

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
849	114(CR-1)	HAMILTON	12	1
CONTRACT #10 78675				

FOR INDEX OF SHEETS, SEE SHEET NO. 2
FOR SUMMARY OF QUANTITIES, SEE SHEET NO. 3 - 5

PROPOSED HIGHWAY PLANS

F.A.P. ROUTE 849 (IL 142)
SECTION 114(CR-1)
PROJECT STP-HGSH(403)
BOX CULVERT REPLACEMENT
HAMILTON COUNTY

C-99-098-18

TRAFFIC DATA

2017 ADT = 3,200
WITH 8.8% TRUCKS

TOWNSHIP

DAHLGREN

COORDINATE SYSTEM : EAST ZONE

POSTED SPEED : 55 MPH

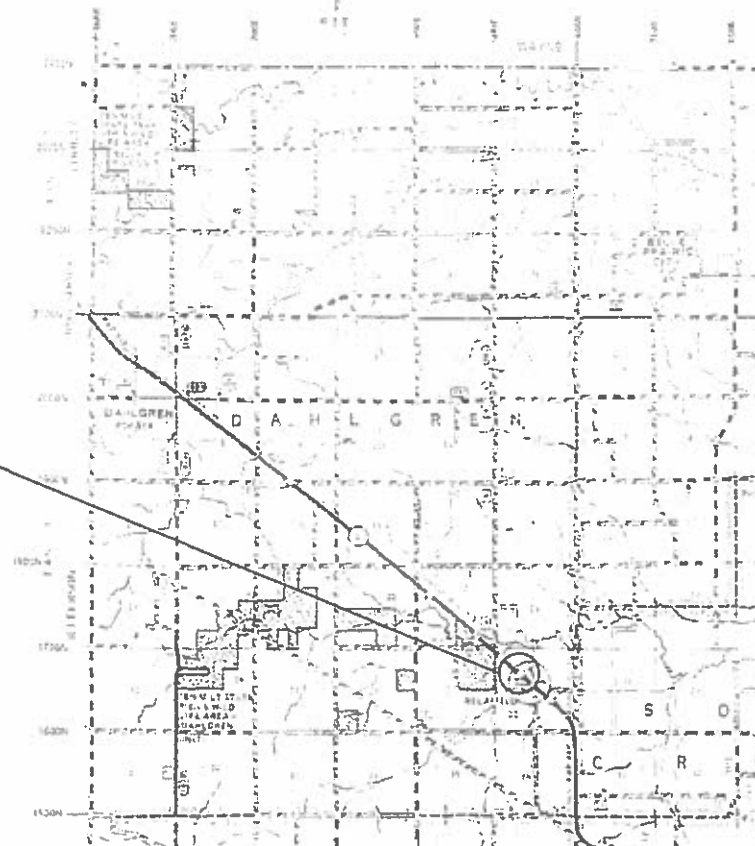
JULIE
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

PROJECT ENGINEER: DAVID PICHE
PROJECT DESIGNER: DAVID WILSON

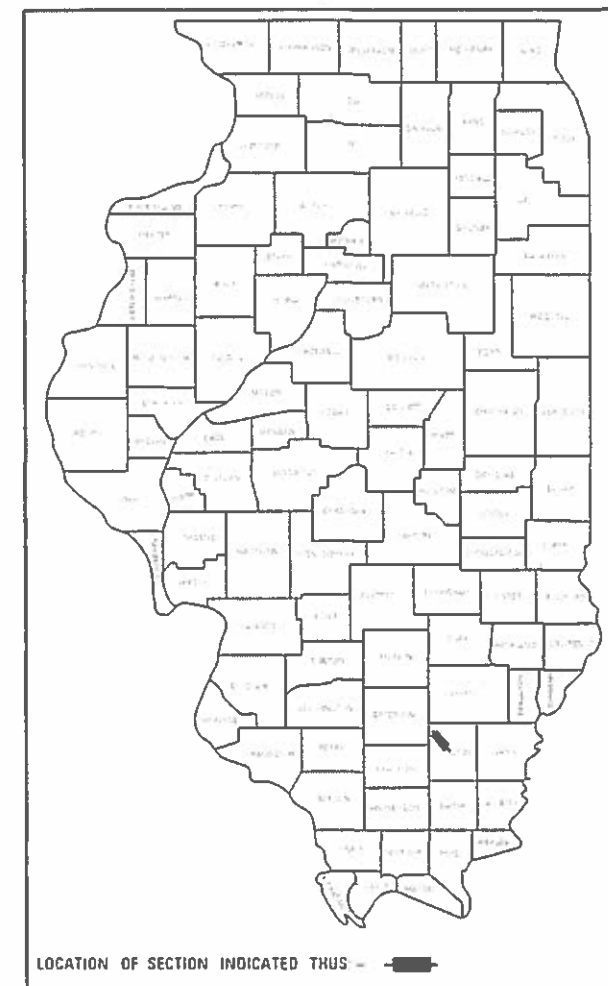
CONTRACT NO. 78675



REPLACEMENT LOCATION
SN 033-7031(E)
SN 033-7038(P)
IL-142 OVER DRAINAGE DITCH



GROSS LENGTH = 65 FT.
NET LENGTH = 65 FT.



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED 07-30 2019
[Signature]
REGION FIVE ENGINEER

Oct 4 2019
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

Oct 4 2019
[Signature]
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

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OF THE STATE OF ILLINOIS

GENERAL NOTES

- 1) AT ALL LOCATIONS WHERE EXISTING HOT-MIX ASPHALT OR CONCRETE PAVEMENT JOINS AN EXISTING HOT-MIX ASPHALT OR CONCRETE PAVEMENT, A FULL DEPTH SAWED JOINT SHALL BE CONSTRUCTED. THE COST OF THIS JOINT WILL BE INCLUDED IN THE COST OF THE TYPE OF PAVEMENT BEING CONSTRUCTED.
- 2) A CALCIUM CHLORIDE ACCELERATOR WILL BE ALLOWED ONLY FOR THE PCC PAVEMENT, 10".
- 3) REMOVAL OF EXISTING AGGREGATE SHOULDERS SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- 4) THERE ARE NO AVAILABLE WASTE SITES ON THE EXISTING RIGHT OF WAY WITHIN THE PROJECT LIMITS. DISPOSAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WASTE MUST BE DISPOSED OF IN ACCORDANCE WITH ARTICLE 202.03 OF THE STANDARD SPECIFICATIONS.

COMMITMENTS

NO COMMITMENTS AS OF 08/16/2019

STANDARDS

- 000001-07 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001001-02 AREAS OF REINFORCEMENT BARS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 420001-09 PAVEMENT JOINTS
- 420701-03 PAVEMENT WELDED WIRE REINFORCEMENT
- 701001-02 OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY
- 701006-05 OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE
- 701201-05 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS \geq 45 MPH
- 701901-08 TRAFFIC CONTROL DEVICES
- 780001-05 TYPICAL PAVEMENT MARKINGS
- BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES, COMMITMENTS, INDEX OF SHEETS, STANDARDS, AND SIGNATURE SHEET
- 3-5 SUMMARY OF QUANTITIES
- 6 SCHEDULES
- 7 GENERAL PLAN SN 033-7031(E) SN 033-7038 (P)
- 8 DETAIL AND FINAL SECTION SN 033-7038 (P)
- 9 LIMITS OF POROUS GRANULAR EMBANKMENT AND SECTION WITHIN PAVEMENT REMOVAL SN 033-7038 (P)
- 10-11 PRECAST CONCRETE BOX CULVERT APRON END SECTION DETAILS SN 033-7038 (P)
- 12 DISTRICT STANDARDS

Prepared By: *Charles Stein*
DISTRICT STUDIES & PLANS ENGINEER

Examined By: *Nancy Lee*
DISTRICT LAND ACQUISITION ENGINEER

Examined By: *Car Miller*
DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By: *Keel Miller*
DISTRICT OPERATIONS ENGINEER

