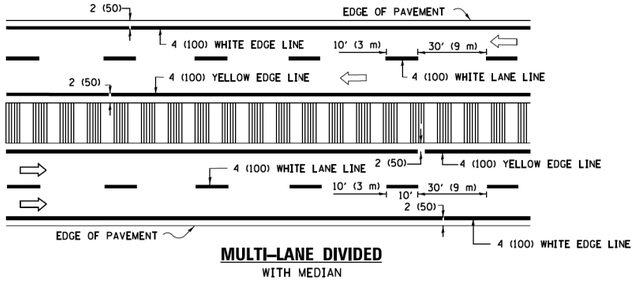
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	131
	TC-11	CONTRACT NO. 62F29		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



2–LANE ROADWAY

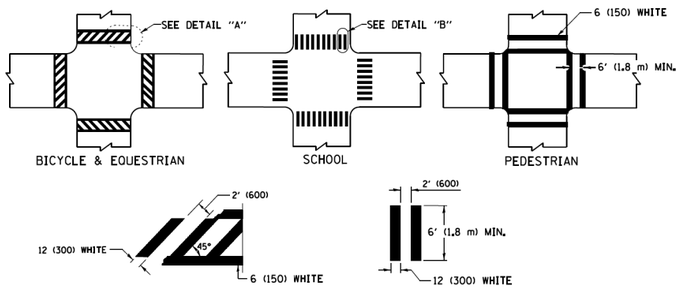


MULTI–LANE UNDIVIDED



MULTI–LANE DIVIDED
WITH MEDIAN

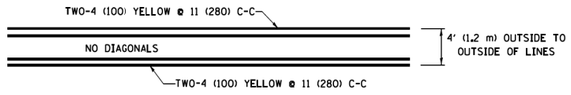
TYPICAL LANE AND EDGE LINE MARKING



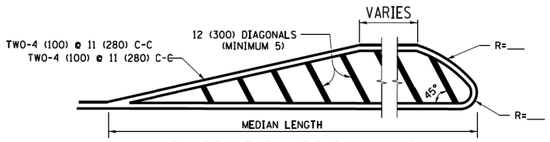
DETAIL "A" **DETAIL "B"**

TYPICAL CROSSWALK MARKING

✳ MARKINGS SHALL BE INSTALLED PARALLEL TO THE CENTERLINE OF THE ROAD WHICH IT CROSSES



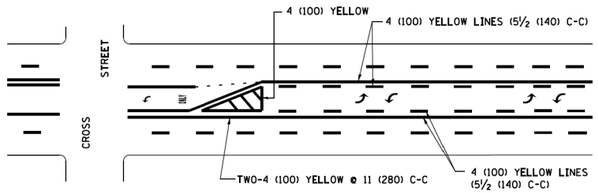
4' (1.2 m) WIDE MEDIANS ONLY



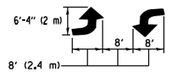
FOR MEDIAN LENGTHS WHERE DIAGONAL SPACING CANNOT BE ATTAINED, USE 5 (FIVE) EQUALLY SPACED DIAGONAL LINES.

DIAGONAL LINE SPACING: 50' (15 m) C-C (LESS THAN 30MPH (50 km/h))
75' (25 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h))
150' (45 m) C-C (MORE THAN 45MPH (70 km/h))

MEDIANS OVER 4' (1.2 m) WIDE

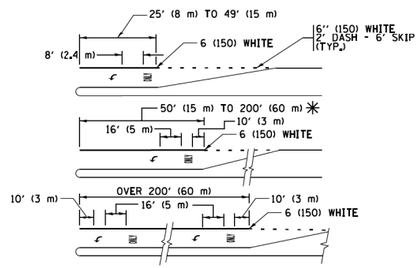


A MINIMUM OF TWO PAIRS OF TURN ARROWS SHALL BE USED, WHITE IN COLOR. ADDITIONAL PAIRS SHALL BE PLACED AT 200' (60 m) TO 300' (90 m) INTERVALS.



MEDIAN WITH TWO–WAY LEFT TURN LANE

TYPICAL PAINTED MEDIAN MARKING

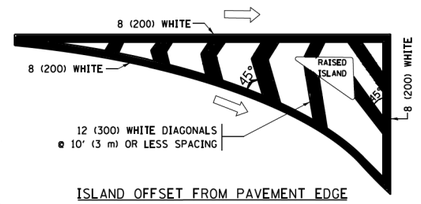


FULL SIZE LETTERS 8' (2,4 m) AND ARROWS SHALL BE USED.
↰ AREA = 15.6 SQ. FT. (1.5 m^2) **ONLY** AREA = 20.8 SQ. FT. (1.9 m^2)

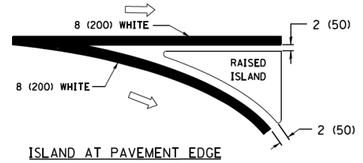
✳ TURN LANES IN EXCESS OF 400' (120 m) IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW - "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW - "ONLY".

TYPICAL LEFT (OR RIGHT) TURN LANE

TYPICAL TURN LANE MARKING

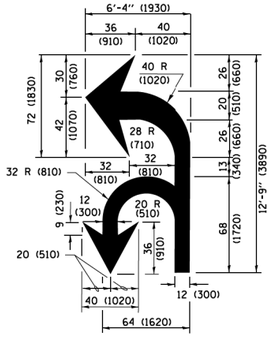


ISLAND OFFSET FROM PAVEMENT EDGE

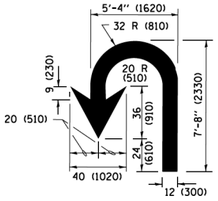


ISLAND AT PAVEMENT EDGE

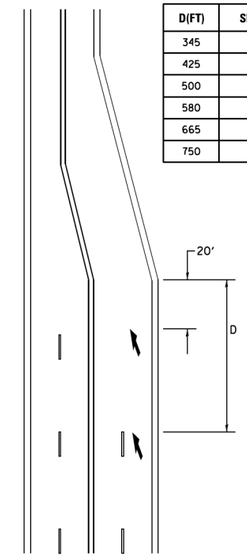
TYPICAL ISLAND MARKING



COMBINATION LEFT AND U–TURN



U–TURN



LANE REDUCTION TRANSITION

✳ LANE REDUCTION ARROWS REQUIRED AT SPEEDS OF 45 MPH OR GREATER OR WHEN SPECIFIED IN PLANS.

