

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**DIVISION OF HIGHWAYS**  
**PROPOSED**  
**HIGHWAY PLANS**

**FAP ROUTE 332 (IL 1)**  
**SECTION 5B-4**  
**PROJECT ACF-0332 (123)**  
**BOX CULVERT REPLACEMENT**  
**WHITE COUNTY**

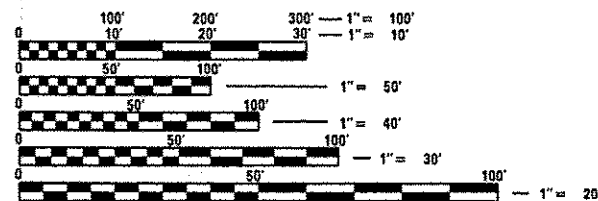
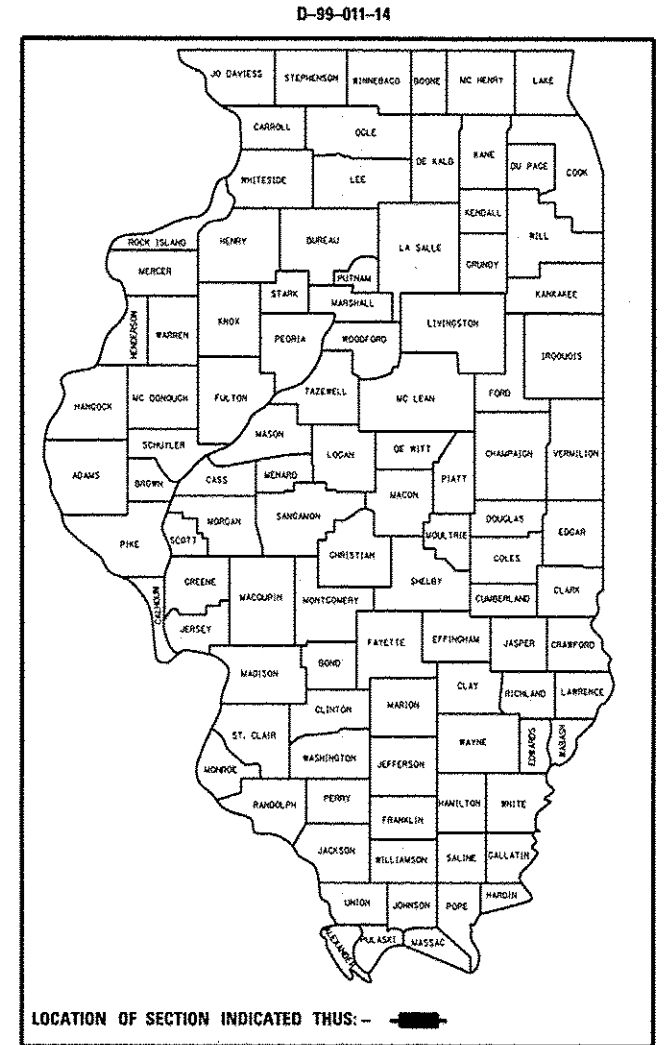
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	5B-4	WHITE	10	1
		ILLINOIS	CONTRACT NO. 78391	

FOR INDEX OF SHEETS, SEE SHEET NO. 2

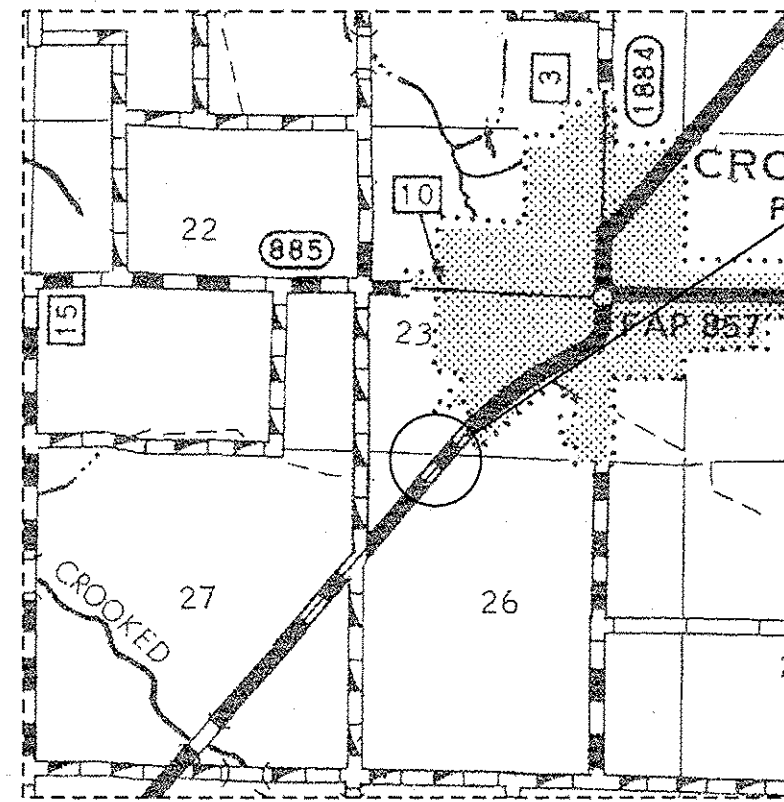
**TRAFFIC DATA**  
 2011 ADT = 4600  
 WITH 10% TRUCKS

