

**ADDENDUM FOUR  
NORTH ST ELMO DRAINAGE SYSTEM STUDY AND UPGRADE  
CONTRACT NUMBER S-09-008-201  
CITY OF CHATTANOOGA, TENNESSEE**

The following changes shall be made to the Contract Documents, Specifications, and Drawings:

**I. BIDDING REQUIREMENTS AND DOCUMENTS**

1. Replace Contract Documents and Specifications pages i to iii with pages iR1 to iiiR1
2. Replace Contract Documents and Specifications pages 00301-1R1 to 00301-8R1 with pages 00301-1R2 to 00301-8R2
3. Replace Contract Documents and Specifications pages APPENDIX D-1 and APPENDIX D-2 with APPENDIX D-1R1 and APPENDIX D-2R1
4. Insert USACoE Section 404 permit and TVA Section 26a permit in Appendix J of the Contract Documents and Specifications
5. Replace Contract Plan Sheet 02A with attached Sheet 02A, revision date 5-9-16
6. Replace Contract Plan Sheet 21 with attached Sheet 21, revision date 4-20-16
7. Replace Contract Plan Sheet 21C with attached Sheet 2C, revision date 4-20-16

An excel file of the revised bid schedule can be downloaded at the following link:

[http://gis.civic360.com/Public/Chattanooga/StElmo/Addendum4/00301-StElmoBidSchedule\\_5-6-16.xlsx](http://gis.civic360.com/Public/Chattanooga/StElmo/Addendum4/00301-StElmoBidSchedule_5-6-16.xlsx)

**II. CONTRACT CLARIFICATIONS**

1. **Bid Items SP-05 thru SP-09 – There does not appear to be any details in the plans depicting the location, size, or depth of the monitoring wells to be installed per the bid schedule nor any information concerning the well pump installation (SP-07). Please provide additional information, locations, details, depths, etc. regarding the scope of work to be performed.** All available information for the monitoring well to be replaced at approximate station 21+65 of Conveyance 1 is attached to this addendum. There is no well pump in the monitoring well at approximate station 21+65 of Conveyance 1. There is a well pump, piping, and electrical lines associated with the geothermal well at approximate station 22+30 of Conveyance 1. Details regarding the pump, piping, and electrical lines for this well are unknown and should be further investigated by the contractor, if necessary. The property owner for Tract 4B has verbally stated that the geothermal well is approximately 350 feet deep. The existing geothermal well shall not be abandoned until the new well is installed and all components are functioning properly.
2. **Sheet 14B – Existing wells to be relocated – this plan sheet does indicate two existing wells to be relocated. Does the owner have any information on the existing wells, where they need to be relocated to, and what parameters / dimensions need to be adhered to? Are any of the quantities for this work included in bid items SP-05 thru SP-09? One well is indicated as a geothermal pump / well? Is this in fact a geothermal well? Do you (the engineer) have specific details for this particular well because geothermal wells have different requirements from standard monitoring wells?** See the response to question 1 above for additional details. The wells will be relocated as close to their existing locations as possible. The exact location will be coordinated with the property owners and TDEC during construction. The new locations of the wells are not anticipated to be farther than 40 feet from their existing locations. All work associated with abandoning existing wells and

installing new, functional wells should be included in items SP-05 thru SP-08. It has been verbally confirmed by the property owner of Tract 4B that the well is a geothermal well; however, no additional details other than the approximate depth of 350 feet could be provided.

- 3. Will gabions and gabion mattresses as manufactured by Modular Gabion Systems in accordance with ASTM Standard Specification A874-97 for Welded Wire Fabric Gabions and Gabion Mattresses (Metallic-Coated or Polyvinyl Chloride (PVC) Coated) be approved as an equivalent product for use on this project?** Yes. Gabions and gabion mattresses as manufactured by Modular Gabion Systems in accordance with ASTM Standard Specification A874-97 for Welded Wire Fabric Gabions and Gabion Mattresses (Metallic-Coated or Polyvinyl Chloride (PVC) Coated) is approved as an equivalent to the products specified in Appendix B of the Contract Documents and Specifications.
- 4. Can Diamond Sock be an approved equivalent to the Filtrexx Sock?** Yes. Filter sock as manufactured by Diamond Sock in accordance with all dimensions and specifications as listed in the contract documents will be considered as an approved equivalent for this project.
- 5. Plan Sheet 21 thru 21D – On the plan sheets, reference is made to “Utility pole to be relocated (by others)”. Have the utility owners responsible for relocating these poles provided the durations required to relocate their utilities to the owner (City of Chattanooga)? Will these utilities be relocated prior to the start of construction of this contract? Also on these sheets, reference is made to “Utility pole to be braced during construction”. Will the utility owners brace these poles as required or will the contractor be responsible for bracing?** The utility pole relocation will be coordinated by the contractor with EPB. During the multiple utility coordination meetings held with EPB during the design phase of this project, it was determined that the best approach to determine the exact location of where the poles should be relocated is to coordinate with the contractor to accommodate his proposed construction methods, equipment, and safety requirements. EPB is well aware of the project schedule and the challenges associated with this project and expects coordination efforts to begin very soon after the contract award. Bracing of the utility poles owned by EPB will have to be coordinated with EPB. EPB will be responsible for the bracing to EPB owned poles in the Right-of-Way. The contractor will be responsible for bracing poles which are privately owned and do not require relocation due to the excavation.
- 6. Spec 1010-7R1, Section J., Paragraph 2 – per addenda #1, for disposal of offsite “clean” excess soil, reference is made to meeting the requirements of additional permits. Has the owner obtained / will the owner obtain any permits required for the off-site disposal areas or will the contractor be responsible?** The City of Chattanooga (owner) will obtain the NPDES Stormwater Construction Permit and a copy of the permit application, Storm Water Pollution Prevention Plan (SWPPP), and the NPDES permit will be given to the contractor. The City of Chattanooga (owner) will submit the application for the Land Disturbing Permit for the project site and the soil disposal sites; however, the contractor will be responsible for the Land Disturbing Permit fee(s) as stated in the Contract Documents and Specifications, 00830 General Provisions, Section 6.12 “Taxes, Permits and Certification”.

7. **Spec 01150-3 – Section H.1.b – This section states that the measurement for payment for disposal of excess clean soil at designated City sites is based upon the “...difference between the original surface...after clearing and grubbing...and the final surface...”. Do the disposal sites need to be cleared and grubbed? Is the contractor responsible for clearing and grubbing? If so, how much clearing and grubbing is required? Also, will the contractor be required to install any erosion measures in the disposal areas? If so, will the measures be compensated per items in the bid schedule?** Clearing and grubbing will NOT be necessary at either of the proposed off-site soil disposal locations; however, the newly placed soil will need to be placed and compacted in accordance with the specifications section 02220 “Earthwork”. Erosion measures will be required to be installed in accordance with the permits and SWPPP for the soil disposal area(s) and will be compensated per the items in the bid schedule.
  
8. **On sheet 21 and 21C in the plans the note for the Nitrogen Line calls for the line to be refilled with nitrogen; however, Appendix D in the specifications does not mention refilling the lines. Is the refilling of the lines done by Linde, Inc.?** The City of Chattanooga has verified that the abandoned pipelines associated with the Linde, Inc. site are not pressurized and have only a small amount of water in one line at the time of the investigation. The City of Chattanooga is currently having the water tested to determine if it is contaminated and requires special handling and disposal. Appendix D has been revised and is attached to this addendum and describes how the abandoned pipelines should be handled under this contract. If testing shows that the water in the pipeline is not contaminated and can be pumped into surface water or into the sanitary sewer, the payment for this work shall be included in item 001-7 “Dewatering operations”. If testing shows that the water in the pipeline is contaminated, an allowance has been created in the bid schedule to compensate the contractor for removal and disposal of the water in accordance with all local, state, and federal laws and regulations.

### III. ADDENDUM THREE CLARIFICATION

1. The City of Chattanooga (Owner) will consider any structural plate product conforming to AASHTO M 167 and all other requirements of the contract documents and specifications as an approved equivalent to the product listed in the contract documents and specifications. However, due to the size of the structure under Broad Street and the service level of Broad Street, special permission will be required from TDOT to place any product other than reinforced concrete under Broad Street.

May 9, 2016

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Justin C. Holland, Administrator  
City of Chattanooga  
Department of Public Works

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**Appendix A**

HOBAS Pipe  
The Complete HOBAS Guide

**Appendix B**

Gabions – Galvanized  
Gabions – Galvanized and PVC Coated

**Appendix C**

Multi-Plate Corrugated Steel Structural Plate

**Appendix D**

Pipeline Location, Excavation, and Removal

**Appendix E**

Norfolk Southern Pipe License Agreement – Conveyance 3 – NS Activity # 1200922  
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**Appendix F**

Soil and Groundwater Management Plan

**Appendix G**

Voluntary Oversight and Assistance Program (VOAP) Documentation

**Appendix H**

Storm Water Pollution and Prevention Plan (SWPPP)

**Appendix I**

Aquatic Recourses Alteration Permit (ARAP) and Application

**Appendix J**

United States Army Corps of Engineers (USACE) Section 404 Permit

Tennessee Valley Authority (TVA) Section 26a Permit

United States Army Corps of Engineers (USACE) Section 404 / Tennessee Valley  
Authority (TVA) Section 26a Joint Permit Application

**Appendix K**

Plan Sheets from Atlanta Gas Company for Project Coordination

**BID SCHEDULE****NORTH ST. ELMO DRAINAGE SYSTEM STUDY AND UPGRADE****CONTRACT NUMBER S-09-008-201****CHATTANOOGA, TENNESSEE**

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
001-1	DITCH EXCAVATION (UNCLASSIFIED)	6500	CY	\$	\$
001-2	TUNNEL EXCAVATION (UNCLASSIFIED)	540	CY	\$	\$
001-3	UNDERCUT EXCAVATION	1850	CY	\$	\$
001-4	BACKFILL FOR UNDERCUT	1850	CY	\$	\$
001-5	DISPOSAL OF CONTAMINATED (NON-HAZARDOUS) SOIL TO CLASS 1 PERMITTED LANDFILL	20000	TON	\$	\$
001-6	DISPOSAL OF EXCESS CLEAN SOIL / ROCK TO 3501 CENTRAL AVENUE (FORMER CHARLES BELL SCHOOL SITE)	25000	CY	\$	\$
001-6A	DISPOSAL OF EXCESS CLEAN SOIL / ROCK TO 1210 MERCER STREET (NEAR FORMER LUPTON CITY MILL SITE)	10000	CY	\$	\$
001-7	DEWATERING OPERATIONS	1	LS	\$	\$
002-1	ROCK EXCAVATION	700	CY	\$	\$
002-2	TUNNEL EXCAVATION (ROCK)	185	CY	\$	\$
013-1	BITUMINOUS SURFACE TREATMENT	2400	SY	\$	\$
014-1	6" THICK MINERAL AGGREGATE BASE, TYPE A, GRADING D (COMPLETE-IN-PLACE)	7000	SF	\$	\$
014-2	8" THICK MINERAL AGGREGATE BASE, TYPE A, GRADING D (COMPLETE-IN-PLACE)	500	SF	\$	\$
014-3	10" THICK MINERAL AGGREGATE BASE, TYPE A, GRADING D (COMPLETE-IN-PLACE)	13930	SF	\$	\$
014-4	15" THICK MINERAL AGGREGATE BASE, TYPE A, GRADING D (COMPLETE-IN-PLACE)	11120	SF	\$	\$
017-1	12" MOUNTABLE CURB (COMPLETE-IN-PLACE) (SD-203.02)	540	LF	\$	\$
017-2	24" TYPE A CONCRETE CURB AND GUTTER (COMPLETE-IN-PLACE) (SD-202.01)	370	LF	\$	\$
017-3	6" DETACHED CONCRETE CURB (COMPLETE-IN-PLACE) (SD-201.01)	920	LF	\$	\$
017-4	27" MOUNTABLE ISLAND CURB (COMPLETE-IN-PLACE)	180	LF	\$	\$
017-5	12" DRIVE-OVER CONCRETE CURB (COMPLETE-IN-PLACE)	60	LF	\$	\$
017-6	6" EXTRUDED CONCRETE CURB (COMPLETE-IN-PLACE)	60	LF	\$	\$
019-1	TREE, SHRUB, AND STUMP REMOVAL WITHIN THE CONSTRUCTION LIMITS AS DIRECTED BY THE ENGINEER	1	LS	\$	\$
019-2	HIGH VISIBILITY FENCE FOR TREE PROTECTION AS DIRECTED BY THE ENGINEER	600	LF	\$	\$
023-1	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	1	LS	\$	\$
026-1	2.5" THICK ASPHALT CONCRETE BINDER (PG64-22) GRADING BM-2, WITH PRIME COAT (COMPLETE-IN-PLACE)	14430	SF	\$	\$
026-2	3.5" THICK ASPHALT CONCRETE BINDER (PG64-22) GRADING BM-2, WITH PRIME COAT (COMPLETE-IN-PLACE)	11120	SF	\$	\$
027-1	1.5" THICK ASPHALT CONCRETE SURFACE MIX, GRADING E, WITH TACK COAT (COMPLETE-IN-PLACE)	39350	SF	\$	\$
031-1	7' X 7' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	60	LF	\$	\$
031-1A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 7'X7' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	20	LF	\$	\$
031-2	10' X 10' PRECAST CONCRETE BOX CULVERT (0'-25' DEPTH) (COMPLETE-IN-PLACE)	1022	LF	\$	\$
031-2A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (0'-25' DEEP)	188	LF	\$	\$
031-3	10' X 10' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	355	LF	\$	\$
031-3A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	140	LF	\$	\$
031-4	18" REINFORCED CONCRETE PIPE CULVERT (CLASS III) (COMPLETE-IN-PLACE)	283	LF	\$	\$
031-5	24" REINFORCED CONCRETE PIPE CULVERT (CLASS III) (COMPLETE-IN-PLACE)	108	LF	\$	\$
031-5A	CRUSHED ROCK BACKFILL MATERIAL FOR 24" RCP UNDER PAVED AREAS	40	LF	\$	\$
031-6	36" REINFORCED CONCRETE PIPE CULVERT (CLASS III) (COMPLETE-IN-PLACE)	203	LF	\$	\$

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
031-6A	CRUSHED ROCK BACKFILL MATERIAL FOR 36" RCP UNDER PAVED AREAS	110	LF	\$	\$
031-7	60" REINFORCED CONCRETE PIPE CULVERT (CLASS III) (COMPLETE-IN-PLACE)	298	LF	\$	\$
033-1	CATCH BASIN ADJUSTMENT (≤ 4 INCHES)	1	EA	\$	\$
033-2	CATCH BASIN ADJUSTMENT EXTRA DEPTH GREATER THAN 4 INCHES	36	IN	\$	\$
034-1	32" X 32" NO. 42 CATCH BASIN PER TDOT STD. DWG. D-CB-42S (DEPTH ≤ 4 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
034-1A	32" X 32" NO. 42 CATCH BASIN PER TDOT STD. DWG. D-CB-42S (DEPTH ≤ 4 FT) WITH OIL SKIMMER (COMPLETE-IN-PLACE)	1	EA	\$	\$
034-1B	32" X 32" NO. 42 CATCH BASIN EXTRA DEPTH ABOVE 4 FT PER TDOT STD. DWG. D-CB-42S (COMPLETE-IN-PLACE)	2	VF	\$	\$
034-2	10' DIA. NO. 12 CATCH BASIN PER TDOT STD. DWG. D-CB-12RC (DEPTH ≤ 4 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
034-2A	10' DIA. NO. 12 CATCH BASIN EXTRA DEPTH ABOVE 4 FT PER TDOT STD. DWG. D-CB-12RC (COMPLETE-IN-PLACE)	14	VF	\$	\$
034-3	9' X 9' NO. 40 CATCH BASIN PER TDOT STD. DWG. D-CB-40SE (DEPTH ≤ 4 FT) (COMPLETE-IN-PLACE)	2	EA	\$	\$
034-3A	9' X 9' NO. 40 CATCH BASIN EXTRA DEPTH ABOVE 4 FT PER TDOT STD. DWG. D-CB-40SE (COMPLETE-IN-PLACE)	17	VF	\$	\$
034-4	4' X 8' NO. 40 CATCH BASIN PER TDOT STD. DWG. D-CB-40S (DEPTH ≤ 4 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
034-4A	4' X 8' NO. 40 CATCH BASIN EXTRA DEPTH ABOVE 4 FT PER TDOT STD. DWG. D-CB-40S (COMPLETE-IN-PLACE)	5	VF	\$	\$
034-5	5' X 5' DROP INLET PER CITY STD. DWG. SD-606.01 (DEPTH ≤ 4 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
034-5A	5' X 5' DROP INLET EXTRA DEPTH ABOVE 4 FT PER CITY STD. DWG. SD-606.01 (COMPLETE-IN-PLACE)	2	VF	\$	\$
034-6	DOUBLE CATCH BASIN WITH FRAME AND BICYCLE GRATE (COMPLETE-IN-PLACE)	2	EA	\$	\$
036-1	TOPSOIL (3" THICK) PLACED AS DIRECTED BY THE ENGINEER	1395	CY	\$	\$
070-1	MACHINED RIP-RAP (CLASS C) 3.5' THICK (COMPLETE-IN-PLACE)	60	CY	\$	\$
072-1	RELOCATE WATER SERVICE LINE (COMPLETE-IN-PLACE)	400	LF	\$	\$
073-1	CRUSHED AGGREGATE FOR RESTORATION OF GRAVEL DRIVEWAYS AND PARKING AREAS (6" MINIMUM THICKNESS)	4680	SY	\$	\$
073-2	MINERAL AGGREGATE, TYPE A BASE, GRADING D	400	TON	\$	\$
073-3	MINERAL AGGREGATE (SIZE 2)	1900	TON	\$	\$
074-1	RIVERWALK LIGHTPOLE FOUNDATION WITH HANDHOLE (COMPLETE-IN-PLACE)	5	EA	\$	\$
074-2	2 - 2" PVC ELECTRICAL CONDUIT (COMPLETE-IN-PLACE) (SD 507.01)	485	LF	\$	\$
074-3	ELECTRICAL JUNCTION BOX (COMPLETE-IN-PLACE)	2	EA	\$	\$
075-1	COLD PLANING OF BITUMINOUS PLANT MIX PAVEMENTS	13800	SY	\$	\$
0717-1	MOBILIZATION, INCLUDING BID BOND, PERFORMANCE BOND, PAYMENT BOND, ETC.	1	LS	\$	\$
11316-1	2" PVC SANITARY SEWER FORCE MAIN (COMPLETE-IN-PLACE)	300	LF	\$	\$
15062-1	16" DUCTILE IRON SANITARY SEWER MAIN (COMPLETE-IN-PLACE)	80	LF	\$	\$
15064-1	6" PVC SANITARY SEWER SERVICE LINE (COMPLETE-IN-PLACE)	200	LF	\$	\$
15064-2	8" PVC (SDR 35) GRAVITY SEWER MAIN (COMPLETE-IN-PLACE)	380	LF	\$	\$
1720-1	PROJECT RECORD DRAWINGS	1	LS	\$	\$
2120-1	VIDEO TAPING OF EASEMENT AND CONSTRUCTION AREAS PRIOR TO CONSTRUCTION	1	LS	\$	\$
2242-1	TRENCH CHECK DAM FOR 10'X10' BOX CULVERT TRENCH (COMPLETE-IN-PLACE)	6	EA	\$	\$
2270-1	TEMPORARY CONSTRUCTION ENTRANCE/EXIT (COMPLETE-IN-PLACE)	3	EA	\$	\$
2270-2	ENKAMAT TYPE 7020 SOIL REINFORCEMENT MATTING, AS MANUFACTURED BY AMERICAN ENKA COMPANY (WITH SEED)	500	SY	\$	\$
2270-3	SILT FENCE WITH WIRE BACKING	400	LF	\$	\$
2270-4	CULVERT INLET PROTECTION (TYPE 1) FOR 36" CULVERT (EC-STR-11)	1	EA	\$	\$
2270-5	12" FILTER SOCK (SILT SOXX SILT FENCE ALTERNATIVE, OR APPROVED EQUAL)	10250	LF	\$	\$
2270-6	CURB INLET PROTECTION (TYPE 4) (EC-STR-39A)	12	EA	\$	\$
2270-7	CATCH BASIN PROTECTION (TYPE E) (EC-STR-19)	6	EA	\$	\$
2270-8	CATCH BASIN PROTECTION (TYPE D) (EC-STR-19)	4	EA	\$	\$

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
2270-9	COFFERDAM	2	EA	\$	\$
2270-10	36" PIPE DIVERSION	1	LS	\$	\$
2270-11	12" PIPE DIVERSION	1	LS	\$	\$
2270-12	EROSION CONTROL FABRIC AS MANUFACTURED BY AMERICAN EXCELSIOR COMPANY (WITH SEED)	800	SY	\$	\$
2270-13	SEDIMENT FILTER BAGS (10'X15')	4	EA	\$	\$
2452-1	WHITE THERMOPLASTIC BIKE LANE MARKING (COMPLETE-IN-PLACE)	6	EA	\$	\$
2452-2	WHITE THERMOPLASTIC BIKE LANE SHARROW MARKING (COMPLETE-IN-PLACE)	2	EA	\$	\$
2452-3	24" X 10' WHITE THERMOPLASTIC CROSSWALK (COMPLETE-IN-PLACE)	60	LF	\$	\$
2452-4	4" THERMOPLASTIC DOUBLE YELLOW SOLID LINE	965	LF	\$	\$
2452-5	4" THERMOPLASTIC WHITE SOLID LINE	300	LF	\$	\$
2452-6	8" THERMOPLASTIC WHITE SOLID LINE	710	LF	\$	\$
2452-7	4" THERMOPLASTIC WHITE DASHED LINE	60	LF	\$	\$
2452-8	4" THERMOPLASTIC WHITE SKIP LINE	215	LF	\$	\$
2452-9	12" THERMOPLASTIC WHITE SOLID TRANSVERSE LINE (TDOT T-M-3)	220	LF	\$	\$
2452-10	12" THERMOPLASTIC YELLOW SOLID TRANSVERSE LINE (TDOT T-M-3)	165	LF	\$	\$
2452-11	WHITE THERMOPLASTIC STOP BAR	2	EA	\$	\$
2452-12	"PEDESTRIAN/BIKE" SIGN (W11-15) WITH "AHEAD" SIGN (W16-19P) (COMPLETE-IN-PLACE)	2	EA	\$	\$
2452-13	"YIELD FOR PEDESTRIANS IN CROSSWALK" SIGN (R1-6)(COMPLETE-IN-PLACE)	2	EA	\$	\$
2452-14	"BIKE LANE" SIGN (R3-17) (COMPLETE-IN-PLACE)	2	EA	\$	\$
2452-15	"BIKE LANE" WITH "ENDS" SIGN (R3-17BP) (COMPLETE-IN-PLACE)	3	EA	\$	\$
2452-16	"BIKE LANE" WITH "AHEAD" SIGN (R3-17AP) (COMPLETE-IN-PLACE)	2	EA	\$	\$
2452-17	"LANE ENDS MERGE LEFT" SIGN (W9-2) (COMPLETE-IN-PLACE)	1	EA	\$	\$
2452-18	"LANE ENDS MERGE LEFT" SIGN (W9-2) WITH "AHEAD" (W16-9P) (COMPLETE-IN-PLACE)	1	EA	\$	\$
2452-19	"KEEP RIGHT" SIGN (R4-7) (COMPLETE-IN-PLACE)	2	EA	\$	\$
2452-20	HYDROBLAST REMOVAL OF 4" PAVEMENT MARKING (LINE) PER TDOT 716-08.32	600	LF	\$	\$
2485-1	SEEDING (WITH MULCH)	35250	SY	\$	\$
2560-1	4 FT DIAMETER STANDARD CITY MANHOLE (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	3	EA	\$	\$
2560-1A	4 FT DIAMETER STANDARD CITY MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	8	VF	\$	\$
2560-2	4 FT DIAMETER NO. 3 MANHOLE WITH TYPE A MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
2560-2A	4 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
2560-2B	4 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	8	VF	\$	\$
2560-3	5 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	5	EA	\$	\$
2560-3A	5 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	60	VF	\$	\$
2560-4	7 FT DIAMETER NO. 3 MANHOLE WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	5	EA	\$	\$
2560-4A	7 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	15	VF	\$	\$
2560-5	8 FT DIAMETER NO. 3 MANHOLE WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	2	EA	\$	\$
2560-5A	8 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	14	VF	\$	\$
2560-6	10 FT DIAMETER NO. 3 MANHOLE WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	3	EA	\$	\$
2560-6A	10 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	38	VF	\$	\$
2560-7	7' X 7' SQUARE NO. 3 MANHOLE WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
2560-7A	7' X 7' SQUARE NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	7	VF	\$	\$
2560-8	9' X 9' SQUARE NO. 3 MANHOLE WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
2560-8A	9' X 9' SQUARE NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	14	VF	\$	\$
2607-1	CONCRETE COMMERCIAL DRIVEWAY AND HEAVY DUTY PARKING LOT REPAIR / REPLACEMENT (COMPLETE-IN-PLACE)	450	SF	\$	\$
2607-2	ADA HANDICAP RAMPS WITH TRUNCATED DOMES (COMPLETE-IN-PLACE) (SD 205.02)	2	EA	\$	\$
2607-3	TRUNCATED DOMES IN CROSSWALK	2	EA	\$	\$
2607-4	RIVERWALK STANDARD CONCRETE WALK	4250	SF	\$	\$
2607-5	PERVIOUS CONCRETE PAVER PLAZA	1040	SF	\$	\$
2607-6	8" STANDARD CONCRETE ISLAND	200	SF	\$	\$
2607-7	STAMPED CONCRETE TRUCK APRON	1080	SF	\$	\$
2752-1	FURNISHING AND SETTING UP TELEVISION INSPECTION EQUIPMENT	2	LS	\$	\$
2752-2	TELEVISION INSPECTION OF SEWERS	1000	LF	\$	\$
2810-1	LANDSCAPING AND SITE RESTORATION TO MATCH EXISTING CONDITIONS	1	LS	\$	\$
2810-2	SODDED AREA INCLUDING TOP SOIL, SOIL AMENDMENTS, AND PLANTING (COMPLETE-IN-PLACE)	6305	SF	\$	\$
2810-3	BIG BLUE LIRIOPE	964	EA	\$	\$
3240-1	REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	17300	LB	\$	\$
3240-1A	EPOXY COATED REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	8000	LB	\$	\$
3240-2	REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	8900	LB	\$	\$
3240-3	REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	18400	LB	\$	\$
3240-4	REINFORCING STEEL FOR JB-103 (COMPLETE-IN-PLACE)	14700	LB	\$	\$
3240-5	REINFORCING STEEL FOR STANDARD ENDWALLS (COMPLETE-IN-PLACE)	152	LB	\$	\$
3310-1	CLASS A CONCRETE FOR HW-101 (COMPLETE-IN-PLACE)	163	CY	\$	\$
3310-2	HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	64	CY	\$	\$
3310-3	HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	79	CY	\$	\$
3310-4	HIGH EARLY STRENGTH CONCRETE FOR JB-103 (COMPLETE-IN-PLACE)	102	CY	\$	\$
3310-5	CLASS A CONCRETE FOR STANDARD ENDWALLS (COMPLETE-IN-PLACE)	12	CY	\$	\$
3310-6	4'X4' CAST-IN-PLACE BOX CULVERT (COMPLETE-IN-PLACE)	20	LF	\$	\$
3575-1	FLOWABLE FILL FOR SEWER ABANDONMENT (COMPLETE-IN-PLACE)	2300	CY	\$	\$
3575-1A	FLOWABLE FILL FOR SEWER ABANDONMENT AT EXISTING GILLESPIES SPRINGS BRANCH OUTFALL (COMPLETE-IN-PLACE)	250	CY	\$	\$
APPENDIX A-2	60" CENTRIFUGALLY CAST POLYMER MORTAR PIPE (CCFRPM) INSTALLED BY DIRECT BURY (COMPLETE-IN-PLACE)	280	LF	\$	\$
APPENDIX A-3	60" CENTRIFUGALLY CAST POLYMER MORTAR PIPE (CCFRPM) INSTALLED IN 78" TUNNEL (COMPLETE-IN-PLACE)	137	LF	\$	\$
APPENDIX A-4	66" CENTRIFUGALLY CAST POLYMER MORTAR PIPE (CCFRPM) INSTALLED BY DIRECT BURY (COMPLETE-IN-PLACE)	36	LF	\$	\$
APPENDIX A-5	66" CENTRIFUGALLY CAST POLYMER MORTAR PIPE (CCFRPM) INSTALLED IN 78" TUNNEL (COMPLETE-IN-PLACE)	195	LF	\$	\$
APPENDIX A-6	72" CENTRIFUGALLY CAST POLYMER MORTAR PIPE (CCFRPM) INSTALLED BY DIRECT BURY (COMPLETE-IN-PLACE)	105	LF	\$	\$
APPENDIX A-6A	CRUSHED ROCK BACKFILL MATERIAL FOR 72" HOBAS UNDER PAVED AREAS	85	LF	\$	\$
APPENDIX A-7	72" CENTRIFUGALLY CAST POLYMER MORTAR PIPE (CCFRPM) INSTALLED IN 84" TUNNEL (COMPLETE-IN-PLACE)	250	LF	\$	\$
APPENDIX B-1	GABIONS FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL	400	CY	\$	\$
APPENDIX B-1A	GABIONS FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL (PVC COATED)	400	CY	\$	\$
APPENDIX B-2	GABIONS FOR DITCH LINER	150	CY	\$	\$
APPENDIX B-2A	GABIONS FOR DITCH LINER (PVC COATED)	675	CY	\$	\$
APPENDIX D-1	LOCATING ABANDONED PIPELINES	1	LS	\$	\$
APPENDIX D-2	REMOVAL OF ABANDONED PIPELINES	6	EA	\$	\$
APPENDIX D-3	ALLOWANCE FOR REMOVAL AND DISPOSAL OF CONTAMINATED WATER IN ABANDONED PIPELINES	1	LS	\$25,000.00	\$25,000.00
APPENDIX E-1	MISCELLANEOUS NORFOLK SOUTHERN RAILROAD CONSTRUCTION REQUIREMENTS	1	LS	\$	\$

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
SP-01	CONSTRUCTION STAKES, LINES, AND GRADES	1	LS	\$	\$
SP-02	PROJECT SIGN	1	LS	\$	\$
SP-03	FURNISH AND INSTALL NEW CHAIN-LINK FENCE (COMPLETE-IN-PLACE)	2200	LF	\$	\$
SP-04	TEMPORARY SECURITY FENCE (COMPLETE-IN-PLACE)	2240	LF	\$	\$
SP-05	WELL ABANDONMENT IN ACCORDANCE WITH TDEC REQUIREMENTS (COMPLETE-IN-PLACE)	1000	VF	\$	\$
SP-06	WELL DRILLING AND CASING IN ACCORDANCE WITH TDEC REQUIREMENTS (COMPLETE-IN-PLACE)	1000	VF	\$	\$
SP-07	WELL PUMP INSTALLATION (COMPLETE-IN-PLACE)	1	LS	\$	\$
SP-08	MONITORING WELL INSTALLATION (COMPLETE-IN-PLACE)	1	LS	\$	\$
SP-09	REMOVE AND REINSTALL LIGHT POLE (COMPLETE-IN-PLACE)	1	LS	\$	\$
SP-10	STEEL SHEET PILES (COMPLETE-IN-PLACE)	22000	SF	\$	\$
SP-11	TEMPORARY CONSTRUCTION SIGNS	800	SF	\$	\$
SP-12	PLASTIC CHANNELIZING BARRELS	150	EA	\$	\$
SP-13	TYPE 3 BARRICADES (8 FT LENGTH FOR ROAD CLOSURE)	22	EA	\$	\$
SP-14	TYPE A WARNING LIGHTS	50	EA	\$	\$
SP-15	TYPE C WARNING LIGHTS	150	EA	\$	\$
SP-16	ILLUMINATED CHANGEABLE MESSAGE SIGN UNIT	6	EA	\$	\$
SP-17	REMOVABLE PAVEMENT MARKING LINES	2500	LF	\$	\$
SP-18	INTERCONNECTED CONCRETE PORTABLE BARRIER RAIL	250	LF	\$	\$
SP-19	TEMPORARY HOLDING TANK TO MAINTAIN SEWER SERVICE DURING CONSTRUCTION	3	EA	\$	\$
SP-20	CUTTING AND CAPPING ABANDONED WATER MAIN AT TRENCH LIMITS (SEE SHEETS 21AND 21A)	1	LS	\$	\$
SP-21	RELOCATE UTILITY POLE (COMPLETE-IN-PLACE)	3	LS	\$	\$
SP-22	FIELD OFFICE (TYPE 1)	1	LS	\$	\$
SP-23	BYPASS PUMPING OPERATIONS	1	LS	\$	\$
SP-24	ROADWAY UNDERLAYMENT (WOVEN, AASHTO CLASS III)	3750	SY	\$	\$
SP-25	GEOTEXTILE FABRIC (NON-WOVEN, AASHTO CLASS III)	5675	SY	\$	\$
SP-26	SECURITY PERSONNEL AND TEMPORARY LIGHTING AS APPROVED BY THE ENGINEER	720	HOUR	\$	\$
SP-27	DOUBLE BITUMINOUS SURFACE TREATMENT	7000	SF	\$	\$
SP-28	PHASE 2 INCENTIVE PAYMENT (\$2,000) AS DESCRIBED IN SPECIFICATIONS SECTION 01010	20	DAY	\$2,000.00	\$40,000.00
SP-29	PHASE 3 INCENTIVE PAYMENT (\$3,000) AS DESCRIBED IN SPECIFICATIONS SECTION 01010	20	DAY	\$3,000.00	\$60,000.00
<b>BASE</b> _____		<b>Words</b> _____			
<b>Total Base \$</b> _____					
<b>Note:</b> Dollar amounts are to be shown in both words and figures. In case of discrepancy, dollar amounts shown in words will govern.					