D(FT)	SPEED LIMIT
345	30
425	35
500	40
580	45
665	50
750	55

TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING /REMARKS
CENTERLINE ON 2 LANE PAVEMENT	4 (100)	SKIP-DASH	YELLOW	10' (3 m) LINE WITH 30' (9 m) SPACE
CENTERLINE ON MULTI-LANE UNDIVIDED PAVEMENT	2 @ 4 (100)	SOLID	YELLOW	11 (280) C-C
NO PASSING ZONE LINES: FOR ONE DIRECTION FOR BOTH DIRECTIONS	4 (100) 2 @ 4 (100)	SOLID SOLID	YELLOW YELLOW	5½ (140) C-C FROM SKIP-DASH CENTERLINE 11 (280) C-C OMIT SKIP-DASH CENTERLINE BETWEEN
LANE LINES	4 (100) 5 (125) ON FREEWAYS	SKIP-DASH SKIP-DASH	WHITE WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	2' (600) LINE WITH 6' (1,8 m) SPACE
EDGE LINES	4 (100)	SOLID	YELLOW-LEFT WHITE-RIGHT	OUTLINE MEDIANS IN YELLOW
TURN LANE MARKINGS	6 (150) LINE; FULL SIZE LETTERS & SYMBOLS (8' (2,4m))	SOLID	WHITE	SEE TYPICAL TURN LANE MARKING DETAIL
TWO WAY LEFT TURN MARKING	2 @ 4 (100) EACH DIRECTION 8' (2.4m) LEFT ARROW	SKIP-DASH AND SOLID IN PAIRS	YELLOW WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE FOR SKIP-DASH; 5½ (140) C-C BETWEEN SOLID LINE AND SKIP-DASH LINE SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK LINES (PEDESTRIAN) A. DIAGONALS (BIKE & EQUESTRIAN) B. LONGITUDINAL BARS (SCHOOL)	2 @ 6 (150) 12 (300) @ 45° 12 (300) @ 90°	SOLID SOLID SOLID	WHITE WHITE WHITE	NOT LESS THAN 6' (1,8 m) APART 2' (600) APART 2' (600) APART SEE TYPICAL CROSSWALK MARKING DETAILS.
STOP LINES	24 (600)	SOLID	WHITE	PLACE 4' (1,2 m) IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT. OTHERWISE, PLACE AT DESIRED STOPPING POINT. PARALLEL TO CROSSROAD CENTERLINE, WHERE POSSIBLE
PAINTED MEDIANS	2 @ 4 (100) WITH 12 (300) DIAGONALS @ 45° NO DIAGONALS USED FOR 4' (1,2 m) WIDE MEDIANS	SOLID	YELLOW: TWO WAY TRAFFIC WHITE: ONE WAY TRAFFIC	11 (280) C-C FOR THE DOUBLE LINE SEE TYPICAL PAINTED MEDIAN MARKING.
GORE MARKING AND CHANNELIZING LINES	8 (200) WITH 12 (300) DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS: 15' (4,5 m) C-C (LESS THAN 30MPH (50 km/h)) 20' (6 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h)) 30' (9 m) C-C (OVER 45MPH (70 km/h))
RAILROAD CROSSING	24 (600) TRANSVERSE LINES; "RR" IS 6' (1.8 m) LETTERS; 16 (400) LINE FOR "X"	SOLID	WHITE	SEE STATE STANDARD 780001 AREA OF: "R"=3,6 SQ. FT. (0,33 m^2) EACH "X"=54,0 SQ. FT. (5,0 m2)
SHOULDER DIAGONALS (REQUIRED FOR SHOULDERS ≥ 8')	12 (300) @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	50' (15 m) C-C (LESS THAN 30MPH (50 km/h)) 75' (25 m) C-C (30 MPH (50 km/h) TO 45MPH (70 km/h)) 150' (45 m) C-C (OVER 45MPH (70 km/h))
U TURN ARROW	SEE DETAIL	SOLID	WHITE	16,3 SF
2 ARROW COMBINATION LEFT AND U TURN	SEE DETAIL	SOLID	WHITE	30,4 SF

FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STATE STANDARD 780001.

All dimensions are in inches (millimeters) unless otherwise shown.

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		DRAWN -	REVISED - C. JUCIUS 07-01-13
Default	PLOT SCALE = 50.000 ' / in.	CHECKED -	REVISED - C. JUCIUS 12-21-15
	PLOT DATE = 6/23/2017	DATE - 03-19-90	REVISED - C. JUCIUS 04-12-16

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
TYPICAL PAVEMENT MARKINGS

SCALE: NONE | SHEET 1 OF 1 SHEETS | STA. | TO STA.