**TOWNSHIP**  
 PHILLIPS



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

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



IMPROVEMENT LOCATION  
 STRUCTURE 097-7046 (E)  
 STRUCTURE 097-7092 (P)  
 IL 1 OVER UNNAMED CREEK

PROJECT ENGINEER: ADRIAN ADAMS (618) 351-5262  
 PROJECT MANAGER: DAVID PICHE (618) 351-5227

GROSS LENGTH = 30.00 FT. = 0.006 MILE  
 NET LENGTH = 30.00 FT. = 0.006 MILE

CONTRACT NO. 78391

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION  
 DIVISION OF HIGHWAYS

SUBMITTED *October 15 20 14*

*Jeffrey J. Rein*  
 DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

*Jan 30 20 15*  
*John D. Baronzelli PE*  
 ENGINEER OF DESIGN AND ENVIRONMENT

*Jan 30 20 15*  
*Omec Osman PE*  
 DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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**OF THE STATE OF ILLINOIS**

**GENERAL NOTES**

- 1) THE THICKNESS OF HOT-MIX ASPHALT MIXTURE SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HOT-MIX ASPHALT MIXTURE IS PLACED.
- 2) FACTORS USED FOR ESTIMATING PLAN QUANTITIES ARE AS FOLLOWS AND SHALL NOT BE USED FOR THE BASIS OF FINAL QUANTITIES:
 

ALL HOT MIX ASPHALT	2.016 TONS/CU YD
ALL AGGREGATE	2.05 TONS/CU YD
RIP RAP	1.50 TONS/CU YD
- 3) 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.
- 4) A CALCIUM CHLORIDE ACCELERATOR WILL BE ALLOWED IN THE PCC PAVEMENT 10'. THE CONCRETE SHALL BE CLASS PP-1 OR PP-2 PER ARTICLE 1020 OF THE STANDARD SPECS.
- 6) REMOVAL OF EXISTING AGGREGATE SHOULDERS SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.
- 7) COMMITMENTS: THE WHITE COUNTY SHERIFF'S DEPARTMENT (618) 382-5321 SHALL BE CONTACTED PRIOR TO THE 2 WEEK NOTIFICATION SIGNING AND PRIOR TO ANY WORK INVOLVING TRAFFIC CONTROL AND PROTECTION THAT AFFECTS THE TRAVELING PUBLIC.

**INDEX OF SHEETS**

- |      |   |
|------|---|
| 1    | COVER SHEET   |
| 2    | GENERAL NOTES, INDEX OF SHEETS, STANDARDS, AND MIXTURE REQUIREMENTS                             |
| 3    | SUMMARY OF QUANTITIES   |
| 4    | SCHEDULES   |
| 5    | GEOPAK ELEMENTS IDENTIFICATION SHEET  |
| 6    | GENERAL PLAN SN 097-7092  |
| 7    | TEMPORARY AND FINAL SECTIONS  |
| 8    | LIMITS OF POROUS GRANULAR EMBANKMENT AT SN 097-7092 AND TYPICAL SECTION WITHIN PAVEMENT REMOVAL |
| 9-10 | CAST-IN-PLACE APRON END SECTION DETAILS SN 097-7092   |

**STANDARDS**

- |           |   |
|-----------|---|
| 000001-06 | STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS  |
| 001001-02 | AREAS OF REINFORCEMENT BARS   |
| 001006    | DECIMAL OF AN INCH AND OF A FOOT  |
| 420001-08 | PAVEMENT JOINTS   |
| 420601-05 | 24' PCC PAVEMENT  |
| 420701-02 | PAVEMENT FABRIC   |
| 542301-03 | PRECAST REINFORCED CONCRETE FLARED END SECTION  |
| 701001-02 | OFF-RD OPERATIONS, 2L, 2W, MORE THAN 15' AWAY   |
| 701006-05 | OFF-RD OPERATIONS, 2L, 2W, 15' TO 24" FROM PAVEMENT EDGE                                |
| 701201-04 | LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS ≥ 45 MPH                                     |
| 701901-04 | TRAFFIC CONTROL DEVICES   |
| 780001-05 | TYPICAL PAVEMENT MARKINGS   |
| BLR 21-9  | TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS |

**MIXTURE REQUIREMENTS**

LOCATION(S):	HOT-MIX ASPHALT SHOULDERS
MIXTURE USE(S):	HOT-MIX ASPHALT BINDER COURSE, N90, IL-19.0MM FINE GRADE
AC/PG:	PG64-22
ABR % (MAX):	SEE SPECIAL PROVISION
DESIGN AIR VOIDS:	4.0%, 70 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE):	IL-19.0MM FINE GRADE
FRICTION AGGREGATE:	NONE
QUALITY MANAGEMENT PROGRAM:	QC/QA

Prepared By:	<i>Joe Zamboni</i> DISTRICT STUDIES & PLANS ENGINEER
Examined By:	<i>John Egan</i> DISTRICT LAND ACQUISITION ENGINEER
Examined By:	<i>Carroll</i> DISTRICT PROGRAM DEVELOPMENT ENGINEER
Examined By:	<i>Kevin</i> DISTRICT OPERATIONS ENGINEER
Examined By:	<i>Kevin</i> DISTRICT PROJECT IMPLEMENTATION ENGINEER
Examined By:	<i>Douglas</i> DISTRICT CONSTRUCTION ENGINEER
Examined By:	<i>Conrad</i> DISTRICT MATERIALS ENGINEER

FILE NAME *	USER NAME * adamsen	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>GENERAL NOTES, INDEX OF SHEETS, STANDARDS, AND MIXTURE REQUIREMENTS</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT SCALE * 1/8"=1'-0"	CHECKED -	REVISED -	CONTRACT NO. 78391							
PLOT DATE * 10/9/2014	DATE -	REVISED -	ILLINOIS FED. AID PROJECT							
*MODELNAME*				SCALE:	SHEET OF SHEETS	STA. TO STA.				

