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WATER RELOCATION SHEETS	U2-1 - U2-8
ELECTRIC RELOCATION SHEETS	U3-1 - U3-11
SEWER RELOCATION SHEETS	U4-1 - U4-6
WATER RELOCATION SHEETS	U5-1 - U5-15
WATER RELOCATION SHEETS	U6-1 - U6-56
GAS RELOCATION SHEETS	U7-1 - U7-5

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

HAMILTON

S.R. 320
FROM 325 FT. EAST OF GRAYSVILLE RD.
TO 900 FT. EAST OF BELL-AIR ROAD

TENN.	YEAR	SHEET NO.
	2015	U1-1
FED. AID PROJ. NO.	STP-320(4)	
STATE PROJ. NO.	33057-3224-14	

REV. 12-2-2014: SHEET NUMBERS FOR U6 & U7 HAS BEEN UPDATED IN THE INDEX OF SHEETS.

UTILITIES

STATE HIGHWAY NO. 320 F.A.H.S. NO. 320

UTILITY OWNERS AND CONTACTS:

ELECTRIC:	ELECTRIC POWER BOARD OF CHATTANOOGA P.O. BOX 182255 CHATTANOOGA, TN 37422 ATTN: DAVID HENDERSON PHONE: (423) 648-3257
TELEPHONE:	BELLSOUTH DBA AT&T 300 E. MARTIN LUTHER KING BLVD. 5TH FLOOR CHATTANOOGA, TN 37403 ATTN: TIM MANLEY PHONE: (423) 752-9144
WATER:	EASTSIDE UTILITY DISTRICT P.O. BOX 22037 CHATTANOOGA, TN 37422 ATTN: DONALD STAFFORD PHONE: (423) 892-2890
WATER:	TENNESSEE AMERICAN WATER COMPANY 1500 RIVERSIDE DRIVE CHATTANOOGA, TN 37406 ATTN: ROSEMARY CARSWELL PHONE: (423) 771-4703
GAS:	CHATTANOOGA GAS COMPANY P.O. BOX 4569 ATLANTA, GA 30302 ATTN: BEN MASSENGILL PHONE: (404) 584-3238
CATV:	COMCAST (XFINITY) 2030 EAST POLYMER DRIVE CHATTANOOGA, TN 37421 ATTN: TIM GREGORY PHONE: (706) 252-4185
SEWER:	CITY OF CHATTANOOGA 1250 MARKET ST. SUITE 2100 CHATTANOOGA, TN 37402 ATTN: GORDON PHILLIPS PHONE: (423) 643-6191
SEWER:	HAMILTON COUNTY WWTA 1250 MARKET ST. SUITE 3050 CHATTANOOGA, TN 37402 ATTN: MARK HARRISON PHONE: (423) 209-7835

SPECIAL NOTES

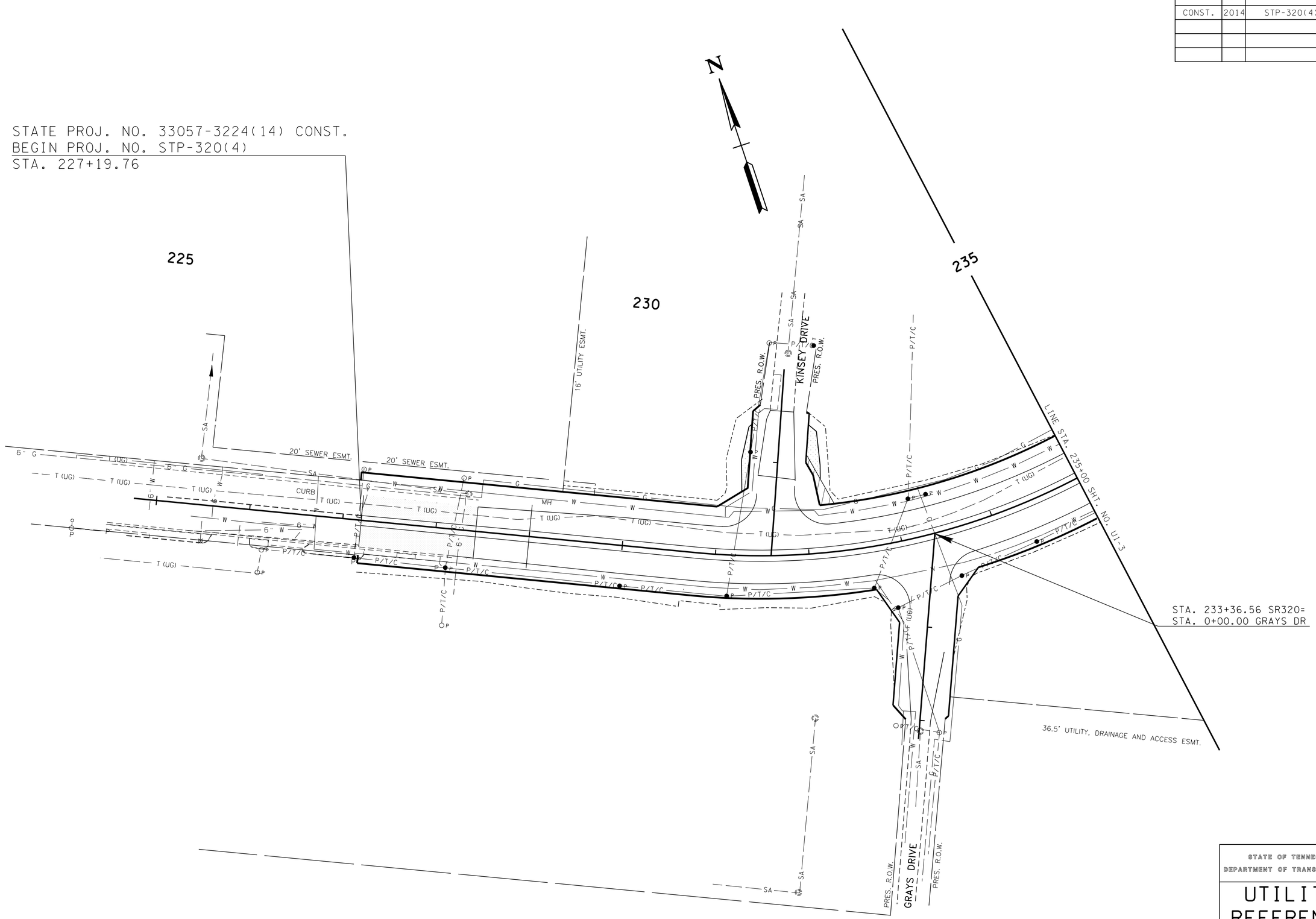
SOME UTILITIES CAN BE LOCATED BY CALLING THE
TENNESSEE ONE CALL SYSTEM, INC.
AT 1-800-351-1111

02-DEC-2014 07:58
\\J02WF01.tdot.state.tn.us\02Shared\Reg 2 ROW Utilities\DRAWINGS\HAMILTON\10143L00\04-10143L00\U1-1.dgn

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-2

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

STATE PROJ. NO. 33057-3224(14) CONST.
BEGIN PROJ. NO. STP-320(4)
STA. 227+19.76



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

BEG. TO STA. 235+00

NTS

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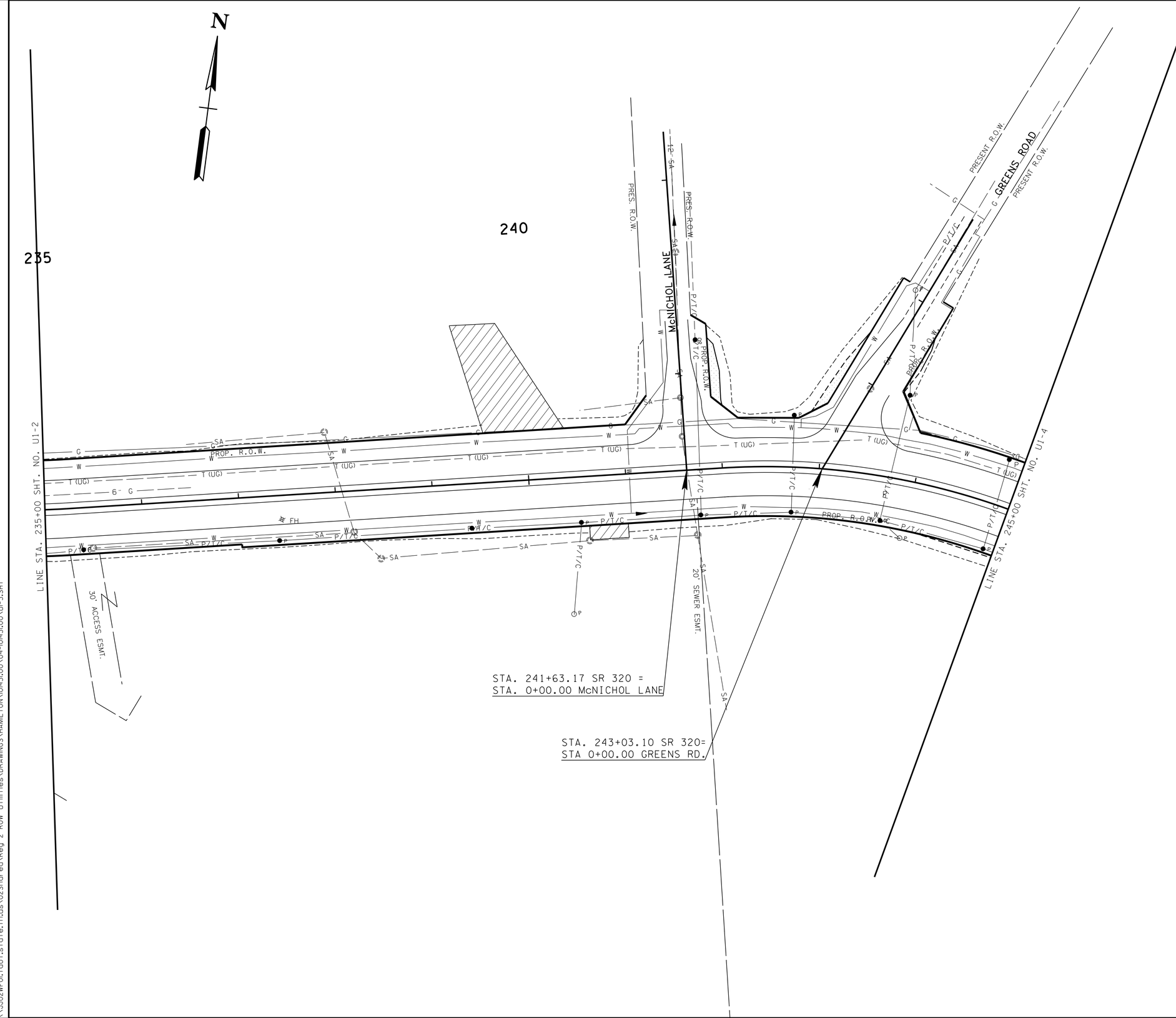
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-3



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA. 235+00 TO STA. 245+00

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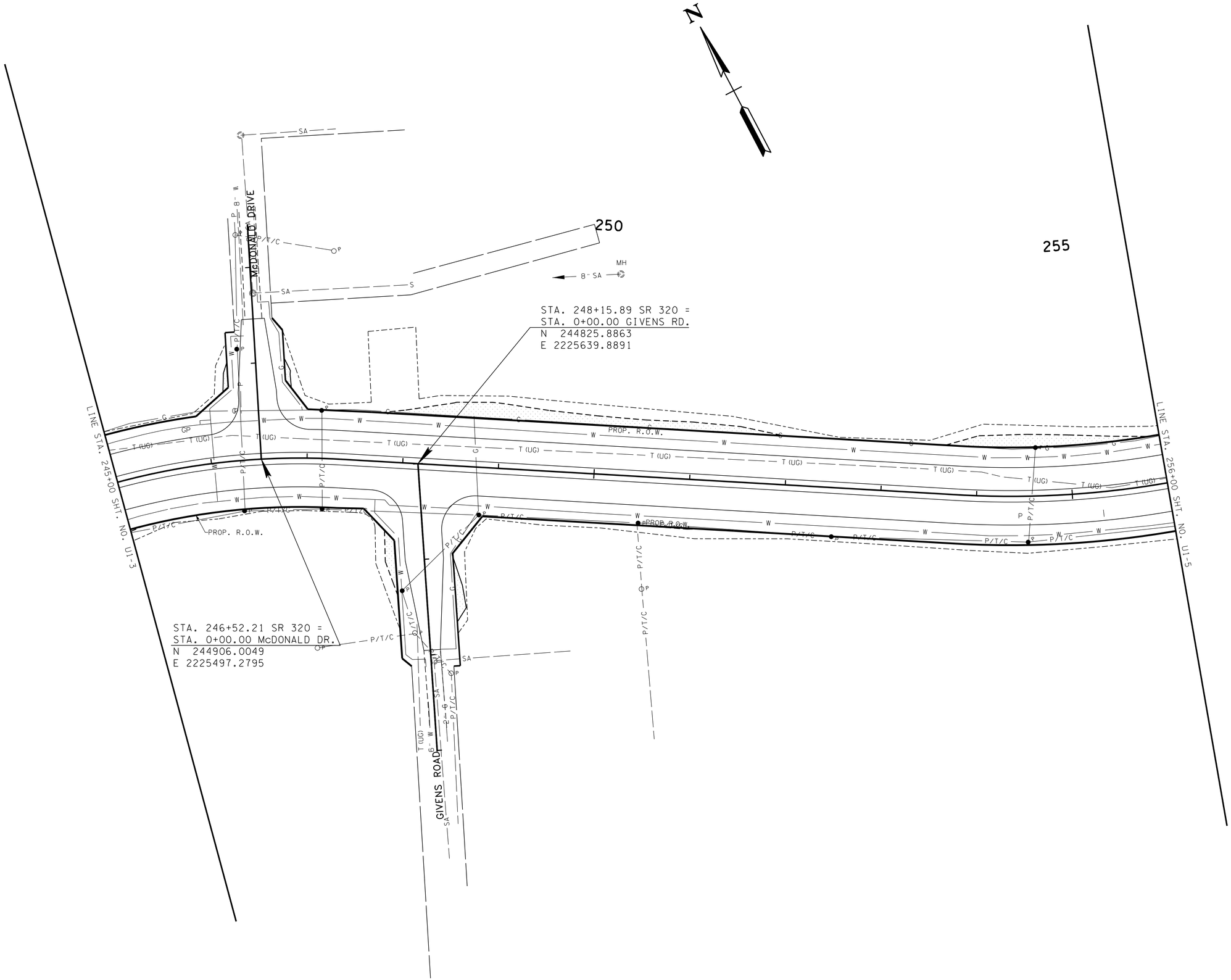
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-4



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA.245+00 TO STA.256 +00

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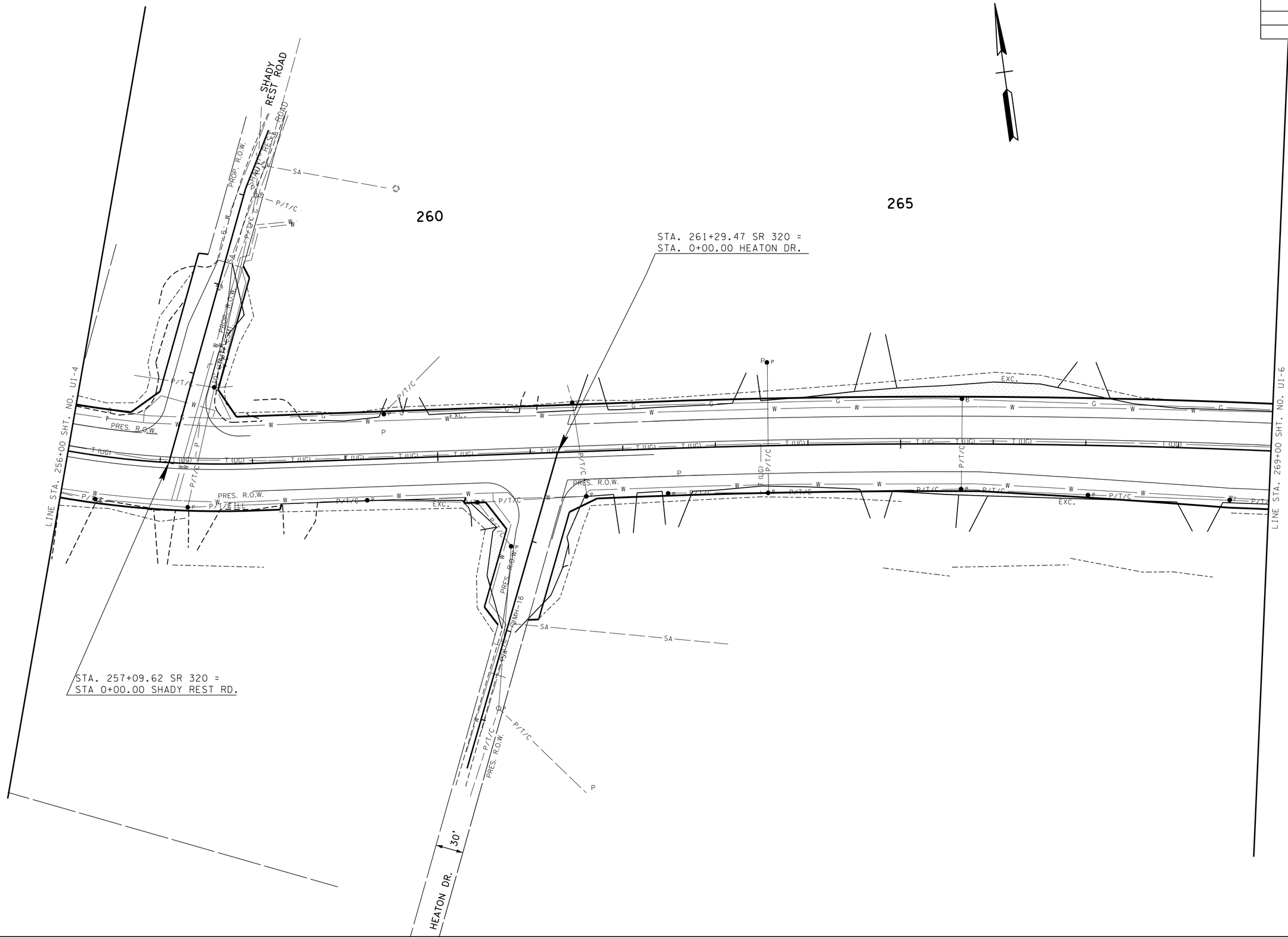
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-5



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA. 256+00 TO STA. 269+00

NTS

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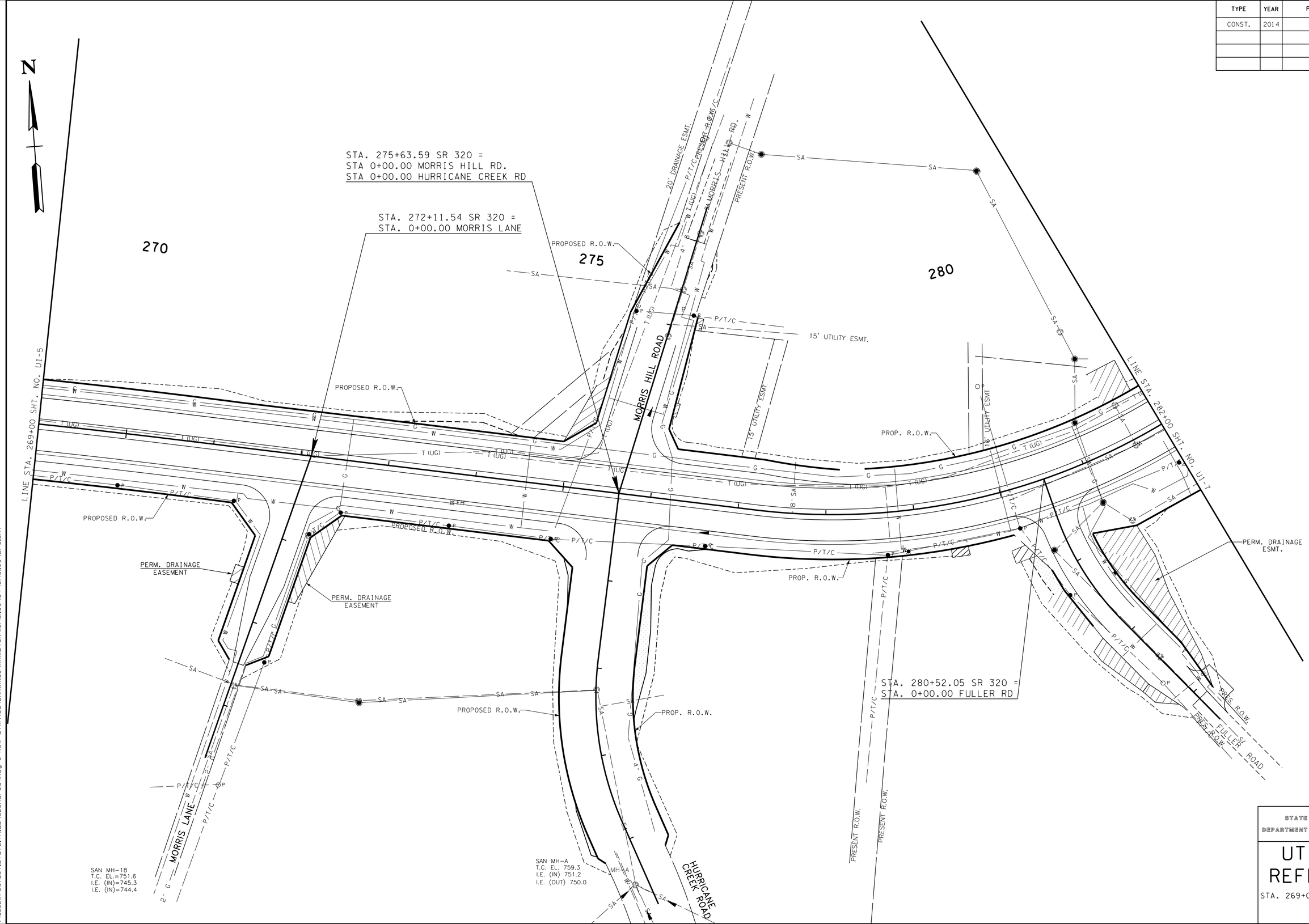
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-6



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA. 269+00 TO STA. 282+00

NTS

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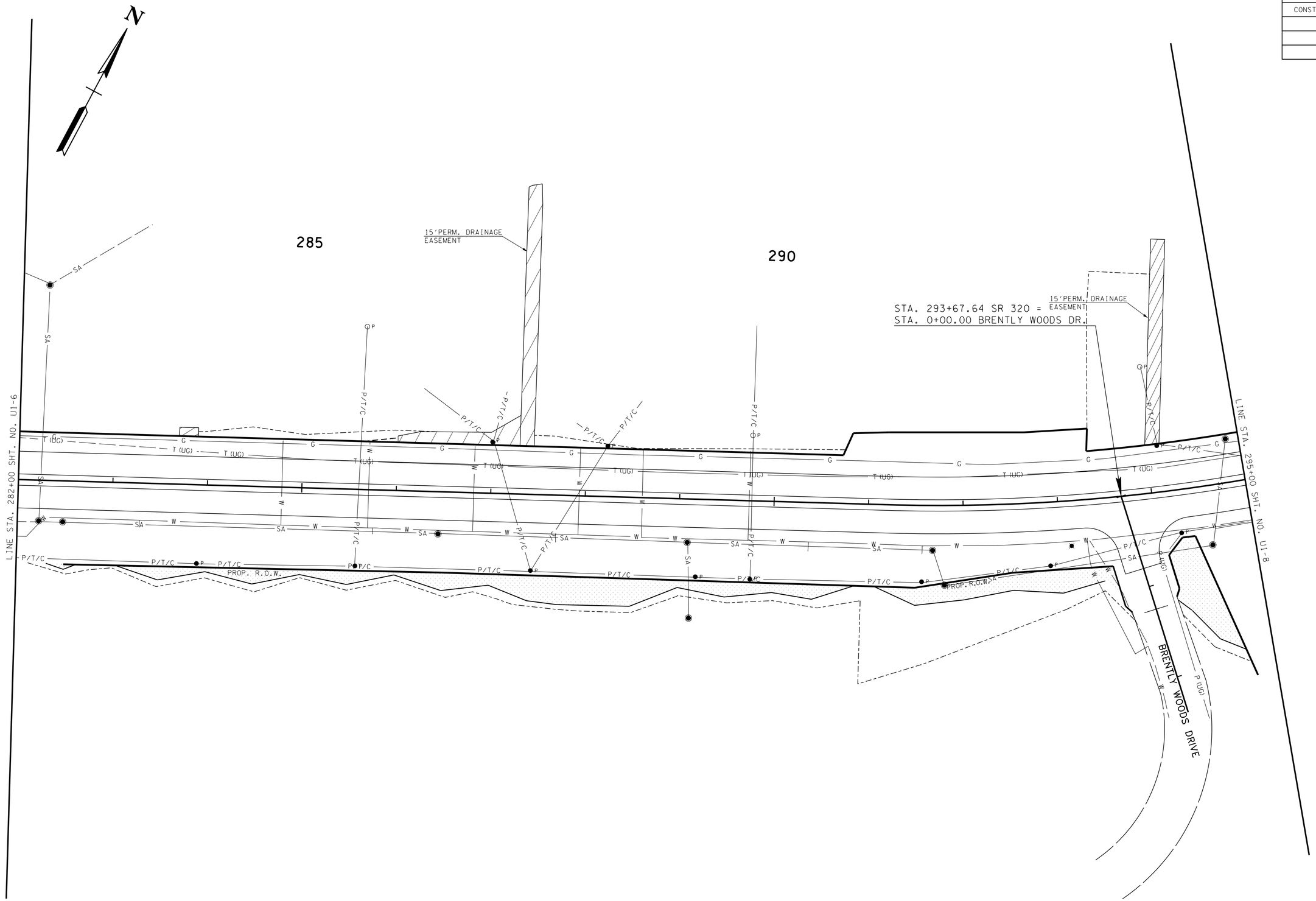
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-7



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA.282+00 TO STA.295+00

NTS

02-DEC-2014 07:59
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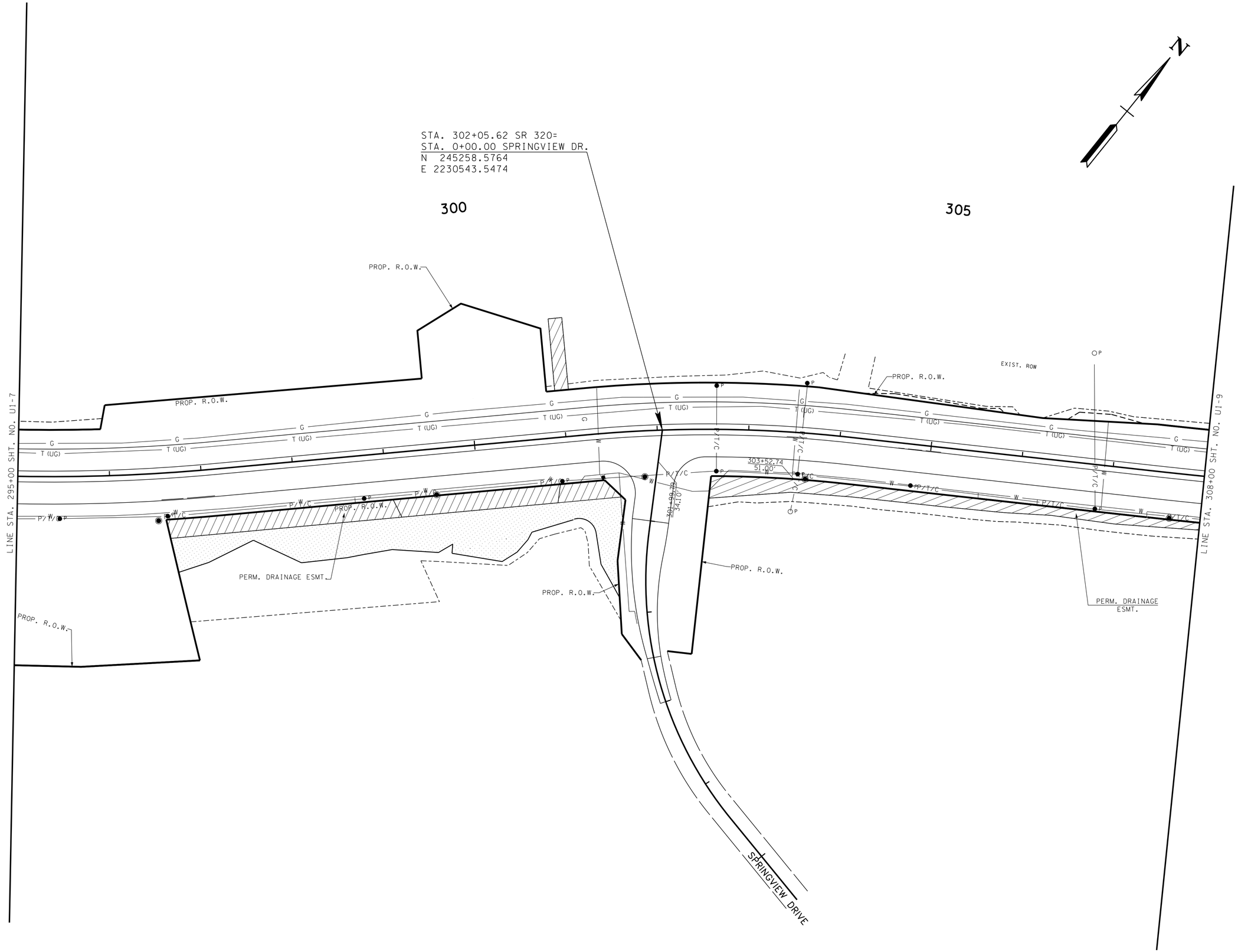
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-8



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA. 295+00 TO STA. 308+00

NTS

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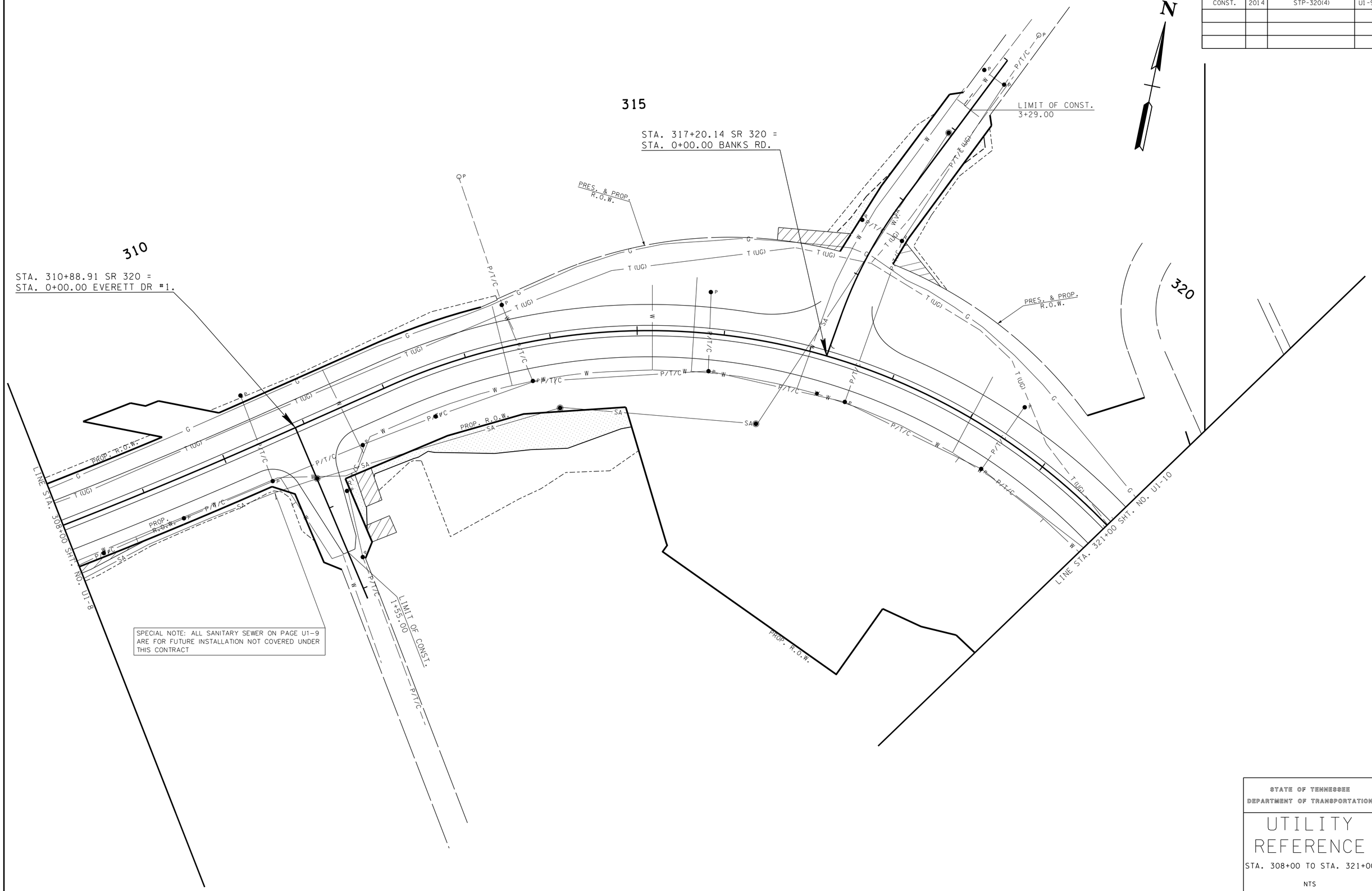
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-9



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA. 308+00 TO STA. 321+00

NTS

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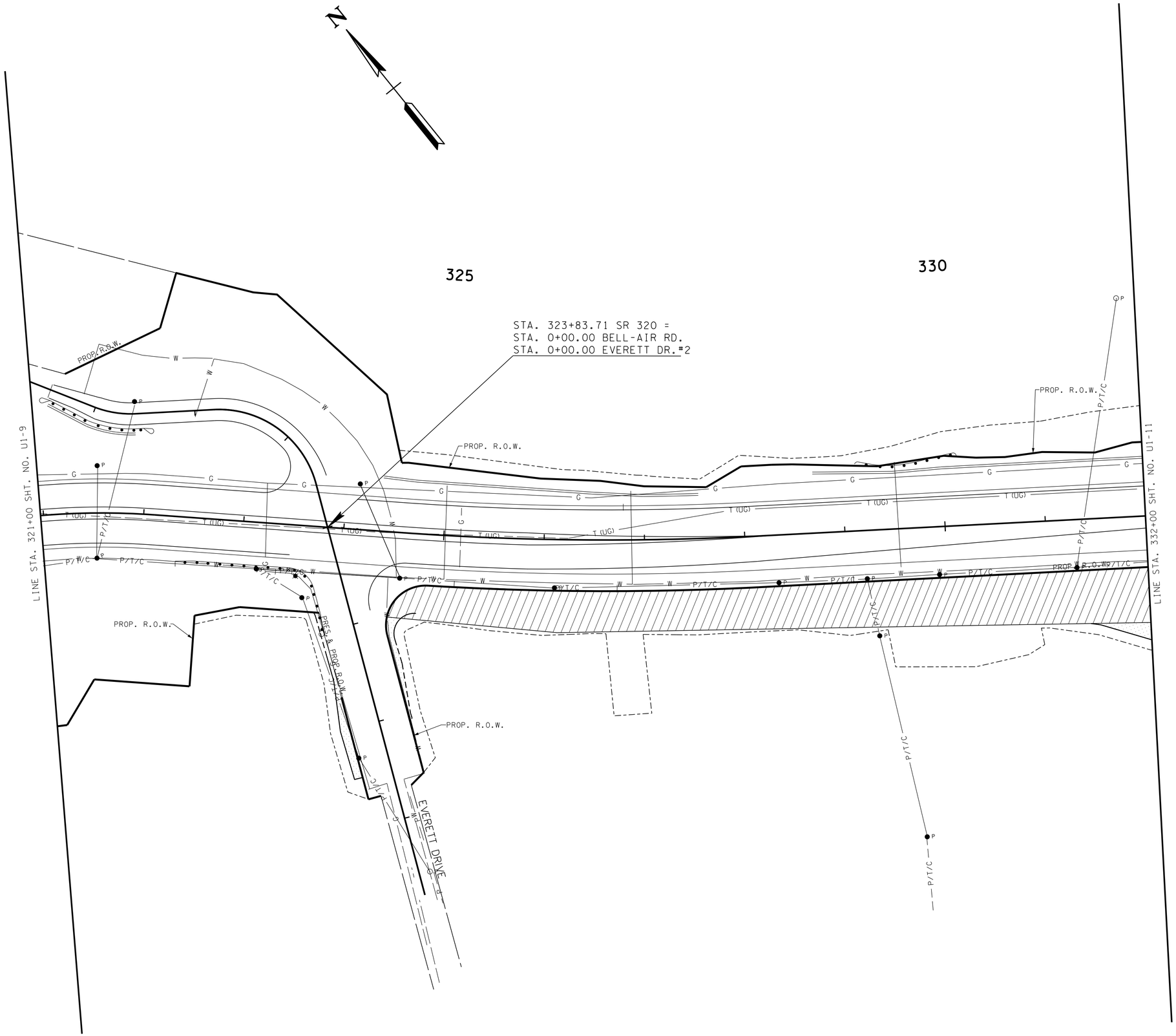
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-10



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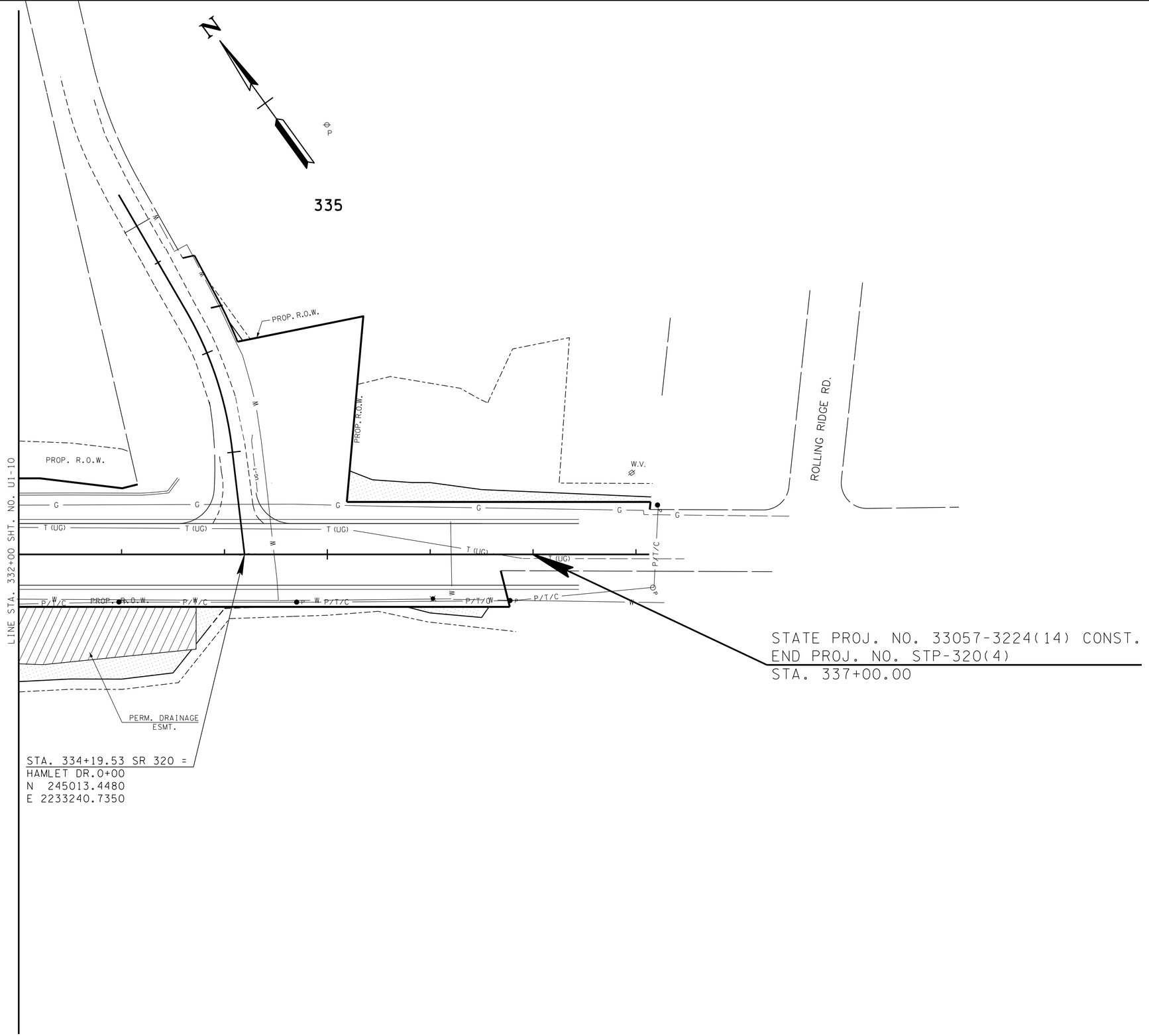
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA. 321+00 TO STA. 332+00

NTS

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2014	STP-320(4)	U1-11



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

UTILITY REFERENCE

STA. 332+00 TO END

NTS

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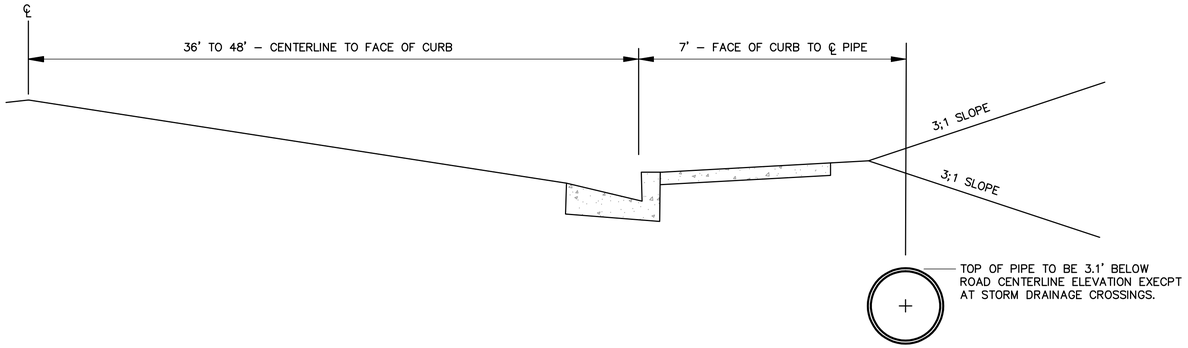
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-1

FILE NO.

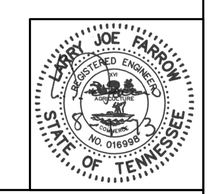


TYPICAL SECTION SHOWING WATER LINE LOCATION

EAST BRAINERD ROAD WATER LINE RELOCATION						
STP-320(4)						
ESTIMATED UTILITY QUANTITIES						
ITEM NO.	DESCRIPTION	UNIT	QUANTITY	% UTILITY	% PROJECT	SEE NOTES
795-01.04	6IN DIP SLIP JOINT WATER LINE	L.F.	60	0.0	100.0	
795-01.06	8IN DIP SLIP JOINT WATER LINE	L.F.	1815	24.8	75.2	9
795-01.10	12IN DIP SLIP JOINT WATER LINE	L.F.	3845	0.0	100.0	9
795-01.20	24IN DIP SLIP JOINT WATER LINE	L.F.	2600	24.8	75.2	9
795-05.65	BORE/JACK 16IN STEEL CASING PIPE-UNCON.	L.F.	240	24.8	75.2	10
795-05.68	BORE/JACK 24IN STEEL CASING PIPE-UNCON.	L.F.	320	0.0	100.0	10
795-05.70	BORE/JACK 36IN STEEL CASING PIPE-UNCON.	L.F.	180	24.8	75.2	10
795-06.07	CONNECT TO 12IN WATER LINE	EACH	1	0.0	100.0	11
795-07.01	4IN X 4IN TAPPING SLEEVE AND VALVE	EACH	2	0.0	100.0	12
795-07.03	6IN X 6IN TAPPING SLEEVE AND VALVE	EACH	4	0.0	100.0	12
795-07.06	8IN X 8IN TAPPING SLEEVE AND VALVE	EACH	3	0.0	100.0	12
795-08.05	8IN GATE VALVE ASSEMBLY	EACH	15	0.0	100.0	15
795-08.09	12IN GATE VALVE ASSEMBLY	EACH	8	0.0	100.0	15
795-08.20	24IN GATE VALVE ASSEMBLY	EACH	10	24.8	75.2	15
795-09.01	3/4IN WATER SERVICE METER ASSEMBLY	EACH	52	0.0	100.0	10
795-09.08	8IN WATER SERVICE METER ASSEMBLY	EACH	1	0.0	100.0	14,19
795-09.28	3/4IN COPPER SERVICE PIPE	L.F.	2006	0.0	100.0	16
795-09.29	1IN COPPER SERVICE PIPE	L.F.	90	0.0	100.0	16
795-10.05	2IN AUTO AIR RELEASE VALVE ASSEMBLY	EACH	2	0.0	100.0	6,14
795-11.02	FIRE HYDRANT ASSEMBLY	EACH	6	0.0	100.0	14
795-11.04	RELOCATE FIRE HYDRANT	EACH	3	0.0	100.0	17
795-12.02	REMOVAL OF EXISTING LINE	LS	1	0.0	100.0	13
795-13.01	DI FITTINGS	LBS	16230	0.0	100.0	18
795-13.30	4IN INSERTION VALVE	EACH	2	0.0	100.0	12
795-13.31	6IN INSERTION VALVE	EACH	4	0.0	100.0	12
795-13.32	8IN INSERTION VALVE	EACH	3	0.0	100.0	12
795-13.34	12IN INSERTION VALVE	EACH	1	0.0	100.0	12

WATER NOTES:

1. MAINTAIN EXISTING LINES IN SERVICE UNTIL NEW LINES ARE INSTALLED.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 'EASTSIDE UTILITY DISTRICT STANDARD SPECIFICATIONS'.
3. ALL UNDERGROUND UTILITIES ARE NOT SHOWN. CONTRACTOR SHALL LOCATE PRIOR TO DIGGING.
4. HYDRANT ASSEMBLY CONSISTS OF A HYDRANT TEE, HYDRANT VALVE, ANCHOR COUPLING, VALVE BOX AND FIRE HYDRANT.
5. AIR RELEASE VALVE ASSEMBLY CONSISTS OF A DOUBLE STRAP SADDLE, AIR RELEASE VALVE AND METER BOX.
6. WATER METER RELOCATION INCLUDES SUPPLY LINE, SERVICE LINE, METER SETTING, METER BOX, METER REMOVAL AND REPLACEMENT AND LINE CONNECTIONS.
7. WATER MAINS TO BE PLACED OVER STORM DRAINAGE STRUCTURES ONLY IF 24" COVER OVER WATER PIPE IS AVAILABLE. FOR 24" TO 30" OF COVER, USE 4" CONCRETE CAP OVER PIPE. OTHERWISE, LOCATE UNDER STRUCTURES WITH 1' MIN. SEPARATION.
8. AT GUARD RAILS LOCATE WATER MAINS 2' MIN. FROM GUARD RAILS POST.
9. INCLUDES ALL MATERIALS, LABOR, EQUIPMENT FOR COMPLETE INSTALLATION OF PIPE INCLUDING BUT NOT LIMITED TO TRAFFIC CONTROL, MATERIALS, EQUIPMENT, EXCAVATION IN BOTH UNCONSOLIDATED AND ROCK, REMOVAL AND REPLACEMENT OF UNSUITABLE SOIL, ENVELOPE/BEDDING MATERIAL, BACKFILLING, FLOWABLE FILL, THRUST BLOCKING, CONCRETE DEADMAN, PIPE FUSION, TRACER WIRE, WARNING TAPE, APPURTENANCES, TEMPORARY/PERMANENT SHORING, MAINTAINING THE TRENCH, TESTING, FLUSHING, DISINFECTION, BACTERIOILOGICAL SAMPLING, TEMPORARY/PERMANENT SURFACE RESTORATION, AND ANY OTHER LABOR OR MATERIAL REQUIRED TO COMPLETE THE WORK AS SPECIFIED ON THE PLANS.
10. INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT INCLUDING BUT NOT LIMITED TO CASING PIPE, PIPE SPACERS, CASING END SEALS, FITTINGS, TRACER WIRE, WARNING TAPE, UTILITY LINE MARKERS AND TRAFFIC CONTROL. IF CASING PIPE HAS CARRIER PIPE, THE CARRIER PIPE SHALL BE PAID AT THE OPEN CUT ITEM.
11. INCLUDES ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR CONNECTING TO AN EXISTING WATER LINE INCLUDING TRAFFIC CONTROL.
12. INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT INCLUDING BUT NOT LIMITED TO TAPPING SLEEVE, VALVE, VALVE BOX, BOX ADJUSTMENT, VALVE BOX COLLAR, VALVE MARKER, EXCAVATION, BEDDING, BACKFILL, BLOCKING AND RESTRAINT, TAP OF EXISTING LINE, AND TRAFFIC CONTROL.
13. INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT FOR REMOVAL OF ITEM. STA. 315+50 TO STA. 318+50.
14. INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT INCLUDING BUT NOT LIMITED TO MACHINERY, TOOLS OR APPARATUS NECESSARY FOR INSTALLATION OF ASSEMBLIES AS DESCRIBED IN THE PLANS AND SPECS EXCEPT FOR SERVICE LINE WHICH IS PAID SEPARATELY FOR EACH FOOT INSTALLED.
15. INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT INCLUDING BUT NOT LIMITED TO FITTINGS, VALVE, VALVE STEM EXTENSIONS, VALVE BOX AND COVER, BOX ADJUSTMENT, VALVE BOX COLLAR, VALVE MARKER, EXCAVATION, BEDDING, BACKFILL, BLOCKING, AND TRAFFIC CONTROL.
16. INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT FOR COMPLETE INSTALLATION OF SERVICE LINE OR CASING FOR SERVICE LINE ON LONG SIDE AND SHORT SIDE OF MAIN.
17. INCLUDES ALL MATERIALS, LABOR, AND EQUIPMENT TO DISCONNECT AND RECONNECT EXISTING FIRE HYDRANT TO A NEW LINE.
18. INCLUDES FITTINGS, GLANDS AND RESTRAINT DEVICES DESCRIBED IN POUNDS.
19. TWO FLOW METERS WITH BY PASS VALVE INSTALLED IN A CONCRETE PIT WITH A METAL COVER AND 24" x 24" INSPECTION ACCESS DOOR.
20. FOR STORM DRAIN BOXES OVER 36", OFFSET WATER PIPE AROUND END OF BOX AS SHOWN ON THE PLANS. TOP OF THE WATER LINE SHOULD BE 24" BELOW THE BOX INVERT.
21. FOR STORM DRAIN PIPES 36" AND SMALLER, DEPRESS WATER LINE UNDER THE PIPE USING JOINT DEFLECTION. TOP OF THE WATER LINE SHOULD BE 24" BELOW THE PIPE INVERT.

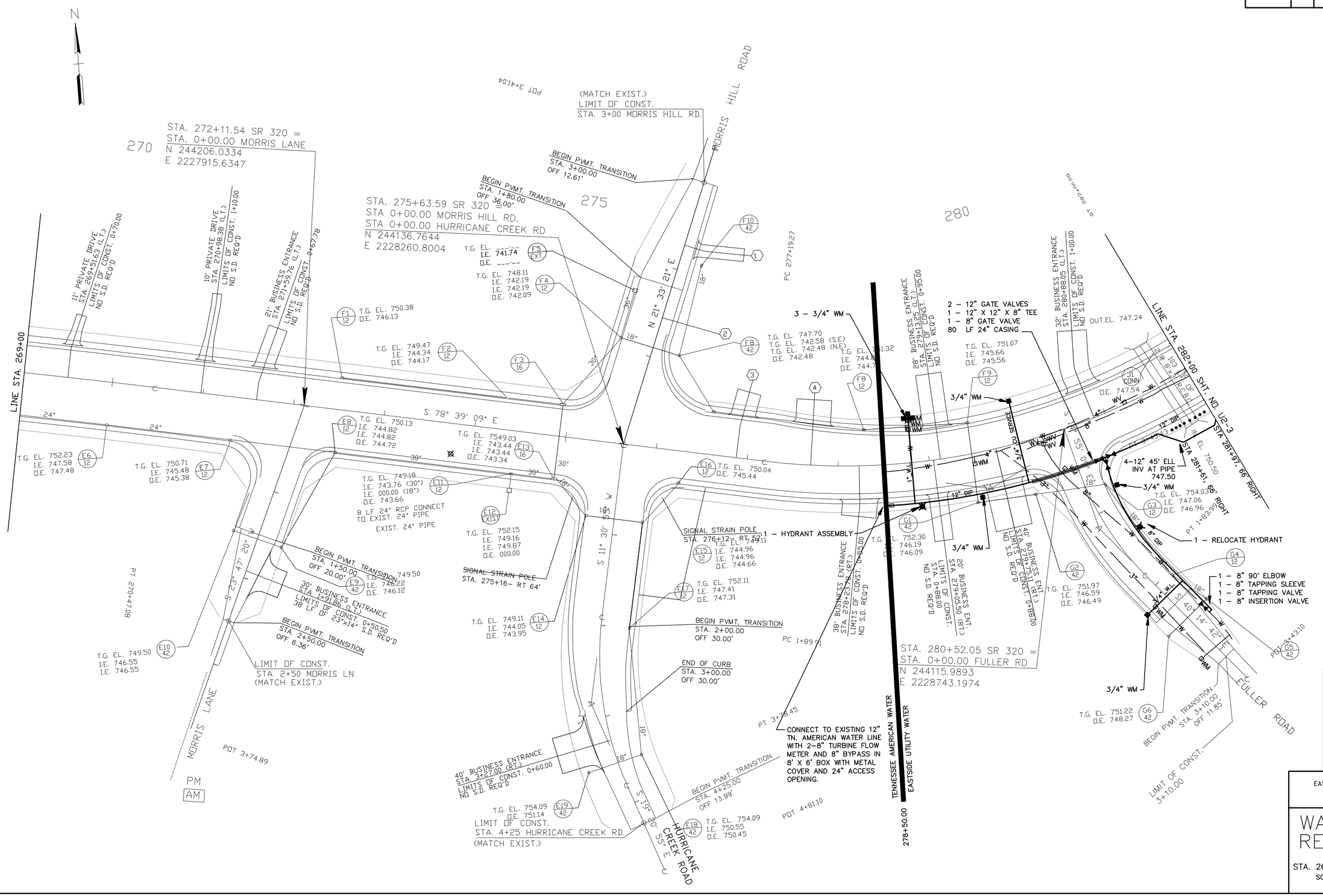


EASTSIDE UTILITY DISTRICT
WATER RELOCATION

ESTIMATED
WATER LINE
QUANTITIES

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-2

FILE NO.



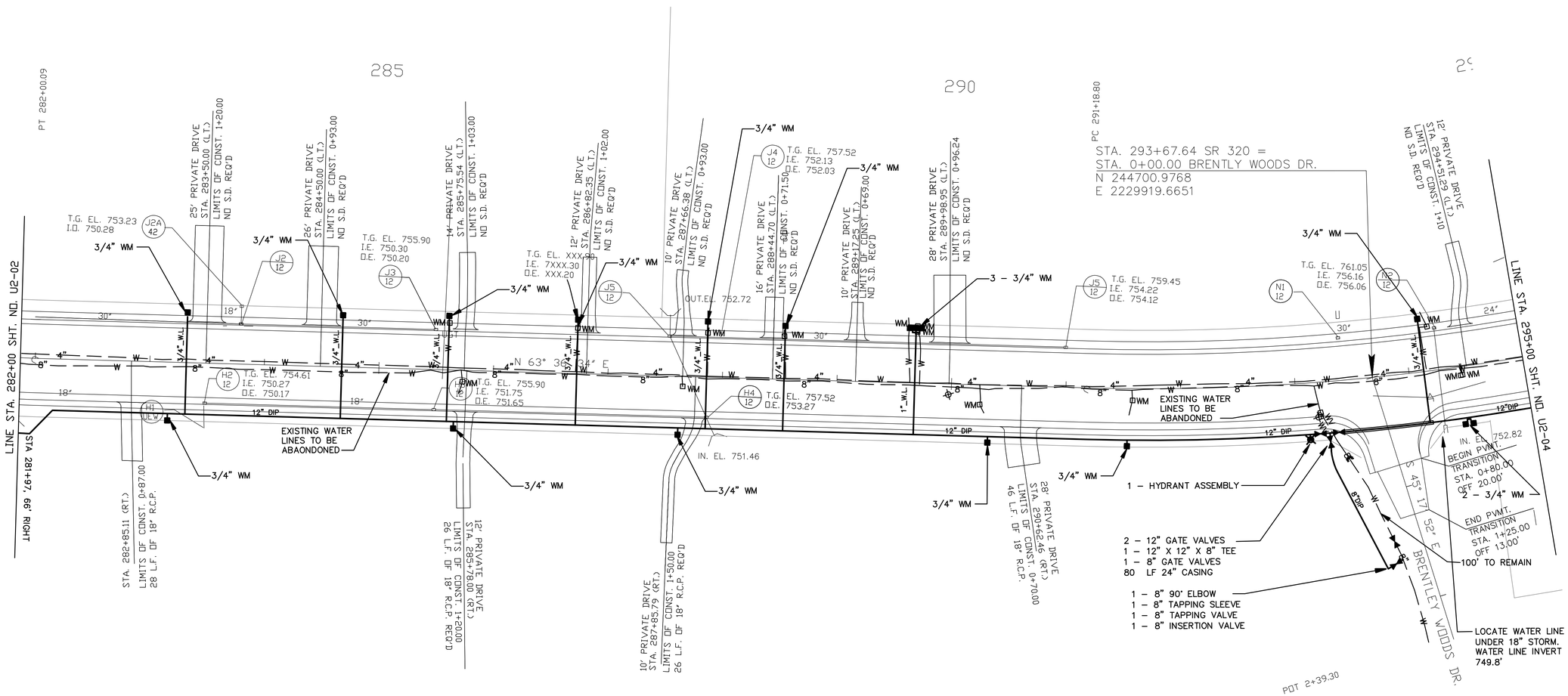
EASTSIDE UTILITY DISTRICT
WATER RELOCATION

WATER LINE RELOCATION

STA. 269+00 TO STA. 282+00
SCALE: 1"= 50' HORIZ.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-3

FILE NO.



LARRY JOE FARROW
REGISTERED ENGINEER
NO. 016998
STATE OF TENNESSEE

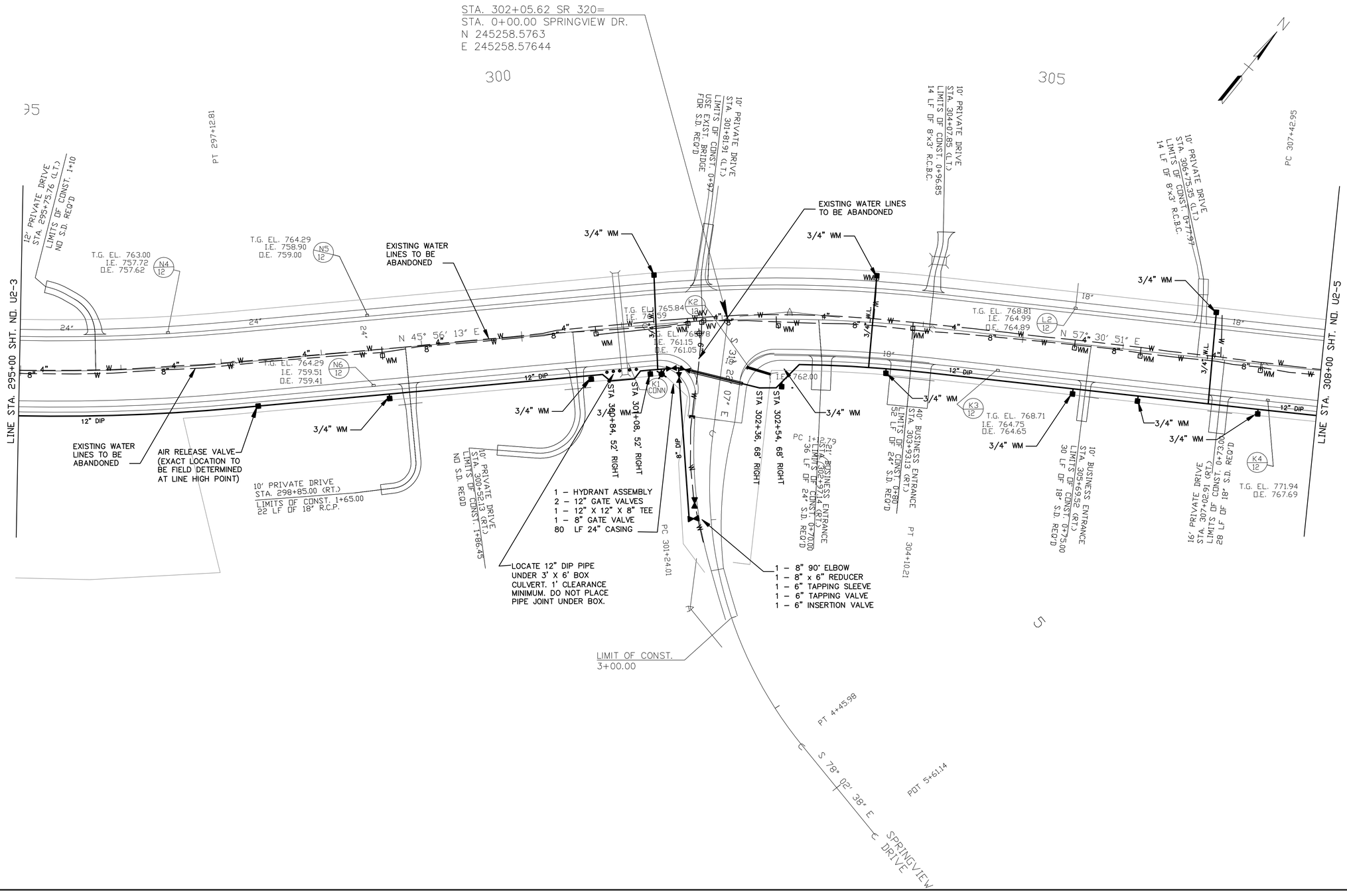
EASTSIDE UTILITY DISTRICT
WATER RELOCATION

WATER LINE RELOCATION

STA. 282+00 TO STA. 295+00
SCALE: 1"= 50' HORIZ.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-4

FILE NO.



LARRY JOE FARROW
REGISTERED ENGINEER
NO. 016998
STATE OF TENNESSEE

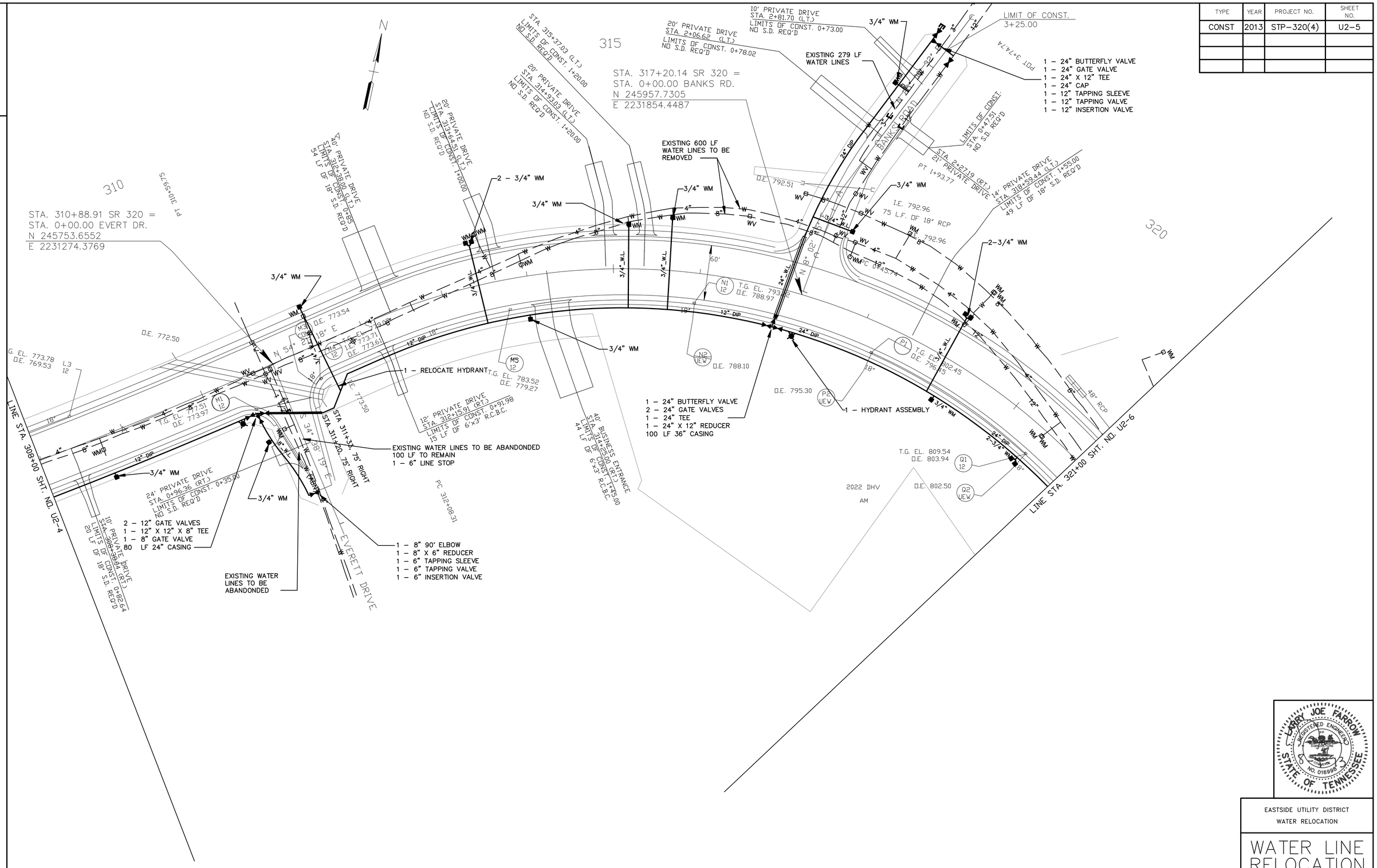
EASTSIDE UTILITY DISTRICT
WATER RELOCATION

WATER LINE RELOCATION

STA. 295+00 TO STA. 308+00
SCALE: 1"= 50' HORIZ.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-5

FILE NO.