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	132
	TC-13	CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			

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TURN BAY ENTRANCE AT START OF LANE CLOSURE TAPER

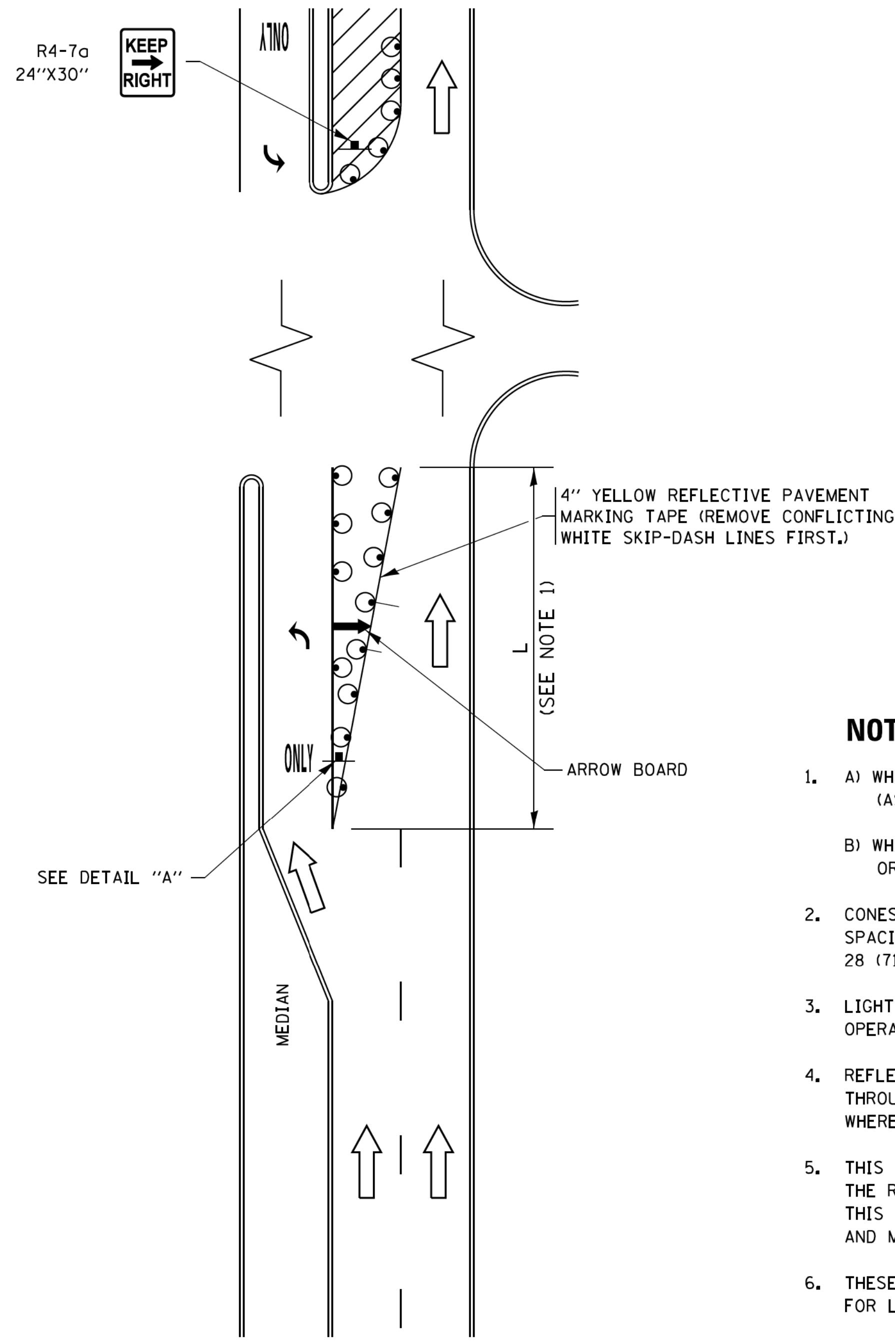


FIGURE 1

TURN BAY ENTRANCE WITHIN A LANE CLOSURE

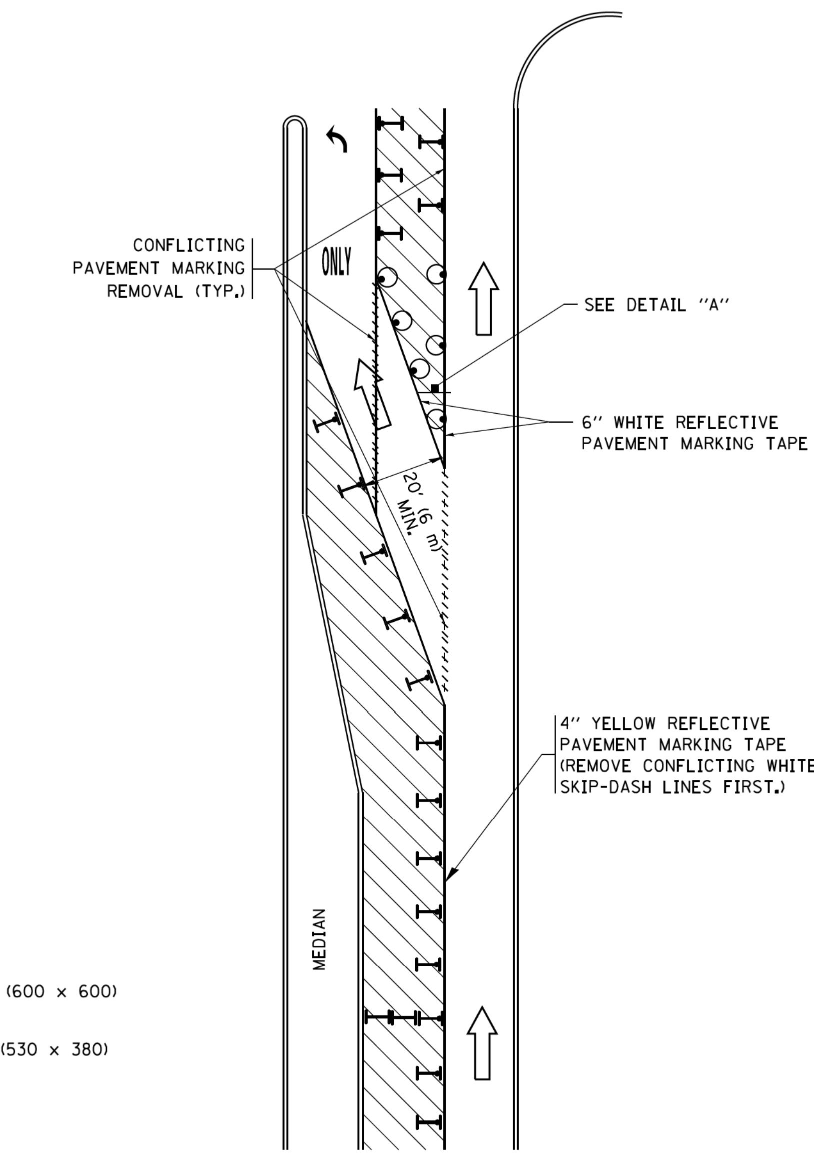


FIGURE 2

LEGEND

- WORK AREA
- LANE OPEN TO TRAFFIC
- ARROW BOARD
- TYPE I OR II BARRICADE OR DRUM WITH STEADY BURN LIGHT
- DRUM WITH STEADY BURN LIGHT
- SIGN ASSEMBLY
- TYPE I OR II CHECK BARRICADE WITH FLASHING LIGHT