		SN 097-7046 (E), 097-7092 (P)	
		80/20 FED/ST - WHITE COUNTY	
		CONSTRUCTION TYPE CODE - 0040	
CODE NUMBER	PAY ITEM	UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	192
20700110	POROUS GRANULAR EMBANKMENT	CU YD	188
20800150	TRENCH BACKFILL	CU YD	11
25000200	SEEDING, CLASS 2	ACRE	0.25
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	23
25000500	PHOSPHOROUS FERTILIZER NUTRIENT	POUND	23
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	23
25000700	AGRICULTURAL GROUND LIMESTONE	TON	0.5
25100115	MULCH, METHOD 2	ACRE	0.25
28100107	STONE RIPRAP, CLASS A4	SQ YD	18
28200200	FILTER FABRIC	SQ YD	18
42000500	PORTLAND CEMENT CONCRETE PAVEMENT 10'	SQ YD	80
42001200	PAVEMENT FABRIC	SQ YD	80
44000100	PAVEMENT REMOVAL	SQ YD	80

		SN 097-7046 (E), 097-7092 (P)	
		80/20 FED/ST - WHITE COUNTY	
		CONSTRUCTION TYPE CODE - 0040	
CODE NUMBER	PAY ITEM	UNIT	TOTAL QUANTITY
44004250	PAVED SHOULDER REMOVAL	SQ YD	27
48203029	HOT-MIX ASPHALT SHOULDERS, 8'	SQ YD	27
50102400	CONCRETE REMOVAL	CU YD	43.3
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	610
54003000	CONCRETE BOX CULVERTS	CU YD	11.3
54010604	PRECAST CONCRETE BOX CULVERTS 6' X 4'	FOOT	82
54213669	PRECAST REINFORCED CONCRETE FLARED END SECTIONS 24''	EACH	2
542A0229	PIPE CULVERTS, CLASS A, TYPE 1 24''	FOOT	35
67100100	MOBILIZATION	L SUM	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	2
* 78001110	PAINT PAVEMENT MARKING - LINE 4''	FOOT	80
78300100	PAVEMENT MARKING REMOVAL	SQ FT	20

\* SPECIALTY ITEM

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	5B-4	WHITE	10	3
				CONTRACT NO. 78391
ILLINOIS FED. AID PROJECT				



TL FAP 332 (IL 1)

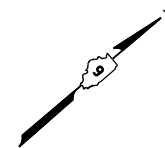
388+00

CHAIN TL1

389+00

390+00

39



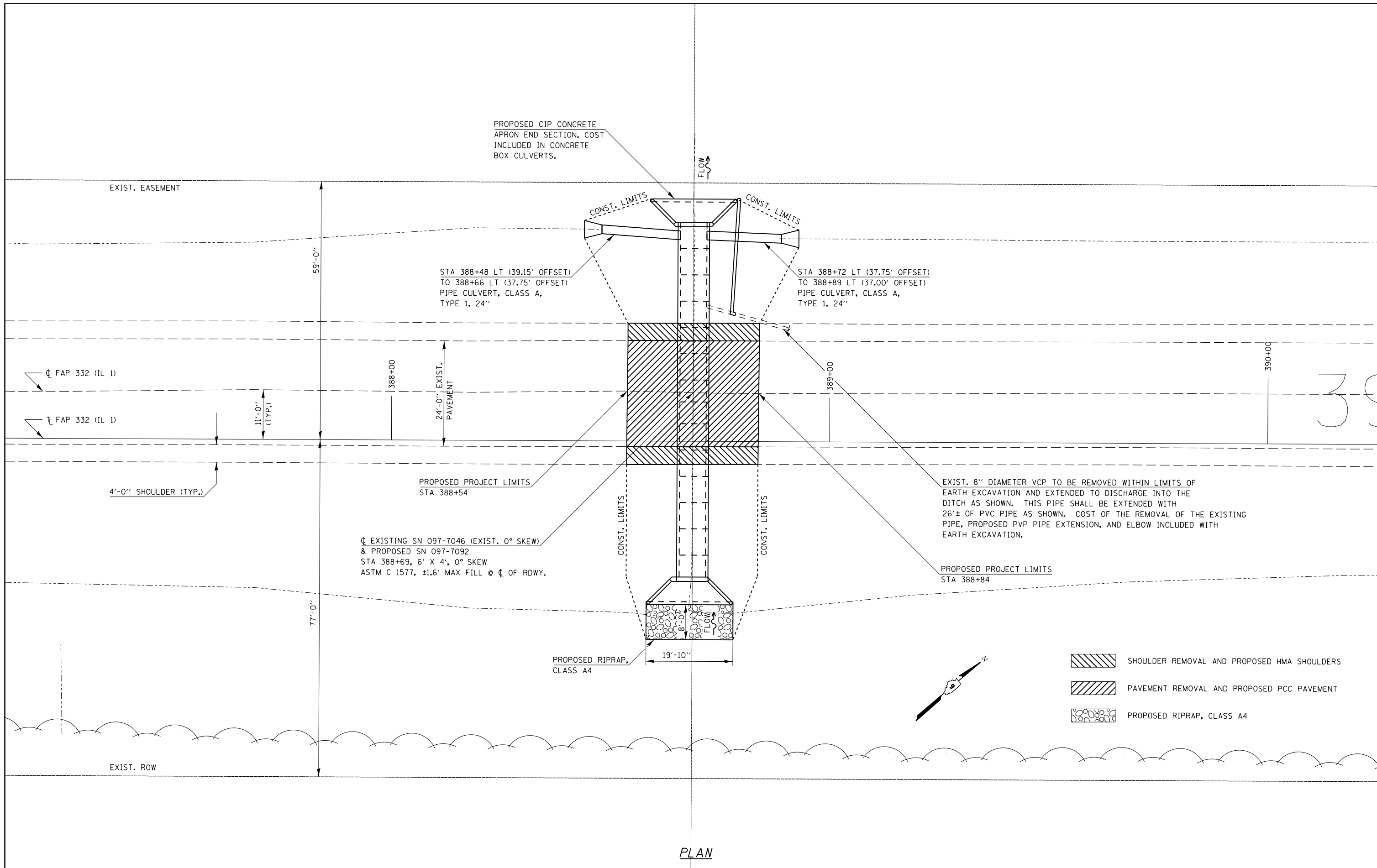
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GEOPAK ELEMENTS IDENTIFICATION SHEET**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	5B-4	WHITE	10	5
				<b>CONTRACT NO. 78391</b>
ILLINOIS FED. AID PROJECT				



