

C.A.P. No.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
633	105BR-5	PUTNAM	17	1
ILLINOIS CONTRACT NO. 68B40				

03-06-2015 LETTING ITEM 053

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

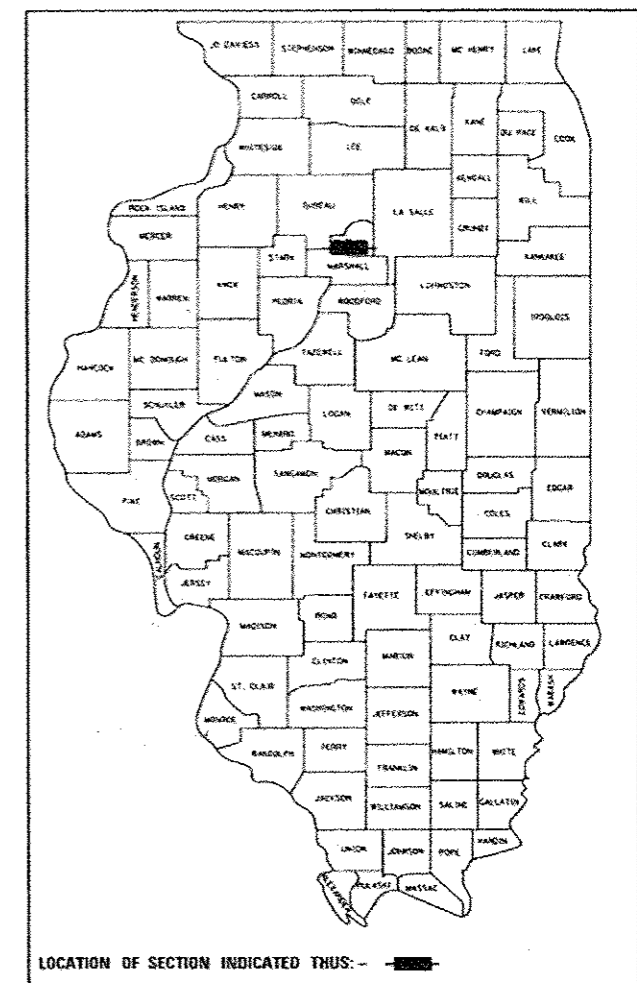
DIVISION OF HIGHWAYS

PROPOSED HIGHWAY PLANS

FAP ROUTE 653 (IL RTE 18)
SECTION 105BR-5
PROJECT ACF-0653 (030)
BOX CULVERT REPLACEMENT
PUTNAM COUNTY

C-94-046-13

D-94-D22-13



LOCATION OF SECTION INDICATED THIS: -

INDEX OF SHEETS

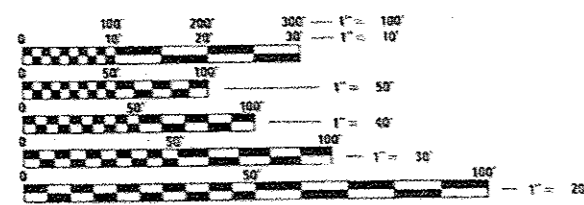
SHEET NO.	ITEM
1	COVER SHEET
2	GENERAL NOTES & JOB SPECIFIC NOTES
3	SUMMARY OF QUANTITIES
4	TYPICAL SECTIONS
5	SCHEDULE OF QUANTITIES
6	PLAN & PROFILE SHEET
7	PRECAST BOX CULVERT 8'X6' (SPECIAL) DETAIL
8-9	BOX CULVERT END SECTION DETAIL
10-11	TRAVERSABLE PIPE GRATE FOR BOX CULVERTS DETAIL
12	RIPRAP PLACEMENT DETAIL
13-14	SOIL BORINGS
15-17	IL ROUTE 18 CROSS SECTIONS

HIGHWAY STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
666001-01	RIGHT OF WAY MARKERS
701006-05	OFF-RD OPERATIONS, 2L, 2W 15' (4.5 m) TO 24' (600 mm) FROM PAVEMENT EDGE
701201-04	LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS > 45 MPH
701901-04	TRAFFIC CONTROL DEVICES

SCALE IN FEET

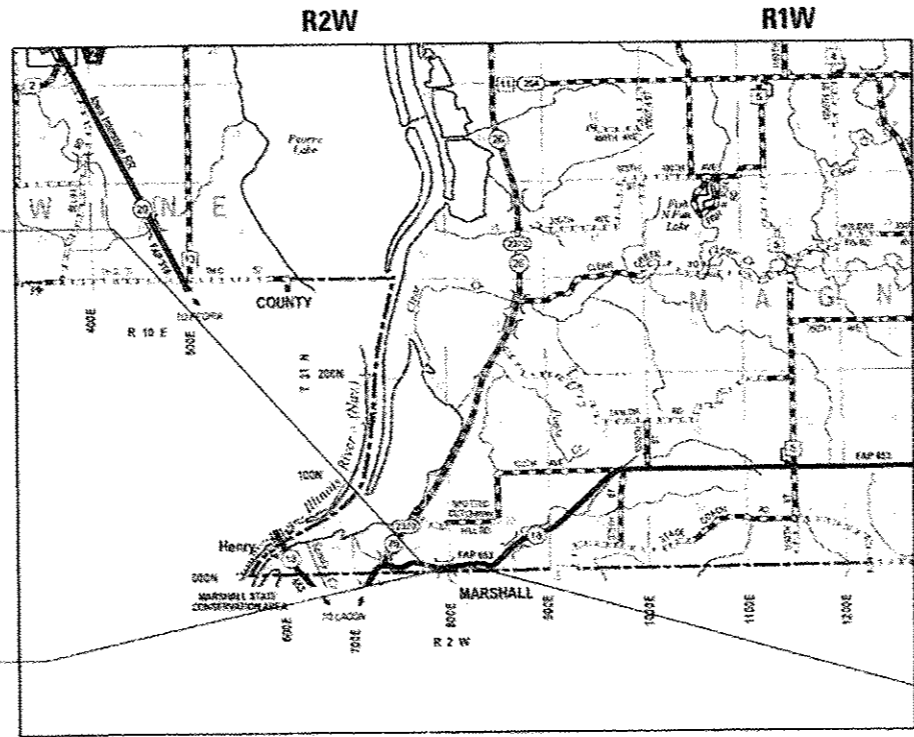
PLAN	1" = 50'
PROFILE HORIZ	1" = 50'
PROFILE VERT	1" = 5'
CROSS SECTION HORIZ	1" = 10'
CROSS SECTION VERT	1" = 5'



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

BEGIN IMPROVEMENT
STA. 89 + 00

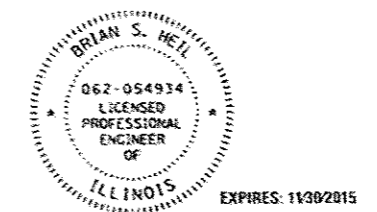


PROJECT INCLUDES PUSHING AN 8'X6' PRECAST CONCRETE BOX CULVERT THRU AN EXISTING 10'X8' CONCRETE BOX CULVERT
PROPEXIST S.N. 078-1002

END IMPROVEMENT
STA. 92 + 00

LOCATION MAP
NOT TO SCALE

GROSS LENGTH = 300.0 FT. = 0.057 MILE
NET LENGTH = 100.0 FT. = 0.057 MILE



Brian Heil 12/5/14
BRIAN S. HEIL DATE



COLLINGSVILLE 100 Lantier Court, Suite 1
Collingsville, IL 62734
Tel: 618.943.2200

BELLEVALE 20 E. Main Street
Belleville, IL 62220
Tel: 618.416.4665

ST. LOUIS 720 Olive, Suite 1669
St. Louis, MO 63101
Tel: 314.568.6351

www.datesassociates.com

ILLINOIS DESIGN FIRM LICENSE NO: 184.001115

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED Dec 11 20 14

Kenneth A. Gernott
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

Jan 30 20 15
John D. Baranzelli, PE, LE
ENGINEER OF DESIGN AND ENVIRONMENT

Jan 30 20 15
Omer Osman, PE, LE
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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OF THE STATE OF ILLINOIS

PROJECT ENGINEER: RICH DOTSON 309-671-3455
PROJECT MANAGER: RON NOLTE 309-671-3470
CAT. NO. 034918-00D
CONTRACT NO. 68B40

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

				0040 80/20 FED/STATE	
SI	SP	CODE NO.	ITEM	UNIT	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"	SQ YD	2,070
		25000210	SEEDING, CLASS 2A	ACRE	0.5
		25100630	EROSION CONTROL BLANKET	SQ YD	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	CU YD	36
		54001001	BOX CULVERT END SECTIONS, CULVERT NO. 1	EACH	2
		• 54260311	TRAVERSABLE PIPE GRATE	FOOT	215
		63200310	GUARDRAIL REMOVAL	FOOT	358

				0040 80/20 FED/STATE	
SI	SP	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
		• X5400806	PRECAST CONCRETE BOX CULVERTS 8' X 6' (SPECIAL)	FOOT	48
		Z0013798	CONSTRUCTION LAYOUT	L SUM	1

NOTES: SP - SEE PROJECT SPECIFIC SPECIAL PROVISIONS
SI - SPECIALTY ITEM

FILE NAME: H:\V\2014\10 18 over drainage ditch Phase 2\Microstation\sheet\0458818-11-500.dgn

