03-06-2015 LETTING ITEM 053

STA, 89+00

PROJECT INCLUDES PUSHING AN 8'X6' PRECAST CONCRETE BOX CULVERT THRU AN EXISTING 10'X8' CONCRETE

PROPEXIST S.N. 078-1002

BOX CULVERT

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

PROPOSED HIGHWAY PLANS

SECTION 105BR-5 PROJECT ACF-0653 (030) **BOX CULVERT REPLACEMENT**

C-94-046-13

R2W COUNTY

END IMPROVEMENT STA. 92+00

LOCATION MAP NOT TO SCALE

GROSS LENGTH = 300.0 FT. = 0.057 MILE NET LENGTH = 300.0 FT. = 0.057 MILE

062-054934 LICENSED PROFESSIONAL ENGINEER EXPIRES: 11/30/2015

D-94-D22-13

10588-5

POTNAM

MENES CONTRACT NO. 68840

17 1

553



100 Lanter Court, Suite 1 Coëneviën E 62234

SDE Main Street Belleville & \$2220

\$1,1005 720 Olive, Suite 1660 St Lock MO 63101

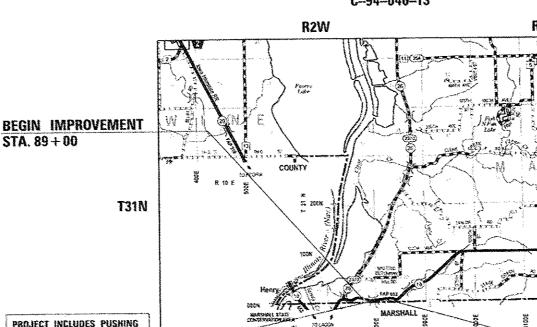
www.composition.com

ILLINOIS DESIGN FIRM LICENSE NO: 184,001115

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS Kensil a Stiendt of DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

PRINTED BY THE AUTHORITY

FAP ROUTE 653 (IL RTE 18) **PUTNAM COUNTY**



ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION 1-800-892-0123

PROJECT ENGINEER: RICH DOTSON 309-671-3455 PROJECT MANAGER: RON NOLTE 309-671-3470

CAT. NO. 034918-00D CONTRACT NO. 68B40

INDEX OF SHEETS

COVER SHEET

SOIL BORINGS

001001-02 AREAS OF REINFORCEMENT BARS

701901-04 TRAFFIC CONTROL DEVICES

SCALE IN FEET

CROSS SECTION HORIZ 1"=10"

CROSS SECTION VERT 1"=5"

PLAN PROFILE HORIZ

PROFILE VERT

RIGHT OF WAY MARKERS

SUMMARY OF QUANTITIES TYPICAL SECTIONS SCHEDULE OF QUANTITIES PLAN & PROFILE SHEET

RIPRAP PLACEMENT DETAIL

IL ROUTE 18 CROSS SECTIONS

GENERAL NOTES & JOB SPECIFIC NOTES

PRECAST BOX CULVERT 8'X6' (SPECIAL) DETAIL BOX CULVERT END SECTION DETAIL

000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS

DECIMAL OF AN INCH AND OF A FOOT

701006-05 OFF-RD OPERATIONS, 2L, 2W 15' (4.5 m) TO 24" (600 mm) FROM

701201-04 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS > 45 MPH

TRAVERSABLE PIPE GRATE FOR BOX CULVERTS DETAIL

SHEET NO.

13-14

001008

HIGHWAY STANDARDS

DESIGN DESIGNATION

ROADWAY CLASSIFICATION = MINOR ARTERIAL - RURAL DESIGN SPEED = 55 MPH CURRENT ADT = 1,250 DESIGN YEAR ADT (2031) = 1,525

Brian 7 teil 12/8/14

OMON CONTROL PE . BO DIRECTOR OF HIGHWAYS, CHIEF ENGINEER OF THE STATE OF ILLINOIS

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GENERAL NOTES

1. AVAILABILITY OF ELECTRONIC FILES

MICRO STATION AND GEOPAK FILES OF THIS PROJECT WILL BE MADE AVAILABLE TO THE CONTRACTOR. IF THERE IS A CONFLICT BETWEEN THE ELECTRONIC FILES AND THE PRINTED CONTRACT PLANS AND DOCUMENTS, THE PRINTED CONTRACT PLANS AND DOCUMENTS SHALL TAKE PRECEDENCE OVER THE ELECTRONIC FILES. THE CONTRACTOR SHALL ACCEPT ALL RISK ASSOCIATED WITH USING THE ELECTRONIC FILES AND SHALL HOLD THE DEPARTMENT HARMLESS FOR ANY ERRORS OR OMISSIONS IN THE ELECTRONIC FILES AND THE DATA CONTAINED THEREIN. ERRORS OR DELAYS RESULTING FROM THE USE OF THE ELECTRONIC FILES BY THE CONTRACTOR SHALL NOT RESULT IN AN EXTENSION OF TIME FOR ANY INTERIM OR FINAL COMPLETION DATE OR SHALL NOT BE CONSIDERED CAUSE FOR ADDITIONAL COMPENSATION. THE CONTRACTOR SHALL NOT USE, SHARE, OR DISTRIBUTE THESE ELECTRONIC FILES EXCEPT FOR THE PURPOSE OF CONSTRUCTING THIS CONTRACT. ANY CLAIMS BY THIRD PARTIES DUE TO USE OR ERRORS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL INCLUDE THIS DISCLAIMER WITH THE TRANSFER OF THESE ELECTRONIC FILES TO ANY OTHER PARTIES AND SHALL INCLUDE APPROPRIATE LANCUAGE BINDING THEM TO SIMILAR RESPONSIBILITIES.

2, TREE REMOVAL - UTILITY RELOCATION

TREE REMOVAL MAY BE NECESSARY PRIOR TO UTILITY COMPANIES BEING ABLE TO RELOCATE THEIR FACILITIES OUTSIDE THE CONSTRUCTION LIMITS. THE CONTRACTOR SHOULD COORDINATE ANY CONTRACT TREE REMOVAL ACTIVITIES WITH THE UTILITY COMPANIES TO ELIMINATE CONFLICTS AND POTENTIAL DELAYS CAUSED BY UTILITY TREE REMOVAL ACTIVITIES OR INCOMPLETE UTILITY RELOCATIONS.

3. PLAN ELEVATIONS - U. S. G. S. MEAN SEA LEVEL DATUM

ALL ELEVATIONS SHOWN ON THE PLANS ARE ESTABLISHED FROM U. S. C. S. MEAN SEA LEVEL DATUM.

4. COMMITMENTS

COMMITMENTS ARE NOT TO BE ALTERED WITHOUT THE WRITTEN APPROVAL OF ALL PARTIES TO WHICH THE COMMITMENT WAS MADE.

5. CLEARING

AT LOCATIONS WHERE CLEARING IS INDICATED ON THE PLANS BEYOND THE LIMITS OF THE PROPOSED EXCAVATION OR EMBANKMENT, THE CONTRACTOR SHALL RESTORE THE DISTURBED EARTH BY BLADING AND SHAPING TO BLEND WITH THE ADJACENT GROUND, THE CLEARING WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF EXCAVATION PAY ITEMS IN THE PLANS. PAYMENT FOR RESEEDING OR RESODDING WILL BE AS PROVIDED IN THE PLANS.

6. TREE REMOVAL

NO TREE REMOVAL SHALL OCCUR BETWEEN APRIL IST TO SEPTEMBER 30TH OF ANY YEAR.

THE DISTRICT FOUR TREE COMMITTEE SHOULD BE CONTACTED AND PRIOR APPROVAL OBTAINED FOR ANY TREE REMOVAL BEYOND THE LIMITS/LOCATIONS INCLUDED IN THE PLANS.

7. ENVIRONMENTAL REVIEWS

PRIOR TO THE USE OF ANY PROPOSED BORROW AREAS, USE AREAS (TEMPORARY ACCESS ROADS, DETOURS, RUN-AROUNDS, ETC.) AND/OR WASTE AREAS. THE CONTRACTOR SHALL FILE THE REQUIRED ENVIRONMENTAL RESOURCE REQUEST SURVEYS ACCORDING TO SECTION 107.22 OF THE STANDARD SPECIFICATIONS. THESE SURVEYS ARE REQUIRED IN ORDER FOR THE DEPARTMENT TO CONDUCT CULTURAL AND BIOLOGICAL RESOURCE SURVEYS FOR THE PROPOSED SITE.