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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN  
097-7092**

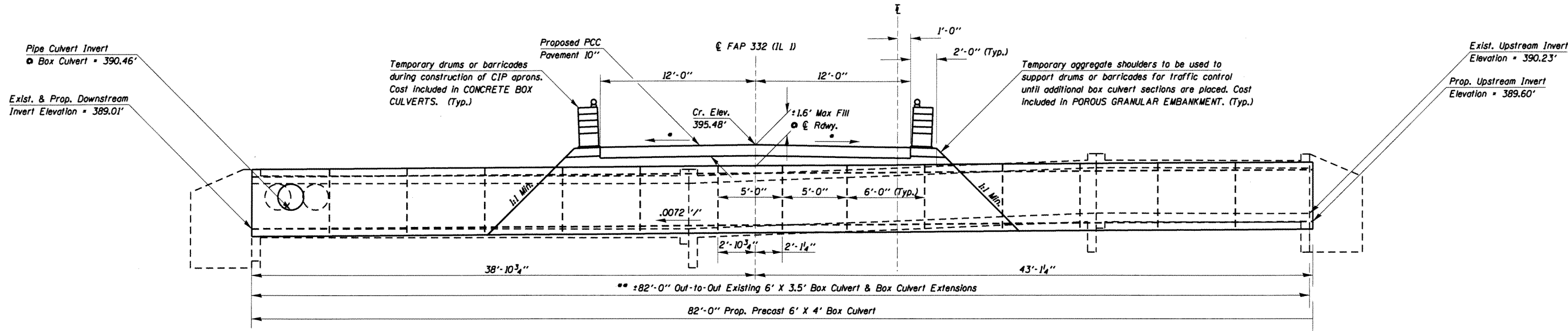
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332	5B-4	WHITE	10	6
CONTRACT NO. 78391				
ILLINOIS FED. AID PROJECT				

# TEMPORARY SECTION PRIOR TO CONSTRUCTION OF CAST-IN-PLACE APRONS

Note: RR Structure Invert = 388.90'  
 BM AS-12 = Chiseled square in center of east  
 headwall of SN 097-7046; Elev. 394.659'

\* Match Existing Cross Slopes  
 \*\* The removal of the existing box culvert is to be  
 included in the cost of CONCRETE REMOVAL.



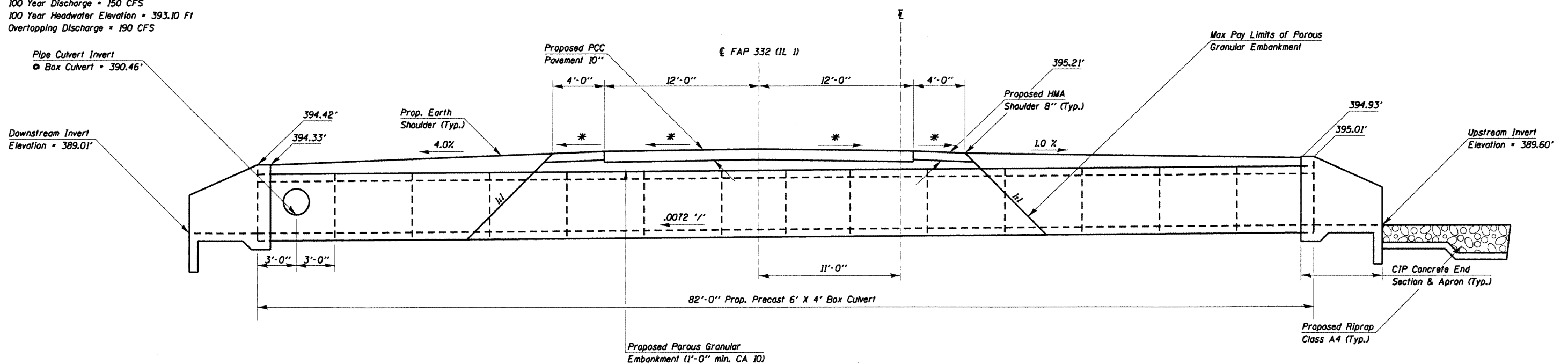
**ELEVATION**  
(Looking North)

