

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
328	109B-2	WHITE	9	1
		ILLINOIS	CONTRACT NO. 78313	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**PROPOSED
HIGHWAY PLANS**

FAP ROUTE 328 (US 45)
SECTION 109B-2
PROJECT ACF-0328(033)
BOX CULVERT REPLACEMENT
WHITE COUNTY

C-99-044-12

FOR INDEX OF SHEETS, SEE SHEET NO. 2

TRAFFIC DATA
2011 ADT = 1600
WITH 17.5% TRUCKS

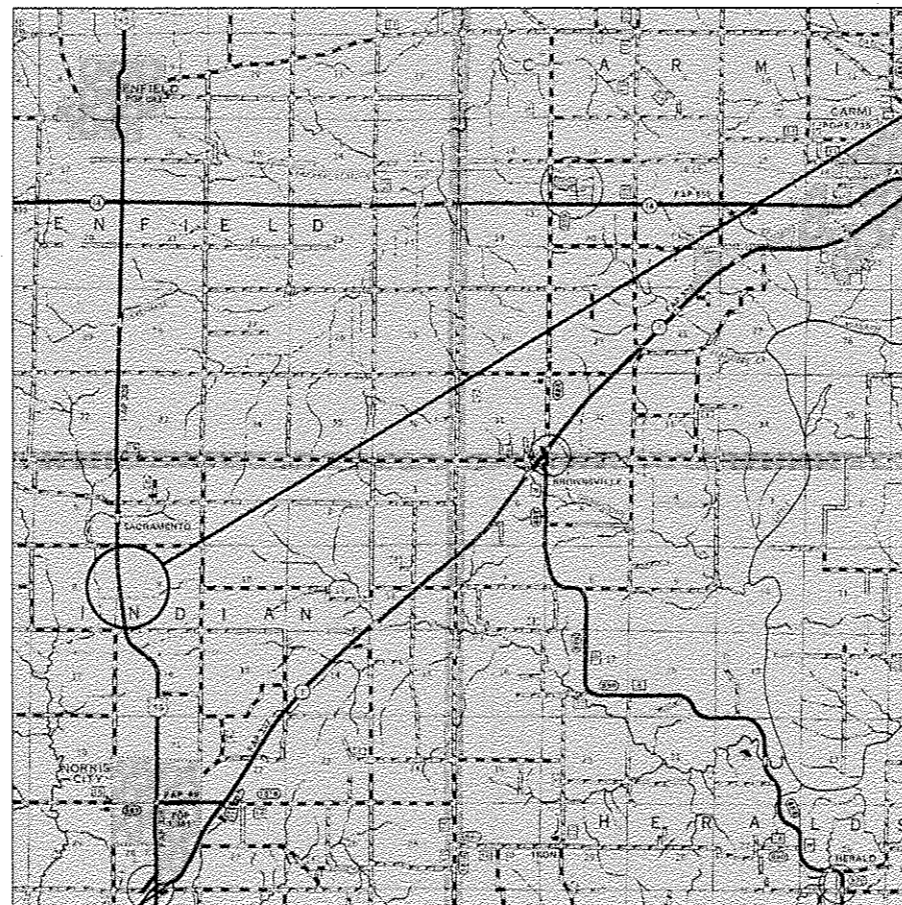
TOWNSHIP
INDIAN CREEK

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

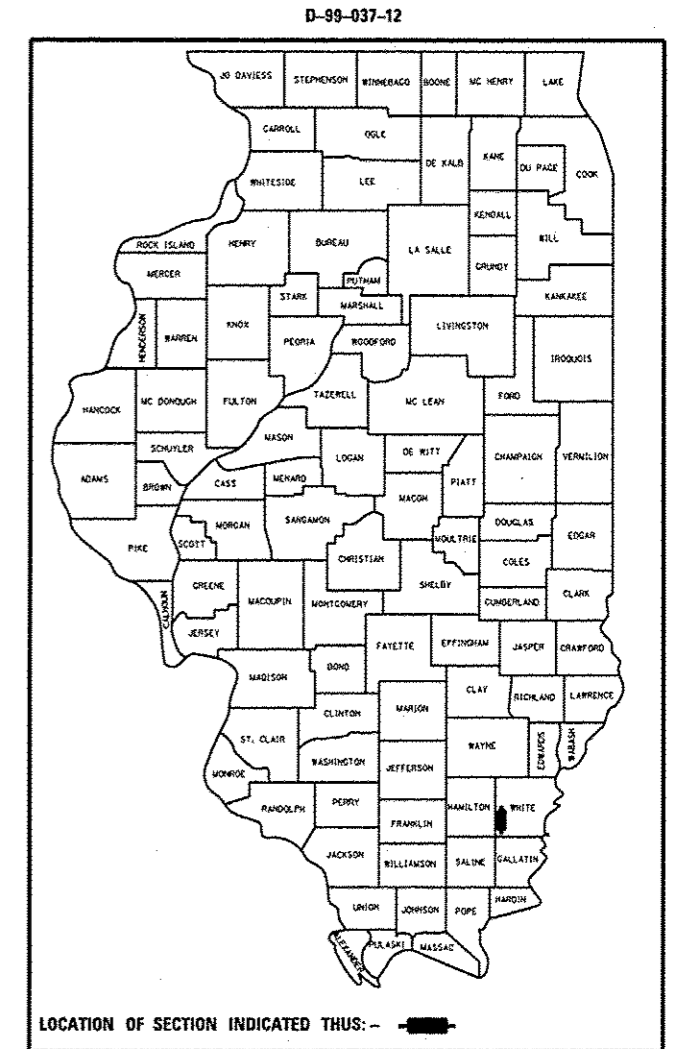
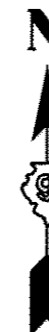
PROJECT ENGINEER: ADRIAN ADAMS (618) 351-5262
PROJECT MANAGER: DAVID PICHE (618) 351-5227