NOTES:

1. A) WHEN "L" IS ≤ THE STORAGE LENGTH OF THE TURN LANE (AS SHOWN IN FIG. 1), USE FIGURE 1.

   B) WHEN "L" IS > THE STORAGE LENGTH OF THE TURN LANE OR THE TURN LANE IS WITHIN THE LANE CLOSURE. USE FIGURE 2.

2. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS AT HALF THE SPACING DURING DAY OPERATIONS. CONES SHALL BE A MINIMUM OF 28 (710) IN HEIGHT.

3. LIGHTS WILL NOT BE REQUIRED ON BARRICADES OR DRUMS FOR DAY OPERATIONS. ALL LIGHTS SHALL BE MONODIRECTIONAL.

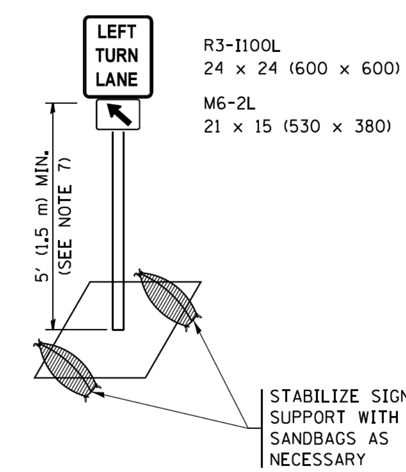
4. REFLECTIVE TEMPORARY PAVEMENT MARKINGS SHALL BE PLACED THROUGHOUT THE BARRICADED AREAS OF EACH TURN BAY AS SHOWN WHERE THE CLOSURE TIME IS GREATER THAN FOURTEEN (14) DAYS.

5. THIS APPLICATION ALSO APPLIES WHEN WORK IS BEING PERFORMED IN THE RIGHT LANE(S) AND THE RIGHT TURN BAY IS TO REMAIN OPEN. UNDER THIS CONDITION, "RIGHT TURN LANE" R3-I100R 24 x 24 (600 x 600) AND M6-2R 21 x 15 (530 x 380) SHALL BE USED.

6. THESE CONTROLS SHALL SUPPLEMENT MAINLINE TRAFFIC CONTROL FOR LANE CLOSURES.

7. THE SIGNS SHALL BE MOUNTED ABOVE THE BARRICADES/DRUMS ON SEPARATE SIGN SUPPORTS THAT MEET NCHRP 350 OR MASH PREQUIREMENTS.

8. TRAFFIC CONTROL AND PROTECTION AT TURN BAYS (TO REMAIN OPEN TO TRAFFIC) SHALL BE INCLUDED IN THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.



DETAIL A

All dimensions are in inches (millimeters) unless otherwise shown.

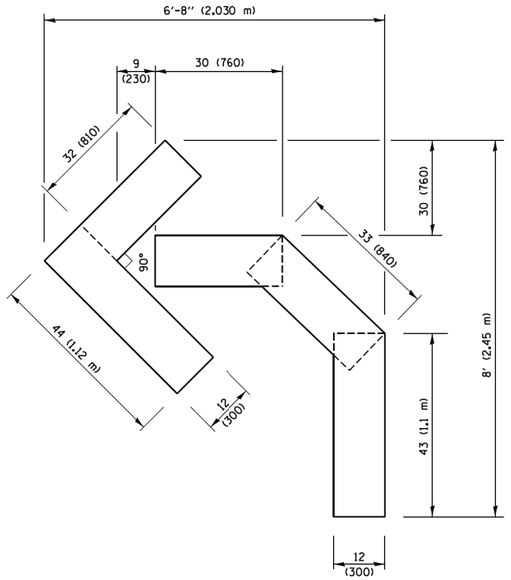
FILE NAME =	USER NAME = footemj	REVISED -T. RAMMACHER 09-08-94	REVISED - R. BORO 09-14-09
pw:\\IL084EBIDINTEG.illinois.gov:PWIDOT\Documents\IDOT Offices\District 1\Projects\Dist...		REVISED - A. HOUSEH 11-07-95	REVISED - A. SCHUETZE 07-01-13
	PLOT SCALE = 50.0000 ' / in.	REVISED - A. HOUSEH 10-12-96	REVISED - A. SCHUETZE 09-15-16
Default	PLOT DATE = 9/15/2016	REVISED -T. RAMMACHER 01-06-00	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION AT TURN BAYS (TO REMAIN OPEN TO TRAFFIC)

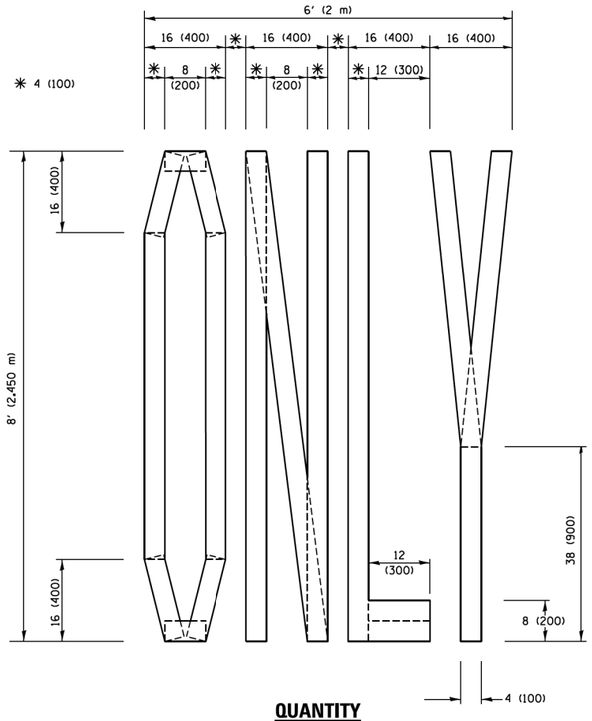
SCALE: NONE | SHEET 1 OF 1 SHEETS | STA. TO STA.