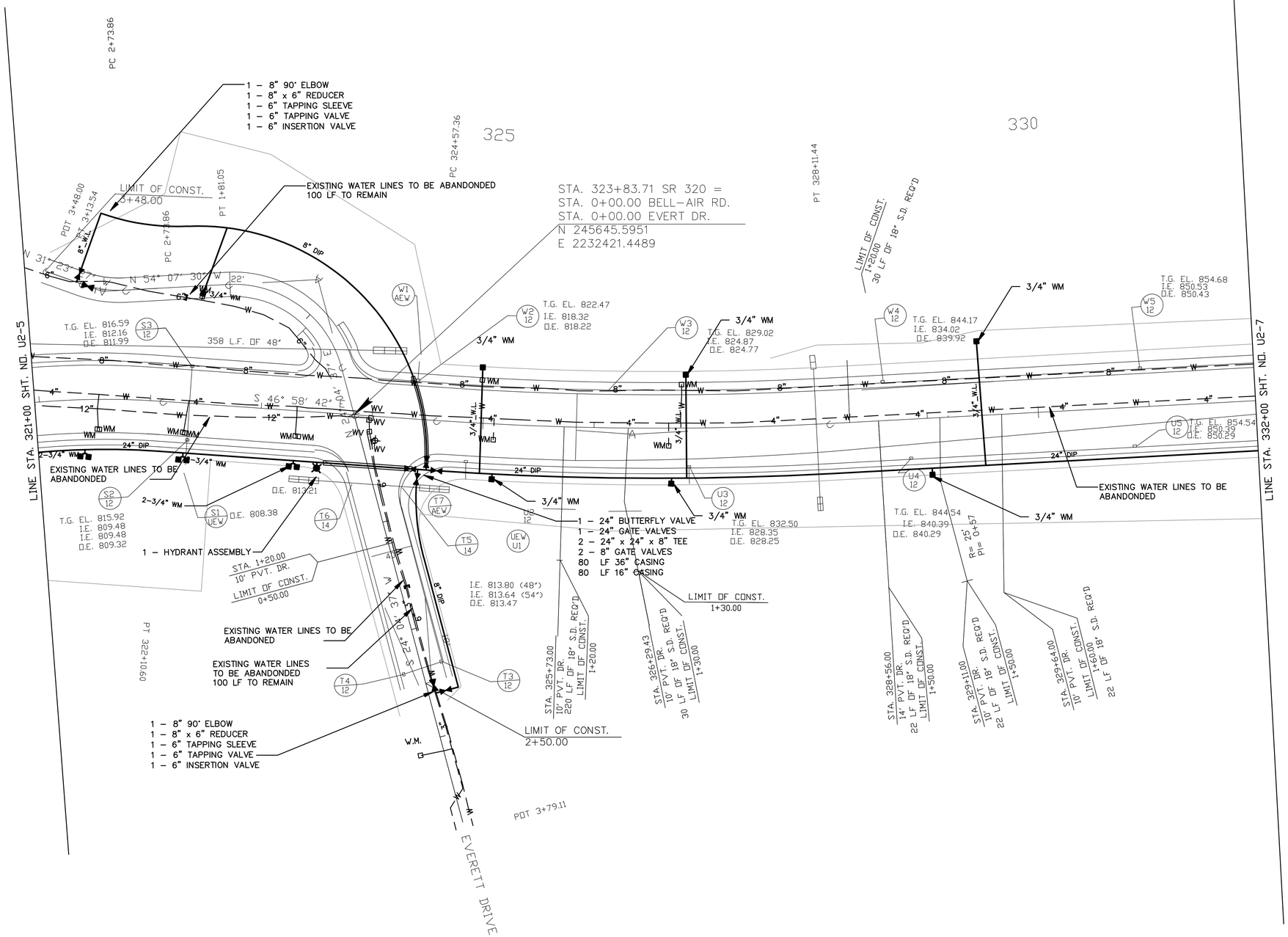
EASTSIDE UTILITY DISTRICT
WATER RELOCATION

WATER LINE RELOCATION

STA. 308+00 TO STA. 321+00
SCALE: 1"= 50' HORIZ.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-6

FILE NO.



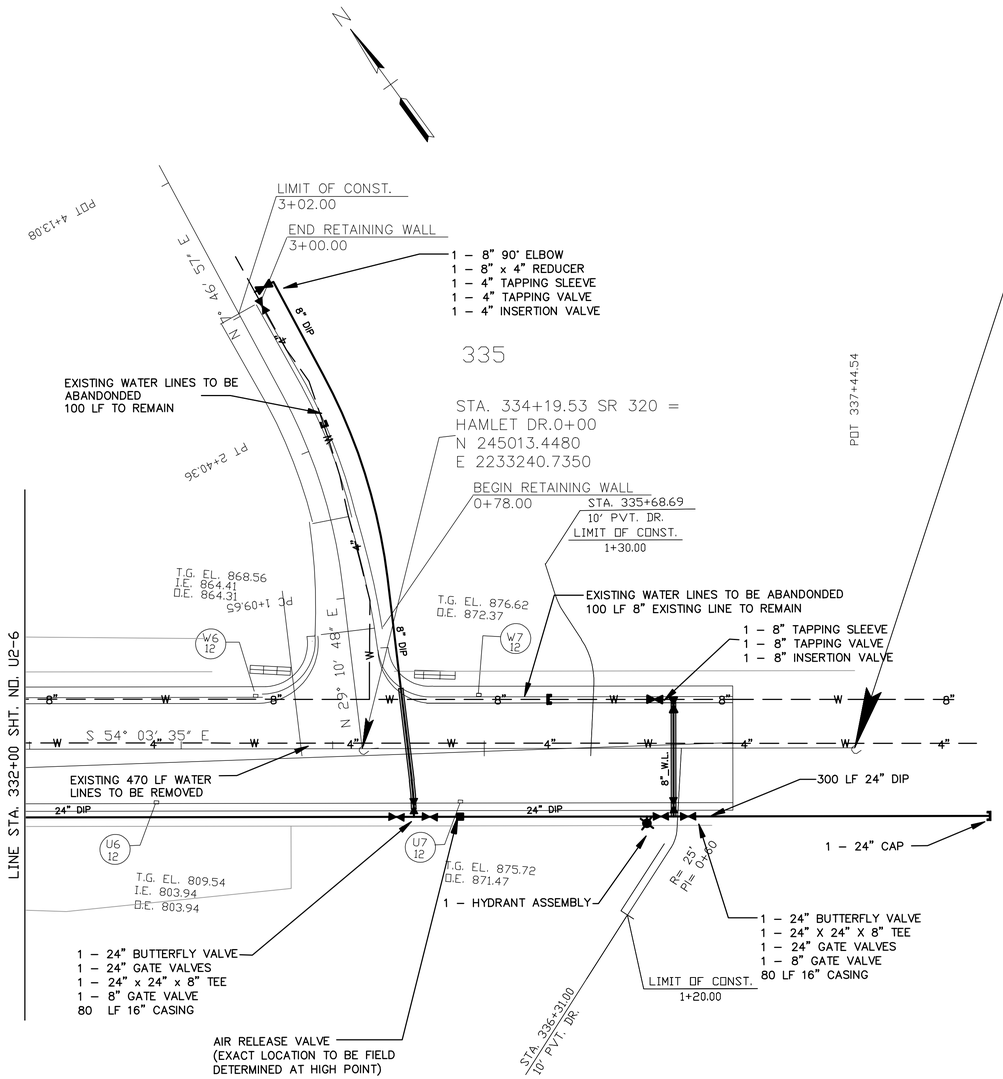
EASTSIDE UTILITY DISTRICT
WATER RELOCATION

WATER LINE RELOCATION

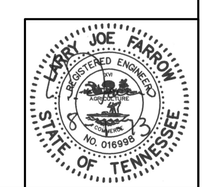
STA. 321+00 TO STA. 332+00
SCALE: 1"= 50' HORIZ.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-7

FILE NO.



STATE PROJ. NO. 33057-2222-14
END PROJ. STP-243(4)R.O.W.
STA. 337+44.54



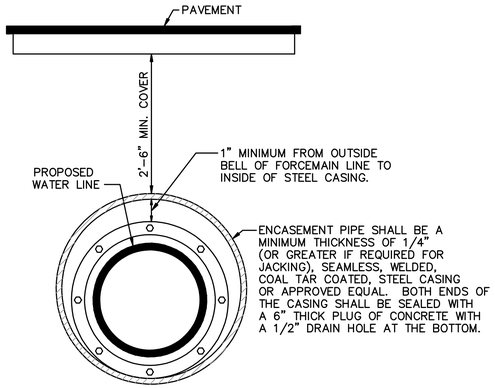
EASTSIDE UTILITY DISTRICT
WATER RELOCATION

WATER LINE RELOCATION

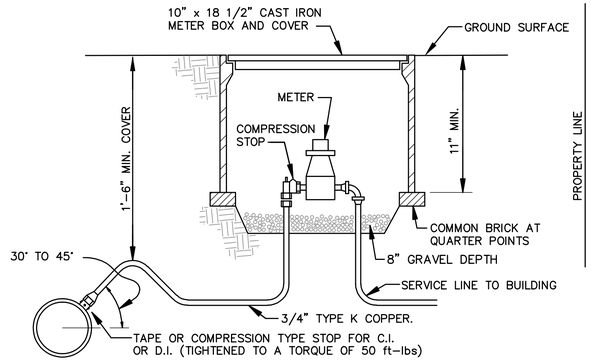
STA. 332+00 TO END
SCALE: 1"= 50' HORIZ.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2013	STP-320(4)	U2-8

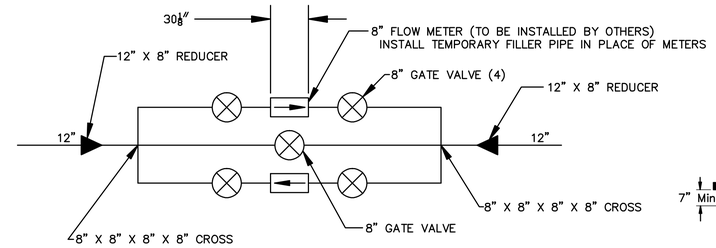
FILE NO.



ROAD CROSSING ENCASEMENT DETAIL

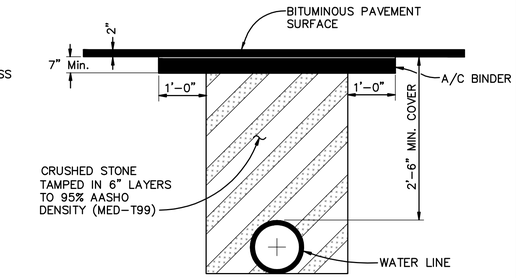


WATER SERVICE CONNECTION DETAILS



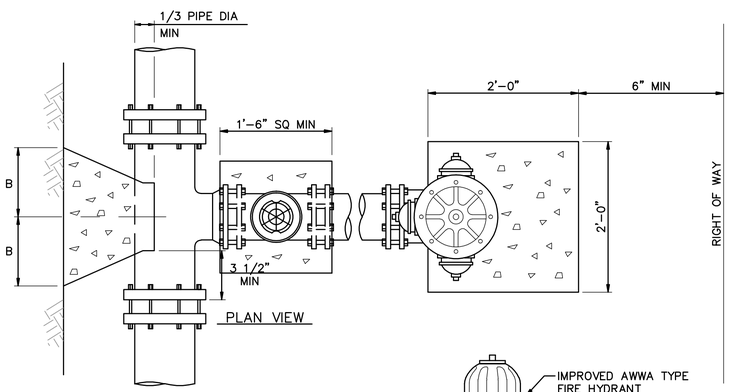
8" FLOW METER SCHEMATIC

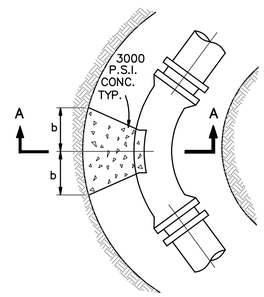
NOTE: ALL CUTS SHALL BE MADE WITH A SAW AND SHALL BE AS STRAIGHT AND NEAT AS POSSIBLE.



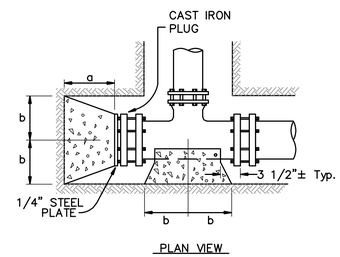
NOTE: CONTRACTOR SHALL CUT PAVEMENT, EXCAVATE DITCH, LAY PIPE, BACKFILL, TAMP AND COMPACT FILL, AND RESTORE PAVEMENT IN ACCORDANCE WITH THE SPECIFICATIONS, PLANS, TNDOT INSTRUCTIONS, AND DIRECTIONS OF THE ENGINEER'S INSPECTORS. ON ROADS, STREETS, ETC., ONE LANE SHALL BE KEPT OPEN FOR TRAFFIC AT ALL TIMES.

ROADWAY PAVEMENT REPLACEMENT #1





TYPICAL BEND PLAN



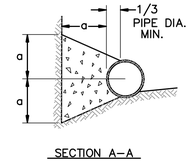
TEE AND DEAD END BLOCKING

NOTE:
THRUST BLOCKS SIMILAR TO THOSE SHOWN SHALL BE CONSTRUCTED AT ALL TEES, BENDS, GATE VALVES, ETC. OF SUFFICIENT BEARING AREA TO RESIST PROBABLE MAXIMUM THRUST. SEE SPECIFICATIONS FOR DETAILS. DIMENSIONS BELOW ARE FOR SOILS WITH A BEARING CAPACITY OF AT LEAST 3000 P.S.F. AND A WATER PRESSURE OF NOT MORE THAN 150 P.S.I. IF A LOWER SOIL BEARING CAPACITY OR A HIGHER WATER PRESSURE IS ANTICIPATED, THE CONTRACTOR SHALL REQUEST THAT THE ENGINEER RESIZE THE THRUST BLOCKING.

MINIMUM THRUST BLOCK DIMENSIONS

PIPE	TEE		90° BEND		45° BEND		22 1/2° BEND	
SIZE	a	b	a	b	a	b	a	b
2"	2"	4.5"	2.5"	5"	2"	3.5"	1.5"	2.5"
3"	3"	6"	4"	6.5"	3"	5"	2"	3.5"
4"	4"	7.5"	5"	8.5"	4"	6"	3"	4"
6"	6"	10.5"	7.5"	12"	6"	8.5"	4.5"	5.5"
8"	8"	13.5"	10"	15"	8"	10.5"	6"	7"
10"	10"	17"	13"	18"	10"	13"	7.5"	9"
12"	12"	19.5"	15"	22"	12"	15"	9"	10.5"
16"	24"	32"	30"	34"	20"	30"	15"	20"
24"	30"	36"	36"	40"	24"	34"	18"	24"

FIGURE 2



THRUST BLOCK DETAILS

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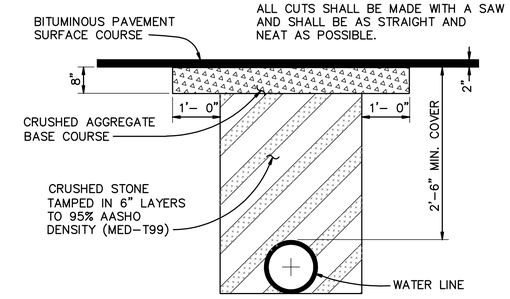
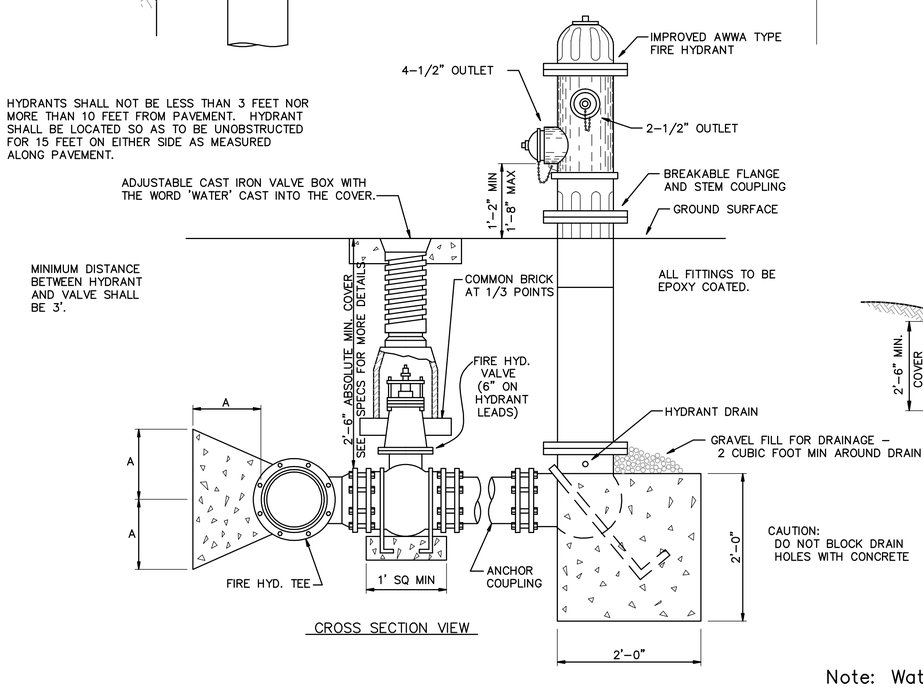
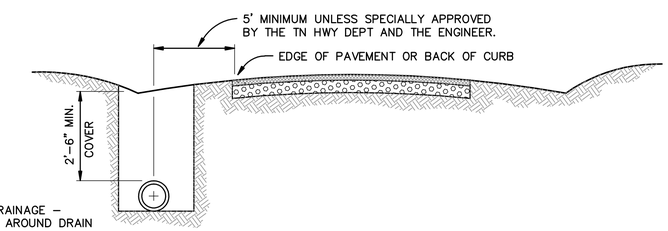


NOTE: NOTE FROM DETAIL ABOVE ALSO APPLIES TO THIS DETAIL.

ROADWAY PAVEMENT REPLACEMENT #2



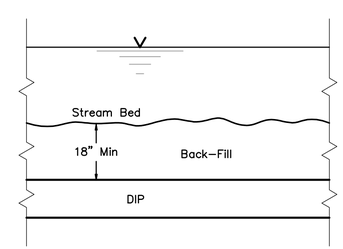
FIRE HYDRANT & GATE VALVE DETAILS



PIPE PLACEMENT PARALLEL TO PAVEMENT

Clean-Up Procedure:

1. Remove excess excavated material from floodway.
2. Stabilize banks at crossing with riprap.
3. Grass all disturbed areas.



STREAM CROSSING DETAIL

Stream Crossing Procedure:

Do not allow equipment in the water.

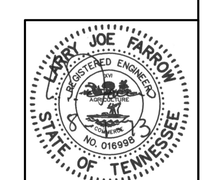
Fill half of stream with clean stone and excavate trench through the stone. Install pipe and plug end.

Move stone to other side of stream; excavate remaining trench and install remaining pipe.

Remove stone from stream.

All water pumped from the stream must be filtered before allowing to return to the stream.

Note: Water and Sewer Line Relationships Shall Be in Accord with Ten State Standards as a Minimum.



EASTSIDE UTILITY DISTRICT
WATER RELOCATION

WATER LINE DETAILS

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

EPB CHATTANOOGA, TN
PROJECT # STP-320(4)
RELOCATION PROJECT - DESIGN DRAWINGS

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2015	STP-320(4)	U3-1

EPB CONTACT: DAVID HENDERSON, 423-648-3257

INDEX OF SHEETS:

U3-1 PROJECT INFORMATION,ESTIMATED UTILITY QUANTITIES,CONTACT INFORMATION,NOTES
U3-2 BEGIN TO STA 235+00
U3-3 STA 235+00 TO STA 245+00
U3-4 STA 245+00 TO STA 256+00
U3-5 STA 256+00 TO STA 269+00
U3-6 STA 269+00 TO STA 282+00
U3-7 STA 282+00 TO STA 295+00
U3-8 STA 295+00 TO STA 308+00
U3-9 STA 308+00 TO STA 321+00
U3-10 STA 321+00 TO STA 332+00
U3-11 STA 332+00 TO END

ESTIMATED UTILITY QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	Project No. 1: 33057-3222-14 QUANTITY	% Utility	%Project
790-02.01	POLE 35FT CLASS 2 WOOD	EACH	6	0.0%	100.0%
790-03.03	POLE 40FT CLASS 4 WOOD	EACH	1	0.0%	100.0%
790-04.02	POLE 45FT CLASS 2 WOOD	EACH	3	0.0%	100.0%
790-04.04	POLE 45FT CLASS 4 WOOD	EACH	5	0.0%	100.0%
790-05.01	POLE 50FT CLASS 1 WOOD	EACH	2	0.0%	100.0%
790-05.02	POLE 50FT CLASS 2 WOOD	EACH	2	0.0%	100.0%
790-06.01	POLE 55FT CLASS 1 WOOD	EACH	1	0.0%	100.0%
790-21.01	1Ø SGL PRIMARY SUPPORT 15KV	EACH	2	0.0%	100.0%
790-21.05	1Ø DBL PRIMARY SUPPORT 15KV	EACH	1	0.0%	100.0%
790-21.08	1Ø DEADEND 15KV	EACH	20	0.0%	100.0%
790-21.10	1Ø VERTICAL DDE 15KV	EACH	8	0.0%	100.0%
790-23.01	2Ø CROSSARM SGL PRIM SUPPORT 15KV	EACH	1	0.0%	100.0%
790-23.07	2Ø CROSSARM CONST DEADEND (SGL) 15KV	EACH	1	0.0%	100.0%
790-23.08	2Ø CROSSARM CONST DEADEND (DBL) 15KV	EACH	2	0.0%	100.0%
790-25.01	3Ø CROSSARM SGL 15KV	EACH	4	0.0%	100.0%
790-25.08	3Ø CROSSARM SGL LRG COND 15KV	EACH	51	0.0%	100.0%
790-25.10	3Ø CROSSARM DBL DBL PRIM SUPPORT 15KV	EACH	16	0.0%	100.0%
790-25.21	3Ø CROSSARM DEADEND SGL 15KV	EACH	11	0.0%	100.0%
790-25.23	3Ø CROSSARM DDE 15KV	EACH	1	0.0%	100.0%
790-25.24	3Ø CROSSARM DDE LRG COND 15KV	EACH	13	0.0%	100.0%
790-25.30	3Ø CROSSARM DBL 10FT LRG COND 15KV	EACH	4	0.0%	100.0%
790-30.14	SECONDARY CONDUCTOR 1/0 AL TRIPLEX	LF	1000	0.0%	100.0%
790-31.12	SERVICE CONDUCTOR 1/0 AL TRIPLEX	LF	100	0.0%	100.0%
790-32.06	DOWN GUY - INSULATED	EACH	77	0.0%	100.0%
790-32.07	OH GUY - THROUGH BOLT TYPE	EACH	22	0.0%	100.0%
790-33.20	ANCHOR TRIPLE EYE POWER INSTALLED	EACH	36	0.0%	100.0%
790-36.01	SWITCH-900A-UNDERSLUNG	EACH	27	0.0%	100.0%
790-36.02	TRANSFER CAPACITOR BANK	EACH	3	0.0%	100.0%
790-36.03	TRANSFER PCR SWITCH	EACH	18	0.0%	100.0%
790-36.04	TRANSFER SERVICE	EACH	27	0.0%	100.0%
790-36.05	TRANSFER SECONDARY	EACH	17	0.0%	100.0%
790-36.06	TRANSFER LIGHT	EACH	33	0.0%	100.0%
790-40.03	OH COND 1/0 6/1 ACSR RAVEN	L.F.	9176	0.0%	100.0%
790-40.39	OH COND 4/0 7 AAC OXLIP	L.F.	12835	0.0%	100.0%
790-40.46	OH COND 556.5 19 AAC DAHLIA	L.F.	35925	0.0%	100.0%
790-43.47	PRIMARY PULLBOX	EACH	4	0.0%	100.0%
790-46.03	1Ø TRANSFORMER CONV W/XARM MTD FUSE & LA	EACH	25	0.0%	100.0%
790-47.02	2Ø XFMR BNK POLE MTD W/ FUSE/ARRESTERS	EACH	3	0.0%	100.0%
790-49.05	3Ø XFMR BNK MISC	EACH	3	0.0%	100.0%
790-60.02	1Ø FUSE CUTOUT BRKT MOUNT 15KV	EACH	72	0.0%	100.0%
790-68.01	POLE GROUND ROD TYPE	EACH	28	0.0%	100.0%
790-68.10	MISCELLANEOUS ASSEMBLIES	EACH	5	0.0%	100.0%
790-68.11	DEAD END SHOE	EACH	268	0.0%	100.0%
790-73.03	LINE POST CLAMP	EACH	238	0.0%	100.0%
790-98.01	REMOVE WIRE	L.F.	56814	0.0%	100.0%
790-98.02	REMOVE POLES	EACH	60	0.0%	100.0%
790-98.03	REMOVE FRAMING/ASSOCIATED APPARATUS	EACH	320	0.0%	100.0%

NOTES:
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- CONTACT EPB (423-648-3257 D HENDERSON) TO OBTAIN TRANSFORMERS,ANY STRAND & HARDWARE, OR FIBER OPTIC CABLE INCLUDING CLOSURES (TO BE SUPPLIED BY EPB)
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- SEE SPECFICATION SECTION FOR DETAILS OF INSTALLATIONS (LISTED BY POINT #'S,POINT #'S ARE IN CIRCLES WITH LEADERS ON THE DWG SHEETS).

COORDINATE VALUES ARE NAD/83(1995) AND ARE DATUM ADJUSTED BY THE FACTOR 1.00002 & TIED TO THE TGRN.

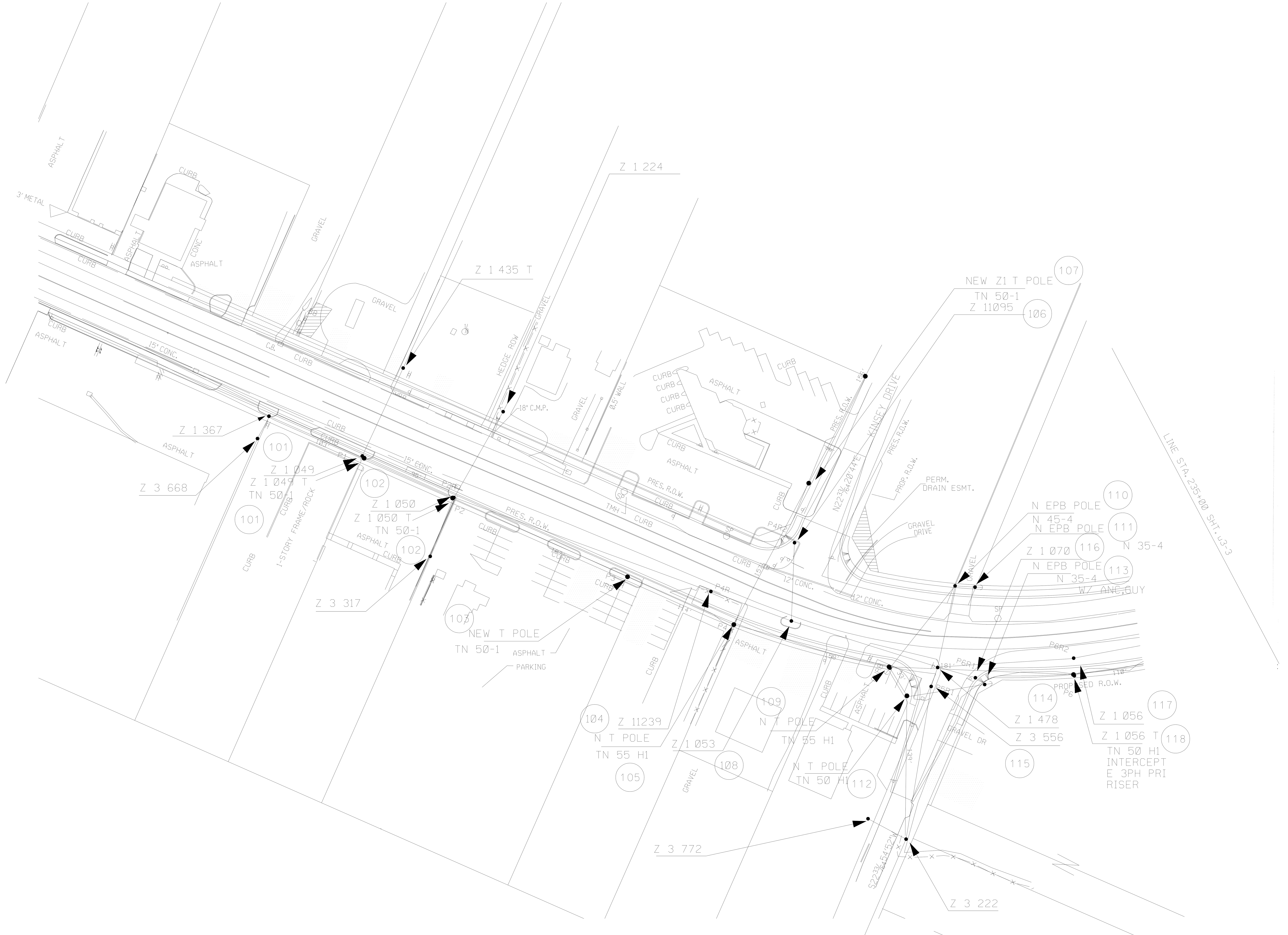
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ESTIMATED UTILITY QUANTITIES

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-2



MARK E WESSON
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 00106795
STATE OF TENNESSEE

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$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$$$$

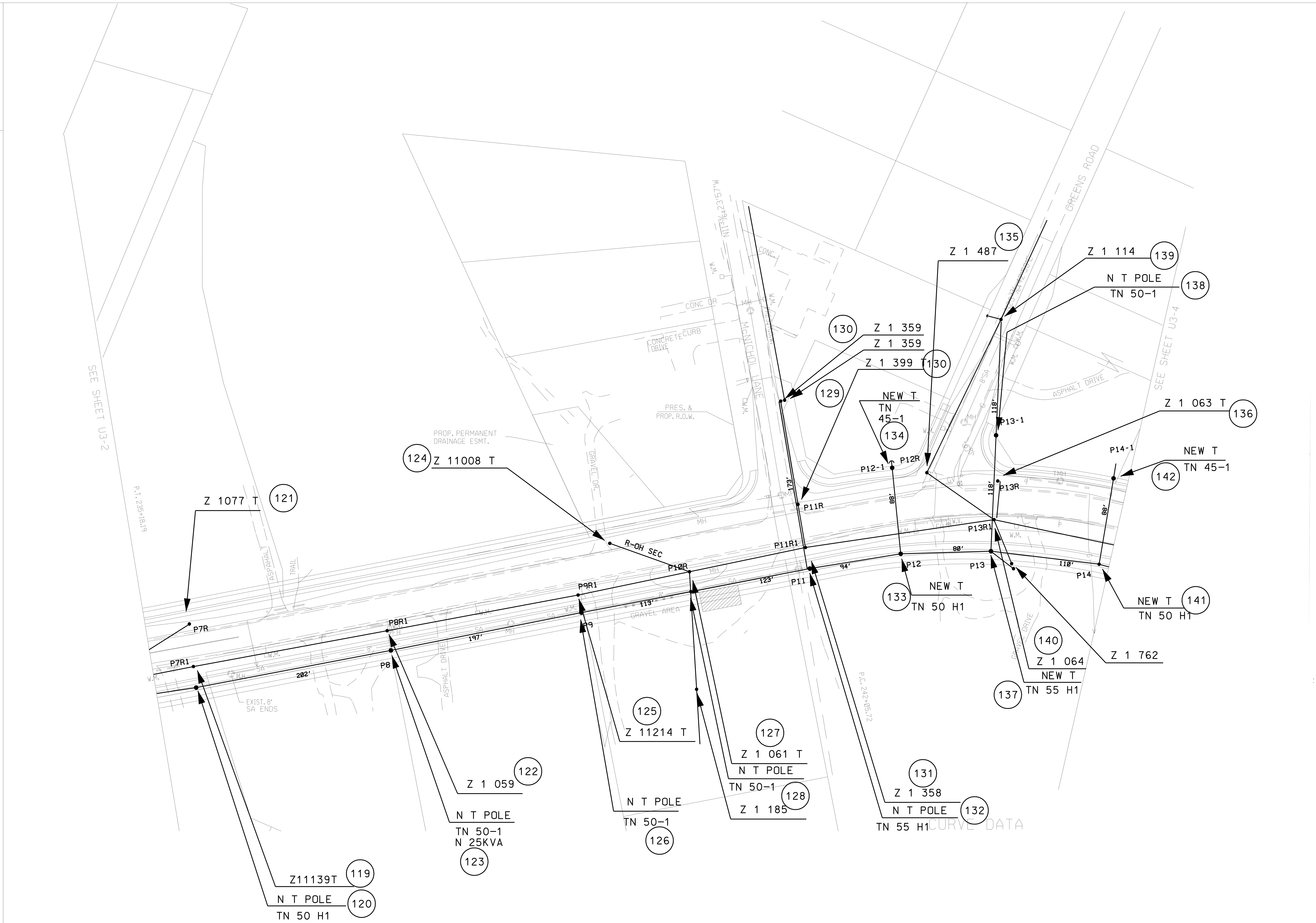
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS

BEG. TO STA.235+00
SCALE: 1"= 50' HORIZ.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-3



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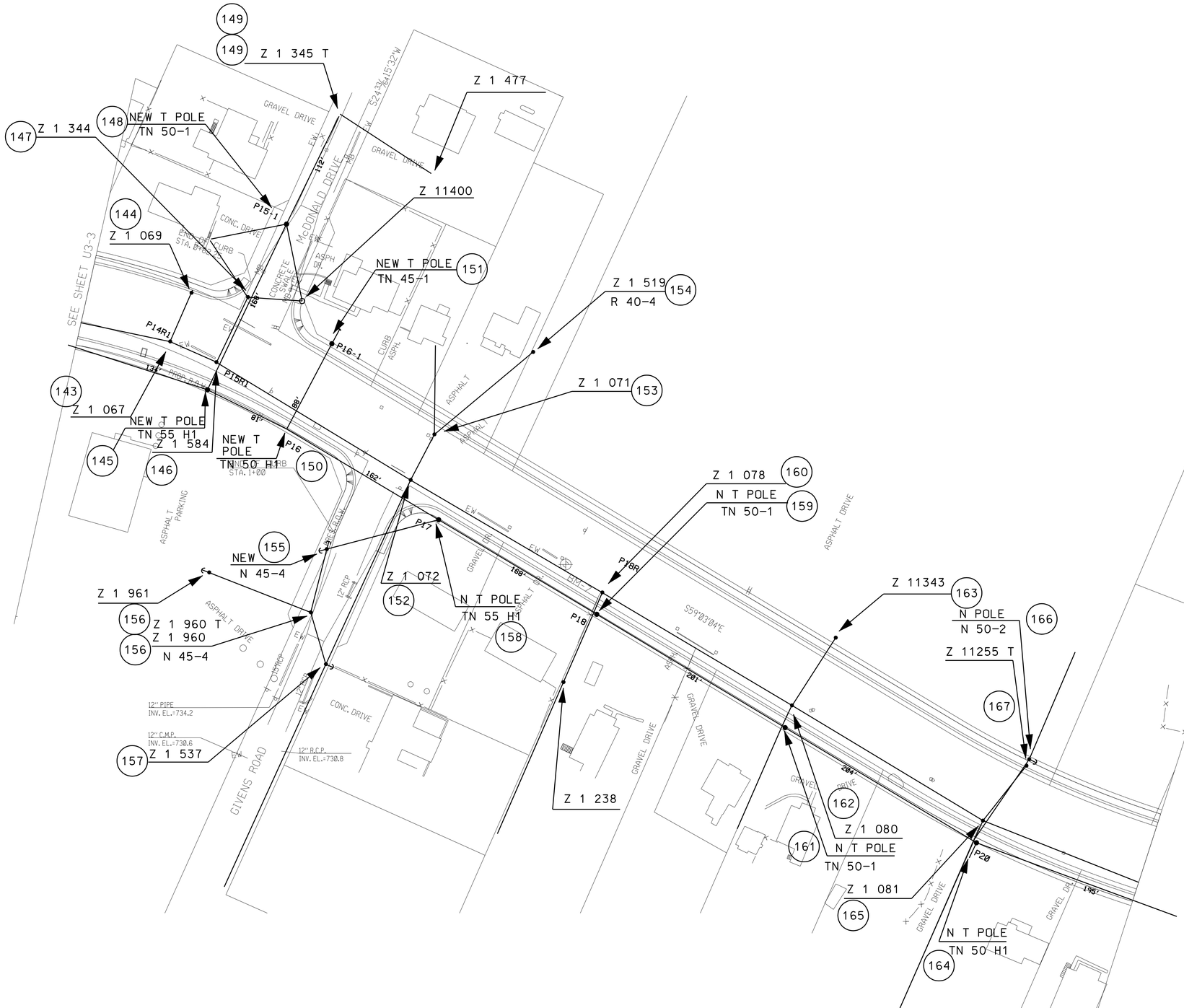
MARK E WESSON REGISTERED ENGINEER AGRICULTURE COMMERCE No. 00106795 STATE OF TENNESSEE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS
STA. 235+00 TO STA.245+00
SCALE: 1"= 50' HORIZ.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-4



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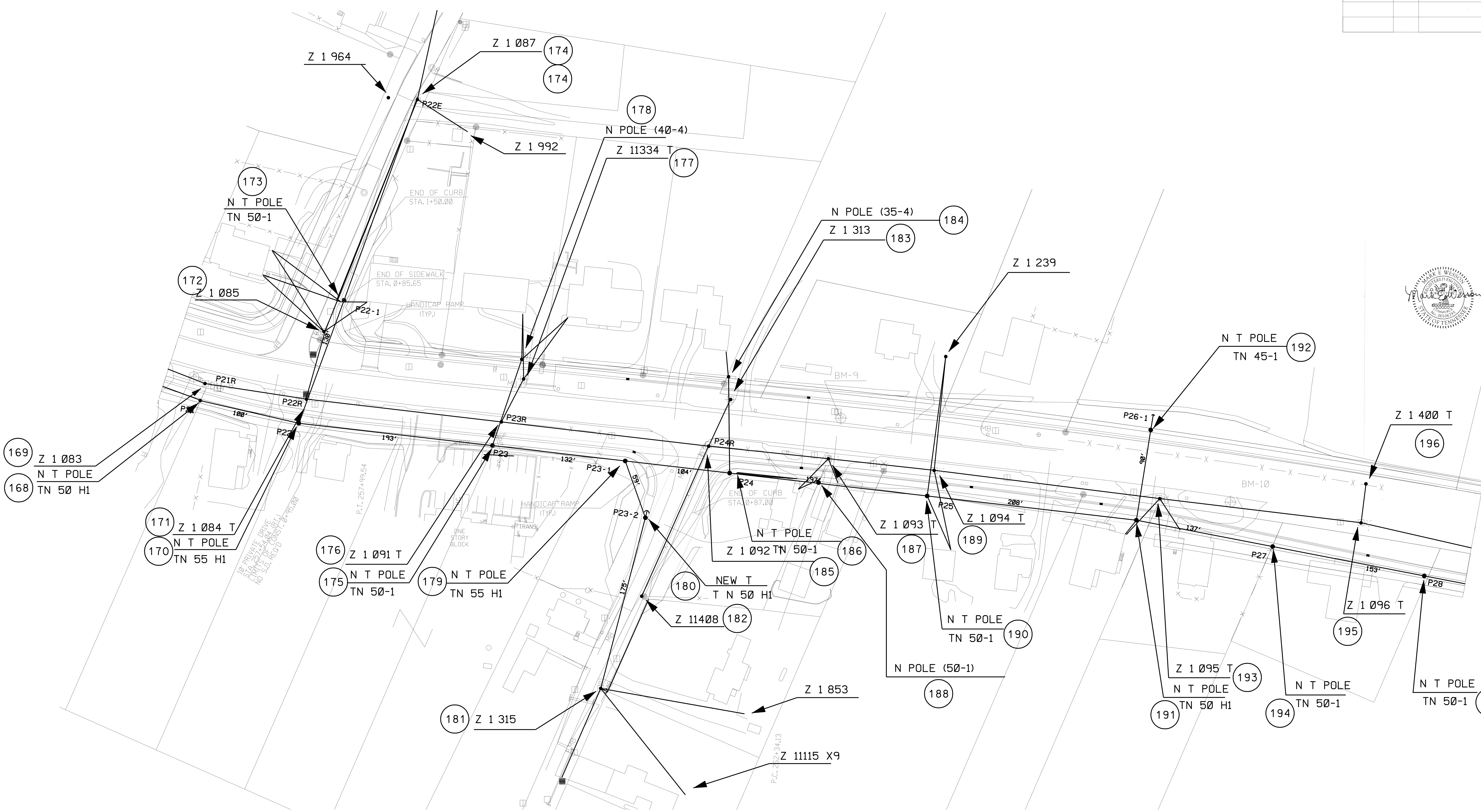
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS

STA. 245+00 TO STA.256+00
SCALE: 1"= 50' HORIZ.

$$$$SYTIME$$$$$$$
$$$$DGNSPEC$$$$$$$

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-5



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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS

STA. 256+00 TO STA.269+00
SCALE: 1"= 50' HORIZ.

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$$$$

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-6

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO. ---

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COORDINATE VALUES ARE NAD/83 (1995) AND ARE DATUM ADJUSTED BY THE FACTOR 1.00006 AND TIED TO THE TGRN.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS

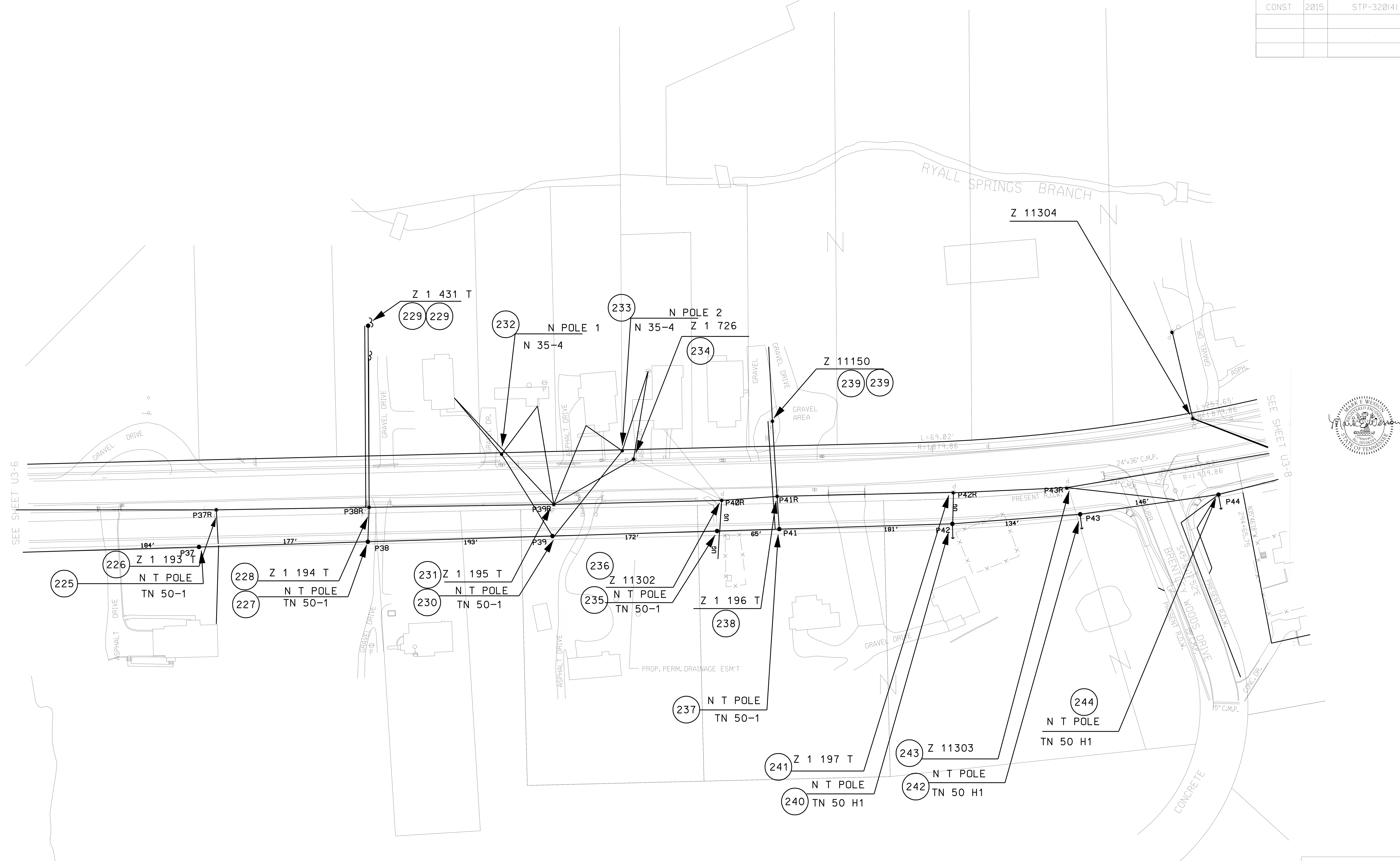
STA. 269+00 TO STA.282+00
SCALE: 1"= 50' HORIZ.

$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$$

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO. ---

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-7



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$$$$SYTIME$$$$$$
$$$$DGNSPEC$$$$$$$$$$

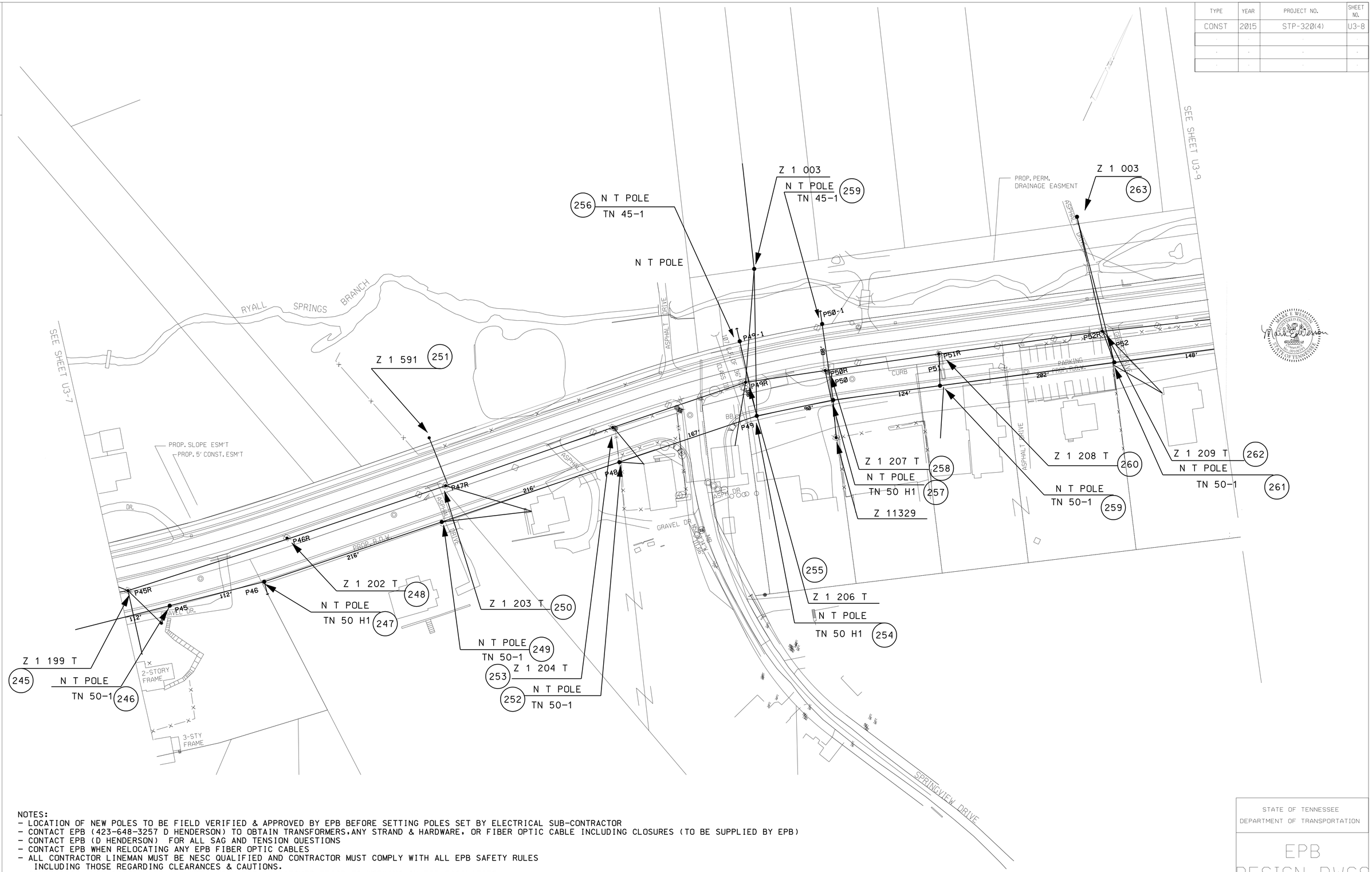
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS

STA.282+00 TO STA.295+00
SCALE: 1"= 50' HORIZ.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-8



NOTES:
- LOCATION OF NEW POLES TO BE FIELD VERIFIED & APPROVED BY EPB BEFORE SETTING POLES SET BY ELECTRICAL SUB-CONTRACTOR
- CONTACT EPB (423-648-3257 D HENDERSON) TO OBTAIN TRANSFORMERS,ANY STRAND & HARDWARE, OR FIBER OPTIC CABLE INCLUDING CLOSURES (TO BE SUPPLIED BY EPB)
- CONTACT EPB (D HENDERSON) FOR ALL SAG AND TENSION QUESTIONS
- CONTACT EPB WHEN RELOCATING ANY EPB FIBER OPTIC CABLES
- ALL CONTRACTOR LINEMAN MUST BE NESC QUALIFIED AND CONTRACTOR MUST COMPLY WITH ALL EPB SAFETY RULES INCLUDING THOSE REGARDING CLEARANCES & CAUTIONS.
- CONTRACTOR MUST COORDINATE ALL WORK WITH EPB DISPATCHER PRIOR TO WORKING ON EPB FACILITIES
- SEE SPECFICATION SECTION FOR DETAILS OF INSTALLATIONS (LISTED BY POINT #'S,POINT #'S ARE IN CIRCLES WITH LEADERS ON THE DWG SHEETS).

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

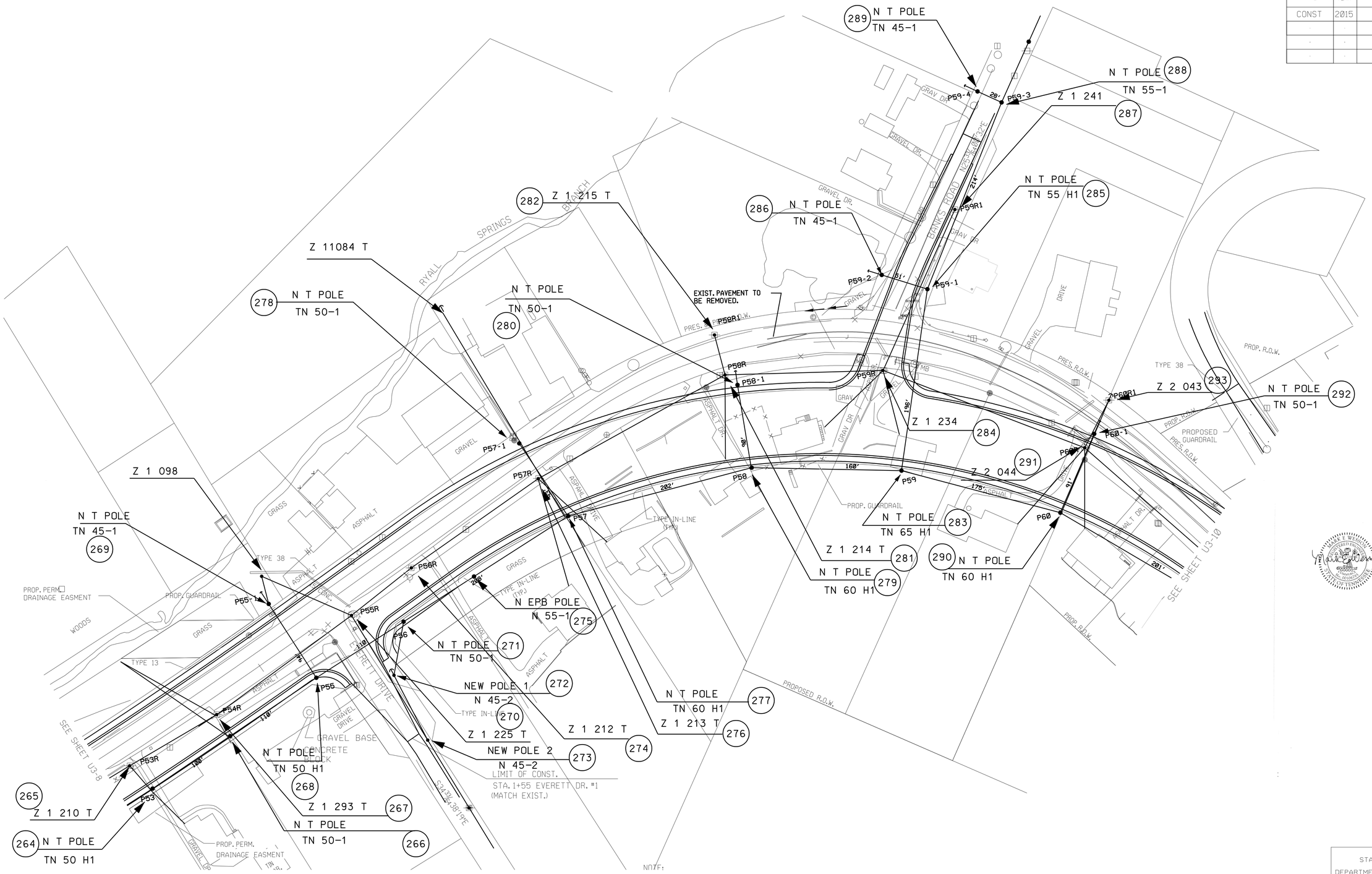
EPB
DESIGN DWGS

STA. 295+00 TO STA.308+00
SCALE: 1"= 50' HORIZ.

$$$$SYTIME$$$$$$$
$$$$DGNSPEC$$$$$$$

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO. ---

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-9



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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

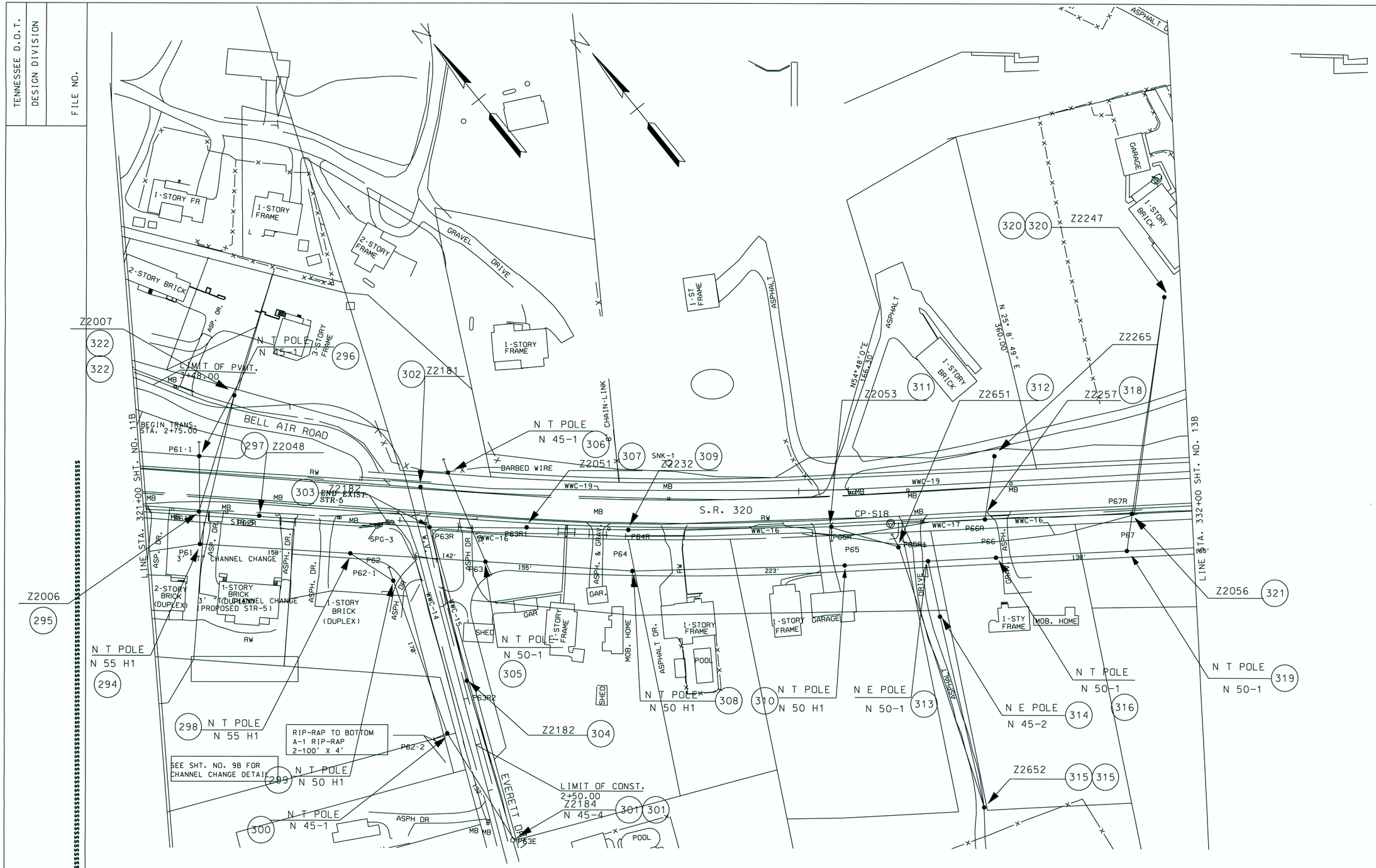
EPB
DESIGN DWGS

STA 308+00 TO STA.321+00
SCALE: 1"= 50' HORIZ.

$$$$SYTIME$$$$$$$
$$$$DGNSPEC$$$$$$$

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-1



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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS

STA. 321+00 TO STA. 332+00
SCALE: 1"= 50' HORIZ.

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TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST	2015	STP-320(4)	U3-11
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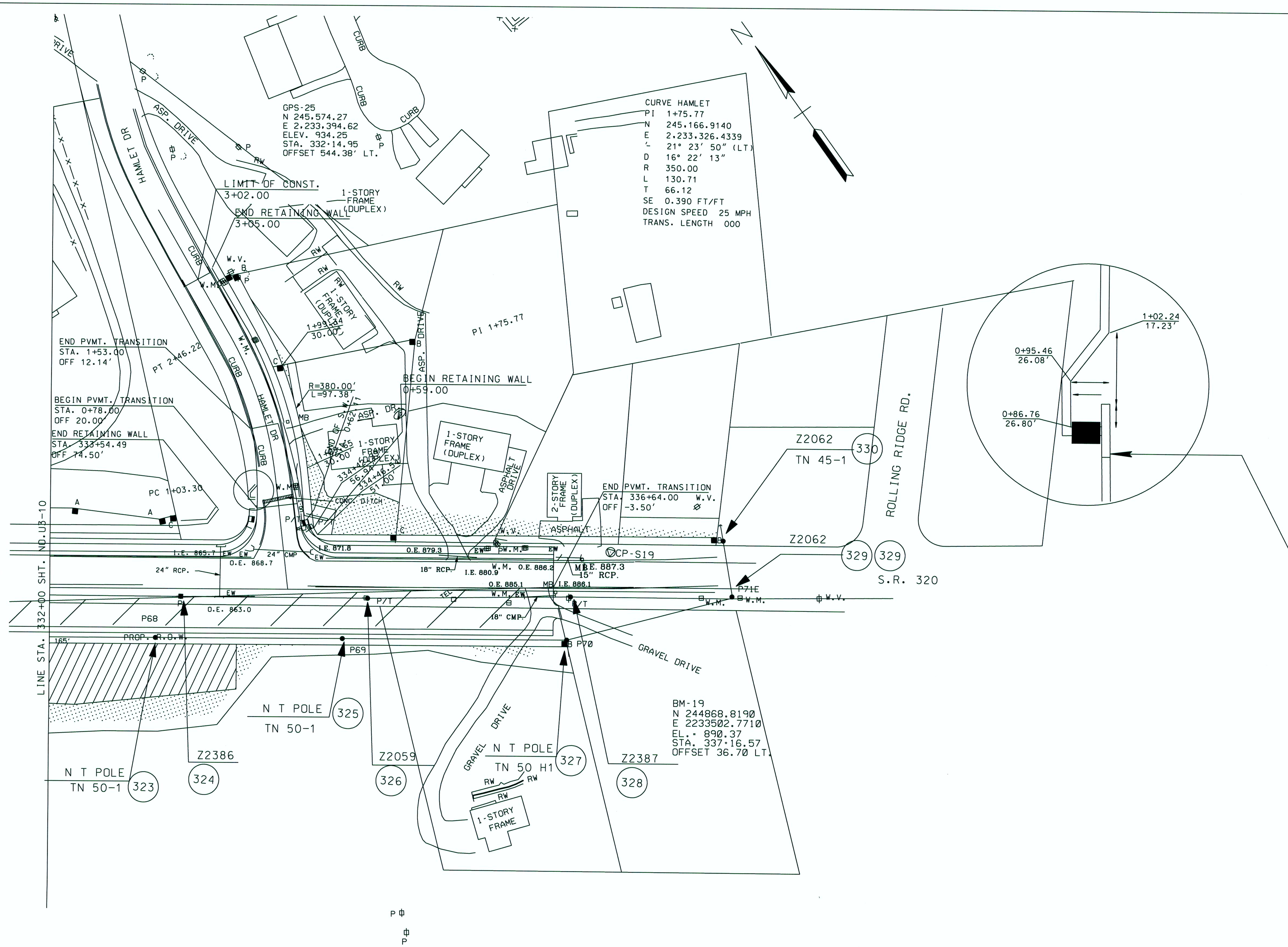

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$$$$SYTIME$$$$$$
$$$$DGNSPEC$$

MARK E WESSON REGISTERED ENGINEER STATE OF TENNESSEE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EPB
DESIGN DWGS

STA. 332+00 TO END
SCALE: 1"= 50' HORIZ.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2015	STP320(4)	U4-1

HAMILTON COUNTY

REVISION 3-4-2014
--CHANGED TOTAL QUANTITIES OF ITEMS: 797-05.55, 797-05.56, 797-06.68, 797-06.94, 797-07.02,797-07.04, 797-07.05, 797-07.06, 797-08.05, 797-10.06, 797-10.09.

ROUTE: SR 320 (East Brainerd Road)

FROM 325 ft East of Graysville Road

TO 900 ft East of Bell-Air Road

SANITARY SEWER RELOCATION

FOOTNOTES:

(1) INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT FOR COMPLETE EXCAVATION INCLUDING BUT NOT LIMITED TO BEDDING, BACKFILLING, THRUST BLOCKING, PIPE FUSION, APPURTENANCES, FLOWABLE FILL, MAINTAINING THE TRENCH, TESTING, CHECK DAMS, AND ANY OTHER LABOR OR MATERIAL REQUIRED TO COMPLETE FOR GRAVITY SEWER LINES OR FORCE MAINS AS SPECIFIED ON THE PLANS. DUCTILE IRON PIPE GRAVITY SEWER LINES SHALL BE EPOXY LINED.

(2) NOT USED.

(3) INCLUDES ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR CONNECTING TO AN EXISTING FORCE MAIN, SEWER LINE, PUMP STATION, OR MANHOLE AS SPECIFIED ON PLANS, INCLUDING TRAFFIC CONTROL.

(4) INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT NECESSARY FOR INSTALLATION OF PRECAST MANHOLE BOTH PREFORMED BASE OR OPEN BOTTOM (DOGHOUSE), INCLUDING BUT NOT LIMITED TO VENT ASSEMBLY (WHERE REQUIRED), CRUSHED STONE, PIPE TO MANHOLE CONNECTORS, EXCAVATION, BACKFILL, BUTYL RESIN GASKET, MANHOLE STEPS, ASPHALTIC WATERPROOFING, FRAME AND COVER, AND TRAFFIC CONTROL.

(5) NOT USED.

(6) INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT, INCLUDING BUT NOT LIMITED TO MACHINERY, TOOLS, OR APPARATUS NECESSARY FOR INSTALLATION OF ASSEMBLIES AS DESCRIBED AND DETAILED IN THE PLANS AND SPECS.

(7) NOT USED.

(8) NOT USED.

(9) INCLUDES ALL MATERIALS, LABOR, AND EQUIPMENT FOR RETIRE IN PLACE OR REMOVE ITEMS AS SPECIFIED ON THE BID FORM INCLUDING TRAFFIC CONTROL.

(10) INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT INCLUDING BUT NOT LIMITED TO CASING PIPE, PIPE SPACERS, CASING END SEALS, ANY OTHER APPURTENANCE TO COMPLETE THE WORK AS SPECIFIED ON THE PLANS, AND TRAFFIC CONTROL. IF CASING PIPE HAS CARRIER PIPE, THE CARRIER PIPE SHALL BE PAID AT THE OPEN CUT ITEM.

(11) NOT USED.

(12) INCLUDES ALL LABOR, EQUIPMENT, DISPOSAL OF WASTE MATERIAL, DRILLING HOLES IN BASE FOR PROPER DRAINAGE, REMOVAL OF NECESSARY BARREL SECTIONS FOR PROPER GRADE AND STONE BACKFILL.

(13) NOT USED.

(14) INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT INCLUDING BUT NOT LIMITED TO CASING PIPE, PIPE SPACERS, CASING END SEALS, STONE BACKFILL, TEMPORARY PAVEMENT, AND ANY OTHER APPURTENANCE TO COMPLETE THE WORK AS SPECIFIED ON THE PLANS, AND TRAFFIC CONTROL.

(15) INCLUDES ALL MATERIALS, LABOR AND EQUIPMENT, SETUP AND TRAFFIC CONTROL.

