

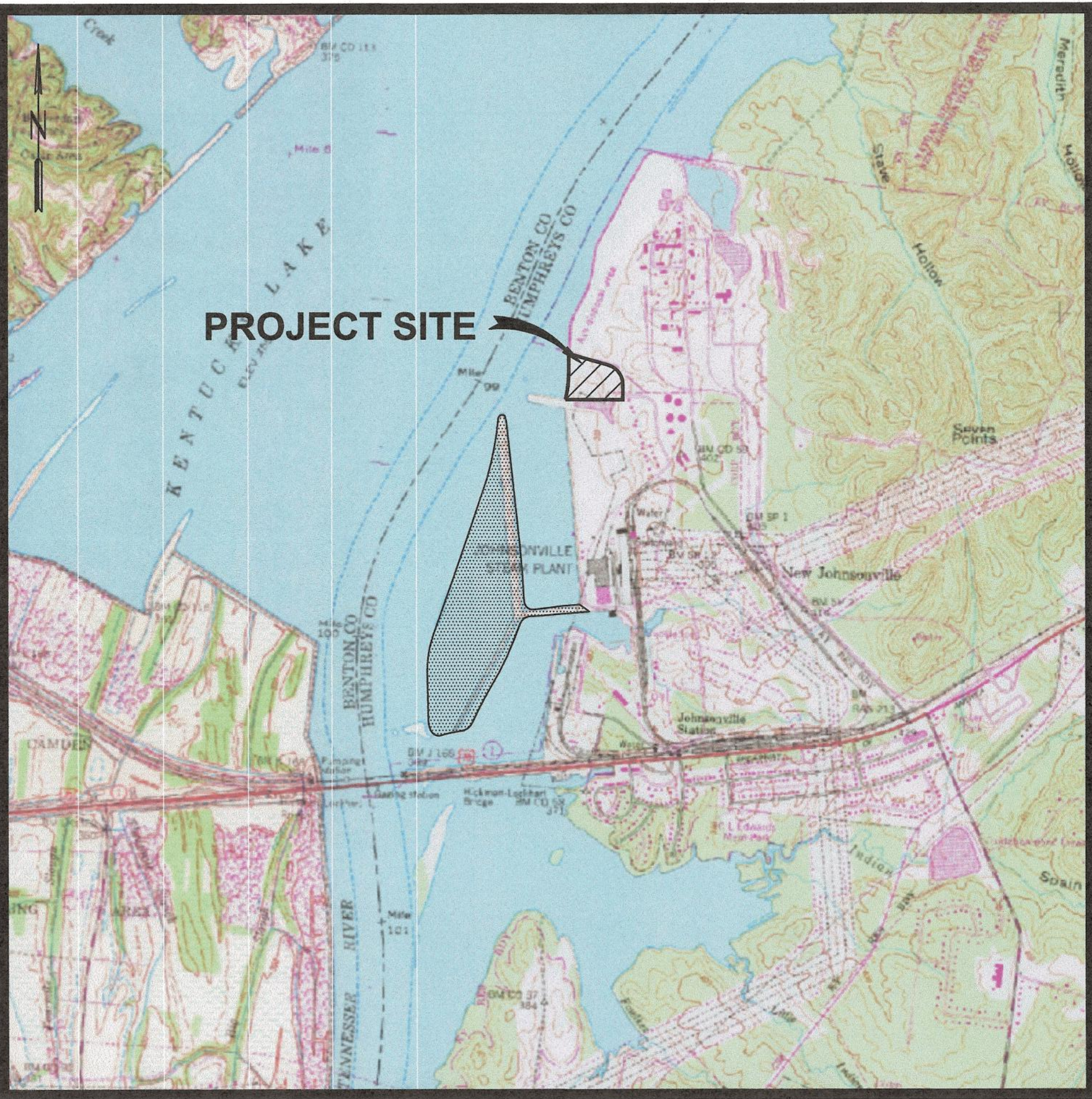
ASH AREA NO. 1 NORTH DRAINAGE CULVERT
TVA PROJECT NO. 601939

JOHNSONVILLE FOSSIL PLANT
NEW JOHNSONVILLE, HUMPHREYS COUNTY, TENNESSEE

PREPARED FOR

TENNESSEE VALLEY AUTHORITY

PREPARED BY



VICINITY MAP
NOT TO SCALE

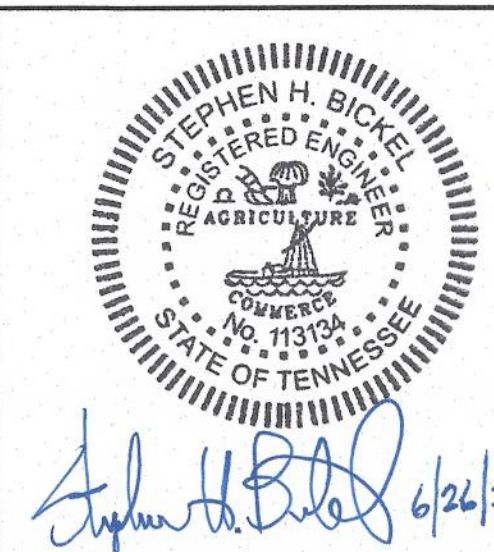
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YARD ASH AREA NO. 1											
ASH AREA NO. 1 NORTH DRAINAGE CULVERT COVER SHEET											
DESIGNED BY: J.E. SPALDING		DRAWN BY: R.R. PETTY		CHECKED BY: M.C. VAUGHAN		SUPERVISED BY: S.H. BICKEL		REVIEWED BY: R.S. HARRIS		APPROVED BY: M.S. TURNBOW	
										ISSUED BY: J.C. KAMMEYER	
JOHNSONVILLE FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING											
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GENERAL NOTES

1. THESE DRAWINGS WERE PREPARED BY STANTEC CONSULTING SERVICES INC. (STANTEC) USING TOPOGRAPHIC INFORMATION PROVIDED BY TVA DATED APRIL 2012 AND DECEMBER 2013. ACTUAL CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE DRAWINGS AND SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

2. DEFINITIONS: WHENEVER THE FOLLOWING TERMS ARE USED IN THESE PLANS FOR CONSTRUCTION, IT IS UNDERSTOOD THAT THEY REPRESENT THE FOLLOWING:

A. CONTRACTOR: ENTITY RESPONSIBLE FOR CONSTRUCTION.

B. ENGINEER: STANTEC CONSULTING SERVICES INC. (STANTEC).

C. OWNER: TENNESSEE VALLEY AUTHORITY (TVA) – JOHNSONVILLE FOSSIL PLANT (JOF).

D. TDOT: TENNESSEE DEPARTMENT OF TRANSPORTATION AND SPECIFICALLY REFERENCES THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," CURRENT EDITION. ANY MATERIAL DESIGNATED AS "TDOT" IS TO CONFORM TO THE MATERIAL STANDARDS NOTED AND PLACEMENT/INSTALLATION METHODOLOGY SPECIFIED IN THE CURRENT EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

E. CONSTRUCTION QUALITY ASSURANCE (CQA) PLAN: REFERS TO A DOCUMENT THAT ESTABLISHES MINIMUM QUALITY ASSURANCE REQUIREMENTS, TESTING FREQUENCY AND QUALITY OVERSIGHT RESPONSIBILITY.

F. QUALITY ASSURANCE (QA) MANAGER: A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TENNESSEE THAT IS RESPONSIBLE FOR THE QUALITY OF THE CONSTRUCTED PROJECT AS DEFINED IN THE CQA PLAN. THE QA TEAM CONSISTS OF QUALIFIED PERSONNEL THAT WORK UNDER THE DIRECT SUPERVISION OF THE QA MANAGER. QA TEAM PERSONNEL ARE INDIVIDUALS THAT ARE FAMILIAR WITH THE MATERIALS UTILIZED AND THE CONSTRUCTION COMPONENTS.

3. WHENEVER REFERENCE IS MADE TO TENNESSEE DEPARTMENT OF TRANSPORTATION (TDOT) STANDARD SPECIFICATIONS, THE AMERICAN SOCIETY OF TESTING AND MATERIALS (ASTM), AMERICAN CONCRETE INSTITUTE (ACI), OR OTHER PUBLISHED STANDARDS OR SPECIFICATIONS, IT SHALL MEAN THE LATEST VERSION IN ITS ENTIRETY.

4. THESE PLANS FOR CONSTRUCTION, ALONG WITH THE TECHNICAL SPECIFICATIONS, CQA PLAN, AND OTHER REFERENCED DOCUMENTS OR STANDARDS, SHALL CONSTITUTE THE COMPLETE CONSTRUCTION DOCUMENTS FOR THIS PROJECT.

5. THE CONTRACTOR SHALL COMMUNICATE CONSTRUCTABILITY ISSUES, DISCREPANCIES IN THE PLANS FOR CONSTRUCTION OR SPECIFICATIONS, ETC., TO THE QA MANAGER AND OWNER IMMEDIATELY UPON BECOMING AWARE. THE CONTRACTOR SHALL USE THE OWNER'S REQUEST FOR INFORMATION (RFI) FORM THAT IS CONTAINED IN THE CQA PLAN TO COMMUNICATE AND ESTABLISH WRITTEN DOCUMENTATION OF THE ISSUE AND ITS RESOLUTION.

6. THE CONTRACTOR SHALL KEEP A RECORD OF ALL DEVIATIONS IN LOCATION, ELEVATION, METHOD, OR MATERIAL USED FROM THAT SHOWN ON THESE PLANS. AT COMPLETION OF THE PROJECT A PLAN SET OF FINAL RECORD DRAWINGS SHALL BE PREPARED BY THE ENGINEER TO ENSURE THAT TVA HAS A PERMANENT RECORD OF THE PROJECT AS IT WAS CONSTRUCTED. THE CONTRACTOR SHALL COOPERATE FULLY BY PROVIDING HIS RECORD OF DEVIATIONS, AND SHALL ASSIST WITH PREPARATION OF THE FINAL RECORD DRAWINGS.

7. CONSTRUCTION ACTIVITIES SHALL BE OBSERVED BY THE QA MANAGER OR THE DESIGNATED REPRESENTATIVE ON THE QA TEAM. THE CONTRACTOR SHALL COORDINATE WITH THE ONSITE QA REPRESENTATIVE AND INFORM THE REPRESENTATIVE OF THE CONTRACTOR'S SCHEDULED WORK SHIFTS TO INSURE THAT QA REPRESENTATION OCCURS AS REQUIRED.

8. MATERIAL DELIVERIES AND HAULING FOR THIS PROJECT SHALL NOT BE PERMITTED DURING THE HOURS OF NORMAL PLANT SHIFT CHANGE (6:30 TO 7:00 A.M. AND 3:30 TO 3:45 P.M.)

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HEALTH AND SAFETY OF ITS PERSONNEL AND SHALL MEET INDUSTRY STANDARD REQUIREMENTS. THE CONTRACTOR SHALL ADHERE TO THE OWNER'S REQUIREMENTS FOR SAFETY DURING CONSTRUCTION.

10. THE CONTRACTOR SHALL COORDINATE WITH TVA TO LOCATE AND VERIFY ALL UTILITIES PRIOR TO COMMENCING WORK TO ENSURE THERE SHALL BE NO CONFLICT WITH THE IMPROVEMENTS PRESENTED HEREIN. ONSITE UTILITIES AND UNDERGROUND FACILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE PROTECTED BY THE CONTRACTOR FROM DAMAGE BY THE CONTRACTOR'S OPERATIONS. IF DAMAGE OCCURS THE CONTRACTOR SHALL COORDINATE REPAIRS WITH THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT OCCURS.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL ACCESS ROADS, STAGING AREAS AND STORAGE AREAS USED DURING CONSTRUCTION, AND SHALL RESTORE SAID AREAS TO THEIR ORIGINAL CONDITION, OR BETTER, ONCE CONSTRUCTION IS COMPLETE UNLESS THE OWNER GIVES WRITTEN PERMISSION TO THE CONTRACTOR TO RETAIN THE AREA "AS IS."

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION SURVEYOR SELECTION AND COORDINATION OF ALL CONSTRUCTION RELATED SURVEYING. ALL ESTABLISHED TVA BENCHMARKS OR OTHER MONUMENTS SHALL BE PRESERVED AND PROTECTED. ANY ESTABLISHED MARKER OR BENCHMARK THAT IS DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE REPLACED BY TVA SURVEYING SERVICES AT THE CONTRACTOR'S EXPENSE.

13. VEGETATIVE AND ORGANIC MATERIALS SHALL BE REMOVED AS DESCRIBED IN THE SPECIFICATIONS.

14. ALL PIPE REMOVAL AND TRENCHING SHALL BE CONDUCTED IN STRICT ACCORDANCE WITH APPLICABLE TVA PROCESS AND PROCEDURE REQUIREMENTS.

15. BORROW MATERIALS ARE NOT AVAILABLE FOR THE CONTRACTOR'S USE. BORROW MATERIALS AND OTHER MATERIALS SHALL BE OBTAINED BY THE CONTRACTOR FROM OFFSITE COMMERCIAL SOURCES.

16. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER (TVA) REGARDING STAGING AND STOCKPILE STORAGE AREAS. STAGING AND STOCKPILE STORAGE AREAS SHALL BE APPROVED BY THE OWNER.

17. STOCKPILES SHALL BE GRADED TO MAINTAIN POSITIVE DRAINAGE AT ALL TIMES. THE SIDE SLOPES SHALL HAVE MAXIMUM 3H:1V SLOPE. THE TOP OF THE STOCKPILE SHALL HAVE A MINIMUM TWO PERCENT SLOPE. MATERIALS SHALL BE SEGREGATED AS DIRECTED BY THE QA MANAGER.

18. FINAL EMBANKMENT SURFACES SHALL BE FINISHED TO A RELATIVELY SMOOTH AND COMPACT SURFACE. CONTRACTOR SHALL REVEGETATE SLOPE WITH SOD. SOD SHALL BE PLACED AS SHOWN ON THESE PLANS FOR CONSTRUCTION AND SHALL BE IN ACCORDANCE WITH THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

19. GEOTEXTILES USED FOR CONSTRUCTION SHALL BE CERTIFIED BY THE MANUFACTURER AS CONFORMING TO THE PROJECT REQUIREMENTS. GEOTEXTILES SHALL NOT BE UTILIZED AS A FILTER UNLESS APPROVED BY TVA. IT MAY BE USED AS A TEMPORARY MEASURE AND REMOVED.