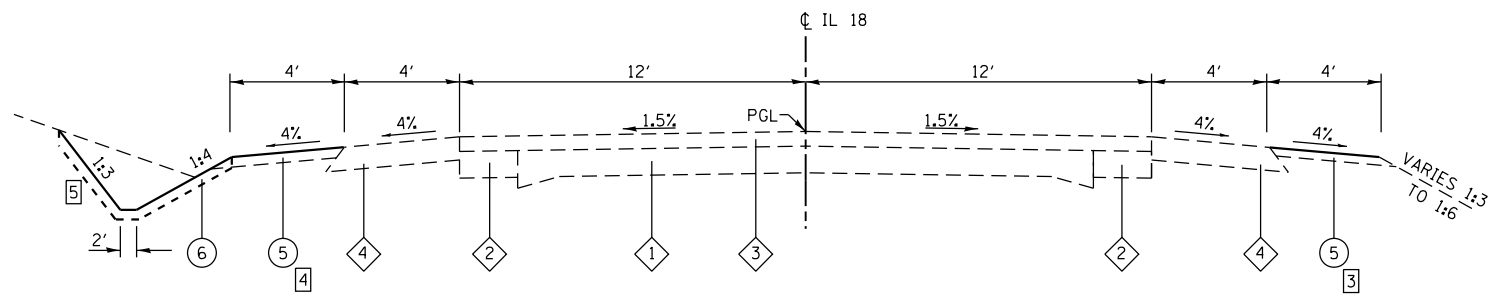


USER NAME: brianheil	DESIGNED: -	REVISED: -
PLOT SCALE: 1/8" = 1'-0"	DRAWN: -	REVISED: -
PLOT DATE: 12/8/2014	CHECKED: -	REVISED: -
	DATE: -	REVISED: -

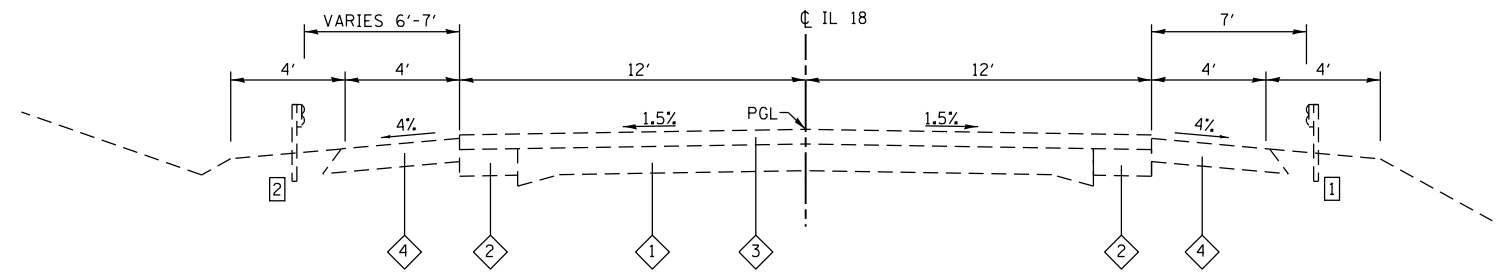
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	3
SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.			CONTRACT NO. 68B40	
ILLINOIS FED. AID PROJECT				



PROPOSED IL ROUTE 18
STA. 89+00 TO STA. 92+00



EXISTING IL ROUTE 18
STA. 89+00 TO STA. 92+00

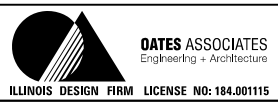
TYPICAL SECTION LEGEND

- ① EXISTING PCC PAVEMENT
- ② EXISTING HMA WIDENING
- ③ EXISTING HMA OVERLAY
- ④ EXISTING HMA SHOULDER
- ⑤ 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
- ③ FROM STA. 89+18 TO STA. 91+24, ASSUME 2" DEPTH
- ④ FROM STA. 89+71 TO STA. 91+80, ASSUME 2" DEPTH
- ⑤ SEE CROSS SECTIONS FOR GRADING

FILE NAME = H:\P\2014\10_9_IL_18_Over_Drainage_ditch_Phase_2\Microstation\Sheets\0468B40-sh-typical.dgn



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	DRAWN -	REVISED -
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PLOT DATE = 12/8/2014	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	4
CONTRACT NO. 68B40				
ILLINOIS FED. AID PROJECT				

EARTHWORK

STATION	STATION	EARTH EXCAVATION (CU YD)	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE (NOTE 1) (CU YD)	EMBANKMENT (NOTE 2) (CU YD)	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) (NOTE 3) (CU YD)	CHANNEL EXCAV SPL (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:

- ESTIMATED SHRINKAGE FACTOR = 10%.
- APPROXIMATE EMBANKMENT QUANTITY IS SHOWN FOR INFORMATION ONLY.
- APPROXIMATE EARTHWORK BALANCE IS SHOWN FOR INFORMATION ONLY.

CULVERT REMOVAL

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

ROW MARKERS

STATION	OFFSET	FUR ERECT ROW 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

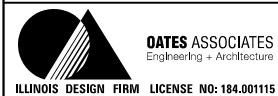
TREE REMOVAL

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

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

FILE NAME = H:\P\29048\WD 9_IL_18_ever drainage ditch Phase 2\Microstation\sheet\0468B40-11-schedule.dgn



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PLOT SCALE = 100.0000' / in.	CHECKED -	REVISED -
PLOT DATE = 12/8/2014	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SCHEDULES

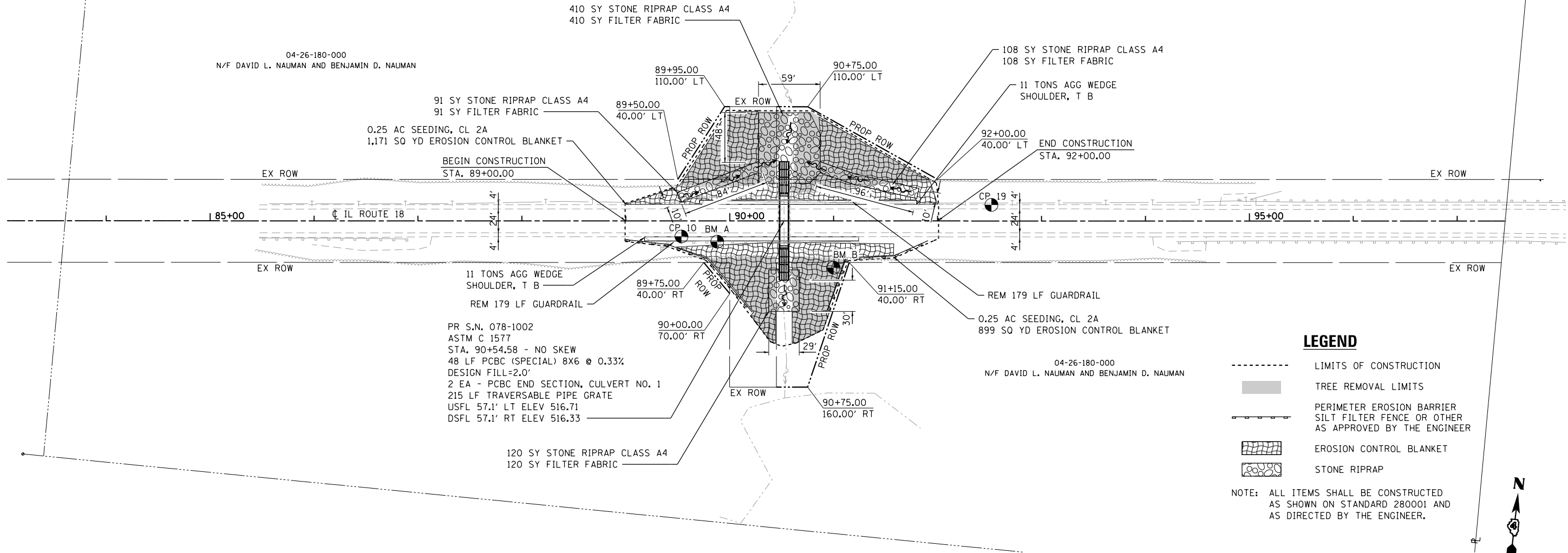
SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	5
CONTRACT NO. 68B40			ILLINOIS FED. AID PROJECT	

PLAN	SURVEYED	DATE
	PLOTTED	
	ALIGNED	
	CHECKED	
	FILED	
	NO.	

PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NO.	