Examined By: *KF De*
DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By: *Daryl J. Thelick*
DISTRICT CONSTRUCTION ENGINEER

Examined By: *R. C. [Signature]*
DISTRICT MATERIALS ENGINEER

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USER NAME	DESIGNED	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, STANDARDS, AND SIGNATURE SHEET			F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.		
WILSONDA	DRAWN	REVISED					849	114(CR-1)	HAMILTON	12	2		
PLOT SCALE	CHECKED	REVISED					SCALE: _____ SHEET _____ OF _____ SHEETS STA _____ TO STA _____					CONTRACT NO. 78675	
100.0000 / in	DATE	REVISED					ILLINOIS FED. AID PROJECT						
PLOT DATE													
7/12/2019													

SUMMARY OF QUANTITIES

COUNTY:	HAMILTON CO.
ROUTE:	IL 142
FUNDING:	80% FED / 20% STATE
LOCATION:	RURAL

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	
				0004
20200100	EARTH EXCAVATION	CU YD	587	587
20700220	POROUS GRANULAR EMBANKMENT	CU YD	192	192
25000200	SEEDING, CLASS 2	ACRE	0.25	0.25
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	23	23
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	23	23
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	23	23
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.50	0.50
25100630	EROSION CONTROL BLANKET	SQ YD	318	318
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	25	25
28000400	PERIMETER EROSION BARRIER	FOOT	380	380
28100107	STONE RIPRAP, CLASS A4	SQ YD	68	68
28200200	FILTER FABRIC	SQ YD	48	48

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 PROJECT: 78675
 SHEET: 3
 CONTRACT: 78675

SUMMARY OF QUANTITIES - CONT

COUNTY:	HAMILTON CO.
ROUTE:	IL 142
FUNDING:	80% FED / 20% STATE
LOCATION:	RURAL
TOTAL QUANTITY	0004

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	
4200060	WELDED WIRE REINFORCEMENT	SQ YD	188	188
4200050	PORTLAND CEMENT CONCRETE PAVEMENT 10"	SQ YD	188	188
44000100	PAVEMENT REMOVAL	SQ YD	188	188
48101500	AGGREGATE SHOULDERS, TYPE B 6"	SQ YD	29	29
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	1
54001001	BOX CULVERT END SECTIONS, CULVERT NO. 1	EACH	2	2
54011206	PRECAST CONCRETE BOX CULVERTS 12' X 6'	FOOT	54	54
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	104	104
67100100	MOBILIZATION	L SUM	1	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1	1
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	3	3
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	34	34

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REV. - MS

SUMMARY OF QUANTITIES - CONT

COUNTY:	HAMILTON CO.
ROUTE:	IL 142
FUNDING:	80% FED / 20% STATE
LOCATION:	RURAL

CODE NUMBER	ITEM DESCRIPTION	UNIT	TOTAL QUANTITY	
				0004
* 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	150	150
X0900064	MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES	SQ YD	104	104
X7011800	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1	1

* SPECIALTY ITEM

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USER NAME = WILSONDA	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
PLOT SCALE = 100.0000' / in.	DRAWN -	REVISED -				849	114(CR-1)	HAMILTON	12	5
PLOT DATE = 8/6/2019	CHECKED -	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.		CONTRACT NO. 78675				
	DATE -	REVISED -		ILLINOIS FED. AID PROJECT						

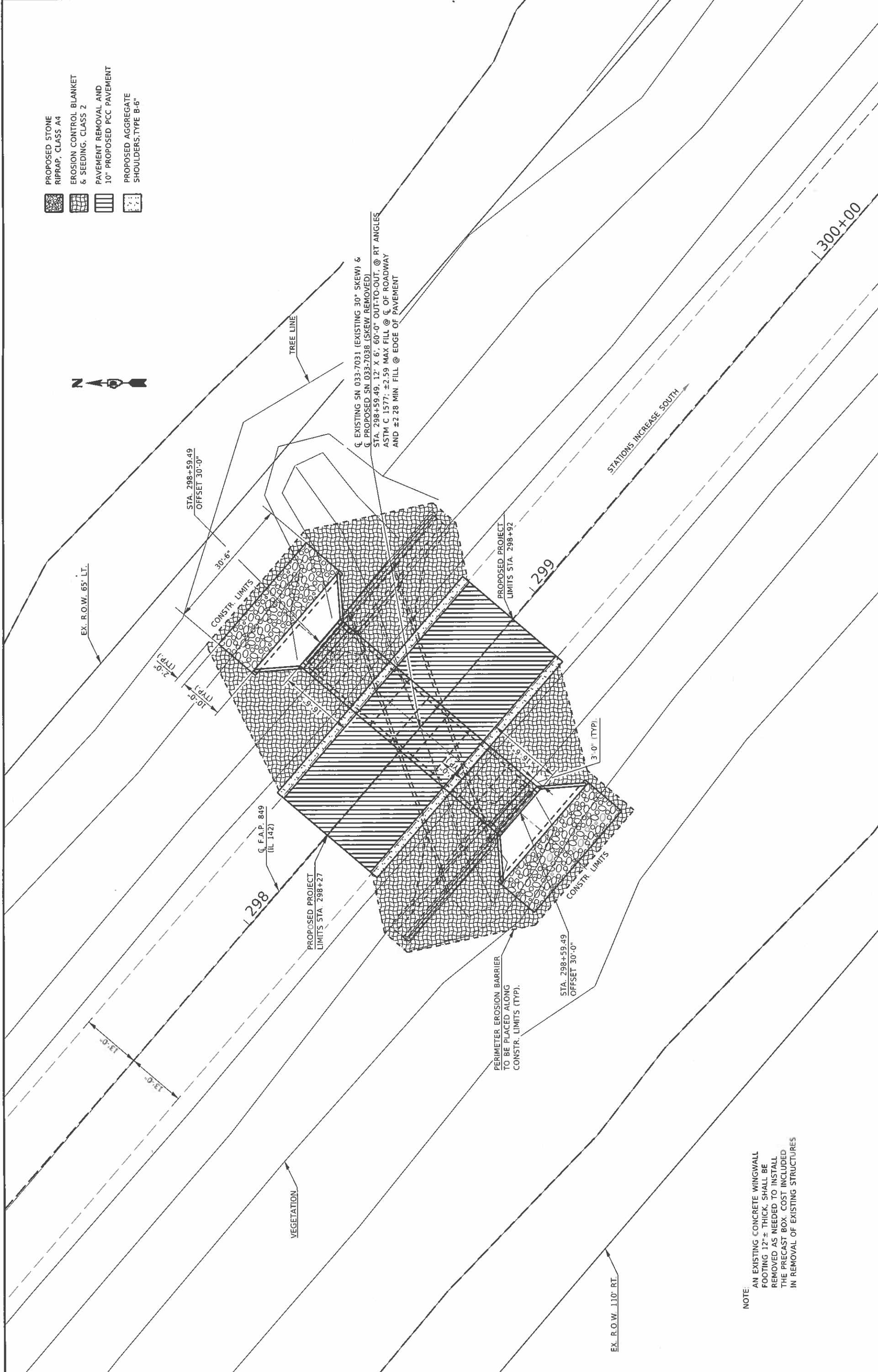
PAVEMENT MARKING SCHEDULE									
STATION				NOTES				PAINT PAVEMENT MARKING - LINE 4"	
								SOLID WHITE	YELLOW SKIP DASH
								FOOT	FOOT
HAMILTON COUNTY									
297 + 27	RT	TO	297 + 92	RT				65	
297 + 27		TO	297 + 27		ALONG CENTERLINE				20
297 + 27	LT	TO	297 + 92	LT				65	
TOTAL								150	

PAVING SCHEDULE												
STATION					COMMENTS					PAVEMENT REMOVAL	PORTLAND CEMENT CONCRETE PAVEMENT, 10"	WELDED WIRE REINFORCEMENT
										SQ YD	SQ YD	SQ YD
HAMILTON COUNTY 033-7031												
297 +27	LT	TO	297 + 92	LT						94	94	94
297 +27	RT	TO	297 + 92	RT						94	94	94
TOTALS										188	188	188