F.A.U RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	133
TC-14		CONTRACT NO. 62F29		
	ILLINOIS FED. AID PROJECT			



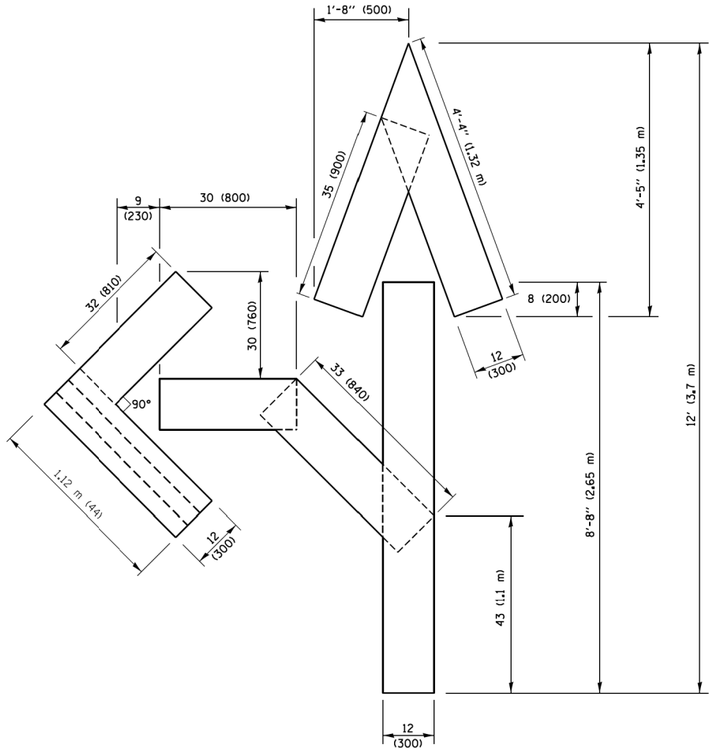
QUANTITY

4 (100) LINE = 45.5 ft. (13.9 m)
15.2 sq. ft. (1.41 sq. m)



QUANTITY

4 (100) LINE = 64.1 ft. (19.5 m)
21.4 sq. ft. (1.99 sq. m)

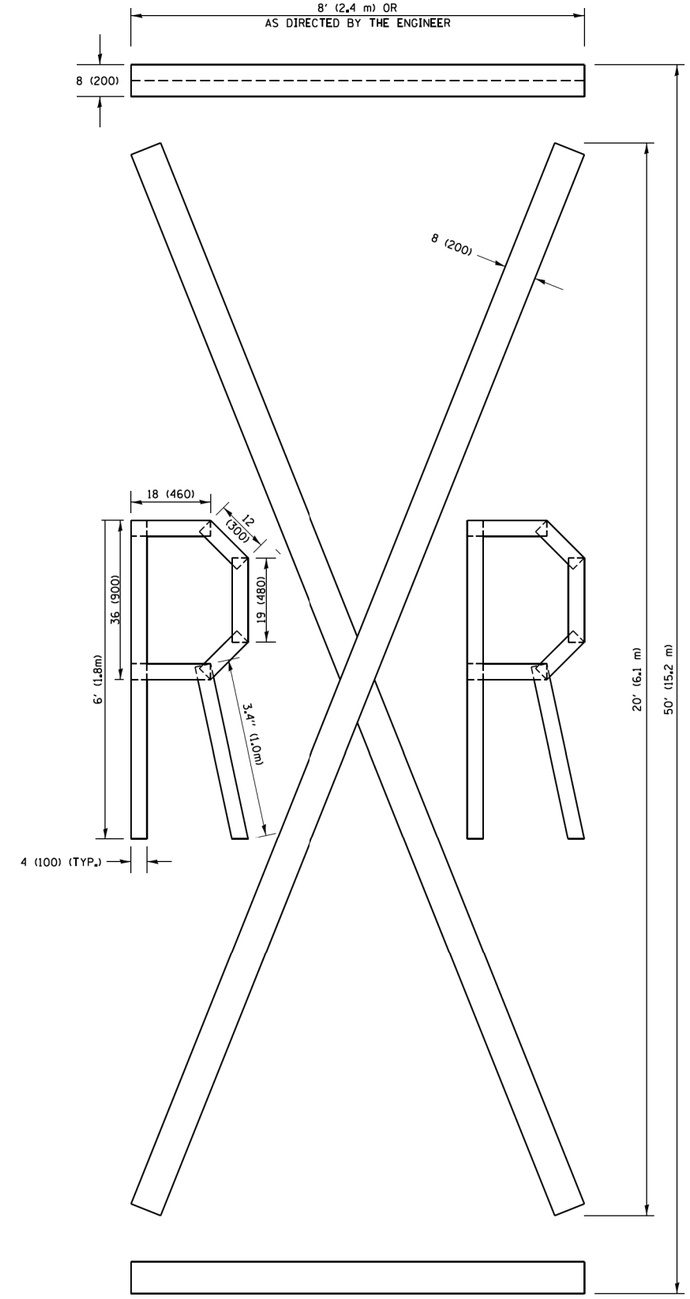


QUANTITY

4 (100) LINE = 82.5 ft. (25.1 m)
27.5 sq. ft. (2.53 sq. m)

NOTE:

ALL QUANTITIES OF PLACEMENT ARE REPRESENTED IN LINEAR FEET OF 4" LINES TO MATCH THE 4" TEMPORARY TAPE PAY ITEM AND REPRESENTS THE TOTAL QUANTITY OF 4" TAPE REQUIRED.