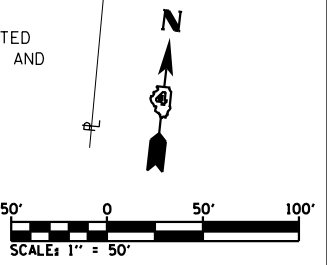
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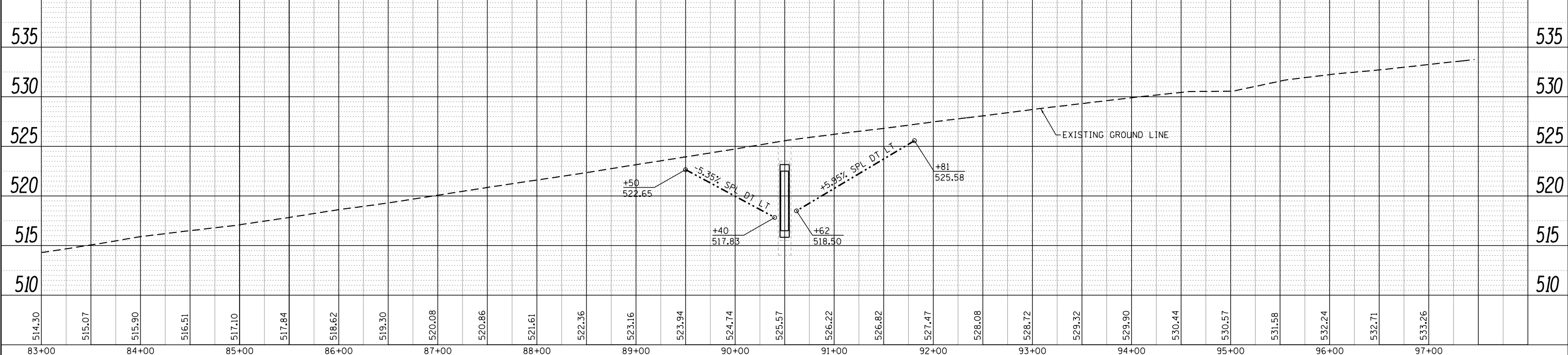
LEGEND

-----	LIMITS OF CONSTRUCTION
■	TREE REMOVAL LIMITS
—+—+—+—	PERIMETER EROSION BARRIER SILT FILTER FENCE OR OTHER AS APPROVED BY THE ENGINEER
▨	EROSION CONTROL BLANKET
⊙	STONE RIPRAP

NOTE: ALL ITEMS SHALL BE CONSTRUCTED AS SHOWN ON STANDARD 280001 AND AS DIRECTED BY THE ENGINEER.



CP#10 - PK NAIL IN SHOULDER STA. 89+53.57, 14.9' RT ELEVATION 523.76 N: 1617426.4710 E: 2530819.3680	BM A - CHISLED "X" TOP OF GUARDRAIL STA. 89+88, 20' RT ELEVATION 526.38	BM B - RR SPIKE IN TREE STA. 91+00, 45' RT ELEVATION 527.91	CP#19 - PK NAIL IN SHOULDER STA. 92+51.84, 15.5' LT ELEVATION 527.86 N: 1617490.0365 E: 2531112.3682
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83+00	84+00	85+00	86+00	87+00	88+00	89+00	90+00	91+00	92+00	93+00	94+00	95+00	96+00	97+00														
514.30	515.07	515.90	516.51	517.10	517.84	518.62	519.30	520.08	520.86	521.61	522.36	523.16	523.94	524.74	525.57	526.22	526.82	527.47	528.08	528.72	529.32	529.90	530.44	530.57	531.58	532.24	532.71	533.26

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

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	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

PLAN & PROFILE SHEET

SCALE: SHEET 1 OF 1 SHEETS STA. 89+00 TO STA. 92+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	6
CONTRACT NO. 68B40				
ILLINOIS FED. AID PROJECT				

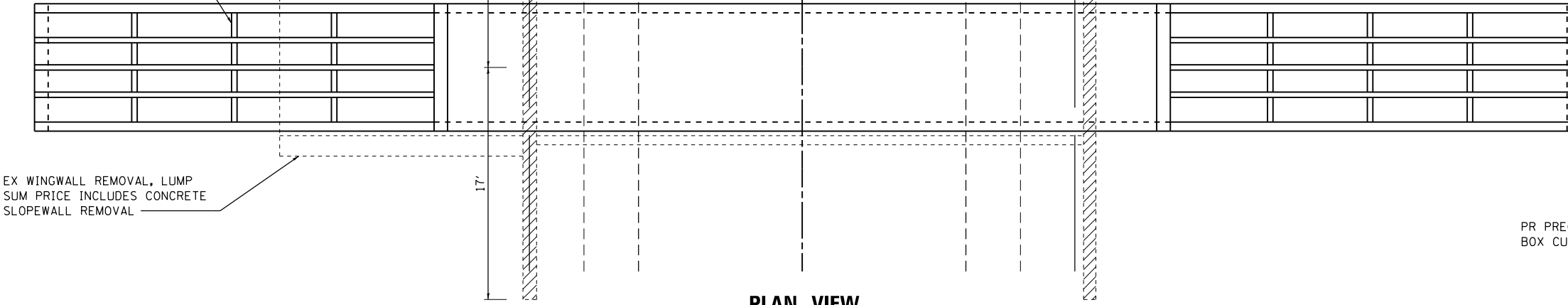


SCALE:
1" = 10' HORIZONTAL

TRAVERSABLE PIPE GRATE (TYP) SEE DETAIL

REMOVE EX CONCRETE HEADWALL PARTIAL (TYP)

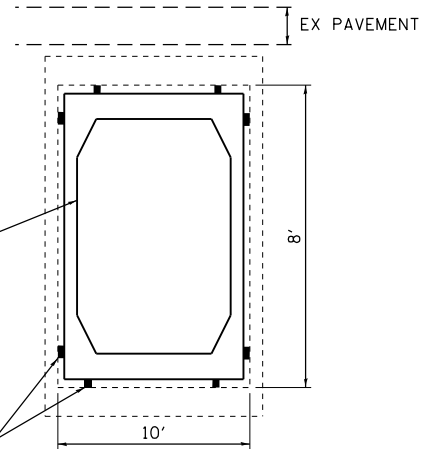
PR AGGREGATE SHOULDER



PLAN VIEW

EX WINGWALL REMOVAL, LUMP SUM PRICE INCLUDES CONCRETE SLOPEWALL REMOVAL

PR PRECAST CONCRETE BOX CULVERT 8'X6' (SPECIAL)



SECTION A-A

1 EA EX CONCRETE HEADWALL REMOVAL PARTIAL (TYP)

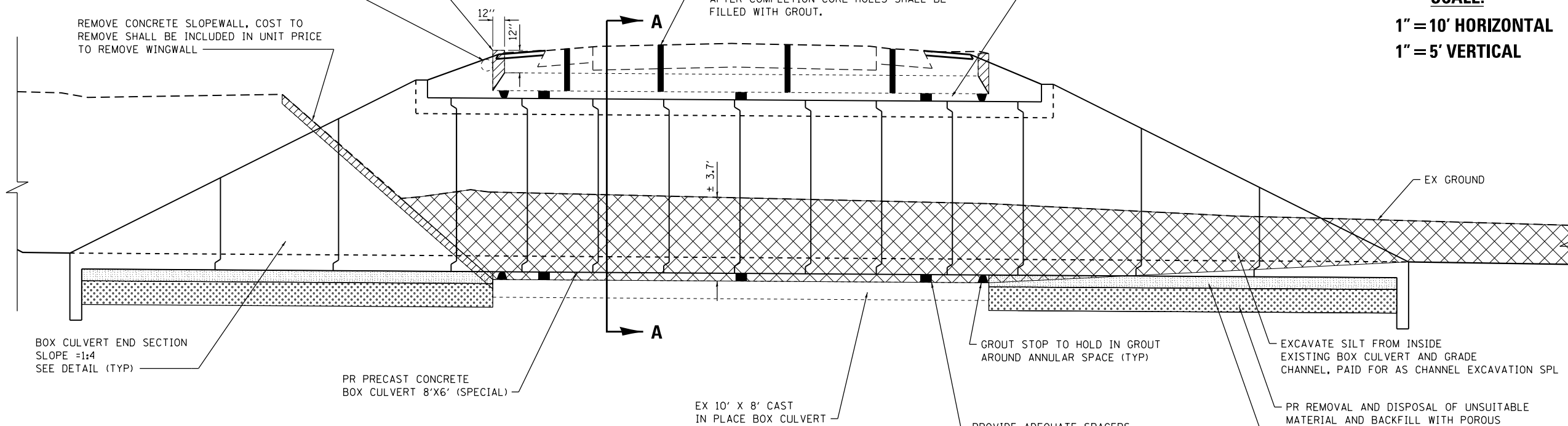
UTILITY COMPANY TO BE CONTACTED TO RELOCATE CONDUIT

REMOVE CONCRETE SLOPEWALL, COST TO REMOVE SHALL BE INCLUDED IN UNIT PRICE TO REMOVE WINGWALL

SIGHT/GROUT INJECTION HOLES (TYP). DIA. AND SPACING TO BE DETERMINED BY CONTRACTOR. AFTER COMPLETION CORE HOLES SHALL BE FILLED WITH GROUT.

FILL ANNULAR SPACE AROUND NEW PRECAST BOX CULVERT WITH GROUT AS SPECIFIED IN THE SPECIAL PROVISION

SCALE:
1" = 10' HORIZONTAL
1" = 5' VERTICAL



CROSS SECTION

NOTES:

- SEE CULVERT CROSS SECTION FOR GRADING IN THE CHANNEL
- THE EXCAVATION FOR THE UPSTREAM ROADSIDE DITCHES WILL BE PAID FOR AS EARTH EXCAVATION.
- TRAVERSABLE PIPE GRATE SHALL BE INSTALLED SO THAT THE INTERMEDIATE SUPPORTS SHALL BE INSTALLED A MINIMUM OF 6" FROM THE EDGE OF A PRECAST SECTION JOINT. IF REQUIRED, AN ADDITIONAL INTERMEDIATE SUPPORT SHALL BE INSTALLED AND PAID FOR AT THE UNIT PRICE FOR TRAVERSABLE PIPE GRATE.

FILE NAME = H:\P\29048\WD 9 IL 18 cover drainage ditch Phase 2\Microstation\sheet\0468B40-sht-detail-box.dgn



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

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**PRECAST BOX CULVERT 8'X6'
(SPECIAL) DETAIL**

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	7
CONTRACT NO. 68B40				
ILLINOIS FED. AID PROJECT				

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 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 Sections of the culvert number specified.