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
<b>PRE-CAST JUNCTION BOX FOR 10' X 10' BOX CULVERT ALTERNATE BASE-1 (PRE-CAST JB-101 AND JB-102)</b>					
Alternate BASE-1 must be used in conjunction with the base bid (10'x10' Pre-cast Box Culvert)					
3240-2	REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	-8900	LB	\$	\$
3240-3	REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	-18400	LB	\$	\$
3310-2	HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	-64	CY	\$	\$
3310-3	HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	-79	CY	\$	\$
2560-9(BASE-1)	PRECAST JUNCTION BOX (JB-101)	1	LS	\$	\$
2560-10(BASE-1)	PRECAST JUNCTION BOX (JB-102)	1	LS	\$	\$
<b>BASE-1</b> _____					
Words					
<b>Total Alternate BASE-1 \$</b> _____					
<b>Note: Dollar amounts are to be shown in both words and figures. In case of discrepancy, dollar amounts shown in words will govern.</b>					
<b>CONVEYANCE 1 CULVERT ALTERNATE A (12'X8' PRECAST BOX CULVERT)</b>					
031-2	10' X 10' PRECAST CONCRETE BOX CULVERT (0'-25' DEPTH) (COMPLETE-IN-PLACE)	-1022	LF	\$	\$
031-2(A)	12' X 8' PRECAST CONCRETE BOX CULVERT (0'-25' DEPTH) (COMPLETE-IN-PLACE)	1022	LF	\$	\$
031-2A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (0'-25' DEEP)	-188	LF	\$	\$
031-2A(A)	CRUSHED ROCK BACKFILL MATERIAL ABOVE 12' X 8' BOX CULVERT UNDER PAVED AREAS (0'-25' DEEP)	188	LF	\$	\$
031-3	10' X 10' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	-355	LF	\$	\$
031-3(A)	12' X 8' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	355	LF	\$	\$
031-3A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	-140	LF	\$	\$
031-3A(A)	CRUSHED ROCK BACKFILL MATERIAL ABOVE 12' X 8' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	140	LF	\$	\$
2242-1	TRENCH CHECK DAM FOR 10'X10' BOX CULVERT TRENCH (COMPLETE-IN-PLACE)	-6	EA	\$	\$
2242-1(A)	TRENCH CHECK DAM FOR 12'X8' BOX CULVERT TRENCH (COMPLETE-IN-PLACE)	6	EA	\$	\$
2560-2B	4 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	2	VF	\$	\$
2560-3	5 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH≤ 6 FT) (COMPLETE-IN-PLACE)	-1	EA	\$	\$
2560-3(A)	7 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH≤ 6 FT) (COMPLETE-IN-PLACE)	1	EA	\$	\$
2560-3A	5 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	-5	VF	\$	\$
2560-3A(A)	7 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	11	VF	\$	\$
3240-1	REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	-700	LB	\$	\$
3240-1A	EPOXY COATED REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	-300	LB	\$	\$
3240-2	REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	300	LB	\$	\$
3240-3	REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	-100	LB	\$	\$
3240-4	REINFORCING STEEL FOR JB-103 (COMPLETE-IN-PLACE)	700	LB	\$	\$
3310-1	CLASS A CONCRETE FOR HW-101 (COMPLETE-IN-PLACE)	-9	CY	\$	\$
3310-2	HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	-4	CY	\$	\$
3310-3	HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	-1	CY	\$	\$
3310-4	HIGH EARLY STRENGTH CONCRETE FOR JB-103 (COMPLETE-IN-PLACE)	-4	CY	\$	\$
<b>ALTERNATE A</b> _____					
Words					
<b>Total Alternate A \$</b> _____					
<b>Note: Dollar amounts are to be shown in both words and figures. In case of discrepancy, dollar amounts shown in words will govern.</b>					

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
<b>PRE-CAST JUNCTION BOX FOR 12' X 8' BOX CULVERT ALTERNATE A-1 (PRE-CAST JB-101 AND JB-102)</b>					
Alternate A-1 must be used in conjunction with the Alternate A (12'x8' Pre-cast Box Culvert)					
3240-2	REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	-300	LB	\$	\$
3240-3	REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	100	LB	\$	\$
3310-2	HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	4	CY	\$	\$
3310-3	HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	1	CY	\$	\$
2560-9(A-1)	PRECAST JUNCTION BOX (JB-101)	1	LS	\$	\$
2560-10(A-1)	PRECAST JUNCTION BOX (JB-102)	1	LS	\$	\$
<b>ALTERNATE A-1</b> _____					
Words					
<b>Total Alternate A-1 \$</b> _____					
<b>Note:</b> Dollar amounts are to be shown in both words and figures. In case of discrepancy, dollar amounts shown in words will govern.					
<b>CONVEYANCE 1 CULVERT ALTERNATE B (14' DIAMETER STRUCTURAL PLATE CULVERT)</b>					
031-1	7' X 7' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	-60	LF	\$	\$
031-1A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 7'X7' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	-20	LF	\$	\$
031-2	10' X 10' PRECAST CONCRETE BOX CULVERT (0'-25' DEPTH) (COMPLETE-IN-PLACE)	-1022	LF	\$	\$
031-2A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (0'-25' DEEP)	-188	LF	\$	\$
031-3	10' X 10' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	-355	LF	\$	\$
031-3A	CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	-140	LF	\$	\$
2242-1	TRENCH CHECK DAM FOR 10'X10' BOX CULVERT TRENCH (COMPLETE-IN-PLACE)	-6	EA	\$	\$
2242-1(B)	TRENCH CHECK DAM FOR 14' DIAMETER CONTECH CULVERT TRENCH (COMPLETE-IN-PLACE)	6	EA	\$	\$
2560-2A	4 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTHS 6 FT) (COMPLETE-IN-PLACE)	-1	EA	\$	\$
2560-2B	4 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	-3	VF	\$	\$
2560-3	5 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTHS 6 FT) (COMPLETE-IN-PLACE)	-5	EA	\$	\$
2560-3A	5 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	-60	VF	\$	\$
3240-1	REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	1100	LB	\$	\$
3240-1A	EPOXY COATED REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	200	LB	\$	\$
3240-2	REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	-8500	LB	\$	\$
3240-3	REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	4400	LB	\$	\$
3240-4	REINFORCING STEEL FOR JB-103 (COMPLETE-IN-PLACE)	-14500	LB	\$	\$
3310-1	CLASS A CONCRETE FOR HW-101 (COMPLETE-IN-PLACE)	7	CY	\$	\$
3310-2	HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	-60	CY	\$	\$
3310-3	HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	4	CY	\$	\$
3310-4	HIGH EARLY STRENGTH CONCRETE FOR JB-103 (COMPLETE-IN-PLACE)	-102	CY	\$	\$
APPENDIX C-1	14' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (0'-25' DEEP) (COMPLETE-IN-PLACE)	955	LF	\$	\$
APPENDIX C-1A	CRUSHED ROCK BACKFILL MATERIAL FOR 14' DIAMETER CONTECH STRUCTURAL PLATE CULVERT UNDER PAVED AREAS (0'-25' DEEP)	70	LF	\$	\$
APPENDIX C-2	14' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (25'-30' DEEP) (COMPLETE-IN-PLACE)	195	LF	\$	\$
APPENDIX C-3	12' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (0'-25' DEEP) (COMPLETE-IN-PLACE)	78	LF	\$	\$
APPENDIX C-3A	CRUSHED ROCK BACKFILL MATERIAL FOR 12' DIAMETER CONTECH STRUCTURAL PLATE CULVERT UNDER PAVED AREAS (0'-25' DEEP)	78	LF	\$	\$
APPENDIX C-4	12' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (25'-30' DEEP) (COMPLETE-IN-PLACE)	180	LF	\$	\$
APPENDIX C-4A	CRUSHED ROCK BACKFILL MATERIAL FOR 12' DIAMETER CONTECH STRUCTURAL PLATE CULVERT UNDER PAVED AREAS (25'-30' DEEP)	145	LF	\$	\$
APPENDIX C-5	72" DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (COMPLETE-IN-PLACE)	80	LF	\$	\$
APPENDIX C-6	5' DIAMETER CONTECH STEEL STRUCTURAL PLATE RISER (COMPLETE-IN-PLACE)	100	VF	\$	\$

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	BID UNIT PRICE	EXTENDED BID UNIT PRICE
APPENDIX C-7	CONCRETE CAP FOR STEEL STRUCTURAL PLATE RISER (COMPLETE-IN-PLACE)	5	EA	\$	\$
APPENDIX C-8	CONNECTIONS TO EXISTING AND PROPOSED STORM DRAINS (COMPLETE-IN-PLACE)	8	EA	\$	\$
<b>ALTERNATE B</b> _____					
Words					
<b>Total Alternate B \$</b> _____					
<b>Note:</b> Dollar amounts are to be shown in both words and figures. In case of discrepancy, dollar amounts shown in words will govern.					
<b>Bid Unit Price for items in alternates must match bid unit prices for corresponding items in the base bid.</b>					
Contractor certifies that he has reviewed the plans and specifications, and that all items of work not specifically listed in the Bid Schedule are included in the prices for the various items listed on the Bid Schedule.					
<b>BIDDER:</b>		<b>DATE:</b>			
<b>BY:</b>		(Signature)		<b>TITLE:</b>	
<b>ADDRESS:</b>					
<b>CITY:</b>		<b>STATE:</b>		<b>ZIP CODE:</b>	
<b>TELEPHONE NUMBER:</b>					

## APPENDIX D

### PIPELINE LOCATION, EXCAVATION, AND REMOVAL

#### D.01 SCOPE OF WORK

This item shall consist of:

1. Locating pipelines on the project site which are associated with the Linde, Inc property and any facilities formerly operated on the property.
2. Notifying Linde, Inc. of the pipeline conflict location and schedule of work.
3. Excavating the pipelines at locations where a potential conflict between the pipelines and the proposed storm water infrastructure may exist.
4. Providing OSHA compliant access to the pipeline for qualified personnel to access the line and purge the line of hazardous material, IF NECESSARY.
5. Containment and disposal of the purged material, IF NECESSARY.
6. Cutting the pipeline and removing the pipeline within the required excavation limits for installation of the proposed storm water infrastructure.
7. Capping the pipeline to remain at each side of the proposed excavation limits.
8. Backfilling the excavation required for the work as described in items 1-7 above with natural backfill.

#### D.02 LOCATION OF EXISTING GAS PIPELINES

The contractor shall locate all known pipelines on the project site which are associated with the Linde, Inc property and any facilities formerly operated on the property. Methods for pipe location shall be approved by the engineer. The contractor shall carry the pipeline markings a minimum of 50 feet beyond the anticipated excavation limits for the proposed infrastructure. The pipeline shall be surveyed for the full length of the pipeline location and the electronic survey files shall be submitted to the Resident Project Representative and the City of Chattanooga Project Manager and the location data shall be included in the as-built drawings for the project.

#### D.03 LINDE, INC. NOTIFICATION

Upon discovery of a potential pipeline conflict, the contractor shall immediately notify Linde, Inc. of details regarding the potential pipeline conflict location and schedule of work. Linde, Inc. points of contact are listed below:

Tom Curran  
Principal Project Manager  
Linde LLC  
Phone: (630) 240-1089  
Fax: (630) 513-6270  
Email: tom.curran@linde.com

Chinedu Udeogalanya, P.E.  
Pipeline Engineering Manager  
Linde LLC  
Office Phone: (281) 717-9087  
Mobile Phone: (713) 855-4178  
Email: chinedu.udeogalanya@linde.com

#### D.04 EXCAVATION AND BACKFILLING

(a) Excavation and backfilling shall be in accordance with detailed specification section 00001 “common excavation”.

(b) Excavation areas shall be approved by the engineer if outside the anticipated excavation area for installation of proposed storm water infrastructure.

#### D.05 CUTTING AND CAPPING PIPE

The contractor shall cut the pipeline at or beyond the anticipated limits of excavation as required to install proposed infrastructure and remove the portion of the pipeline in conflict with the proposed infrastructure. The contractor shall cap or plug the remaining pipeline on each side of the excavation. The proposed method of capping or plugging shall be in accordance with all standards and regulations as set forth by all applicable regulatory authorities and shall be approved by the engineer.

#### D.06 MEASUREMENT AND PAYMENT

(a) Location of the pipeline(s) within the project limits shall be paid at the lump sum price bid as listed in the bid schedule and shall include all labor, equipment, and materials required to complete the work for the location of the pipelines as described in the specifications and contract drawings.

(b) Removal of that portion of the pipeline(s) in conflict with the proposed storm water infrastructure and capping of the pipeline(s) shall be paid at the unit cost per each pipeline as listed in the bid schedule and shall include all excavation, shoring, pipe removal and disposal, capping of the remaining pipeline sections on each side of the excavation, and all other labor, equipment, and materials as required to remove the conflicting portion of pipeline and cap the remaining pipeline.

(c) Payment for removal and disposal of water from the pipeline(s) shall be included in item 001-7 if the water is not contaminated and can be discharged into the sanitary sewer system or surface waters. If the water in the pipeline(s) is contaminated and requires special handling and disposal, the payment for removal and disposal of the water from the abandoned pipeline(s) shall be paid as described below:

Removal and disposal of the water in the pipeline(s) and any other required specialty items of work, as determined by the engineer, which are not included in the description of work as listed in points (a) and (b) in this section (D.06 MEASUREMENT AND PAYMENT) shall be paid from an allowance for such work as listed in the bid schedule. The contractor shall submit a Change Request Form (CRF) for the exact dollar amount of the cost to perform the work as described in this section plus ten percent (10%) or ten thousand dollars (\$10,000.00), whichever is less. The contractor shall submit with the CRF documentation verifying the cost of the specialty services such as an invoice from the sub-contractor who performed the work.

END OF DOCUMENT

APPENDIX D-2R1

# ESTIMATED QUANTITIES (CONTINUED):

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNITS
(45)	APPENDIX A-7 72" CENTRIFUGALLY CAST POLYMER MORTAR PIPE (CCFRPM) INSTALLED IN 84" TUNNEL (COMPLETE-IN-PLACE)	250	LF
(46)	APPENDIX B-1 GABIONS FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL	400	CY
(46)	APPENDIX B-1A GABIONS FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL (PVC COATED)	400	CY
(47)	APPENDIX B-2 GABIONS FOR DITCH LINER	150	CY
(47)(48)	APPENDIX B-2A GABIONS FOR DITCH LINER (PVC COATED)	675	CY
	APPENDIX D-1 LOCATING ABANDONED PIPELINES	1	LS
	APPENDIX D-2 REMOVAL OF ABANDONED PIPELINES	6	EA
	APPENDIX D-3 ALLOWANCE FOR REMOVAL AND DISPOSAL OF CONTAMINATED WATER IN ABANDONED PIPELINES	1	LS
(49)	APPENDIX E-1 MISCELLANEOUS NORFOLK SOUTHERN RAILROAD CONSTRUCTION REQUIREMENTS	1	LS
	SP-01 CONSTRUCTION STAKES, LINES, AND GRADES	1	LS
	SP-02 PROJECT SIGN	1	LS
(50)	SP-03 FURNISH AND INSTALL NEW CHAIN-LINK FENCE (COMPLETE-IN-PLACE)	2200	LF
(51)	SP-04 TEMPORARY SECURITY FENCE (COMPLETE-IN-PLACE)	2240	LF
	SP-05 WELL ABANDONMENT IN ACCORDANCE WITH TDEC REQUIREMENTS (COMPLETE-IN-PLACE)	1000	VF
	SP-06 WELL DRILLING AND CASING IN ACCORDANCE WITH TDEC REQUIREMENTS (COMPLETE-IN-PLACE)	1000	VF
(52)	SP-07 WELL PUMP INSTALLATION (COMPLETE-IN-PLACE)	1	LS
(53)	SP-08 MONITORING WELL INSTALLATION (COMPLETE-IN-PLACE)	1	LS
(54)	SP-09 REMOVE AND REINSTALL LIGHT POLE (COMPLETE-IN-PLACE)	1	LS
(55)	SP-10 STEEL SHEET PILES (COMPLETE-IN-PLACE)	22000	SF
	SP-11 TEMPORARY CONSTRUCTION SIGNS	800	SF
	SP-12 PLASTIC CHANNELIZING BARRELS	150	EA
	SP-13 TYPE 3 BARRICADES (8 FT LENGTH FOR ROAD CLOSURE)	22	EA
	SP-14 TYPE A WARNING LIGHTS	50	EA
	SP-15 TYPE C WARNING LIGHTS	150	EA
	SP-16 ILLUMINATED CHANGEABLE MESSAGE SIGN UNIT	6	EA
	SP-17 REMOVABLE PAVEMENT MARKING LINES	2500	LF
	SP-18 INTERCONNECTED CONCRETE PORTABLE BARRIER RAIL	250	LF
	SP-19 TEMPORARY HOLDING TANK TO MAINTAIN SEWER SERVICE DURING CONSTRUCTION	3	EA
	SP-20 CUTTING AND CAPPING ABANDONED WATER MAIN AT TRENCH LIMITS (SEE SHEETS 21AND 21A)	1	LS
(56)	SP-21 RELOCATE UTILITY POLE (COMPLETE-IN-PLACE)	3	LS
	SP-22 FIELD OFFICE (TYPE 1)	1	LS
(57)	SP-23 BYPASS PUMPING OPERATIONS	1	LS
(58)	SP-24 ROADWAY UNDERLAYMENT (WOVEN, AASHTO CLASS III)	3750	SY
(59)	SP-25 GEOTEXTILE FABRIC (NON-WOVEN, AASHTO CLASS III)	5675	SY
(60)	SP-26 SECURITY PERSONNEL AND TEMPORARY LIGHTING AS APPROVED BY THE ENGINEER	720	HOURLY
(61)	SP-27 DOUBLE BITUMINOUS SURFACE TREATMENT	7000	SF
	SP-28 PHASE 2 INCENTIVE PAYMENT (\$2,000) AS DESCRIBED IN SPECIFICATIONS SECTION 01010	20	DAY
	SP-29 PHASE 3 INCENTIVE PAYMENT (\$3,000) AS DESCRIBED IN SPECIFICATIONS SECTION 01010	20	DAY

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
(40)	3240-2 REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	-8900	LB
(40)	3240-3 REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	-18400	LB
(40)	3310-2 HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	-64	CY
(40)	3310-3 HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	-79	CY
	2560-9(BASE-1) PRECAST JUNCTION BOX (JB-101)	1	LS
	2560-10(BASE-1) PRECAST JUNCTION BOX (JB-102)	1	LS

### GENERAL PAY ITEM NOTES:

- THE ITEMS LISTED IN THE QUANTITIES TABLE ARE CONSIDERED PAY ITEMS, AND NO ADDITIONAL PAYMENTS WILL BE MADE FOR ITEMS NOT LISTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INCLUDE ALL INCIDENTALS NECESSARY TO COMPLETE THE WORK AS DESCRIBED BY THESE PAY ITEMS AND THE REQUIREMENTS OF THE SPECIFICATIONS. SHOULD A CHANGE IN THE WORK BE REQUIRED, IT SHALL BE PROCESSED IN ACCORDANCE WITH THE CITY OF CHATTANOOGA CHANGE ORDER PROCEDURES.
- UNIT PRICES FOR THE PROPOSED DRAINAGE PROJECT SHOULD INCLUDE LABOR, MATERIALS, EQUIPMENT, INSURANCE, OVERHEAD AND PROFIT. COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND INCIDENTALS FOR THE ENTIRE CONTRACT SHALL BE INCLUDED IN THE BID PRICE.
- THE OWNER DOES NOT GUARANTEE THAT QUANTITIES LISTED ON THE BID FORM ARE EXACT. THE CONTRACTOR WILL BE PAID FOR THE UNITS OF WORK ACTUALLY INSTALLED (QUANTITY) AND APPROVED IN PLACE TIMES THE UNIT PRICE BID FOR THE APPROPRIATE LINE ITEM AS LISTED ON THE BID FORM. SUCH QUANTITIES OF WORK INSTALLED WILL BE AS VALIDATED BY THE RESIDENT PROJECT REPRESENTATIVE. THE CITY OF CHATTANOOGA RESERVES THE RIGHT TO INCREASE OR DECREASE THE QUANTITIES LISTED IN THE BID FORM.
- NO ITEM QUANTITIES IN BIDDERS PROPOSAL WILL BE ADJUSTED AFTER RECEIPT OF BIDS, UNLESS CONCURRED BY OWNER. CONTRACTOR IS ENCOURAGED TO CHECK QUANTITIES IN BIDDERS PROPOSAL PRIOR TO SUBMITTING BID. ANY DISCREPANCIES FOUND BY THE CONTRACTOR SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AS SOON AS POSSIBLE AND IN ALL CASES PRIOR TO THE OPENING OF BIDS.
- CLEARING AND GRUBBING SHALL NOT BE A SEPARATE PAY ITEM AND THE COST SHALL BE INCLUDED IN OTHER PAY ITEMS.

### CONVEYANCE 1 CULVERT ALTERNATE A (12' X 8' PRECAST BOX CULVERT)

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
(15)	031-2 10' X 10' PRECAST CONCRETE BOX CULVERT (0'-25' DEPTH) (COMPLETE-IN-PLACE)	-1022	LF
(15)	031-2(A) 12' X 8' PRECAST CONCRETE BOX CULVERT (0'-25' DEPTH) (COMPLETE-IN-PLACE)	1022	LF
	031-2A CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (0'-25' DEEP)	-188	LF
	031-2A(A) CRUSHED ROCK BACKFILL MATERIAL ABOVE 12' X 8' BOX CULVERT UNDER PAVED AREAS (0'-25' DEEP)	188	LF
(15)	031-3 10' X 10' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	-355	LF
(15)	031-3(A) 12' X 8' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	355	LF
	031-3A CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	-140	LF
	031-3A(A) CRUSHED ROCK BACKFILL MATERIAL ABOVE 12' X 8' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	140	LF
(29)	2242-1 TRENCH CHECK DAM FOR 10'X10' BOX CULVERT TRENCH (COMPLETE-IN-PLACE)	-6	EA
(29)	2242-1(A) TRENCH CHECK DAM FOR 12'X8' BOX CULVERT TRENCH (COMPLETE-IN-PLACE)	6	EA
(36)	2560-2B 4 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	2	VF
(36)	2560-3 5 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	-1	EA
(36)	2560-3(A) 7 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	1	EA
(36)	2560-3A 5 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	-5	VF
(36)	2560-3A(A) 7 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	11	VF
(40)	3240-1 REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	-700	LB
(40)	3240-1A EPOXY COATED REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	-300	LB
(40)	3240-2 REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	300	LB
(40)	3240-3 REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	-100	LB
(40)	3240-4 REINFORCING STEEL FOR JB-103 (COMPLETE-IN-PLACE)	700	LB
(40)	3310-1 CLASS A CONCRETE FOR HW-101 (COMPLETE-IN-PLACE)	-9	CY
(40)	3310-2 HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	-4	CY
(40)	3310-3 HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	-1	CY
(40)	3310-4 HIGH EARLY STRENGTH CONCRETE FOR JB-103 (COMPLETE-IN-PLACE)	-4	CY

### PRE-CAST JUNCTION BOX FOR 12' X 8' BOX CULVERT ALTERNATE A-1 (PRE-CAST JB-101 AND JB-102)

Alternate A-1 must be used in conjunction with Alternate A (12'x8' Pre-cast Box Culvert)

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
(40)	3240-2 REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	-300	LB
(40)	3240-3 REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	100	LB
(40)	3310-2 HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	4	CY
(40)	3310-3 HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	1	CY
	2560-9(A-1) PRECAST JUNCTION BOX (JB-101)	1	LS
	2560-10(A-1) PRECAST JUNCTION BOX (JB-102)	1	LS

### CONVEYANCE 1 CULVERT ALTERNATE B (CONTECH STRUCTURAL PLATE CULVERT)

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
(15)	031-1 7' X 7' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	-60	LF
	031-1A CRUSHED ROCK BACKFILL MATERIAL ABOVE 7'X7' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	-20	LF
(15)	031-2 10' X 10' PRECAST CONCRETE BOX CULVERT (0'-25' DEPTH) (COMPLETE-IN-PLACE)	-1022	LF
	031-2A CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (0'-25' DEEP)	-188	LF
(15)	031-3 10' X 10' PRECAST CONCRETE BOX CULVERT (25'-30' DEPTH) (COMPLETE-IN-PLACE)	-355	LF
	031-3A CRUSHED ROCK BACKFILL MATERIAL ABOVE 10'X10' BOX CULVERT UNDER PAVED AREAS (25'-30' DEEP)	-140	LF
(29)	2242-1 TRENCH CHECK DAM FOR 10'X10' BOX CULVERT TRENCH (COMPLETE-IN-PLACE)	-6	EA
(29)	2242-1(B) TRENCH CHECK DAM FOR 14' DIAMETER CONTECH CULVERT TRENCH (COMPLETE-IN-PLACE)	6	EA
(36)	2560-2A 4 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	-1	EA
(36)	2560-2B 4 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	-3	VF
(36)	2560-3 5 FT DIAMETER NO. 3 MANHOLE INSTALLED ON BOX CULVERT WITH TYPE C MANHOLE COVER (DEPTH ≤ 6 FT) (COMPLETE-IN-PLACE)	-5	EA
(36)	2560-3A 5 FT DIAMETER NO. 3 MANHOLE EXTRA DEPTH ABOVE 6 FT (COMPLETE-IN-PLACE)	-60	VF
(40)	3240-1 REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	1100	LB
(40)	3240-1A EPOXY COATED REINFORCING STEEL FOR HW-101 (COMPLETE-IN-PLACE)	200	LB
(40)	3240-2 REINFORCING STEEL FOR JB-101 (COMPLETE-IN-PLACE)	-8500	LB
(40)	3240-3 REINFORCING STEEL FOR JB-102 (COMPLETE-IN-PLACE)	4400	LB
(40)	3240-4 REINFORCING STEEL FOR JB-103 (COMPLETE-IN-PLACE)	-14500	LB
(40)	3310-1 CLASS A CONCRETE FOR HW-101 (COMPLETE-IN-PLACE)	7	CY
(40)	3310-2 HIGH EARLY STRENGTH CONCRETE FOR JB-101 (COMPLETE-IN-PLACE)	-60	CY
(40)	3310-3 HIGH EARLY STRENGTH CONCRETE FOR JB-102 (COMPLETE-IN-PLACE)	4	CY
(40)	3310-4 HIGH EARLY STRENGTH CONCRETE FOR JB-103 (COMPLETE-IN-PLACE)	-102	CY
(62)	APPENDIX C-1 14' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (0'-25' DEEP) (COMPLETE-IN-PLACE)	955	LF
	APPENDIX C-1A CRUSHED ROCK BACKFILL MATERIAL FOR 14' DIAMETER CONTECH STRUCTURAL PLATE CULVERT UNDER PAVED AREAS (0'-25' DEEP)	70	LF
(62)	APPENDIX C-2 14' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (25'-30' DEEP) (COMPLETE-IN-PLACE)	195	LF
(62)	APPENDIX C-3 12' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (0'-25' DEEP) (COMPLETE-IN-PLACE)	78	LF
	APPENDIX C-3A CRUSHED ROCK BACKFILL MATERIAL FOR 12' DIAMETER CONTECH STRUCTURAL PLATE CULVERT UNDER PAVED AREAS (0'-25' DEEP)	78	LF
(62)	APPENDIX C-4 12' DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (25'-30' DEEP) (COMPLETE-IN-PLACE)	180	LF
	APPENDIX C-4A CRUSHED ROCK BACKFILL MATERIAL FOR 12' DIAMETER CONTECH STRUCTURAL PLATE CULVERT UNDER PAVED AREAS (25'-30' DEEP)	145	LF
(62)	APPENDIX C-5 72" DIAMETER CONTECH STEEL STRUCTURAL PLATE CULVERT (COMPLETE-IN-PLACE)	80	LF
(63)	APPENDIX C-6 5' DIAMETER CONTECH STEEL STRUCTURAL PLATE RISER (COMPLETE-IN-PLACE)	100	VF
(64)	APPENDIX C-7 CONCRETE CAP FOR STEEL STRUCTURAL PLATE RISER (COMPLETE-IN-PLACE)	5	EA
(65)	APPENDIX C-8 CONNECTIONS TO EXISTING AND PROPOSED STORM DRAINS (COMPLETE-IN-PLACE)	8	EA



CITY OF CHATTANOOGA  
DEPARTMENT OF PUBLIC WORKS  
NORTH ST. ELMO DRAINAGE SYSTEM  
STUDY AND UPGRADE  
JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR  
WILLIAM C. PAYNE, P.E., CITY ENGINEER

DATE	REVISION DESCRIPTION
4-18-16	ITEM APPENDIX B-1 MOVED TO THIS PAGE
4-20-16	ITEM APPENDIX A-7 MOVED TO THIS PAGE
5-9-16	ADDED ITEM APPENDIX D-3. REVISED DESCRIPTION APPENDIX D-1 AND D-2.

ESTIMATED QUANTITIES (CONT.)

SCALE NOT TO SCALE

DESIGNED BY: MAC

DRAWN BY: MAC

CHECKED BY: LAQ

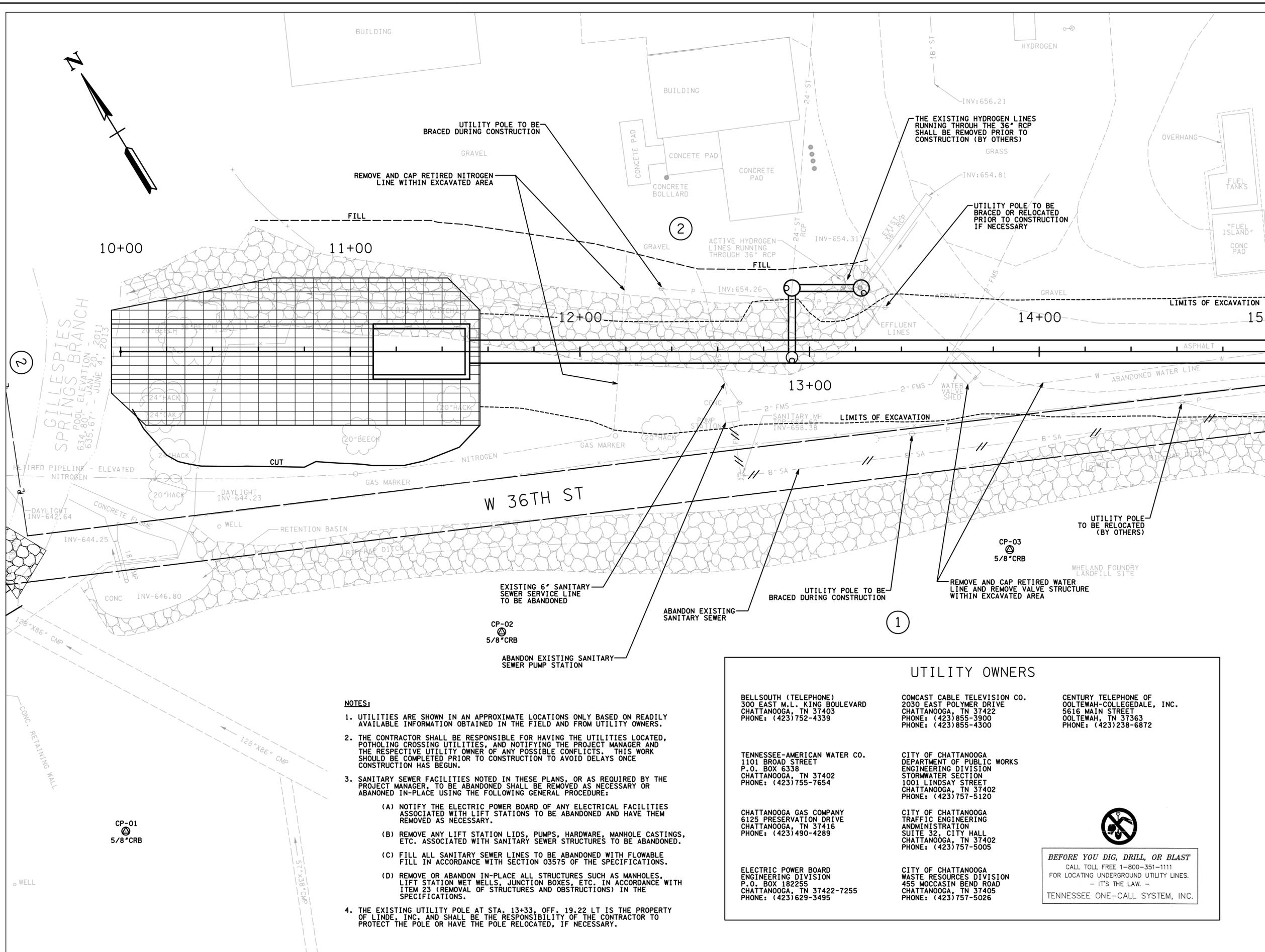


5-9-16

CONTRACT NUMBER: S-09-008-201

DATE: 03-29-2016

SHEET 02A OF 28



**NOTES:**

1. UTILITIES ARE SHOWN IN AN APPROXIMATE LOCATIONS ONLY BASED ON READILY AVAILABLE INFORMATION OBTAINED IN THE FIELD AND FROM UTILITY OWNERS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING THE UTILITIES LOCATED, POT-Holing CROSSING UTILITIES, AND NOTIFYING THE PROJECT MANAGER AND THE RESPECTIVE UTILITY OWNER OF ANY POSSIBLE CONFLICTS. THIS WORK SHOULD BE COMPLETED PRIOR TO CONSTRUCTION TO AVOID DELAYS ONCE CONSTRUCTION HAS BEGUN.
3. SANITARY SEWER FACILITIES NOTED IN THESE PLANS, OR AS REQUIRED BY THE PROJECT MANAGER, TO BE ABANDONED SHALL BE REMOVED AS NECESSARY OR ABANDONED IN-PLACE USING THE FOLLOWING GENERAL PROCEDURE:
  - (A) NOTIFY THE ELECTRIC POWER BOARD OF ANY ELECTRICAL FACILITIES ASSOCIATED WITH LIFT STATIONS TO BE ABANDONED AND HAVE THEM REMOVED AS NECESSARY.
  - (B) REMOVE ANY LIFT STATION LIDS, PUMPS, HARDWARE, MANHOLE CASTINGS, ETC. ASSOCIATED WITH SANITARY SEWER STRUCTURES TO BE ABANDONED.
  - (C) FILL ALL SANITARY SEWER LINES TO BE ABANDONED WITH FLOWABLE FILL IN ACCORDANCE WITH SECTION 03575 OF THE SPECIFICATIONS.
  - (D) REMOVE OR ABANDON IN-PLACE ALL STRUCTURES SUCH AS MANHOLES, LIFT STATION WET WELLS, JUNCTION BOXES, ETC. IN ACCORDANCE WITH ITEM 23 (REMOVAL OF STRUCTURES AND OBSTRUCTIONS) IN THE SPECIFICATIONS.
4. THE EXISTING UTILITY POLE AT STA. 13+33, OFF. 19.22 LT IS THE PROPERTY OF LINDE, INC. AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE POLE OR HAVE THE POLE RELOCATED, IF NECESSARY.