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PLOT SCALE = 100.0000' / in.	DRAWN -	REVISED -		SCALE:	SHEET	OF	SHEETS	STA.	TO STA.	849	114(CR-1)	HAMILTON	12	6
PLOT DATE = 8/6/2019	CHECKED -	REVISED -		CONTRACT NO. 78675										
	DATE -	REVISED -		ILLINOIS FED. AID PROJECT										

- PROPOSED STONE RIPRAP, CLASS A4
- EROSION CONTROL BLANKET & SEEDING, CLASS 2
- PAVEMENT REMOVAL AND 10" PROPOSED PCC PAVEMENT
- PROPOSED AGGREGATE SHOULDERS, TYPE B-6"

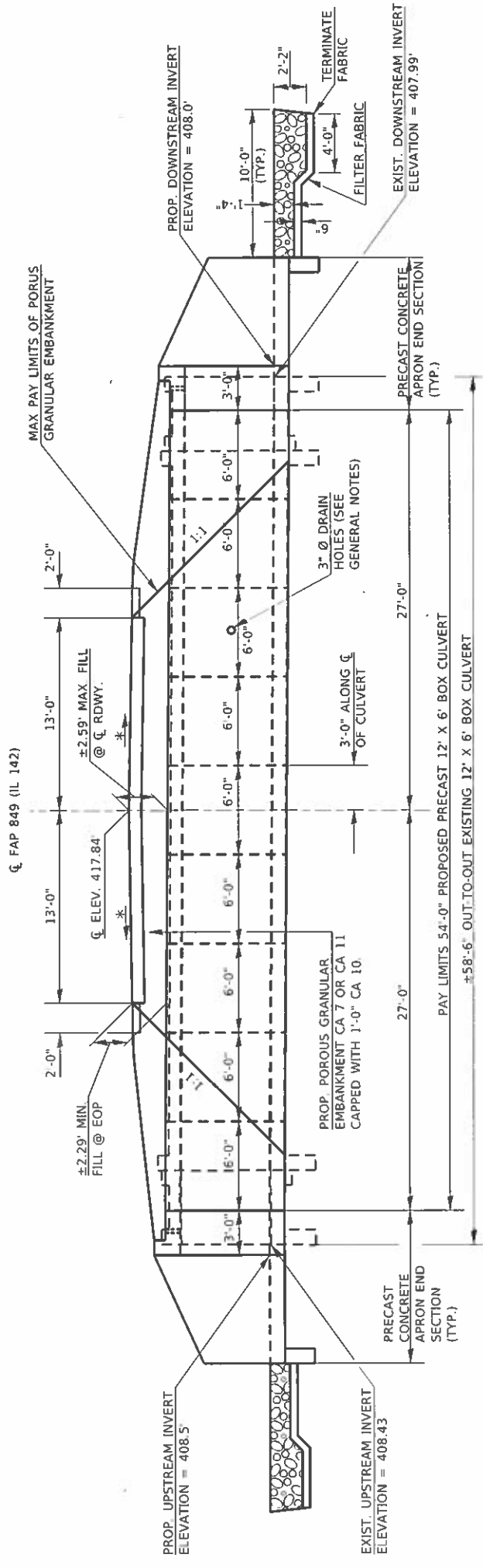


& EXISTING SN 033-7031 (EXISTING 30° SKEW) &
 & PROPOSED SN 033-7038 (SKEW REMOVED)
 STA. 298+59.49, 12' X 6', 60'-0" OUT-TO-OUT, @ RT ANGLES
 ASTM C 1577; ±2.59 MAX FILL @ & OF ROADWAY
 AND ±2.28 MIN FILL @ EDGE OF PAVEMENT

NOTE:
 AN EXISTING CONCRETE WINGWALL
 FOOTING 12" ± THICK, SHALL BE
 REMOVED AS NEEDED TO INSTALL
 THE PRECAST BOX. COST INCLUDED
 IN REMOVAL OF EXISTING STRUCTURES

USER NAME = WILSONDA	DESIGNED =	REVISED =	STATE OF ILLINOIS	GENERAL PLAN	F.A.P. RATE = 849	SECTION = 114(CR-1)	COUNTY = HAMILTON	TOTAL SHEETS = 12	SHEET NO. = 7
PLOT SCALE = 20,000' / 1" =	DRAWN =	REVISED =	DEPARTMENT OF TRANSPORTATION	SN 033-7031(E) SN 033-7038(P)	SCALE =	TO STA. =	CONTRACT NO. 78675	ILLINOIS FED. AID PROJECT	
DATE = 9/17/2019	CHECKED =	REVISED =							

FINAL SECTION



**ELEVATION
(LOOKING NORTH)**
SEE SHEET 7 OF 12 FOR PLAN VIEW

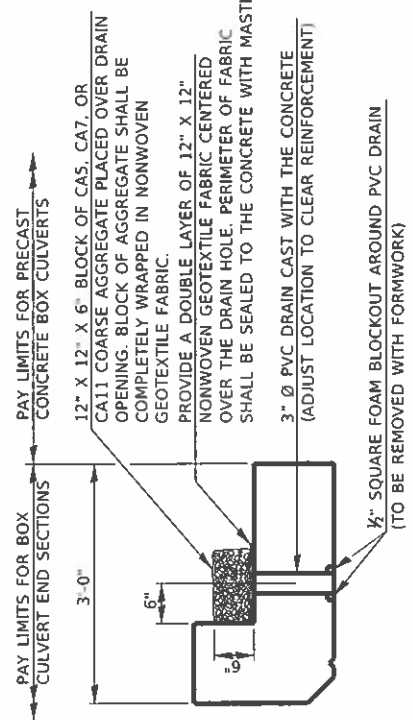
GENERAL NOTES

DRAIN HOLES SHALL BE PROVIDED ON EXTERIOR CULVERT WALLS FOR EACH PRECAST BOX SEGMENT WITH A CLEAR RISE GREATER THAN 3 FT. THE DRAIN HOLE SHALL BE LOCATED WITHIN 1/3 OF THE CLEAR RISE OF THE BOX CULVERT, SHALL NOT INTERCEPT THE HAUNCH, AND SHALL CONFORM TO THE REQUIREMENTS OF ARTICLE 503.11 OF THE STANDARD SPECIFICATION.

A 6 IN. THICK LAYER OF POROUS GRANULAR MATERIAL REQUIRED FOR THE PRECAST CONCRETE BOX CULVERT PER ART. 540.06 OF THE STANDARD SPECIFICATIONS SHALL ALSO APPLY TO THE END SECTIONS. COST OF THE POROUS GRANULAR MATERIAL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE UNIT PRICE OF THE WORK FOR WHICH IT IS REQUIRED.

NONWOVEN GEOTEXTILE FABRIC SHALL CONFORM TO THE REQUIREMENTS OF ART. 1080.01 OF THE STANDARD SPECIFICATIONS. THE MINIMUM WEIGHT OF THE FABRIC SHALL BE 6 OUNCES PER SQUARE YARD.

- * MATCH EXISTING CROSS SLOPES
- ** THE REMOVAL OF THE EXISTING BOX CULVERT SHALL BE INCLUDED IN REMOVAL OF EXISTING STRUCTURES.



DRAIN DETAIL

(ALL COSTS ASSOCIATED WITH FURNISHING AND CONSTRUCTING THE ABOVE DRAIN DETAIL WILL NOT BE MEASURED FOR PAYMENT BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE ASSOCIATED WORK.)