Typical box section dimensions, materials, and reinforcement details for Box Culvert 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 Culverts except as modified herein.

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 determined by the Contractor.

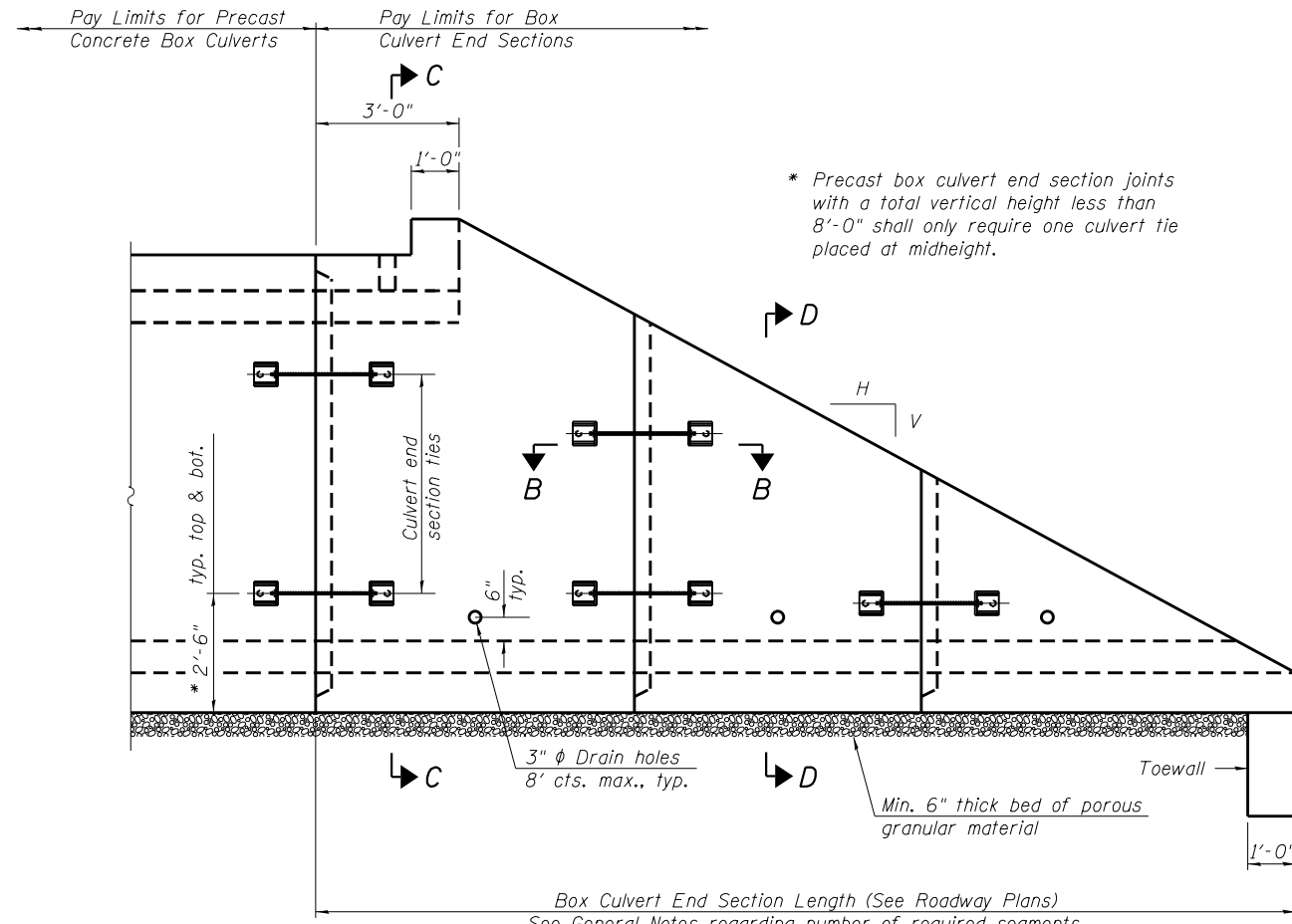
See roadway plans for embankment slope (V:H).
 1" ϕ anchor rods for the culvert ties shall conform to the requirements of ASTM F1554, Grade 105. Structural steel for tie plate and restraint angle shall conform to the requirements of Article 1006.04 of the Standard Specifications. All components of the 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 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.

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. Reinforcement bars designated (E) shall be epoxy coated.

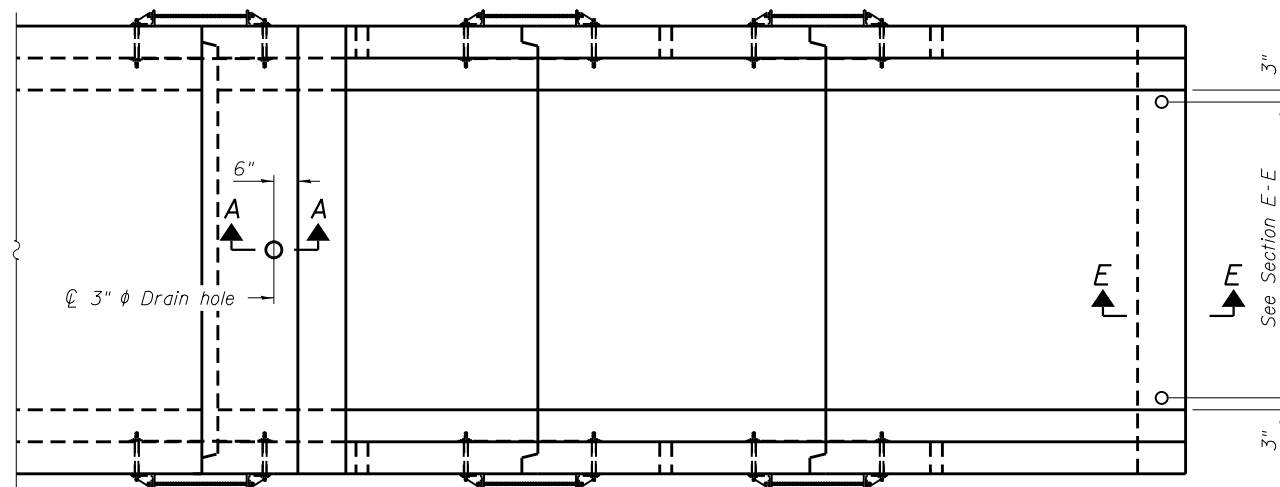
Drain holes shall conform to the requirements of Article 503.11 of the Standard Specifications unless noted otherwise.

Nonwoven geotextile fabric shall conform to the requirements of Article 1080.01. The minimum weight of the fabric shall be 6 oz. / sq. yd..

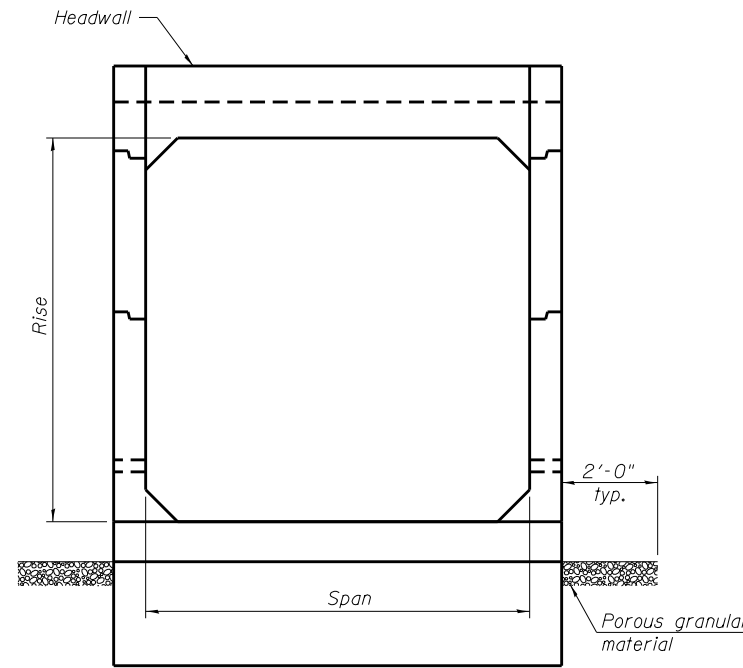
For end sections with traversable pipe grate systems, see grate detail sheet for required modifications.



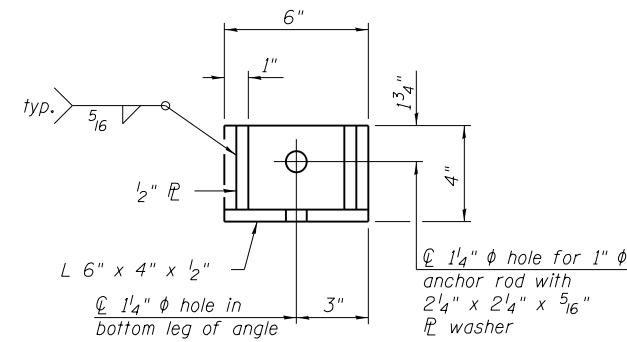
ELEVATION



PLAN



END VIEW



RESTRAINT ANGLE DETAIL

12" x 12" x 6" block of CA 5, CA 7, or CA 11 coarse aggregate placed over drain opening. Block of aggregate shall be completely wrapped in nonwoven geotextile fabric.

Provide a double layer of 12" x 12" nonwoven geotextile fabric centered over the drain hole. Fabric shall be sealed to the concrete with mastic.