ESTIMATED UTILITY QUANTITIES

	ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	PERCENT UTILITY	PERCENT PROJECT
(1)	797-05.01	8IN DIP GRAVITY SEWER 0FT - 6FT DEPTH	LF	177	0%	100%
(1)	797-05.02	8IN DIP GRAVITY SEWER 6FT - 12FT DEPTH	LF	173	0%	100%
(1)	797-05.05	10IN DIP GRAVITY SEWER 0FT - 6FT DEPTH	LF	152	20.61%	79.39%
(1)	797-05.06	10IN DIP GRAVITY SEWER 6FT - 12FT DEPTH	LF	78	20.61%	79.39%
(1)	797-05.51	8IN PVC GRAVITY SEWER 0FT - 6FT DEPTH	LF	400	0%	100%
(1)	797-05.55	10IN PVC GRAVITY SEWER 0FT - 6FT DEPTH	LF	928	20.61%	79.39%
(1)	797-05.56	10IN PVC GRAVITY SEWER 6FT - 12FT DEPTH	LF	832	20.61%	79.39%
(1)	797-05.57	10IN PVC GRAVITY SEWER 12FT - 18FT DEPTH	LF	40	20.61%	79.39%
(10)	797-06.64	BORE/JACK 16IN STEEL CASING PIPE-UNCON.	LF	150	100%	0%
(14)	797-06.90	OPEN CUT 16IN STEEL CASING PIPE	LF	158	100%	0%
(4)	797-07.02	48IN MANHOLE 4FT - 6FT DEPTH	EACH	3	0%	100%
(4)	797-07.03	48IN MANHOLE 6FT - 8FT DEPTH	EACH	5	20.61%	79.39%
(4)	797-07.04	48IN MANHOLE 8FT - 10FT DEPTH	EACH	5	0%	100%
(4)	797-07.06	48IN MANHOLE 12FT - 14FT DEPTH	EACH	1	0%	100%
(6)	797-07.56	MANHOLE DROP CONNECTION ASSEMBLY	EACH	1	0%	100%
(1)	797-08.05	6" PVC PIPE FOR SERVICE LATERAL	LF	410	0%	100%
(6)	797-08.08	6" CLEAN OUT ASSEMBLY	EACH	3	0%	100%
(3)	797-10.06	CONNECT 6" LATERAL TO SEWER LINE	EACH	18	0%	100%
(3)	797-10.09	CONNECT EX. 8IN SEWER TO NEW MANHOLE	EACH	2	0%	100%
(12)	797-11.25	RETIRE IN-PLACE 48" MANHOLE	EACH	13	0%	100%
(9)	797-11.30	RETIRE IN-PLACE EXISTING SEWER <8IN	LF	2,767	0%	100%
(15)	797-11.40	RESTORE ASPHALT	SY	220	0%	100%
(15)	797-11.41	RESTORE CONCRETE	SY	75	0%	100%

INDEX OF DRAWINGS

U4-1 COVER SHEET
U4-2 SANITARY SEWER RELOCATION - BEGINNING OF PROJET TO STA. 282+00
U4-3 SANITARY SEWER RELOCATION - STA. 282+00 TO STA. 295+00
U4-4 SANITARY SEWER RELOCATION - STA. 295+00 TO STA. 308+00
U4-5 SANITARY SEWER RELOCATION - STA. 308+00 TO END OF PROJECT
U4-6 SANITARY SEWER RELOCATION - NOTES & DETAILS

JAN C. PASS
REGISTERED PROFESSIONAL ENGINEER
AGRICULTURE COMMERCE
No. 020795
STATE OF TENNESSEE

UTILITY INFORMATION

Hamilton County Water & Wastewater Treatment Authority
Development Resource Center
1250 Market Street, Suite 3050
Chattanooga, Tennessee 37402-2713
Contact: Mark C. Harrison, PE PG, Chief Engineer
Office: (423) 209-7835
Fax: (423) 209-7843
Email: MarkH@mail.hamiltontn.gov

HAMILTON COUNTY WWTA
Consultant: Passpointe Engineering, PLLC
2719 Hickory Valley Road, Suite B
Chattanooga, TN 37421
ph: 423-451-6601 em: janpass@passpointe.com

SANITARY SEWER RELOCATION

(WWTA Proj. # 08-328, PPE Proj. # 11-009)

COVER SHEET

SEWER NETWORK FILE: 11009_as.sew
EXISTING SURFACE: CONTOURS_exist_2.tin
PROPOSED SURFACE: CONTOURS_prop_rev.tin

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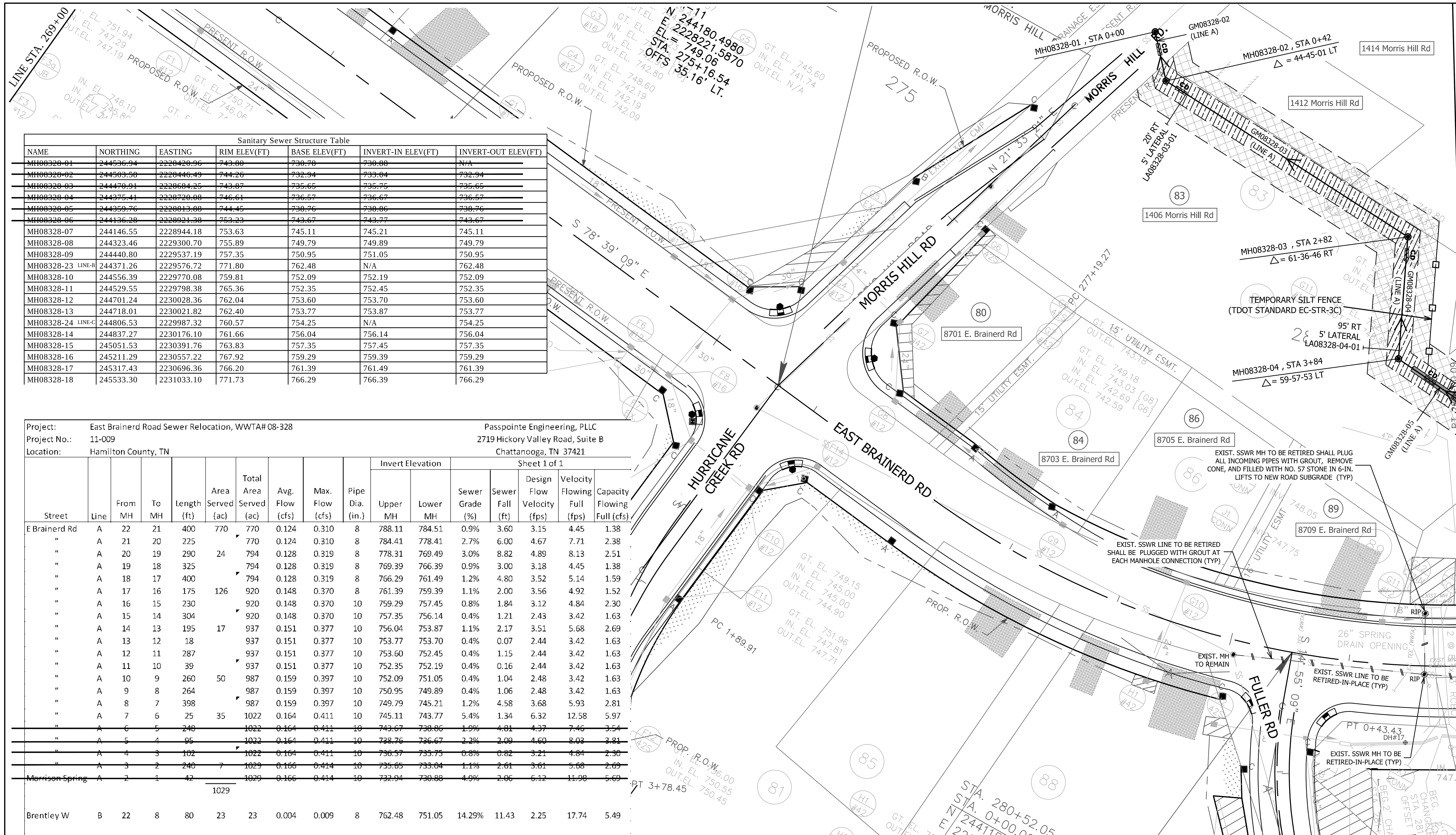
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2015	STP320(4)	U4-2

HAMILTON COUNTY

REVISION 3-4-2014
--LINED THROUGH ITEMS: MH08328-01 THROUGH MH08328-06
--LINED THROUGH PIPE INFORMATION FROM MH08328-01 THROUGH MH08328-06
--LINED THROUGH TEE & SERVICE LINE LOCATION INFORMATION AT STA 0+42, 2+82, & 4+79
--LINED THROUGH SANITARY SEWER PROFILE FROM STA 0+00 TO 7+00
--ADDED PROFILE NOTE STATING PORTION OF SEWER LINE THAT CITY OF CHATTANOOGA HAS ALREADY INSTALLED



Sanitary Sewer Structure Table						
NAME	NORTHING	EASTING	RIM ELEV(FT)	BASE ELEV(FT)	INVERT-IN ELEV(FT)	INVERT-OUT ELEV(FT)
~~MH08328-01~~	~~244536.94~~	~~2228420.96~~	~~743.80~~	~~730.78~~	~~730.88~~	~~N/A~~
~~MH08328-02~~	~~244503.58~~	~~2228446.49~~	~~744.26~~	~~732.94~~	~~733.04~~	~~732.94~~
~~MH08328-03~~	~~244470.91~~	~~2228684.25~~	~~743.87~~	~~735.65~~	~~735.75~~	~~735.65~~
~~MH08328-04~~	~~244375.41~~	~~2228720.08~~	~~746.61~~	~~736.57~~	~~736.67~~	~~736.57~~
~~MH08328-05~~	~~244359.76~~	~~2228813.88~~	~~744.45~~	~~738.76~~	~~738.86~~	~~738.76~~
~~MH08328-06~~	~~244136.28~~	~~2228921.38~~	~~753.23~~	~~743.67~~	~~743.77~~	~~743.67~~
MH08328-07	244146.55	2228944.18	753.63	745.11	745.21	745.11
MH08328-08	244323.46	2229300.70	755.89	749.79	749.89	749.79
MH08328-09	244440.80	2229537.19	757.35	750.95	751.05	750.95
MH08328-23 LINE-B	244371.26	2229576.72	771.80	762.48	N/A	762.48
MH08328-10	244556.39	2229770.08	759.81	752.09	752.19	752.09
MH08328-11	244529.55	2229798.38	765.36	752.35	752.45	752.35
MH08328-12	244701.24	2230028.36	762.04	753.60	753.70	753.60
MH08328-13	244718.01	2230021.82	762.40	753.77	753.87	753.77
MH08328-24 LINE-C	244806.53	2229987.32	760.57	754.25	N/A	754.25
MH08328-14	244837.27	2230176.10	761.66	756.04	756.14	756.04
MH08328-15	245051.53	2230391.76	763.83	757.35	757.45	757.35
MH08328-16	245211.29	2230557.22	767.92	759.29	759.39	759.29
MH08328-17	245317.43	2230696.36	766.20	761.39	761.49	761.39
MH08328-18	245533.30	2231033.10	771.73	766.29	766.39	766.29

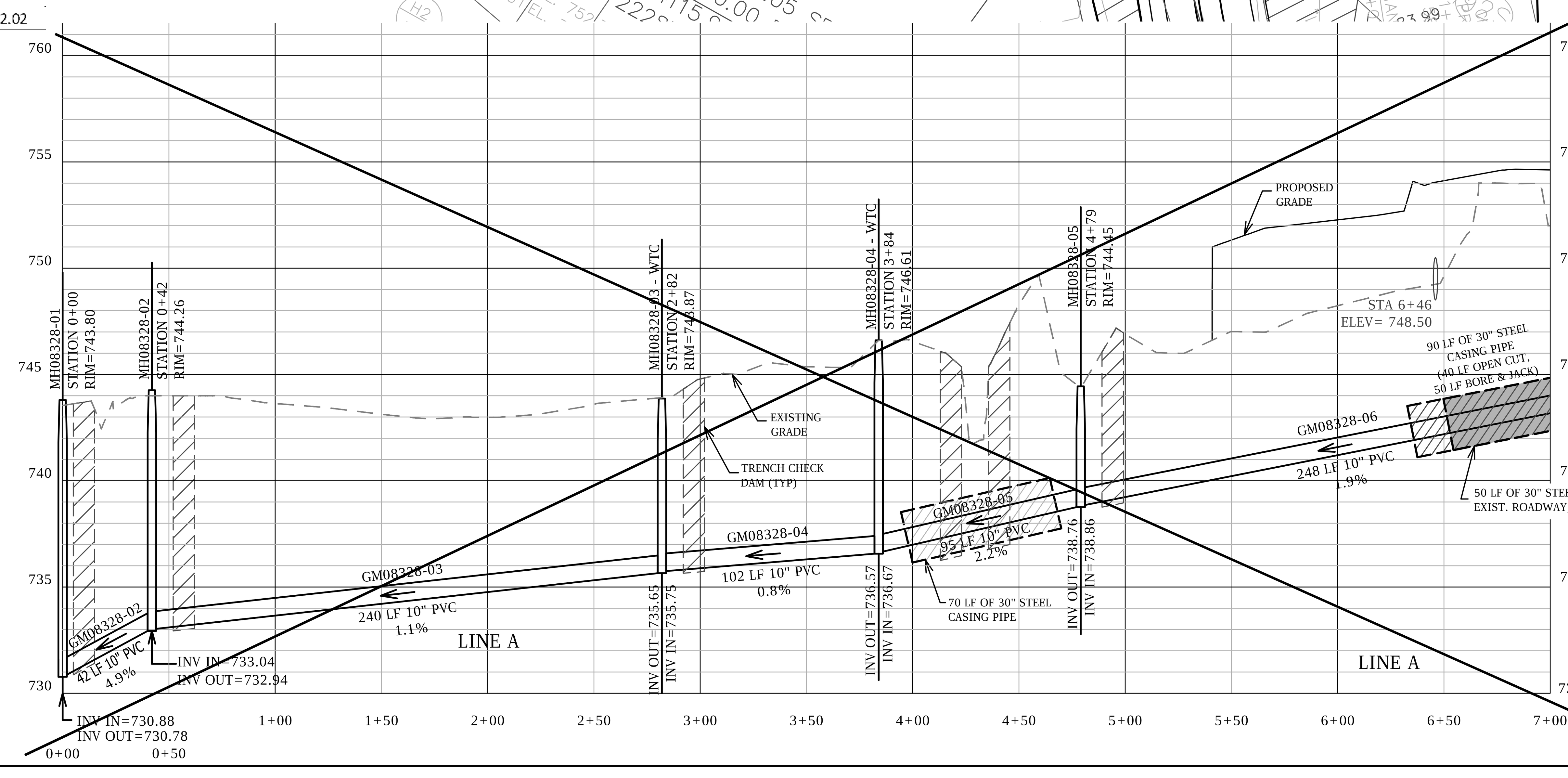
Project: East Brainerd Road Sewer Relocation, WWTA# 08-328
Project No.: 11-009
Location: Hamilton County, TN

Passpointe Engineering, PLLC
2719 Hickory Valley Road, Suite B
Chattanooga, TN 37421

Sheet 1 of 1

Street	Line	From MH	To MH	Length (ft)	Area Served (ac)	Total Area Served (ac)	Avg. Flow (cfs)	Max. Flow (cfs)	Pipe Dia. (in.)	Invert Elevation Upper MH	Invert Elevation Lower MH	Sewer Grade (%)	Sewer Fall (ft)	Design Flow Velocity (fps)	Velocity Flowing Full (fps)	Capacity Flowing Full (cfs)
E Brainerd Rd	A	22	21	400	770	770	0.124	0.310	8	788.11	784.51	0.9%	3.60	3.15	4.45	1.38
"	A	21	20	225		770	0.124	0.310	8	784.41	778.41	2.7%	6.00	4.67	7.71	2.38
"	A	20	19	290	24	794	0.128	0.319	8	778.31	769.49	3.0%	8.82	4.89	8.13	2.51
"	A	19	18	325		794	0.128	0.319	8	769.39	766.39	0.9%	3.00	3.18	4.45	1.38
"	A	18	17	400		794	0.128	0.319	8	766.29	761.49	1.2%	4.80	3.52	5.14	1.59
"	A	17	16	175	126	920	0.148	0.370	8	761.39	759.39	1.1%	2.00	3.56	4.92	1.52
"	A	16	15	230		920	0.148	0.370	10	759.29	757.45	0.8%	1.84	3.12	4.84	2.30
"	A	15	14	304		920	0.148	0.370	10	757.35	756.14	0.4%	1.21	2.43	3.42	1.63
"	A	14	13	195	17	937	0.151	0.377	10	756.04	753.87	1.1%	2.17	3.51	5.68	2.69
"	A	13	12	18		937	0.151	0.377	10	753.77	753.70	0.4%	0.07	2.44	3.42	1.63
"	A	12	11	287		937	0.151	0.377	10	753.60	752.45	0.4%	1.15	2.44	3.42	1.63
"	A	11	10	39		937	0.151	0.377	10	752.35	752.19	0.4%	0.16	2.44	3.42	1.63
"	A	10	9	260	50	987	0.159	0.397	10	752.09	751.05	0.4%	1.04	2.48	3.42	1.63
"	A	9	8	264		987	0.159	0.397	10	750.95	749.89	0.4%	1.06	2.48	3.42	1.63
"	A	8	7	398		987	0.159	0.397	10	749.79	745.21	1.2%	4.58	3.68	5.93	2.81
"	A	7	6	25	35	1022	0.164	0.411	10	745.11	743.77	5.4%	1.34	6.32	12.58	5.97
~~"~~	~~A~~	~~6~~	~~5~~	~~248~~		~~1022~~	~~0.164~~	~~0.411~~	~~10~~	~~743.67~~	~~738.86~~	~~1.9%~~	~~4.81~~	~~4.37~~	~~7.46~~	~~3.54~~
~~"~~	~~A~~	~~5~~	~~4~~	~~95~~		~~1022~~	~~0.164~~	~~0.411~~	~~10~~	~~738.76~~	~~736.67~~	~~2.2%~~	~~2.09~~	~~4.60~~	~~8.03~~	~~3.81~~
~~"~~	~~A~~	~~4~~	~~3~~	~~102~~		~~1022~~	~~0.164~~	~~0.411~~	~~10~~	~~736.57~~	~~735.75~~	~~0.8%~~	~~0.82~~	~~3.21~~	~~4.84~~	~~2.30~~
~~"~~	~~A~~	~~3~~	~~2~~	~~240~~	~~7~~	~~1029~~	~~0.166~~	~~0.414~~	~~10~~	~~735.65~~	~~733.04~~	~~1.1%~~	~~2.61~~	~~3.61~~	~~5.68~~	~~2.69~~
~~Morrison Spring~~	~~A~~	~~2~~	~~1~~	~~42~~		~~1029~~	~~0.166~~	~~0.414~~	~~10~~	~~732.94~~	~~730.88~~	~~4.9%~~	~~2.06~~	~~6.12~~	~~11.98~~	~~5.69~~
					1029											
Brentley W	B	22	8	80	23	23	0.004	0.009	8	762.48	751.05	14.29%	11.43	2.25	17.74	5.49
E Brainerd Rd	C	23	12	95	3	3	0.000	0.001	8	754.25	753.87	0.40%	0.38	0.72	6.53	2.02

TEE & SERVICE LINE LOCATION							
MH# - STATION	TEE SIZE (INCHES)	DISTANCE/ DIRECTION	TEE STATION	SERVICE LENGTH (FT)	TEE NAME	ADDRESS	TDOT TRACT NO.
~~MH08328-02, STA 0+42 (LINE A)~~	~~6~~	~~20' RT~~	~~0+62~~	~~5~~	~~LA08328-03-01~~	~~1406 Morris Hill Rd~~	~~83~~
~~MH08328-03, STA 2+82 (LINE A)~~	~~6~~	~~95' RT~~	~~3+77~~	~~5~~	~~LA08328-04-01~~	~~1406 Morris Hill Rd~~	~~83~~
~~MH08328-05, STA 4+79 (LINE A)~~	~~6~~	~~125' LT~~	~~6+04~~	~~5~~	~~LA08328-06-01~~	~~8821 E. Brainerd Rd~~	~~94~~
MH08328-07, STA 7+52 (LINE A)	6	15' RT	7+67	45	LA08328-08-01	8812 E. Brainerd Rd	93
MH08328-07, STA 7+52 (LINE A)	6	220' RT	9+72	45	LA08328-08-02	8812 E. Brainerd Rd	93
MH08328-07, STA 7+52 (LINE A)	6	350' RT	11+02	45	LA08328-08-03	8816 E. Brainerd Rd	97
MH08328-08, STA 11+50 (LINE A)	6	20' RT	11+70	45	LA08328-09-01	8812 E. Brainerd Rd	93
MH08328-08, STA 11+50 (LINE A)	6	85' RT	12+35	45	LA08328-09-02	8828 E. Brainerd Rd	99
MH08328-09, STA 14+14 (LINE A)	6	45' RT	14+59	45	LA08328-10-01	8900 E. Brainerd Rd	103
MH08328-09, STA 14+14 (LINE A)	6	205' RT	16+19	45	LA08328-10-02	8906 E. Brainerd Rd	103
MH08328-11, STA 17+13 (LINE A)	6	140' RT	18+53	10	LA08328-12-01	106 Brently Woods Dr	103
MH08328-11, STA 17+13 (LINE A)	6	250' RT	19+63	5	LA08328-12-02	109 Brently Woods Dr	106
MH08328-14, STA 22+13 (LINE A)	6	25' RT	22+38	5	LA08328-15-01	8922 E. Brainerd Rd	111
MH08328-14, STA 22+13 (LINE A)	6	135' RT	23+48	5	LA08328-15-02	8922 E. Brainerd Rd	111
MH08328-15, STA 25+17 (LINE A)	6	20' RT	25+37	10	LA08328-16-01	8930 E. Brainerd Rd	114
MH08328-15, STA 25+17 (LINE A)	6	160' RT	26+77	10	LA08328-16-02	8934 E. Brainerd Rd	114
MH08328-16, STA 27+47 (LINE A)	6	90' RT	28+37	5	LA08328-17-01	9002 E. Brainerd Rd	119
MH08328-16, STA 27+47 (LINE A)	6	170' RT	29+17	10	LA08328-17-02	9006 E. Brainerd Rd	120
MH08328-17, STA 29+22 (LINE A)	6	75' RT	30+22	10	LA08328-18-01	9012 E. Brainerd Rd	121
MH08328-17, STA 29+22 (LINE A)	6	200' RT	31+47	10	LA08328-18-02	9094 E. Brainerd Rd	121A
MH08328-17, STA 29+22 (LINE A)	6	325' RT	32+72	10	LA08328-18-03	9096 E. Brainerd Rd	122



Note:
Sewer Line from MH08328-01 @ STA 0+00 to MH08328-06 @ STA 7+27 Has Been Previously Installed by the City of Chattanooga. Hamilton County WWTA Sewer Work to Start at 10" PVC Inlet at MH08328-06 STA 7+27

0 50' 100' 150'

SANITARY SEWER LEGEND

- PERMANENT SANITARY SEWER EASEMENT
- TEMPORARY SANITARY SEWER CONSTRUCTION EASEMENT
- CD TRENCH CHECK DAM
- SERVICE LATERAL LOCATION
- 1248 Lester Ln PROPERTY ADDRESS

811 Know what's below. Call before you dig.

JAN C. PASS
REGISTERED PROFESSIONAL ENGINEER
AGRICULTURE COMMERCE
NO. 020722
STATE OF TENNESSEE

HAMILTON COUNTY WWTA

Consultant: Passpointe Engineering, PLLC
2719 Hickory Valley Road, Suite B
Chattanooga, TN 37421
ph: 423-451-6601 em: janpass@passpointe.com

SANITARY SEWER RELOCATION

(WWTA Proj. # 08-328, PPE Proj. # 11-009)

Beginning of Project To STA. 282+00
SCALE: 1"=50'

SEWER NETWORK FILE: 11009_sa.sew
EXISTING SURFACE: CONTOURS_exist_2.tin
PROPOSED SURFACE: CONTOURS_prop_rev.tin

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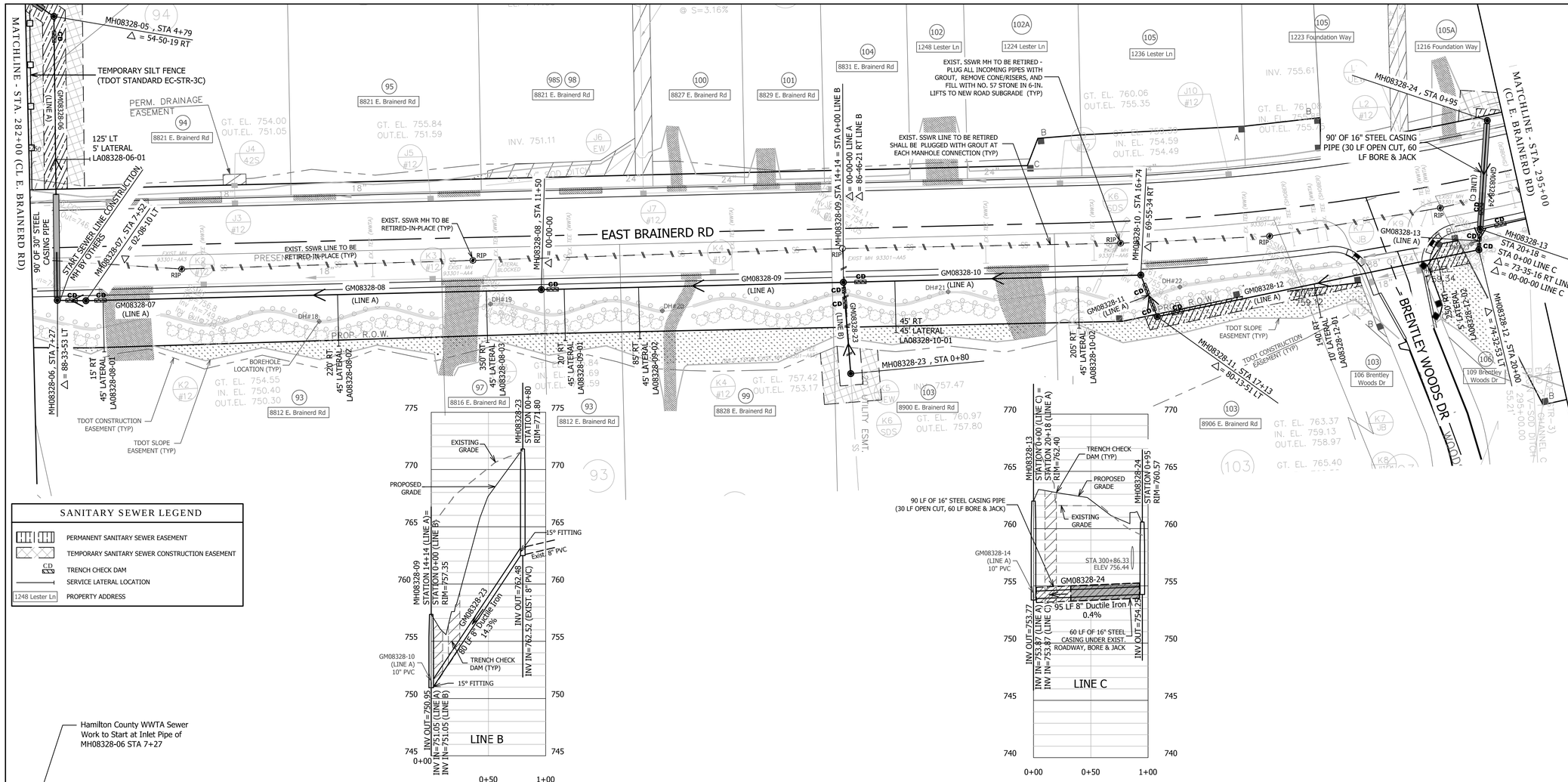
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2015	STP320(4)	U4-3

HAMILTON COUNTY

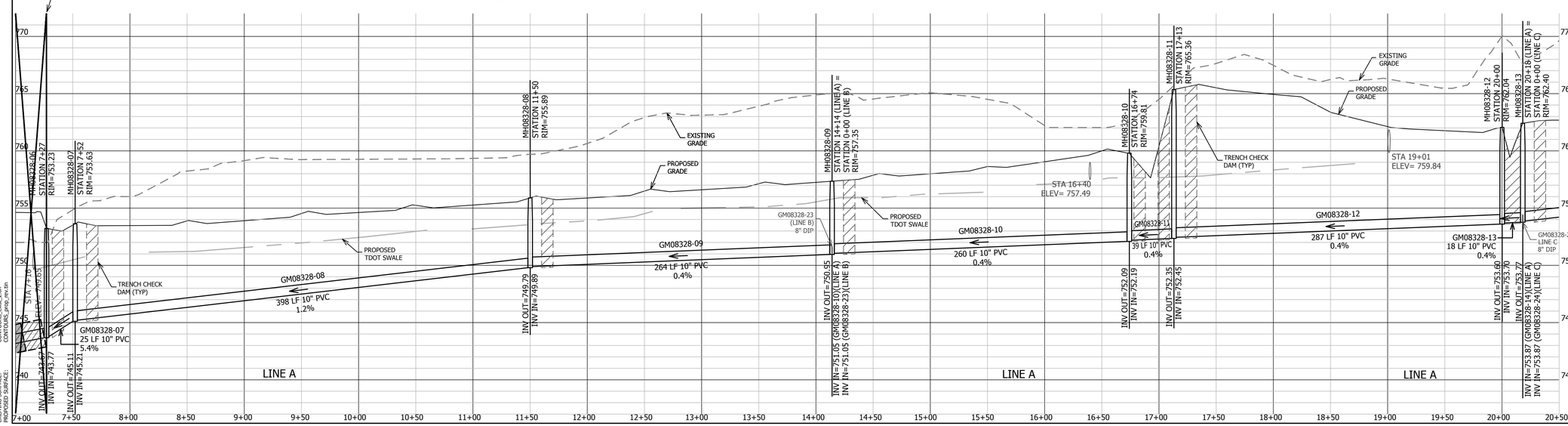
REVISION 3-4-2014
--LINED THROUGH SANITARY SEWER PROFILE FROM STA 7+00 TO 7+27
--ADDED PROFILE AND PLAN NOTE STATING NEW STARTING POINT FOR WWTA SEWER LINE CONSTRUCTION WORK TO BEGIN



SANITARY SEWER LEGEND

- PERMANENT SANITARY SEWER EASEMENT
- TEMPORARY SANITARY SEWER CONSTRUCTION EASEMENT
- TRENCH CHECK DAM
- SERVICE LATERAL LOCATION
- 1248 Lester Ln — PROPERTY ADDRESS

Hamilton County WWTA Sewer Work to Start at Inlet Pipe of MH08328-06 STA 7+27



Know what's **below.** **Call** before you dig.

0 50' 100' 150'

HAMILTON COUNTY WWTA

Consultant: Passpointe Engineering, PLLC
2719 Hickory Valley Road, Suite B
Chattanooga, TN 37421
ph: 423-451-6601 em: janpass@passpointe.com

SANITARY SEWER RELOCATION

(WWTA Proj. # 08-328, PPE Proj. # 11-009)

STA. 282+00 TO STA. 295+00

SCALE: 1"=50'

SEWER NETWORK FILE: 11009_sa.sew
EXISTING SURFACE: CONTOURS_exist_2.tin
PROPOSED SURFACE: CONTOURS_prop_rev.tin

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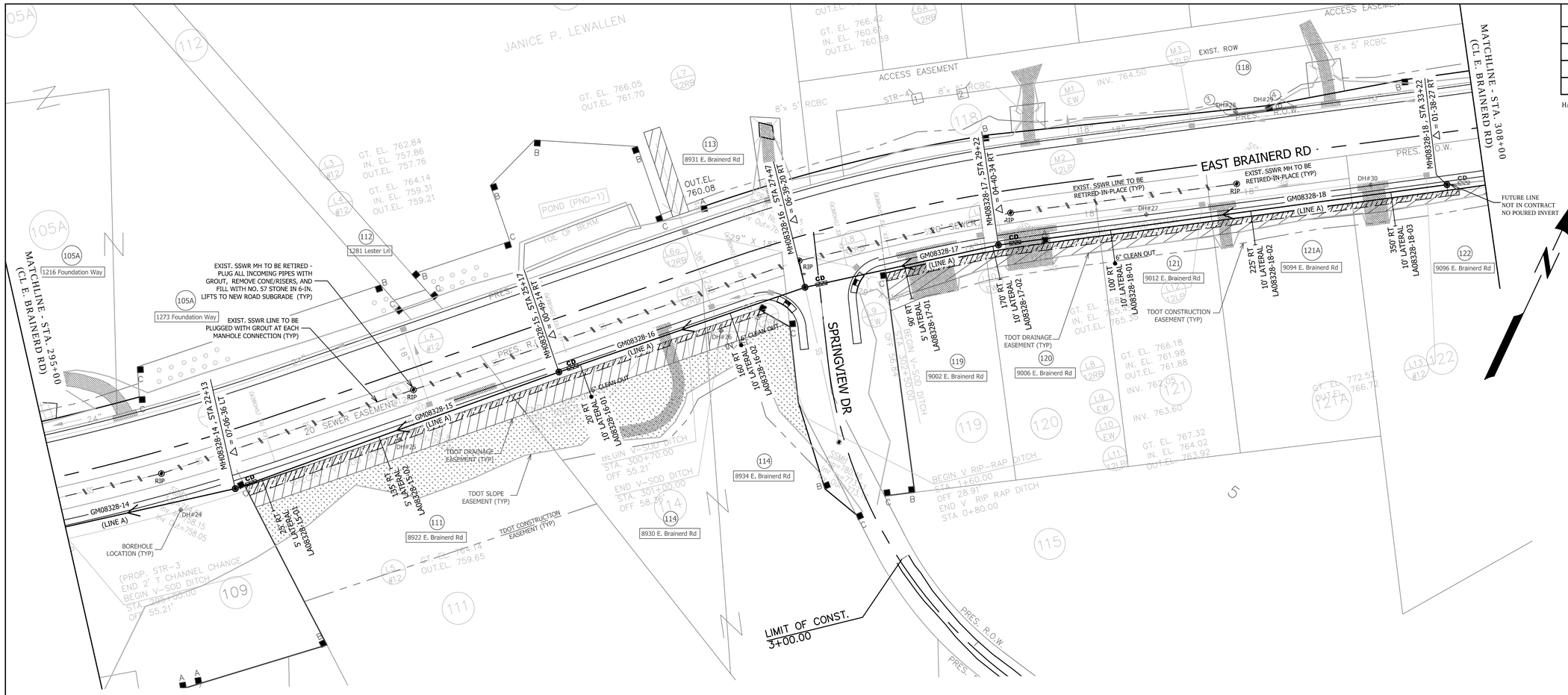
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2015	STP320(4)	U4-4

HAMILTON COUNTY

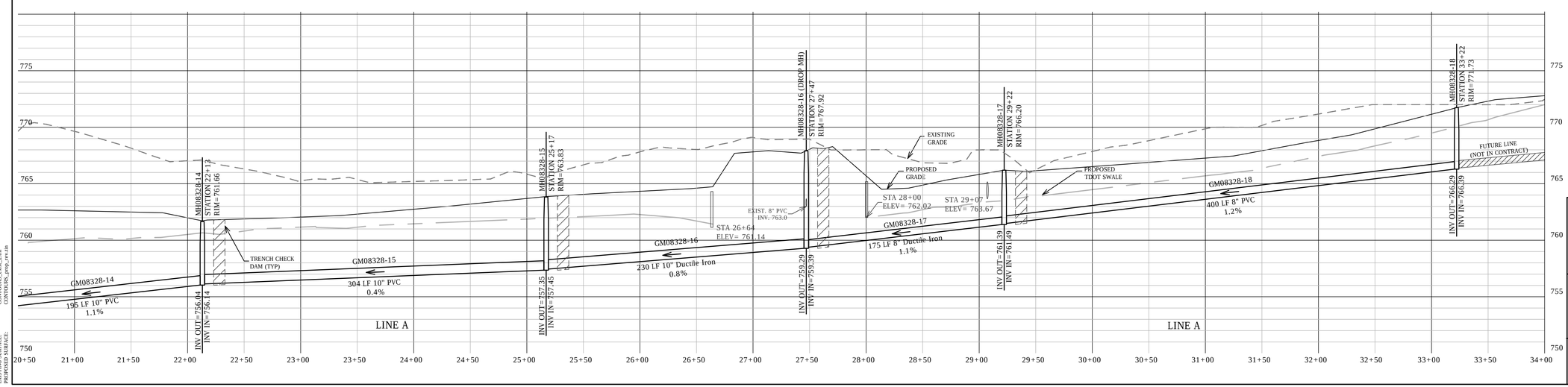


SANITARY SEWER LEGEND

- PERMANENT SANITARY SEWER EASEMENT
- TEMPORARY SANITARY SEWER CONSTRUCTION EASEMENT
- CD — TRENCH CHECK DAM
- SERVICE LATERAL LOCATION
- 1248 Lester Ln — PROPERTY ADDRESS

Know what's **below.** **Call** before you dig.

0 50' 100' 150'



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PROPOSED SURFACE: CONTOURS_prop_rev.tin

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HAMILTON COUNTY WWTA

Consultant: Passpointe Engineering, PLLC
2719 Hickory Valley Road, Suite B
Chattanooga, TN 37421
ph: 423-451-6601 em: janpass@passpointe.com

SANITARY SEWER RELOCATION

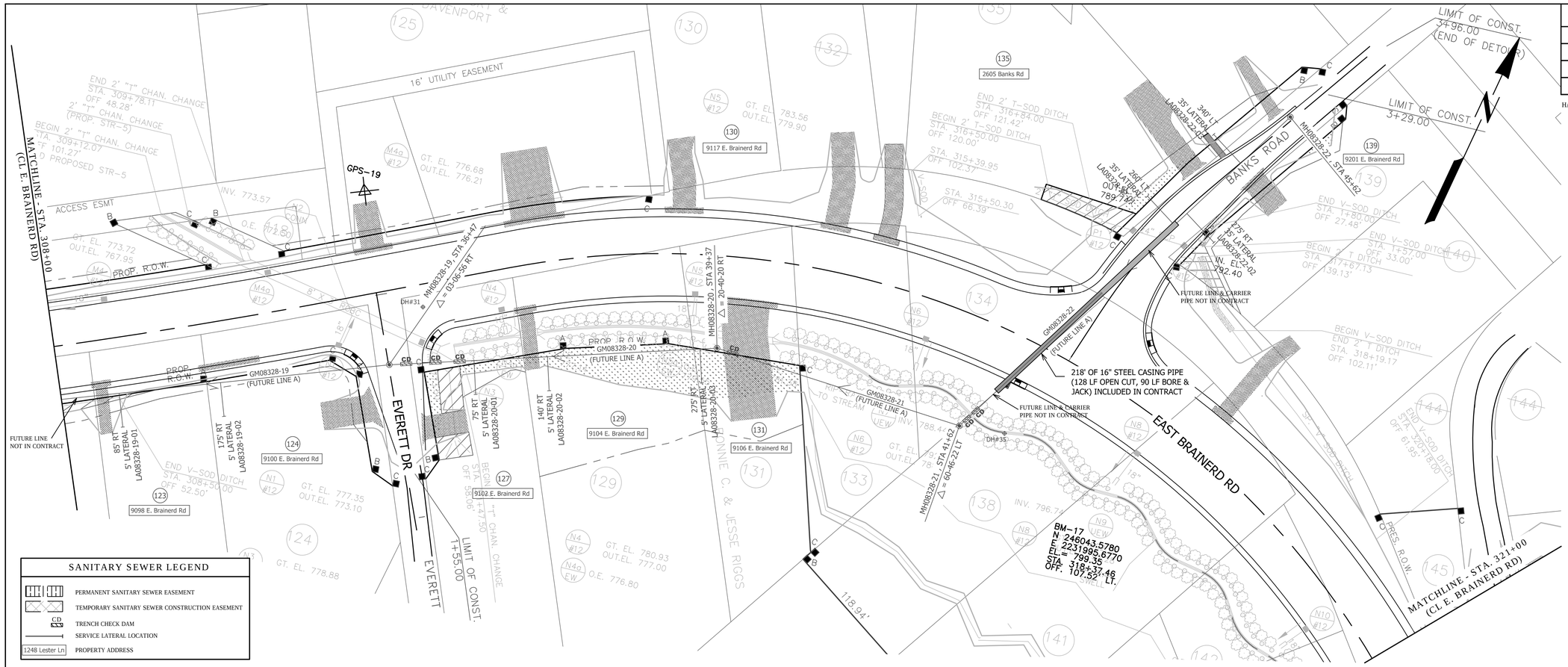
(WWTA Proj. # 08-328, PPE Proj. # 11-009)

STA. 295+00 TO STA. 308+00

SCALE: 1"=50'

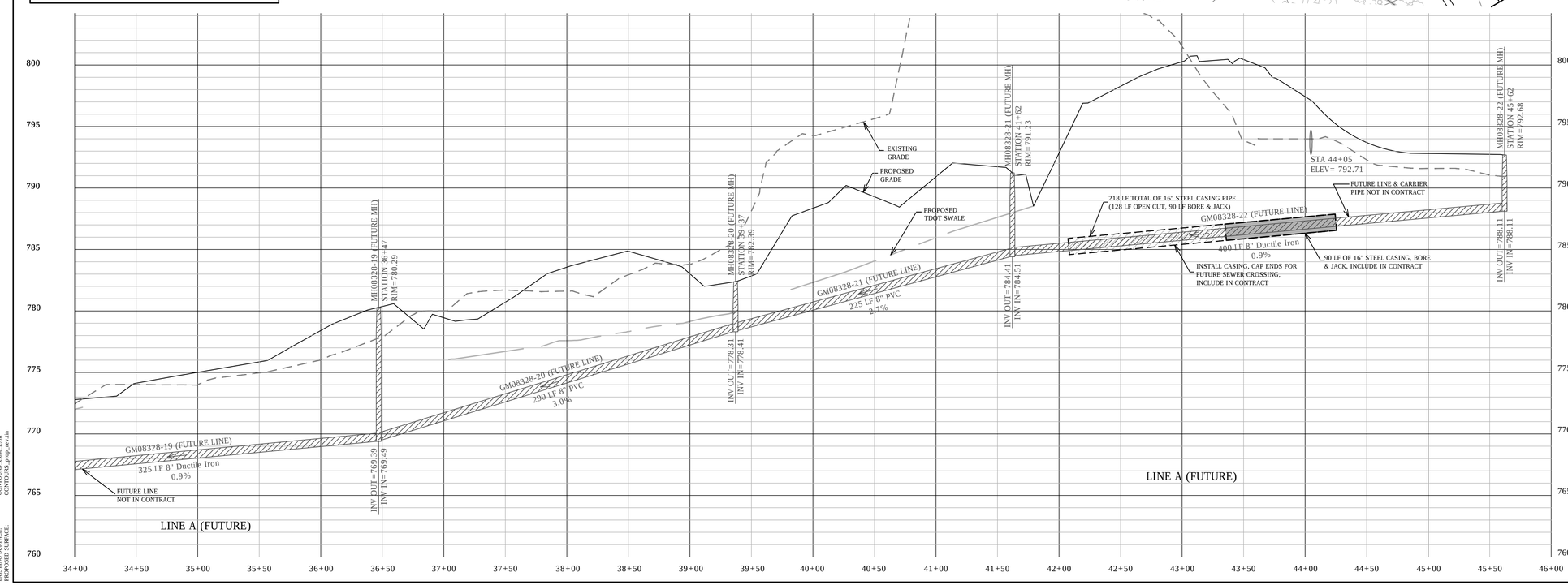
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2015	STP320(4)	U4-5

HAMILTON COUNTY



SANITARY SEWER LEGEND

- PERMANENT SANITARY SEWER EASEMENT
- TEMPORARY SANITARY SEWER CONSTRUCTION EASEMENT
- CD — TRENCH CHECK DAM
- SERVICE LATERAL LOCATION
- 1248 Lester Ln — PROPERTY ADDRESS



0 50' 100' 150'

Know what's **below.** **Call** before you dig.

IAN C. PASS — PROFESSIONAL ENGINEER — COMMERCIAL — STATE OF TENNESSEE

HAMILTON COUNTY WWTA

Consultant: Passpointe Engineering, PLLC
2719 Hickory Valley Road, Suite B
Chattanooga, TN 37421
ph: 423-451-6601 em: janpass@passpointe.com

SANITARY SEWER RELOCATION

(WWTA Proj. # 08-328, PPE Proj. # 11-009)

STA. 308+00 To End of Project

SCALE: 1"=50'

SEWER NETWORK FILE: 11009_as-new
EXISTING SURFACE: CONTOURS_exist_2.tin
PROPOSED SURFACE: CONTOURS_prop_rev.tin

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2015	STP320(4)	U4-6

HAMILTON COUNTY

NOTES

1. ALL MATERIALS, DESIGN, MANUFACTURE, PHYSICAL TEST REQUIREMENTS, FINISH, MARKING, INSPECTION, REJECTION, AND REPAIRS TO MEET ASTM C478 FOR PRECAST REINFORCED CONCRETE MANHOLE RISERS AND TOPS EXCEPT AS MAY BE MODIFIED IN THESE SPECIFICATIONS.

2. SIZE AND LOCATE PIPE CUTOUTS AS REQUIRED.

3. MANHOLE STEPS - SEE DETAIL OF STANDARD MANHOLE STEPS.

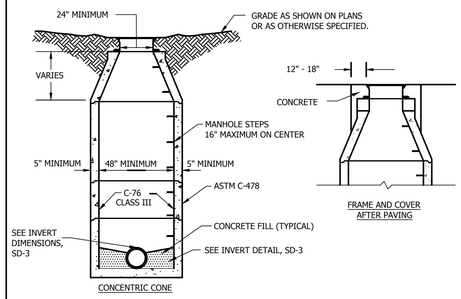
4. END-OF-LINE MANHOLES THAT HAVE FUTURE EXTENSIONS AND THAT ARE LOCATED IN PAVEMENT SHALL BE BACKFILLED WITH FLOWABLE FILL OR 33-C* STONE (CRUSHER RUN). THE BACKFILL SHALL BE COMPACTED TO 6-INCH LIFTS, AND SHALL EXTEND TEN (10') FEET FROM THE MANHOLE ALONG EACH TRENCH.

5. A MAXIMUM OF ONE CONCRETE RING MAY BE USED FOR FINISHED GRADE ELEVATION ADJUSTMENT OF UP TO 6" ON NEW CONSTRUCTION.

6. FLAT TOP MANHOLES SHALL NOT BE USED.

7. ON STREET GRADES OF 5% OR MORE, RINGS MUST BE POURED IN PLACE ON PROPER GRADE FOR EVEN OR SMOOTH TRANSITION.

* "33-C (CRUSHER RUN)" - 303-01, TYPE A, GRADING D ("33-C"), TENNESSEE DOT SPECIFICATIONS ("33-P" WITHOUT ADDED WATER)



STANDARD PRECAST CONCRETE MANHOLE

NTS (WWTA SD-MH-1)

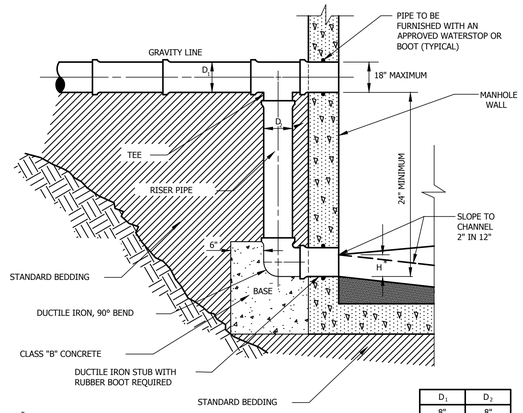
NOTES

1. SET INLET FROM DROP TO MATCH CROWNS WITH OUTLET EXCEPT THAT MINIMUM FALL ACROSS MANHOLE INVERT MUST BE 3".

2. FOR DETAILS NOT SHOWN, SEE STANDARD MANHOLE DETAILS.

3. THE DROP PIPE SHALL BE CONSTRUCTED OF THE SAME MATERIAL AS THAT OF THE INCOMING LINE.

4. ON GRAVITY LINE GRADES OF 12.5% OR GREATER, 11-¼° ELBOW MAY BE USED UP TO 24% GRADE; 22-½° ELBOW MAY BE USED UP TO 49% GRADE AND 45° ELBOW MAY BE USED BEYOND 50% GRADE AND ENTIRE DROP SHALL BE DUCTILE IRON.



H * - SEE STD. INVERT DIMENSIONS-TABLE 1. SD-3

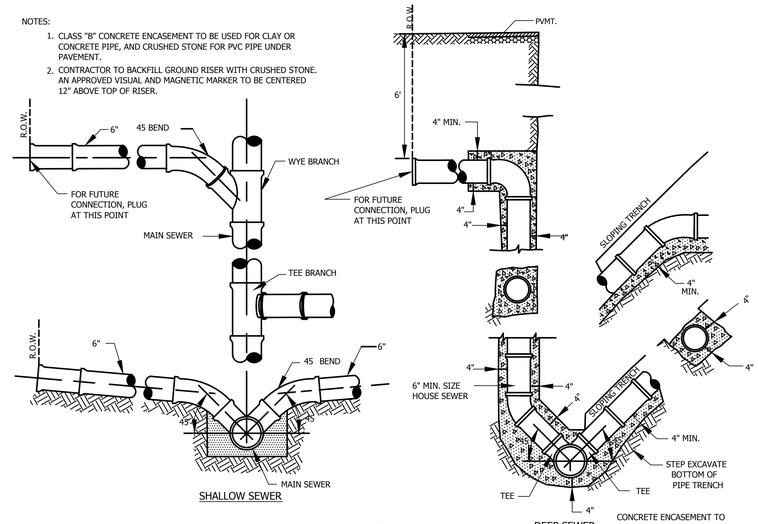
BASE NOTES:
1. MINIMUM DISTANCE BETWEEN BOTTOM OF DI AND MANHOLE BOTTOM IS 8".
2. AT MINIMUM THERE SHOULD BE 12 ½" TOTAL VERTICAL HEIGHT OF CONCRETE.
3. BASE NEEDS TO BE AT LEAST 36" WIDE FOR SUPPORT OF DI ELBOW.

D_1	D_2
8"	8"
10"	8"
12"	10"
15"	12"
18"	12"

STANDARD DROP MANHOLE

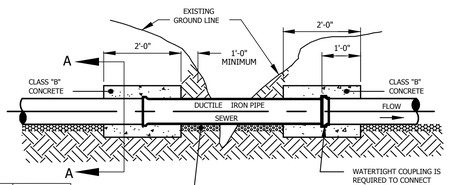
NTS (WWTA SD-MH-6)

NOTES:
1. CLASS "B" CONCRETE ENCASEMENT TO BE USED FOR CLAY OR CONCRETE PIPE, AND CRUSHED STONE FOR PVC PIPE UNDER PAVEMENT.
2. CONTRACTOR TO BACKFILL GROUND RISER WITH CRUSHED STONE. AN APPROVED VISUAL AND MAGNETIC MARKER TO BE CENTERED 12" ABOVE TOP OF RISER.

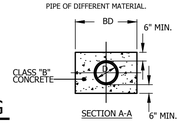


SERVICE CONNECTION

NTS

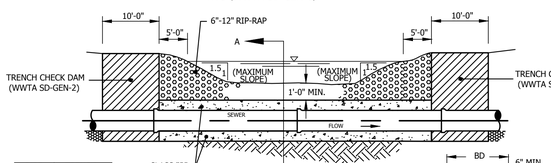


PIPE SIZE "D" (IN)	TRENCH WIDTH "BD" (FT)
6	2.00
8	2.33
10	2.50
12	2.67
15	3.00
18	3.25
24	3.83
30	4.42

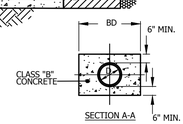


DITCH CROSSING

NTS (WWTA SD-GEN-6)



PIPE SIZE "D" (IN)	TRENCH WIDTH "BD" (FT)
6	2.00
8	2.33
10	2.50
12	2.67
15	3.00
18	3.25
24	3.83
30	4.42



CREEK CROSSING

NTS (WWTA SD-GEN-6)

TABLE "A"		
PIPE SIZE		
CARRIER PIPE (Inches)	CASING PIPE	
	Dia. (Inches)	STEEL PIPE Wall Thickness
8	16	1/4"
10	20	5/16"
12	24	3/8"
14-16	30	1/2"
18	36	1/2"
24	36	1/2"
30	54	See Table "B"
36	54	"
42	66	"
48	72	"
54	78	"
60	84	"
66	96	"
72	108	"
84	120	"
96	144	"

TABLE "B"									
Gages of Liner Plate For Continuous Load-Carrying Structures									
Nominal Dia. (Inches)	Height of Cover (Feet)								
	2-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
48	12	12	12	12	12	12	12	12	10
54	12	12	12	12	12	12	12	10	8
60	12	12	12	12	12	12	10	8	7
66	12	12	12	12	12	10	8	8	5
72	12	12	12	12	12	10	8	7	5
78	12	12	12	12	10	8	7	5	5
84	12	12	12	10	10	8	5	5	5
96	12	10	10	10	10	8	5	5	5
108	10	10	10	10	8	7	5	5	5
120	10	10	10	8	8	7	5	5	3
144	8	8	8	8	5	5	3	1	1

DUCTILE IRON, PVC, OR CAST IRON

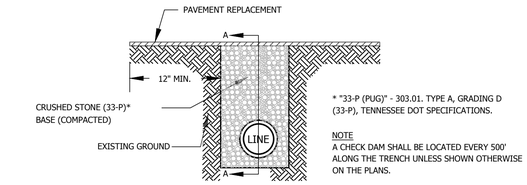
RCP

CASING PIPE

SIZE AND THICKNESS OF PIPE FOR HIGHWAY CROSSING

RAILROAD & HIGHWAY CROSSING DETAIL

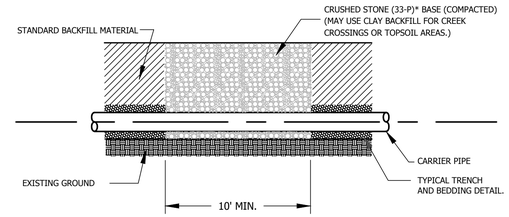
NTS (WWTA SD-GEN-4)



* "33-P (PUG)" - 303.01. TYPE A, GRADING D (33-P), TENNESSEE DOT SPECIFICATIONS.

NOTE
A CHECK DAM SHALL BE LOCATED EVERY 500' ALONG THE TRENCH UNLESS SHOWN OTHERWISE ON THE PLANS.

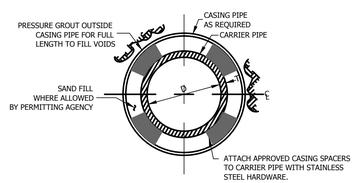
TYPICAL SECTION IN TRENCH CHECK DAM



SECTION A - A

TRENCH CHECK DAM

NTS (WWTA SD-GEN-2)



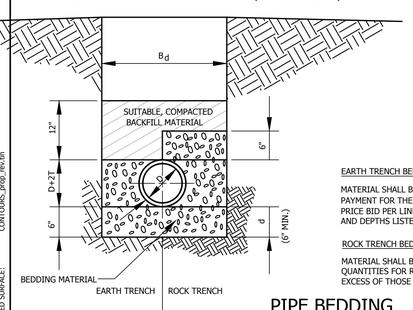
SECTION A-A

RAILROAD AND HIGHWAY CROSSING NOTES FOR PLACING SEWER LINES WITHIN THE RIGHT-OF-WAY OR CROSSING RAILROADS, STATE AND U.S. HIGHWAYS, AND DESIGNATED CITY STREETS

1. LINES CROSSING UNDER RAILROADS, PAVED ROADS, AND PAVED CROSSROADS WITHIN DESIGNATED CITY STREETS AND STATE AND U.S. HIGHWAY RIGHT-OF-WAY SHALL BE ENCASED AND INSTALLED BY BORING,JACKING, OR TUNNELLING. CASING PIPE SHALL EXTEND FROM TOE OF SHOULDER SLOPE TO TOE OF SHOULDER SLOPE. ALL WORK SHALL BE DONE AS SHOWN ON THIS DRAWING.
2. ALL LINES SHALL HAVE A MINIMUM COVER OF 30" EXCEPT WHERE DEEPER COVER IS INDICATED ON THE DRAWINGS. ALL TRENCH EXCAVATION WITHIN THE RIGHT-OF-WAY AND NOT UNDER RAILROAD OR PAVING SHALL BE BACKFILLED BY TAMPING IN 6" LAYERS. ALL SURPLUS MATERIAL SHALL BE REMOVED FROM THE RIGHT-OF-WAY, AND THE EXCAVATION FINISHED FLUSH WITH SURROUNDING GROUND.
3. CASING PIPE SHALL BE EITHER SPIRAL WELDED STEEL PIPE OR STEEL LINER PLATE, APPLICABLE AND SUITABLE TO METHOD OF INSTALLATION EMPLOYED (SEE TABLE "A", SD-21). ALL CASING PIPE SHALL BE COATED INSIDE AND OUT PER SPECIFICATIONS.
4. CARRIER PIPE FOR ALL LINES 6" TO 54" IN DIAMETER SHALL BE PVC, CAST OR DUCTILE IRON PIPE WITH "PUSH-ON" TYPE JOINTS. CARRIER PIPE 60" IN DIAMETER AND LARGER SHALL BE REINFORCED CONCRETE WITH "BELL & SPIGOT" JOINTS. FOR SIZE, SEE PLAN AND PROFILE DRAWINGS.
5. ALL INSTALLATIONS SHALL BE DONE TO LEAVE FREE FLOWS IN DRAINAGE DITCHES, PIPES, CULVERTS, OR OTHER SURFACE WATER DRAINAGE FACILITIES OF THE RAILROAD, HIGHWAY, STREET, OR ITS CONNECTIONS.
6. FOR HIGHWAY CROSSINGS, THE CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS FOR TRAFFIC OVER THE CONSTRUCTION AREA DURING SUCH WORK AND SHALL PLACE NECESSARY BARRICADES, WARNING SIGNS, SIGNALS, LIGHTS, AND, IF NECESSARY, WATCHMEN FOR THE TRAVELING PUBLIC.

RAILROAD & HIGHWAY CROSSING SECTION & NOTES

NTS (WWTA SD-GEN-5)



D	d	B_d (ft)
4-6"	6"	2.00
8"	6"	2.33
10"	8"	2.50
12"	8"	2.67
15"	8"	3.00
18"	8"	3.25
21"	10"	3.54
24"	10"	3.83

EARTH TRENCH BEDDING (CLASS "I", ASTM D 2321)

MATERIAL SHALL BE ANGULAR 1/4 TO 1 1/2 IN. GRADED STONE PAYMENT FOR THE BEDDING SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT PIPE FOR VARIOUS TYPES, SIZES, AND DEPTHS LISTED IN THE BID SCHEDULE.

ROCK TRENCH BEDDING

MATERIAL SHALL BE SAME AS FOR CLASS "I" BEDDING, ASTM D 2321. QUANTITIES FOR ROCK TRENCH BEDDING ARE THE AMOUNTS IN EXCESS OF THOSE REQUIRED FOR EARTH TRENCH BEDDING.

PIPE BEDDING

NTS

SANITARY SEWER NOTES

1. All proposed sanitary sewer lines and manholes shall be installed in accordance with latest edition of the Hamilton County Water & Wastewater Treatment Authority (WWTA) "Standard Details and Specifications for the Construction of Sanitary Sewer".
2. Contractor shall keep a copy of the latest editions of WWTA Standard Details & Specifications and WWTA Regulations on the site during construction.
3. Existing sewage flow must be maintained at all times during relocation construction.
4. Sewers must be constructed by a licensed municipal utility contractor (classification MU).
5. The Contractor shall notify WWTA 48 hours prior to the start of sewer construction at (423) 209-7842.
6. All cuts and fills are to be placed and compacted prior to sewer construction.
7. Where water piping crosses the sanitary sewer line, the water service within 10 feet of the point of crossing shall be at least 18 inches above the top of the sewer line. The sewer line shall be of ductile iron with mechanical joints at least 10 feet beyond both sides of the crossing.
8. Transition joints on sewer pipes of different materials shall be done with adapters in lieu of concrete collar walls.
9. All service laterals shall be marked with magnetic tape.
10. All connections to existing manholes must be cored, booted, and inverts reformed.
11. Manholes raised 6 inches or less shall be done by the use of concrete rings or donuts. Manholes greater than 6 inches shall require the removal of the cone section and placement of the appropriate size manhole riser. The cone section shall then be reinstalled or replaced, depending on condition.
12. Tops of existing manholes shall be raised as necessary to be flush with new finished grades.
13. Upon completion of the Project, "Record" drawings must be prepared by a registered engineer and submitted to WWTA.
14. Pavement repair shall be in accordance to TDOT Specifications.
15. Construction shall not begin until a pre-construction meeting is held with a WWTA representative.
16. Prior to starting construction, the Contractor shall be responsible for ensuring that all required permits and approvals have been obtained. No construction shall begin until the contractor has received, and thoroughly reviewed, all plans and other documents approved by the WWTA.
17. All dimensions and grades shown on the plans shall be field-verified by the Contractor prior to construction. The Contractor shall notify the Engineer if any discrepancies exist prior to proceeding with construction for necessary plan or grade changes.
18. Any changes or alterations made to these construction drawings without the written approval of the Engineer shall void the seal shown hereon, any any liability associated with this project.
19. Prior to beginning construction, the Contractor will notify all utilities within and adjacent to the project site to identify any possible construction conflicts. The accuracy of the locations of the existing subsurface utility structures shown on the plans is not guaranteed, nor is it guaranteed that all subsurface structures are shown.
20. Contractor shall comply with the Terms and Conditions of the ARAP Gerneral Permit for Utility Line Crossings.
21. In the case of streams with bedrock streambeds, provisions shall be made to prevent the loss of stream flow due to fracturing of the bedrock.
22. Backfill activities shall be accomplished in a manner that stabilizes the streambed and banks to prevent erosion. All contours shall be returned to pre-project conditions, and the completed activities shall not disrupt or impound stream flow.
23. The excavation and fill activities associated with the utility line crossing of non-navigable streams shall be kept to a minimum and shall be separated from flowing waters. The crossing shall be constructed in the dry to the maximum extent practicable by utilizing coffer dams, berms, temporary channels or pipes to divert flow. Temporary diversion channels shall be protected by non-erodible material and lined to the expected high water level.
24. Excavated materials, removed vegetation, construction debris, and other wastes shall be removed to an upland location and properly stabilized or disposed of in such a manner as to prevent re-entry into the waterway.

GENERAL NOTES

1. Except for erosion sediment control items, no Roadway or Bridge Items shall be utilized to compensate for work methods or materials associated with and/or specified for the utility installation, even though the same or similar roadway or bridge materials may have been called for in the Utility Specifications or drawings.
2. All materials, methods, and/or integral materials outlined in the utility specifications or drawings necessary to provide a complete and functional installation must be included in the Unit Price for the associated Utility Work Item.
3. The contractor must maintain all services during the construction of the relocated facility. Any costs associated with installation of required temporary service lines due to the roadway construction sequence of work (i.e., cuts, fills, phasing, etc.) shall be included in the cost of the permanent utility items.
4. It shall be the responsibility of the Prime contractor's surveyor to lay out all the facilities being relocated within the contract.
5. For buried utilities, the Prime contractor or subcontractor shall be required to provide to the Utility upon completion of the Utility's relocation work a set of as-built drawings for their records. The as-built drawings should be prepared as the job progresses to ensure their accuracy.
6. Where erosion control measures are needed for the utility relocation work occurring inside or outside State right-of-way, the contractor shall submit to the TDOT Project Supervisor for approval a proposed erosion and sediment control plan prior to beginning the work. TDOT approval must be received before the erosion control pay items for roadway construction can be used for any additional erosion control measures required for the utility relocation work.
7. Driveway, sidewalk and roadway temporary restoration shall be part of the in-place cost of placing the utility within the ROW.
8. Any excavation of the stream channel area shall be separated from flowing water and accomplished during low flow conditions. This shall be accomplished by the use of flumes, lined diversion channel with sandbag berm, diversion pipe with sandbag dam at pipe inlet, or in some cases cofferdams. Alternatively, based on field conditions and contractor selection, the utility relocation may be accomplished using bore technology with no stream channel impacts.

HAMILTON COUNTY WWTA

Consultant: Passpointe Engineering, PLLC
2719 Hickory Valley Road, Suite B
Chattanooga, TN 37421
ph: 423-451-6601 em: janpass@passpointe.com

SANITARY SEWER RELOCATION

(WWTA Proj. # 08-328, PPE Proj. # 11-009)

NOTES & DETAILS

SEWER NETWORK FILE: 11009_sa.sew
EXISTING SURFACE: CONTOURS_exist_2.tin
PROPOSED SURFACE: CONTOURS_prop_rev.tin

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TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-1

33057-3224-14 HAMILTON COUNTY

INDEX OF DRAWINGS

U5-1 ESTIMATED QUANTITIES & DRAWING INDEX
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U5-4 COMMUNICATION RELOCATION STA. 235+00 TO STA. 245+00
U5-5 COMMUNICATION RELOCATION STA. 245+00 TO STA. 256+00
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U5-7 COMMUNICATION RELOCATION STA. 269+00 TO STA. 282+00
U5-8 COMMUNICATION RELOCATION STA. 282+00 TO STA. 295+00
U5-9 COMMUNICATION RELOCATION STA. 295+00 TO STA. 308+00
U5-10 COMMUNICATION RELOCATION STA. 308+00 TO STA. 321+00
U5-11 COMMUNICATION RELOCATION STA. 321+00 TO STA. 332+00
U5-12 COMMUNICATION RELOCATION STA. 332+00 TO END OF PROJECT
U5-13 POLE AND MANHOLE LOCATIONS
U5-14 CONSTRUCTION DETAILS
U5-15 CONSTRUCTION DETAILS

	ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	PERCENT UTILITY	PERCENT PROJECT
1	793-01.14	INSTALL POLE 45FT CLASS 1 WOOD	EA	14	0%	100%
1	793-01.19	INSTALL POLE 50FT CLASS 1 WOOD	EA	42	0%	100%
1	793-01.33	INSTALL POLE 50FT CLASS H1 WOOD	EA	27	0%	100%
1	793-01.34	INSTALL POLE 55FT CLASS H1 WOOD	EA	12	0%	100%
1	793-01.35	INSTALL POLE 60FT CLASS H1 WOOD	EA	3	0%	100%
1	793-01.36	INSTALL POLE 65FT CLASS H1 WOOD	EA	1	0%	100%
	793-01.41	INSTALL ANCHOR 1IN. (F2)	EA	45	0%	100%
	793-13.07	4 IN. SHCEDULE 40 PVC (MATERIAL ONLY)	LF	38,700	0%	100%
2	793-13.17	INSTALL 2-DUCT FORMATION @ 36IN DEPTH (DUCT-2)	LF	100	0%	100%
2	793-13.32	INSTALL 6-DUCT FORMATION @ 36IN DEPTH (DUCT-6)	LF	4,812	0%	100%
2	793-13.37	INSTALL 9-DUCT FORMATION @ 36IN DEPTH (DUCT-9)	LF	1,069	0%	100%
3	793-14.03	INSTALL MH PRECAST 6-FT W x 12-FT L x 7-FT H (612MH)	EA	5	0%	100%
3	793-14.05	INSTALL MH PRECAST 4-FT W x 8-FT L x 6-FT H (408MH)	EA	1	0%	100%
	793-14.26	INSTALL UNDERGROUND TO OVERHEAD RISER (RISER)	EA	4	0%	100%

FOOTNOTES:

1. UNIT INCLUDES ALL LABOR AND MATERIALS NEEDED TO INSTALL WOOD POLES, INCLUDING DIGGING, SETTING POLE BACKFILL AND POLE GROUNDING. SEE CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2. UNIT INCLUDES ALL LABOR AND MATERIALS NEEDED TO INSTALL DUCTBANK, INCLUDING TRENCHING, SETTING CONDUIT, PROVIDING AND INSTALLING SPACERS, BACKFILL AND PROVIDING AND INSTALLING PULL ROPES AS REQUIRED. SEE CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

3. UNIT INCLUDES ALL LABOR AND MATERIALS NEEDED TO INSTALL PRE-CAST CONCRETE MANHOLE, INCLUDING EXCAVATION, SETTING MANHOLE, PROVIDING AND INSTALLING GROUND RODS, PROVIDING AND INSTALLING CONDUIT TRANSITIONS, BACKFILL, INSTALLING COLLAR EXTENSIONS (IF NECESSARY) AND MANHOLE COVER. SEE SHEETS U5-13, U5-14 AND CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.

	ITEM	DESCRIPTION	UNIT	TOTAL QUANTITY	PERCENT UTILITY	PERCENT PROJECT
1	793-16.01	MH (RETIRE/REMOVE/GRAVEL BACKFILL)	EA	4	0%	100%
	793-98.04	REMOVE POLES ALL SIZES	EA	48	0%	100%
2	793-98.07	REMOVE UNDERGROUND TO OVERHEAD RISER (RISER)	EA	4	0%	100%
	793-98.08	REMOVE ANCHOR (ANY SIZE)	EA	26	0%	100%

FOOTNOTES:

1. UNIT INCLUDES LABOR AND MATERIALS NEEDED TO REMOVE FRAME AND COVER ONLY. REMAINDER OF EXISTING MANHOLE TO BE FILLED IN WITH NON-COMPRESSIBLE MATERIALS AS REQUIRED BY TDOT.

2. UNIT INCLUDES LABOR AND MATERIALS NEEDED TO REMOVE CONDUIT ONLY TO THE POLE JUST ABOVE GROUND LEVEL. ALL EXISTING CONDUIT INSTALLED ON THE POLE WILL BE REMOVED BY UTILITY OWNER.