THE REQUIRED ENVIRONMENTAL RESOURCE DOCUMENTATION SHALL INCLUDE THE FOLLOWING:

- . BDE FORM 2289 (ENVIRONMENTAL SURVEY REQUEST)
- BDE FORM 2290 (WASTE/USE AREA REVIEW)
- * A LOCATION MAP SHOWING THE SIZE LIMITS AND LOCATION OF THE USE AREA
- * COLOR PHOTOGRAPHS DEPICTING THE USE AREA
- . BORROW AREA ENTRY AGREEMENT FORM-D4 PIO101

PRIOR TO ANY WASTE MATERIALS BEING REMOVED FROM THE CONSTRUCTION SITE THE REQUIRED ENVIRONMENTAL RESOURCE SURVEYS SHALL BE DEFAULD AND FILED BY THE CONTRACTOR. EXCESS WASTE PRODUCTS REMOVED FROM THE CONSTRUCTION SITE SHALL BE DISPOSED OF AS REQUIRED IN SECTION 202.03 OF THE STANDARD SPECIFICATIONS.

ANY PROTRUDING METAL BARS SHALL BE REMOVED PRIOR TO THE DISPOSAL OF BROKEN CONCRETE AT APPROVED DISPOSAL SITES.

PLEASE NOTE THAT A MINIMUM OF FOUR WEEKS SHALL BE ALLOWED FOR THE DISTRICT TO OBTAIN THE REQUIRED WASTE SITE ENVIRONMENTAL CLEARANCES AND SIX WEEKS FOR THE REQUIRED BORROW SITE ENVIRONMENTAL CLEARANCES.

8. ORDERING LENGTH CONFIRMATION - DRAINAGE ITEMS

THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IN REGARD TO THE EXACT LENGTH OF THE BOX/PIPE CULVERTS, STORM SEWERS, AND/OR PIPE DRAINS REQUIRED PRIOR TO ORDERING THESE ITEMS. THE MANUFACTURER SHALL DETERMINE THE NUMBER OF SEGMENTS TO BE CAST FOR THE BOX CULVERT END SECTIONS.

9. RIGHT-OF-WAY MARKERS

WHEN INSTALLING RIGHT-OF-WAY MARKERS, CARE SHALL BE TAKEN TO NOT DISTURB ANY EXISTING PROPERTY/RIGHT-OF-WAY PINS. IF A PROPERTY/RIGHT-OF-WAY PIN IS FOUND AT THE LOCATION OF A PROPOSED RIGHT-OF-WAY MARKER, THE MARKER SHALL BE PLACED ONE (1) FOOT IN FRONT OF THE PIN.



Status of Utilities

 Name of Utility Company
 Route
 FAP 653 (IL 18)

 Section
 105BR-5

 Frontier North, Inc.
 County
 Putnam

 Contract No.
 68B40

 Catalog No.
 034918-00D

Route	Offset	Location	Type of Utility	Type of Conflict	Disposition
IL 18	38' Rt	89+00 to 91+25	Copper Cable	Box culvert extension	Relocate
····			····		ļ
·	- 				
	 				
		······ -·····			

NOTE: Please check all your facilities within the construction limits of this project.

JOB SPECIFIC NOTES

10. MAINTENANCE OF TRAFFIC TRAFFIC SAFETY

THE EXISTING GUARDRAIL SHALL REMAIN IN PLACE THROUGHOUT THE DURATION OF THE PROJECT OR AT THE APPROVAL OF THE ENGINEER.

NO OVERNIGHT LANE CLOSURES WILL BE ALLOWED,

THE EXISTING SIGNS SHALL BE REMOVED AND STORED OFF SITE UNTIL PROJECT COMPLETION. ONCE THE PROJECT IS COMPLETE THE SIGNS SHALL BE REINSTALLED AT THE LOCATIONS DIRECTED BY THE ENGINEER. THE EXISTING WEIGHT LIMIT SIGNS SHALL BE REMOVED AND SALVAGED. THESE WEIGHT LIMIT SIGNS SHALL BE DELIVERED TO THE LOCAL DISTRICT 4 OPERATIONS YARD, THE COST FOR THE SIGN REMOVAL, STORAGE, AND REINSTALLATION SHALL BE INCLUDED IN THE COSTS FOR EARTH EXCAVATION.

11. APPROXIMATE QUANTITIES

THE FOLLOWING ITEMS AND APPROXIMATE QUANTITIES ARE INCLUDED IN THE SUMMARY OF QUANTITIES IN ORDER TO ESTABLISH A UNIT COST FOR WORK WHICH MAY BE REQUIRED TO CONSTRUCT THIS SECTION. THE ACTUAL QUANTITY OF EACH ITEM SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL FOR STRUCTURES POROUS GRANULAR EMBANKMENT

36 CU YDS 36 CU YDS

 	
	OATES ASSOCIATE
ILLINOIS DESIGN FIRM	Crustiveling + Architectu

USER NAME = keithbr	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE * 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE > 12/11/2014	DATE -	REVISED -

STATE OF	ILLINOIS
DEPARTMENT OF	TRANSPORTATION

	GENER	IAL N	IOTES	& J0	SPECIFIC	: NOTES		F.A.P. RTE.	SECTION	COUNTY	TOTAL	
								653	1058R-5	PUTNAM	17	2
										CONTRACT		58840
SCALE:	SHEET	1	OF 1	SHEE	STA.	TO	STA.	FLLINOIS FED. AND PROJECT			**************************************	

					0040 80/20 FED/STATE
SI	SP	CODE NO.	ITEM	in T	TOTAL QUANTITY
	•	20100500	TREE REMOVAL. ACRES	ACRE	0.5
		20200100	EARTH EXCAVATION	CU YD	1.175
		20700220	POROUS GRANULAR EMBANKMENT	CU YD	36
		21101615	TOPSOIL FURNISH AND PLACE, 4"	SO YD	2,070
		25000210	SEEDING, CLASS 2A	ACRE	0,5
		25100630	EROSION CONTROL BLANKET	SO YO	2,070
		28000400	PERIMETER EROSION BARRIER	FOOT	281
		28100107	STONE RIPRAP, CLASS A4	SQ YD	729
		28200200	FILTER FABRIC	SQ YD	729
		48102100	AGGREGATE WEDGE SHOULDER, TYPE B	TON	22
		50200450	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL FOR STRUCTURES	CÚ YĐ	36
		54001001	BOX CULVERT END SECTIONS, CULVERT NO. 1	EACH	2
	•	54260311	TRAVERSABLE PIPE GRATE	FOOT	215
		63200310	GUARDRAIL REMOVAL	FOOT	358

				80/20 FED/STATE
SI SF	CODE NO.	ITEM	UNIT	TOTAL QUANTITY
	66600105	FURNISHING AND ERECTING RIGHT OF WAY MARKERS	EACH	9
	67100100	MOBILIZATION	L SUM	1
	70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1
*	x0300015	CONCRETE WINGWALL REMOVAL	EACH	1
*	X2030300	CHANNEL EXCAVATION (SPECIAL)	CU YD	105
•	X5012610	CONCRETE HEADWALL REMOVAL PARTIAL	EACH	2
*	X5015225	PIPE CULVERT REMOVAL (SPECIAL)	FOOT	26
•	×5400806	PRECAST CONCRETE BOX CULVERTS 8' X 6' (SPECIAL)	FOOT	48
	Z0013798	CONSTRUCTION LAYOUT	L SUM	i
at a second seco			11 10 10 10 10 10 10 10 10 10 10 10 10 1	
	Andreas and Andrea			***************************************
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NOTES: SP - SEE PROJECT SPECIFIC SPECIAL PROVISIONS SI - SPECIALTY ITEM

0040

OATES ASSOCIATES Engineering + Associates

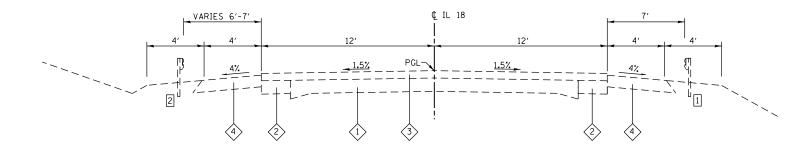
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	PLOT DATE * 12/8/2014	DATE -	REVISED -