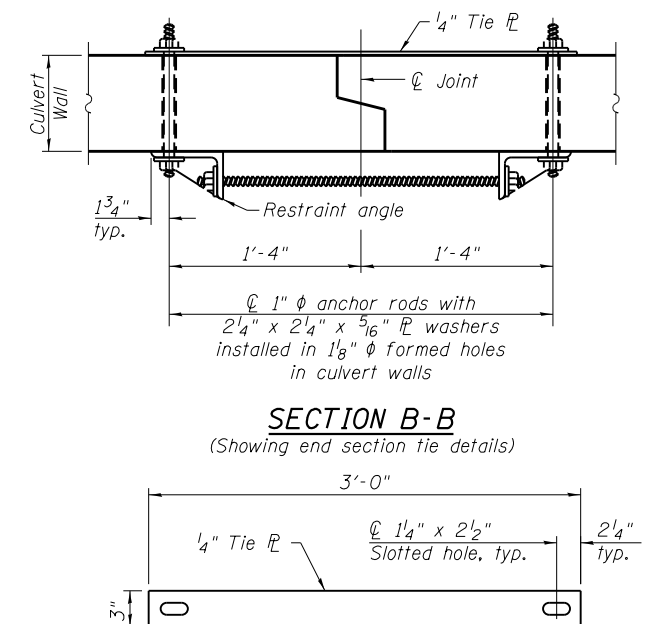
3" ϕ PVC drain cast with the concrete (Adjust location to clear reinforcement).

1/2" Square foam breakout around PVC drain (to be removed with formwork)

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)



SECTION B-B

(Showing end section tie details)

TIE PLATE DETAIL

SCB-TES-1

11-5-13

FILE NAME =	USER NAME =	DESIGNED -	REVISED
		CHECKED -	REVISED
		DRAWN -	REVISED
		CHECKED -	REVISED

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

BOX CULVERT END SECTION DETAIL

SHEET NO. 1 OF 2 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	8
CONTRACT NO. 68B40				
ILLINOIS FED. AID PROJECT				

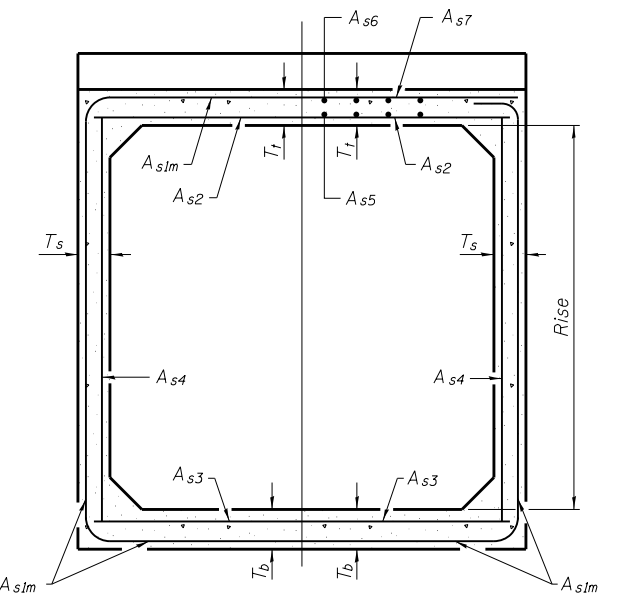
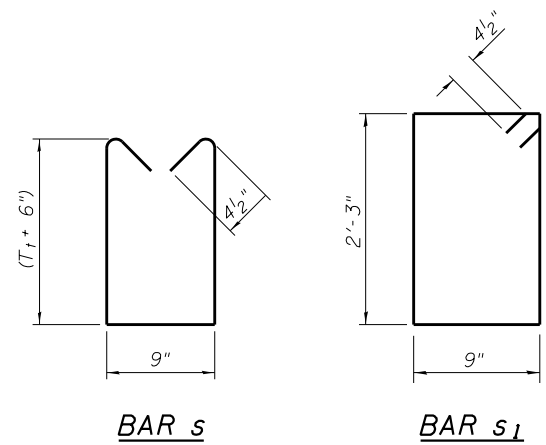
		As_{1m} REINFORCEMENT										
		(in. ² /ft)										
T _s (in.)	Rise (ft)	2	3	4	5	6	7	8	9	10	11	12
4	0.19	0.17										
5	0.26	0.21	0.18									
6	0.22	0.26	0.23	0.22								
7	0.25	0.33	0.59	0.27	0.28							
8	0.40	0.35	0.43	0.39	0.36	0.34	0.40					
9	0.44	0.39	0.35	0.43	0.40	0.37	0.36	0.48				
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	

(As_{1m} reinforcement based upon welded wire fabric conforming to AASHTO M 55 or M 221).

l₁ DIMENSION

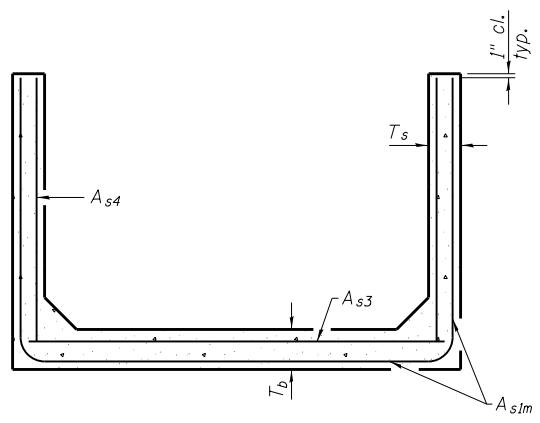
- #3 bar = 2'-0"
- #4 bar = 2'-8"
- #5 bar = 3'-4"
- #6 bar = 3'-11"

Notes:
 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 v₂(E) bars shall provide a minimum reinforcement area along each face of the walls (in.²/ft) equal to 1.10*(As_{1m}). 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.

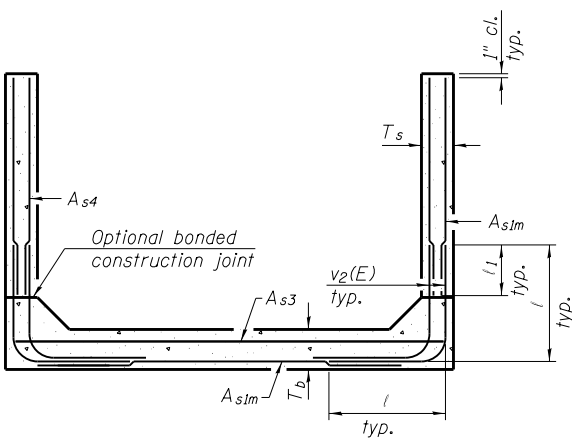


(Design Earth Cover ≥ 2 ft) (Design Earth Cover < 2 ft)

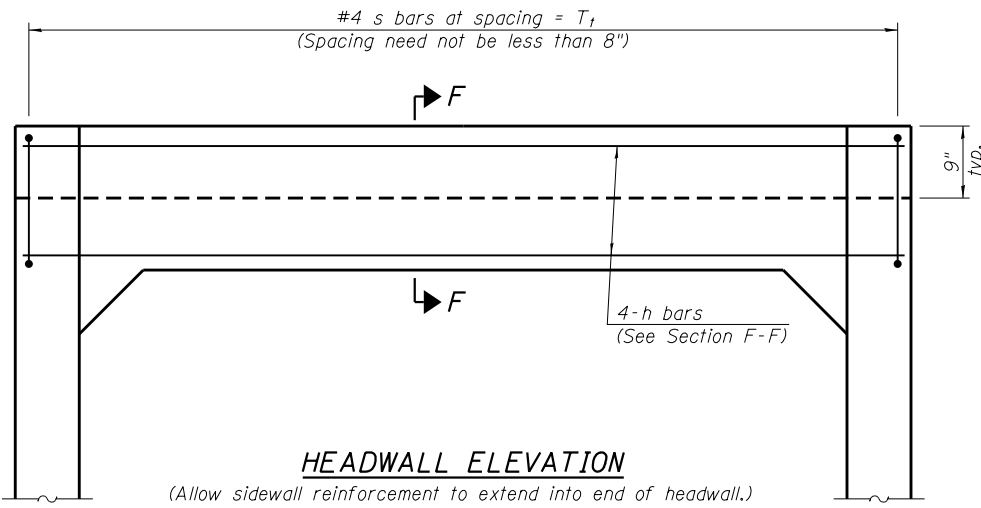
SECTION C-C



SECTION D-D



ALTERNATE SECTION D-D



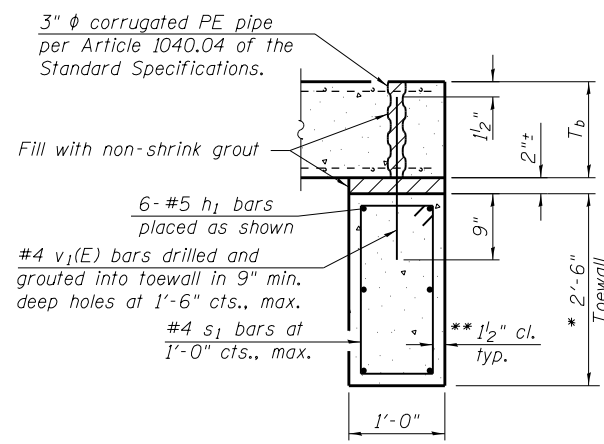
HEADWALL ELEVATION

TOEWALL CONSTRUCTION SEQUENCE

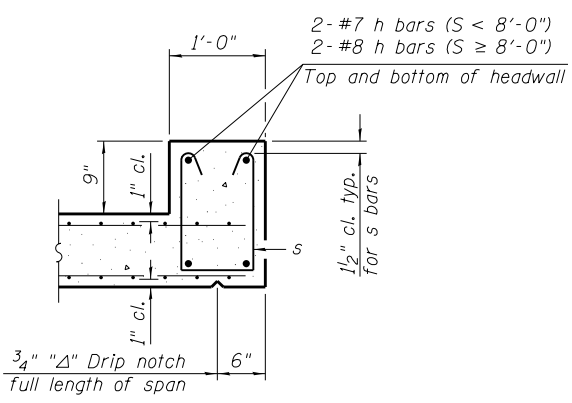
1. Perform excavation and construct toewall.
2. Backfill according to the applicable paragraphs of Article 502.10 of the Standard Specifications and place bedding for precast box culvert end sections.
3. Set precast box culvert end section.
4. Drill and epoxy grout reinforcement in toewall in accordance 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 E-E