PRECAST BOX CULVERT SCHEDULE (HL-93; ASTM C 1577)

STATION	SIZE	SKEW	DESIGN FILL (FT.)	PGE BACKFILL REQUIRED
			EDGE OF SHLD. (MIN)	MAXIMUM
HAMILTON COUNTY				
965 + 27 TO 965 + 92	12' X 6'	0°	± 2.29'	± 2.59'
				192 CU YD

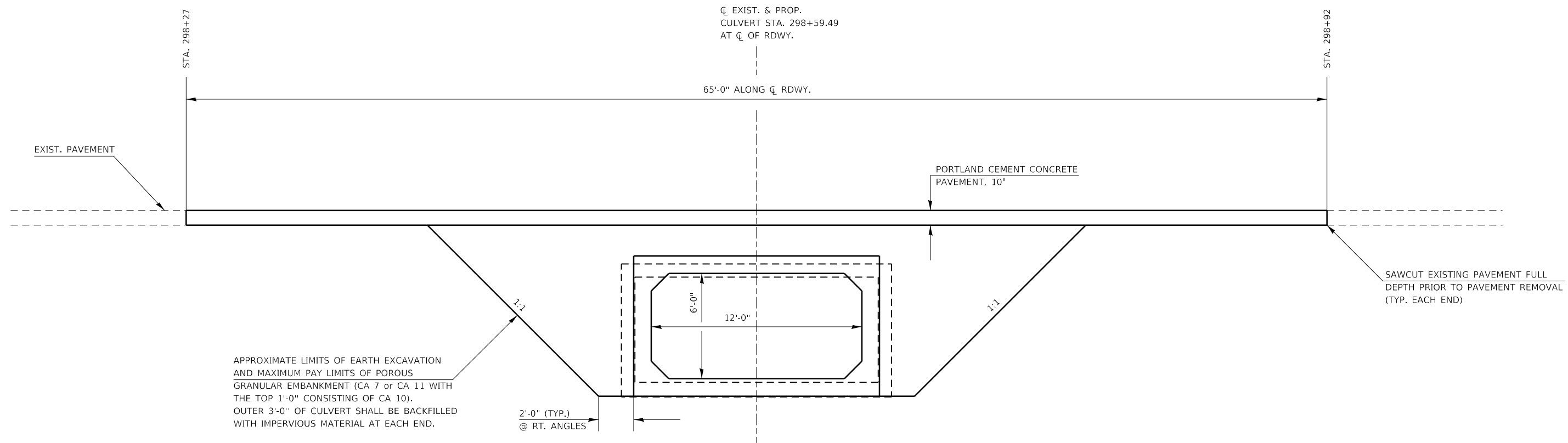
**PRECAST CONCRETE
BOX CULVERT**

NOTE: GEOCOMPOSITE WALL DRAIN SHALL BE ACCORDING TO SECTION 591 OF THE STANDARD SPECIFICATIONS, EXCEPT THAT CONCRETE NAILS SHALL NOT BE USED IN AREAS WHERE IT OVERLAPS MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES.

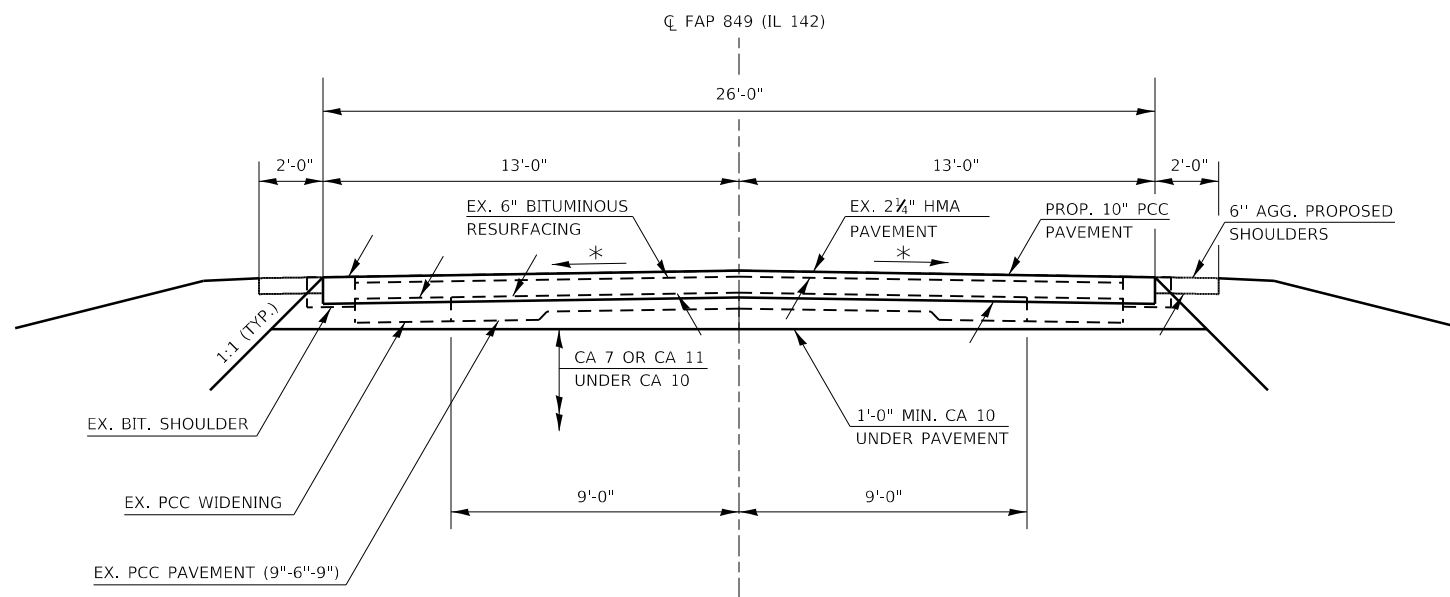
TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
REMOVAL OF EXISTING STRUCTURES	EACH	1
BOX CULVERT END SECTIONS, CULVERT NO. 1	EACH	2
PRECAST CONCRETE BOX CULVERTS 12' X 6'	FOOT	54
GEOCOMPOSITE WALL DRAIN	SQ YD	104
MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES	SQ YD	104

LIMITS OF POROUS GRANULAR EMBANKMENT



SECTION WITHIN PAVEMENT REMOVAL



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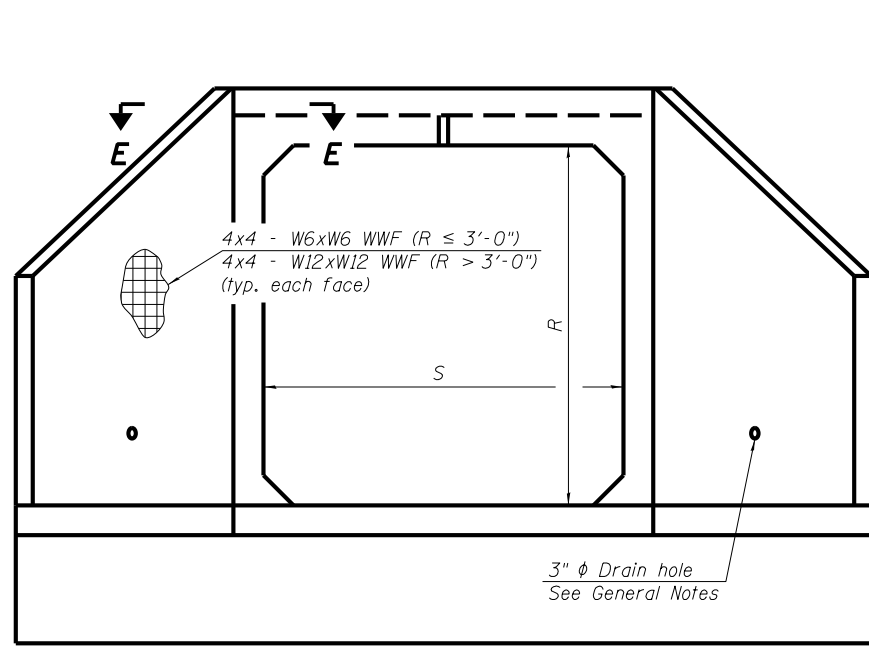
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PLOT SCALE = 6.0000' / in.	DRAWN -	REVISED -
PLOT DATE = 8/6/2019	CHECKED -	REVISED -
	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