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES						F.A.P. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET ND.	
							653	1058R-5	PUTNAM	17	3
	,								CONTRACT	NO. 6	8840
CALE:	SHEET	1	OF 1	SHEETS	STA.	TO STA.		ILLINOIS FED. AT	O PROJECT		

PROPOSED IL ROUTE 18

STA. 89+00 TO STA. 92+00



EXSITING IL ROUTE 18

STA. 89+00 TO STA. 92+00

TYPICAL SECTION LEGEND

1 EXISTING PCC PAVEMENT

2 EXISTING HMA WIDENING

3 EXISTING HMA OVERLAY

4 EXISTING HMA SHOULDER

) PROPOSED AGGREGATE WEDGE SHOULDER, TYPE B

6 PROPOSED TOPSOIL FURNISH AND PLACE, 4"

TYPICAL SECTION NOTES

1 EXISTING GUARDRAIL FROM STA. 89+37 TO STA. 91+16

2 EXISTING GUARDRAIL FROM STA. 89+87 TO STA. 91+66

FROM STA. 89+18 TO STA. 91+24, ASSUME 2" DEPTH

FROM STA. 89+71 TO STA. 91+80, ASSUME 2" DEPTH

SEE CROSS SECTIONS FOR GRADING

Ϊl		
NAME		OATES ASSOCIATES Engineering + Architecture
FILE		
Ξ	ILLINOIS DESIGN FIRM	LICENSE NO: 184.001115

USER NAME = brian.heil	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 100.0000 '/ in.	CHECKED -	REVISED -	
PLOT DATE = 12/8/2014	DATE -	REVISED -	

STATE	: OF	FILLINOIS	
DEPARTMENT	OF	TRANSPORTATION	

		TYPICAL SE	CTIONS		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
					653	105BR-5	PUTNAM	17	4
							CONTRAC	T NO. 6	8B40
SCALE:	SHEET 1	OF 1 SHEETS	STA.	TO STA.		ILLINOIS FED. A	ID PROJECT		

EARTHWORK

			EARTH		EARTHWORK	CHANNEL					
STATION	STATION	EARTH	EXCAVATION	EMBANKMENT	BALANCE	EXCAV					
		EXCAVATION	ADJUSTED		WASTE (+) OR	SPL					
			FOR		SHORTAGE (-)						
			SHRINKAGE								
			(NOTE 1)	(NOTE 2)	(NOTE 3)						
		(CU YD)	(CU YD)	(CU YD)	(CU YD)	(CU YD)					
IL ROUTE 18											
89+18	91+80	1,175	1,058	25	1,033						
S.N. 078-2500 CULVERT											
90+54						105					
TOTAL	•	1,175	1,060	25	1,035	105					

- EARTHWORK NOTES:

 1. ESTIMATED SHRINKAGE FACTOR = 10%.

 2. APPROXIMATE EMBANKMENT QUANTITY IS SHOWN FOR INFORMATION ONLY.

 3. APPROXIMATE EARTHWORK BALANCE IS SHOWN FOR INFORMATION ONLY.

CULVERT REMOVAL

			EXISTING	PIPE CUL
STATION	OFFSET	SIZE	CULVERT	REMOV
			TYPE	SPL
		(INCHES)		(FOOT)
90+41	LT	15	CMP	13
90+63	LT	15	СМР	13
TOTAL				26

ROW MARKERS

		FUR ERECT
		ROW
STATION	OFFSET	MARKERS
		(EACH)
89+50.00	40.00' LT	1
89+75.00	40.00' RT	1
89+95.00	110 . 00' LT	1
90+00.00	70.00' RT	1
90+00.00	160 . 00′ RT	1
90+75.00	110 . 00′ LT	1
90+75.00	160 . 00′ RT	1
91+15.00	40.00' RT	1
92+00.00	40.00' LT	1
TOTAL		9

TREE REMOVAL

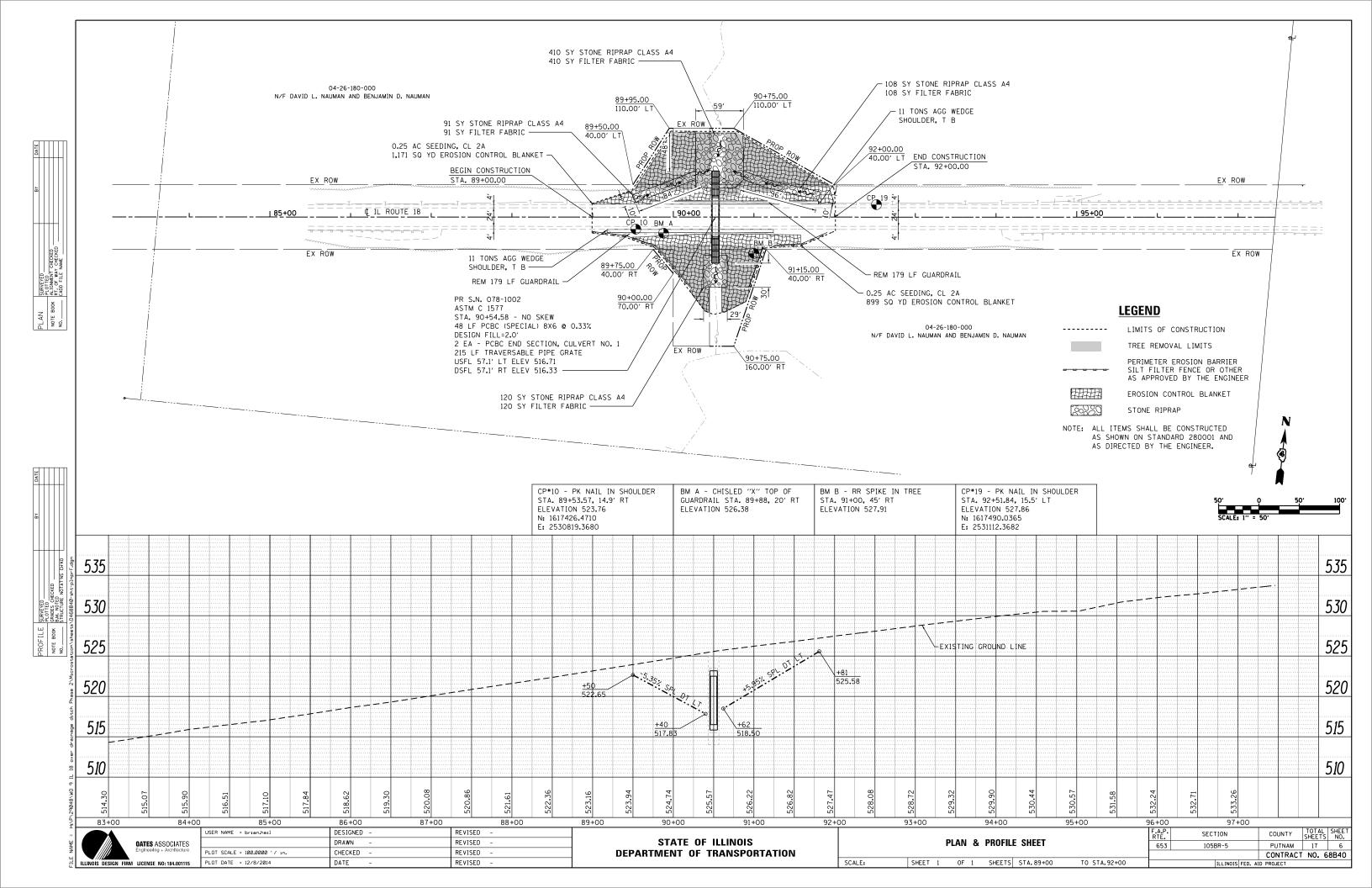
STATION	STATION	OFFSET	TREE REMOV ACRES
			(ACRE)
89+50	91+93	LT	0.25
89+75	91+14	RT	0.25
TOTAL			0.50