20. ALL SURFACES SHALL BE APPROVED BY THE QA MANAGER OR THE DESIGNATED REPRESENTATIVE ON THE QA TEAM PRIOR TO EMBANKMENT OR LINEAR CONSTRUCTION.

EROSION PREVENTION AND SEDIMENT CONTROL (EPSOC)

21. THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN SHALL BE CONSIDERED THE MINIMUM. SUPPLEMENTAL MEASURES SHALL BE PROVIDED BY THE CONTRACTOR AS FIELD CONDITIONS DICTATE.

22. ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES IDENTIFIED ON THESE SHEETS SHALL MEET OR EXCEED THE REQUIREMENTS SET FORTH IN THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK (CURRENT EDITION).

23. ALL EROSION PREVENTION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES, UNLESS NOTED OTHERWISE.

24. THE CONTRACTOR SHALL EXERCISE EVERY REASONABLE PRECAUTION AT ALL TIMES TO MINIMIZE SOIL EROSION AND PREVENT WATER POLLUTION BY DEPOSITION OF SEDIMENT INTO THE ADJACENT WATERWAYS. SOIL EROSION AND SEDIMENT CONTROLS MUST BE USED AND MAINTAINED IN EFFECTIVE OPERATING CONDITION DURING CONSTRUCTION, AND EXPOSED SOIL AND OTHER FILL MUST BE PERMANENTLY STABILIZED AT THE EARLIEST PRACTICABLE DATE.

25. THE CONTRACTOR SHALL ALSO EXERCISE EVERY PRECAUTION AT ALL TIMES TO PREVENT WATER POLLUTION BY SPILLS OR RELEASES OF HAZARDOUS MATERIALS OR COAL COMBUSTION PRODUCTS.

26. SITE GRADING AND TEMPORARY DRAINAGE DITCHES SHALL BE INSTALLED AND MAINTAINED AS NEEDED SO THAT POSITIVE DRAINAGE IS PROVIDED DURING CONSTRUCTION.

27. THE CONTRACTOR IS RESPONSIBLE FOR SITE DRAINAGE THROUGHOUT CONSTRUCTION AND SHALL INSTALL TEMPORARY DRAINAGE STRUCTURES, DIVERSIONS, SUMPS AND PUMP STATIONS AS NECESSARY TO PREVENT INTERFERENCE WITH THE WORK. SUCH TEMPORARY DRAINAGE FEATURES SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF ENVIRONMENTAL PERMITS AND THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL PREPARE A PLAN AND ISSUE TO THE QA MANAGER FOR REVIEW AND APPROVAL PRIOR TO BEGINNING ANY WORK ON THE PROJECT.

28. MATERIALS DELIVERED FOR INCORPORATION INTO THE WORK SHALL BE TEMPORARILY STORED IN AREAS SELECTED BY THE CONTRACTOR AND APPROVED BY THE OWNER. MATERIALS SHALL BE STORED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

29. SOIL STOCKPILES THAT WILL NOT BE DISTURBED FOR 14 DAYS OR MORE SHALL BE TEMPORARILY SEEDED WITH WHEAT OR RYE AT A RATE OF 60 LBS/ACRE AND SHALL BE COVERED WITH MULCH.

30. THE CONTRACTOR SHALL CONTROL FUGITIVE DUST EMISSIONS DURING CONSTRUCTION IN SUCH A MANNER AS TO COMPLY WITH APPLICABLE REGULATIONS. DUST CONTROL MEASURES SHALL BE SUBJECT TO APPROVAL OF THE QA MANAGER AND THE OWNER.

CONFORMITY WITH PLANS/SPECIFICATIONS AND CONSTRUCTION TOLERANCES

31. ALL WORK PERFORMED AND MATERIALS SUPPLIED SHALL BE IN CLOSE CONFORMITY WITH THE LINES, GRADES, CROSS-SECTIONS, DIMENSIONS AND MATERIAL REQUIREMENTS, AS SHOWN ON THE PLANS FOR CONSTRUCTION OR AS INDICATED IN THE TECHNICAL SPECIFICATIONS AND/OR CQA PLAN.

32. ACCEPTABLE CONSTRUCTION TOLERANCES FROM PLAN DIMENSIONS, ELEVATIONS, AND GRADES SHALL BE AS FOLLOWS:

A. EXCAVATIONS AND FINAL GRADES FOR EARTH SURFACES, AND SLOPES: ±0.25'

B. STRUCTURES/UTILITIES: HORIZONTAL ±0.5' VERTICAL ±0.10' SLOPE ±0.5%

C. PIPING:

33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION SURVEYING AND FIELD MEASUREMENTS TO VERIFY CONFORMANCE WITH LINES, GRADES, CROSS-SECTIONS, AND DIMENSIONS AND TOLERANCES SHOWN ON THESE PLANS FOR CONSTRUCTION. SURVEYING AND FIELD MEASUREMENTS SHALL BE PERFORMED AT APPROPRIATE TIMES THROUGHOUT CONSTRUCTION TO VERIFY PLAN CONFORMANCE AND TO PROVIDE THE NECESSARY DATA FOR PREPARATION OF RECORD DRAWINGS AT THE CONCLUSION OF CONSTRUCTION. ITEMS TO BE VERIFIED AND/OR MEASURED BY SURVEYING SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING:

A. DIMENSIONS AND ELEVATIONS AT CHANGES (BREAKS) IN CONSTRUCTION MATERIALS.

B. VERIFICATION OF LINER DIMENSIONS AND ELEVATIONS AS SHOWN ON LINER QC DETAIL, BEFORE PROCEEDING WITH UNDERDRAIN SYSTEM CONSTRUCTION.

C. ALL ELEVATION, DIMENSION, AND STATION/OFFSET "CALLOUTS".

D. DIMENSIONS AND ELEVATIONS OF STRUCTURES.

E. DIMENSIONS AND ELEVATIONS OF UTILITIES/PIPING AT 25-FOOT INTERVALS

F. OTHER ITEMS DEEMED NECESSARY BY QA MANAGER AND/OR CONTRACTOR TO VERIFY PLAN CONFORMANCE AND CONSTRUCTION TOLERANCES.

ISSUED FOR CONSTRUCTION

STATE OF TENNESSEE
REGISTERED ENGINEER
No. 11510
JAMES H. BICKEL

4/24/2014

DESIGNED BY:
J.E. SPALDING

DATE
06/26/14

DRAWN BY:
R.R. PETTY

CHECKED BY:
M.C. VAUGHAN

SUPERVISED BY:
S.H. BIKEL

REVIEWED BY:
R.S. HARRIS

APPROVED BY:
M.S. TURNBOW

ISSUED BY:
J.C. KAMMEYER

JOHNSONVILLE FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2010 DATE 06/26/14 30 C 10W535-02 R 0

STANTEC

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Louisville, Kentucky 40223-5301
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DESIGN, COMPANION, REFERENCE
DRAWINGS AND SUPPORTING
DESIGN CALCULATIONS NUMBER.

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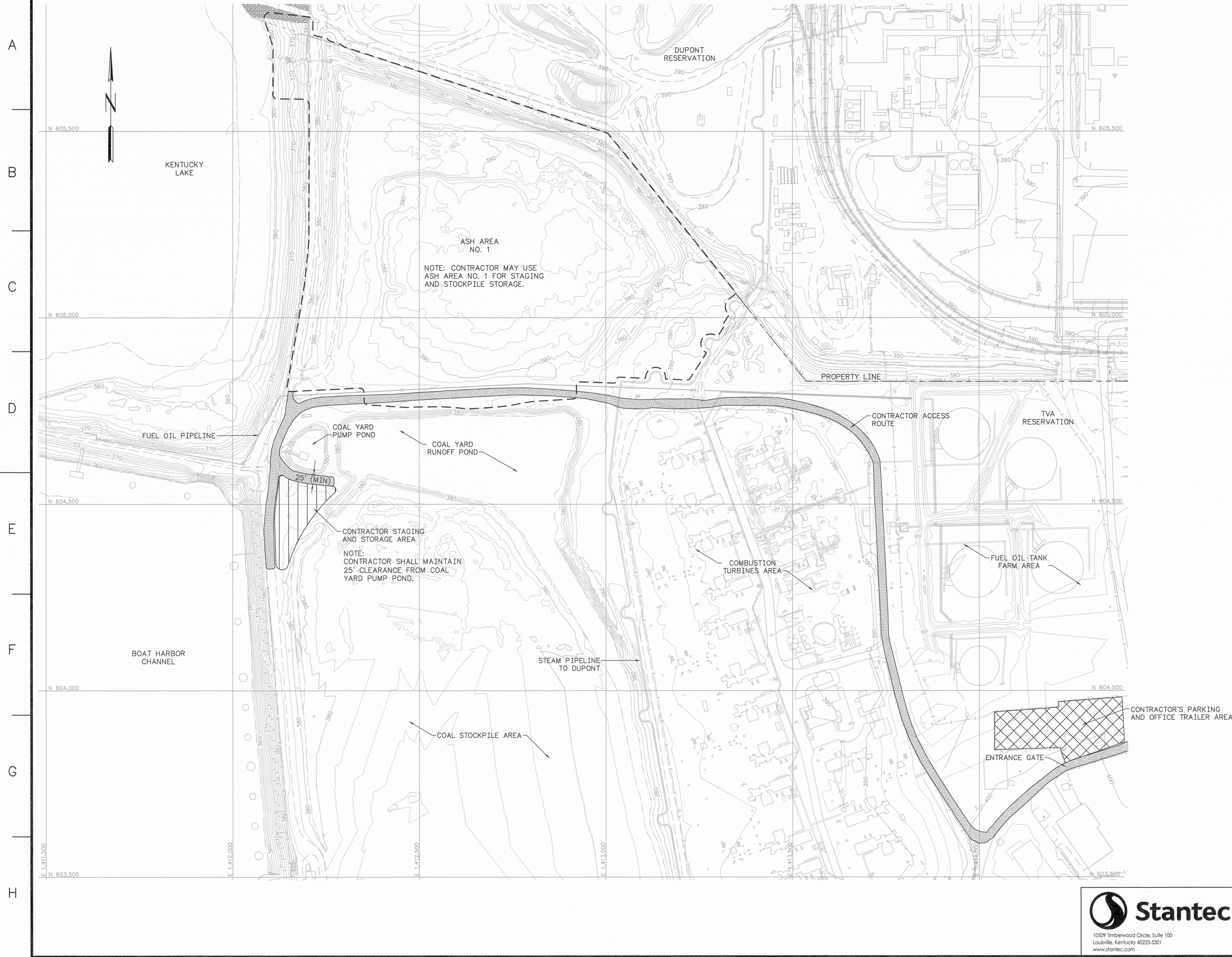
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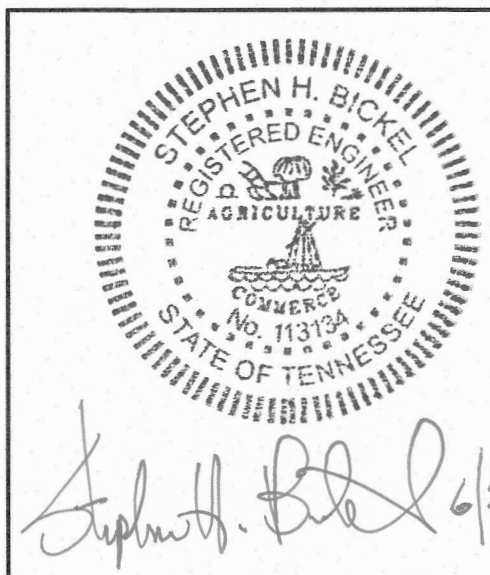
SURVEY CONTROL NOTE:
A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751-8416 OR (423)751-2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

- TOPOGRAPHIC MAPPING SOURCE NOTES:**
- THESE DRAWINGS WERE PREPARED BY STANTEC CONSULTING, INC. USING TOPOGRAPHIC INFORMATION PROVIDED BY TVA DATED APRIL 2012 AND DECEMBER 2013.
 - SURVEY COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM (LAMBERT), NAD27, ELEVATIONS ARE BASED ON NGVD 29.

- LEGEND**
- LIMITS OF CONSTRUCTION
 - BUILDING
 - LIGHT POLE
 - POWER POLE
 - BOLLARD
 - ~ TREE LINE
 - EDGE OF WATER
 - PROPERTY LINE
 - CENTERLINE OF SWALE
 - CULVERT
 - FENCE LINE
 - INDEX CONTOUR
 - INTERMEDIATE CONTOUR
 - UNPAVED ROAD
 - PAVED ROAD
 - ▨ RIPRAP
 - ▨ STAGING AREA
 - ▨ PARKING AREA
 - CONTRACTOR ACCESS ROUTE