Precast Box Loading HL-93.  
 ASTM C 1577

# FINAL SECTION AFTER CONSTRUCTION OF CAST-IN-PLACE APRONS

**HYDRAULIC DATA**  
 Drainage Area = 0.27 Sq Mi  
 Design Waterway Opening = 24 Sq Ft  
 Design Discharge = 115 CFS  
 Design Headwater Elevation = 392.50 Ft  
 100 Year Discharge = 150 CFS  
 100 Year Headwater Elevation = 393.10 Ft  
 Overtopping Discharge = 190 CFS

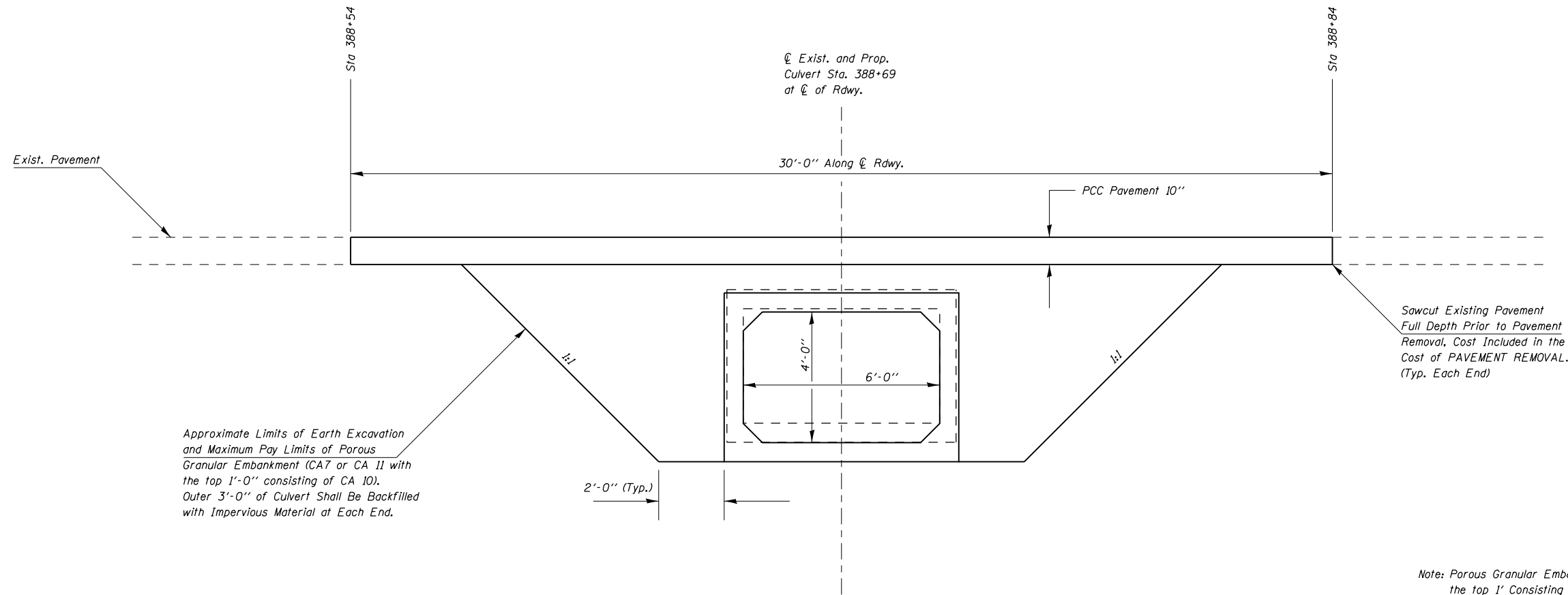
\* Match Existing Cross Slopes  
 \*\* Match Existing Cross Slopes of Shoulders



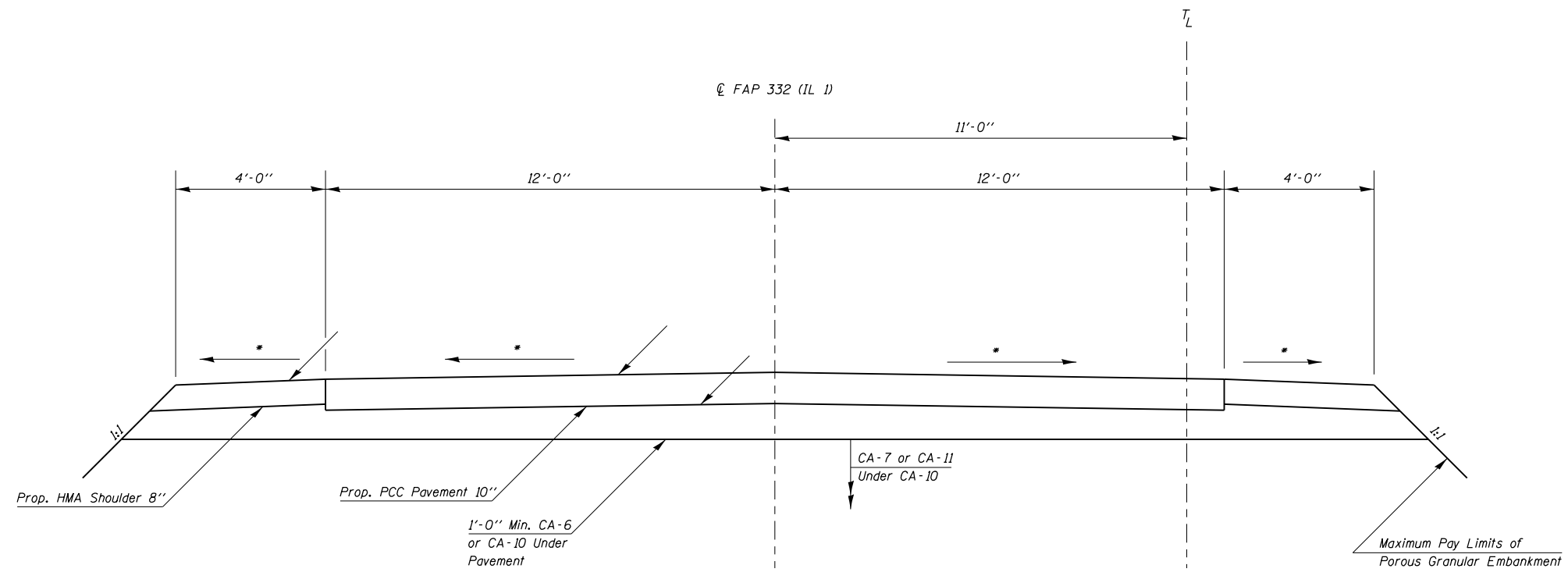
**ELEVATION**  
(Looking North)