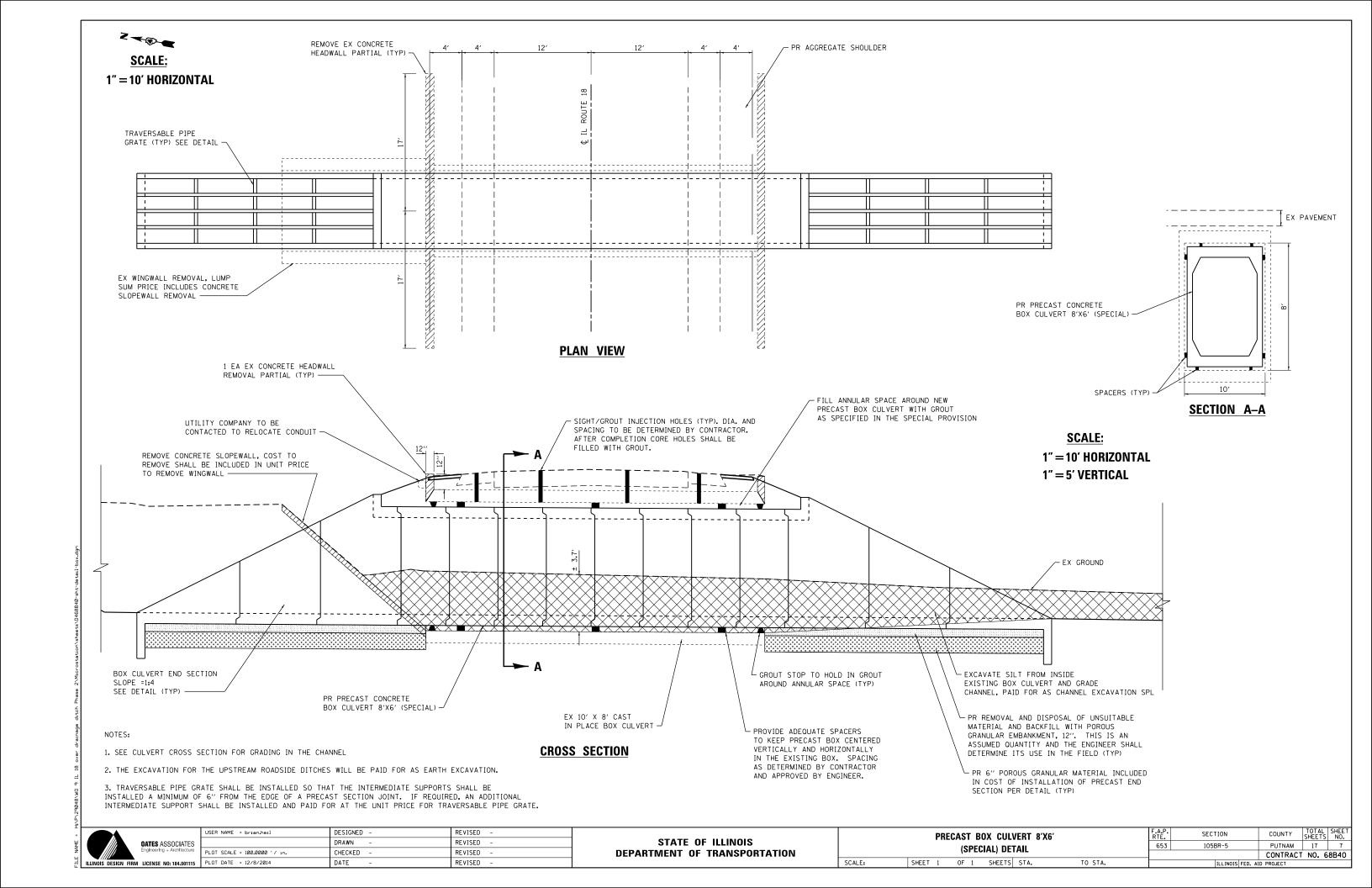
PRECAST BOX CULVERT

			DESIGN FILE	_ (FT)	POROUS
STATION	SIZE	SKEW	EDGE OF SHOULDER	MAXIMUM	GRAN
	(SPAN × HEIGHT)		(MIN)		EMBANK
					(TON)
90+54	8X6	NO SKEW	2.0	2.0	NONE

USER NAME = brian.heil	DESIGNED -	REVISED -	
	DRAWN -	REVISED -	
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -	
PLOT DATE = 12/8/2014	DATE -	REVISED -	

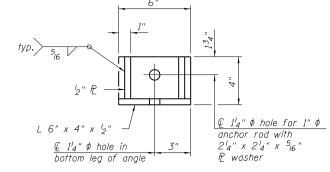
				SCHEE	ULES		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
							653	105BR-5	PUTNAM	17	5
									CONTRACT	NO. 6	8B40
SCALE:	SHEET	1	OF :	1 SHEETS	STA.	TO STA.		ILLINOIS FED. A	ID PROJECT		



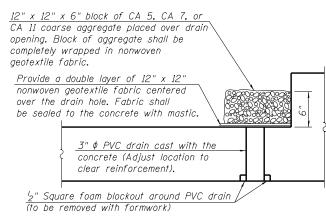


Pay Limits for Precast Pay Limits for Box Concrete Box Culverts Culvert End Sections 3′-0" * Precast box culvert end section joints with a total vertical height less than 8'-0" shall only require one culvert tie placed at midheight. r > D3" ∮ Drain holes $\downarrow D$ Toewall 8' cts. max., typ. Min. 6" thick bed of porous granular material Box Culvert End Section Length (See Roadway Plans) See General Notes regarding number of required segments. ELEVATION

Headwall -2'-0" typ. Span ∖Porous granular



RESTRAINT ANGLE DETAIL



SECTION A-A

(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.) (Sheet 1 of 2)

€ 1" ¢ anchor rods with 2^{l}_{4} " x 2^{l}_{4} " x $^{5}_{16}$ " f_{2}^{c} washers installed in 1^{l}_{8} " ϕ formed holes in culvert walls SECTION B-B (Showing end section tie details) 3'-0" £ 14" x 2½" Slotted hole, typ. typ. m 0 Ф

SCB-TES-1 USER NAME = DESIGNED REVISED CHECKED REVISED PLOT SCALE = DRAWN REVISED CHECKED PLOT DATE = REVISED

STATE OF ILLINOIS **DEPARTMENT OF TRANSPORTATION** **BOX CULVERT END SECTION DETAIL** SHEET NO. 1 OF 2 SHEETS

SECTION COUNTY 653 105BR-5 PUTNAM 17 8 CONTRACT NO. 68B40

—Restraint angle

$\frac{1^{3}4''}{typ}$.

GENERAL NOTES

Box Culvert End Sections shall be constructed according to the requirements of Section 540 of the Standard Specifications except as modified herein. This work will

Sections of the culvert number specified.

See roadway plans for embankment slope (V:H).

Culverts except as modified herein.

Specifications unless noted otherwise.

required modifications.

determined by the Contractor.

be measured for payment as each, with each end of each culvert being one each. End sections will be paid for at the contract unit price per each for Box Culvert End

Typical box section dimensions, materials, and reinforcement details for Box Culvert

Number of segments shown in Elevation is for example only. Length and number of precast box sections required to construct Box Culvert End Sections shall be

1" ϕ anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for 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 M111 or M232 as applicable. 2^{1}_{4} " x 2^{1}_{4} " x 2^{1}_{6} " 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 $\frac{1}{2}$ 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. 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 contract

unit price for Box Culvert End Sections of the culvert number specified.

Drain holes shall conform to the requirements of Article 503.11 of the Standard

For end sections with traversable pipe grate systems, see grate detail sheet for

Nonwoven geotextile fabric shall conform to the requirements of Article 1080.01. The

Reinforcement bars designated (E) shall be epoxy coated.

minimum weight of the fabric shall be 6 oz. / sq. yd..