**UTILITY OWNERS**

<p><b>BELLSOUTH (TELEPHONE)</b> 300 EAST M.L. KING BOULEVARD CHATTANOOGA, TN 37403 PHONE: (423)752-4339</p> <p><b>TENNESSEE-AMERICAN WATER CO.</b> 1101 BROAD STREET P.O. BOX 6338 CHATTANOOGA, TN 37402 PHONE: (423)755-7654</p> <p><b>CHATTANOOGA GAS COMPANY</b> 6125 PRESERVATION DRIVE CHATTANOOGA, TN 37416 PHONE: (423)490-4289</p> <p><b>ELECTRIC POWER BOARD</b> ENGINEERING DIVISION P.O. BOX 182255 CHATTANOOGA, TN 37422-7255 PHONE: (423)629-3495</p>	<p><b>COMCAST CABLE TELEVISION CO.</b> 2030 EAST POLYMER DRIVE CHATTANOOGA, TN 37422 PHONE: (423)855-3900 PHONE: (423)855-4300</p> <p><b>CITY OF CHATTANOOGA</b> DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION STORMWATER SECTION 1001 LINDSAY STREET CHATTANOOGA, TN 37402 PHONE: (423)757-5120</p> <p><b>CITY OF CHATTANOOGA</b> TRAFFIC ENGINEERING ADMINISTRATION SUITE 32, CITY HALL CHATTANOOGA, TN 37402 PHONE: (423)757-5005</p>	<p><b>CENTURY TELEPHONE OF OOLTEWAH-COLLEGE DALE, INC.</b> 5616 MAIN STREET OOLTEWAH, TN 37363 PHONE: (423)238-6872</p> <p><b>WASTELAND FOUNDRY AND FILL SITE</b></p> <p><b>WASTE RESOURCES DIVISION</b> 455 MOCCASIN BEND ROAD CHATTANOOGA, TN 37405 PHONE: (423)757-5026</p>
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**BEFORE YOU DIG, DRILL, OR BLAST**  
CALL TOLL FREE 1-800-351-1111  
FOR LOCATING UNDERGROUND UTILITY LINES.  
- IT'S THE LAW. -  
TENNESSEE ONE-CALL SYSTEM, INC.



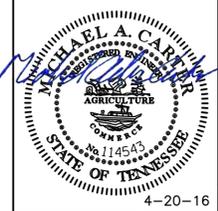
**CITY OF CHATTANOOGA**  
DEPARTMENT OF PUBLIC WORKS  
**NORTH ST. ELMO DRAINAGE SYSTEM**  
**STUDY AND UPGRADE**

JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR  
WILLIAM C. PAYNE, P.E., CITY ENGINEER

DATE	REVISION DESCRIPTION
4-20-16	REVISED NITROGEN LINE NOTE

**UTILITY LAYOUT CONVEYANCE 1**  
FROM STA. 10+00  
TO STA. 15+00

SCALE 1" = 20'  
DESIGNED BY: MAC  
DRAWN BY: MAC  
CHECKED BY: LAQ



CONTRACT NUMBER: S-09-008-201  
DATE: 03-29-2016  
SHEET 21 OF 28

MATCHLINE STA. 15+00 SEE SHEET 21A



CITY OF CHATTANOOGA  
 DEPARTMENT OF PUBLIC WORKS  
**NORTH ST. ELMO DRAINAGE SYSTEM  
 STUDY AND UPGRADE**  
 WILLIAM C. PAYNE, P.E., CITY ENGINEER  
 JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR

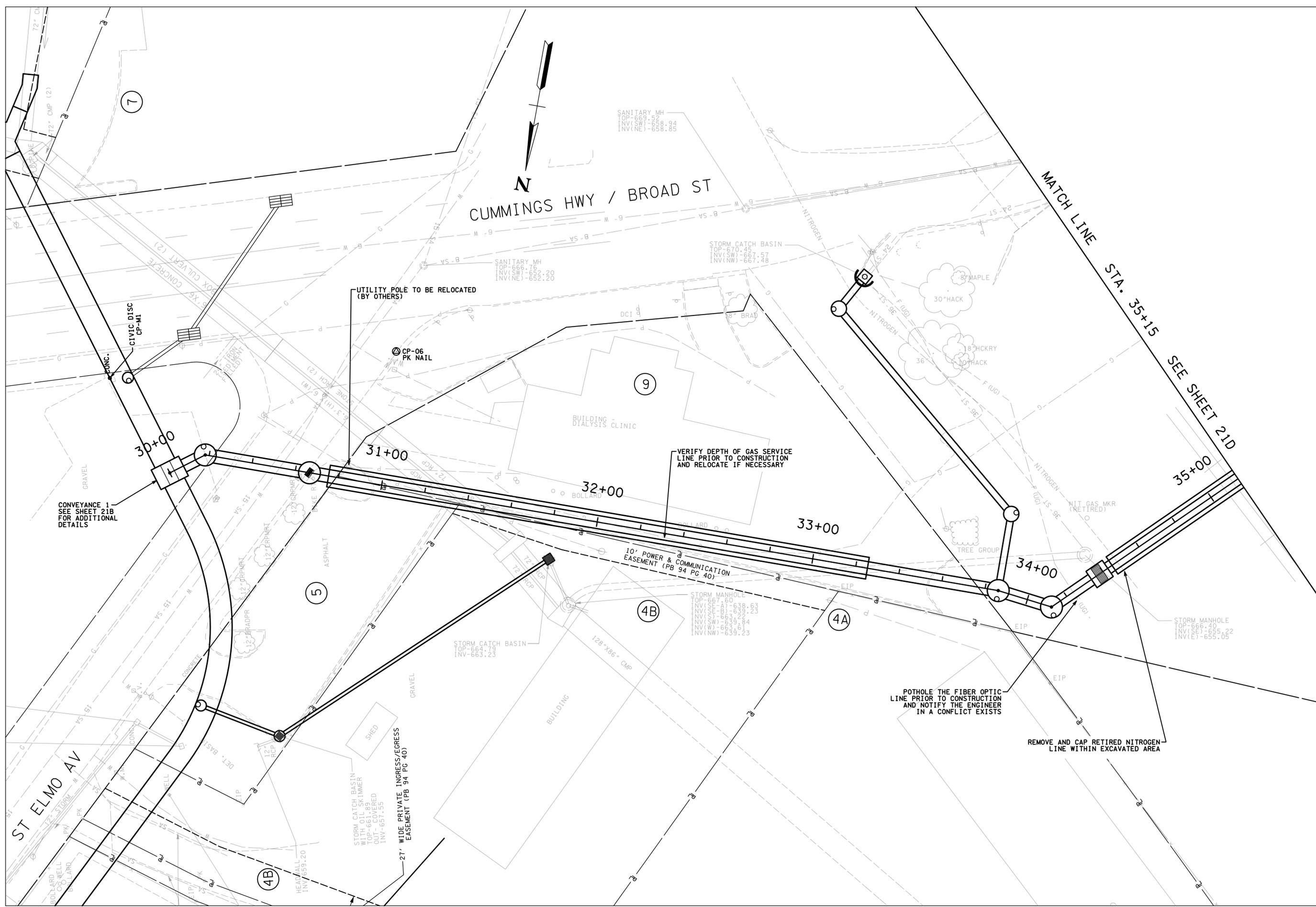
DATE	REVISION DESCRIPTION
4-20-16	REVISED NITROGEN LINE NOTE

UTILITY LAYOUT  
 CONVEYANCE 2  
 FROM STA. 30+00  
 TO STA. 35+15

SCALE 1" = 20'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ



CONTRACT NUMBER:  
 S-09-008-201  
 DATE: 03-29-2016  
 SHEET 21C OF 28



MATCH LINE STA. 35+15  
 SEE SHEET 21D

CUMMINGS HWY / BROAD ST

ST ELMO AV

SANITARY MH  
 TOP-669.92  
 INV(SW)-666.00  
 INV(NW)-666.00  
 INV(SE)-666.00  
 INV(NE)-666.00

SANITARY MH  
 TOP-666.76  
 INV(SW)-662.80  
 INV(NW)-662.80  
 INV(SE)-662.80  
 INV(NE)-662.80

STORM CATCH BASIN  
 TOP-670.45  
 INV(SW)-667.57  
 INV(NW)-667.48

VERIFY DEPTH OF GAS SERVICE  
 LINE PRIOR TO CONSTRUCTION  
 AND RELOCATE IF NECESSARY

10' POWER & COMMUNICATION  
 EASEMENT (PB 94 PG 40)

STORM MANHOLE  
 TOP-667.60  
 INV(SW)-664.72  
 INV(NW)-664.72  
 INV(SE)-664.72  
 INV(NE)-664.72

STORM MANHOLE  
 TOP-666.40  
 INV(SW)-655.22  
 INV(NE)-655.05

POTHOLE THE FIBER OPTIC  
 LINE PRIOR TO CONSTRUCTION  
 AND NOTIFY THE ENGINEER  
 IN A CONFLICT EXISTS

REMOVE AND CAP RETIRED NITROGEN  
 LINE WITHIN EXCAVATED AREA

STORM CATCH BASIN  
 WITH GILL SKIMMER  
 OUT-POURED  
 INV-657.55

27' WIDE PRIVATE INGRESS/EGRESS  
 EASEMENT (PB 94 PG 40)

CONVEYANCE 1  
 SEE SHEET 21B  
 FOR ADDITIONAL  
 DETAILS

UTILITY POLE TO BE RELOCATED  
 (BY OTHERS)

CP-06  
 PK NAIL

CP-M1

30+00

31+00

32+00

33+00

34+00

35+00

7

9

5

4B

4A

4B

72" CMP (2)



Tennessee Valley Authority  
Section 26a Approval

<b>Permit #</b> 276404	<b>Reservoir</b> Nickajack	<b>Category</b> 3
<b>DOT Project #</b>		

Name	Company	Address	Phone/Email
	City of Chattanooga	1250 Market Street, Suite 1000 Chattanooga TN 37402	423-643-6023 heinzer_m!chattanooga.gov

**Tract(s)**

Subdivision/Lot(s)	Stream	Mile	Bank	Map Sheet(s)
Subdivision: N/A	Chattanooga Cr			18 C/D Stage 105 Quad Sheet SE

**The facilities and/or activities listed below are APPROVED subject to the plans and general and special conditions attached.**

1. Outfall - Other

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2. Outfall - Other

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3. Outfall - Other

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**This permit SUPERSEDES all previous TVA approvals at this location including permits approved under land record numbers:**

**TVA Representative:** Heather M Hamilton **Date:** 4/27/16

May require review by U.S. Army Corps of Engineers (USACE). Plans have been forwarded to the USACE.  
**No construction shall commence until you have written approval or verification that no permit is required.**  
 Applicant is also responsible for all local and state approvals that may be required relating to water quality.  
**No construction shall commence until you have written approval or verification that no permit is required.**

# GENERAL AND STANDARD CONDITIONS

## Section 26a

### General Conditions

- 1 ) You agree to make every reasonable effort to construct and operate the facility authorized herein in a manner so as to minimize any adverse impact on water quality, aquatic life, wildlife, vegetation, and natural environmental values.
- 2 ) This permit may be revoked by TVA by written notice if:
  - a) the structure is not completed in accordance with approved plans;
  - b) if in TVA's judgment the structure is not maintained in a good state of repair and in good, safe, and substantial condition;
  - c) the structure is abandoned;
  - d) the structure or work must be altered or removed to meet the requirements of future reservoir or land management operations of the United States or TVA;
  - e) TVA finds that the structure has an adverse effect upon navigation, flood control, or public lands or reservations;
  - f) all invoices related to this permit are not timely paid;
  - g) you no longer have sufficient property rights to maintain a structure at this location; or
  - h) a land use agreement (e.g., license, easement, lease) for use of TVA land at this location related to this permit expires, is terminated or cancelled, or otherwise ceases to be effective.
- 3 ) If this permit for this structure is revoked, you agree to remove the structure, at your expense, upon written notice from TVA. In the event you do not remove the structure within 30 days of written notice to do so, TVA shall have the right to remove or cause to have removed, the structure or any part thereof. You agree to reimburse TVA for all costs incurred in connection with removal.
- 4 ) In issuing this Approval of Plans, TVA makes no representations that the structures or work authorized or property used temporarily or permanently in connection therewith will not be subject to damage due to future operations undertaken by the United States and/or TVA for the conservation or improvement of navigation, for the control of floods, or for other purposes, or due to fluctuations in elevations of the water surface of the river or reservoir, and no claim or right to compensation shall accrue from any such damage. By the acceptance of this approval, applicant covenants and agrees to make no claim against TVA or the United States by reason of any such damage, and to indemnify and save harmless TVA and the United States from any and all claims by other persons arising out of any such damage.
- 5 ) In issuing this Approval of Plans, TVA assumes no liability and undertakes no obligation or duty (in tort, contract, strict liability or otherwise) to the applicant or to any third party for any damages to property (real or personal) or personal injuries (including death) arising out of or in any way connected with applicant's construction, operation, or maintenance of the facility which is the subject of this Approval of Plans.
- 6 ) This approval shall not be construed to be a substitute for the requirements of any federal, state, or local statute, regulation, ordinance, or code, including, but not limited to, applicable building codes, now in effect or hereafter enacted. State 401 water quality certification may apply.
- 7 ) The facility will not be altered, or modified, unless TVA's written approval has been obtained prior to commencing work.
- 8 ) You understand that covered second stories are prohibited by Section 1304.204 of the Section 26a Regulations.
- 9 ) You agree to notify TVA of any transfer of ownership of the approved structure to a third party. Third party is required to make application to TVA for permitting of the structure in their name (1304.10). Any permit which is not transferred within 60 days is subject to revocation.
- 10 ) You agree to stabilize all disturbed areas within 30 days of completion of the work authorized. All land-disturbing activities shall be conducted in accordance with Best Management Practices as defined by Section 208 of the Clean Water Act to control erosion and sedimentation to prevent adverse water quality and related aquatic impacts. Such practices shall be consistent with sound engineering and construction principles; applicable federal, state, and local statutes, regulations, or ordinances; and proven techniques for controlling erosion and sedimentation, including any required conditions under Section 6 of the Standard Conditions.
- 11 ) You agree not to use or permit the use of the premises, facilities, or structures for any purposes that will result in draining or dumping into the reservoir of any refuse, sewage, or other material in violation of applicable standards or requirements relating to pollution control of any kind now in effect or hereinafter established.

- 12) The Native American Graves Protection and Repatriation Act and the Archaeological Resources Protection Act apply to archaeological resources located on the premises of land connected to any application made unto TVA. If LESSEE {or licensee or grantee (for easement) or applicant (for 26a permit)} discovers human remains, funerary objects, sacred objects, objects of cultural patrimony, or any other archaeological resources on or under the premises, LESSEE {or licensee, grantee, or applicant} shall immediately stop activity in the area of the discovery, make a reasonable effort to protect the items, and notify TVA by telephone (865-228-1374). Work may not be resumed in the area of the discovery until approved by TVA.
- 13) You should contact your local government official(s) to ensure that this facility complies with all applicable local floodplain regulations.
- 14) You agree to abide by the conditions of the vegetation management plan. Unless otherwise stated on this permit, vegetation removal is prohibited on TVA land.
- 15) You agree to securely anchor all floating facilities to prevent them from floating free during major floods.
- 16) You are responsible for accurately locating your facility, and this authorization is valid and effective only if your facility is located as shown on your application or as otherwise approved by TVA in this permit. The facility must be located on land owned or leased by you, or on TVA land at a location approved by TVA.
- 17) You agree to allow TVA employees access to your water use facilities to ensure compliance with any TVA issued approvals.
- 18) It is understood that you own adequate property rights at this location. If at any time it is determined that you do not own sufficient property rights, or that you have only partial ownership rights in the land at this location, this permit may be revoked. TVA may require the applicant to provide appropriate verification of ownership.
- 19) In accordance with 18 CFR Part 1304.9, Approval for construction covered by this permit expires 18 months after the date of issuance unless construction has been initiated.

**Standard Conditions** (Only items that pertain to this request have been listed.)

**5) Bridges and Culverts**

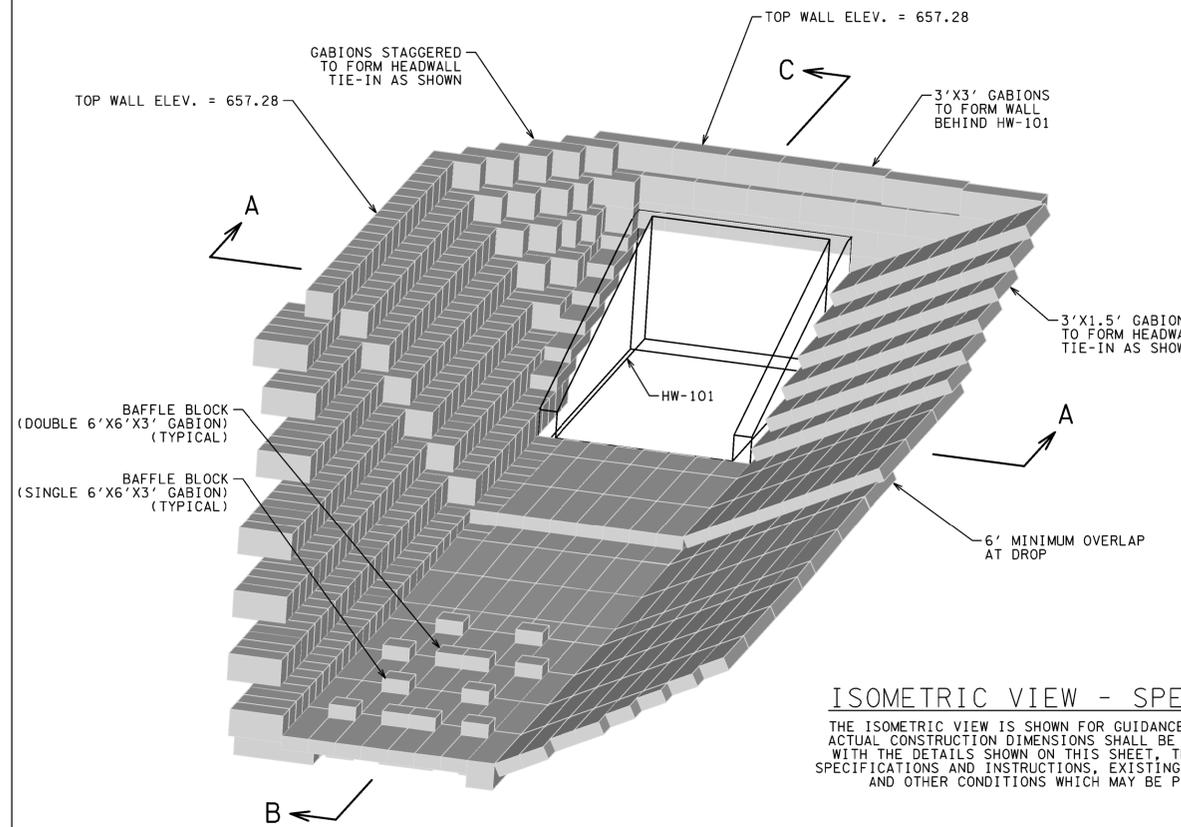
- e) You agree to remove demolition and construction by-products from the site for recycling if practicable, or proper disposal—outside of the 100-year floodplain. Appropriate BMPs will be used during the removal of any abandoned roadway or structures.

**6) Best Management Practices**

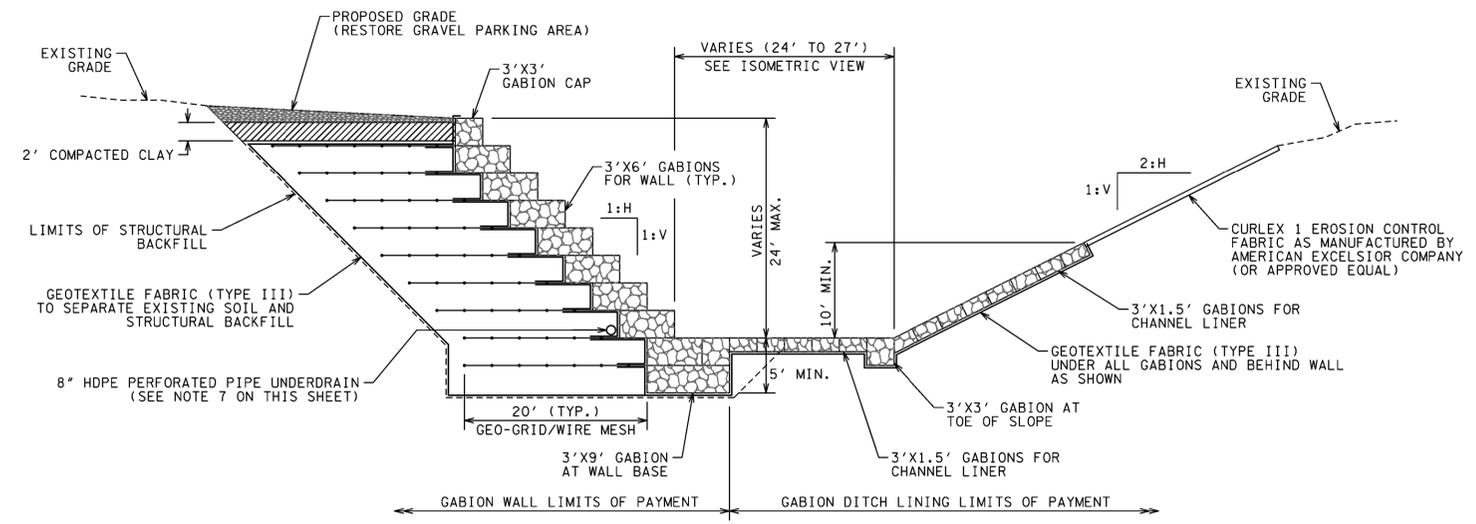
- a) You agree that removal of vegetation will be minimized, particularly any woody vegetation providing shoreline/streambank stabilization.
- d) You agree to keep equipment out of the reservoir or stream and off reservoir or stream banks, to the extent practicable (i.e., performing work "in the dry").
- e) You agree to avoid contact of wet concrete with the stream or reservoir, and avoid disposing of concrete washings, or other substances or materials, in those waters.
- f) You agree to use erosion control structures around any material stockpile areas.
- h) You agree to remove, redistribute, and stabilize (with vegetation) all sediment which accumulates behind cofferdams or silt control structures.

**Additional Conditions**

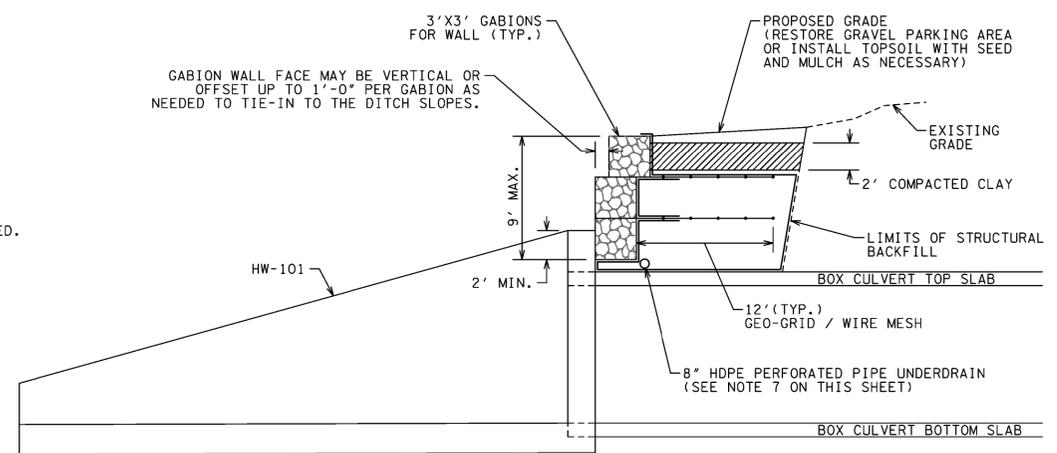
1. All spoil material generated from construction activities should be screened by sight and smell for potential contamination. Any spoil that is noticeably discolored or has a noticeable odor should be handled as contaminated spoil until sampling indicates otherwise. Sampling of contaminated spoil should be coordinated with the site environmental representative. Uncontaminated spoil including soil, gravel, rock, and concrete may be reused or disposed of on site.
2. Old sewer lines might contain asbestos cement. Do not crush or disturb. If disturbed, test for asbestos using licensed asbestos inspector. If positive for asbestos, removed crushed pipe as regulated asbestos containing material using asbestos licensed personnel.



**ISOMETRIC VIEW - SPECIAL DITCH 1**  
 THE ISOMETRIC VIEW IS SHOWN FOR GUIDANCE AND VISUALIZATION ONLY. ACTUAL CONSTRUCTION DIMENSIONS SHALL BE DETERMINED IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS SHEET, THE GABION MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS, EXISTING AND PROPOSED GRADE LINES, AND OTHER CONDITIONS WHICH MAY BE PRESENT AT THIS SITE.



**TYPICAL SECTION A-A**



**PARTIAL SECTION C**

**NOTES:**

1. THE PROPOSED RETAINING WALL(S) AND GABIONS FOR DITCH LINER SHALL BE CONSTRUCTED IN STRICT ACCORDANCE WITH THE GABION MANUFACTURER'S SPECIFICATIONS, PROJECT SPECIFICATIONS, AND THE ENGINEER'S INSTRUCTIONS. IF THERE ARE DISCREPANCIES THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
2. ONCE THE WALL IS CONSTRUCTED, THE CONTRACTOR SHALL PROTECT THE AREA WITH TEMPORARY FENCING OR OTHER MEASURES UNTIL THE PERMANENT FENCING CAN BE INSTALLED.
3. THE GEO-GRID OR WIRE MESH USED FOR MECHANICAL EARTH STABILIZATION BEHIND THE GABION WALL FACE SHALL BE FASTENED TO THE GABIONS IN SUCH A WAY THAT THE ENTIRE TENSILE STRENGTH OF THE GEO-GRID / WIRE MESH IS DEVELOPED.
4. MATERIALS:

**GEO-GRID / WELDED WIRE MESH:** MINIMUM LONG TERM TENSILE STRENGTH OF 4000 LB/LF

**GABION BASKETS:** ALL GABION BASKETS SHALL BE GALVANIZED (ZINC COATED). GABION BASKETS WITHIN 6' OR BELOW THE CHANNEL INVERT SHALL BE GALVANIZED AND PVC COATED.

**STONE FILL MATERIAL FOR GABIONS:**  $D_n = 6"$  (4" TO 8")  
 UNIT WEIGHT = 110 pcf  
 30% MAX. VOIDS

**STRUCTURAL BACKFILL:** SOIL UNIT WEIGHT = 125 PCF  
 FRICTION ANGLE = 34°  
 COHESION = 0 PSF

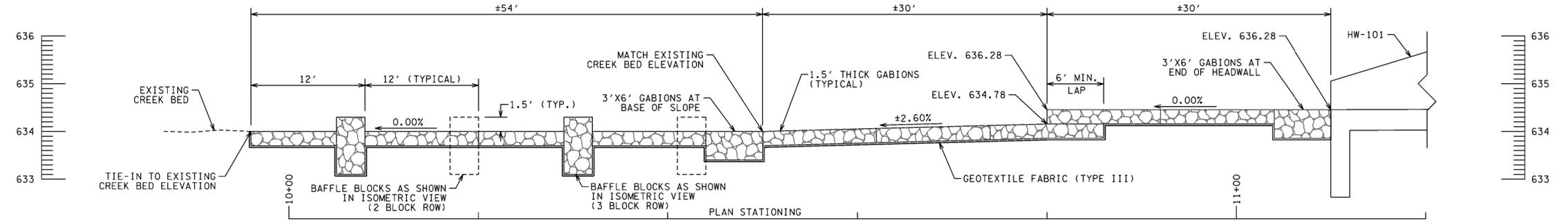
**COMPACTION REQUIREMENTS:** COMPACT STRUCTURAL BACKFILL, RETAINED SOIL, AND FOUNDATION SOIL TO AT LEAST 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, DETERMINED BY AASHTO T99, METHOD D.

PRODUCT LITERATURE FOR THE PROPOSED GABIONS AND GABION WALL SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS.

5. GEOTEXTILE FABRIC (TYPE III) SHALL BE PLACED UNDER AND BEHIND ALL GABIONS TO ACT AS A MATERIAL SEPARATOR BETWEEN THE BACKFILL/SUBGRADE AND THE GABIONS.
6. ONCE THE EXCAVATION FOR THE WALL IS COMPLETE, A REPRESENTATIVE FROM S&M, INC. SHALL INSPECT THE BEARING SURFACE TO AND PROVIDE GUIDANCE FOR BEARING SURFACE PREPARATION.
7. THE 8" PERFORATED PIPE UNDERDRAIN SHALL BE SLOPED TO DRAIN TO THE CREEK AND LOCATED AS LOW AS POSSIBLE ON THE WALL BUT ABOVE THE NORMAL POOL ELEVATION OF THE CREEK.
8. THE FOUNDATION SOIL UNDER THE MSE WALL AND UNDER THE CHANNEL LINER GABIONS SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY.
9. THE CONTRACTOR MAY SUBMIT AN ALTERNATE DESIGN FOR THE GABION WALL TO THE PROJECT ENGINEER FOR APPROVAL. THE ALTERNATE WALL SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF TENNESSEE.

**PAYMENT NOTE:**  
 PAYMENT FOR ALL ITEMS OF CONSTRUCTION AS SHOWN IN PARTIAL SECTION B SHALL BE PAID UNDER THE GABION DITCH LINER ITEM.

**PAYMENT NOTE:**  
 PAYMENT FOR ALL ITEMS OF CONSTRUCTION AS SHOWN IN PARTIAL SECTION C SHALL BE PAID UNDER THE GABION WALL ITEM.