Precast Box Loading HL-93.  
 ASTM C 1577

FILE NAME =	USER NAME = edamsam	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>TEMPORARY AND FINAL SECTIONS</b>	F.A.P. RTE. 332	SECTION 5B-4	COUNTY WHITE	TOTAL SHEETS 10	SHEET NO. 7
CONTRACT NO. 78391	ILLINOIS FED. AID PROJECT									



Note: Porous Granular Embankment shall be CA7 or CA 11 with the top 1' Consisting of CA 10.



LOOKING NORTH

Match Existing Cross Slopes

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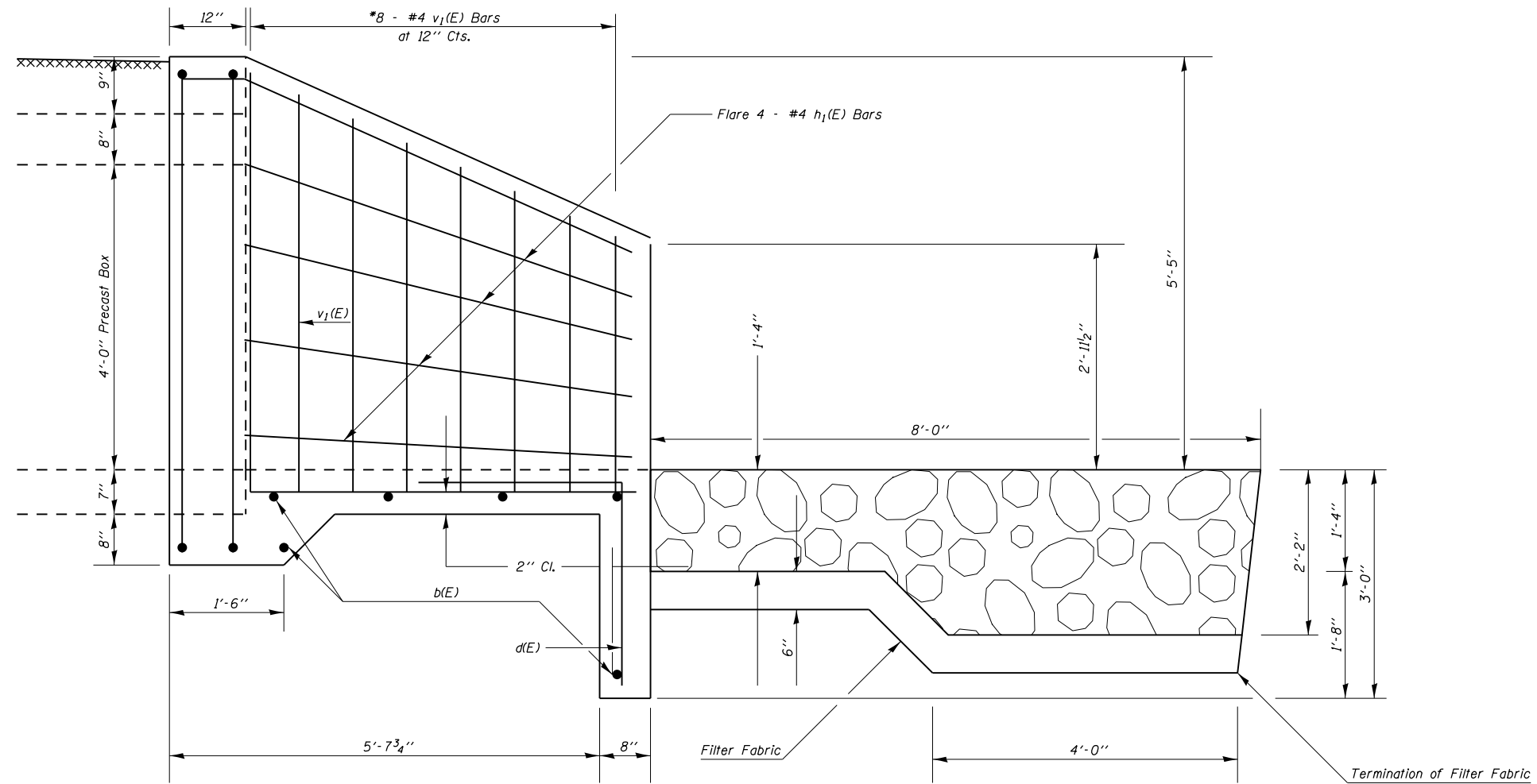
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