End Sections shall be according to the requirements of ASTM C1577 as required for

the design of the portion of the culvert within the limits of Precast Concrete Box

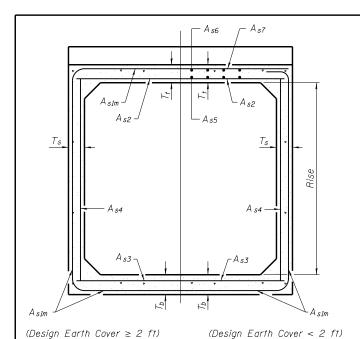
TIE PLATE DETAIL

END VIEW

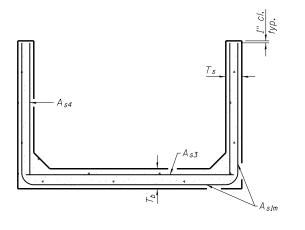
PLAN

11-5-13

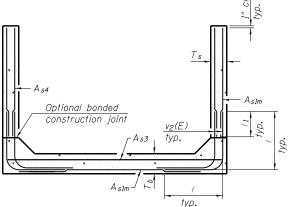
© 3" ¢ Drain hole



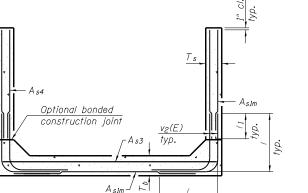
SECTION C-C



SECTION D-D



ALTERNATE SECTION D-D



	Asim REINFORCEMENT												
(in.²/ ft)													
T_s (in.) Rise (ft)	2	3	4	5	6	7	8	9	10	11	12		
4	0.19	0.17											
5	0.26	0.21	0.18										
6	0.22	0.26	0.23	0.22									
7	0.25	0.33	0.59	0.27	0.28								
8	0.40	0.35	0.43	0.39	0.36	0.34	0.40						
9	0.44	0.39	0.35	0.43	0.40	0.37	0.36	0.48					
10	0.48	0.42	0.38	0.47	0.44	0.41	0.38	0.42	0.56				
11	0.52	0.45	0.54		0.46		0.41		0.50	0.65			
12	0.55	0.49	0.58		0.50		0.45		0.46		0.75		

(Asim reinforcement based upon welded wire fabric conforming to AASHTO M 55 or M 221).

1 DIMENSION

#3 bar = 2'-0"

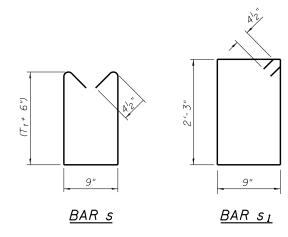
#4 bar = 2'-8" #5 bar = 3'-4"

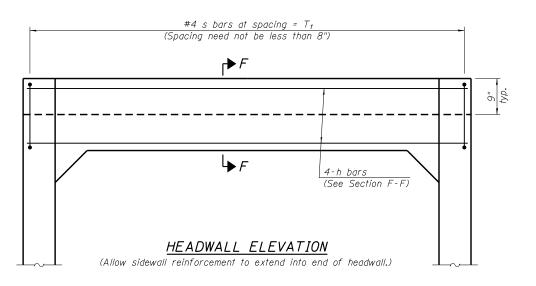
#6 bar = 3'-11"

Alternate Section D-D is provided to allow the Contractor the option of casting the bottom slab of the end section first followed by construction of the sidewalls using conventional forming methods. Shop drawings that detail slab thickness and reinforcement layout shall be submitted to the Engineer for review and approval when using Alternate Section D-D.

The size and spacing of the $v_2(E)$ bars shall provide a minimum reinforcement area along each face of the walls (in. 2/ft) equal to 1.10*(Asim). v2(E) bars may consist of #3 thru #6 size reinforcement bars and the longitudinal spacing shall not exceed the lesser of the wall thickness or 8 inches.

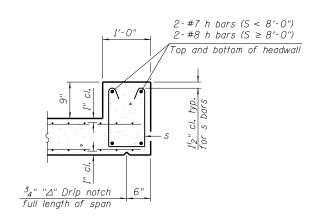
Bonded construction joints shall be prepared according to Article 503.09 of the Standard Specifications.





TOEWALL CONSTRUCTION SEQUENCE

- 1. Perform excavation and construct toewall.
- 2. Backfill according to the applicable paragraphs of Article 502.10 of the Standard Specifications 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, toewall may be poured directly against the soil. When poured directly against the soil, the clear cover of the sides and bottom of the toewall shall be increased to 3" by increasing the size of the toewall.



SECTION F-F

TES-2	11-5-13
-------	---------

SCB-

FILE NAME =

3" ¢ corrugated PE pipe per Article 1040.04 of the

6-#5 h₁ bars placed as shown

#4 s_1 bars at

1'-0" cts., max.

SECTION E-E

** 1¹2" cl.

1'-0"

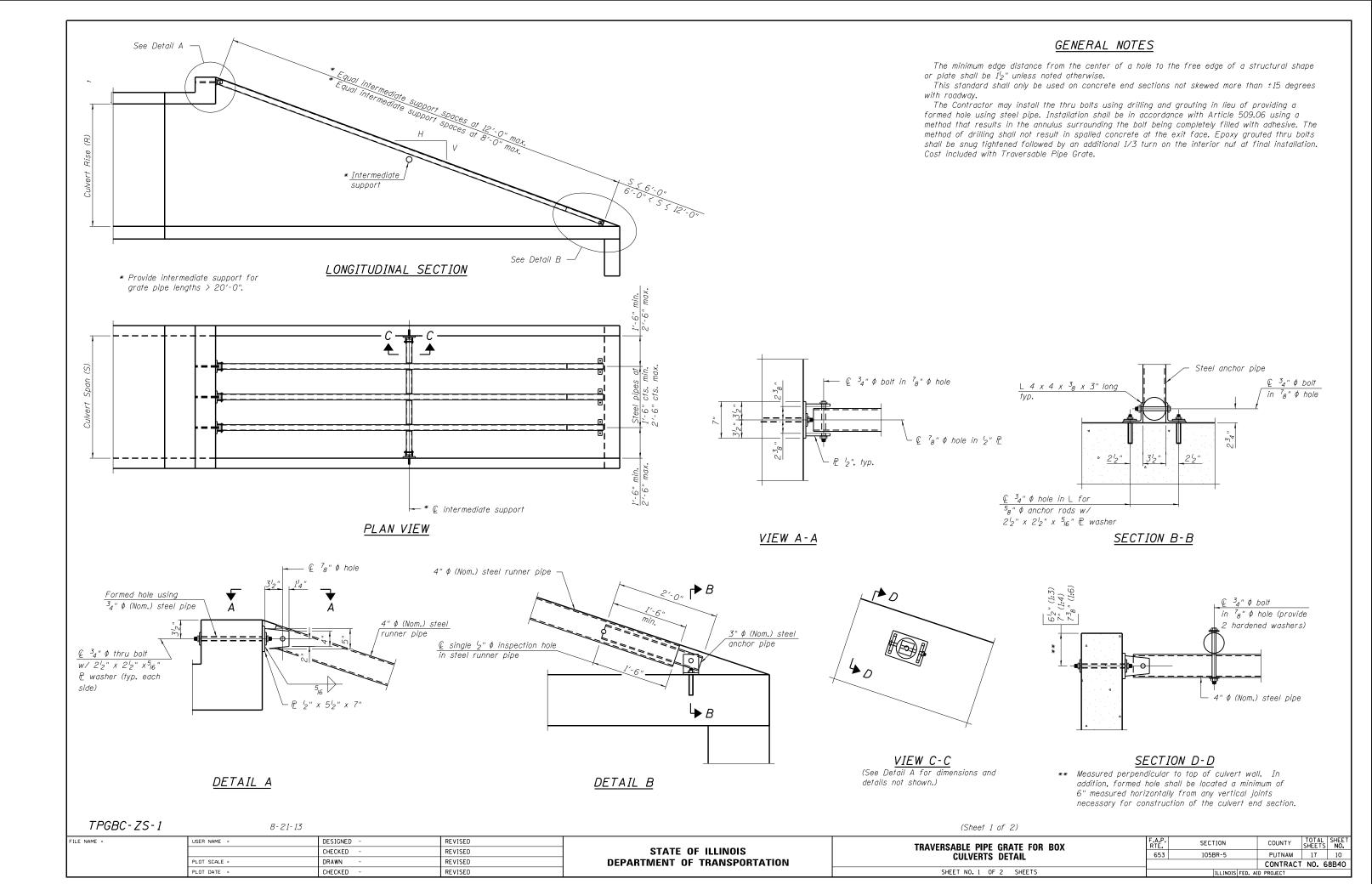
Standard Specifications.