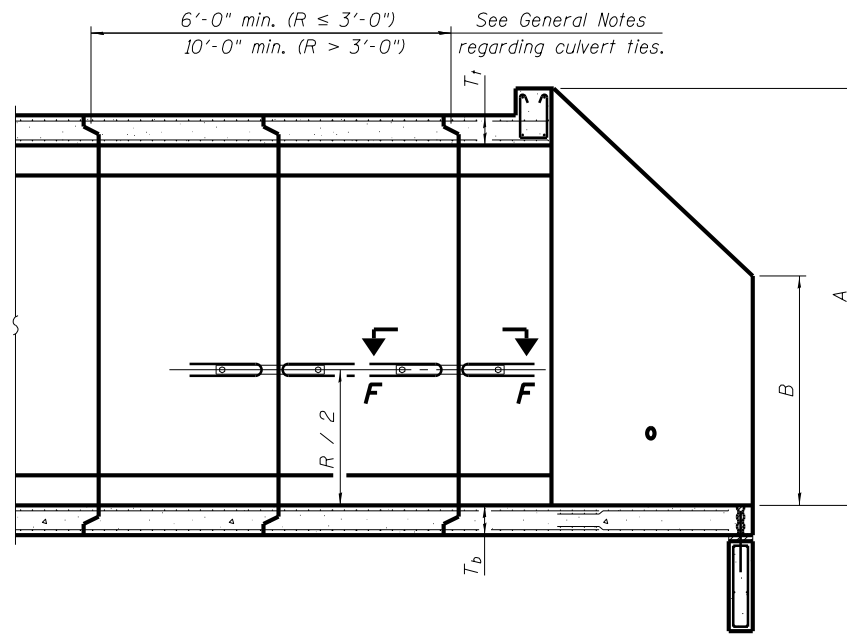
**LIMITS OF POROUS GRANULAR EMBANKMENT AND
SECTION WITHIN PAVEMENT REMOVAL SN 033-7038 (P)**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
849	114(CR-1)	HAMILTON	12	9
CONTRACT NO. 78675				
ILLINOIS FED. AID PROJECT				



END VIEW



SECTION A-A

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. End sections will be paid for at the contract unit price per each for Box Culvert End Sections.

The Contractor may furnish the end section as a single precast concrete piece or construct the end section in the field using cast-in-place (CIP) construction. For CIP construction, the bottom slab thickness shall be increased by 2" and the clear cover to the bottom mat of reinforcement shall be increased to 3".

Box section dimensions, materials, and reinforcement details for Box Culvert End Sections shall be according to the requirements for ASTM C 1577 as required for the design of the portion of the culvert within the limits of Precast Concrete Box Culverts except as modified herein.

The number of culvert ties shall be sufficient to engage the minimum length of culvert barrel shown within the pay limits for Precast Concrete Box Culverts and will be dependent upon the length of box culvert segments furnished by the Contractor. Culvert ties are not required for box culverts having a rise (R) less than or equal to 3 ft and a span (S) greater than or equal to 10 ft.

All costs associated with furnishing and installing or constructing the toewall and culvert ties will not be measured for payment but shall be included in the unit price for Box Culvert End Sections of the culvert number specified.

Shop drawings that detail slab thickness and reinforcement layout for the Box Culvert End Sections shall be provided to the Engineer for review and approval. Reinforcement bars not detailed herein shall be detailed with a clear distance at the end of the reinforcement not less than 1/2" nor more than 2". For the precast option, it shall be the Contractor's responsibility for determining a method of handling and a construction procedure shall be included on the shop drawings. The Contractor shall determine and detail in the shop drawings any necessary strengthening or stiffening provisions necessary to handle the precast segment. Any required modifications shall be at no extra charge.

All exposed concrete edges shall be chamfered 3/4" unless noted otherwise. The Contractor may use reinforcement bars in lieu of welded wire fabric (WWF). Reinforcement bars shall be limited to the sizes of #3 through #5 bars, a maximum spacing of the lesser of 8" or the member thickness, and shall result in an area of reinforcement equal to or greater than that provided by the WWF. Minimum lap lengths detailed herein are applicable to WWF and reinforcement bars.

Reinforcement (circumferential and longitudinal) in the culvert barrel portion of the end section being lapped with reinforcement from the wingwalls or bottom slab of the end section shall not be less than that required by ASTM C 1577 for the design fill height or the reinforcement detailed for the end section, whichever is greater.

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60.

Reinforcement bars designated (E) shall be epoxy coated.

Bonded construction joints shall be prepared according to Article 503.09 of the Standard Specifications.

One drain hole shall be provided in each wingwall for end sections of box culverts having an opening with a clear rise greater than 3 ft. The drain hole shall be located within the lower 1/3 of the clear rise of the box culvert and shall conform to the requirements of Article 503.11 of the Standard Specifications.