50 0 100 200 FEET
GRAPHIC SCALE: 1" = 100'
CONTOUR INTERVAL = 2 FEET

ISSUED FOR CONSTRUCTION



Stephen H. Bickel
6/24/2014

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ISSUED FOR CONSTRUCTION										INTERFACE
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NORTH DRAINAGE CULVERT										
CONTRACTOR ACCESS/STAGING PLAN										
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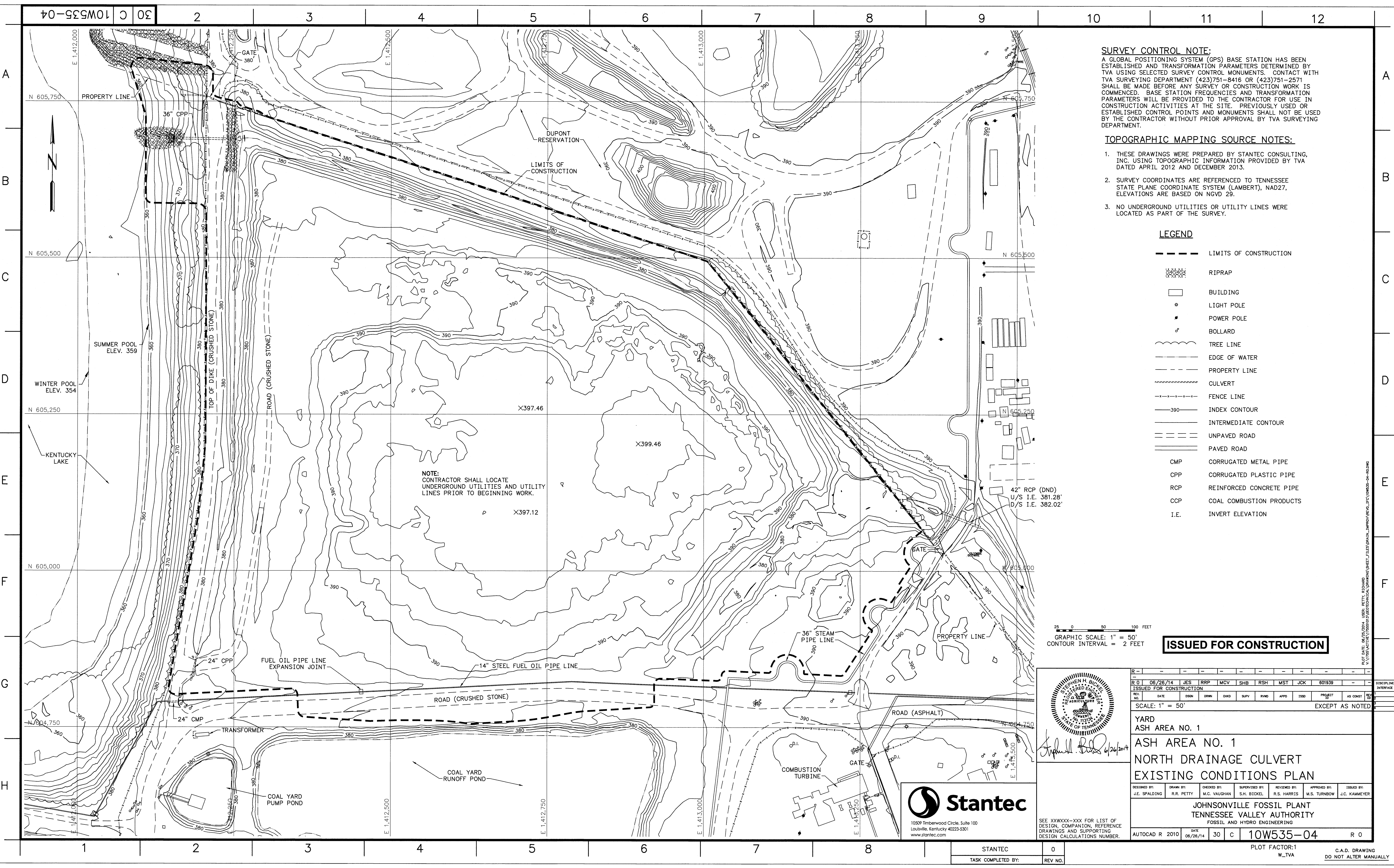
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SURVEY CONTROL NOTE:
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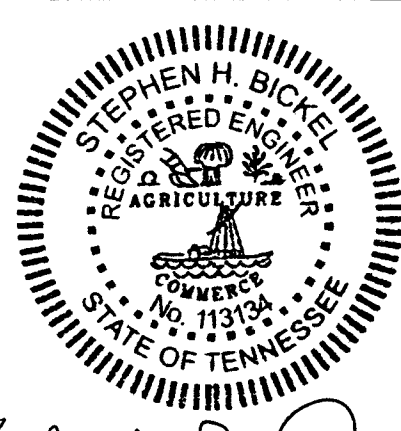
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- SURVEY COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM (LAMBERT), NAD27, ELEVATIONS ARE BASED ON NGVD 29.
- NO UNDERGROUND UTILITIES OR UTILITY LINES WERE LOCATED AS PART OF THE SURVEY.

LEGEND

- LIMITS OF CONSTRUCTION
- RIPRAP
- BUILDING
- LIGHT POLE
- POWER POLE
- BOLLARD
- TREE LINE
- EDGE OF WATER
- PROPERTY LINE
- CULVERT
- FENCE LINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- UNPAVED ROAD
- PAVED ROAD
- CMP CORRUGATED METAL PIPE
- CPP CORRUGATED PLASTIC PIPE
- RCP REINFORCED CONCRETE PIPE
- CCP COAL COMBUSTION PRODUCTS
- I.E. INVERT ELEVATION

25 0 50 100 FEET
GRAPHIC SCALE: 1" = 50'
CONTOUR INTERVAL = 2 FEET

ISSUED FOR CONSTRUCTION



6/26/2014

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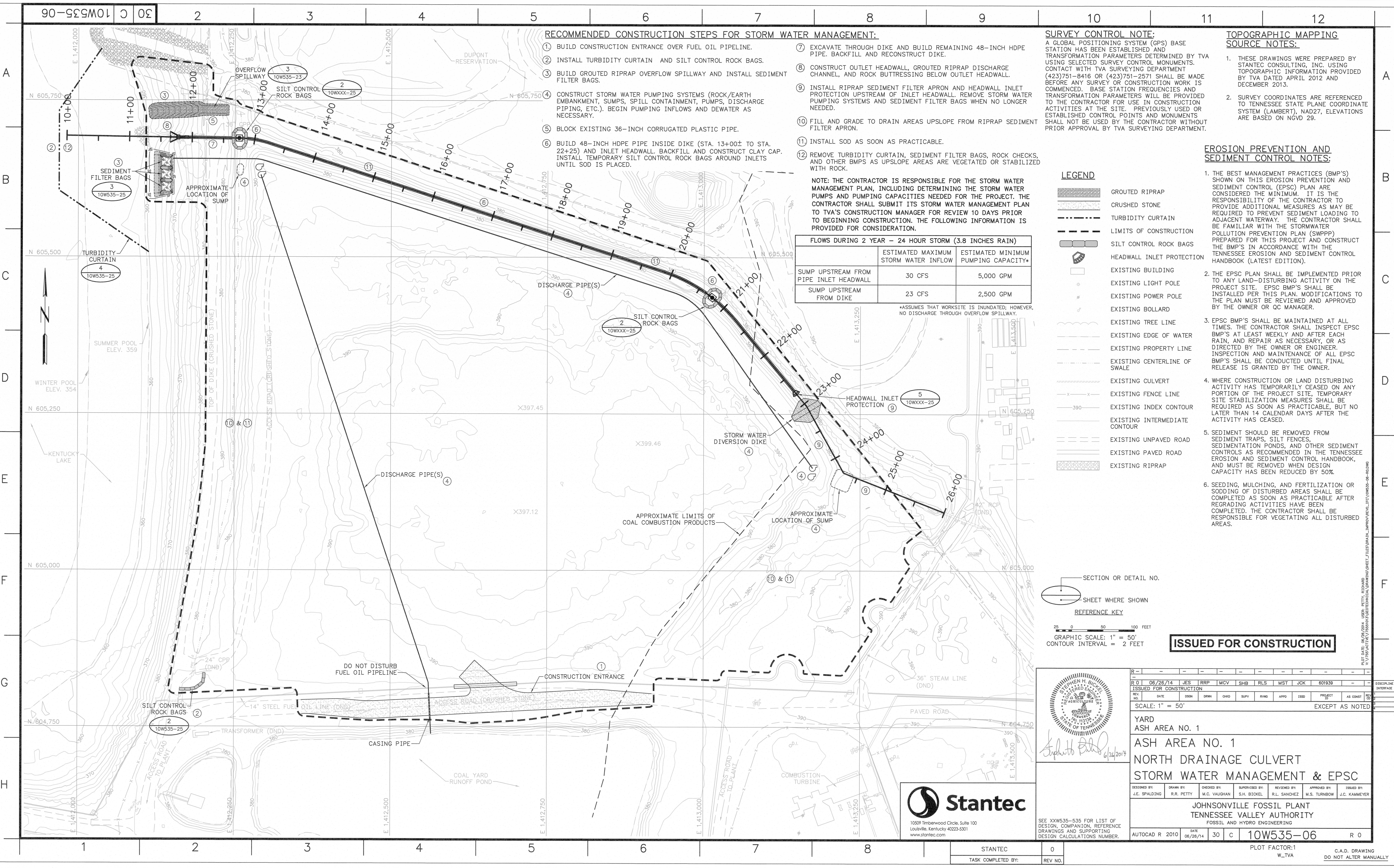
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RECOMMENDED CONSTRUCTION STEPS FOR STORM WATER MANAGEMENT:

1. BUILD CONSTRUCTION ENTRANCE OVER FUEL OIL PIPELINE.
2. INSTALL TURBIDITY CURTAIN AND SILT CONTROL ROCK BAGS.
3. BUILD GROUTED RIPRAP OVERFLOW SPILLWAY AND INSTALL SEDIMENT FILTER BAGS.
4. CONSTRUCT STORM WATER PUMPING SYSTEMS (ROCK/EARTH EMBANKMENT, SUMPS, SPILL CONTAINMENT, PUMPS, DISCHARGE PIPING, ETC.). BEGIN PUMPING INFLOWS AND DEWATER AS NECESSARY.
5. BLOCK EXISTING 36-INCH CORRUGATED PLASTIC PIPE.
6. BUILD 48-INCH HDPE PIPE INSIDE DIKE (STA. 13+00± TO STA. 22+25) AND INLET HEADWALL, BACKFILL AND CONSTRUCT CLAY CAP. INSTALL TEMPORARY SILT CONTROL ROCK BAGS AROUND INLETS UNTIL SOD IS PLACED.
7. EXCAVATE THROUGH DIKE AND BUILD REMAINING 48-INCH HDPE PIPE. BACKFILL AND RECONSTRUCT DIKE.
8. CONSTRUCT OUTLET HEADWALL, GROUTED RIPRAP DISCHARGE CHANNEL, AND ROCK BUTTRESSING BELOW OUTLET HEADWALL.
9. INSTALL RIPRAP SEDIMENT FILTER APRON AND HEADWALL INLET PROTECTION UPSTREAM OF INLET HEADWALL. REMOVE STORM WATER PUMPING SYSTEMS AND SEDIMENT FILTER BAGS WHEN NO LONGER NEEDED.
10. FILL AND GRADE TO DRAIN AREAS UPSLOPE FROM RIPRAP SEDIMENT FILTER APRON.
11. INSTALL SOD AS SOON AS PRACTICABLE.
12. REMOVE TURBIDITY CURTAIN, SEDIMENT FILTER BAGS, ROCK CHECKS, AND OTHER BMPs AS UPSLOPE AREAS ARE VEGETATED OR STABILIZED WITH ROCK.

NOTE: THE CONTRACTOR IS RESPONSIBLE FOR THE STORM WATER MANAGEMENT PLAN, INCLUDING DETERMINING THE STORM WATER PUMPS AND PUMPING CAPACITIES NEEDED FOR THE PROJECT. THE CONTRACTOR SHALL SUBMIT ITS STORM WATER MANAGEMENT PLAN TO TVA'S CONSTRUCTION MANAGER FOR REVIEW 10 DAYS PRIOR TO BEGINNING CONSTRUCTION. THE FOLLOWING INFORMATION IS PROVIDED FOR CONSIDERATION.

FLOWS DURING 2 YEAR - 24 HOUR STORM (3.8 INCHES RAIN)		
	ESTIMATED MAXIMUM STORM WATER INFLOW	ESTIMATED MINIMUM PUMPING CAPACITY*
SUMP UPSTREAM FROM PIPE INLET HEADWALL	30 CFS	5,000 GPM
SUMP UPSTREAM FROM DIKE	23 CFS	2,500 GPM

*ASSUMES THAT WORKSITE IS INUNDED; HOWEVER, NO DISCHARGE THROUGH OVERFLOW SPILLWAY.

SURVEY CONTROL NOTE:
A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751-8416 OR (423)751-2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

TOPOGRAPHIC MAPPING SOURCE NOTES:
1. THESE DRAWINGS WERE PREPARED BY STANTEC CONSULTING, INC. USING TOPOGRAPHIC INFORMATION PROVIDED BY TVA DATED APRIL 2012 AND DECEMBER 2013.
2. SURVEY COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM (LAMBERT), NAD27, ELEVATIONS ARE BASED ON NGVD 29.

LEGEND

- GROUTED RIPRAP
- CRUSHED STONE
- TURBIDITY CURTAIN
- LIMITS OF CONSTRUCTION
- SILT CONTROL ROCK BAGS
- HEADWALL INLET PROTECTION
- EXISTING BUILDING
- EXISTING LIGHT POLE
- EXISTING POWER POLE
- EXISTING BOLLARD
- EXISTING TREE LINE
- EXISTING EDGE OF WATER
- EXISTING PROPERTY LINE
- EXISTING CENTERLINE OF SWALE
- EXISTING CULVERT
- EXISTING FENCE LINE
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- EXISTING UNPAVED ROAD
- EXISTING PAVED ROAD
- EXISTING RIPRAP

EROSION PREVENTION AND SEDIMENT CONTROL NOTES:

1. THE BEST MANAGEMENT PRACTICES (BMP'S) SHOWN ON THIS EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) PLAN ARE CONSIDERED THE MINIMUM. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ADDITIONAL MEASURES AS MAY BE REQUIRED TO PREVENT SEDIMENT LOADING TO ADJACENT WATERWAY. THE CONTRACTOR SHALL BE FAMILIAR WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT AND CONSTRUCT THE BMP'S IN ACCORDANCE WITH THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK (LATEST EDITION).
2. THE EPSC PLAN SHALL BE IMPLEMENTED PRIOR TO ANY LAND-DISTURBING ACTIVITY ON THE PROJECT SITE. EPSC BMP'S SHALL BE INSTALLED PER THIS PLAN. MODIFICATIONS TO THE PLAN MUST BE REVIEWED AND APPROVED BY THE OWNER OR QC MANAGER.
3. EPSC BMP'S SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL INSPECT EPSC BMP'S AT LEAST WEEKLY AND AFTER EACH RAIN, AND REPAIR AS NECESSARY, OR AS DIRECTED BY THE OWNER OR ENGINEER. INSPECTION AND MAINTENANCE OF ALL EPSC BMP'S SHALL BE CONDUCTED UNTIL FINAL RELEASE IS GRANTED BY THE OWNER.
4. WHERE CONSTRUCTION OR LAND DISTURBING ACTIVITY HAS TEMPORARILY CEASED ON ANY PORTION OF THE PROJECT SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 CALENDAR DAYS AFTER THE ACTIVITY HAS CEASED.
5. SEDIMENT SHOULD BE REMOVED FROM SEDIMENT TRAPS, SILT FENCES, SEDIMENTATION PONDS, AND OTHER SEDIMENT CONTROLS AS RECOMMENDED IN THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOK, AND MUST BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
6. SEEDING, MULCHING, AND FERTILIZATION OR SODDING OF DISTURBED AREAS SHALL BE COMPLETED AS SOON AS PRACTICABLE AFTER REGRADING ACTIVITIES HAVE BEEN COMPLETED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VEGETATING ALL DISTURBED AREAS.