SECTION F-F

(Sheet 2 of 2)

SCB-TES-2

11-5-13

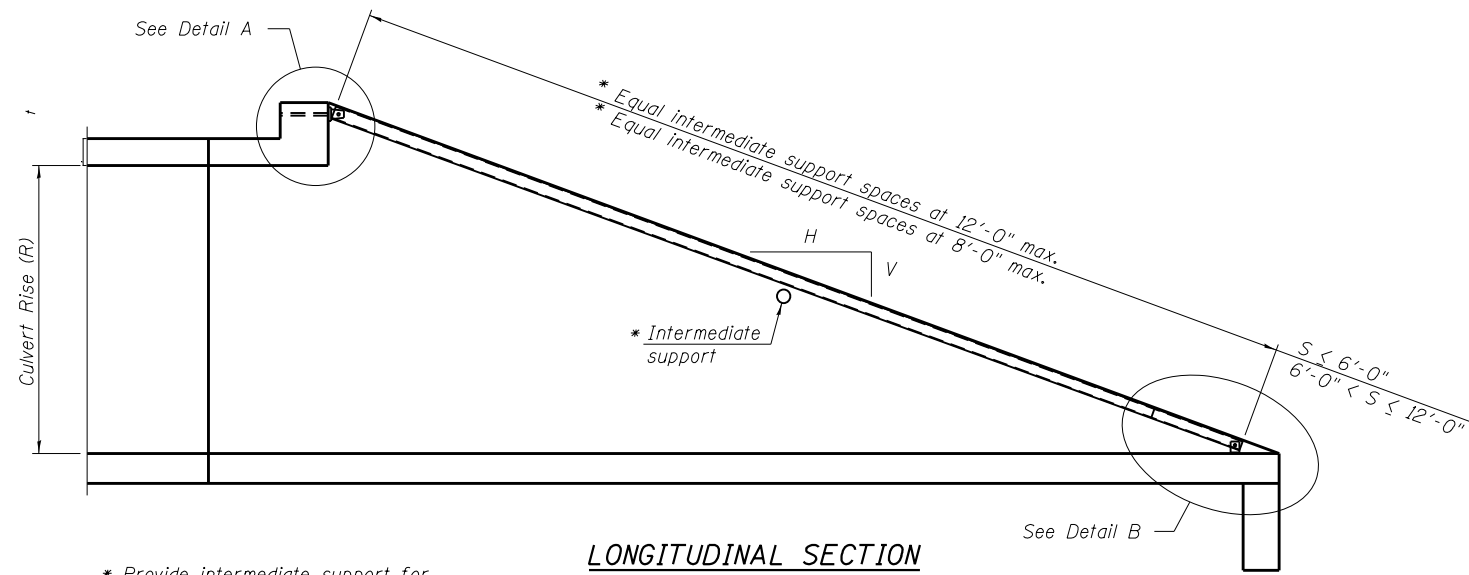
FILE NAME =	USER NAME =	DESIGNED -	REVISOR	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BOX CULVERT END SECTION DETAIL	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED -	REVISOR			653	105BR-5	PUTNAM	17	9	
		PLOT SCALE =	REVISOR			CONTRACT NO. 68B40					
		PLOT DATE =	REVISOR			ILLINOIS FED. AID PROJECT					

SHEET NO. 2 OF 2 SHEETS

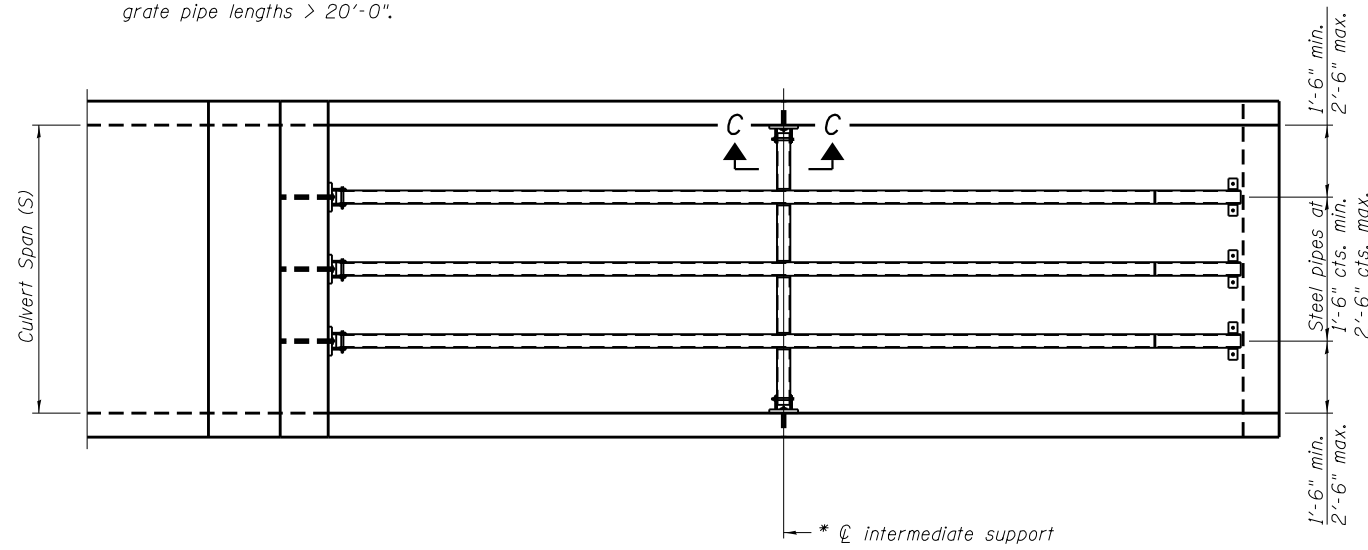
GENERAL NOTES

The minimum edge distance from the center of a hole to the free edge of a structural shape or plate shall be 1 1/2" unless noted otherwise.
 This standard shall only be used on concrete end sections not skewed more than ±15 degrees with roadway.

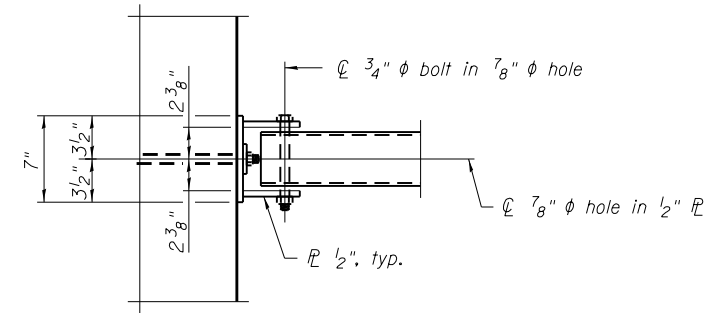
The Contractor may install the thru bolts using drilling and grouting in lieu of providing a formed hole using steel pipe. Installation shall be in accordance with Article 509.06 using a method that results in the annulus surrounding the bolt being completely filled with adhesive. The method of drilling shall not result in spalled concrete at the exit face. Epoxy grouted thru bolts shall be snug tightened followed by an additional 1/3 turn on the interior nut at final installation. Cost included with Traversable Pipe Grate.