QUANTITY

4 (100) LINE = 225.9 ft. (68.9 m)
75.3 sq. ft. (6.99 sq. m)

All dimensions are in inches (millimeters) unless otherwise shown.

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		DRAWN	REVISED -E. GOMEZ 08-28-00
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	PLOT DATE = 9/15/2016	DATE - 09-18-94	REVISED -A. SCHUETZE 09-15-16

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

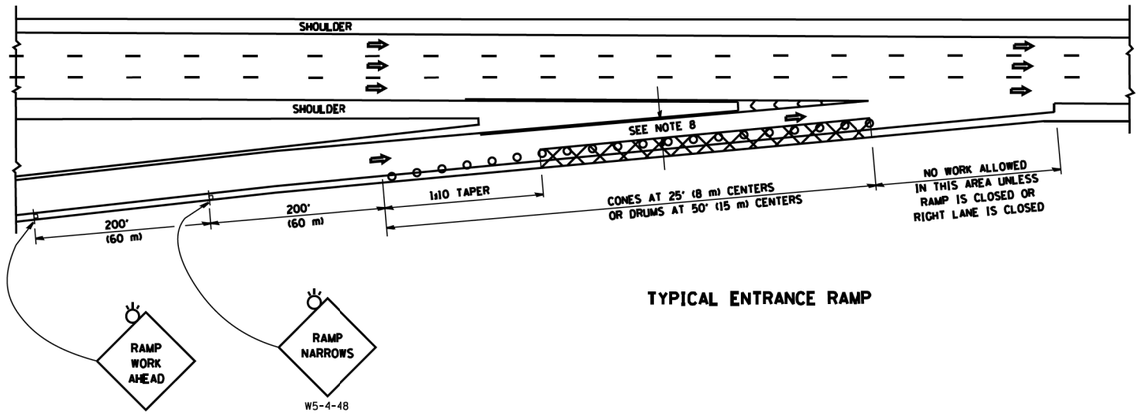
SHORT TERM PAVEMENT MARKING LETTERS AND SYMBOLS

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

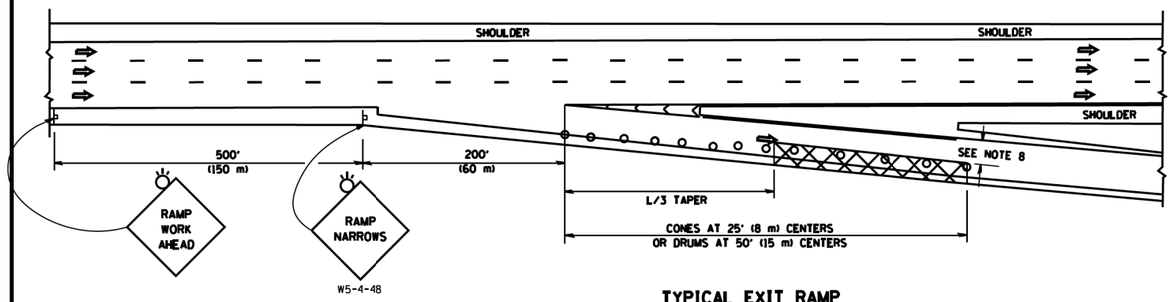
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	134
	TC-16	CONTRACT NO. 62F29		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