UTILITY INFORMATION

AT&T SOUTHEAST
ADDRESS:
300 EAST M. L. KING BLVD.
CHATTANOOGA, TN 37403
CONTACT: TIM MANLEY
PHONE: (423) 752-9144
FAX: (423) 267-0120
EMAIL: tm4644@att.com

JASON L. BRADY
LICENSED PROFESSIONAL ENGINEER
AGRICULTURE COMMERCE
NO. 00108120
STATE OF TENNESSEE
5/30/12

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

GRESHAM, SMITH AND PARTNERS
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

SCALE	DATE
NONE	05_02_2012

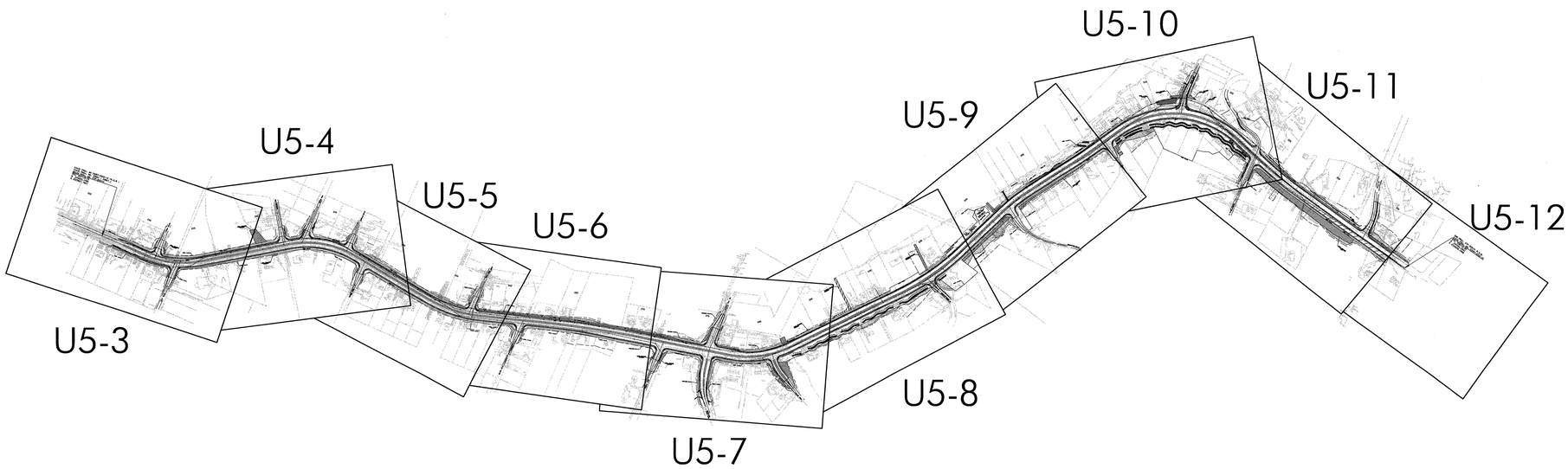
ESTIMATED QUANTITIES AND DRAWING INDEX

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-2

33057-3224-14 HAMILTON COUNTY

HAMILTON COUNTY

S.R. 320 FROM 325 FT. EAST OF GRAYSVILLE RD. TO 900 FT. EAST OF BELL-AIR ROAD

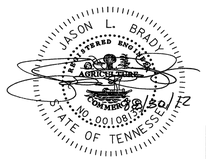


LEGEND

✕	EXISTING POLE (CHATTANOOGA EPB)
○	EXISTING / REMOVAL POLE (AT&T)
●	PROPOSED POLE (AT&T)
— — T — —	EXISTING / REMOVAL OVERHEAD TELECOMMUNICATION
—— T ——	PROPOSED OVERHEAD TELECOMMUNICATION
— — T (UG) — —	EXISTING / REMOVAL UNDERGROUND TELECOMMUNICATION
—— T (UG) ——	PROPOSED UNDERGROUND TELECOMMUNICATION
←	ANCHOR
◎	UNDERGROUND MANHOLE

GENERAL NOTES

1. THE WORK OF COMMUNICATION RELOCATION AS INDICATED WITHIN THESE CONTRACT DRAWINGS SHALL BE COVERED UNDER "STANDARD SPECIFICATIONS FOR UTILITY CONSTRUCTION" AS PART OF THE TDOT PROPOSAL CONTRACT.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE N.E.S.C., N.E.C., AND ANY AND ALL OTHER APPLICABLE LOCAL SAFETY CODES.
3. ANY CONTRACTOR OR SUBCONTRACTOR WHO WILL BE PERFORMING THE WORK OF THE COMMUNICATION UTILITY CONSTRUCTION SHALL SUBMIT QUALIFICATION REQUIREMENTS DIRECTLY TO TDOT FOR APPROVAL BY 30 DAYS PRIOR TO THE LETTING OF THE CONTRACT.
4. IN GENERAL, THE CONTRACTOR SHALL INSTALL ALL NECESSARY POLES, ANCHORS, UNDERGROUND CONDUITS AND HANDHOLES/MANHOLES NECESSARY FOR THE RELOCATION OF COMMUNICATION FACILITIES THROUGHOUT THE AREA DEFINED IN THE CONTRACT DOCUMENTS.
5. THE LOCATIONS OF UTILITIES SHOWN WITHIN THESE DRAWINGS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL NOTIFY EACH INDIVIDUAL UTILITY OWNER OF HIS PLAN OF OPERATION IN THE AREA OF THE UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL REQUEST THE UTILITY OWNER TO PROPERLY LOCATE AND MARK THEIR RESPECTIVE UTILITY ON THE GROUND. THIS NOTIFICATION SHALL BE GIVEN AT LEAST THREE (3) BUSEINESS DAYS PRIOR TO COMMENCEMENT OF OPERATIONS IN THE VICINITY OF THE UTILITY.
6. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY EXCAVATION WORK REQUIRED TO LOCATE UNDERGROUND UTILITIES. THE CONTRACTOR IS ALSO REQUIRED TO NOTIFY ANY AFFECTED UTILITY OWNERS PRIOR TO DIGGING. IN THE EVENT OF ACCIDENTAL INTERRUPTIONS OF SERVICE, CONTRACTOR WILL IMMEDIATELY NOTIFY THE UTILITY OWNER.
7. THE CONTRACTOR WILL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. IN THE EVENT THAT SPECIAL EQUIPMENT IS REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR WILL BE REQUIRED TO FURNISH SUCH EQUIPMENT.
8. PRIOR TO SUBMITTING HIS BID, THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR CONTACTING OWNERS OF ALL POTENTIALLY AFFECTED UTILITIES IN ORDER TO DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS WILL HAVE UPON THE SCHEDULE OF WORK FOR THE PROJECT. WHILE SOME WORK MAY BE REQUIRED "AROUND" UTILITY FACILITIES THAT WILL REMAIN IN PLACE, OTHER UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS.
9. SOME UTILITIES CAN BE LOCATED BY CALLING TENNESSEE ONE CALL SYSTEM, INC. AT 811.
10. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL COMMUNICATION FACILITIES AT FINAL GRADE AS SHOWN. ANY TEMPORARY INSTALLATIONS OR GRADING ARE THE RESPONSIBILITY OF THE CONTRACTOR.
11. CONTRACTOR SHALL PROVIDE OWNER (AT&T) AND PROJECT ENGINEER WITH ONE (1) SET OF CLEAN, CLEARLY MARKED AS-BUILT DRAWINGS AT THE END OF THE PROJECT. THESE DRAWINGS SHALL REFLECT ANY AND ALL CHANGES TO COMMUNICATION PLANS DURING CONSTRUCTION.
12. DISTANCES SHOWN ON THE DRAWINGS ARE HORIZONTAL DISTANCES ONLY AND DO NOT ALLOW FOR UNDERGROUND CHANGES IN ELEVATION.



AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

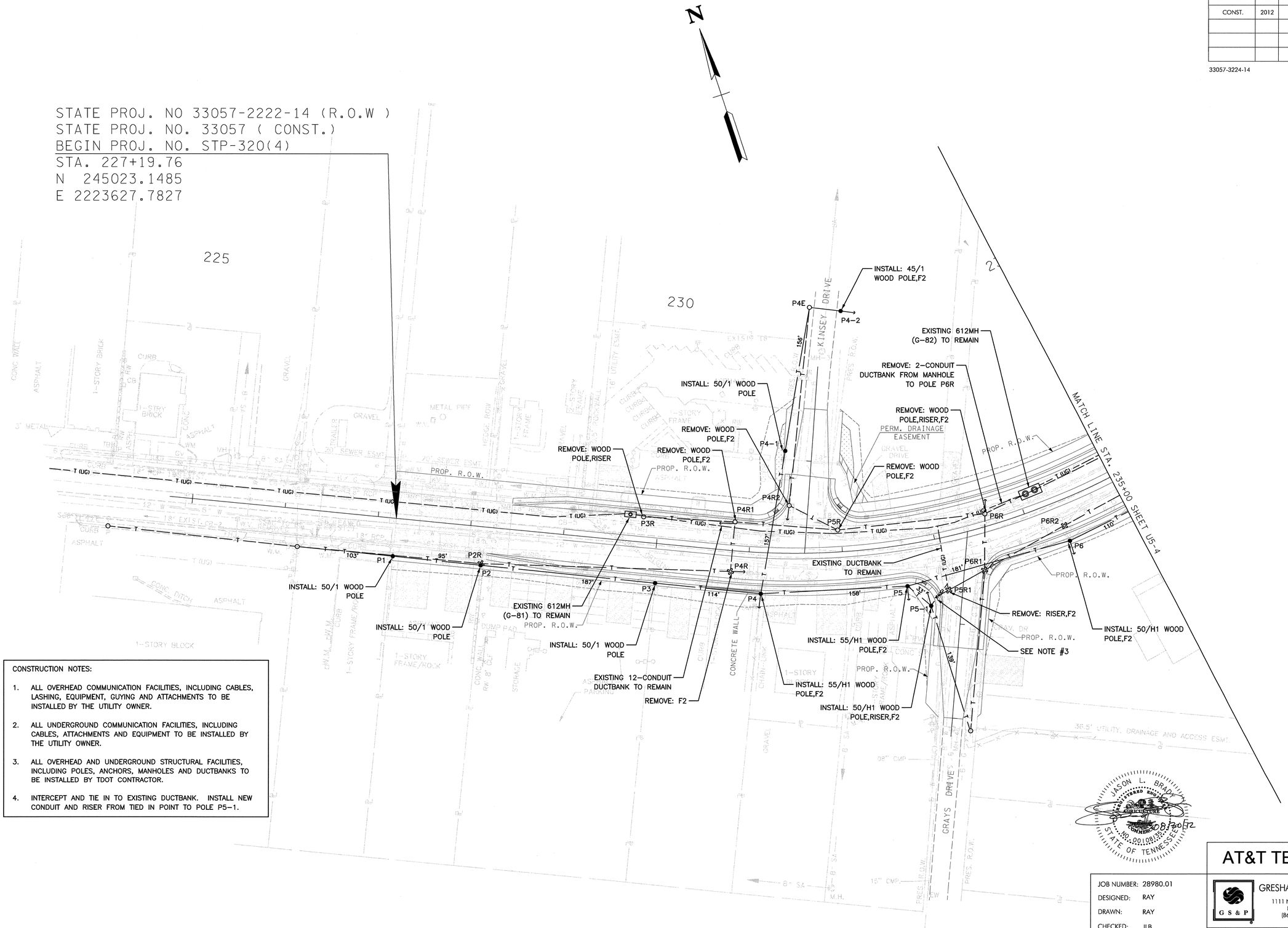
SCALE	DATE
NONE	05 . 02 . 2012

COVER SHEET, LEGEND AND GENERAL NOTES

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-3

33057-3224-14 HAMILTON COUNTY

STATE PROJ. NO 33057-2222-14 (R.O.W)
STATE PROJ. NO. 33057 (CONST.)
BEGIN PROJ. NO. STP-320(4)
STA. 227+19.76
N 245023.1485
E 2223627.7827



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. INTERCEPT AND TIE IN TO EXISTING DUCTBANK. INSTALL NEW CONDUIT AND RISER FROM TIED IN POINT TO POLE P5-1.

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

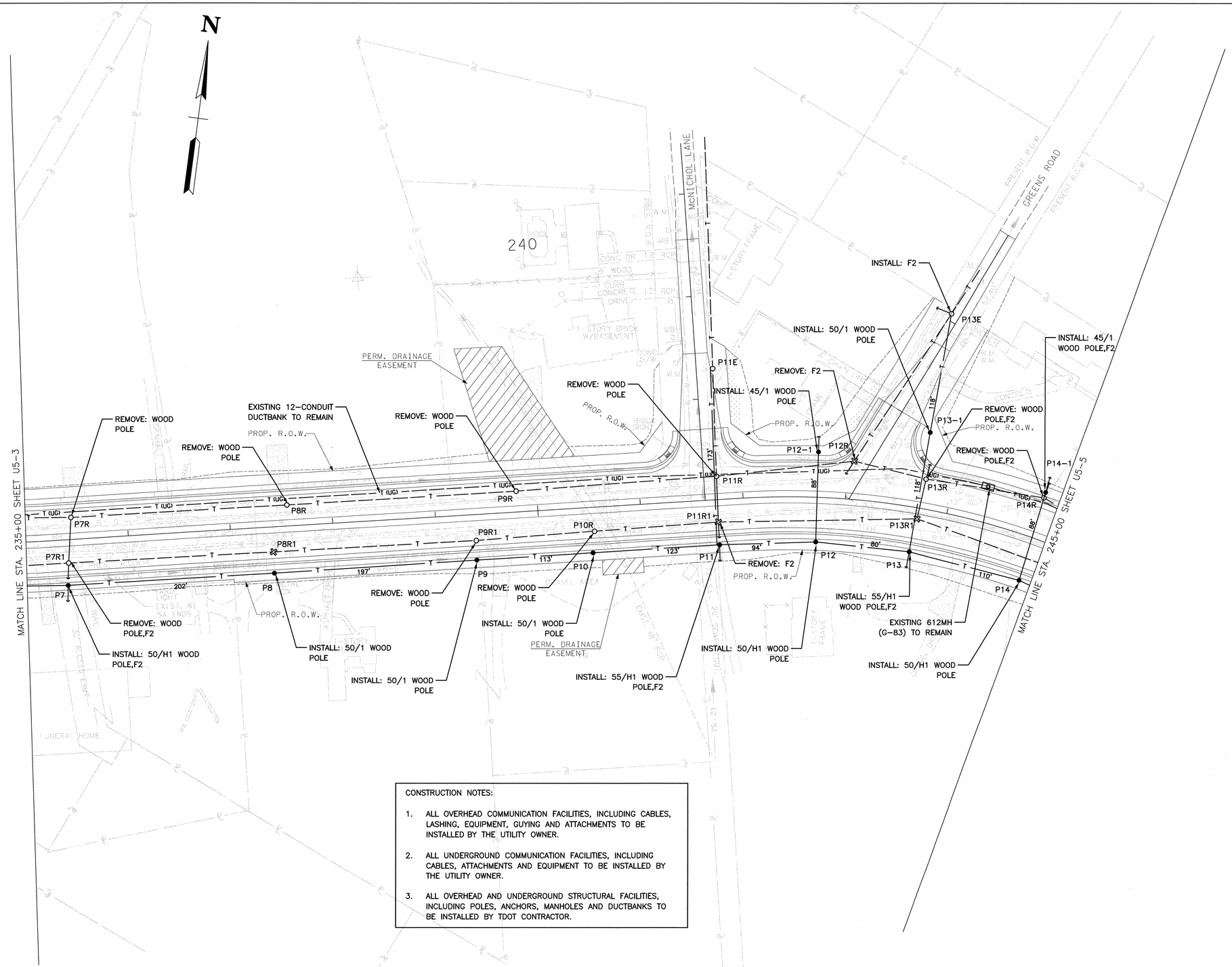
SCALE	DATE
1"=50'	05 02 2012

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

COMMUNICATION RELOCATION
BEGINNING TO STA. 235-00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-4

33057-3224-14 HAMILTON COUNTY



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.

JASON L. BRADY REGISTERED ENGINEER AGRICULTURE COMMERCE NO. 00108755 08/30/12 STATE OF TENNESSEE

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

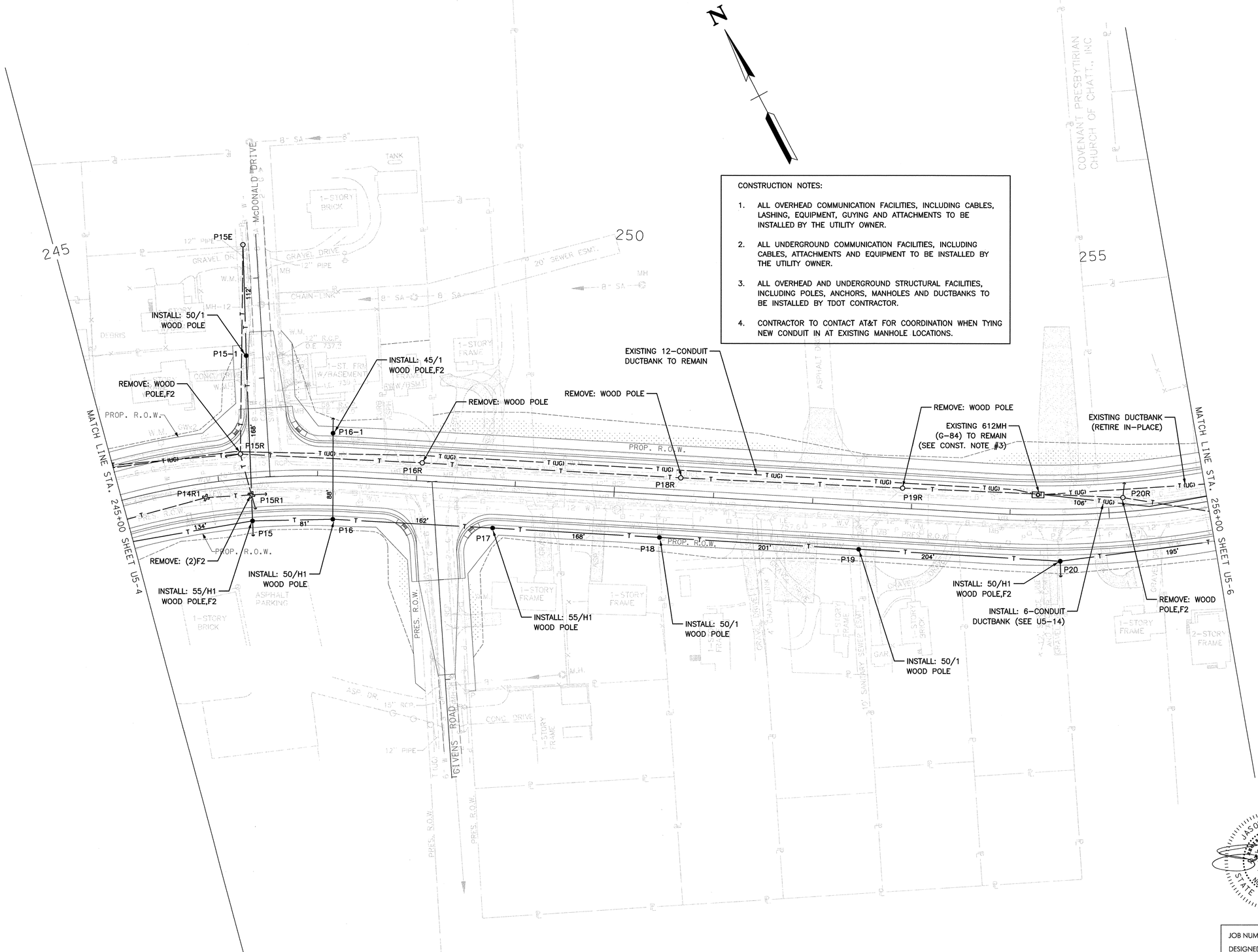
SCALE	DATE
1"=50'	05 02 2012

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

COMMUNICATION RELOCATION
STA. 235+00 TO STA. 245+00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-5

33057-3224-14 HAMILTON COUNTY



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. CONTRACTOR TO CONTACT AT&T FOR COORDINATION WHEN TYING NEW CONDUIT IN AT EXISTING MANHOLE LOCATIONS.

JASON L. BRADY
REGISTERED ENGINEER
AGRICULTURE COMMERCE
NO. 00108135
08/30/12
STATE OF TENNESSEE

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

SCALE	DATE
1"=50'	05.02.2012

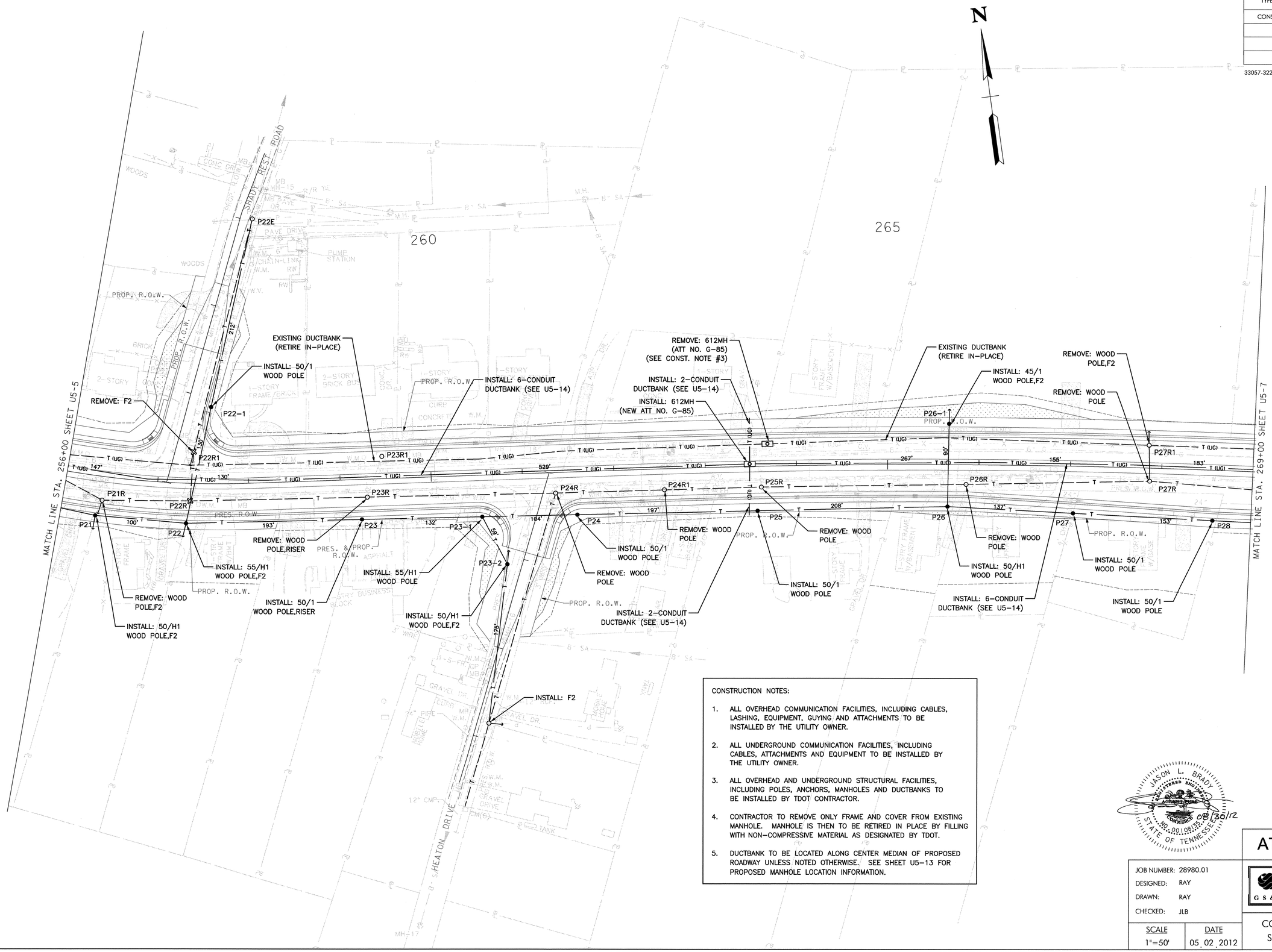
GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

COMMUNICATION RELOCATION
STA. 245+00 TO STA. 256+00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-6

33057-3224-14

HAMILTON COUNTY



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. CONTRACTOR TO REMOVE ONLY FRAME AND COVER FROM EXISTING MANHOLE. MANHOLE IS THEN TO BE RETIRED IN PLACE BY FILLING WITH NON-COMPRESSIVE MATERIAL AS DESIGNATED BY TDOT.
5. DUCTBANK TO BE LOCATED ALONG CENTER MEDIAN OF PROPOSED ROADWAY UNLESS NOTED OTHERWISE. SEE SHEET U5-13 FOR PROPOSED MANHOLE LOCATION INFORMATION.

JASON L. BRADY
REGISTERED ENGINEER
AGRICULTURE COMMERCE
NO. 00108155
STATE OF TENNESSEE
08/30/12

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

SCALE	DATE
1"=50'	05.02.2012

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

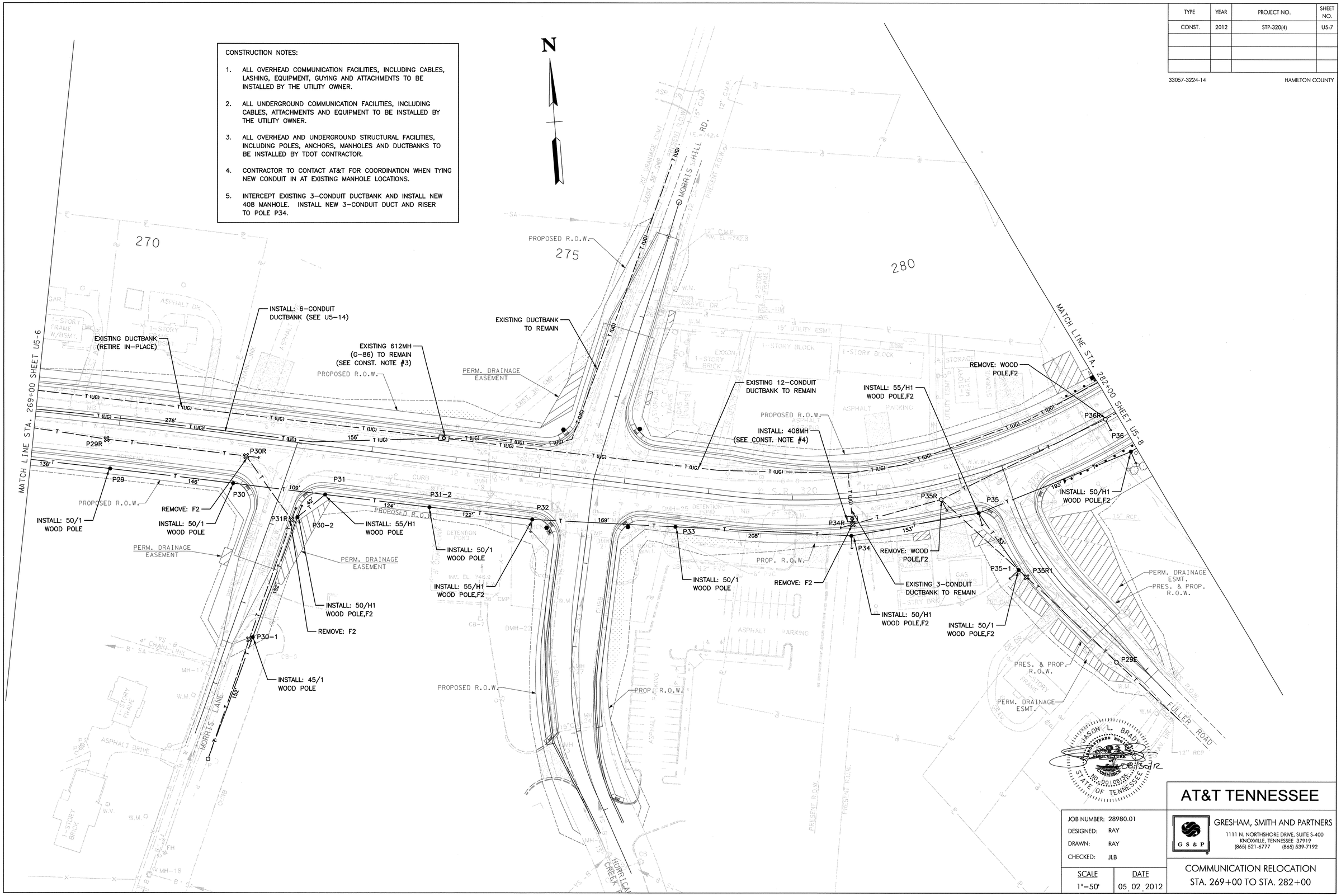
COMMUNICATION RELOCATION
STA. 256+00 TO STA. 269+00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-7

33057-3224-14 HAMILTON COUNTY

CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. CONTRACTOR TO CONTACT AT&T FOR COORDINATION WHEN TYING NEW CONDUIT IN AT EXISTING MANHOLE LOCATIONS.
5. INTERCEPT EXISTING 3-CONDUIT DUCTBANK AND INSTALL NEW 408 MANHOLE. INSTALL NEW 3-CONDUIT DUCT AND RISER TO POLE P34.



AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

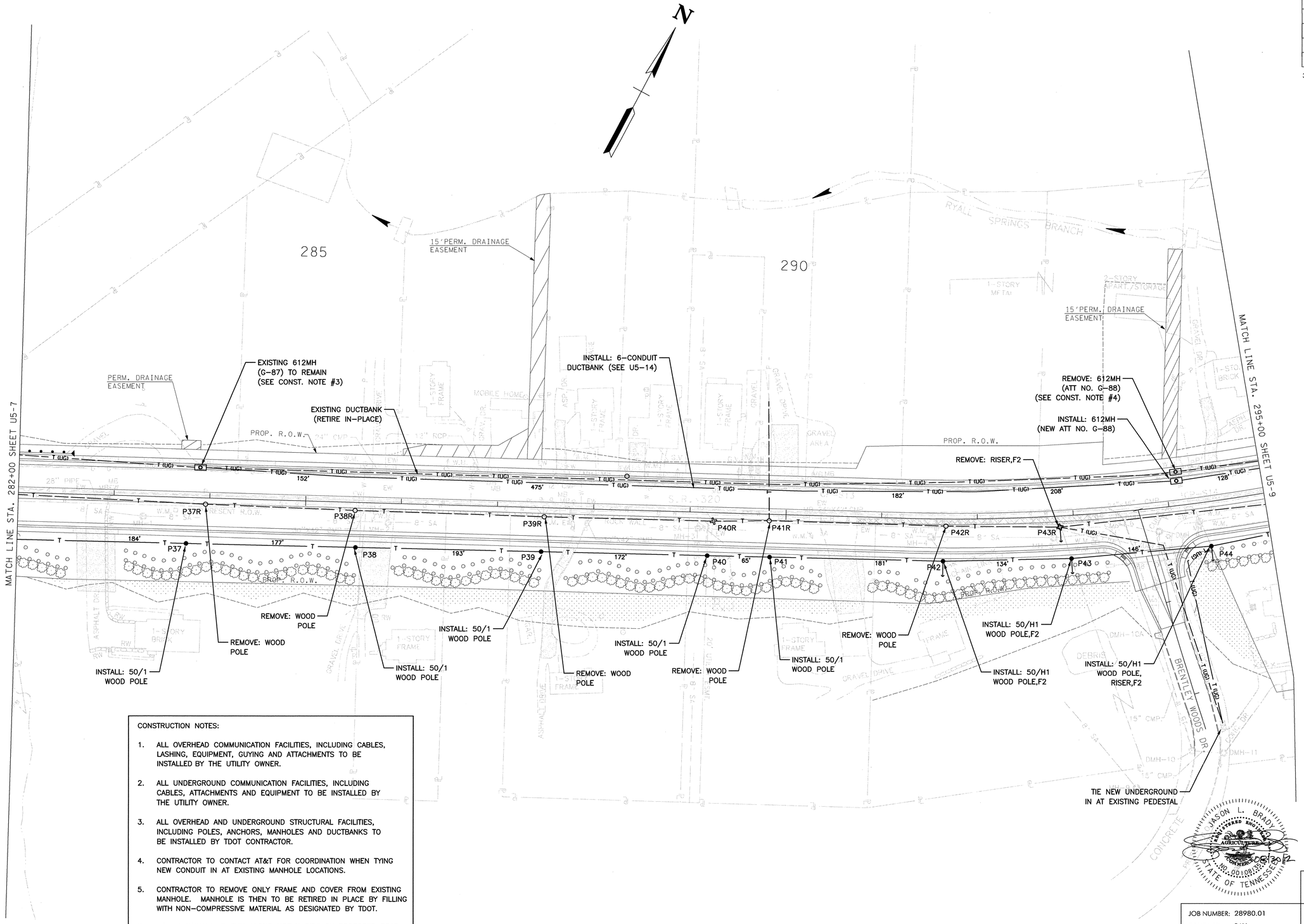
SCALE	DATE
1"=50'	05 02 2012

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

COMMUNICATION RELOCATION
STA. 269+00 TO STA. 282+00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-8

33057-3224-14 HAMILTON COUNTY



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. CONTRACTOR TO CONTACT AT&T FOR COORDINATION WHEN TYING NEW CONDUIT IN AT EXISTING MANHOLE LOCATIONS.
5. CONTRACTOR TO REMOVE ONLY FRAME AND COVER FROM EXISTING MANHOLE. MANHOLE IS THEN TO BE RETIRED IN PLACE BY FILLING WITH NON-COMPRESSIVE MATERIAL AS DESIGNATED BY TDOT.
6. NEW DUCTBANK TO RUN ALONG NORTH SIDE OF PROPOSED ROAD APPROXIMATELY 5'-0" OUT FROM THE CURB. SEE SHEET U5-13 FOR PROPOSED MANHOLE LOCATION INFORMATION.

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

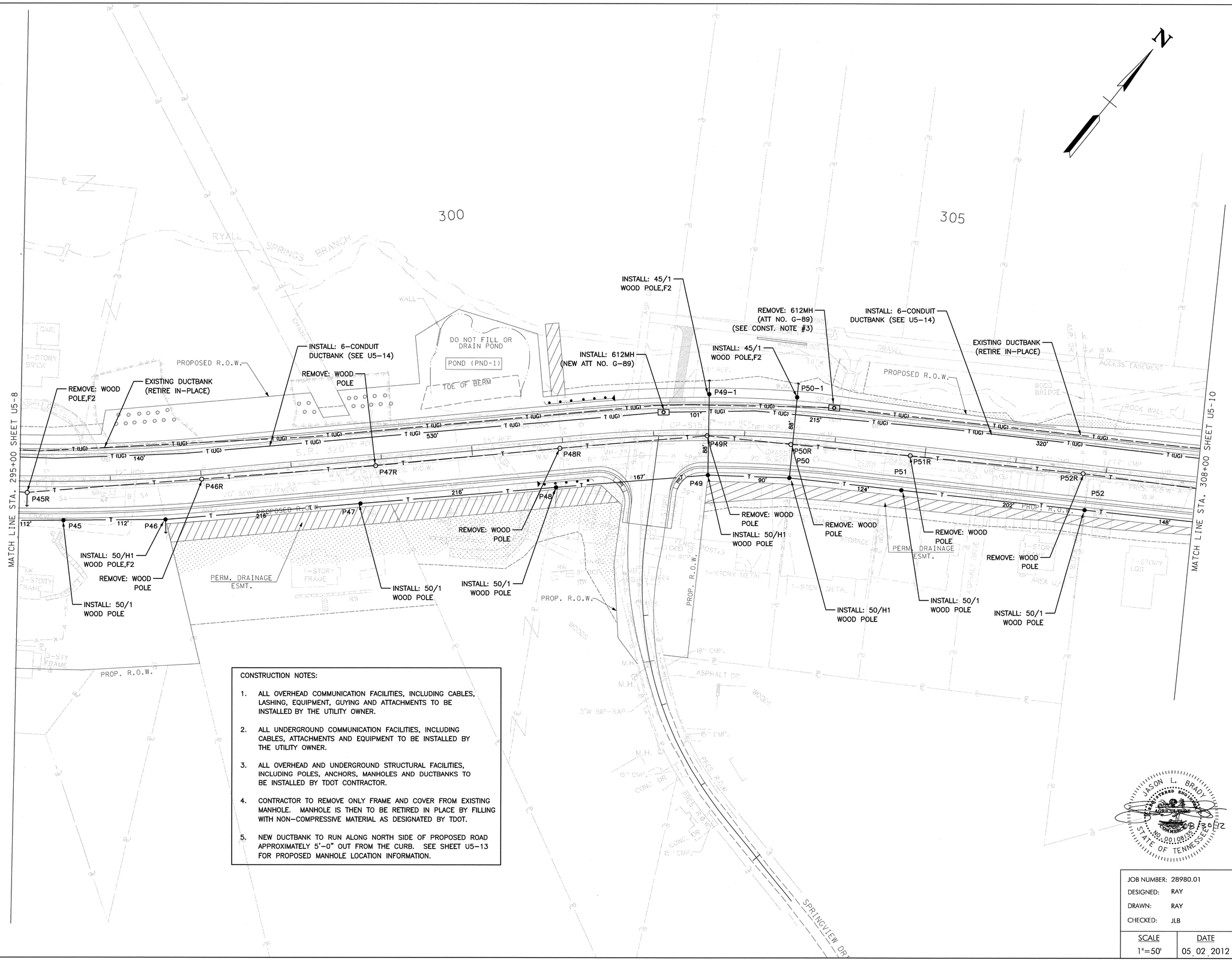
SCALE	DATE
1"=50'	05.02.2012

GRESHAM, SMITH AND PARTNERS
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

COMMUNICATION RELOCATION
STA. 282+00 TO STA. 295+00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-9

33057-3224-14 HAMILTON COUNTY



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. CONTRACTOR TO REMOVE ONLY FRAME AND COVER FROM EXISTING MANHOLE. MANHOLE IS THEN TO BE RETIRED IN PLACE BY FILLING WITH NON-COMPRESSIVE MATERIAL AS DESIGNATED BY TDOT.
5. NEW DUCTBANK TO RUN ALONG NORTH SIDE OF PROPOSED ROAD APPROXIMATELY 5'-0" OUT FROM THE CURB. SEE SHEET U5-13 FOR PROPOSED MANHOLE LOCATION INFORMATION.

JASON L. BRADY
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
NO. 00108135
STATE OF TENNESSEE
8/30/12

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

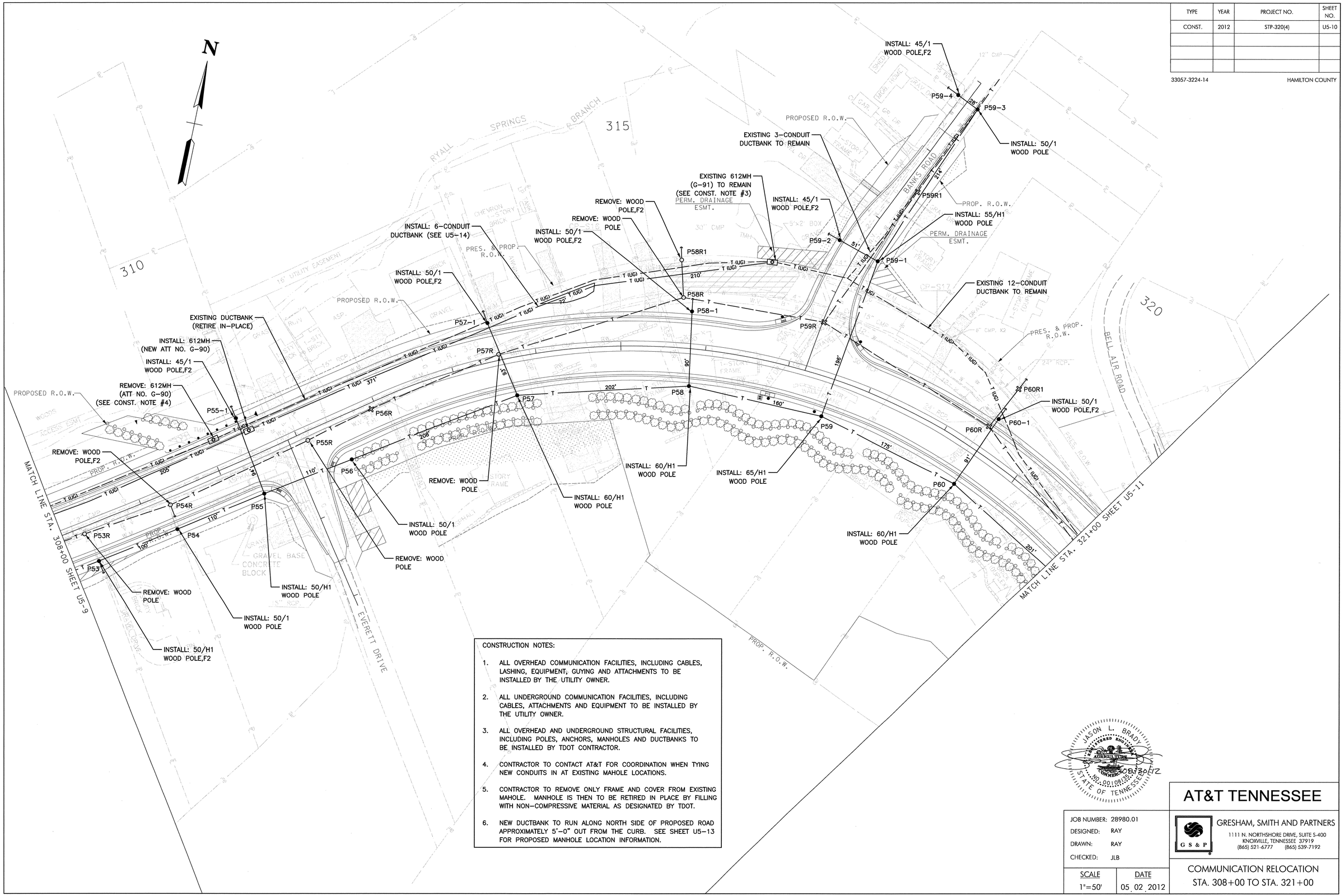
SCALE 1"=50'
DATE 05.02.2012

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

COMMUNICATION RELOCATION
STA. 295+00 TO STA. 308+00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-10

33057-3224-14 HAMILTON COUNTY



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. CONTRACTOR TO CONTACT AT&T FOR COORDINATION WHEN TYING NEW CONDUITS IN AT EXISTING MAHOLE LOCATIONS.
5. CONTRACTOR TO REMOVE ONLY FRAME AND COVER FROM EXISTING MAHOLE. MANHOLE IS THEN TO BE RETIRED IN PLACE BY FILLING WITH NON-COMPRESSIVE MATERIAL AS DESIGNATED BY TDOT.
6. NEW DUCTBANK TO RUN ALONG NORTH SIDE OF PROPOSED ROAD APPROXIMATELY 5'-0" OUT FROM THE CURB. SEE SHEET U5-13 FOR PROPOSED MANHOLE LOCATION INFORMATION.

JASON L. BRADY
AGRICULTURE
COMMERCE
NO. 00108135
05/02/12
STATE OF TENNESSEE

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

SCALE	DATE
1"=50'	05.02.2012

COMMUNICATION RELOCATION
STA. 308+00 TO STA. 321+00

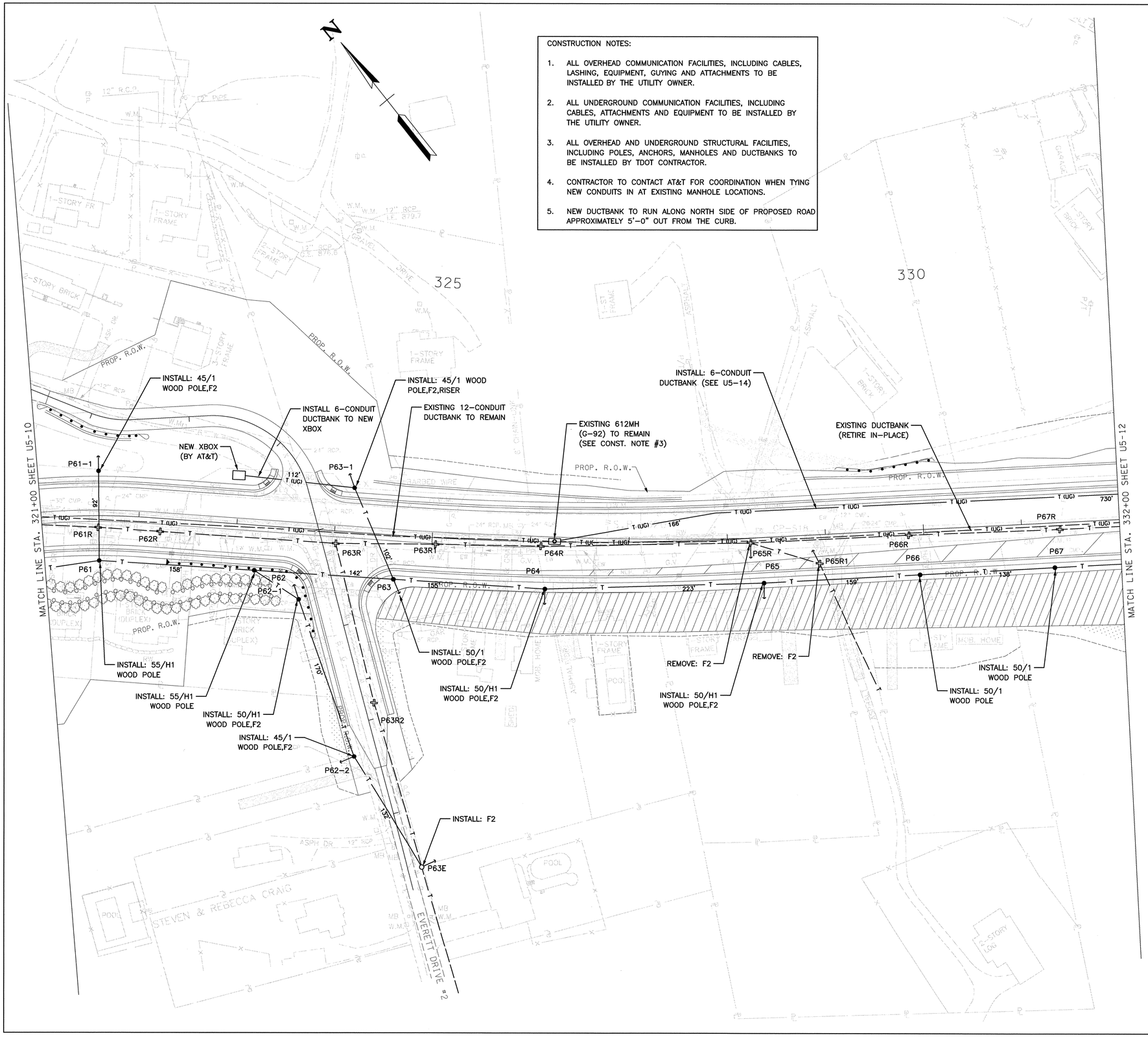
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-11

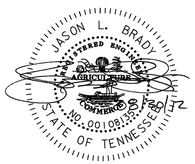
33057-3224-14

HAMILTON COUNTY

CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. CONTRACTOR TO CONTACT AT&T FOR COORDINATION WHEN TYING NEW CONDUITS IN AT EXISTING MANHOLE LOCATIONS.
5. NEW DUCTBANK TO RUN ALONG NORTH SIDE OF PROPOSED ROAD APPROXIMATELY 5'-0" OUT FROM THE CURB.





AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

SCALE	DATE
1"=50'	05 02 2012

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
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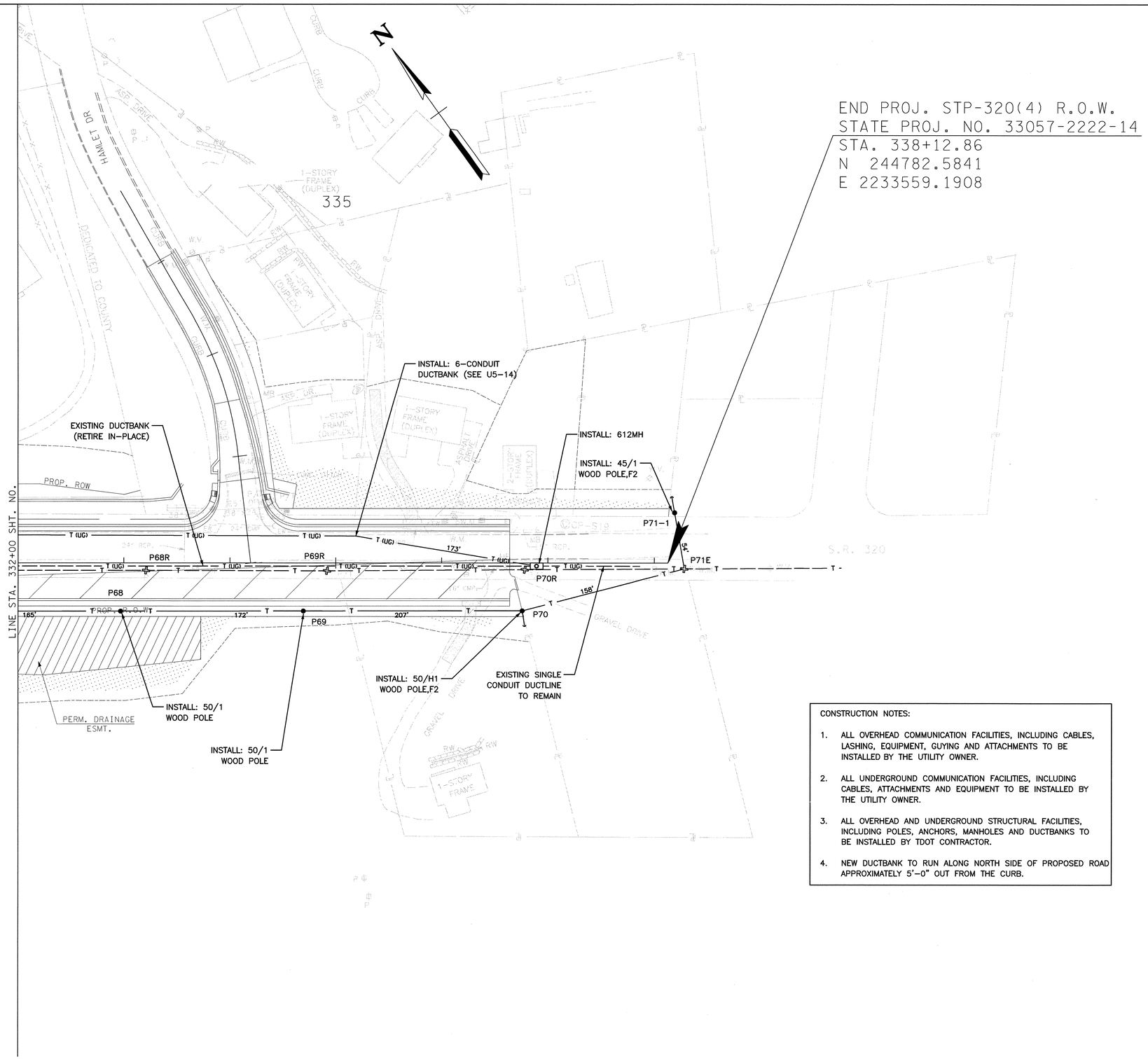
COMMUNICATION RELOCATION
STA. 321+00 TO STA. 332+00

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-12

33057-3224-14 HAMILTON COUNTY



CONSTRUCTION NOTES:

1. ALL OVERHEAD COMMUNICATION FACILITIES, INCLUDING CABLES, LASHING, EQUIPMENT, GUYING AND ATTACHMENTS TO BE INSTALLED BY THE UTILITY OWNER.
2. ALL UNDERGROUND COMMUNICATION FACILITIES, INCLUDING CABLES, ATTACHMENTS AND EQUIPMENT TO BE INSTALLED BY THE UTILITY OWNER.
3. ALL OVERHEAD AND UNDERGROUND STRUCTURAL FACILITIES, INCLUDING POLES, ANCHORS, MANHOLES AND DUCTBANKS TO BE INSTALLED BY TDOT CONTRACTOR.
4. NEW DUCTBANK TO RUN ALONG NORTH SIDE OF PROPOSED ROAD APPROXIMATELY 5'-0" OUT FROM THE CURB.

JASON L. BRADY REGISTERED ENGINEER AGRICULTURE COMMERCE NO. 00108125 STATE OF TENNESSEE 05/02/2012

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

SCALE 1"=50'
DATE 05.02.2012

GRESHAM, SMITH AND PARTNERS
G S & P
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

COMMUNICATION RELOCATION
STA. 332+00 TO END OF PROJECT

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-13

33057-3224-14 HAMILTON COUNTY

INSTALLATION POLE LOCATIONS

POLE NO.	STATION	OFFSET	NORTHING	EASTING
P1	227+19.75	41.37	244985.8133	2223615.4810
P2	228+14.78	41.97	244946.8039	2223702.1320
P3	230+02.66	43.15	244869.6753	2223873.4566
P4	231+14.63	44.84	244822.7941	2223977.5931
P4-1	231+36.79	-110.53	244961.3712	2224050.9381
P4-2	232+24.73	-257.48	245084.6071	2224154.1383
P5	232+63.31	45.05	244781.3723	2224129.6391
P5-1	232+83.21	70.50	244753.0089	2224147.1224
P6	234+34.13	44.30	244773.8389	2224310.3258
P7	235+38.73	43.62	244789.8914	2224418.9757
P8	237+40.34	44.21	244827.7471	2224617.0003
P9	239+37.81	43.47	244866.1175	2224810.1175
P10	240+51.29	43.62	244887.6129	2224922.1365
P11	241+74.44	43.67	244911.0358	2225043.0348
P12	242+72.45	43.23	244926.0076	2225135.5236
P12-1	242+71.84	-44.72	245013.5302	2225126.8622
P13	243+70.10	42.94	244928.6706	2225227.2982
P13-1	243+70.51	-75.07	245046.5645	2225232.5955
P14	244+88.00	42.61	244915.5217	2225337.3638
P14-1	244+85.02	-45.78	245002.7382	2225352.0377
P15	246+30.69	44.00	244874.5645	2225465.9790
P15-1	246+37.45	-123.68	245026.0337	2225537.2429
P16	247+16.94	44.27	244838.5809	2225537.5203
P16-1	247+14.39	-43.97	244916.6527	2225578.7172
P17	248+79.69	44.15	244755.6970	2225676.3589
P18	250+48.25	43.98	244669.1524	2225820.9987
P19	252+49.34	44.26	244565.5021	2225993.3208
P20	254+50.18	47.19	244460.2390	2226168.3245
P21	256+36.78	43.83	244392.8555	2226351.5259
P22	257+32.61	44.21	244370.4434	2226449.1994
P22-1	257+58.15	-83.14	244492.2491	2226493.9711
P23	259+22.51	44.18	244348.3860	2226640.8523
P23-1	260+54.72	45.97	244333.1007	2226772.1898
P23-2	260+80.36	99.81	244276.9234	2226792.1912
P24	261+58.78	47.38	244321.0700	2226875.5630
P25	263+56.31	49.04	244298.4339	2227071.0880
P26	265+65.82	46.16	244274.4694	2227278.0511
P26-1	265+67.31	-44.34	244363.8511	2227292.2975
P27	267+03.88	51.89	244248.3540	2227412.9382
P28	268+57.69	55.64	244219.2962	2227563.0230
P29	269+94.77	56.64	244193.4114	2227696.7190
P30	271+41.70	55.94	244165.4146	2227840.6038
P30-1	271+86.93	235.05	243980.9036	2227849.7096
P30-2	272+21.85	86.64	244119.5476	2227913.1465
P31	272+51.16	55.88	244143.9346	2227947.9371
P31-2	273+75.50	55.82	244119.5365	2228069.8625
P32	274+97.71	55.75	244095.5579	2228189.6938
P33	276+66.28	43.87	244074.0314	2228357.3075
P34	278+66.51	44.92	244047.4379	2228564.3738
P35	280+10.58	44.36	244062.6813	2228716.3204
P35-1	280+33.65	123.81	243991.5318	2228758.3439

POLE NO.	STATION	OFFSET	NORTHING	EASTING
P36	281+92.70	49.39	244120.7075	2228900.8768
P37	283+76.59	48.28	244203.6330	2229065.5803
P38	285+53.44	47.07	244283.3204	2229223.4537
P39	287+46.74	45.85	244370.3368	2229396.0691
P40	289+19.18	44.76	244447.9644	2229550.0597
P41	289+84.26	44.35	244477.2585	2229608.1707
P42	291+64.47	43.75	244558.8464	2229770.0175
P43	292+95.55	44.74	244624.4126	2229886.9544
P44	294+38.42	46.51	244704.2376	2230009.4830
P45	295+48.13	43.11	244775.3034	2230096.4281
P46	296+57.85	46.12	244846.3692	2230183.3732
P47	298+72.41	47.07	244995.2317	2230339.7029
P48	300+88.26	48.82	245144.0942	2230496.0326
P49	302+59.63	43.89	245259.2380	2230616.9522
P49-1	302+60.74	-44.32	245328.9108	2230562.8367
P50	303+52.47	43.79	245313.0680	2230689.0189
P50-1	303+54.80	-44.64	245387.0401	2230640.4901
P51	304+78.42	44.63	245380.0077	2230793.5790
P52	306+81.08	44.13	245489.2737	2230964.2530
P53	308+29.10	44.41	245569.4388	2231089.4713
P54	309+28.37	43.98	245625.4999	2231172.3236
P55	310+38.44	45.53	245687.6701	2231264.2043
P55-1	310+42.74	-48.17	245766.4904	2231213.3447
P56	311+48.85	51.21	245747.4647	2231357.3961
P57	313+68.19	45.60	245860.0536	2231532.8372
P57-1	313+51.87	-46.48	245937.7660	2231480.8112
P58	315+84.72	44.92	245911.6999	2231728.4624
P58-1	315+79.86	-44.57	246000.1195	2231713.8231
P59	317+56.10	46.20	245908.6825	2231888.7781
P59-1	317+58.38	-149.36	246102.2814	2231916.5187
P59-2	317+17.03	-159.49	246117.5097	2231867.7174
P59-3	317+93.51	-358.54	246301.5458	2231995.6477
P59-4	317+75.26	-365.84	246313.2826	2231969.9369
P60	319+43.92	46.50	245863.8227	2232058.3438
P60-1	319+45.68	-45.02	245947.9177	2232094.4936
P61	321+59.42	46.11	245761.9468	2232231.7187
P61-1	321+58.57	-46.52	245834.4976	2232289.3097
P62	323+20.99	46.21	245655.0911	2232348.5307
P62-1	323+68.30	71.69	245604.1856	2232365.7334
P62-2	324+36.55	227.69	245443.5712	2232309.1942
P63	324+63.36	44.80	245558.9328	2232453.6485
P63-1	324+17.14	-45.96	245656.8774	2232481.7071
P64	326+15.41	47.69	245454.6406	2232567.6582
P65	328+35.16	46.27	245319.4655	2232744.9215
P66	329+94.34	46.11	245226.1638	2232873.8996
P67	331+32.07	45.97	245145.4389	2232985.4919
P68	332+96.96	45.79	245048.7951	2233119.0901
P69	334+69.31	45.62	244947.7774	2233258.7347
P70	336+75.95	45.41	244826.6648	2233426.1579
P71-1	338+19.27	-47.21	244817.5313	2233596.5559

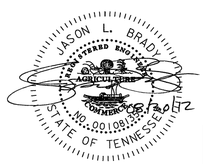
PROPOSED MANHOLE LOCATIONS

MANHOLE	STATION	OFFSET	NORTHING	EASTING
G-85	263+48.59	-02.72	244350.7831	2227069.4552
G-88	294+11.02	-26.09	244747.3182	2229944.8644
G-89	302+11.52	-25.49	245282.3850	2230535.8352
G-90	310+50.98	-28.62	245755.4407	2231231.2980

NOTES:

1. LISTED MANHOLE LOCATIONS ARE APPROXIMATE. IF MANHOLE LOCATIONS NEED TO BE MODIFIED FOR CONSTRUCTION PURPOSES, COORDINATE REVISED LOCATION WITH ROADWAY CONTRACTOR AND AT&T PRIOR TO INSTALLATION.

2. CONTRACTOR TO COORDINATE FINAL MANHOLE COVER ELEVATION WITH ROADWAY CONTRACTOR BEFORE FINAL INSTALLATION OF COLLAR AND COVER.



AT&T TENNESSEE

JOB NUMBER: 28980.01
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DRAWN: RAY
CHECKED: JLB

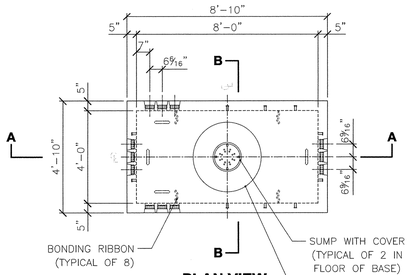
GRESHAM, SMITH AND PARTNERS
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

SCALE	DATE
NONE	05 . 02 . 2012

COMMUNICATION RELOCATION
POLE AND MANHOLE LOCATIONS

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-14

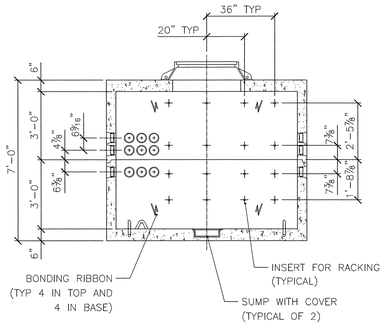
33057-3224-14 HAMILTON COUNTY



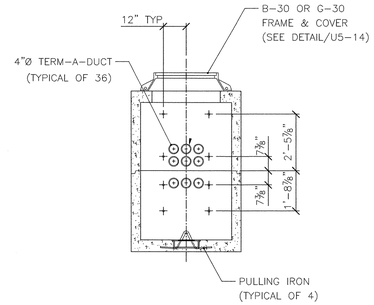
PLAN VIEW

NOTES

1. CONCRETE: 28 DAY COMPRESSIVE STRENGTH f'c=5,000 PSI.
2. REINFORCING: ASTM A-615, GRADE 60.
3. JOINT SEALANT: BUTYL RUBBER SS-S-00210.
4. DESIGNED FOR MAXIMUM SOIL COVER OF 5'-0" ABOVE BOX.
5. SUPPORTS AN H20 LOADING AS INDICATED BY AASHTO.



SECTION A-A



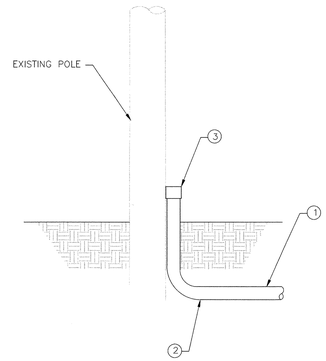
SECTION B-B

ASSEMBLY
408MH

4'-0"W x 8'-0"L x 6'-0"D MANHOLE

NOTES

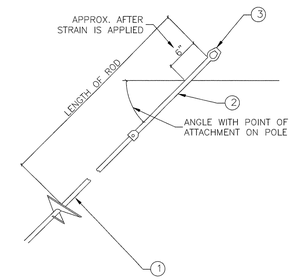
1. ALL RISERS SHOULD HAVE A SEALED 36" PVC SWEEP FROM TRENCH TO POLE AND SEVERAL INCHES ABOVE FINAL GRADE.



ID	QTY.	DESCRIPTION
1	~	4" SCHEDULE 40 PVC (LENGTH AS REQUIRED)
2	1	4" SCHEDULE 40 PVC 90° ELBOW
3	1	4" SCHEDULE 40 PVC CAP

ASSEMBLY
RISER

UNDERGROUND RISER



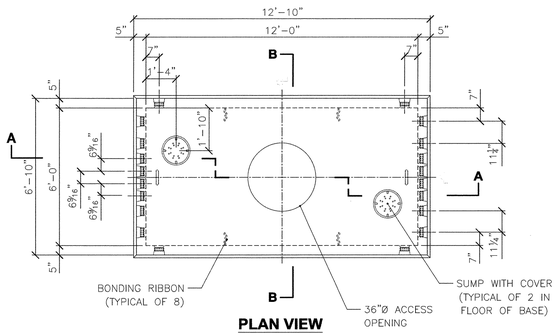
NOTES:

1. ANCHORS MUST BE DESIGNED TO ACCOMODATE A MINIMUM 32,000LB GUY CAPACITY.
2. EXTENSIONS MAY BE USED AS NECESSARY TO OBTAIN REQUIRED HOLDING STRENGTH.

ID	QTY.	DESCRIPTION
1	1	1" DIA. SHAFT, POWER-INSTALLED ANCHOR
2	1	3' OR 7' EXTENSION (AS REQUIRED)
3	1	TRIPLE-EYE GUY WIRE ATTACHMENT

ASSEMBLY
F2

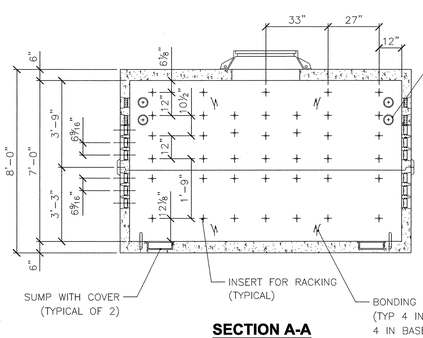
POWER-INSTALLED ANCHORS



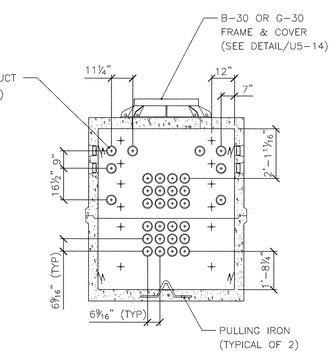
PLAN VIEW

NOTES

1. CONCRETE: 28 DAY COMPRESSIVE STRENGTH f'c=4,500 PSI.
2. REINFORCING: ASTM A-615, GRADE 60.
3. JOINT SEALANT: BUTYL RUBBER SS-S-00210.
4. DESIGNED FOR MAXIMUM SOIL COVER OF 5'-0" ABOVE BOX.
5. SUPPORTS AN H20 LOADING AS INDICATED BY AASHTO.



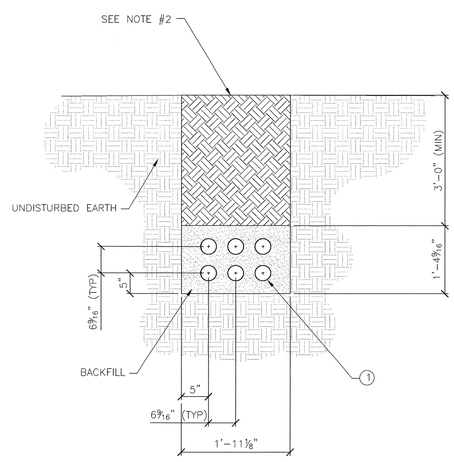
SECTION A-A



SECTION B-B

ASSEMBLY
612MH

6'-0"W x 12'-0"L x 7'-0"D MANHOLE



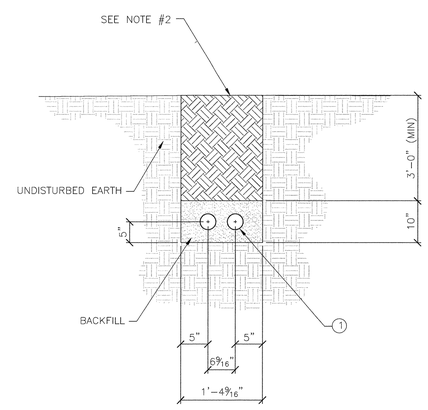
NOTES:

1. SEE SPECIFICATIONS FOR BACKFILL MATERIAL AND REQUIREMENTS.
2. BACKFILL WITH MINIMUM 12" OF SOIL ON TOP OF GRAVEL WHEN NOT INSTALLING CONDUIT UNDER PAVEMENT.

ID	QTY.	DESCRIPTION
1	~	4" DIA. SCHEDULE 40 PVC (LENGTH AS REQUIRED)

ASSEMBLY
DUCT-6

6-CONDUIT DUCTBANK



NOTES:

1. SEE SPECIFICATIONS FOR BACKFILL MATERIAL AND REQUIREMENTS.
2. BACKFILL WITH MINIMUM 12" OF SOIL ON TOP OF GRAVEL WHEN NOT INSTALLING CONDUIT UNDER PAVEMENT.

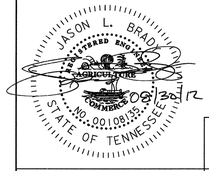
ID	QTY.	DESCRIPTION
1	~	4" DIA. SCHEDULE 40 PVC (LENGTH AS REQUIRED)

ASSEMBLY
DUCT-2

2-CONDUIT DUCTBANK

NOTES:

1. DETAIL FOR 408MH SUPPLIED BY AT&T. MANHOLE DESIGN IN ACCORDANCE WITH OLDCASTLE PRECAST, DETAIL #382UTT448 OR AS APPROVED.
2. DETAIL FOR 612 SUPPLIED BY AT&T. MANHOLE DESIGN IN ACCORDANCE WITH OLDCASTE PRECAST, DETAIL #382UTT612A OR AS APPROVED.
3. ALL OTHER DETAILS PROVIDED BY AT&T IN ACCORDANCE WITH AT&T STANDARDS 622-340-200.