CONTRACT NO. 78313

GROSS LENGTH = 22 FT. = 0.004 MILE
NET LENGTH = 15 FT. = 0.003 MILE



IMPROVEMENT LOCATION
STRUCTURE NO. 097-7063(E)
STRUCTURE NO. 097-7090(P)
US 45 OVER UNNAMED CREEK



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED July 31 20 13

Jeffrey J. Ken
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
October 4 20 13

John D. Baranzoli, PE, IA
acting ENGINEER OF DESIGN AND ENVIRONMENT
October 4 20 13

Omer Osman, PE, IA
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY
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 SAWEED JOINT SHALL BE CONSTRUCTED. THE COST OF THIS JOINT WILL BE INCLUDED IN THE COST OF THE TYPE OF PAVEMENT BEING CONSTRUCTED.
- 4) THE CONTRACTOR MAY USE P. C. C. PAVEMENT 10" AS PER HIGHWAY STANDARD 420601 IN LIEU OF THE HMA PAVEMENT SHOWN IN THE PLANS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED. A CALCIUM CHLORIDE ACCELERATOR WILL BE ALLOWED. THE CONCRETE SHALL BE CLASS PP-1 OR PP-2 PER ARTICLE 1020 OF THE STANDARD SPECS.
- 5) COMMITMENTS: NONE AS OF AUGUST 16, 2013.

INDEX OF SHEETS

- | | |
|-----|--|
| 1 | COVER SHEET |
| 2 | GENERAL NOTES, INDEX OF SHEETS, MIX REQUIREMENTS, AND STANDARDS |
| 3 | SUMMARY OF QUANTITIES |
| 4 | GEOPAK ELEMENTS IDENTIFICATION SHEET |
| 5 | GENERAL PLAN SN 097-7090 |
| 6 | TEMPORARY AND FINAL SECTIONS |
| 7 | LIMITS OF POROUS GRANULAR EMBANKMENT AND SECTION WITHIN PAVEMENT REMOVAL |
| 8-9 | CAST IN PLACE APRON END SECTION SN 097-7090 |

MIXTURE REQUIREMENTS

LOCATION(S):	HOT-MIX ASPHALT SURFACE COURSE
MIXTURE USE(S):	HOT-MIX ASPHALT SURFACE COURSE, MIX C, N90
AC/PG:	PG64-22
ABR% (MAX):	SEE SPECIAL PROVISION
DESIGN AIR VOIDS:	4.0%, 90 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-9.5 mm
FRICTION AGGREGATE:	C SURFACE

LOCATION(S):	HOT-MIX ASPHALT BINDER COURSE
MIXTURE USE(S):	HOT-MIX ASPHALT BINDER COURSE, N90, IL-19.0, FINE GRADE
AC/PG:	PG64-22
ABR% (MAX):	SEE SPECIAL PROVISION
DESIGN AIR VOIDS:	4.0%, 90 GYRATION DESIGN
MIXTURE COMPOSITION: (GRADATION MIXTURE)	IL-19.0 mm FINE GRADE
FRICTION AGGREGATE:	NONE

STANDARDS

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

Prepared By: *Joe Zamboni*
 DISTRICT STUDIOS & PLANS ENGINEER

Examined By: *Paul E. ...*
 DISTRICT LAND ACQUISITION ENGINEER

Examined By: *Carrie Nelson*
 DISTRICT PROGRAM DEVELOPMENT ENGINEER

Examined By: *Karl ...*
 DISTRICT OPERATIONS ENGINEER

Examined By: *...*
 DISTRICT PROJECT IMPLEMENTATION ENGINEER

Examined By: *Doris ...*
 DISTRICT CONSTRUCTION ENGINEER

Examined By: *...*
 DISTRICT MATERIALS ENGINEER

FILE NAME *	USER NAME * adamsom	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL NOTES, INDEX OF SHEETS, MIX REQUIREMENTS, AND STANDARDS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
cr:\pw_work\p\dot\adamsom\0328623\783	shs-plan.dgn	DRAWN -	REVISED -			328	109B-2	WHITE	9	2	
Default	PLOT SCALE * 1/8"=1'-0" / 1"	CHECKED -	REVISED -			CONTRACT NO. 78313					
	PLOT DATE * 7/23/2013	DATE -	REVISED -			ILLINOIS FED. AID PROJECT					

SN 097-7063 (E), 097-7090 (P)
 80% FEDERAL - 20% STATE
 WHITE COUNTY
 CONSTRUCTION TYPE CODE - 0040

CODE NUMBER	PAY ITEM	UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	57
20700220	POROUS GRANULAR EMBANKMENT	CU YD	55
* 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
* 25100630	EROSION CONTROL BLANKET	SQ YD	27
28100107	STONE RIPRAP, CLASS A4	SQ YD	36
28200200	FILTER FABRIC	SQ YD	36
40603092	HOT-MIX ASPHALT BINDER COURSE, IL-19.0 FG, N90	TON	39
40603320	HOT-MIX ASPHALT SURFACE COURSE, MIX 'C', N90	TON	6
44000100	PAVEMENT REMOVAL	SQ YD	64
48101600	AGGREGATE SHOULDERS, TYPE B 8''	SQ YD	15

SN 097-7063 (E), 097-7090 (P)
 80% FEDERAL - 20% STATE
 WHITE COUNTY
 CONSTRUCTION TYPE CODE - 0040

CODE NUMBER	PAY ITEM	UNIT	TOTAL QUANTITY
50102400	CONCRETE REMOVAL	CU YD	21.6
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	420
54003000	CONCRETE BOX CULVERTS	CU YD	7.2
54010603	PRECAST CONCRETE BOX CULVERTS 6' X 3'	FOOT	40
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	1
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	54