Fill with non-shrink grout

#4 $v_1(E)$ bars drilled and grouted into toewall in 9" min.

deep holes at 1'-6" cts., max.

3- <i>TES-2</i>	11-5-13				(Sheet 2 of 2)		
=	USER NAME =	DESIGNED -	REVISED			F.A.P. SECTION	COUNTY SHEET NO.
		CHECKED -	REVISED	STATE OF ILLINOIS	BOX CULVERT END SECTION DETAIL	653 105BR-5	PUTNAM 17 9
	PLOT SCALE =	DRAWN -	REVISED	DEPARTMENT OF TRANSPORTATION			CONTRACT NO. 68B40
	PLOT DATE =	CHECKED -	REVISED		SHEET NO. 2 OF 2 SHEETS	ILLINOIS FED.	AID PROJECT



PIPE-GRATE SCHEDULE FOR BOX CULVERT END SECTIONS

_						าก					
	recast B rt Dimen			1:3			1:4			1 : 6	
Carve	i Dillien	1310113	Main Pipe	Int. Support	Total Length	Main Pipe	Int. Support	Total Length	Main Pipe	Int. Support	Total Length
S (ft)	R (ft)	$T_t(in)$	No. / Length	No. / Length	of Pipe	No. / Length	No. / Length	of Pipe	No. / Length	No. / Length	of Pipe
4	2	71/2"	1 @ 8'-10"	N/A	8′-10"	1 @ 11'-7"	N/A	11'- 7"	1 @ 17'-2"	N/A	17′-2"
4	2	5	1 @ 8'-2"	N/A	8′-2"	1 @ 10'-8"	N/A	10′-8"	1 @ 15′-11"	N/A	<i>15 ′- 11"</i>
4	3	712"	1 @ 12'-0"	N/A	12′-0"	1 @ 15′-8"	N/A	15′-8"	1 @ 23'-3"	1 @ 3'-7"	26′-10"
4	3	5	1 @ 11'-4"	N/A	11'-4"	1 @ 14'-10"	N/A	14′-10"	1 @ 22'-0"	1 @ 3'-7"	25′-7"
4	4	712"	1 @ 15'-2"	N/A	<i>15′-2"</i>	1 @ 19'-10"	1 @ 3'-7"	23′-5"	1 @ 29'-4"	2 @ 3'-7"	36′-6"
4	4	5	1 @ 14'-6"	N/A	14′-6"	1 @ 18′-11"	N/A	18′-11"	1 @ 28'-1"	2 @ 3'-7"	35′-3"
5	2	8	1 @ 8'-11"	N/A	8′-11"	1 @ 11'-9"	N/A	11'-9"	1 @ 17'-5"	N/A	17′-5"
5	2	6	1 @ 8′-5"	N/A	8′-5"	1 @ 11'-1"	N/A	11'- 1"	1 @ 16'-5"	N/A	16′-5"
5	3	8	1 @ 12'-1"	N/A	12′-1"	1 @ 15'-10"	N/A	15′-10"	1 @ 23'-6"	1 @ 4'-7"	28′-1"
5	3	6	1 @ 11'-7"	N/A	11'-7"	1 @ 15'-2"	N/A	15′-2"	1 @ 22'-6"	1 @ 4'-7"	27′-1"
5	4	8	1 @ 15'-3"	N/A	15′-3"	1 @ 20'-0"	1 @ 4'-7"	24'-7"	1 @ 29'-7"	2 @ 4'-7"	38′-9"
5	4	6	1 @ 14'-9"	N/A	14'-9"	1 @ 19'-3"	N/A	19'- 3"	1 @ 28'-7"	2 @ 4'-7"	37′-9"
5	5	8	1 @ 18'-5"	N/A	18'-5"	1 @ 24'-1"	2 @ 4'-7"	33'-3"	1 @ 35′-8"	3 @ 4'-7"	49′-5″
5	5	6	1 @ 17'-11"	N/A	17'-11"	1 @ 23'-5"	1 @ 4'-7"	28'-0"	1 @ 34'-8"	2 @ 4'-7"	43′-10"
6	2	8	2 @ 8'-11"	N/A	17′-10"	2 @ 11′-9"	N/A	23'-6"	2 @ 17′-5"	N/A	34′-10"
6	2	7	2 @ 8'-8"	N/A	17'-4"	2 @ 11'-5"	N/A	22'-10"	2 @ 16'-11"	N/A	33′-10"
6	<i>3</i>	<i>8 7</i>	2 @ 12'-1" 2 @ 11'-10"	N/A	24'-2" 23'-8"	2 @ 15'-10" 2 @ 15'-6"	N/A N/A	31'-8" 31'-0"	2 @ 23'-6"	1 @ 5'-7" 1 @ 5'-7"	52'-7" 51'-7"
6	4			N/A					2 @ 23'-0"		
6	4	<i>8 7</i>	2 @ 15'-3"	N/A N/A	30′-6" 30′-0"	2 @ 20'-0" 2 @ 19'-8"	1 @ 5'-7" 1 @ 5'-7"	45'-7" 44'-11"	2 @ 29'-7"	2 @ 5'-7" 2 @ 5'-7"	70′-4" 69′-4"
6 6	5	8	2 @ 15'-0" 2 @ 18'-5"	N/A N/A	36'-10"	2 @ 19'-8" 2 @ 24'-1"	2 @ 5'-7"	59'-4"	2 @ 29'-1" 2 @ 35'-8"	3 @ 5'-7"	88'-1"
6	5	7	2 @ 18'-2"	N/A	36'-4"	2 @ 23'-9"	2 @ 5'-7"	59 - 4 58'-8"	2 @ 35'-2"	2 @ 5'-7"	81′-6"
6	6	8	2 @ 21'-7"	1 @ 5'-7"	36 - 4 48'- 9"	2 @ 23 -9 2 @ 28'-3"	2 @ 5'-7"	58 - 8 67'-8"	2 @ 35 -2 2 @ 41'-9"	3 @ 5'-7"	100′-3"
6	6	7	2 @ 21'-4"	1 @ 5'-7"	48'-3"	2 @ 27'-11"	2 @ 5'-7"	67'-0"	2 @ 41'-3"	3 @ 5'-7"	99'-3"
7	2	8	2 @ 8'-11"	N/A	17'-10"	2 @ 11'-9"	N/A	23'-6"	2 @ 17'-5"	N/A	34'-10"
7	3	8	2 @ 12'-1"	N/A	24'-2"	2 @ 15'-10"	N/A	31'-8"	2 @ 23'-6"	2 @ 6'-7"	60'-2"
7	4	8	2 @ 15'-3"	N/A	30′-6"	2 @ 20'-0"	2 @ 6'-7"	53'-2"	2 @ 29'-7"	3 @ 6'-7"	78′-11"
7	5	8	2 @ 18'-5"	N/A	36′-10"	2 @ 24'-1"	3 @ 6'-7"	67'-11"	2 @ 35′-8"	4 @ 6'-7"	97′-8"
7	6	8	2 @ 21'-7"	2 @ 6'-7"	56'-4"	2 @ 28'-3"	3 @ 6'-7"	76′-3"	2 @ 41'-9"	5 @ 6'-7"	116'-5"
7	7	8	2 @ 24'-9"	3 @ 6'-7"	69′-3"	2 @ 32'-4"	4 @ 6'-7"	91'-0"	2 @ 47'-10"	6 @ 6'-7"	135′-2"
8	2	8	3 @ 8'-11"	N/A	26′-9"	3 @ 11'-9"	N/A	35′-3"	3 @ 17'-5"	N/A	52'-3"