AT&T TENNESSEE

JOB NUMBER: 28980.01
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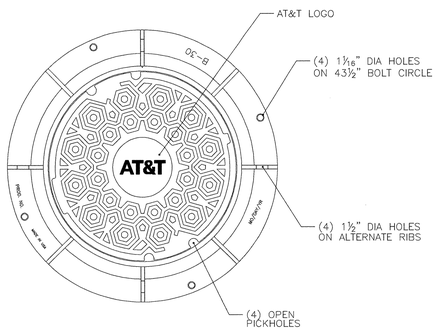
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

SCALE	DATE
NONE	05 02 2012

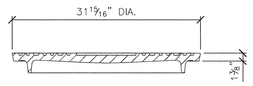
COMMUNICATION RELOCATION
CONSTRUCTION DETAILS

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2012	STP-320(4)	U5-15

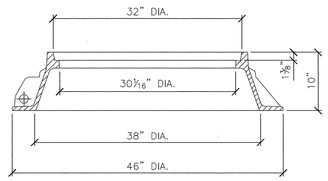
33057-3224-14 HAMILTON COUNTY



TOP VIEW



COVER SECTION



FRAME SECTION

ID	QTY.	DESCRIPTION
1	1	ASTM A48 GRAY IRON MANHOLE COVER
2	1	ASTM A48 GRAY IRON MANHOLE FRAME

AT&T MANHOLE COVER

ASSEMBLY

COVER

NOTES:

1. DETAIL FOR COVER SUPPLIED BY AT&T. MANHOLE DESIGN IN ACCORDANCE WITH OLDCASTLE PRECAST, DETAIL #B30, #G30, OR AS APPROVED.

JASON L. BRADY REGISTERED ENGINEER AGRICULTURE TENNESSEE 08/20/12 STATE OF TENNESSEE

AT&T TENNESSEE

JOB NUMBER: 28980.01
DESIGNED: RAY
DRAWN: RAY
CHECKED: JLB

GRESHAM, SMITH AND PARTNERS
1111 N. NORTHSHORE DRIVE, SUITE S-400
KNOXVILLE, TENNESSEE 37919
(865) 521-6777 (865) 539-7192

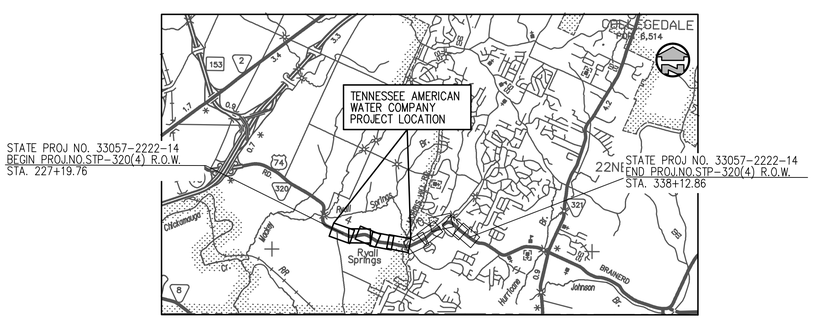
SCALE	DATE
NONE	05 02 2012

COMMUNICATION RELOCATION CONSTRUCTION DETAILS

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

ITEM NUMBER	DESCRIPTION	UNIT	Project No. 1:		
			QUANTITY	% Utility	% Project
795-01.03	6IN DIP RESTRAINED JOINT WATER LINE	L.F.	3,050	0.00%	100.00%
795-01.04	6IN SLIP JOINT WATER LINE	L.F.	2,760	0.00%	100.00%
795-01.05	8IN DIP RESTRAINED JOINT WATER LINE	L.F.	1,290	0.00%	100.00%
795-01.06	8IN DIP SLIP JOINT WATER LINE	L.F.	180	0.00%	100.00%
795-01.09	12IN DIP RESTRAINED JOINT WATER LINE	L.F.	5,095	0.00%	100.00%
795-01.10	12IN DIP SLIP JOINT WATER LINE	L.F.	1,110	0.00%	100.00%
795-01.31	3IN DIP RESTRAINED JOINT WATER LINE	L.F.	20	0.00%	100.00%
795-05.28	3/4IN COPPER SERVICE PIPE	L.F.	1,100	0.00%	100.00%
795-05.63	BORE/JACK 12IN STEEL CASING PIPE-UNCON.	L.F.	250	0.00%	100.00%
795-05.65	BORE/JACK 16IN STEEL CASING PIPE-UNCON.	L.F.	125	0.00%	100.00%
795-05.67	BORE/JACK 20IN STEEL CASING PIPE-UNCON.	L.F.	310	0.00%	100.00%
795-06.02	CONNECT TO 3IN WATER LINE	EACH	1	0.00%	100.00%
795-06.04	CONNECT TO 6IN WATER LINE	EACH	1	0.00%	100.00%
795-06.30	CUT/CAP EXISTING LINES (ALL SIZES)	EACH	17	0.00%	100.00%
795-07.03	6IN X 6IN TAPPING SLEEVE AND VALVE	EACH	7	0.00%	100.00%
795-07.06	8IN X 8IN TAPPING SLEEVE AND VALVE	EACH	7	0.00%	100.00%
795-07.15	12IN X 12IN TAPPING SLEEVE AND VALVE	EACH	2	0.00%	100.00%
795-08.02	3IN GATE VALVE ASSEMBLY	EACH	1	0.00%	100.00%
795-08.04	6IN GATE VALVE ASSEMBLY	EACH	23	0.00%	100.00%
795-08.05	8IN GATE VALVE ASSEMBLY	EACH	9	0.00%	100.00%
795-08.09	12IN GATE VALVE ASSEMBLY	EACH	28	0.00%	100.00%
795-09.09	RELOCATE/RECONNECT SERVICE ASSEMBLY	EACH	65	0.00%	100.00%
795-09.11	1-1/2IN COPPER SERVICE PIPE	L.F.	120	0.00%	100.00%
795-09.12	2IN COPPER SERVICE PIPE	L.F.	120	0.00%	100.00%
795-09.41	HDD 3/4IN COPPER SERVICE PIPE	L.F.	100	0.00%	100.00%
795-09.42	HDD 1-1/2IN COPPER SERVICE PIPE	L.F.	60	0.00%	100.00%
795-09.43	HDD 2IN COPPER SERVICE PIPE	L.F.	60	0.00%	100.00%
795-09.51	RECONNECT SERVICE ASSEMBLY	EACH	3	0.00%	100.00%
795-11.02	FIRE HYDRANT ASSEMBLY	EACH	26	0.00%	100.00%
795-12.03	PIPE GROUTING	L.S.	1	0.00%	100.00%
795-13.01	DI FITTINGS	LBS	26,000	0.00%	100.00%
795-15.02	12IN STEEL CASING PIPE OPEN CUT METHOD	L.F.	240	0.00%	100.00%
795-15.05	20IN STEEL CASING PIPE OPEN CUT METHOD	L.F.	275	0.00%	100.00%
795-15.25	16IN STEEL CASING PIPE OPEN CUT METHOD	L.F.	85	0.00%	100.00%
795-16.10	RELOCATE/RECONNECT CHECK VALVE PIT	EACH	1	0.00%	100.00%

Note: Items 795-05.63, 795-05.65 and 795-05.67 shall be bid as unclassified rather than unconsolidated.



PROJECT LOCATION MAP

SCALE: 1" = 1 MILE

TENNESSEE AMERICAN WATER COMPANY
1101 BROAD STREET
CHATTANOOGA, TN 37401
GRADY STOUT
(423) 755-7614

UTILITIES INDEX

SHEET NAME	SHEET NUMBER
QUANTITIES SHEET	U6-1
PLAN VIEW - BEG. TO STA. 235+00 (MAINLINE)	U6-2
PLAN VIEW - STA. 235+00 TO STA. 245+00 (MAINLINE)	U6-3
PLAN VIEW - STA. 245+00 TO STA. 256+00 (MAINLINE)	U6-4
PLAN VIEW - STA. 256+00 TO STA. 269+00 (MAINLINE)	U6-5
PLAN VIEW - STA. 269+00 TO STA. 282+00 (MAINLINE)	U6-6
CROSS SECTIONS - STA. 226+50 TO STA. 227+50 (MAINLINE)	U6-7
CROSS SECTIONS - STA. 228+00 TO STA. 229+00 (MAINLINE)	U6-8
CROSS SECTIONS - STA. 229+50 TO STA. 230+50 (MAINLINE)	U6-9
CROSS SECTIONS - STA. 231+00 TO STA. 232+00 (MAINLINE)	U6-10
CROSS SECTIONS - STA. 232+50 TO STA. 233+50 (MAINLINE)	U6-11
CROSS SECTIONS - STA. 234+00 TO STA. 235+50 (MAINLINE)	U6-12
CROSS SECTIONS - STA. 236+00 TO STA. 237+50 (MAINLINE)	U6-13
CROSS SECTIONS - STA. 238+00 TO STA. 239+50 (MAINLINE)	U6-14
CROSS SECTIONS - STA. 240+00 TO STA. 241+50 (MAINLINE)	U6-15
CROSS SECTIONS - STA. 242+00 TO STA. 243+00 (MAINLINE)	U6-16
CROSS SECTIONS - STA. 243+50 TO STA. 244+50 (MAINLINE)	U6-17
CROSS SECTIONS - STA. 245+00 TO STA. 246+00 (MAINLINE)	U6-18
CROSS SECTIONS - STA. 246+50 TO STA. 247+50 (MAINLINE)	U6-19
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CROSS SECTIONS - STA. 264+50 TO STA. 265+50 (MAINLINE)	U6-30
CROSS SECTIONS - STA. 266+00 TO STA. 267+00 (MAINLINE)	U6-31
CROSS SECTIONS - STA. 267+50 TO STA. 269+00 (MAINLINE)	U6-32
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CROSS SECTIONS - STA. 271+00 TO STA. 272+00 (MAINLINE)	U6-34
CROSS SECTIONS - STA. 272+50 TO STA. 273+50 (MAINLINE)	U6-35
CROSS SECTIONS - STA. 274+00 TO STA. 275+00 (MAINLINE)	U6-36
CROSS SECTIONS - STA. 275+50 TO STA. 276+50 (MAINLINE)	U6-37
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CROSS SECTIONS - STA. 2+00 TO STA. 2+50 (MORRIS HILL ROAD)	U6-50
CROSS SECTIONS - STA. 0+50 TO STA. 1+50 (HURRICANE CREEK ROAD)	U6-51
CROSS SECTIONS - STA. 2+00 TO STA. 3+00 (HURRICANE CREEK ROAD)	U6-52
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STANDARD WATER LINE CONSTRUCTION DETAILS	U6-55
STANDARD WATER LINE CONSTRUCTION DETAILS	U6-56

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-1

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.
--REVISED TAWC CONTACT INFO., ADDED GRADY STOUT, P.E. & TAWC CONTACT PHONE NUMBER.
REVISION: 8/12/2013
ADDED UTILITY ITEM NUMBERS

FOR WATER LINES ONLY

LOUIS E. ROBINSON III, REGISTERED ENGINEER, AGRICULTURE, NUMBER 14525, STATE OF TENNESSEE, 9/12/13

FOR WATER LINES ONLY

GRW PROJECT NO. 7697-08

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

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GRW Engineers, Inc.
Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-1
DRAWN: DM	APPROVED: LER	SCALE: 1" = 50'	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS
QUANTITIES SHEET

SCALE: 1"=50'

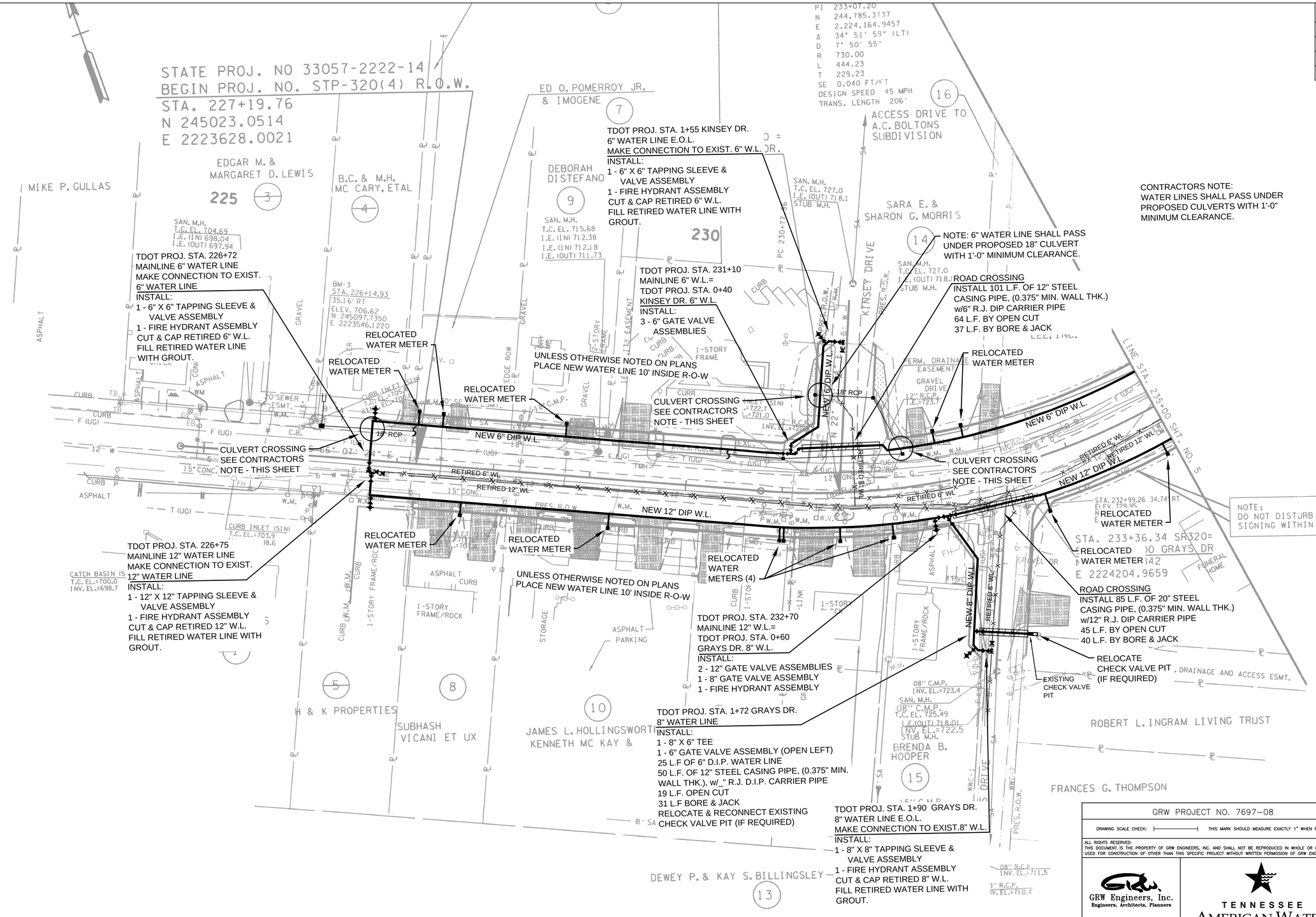
PRINTED: 1/16/2014 @ 3:55PM
FILE NAME: I:\7697-TN-AM Water Co\08-TAWC E. Brainerd\Working Drawings\Design Drawings\7697-08-U6-01.dwg

TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-2

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.



FOR WATER LINES ONLY

LOUIS E. ROBERTSON REGISTERED ENGINEER AGRICULTURE COMMERCE No. 145225 STATE OF TENNESSEE 8/12/13

FOR WATER LINES ONLY

GRW PROJECT NO. 7697-08

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Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-2
DRAWN: DM	APPROVED: LER	SCALE: 1" = 50'	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS
BEG. TO STA. 235+00

PRINTED: 8/12/2013 @ 10:34AM
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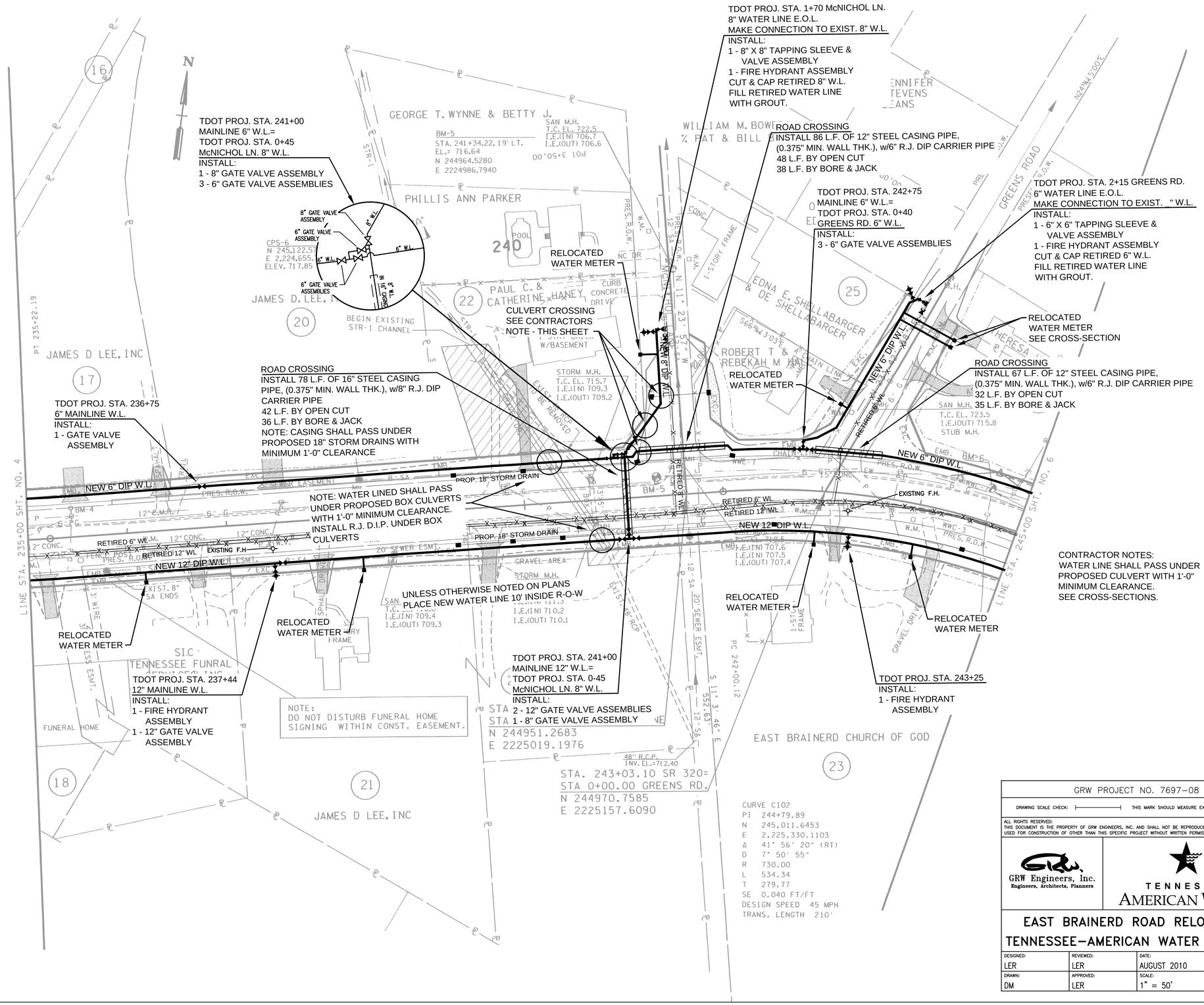
TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-3

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.



FOR WATER LINES ONLY

LOUIS E. ROBERTS III
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 14525
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

GRW PROJECT NO. 7697-08

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Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-3
DRAWN: DM	APPROVED: LER	SCALE: 1" = 50'	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS

STA. 235+00 TO STA. 245+00

SCALE: 1"=50'

PRINTED: 8/12/2013 @ 10:36AM
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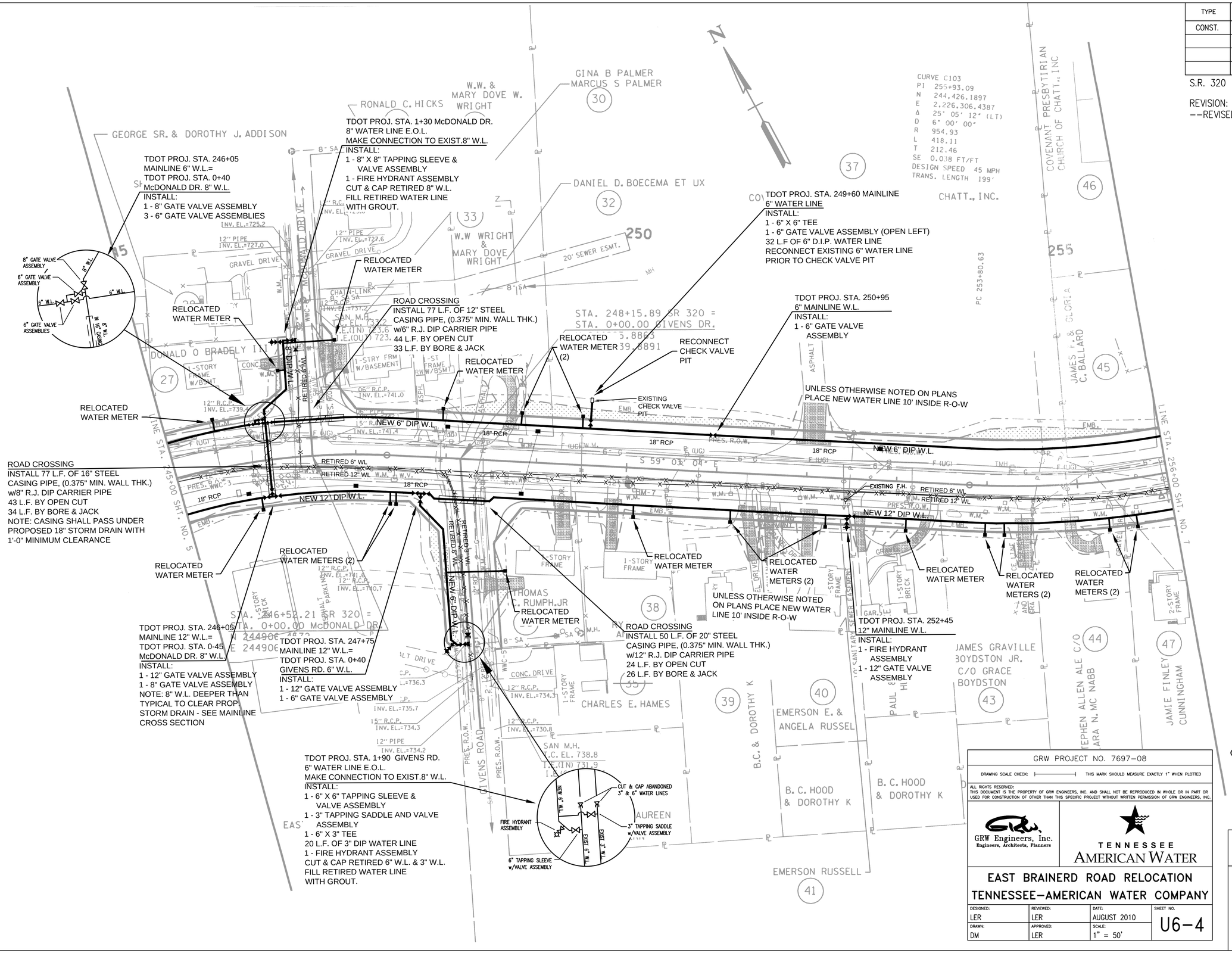
TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-4

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.



GRW PROJECT NO. 7697-08

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Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-4
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

FOR WATER LINES ONLY

LOUIS E. ROBINSON III
REGISTERED ENGINEER
AGRICULTURE COMMERCE
No. 145225
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS

STA. 245+00 TO STA. 256+00

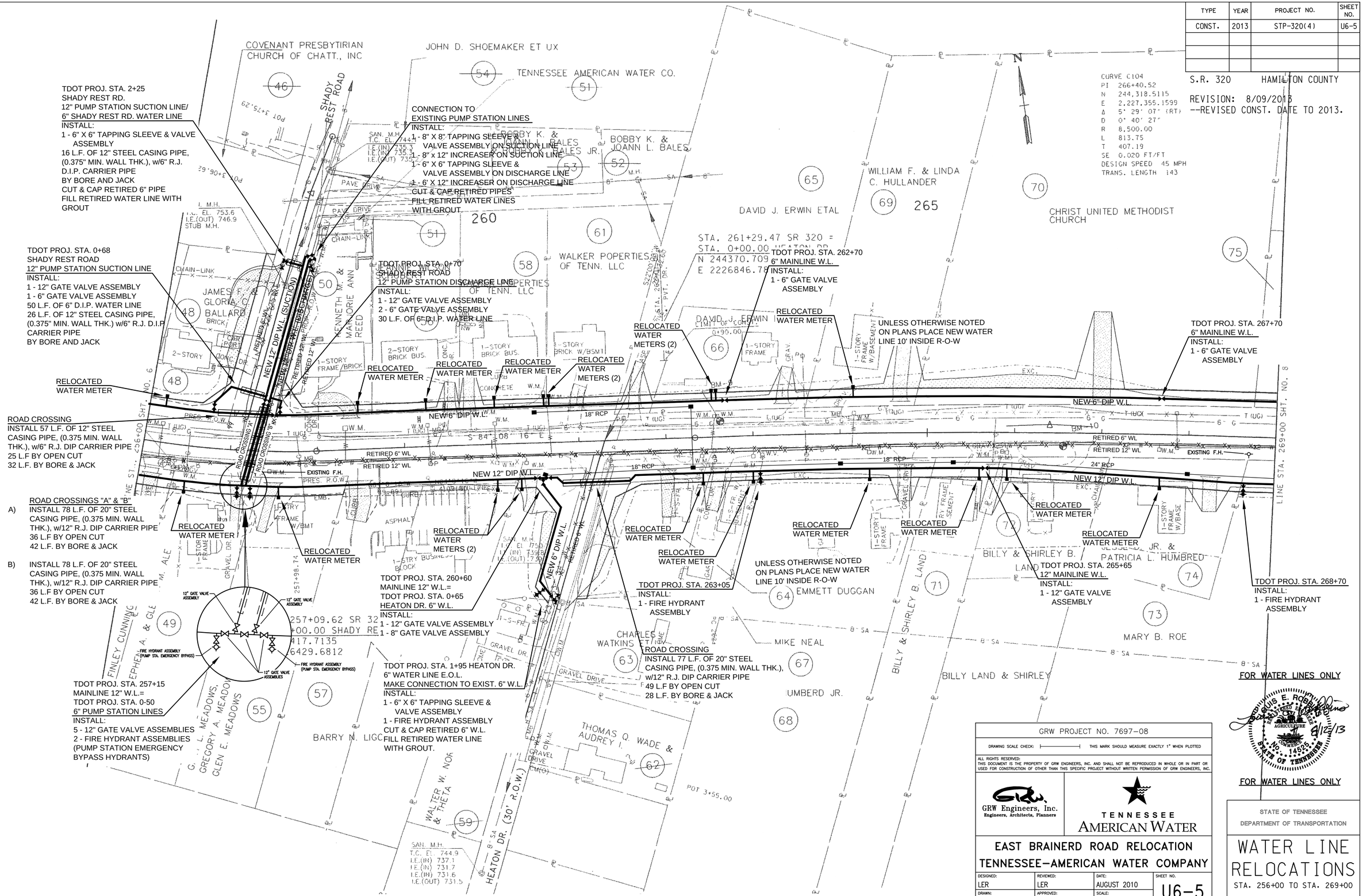
PRINTED: 11/11/2013 @ 1:22PM
FILE NAME: I:\7697-TN-AM Water Co\08-TAWC E Brainerd\Working Drawings\Design Drawings\7697-08-U6-04.dwg

TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-5

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.



GRW PROJECT NO. 7697-08

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

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GRW Engineers, Inc.
Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-5
DRAWN: DM	APPROVED: LER	SCALE: 1" = 50'	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS

STA. 256+00 TO STA. 269+00

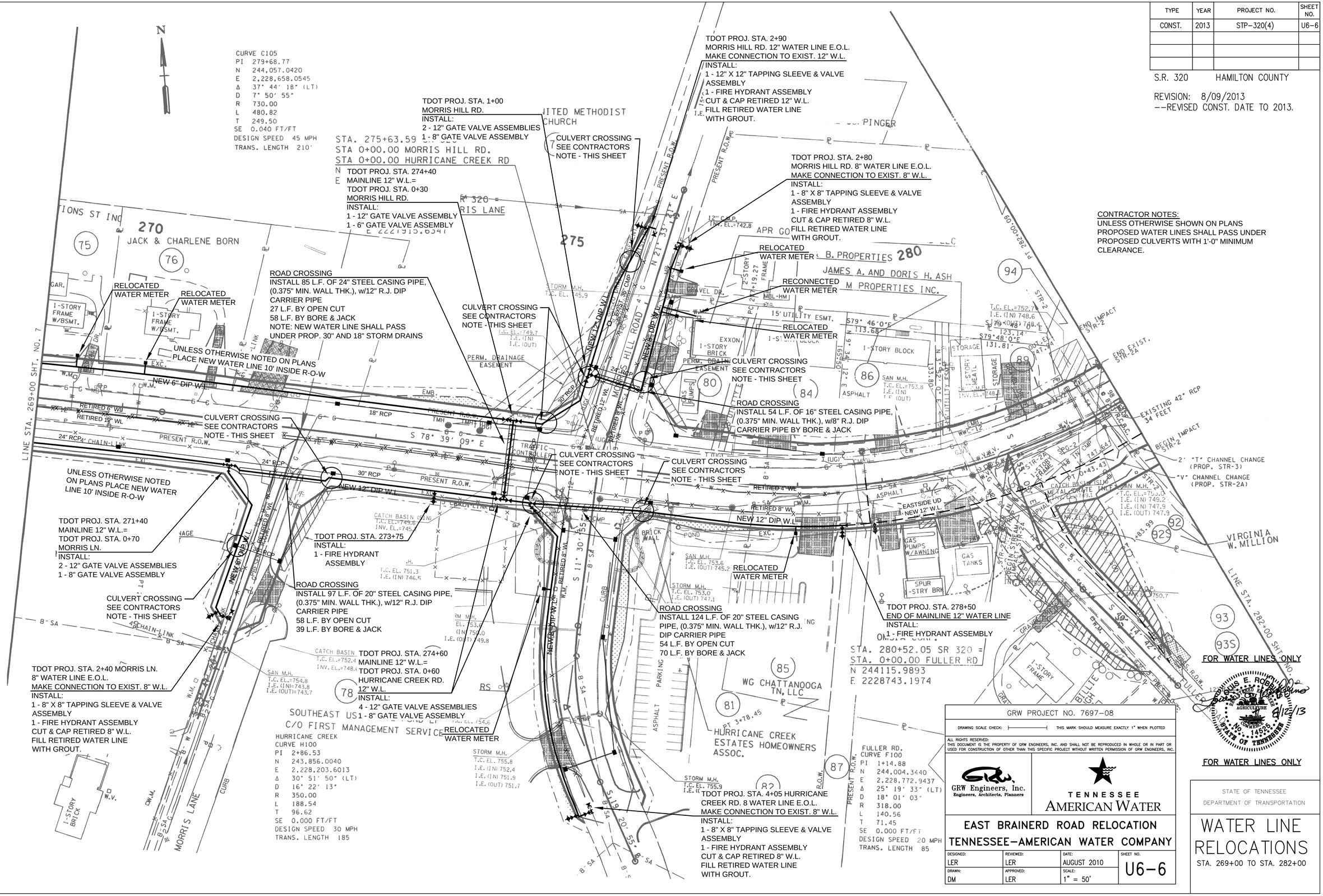
PRINTED: 8/12/2013 @ 10:38AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-05.dwg

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-6

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.



CONTRACTOR NOTES:
UNLESS OTHERWISE SHOWN ON PLANS PROPOSED WATER LINES SHALL PASS UNDER PROPOSED CULVERTS WITH 1'-0" MINIMUM CLEARANCE.

GRW PROJECT NO. 7697-08

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

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GRW Engineers, Inc.
Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-6
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS
STA. 269+00 TO STA. 282+00

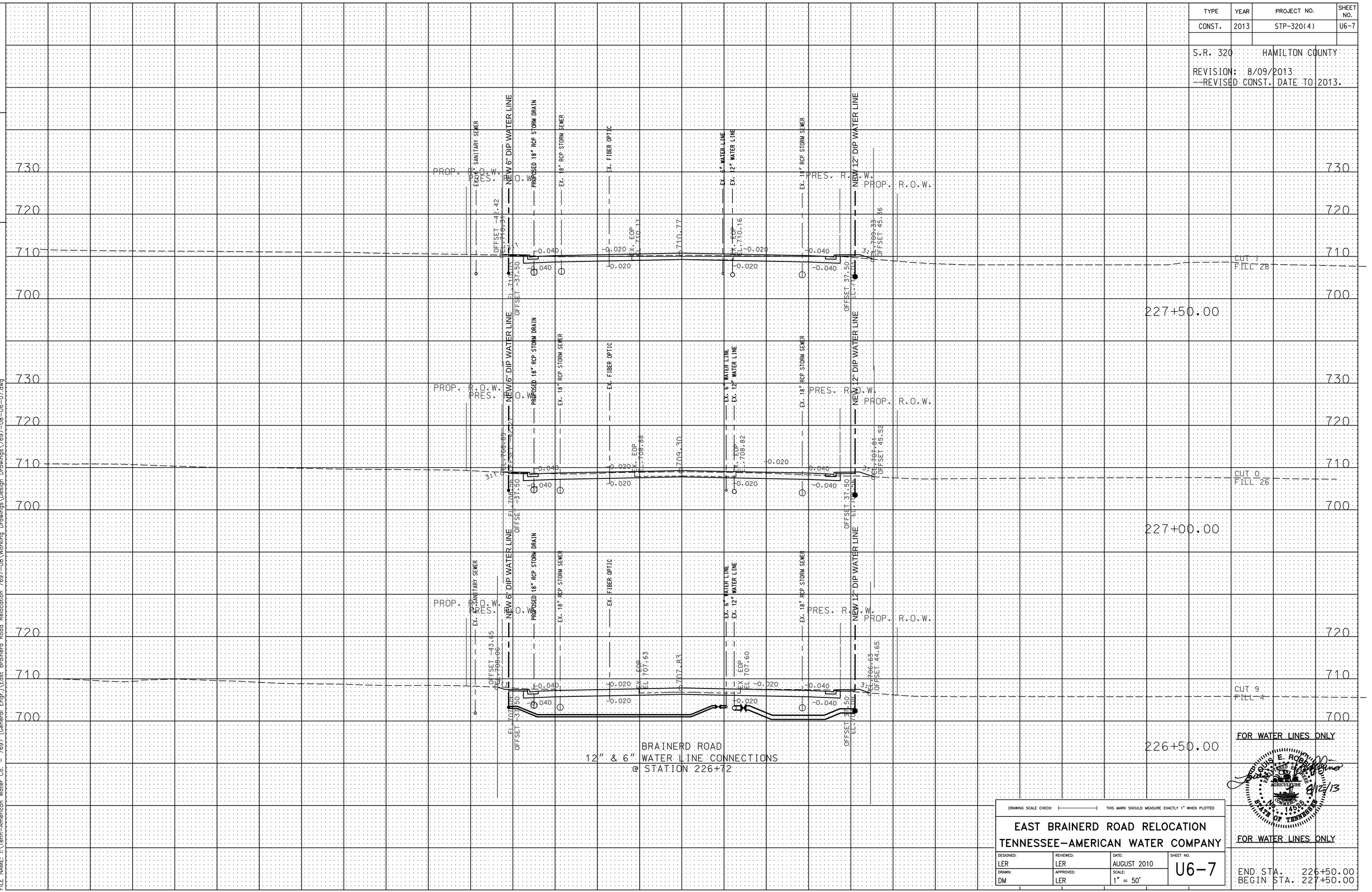
PRINTED: 10/21/2013 @ 10:12AM
FILE NAME: I:\7697-TN-AM Water Co\08-TAWC E Brainerd\Working Drawings\Design Drawings\7697-08-U6-06.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-7

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

END STA. 226+50.00
BEGIN STA. 227+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-7
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 11:19AM
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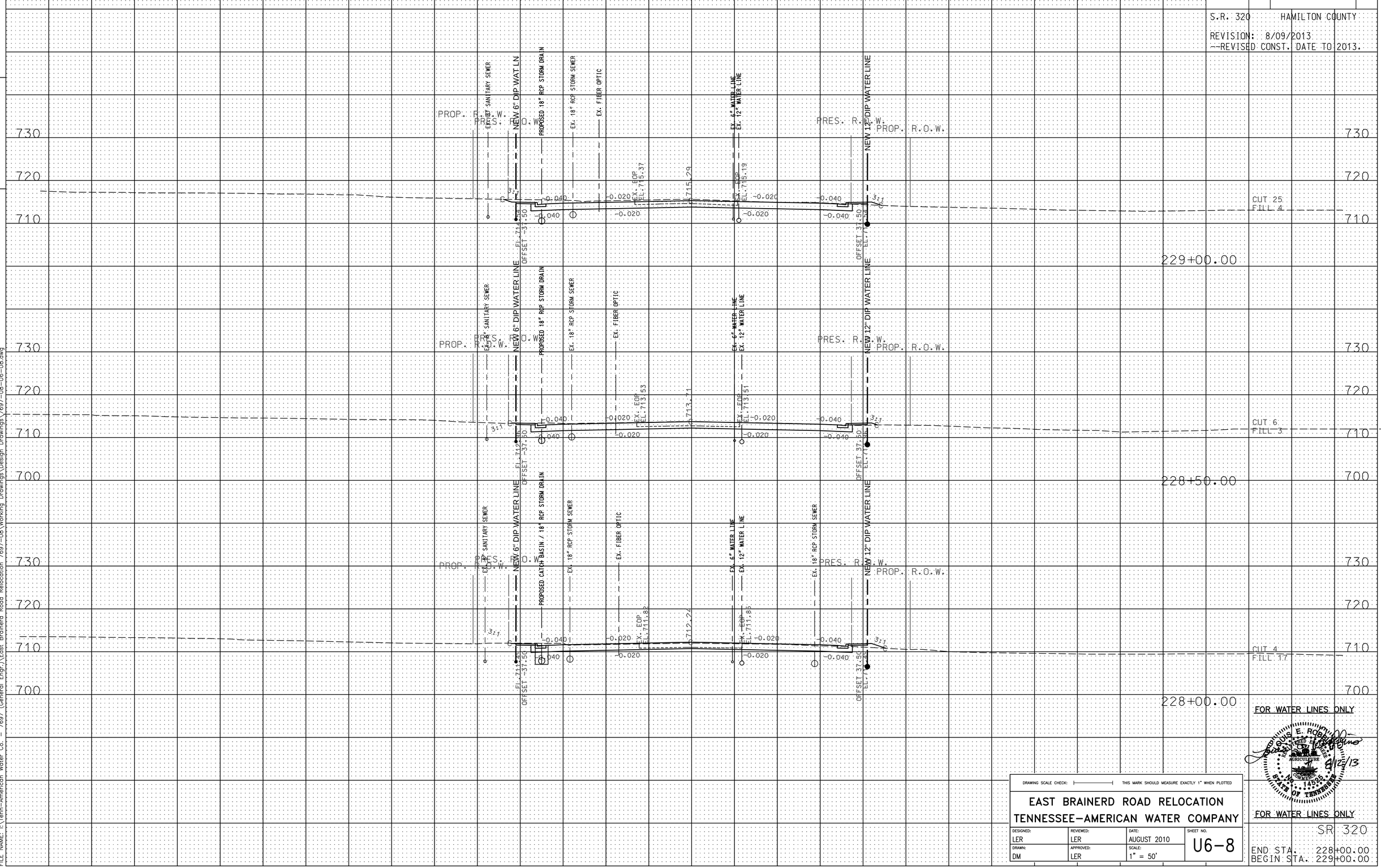
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-8

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-8
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

SR 320
END STA. 228+00.00
BEGIN STA. 229+00.00

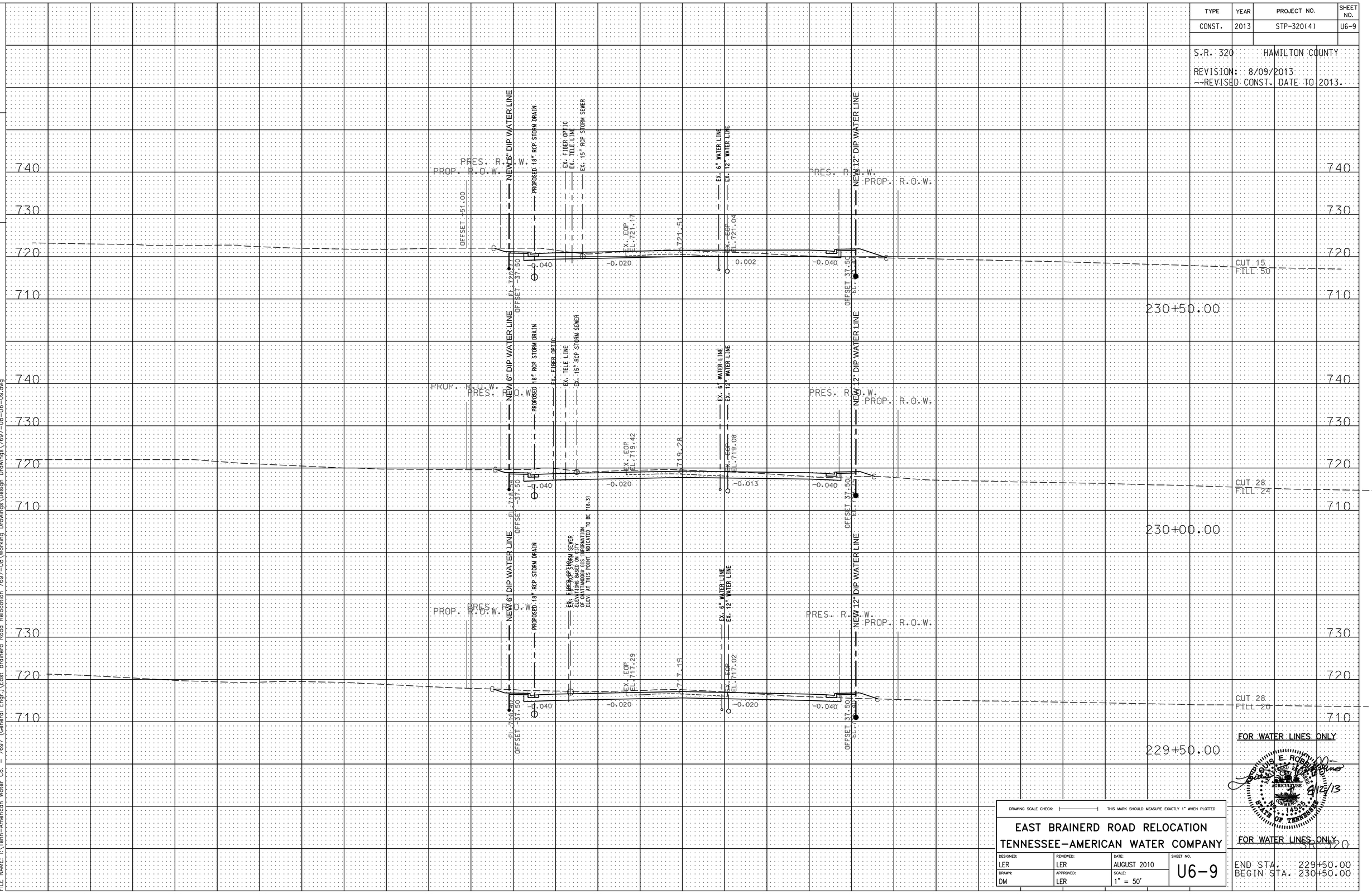
PRINTED: 8/12/2013 @ 11:21AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-08.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-9

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBINSON JR. 14556 STATE OF TENNESSEE 8/12/13

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-9
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

END STA. 229+50.00
BEGIN STA. 230+50.00

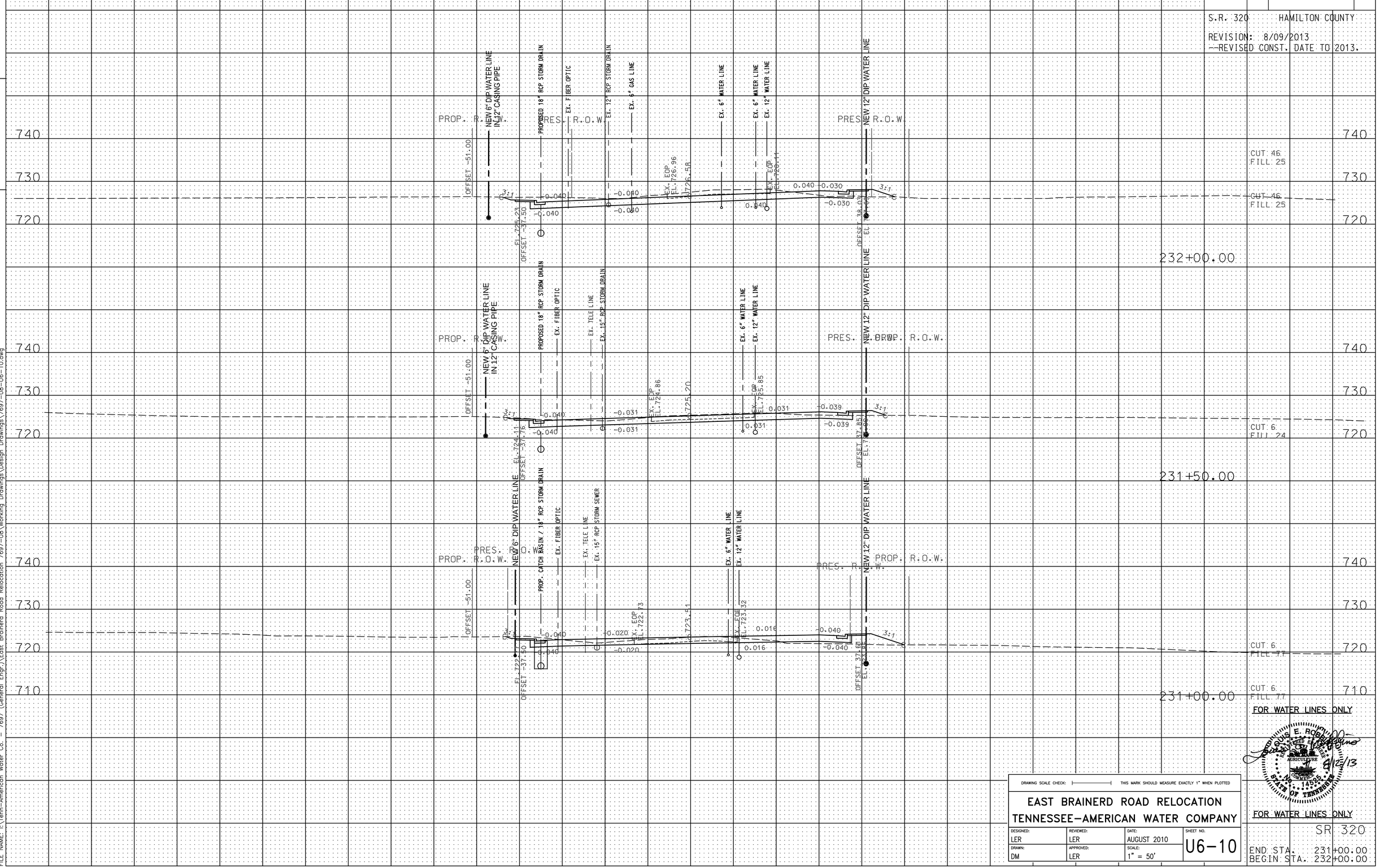
PRINTED: 8/12/2013 @ 11:22AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-09.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-10

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-10
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 11:22AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-10.dwg

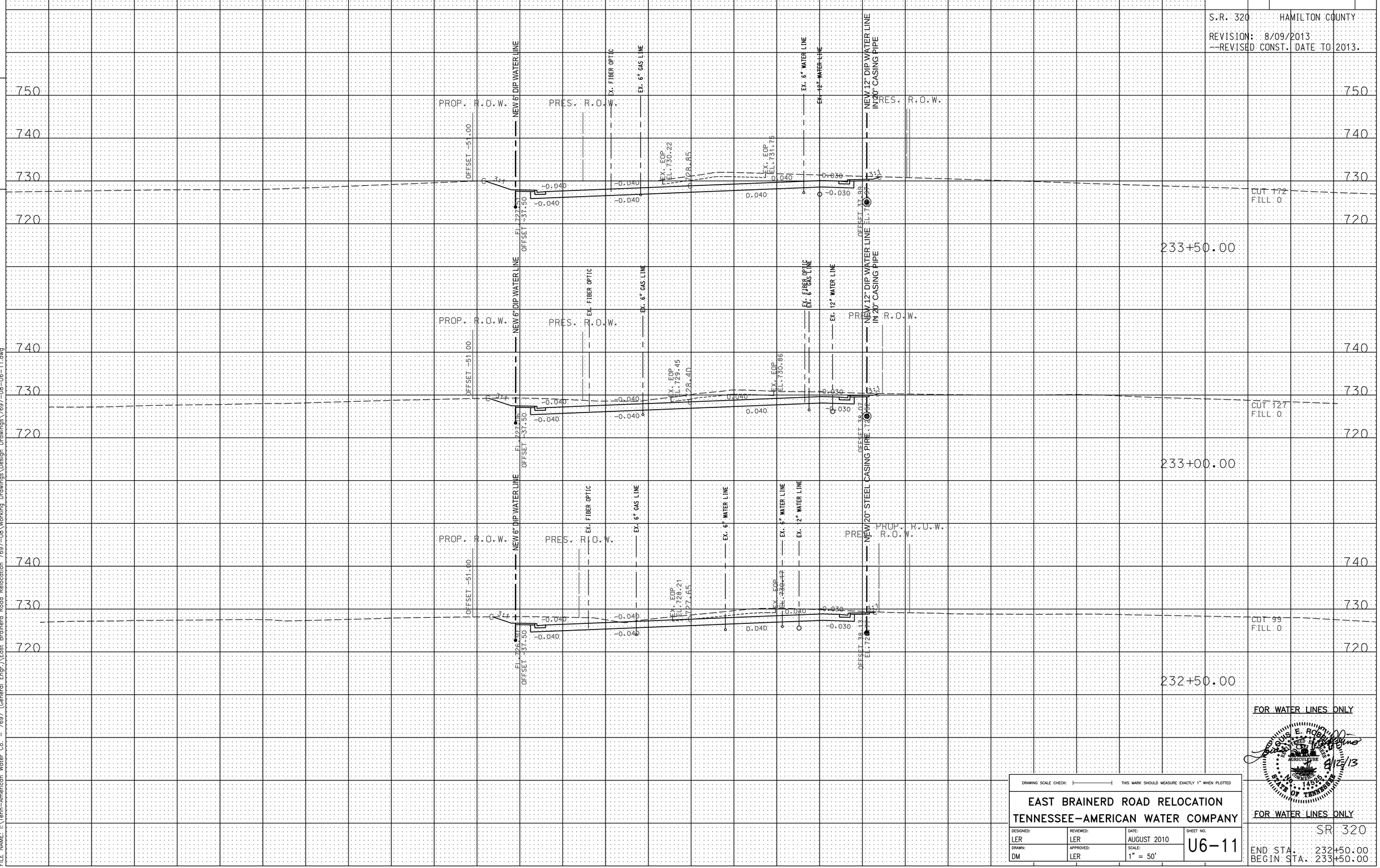
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-11

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBERTSON
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 14926
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

SR 320
END STA. 232+50.00
BEGIN STA. 233+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-11
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 11:22AM
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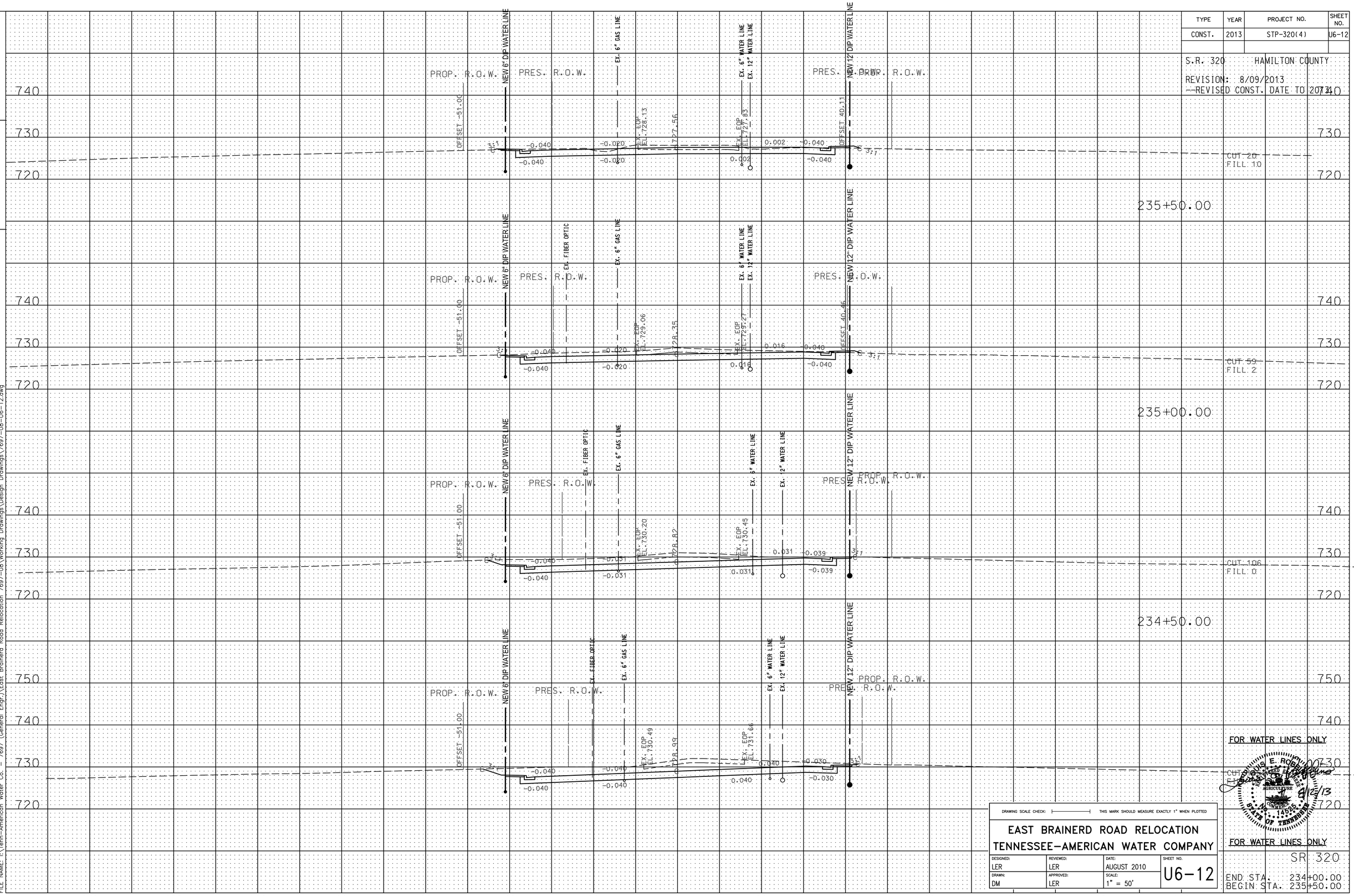
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-12

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2014

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

SR 320

END STA. 234+00.00
BEGIN STA. 235+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-12
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

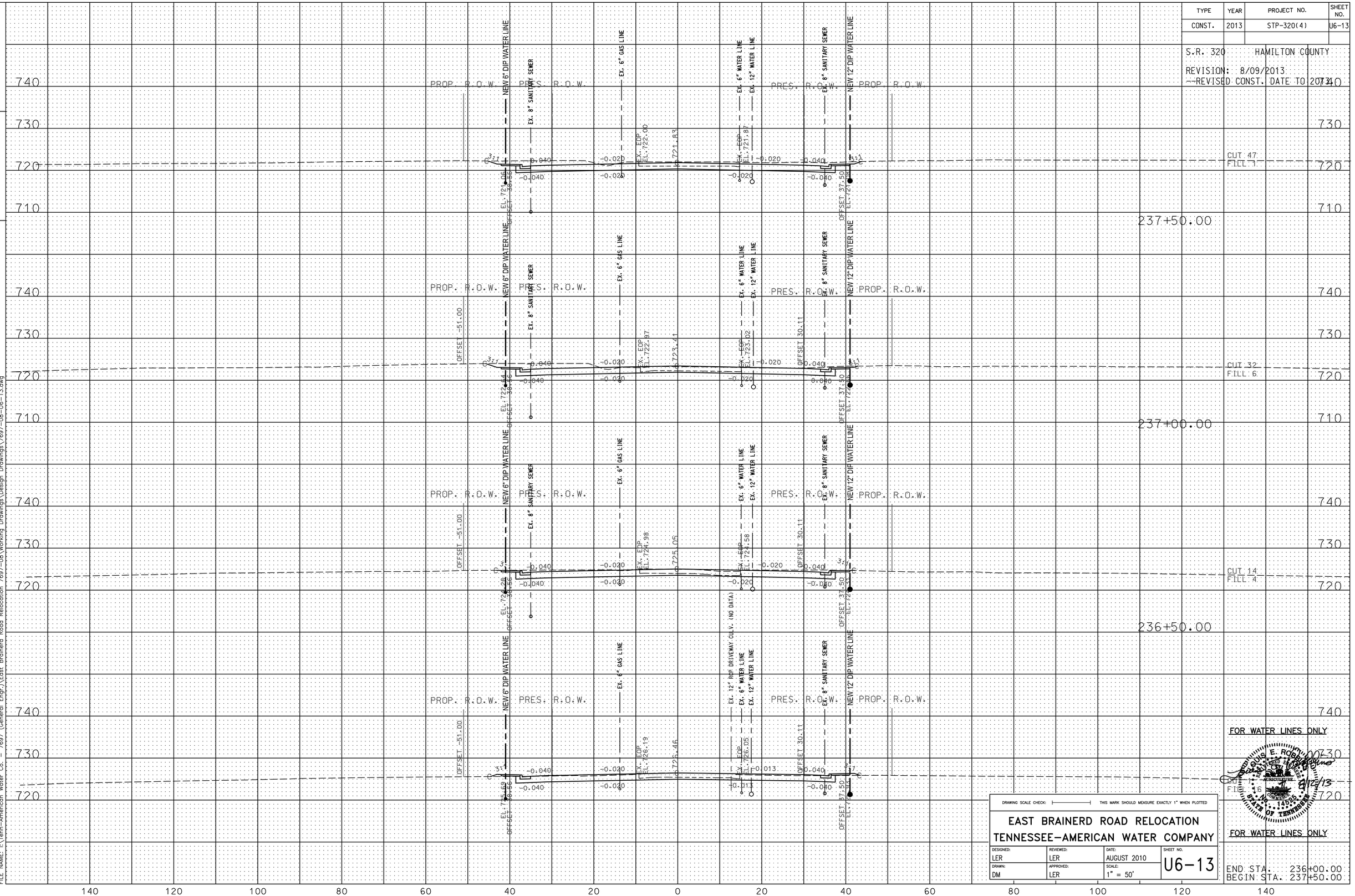
PRINTED: 8/12/2013 @ 11:23AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-12.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-13

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2014

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

END STA. 236+00.00
BEGIN STA. 237+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-13
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBERTSON III
REGISTERED ENGINEER
AGRICULTURE
No. 14528
STATE OF TENNESSEE
8/12/13

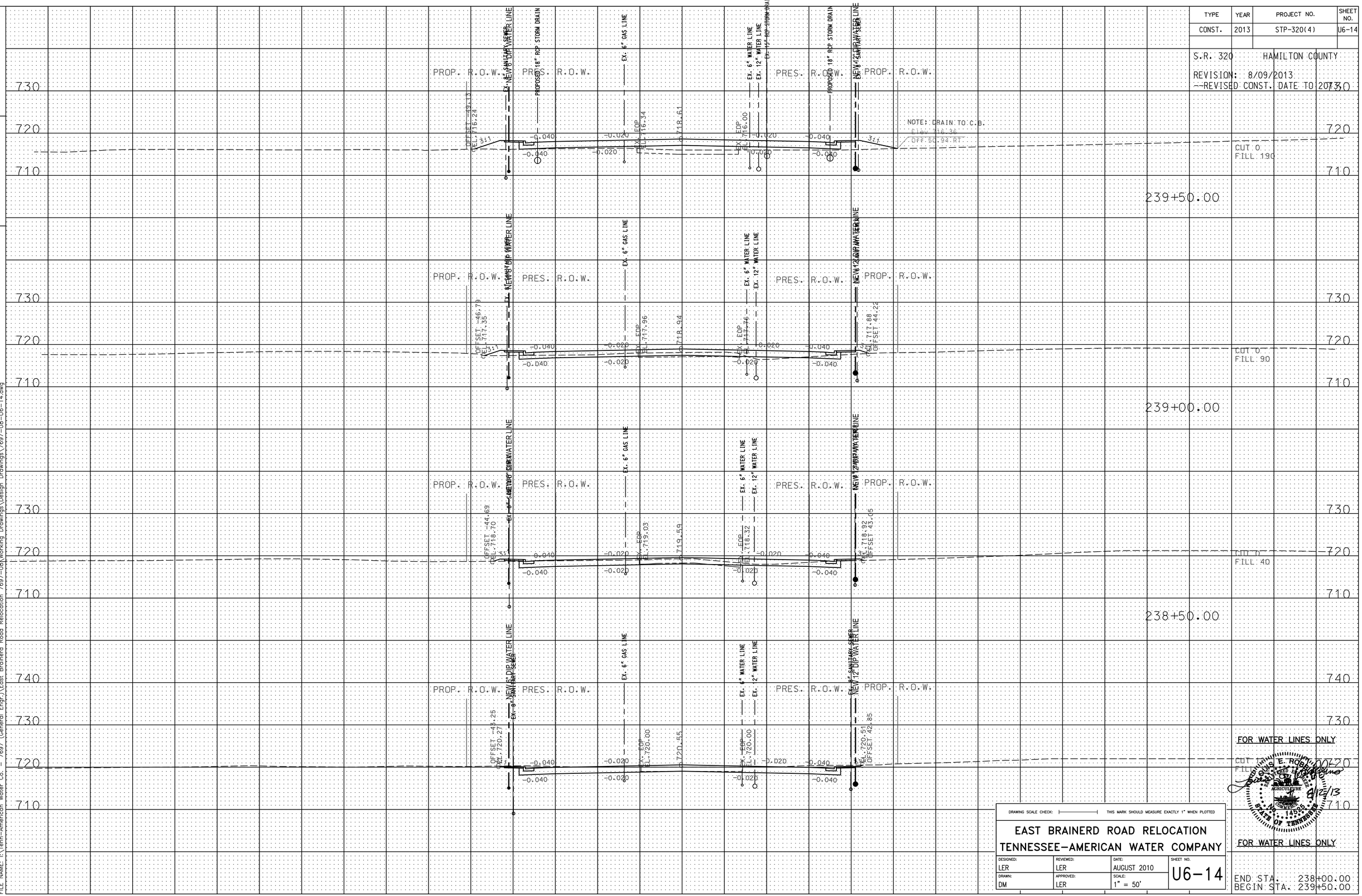
PRINTED: 8/12/2013 @ 11:24AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-13.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-14

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

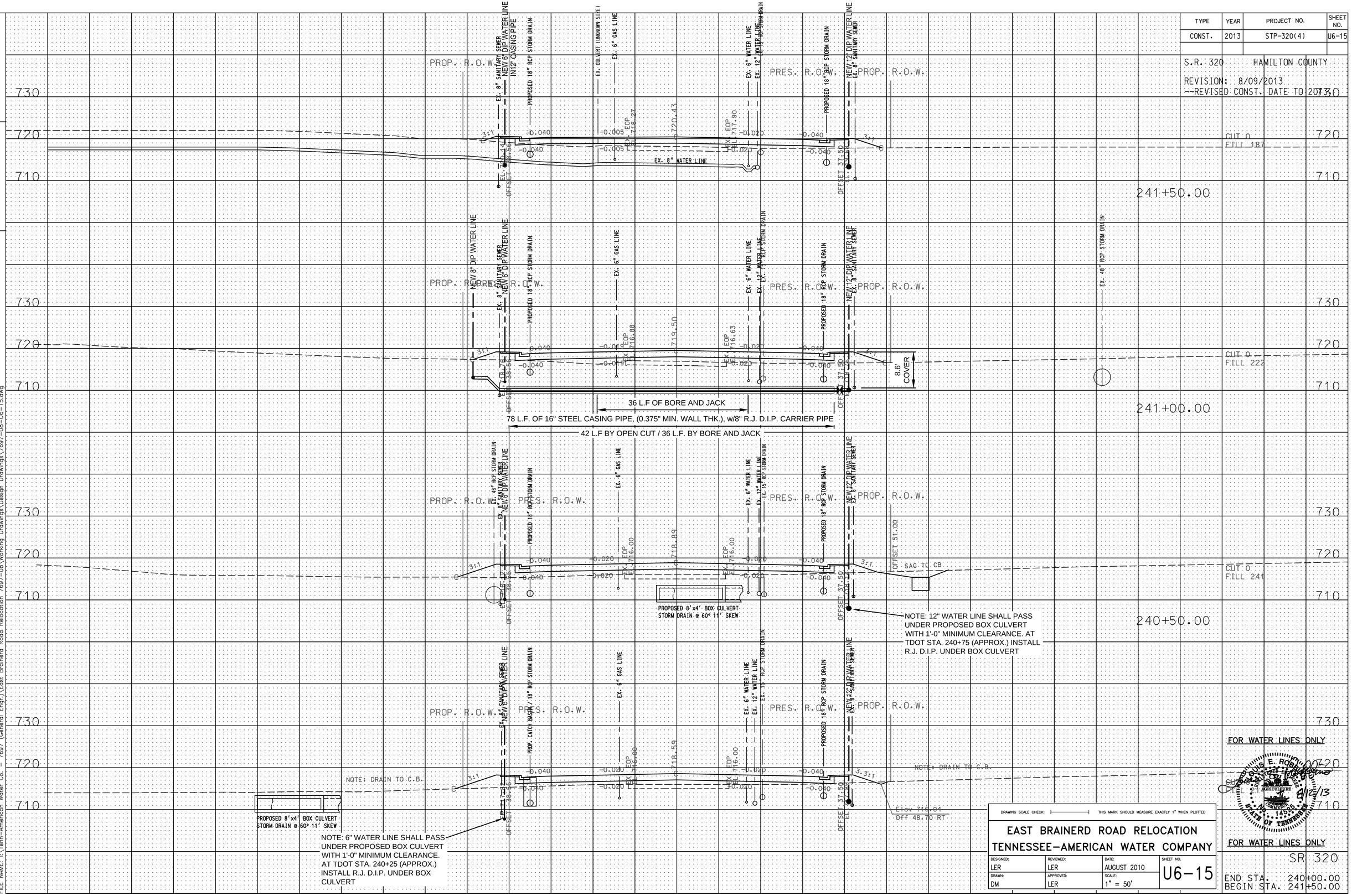


TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-15

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-15
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