* SPECIALTY ITEM



CHAIN US 45

STA 252+00

Q EXISTING SN 097-7063 (EXIST 0° SKEW)
& PROPOSED SN 097-7090, STA 252+00

FILE NAME =	USER NAME = \$USER*	DESIGNED -	REVISED -
ct:\pw\work\p\dot\adamsem\d0325623\78313-sht-pln.dgn		DRAWN -	REVISED -
\$MODELNAME*	PLOT SCALE = 10.0000' / in.	CHECKED -	REVISED -
	PLOT DATE = 8/13/2013	DATE -	REVISED -

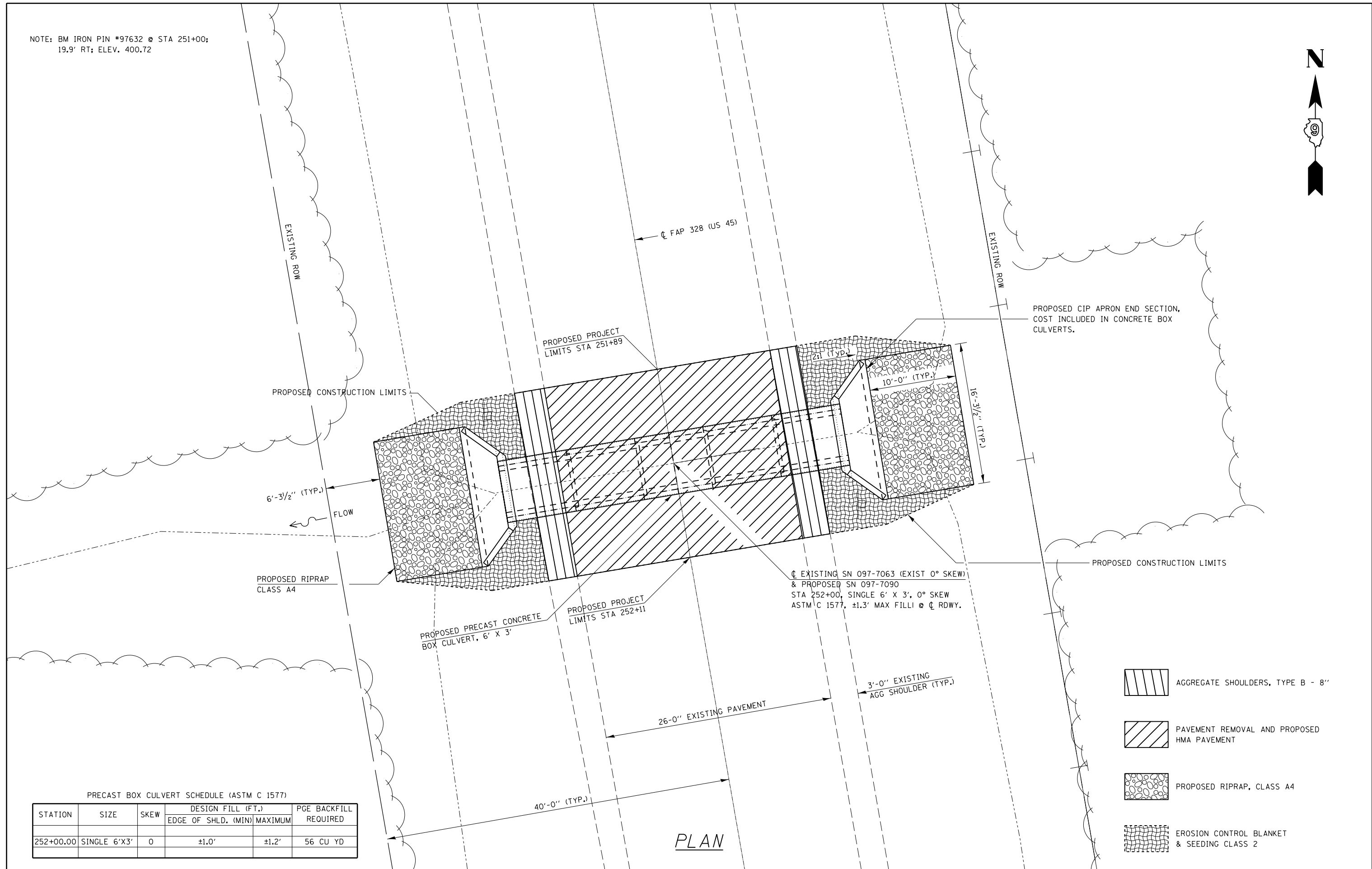
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GEOPAK ELEMENTS
IDENTIFICATION SHEET**

SCALE: SHEET OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
328	109B-2	WHITE	9	4
				CONTRACT NO. 78313
ILLINOIS FED. AID PROJECT				

NOTE: BM IRON PIN #97632 @ STA 251+00;
19.9' RT; ELEV. 400.72



PRECAST BOX CULVERT SCHEDULE (ASTM C 1577)