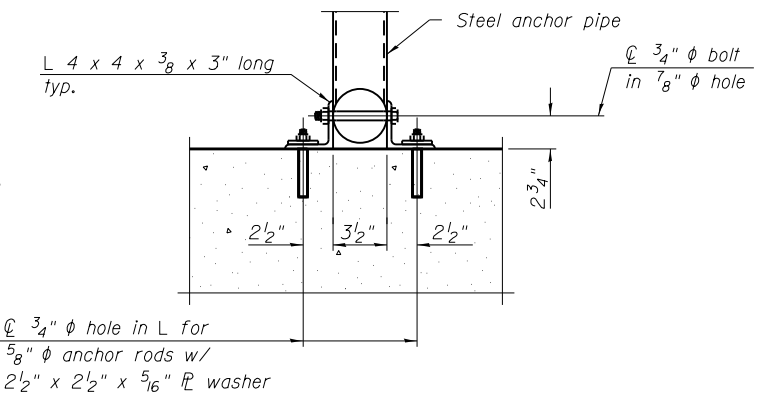
LONGITUDINAL SECTION



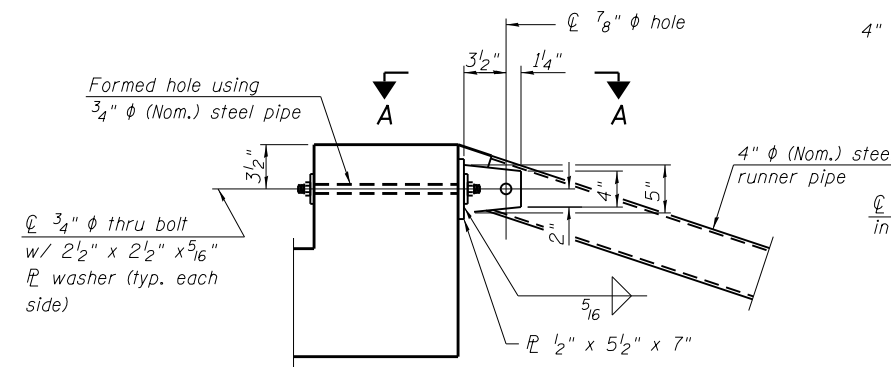
PLAN VIEW



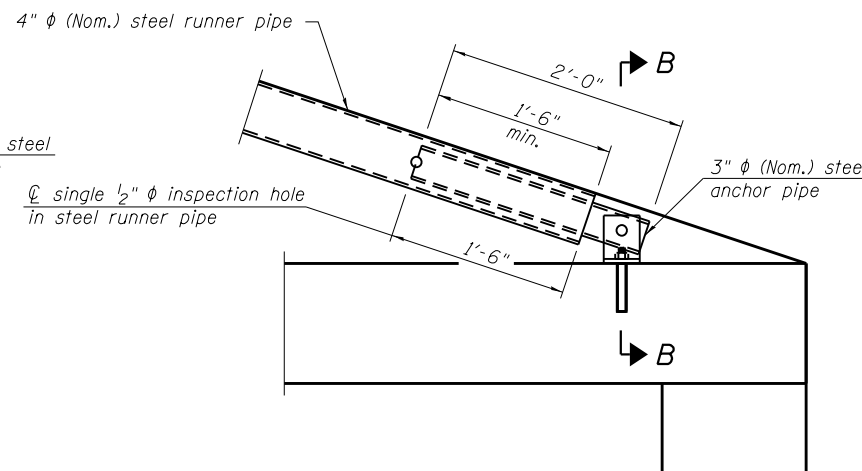
VIEW A-A



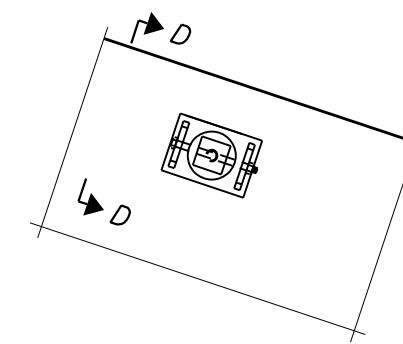
SECTION B-B



DETAIL A

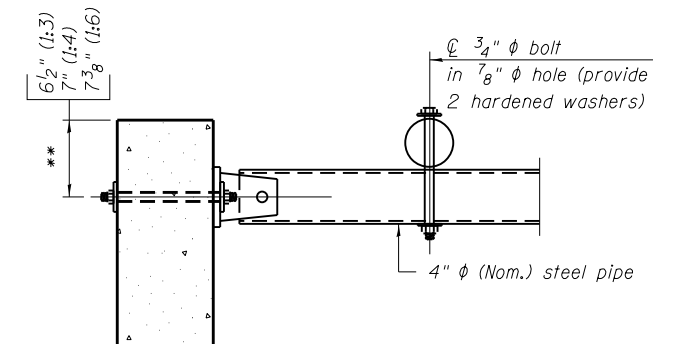


DETAIL B



VIEW C-C

(See Detail A for dimensions and details not shown.)



SECTION D-D

** Measured perpendicular to top of culvert wall. In addition, formed hole shall be located a minimum of 6" measured horizontally from any vertical joints necessary for construction of the culvert end section.

TPGBC-ZS-1

8-21-13

(Sheet 1 of 2)

FILE NAME =	USER NAME =	DESIGNED -	REVISIONS	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TRAVERSABLE PIPE GRATE FOR BOX CULVERTS DETAIL	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED -	REVISIONS			653	105BR-5	PUTNAM	17	10	
		PLOT SCALE =	REVISIONS			CONTRACT NO. 68B40					
		PLOT DATE =	REVISIONS			ILLINOIS FED. AID PROJECT					

PIPE-GRATE SCHEDULE FOR BOX CULVERT END SECTIONS

Precast Box Culvert Dimensions			Slope of End Section								
			1:3			1:4			1:6		
S (ft)	R (ft)	T ₁ (in)	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe	Main Pipe No. / Length	Int. Support No. / Length	Total Length of Pipe
4	2	7 1/2"	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	15'-11"
4	3	7 1/2"	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	7 1/2"	1 @ 15'-2"	N/A	15'-2"	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	3	8	2 @ 12'-1"	N/A	24'-2"	2 @ 15'-10"	N/A	31'-8"	2 @ 23'-6"	1 @ 5'-7"	52'-7"
6	3	7	2 @ 11'-10"	N/A	23'-8"	2 @ 15'-6"	N/A	31'-0"	2 @ 23'-0"	1 @ 5'-7"	51'-7"
6	4	8	2 @ 15'-3"	N/A	30'-6"	2 @ 20'-0"	1 @ 5'-7"	45'-7"	2 @ 29'-7"	2 @ 5'-7"	70'-4"
6	4	7	2 @ 15'-0"	N/A	30'-0"	2 @ 19'-8"	1 @ 5'-7"	44'-11"	2 @ 29'-1"	2 @ 5'-7"	69'-4"
6	5	8	2 @ 18'-5"	N/A	36'-10"	2 @ 24'-1"	2 @ 5'-7"	59'-4"	2 @ 35'-8"	3 @ 5'-7"	88'-1"
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6	6	8	2 @ 21'-7"	1 @ 5'-7"	48'-9"	2 @ 28'-3"	2 @ 5'-7"	67'-8"	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"
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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"
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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"
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12	12	12	4 @ 41'-8"	5 @ 11'-7"	224'-7"	4 @ 54'-4"	6 @ 11'-7"	286'-10"	4 @ 80'-3"	10 @ 11'-7"	436'-10"

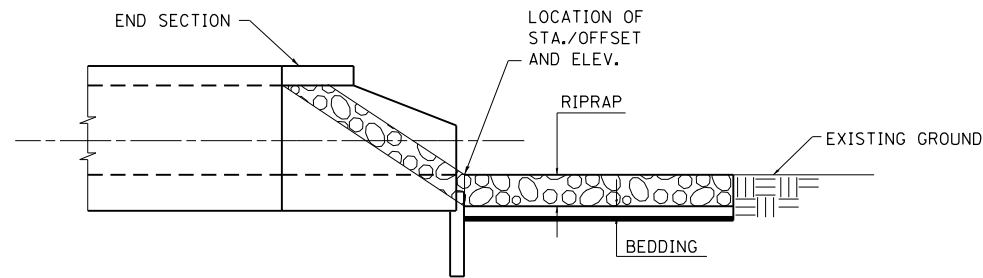
(Sheet 2 of 2)

TPGBC-ZS-2

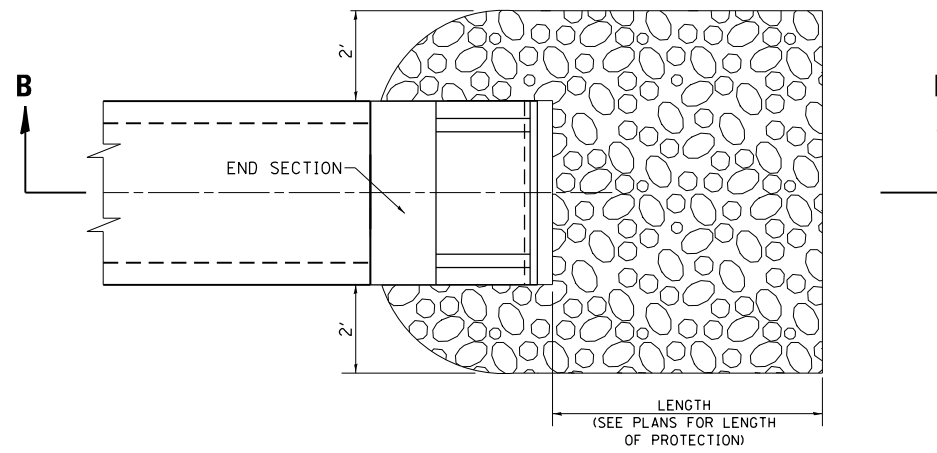
8-21-13

FILE NAME =	USER NAME =	DESIGNED -	REVISOR	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	TRAVERSABLE PIPE GRATE FOR BOX CULVERTS DETAIL	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		CHECKED -	REVISOR			653	105BR-5	PUTNAM	17	11	
		PLOT SCALE =	REVISOR			CONTRACT NO. 68B40					
		PLOT DATE	REVISOR			SHEET NO. 2 OF 2 SHEETS					
ILLINOIS FED. AID PROJECT											

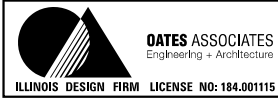
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SECTION B-B