**PARTIAL SECTION B**  
 (SHOWING PROFILE OF SPECIAL DITCH 1)

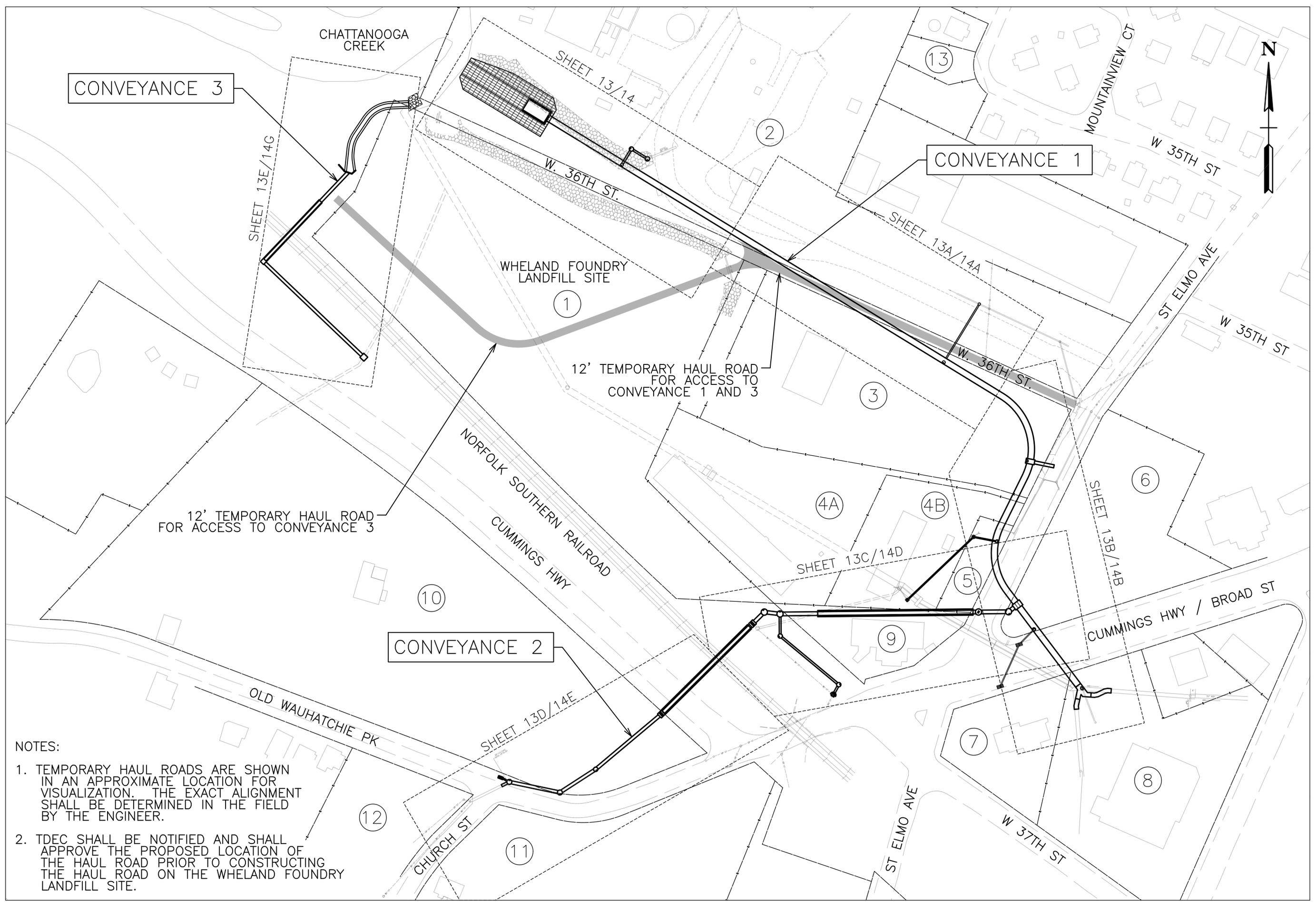
REVISION	DESCRIPTION

**SPECIAL DITCH 1**  
**DETAILS**

SCALE NOT TO SCALE  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ



CITY OF CHATTANOOGA  
 DEPARTMENT OF PUBLIC WORKS  
**NORTH ST. ELMO DRAINAGE SYSTEM  
 STUDY AND UPGRADE**  
 WILLIAM C. PAYNE, P.E., CITY ENGINEER  
 JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR



CONVEYANCE 3

CONVEYANCE 1

CONVEYANCE 2

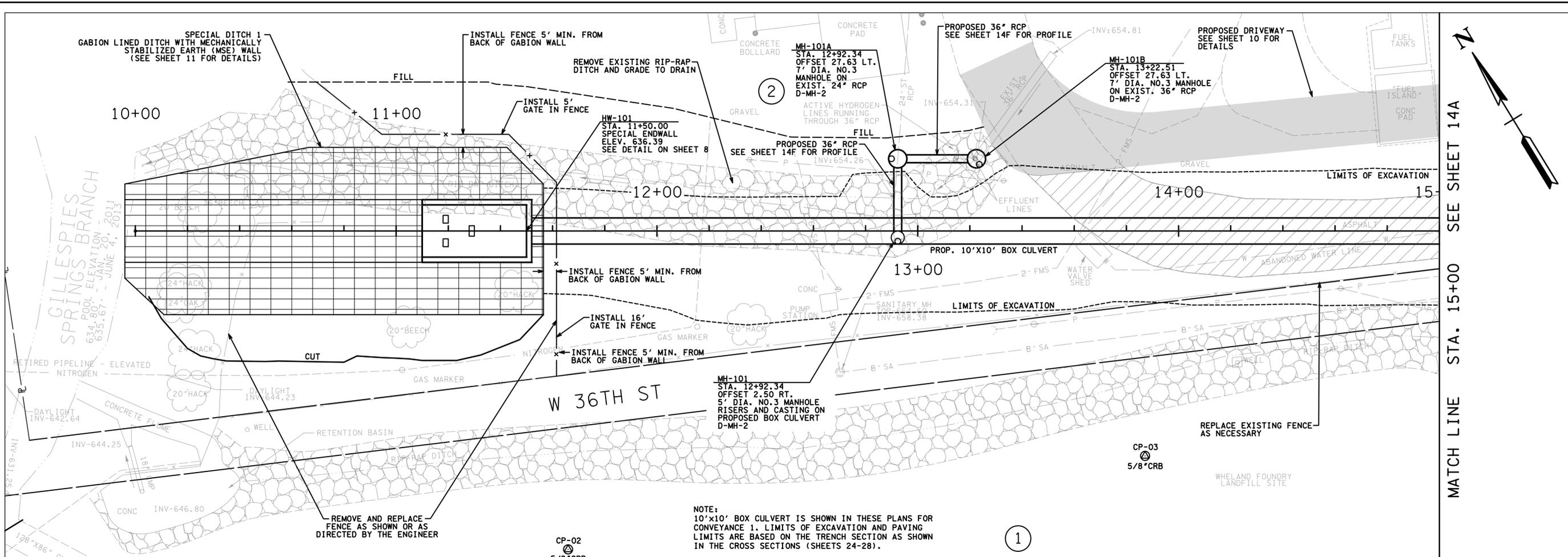
- NOTES:
1. TEMPORARY HAUL ROADS ARE SHOWN IN AN APPROXIMATE LOCATION FOR VISUALIZATION. THE EXACT ALIGNMENT SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  2. TDEC SHALL BE NOTIFIED AND SHALL APPROVE THE PROPOSED LOCATION OF THE HAUL ROAD PRIOR TO CONSTRUCTING THE HAUL ROAD ON THE WHELAND FOUNDRY LANDFILL SITE.

REVISION DESCRIPTION	DATE

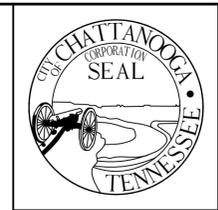
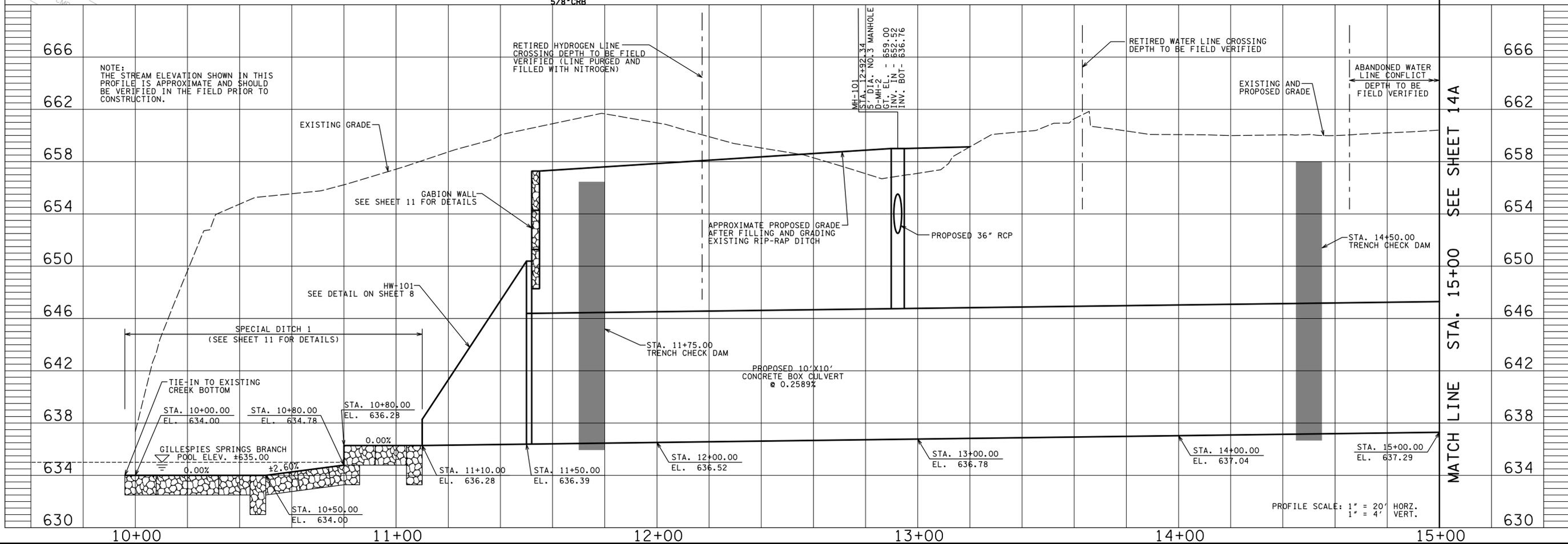
OVERALL PROJECT LAYOUT AND HAUL ROAD PLAN

SCALE 1" = 70'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ

3-29-16  
 CONTRACT NUMBER: S-09-008-201  
 DATE: 03-29-2016  
 SHEET 12 OF 28



NOTE:  
 10'x10' BOX CULVERT IS SHOWN IN THESE PLANS FOR CONVEYANCE 1. LIMITS OF EXCAVATION AND PAVING LIMITS ARE BASED ON THE TRENCH SECTION AS SHOWN IN THE CROSS SECTIONS (SHEETS 24-28).



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 WILLIAM C. PAYNE, P.E., CITY ENGINEER

DATE	REVISION DESCRIPTION

PROPOSED LAYOUT AND PROFILE CONVEYANCE 1 FROM STA. 10+00 TO STA. 15+00

SCALE 1" = 20'

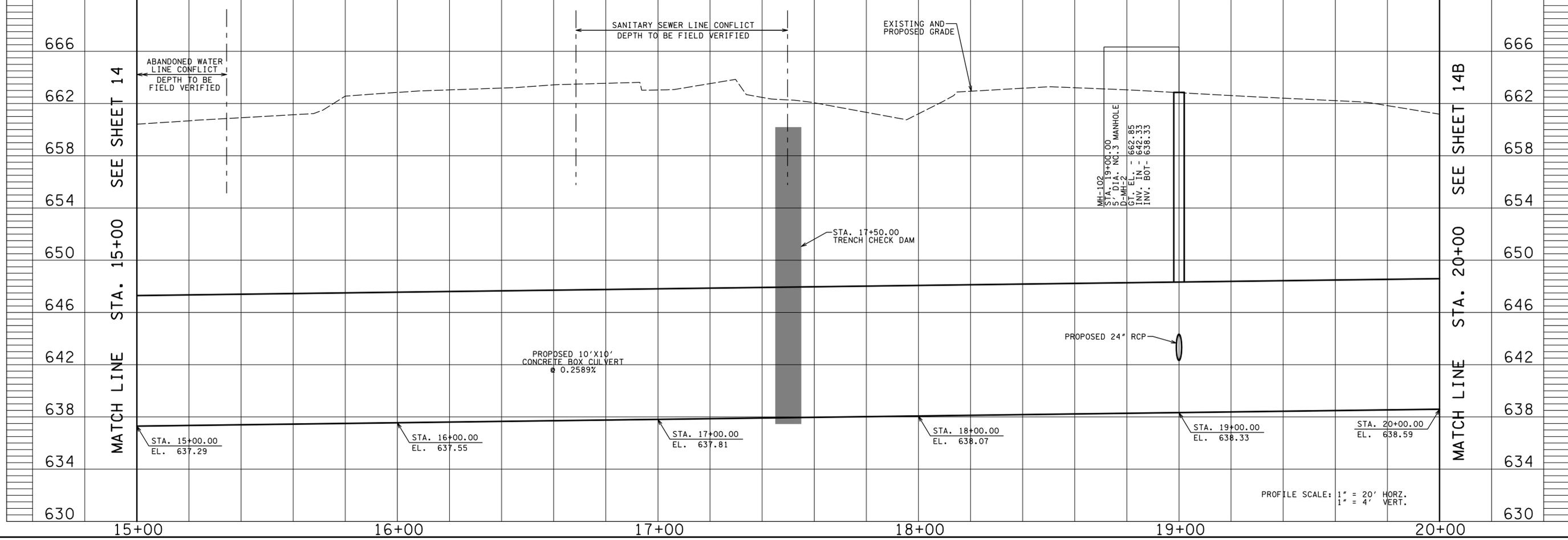
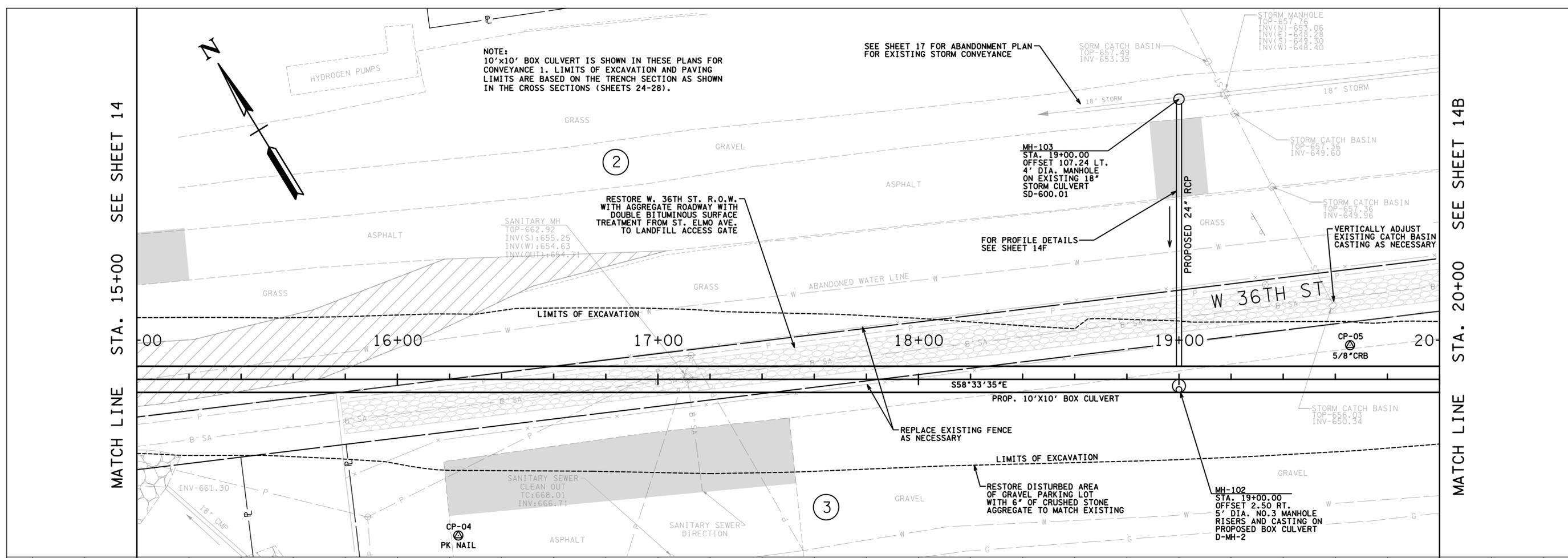
DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ

3-29-16

CONTRACT NUMBER: S-09-008-201  
 DATE: 03-29-2016  
 SHEET 14 OF 28



CITY OF CHATTANOOGA  
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**NORTH ST. ELMO DRAINAGE SYSTEM  
 STUDY AND UPGRADE**  
 WILLIAM C. PAYNE, P.E., CITY ENGINEER  
 JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR



DATE	REVISION DESCRIPTION

PROPOSED LAYOUT AND PROFILE CONVEYANCE 1 FROM STA. 15+00 TO STA. 20+00

SCALE 1" = 20'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ

3-29-16  
 CONTRACT NUMBER: S-09-008-201  
 DATE: 03-29-2016  
 SHEET 14A OF 28

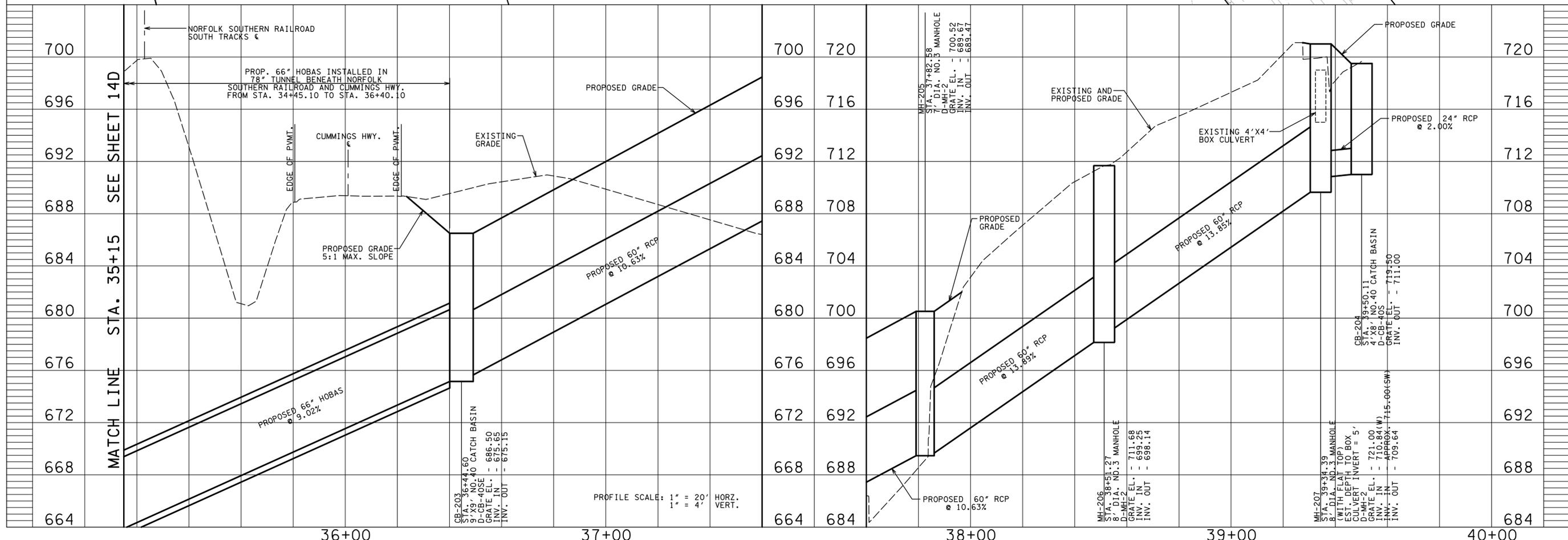
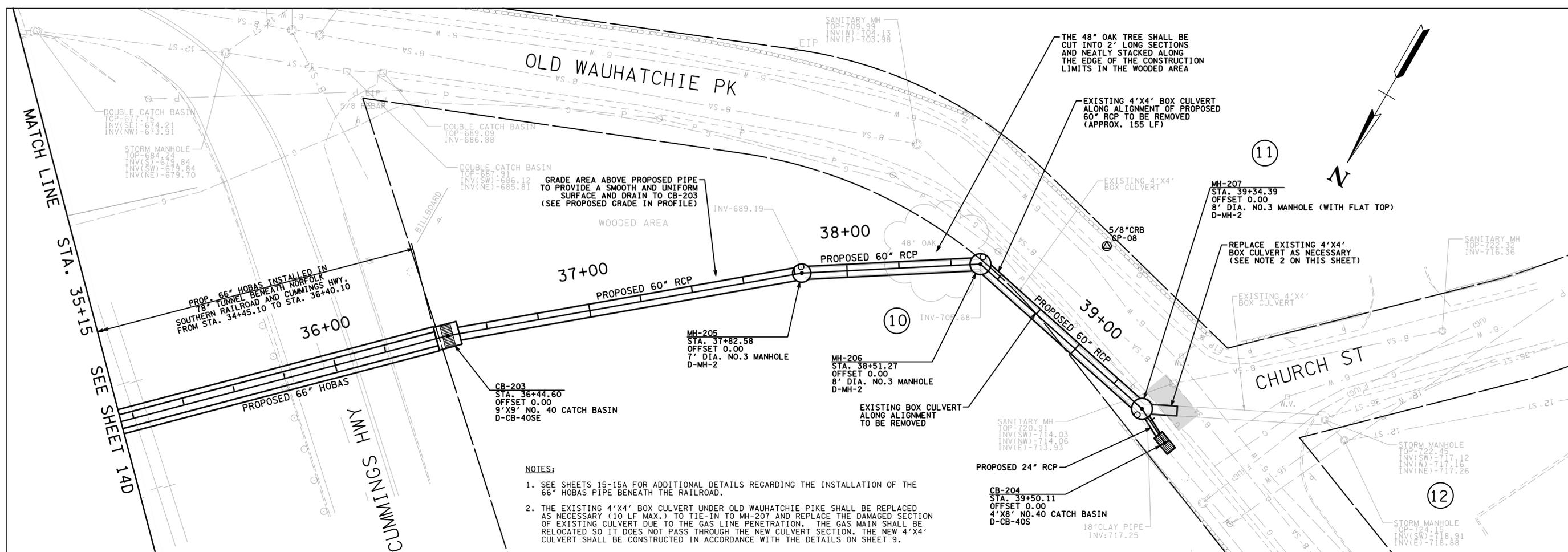








**CITY OF CHATTANOOGA**  
 DEPARTMENT OF PUBLIC WORKS  
**NORTH ST. ELMO DRAINAGE SYSTEM**  
**STUDY AND UPGRADE**  
 JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR  
 WILLIAM C. PAYNE, P.E., CITY ENGINEER



DATE	REVISION DESCRIPTION

**PROPOSED LAYOUT AND PROFILE CONVEYANCE 2**  
 FROM STA. 35+15 TO STA. 39+50.11

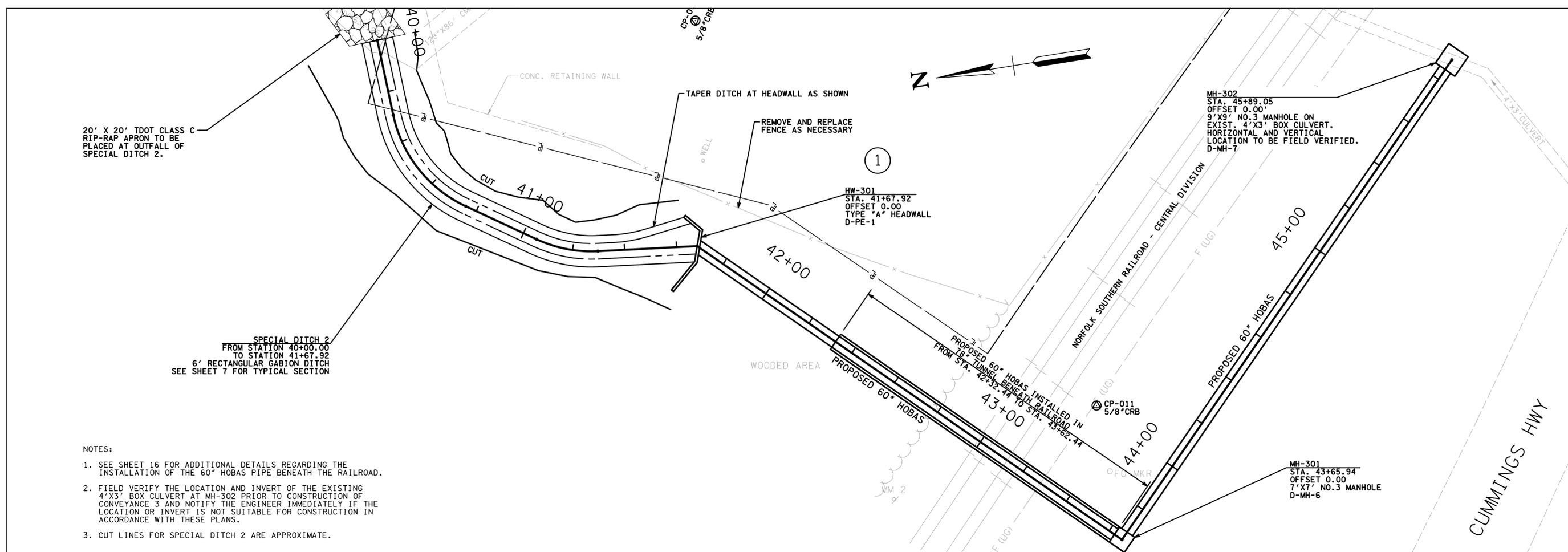
SCALE: 1" = 20'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ

3-29-16

CONTRACT NUMBER: S-09-008-201  
 DATE: 03-29-2016  
 SHEET 14E OF 28



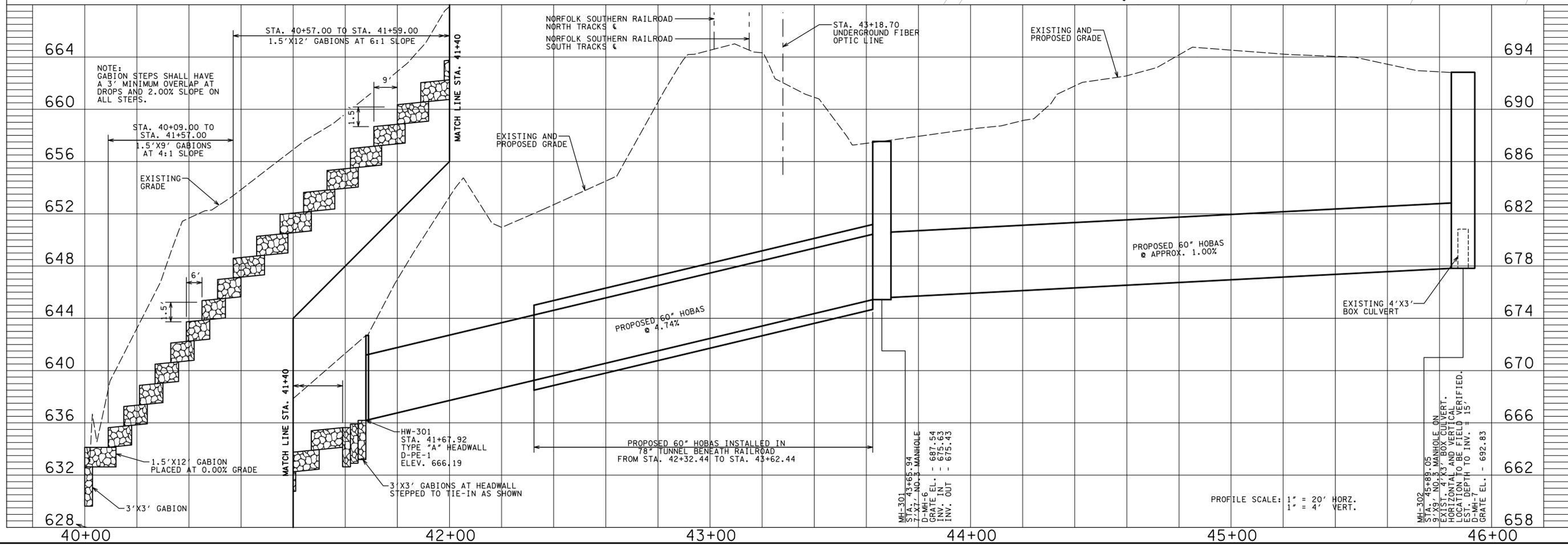
**CITY OF CHATTANOOGA**  
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**NORTH ST. ELMO DRAINAGE SYSTEM**  
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 WILLIAM C. PAYNE, P.E., CITY ENGINEER  
 JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR



20' X 20' TDOT CLASS C RIP-RAP APRON TO BE PLACED AT OUTFALL OF SPECIAL DITCH 2.

**SPECIAL DITCH 2**  
 FROM STATION 40+00.00 TO STATION 41+67.92  
 6' RECTANGULAR GABION DITCH  
 SEE SHEET 7 FOR TYPICAL SECTION

- NOTES:
- SEE SHEET 16 FOR ADDITIONAL DETAILS REGARDING THE INSTALLATION OF THE 60" HOBAS PIPE BENEATH THE RAILROAD.
  - FIELD VERIFY THE LOCATION AND INVERT OF THE EXISTING 4'X3' BOX CULVERT AT MH-302 PRIOR TO CONSTRUCTION OF CONVEYANCE 3 AND NOTIFY THE ENGINEER IMMEDIATELY IF THE LOCATION OR INVERT IS NOT SUITABLE FOR CONSTRUCTION IN ACCORDANCE WITH THESE PLANS.
  - CUT LINES FOR SPECIAL DITCH 2 ARE APPROXIMATE.



DATE	REVISION DESCRIPTION
4-18-16	CHANGED TUNNEL SIZE FROM 72" TO 78"

**PROPOSED LAYOUT AND PROFILE**  
**CONVEYANCE 3**  
 FROM STA. 40+00 TO STA. 45+89.05

SCALE 1" = 20'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ

4-18-16

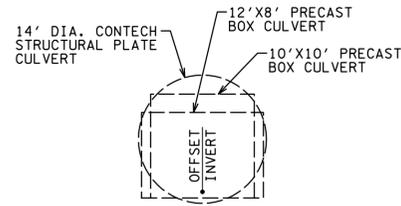
CONTRACT NUMBER:  
 S-09-008-201  
 DATE: 03-29-2016  
 SHEET 14G OF 28





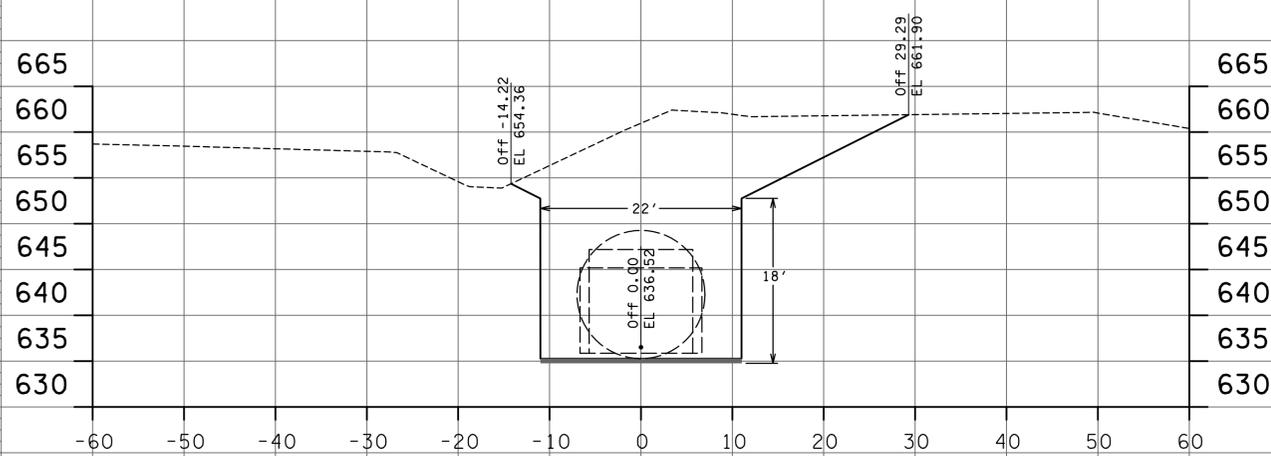
**NOTES:**

1. SLOPES SHOWN IN THE CROSS-SECTIONS ARE 2:1 ABOVE THE VERTICAL TRENCH. ACTUAL CONSTRUCTED SLOPES SHALL BE BASED ON SOIL TYPE AND OSHA REGULATIONS.
2. THE WIDTH OF THE TRENCH SHALL BE HELD TO THE MINIMUM NECESSARY TO SAFELY, EFFICIENTLY, AND CORRECTLY INSTALL THE PROPOSED CULVERT.
3. ALL THREE CULVERT ALTERNATIVES FOR CONVEYANCE 1 (10'X10' BOX CULVERT, 12'X8' BOX CULVERT, AND 14' DIA. CONTECH STRUCTURAL PLATE CULVERT) ARE SHOWN IN THE CROSS-SECTIONS AND DETAILED IN THE SKETCH ON THIS SHEET. THE SECTIONS ARE BASED ON A 22' WIDE VERTICAL TRENCH WHICH ALLOWS APPROXIMATELY 4' ON EITHER SIDE OF THE 12'X8' BOX CULVERT AND 14' CONTECH CULVERT FOR SHORING EQUIPMENT AND WORKING AREA.
4. THESE CROSS-SECTIONS ARE PROVIDED FOR GUIDANCE AND INFORMATION ONLY AND MAY VARY BASED ON SHORING EQUIPMENT USED, SOIL CONDITIONS, CULVERT ALTERNATIVE TO BE CONSTRUCTED, UTILITY LOCATIONS, AND OTHER CONDITIONS WHICH MAY ARISE DURING CONSTRUCTION.