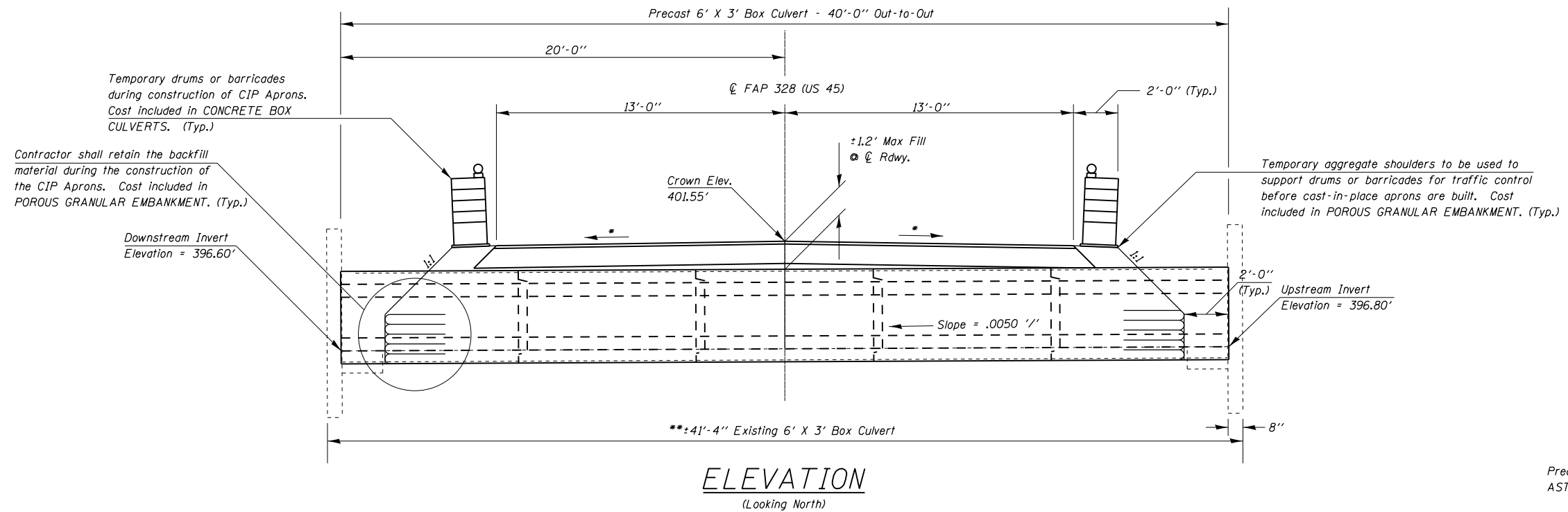
STATION	SIZE	SKEW	DESIGN FILL (FT.)		PGE BACKFILL REQUIRED
			EDGE OF SHLD. (MIN)	MAXIMUM	
252+00.00	SINGLE 6'X3'	0	±1.0'	±1.2'	56 CU YD

- AGGREGATE SHOULDERS, TYPE B - 8"
- PAVEMENT REMOVAL AND PROPOSED HMA PAVEMENT
- PROPOSED RIPRAP, CLASS A4
- EROSION CONTROL BLANKET & SEEDING CLASS 2

PLAN

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

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



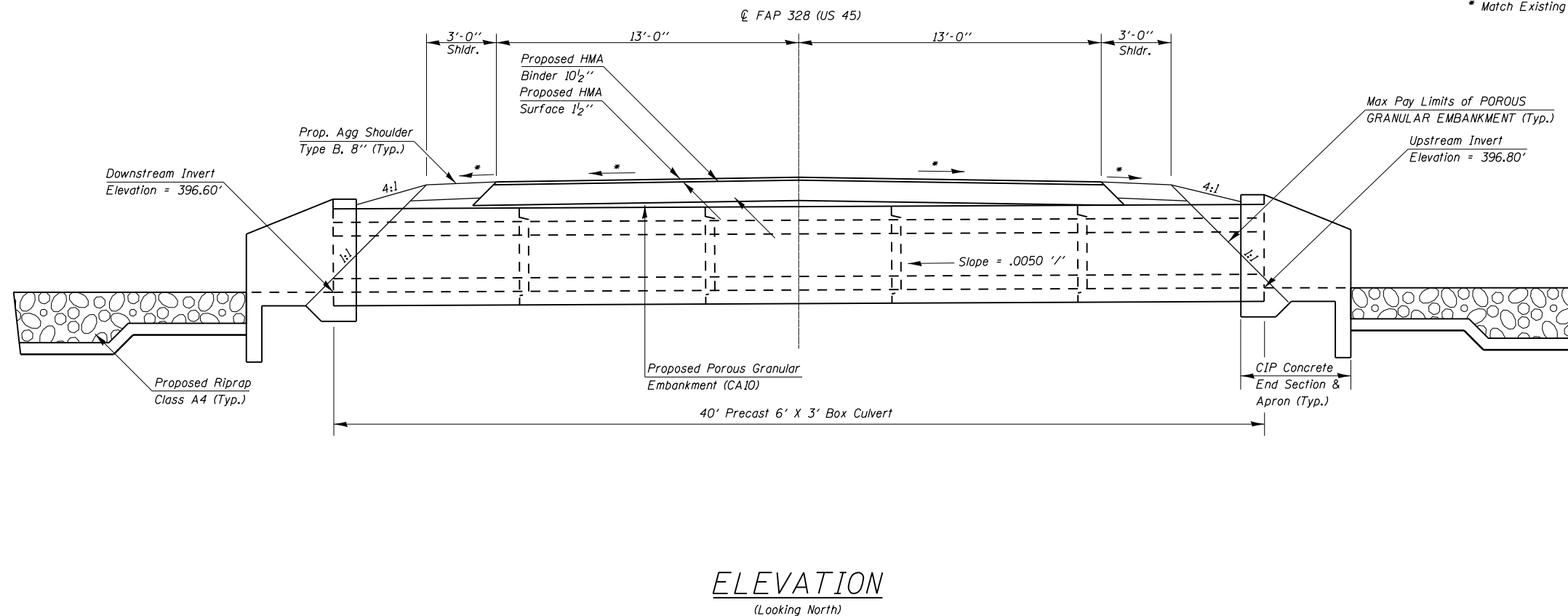
Precast Box Loading HL-93.
ASTM C 1577

HYDRAULIC DATA (50 YEAR DESIGN)