FOR WATER LINES ONLY

SR 320
END STA. 240+00.00
BEGIN STA. 241+50.00

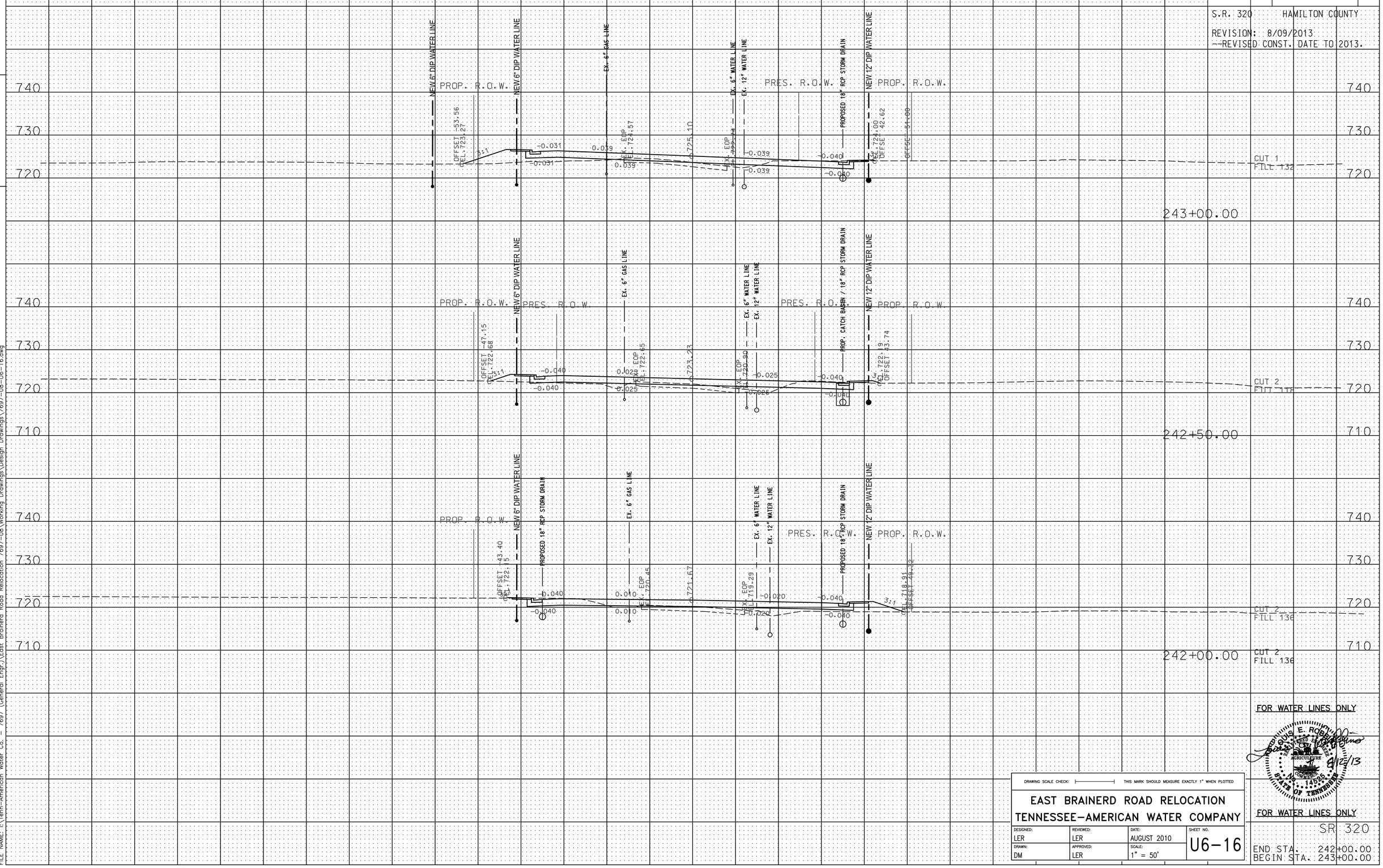
PRINTED: 8/12/2013 @ 11:25AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-15.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-16

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBINSON
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
14556
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

SR 320
END STA. 242+00.00
BEGIN STA. 243+00.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-16
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 11:26AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-16.dwg

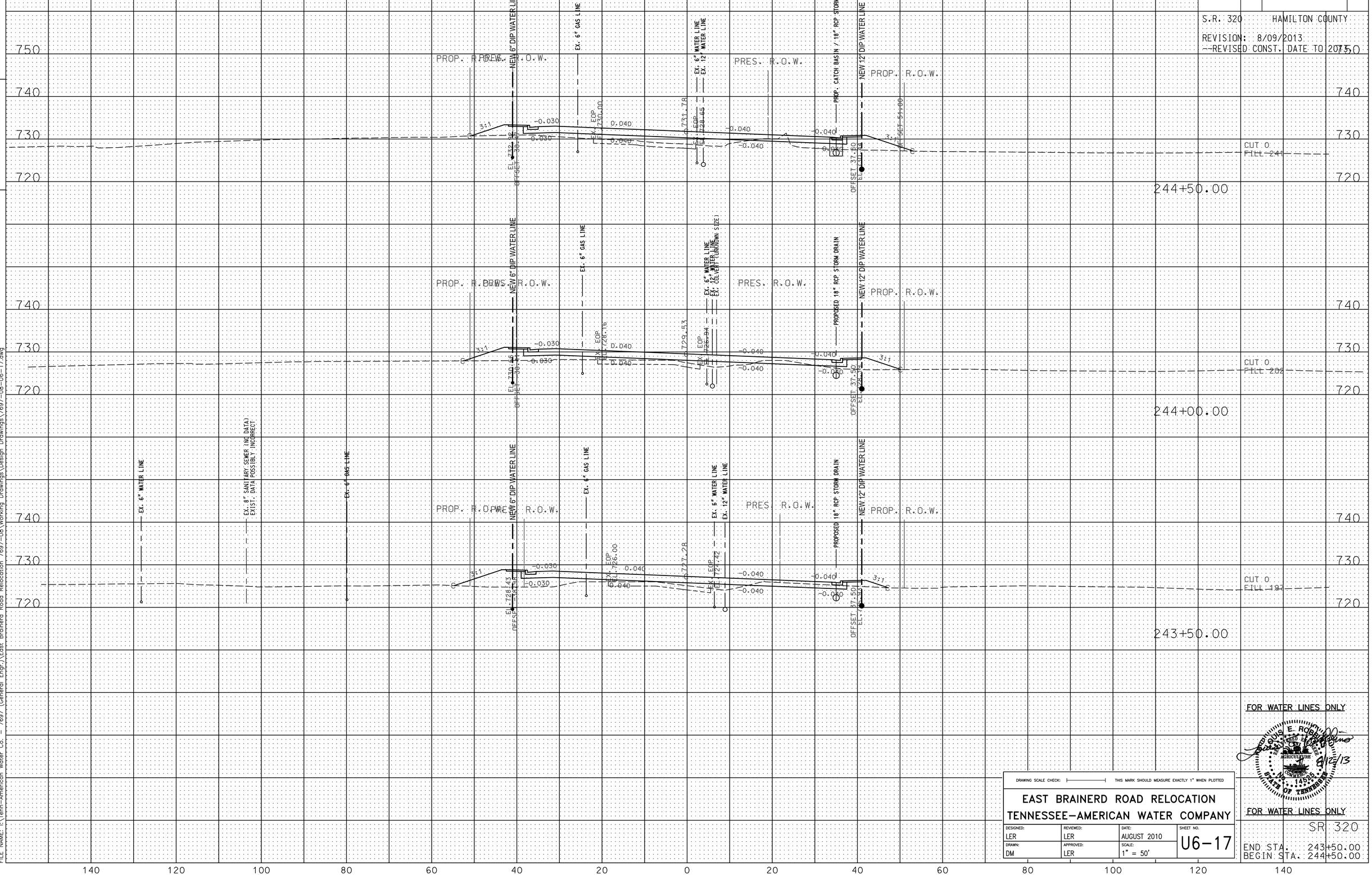
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-17

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-17
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

SR 320
END STA. 243+50.00
BEGIN STA. 244+50.00

PRINTED: 8/12/2013 @ 11:27AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-17.dwg

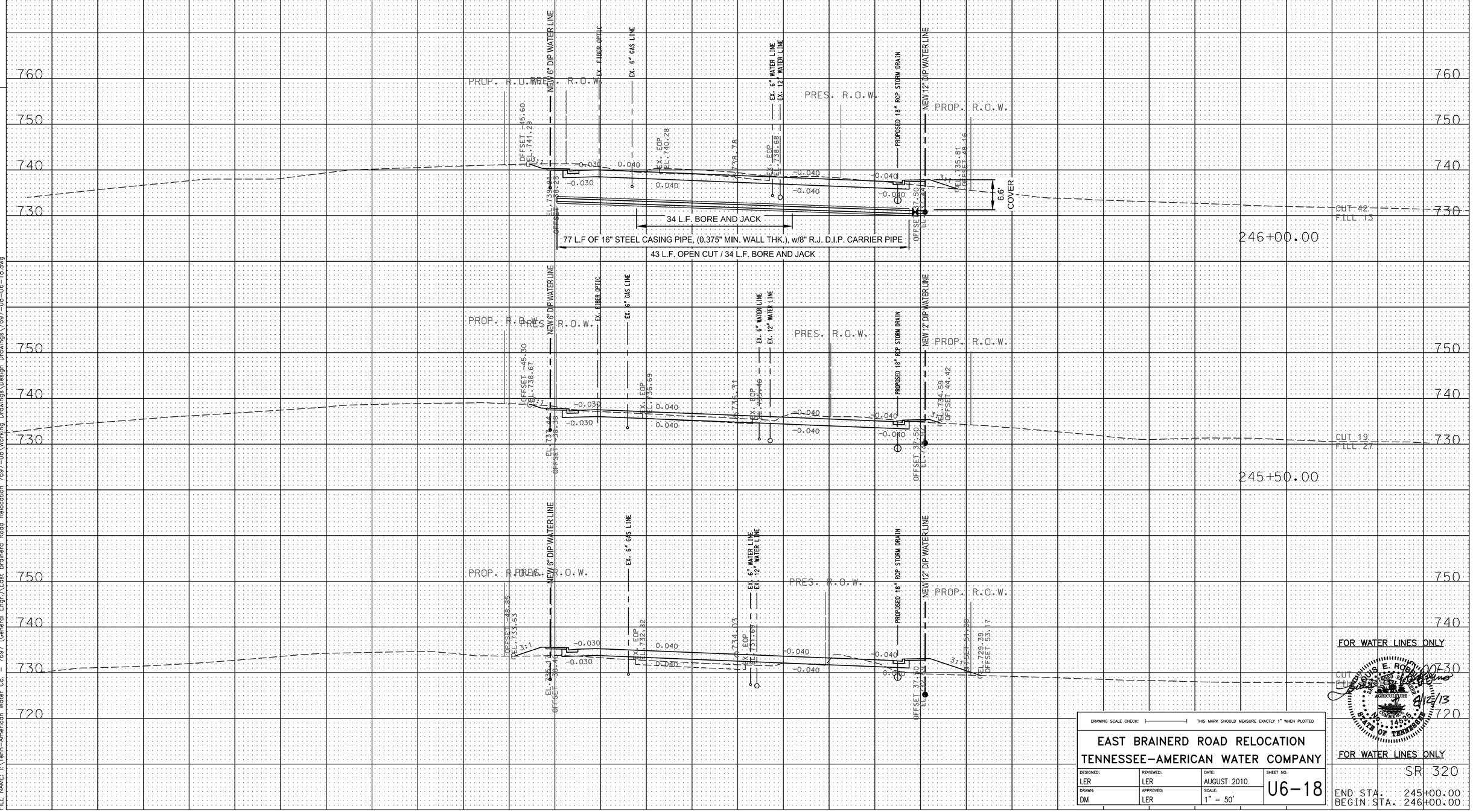
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-18

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-18
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

SR 320

END STA. 245+00.00
BEGIN STA. 246+00.00

PRINTED: 8/12/2013 @ 11:28AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-18.dwg

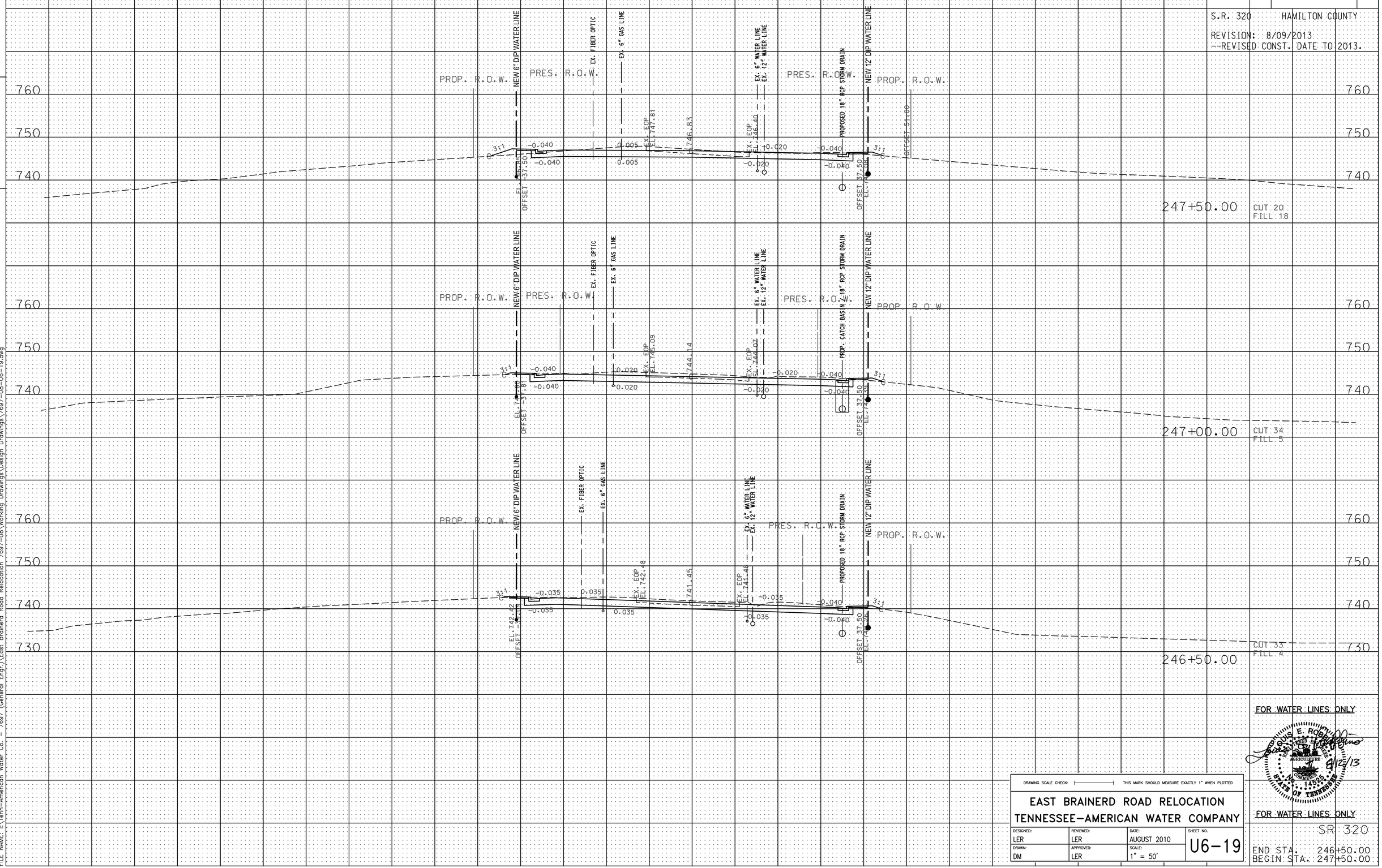
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-19

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

LUIS E. ROSADO
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 14526
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

SR 320
END STA. 246+50.00
BEGIN STA. 247+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-19
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 11:29AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-19.dwg

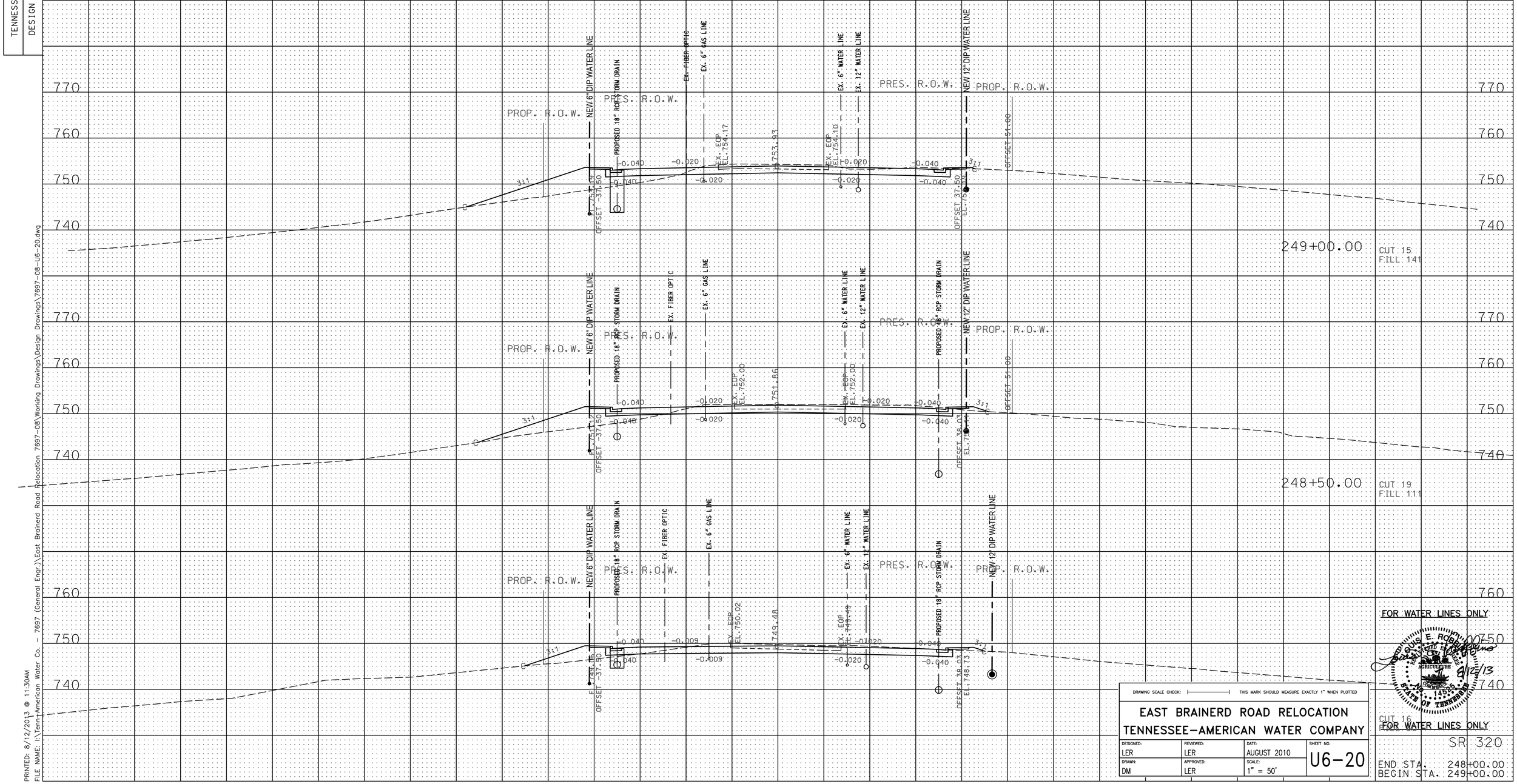
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-20

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-20
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBINSON REGISTERED ENGINEER AGRICULTURE 14514 STATE OF TENNESSEE 8/12/13

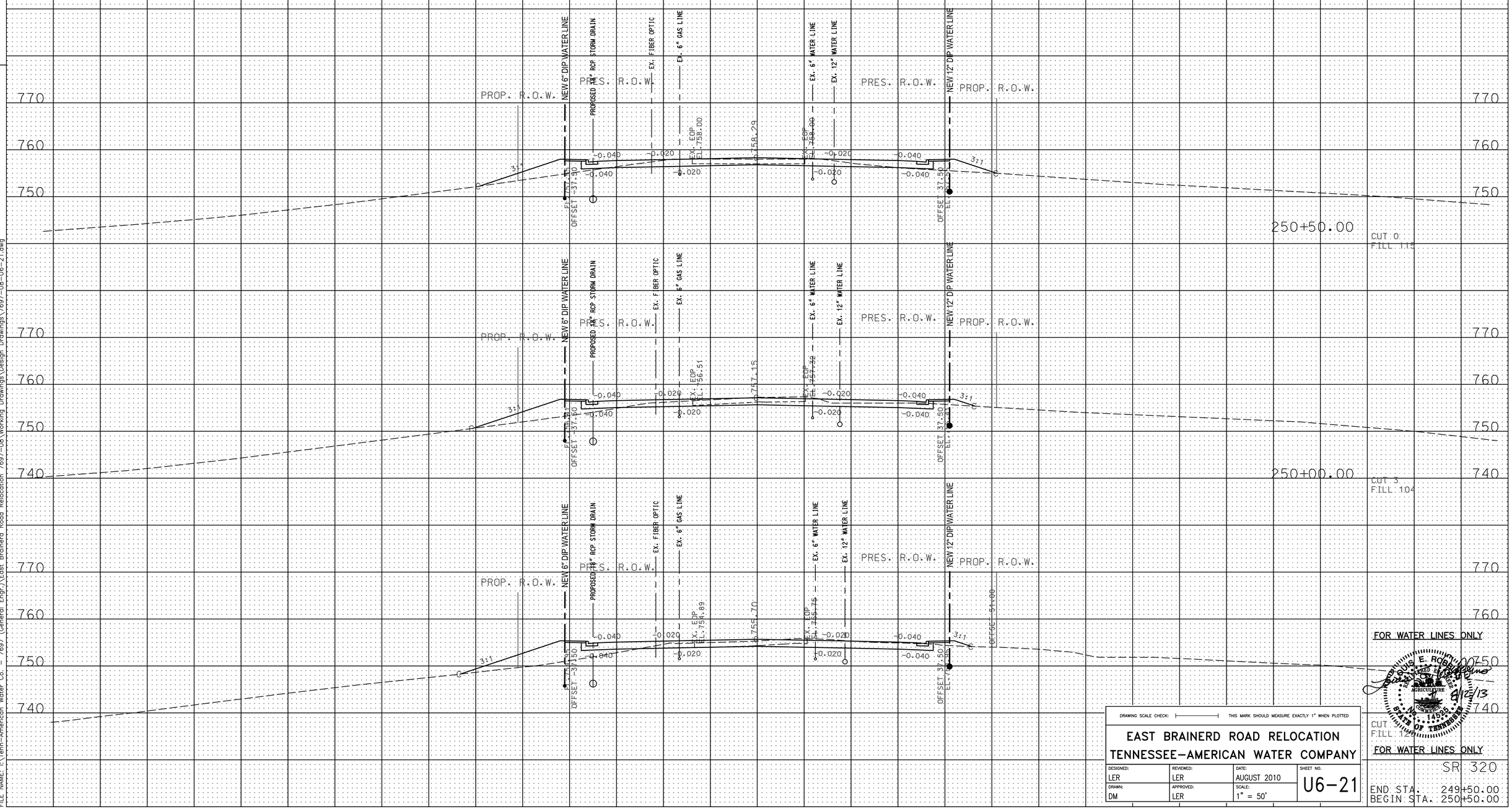
PRINTED: 8/12/2013 @ 11:30AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-20.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-21

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-21
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROSS JR. REGISTERED ENGINEER AGRICULTURE COMMERCE 14235 STATE OF TENNESSEE 8/12/13

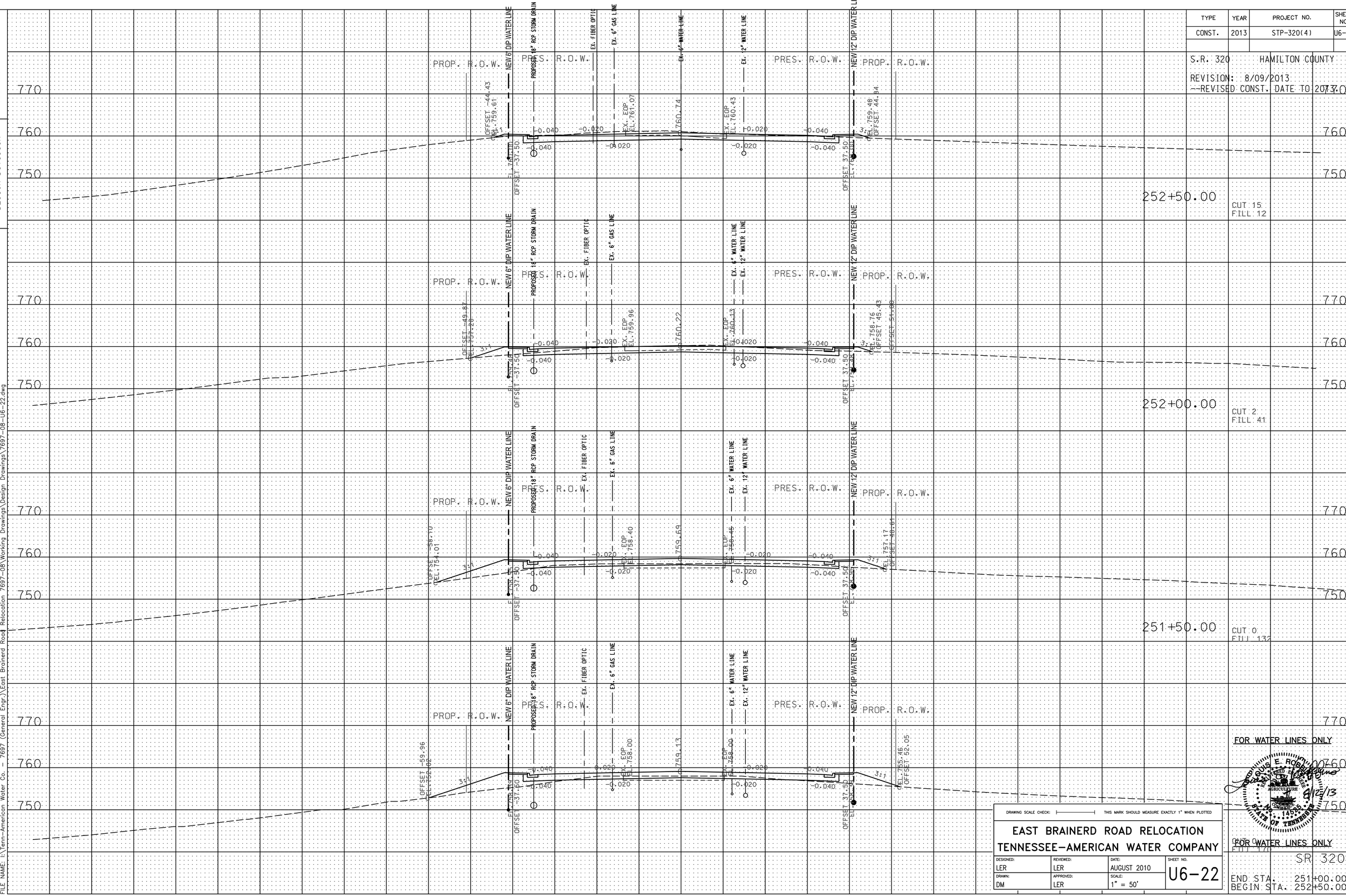
PRINTED: 8/12/2013 @ 11:31AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-21.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-22

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



PRINTED: 8/12/2013 @ 11:32AM
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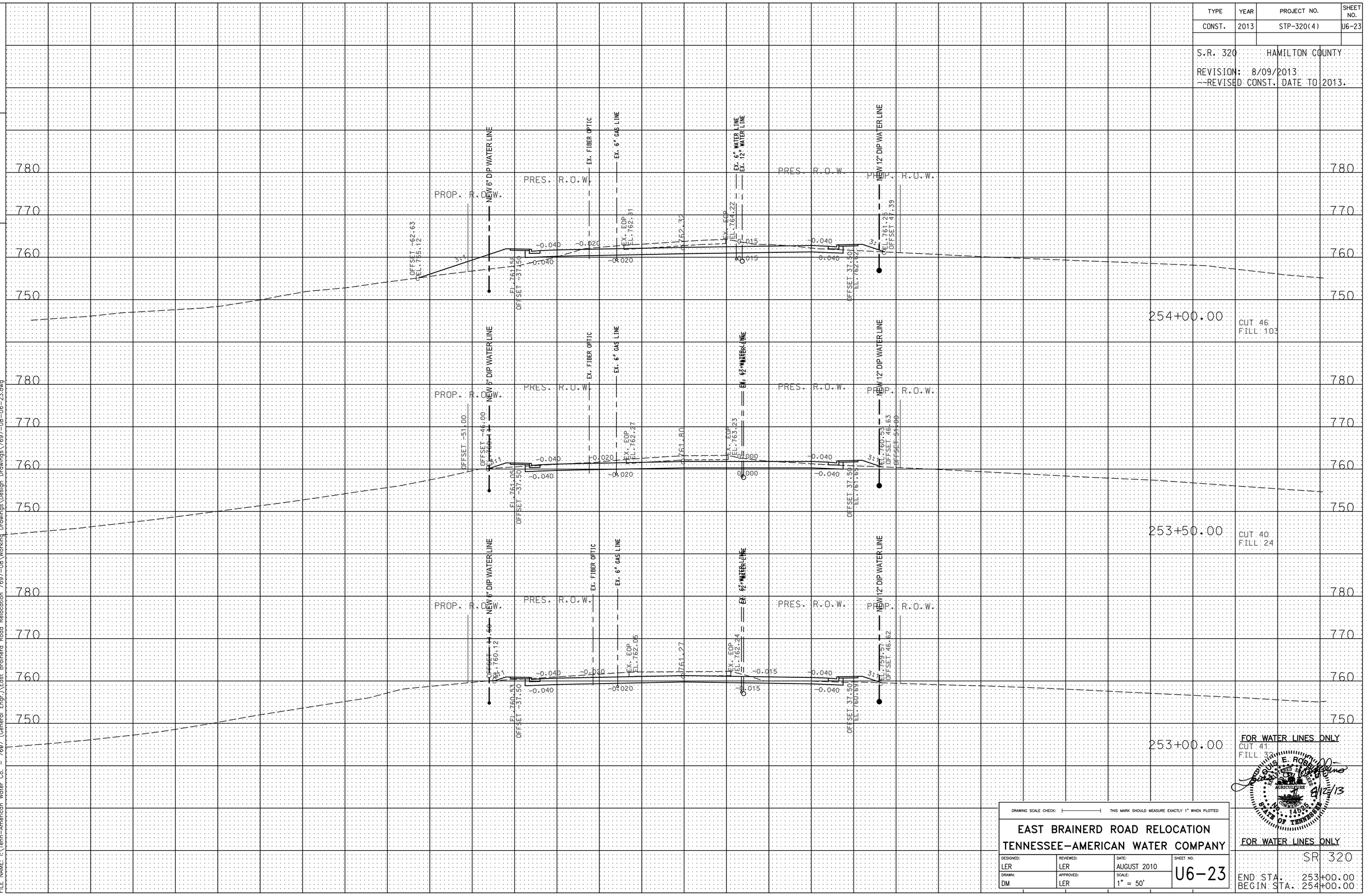
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-23

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-23
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBINSON 14556 STATE OF TENNESSEE 8/12/13

FOR WATER LINES ONLY

SR 320

END STA. 253+00.00
BEGIN STA. 254+00.00

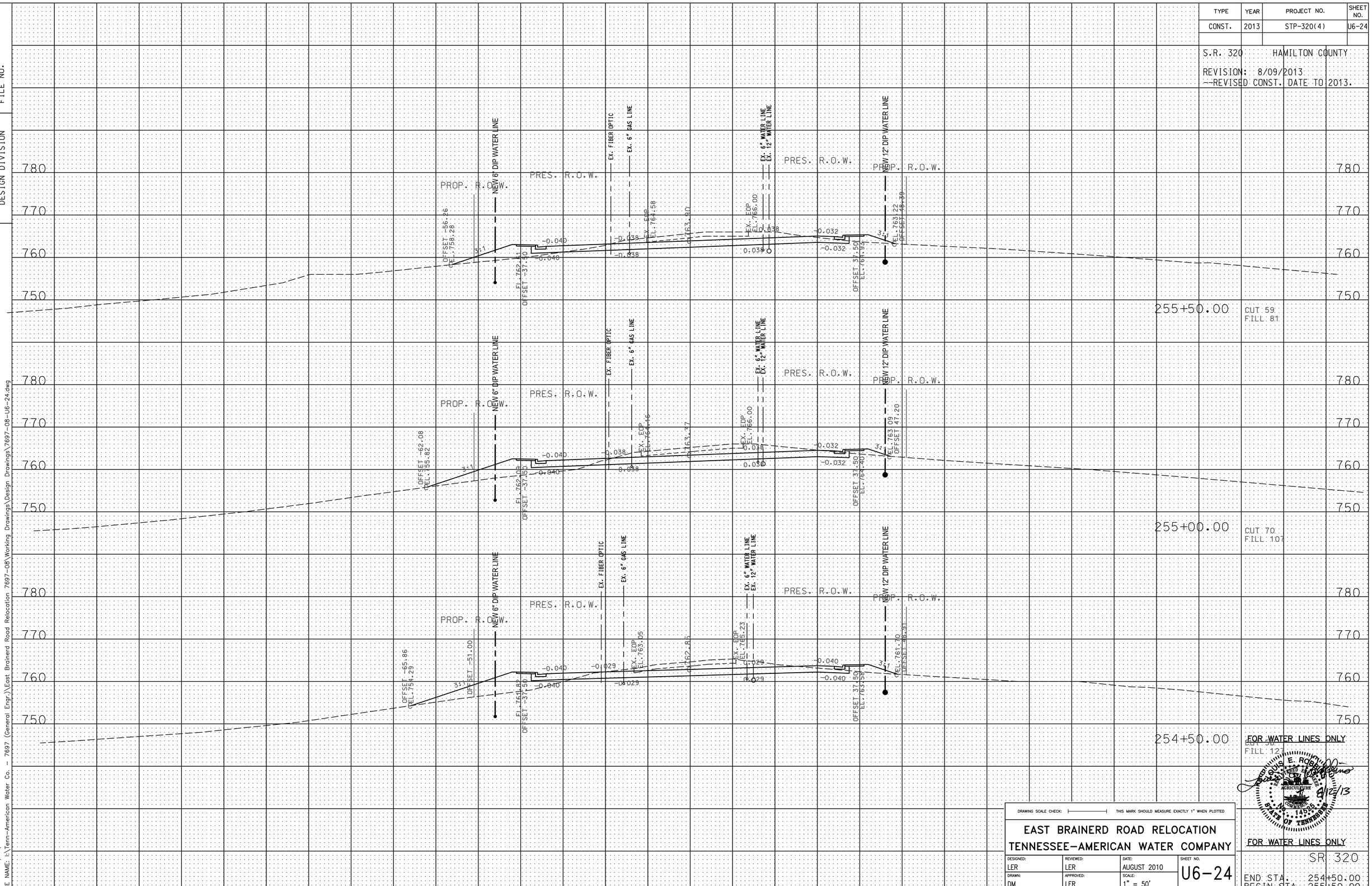
PRINTED: 8/12/2013 @ 11:34AM
FILE NAME: I:\Tenn-American Water Co. - 7687 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-23.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-24

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-24
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

FOR WATER LINES ONLY

SR 320

END STA. 254+50.00
BEGIN STA. 255+50.00

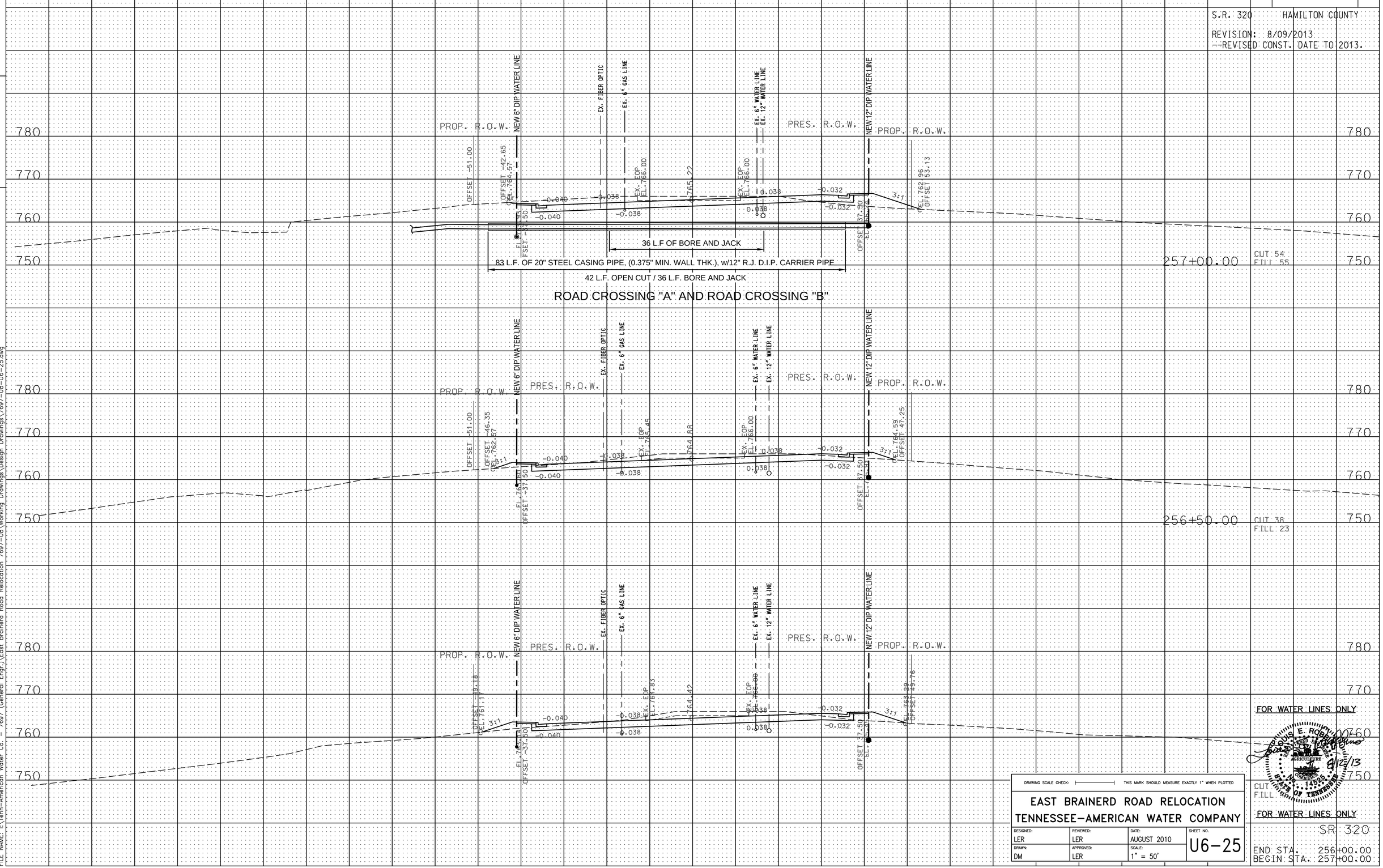
PRINTED: 8/12/2013 @ 11:58AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-24.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-25

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-25
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 11:59AM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-25.dwg

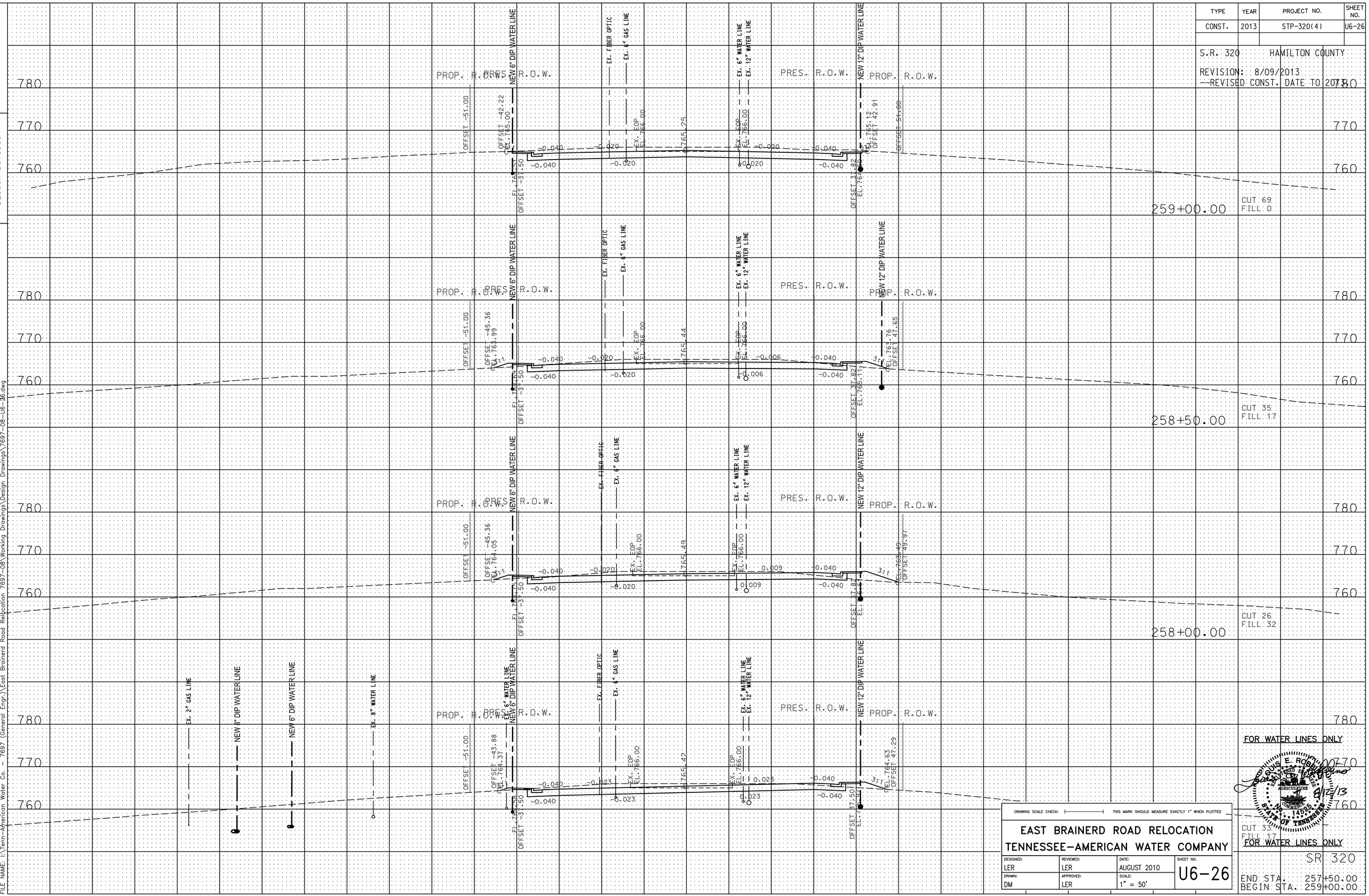
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-26

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-26
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 1:00PM
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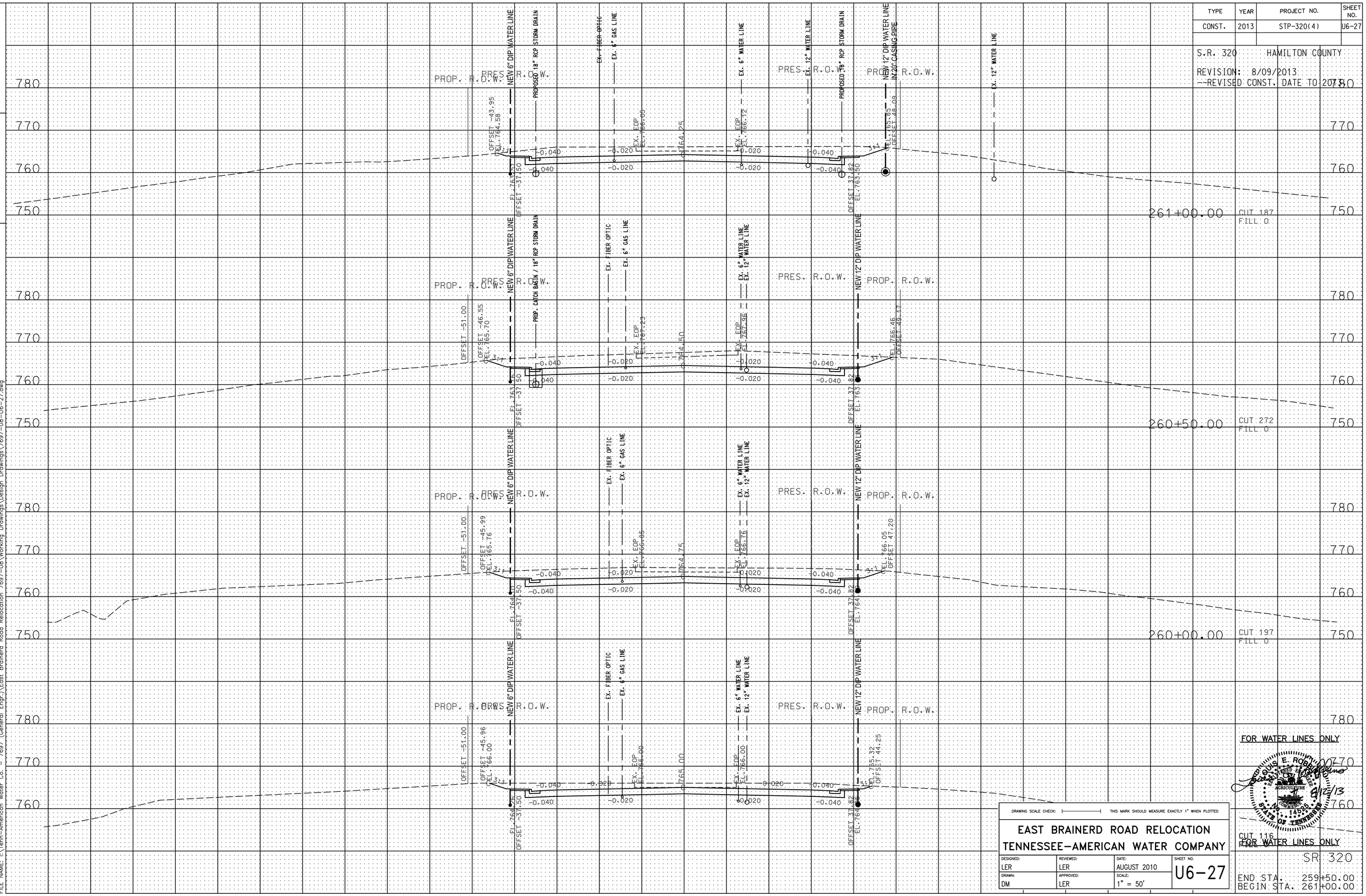
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-27

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-27
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

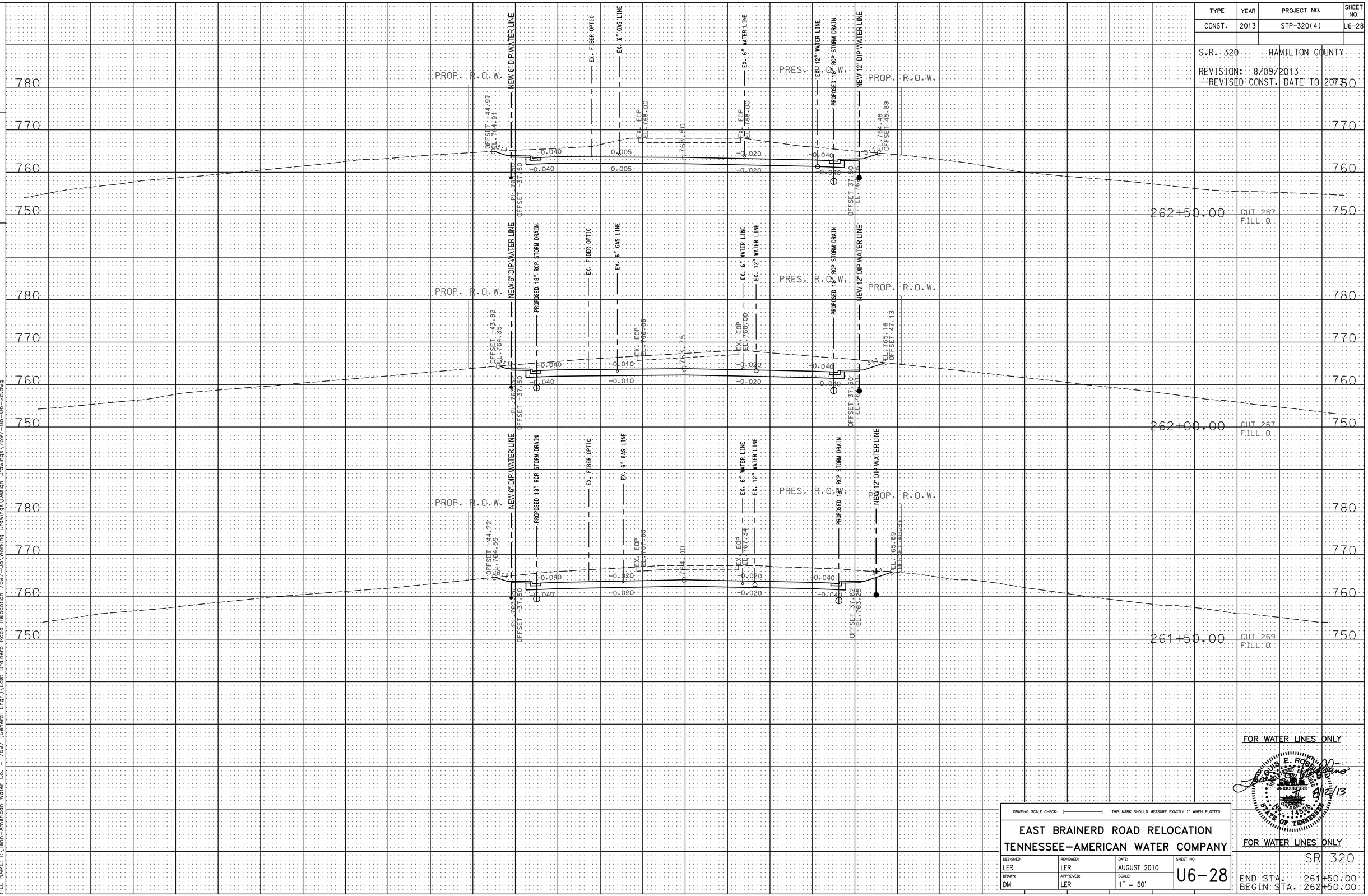
PRINTED: 8/12/2013 @ 1:14PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-27.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-28

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBINSON JR. REGISTERED ENGINEER AGRICULTURE COMMERCE 14055 STATE OF TENNESSEE 8/12/13

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-28
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

SR 320
END STA. 261+50.00
BEGIN STA. 262+50.00

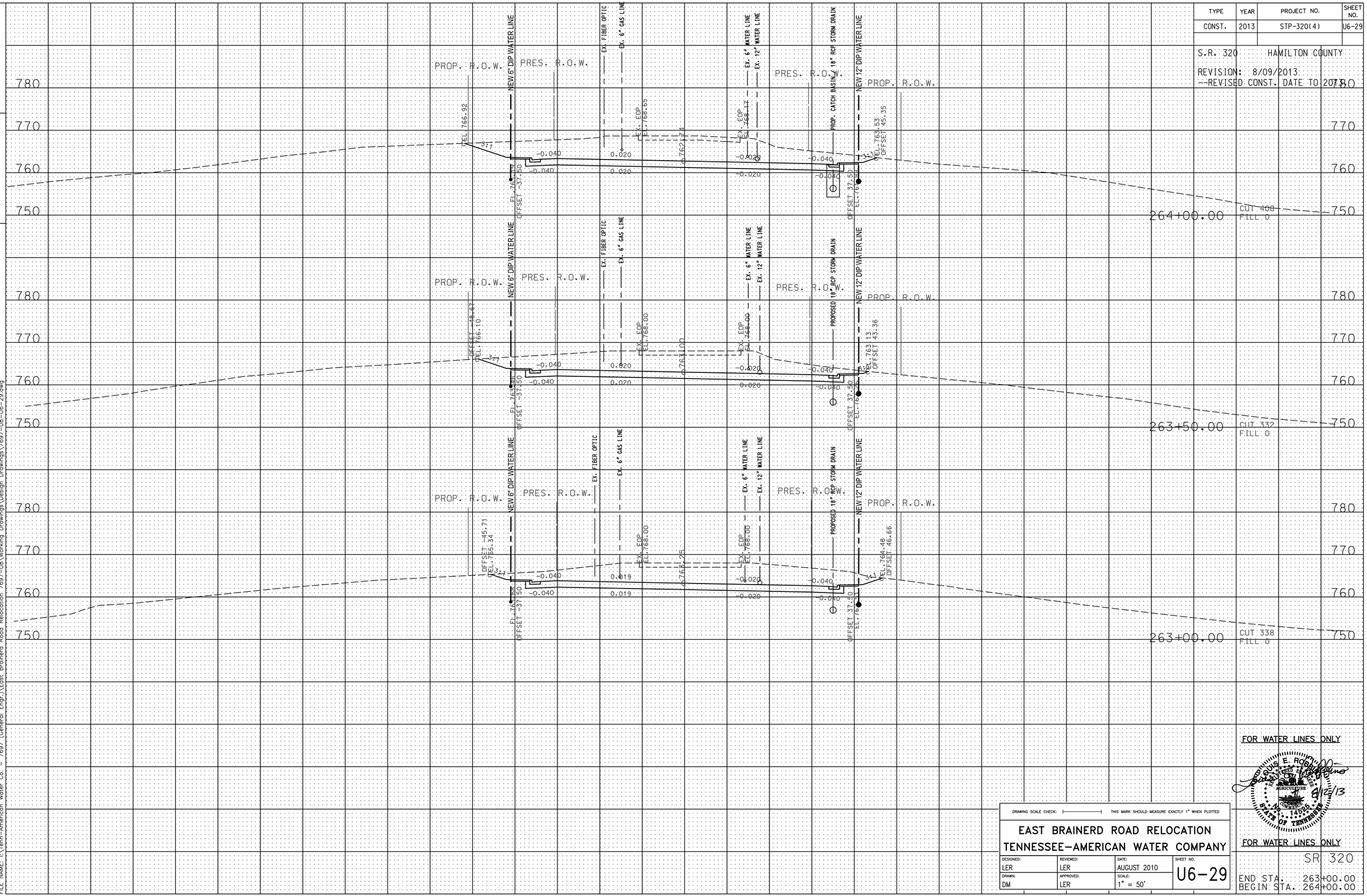
PRINTED: 8/12/2013 @ 1:16PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-28.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-29

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-29
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

SR 320
END STA. 263+00.00
BEGIN STA. 264+00.00

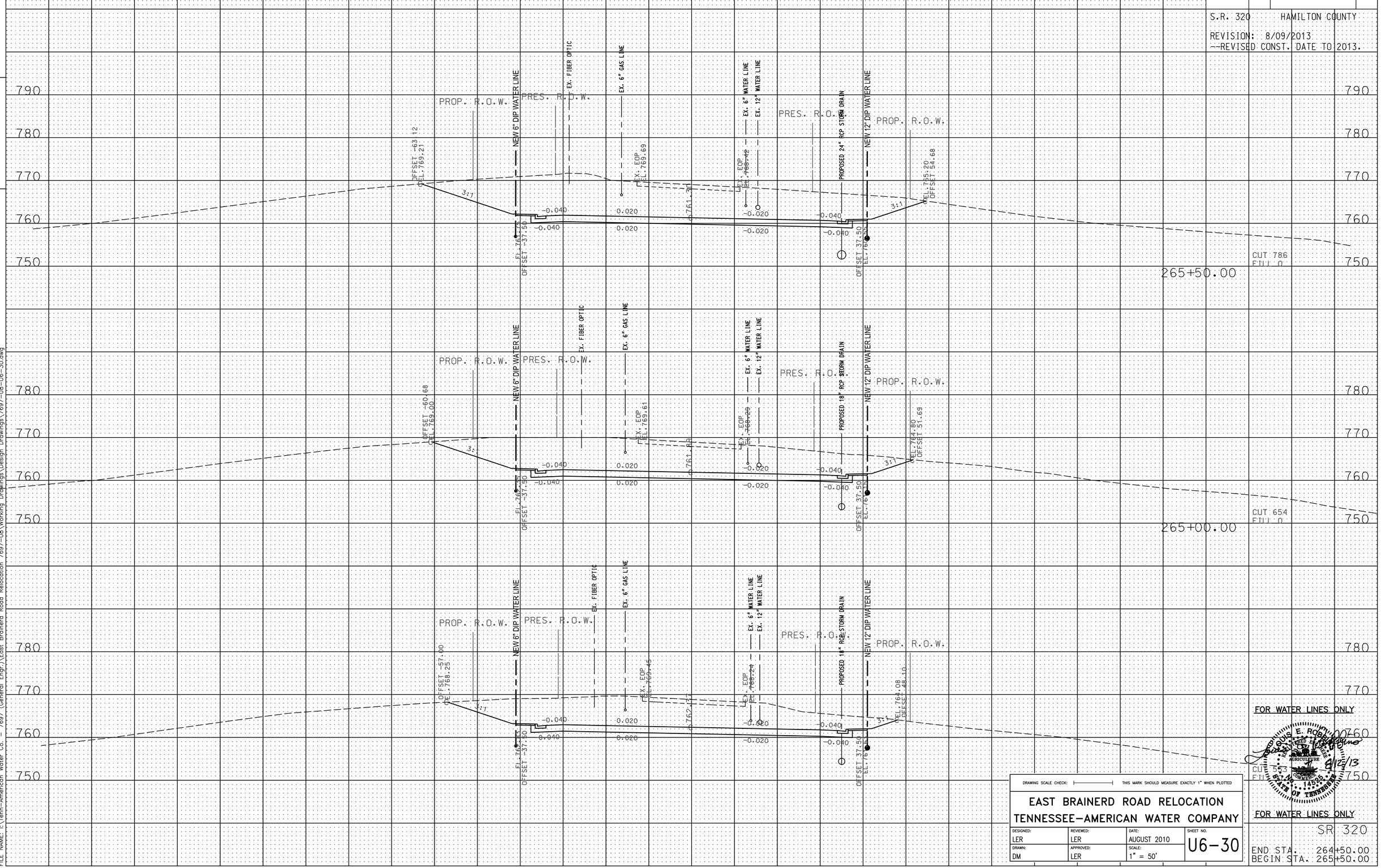
PRINTED: 8/12/2013 @ 1:17PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-29.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-30

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-30
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

SR 320
END STA. 264+50.00
BEGIN STA. 265+50.00

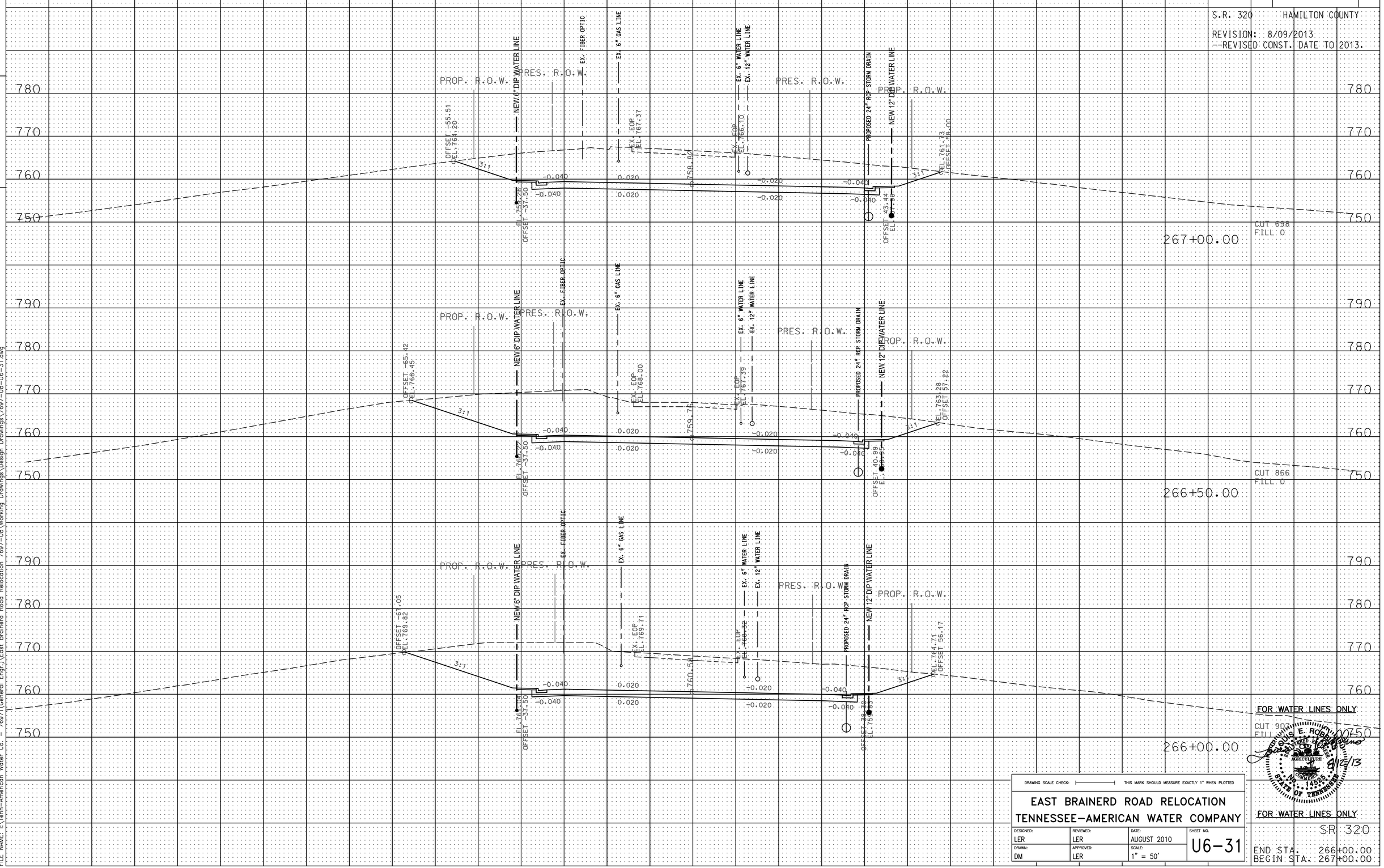
PRINTED: 8/12/2013 @ 1:17PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-30.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-31

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

SR 320

END STA. 266+00.00
BEGIN STA. 267+00.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-31
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBERTSON
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
14235
STATE OF TENNESSEE
8/12/13

PRINTED: 8/12/2013 @ 1:18PM
FILE NAME: I:\Tenn-American Water Co. - 7697\(General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-31.dwg

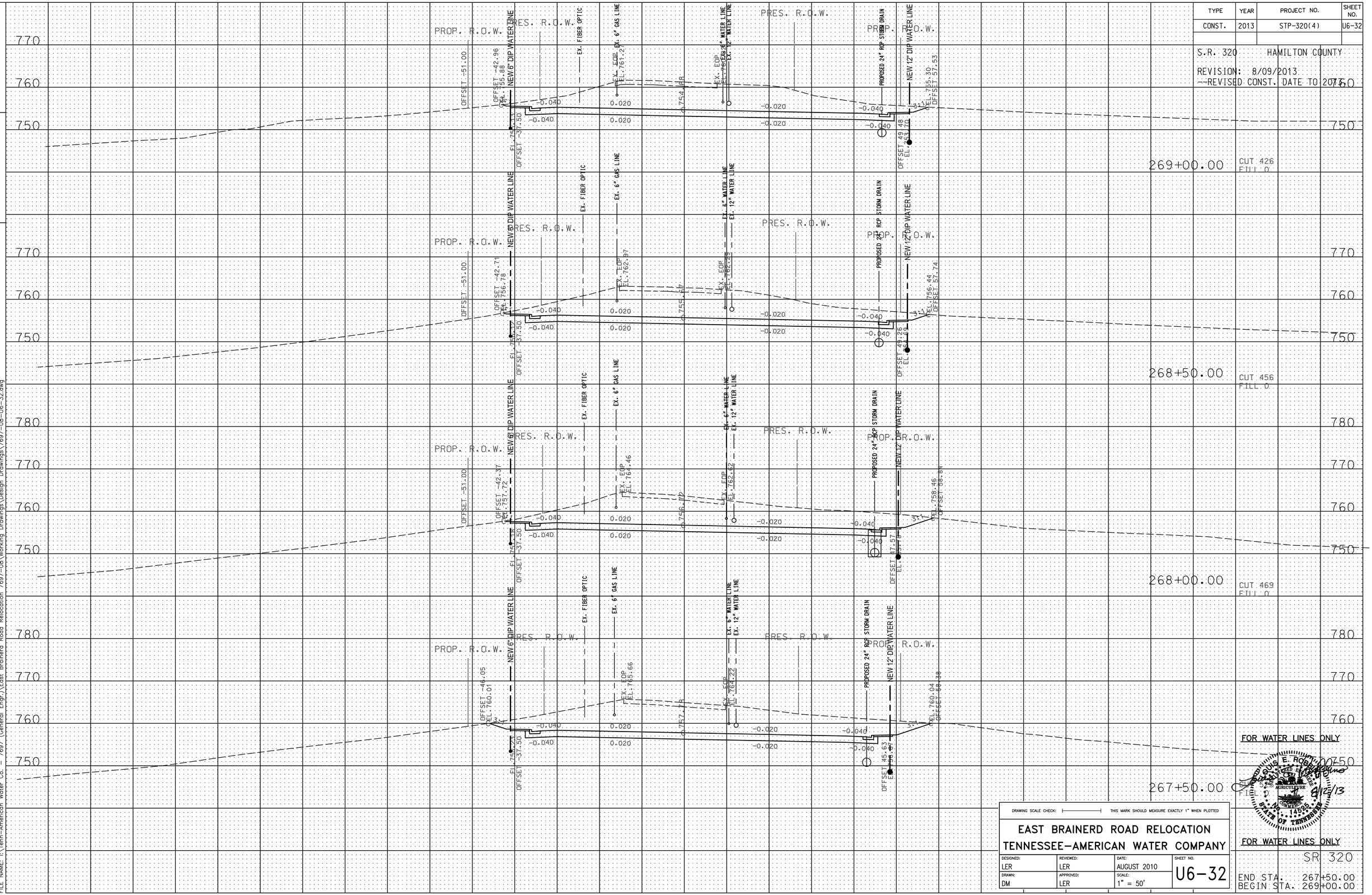
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-32

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2016

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-32
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROGERS III
REGISTERED ENGINEER
AGRICULTURE COMMERCE
No. 14235
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

SR 320
END STA. 267+50.00
BEGIN STA. 269+00.00

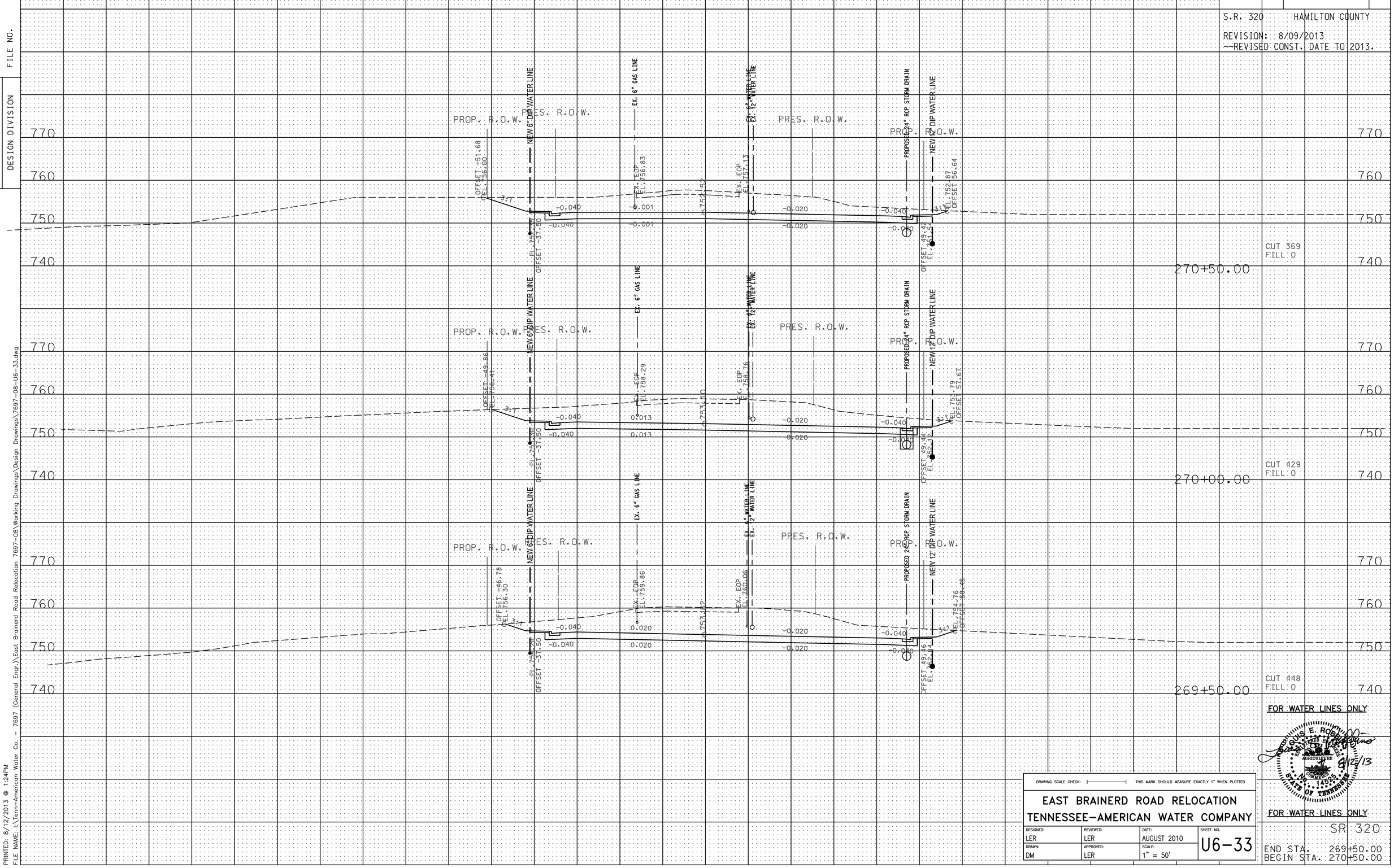
PRINTED: 8/12/2013 @ 1:19PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-32.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-33