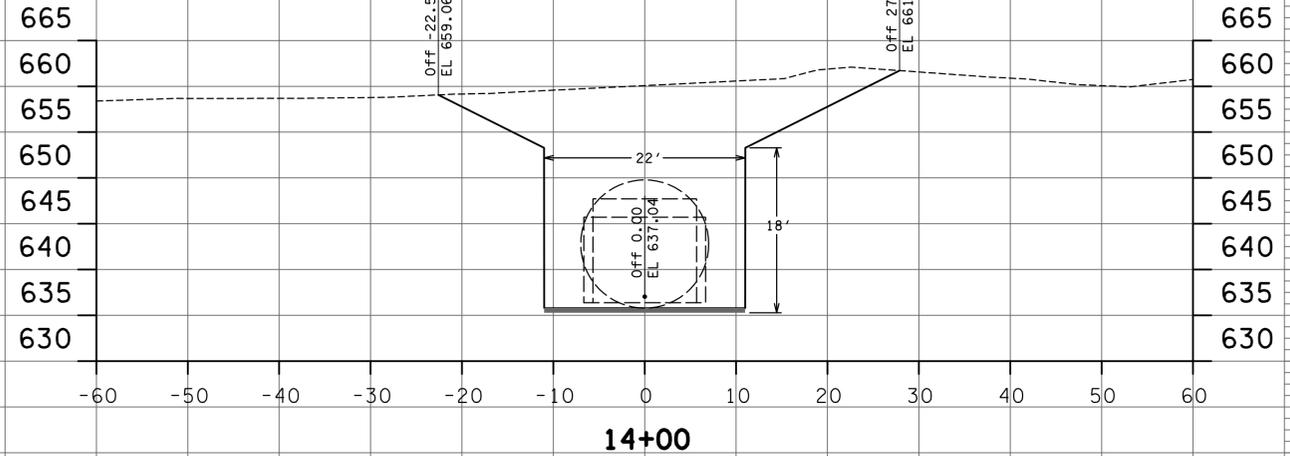


CULVERT OUT-TO-OUT DIMENSIONS ARE SHOWN.

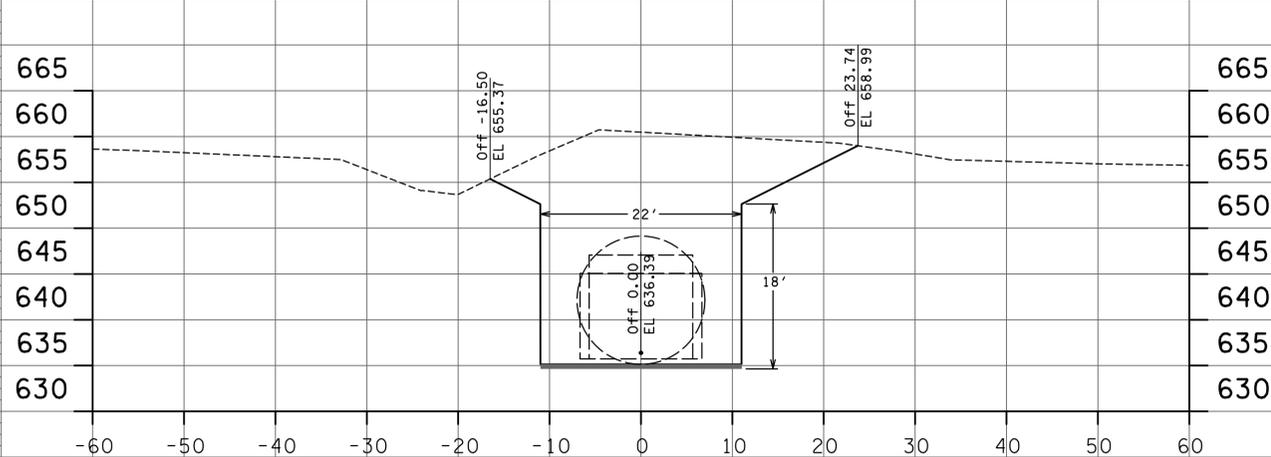
SKETCH SHOWING CULVERT ALTERNATIVES



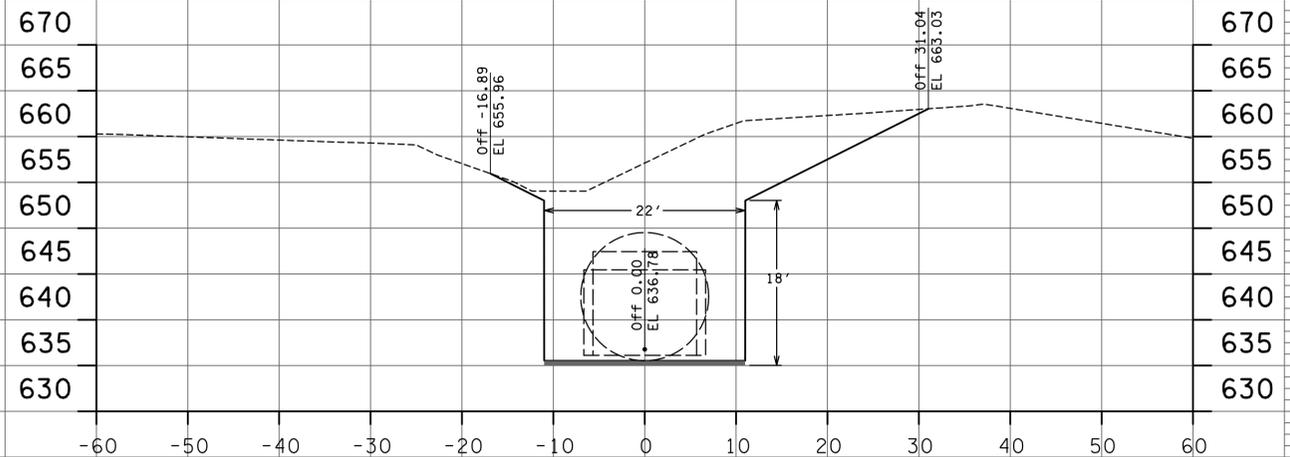
12+00



14+00



11+50



13+00

REVISION DESCRIPTION

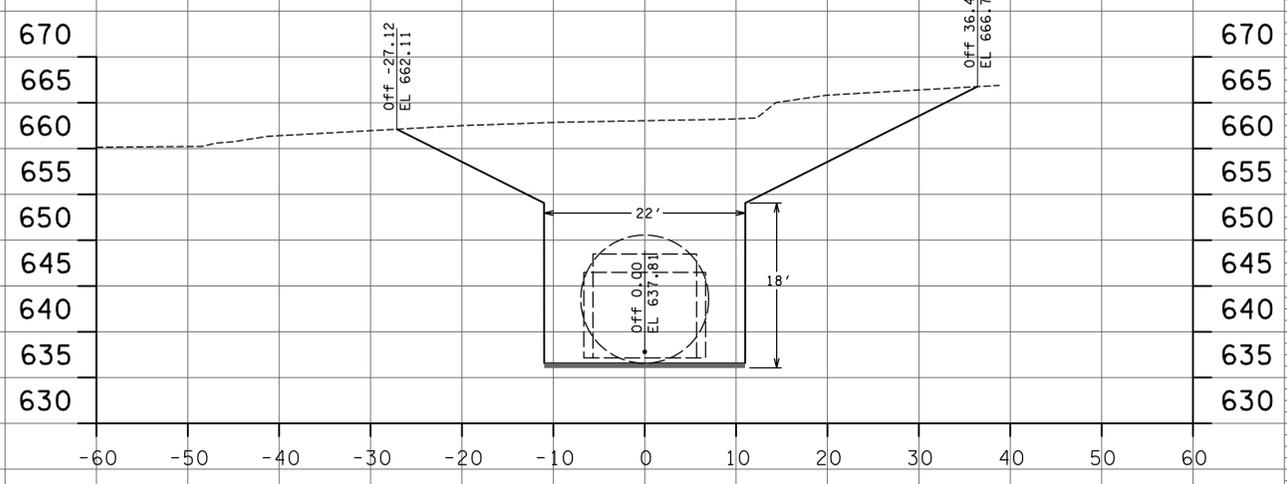
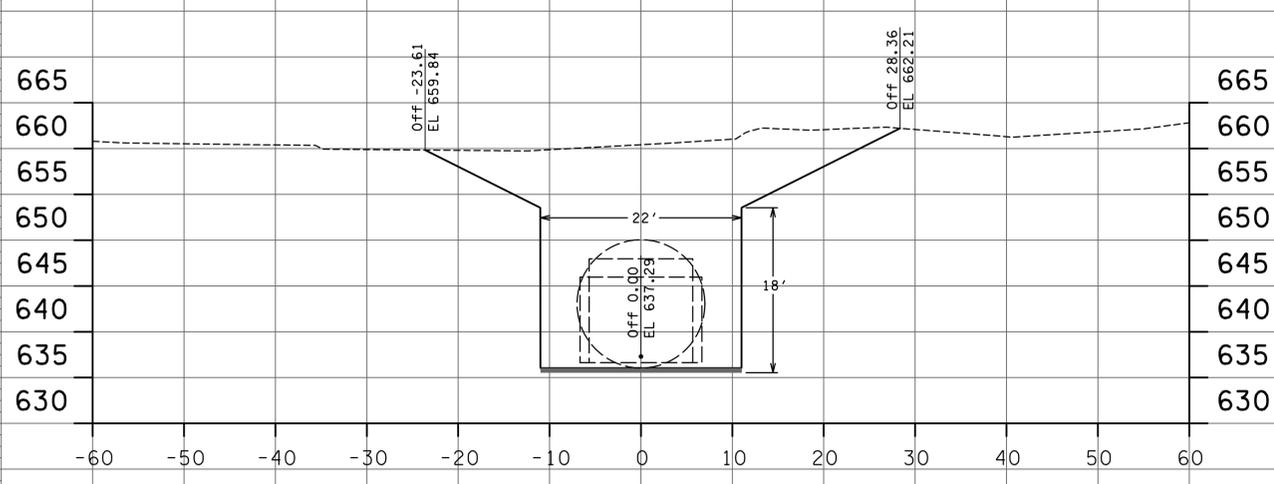
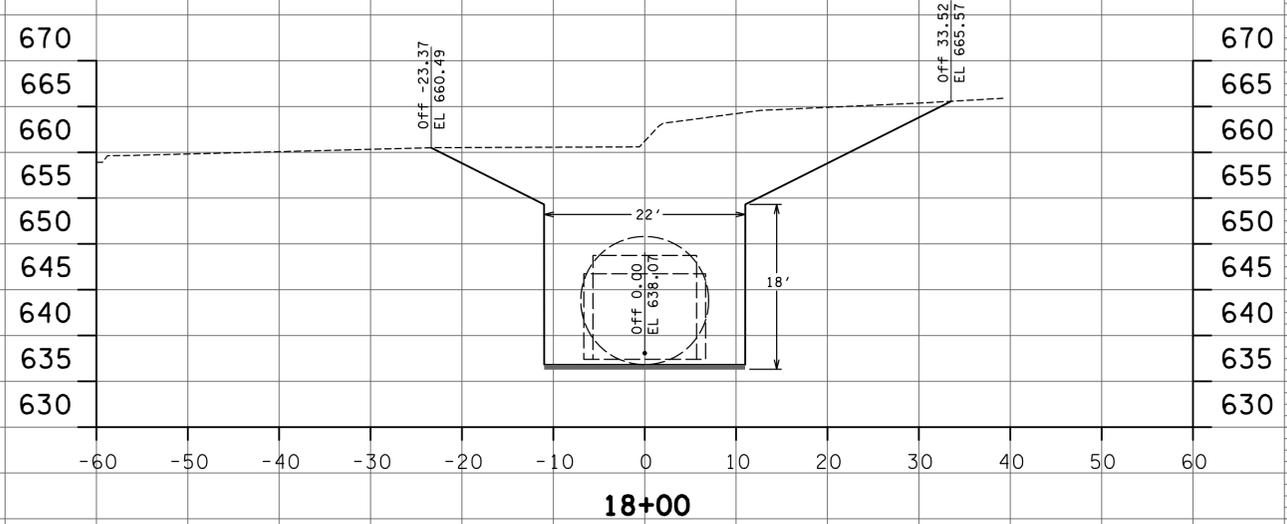
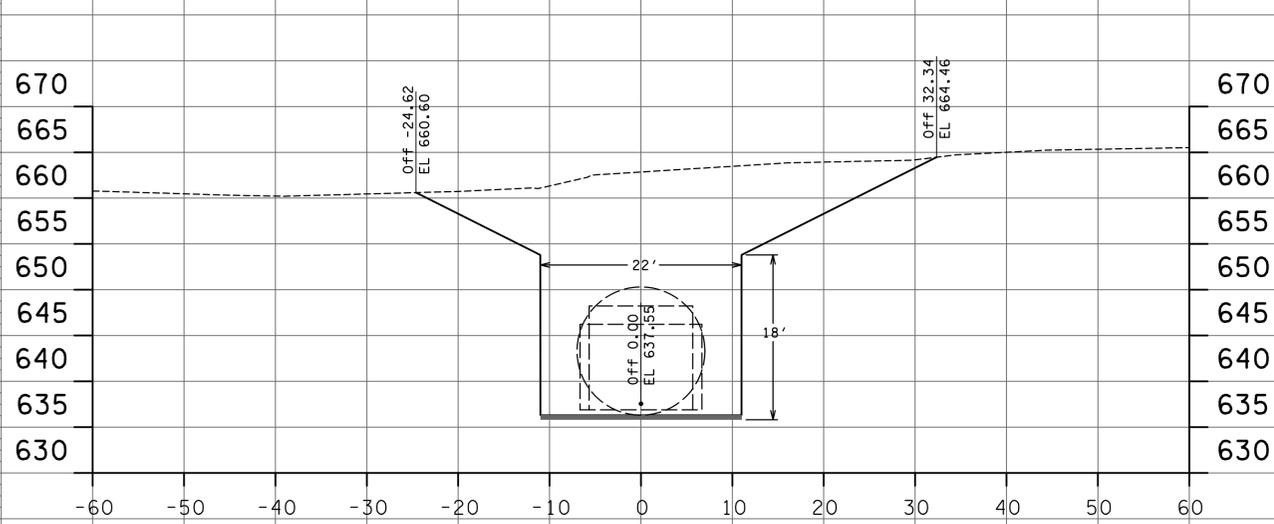
DATE

CROSS-SECTIONS  
 CONVEYANCE 1  
 FROM STA. 11+50  
 TO STA. 14+00

SCALE 1" = 10'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ



**CITY OF CHATTANOOGA**  
 DEPARTMENT OF PUBLIC WORKS  
**NORTH ST. ELMO DRAINAGE SYSTEM**  
**STUDY AND UPGRADE**  
 WILLIAM C. PAYNE, P.E., CITY ENGINEER  
 JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR



REVISION DESCRIPTION	DATE

CROSS-SECTIONS  
 CONVEYANCE 1  
 FROM STA. 15+00  
 TO STA. 18+00

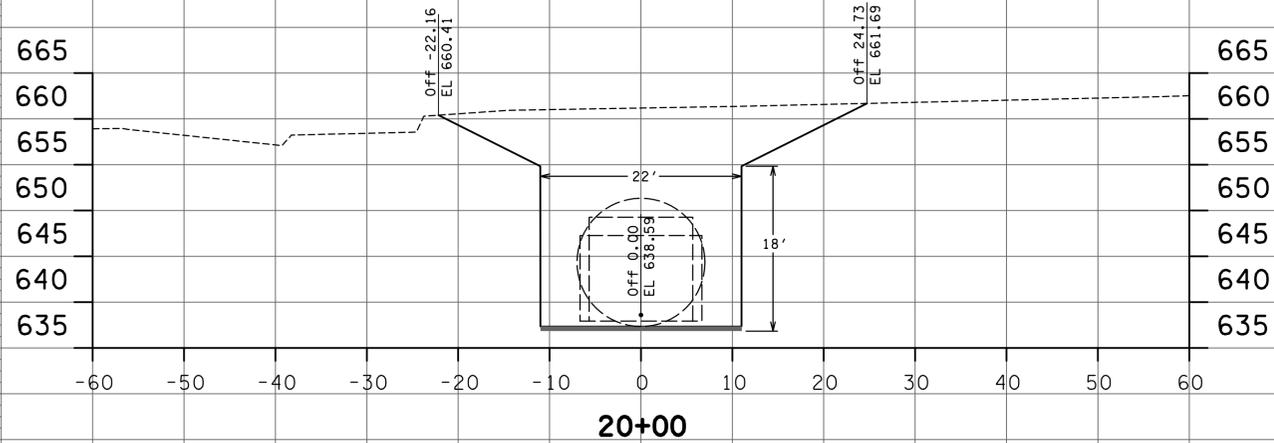
SCALE 1" = 10'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ

3-29-16

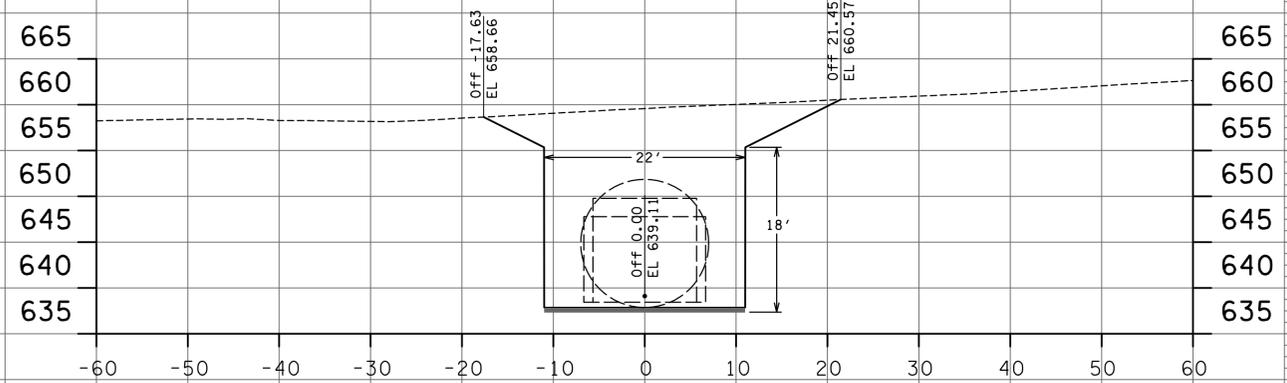
CONTRACT NUMBER:  
 S-09-008-201  
 DATE: 03-29-2016  
 SHEET 26 OF 28



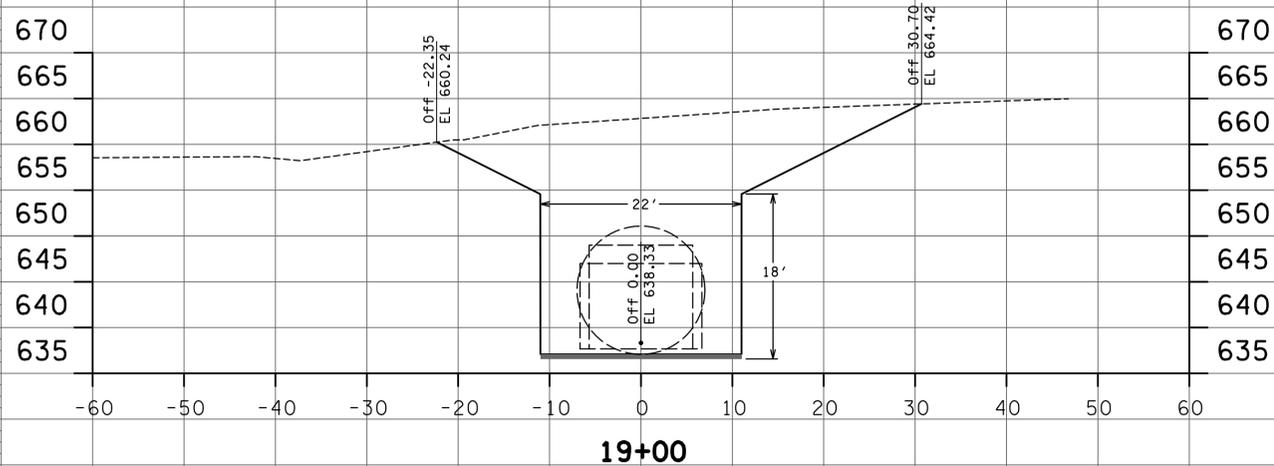
CITY OF CHATTANOOGA  
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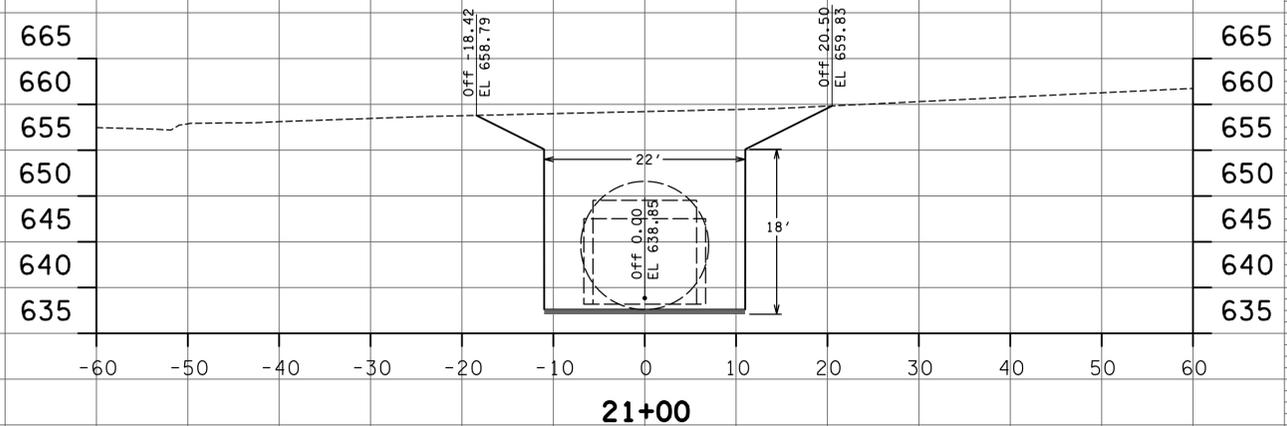
20+00



22+00



19+00



21+00

REVISION DESCRIPTION

DATE

CROSS-SECTIONS  
 CONVEYANCE 1  
 FROM STA. 19+00  
 TO STA. 22+00

SCALE 1" = 10'

DESIGNED BY: MAC

DRAWN BY: MAC

CHECKED BY: LAQ

3-29-16

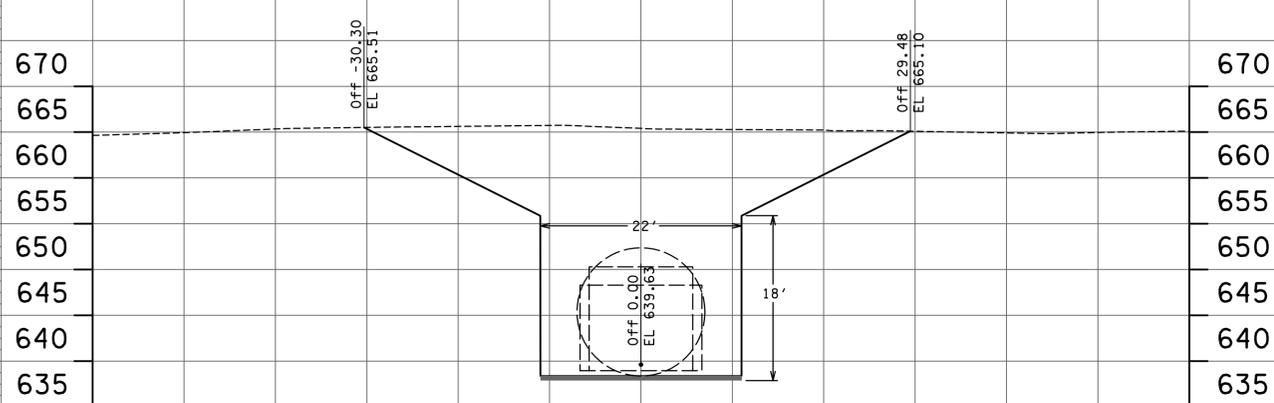
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 S-09-008-201

DATE: 03-29-2016

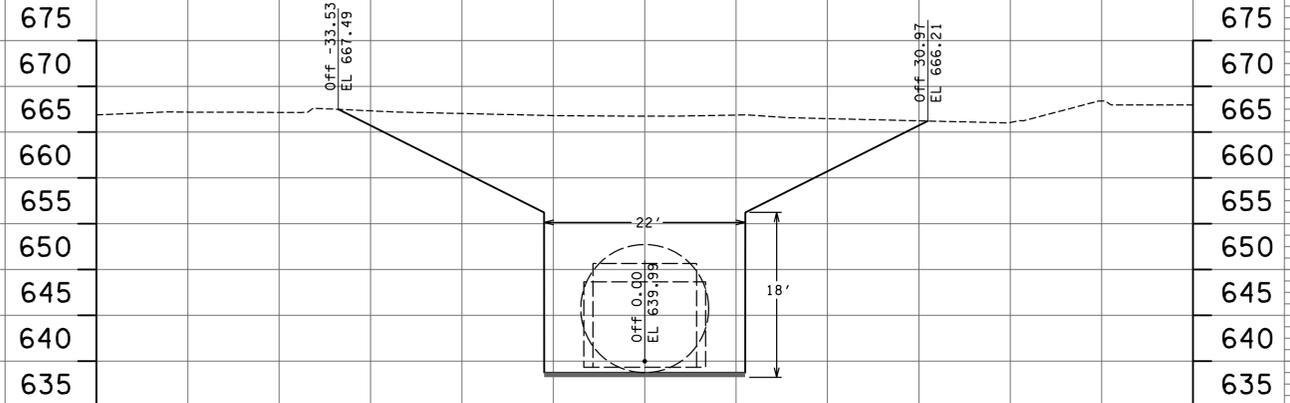
SHEET 27 OF 28



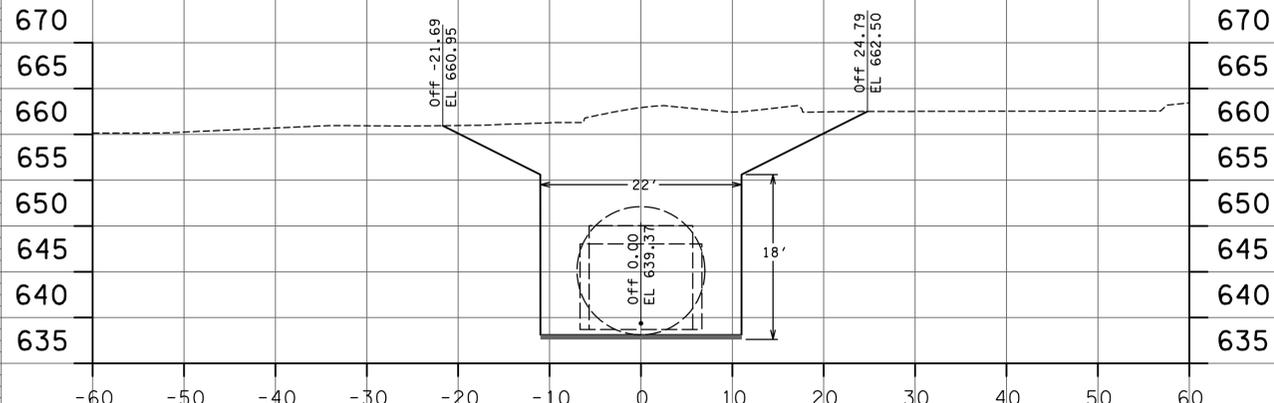
**CITY OF CHATTANOOGA**  
 DEPARTMENT OF PUBLIC WORKS  
**NORTH ST. ELMO DRAINAGE SYSTEM**  
**STUDY AND UPGRADE**  
 WILLIAM C. PAYNE, P.E., CITY ENGINEER  
 JUSTIN C. HOLLAND, DEPUTY ADMINISTRATOR



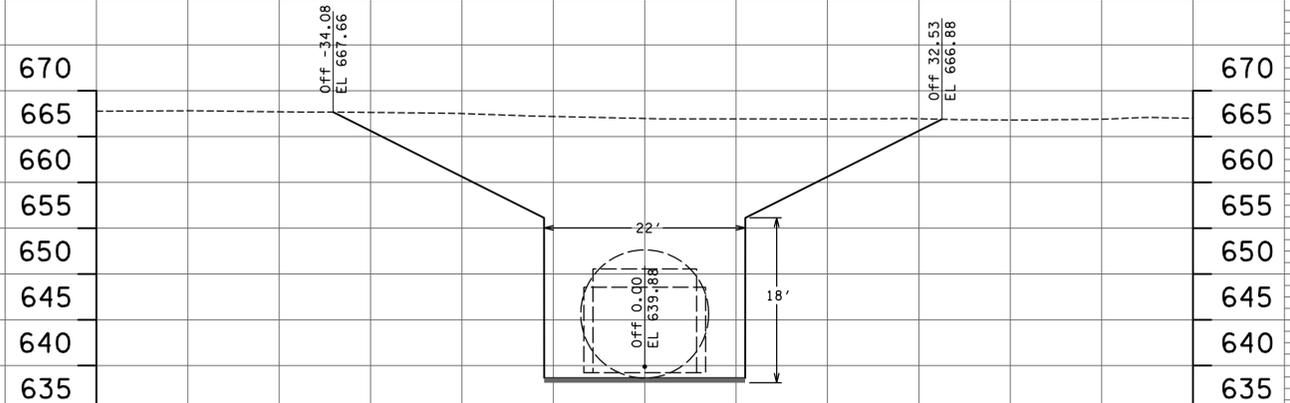
**24+00**



**25+40**



**23+00**



**25+00**

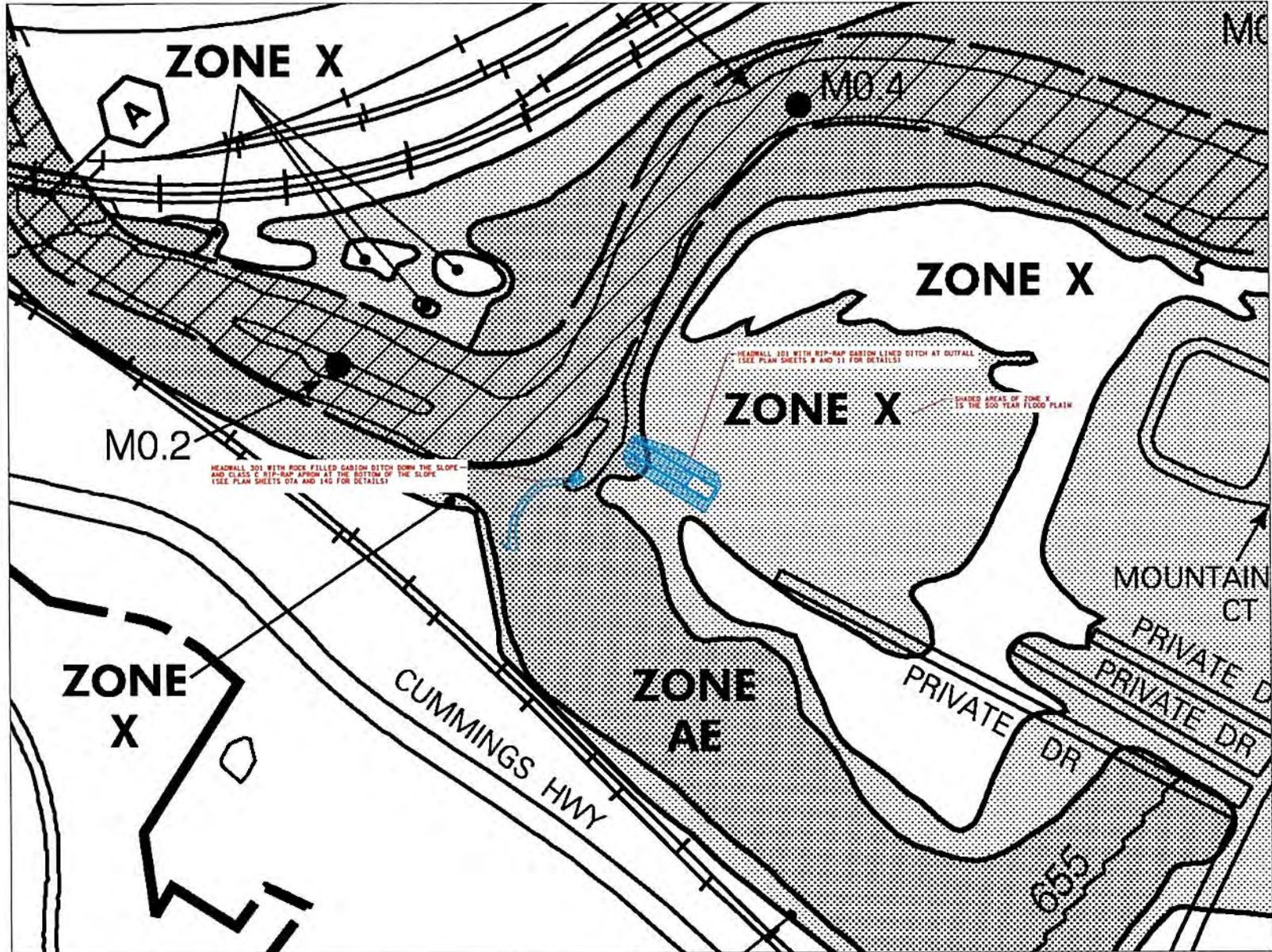
REVISION DESCRIPTION

DATE

CROSS-SECTIONS  
 CONVEYANCE 1  
 FROM STA. 23+00  
 TO STA. 25+40

SCALE 1" = 10'  
 DESIGNED BY: MAC  
 DRAWN BY: MAC  
 CHECKED BY: LAQ

3-29-16  
 CONTRACT NUMBER:  
 S-09-008-201  
 DATE: 03-29-2016  
 SHEET 28 OF 28



**JOINT APPLICATION FORM**  
**Department of the Army/TVA**

The Department of the Army (DA) permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act (P.L. 95-217). These laws require permits authorizing structures and work in or affecting navigable waters of the United States and the discharge of dredged or fill material into waters of the United States. Section 26a of the Tennessee Valley Authority Act, as amended, prohibits the construction, operation, or maintenance of any structure affecting navigation, flood control, or public lands or reservations across, along, or in the Tennessee River or any of its tributaries until plans for such construction, operation, and maintenance have been submitted to and approved by the Tennessee Valley Authority (TVA).