Drainage Area = 0.06 Sq Mi
 Design Waterway Opening = 16 Sq Ft
 Design Discharge = 54 CFS
 Design Headwater Elevation = 399.18 Ft
 100 Year Discharge = 63 CFS
 100 Year Headwater Elevation = 399.41 Ft
 Overtopping > 500 Yr = 154 CFS

FINAL SECTION AFTER CONSTRUCTION OF CAST-IN-PLACE APRONS

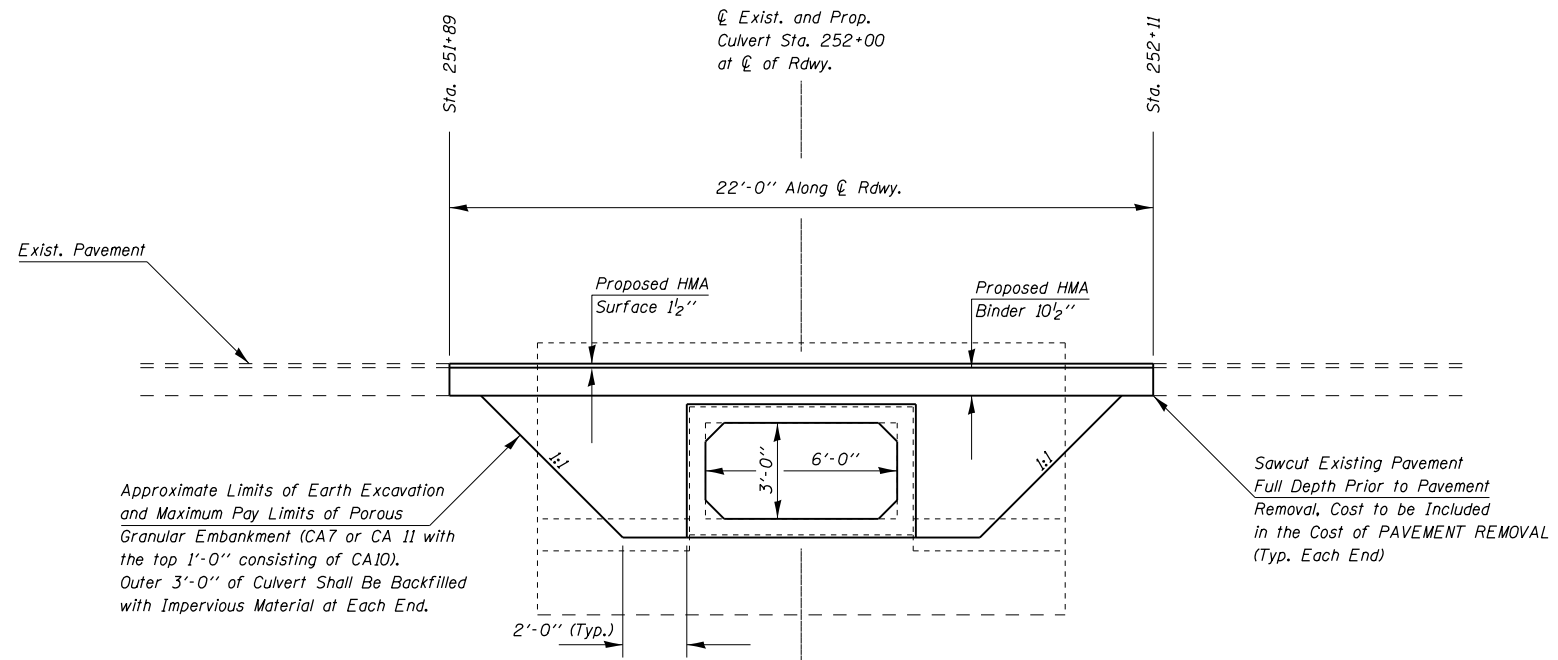
- * Match Existing Cross Slopes



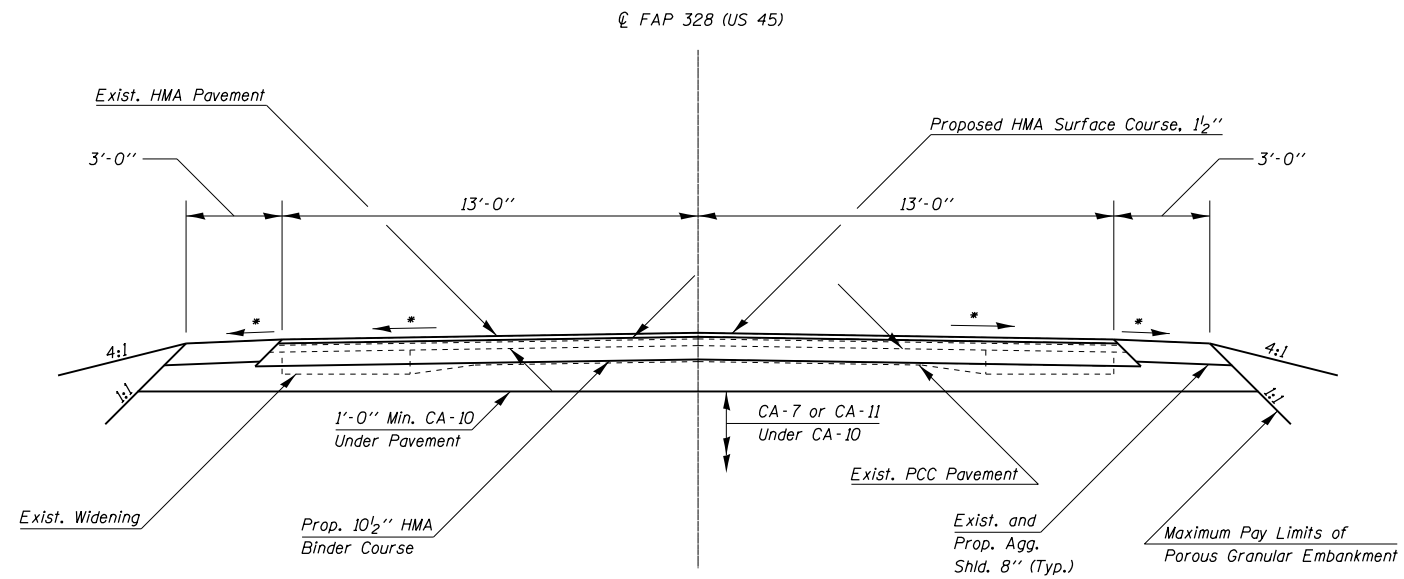
Precast Box Loading HL-93.
ASTM C 1577

FILE NAME =	USER NAME = \$USER\$	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TEMPORARY AND FINAL SECTIONS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
et:\pw\work\p\midot\adamson\d0325623\78313-sht-plan.dgn		DRAWN -	REVISED -			328	109B-2	WHITE	9	6
Default	PLOT SCALE = 6.0000' / in.	CHECKED -	REVISED -			CONTRACT NO. 78313				