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY
GRAPHIC SCALE: 1" = 50'
CONTOUR INTERVAL = 2 FEET

ISSUED FOR CONSTRUCTION



SEE XXW535-535 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

R	0	06/26/14	JES	RRP	MCV	SHB	RLS	MST	JCK	601939	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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1 SECTION A-A' - CONSTRUCTION ENTRANCE
10W535-08 SCALE: 1/2"=1'-0"



E

F

2
10W535-08

DETAIL — PRECAST CONCRETE TRAFFIC CONTROL BARRIER

SCALE: 1/2"=1'-0"

APPROXIMATE QUANTITIES		
20 FEET		
REINF.	CONCRETE	WEIGHT (4)
LBS.	CU.YD./FT.	TONS
195	0.12	5.0

NOTES:

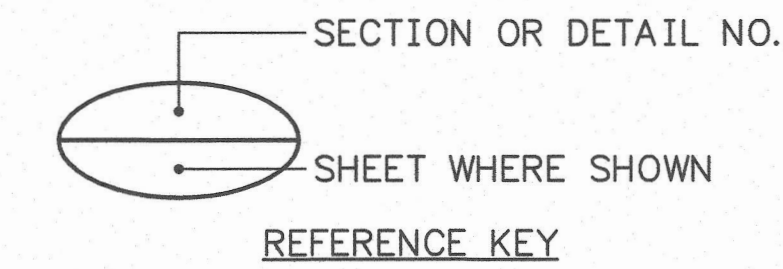
- ① 2" DIA. LIFTING HOLE - 2 REQUIRED EACH SECTION. FORMED WITH 2" P.V.C. PIPE OR EQUIV. TAPER NOT INCLUDED IN BASE WIDTH.
- ②
- ③ SHOP DRAWINGS SHALL BE APPROVED PRIOR TO MANUFACTURE.
- ④ BASED ON 150 LBS./CU. FT.
- ⑤ PLACE ALL STEEL REINFORCEMENT A CLEAR DISTANCE OF 2" MIN. FROM OUTSIDE FACE OF WALL, EXCEPT WHERE SHOWN OTHERWISE.
- ⑥ LIFTING BARS SHALL BE REQUIRED TO PREVENT SPALLING OF CONCRETE AROUND HOLES.

CONSTRUCTION ENTRANCE SEQUENCE:

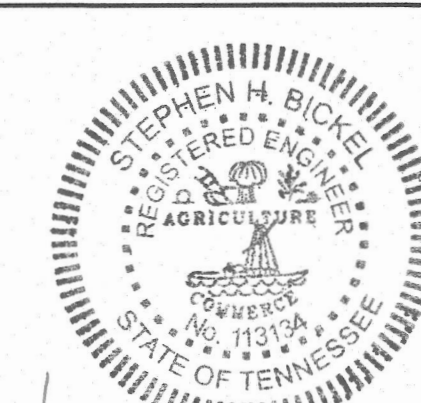
1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO AVOID DAMAGING THE FUEL OIL PIPELINE OR ANY UNDERGROUND UTILITIES IN THE VICINITY OF THE CONSTRUCTION ENTRANCE.
2. PREPARE SUBGRADE BY COMPACTING THE GROUND AND LEVELING THE GROUND SURFACE AS NECESSARY SO THAT THE GROUND SURFACE ELEVATION IS EQUAL TO THE TOP OF THE EXISTING FUEL OIL PIPELINE FOUNDATIONS. THE ZONE OF COMPACTION AND LEVELING SHALL BE 10 FEET ON BOTH SIDES OF THE FUEL OIL PIPELINE. CRUSHER RUN SHALL BE USED TO RAISE GRADES IF NECESSARY.
3. PLACE 6"x1/2"x8"-6" STEEL BARS AT 8 FOOT INTERVALS BENEATH FUEL OIL PIPELINE AND CENTER.
4. PLACE SECTIONS OF THE 72 INCH DIAMETER PIPE ARCH WITH PREFABRICATED BENT PLATE ONTO STEEL BARS AND WELD AS SHOWN. PIPE ARCH SECTIONS SHALL BE TIGHTLY BUTTED AGAINST EACH OTHER AND WELDED TO FORM A CONTINUOUS ARCH.
5. PLACE AND COMPACT TDOT NO. 2 OR 3 CRUSHED STONE EVENLY ON BOTH SIDES OF THE PIPE ARCH TO A DEPTH OF 12 INCHES.
6. INSTALL GABIONS FILLED WITH STONE ON BOTH SIDES OF THE PIPE ARCH TO SUPPORT THE TIMBER MATS.
7. FILL THE VOID BETWEEN THE PIPE ARCH AND THE GABIONS WITH TDOT NO. 2 OR 3 CRUSHED STONE UP TO THE TOP OF THE PIPE ARCH.
8. PLACE CONCRETE SAND TO A DEPTH OF 12 INCHES BETWEEN THE GABIONS AND COMPACT LIGHTLY.
9. PLACE TIMBER MATS ONTO THE GABIONS AND SAND LAYER. TIMBER MATS SHALL BE TIGHTLY BUTTED AGAINST EACH OTHER.
10. PLACE AND COMPACT TDOT NO. 2 OR 3 CRUSHED STONE AROUND THE GABIONS AND 6 INCHES ABOVE THE TIMBER MATS.
11. PLACE AND COMPACT A 6 INCH LAYER OF TDOT CRUSHER RUN TO PROVIDE A SMOOTH DRIVING SURFACE.

NOTES:

12. PIPE ARCH SECTIONS SHALL BE FABRICATED BY SPLITTING A 72 INCH DIAMETER, GRADE B STEEL PIPE IN HALF. PIPE SHALL HAVE A MINIMUM YIELD STRENGTH OF 36,000 PSI AND A ½ INCH WALL THICKNESS.
13. EACH TIMBER MAT SHALL BE CONSTRUCTED OF FOUR 12"x12" HARDWOOD (OAK) TIMBERS, SECURELY BOLTED TOGETHER TO FORM A SINGLE 48 INCH WIDE UNIT.
14. GABION BASKETS SHALL BE FABRICATED FROM WELDED WIRE MESH, WITH MAXIMUM OPENING SIZE OF 3"x 3", AND SHALL CONFORM TO ASTM A 974. WIRE FOR FABRICATION AND ASSEMBLY SHALL BE 12 GAGE, HOT-DIPPED GALVANIZED. THE BASKETS SHALL BE SECURELY FASTENED TOGETHER IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS TO PROVIDE A CONTINUOUS STRUCTURE WHEN THE BASKETS ARE FILLED WITH STONE.
15. THE GABIONS SHALL BE CAREFULLY FILLED WITH STONE, EITHER BY MACHINE OR HAND METHODS, PROVIDING A COMPACT MASS THAT MINIMIZES VOIDS. MACHINE PLACEMENT WILL REQUIRE SUPPLEMENTING WITH HAND WORK TO ENSURE THE DESIRED RESULTS. THE CELLS IN ANY ROW SHALL BE FILLED IN STAGES SO THAT THE DEPTH OF STONE PLACED IN ANY ONE CELL DOES NOT EXCEED THE DEPTH OF STONE IN ANY ADJOINING CELL BY MORE THAN 3 INCHES. THE LAST LAYER OF STONE SHALL BE UNIFORMLY LEVELED TO THE TOP EDGES OF THE GABIONS. GABIONS SHALL BE REINFORCED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. CARE SHOULD BE TAKEN WHEN PLACING STONE IN GABIONS TO INSURE THAT THE GABION BASKETS WILL NOT BE DAMAGED OR BROKEN.
16. STONE SIZE FOR USE IN GABION BASKETS SHALL BE BETWEEN 4 AND 8 INCHES WITH A D50 OF 6 INCHES (MINIMUM). STONES



ISSUED FOR CONSTRUCTION



R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R 0	06/26/14	JES	RRP	MCV	SHB	RSH	MST	JCK	601939	-	-					DISCIPLIN INTERFACE
ISSUED FOR CONSTRUCTION																
REV. NO.	DATE	DGN	DRWN	CHKD	SUPV	RWMD	APPD	ISSD	PROJECT ID	AS NOTED	REV NO					1
SCALE: 1"=20' (HORIZ.) 1"=5' (VERT.)											EXCEPT AS NOTED					

YARD ASH AREA NO. 1	
ASH AREA NO. 1	
NORTH DRAINAGE CULVERT	
CONSTRUCTION ENTRANCE DETAILS	

DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:
J.E. SPALDING	R.R. PETTY	M.C. VAUGHAN	S.H. BICKEL	R.S. HARRIS	M.S. TURNBOW	J.C. KAMMEYER

JOHNSONVILLE FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2010	DATE 06/26/14	30	C	10W535-08	R 0
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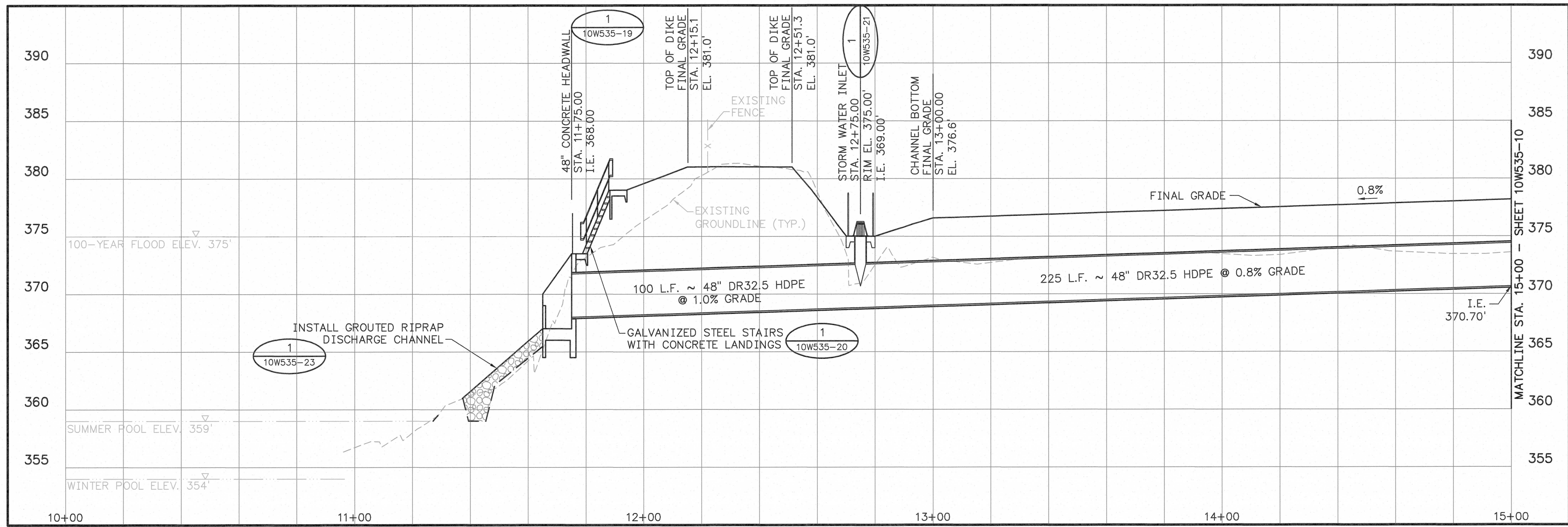


SEE XXW535-535 FOR LIST OF
DESIGN, COMPANION, REFERENCE
DRAWINGS AND SUPPORTING
DESIGN CALCULATIONS NUMBER.

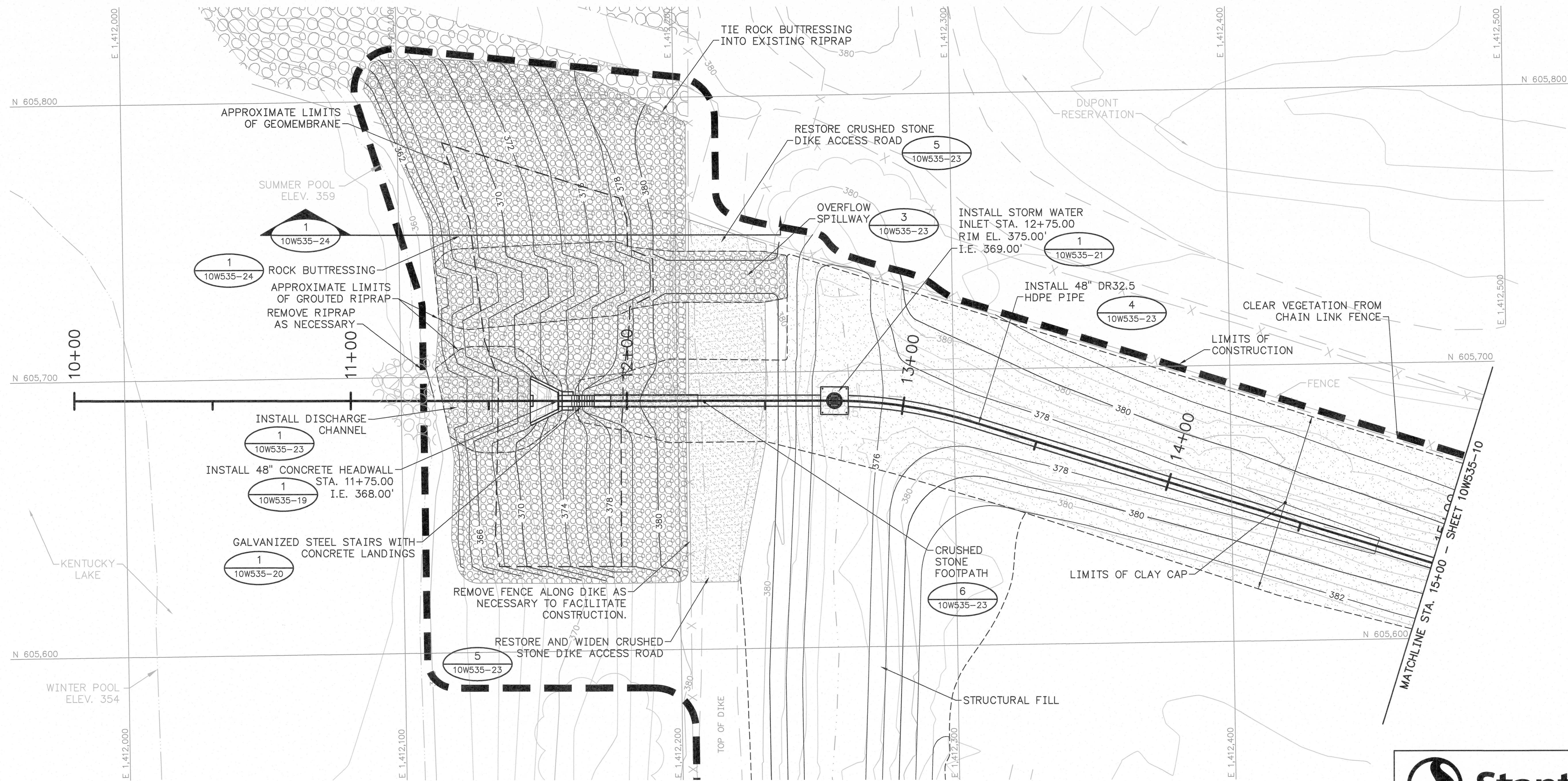
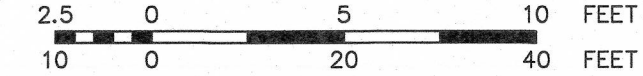
STANTEC	0
TASK COMPLETED BY:	REV NO.