LIMITS OF POROUS GRANULAR EMBANKMENT AT SN 097-7092  
AND TYPICAL SECTION WITHIN PAVEMENT REMOVAL

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	5B-4	WHITE	10	8
CONTRACT NO. 78391				
ILLINOIS FED. AID PROJECT				





DESIGN STRESSES  
 $f_y = 60,000$  psi  
 $f_c = 3,500$  psi

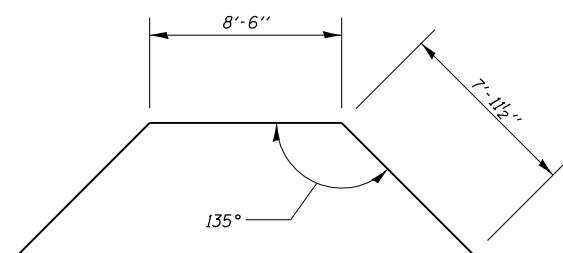
HALF SIDE ELEVATION

**BILL OF MATERIAL**

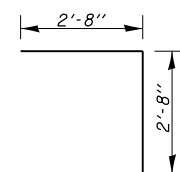
(2 Apron End Sections)

Bar	No.	Size	Length	Shape
b(E)	12	#4	19'-6"	—
d(E)	28	#4	5'-4"	└
h(E)	2	#4	24'-5"	—
h1(E)	16	#4	7'-11"	—
s(E)	4	#4	29'-1"	□
v1(E)	32	#4	7'-0"	└
Concrete Box Culverts			Cu. Yd.	11.3
Reinforcement Bars, Epoxy Coated			Pound	610

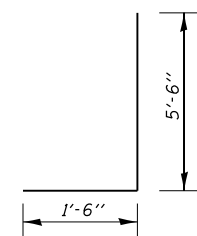
Reinforcement bars designated (E) shall be epoxy coated.  
 \*Cut or bend to fit.  
 Reinforcement bars shall conform to the requirements of ASTM A 706.  
 Exposed edges shall be beveled  $\frac{3}{4}$ "



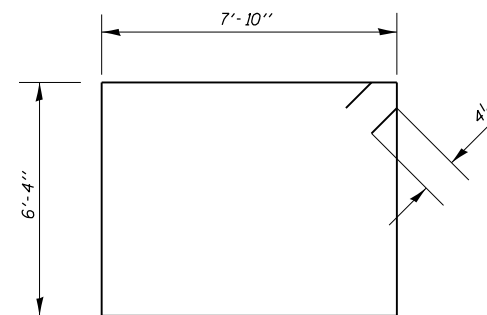
Bar h(E)



Bar d(E)



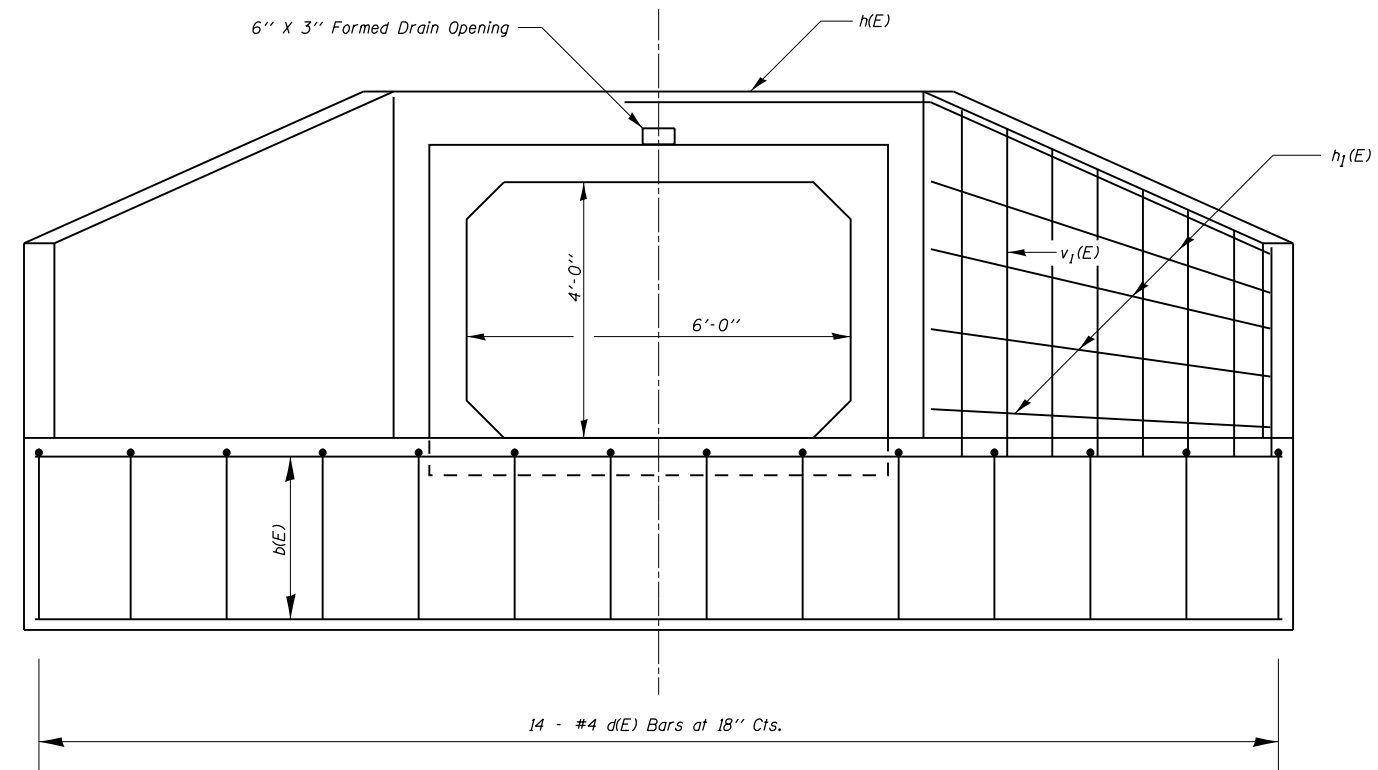
Bar v1(E)