	PLOT DATE = 8/13/2013	DATE -	REVISED -		SCALE:	SHEET	OF	SHEETS	STA.	TO STA.
						ILLINOIS FED. AID PROJECT				

LIMITS OF POROUS GRANULAR EMBANKMENT

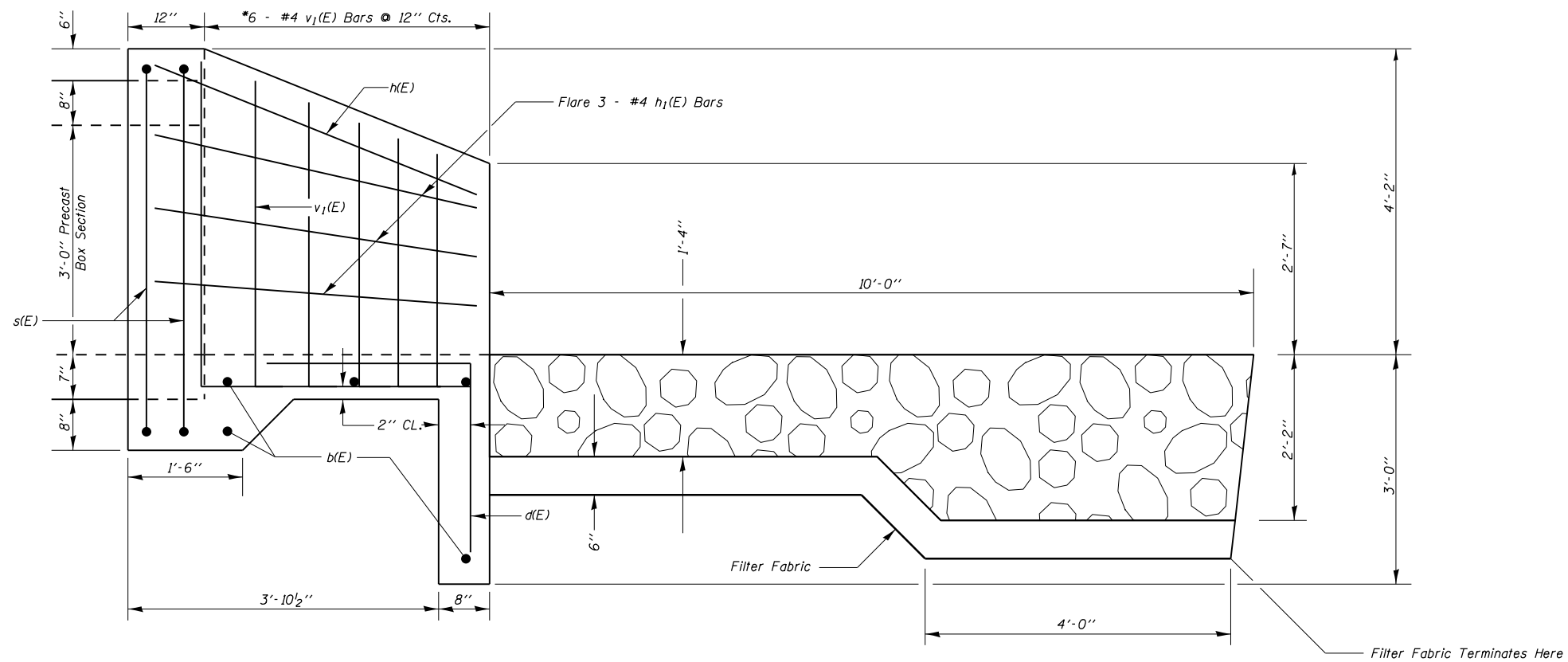


SECTION WITHIN PAVEMENT REMOVAL



* Match Existing Cross Slopes

FILE NAME =	USER NAME = \$USER*	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	LIMITS OF POROUS GRANULAR EMBANKMENT AND SECTION WITHIN PAVEMENT REMOVAL	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
Default	et:\pw\work\p\dot\adamson\d0325623\78313-sht-plan.dgn	DRAWN -	REVISED -			328	109B-2	WHITE	9	7	
	PLOT SCALE = 6.0000' / in.	CHECKED -	REVISED -			CONTRACT NO. 78313					
	PLOT DATE = 8/13/2013	DATE -	REVISED -			ILLINOIS FED. AID PROJECT					