APRON END SECTION DIMENSIONS

Span (S)	Rise (R)	T _t	T _b	T _s	A	B	C	D	E	Concrete Cu. Yd.	Culvert Ties Required
3'-0"	2'-0"	7"	6"	4"	3'-4"	2'-2"	2'-10 ⁵ / ₈ "	4'-1"	10'-4 ⁵ / ₈ "	2.8	Yes
3'-0"	2'-0"	4"	4"	4"	3'-1"	2'-1"	2'-7 ⁷ / ₈ "	3'-9"	9'-11"	2.3	Yes
3'-0"	3'-0"	7"	6"	4"	4'-4"	2'-8"	3'-10 ⁵ / ₈ "	5'-6"	12'-4 ⁵ / ₈ "	3.7	Yes
3'-0"	3'-0"	4"	4"	4"	4'-1"	2'-7"	3'-7 ⁷ / ₈ "	5'-2"	11'-11"	3.1	Yes
4'-0"	2'-0"	7.5"	6"	5"	3'-4 ¹ / ₂ "	2'-2 ¹ / ₂ "	2'-11 ³ / ₈ "	4'-2"	11'-8"	3.3	Yes
4'-0"	2'-0"	5"	5"	5"	3'-2"	2'-1"	2'-8 ¹ / ₂ "	3'-10"	11'-2 ³ / ₈ "	2.8	Yes
4'-0"	3'-0"	7.5"	6"	5"	4'-4 ¹ / ₂ "	2'-8 ¹ / ₂ "	3'-11 ³ / ₈ "	5'-7"	13'-8 ¹ / ₈ "	4.2	Yes
4'-0"	3'-0"	5"	5"	5"	4'-2"	2'-7"	3'-8 ¹ / ₂ "	5'-3"	13'-2 ³ / ₈ "	3.7	Yes
4'-0"	4'-0"	7.5"	6"	5"	5'-4 ¹ / ₂ "	3'-2 ¹ / ₂ "	4'-11 ³ / ₈ "	7'-0"	15'-8 ¹ / ₈ "	5.3	Yes
4'-0"	4'-0"	5"	5"	5"	5'-2"	3'-1"	4'-8 ⁵ / ₈ "	6'-8"	15'-2 ¹ / ₂ "	4.7	Yes
5'-0"	2'-0"	8"	7"	6"	3'-5"	2'-3"	2'-11 ³ / ₈ "	4'-2"	12'-10"	3.9	Yes
5'-0"	2'-0"	6"	6"	6"	3'-3"	2'-2"	2'-10"	4'-0"	12'-7 ¹ / ₄ "	3.5	Yes
5'-0"	3'-0"	8"	7"	6"	4'-5"	2'-9"	3'-11 ³ / ₈ "	5'-7"	14'-10 ¹ / ₈ "	4.9	Yes
5'-0"	3'-0"	6"	6"	6"	4'-3"	2'-8"	3'-10"	5'-5"	14'-7 ¹ / ₄ "	4.5	Yes
5'-0"	4'-0"	8"	7"	6"	5'-5"	3'-3"	4'-11 ³ / ₈ "	7'-0"	16'-10 ¹ / ₈ "	6.1	Yes
5'-0"	4'-0"	6"	6"	6"	5'-3"	3'-2"	4'-9 ¹ / ₄ "	6'-9"	16'-5 ⁷ / ₈ "	5.5	Yes
5'-0"	5'-0"	8"	7"	6"	6'-5"	3'-9"	5'-11 ³ / ₈ "	8'-5"	18'-10 ¹ / ₈ "	7.4	Yes
5'-0"	5'-0"	6"	6"	6"	6'-3"	3'-8"	5'-9 ¹ / ₄ "	8'-2"	18'-5 ⁷ / ₈ "	6.8	Yes
6'-0"	2'-0"	8"	7"	7"	3'-5"	2'-3"	2'-11 ³ / ₈ "	4'-2"	14'-0"	4.3	Yes
6'-0"	2'-0"	7"	7"	7"	3'-4"	2'-2"	2'-10 ⁵ / ₈ "	4'-1"	13'-10 ⁵ / ₈ "	4.2	Yes
6'-0"	3'-0"	8"	7"	7"	4'-5"	2'-9"	3'-11 ³ / ₈ "	5'-7"	16'-0 ¹ / ₈ "	5.4	Yes
6'-0"	3'-0"	7"	7"	7"	4'-4"	2'-8"	3'-10 ⁵ / ₈ "	5'-6"	15'-10 ⁵ / ₈ "	5.2	Yes
6'-0"	4'-0"	8"	7"	7"	5'-5"	3'-3"	4'-11 ³ / ₈ "	7'-0"	18'-0 ¹ / ₈ "	6.5	Yes
6'-0"	4'-0"	7"	7"	7"	5'-4"	3'-2"	4'-10 ³ / ₄ "	6'-11"	17'-10 ³ / ₄ "	6.5	Yes
6'-0"	5'-0"	8"	7"	7"	6'-5"	3'-9"	5'-11 ³ / ₈ "	8'-5"	20'-0 ¹ / ₈ "	8.0	Yes
6'-0"	5'-0"	7"	7"	7"	6'-4"	3'-8"	5'-10 ³ / ₄ "	8'-4"	19'-10 ³ / ₄ "	7.8	Yes
6'-0"	6'-0"	8"	7"	7"	7'-5"	4'-3"	6'-11 ¹ / ₂ "	9'-10"	22'-0 ¹ / ₂ "	9.5	Yes
6'-0"	6'-0"	7"	7"	7"	7'-4"	4'-2"	6'-10 ³ / ₄ "	9'-9"	21'-10 ³ / ₄ "	9.3	Yes
7'-0"	2'-0"	8"	8"	8"	3'-5"	2'-3"	2'-11 ³ / ₈ "	4'-2"	15'-2"	4.9	Yes
7'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 ³ / ₈ "	5'-7"	17'-2 ¹ / ₈ "	6.1	Yes
7'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 ³ / ₈ "	7'-0"	19'-2 ¹ / ₈ "	7.4	Yes
7'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 ³ / ₈ "	8'-5"	21'-2 ¹ / ₈ "	8.9	Yes
7'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 ¹ / ₂ "	9'-10"	23'-2 ¹ / ₄ "	10.6	Yes
8'-0"	2'-0"	8"	8"	8"	3'-5"	2'-3"	2'-11 ³ / ₈ "	4'-2"	16'-2"	5.3	Yes
8'-0"	3'-0"	8"	8"	8"	4'-5"	2'-9"	3'-11 ³ / ₈ "	5'-7"	18'-2 ¹ / ₈ "	6.5	Yes
8'-0"	4'-0"	8"	8"	8"	5'-5"	3'-3"	4'-11 ³ / ₈ "	7'-0"	20'-2 ¹ / ₈ "	7.8	Yes
8'-0"	5'-0"	8"	8"	8"	6'-5"	3'-9"	5'-11 ³ / ₈ "	8'-5"	22'-2 ¹ / ₈ "	9.3	Yes
8'-0"	6'-0"	8"	8"	8"	7'-5"	4'-3"	6'-11 ¹ / ₂ "	9'-10"	24'-2 ¹ / ₄ "	11.0	Yes
9'-0"	2'-0"	9"	9"	9"	3'-6"	2'-3"	3'-0 ³ / ₄ "	4'-4"	17'-6 ⁷ / ₈ "	6.2	Yes
9'-0"	3'-0"	9"	9"	9"	4'-6"	2'-9"	4'-0 ³ / ₄ "	5'-9"	19'-6 ⁷ / ₈ "	7.5	Yes
9'-0"	4'-0"	9"	9"	9"	5'-6"	3'-3"	5'-0 ³ / ₄ "	7'-2"	21'-6 ⁷ / ₈ "	9.0	Yes
9'-0"	5'-0"	9"	9"	9"	6'-6"	3'-9"	6'-0 ⁷ / ₈ "	8'-7"	23'-7"	10.6	Yes
9'-0"	6'-0"	9"	9"	9"	7'-6"	4'-3"	7'-0 ¹ / ₈ "	9'-11"	25'-5 ⁵ / ₈ "	12.4	Yes
10'-0"	2'-0"	10"	10"	10"	3'-7"	2'-4"	3'-1 ¹ / ₂ "	4'-5"	18'-10 ¹ / ₄ "	7.1	No
10'-0"	3'-0"	10"	10"	10"	4'-7"	2'-10"	4'-1 ¹ / ₂ "	5'-10"	20'-10 ¹ / ₄ "	8.6	No
10'-0"	4'-0"	10"	10"	10"	5'-7"	3'-4"	5'-1 ¹ / ₂ "	7'-3"	22'-10 ³ / ₈ "	10.2	Yes
10'-0"	5'-0"	10"	10"	10"	6'-7"	3'-10"	6'-1 ¹ / ₂ "	8'-8"	24'-10 ³ / ₈ "	12.0	Yes
10'-0"	6'-0"	10"	10"	10"	7'-7"	4'-4"	7'-1 ¹ / ₂ "	10'-1"	26'-10 ³ / ₈ "	13.9	Yes
11'-0"	2'-0"	11"	11"	11"	3'-8"	2'-4"	3'-2 ⁷ / ₈ "	4'-7"	20'-3 ³ / ₈ "	8.2	No
11'-0"	3'-0"	11"	11"	11"	4'-8"	2'-10"	4'-2 ⁷ / ₈ "	6'-0"	22'-3 ³ / ₈ "	9.8	No
11'-0"	4'-0"	11"	11"	11"	5'-8"	3'-4"	5'-2 ¹ / ₄ "	7'-4"	24'-1 ³ / ₄ "	11.5	Yes
11'-0"	6'-0"	11"	11"	11"	7'-8"	4'-4"	7'-2 ¹ / ₄ "	10'-2"	28'-1 ⁷ / ₈ "	15.5	Yes
12'-0"	2'-0"	12"	12"	12"	3'-9"	2'-5"	3'-3 ⁵ / ₈ "	4'-8"	21'-6 ¹ / ₂ "	9.3	No
12'-0"	3'-0"	12"	12"	12"	4'-9"	2'-11"	4'-3 ⁵ / ₈ "	6'-1"	23'-6 ¹ / ₂ "	11.1	No
12'-0"	4'-0"	12"	12"	12"	5'-9"	3'-5"	5'-3 ⁵ / ₈ "	7'-6"	25'-6 ⁵ / ₈ "	13.0	Yes
12'-0"	6'-0"	12"	12"	12"	7'-9"	4'-5"	7'-3 ⁵ / ₈ "	10'-4"	29'-6 ⁵ / ₈ "	17.4	Yes

Note:

Two sets of apron end section dimensions are shown above for some box culvert sizes due to the top and bottom slabs having different thicknesses per ASTM C 1577 for design fill heights less than 2 ft.