tc16.dgn 9/15/2016 12:45:20 PM User:footemj

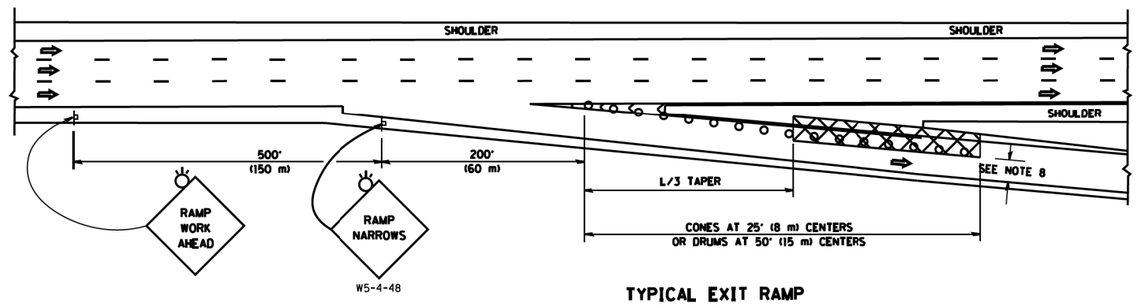
PARTIAL RAMP CLOSURE DETAILS



TYPICAL ENTRANCE RAMP

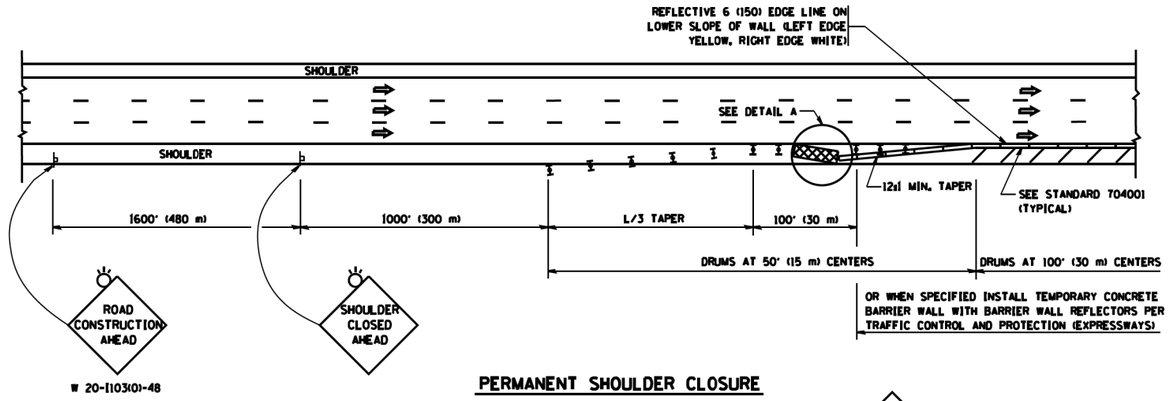


TYPICAL EXIT RAMP

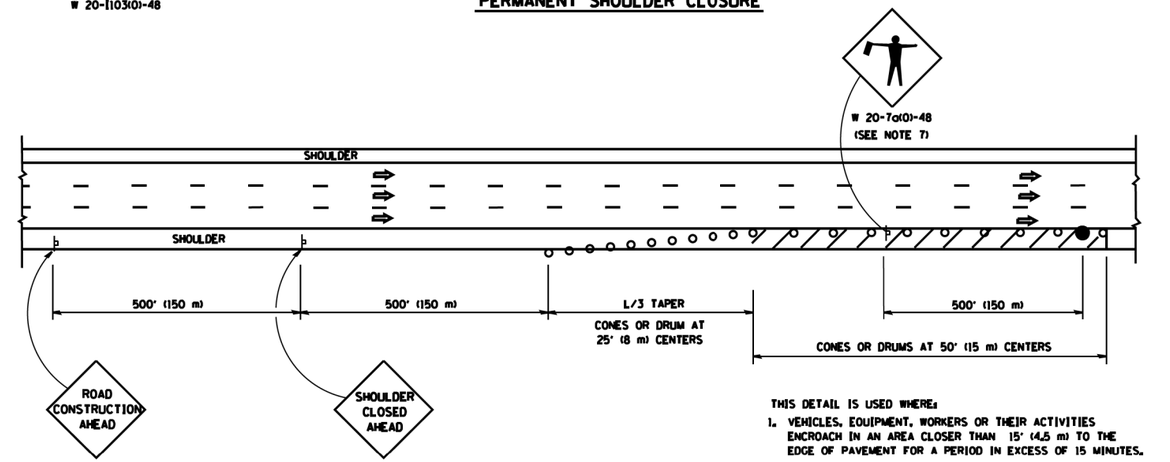


TYPICAL EXIT RAMP

SHOULDER CLOSURE DETAILS



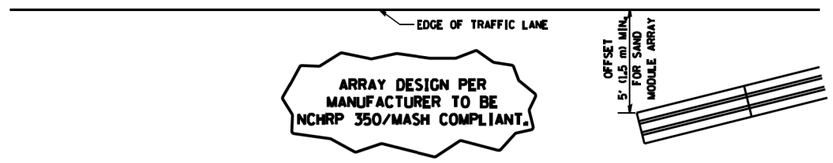
PERMANENT SHOULDER CLOSURE



DAYTIME SHOULDER CLOSURE

THIS DETAIL IS USED WHERE:

1. VEHICLES, EQUIPMENT, WORKERS OR THEIR ACTIVITIES ENCROACH IN AN AREA CLOSER THAN 15' (4.5 m) TO THE EDGE OF PAVEMENT FOR A PERIOD IN EXCESS OF 15 MINUTES.



DETAIL "A"
IMPACT ATTENTUATOR, TEMPORARY
(SEE NOTE 5)

SYMBOLS

- ACTIVE WORK AREA
- SIGN ON PORTABLE OR PERMANENT SUPPORT
- FLAGGER WITH CONTROL SIGN
- TYPE II BARRICADE OR DRUM WITH STEADY BURN MONO-DIRECTIONAL LIGHT
- CONE, DRUM OR BARRICADE
- IMPACT ATTENUATOR OF TYPE AND TEST LEVEL SPECIFIED

GENERAL NOTES

1. THE "L" DISTANCE EQUALS:

SPEED LIMIT	FORMULAS	
	METRIC	ENGLISH
45 mph (80 km/h) OR GREATER:	L=0.65(WXS)	L=(WXS)

W = WIDTH OF OFFSET IN FEET (METERS)
S = NORMAL POSTED SPEED MPH (KM/H)

2. PLASTIC DRUMS WITH HIGH PERFORMANCE REFLECTIVE SHEETING AND STEADY BURNING LIGHTS ARE REQUIRED FOR ALL NIGHTIME CLOSURES.
3. ALL SIGNS SHALL BE POST MOUNTED IF THE CLOSURE TIME EXCEEDS FOUR DAYS.
4. FLASHING LIGHTS SHALL BE USED DURING THE HOURS OF DARKNESS AND SHALL BE INSTALLED ABOVE THE FIRST TWO SETS OF SIGNS.
5. THE IMPACT ATTENTUATOR, TEMPORARY IS NOT REQUIRED WHEN THE TEMPORARY CONCRETE BARRIER WALL IS PROTECTED BY OR IS TIED INTO THE EXISTING GUARDRAIL. IF OFFSET IS LESS THAN 5 FEET USE NARROW USE TYPE DEVICE TO MEET NCHRP350/MASH.
6. AUTHORIZATION FROM THE DISTRICT'S BUREAU OF TRAFFIC IS REQUIRED FOR ALL FREEWAY CLOSURES.
7. THE FLAGGER AND FLAGGER SIGN ARE REQUIRED AT THE ABOVE WORK SITES WHEN:
   a. FOUR OR MORE WORK VEHICLES ENTER THE TRAFFIC LANES IN A ONE HOUR PERIOD.
   b. THE WORK AVTIVITY REQUIRES FREQUENT ENCROACHMENT INTO THE LANE OPEN TO TRAFFIC.