PLOT FACTOR:1
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY



1 PROFILE - NORTH DRAINAGE CULVERT
10W535-09 SCALE: 1"=20' (HORIZONTAL)
1"=5' (VERTICAL)



2 PLAN - NORTH DRAINAGE CULVERT
10W535-09 SCALE: 1"=20'

SURVEY CONTROL NOTE:
A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751-8416 OR (423)751-2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

TOPOGRAPHIC MAPPING SOURCE NOTES:

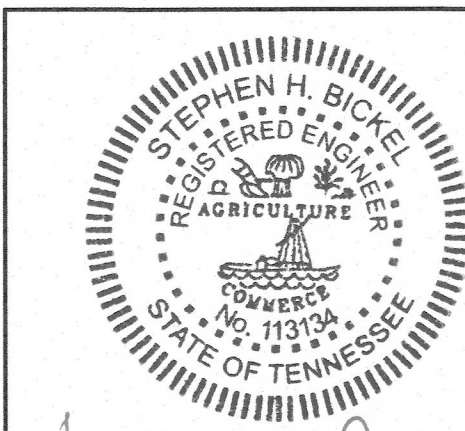
- THESE DRAWINGS WERE PREPARED BY STANTEC CONSULTING, INC. USING TOPOGRAPHIC INFORMATION PROVIDED BY TVA DATED APRIL 2012 AND DECEMBER 2013.
- SURVEY COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM (LAMBERT), NAD27, ELEVATIONS ARE BASED ON NGVD 29.

LEGEND

- BASLINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- CHANNEL LINING
- CRUSHED STONE ACCESS ROAD
- LIMITS OF CLAY CAP
- LIMITS OF GEOMEMBRANE
- LIMITS OF CONSTRUCTION
- BUILDING
- LIGHT POLE
- POWER POLE
- BOLLARD
- TREE LINE
- EDGE OF WATER
- PROPERTY LINE
- CENTERLINE OF SWALE
- CULVERT
- FENCE LINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- UNPAVED ROAD
- PAVED ROAD
- RIPRAP

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY

ISSUED FOR CONSTRUCTION



4/24/2014



10509 Timberwood Circle, Suite 100
Louisville, Kentucky 40223-5301
www.stantec.com

SEE XXW535-535 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

R	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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STANTEC

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TASK COMPLETED BY:

REV NO.

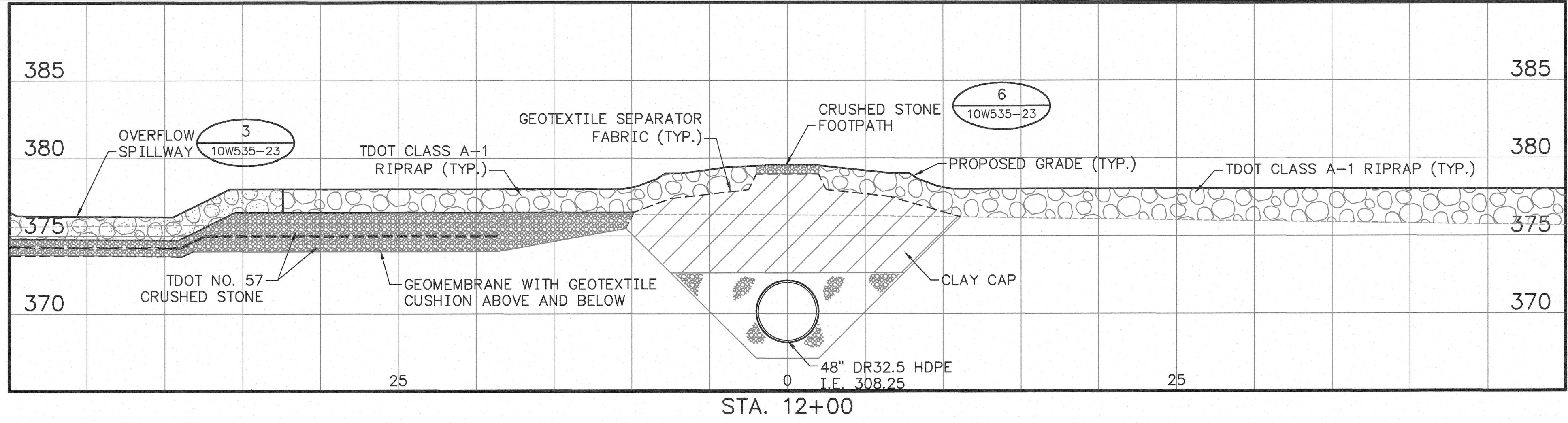
PLOT FACTOR:1

W_TVA

C.A.D. DRAWING

DO NOT ALTER MANUALLY

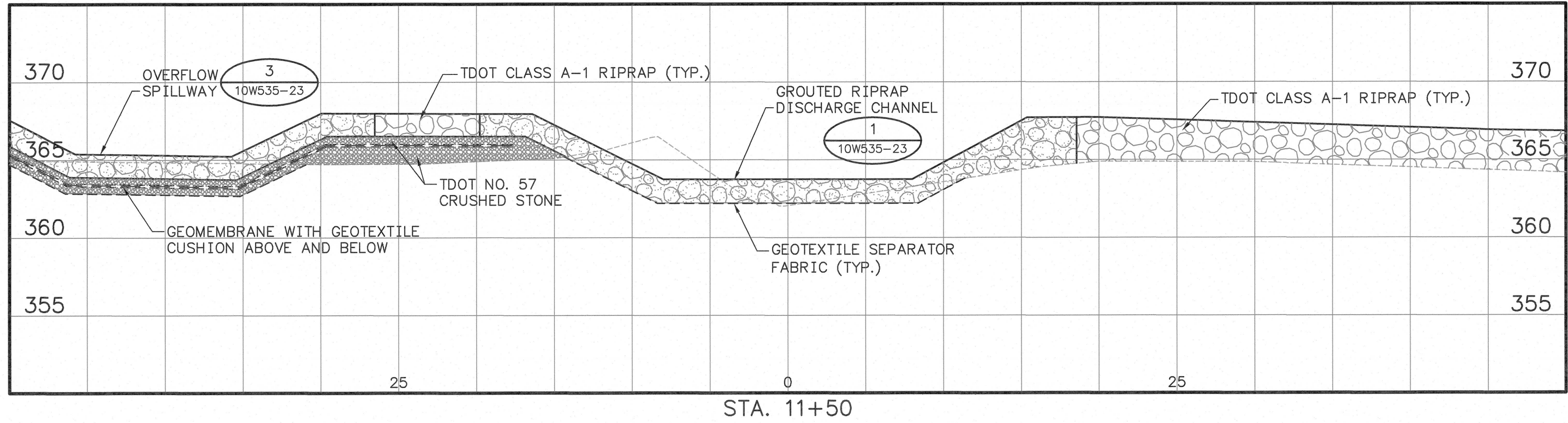
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B

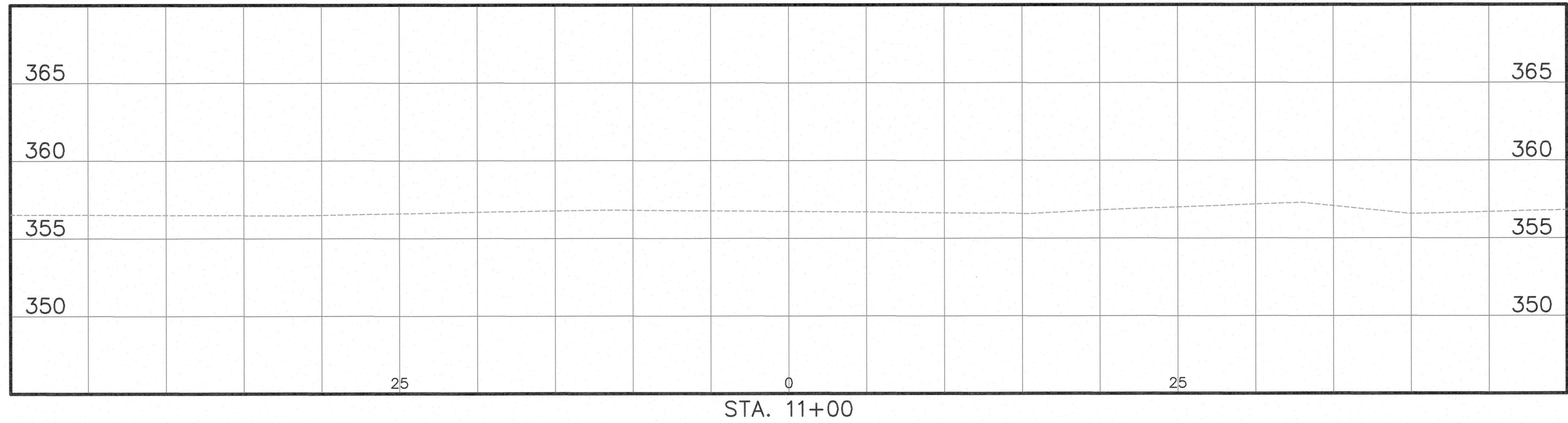
C

D

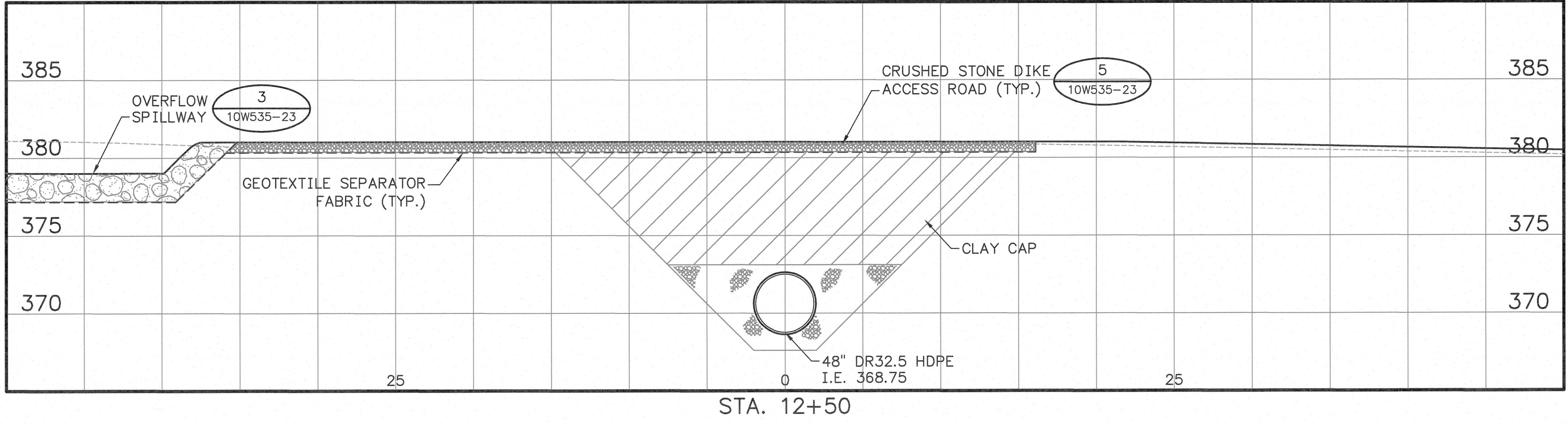
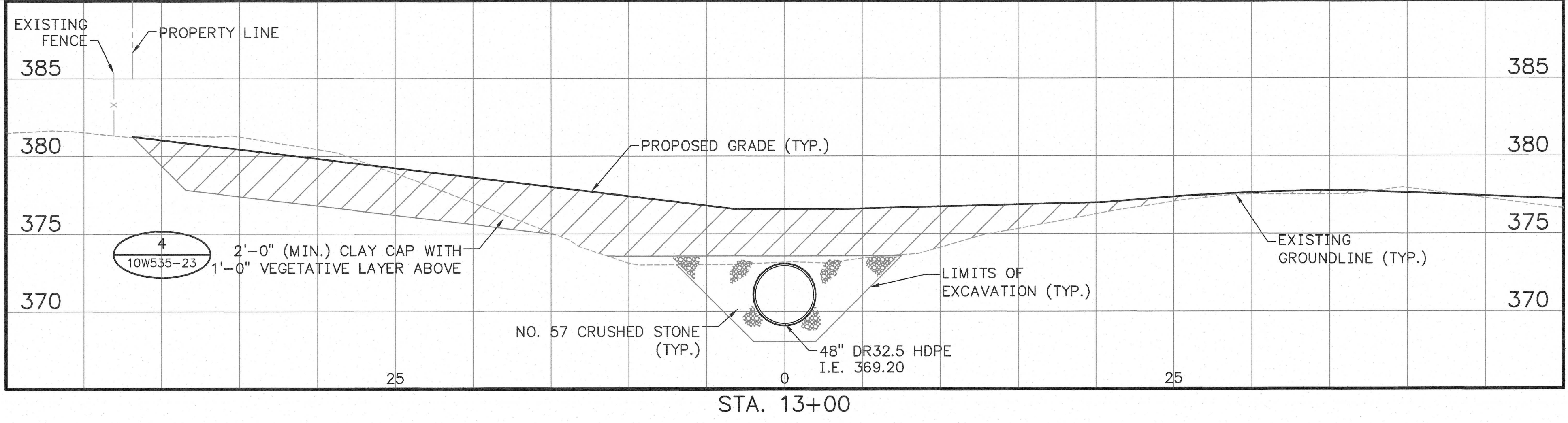


E

F

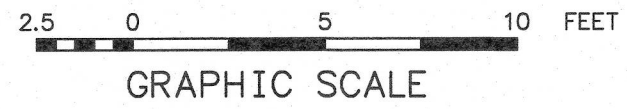


H



LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- PROPERTY LINE
- FENCE
- CLAY BACKFILL
- TDOT NO. 57 CRUSHED STONE
- TDOT CLASS A-1 RIPRAP
- GROUTED RIPRAP
- GEOMEMBRANE
- GEOTEXTILE



ISSUED FOR CONSTRUCTION

SECTION OR DETAIL NO.