(Sheet 1 of 2)

SCB-AES-1

11-5-13

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

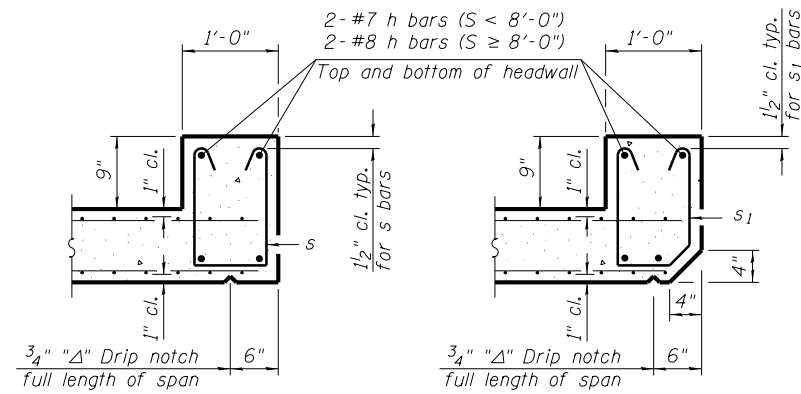
PRECAST CONCRETE BOX CULVERT
APRON END SECTION DETAILS SN 033-7038 (P)

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
849	114(CR-1)	HAMILTON	12	10
CONTRACT NO. 78675				

SCALE: SHEET OF SHEETS STA. TO STA.

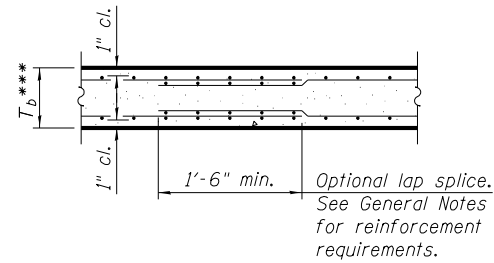
ILLINOIS FED. AID PROJECT

MCE: J. DeFul / E.L. MAME / P:\pub\arcoms.dal\illinois\pcc\pcc\DOT\Documents\DOT Office\Drawings\Projects\78675\CAD\Drawings\0978675-Sheets.dwg



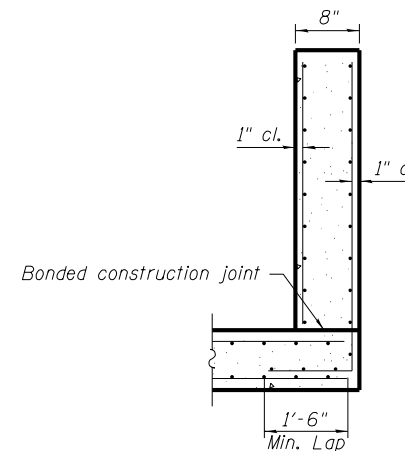
SECTION B-B
(Top slab at downstream end)

SECTION B-B
(Top slab at upstream end)

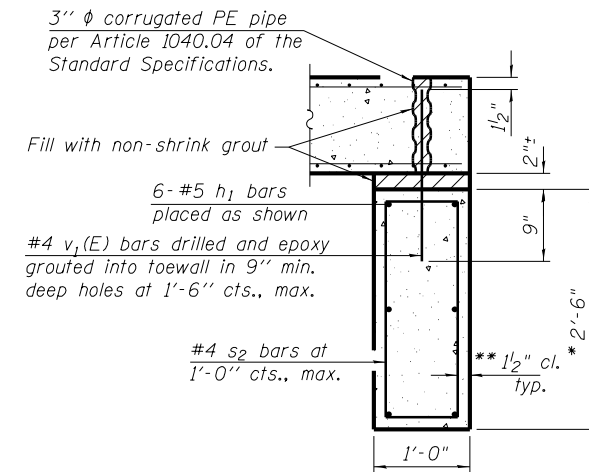


SECTION B-B
(Bottom Slab)

*** This dimension shall be increased by 2" for CIP construction.



SECTION C-C



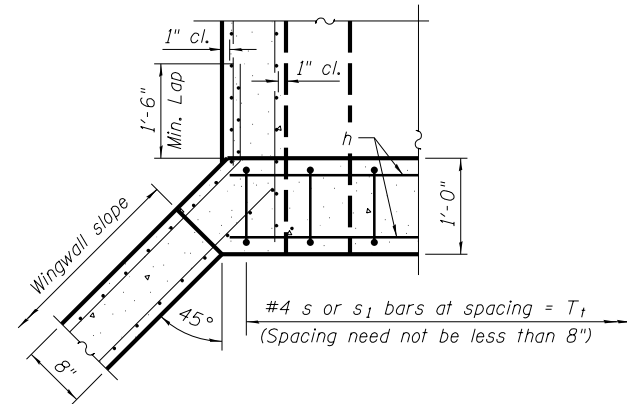
SECTION D-D

TOEWALL CONSTRUCTION SEQUENCE

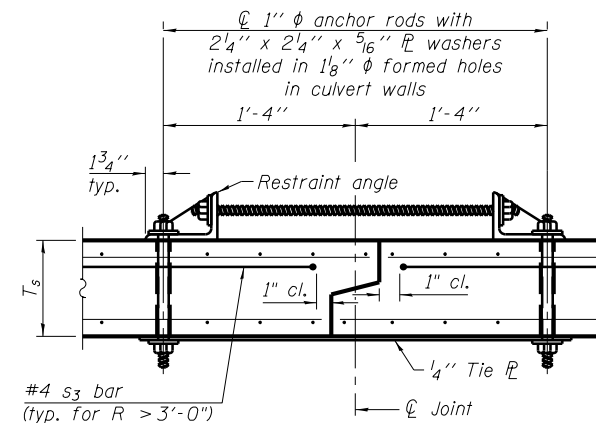
1. Perform excavation and construct toewall.
2. Backfill accordingly and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance with Section 584 of the Standard Specifications.
5. Pressure grout voids using non-shrink grout conforming to Section 1024 of the Standard Specifications.

* The Contractor may furnish a precast or cast-in-place toewall. The Contractor shall be responsible for the strength and stability of the precast toewall during handling. Additional lifting points may be required depending upon the length of the toewall or the Contractor may need to modify the design of the toewall for the proposed handling method.

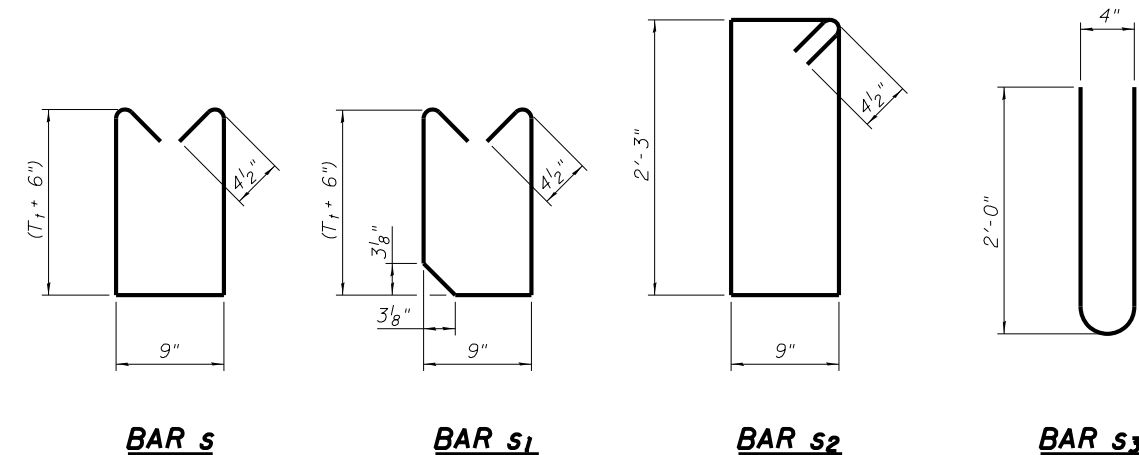
** If soil conditions permit, the sides of the toewall may be poured directly against the soil. The clear cover on the sides of the toewall shall be increased to 3" by increasing the thickness of the toewall.