<p>Name and Mailing Address of Applicant:                  Mark Heinzler                  City of Chattanooga - Department of Public Works                  1250 Market Street, Suite 1000                  Chattanooga, TN 37402</p> <p>Email Address: <u>heinzler_m@chattanooga.gov</u></p> <p>Telephone Number: Home _____                  Office <u>423.643.6023</u>                  Mobile _____</p>	<p>Name, Mailing Address, and Title of Authorized Agent:                  Adam Carter                  Civic Engineering &amp; IT                  25 Lindsley Avenue                  Nashville, TN 37210</p> <p>Email Address: <u>cartera@civinc.com</u></p> <p>Telephone Number: Home _____                  Office <u>615.425.2000</u>                  Mobile _____</p>
<p>Facility/Activity Location (include all known information): Reservoir _____                  Address: <u>Northwest of the intersection of St. Elmo Avenue and Broad Street</u>                  Subdivision, Lot No., and/or Tax Parcel No.: _____                  Stream Name and Mile: <u>Gillespie Springs Branch</u> Longitude/Latitude: <u>85.3292/35.0157</u></p>	
<p>Application submitted to <input checked="" type="checkbox"/> DA <input checked="" type="checkbox"/> TVA                  Date activity is proposed to commence: <u>Spring 2016</u> Date activity is proposed to be completed: <u>Summer 2017</u></p>	

Describe in detail the proposed activity, its purpose and intended use (*private, public, commercial, or other*). Describe structures to be erected including those placed on fills, piles, or floating platforms. Also describe the type, composition, and quantity of materials to be discharged or placed in the water; the means of conveyance; and the source of discharge or fill material. Please attach additional sheets if needed.  
 See attached document

Application is hereby made for approval of the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I understand that TVA and the U.S. Army Corps of Engineers may contact an Authorized Agent listed above and such Agent may act on my behalf on all aspects of this application. I agree that, if this application is approved by TVA, I will comply with the terms and conditions and any special conditions that may be imposed by TVA. Please note the U.S. Army Corps of Engineers may impose additional conditions or restrictions.

11/19/15 Mark D. Heinzler [Signature]  
 Date Name of Applicant (Printed) Signature of Applicant

11-19-15 W. Lloyd Clayne  
 Date Name of Applicant (Printed)

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both. The appropriate DA fee will be assessed when a permit is issued.

Sheetcode - S. Scott

<b>TVA, Chattanooga, TN</b>	
Date Received	<u>1-14-16</u>
Reservoir	<u>Nickajack Cat 3</u>
Date Paid	<u>1-14-16</u>
Amount	<u>1,000.00</u> Check No. <u>2134122</u>
RLR	<u>276404</u> Invoice <u>N/A</u>
Shortcode	_____





REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
NASHVILLE DISTRICT, CORPS OF ENGINEERS  
3701 BELL ROAD  
NASHVILLE, TENNESSEE 37214

**MAR 31 2016**

Regulatory Branch

SUBJECT: LRN-2016-00066; St. Elmo Drainage System Study and Upgrade; Gillespies Springs Branch, Chattanooga, Hamilton County, Tennessee

City of Chattanooga  
Department of Public Works  
Attention: Mr. Mark Heinzer  
1250 Market Street, Suite 1000  
Chattanooga, Tennessee

Dear Mr. Heinzer:

This letter is in regard to your pre-construction notification (PCN) dated November 25, 2015, which documented potential waters of the United States on a survey area of approximately 0.5 acre. The PCN, associated with St. Elmo Drainage System Study and Upgrade project in Chattanooga, Hamilton County, Tennessee, indicated your preference for potential waters of the U.S. on the survey area to be reviewed as a preliminary jurisdictional determination (PJD). This project has been assigned File No. LRN-2016-00066, please refer to this number in any future correspondence.

The U.S. Army Corps of Engineers (USACE) has regulatory responsibilities pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). Under Section 10, the USACE regulates any work in, or affecting, navigable waters of the U.S. Under Section 404, the USACE regulates the discharge of dredged and/or fill material into waters of the U.S., including wetlands.

Based on a field review of the survey area on January 28, 2016, Gillespies Springs Branch, part of Nickajack Reservoir impoundment of the Tennessee River was documented within the survey area. The Tennessee River was listed as a navigable water by Nashville District on May 8, 1986 (Public Notice ORNOR-F 86-23). This office has determined these features **may** be jurisdictional waters of the U.S. in accordance with 33 C.F.R. 331.2 and a PJD has been prepared. The PJD is non-binding, cannot be appealed and only provides a written indication that waters of the U.S, including wetlands, may be present on-site. For purposes of computation of impacts, compensatory mitigation requirements and other resource protection measures, a permit decision made on the basis of a PJD will treat all waters that would be affected in any way by the permitted activity on the site as if they are jurisdictional waters of the U.S. This PJD is only valid for the survey area shown on the attached map entitled "LRN-2016-00066; PJD Map."

Enclosed with this letter are two copies of the PJD. If you agree with the findings of this PJD and understand your options regarding the same, please sign and date one copy of the form and return it to this office within 30 days of receipt of this letter. You should submit the signed copy to the following address:

U.S. Army Corps of Engineers  
Nashville District  
3701 Bell Rd.  
Nashville, TN 37214  
Attn: Mr. Casey Ehorn

The USACE has reviewed your application to discharge rock into approximately 160 square feet of Gillespies Springs Branch, discharge approximately 200 square feet of rock into Gillespies Springs Branch, construct temporary cofferdams and construction access, and alter the ordinary high water mark of Gillespies Springs Branch by excavating approximately 3,600 square feet of uplands in association with the construct two storm sewer system outfalls in Chattanooga, Hamilton County, Tennessee. Based on the information submitted, to the extent the USACE has jurisdiction over the discharge of dredged or fill material associated with your proposed work, it has been determined your project meets the criteria for Department of the Army Nationwide Permit (NWP) #7 *Outfall Structures and Associated Intake Structures* and #33 for *Temporary Construction, Access, and Dewatering*, which became effective March 19, 2012 in [77 FR 10184], provided work is performed in accordance with the enclosed plans entitled "LRN-2016-00066; Figures 1-4" and NWP conditions. The work shall also comply with the attached special conditions entitled "SPECIAL CONDITIONS FOR PERMIT LRN-2016-00016, CITY OF CHATTANOOGA".

This verification is valid until March 18, 2017, unless the NWP authorization is modified, suspended, or revoked. If the work has not been completed by that time, you should contact this office to verify that the permit is still valid. Furthermore, if you commence or are under contract to commence this activity before the date of NWP expiration, modification, or revocation, you will have 12 months from the date of expiration, modification or revocation to complete the activity under the present terms and conditions of the NWP. This will apply to all NWPs unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5(c) or (d).

These NWP 7 and 33 verifications not obviate your responsibility to obtain and abide by all other federal, state and local permits or approvals required. These NWP verifications should not be considered as an approval of the design features of any activity authorized or an implication that such construction is considered adequate for the purpose intended. In addition, it does not grant any property rights or exclusive privileges and does not authorize any injury to the property or rights of others.

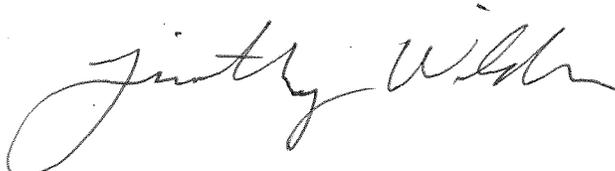
The State of Tennessee denied without prejudice 401 certification for the Nationwide Permits. In order for these NWPs to be valid, you must obtain an individual water quality certification from the state. You must provide our office with a copy of the required certification or waiver of certification

from the state prior to proceeding with the work. You must also comply with all conditions of the state certification. You may also need to obtain approval from the Tennessee Valley Authority.

No work in waters of the U.S. that deviates from the approved plans should occur without first obtaining approval from this office. Please sign and return the enclosed "Certification of Work" form upon completion of the work.

If you have any questions, please contact Mr. Casey Ehorn at (615) 369-7506 or via e-mail Casey.H.Ehorn@usace.army.mil.

Sincerely,

A handwritten signature in cursive script, reading "Timothy C. Wilder".

Timothy C. Wilder  
Chief, Western Regulatory Section  
Operations Division

Enclosures

cc:

Tennessee Valley Authority  
Attention: Mr. Benjamin J. Bean  
4601 N. Access Road, Bldg. B  
Chattanooga, Tennessee 37415-3825

Tennessee Department of Environment & Conservation  
Chattanooga Environmental Field Office  
Attention: Ms. Jennifer H. Innes  
1301 Riverfront Parkway, Suite #206  
Chattanooga, Tennessee 37402

SPECIAL CONDITIONS FOR PERMIT LRN-2016-00016, CITY OF CHATTANOOGA

1. **Water Quality Certification:** The State of Tennessee has denied the required 401 certification for these NWP. In order for these NWPs to be valid, you must obtain an individual water quality certification from the state. You must provide our office with a copy of the required certification or approval from the state PRIOR to discharging dredged or fill material into waters of the United States. You must comply with all conditions of the state permit.
2. **Cultural Resources:** If human remains, historic resources, or archaeological resources are encountered during construction, all ground disturbing activities shall cease in the immediate area and the permittee shall immediately (within one business day of discovery) notify the U.S. Army Corps of Engineers (USACE), Nashville District, Regulatory Branch. The permittee shall perform any work required by the USACE in accordance with Section 106 of the National Historic Preservation Act and USACE regulations.
3. **Permit Drawings:** The work must be completed in accordance with the plans and information submitted in support of the proposed work, as attached (plans entitled "LRN-2016-00066; Figures 1-4").
4. **Compliance Certification:** Upon completion of the authorized work, the Permittee shall sign the enclosed "compliance certification" and return it to our office. If you fail to comply with any of the conditions, this authorization may be modified, suspended, or revoked pursuant to 33 CFR 325.7.
5. **Removal of Temporary Structures:** The permittee must remove all of the temporary cofferdams within 5 days of completing the authorized work authorized by this permit.

**COMPLIANCE CERTIFICATION**

**YOU ARE REQUIRED TO SUBMIT THIS SIGNED CERTIFICATION REGARDING THE COMPLETED ACTIVITY AND ANY REQUIRED MITIGATION**

I hereby certify that the work authorized by **Permit No. LRN-2016-00066**, and any required mitigation was done in accordance with the Corps authorization, including any general or special conditions.

---

Permittee Signature

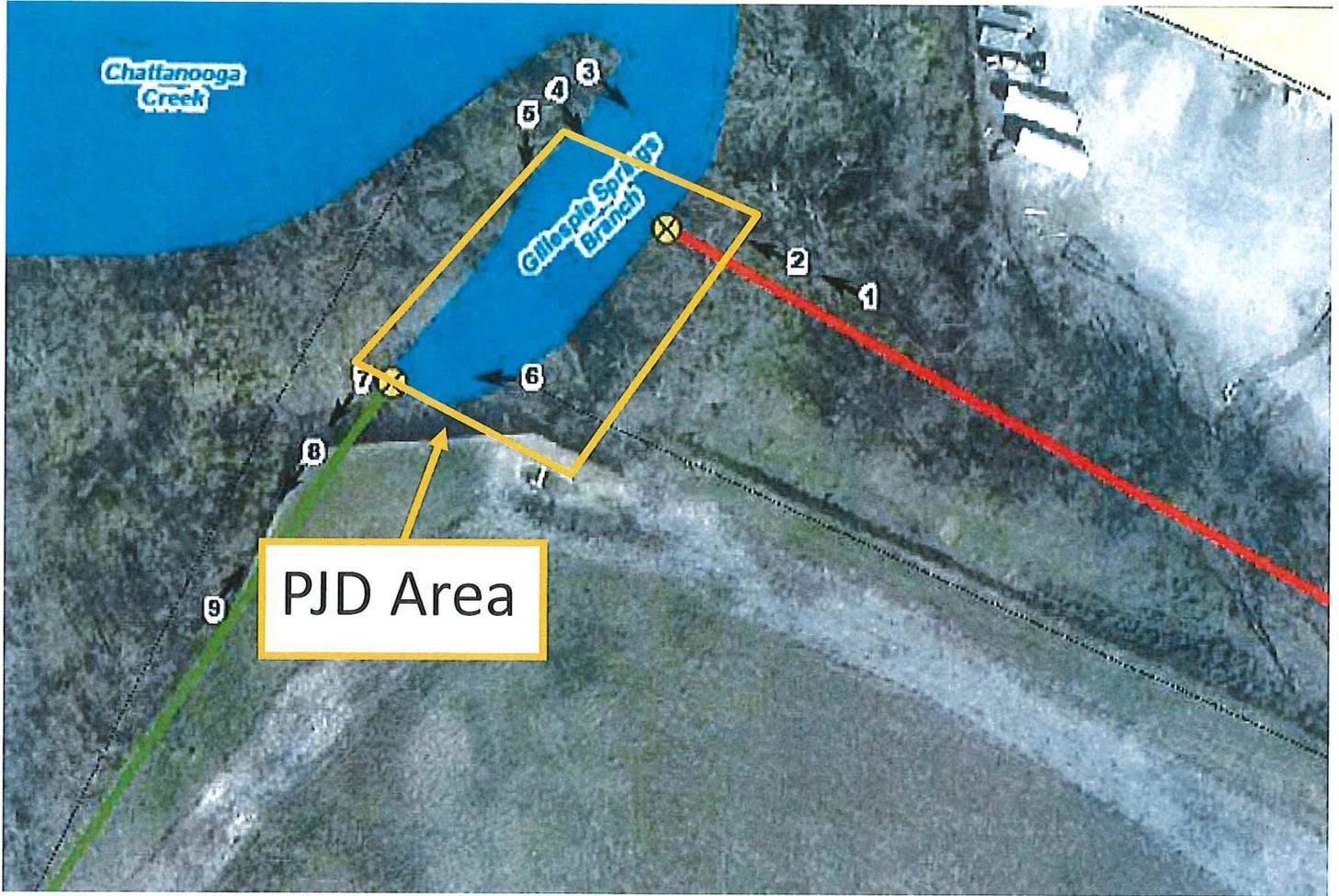
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Date

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative.

Submit this signed certification to the address below:

U.S. Army Corps of Engineers  
Regulatory Branch  
Attention: Casey Ehorn  
3701 Bell Road  
Nashville, TN 37214



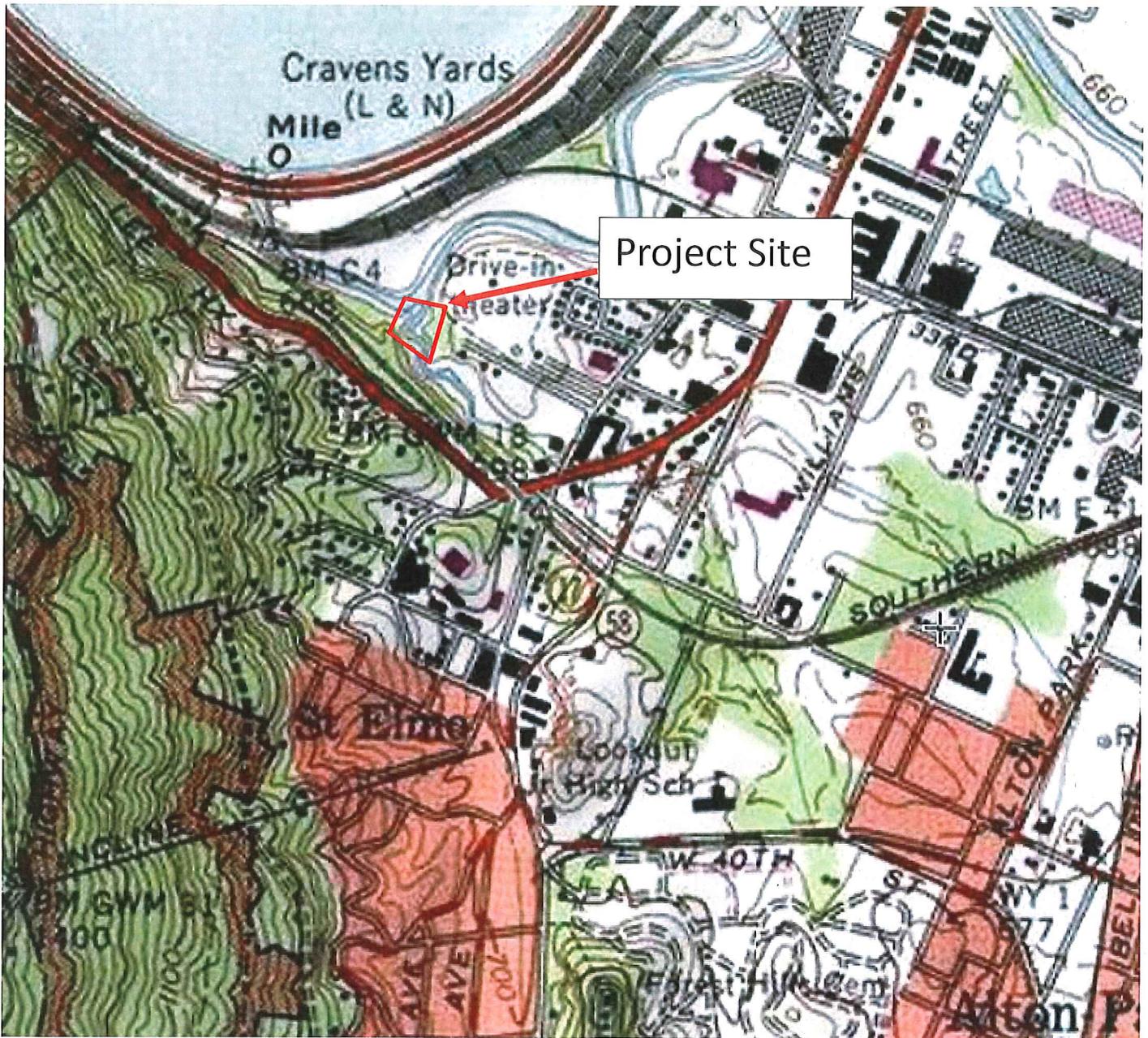
PJD Area



U.S. ARMY CORPS  
OF ENGINEERS  
Nashville District

City of Chattanooga  
St. Elmo Drainage System Study and Upgrade  
PJD Map

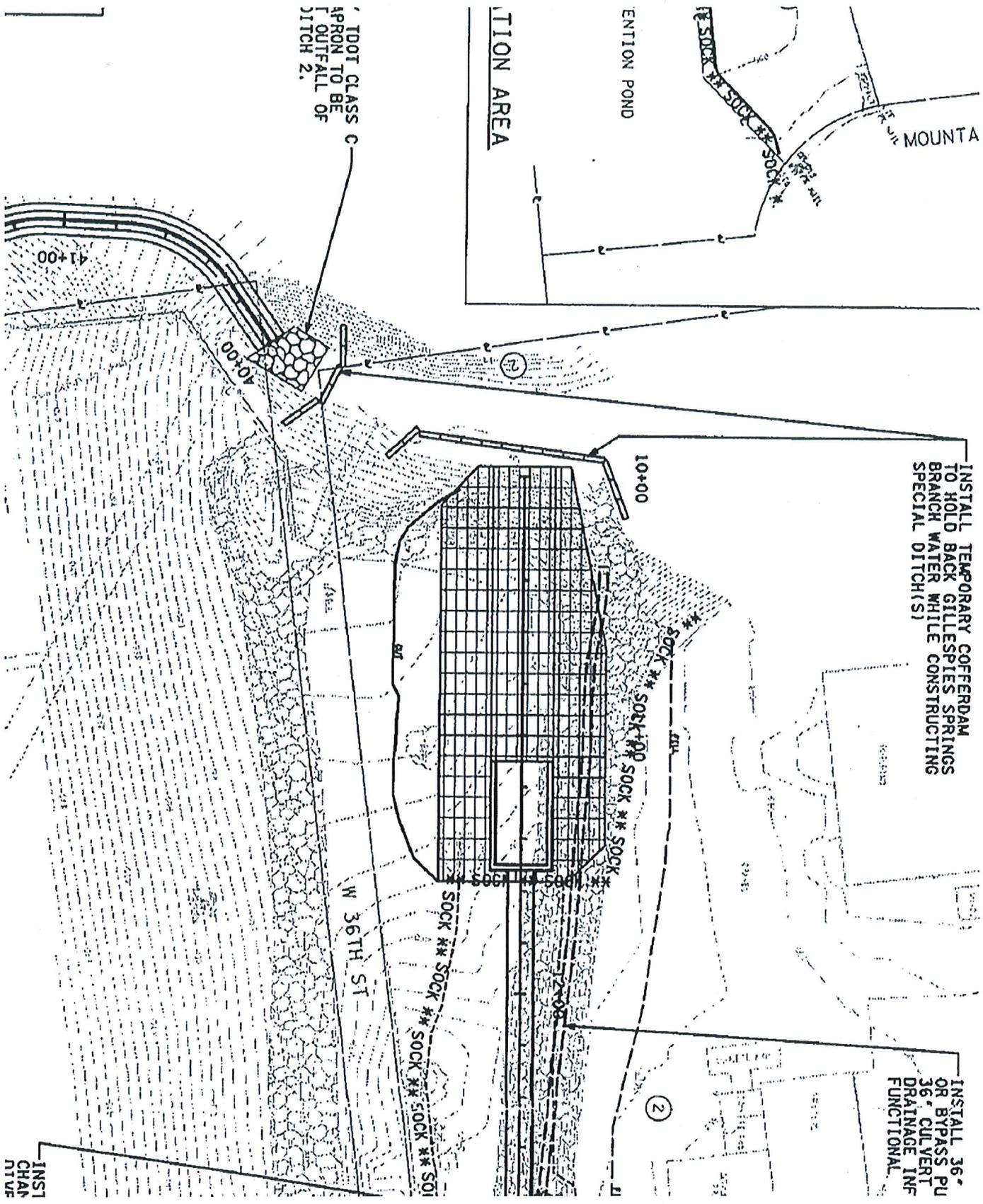
LRN-2016-00066



U.S. ARMY CORPS  
OF ENGINEERS  
Nashville District

City of Chattanooga  
St. Elmo Drainage System Study and Upgrade  
Vicinity Map

LRN-2016-00066



INSTALL TEMPORARY COFFERDAM TO HOLD BACK GILLESPIES SPRINGS BRANCH WATER WHILE CONSTRUCTING SPECIAL DITCH(S)

INSTALL 36" OR BYPASS PU 36" CULVERT DRAINAGE INF FUNCTIONAL

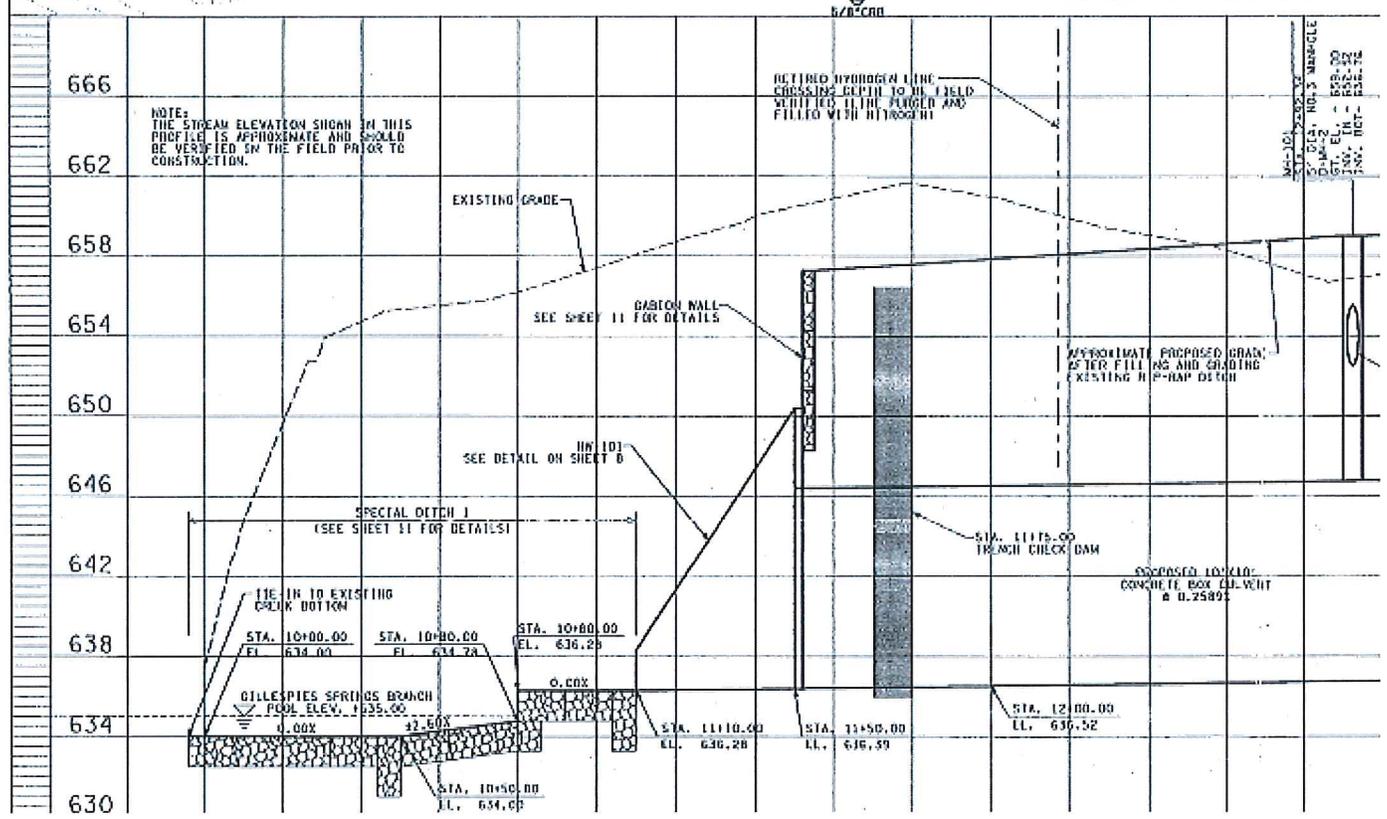
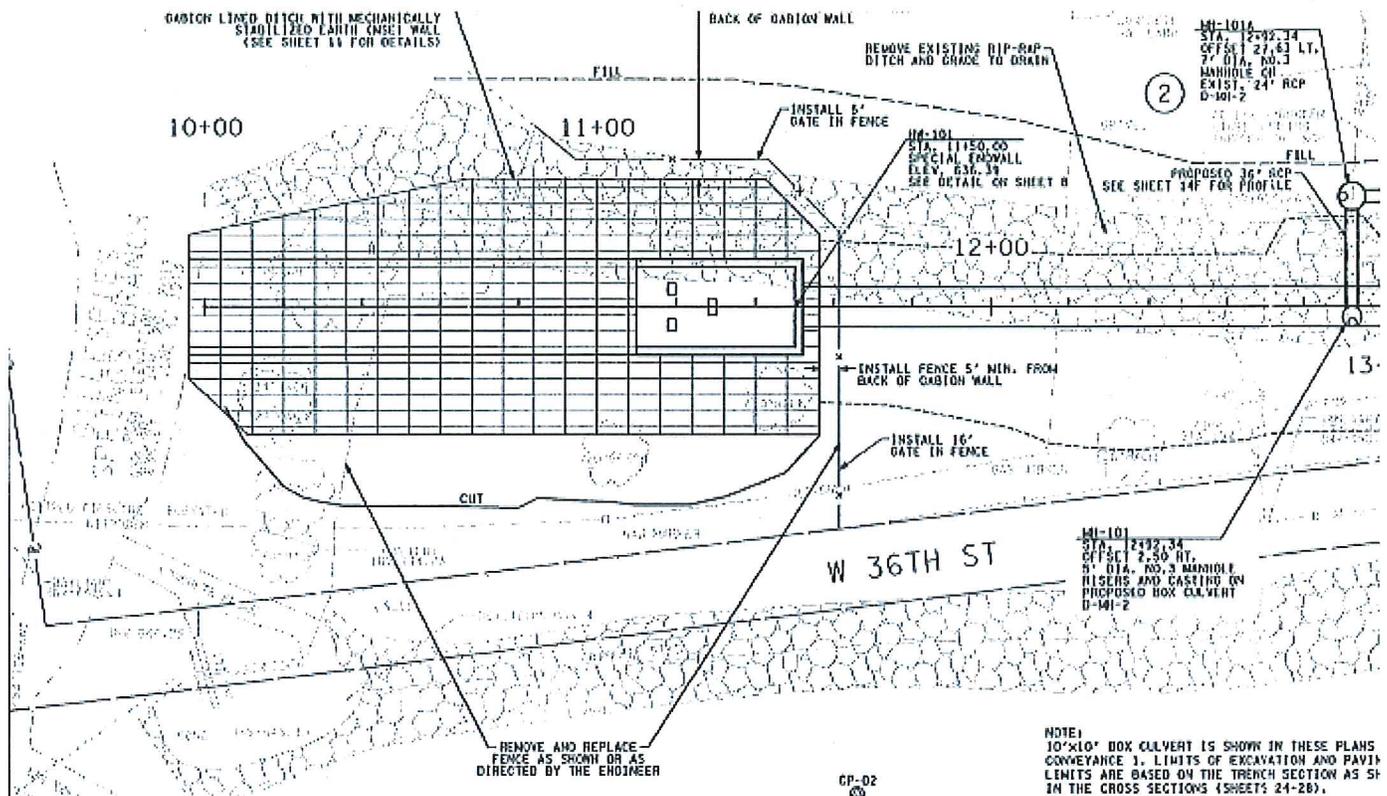
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U.S. ARMY CORPS OF ENGINEERS  
Nashville District

City of Chattanooga  
St. Elmo Drainage System Study and Upgrade  
Project Plans

LRN-2016-00066



U.S. ARMY CORPS  
OF ENGINEERS  
Nashville District

City of Chattanooga  
St. Elmo Drainage System Study and Upgrade  
Project Plans  
LRN-2016-00066

**PRELIMINARY JURISDICTIONAL DETERMINATION FORM**

**BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD):**

MAR 31 2016

**B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:**

City of Chattanooga  
Department of Public Works  
Attention: Mr. Mark Heinzer  
1250 Market Street, Suite 1000  
Chattanooga, Tennessee

**C. DISTRICT OFFICE, FILE NAME, AND NUMBER:** LRN-2016-00066 St. Elmo Drainage System Study and Upgrade; Gillespies Springs Branch, Chattanooga, Hamilton County, Tennessee

**D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:  
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)**

State: TN County/parish/borough: Hamilton City: Chattanooga  
Center coordinates of site (lat/long in degree decimal format):  
Lat. 35.01661 ° N, Long. -85.32989 ° W.  
Universal Transverse Mercator:  
Name of nearest waterbody: Gillespies Springs Branch

Identify (estimate) amount of waters in the review area:

Non-wetland waters: x linear feet: x width (ft) and/or 0.5 acres.

Cowardin Class: Lacustrine

Stream Flow:

Wetlands: acres.

Cowardin Class:

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: NA

Non-Tidal: Gillespies Springs Branch

**E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

- Office (Desk) Determination. Date: 22 March 2016  
 Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or

to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "may be" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

**SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply)**

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - Office concurs with data sheets/delineation report.
  - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
  - USGS NHD data.
  - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:
- USDA Natural Resources Conservation Service Soil Survey. Citation:.
- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs:  Aerial (Name & Date):  
or  Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Other information (please specify): Nashville District Public Notice of navigable waters (Public Notice ORNOR-F 86-23).

**IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.**

Caf Gu 31 Mar 14  
Signature and date of  
Regulatory Project Manager  
(REQUIRED)

\_\_\_\_\_  
Signature and date of  
person requesting preliminary JD  
(REQUIRED, unless obtaining  
the signature is impracticable)

<b>Site number</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Cowardin Class</b>	<b>Estimated amount of aquatic resource in review area</b>	<b>Class of aquatic resource</b>
1	35.01661	-85.32989	Lacustrine	0.5 acre	Non-wetland; Section 10

## NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: City of Chattanooga	File Number: LRN-2016-00066	Date: <b>MAR 31 2016</b>
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input checked="" type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

**SECTION I -** The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at

[http://www.usace.army.mil/CECW/Pages/reg\\_materials.aspx](http://www.usace.army.mil/CECW/Pages/reg_materials.aspx) or Corps regulations at 33 CFR Part 331.

**A: INITIAL PROFFERED PERMIT:** You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT:** You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

**SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT**

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

**POINT OF CONTACT FOR QUESTIONS OR INFORMATION:**

If you have questions regarding this decision and/or the appeal process you may contact:  
Casey Ehorn  
Nashville District, U.S. Army Corps of Engineers  
Regulatory Branch  
3701 Bell Road  
Nashville, Tennessee 37214  
(615) 369-7506; Casey.H.Ehorn@usace.army.mil

If you only have questions regarding the appeal process you may also contact:  
Appeals Officer  
U.S. Army Corps of Engineers  
Great Lakes and Ohio River Division  
550 Main Street, Room 10032  
Cincinnati, OH 45202-3222  
TEL (513) 684-6212; FAX (513) 684-2460

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

\_\_\_\_\_  
Signature of appellant or agent.