SHEET WHERE SHOWN

REFERENCE KEY



-	-	-	-	-	-	-	-	-	-	-	-
R 0	06/26/14	JES	RRP	MCV	SHB	RSH	MST	JCK	601939	-	-
ISSUED FOR CONSTRUCTION											
REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVND	APPR	ISSD	PROJECT	AS CONST	REV. NO.
SCALE: 1" = 5'										EXCEPT AS NOTED	
YARD											
ASH AREA NO. 1											
ASH AREA NO. 1											
NORTH DRAINAGE CULVERT											
CROSS SECTIONS											
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:					
J.E. SPALDING	R.R. PETTY	M.C. VAUGHAN	S.H. BICKEL	R.S. HARRIS	M.S. TURNBOW	J.C. KAMMEYER					
JOHNSONVILLE FOSSIL PLANT											
TENNESSEE VALLEY AUTHORITY											
FOSSIL AND HYDRO ENGINEERING											
AUTOCAD R 2010		DATE 06/26/14	30	C	10W535-12					R 0	

SEE XXW535-535 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

STANTEC

TASK COMPLETED BY:

0

REV NO.

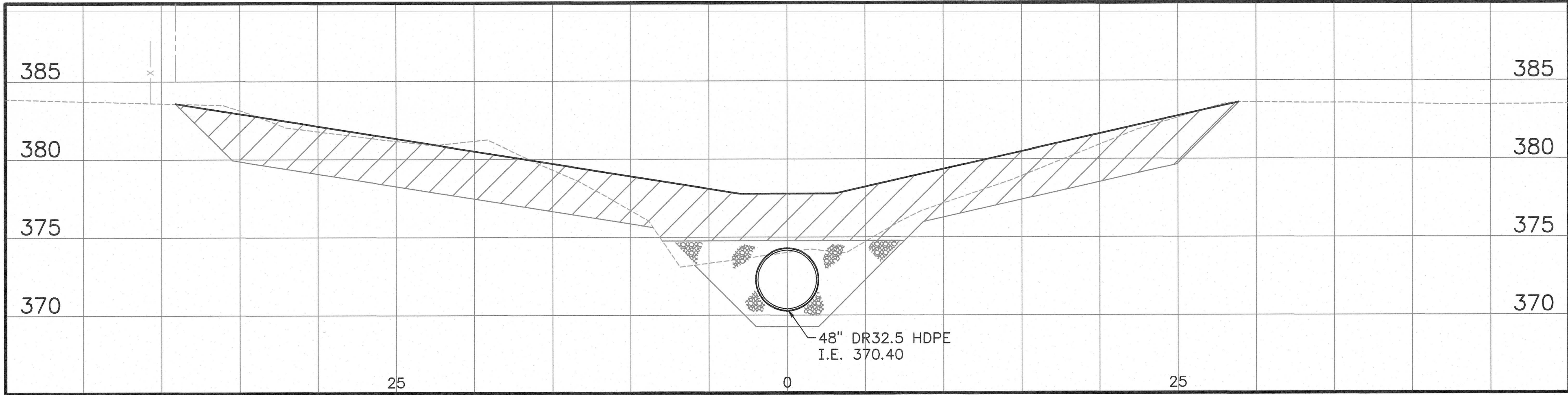
PLOT FACTOR:1

W_TVA

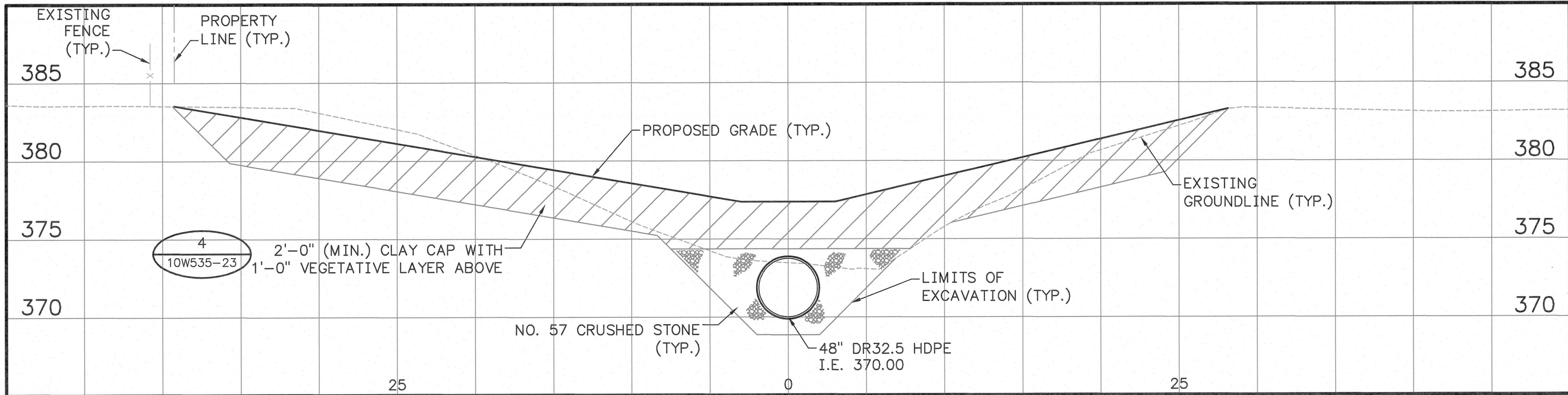
C.A.D. DRAWING

DO NOT ALTER MANUALLY

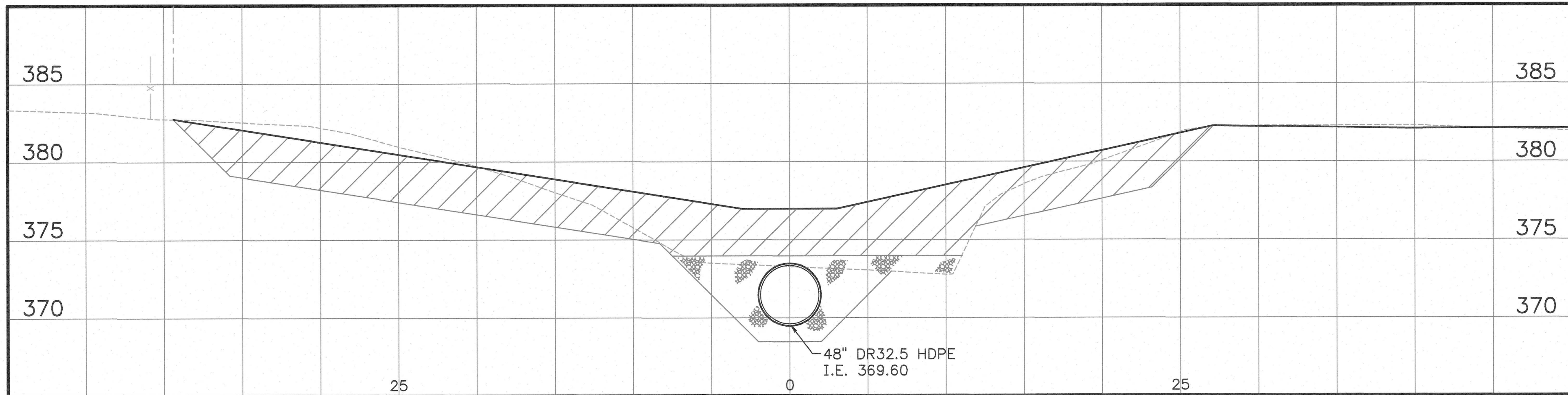
A
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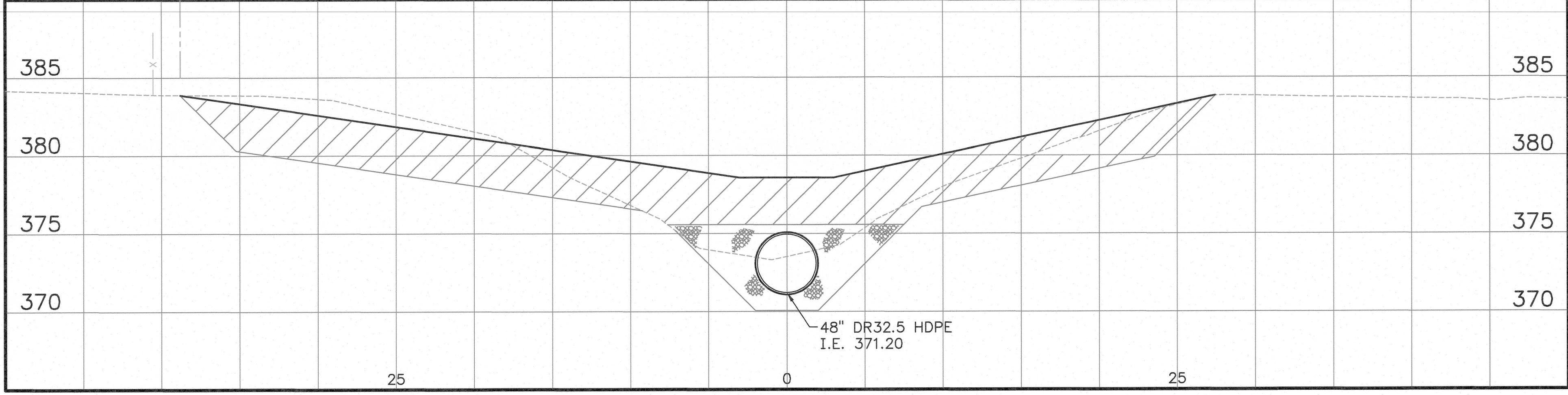
STA. 14+50



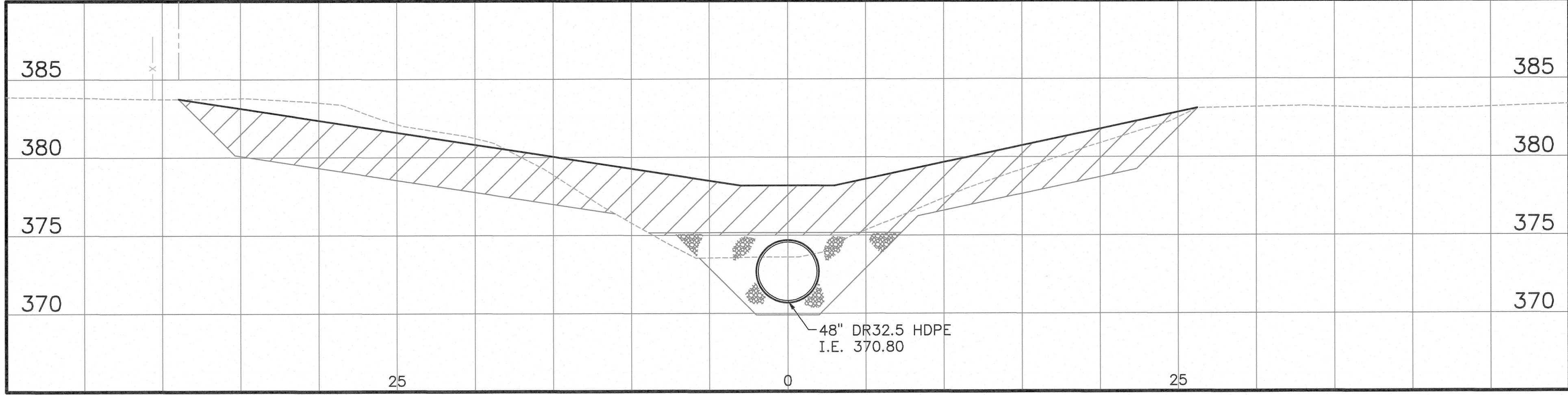
STA. 14+00



STA. 13+50



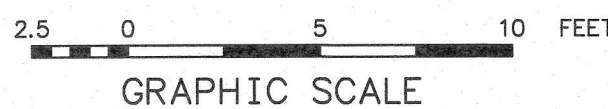
STA. 15+50



STA. 15+00

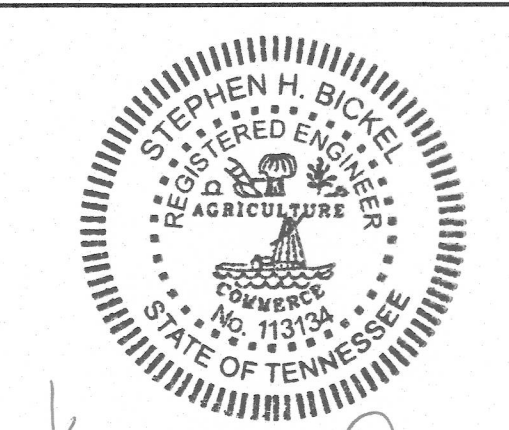
LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- PROPERTY LINE
- FENCE
- CLAY BACKFILL
- TDOT NO. 57 CRUSHED STONE
- TDOT CLASS A-1 RIPRAP
- GROUTED RIPRAP



ISSUED FOR CONSTRUCTION

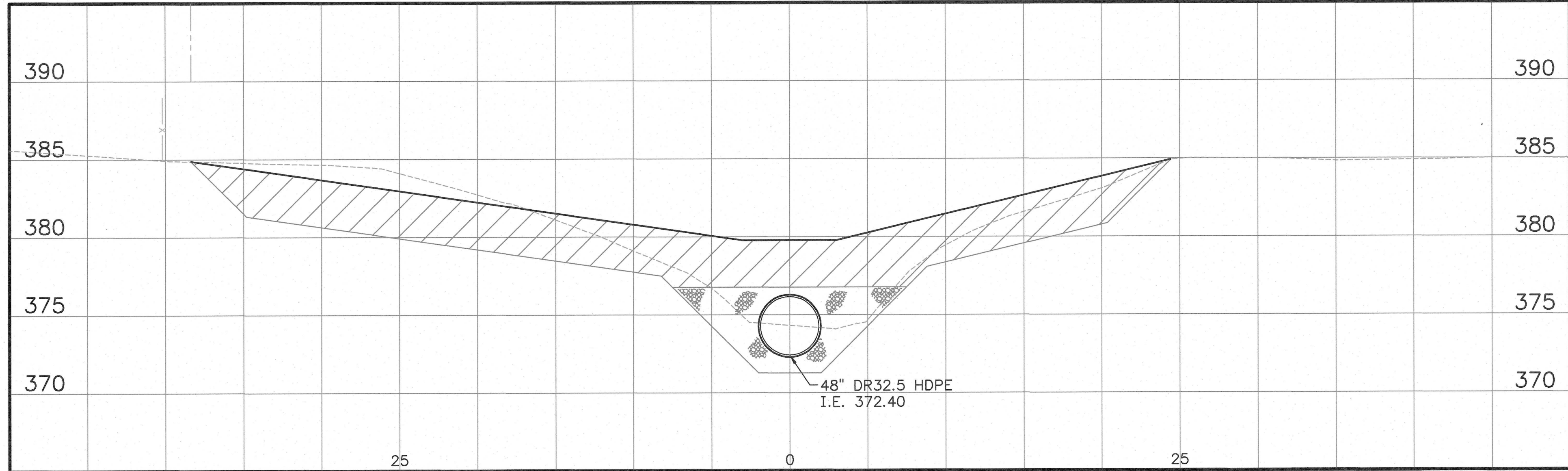
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SHEET WHERE SHOWN
REFERENCE KEY