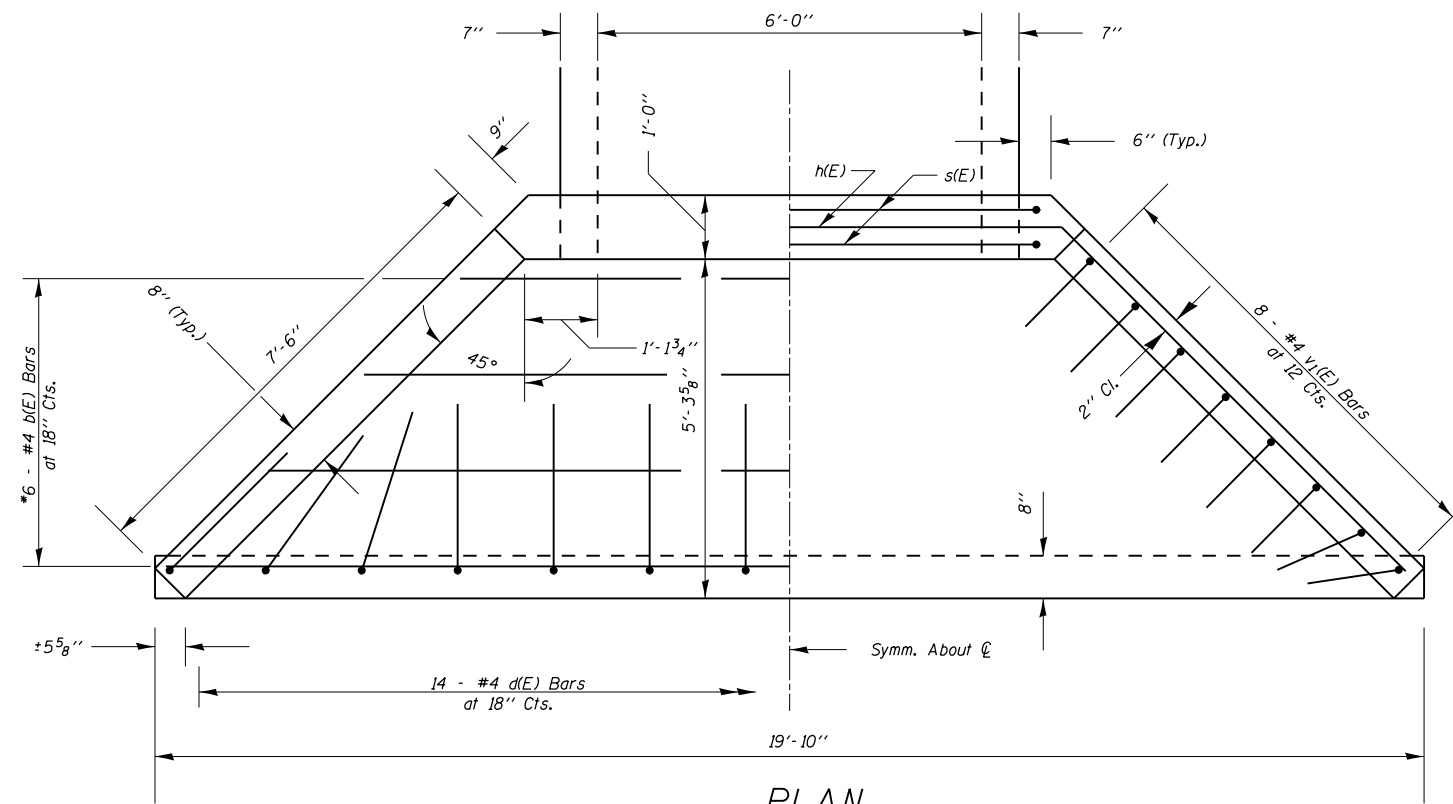
Bar s(E)

**Cast-in-Place  
 Apron End Section Details  
 White County  
 SN 097-7092**

FILE NAME =	USER NAME = \$USER\$	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>CAST-IN-PLACE APRON END SECTION DETAILS SN 097-7092</b>	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
ci:\pw\work\p\dot\adamsem\d0367783\78391-shr-plan.dgn		DRAWN -	REVISED -			332	5B-4	WHITE	10	9	
\$MODELNAME\$		CHECKED -	REVISED -			CONTRACT NO. 78391					
	PLOT DATE = 10/17/2014	DATE -	REVISED -			ILLINOIS FED. AID PROJECT					



END ELEVATION



PLAN

\* Cut or Bend to Fit  
Work this sheet with Sheet 9 of 10.

FILE NAME =	USER NAME = \$USER*	DESIGNED -	REVISED -
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\$MODELNAME*	PLOT DATE = 10/17/2014	DATE -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CAST-IN-PLACE END SECTION DETAILS  
SN 097-7092

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
332	5B-4	WHITE	10	10
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ILLINOIS FED. AID PROJECT				