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

SR 320

END STA. 269+50.00
BEGIN STA. 270+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-33
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

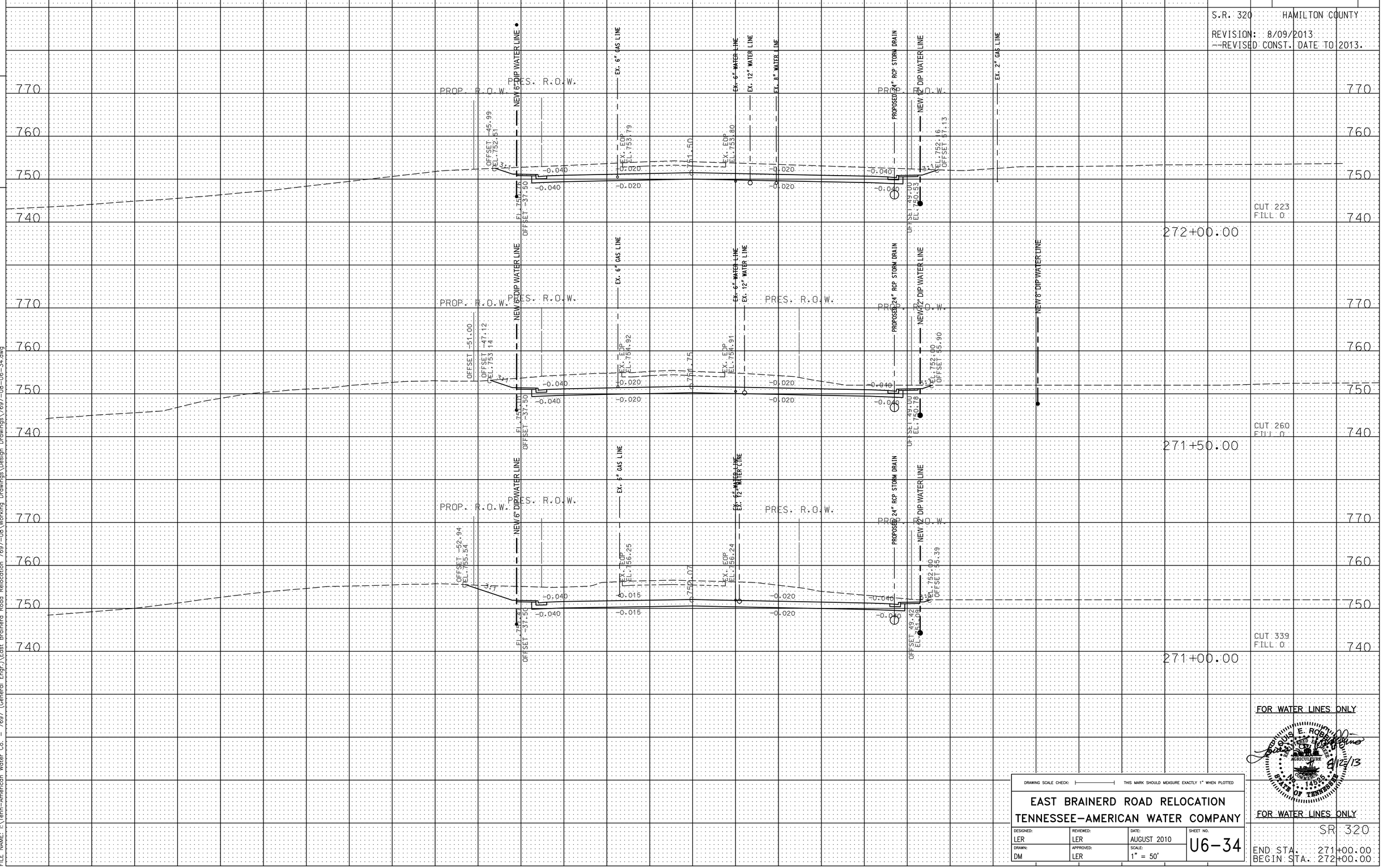
PRINTED: 8/12/2013 @ 1:24PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-33.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-34

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-34
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

SR 320
END STA. 271+00.00
BEGIN STA. 272+00.00

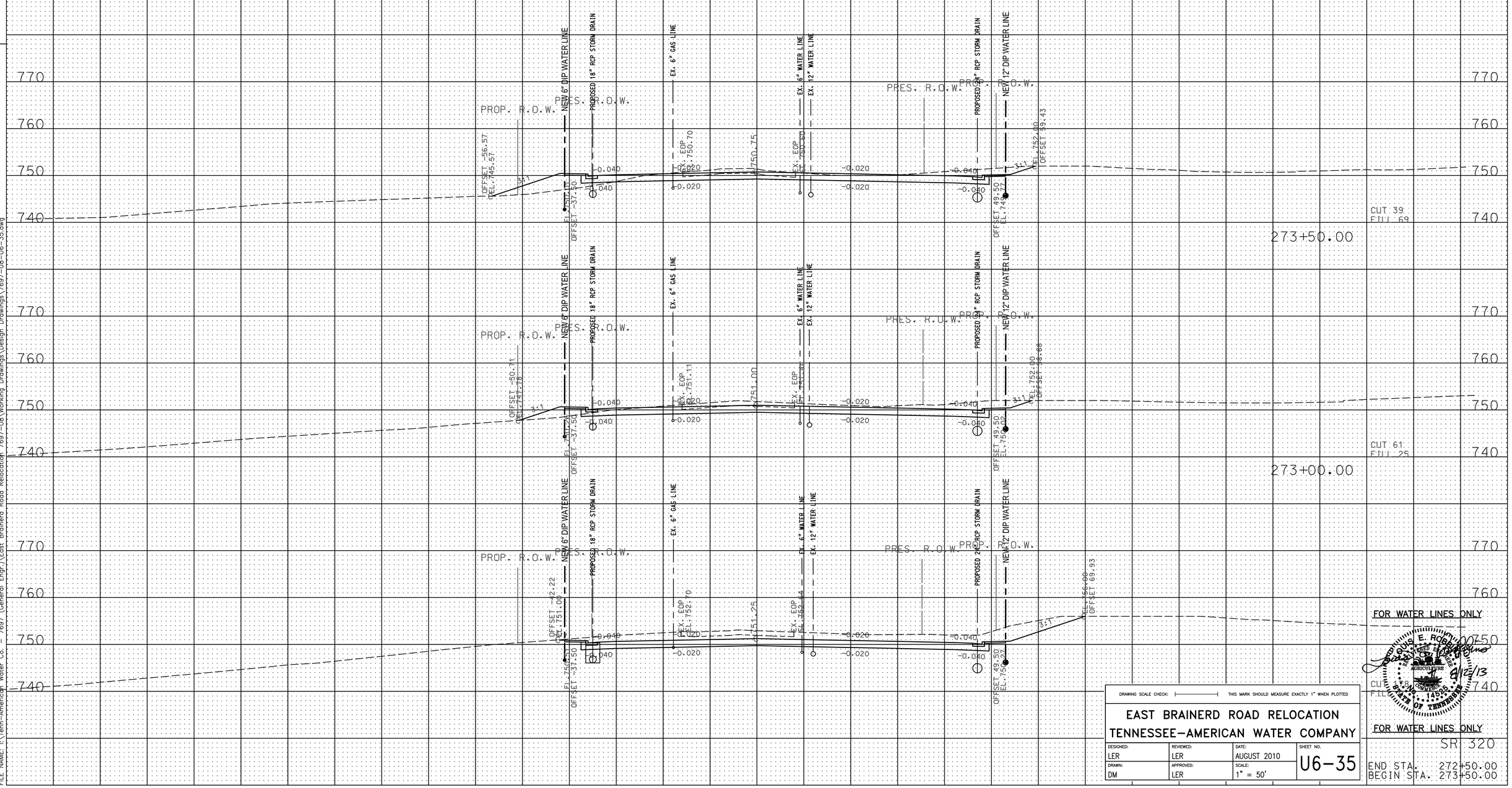
PRINTED: 8/12/2013 @ 1:25PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-34.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-35

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-35
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

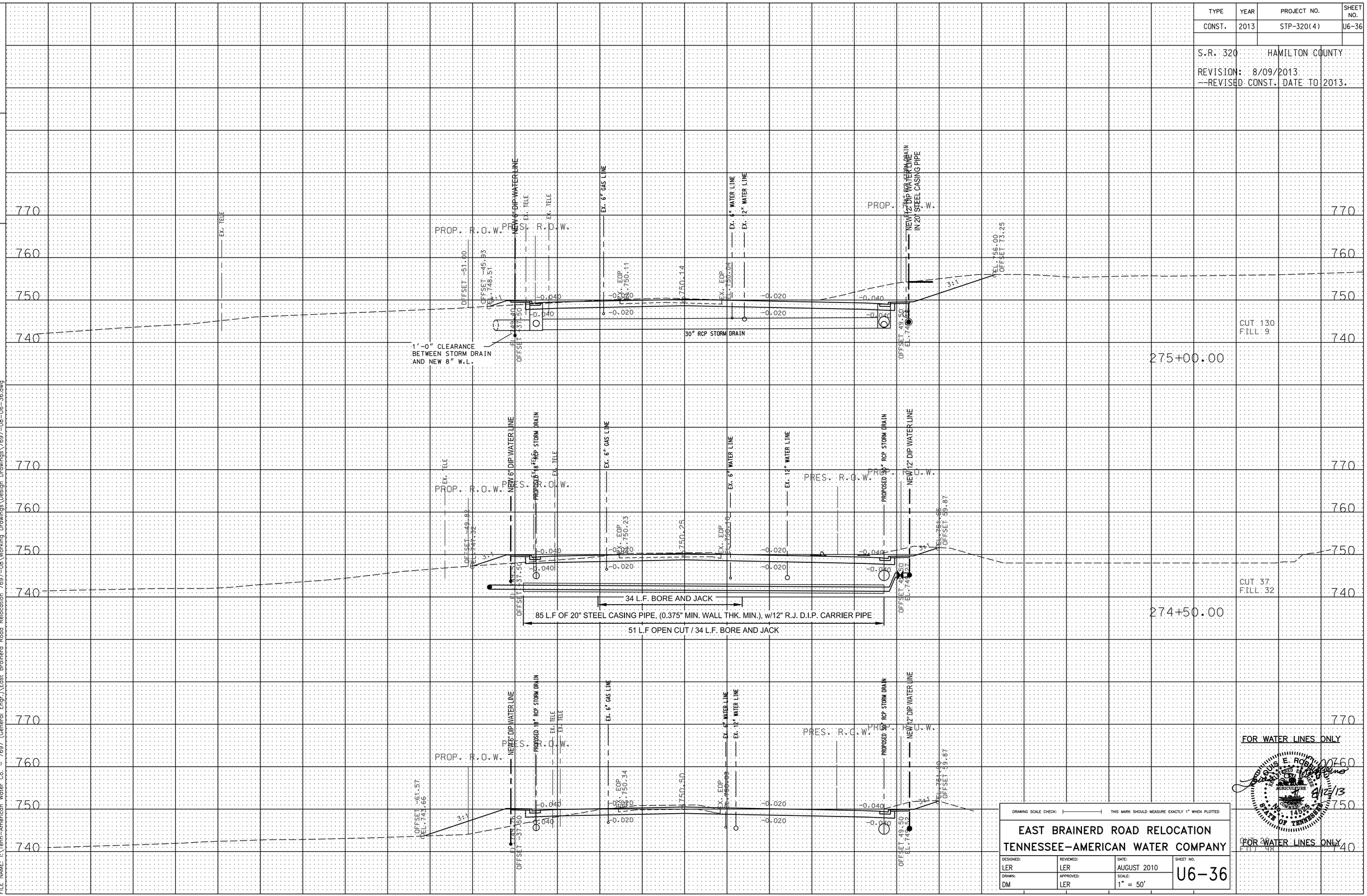
PRINTED: 8/12/2013 @ 1:41PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-35.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-36

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-36
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBINSON JR. 145599 STATE OF TENNESSEE 8/12/13

PRINTED: 8/12/2013 @ 1:42PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-36.dwg

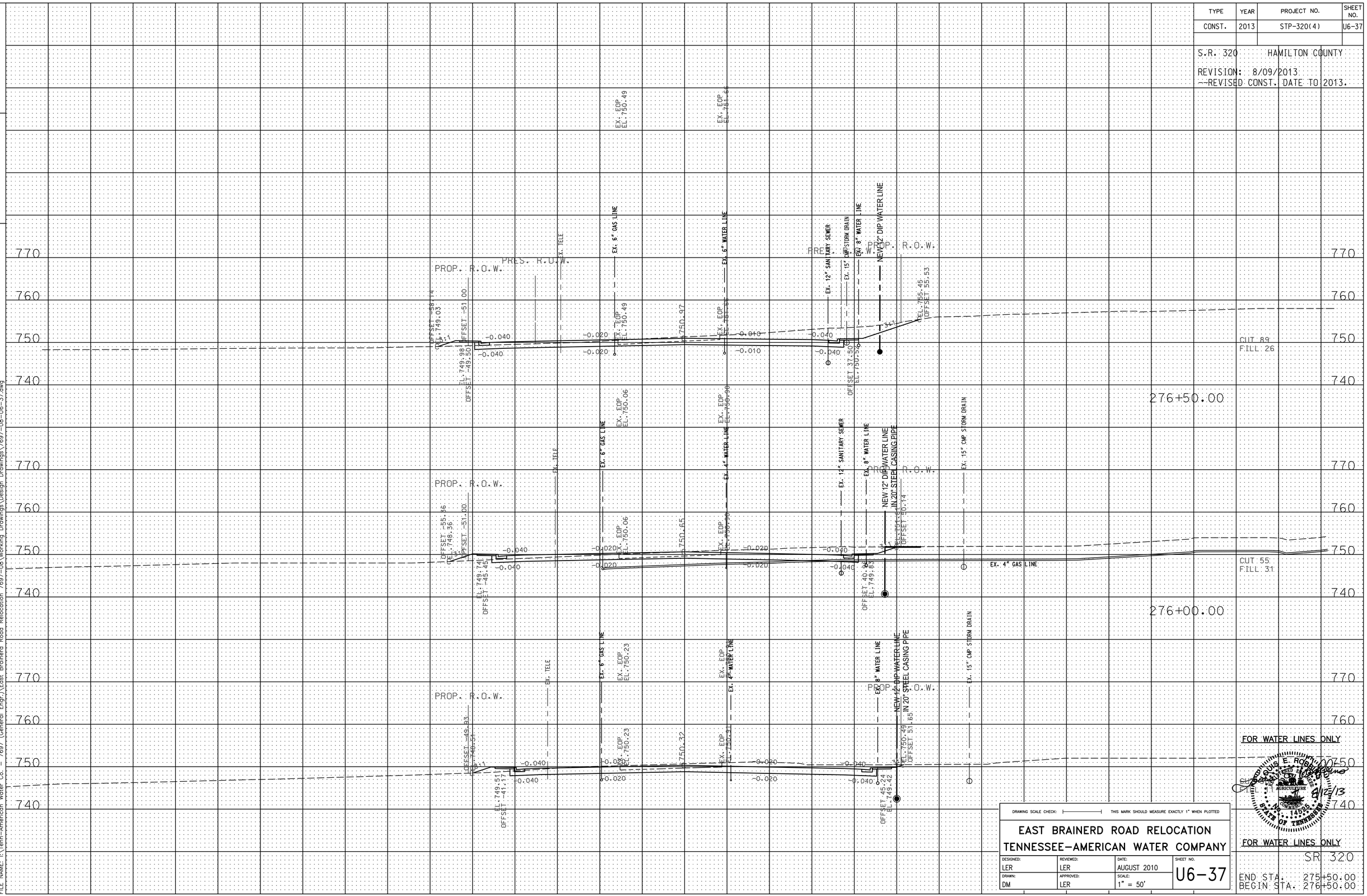
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-37

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-37
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 1:43PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-37.dwg

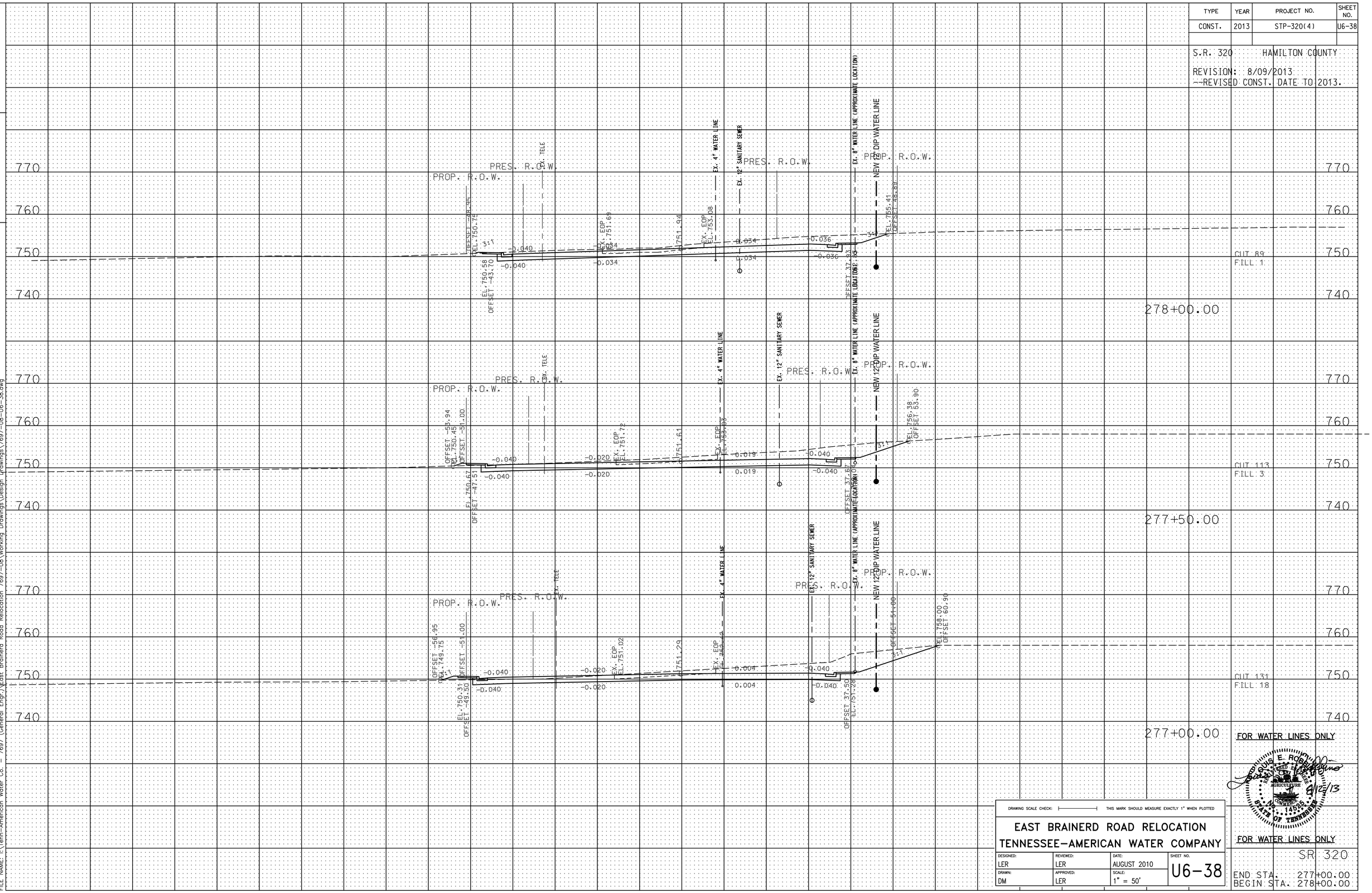
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-38

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-38
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

FOR WATER LINES ONLY

SR 320

END STA. 277+00.00
BEGIN STA. 278+00.00

PRINTED: 8/12/2013 @ 1:44PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-38.dwg

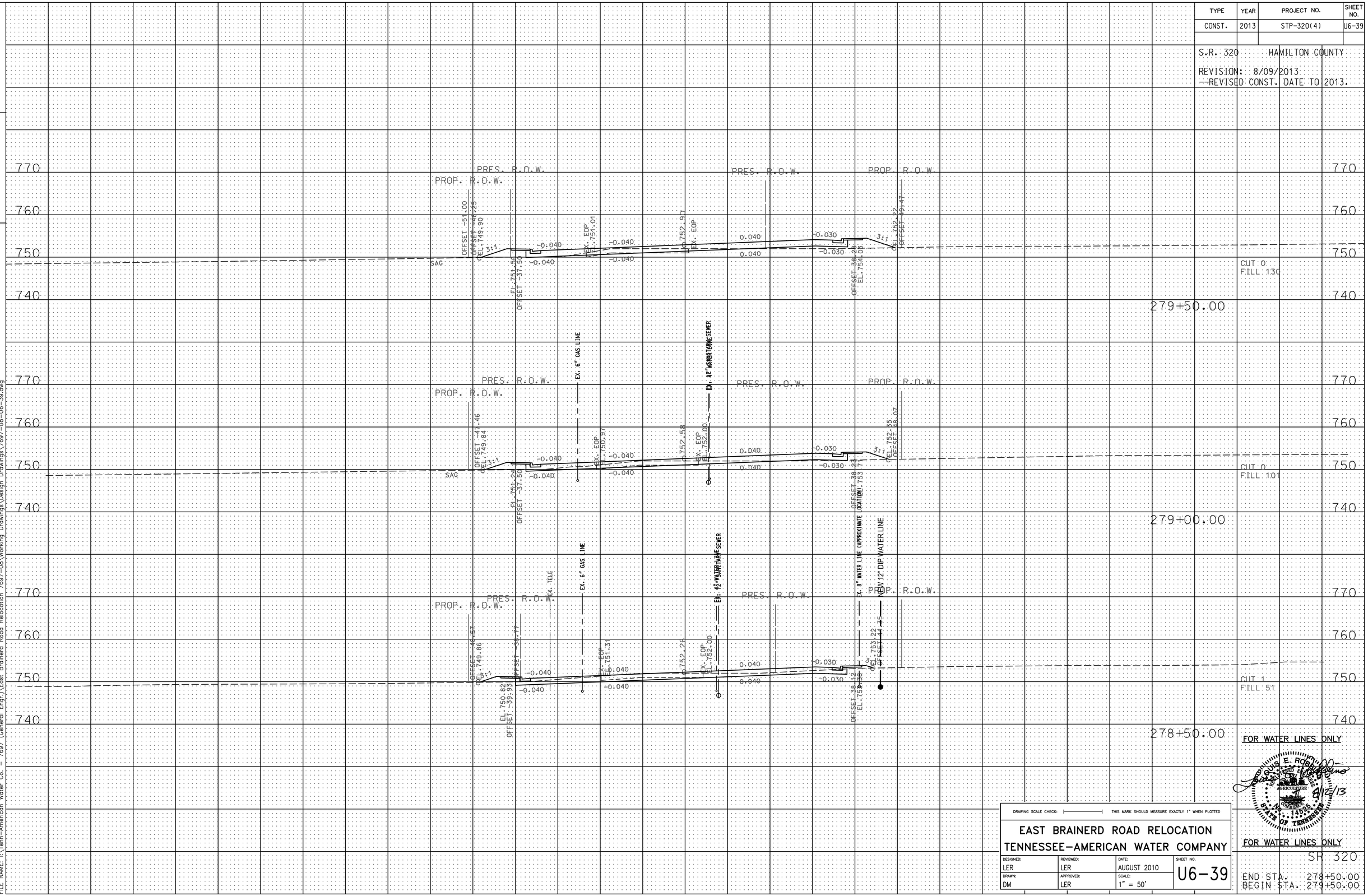
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-39

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-39
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBERTSON
REGISTERED ENGINEER
AGRICULTURE
14528
STATE OF TENNESSEE
8/12/13

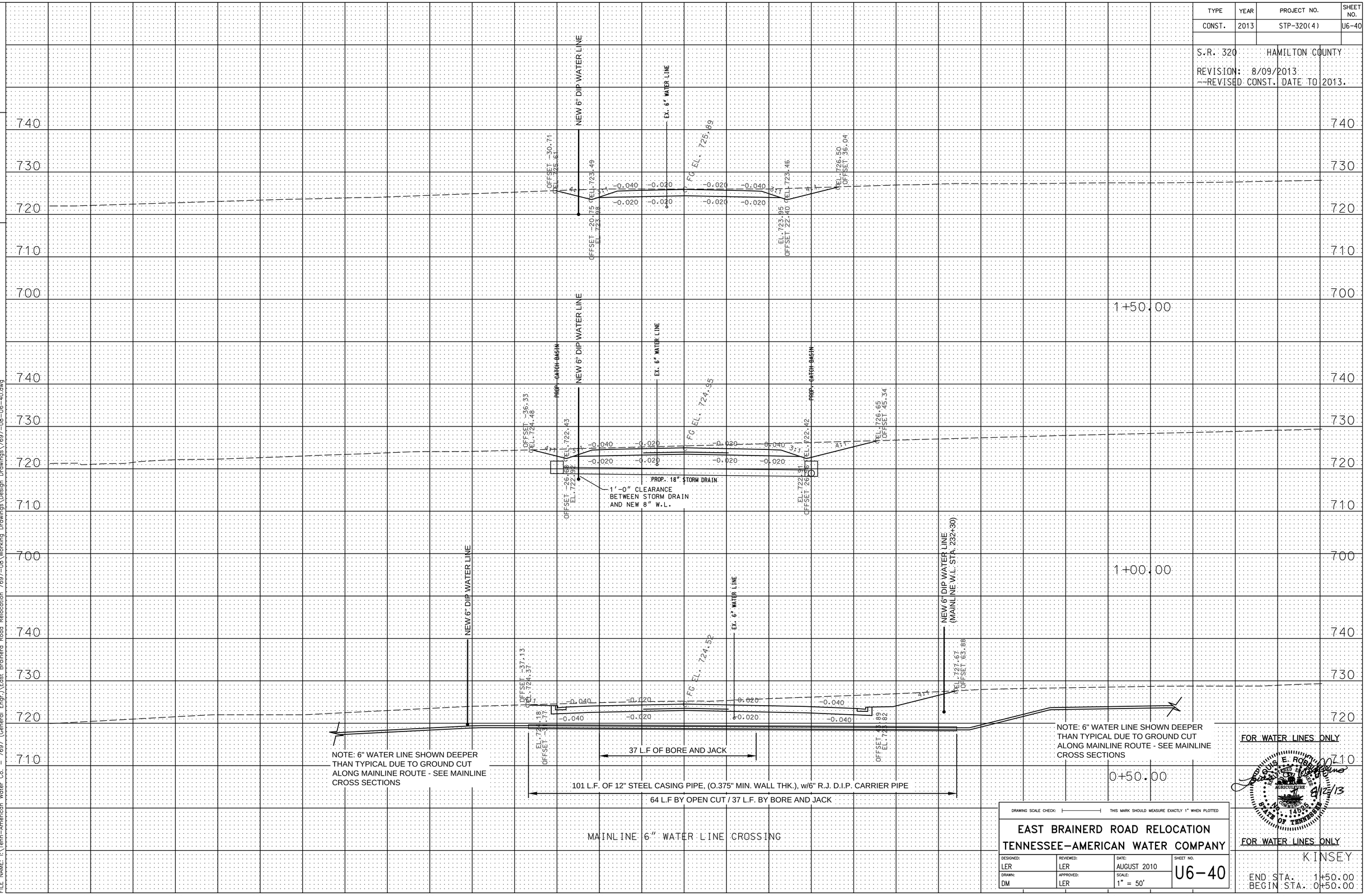
PRINTED: 8/12/2013 @ 1:53PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-39.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-40

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LUIS E. ROBINSON
8/12/13
STATE OF TENNESSEE

FOR WATER LINES ONLY

KINSEY

END STA. 1+50.00
BEGIN STA. 0+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-40
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

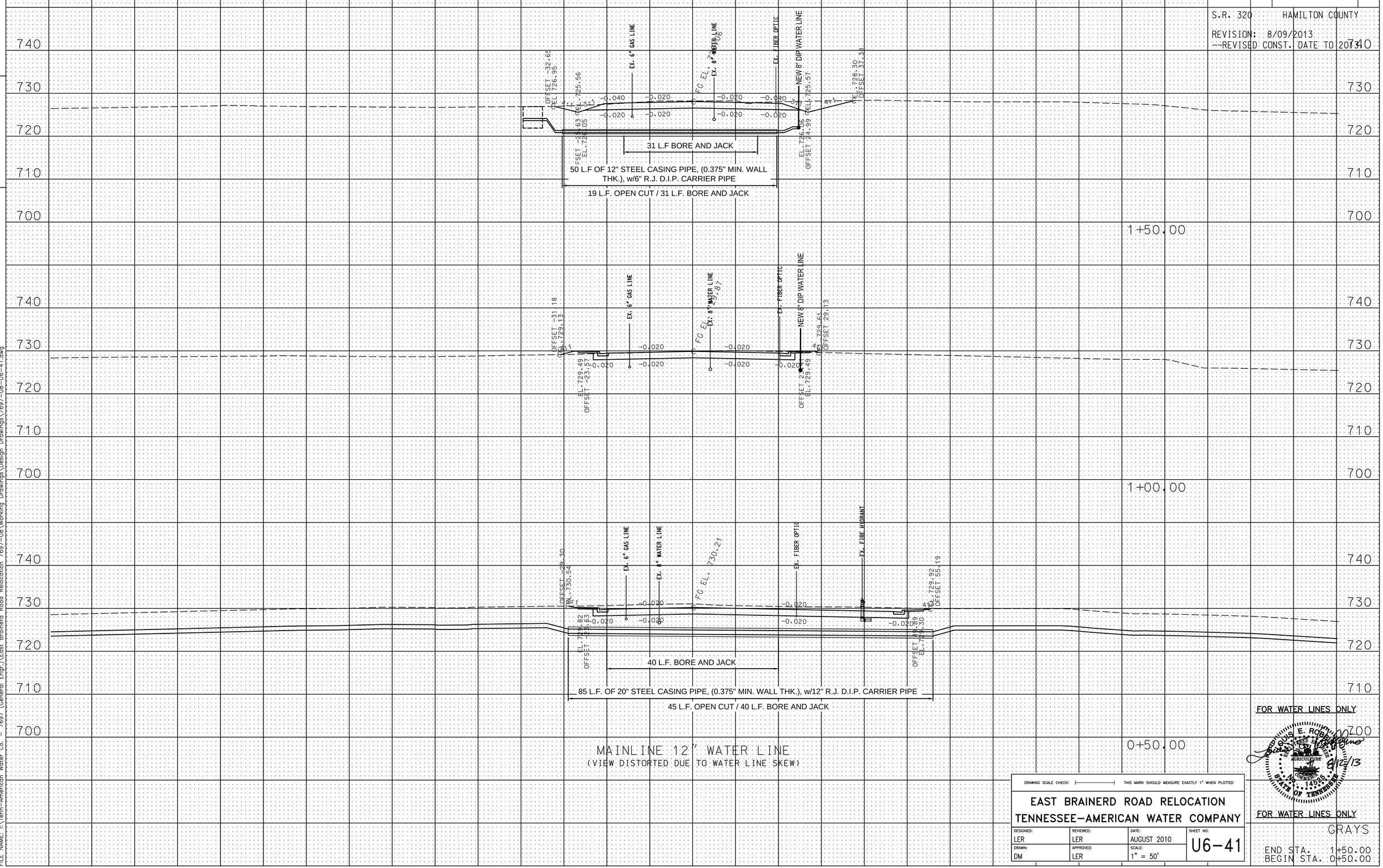
PRINTED: 8/12/2013 @ 1:54PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-40.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-41

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBINSON
REGISTERED ENGINEER
AGRICULTURE
14235
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

GRAYS

END STA. 1+50.00
BEGIN STA. 0+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-41
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

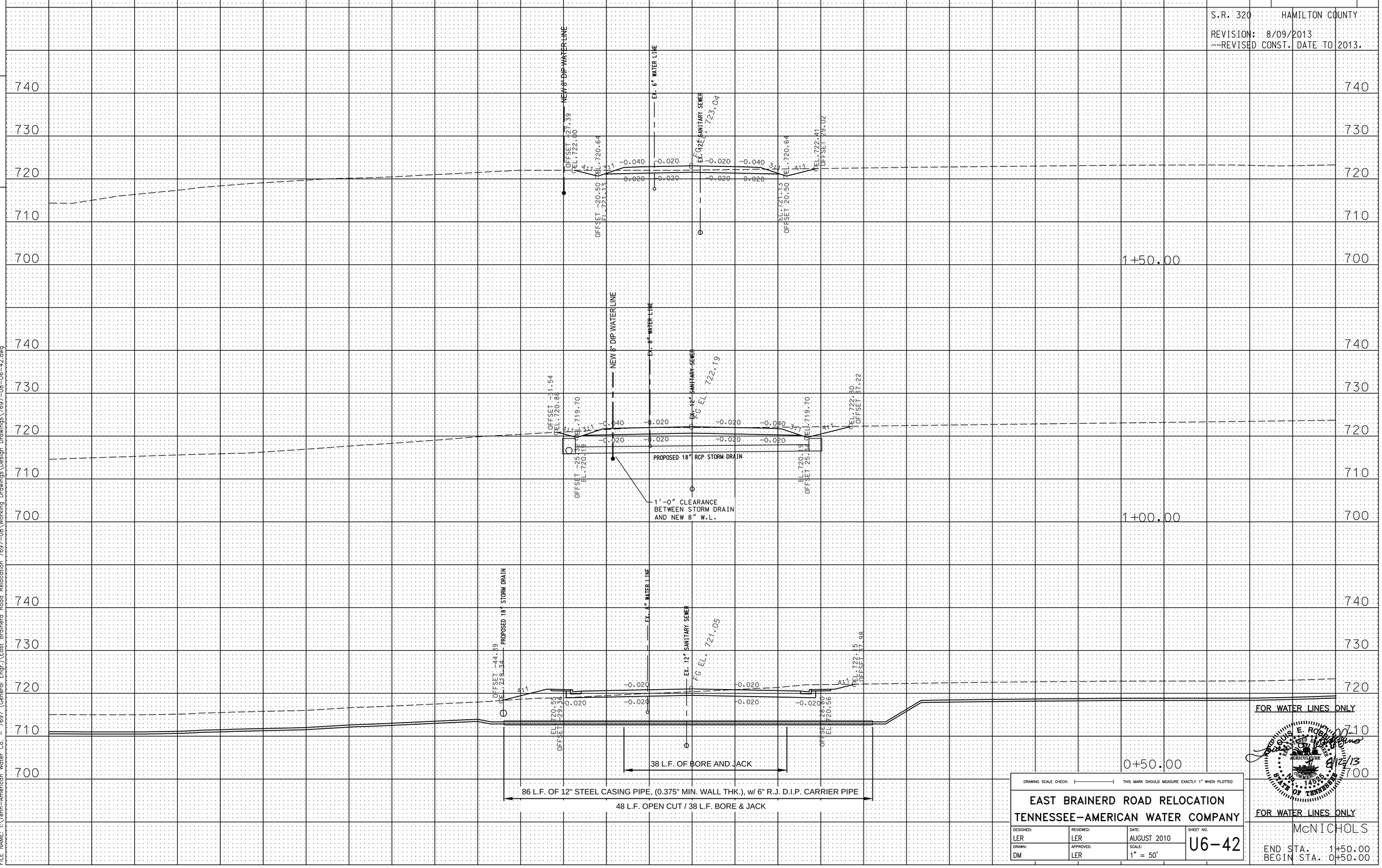
PRINTED: 8/12/2013 @ 1:58PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-41.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-42

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-42
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROSS JR. REGISTERED ENGINEER AGRICULTURE COMMERCE 14526 STATE OF TENNESSEE 8/12/13

McNICHOLS

END STA. 1+50.00
BEGIN STA. 0+50.00

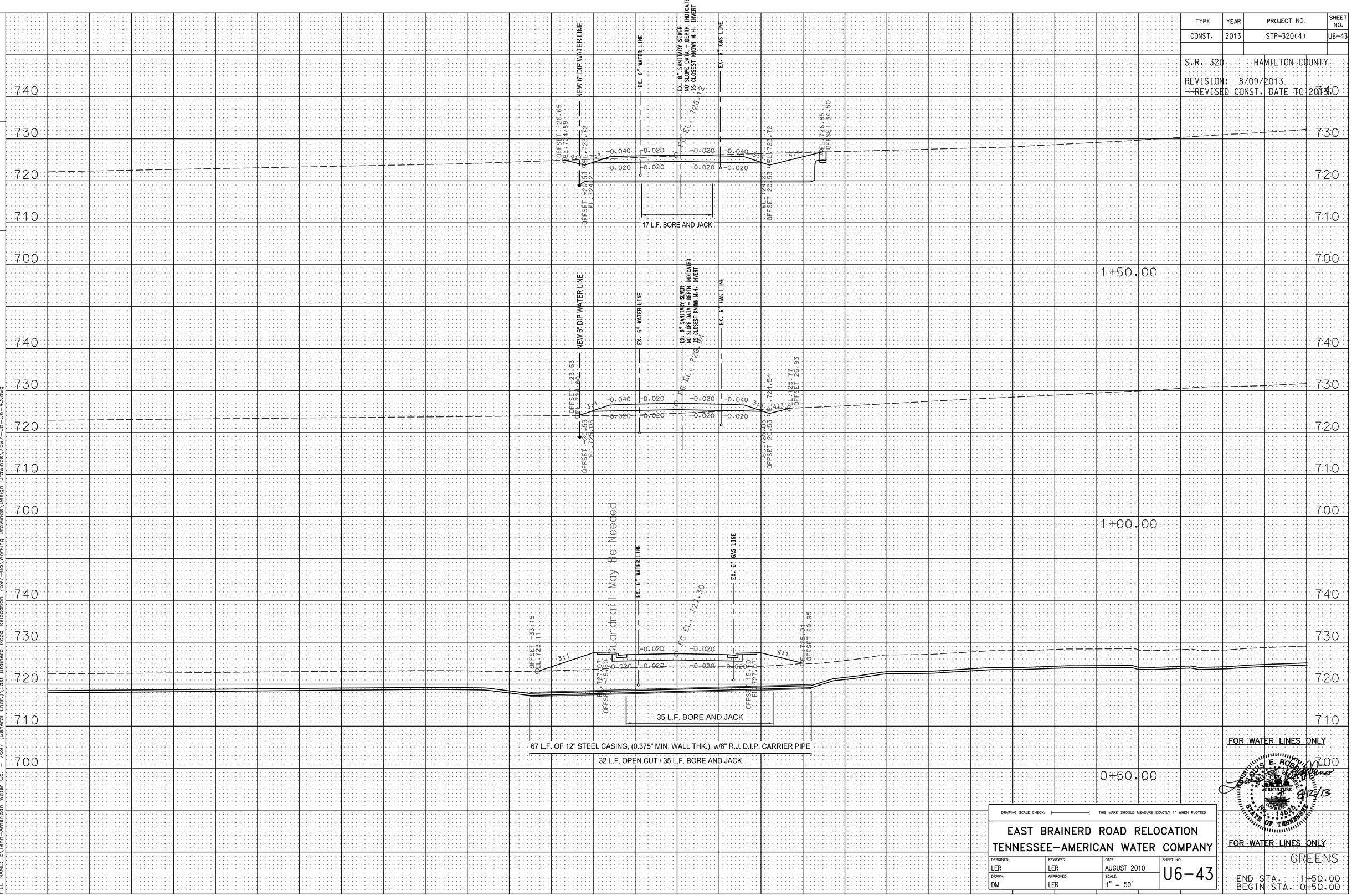
PRINTED: 8/12/2013 @ 1:58PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-42.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-43

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.0

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

GREENS

END STA. 1+50.00
BEGIN STA. 0+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-43
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 2:21PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-43.dwg

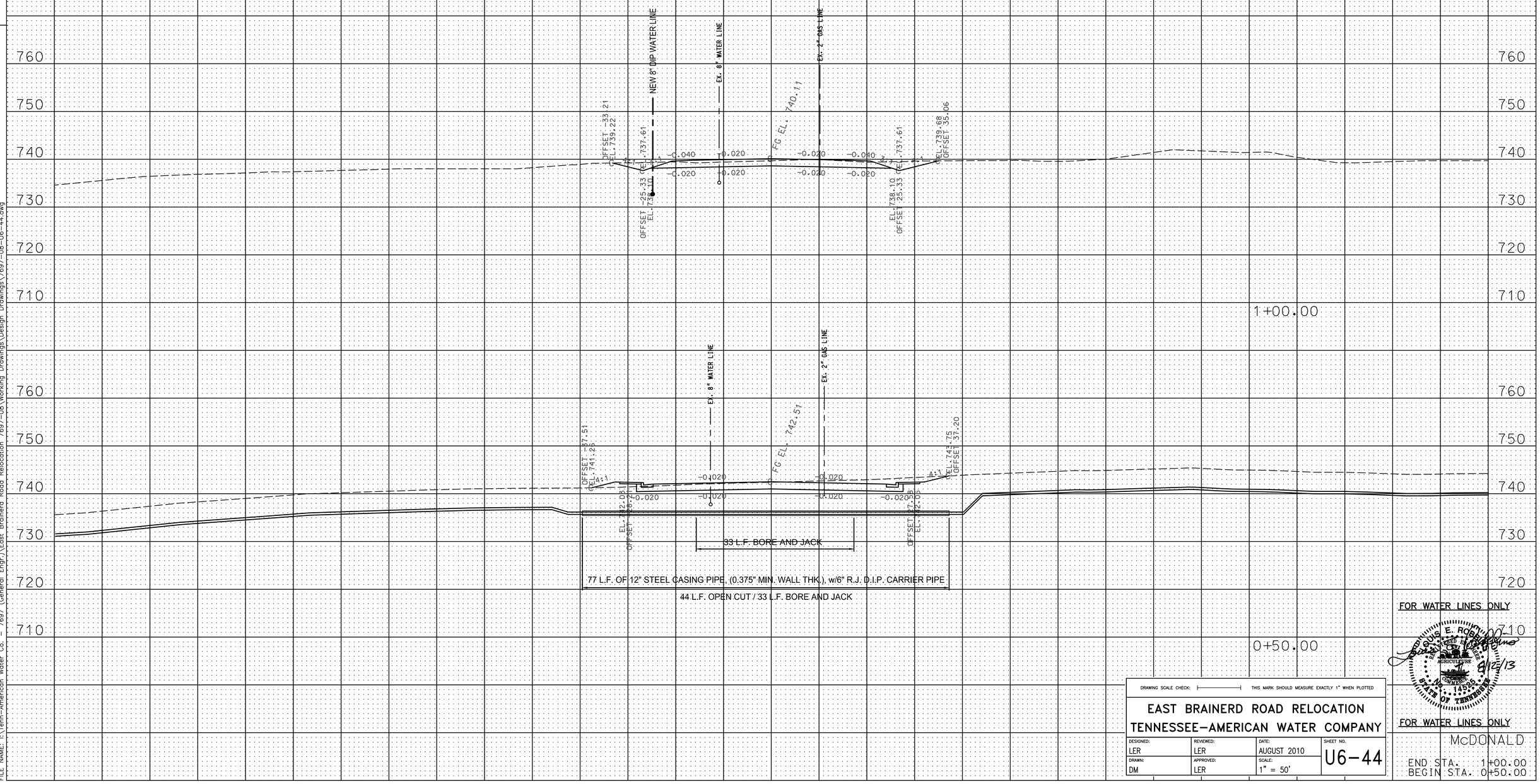
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-44

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-44
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBINSON REGISTERED ENGINEER AGRICULTURE 14235 STATE OF TENNESSEE 8/12/13

McDONALD

END STA. 1+00.00
BEGIN STA. 0+50.00

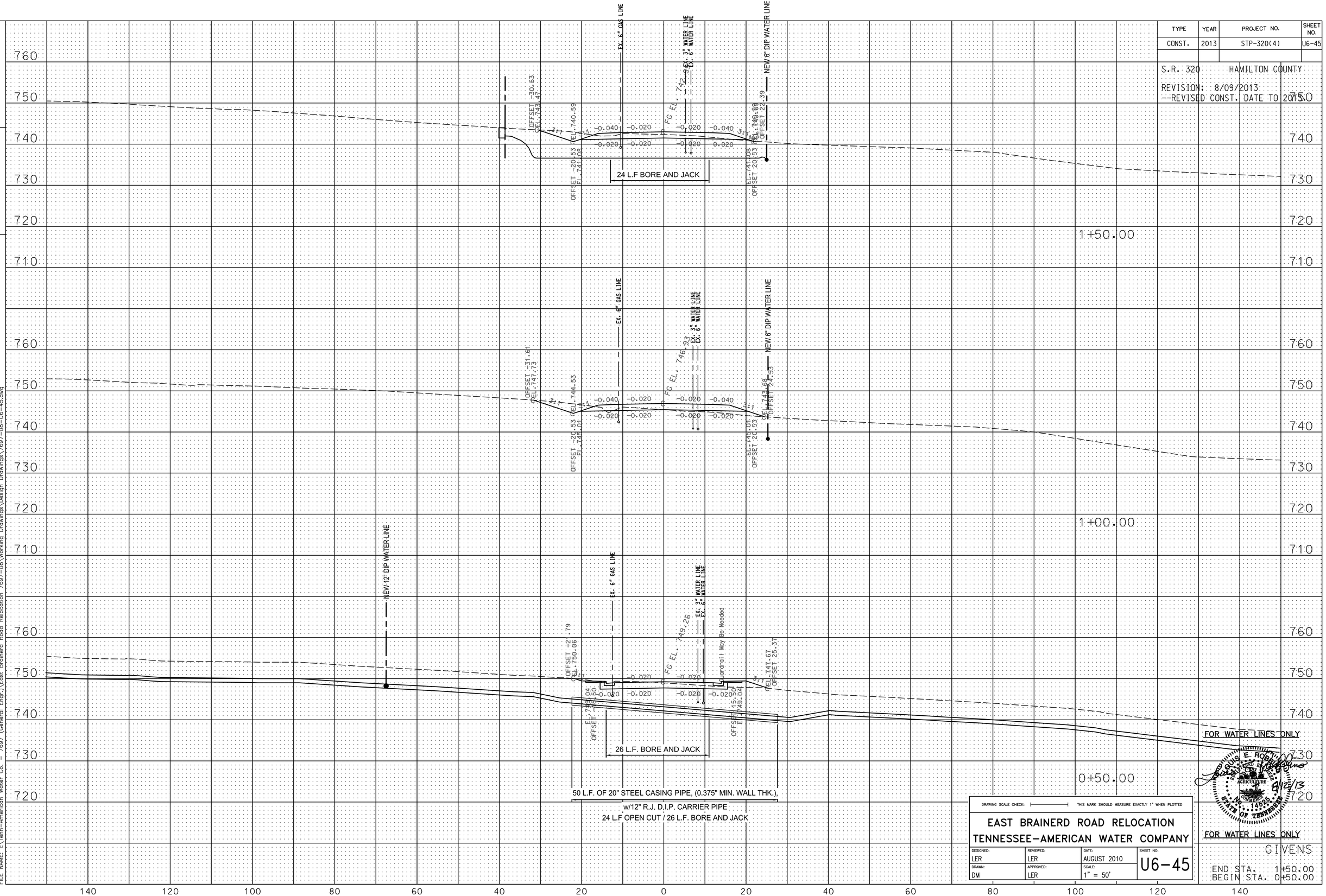
PRINTED: 8/12/2013 @ 2:22PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-44.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-45

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2015.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-45
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LOUIS E. ROBINSON
REGISTERED ENGINEER
AGRICULTURE
14235
STATE OF TENNESSEE
8/12/13

GIVENS

END STA. 1+50.00
BEGIN STA. 0+50.00

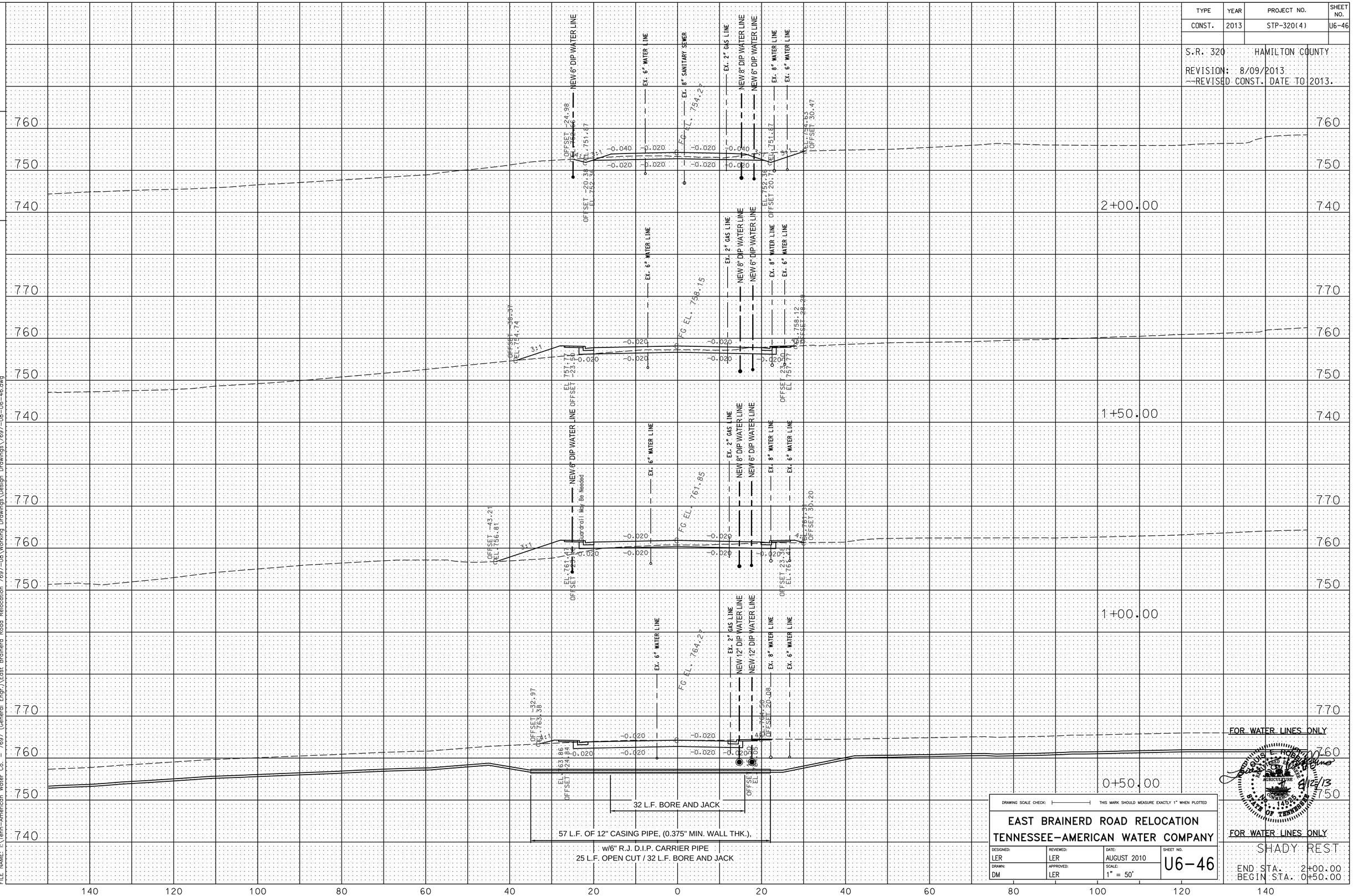
PRINTED: 8/12/2013 @ 2:23PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-45.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-46

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-46
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

8/12/13

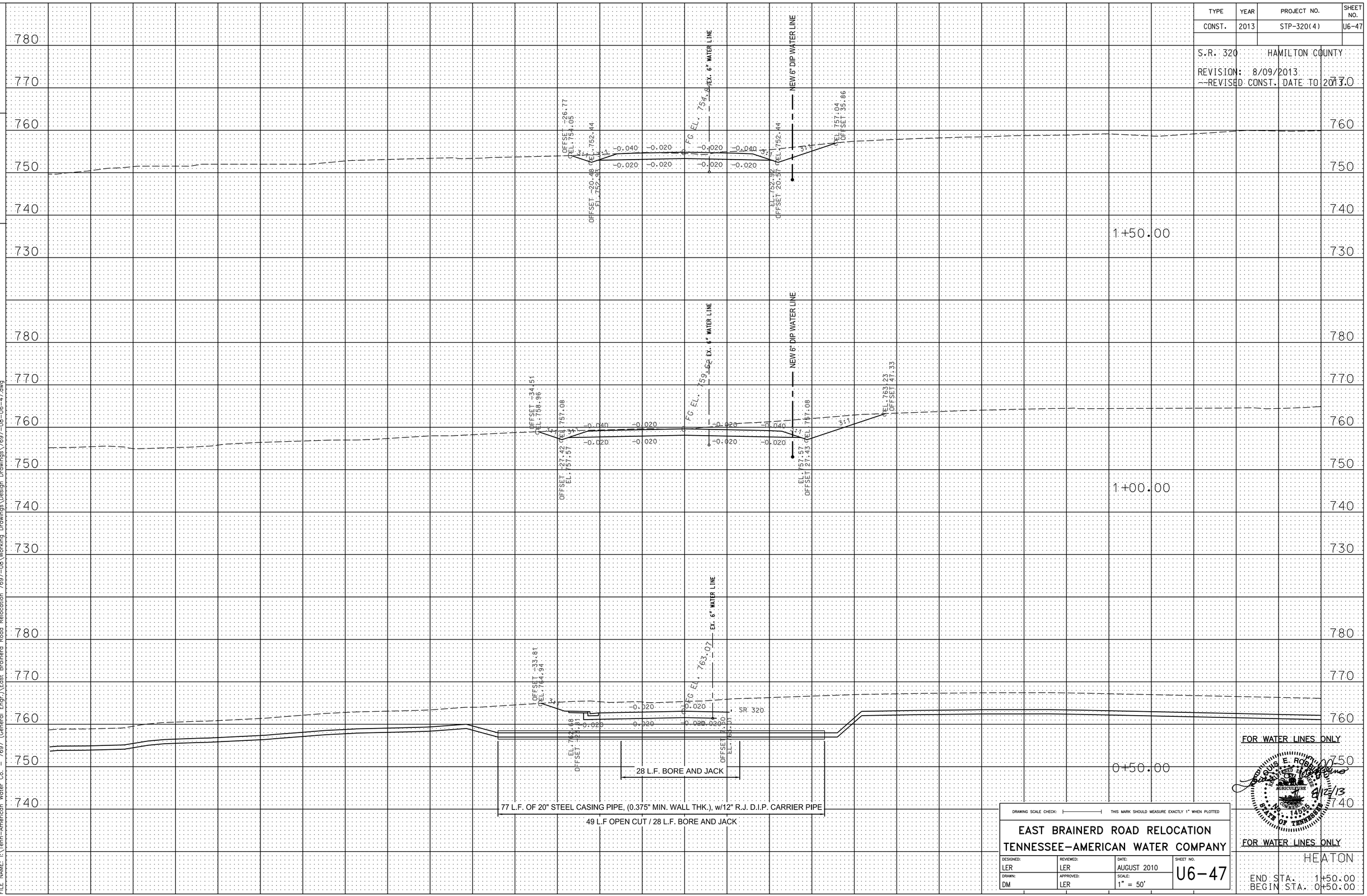
PRINTED: 8/12/2013 @ 2:24PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-46.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-47

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBINSON
REGISTERED ENGINEER
AGRICULTURE
14235
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

HEATON

END STA. 1+50.00
BEGIN STA. 0+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-47
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

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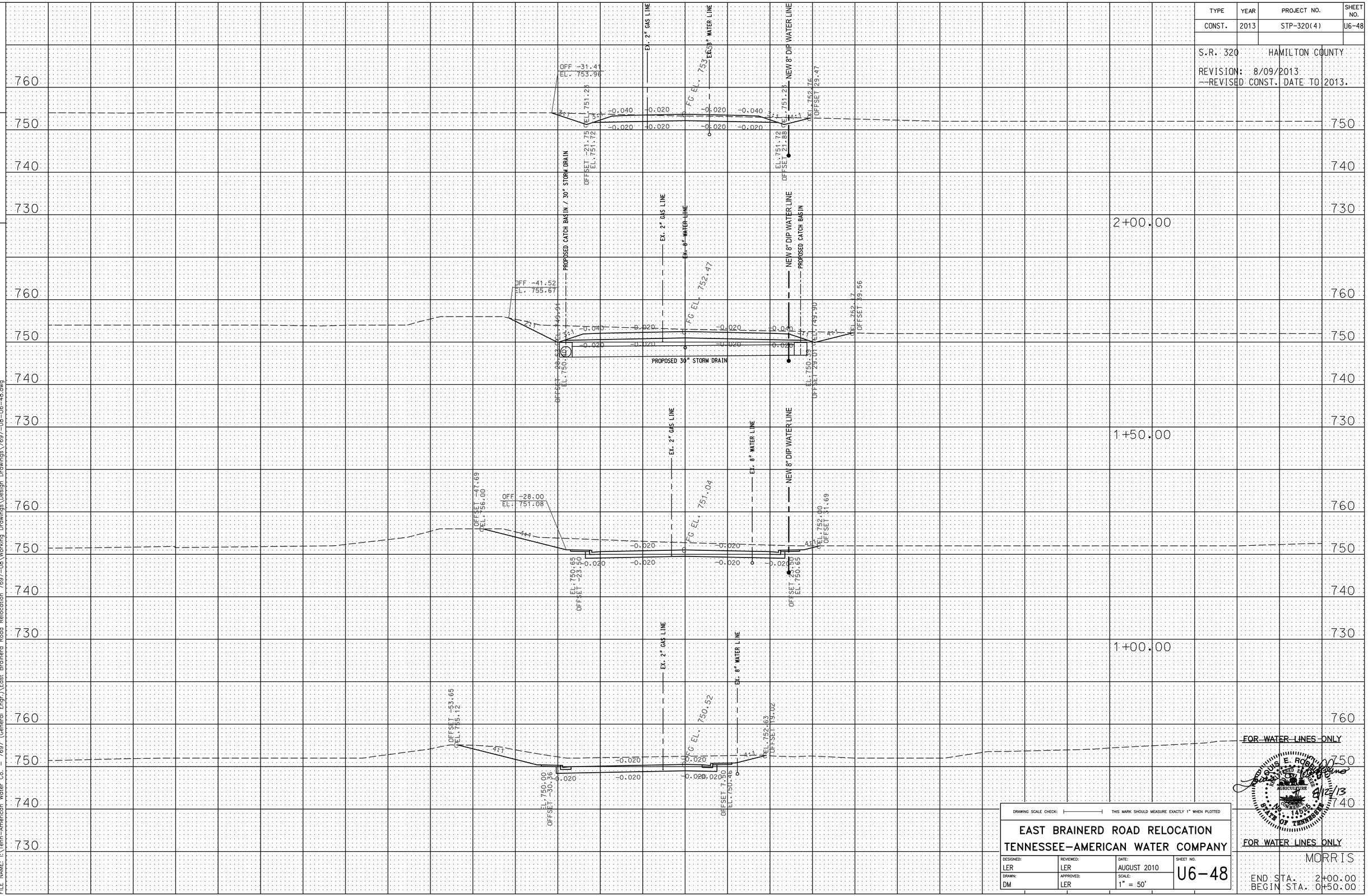
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-48

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-48
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 2:30PM
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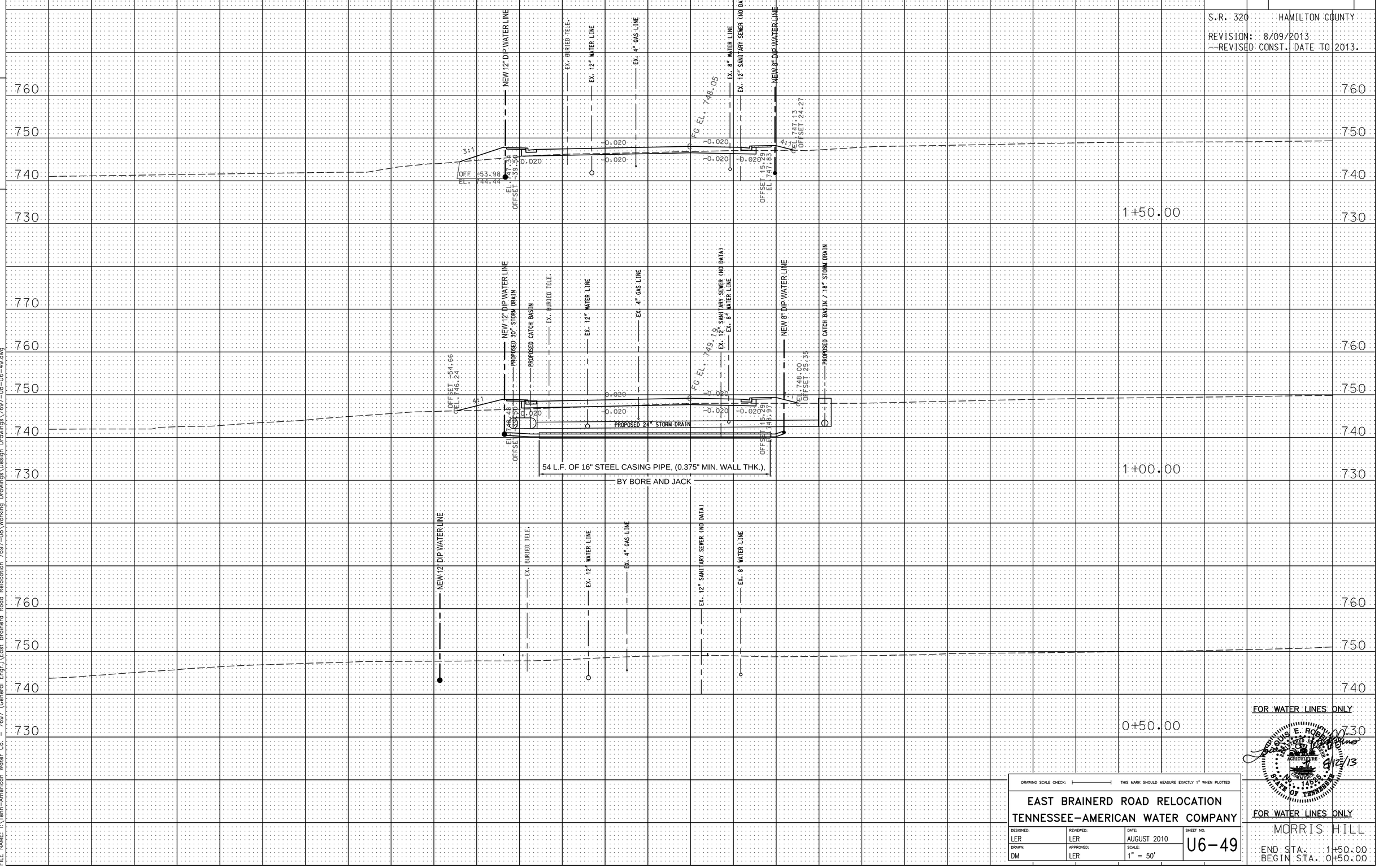
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-49

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROSENBLUM
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 14926
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

MORRIS HILL

END STA. 1+50.00
BEGIN STA. 0+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-49
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 2:32PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-49.dwg

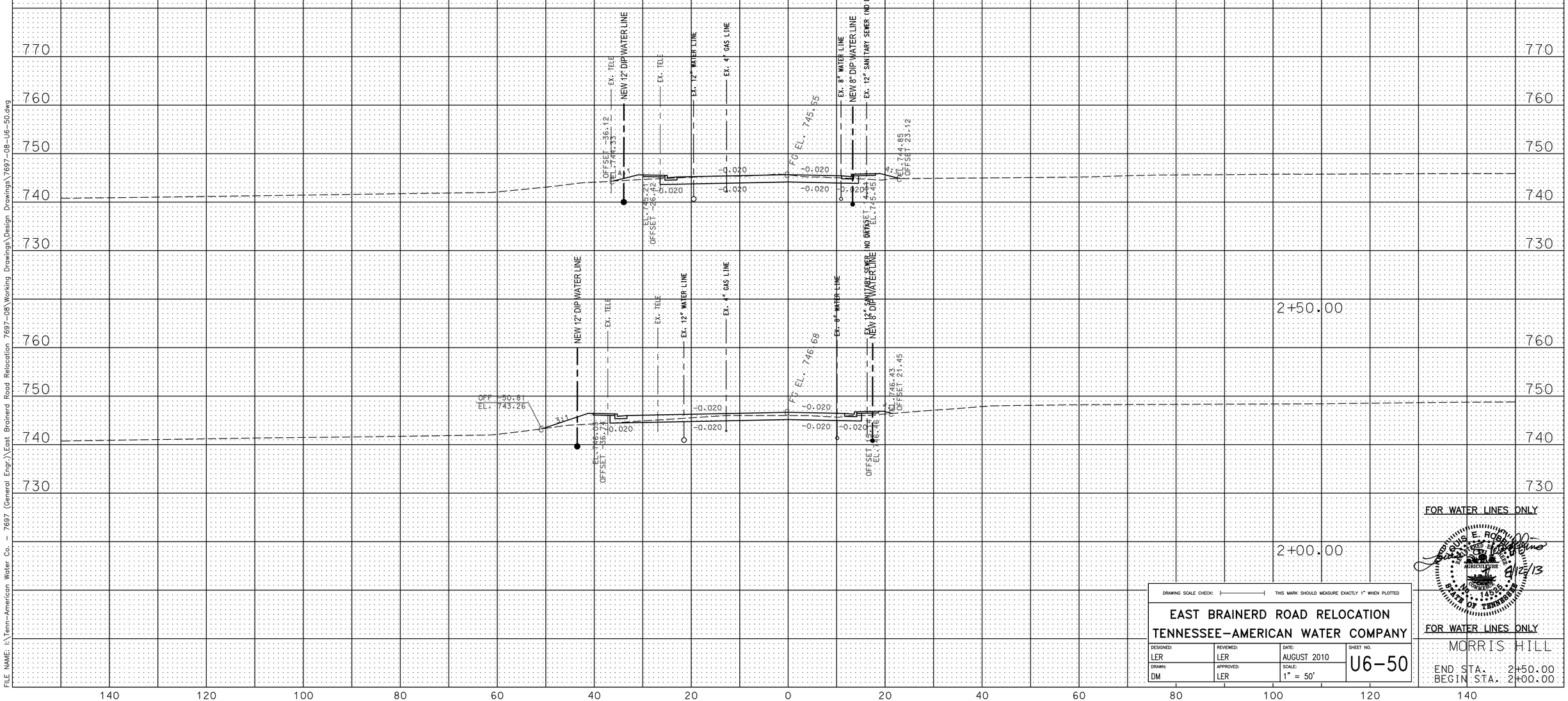
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-50

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBERTSON
REGISTERED ENGINEER
AGRICULTURE
14525
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

MORRIS HILL

END STA. 2+50.00
BEGIN STA. 2+00.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-50
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 2:33PM
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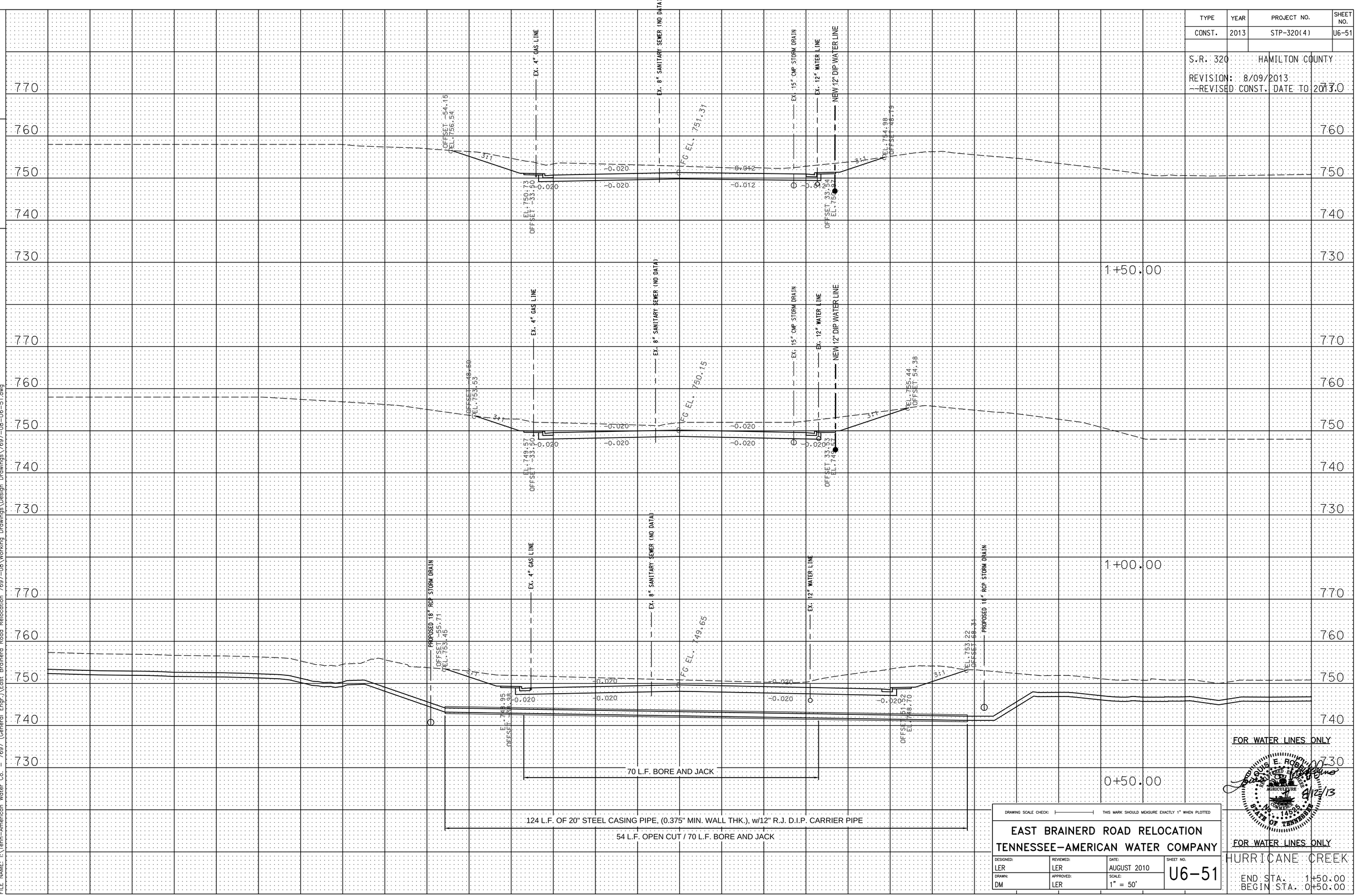
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-51

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBINSON
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
14556
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

HURRICANE CREEK

END STA. 1+50.00
BEGIN STA. 0+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-51
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

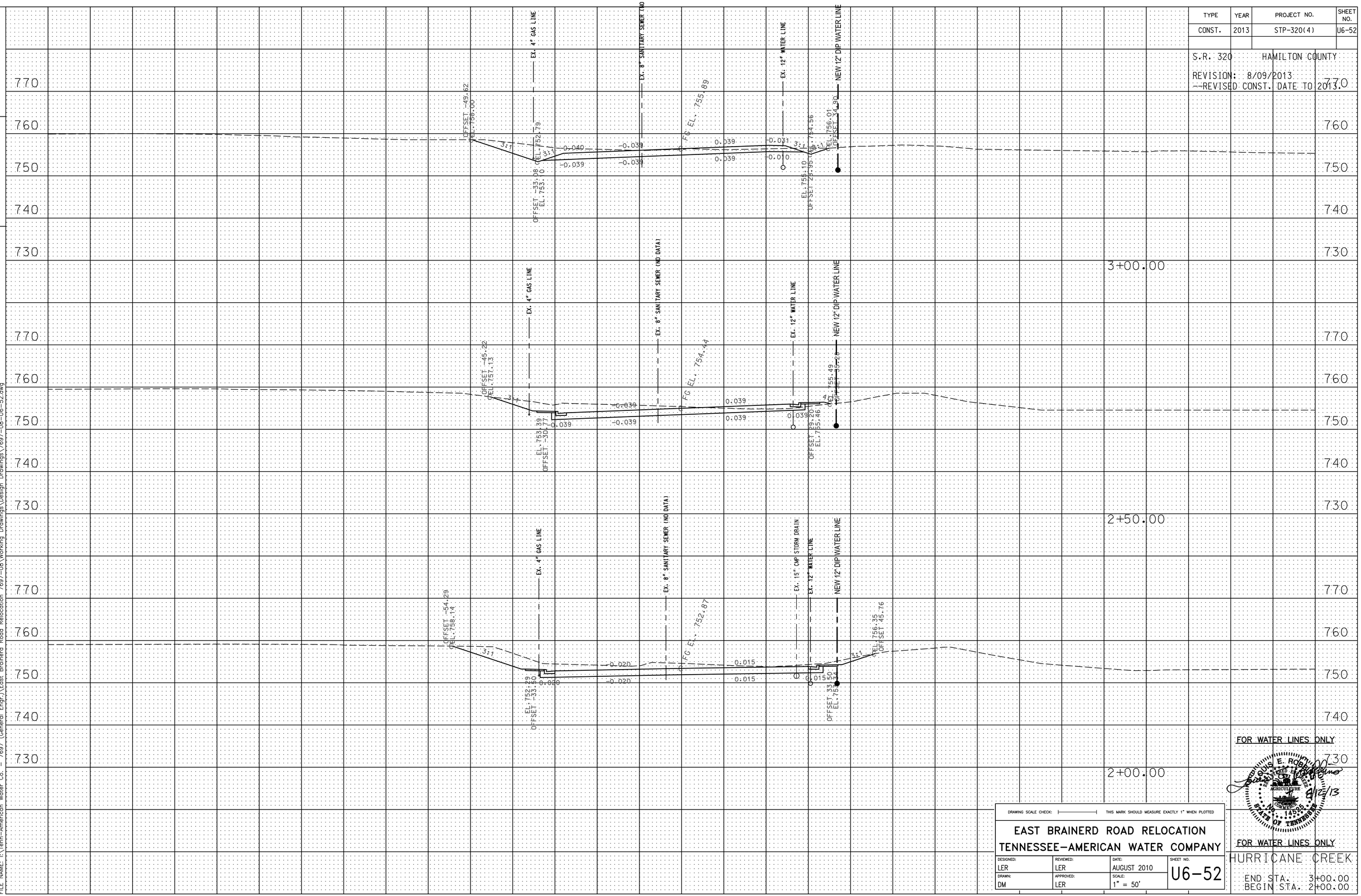
PRINTED: 8/12/2013 @ 2:35PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-51.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-52

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.