4/26/2014

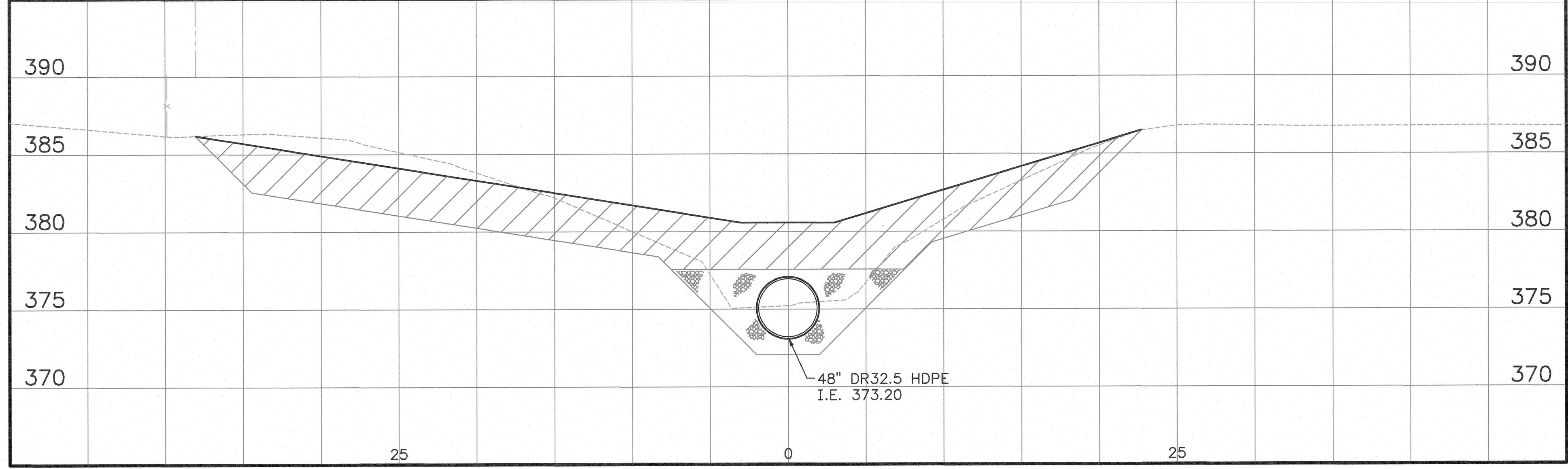
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ISSUED FOR CONSTRUCTION												
REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVSD	APPD	ISSD	PROJECT ID	AS CONST	REV. NO.	
SCALE: 1" = 5'											EXCEPT AS NOTED	
YARD												
ASH AREA NO. 1												
ASH AREA NO. 1												
NORTH DRAINAGE CULVERT												
CROSS SECTIONS												
DESIGNED BY: J.E. SPALDING	DRAWN BY: R.R. PETTY	CHECKED BY: M.C. VAUGHAN	SUPERVISED BY: S.H. BICKEL	REVIEWED BY: R.S. HARRIS	APPROVED BY: M.S. TURNBOW	ISSUED BY: J.C. KAMMEYER						
JOHNSONVILLE FOSSIL PLANT												
TENNESSEE VALLEY AUTHORITY												
FOSSIL AND HYDRO ENGINEERING												
AUTOCAD R 2010	DATE 06/26/14	30	C	10W535-13					R 0			

A



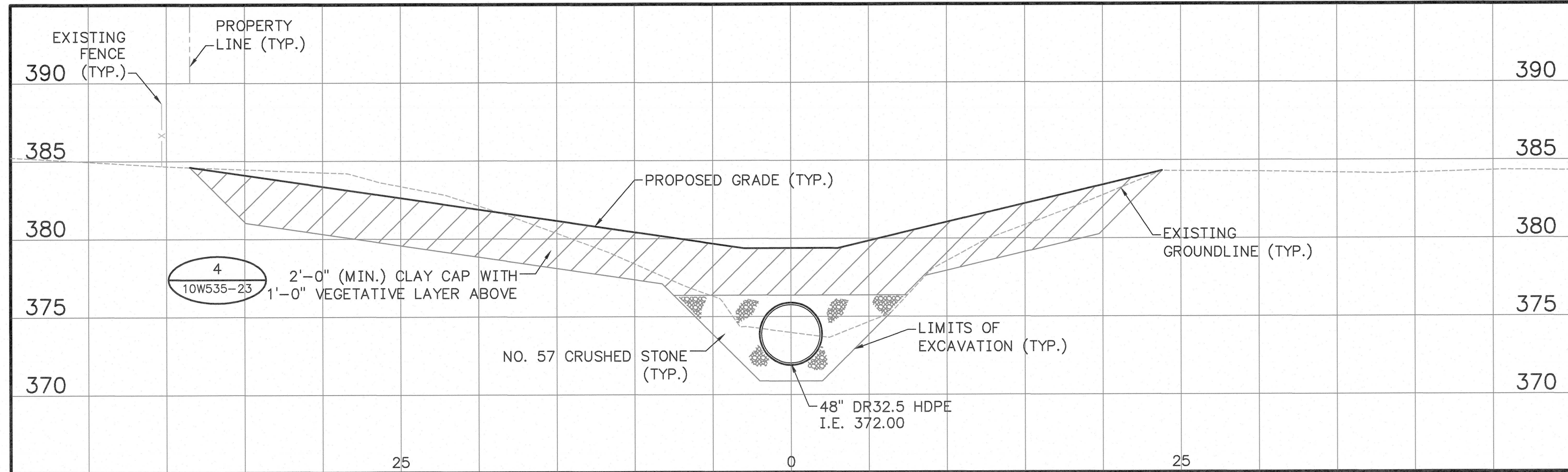
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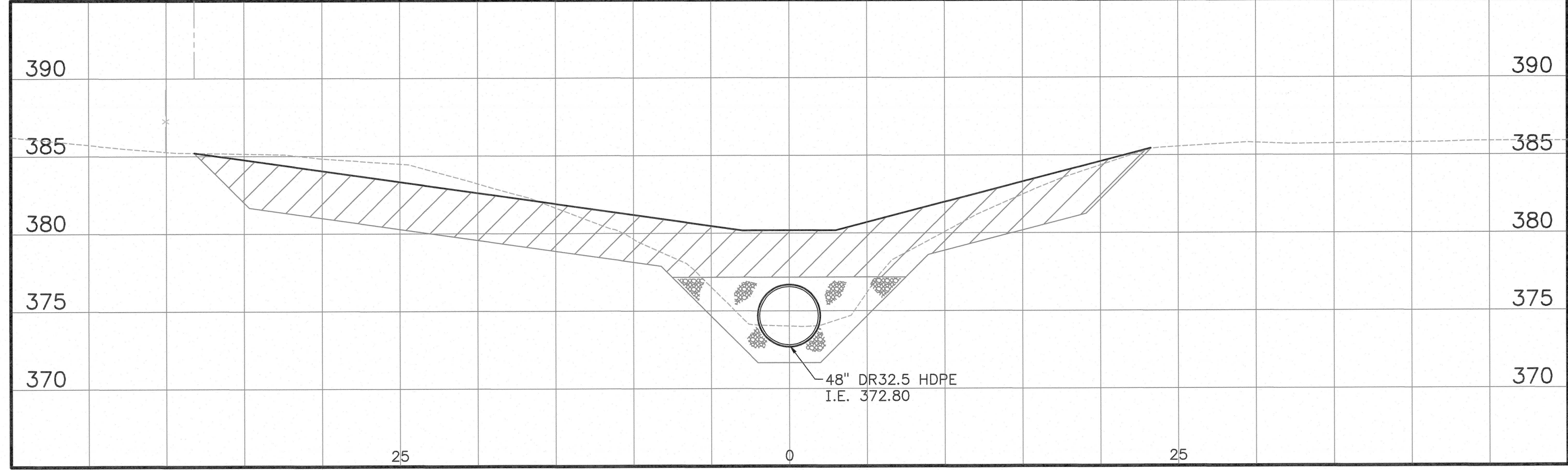
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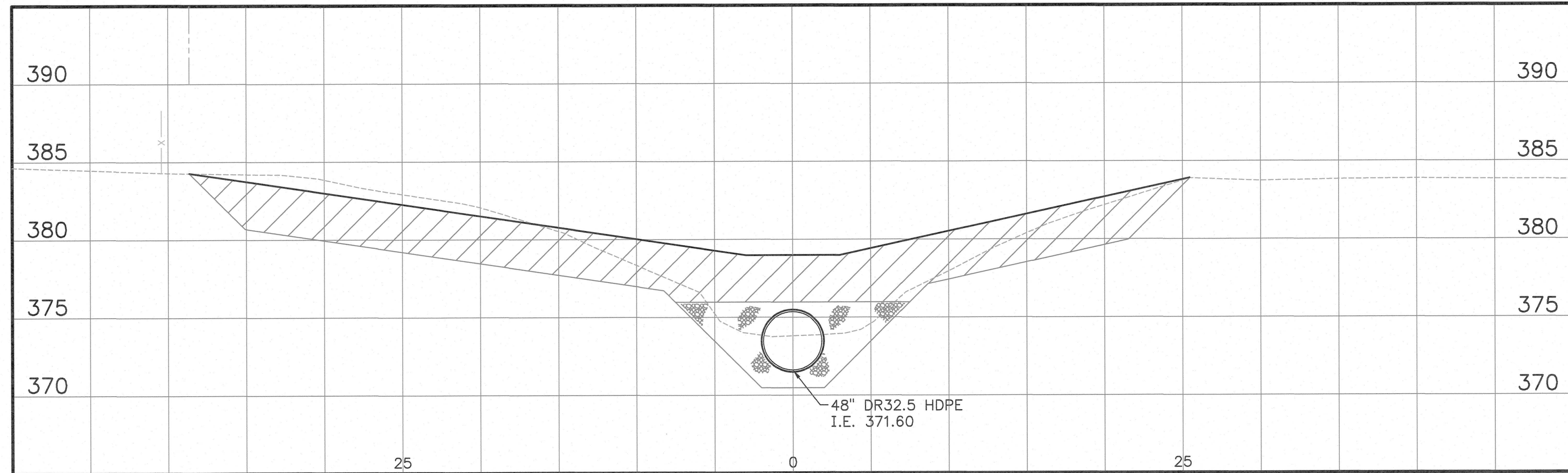
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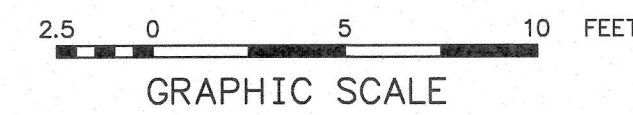
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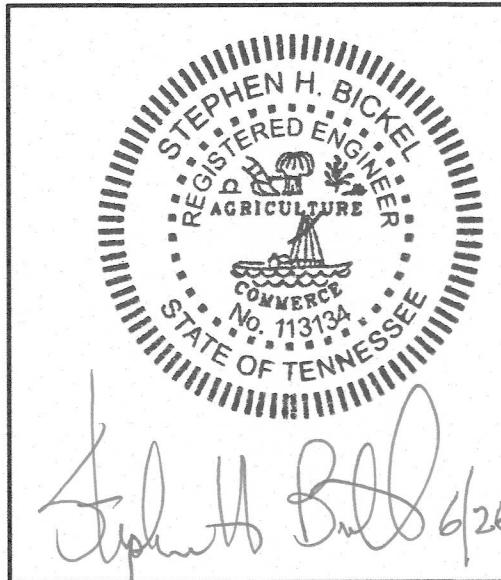
LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- PROPERTY LINE
- FENCE
- CLAY BACKFILL
- TDOT NO. 57 CRUSHED STONE
- TDOT CLASS A-1 RIPRAP
- GROUTED RIPRAP