Date:

Telephone number:



US Army Corps  
of Engineers®  
Nashville District

# Nationwide Permit

File No.

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## **No. 7, Outfall Structures and Associated Intake Structures**

Activities related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted by, or otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act).

The construction of intake structures is not authorized by this NWP, unless they are directly associated with an authorized outfall structure.

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.)

(Sections 10 and 404)



US Army Corps  
of Engineers®  
Nashville District

# Nationwide Permit

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## No. 33, Temporary Construction, Access, and Dewatering

Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites, provided that the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard. This NWP also authorizes temporary structures, work, and discharges, including cofferdams, necessary for construction activities not otherwise subject to the Corps or U.S. Coast Guard permit requirements. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if the district engineer determines that it will not cause more than minimal adverse effects on aquatic resources. Following completion of construction, temporary fill must be entirely removed to an area that has no waters of the United States, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be revegetated, as appropriate. This permit does not authorize the use of cofferdams to dewater wetlands or other aquatic areas to change their use. Structures left in place after construction is completed require a separate section 10 permit if located in navigable waters of the United States. (See 33 CFR part 322.)

**Notification:** The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The pre-construction notification must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions.

(Sections 10 and 404)



US Army Corps  
of Engineers®  
Nashville District

# Nationwide Permit General Conditions

The following General Conditions must be followed in order for any authorization by NWP to be valid:

- 1. Navigation.** (a) No activity may cause more than a minimal adverse effect on navigation. (b) Any safety lights and signals prescribed by the US Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the US. (c) The permittee understands and agrees that, if future operations by the US require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the US. No claim shall be made against the US on account of any such removal or alteration.
- 2. Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.
- 3. Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.
- 4. Migratory Bird Breeding Areas.** Activities in waters of the US that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
- 5. Shellfish Beds.** No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.
- 6. Suitable Material.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).
- 7. Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.
- 8. Adverse Effects From Impoundments.** If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.
- 9. Management of Water Flows.** To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).
- 10. Fills Within 100-Year Floodplains.** The activity must comply with applicable FEMA-approved state or local floodplain management requirements.
- 11. Equipment.** Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.
- 12. Soil Erosion and Sediment Controls.** Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the US during periods of low-flow or no-flow.
- 13. Removal of Temporary Fills.** Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.
- 14. Proper Maintenance.** Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.
- 15. Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.
- 16. Wild and Scenic Rivers.** No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, US Forest Service, US Fish and Wildlife Service).
- 17. Tribal Rights.** No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.
- 18. Endangered Species.** (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed. (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary. (c) Non-federal permittees must submit a pre-construction notification (PCN) to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the

district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the PCN must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete PCN. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from Corps. (d) As a result of formal or informal consultation with the USFWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWP. (e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the US to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. (f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

**19. Migratory Birds and Bald and Golden Eagles.** The permittee is responsible for obtaining any "take" permits required under the USFWS's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.

**20. Historic Properties.** (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary. (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity

may have the potential to cause effects and notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA is complete. (d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps. (e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the activity on historic properties.

**21. Discovery of Previously Unknown Remains and Artifacts.** If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant recovery effort or if the site is eligible for listing in the National Register of Historic Places.

**22. Designated Critical Resource Waters.** Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment. (a) Discharges of dredged or fill material into waters of the US are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

**23. Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal: (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the US to the maximum extent practicable at the project site (i.e., on site). (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal. (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this

requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332. (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment. (2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered. (3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the US, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). (4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided. (5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan. (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment. (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of the US, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs. (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses. (g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management. (h) Where certain functions and services of waters of the US are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

**24. Safety of Impoundment Structures.** To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

**25. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

**26. Coastal Zone Management.** In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

**27. Regional and Case-By-Case Conditions.** The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or USEPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

**28. Use of Multiple Nationwide Permits.** The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the US for the total project cannot exceed 1/3-acre.

**29. Transfer of Nationwide Permit Verifications.** If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature: "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

\_\_\_\_\_  
Transferee

\_\_\_\_\_  
Date

**30. Compliance Certification.** Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include: (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions; (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification

## Johanna Heywood

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**From:** Troy Keith <Troy.Keith@tn.gov>  
**Sent:** Tuesday, March 24, 2015 11:00 AM  
**To:** Cartera@civicinc.com  
**Cc:** Janet Dutto; Johanna Heywood; William Krispin  
**Subject:** St. Elmo wells

Adam,

The monitoring well in question will need to be replaced after construction activities are completed. Please let me know if you have additional questions.

Thanks

Troy Keith, P.G.  
Environmental Consultant II  
Tennessee Division of Remediation  
Chattanooga Field Office  
1301 Riverfront Parkway, Suite 206  
Chattanooga, TN 37402

423-634-5755

**Chain of Custody Record**

<b>Client Information</b> Client Contact: Ron Dow Company: EnSafe, Inc. Address: 220 Athens Way, Plaza 1, Suite 410 City: Nashville State, Zip: TN, 37228 Phone: 615-255-9300(Tel) Email: rdow@ensafe.com Project Name: Wheland Foundry Landfill Site: PH01		Lab P#H: Huckaba, Jennifer E-Mail: jennifer.huckaba@testamericainc.com Carrier Tracking No(s): COC No: 490-19192-7674.1 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): 5TD PO #: 16026 EnSafe Project #: 888813088 Project #: 49006079 SSOW#:		Analysis Requested Total Number of Containers:	
Sample Identification MW03G1213 MW4AG1213 MW4AH1213 MW5AG1213 MW06G1213 Drum		Field Filtered Samples (Yes or No) 6010B - (MOD) Cadmium, Lead Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	
Sample Date 12/17/13 12/18/13 12/18/13 12/18/13 12/18/13 12/18/13		Sample Time 1630 0715 0715 0815 1020 1100	
Sample Type (C=comp, G=grab) G G G G G G		Matrix (W=water, S=solid, O=soil, BT=Soils, A=Air) W W W W W W	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Special Instructions/Note: All times eastern (central)	
Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by:		Method of Shipment:	
Relinquished by: [Signature] Date: 12/19/13 0800 Company: EnSafe Company		Received by: [Signature] Date/Time: 12/19/13 0800 Company: Company	
Relinquished by: [Signature] Date/Time:		Received by: [Signature] Date/Time:	
Relinquished by: [Signature] Date/Time:		Received by: [Signature] Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	



WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 12/17/13	JOB NUMBER: 18033	PHASE: PH01	TASK: —
PROJECT: Wheland Foundry LP	EVENT: December 2013		
WELL ID: MW-3	LOCATION: Chattanooga, TN		
WEATHER CONDITIONS: 60% sunny	AMBIENT TEMP: 60S		
REVIEWED BY:	PERSONNEL: DTB		

WELL DIA: 2.0"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 48.15	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 28.43	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.): 19.72	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal): 3.21	START: 1300	FINISH: 1645
3 VOLUMES OF WATER (gal): 9.64	VOLUME PURGED (gal): 9.6	
	ANALYSIS: 8010 (Lead + Cadmium)	

**MNA FIELD RESULTS**

FERROUS IRON	mg/L	CHLORIDE	mg/L	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	mg/L
SULFATE	mg/L	CO <sub>2</sub>	mg/L	mg/L

**IN-SITU TESTING**

Circle one: DEVELOPMENT <input type="checkbox"/> SAMPLING <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Pump		Description: Plastic Disposable	
Time (hh:mm):	1306	1325	1346	1405
pH (units):	6.77	5.168	5.67	6.565
Conductivity (mS/cm):	0.253	0.133	0.098	6.087
Turbidity (NTU):	Clear	Turbid	Turbid	Turbid
DO (mg/L):	Horiba	_____		
YSI	5.71	6.85	6.08	6.17
Temperature (C°):	17.53	17.12	16.93	16.91
ORP (mV):	221.1	220.1	228.5	222.9
Volume Purged (gal):	Initial	3.2	6.4	9.6
Depth to Water (ft):	_____			
Orion ORP: mV	_____			
E <sub>H</sub>	_____			
Rel mV	_____			
Well Goes Dry While Purging <input type="checkbox"/>				

**SAMPLE DATA**

<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Pump		Description: Plastic Disposable			
Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
MW03G1213	12/17/13	1630	1	0	<del>Slightly turbid</del> Clear

Purging/Sampling Device Decon Process:

COMMENTS: Will return on 12/18/13 to collect sample (too turbid to sample); returned @ 1630 to check on turbidity of well in an attempt to sample; turbidity low enough to sample.

Purge water placed in drum# New Drum Page 1 of 1



WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 12/12/13	JOB NUMBER: 18053	PHASE: DHO 1	TASK: —
PROJECT: Wheeland Foundry LF	EVENT: December 2013		
WELL ID: MW-4A	LOCATION: Chattanooga, TN		
WEATHER CONDITIONS: 60s Sun	AMBIENT TEMP: 60s		
REVIEWED BY:	PERSONNEL: RTB		

WELL DIA: 2.0"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 36.25	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 17.26	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.): 17.99	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal): 2.93	START: 1405	FINISH: 0730*
3 VOLUMES OF WATER (gal): 8.80	VOLUME PURGED (gal): 9.0	
	ANALYSIS: 8010 (Cadmium and Lead)	

MNA FIELD RESULTS

FERROUS IRON	mg/L	CHLORIDE	mg/L	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L	mg/L
SULFATE	mg/L	CO <sub>2</sub>	mg/L	mg/L

IN-SITU TESTING

Circle one: DEVELOPMENT <input type="checkbox"/> SAMPLING <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Baller <input type="checkbox"/> Pump		Description: Disposable Plastic															
Time (hh:mm):	1430	1440	1450	1500														
pH (units):	5.79	5.82	5.72	5.74														
Conductivity (mS/cm):	0.163	0.151	0.151	0.152														
Turbidity (NTU):	Clear	W. Turbid	W. Turbid	S. Turbid														
DO (mg/L):	Horiba																	
	YSI	2.89	3.69	3.04	3.66													
Temperature (C°):		16.05	16.32	16.02	15.98													
ORP (mV):		203.0	194.9	192.3	192.6													
Volume Purged (gal):		Initial	3.0	6.0	9.0													
Depth to Water (ft):																		
Orion ORP:	mV																	
	E <sub>H</sub>																	
	Rel mV																	
Well Goes Dry While Purging <input type="checkbox"/>																		

SAMPLE DATA

			<input checked="" type="checkbox"/> Baller <input type="checkbox"/> Pump	Description: Plastic Disposable	
Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
MW4A G 1213	12/12/13	0715	1	0	Clear
MW4A H 1213	12/18/13	0715	1	0	

Purging/Sampling Device Decon Process:

COMMENTS: Well too turbid to collect sample, will return after allowing well to settle

\* returned on 12/18/13 to collect sample

Purge water placed in drum# New Drum



### WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 12/18/13	JOB NUMBER: 18033	PHASE: A101	TASK:
PROJECT: Wheeland Foundry LF	EVENT: December 2013		
WELL ID: MW-5A	LOCATION: Chattanooga, TN		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 50s		
REVIEWED BY:	PERSONNEL: RTB		

WELL DIA: 2.0"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 67.21	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 47.21	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.): 20.00	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal): 3.26	START: 1530	FINISH: 0830*
3 VOLUMES OF WATER (gal): 9.78	VOLUME PURGED (gal): 9.6	
	ANALYSIS: Boron (Cadmium and Lead)	

MNA FIELD RESULTS			
FEROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO <sub>2</sub>	mg/L

IN-SITU TESTING		<input checked="" type="checkbox"/> DEVELOPMENT <input checked="" type="checkbox"/> SAMPLING <input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Pump    Description: Disposable Plastic									
Circle one:		1525	1535	1645	1655						
Time (hh:mm):		7.04	7.06	7.02	7.08						
pH (units):		1.125	1.242	1.317	1.295						
Conductivity (mS/cm):		Clear	sl. Turb.	sl. Turb.	Turb. h.c.						
Turbidity (NTU):		DO (mg/L):									
	Horiba	YSI									
		3.56	2.80	2.94	3.01						
Temperature (C°):		14.95	14.42	16.79	16.18						
ORP (mV):		178.0	153.9	136.6	136.5						
Volume Purged (gal):		Initial	3.2	6.4	9.6						
Depth to Water (ft):											
Orion ORP:	mV										
	E <sub>H</sub>										
	Rel mV										
											Well Goes Dry While Purging <input type="checkbox"/>

SAMPLE DATA		<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Pump    Description: Disposable			
Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
MW5A01213	12/18/13	0815	1	0	Clear

Purging/Sampling Device Decon Process:

COMMENTS: Returned on 12/18/13 to collect sample after allowing well to settle

Purge water placed in drum# New Drum



WELL DEVELOPMENT & GROUNDWATER SAMPLING FORM

DATE: 12/18/13	JOB NUMBER: 18033	PHASE: Pkg 1	TASK: —
PROJECT: Wheeland Foundry LF	EVENT: December 2013		
WELL ID: MW-6	LOCATION: Chattanooga, TN		
WEATHER CONDITIONS: Sunny	AMBIENT TEMP: 50s		
REVIEWED BY:	PERSONNEL: RTB		

WELL DIA: 2.0"	WELL DEVELOPMENT	
TOTAL DEPTH from TOC (ft.): 77.45	START:	FINISH:
DEPTH TO WATER from TOC (ft.): 116.32	VOLUME PURGED (gal):	
LENGTH OF WATER COL. (ft.): 11.13	GROUNDWATER SAMPLING	
1 VOLUME OF WATER (gal): 1.81	START: 0945	FINISH: 1025
3 VOLUMES OF WATER (gal): 5.44	VOLUME PURGED (gal): 6.4	
	ANALYSIS: 8010 (lead and cadmium)	

MNA FIELD RESULTS			
FERROUS IRON	mg/L	CHLORIDE	mg/L
SULFIDE	mg/L	ALKALINITY	mg/L
SULFATE	mg/L	CO <sub>2</sub>	mg/L

IN-SITU TESTING		Circle one: DEVELOPMENT SAMPLING		<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Pump	Description: Disposable
Time (hh:mm):	0950	1010	1020		
pH (units):	5.50	5.21	5.22	5.20	
Conductivity (mS/cm):	0.429	0.395	0.401	0.403	
Turbidity (NTU):	Clear	sl. Turb.	sl. Turb.	sl. Turb.	
DO (mg/L):	Horiba				
	YSI	5.15	3.57	3.45	3.34
Temperature (C°):		16.92	17.53	17.54	17.48
ORP (mV):		201.0	212.4	217.3	217.8
Volume Purged (gal):	Initial	1.8	3.6	5.4	
Depth to Water (ft):					
Orion ORP:	mV				
	E <sub>H</sub>				
	Rel mV				
Well Goes Dry While Purging <input type="checkbox"/>					

SAMPLE DATA		<input checked="" type="checkbox"/> Bailer <input type="checkbox"/> Pump	Description: Disposable		
Sample ID	Date (m/d/y)	Time (hh:mm)	Bottles (total to lab)	Filtered (0.45 µm)	Remarks
MW0660123	12/18/13	1020	1	G	Clear

Purging/Sampling Device Decon Process:

COMMENTS:

EnSafe Inc., Revised 03/22/06

All times central

12/17/13 TN055: Wheeland Foundry LF

0600 Depart Nashville, TN enroute to Chattanooga, TN  
0843 Arrive onsite; wait for G&B and TDEC representative.

0900 ~~0843~~ TDEC (Don Moore) and G&B arrive onsite

0930 T. Berry and Don Moore perform site inspection of monitoring wells

0933 MW-3: Pad, Bollards

0939 MW-4A: Bollard

0945 MW-5A: Bollards, Pad

0950 MW-6: Looks good.

~~0950~~

1000 Finished w/ site inspection w/ Don Moore; G&B has already begun clearing around wells and vtrcraft. EnSite will assess well again after clearing.

1100 G&B continues to clear around wells, and mow grass on cap; EnSite will begin sampling wells. Collect G&B elevation data

First. DTM ID TOC Elevation

MW-3	0843	48.15	641.73
MW-4A	17.06	35.25	656.10
MW-5A	47.01	67.91	683.43
MW-6	46.32	77.45	698.03

DTM = Depth to Water TID = Total Depth

TOC = Top of Casing

\* = Elevation from Attachment 3 Figure

All times central

12/17/13 Wheeland Foundry LF

1154 Purge drum inspection:

MW-3: Empty (appears to ~~be empty~~ be unable to hold water due to weak bottom); will replace

MW-4A: Full of purge water

MW-5A: Empty drum (possibly dry)

MW-6: Empty drum (possibly rusted out)

1210 Break for lunch

1245 Return from lunch; <sup>set-up</sup> begin purging MW-3

1300 Begin purging @ MW-3 w/ Disposable Boiler

1410 Finished w/ purge @ MW-3; too turbid to sample therefore EnSite will let well settle overnight and collect sample on 12/18/13.

1418 Mob and setup @ MW-4A

1425 Begin purge @ MW-4A

1508 Finish w/ purge @ MW-4A; will return on 12/18/13 to collect sample; too turbid

1530 Begin purging @ MW-5A

1610 Finish w/ purge @ MW-5A; will return to collect sample after allowing well to settle; too turbid.

1620 Arrive @ MW-3 to check on turbidity of well

1630 collect sample @ MW-3 (MW0301213)

(2)

12/17/13 Wheland Foundry LF

11245 Finished @ MW-3

1055 GPa Finished w/ mowing/clearing

1715 GPa Finished w/ loading FG and offsite;

Ensbale takes up site; Finished for the day.

Total hrs: 10.75 hrs

*Russ*

③

12/18/13 Wheland Foundry LF

Center

0600 Arrive on-site

0617 Mtu's Drilling crew on-site; 5:17 AM

daylight, will wait for daylight to begin work

Will conduct UTS tri-gate machine and

gear up for work.

Tasks: Collect samples from MW-4A and

MW-5A first (already purged) and

purge MW-02a; Mtu's Drilling will

repair wells while Ensbale samples.

0605 Ensbale operates and allows

Mtu Drilling on-site; walks through

well repairs with Mtu Drilling.

Monitoring wells MW-3, MW-4A, and

MW-5A will need repairs. MW-6 appears

OK

0650 Ensbale makes to MW-4A to collect

sample.

0700 Return to MW-4A to check status

of turbidity; appears OK to sample

~~0715~~ collect sample @ MW-4A (MW4A013)

\* Collected Duplicate sample @ MW-4A

(MW4A1213)

0730 Finished @ MW-4A; check on well

repair work @ MW-3

④

12/10/13 Wheeland Foundry LF

All times central

- 0750 MW-3 needs new bollards, concrete pad work and ~~rest~~ stick-up casing stabilized. MWD Drilling will bust out concrete around existing bollards and replace/reset in fresh concrete To help with stabilizing casing stretchup, MW will pour sandy concrete mix inside productive cover to stabilize casing.
- Notes: 4x4 at pad, 21ft thick set on r/craft, very sturdy.
- 0800 Advise @ MW-5A to collect sample.
- 0815 collect sample @ MW-5A (MWSA01213)
- 0830 Finished @ MW-5A
- 0845 Enbete heads to lumberyard to pick up new lumber for MW-3
- 0930 Return from lumberyard.
- 0945 Set-up @ MW-4 to purge well and sample
- 1000 collect sample @ MW-6 (MWS601213)
- 1030 Check on status of well repairs.
- 1100 collect down sample (Damp)
- 1115 Take lunch

5

12/10/13 Wheeland Foundry LF

- 1130 Return from lunch, ~~with~~ MWD works on MW-6
- 1300 Finished w/ MW-6; work to MW-3 to finish well repair.
- Well repairs:
  - MW-3: new pad (4'x4'), reuse (4) bollards. (Pumpover ext. r/pd)
  - MW-4A: No repairs
  - MW-5A: new pad (3'x3'), reuse (2) bollards.
  - MW-6: new pad (3'x3' x 3' x 6"), reuse (4) bollards.
- 1430 Finish up well repairs @ MW-3; MWD loading truck preparing to leave site.
- 1500 MWD offsite; Enbete loads up site and works to Nashville, TN
- 1707 Advise in Nashville, TN
- Total hrs: 9 hrs

*RSB*

5

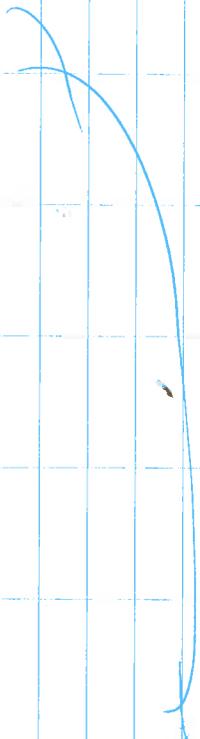
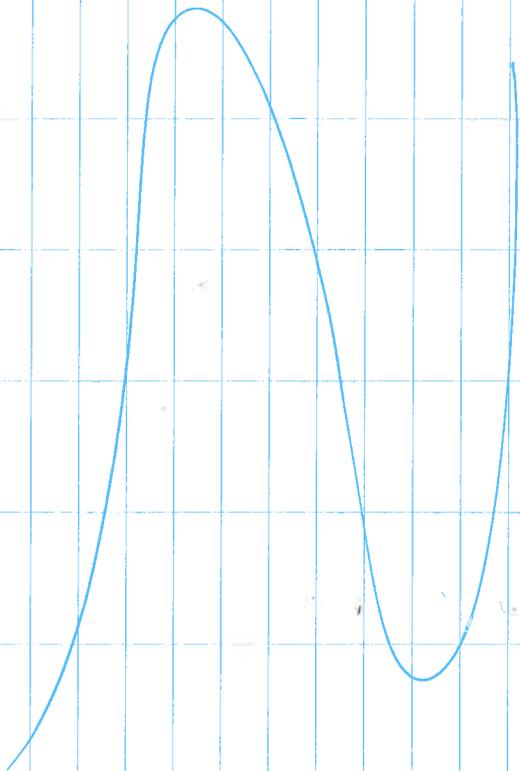
12/19/13

Weland Family LF

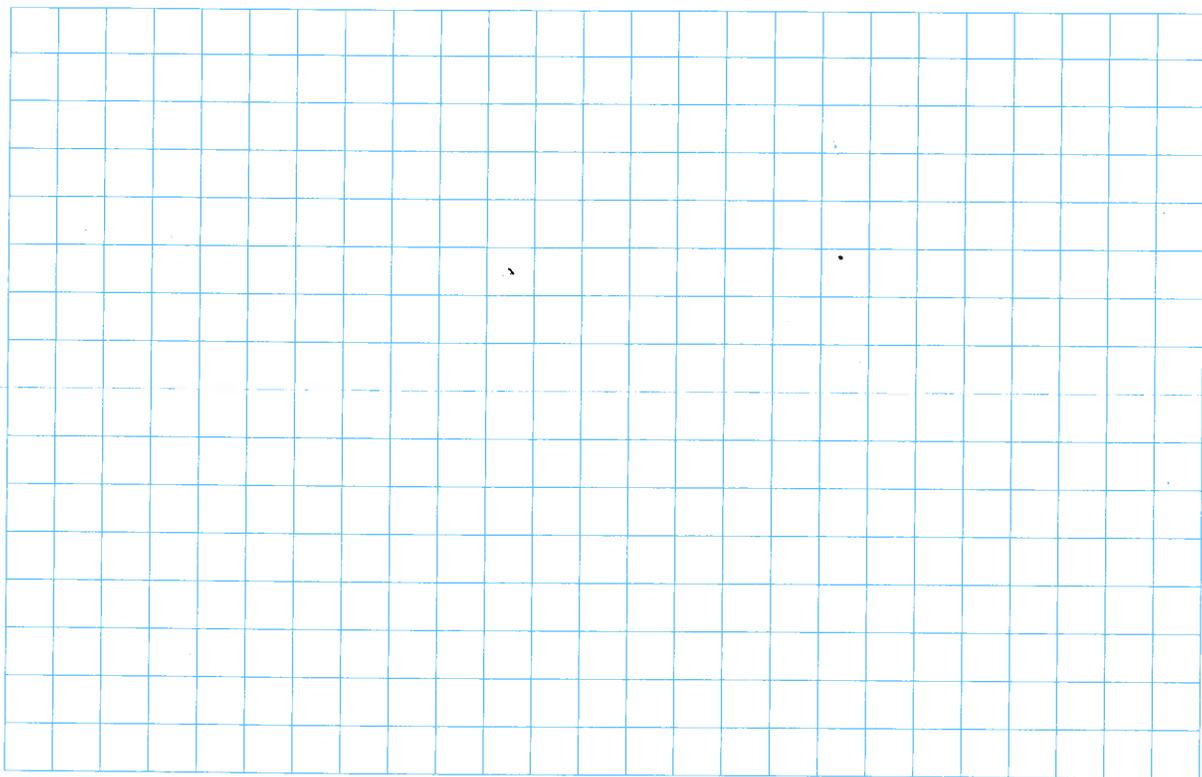
0755 Depart for laboratory to submit samples

0800 Drop off samples & TestAwards

*W. W. W.*



(7)





STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
Division of Solid Waste Management  
Fifth Floor, L & C Tower  
401 Church Street  
Nashville, Tennessee 37243 - 1535

*Wheland Foundry*

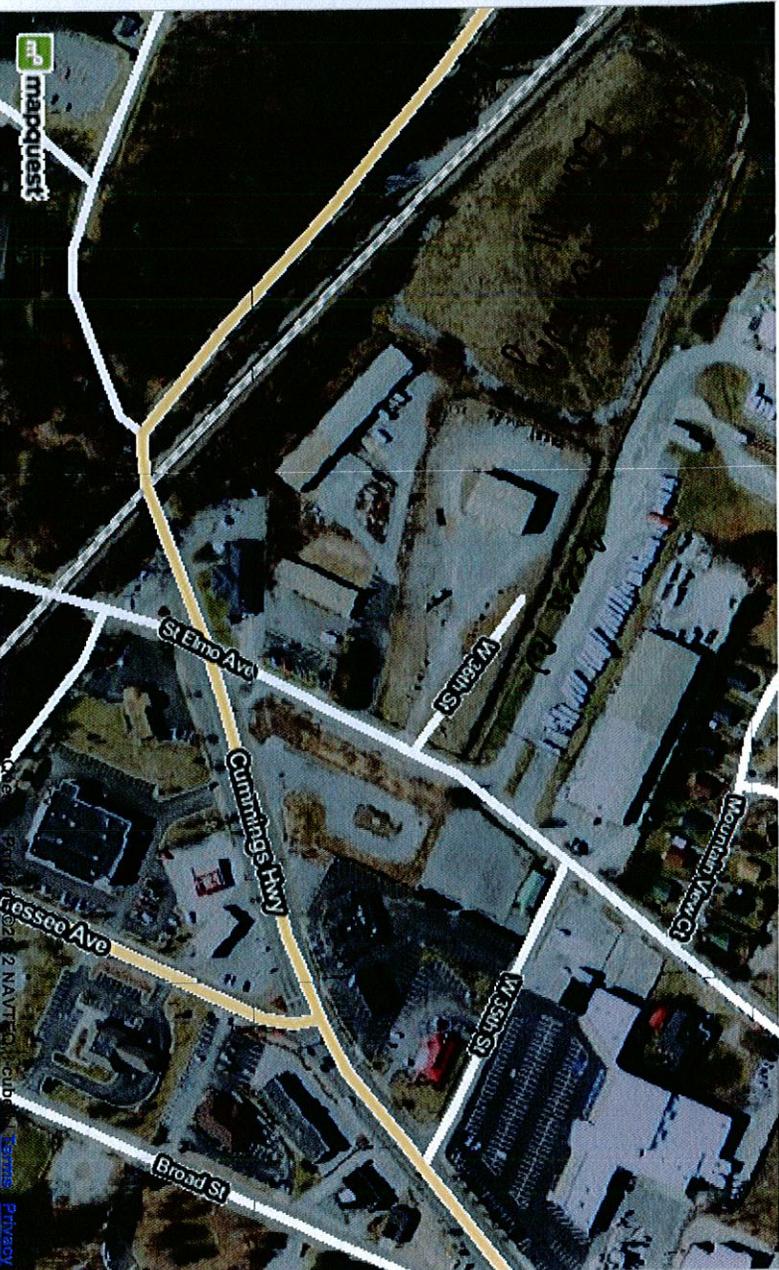
**INVITATION TO SUBMIT A BID FOR THE RESTORATION AND  
THE ONGOING MONITORING AND MAINTENANCE OF THE  
WHELAND FOUNDRY PERMITTED POST CLOSURE  
HAZARDOUS WASTE LANDFILL  
Chattanooga, Tennessee**

EPA ID NUMBER - TND 98 777 8495 Permit Number - TNHW - 020

DATE: ~~July 20, 2011~~ *November 13, 2012*

SUBJ: ~~Invitation to submit a bid for the restoration and the ongoing monitoring and maintenance of the WHELAND FOUNDRY LANDFILL to compliance with the permit conditions of the landfill as described in the Final Post Closure Permit of WHELAND FOUNDRY LANDFILL Chattanooga, Tennessee. EPA ID Number TND 98-777 8495 Permit Number TNHW - 020 September 21, 1993.~~

CONTACT: Charles Burroughs  
[Charles.burroughs@tn.gov](mailto:Charles.burroughs@tn.gov)  
(615) 532-0863  
(615) 532-0886  
If you have any questions or need any additional information use the above contact.