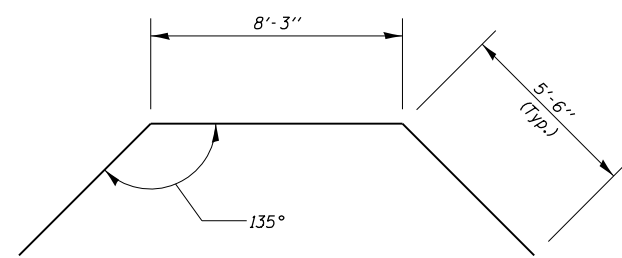
DESIGN STRESSES
 $f_y = 60,000 \text{ psi}$
 $f_c' = 3,500 \text{ psi}$

HALF SIDE ELEVATION

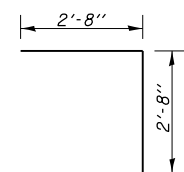
BILL OF MATERIAL
 (Total for 2 End Sections)

Bar	No.	Size	Length	Shape	
b(E)	10	#4	15'-6"	—	
d(E)	22	#4	5'-4"	J	
h(E)	2	#4	19'-3"	—	
h1(E)	12	#4	5'-8"	—	
s(E)	4	#4	26'-3"	□	
v1(E)	24	#4	5'-11"	—	
Concrete Box Culverts				Cu. Yd.	7.2
Reinforcement Bars, Epoxy Coated				Pound	420

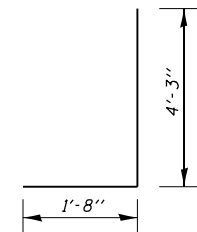
Reinforcement bars designated (E) shall be epoxy coated.
 *Cut or bend to fit.
 Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60.
 Exposed edges shall be beveled $\frac{3}{4}$ "



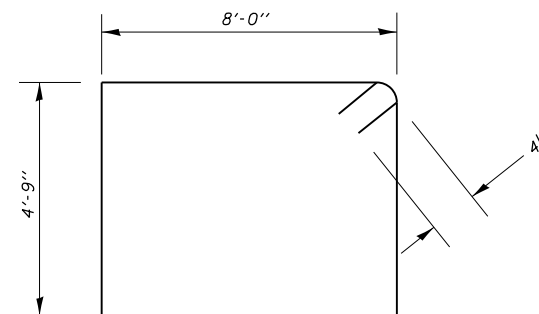
Bar h(E)



Bar d(E)