   THE FLAGGER SHALL BE STATIONED APPROXIMATELY 100' (30 m) TO 200' (60 m) IN ADVANCE OF THE WORKERS.
8. 12' MIN. WIDTH TANGENT SECTION
   16' MIN. WIDTH CURVE SECTION.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

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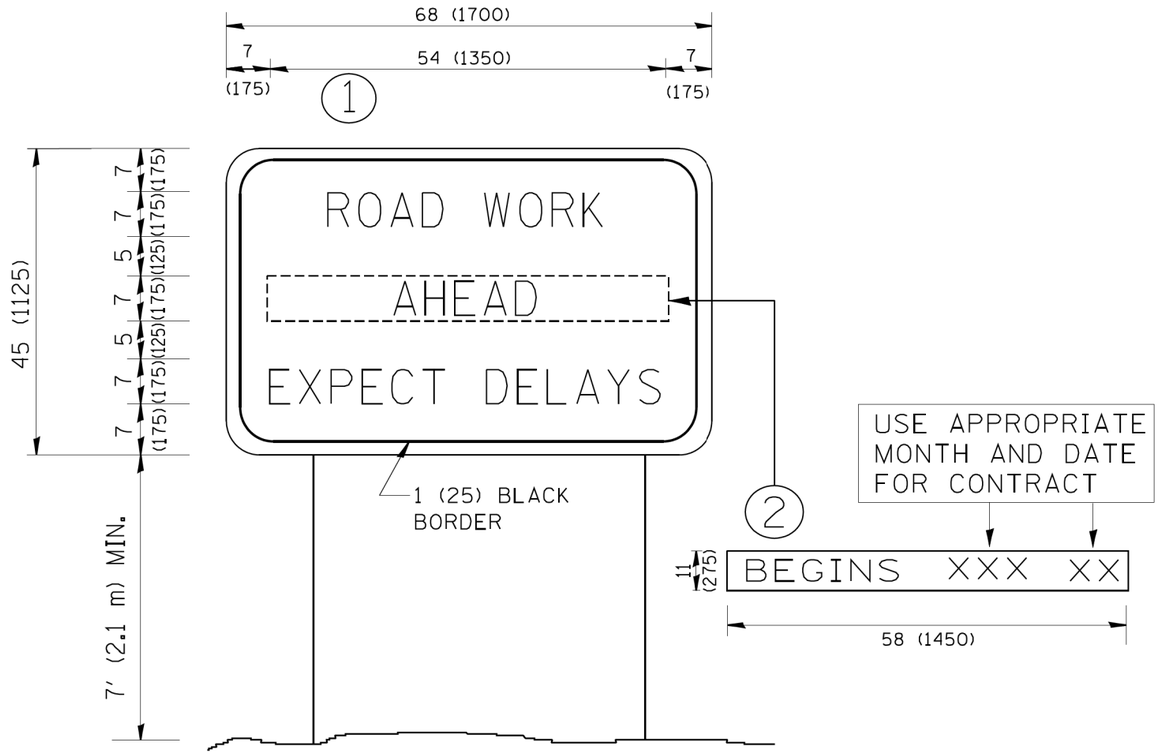
		DRAWN - D.W.S.	REVISED - S.P.B. 01-07					1632	0203-1001-HB-BR	COOK	137	135
	PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED - S.P.B. 12-09						TC-17	CONTRACT NO. 62F29		
	PLOT DATE = 4/17/2014	DATE - 11-96	REVISED - M.D. 06-13		SCALE: NONE	SHEET NO. 1 OF 1 SHEETS	STA. TO STA.	FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

tc17.dgn 4/17/2014 8:48:55 AM User=leysa



NOTES:

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN (1) WITH INSTALLED PANEL (2) ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL (2) SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

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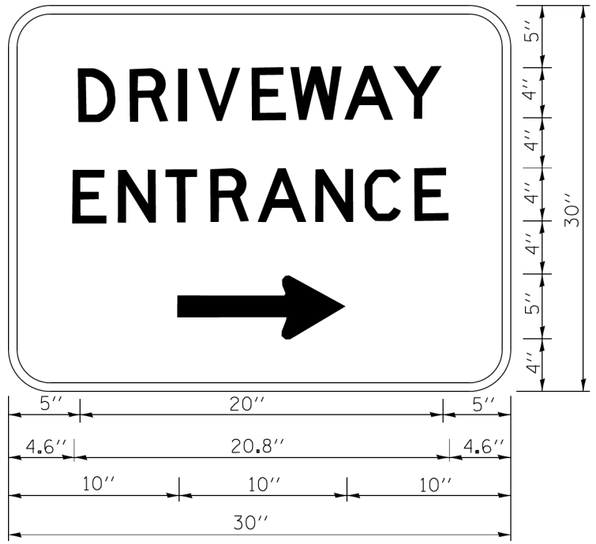
	PLOT DATE = 1/4/2008	DATE -	REVISED - C. JUCIUS 01-31-07

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ARTERIAL ROAD INFORMATION SIGN

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

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	136
	TC-22	CONTRACT NO. 62F29		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		



3.0'' RADIUS, 0.5'' BORDER, WHITE ON GREEN; REFLECTORIZED
''DRIVEWAY'' D; ''ENTRANCE'' D; STANDARD ARROW CUSTOM 12.0'' × 5.0''

NOTES:

1. HALF OF THE SIGNS WILL REQUIRE A LEFT HAND FACING ARROW.
2. TWO SIGNS SHALL BE USED AT EACH COMMERCIAL ENTRANCE PLACED BACK-TO-BACK; ONE WITH A RIGHT HAND ARROW (SHOWN) SHALL BE PLACED ON THE NEAR RIGHT SIDE THE DRIVEWAY AND ONE WITH A LEFT HAND ARROW SHALL BE PLACED ON THE FAR LEFT SIDE OF THE DRIVEWAY.
3. SIGNS TO BE PAID FOR AS ITEM ''TEMPORARY INFORMATION SIGNING''.

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		DRAWN -	REVISED -
	PLOT SCALE = 50.000 '/ in.	CHECKED -	REVISED -
	PLOT DATE = 12/13/2012	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DRIVEWAY ENTRANCE SIGNING

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

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
1632	0203-1001-HB-BR	COOK	137	137
	TC-26	CONTRACT NO. 62F29		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

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