SECTION E-E



SECTION F-F
(Showing culvert tie details)

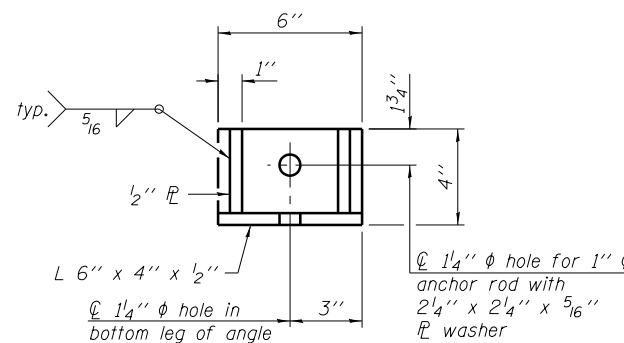


BAR s

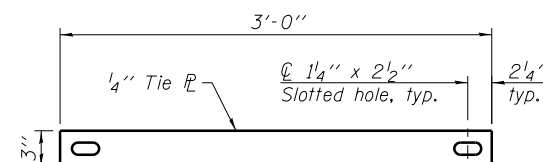
BAR s1

BAR s2

BAR s3



RESTRAINT ANGLE DETAIL



TIE PLATE DETAIL

Notes:

1" φ anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for the tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the culvert tie detail shall be galvanized according to the requirements of AASHTO M 111 or M 232 as applicable. 2 1/4" x 2 1/4" x 5/16" plate washers shall be provided under each nut required for the anchor rods. Anchor rods connecting precast sections shall be brought to a snug tight condition followed by an additional 1/2 turn on one of the nuts for anchor rods installed in the walls. Match marks shall be provided on the bolt and nut to verify relative rotation between the bolt and the nut. Holes in the walls for the culvert tie assembly may be drilled using core bits in lieu of using formed holes.

SCB-AES-2

11-5-13

(Sheet 2 of 2)

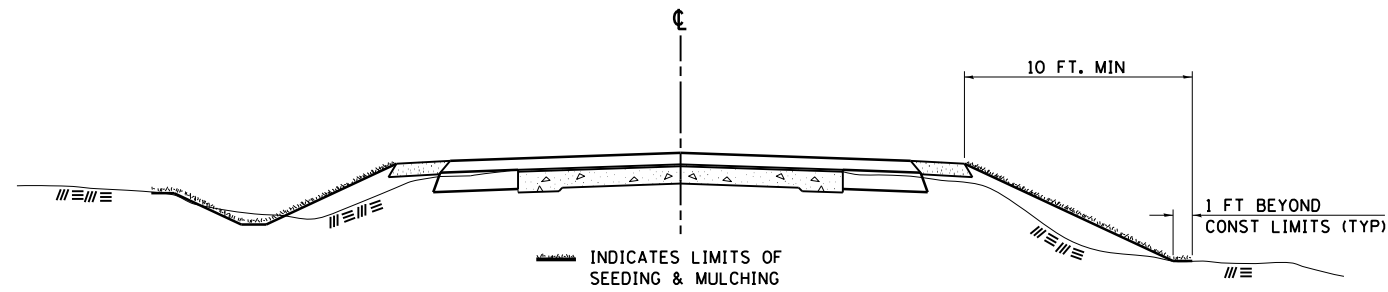
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST CONCRETE BOX CULVERT
APRON END SECTION DETAILS SN 033-7038 (P)

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
849	114(CR-1)	HAMILTON	12	11
CONTRACT NO. 78675				
ILLINOIS FED. AID PROJECT				

SEEDING & MULCHING



GENERAL NOTES

IN GENERAL, ALL EARTH SURFACES DISTURBED DURING CONSTRUCTION OPERATIONS SHALL BE SEEDED AND MULCHED UPON COMPLETION OF ALL GRADING OPERATIONS.

ON DETOUR ROADS, SLOPES SHALL BE SEEDED IMMEDIATELY UPON COMPLETION OF ANY GIVEN STAGE GRADING. TEMPORARY SEEDING SHALL BE CLASS 7.

FERTILIZER NUTRIENTS SHALL BE APPLIED TO ALL SEEDED AREAS. LIMESTONE SHALL BE APPLIED TO ALL AREAS OF FINAL SEEDING.

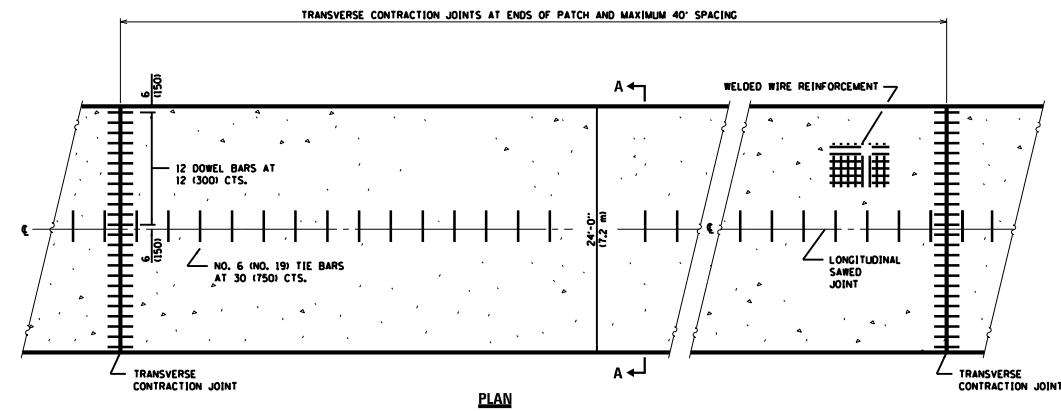
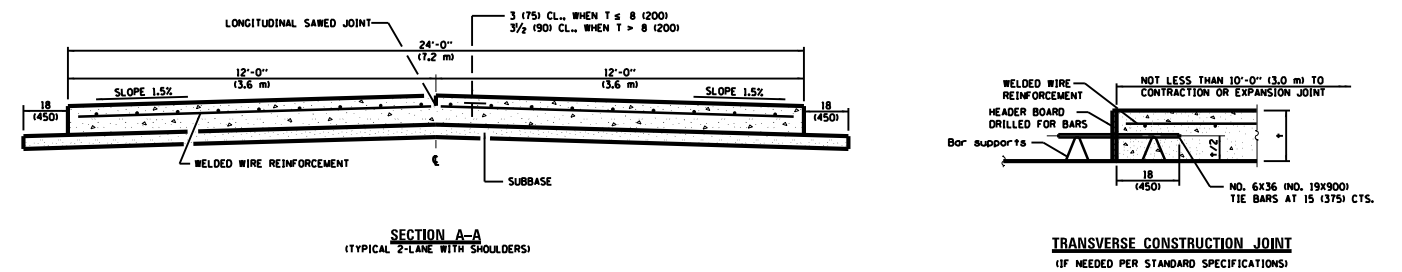
THE RATES OF APPLICATION OF FERTILIZER, MULCH AND LIMESTONE SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR ROAD AND BRIDGE CONSTRUCTION.

SECTIONS 250 AND 251 OF THE STANDARD SPECIFICATIONS SHALL GOVERN THIS WORK EXCEPT AS SPECIFIED HEREIN OR AS NOTED IN THE SPECIAL PROVISIONS.

REVISIONS	
REDRAWN	2-15-89
REVISED	8-15-94
REVISED	6-3-99
REVISED	3-27-08
REVISED	5-16-13

STD. 9-12

24' (7.2 m) PCC PAVEMENT OVER BOX CULVERT



GENERAL NOTES
 SEE STANDARD 42001 FOR DETAILS NOT SHOWN.
 SEE STANDARD 420701 FOR WELDED WIRE REINFORCEMENT DETAILS.
 ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
 ACTUAL DIMENSIONS TO MATCH FIELD CONDITIONS AND CONSTRUCTION METHODS.

REVISIONS	
DRAWN	11-9-17
REVISED	7-23-18

STD. 9-25

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DISTRICT STANDARDS

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
849	114(CR-1)	HAMILTON	12	12
CONTRACT NO. 78675				

ILLINOIS FED. AID PROJECT