FOR WATER LINES ONLY

FOR WATER LINES ONLY

HURRICANE CREEK

END STA. 3+00.00
BEGIN STA. 2+00.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-52
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

LUIS E. ROBLES
REGISTERED ENGINEER
AGRICULTURE
14235
STATE OF TENNESSEE
8/12/13

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FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-52.dwg

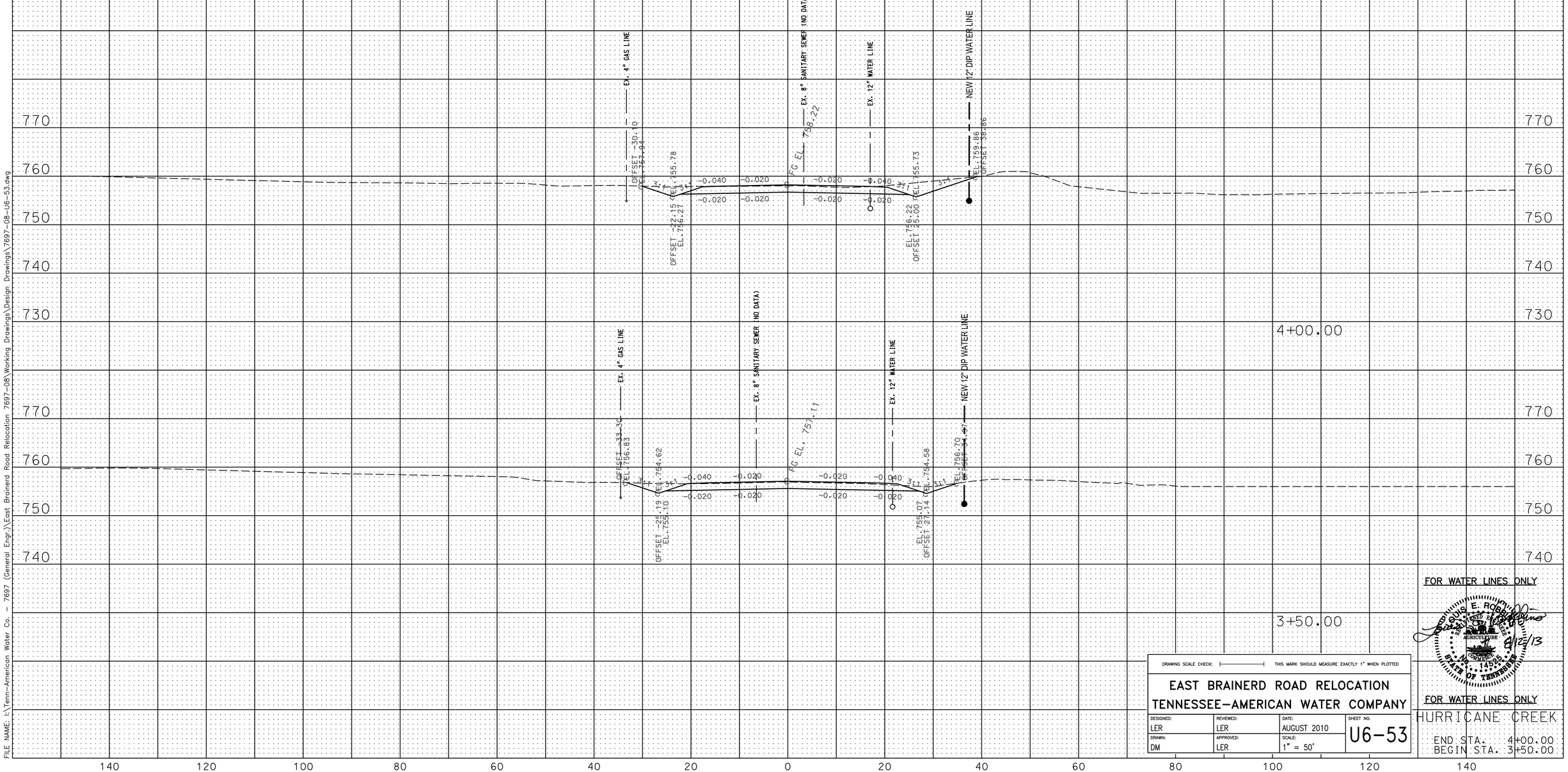
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-53

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

TENNESSEE D.O.T.
DESIGN DIVISION

FILE NO.



FOR WATER LINES ONLY

LOUIS E. ROBINSON
REGISTERED ENGINEER
AGRICULTURE
14235
STATE OF TENNESSEE
8/12/13

FOR WATER LINES ONLY

HURRICANE CREEK

END STA. 4+00.00
BEGIN STA. 3+50.00

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-53
DRAWN:	APPROVED:	SCALE:	
DM	LER	1" = 50'	

PRINTED: 8/12/2013 @ 2:36PM
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TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-54

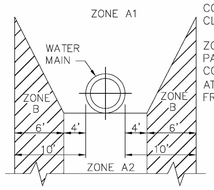
S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

SPECIAL CONSTRUCTION REQUIREMENTS

WHERE REQUIRED WATER MAIN SEPARATION FROM SEWER CANNOT BE MAINTAINED

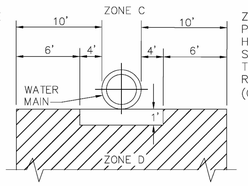
PARALLEL CONSTRUCTION



ZONE A PARALLEL CONSTRUCTION CLOSE TO PIPE

ZONE B PARALLEL CONSTRUCTION AT LEAST 4' FROM PIPE

PERPENDICULAR CONSTRUCTION



ZONE C PERPENDICULAR ABOVE OR EVEN HORIZONTAL

ZONE D PERPENDICULAR BELOW HORIZONTAL IF AN EXISTING SEWER IS LOCATED WITHIN THESE LIMITS. THE CONDITIONS REQUIREMENTS MAY APPLY (CONFIRM WITH REGULATOR)

IF AN EXISTING SEWER IS LOCATED WITHIN ZONES A1, A2, B, C, OR D OF A PROPOSED WATER MAIN, THE FOLLOWING SPECIAL REQUIREMENTS APPLY:

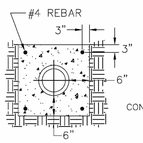
ZONE

A. NO WATER MAINS SHALL BE CONSTRUCTED WITHOUT SPECIAL PERMISSION FROM THE APPROPRIATE HEALTH OR ENVIRONMENTAL REGULATOR.

B. IF THE SEWER DOES NOT MEET ZONE B REQUIREMENTS, THE WATER MAIN SHALL BE OF PRESSURE CLASS 200 PIPE FOR PVC AND CLASS 350 FO D.I. PIPE. SEWER SHALL BE CONSTRUCTED EQUAL TO WATER PIPE AND TESTED FOR WATER TIGHTNESS.

C. NO WATER MAINS SHALL BE CONSTRUCTED WITHOUT SPECIAL PERMISSION FROM THE HEALTH REGULATOR. IF PERMISSION IS GRANTED, THE SEWER PIPE SHALL BE ENCASED WITH REINFORCED CONCRETE AND THE WATER MAIN SHALL BE OF CLASS 200 PIPE OR EQUIVALENT.

D. THE SEWER SHALL BE ENCASED WITH REINFORCED CONCRETE.



CONCRETE SHALL BE 3000 PSI CONCRETE

REQUIRED SEPARATION BETWEEN WATER MAINS AND SANITARY SEWERS

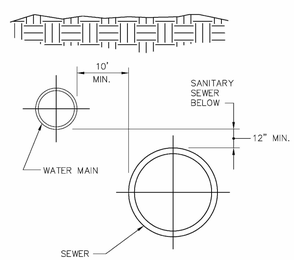
BASIC SEPARATION REQUIREMENTS:

WATER MAINS AND SEWERS SHOULD BE SEPARATED AS FAR AS IS REASONABLE IN BOTH THE HORIZONTAL AND VERTICAL DIRECTIONS WITH SEWERS LOWER THAN WATER MAINS.

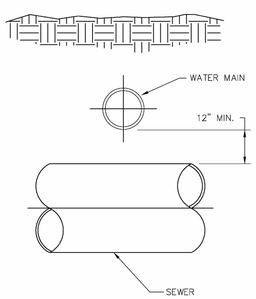
PARALLEL CONSTRUCTION: THE HORIZONTAL DISTANCE BETWEEN PRESSURE WATER MAINS AND SEWERS SHALL BE AT LEAST 10 FEET

PERPENDICULAR CONSTRUCTION (CROSSING): PRESSURE WATER MAINS SHALL BE AT LEAST 18" ABOVE SANITARY SEWERS WHERE THESE LINES MUST CROSS.

PARALLEL CONSTRUCTION



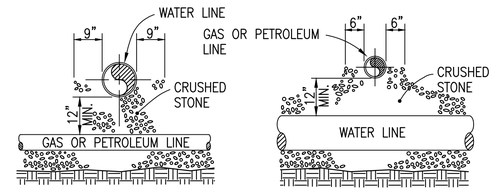
PERPENDICULAR CONSTRUCTION



TAWC DETAIL: 0201-0601-SD43

SPECIAL CONSTRUCTION REQUIREMENTS FOR WATER MAIN – DETAIL

NOT TO SCALE



WATER LINE OVER GAS TRANSMISSION LINE

WATER LINE UNDER GAS TRANSMISSION LINE

PIPE CROSSING FOR WATER LINE @ GAS MAIN

NOT TO SCALE

90° BEND						
SIZE	16"	12"	8"	6"		
	108	90	72	54		
45° BEND						
SIZE	16"	12"	8"	6"		
	54	36	36	20		
22 1/2° BEND						
SIZE	16"	12"	8"	6"		
	36	18	18	18		
11 1/4° BEND						
SIZE	16"	12"	8"	6"		
	18	18	18	18		
DEAD ENDS/VALVES						
SIZE	16"	12"	8"	6"		
	198	162	108	90		

TEE							
SIZE	MAIN	24"	24"	16"	16"	12"	12"
	BRANCH	16"	12"	16"	12"	12"	8"
		108	54	144	90	108	36

DIMENSIONS ARE IN FEET & ARE THE MINIMUM LENGTH REQUIRED ON EACH SIDE OF OF THE FITTING, UNLESS OTHERWISE NOTED.

** VERTICAL OFFSET						
22 1/2° BEND						
SIZE	16"	12"				
	54	36				
11 1/4° BEND						
SIZE	16"	12"				
	18	18				

DIMENSIONS ARE IN FEET & ARE THE MINIMUM LENGTH REQUIRED ON EACH SIDE OF OF THE FITTING, UNLESS OTHERWISE NOTED.

** USE ONLY WITH THE APPROVAL OF THE ENGINEER.

NOTES:

1. RESTRAINED JOINT PIPING TO BE USED IN CONJUNCTION WITH THRUST BLOCKS FOR FITTINGS & VALVES UNLESS OTHERWISE INDICATED.
2. RESTRAINED JOINT PIPING REQUIREMENTS DESIGNED FOR 300 p.s.i. PRESSURE, TYPE 3 LAYING CONDITION, AND ML SOIL CLASSIFICATION PER ASTM STANDARD D248 UNLESS OTHERWISE NOTED. FOR GREATER PRESSURE OR DIFFERENT LAYING AND SOIL CONDITIONS, QUANTITIES WILL HAVE TO BE RECALCULATED.
3. IF EXACT FITTING SIZE IS NOT SHOWN, USE NEXT LARGER SIZE
4. VERTICAL DOWNWARD FITTINGS WILL NOT BE ACCEPTABLE ON 12" AND LARGER LINES UNLESS APPROVED BY THE ENGINEER IN AREAS WHERE AVOIDANCE OF USE COULD NOT BE ACCOMPLISHED. WHERE VERTICAL DOWNWARD FITTINGS ARE APPROVED FOR USE, REQUIREMENTS FOR RESTRAINED JOINT PIPING SHALL BE FOLLOWED. 90° AND 45° BENDS WILL NOT BE ACCEPTABLE. THE SMALLEST ANGLE POSSIBLE SHALL BE USED.

RESTRAINED JOINT PIPING REQUIREMENTS

NOT TO SCALE

GRW PROJECT NO. 7697-08

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

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GRW Engineers, Inc.
Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-54
DRAWN: DM	APPROVED: LER	SCALE: NOT TO SCALE	

LOUIS E. RODRIGUEZ JR. REGISTERED ENGINEER AGRICULTURE COMMERCE No. 14525 STATE OF TENNESSEE 8/12/13

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS

STANDARD WATER LINE CONSTRUCTION DETAILS

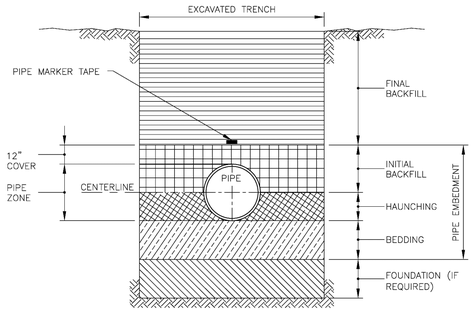
PRINTED: 8/12/2013 @ 2:39PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-54.dwg

TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-55

S.R. 320 HAMILTON COUNTY

REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.



TRENCH TERMINOLOGY

FOUNDATION: A FOUNDATION IS NECESSARY ONLY WHEN NATIVE SOILS ARE UNSTABLE. FOR SUCH CONDITIONS, THE TRENCH IS OVER-EXCAVATED AND A LAYER OF SUPPORTIVE MATERIAL IS PLACED AND COMPACTED TO PROVIDE A FIRM FOUNDATION FOR THE SUBSEQUENT PIPE EMBEDMENT MATERIALS.

EMBEDMENT: THIS ZONE IS THE MOST IMPORTANT IN TERMS OF PIPE PERFORMANCE. IT IS DIVIDED INTO THE FOLLOWING SUB ZONES:

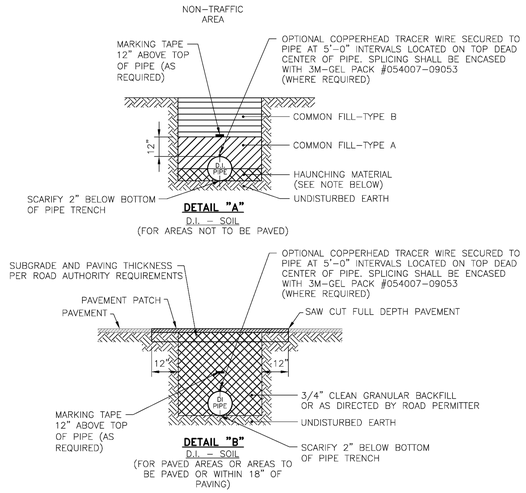
- BEDDING: TYPICALLY SIX INCHES OF SUPPORTIVE, COMPACTED MATERIAL. THIS ZONE PROVIDES EVEN SUPPORT FOR THE PIPE AND BRINGS IT TO GRADE.
- HAUNCHING: EXTENDS FROM THE BOTTOM OF THE PIPE TO THE CENTERLINE OF THE PIPE. IT PROVIDES THE MOST RESISTANCE TO PIPE DEFLECTION. SPECIFYING PROPER MATERIALS AND COMPACTION ARE MOST IMPORTANT FOR THIS ZONE.
- INITIAL BACKFILL: EXTENDS FROM THE SPRINGLINE TO A POINT ABOVE THE TOP OF THE PIPE. THIS ZONE PROVIDES SOME PIPE SUPPORT AND HELPS TO PREVENT DAMAGE TO THE PIPE DURING PLACEMENT OF THE FINAL BACKFILL. THE COVER EXTENDS FROM THE TOP OF THE PIPE TO THE TOP OF THE INITIAL BACKFILL. THE DEPTH OF COVER SHOULD BE AS MUCH AS NECESSARY TO PROTECT THE PIPE DURING PLACEMENT OF THE FINAL BACKFILL. TWELVE INCHES IS A COMMON DEPTH OF COVER.

FINAL BACKFILL: THIS ZONE EXTENDS FROM THE TOP OF THE INITIAL BACKFILL TO THE TOP OF THE TRENCH. THIS ZONE HAS LITTLE INFLUENCE ON PIPE PERFORMANCE, BUT CAN BE IMPORTANT TO THE INTEGRITY OF ROADS AND STRUCTURES.

TAWC DETAIL: 0201-0601-SD53

PIPE TRENCH TERMINOLOGY DETAIL

NOT TO SCALE



NOTE: SEE SPECIFICATION SECTION 02210 FOR DESCRIPTION OF BACKFILL AND BEDDING MATERIAL.

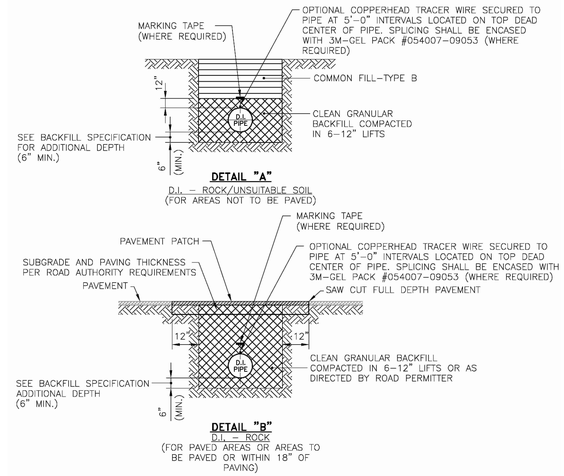
NOTES:

1. CAUTION MUST BE EXERCISED TO ENSURE PROPER PLACEMENT OF EMBEDMENT MATERIAL UNDER THE HAUNCHES OF THE PIPE.
2. POLYETHYLENE ENCASING ON ALL D.I. PIPE, FITTINGS, VALVES & APPURTENANCES IN CORROSIVE SOILS.

TAWC DETAIL: 0201-0601-SD55

TRENCH - D.I. PIPE IN SOIL DETAIL

NOT TO SCALE



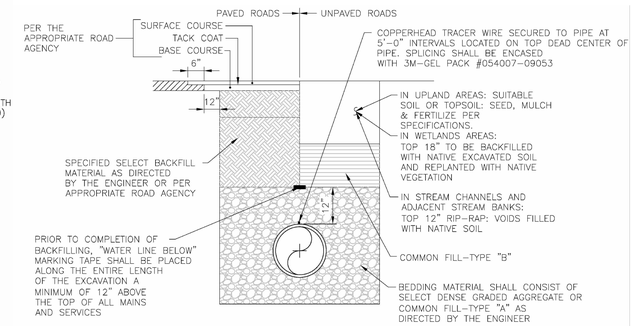
NOTES: NOTE: SEE SPECIFICATION SECTIONS FOR DESCRIPTION OF BACKFILL AND BEDDING MATERIAL.

1. CAUTION MUST BE EXERCISED TO ENSURE PROPER PLACEMENT OF EMBEDMENT MATERIAL UNDER THE HAUNCHES OF THE PIPE.
2. POLYETHYLENE ENCASING ON ALL D.I. PIPE, FITTINGS, VALVES & APPURTENANCES
3. CLEAN GRANULAR BACKFILL SHALL BE AS SPECIFIED IN CONTRACT DOCUMENTS.

TAWC DETAIL: 0201-0601-SD56

TRENCH - D.I. PIPE IN ROCK DETAIL

NOT TO SCALE



NOTE:

ALL BEDDING AND BACKFILL MATERIALS SHALL BE PROVIDED, PLACED AND COMPACTED IN SPECIFIED LIFTS IN ACCORDANCE WITH THE ENGINEER'S DIRECTION OR THE REQUIREMENTS OF THE REGULATING AGENCY HAVING JURISDICTION IF MORE STRINGENT

TAWC DETAIL: 0201-0601-SD58

TRENCH RESTORATION DETAIL

NOT TO SCALE

NOTES:

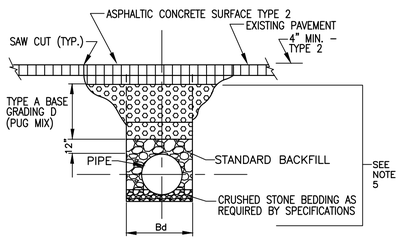
1 THE CONTRACTOR SHALL BE RESPONSIBLE FOR BACKFILLING WITH CRUSHED STONE, TYPE A BASE, GRADING D (PVC MIX), AND APPLYING PAVING (AT LOCATIONS DESIGNATED IN THE FIELD BY THE ENGINEER). DUST CONTROL, AND OTHER MANTENANCE PROCEDURES SPECIFIED OR AS SHOWN ON THE DRAWINGS. NO SEPARATE PAYMENT SHALL BE MADE FOR DUST CONTROL, OTHER TRENCH MAINTENANCE PROCEDURES, OR REPLACEMENT OF DAMAGED DRIVEWAYS AND CURBS NOT OVER A SEWER OR SERVICE LINE TRENCH. PAYMENT FOR PAVING, CRUSHED STONE AND CRUSHER RUN BACKFILL SHALL BE MADE AT THE UNIT PRICES FOR THOSE ITEMS OF WORK IN THE BID SCHEDULE.

2 WHEN LAYING SEWER IN THE STREET, THE PAVEMENT SHOULD BE CUT WITH A SAW.

3 CONTRACTOR SHALL NOT HAVE MORE THAN 500 FEET OF ROADWAY TRENCH OPEN AT ANY ONE TIME.

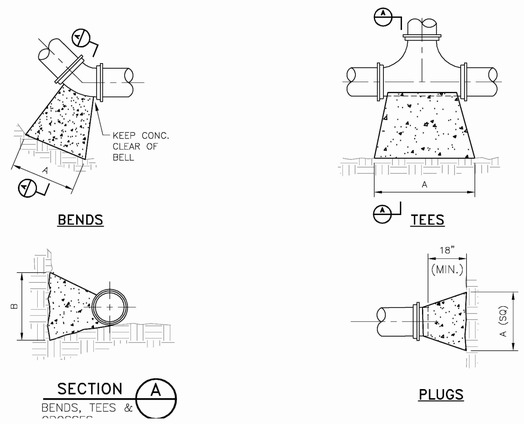
4 TYPE 2 PAVEMENT SHALL BE USED IN STREETS. TYPE 2 PAVEMENT SHALL BE TDOT SECTION 307, GRADING B MIXTURE.

5 SEE DETAILS FOR STANDARD BEDDING AND BACKFILLING FOR WATER LINES.



PAVEMENT REPLACEMENT DETAIL

NOT TO SCALE



REQUIRED BEARING AREA ON UNDISTURBED SOIL AND TYPICAL DIMENSIONS														
PIPE SIZE	90 DEGREE BENDS			45 DEGREE BENDS			11.25 DEGREE BENDS			22.5 DEGREE BENDS			TEES/PLUGS		
	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"	AREA (sq ft)	"A"	"B"
6	5.3	43"	18"	2.9	23"	18"	0.7	6"	18"	1.5	12"	18"	3.7	30"	18"
8	9.2	55"	24"	5.0	30"	24"	1.3	8"	24"	2.5	15"	24"	6.4	39"	24"
10	13.8	66"	30"	7.5	36"	30"	1.9	9"	30"	3.8	18"	30"	9.7	46"	30"
12	19.4	78"	36"	10.6	42"	36"	2.7	11"	36"	5.3	21"	36"	13.8	55"	36"
14	26.0	89"	42"	14.0	48"	42"	3.6	12"	42"	7.2	25"	42"	18.5	63"	42"
16	33.7	101"	48"	18.3	55"	48"	4.7	14"	48"	9.4	28"	48"	23.9	72"	48"

Area in square feet "A" and "B" in inches
Bearing table area is based on 200 psi maximum with soil bearing capacity of 2000 lbs/square foot.
For higher water pressures or lower soil pressures, consult Engineer for adjustments.
Bearing table area does not include a safety factor.
A safety factor and additional bearing area may be required as directed by the Engineer.

TAWC DETAIL: 0201-0601-SD6

THRUST BLOCK DETAILS

NOT TO SCALE

NOTES:

1. COVER OVER TOP OF PIPE SHALL BE BELOW FROST LINE OR 30" MINIMUM 72" MAXIMUM ACCORDING TO REGULATORY REQUIREMENTS. IF GRADING PLANS RECEIVED BY THE ENGINEER/OWNER WITH THE REQUEST FOR WATER MAIN LAYOUT, INDICATE ADJUSTMENTS TO EXISTING GRADE, THEN PIPE SHALL BE INSTALLED TO MEET MINIMUM AND MAXIMUM COVER FROM PROPOSED GRADES SHOWN ON SAID PLANS.
2. THRUST BLOCKS SHALL BE BUILT AGAINST UNDISTURBED SOIL WITH ADEQUATE BACKING TO PREVENT MOVEMENT OF FITTING.
3. NO THRUST BLOCKS TO BE PLACED IN SEWER LATERAL DITCHES,.
4. THRUST BLOCKING MUST FIT IN EASEMENT, IN SOME CASES ADDITIONAL RESTRAINT MAY BE REQUIRED.
5. BASED ON 200 PSI (150 PSI STATIC PRESSURE PLUS 50 PSI WATER HAMMER) AND 2000 PSF SOIL BEARING.
6. POLYETHYLENE ENCASEMENT ON ALL D.I. PIPE AND FITTINGS.
7. PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE.
8. ALLOW SUFFICIENT CLEARANCE BETWEEN CONCRETE AND BOLTS FOR FUTURE MAINTENANCE.
9. ALL ANCHOR BOLTS SHALL BE COR-BLUE, MINIMUM 1/2" DIAMETER. COAT EXPOSED ROD WITH ASPHALT CEMENT AFTER CONCRETE HAS SET.
10. ALL M.J. AND FLG. FITTINGS TO RECEIVE THRUST BLOCKS SHALL HAVE THE FASTENER AREAS FELT WRAPPED AND TAPED PRIOR TO THE CONCRETE POUR TO ALLOW FUTURE ACCESS TO THE FASTENERS AT THE JOINTS.
11. THRUST BLOCKING DETAILS ARE SHOWN HERE FOR TYPICAL INSTALLATIONS. IN SOME CASES, ADDITIONAL RESTRAINT MAY BE REQUIRED.
12. PORTLAND CEMENT CONCRETE USED FOR THRUST BLOCKS SHALL BE MIN 3000 PSI CONCRETE.
13. FOR UNSTABLE SOIL CONDITIONS, CHECK WITH ENGINEER FOR THRUST BLOCK DIMENSIONS.
14. FOR MAIN SIZES GREATER THAN 16", SEE ENGINEER FOR THRUST BLOCK DIMENSIONS.

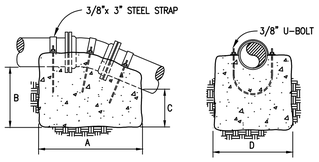
90° BEND						
SIZE	16"	12"	10"	8"	6"	4"	2"
A	85	67	60	54	42	34	30
B	85	67	60	54	42	34	18
C	80	63	56	50	38	30	16
D	76	66	60	48	48	36	24

45° BEND						
SIZE	16"	12"	10"	8"	6"	4"	2"
A	72	60	50	46	35	30	24
B	72	60	50	46	35	28	24
C	68	56	46	42	30	24	18
D	72	60	60	48	48	36	24

22 1/2° BEND						
SIZE	16"	12"	10"	8"	6"	4"	2"
A	58	50	42	38	30	24	18
B	58	48	42	38	30	24	18
C	54	44	38	34	26	20	14
D	60	48	48	36	36	30	24

11 1/4° BEND						
SIZE	16"	12"	10"	8"	6"	4"	2"
A	42	36	30	29	24	20	18
B	42	36	30	29	24	20	18
C	38	32	26	24	20	16	14
D	60	48	48	36	30	24	24

DIMENSIONS ARE IN INCHES



NOTES:

1. POUR CLASS C CONCRETE ANCHOR AGAINST UNDISTURBED EARTH OR ROCK.
2. IF EXACT SIZE PIPE IS NOT SHOWN, USE NEXT LARGER SIZE.
3. VERTICAL CONCRETE ANCHOR DESIGNED FOR 150 PSI FOR GREATER PRESSURE, QUANTITIES WILL HAVE TO BE RECALCULATED.

VERTICAL CONCRETE ANCHOR

NOT TO SCALE

GRW PROJECT NO. 7697-08

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

ALL RIGHTS RESERVED:
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GRW Engineers, Inc.
Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE-AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6-55
DRAWN: DM	APPROVED: LER	SCALE: NOT TO SCALE	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS

STANDARD WATER LINE CONSTRUCTION DETAILS

SCALE: AS NOTED

PRINTED: 8/12/2013 @ 2:40PM
FILE NAME: I:\Tenn-American Water Co. - 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-55.dwg

TENNESSEE D.O.T.	DESIGN DIVISION	FILE NO.

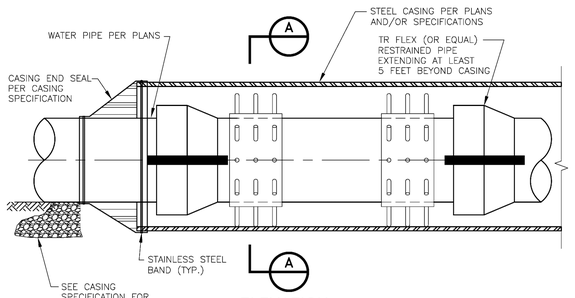
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U6-56

S.R. 320 HAMILTON COUNTY

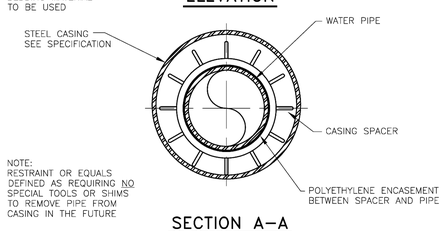
REVISION: 8/09/2013
--REVISED CONST. DATE TO 2013.

NOTES:

1. THIS STANDARD APPLICABLE FOR 4" DIA. AND LARGER PIPE.

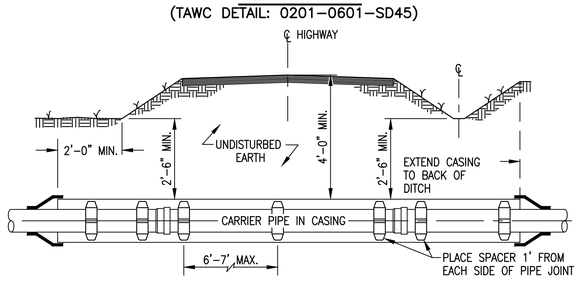


ELEVATION



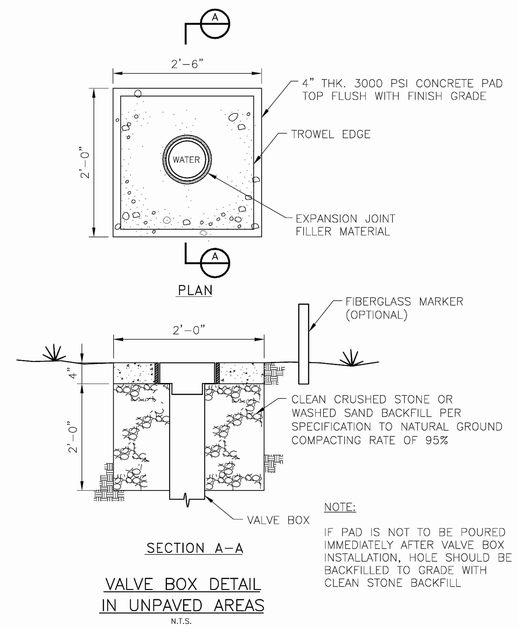
SECTION A–A
(TAWC DETAIL: 0201–0601–SD45)

1. USE WATERTIGHT WRAP AROUND END SEALS WITH STAINLESS STEEL BANDS.
2. SMOOTH WALL STEEL CASING PIPE WITH BITUMINOUS COATING INSIDE & OUT.
3. CASING SPACERS SHALL BE STAINLESS STEEL TYPE INSTALLED IN A CENTERED/RESTRAINED CONFIGURATION. USE PSI MODEL S8G-2, APS MODEL SSIM OR APPROVED EQUAL FOR 4" THRU 24" DIA. CARRIER PIPES. USE PSI MODEL S12G-2, APS MODEL SSIM OR APPROVED EQUAL FOR 26" DIA. AND LARGER CARRIER PIPES.
4. SPACER RISERS/RUNNERS SHALL BE SIZED AND TRIMMED TO MAINTAIN 1/2" MAXIMUM CLEARANCE BETWEEN RUNNER AND CASING PIPE.
5. CARRIER PIPE IN ALL CASING SHALL BE DUCTILE IRON WITH LOCKING GASKETS.



TYPICAL DETAIL OF HIGHWAY CROSSING W/CASING AND CARRIER PIPE

NOT TO SCALE



NOTE:
IF PAD IS NOT TO BE POURED IMMEDIATELY AFTER VALVE BOX INSTALLATION, HOLE SHOULD BE BACKFILLED TO GRADE WITH CLEAN STONE BACKFILL

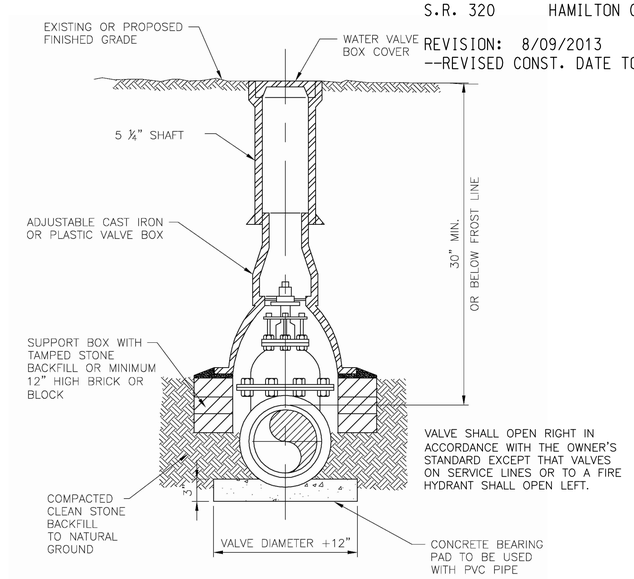
VALVE BOX DETAIL IN UNPAVED AREAS

N.T.S.

TAWC DETAIL: 0201–0601–SD60

CONCRETE VALVE BOX PAD DETAIL

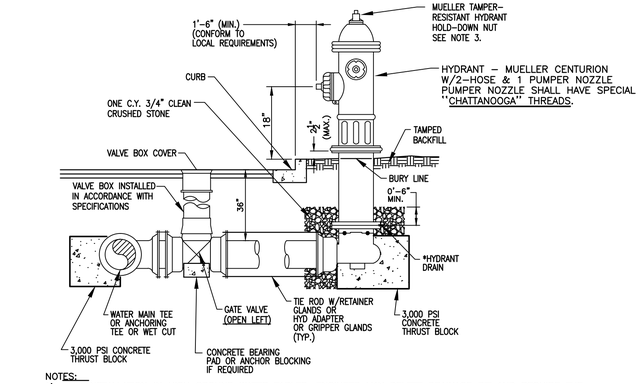
NOT TO SCALE



TAWC DETAIL: 0201–0601–SD61

OPTIONAL VALVE BOX INSTALLATION FROST AREAS – DETAIL

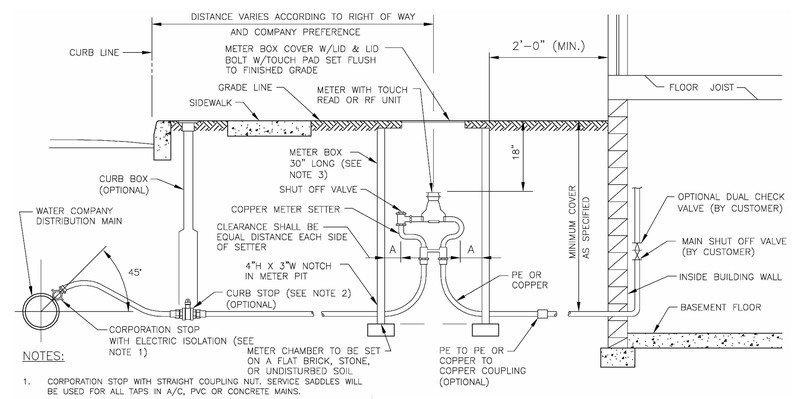
NOT TO SCALE



NOTES:
1). FOR INSTALLATION IN HIGH GROUND WATER TABLES, ENGINEER MAY DELETE DRAINAGE PIT AND REQUIRE THE HYDRANT DRAIN TO BE PLUGGED.
2). PROVIDE FITTINGS ON LATERAL PIPING AS INDICATED ON PLANS OR AS NECESSARY TO AVOID OBSTRUCTIONS.
3). HOLD-DOWN NUT SHALL BE MUELLER TAMPER RESISTANT HOLD-DOWN NUT, OPTION 4, PN#143112 FOR CENTURION HYDRANT, OPEN LEFT.

HYDRANT ASSEMBLY DETAIL

NOT TO SCALE



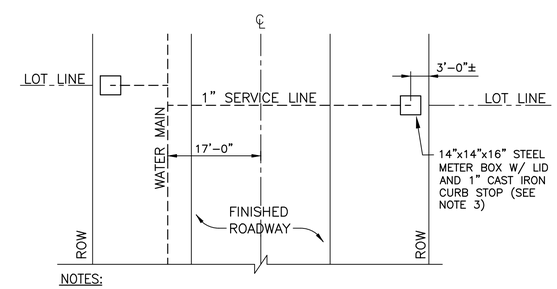
NOTES:

1. CORPORATION STOP WITH STRAIGHT COUPLING NUT. SERVICE SADDLES WILL BE USED FOR ALL TAPS IN A/C, PVC OR CONCRETE MAINS.
2. MATERIAL UTILIZED SHOULD BE TYPE "K" (OR "L" COPPER IF PERMITTED) WITH A COPPER TO COPPER CURB STOP, BOTH ENDS COMPRESSION FITTING, POLYETHYLENE ENCASE AS REQUIRED.
3. 18" I.D. CHAMBER FOR USE WITH 5/8" METER. 20" I.D. CHAMBER FOR USE WITH 1" METER. SQUARE METER PITS MAY BE USED IF LOCAL PREFERENCE EXISTS.
4. METER BOX LOCATION TO BE DETERMINED BY LOCAL AUTHORITY AND AWW.
5. SERVICE LINE AND METER BOX OWNERSHIP VARIES BY LOCAL TARIFF.
6. POLYWRAP SERVICE FROM MAIN TO METER PIT IF SOIL IS CORROSIVE.
7. IN HEAVY FROST AREAS, A PLASTIC INNER LID AND BLANKET CAN BE USED.
8. CONNECTIONS BETWEEN PIPE LENGTHS SHALL BE COMPRESSION OR FLARE AND MAY DEPEND ON LOCAL PLUMBING REQUIREMENT.

TAWC DETAIL: 0201–0601–SD47

EXTERIOR 3/4" WATER METER/COPPER SERVICE FROST AREA INSTALLATION – DETAIL

NOT TO SCALE



NOTES:
1. COPPERSETTER AND METER TO BE PROVIDED AND INSTALLED BY T.A.W.C. WHEN NEEDED.
2. T.A.W.C. REQUIRES LATERAL ON LONG SIDE AND SHORT SIDE AT EVERY OTHER LOT LINE.
3. CURB STOP TO BE MUELLER COMPRESSION H–1503, FORD FB400 THRU FB1600, OR EQUAL.

SERVICE LINE DETAIL

NOT TO SCALE

LOUIS E. ROBINSON JR. REGISTERED ENGINEER AGRICULTURE COMMERCE No. 145225 STATE OF TENNESSEE 8/12/13

GRW PROJECT NO. 7697–08

DRAWING SCALE CHECK: THIS MARK SHOULD MEASURE EXACTLY 1" WHEN PLOTTED

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GRW Engineers, Inc.
Engineers, Architects, Planners

TENNESSEE AMERICAN WATER

EAST BRAINERD ROAD RELOCATION
TENNESSEE–AMERICAN WATER COMPANY

DESIGNED:	REVIEWED:	DATE:	SHEET NO.
LER	LER	AUGUST 2010	U6–56
DRAWN: DM	APPROVED: LER	SCALE: 1" = 50'	

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

WATER LINE RELOCATIONS

STANDARD WATER LINE CONSTRUCTION DETAILS

SCALE: AS NOTED

PRINTED: 8/12/2013 @ 2:41PM
FILE NAME: I:\Tenn-American Water Co. – 7697 (General Engr.)\East Brainerd Road Relocation 7697-08\Working Drawings\Design Drawings\7697-08-U6-56.dwg

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U7-1

S.R. 320 HAMILTON CO.

UTILITIES INDEX

SHEET NAME	SHEET NUMBER
ESTIMATED QUANTITIES	U7-1
FROM STATION 227+19.16 TO STATION 250+00	U7-2
FROM STATION 250+00 TO STATION 277+83	U7-3
FROM STATION 277+83 TO STATION 305+00	U7-4
FROM STATION 305+00 TO STATION 337+10	U7-5

***Contractor to have current operator qualifications from Chattanooga Gas Company and follow all guidelines as stated in the AGL Resources Operations Procedure Manual (OPM).

***All materials used on this project are to be AGL Resources approved materials.

ESTIMATED UTILITY QUANTITIES

ITEM NO.	DESCRIPTION	Project No. 1: UNIT	QUANTITY	% Utility	% Project
791-02.02	2IN MEDIUM-DENSITY POLYETHYLENE GAS MAIN	L.F.	1,585	0 %	100 %
791-02.04	4IN MEDIUM-DENSITY POLYETHYLENE GAS MAIN	L.F.	1,475	0 %	100 %
791-02.05	6IN MEDIUM-DENSITY POLYETHYLENE GAS MAIN	L.F.	10,975	0 %	100 %
791-06.02	CONNECT TO 2IN EXISTING POLYETHYLENE MAIN	EACH	5	0 %	100 %
791-06.03	CONNECT TO 4IN EXISTING POLYETHYLENE MAIN	EACH	1	0 %	100 %
791-06.10	CONNECT TO 2IN EXISTING STEEL MAIN	EACH	1	0 %	100 %
791-06.11	CONNECT TO 4IN EXISTING STEEL MAIN	EACH	4	0 %	100 %
791-06.12	CONNECT TO 6IN EXISTING STEEL MAIN	EACH	2	0 %	100 %
791-07.01	2IN PE GAS VALVE ASSEMBLY	EACH	6	0 %	100 %
791-07.02	4IN PE GAS VALVE ASSEMBLY	EACH	4	0 %	100 %
791-07.03	6IN PE GAS VALVE ASSEMBLY	EACH	2	0 %	100 %
791-8.01	1/2IN SERVICE ASSEMBLY	EACH	10	0 %	100 %
791-8.04	1-1/4IN SERVICE ASSEMBLY	EACH	85	0 %	100 %
791-8.05	2IN SERVICE ASSEMBLY	EACH	20	0 %	100 %
791-9.02	3-WIRE CATHODIC PROTECTION STATION	EACH	3	0 %	100 %
791-9.03	17LB MAGNESIUM ANODES	EACH	20	0 %	100 %
791-9.05	RESTORE ASPHALT	S.Y.	50	0 %	100 %
791-9.06	RESTORE CONCRETE	S.Y.	50	0 %	100 %
791-10.01	RETIRE IN PLACE 3/4IN SERV CUT & PLUG	EACH	100	0 %	100 %
791-10.03	RETIRE IN PLACE 1-1/4IN SERV CUT & PLUG	EACH	15	0 %	100 %
791-10.04	RETIRE IN PLACE 2IN SERV CUT & PLUG	EACH	6	0 %	100 %
791-10.05	RETIRE IN PLACE 4IN SERV CUT & PLUG	EACH	5	0 %	100 %
791-10.06	RETIRE IN PLACE 6IN SERV CUT & PLUG	EACH	2	0 %	100 %

CHATTANOOGA GAS COMPANY
10 PEACHTREE PLACE, 11TH FLOOR
ATLANTA, GA 30309
JONATHAN TODD
404-584-3186 (O)
404-694-1220 (C)
JTODD@AGLRESOURCES.COM

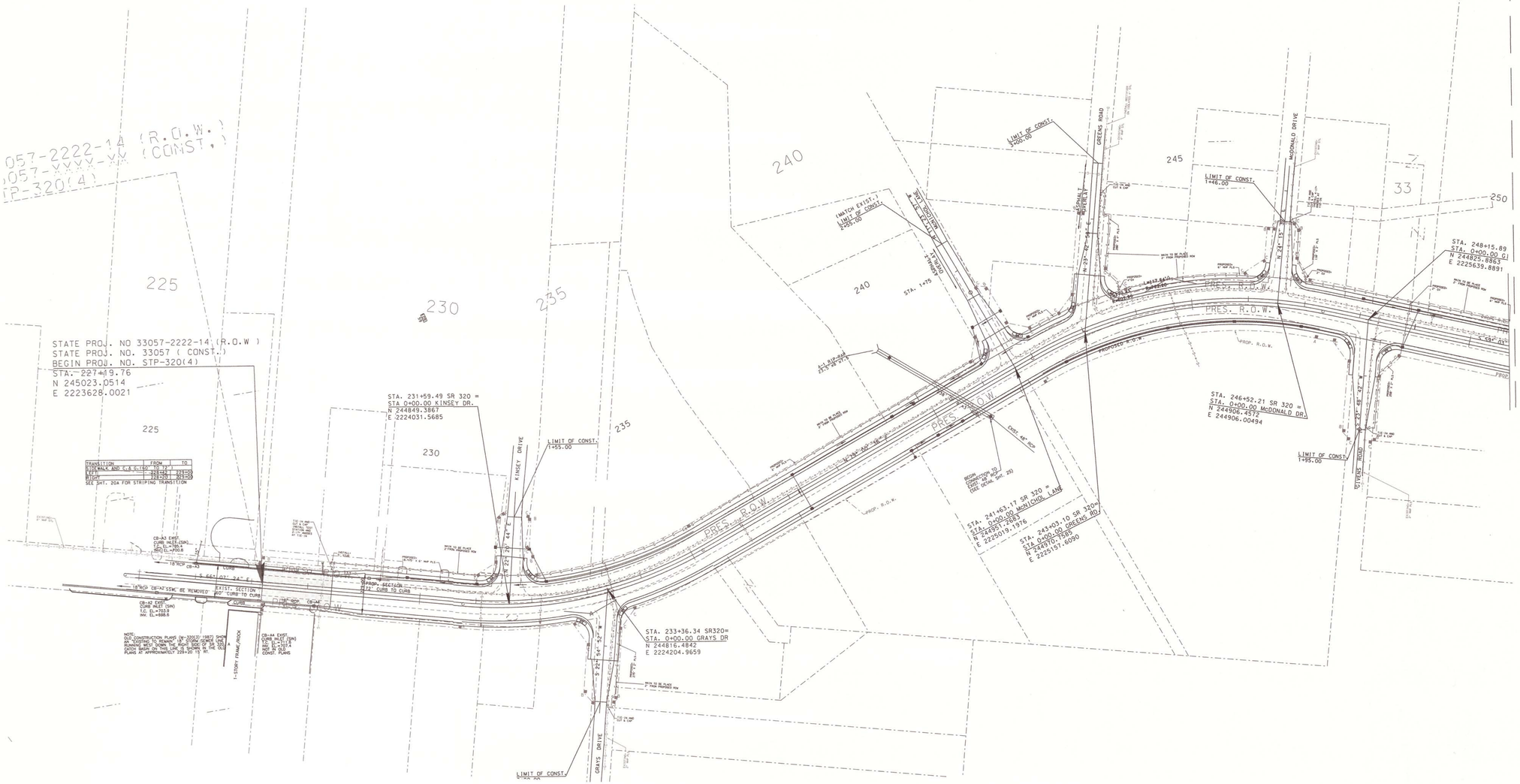
DANIEL T. COOK
REGISTERED ENGINEER
No. 113551
STATE OF TENNESSEE
8-16-13

CHATTANOOGA GAS

GAS RELOCATION

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U7-2

S.R. 320 HAMILTON CO.



DANIEL T. COOK
REGISTERED ENGINEER
AGRICULTURE COMMERCE
No. 113654
STATE OF TENNESSEE

8-16-13

CHATTANOOGA GAS

GAS RELOCATION

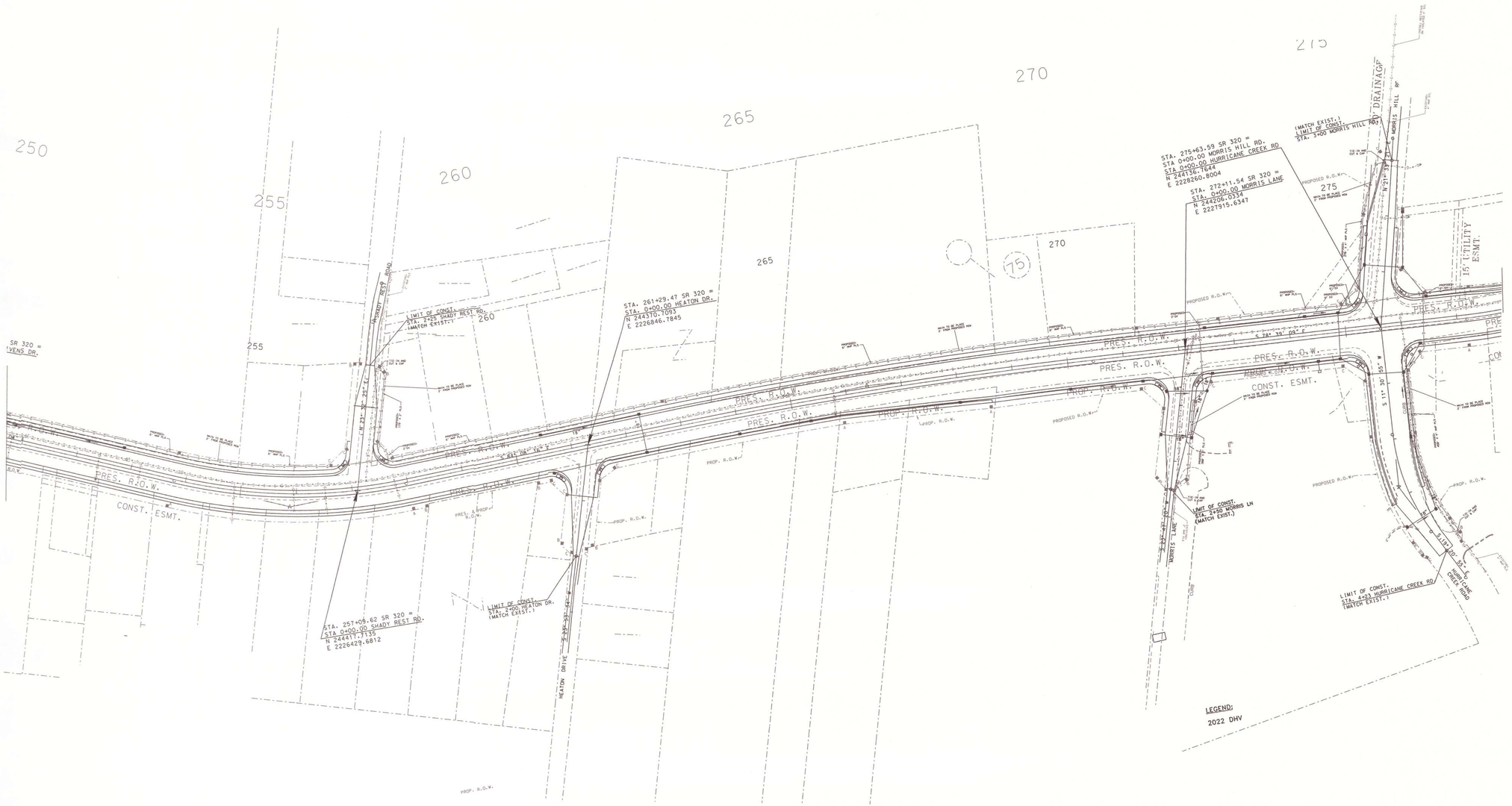
STA.227+19.76 TO STA.250+00

SCALE: 1"=100'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U7-3

S.R. 320

HAMILTON CO.



DANIEL T. COOK
REGISTERED ENGINEER
No. 113554
STATE OF TENNESSEE

8-16-17

CHATTANOOGA GAS

GAS RELOCATION

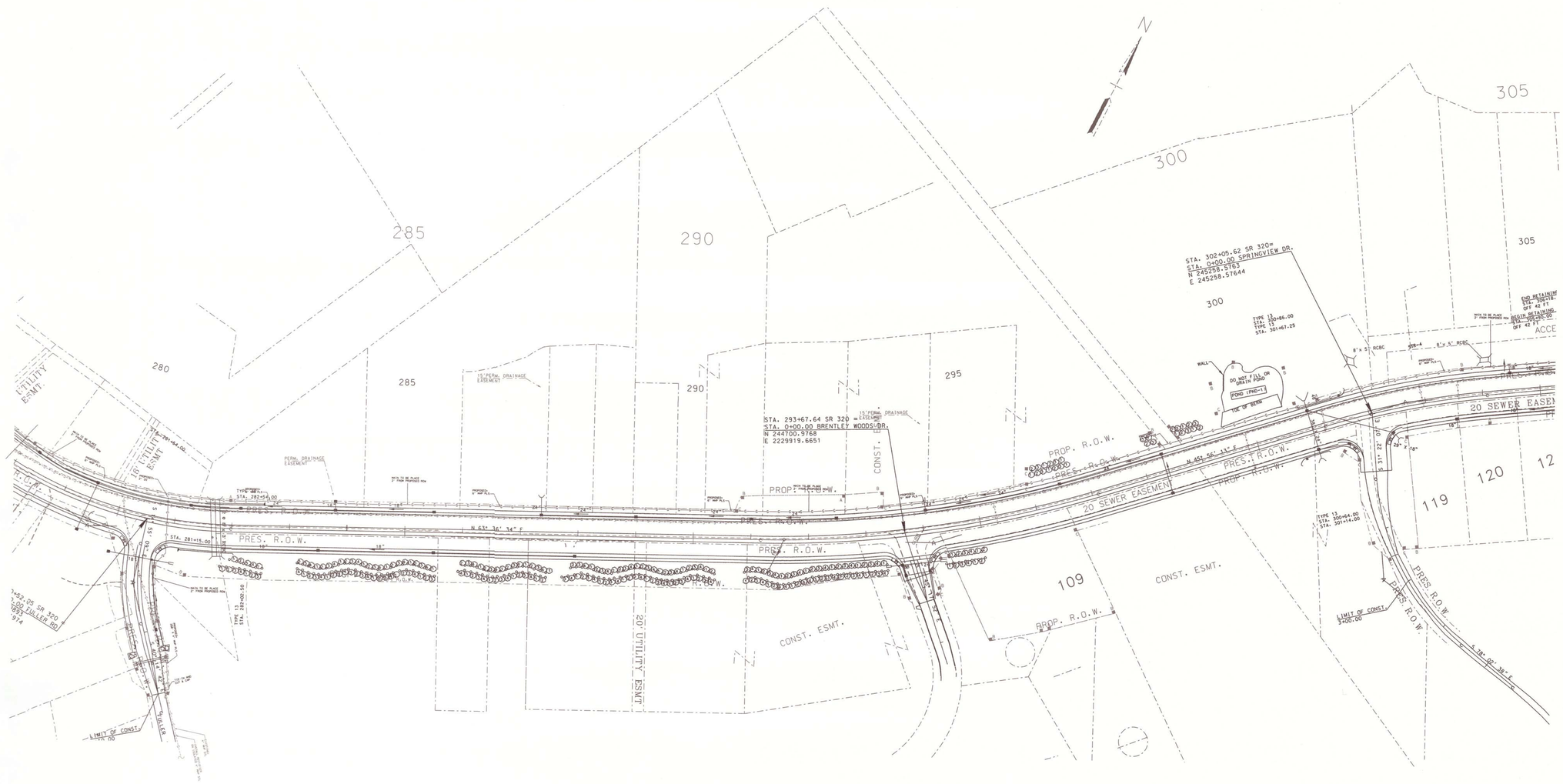
STA.250+00 TO STA.277+83

SCALE: 1"=100'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U7-4

S.R. 320

HAMILTON CO.



DANIEL T. COOPER
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 113554
STATE OF TENNESSEE

8-16-13

CHATTANOOGA GAS

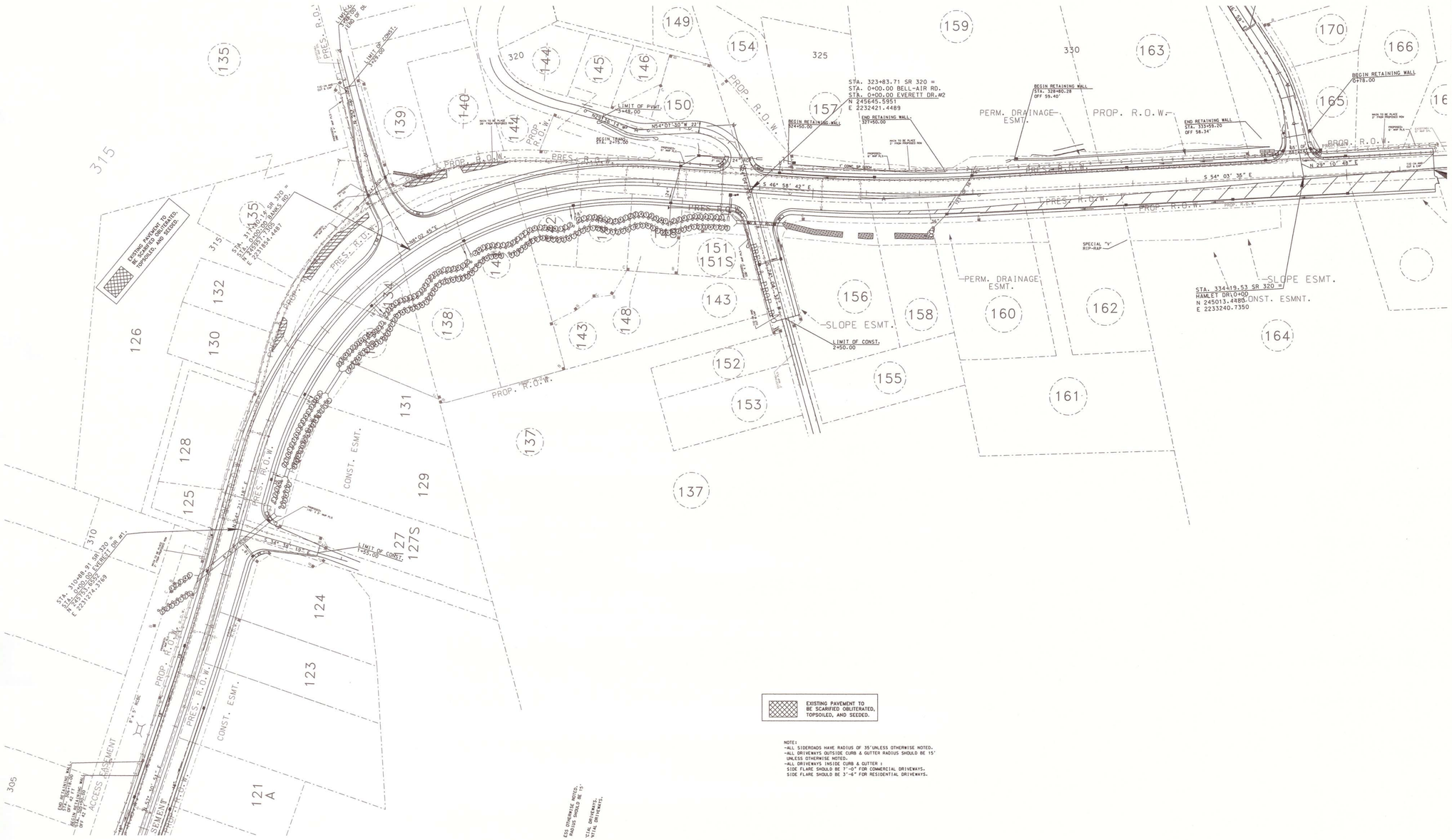
GAS RELOCATION

STA.277+83 TO STA.305+00

SCALE: 1"=100'

TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	2013	STP-320(4)	U7-5

S.R. 320 HAMILTON CO.



EXISTING PAVEMENT TO BE SCARIFIED OBLITERATED, TOPSOILED, AND SEEDED.

NOTE:
-ALL SIDEROADS HAVE RADIUS OF 35'UNLESS OTHERWISE NOTED.
-ALL DRIVEWAYS OUTSIDE CURB & GUTTER RADIUS SHOULD BE 15' UNLESS OTHERWISE NOTED.
-ALL DRIVEWAYS INSIDE CURB & GUTTER :
SIDE FLARE SHOULD BE 1'-0" FOR COMMERCIAL DRIVEWAYS.
SIDE FLARE SHOULD BE 3'-6" FOR RESIDENTIAL DRIVEWAYS.

DANIEL T. COOK
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 113551
STATE OF TENNESSEE
8-16-13

CHATTANOOGA GAS

GAS RELOCATION

STA.305+00 TO STA.337+10

SCALE: 1"=100'