8	3	8	3 @ 12'-1"	N/A	36′-3"	3 @ 15'-10"	N/A	47′-6"	3 @ 23'-6"	2 @ 7'-7"	85′-8"
8	4	8	3 @ 15′-3"	N/A	45′-9"	3 @ 20'-0"	2 @ 7'-7"	75′-2"	3 @ 29'-7"	3 @ 7'-7"	111′-6"
8	5	8	3 @ 18'-5"	N/A	55′-3"	3 @ 24'-1"	3 @ 7'-7"	95′-0"	3 @ 35′-8"	4 @ 7'-7"	137′-4"
8	6	8	3 @ 21'-7"	2 @ 7'-7"	79′-11"	3 @ 28'-3"	3 @ 7'-7"	107′-6"	3 @ 41'-9"	5 @ 7'-7"	163′-2"
8	7	8	3 @ 24'-9"	3 @ 7'-7"	97′-0"	3 @ 32'-4"	4 @ 7'-7"	127'-4"	3 @ 47'-10"	6 @ 7′-7"	189′-0"
8	8	8	3 @ 27'-11"	3 @ 7'-7"	106′-6"	3 @ 36′-6"	4 @ 7'-7"	139′-10"	3 @ 53′-11"	6 @ 7′-7"	207′-3"
9	2	9	3 @ 9′-3"	N/A	27′-9"	3 @ 12'-1"	N/A	36′-3"	3 @ 17'-11"	N/A	53′-9"
9	3	9	3 @ 12'-4"	N/A	37′-0"	3 @ 16′-2"	N/A	48'-6"	3 @ 24'-0"	3 @ 8'-7"	97′-9"
9	4	9	3 @ 15′-6"	N/A	46′-6"	3 @ 20′-4"	2 @ 8'-7"	78′-2"	3 @ 30′-1"	3 @ 8'-7"	116′-0"
9	5	9	3 @ 18′-8"	N/A	56′-0"	3 @ 24′-5"	3 @ 8'-7"	99′-0"	3 @ 36′-2"	4 @ 8'-7"	142'-10"
9	6	9	3 @ 21'-10"	2 @ 8'-7"	82′-8"	3 @ 28′-7"	3 @ 8'-7"	111′-6"	3 @ 42′-3"	5 @ 8′-7"	169′-8"
9	7	9	3 @ 25′-0"	3 @ 8'-7"	100′-9"	3 @ 32'-8"	4 @ 8'-7"	132′-4"	3 @ 48'-4"	6 @ 8'-7"	196′-6"
9	8	9	3 @ 28′-2"	3 @ 8'-7"	110′-3"	3 @ 36′-10"	4 @ 8'-7"	144′-10"	3 @ 54'-5"	6 @ 8′-7"	214′-9"
9	9	9	3 @ 31'-4"	3 @ 8'-7"	119′-9"	3 @ 40′-11"	5 @ 8'-7"	165′-8"	3 @ 60′-6"	7 @ 8'-7"	241′-7"
10	2	10	3 @ 9′-6"	N/A	28′-6"	3 @ 12'-5"	N/A	37′-3"	3 @ 18′-5"	N/A	55′-3″
10	3	10	3 @ 12'-8"	N/A	38′-0"	3 @ 16'-6"	N/A	49′-6"	3 @ 24′-6"	3 @ 9'-7"	102′-3"
10	4	10	3 @ 15'-10"	N/A	47′-6"	3 @ 20′-8"	2 @ 9'-7"	81'-2"	3 @ 30′-7"	3 @ 9′-7"	120′-6"
10	5	10	3 @ 19'-0"	N/A	57′-0"	3 @ 24′-9"	3 @ 9′-7"	103'-0"	3 © 36′-8"	4 @ 9'-7"	148′-4"
10	6	10	3 @ 22'-1"	2 @ 9'-7"	85′-5″	3 @ 28'-11"	3 @ 9'-7"	115′-6"	3 @ 42'-9"	5 @ 9′-7"	176′-2"
10	7	10	3 @ 25′-3"	3 @ 9'-7"	104'-6"	3 @ 33′-0"	4 @ 9'-7"	137'-4"	3 @ 48'-10"	6 @ 9′-7"	204'-0"
10	8	10	3 @ 28'-5"	3 @ 9'-7"	114'-0"	3 @ 37'-2"	4 @ 9'-7"	149'-10"	3 @ 54'-11"	6 @ 9'-7"	222'-3"
10	9	10	3 @ 31'-7" 3 @ 34'-9"	4 @ 9'-7" 4 @ 9'-7"	133'-1" 142'-7"	3 @ 41'-3" 3 @ 45'-5"	5 @ 9'-7" 5 @ 9'-7"	171'-8" 184'-2"	3 @ 61'-0" 3 @ 67'-1"	7 a 9'-7" 8 a 9'-7"	250'-1" 277'-11"
10	10	10	3 @ 34"-9" 4 @ 9'-9"			3 @ 45'-5" 4 @ 12'-9"					75′-8"
11 11	2 3	11 11	4 @ 9'-9" 4 @ 12'-11"	N/A N/A	39′-0" 51′-8"	4 @ 12'-9" 4 @ 16'-11"	N/A N/A	51'-0" 67'-8"	4 @ 18'-11" 4 @ 25'-0"	N/A 3 @ 10'-7"	75'-8" 131'-9"
11	4	11	4 @ 12 - 11 4 @ 16'-1"	N/A N/A	51 - 8 64'-4"	4 @ 21'-0"	2 @ 10'-7"	105'-2"	4 @ 25 -0 4 @ 31'-1"	3 @ 10'-7"	151 - 9 156′- 1"
11	6	11	4 @ 22'-5"	2 @ 10'-7"	110'-10"	4 @ 29'-3"	3 @ 10'-7"	148'-9"	4 @ 43'-3"	5 @ 10'-7"	225'-11"
11	8	11	4 @ 28'-9"	3 @ 10'-7"	146′-9"	4 @ 37'-6"	4 @ 10'-7"	192'-4"	4 @ 45 - 5"	6 @ 10'-7"	285'-2"
11	10	11	4 @ 35'-0"	4 @ 10'-7"	182'-4"	4 @ 45'-9"	5 @ 10'-7"	235'-11"	4 @ 67'-7"	8 @ 10'-7"	355′-0"
11	11	11	4 @ 38'-2"	4 @ 10'-7"	195′-0"	4 @ 49'-10"	6 @ 10'-7"	262'-10"	4 @ 73'-8"	9 @ 10'-7"	389′-11"
12	2	12	4 @ 10'-0"	N/A	40'-0"	4 @ 13'-1"	N/A	52'-4"	4 @ 19'-5"	N/A	77'-8"
12	3	12	4 @ 13'-2"	N/A	52′-8"	4 @ 17'-3"	N/A	69'-0"	4 @ 25'-6"	3 @ 11'-7"	136′-9"
12	4	12	4 @ 16'-4"	N/A	65'-4"	4 @ 21'-4"	2 @ 11'-7"	108'-6"	4 @ 31'-7"	4 @ 11'-7"	172′-8"
12	6	12	4 @ 22'-8"	2 @ 11'-7"	113′- 10"	4 @ 29'-7"	3 @ 11'-7"	153'-1"	4 @ 43'-9"	5 @ 11'-7"	232'-11"
								197′-8"	4 @ 55'-11"	7 @ 11'-7"	304'-9"
	8	12	4 @ 29'-()") (w // -/	150 - 9	1 4 W 3/1-10	4 QU -		T 60 J. J. 11	😉	JU4 3
12 12	8 10	12 12	4 @ 29'-0" 4 @ 35'-4"	3 @ 11'-7" 4 @ 11'-7"	150′-9" 187′-8"	4 @ 37'-10" 4 @ 46'-1"	4 @ 11'-7" 5 @ 11'-7"	242'-3"	4 @ 68'-1"	8 @ 11'-7"	365′-0"