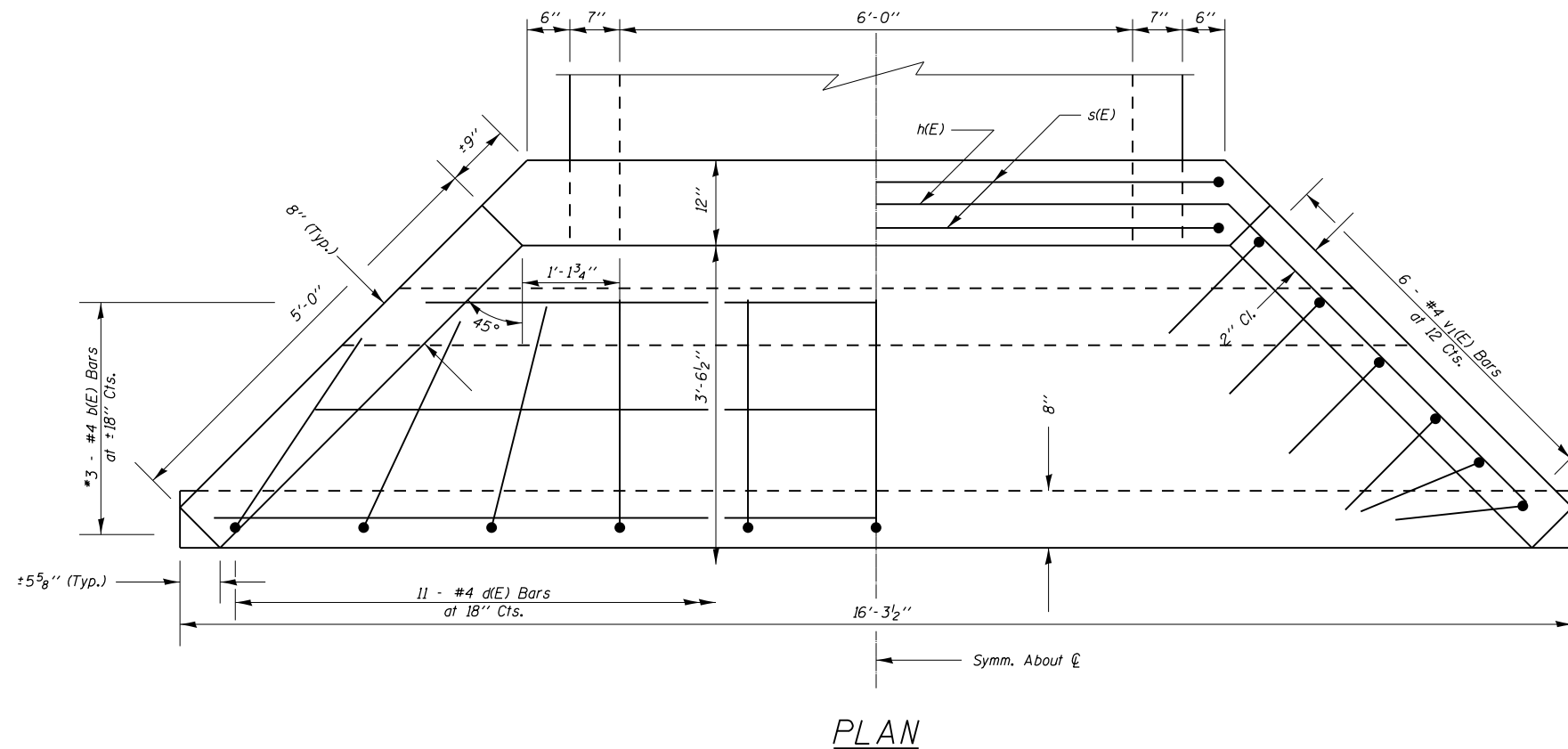
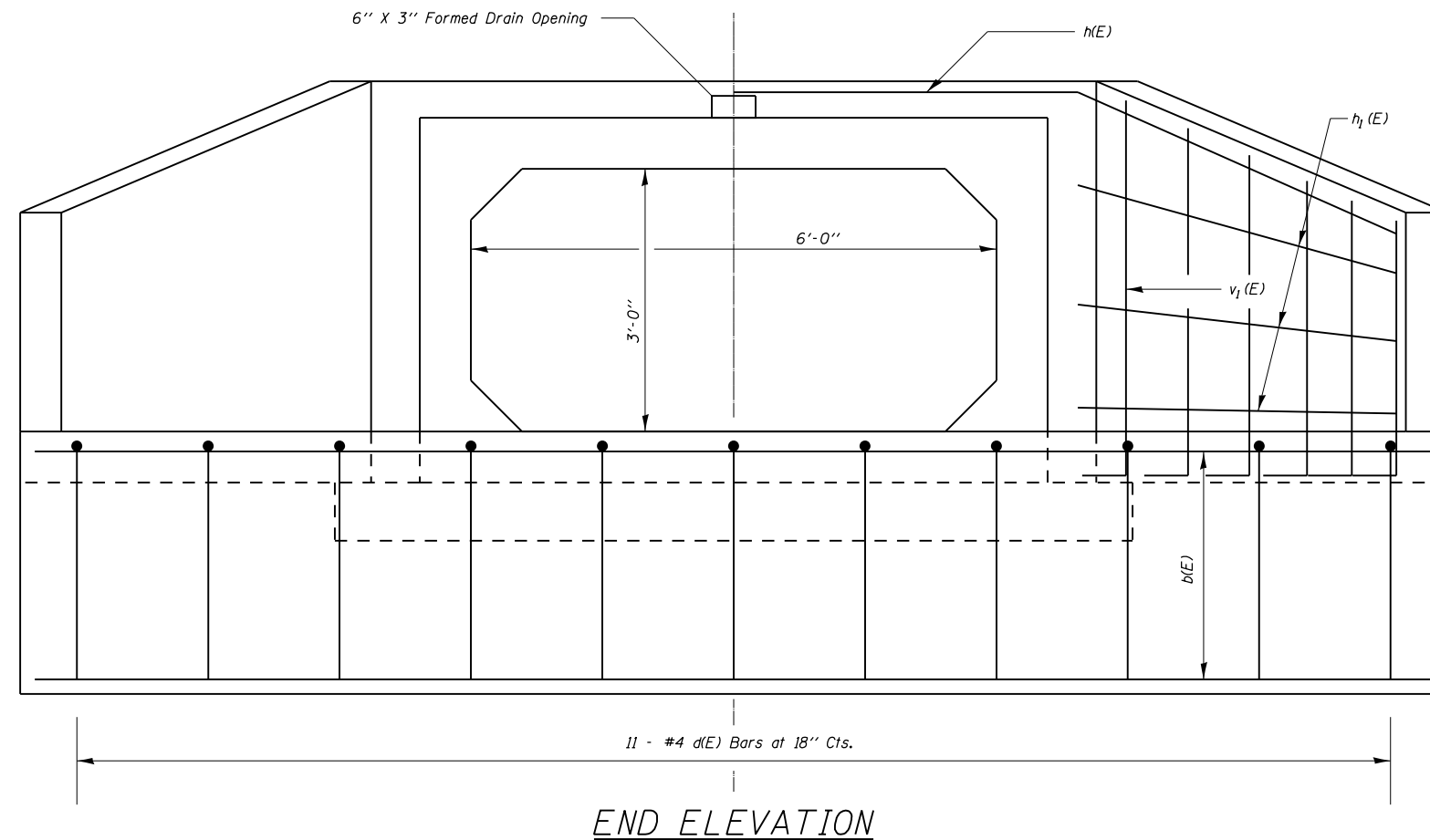
Bar v1(E)



Bar s(E)

Cast-in-Place
 Apron End Section Details
 White County
 SN 097-7090

FILE NAME =	USER NAME = #USER*	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CAST IN PLACE APRON END SECTION SN 097-7090			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
et:\pw\work\p\dot\adamsm\0325623\78313-shr-plan.dgn	PLOT SCALE = 2.0000' / in.	DRAWN -	REVISED -					328	109B-2	WHITE	9	8
MODELNAME	PLOT DATE = 8/13/2013	CHECKED -	REVISED -		SCALE: SHEET OF SHEETS STA. TO STA.			CONTRACT NO. 78313				
		DATE -	REVISED -		ILLINOIS FED. AID PROJECT							



* Cut or Bend to Fit
Work this sheet with Sheet 8 of 9.

**Cast-in-Place
Apron End Section Details
White County
SN 097-7090**

FILE NAME =	USER NAME = \$USER*	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CAST-IN-PLACE APRON END SECTION SN 097-7090			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
c:\pwork\pwork\adamsam\d0325623\78313-sht-plan.dgn		DRAWN -	REVISED -					328	109B-2	WHITE	9	9
\$MODELNAME*	PLOT SCALE = 2.0000' / in.	CHECKED -	REVISED -					CONTRACT NO. 78313				
	PLOT DATE = 8/13/2013	DATE -	REVISED -					SCALE:	SHEET	OF	SHEETS	STA.