RIPRAP PLACEMENT



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

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

RIPRAP PLACEMENT DETAIL

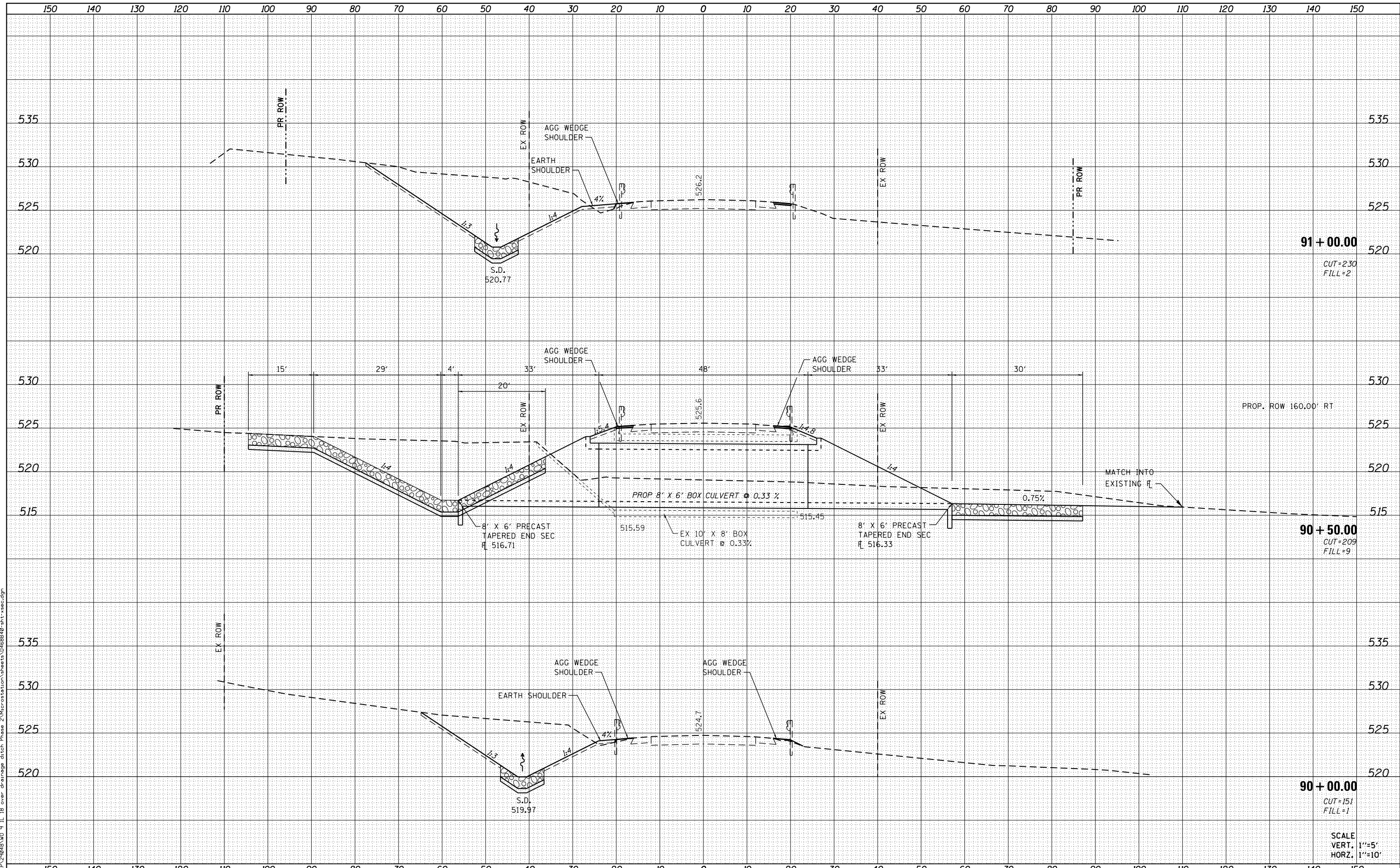
SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	12
				CONTRACT NO. 68B40
ILLINOIS FED. AID PROJECT				

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
AREAS CHECKED	
NO.	

DATE	
BY	
SURVEYED	
PLOTTED	
TEMPLATE	
AREAS CHECKED	
AREAS CHECKED	
NO.	

FILE NAME = H:\P\2004\WG 9 IL 18 over drainage ditch Phase 2\Workstation\shwets\0468B40-91t-sec.dgn



91 + 00.00
CUT=230
FILL=2

PROP. ROW 160.00' RT

90 + 50.00
CUT=209
FILL=9

90 + 00.00
CUT=151
FILL=1

SCALE
VERT. 1"=5'
HORZ. 1"=10'



USER NAME = brianheil
DESIGNED -
DRAWN -
PLOT SCALE = 20.0000' / in.
CHECKED -
PLOT DATE = 12/8/2014

REVISIED -
REVISIED -
REVISIED -
REVISIED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

IL ROUTE 18 CROSS SECTIONS

SCALE: SHEET 2 OF 3 SHEETS STA. 90+00.00 TO STA. 91+00.00

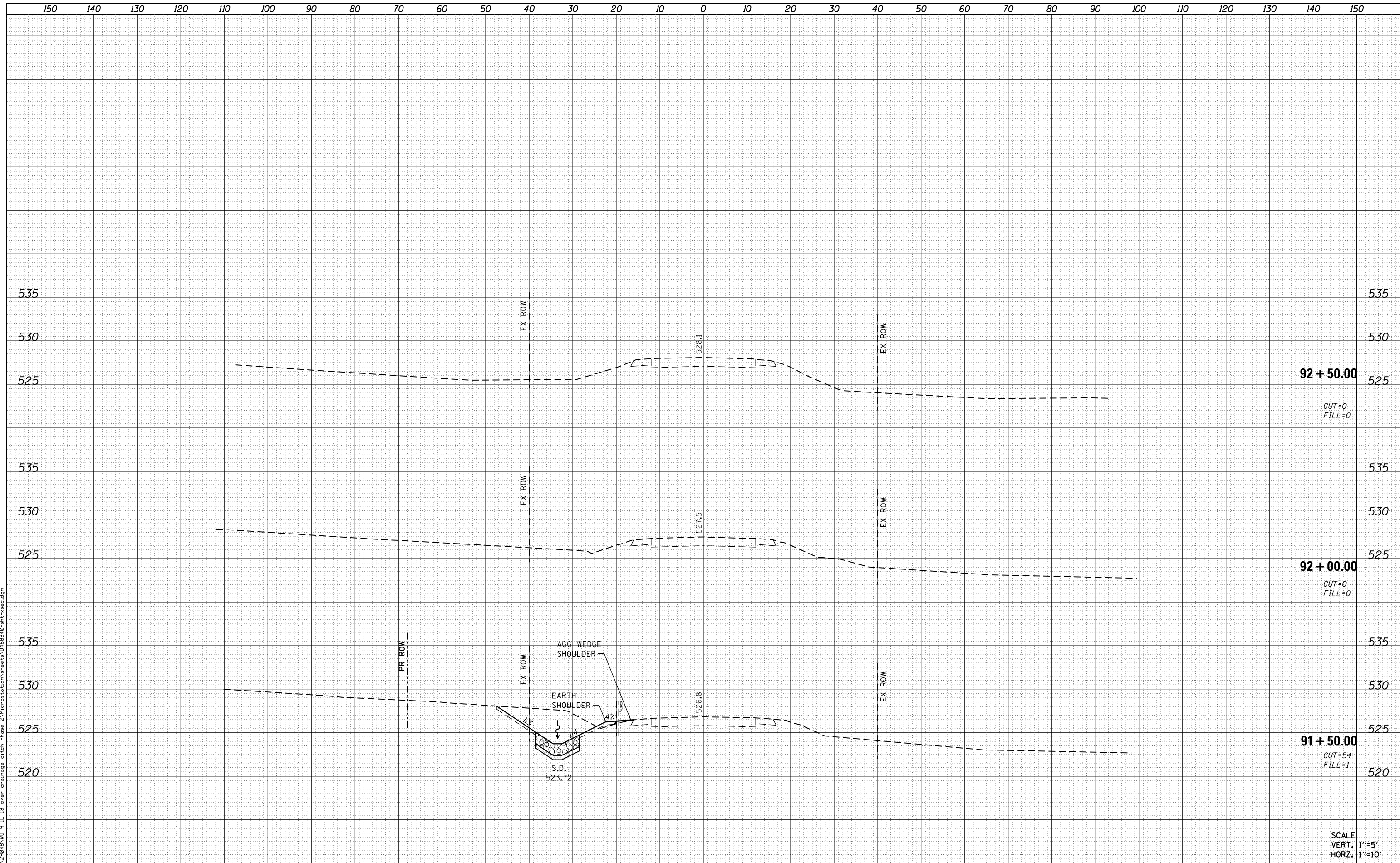
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	16
CONTRACT NO. 68B40				

ILLINOIS FED. AID PROJECT

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

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

FILE NAME = H:\P\2004\WG 9 IL 18 over drainage ditch Phase 2\Workstation\shwets\0468B40-plt-asc.dgn



92 + 50.00
CUT=0
FILL=0

92 + 00.00
CUT=0
FILL=0

91 + 50.00
CUT=54
FILL=1

SCALE
VERT. 1"=5'
HORZ. 1"=10'



USER NAME = brian.heil	DESIGNED -	REVISED -
PLOT SCALE = 20.0000' / in.	DRAWN -	REVISED -
PLOT DATE = 12/8/2014	CHECKED -	REVISED -
	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

IL ROUTE 18 CROSS SECTIONS

SCALE: SHEET 3 OF 3 SHEETS STA. 91+50.00 TO STA. 92+50.00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
653	105BR-5	PUTNAM	17	17
CONTRACT NO. 68B40				

ILLINOIS FED. AID PROJECT