TPGBC-ZS-2

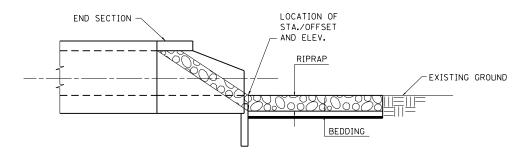
8-21-13

USER NAME = DESIGNED - REVISED	
CHECKED - REVISED	
PLOT SCALE = DRAWN - REVISED	
PLOT DATE = CHECKED - REVISED	

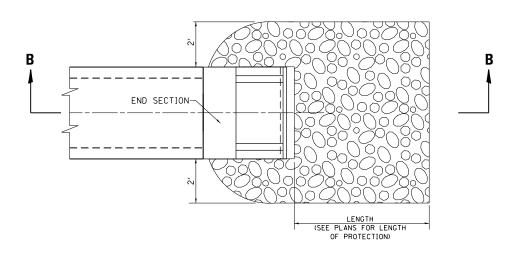
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

TRAVER		PIPE ERTS	 ATE FOR Tail	вох
	HEET NO	2 0	 CHEETE	

(Sheet 2 of 2)



SECTION B-B



RIPRAP PLACEMENT

_		
NAME =		OATES ASSOCIAT Engineering + Architect
FILE	ILLINOIS DESIGN FIRM	LICENSE NO: 184.001

USER NAME = brian.heil	DESIGNED -	REVISED -
	DRAWN -	REVISED -
PLOT SCALE = 100.0000 ' / in.	CHECKED -	REVISED -
PLOT DATE = 12/8/2014	DATE -	REVISED -

STATE OF	: ILLINOIS
DEPARTMENT OF	TRANSPORTATION

		RIP	RAP	PL	ACEMEN	IT DETAI	IL	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
								653	105BR-5	PUTNAM	17	12
										CONTRACT	NO. 6	8B40
SCALE:	SHEET	1	OF	1	SHEETS	STA.	TO STA.	ILLINOIS FED. AID PROJECT				

(V) Illinois D of Trans	portat	on	III.		S	OIL BORING	G LOG		-50	1	
Division of Highways Terracon, PTB 161-026,	WO 6								Date		4/14
ROUTE FAP 653 (IL 18) DE	SCRI	PTION	·	North	Side of the exist 10' x 8' I	Box Culvert L	.OGGE	DBY		4F
SECTION 105BR	5	_ 1	_OCA1	TON _	, SEC.	35, TWP. 31N, RNG. 2W					
COUNTYPutnam	DRILLING	ME	THOD				HAMMER TYPE		Auto	matic	
STRUCT. NO. 078-1002(e. Station 90+50	xist)	D E P	B L O	U C S	M 0 1	Surface Water Elev Stream Bed Elev		D E P	B L O	UCS	M O 1
BORING NO. B-1 Station 90+75 Offset 46.0 ft LT Ground Surface Elev. 525		H (ft)	W S (/6")	Qu (tsf)	S T (%)	Groundwater Elev.: First Encounter Upon Completion After Hrs.	ft	T H (ft)	W S (/6")	Qu (tsf)	S T (%)
TOPSOIL	528.81	_				SAND, brown, medium dense (continued)		-			
FILL: SILTY CLAY, brown (froze soil to a depth of about 4 feet)	en		3			dense (continueu)		\dashv	7		
			4 5		16			\exists	8 12		4
		_									
		_	4 8		12			_	10 16		4
		-5	9		12			-25	22		4
	523.11	_						-			
SILTY CLAY, brown, stiff to hard		_	5 6	4.5	9	below 18 feet: sand with gravel	broken	\exists	18 15		6
			7	Р					10		_
		_	4						10		
			4	4.5	9				13		6
		-10	6	Р				-30	22		
	517.61	_	10								
SAND, brown, medium dense to dense		_	10 12		14						
between 11 to 17 feet; sand will broken gravel		_						4			
APPROX FLOWLINE	515.50	_	12						11		
		-15	10 11		5			-35	14 18		5
		_						-			
		-	6 7		5			\exists			
			10					\exists		1	
		_							0.5	1	
			5		4			_	25 25		11
		-20	7					-40	25		

	Illinois De of Transpo Division of Highways Terracoo, PTB 161-026, WO	ortati	OH			30	OIL BORIN	IG LOG	Date 3/4
ROUTE	FAP 653 (IL 18)	DE	SCRI	PTION	i	North	Side of the exist 10' x 8	3' Box Culvert	LOGGED BYA
SECTION _	105BR-5		_ 1	_OCA1	ION _	, SEC.	35, TWP. 31N, RNG. 2 de , Longitude	2W,	
COUNTY _	Putnam [DRILLING	MET	THOD	_	Latitu	HA HA	HAMMER TYPE	Automatic
STRUCT, NO. Station	078-1002(exist	<u>:)</u>	D E P	B L O	U C S	M O 1	Surface Water Elev. Stream Bed Elev.	ft	
BORING NO. Station Offset	B-1 90+75 46.0 ft LT	_	T H	w s	Qu	S T	Groundwater Elev.: First Encounter Upon Completion	ft	
Ground Surf	ace Elev. 529.1	1 ft	(ft)	(/6")	(tsf)	(%)	After Hrs.		
SAND, brown, dense (continu	medium dense to ued)								
			_						
			_	17					
		484.11	-45	18 25		5			
End of Boring									
		0	7.						
		,	_						
		58							
			-50						
		8							
			-55						
		18							
		-							
		9	_						
			-60						

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)

OATES ASSOCIATES Engineering + Architecture ILLINOIS DESIGN FIRM LICENSE NO: 184.001115

USER NAME =	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/8/2014	CHECKED -	REVISED -

BBS, form 137 (Rev. 8-99)

	SHEET NO.
653 105BR-5 PUTNAM 17	13
CONTRACT NO. 681	B40
SHEET NO. 1 OF 2 SHEETS ILLINOIS FED. AID PROJECT	

of Transportati	on			5(OIL BORIN	G LUG		Date	3/-	4/14
ROUTE FAP 653 (IL 18) DE	SCRI	PTION		South	Side of the exist 10' x 8	Box Culvert L	.oggi	ED BY		
SECTION 105BR-5	_ 1	OCA1	TON _	, SEC.	35, TWP. 31N, RNG. 2\	N,			***********	
COUNTY Putnam DRILLING	MET	THOD		Latitu	ide , Longitude HA	_ HAMMER TYPE	_	Auto	matic	
STRUCT. NO. 078-1002(exist) Station 90+50 BORING NO. B-2 Station 90+24	D E P T H	B L O W S	U C S	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter	ft ft	D E P T H	B L O W S	U C S	M O I S T
Station 90+24 Offset 36.0 ft RT	(ft)	(/6")	(tsf)	(%)	Upon Completion	ft	(ft)	(/6")	(tsf)	(%)
Ground Surface Elev. 523.01 ft TOPSOIL 522.56		(10)	(131)	(70)	After Hrs. SAND, medium dense	to year	(ity	(10)	(tSI)	(/0,
CLAY, brown, medium stiff (frozen	-				dense (continued)	to very	_			
soil to a depth of about 4 feet)	-	3		21				11 16		6
	_	4					_	29		
520.01										
SANDY CLAY brown, stiff	=	3						7		
		2	0.5	20				14		6
	-5	6	Р				-25	14		
517.01 SAND, medium dense to very dense		35 41		7			_	15 17		5
apparent cobbles at about 6½ to 7½ feet (hard drilling) 515.50 APPROX FLOWLINE		50/4"						24		
	-	14	ř				-	17		
,	-10	18 16		5			-30	21		5
	_	6 5		5						
:	-	6					_			
							_			
	-	6					-	17		
•		6		6				21		4
	-15	6	_				-35	19		-
							J			
	-	5 6		6			4			
		9								
	_	-	E-t-silve				=			
	-	14	11 x 10 pp 20 x 10 pp 70 x 10 pp				-	8		
below about 19 feet: sand with broken rock	-20	10 8		7			-40	13 17		5

ROUTE	Division of Highways Terracon, PTB 161-026, W		SCRII	PTION		South	Side of the exist 10' x	8' Box Culvert		3/4/ ΔF
							35, TWP. 31N, RNG. 2			
	Putnam					Latitu	ide , Longitude	HAMMER TYF		matic
STRUCT. NO Station	078-1002(exi	st)	D E P T H	B L O W S	U C S	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter	f	t	
Offset	90+24 36.0 ft RT face Elev. 523.	01 4	(ft)		(tsf)	(%)	Upon Completion After Hrs.	f	Ė	
SAND, mediudense (contin		478.01	-45	16 31 41		6				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, form 137 (Rev. 8-99)

OATES ASSOCIATES
Engineering + Architecture
ILLINOIS DESIGN FIRM LICENSE NO: 184.001115

USER NAME =	DESIGNED -	REVISED -
	CHECKED -	REVISED -
PLOT SCALE =	DRAWN -	REVISED -
PLOT DATE = 12/8/2014	CHECKED -	REVISED -

BBS, form 137 (Rev. 8-99)

SOIL BORINGS		SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	653	105BR-5	PUTNAM	17	14
			CONTRACT	NO. 6	8B40
SHEET NO. 2 OF 2 SHEETS	ILLINOIS FED. AID PROJECT				