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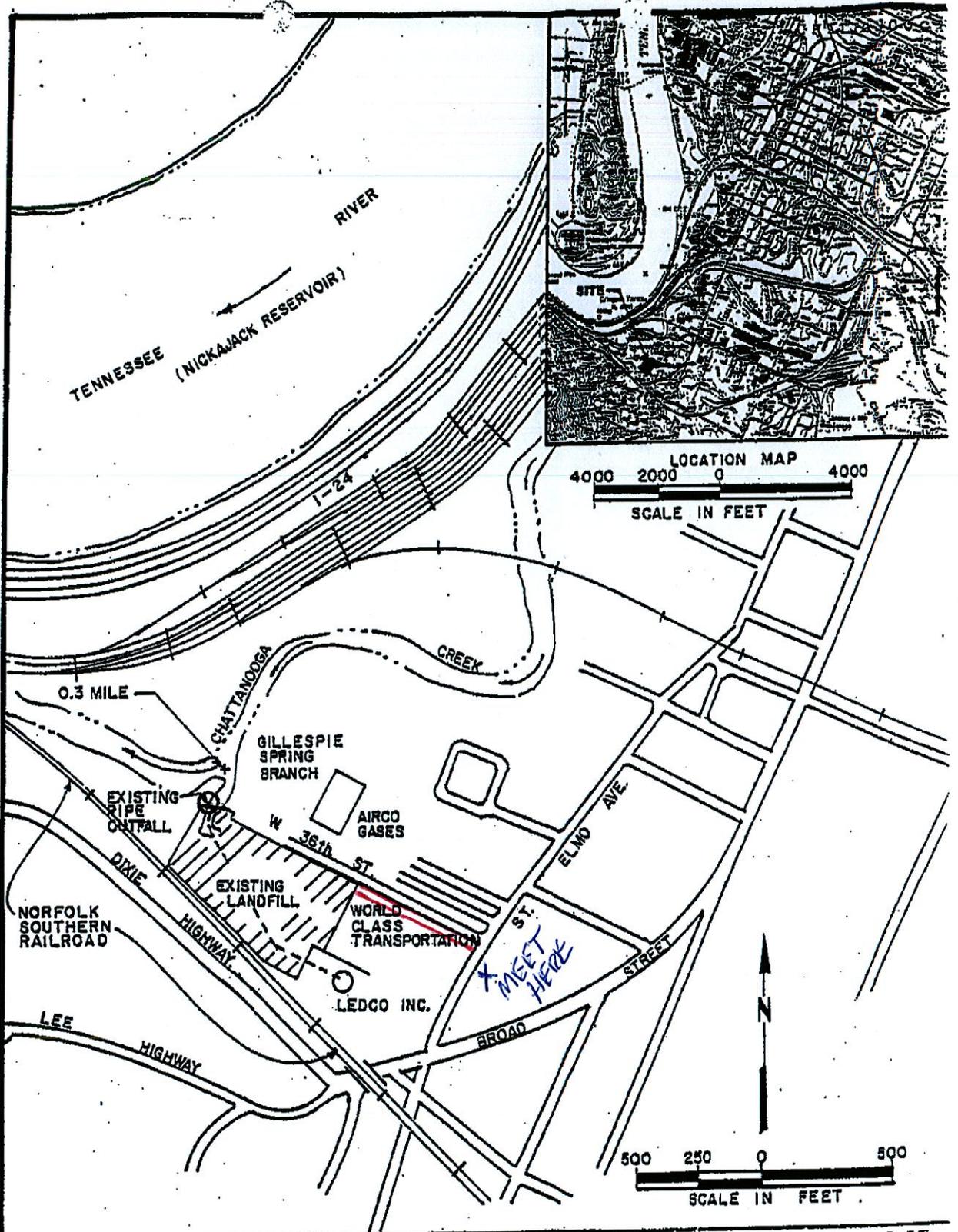


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PURPOSE: LANDFILL CLOSURE

PLAN VIEW

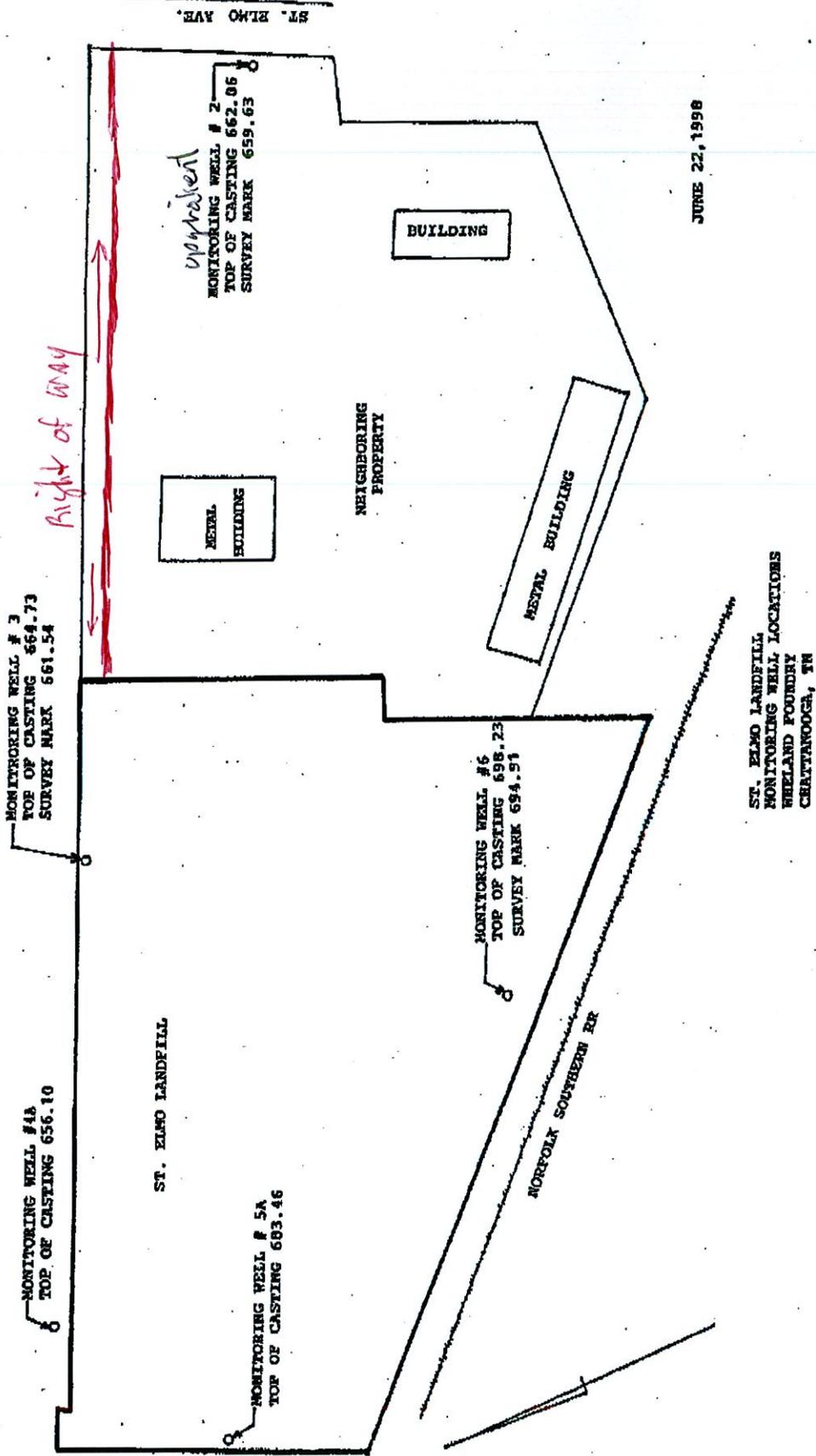
ATTACHMENT 2

DATUM: GWM 18 698  
 ADJACENT PROPERTY OWNERS  
 DOWNSTREAM: AIRCO GASES  
 UPSTREAM: NORFOLK SOUTHERN RAILROAD

WHELAND FOUNDRY  
 2800 SOUTH BROAD STREET  
 CHATTANOOGA, TENNESSEE 37402

ATTACHMENT 3

X MEET  
HERE



JUNE 22, 1998

ST. ELMO LANDFILL  
MONITORING WELL LOCATIONS  
HEELAND FOUNDRY  
CHATANOOGA, TN

**GROUNDWATER SAMPLING AND ANALYSIS PLAN  
ST. ELMO LANDFILL - WHELAND FOUNDRY**

---

Samples shall be collected and preserved according to the procedures outlined in Table 9.2.



**GROUNDWATER SAMPLING AND ANALYSIS PLAN  
ST. ELMO LANDFILL - WHELAND FOUNDRY**

---

**TABLE 9.1**

<b>Constituent</b>	<b>Analytical Method</b>	<b>Reference</b>
Cadmium	7131	1
Lead	7421	1

1. "Test Methods for Evaluating Solid Waste", 3<sup>rd</sup> Edition, USEPA, SW846, November, 1986.



**GROUNDWATER SAMPLING AND ANALYSIS PLAN  
ST. ELMO LANDFILL - WHELAND FOUNDRY**

**TABLE 9.2  
SAMPLING AND PRESERVATION PROCEDURES<sup>a</sup>**

Constituent	Recommended Container <sup>b</sup>	Preservative	Maximum Holding Time	Minimum Volume for Required Analysis
Cadmium Lead	T, P	<u>Total Metals</u> Field acidified to pH <2 with HNO <sub>3</sub>	6 months	1,000 ml
		<u>Dissolved Metals</u> 1. Field filtration (0.45 micron) 2. Acidify to pH <2 with HNO <sub>3</sub>		

<sup>a</sup>References: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods, SW-846 (3rd Edition) 1987  
Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020  
Standard Methods for the Examination of Water and Wastewater, 16th Edition (1985)

<sup>b</sup>Container Types: P = Plastic (polyethylene)  
G = Glass  
T = Fluorocarbon resins (PTFE, Teflon, FEP, PFA, etc.)  
PP = Polypropylene



**TABLE 9.2**

**SAMPLING AND PRESERVATION PROCEDURES FOR DETECTION MONITORING  
(continued)**

- <sup>a</sup> References: Test Methods for Evaluating Solid Waste - Physical/Chemical Methods,  
SW-846 (3rd Edition) 1987  
Methods for Chemical Analysis of Water and Wastes,  
EPA-600/4-79-020  
Standard Methods for the Examination of Water and Wastewater,  
16th Edition (1985)
- <sup>b</sup> Container Types: P = Plastic (polyethylene)  
G = Glass  
T = Fluorocarbon resins (PTFE, Teflon, FEP, PFA, etc.)  
PP = Polypropylene
- <sup>c</sup> Based on the requirements for detection monitoring (\$265.93), the owner/operator must collect a sufficient volume of groundwater to allow for the analysis of four separate replicates.
- <sup>d</sup> Shipping containers (cooling chest with ice or ice pack) should be certified as to the 4°C temperature at time of sample placement into these containers. Preservation of samples requires that the temperature of collected samples be adjusted to the 4°C immediately after collection. Shipping coolers must be at 4°C upon placement of sample and during shipment. Maximum-minimum thermometers are to be placed into the shipping chest to record temperature history. Chain-of-custody forms will have Shipping/Receiving and In-transit (max/min) temperature boxes for recording data and verification.
- <sup>e</sup> Do not allow any head space in the container.
- <sup>f</sup> Use ascorbic acid only in the presence of oxidizing agents.
- <sup>g</sup> Maximum holding time is 24-hours when sulfide is present. Optionally, all samples may be tested with lead acetate paper before the pH adjustment in order to determine if sulfide is present. If sulfide is present, it can be removed by addition of cadmium nitrate powder until a negative spot test is obtained. The sample is filtered and then NaOH is added to pH 12.

**GROUNDWATER SAMPLING AND ANALYSIS PLAN  
ST. ELMO LANDFILL - WHELAND FOUNDRY**

---

**10.0 SAMPLE CUSTODY**

**10.1 Samples Under Custody**

Chain-of-custody procedures shall begin at the time of sample collection. A sample is considered to be under a person's custody if any of the following conditions are met:

- The sample is in the person's physical possession;
- The sample is in line of sight of the person after he/she has taken possession;
- The sample is secured by that person so any tampering can be detected;
- A sample is secured by the person in possession, in an area which only authorized personnel can enter.

**10.2 Sample Labels**

Exhibit 10.1 is an example label that is used on all samples. It tells the description of the sample, the date and time collected, who collected it, and the preservative used.

**10.3 Sample Seals**

Exhibit 10.2 is a peel-off sample container custody seal used by samplers. It is placed over the cap/lid of the sample container and is not tampered with until the analyst needs to take out some sample to perform tests.



**GROUNDWATER SAMPLING AND ANALYSIS PLAN  
ST. ELMO LANDFILL - WHELAND FOUNDRY**

---

**10.4 Field Notebook**

Pertinent information regarding the collection of samples including, but not limited to: surrounding conditions, methodology, deviations to standard procedures (including justification), and observations during the sampling event shall be entered into the sampler's field notebook.

**10.5 Chain-of-Custody Records**

The chain-of-custody record will be completed at the time of the sampling event by the sampling personnel. The record will be signed as relinquished or received each time the sample changes possession, from collection to final deposition. An example of the form which will be used is shown in Exhibit 10.3. This form, printed on 2-sheet, 2-color, NCR paper, also serves as a request for analysis sheet and a laboratory chain of custody sheet upon submission to the laboratory.



SECTION 6.3  
CONSTRUCTION DETAILS FOR GROUNDWATER MONITORING WELLS

6.3-1

### Monitoring Well Construction Details

The groundwater monitoring system at Wheland Foundry's St. Elmo landfill consists of one upgradient well and four downgradient wells.

The monitoring wells at the facility are as follows:

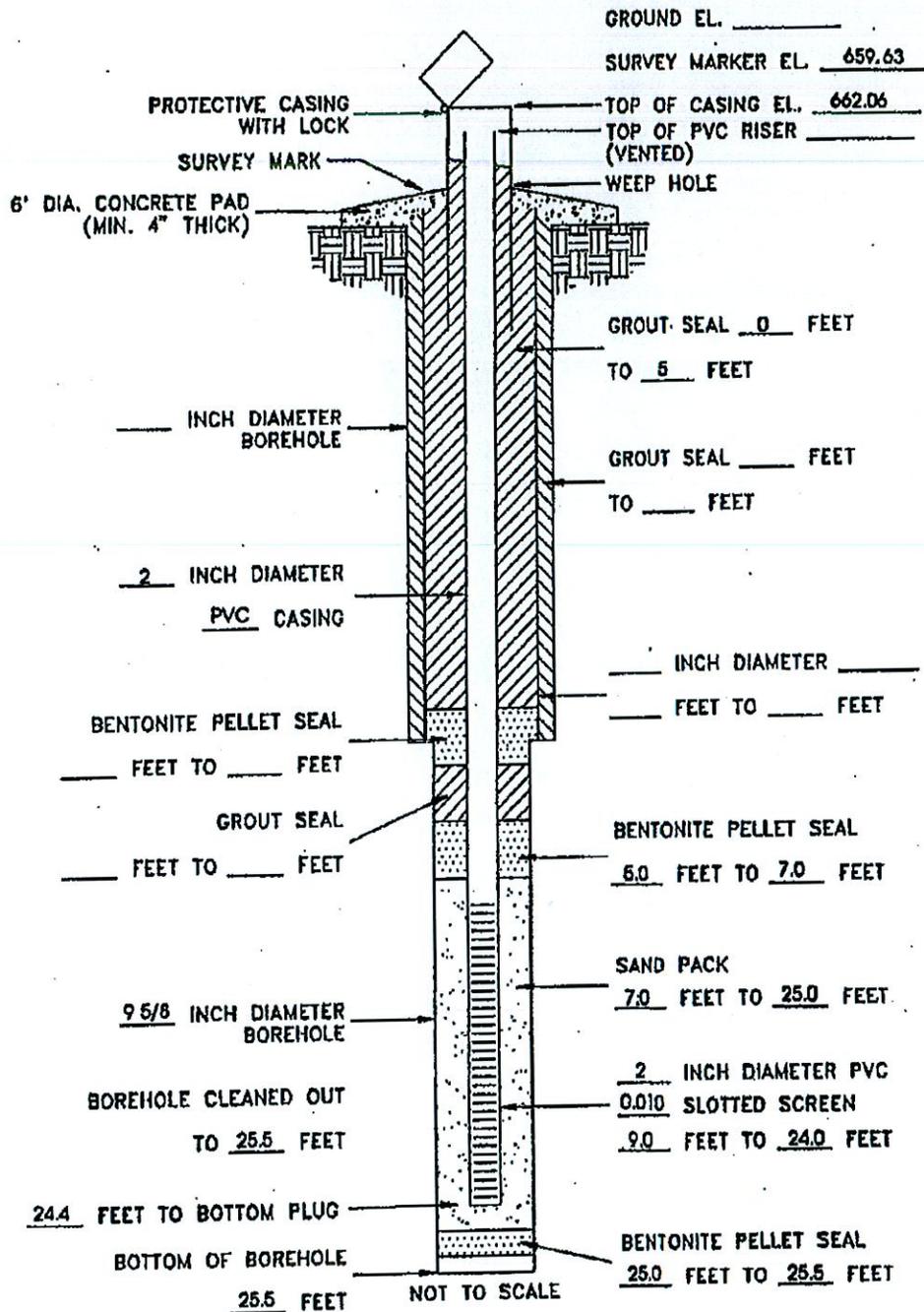
<u>Well #</u>	<u>Gradient Relationship</u>	<u>Location</u>
2	Upgradient	E of landfill
3	Downgradient	NE of landfill
4A	Downgradient	NW of landfill
5A	Downgradient	SW of landfill
6	Downgradient	S of landfill

All of the Monitoring wells were advanced to bedrock (Fort Payne). Wells number 4A, 5A, & 6 have ten foot well screens, well number 3 has a twenty foot well screen and well number 2 has a fifteen foot well screen. All of the Monitoring wells have at least a two foot Bentonite Pellet Seal. All monitoring wells have a sand pack that extends at least two feet above the well screen.

Monitoring wells 2, 3, & 6 were installed by ERC/EDGE, during the site investigation by Resource Consultants (September through October, 1990). The wells are constructed of 2 inch PVC casing and screen.

Monitoring well numbers 4A and 5A were installed by Odgen Environmental and Energy Services on April 25-27, 1995. These wells were installed to replace MW-4 and MW-5.

DKM/FIO73196/D7/93HWP



MATERIALS USED:

10 FT. OF 2 INCH PVC SCREEN

10 FT. OF 2 INCH PVC CASING

500 lbs. SAND

50 lbs. BENTONITE PELLETS

\_\_\_\_\_ POWDERED BENTONITE

\_\_\_\_\_ CEMENT

\_\_\_\_\_ GAL. WATER

REMARKS:

NOTE:  
ALL DEPTHS ARE MEASURED FROM THE SURVEY MARK REFERENCE UNLESS NOTED OTHERWISE.



WELL INSTALLATION DIAGRAM

SITE: ST. ELMO LANDFILL

LOGGED BY: C. HAGEGEORGE

DRILLING COMPANY: GATS

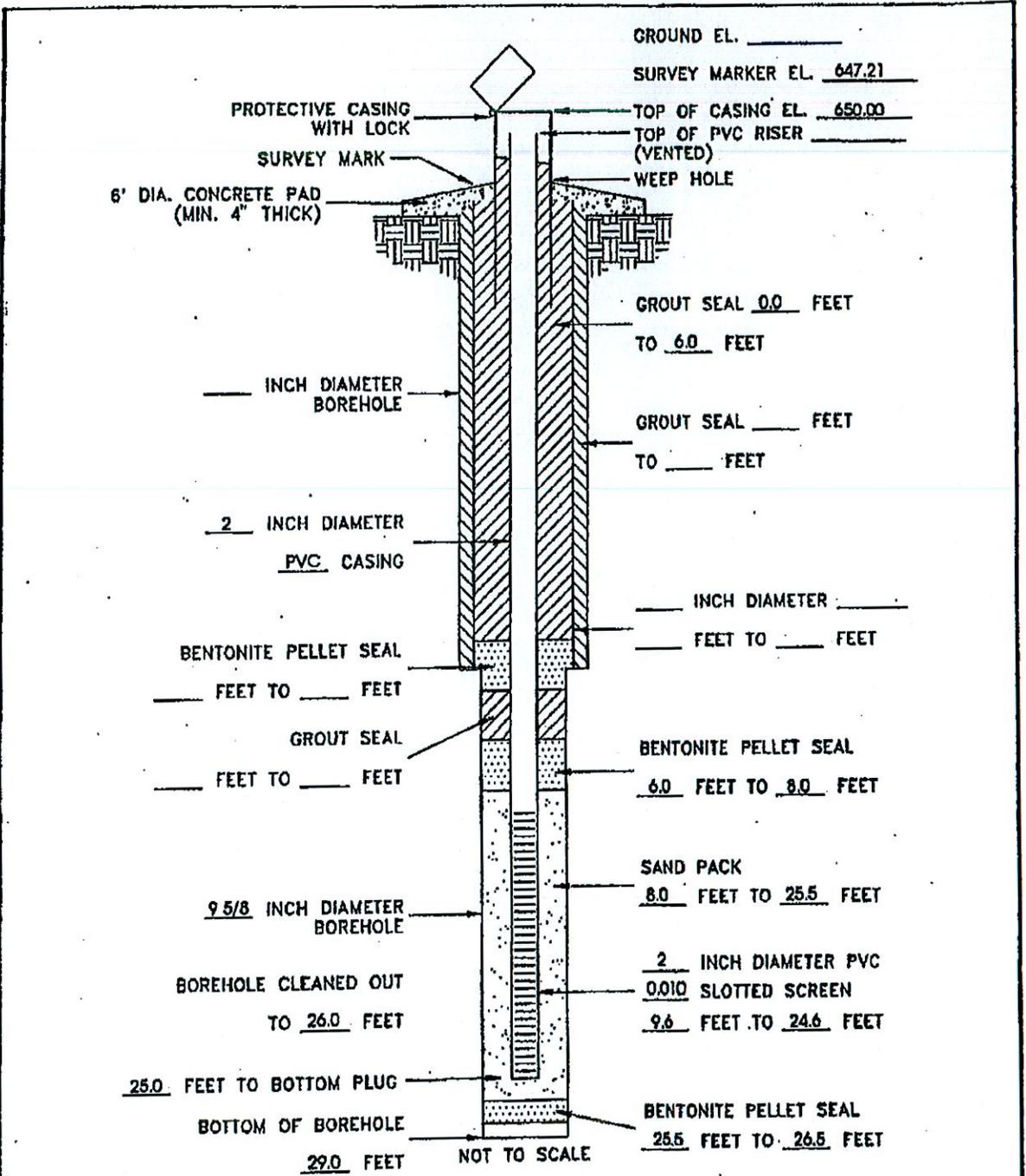
DRILLER: G AKINS

WELL No. 2

DRILLING DATES:

STARTED: 10/2/90

FINISHED: 10/3/90



MATERIALS USED:

16 FT. OF 2 INCH PVC SCREEN

10 FT. OF 2 INCH PVC CASING

500 lbs. SAND

75 lbs. BENTONITE PELLETS

\_\_\_\_\_ POWDERED BENTONITE

\_\_\_\_\_ CEMENT

\_\_\_\_\_ GAL. WATER

REMARKS:

NOTE:  
ALL DEPTHS ARE MEASURED FROM THE SURVEY MARK REFERENCE UNLESS NOTED OTHERWISE.



WELL INSTALLATION DIAGRAM

SITE: ST. ELMO LANDFILL

LOGGED BY: C. HAGEGEORGE

DRILLING COMPANY: GATS

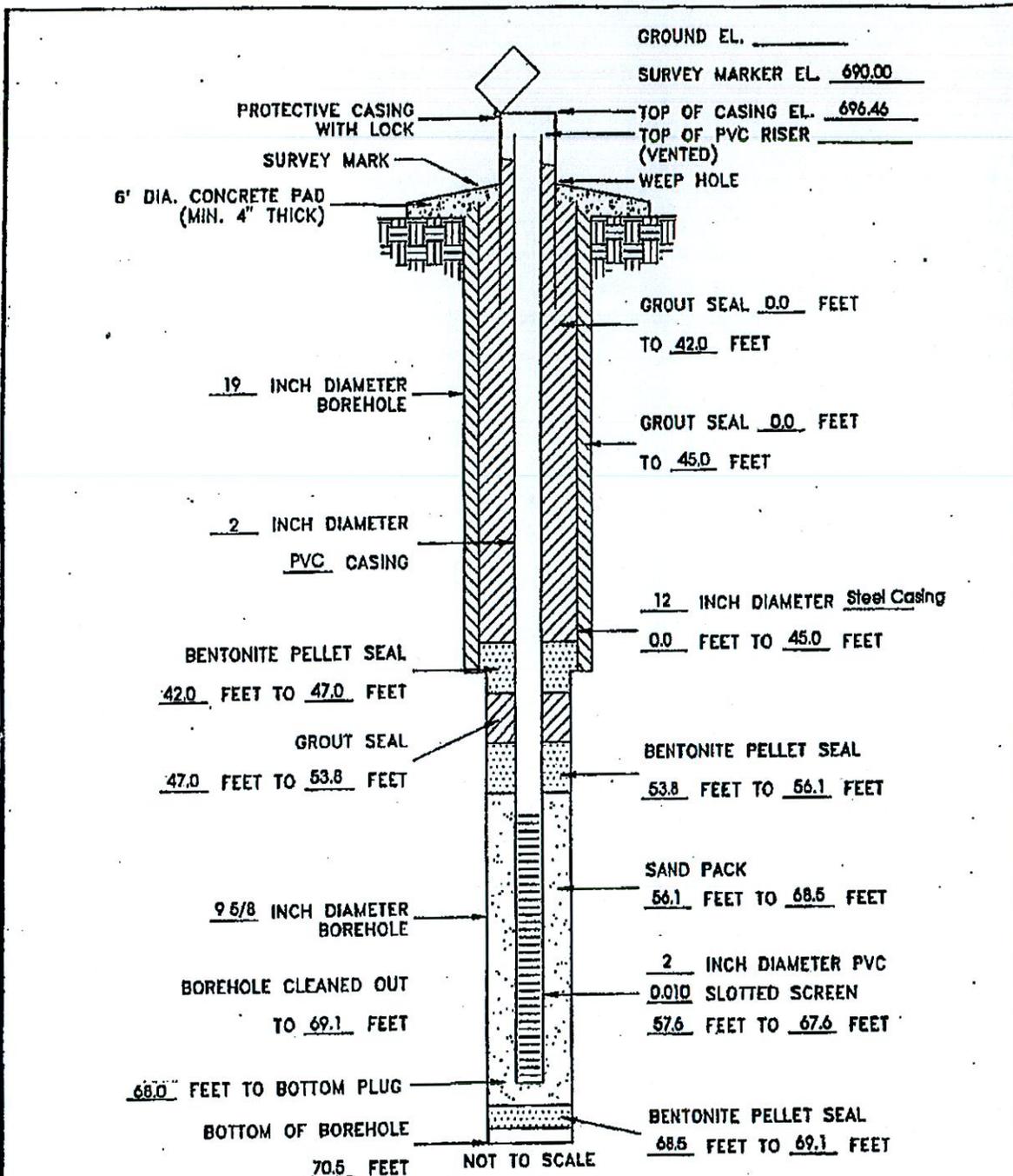
DRILLER: G AKINS

WELL No. 4

DRILLING DATES:

STARTED: 10/2/90

FINISHED: 10/2/90



MATERIALS USED:  
10 FT. OF 2" PVC SCREEN  
60 FT. OF 2" PVC CASING  
600 lbs. SAND  
275 lbs. BENTONITE PELLETS  
160 lbs. POWDERED BENTONITE  
32 bags CEMENT  
215 GAL. WATER

REMARKS:

NOTE:  
 ALL DEPTHS ARE MEASURED FROM THE SURVEY MARK REFERENCE UNLESS NOTED OTHERWISE.

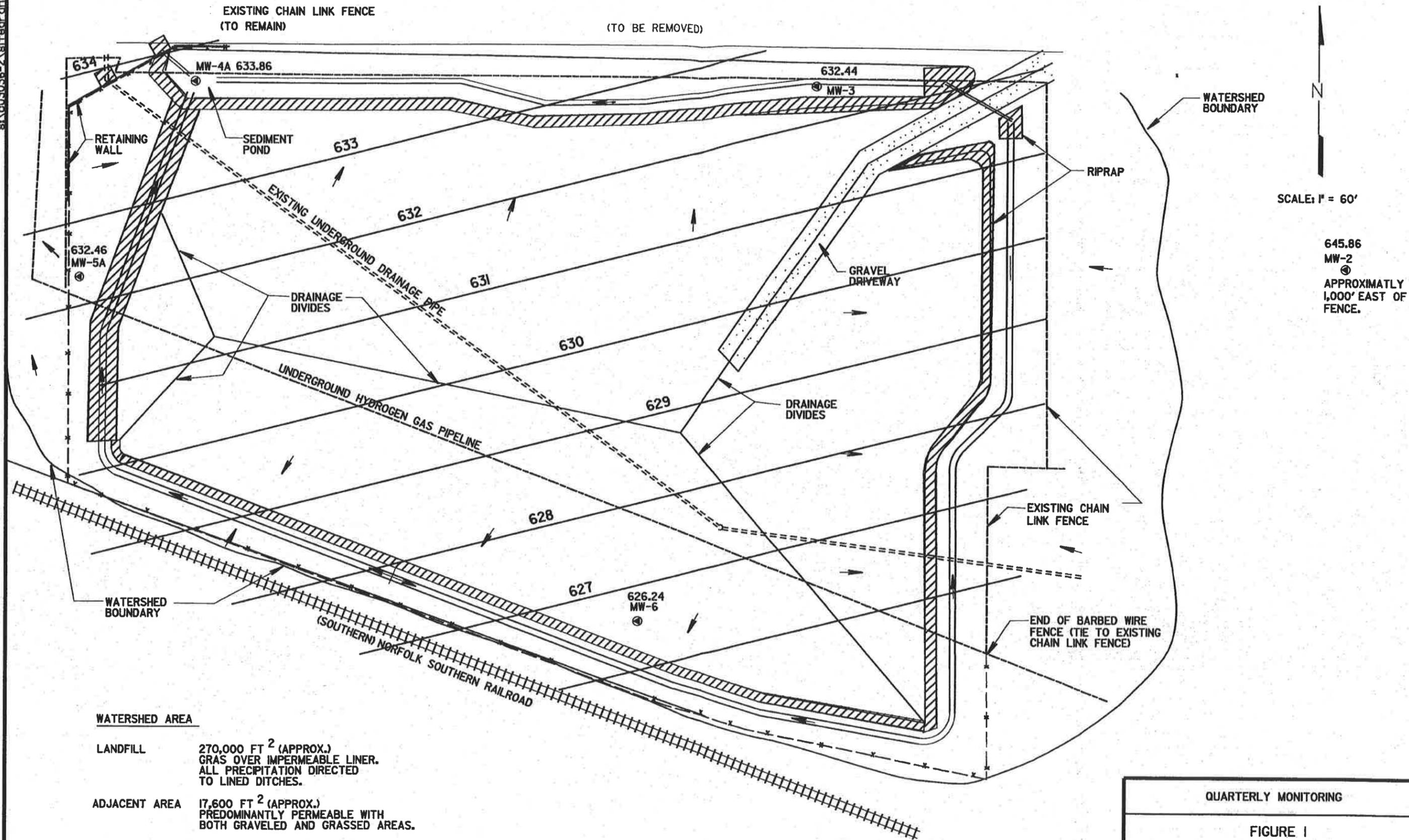


WELL INSTALLATION DIAGRAM

SITE: ST. ELMO LANDFILL  
 LOGGED BY: C. HAGEGEORGE  
 DRILLING COMPANY: GATS  
 DRILLER: G AKINS

WELL No. 6  
 DRILLING DATES:  
 STARTED: 10/16/90  
 FINISHED: 10/18/90

12:45:24  
15 JUL 104  
81\c03036-2\stltdr\gn.dgn



SCALE: 1" = 60'

645.86  
MW-2  
APPROXIMATELY  
1,000' EAST OF  
FENCE.

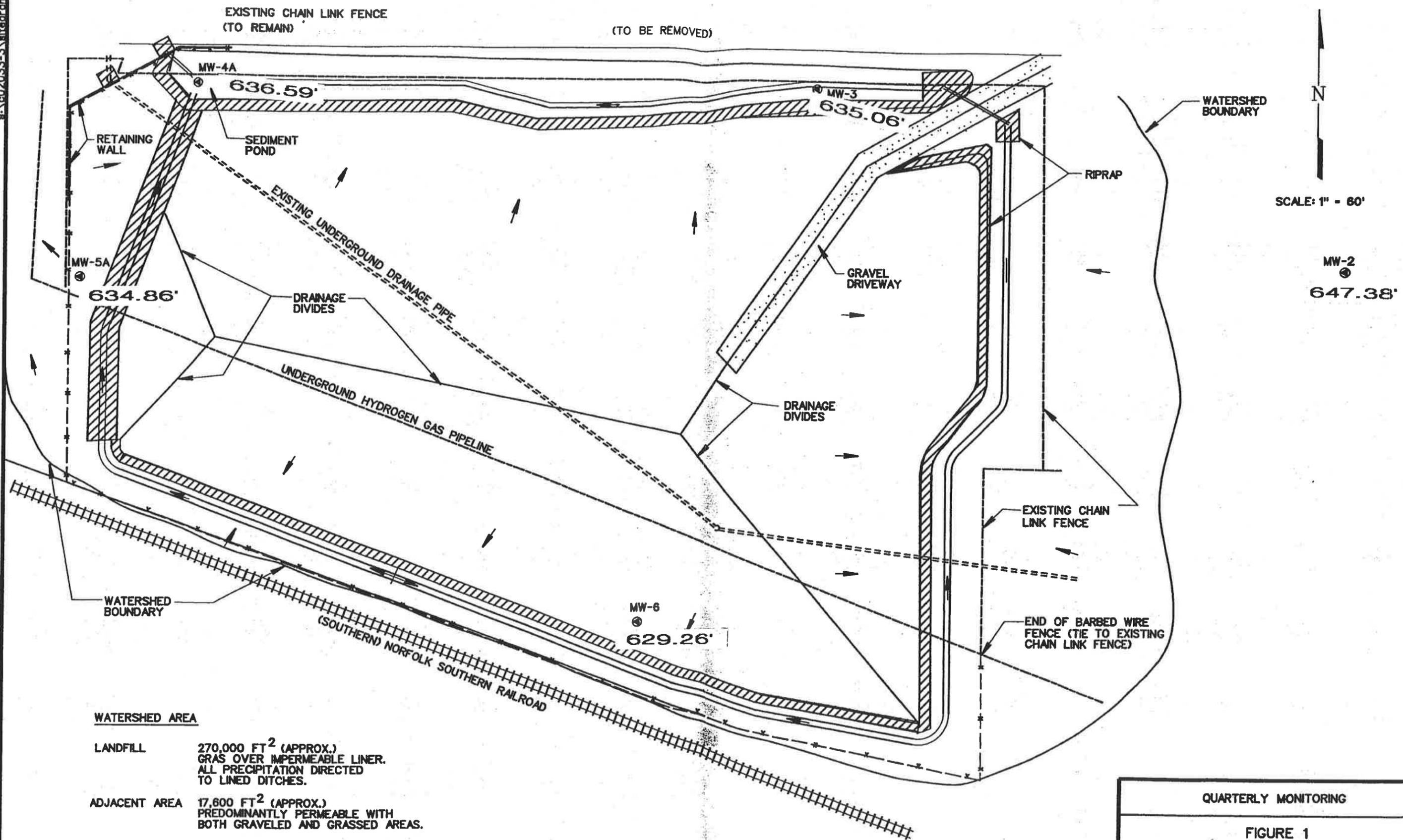
**WATERSHED AREA**

**LANDFILL** 270,000 FT<sup>2</sup> (APPROX.)  
GRASS OVER IMPERMEABLE LINER.  
ALL PRECIPITATION DIRECTED  
TO LINED DITCHES.

**ADJACENT AREA** 17,600 FT<sup>2</sup> (APPROX.)  
PREDOMINANTLY PERMEABLE WITH  
BOTH GRAVELED AND GRASSED AREAS.

QUARTERLY MONITORING	
FIGURE I	
ST. ELMO LANDFILL GROUNDWATER CONTOURS	
	WHELAND FOUNDRY, INC. C03036-2

14:02:55  
02 JAN 10 3  
8:\c02033-3\site\drn.dwg



SCALE: 1" = 60'

**WATERSHED AREA**

LANDFILL 270,000 FT<sup>2</sup> (APPROX.)  
GRASS OVER IMPERMEABLE LINER.  
ALL PRECIPITATION DIRECTED  
TO LINED DITCHES.

ADJACENT AREA 17,600 FT<sup>2</sup> (APPROX.)  
PREDOMINANTLY PERMEABLE WITH  
BOTH GRAVELED AND GRASSED AREAS.

QUARTERLY MONITORING	
FIGURE 1	
ST. ELMO LANDFILL GROUNDWATER LEVELS	
	WHELAND FOUNDRY, INC. C02033-3