ISSUED FOR CONSTRUCTION

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY



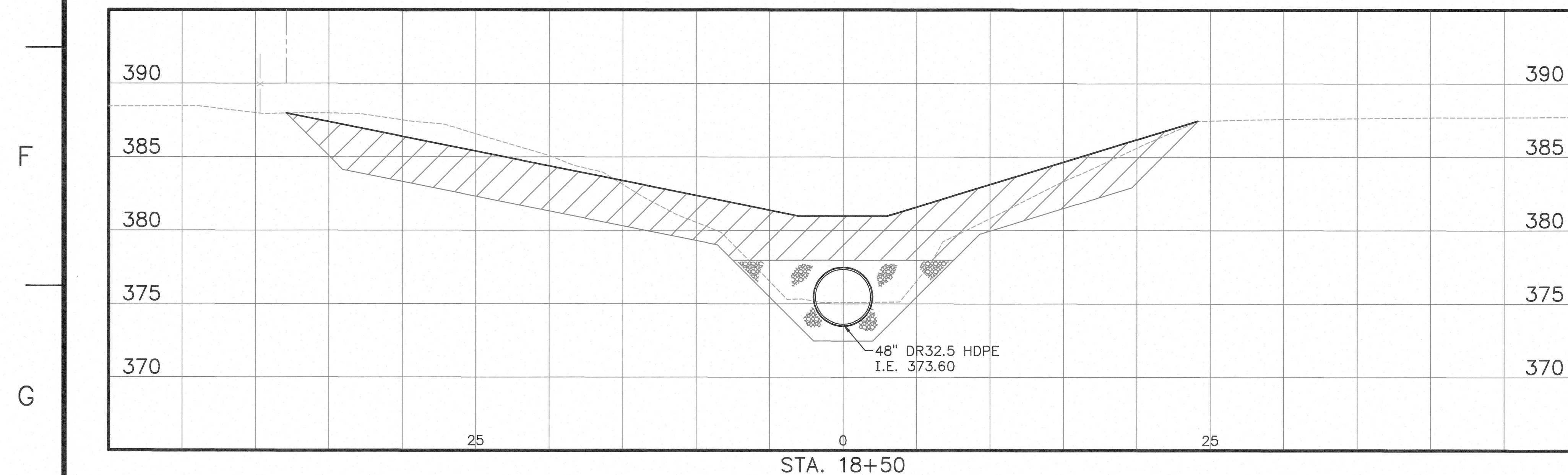
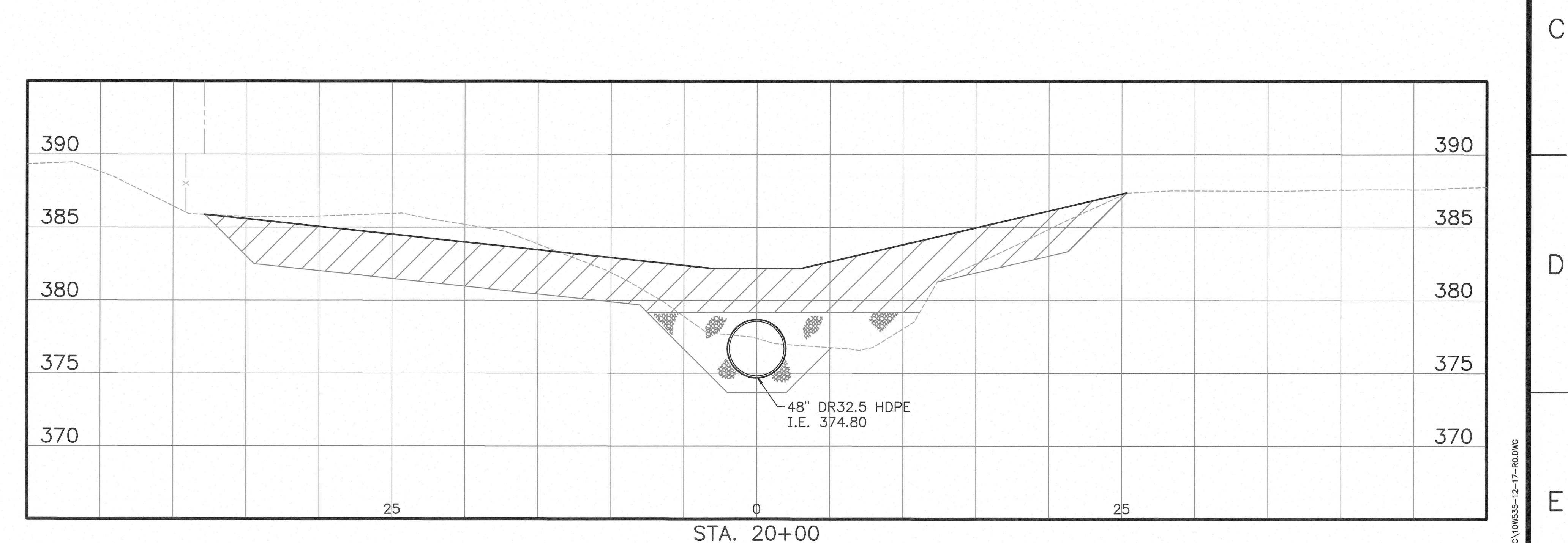
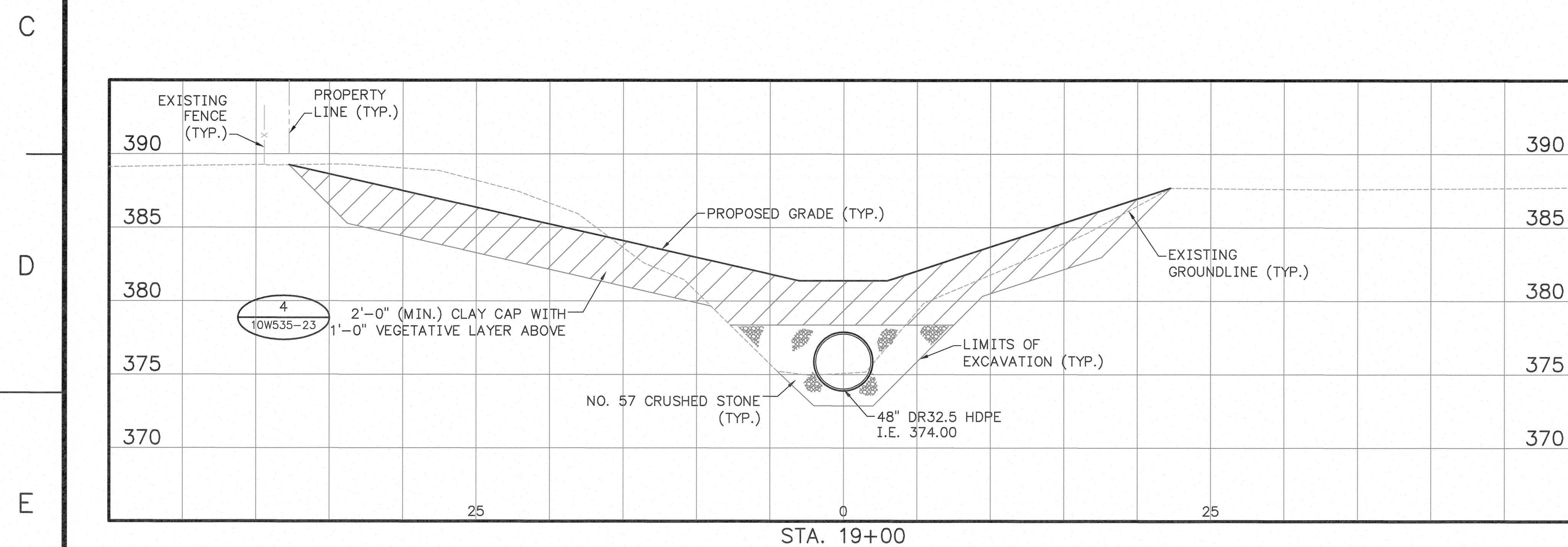
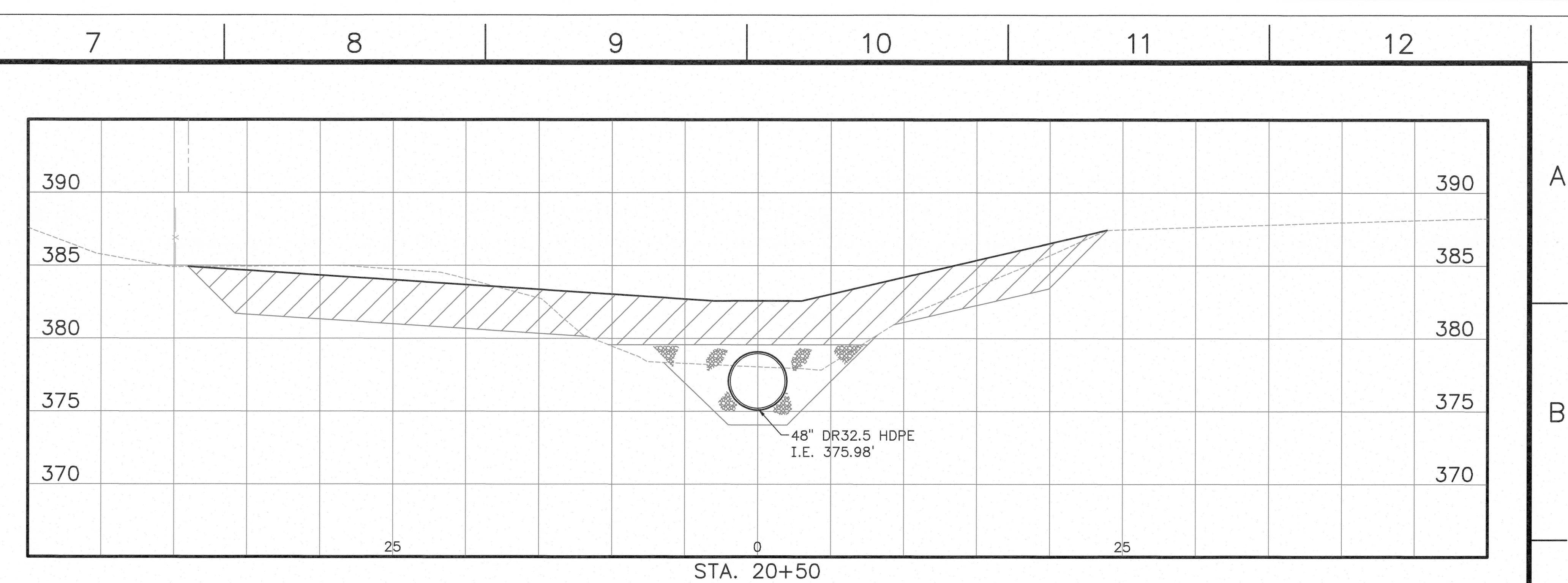
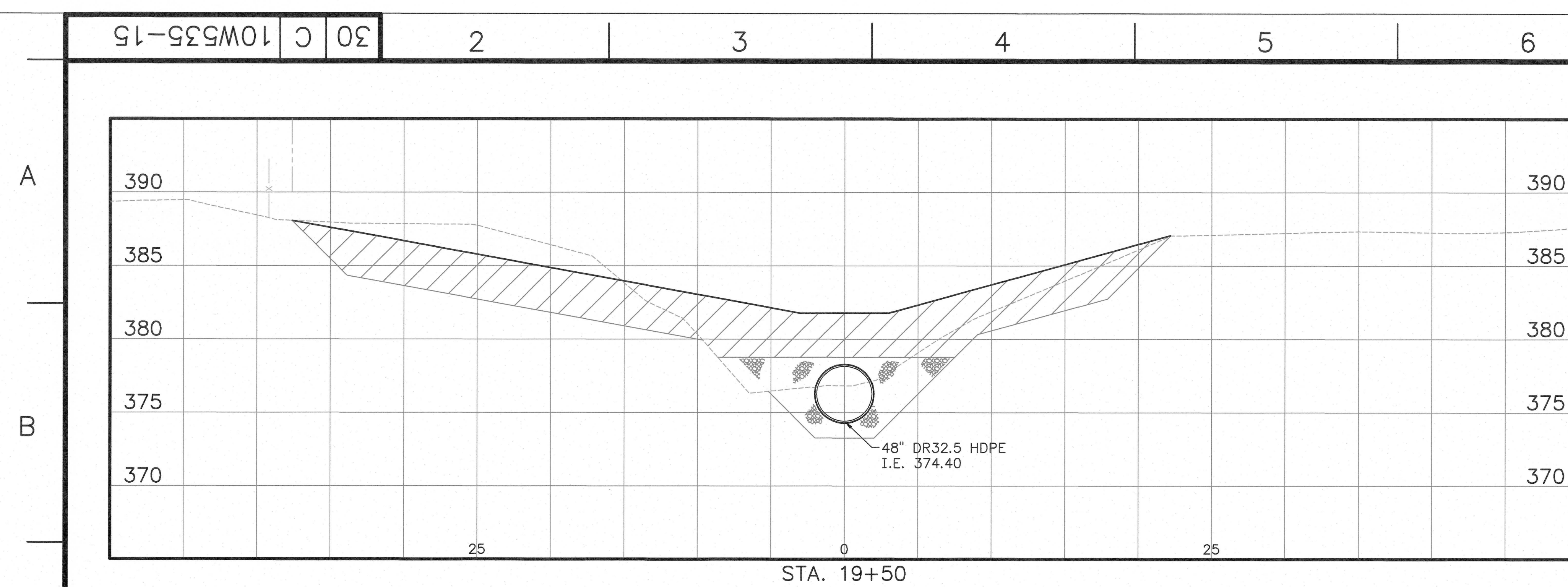
SEE XXW535-535 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

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REV. NO.	DATE	OSDN	DRWN	CHD	SUPV	RWMD	APPD	ISSD	PROJECT ID	AS CONDT	REV. CD		
SCALE: 1" = 5'											EXCEPT AS NOTED		
YARD ASH AREA NO. 1													
ASH AREA NO. 1 NORTH DRAINAGE CULVERT CROSS SECTIONS													
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:							
J.E. SPALDING	R.R. PETTY	M.C. VAUGHAN	S.H. BICKEL	R.S. HARRIS	M.S. TURNBOW	J.C. KAMMEYER							
JOHNSONVILLE FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING													
AUTOCAD R 2010		DATE 06/26/14	30	C	10W535-14						R 0		






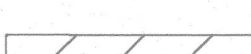

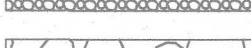
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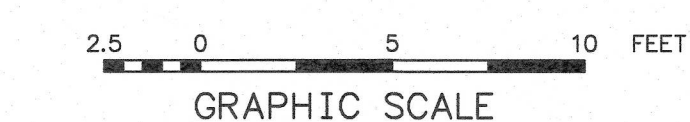
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DO NOT ALTER MANUALLY

PLOT DATE: 06/26/2014 USER: PETTY, RICHARD
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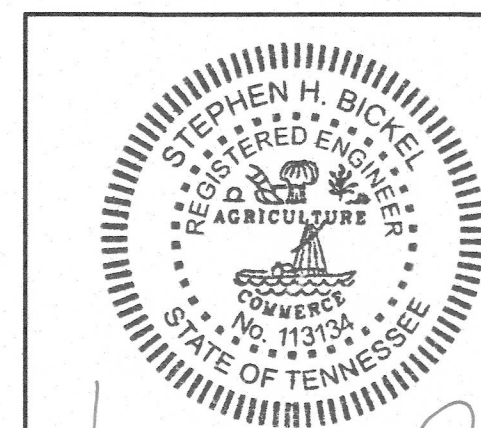


LEGEND

- | | |
|---|---------------------------|
|  | EXISTING GROUND |
|  | PROPOSED GRADE |
|  | PROPERTY LINE |
|  | FENCE |
|  | CLAY BACKFILL |
|  | TDOT NO. 57 CRUSHED STONE |
|  | TDOT CLASS A-1 RIPRAP |
|  | GROUTED RIPRAP |



ISSUED FOR CONSTRUCTION

[illegible]

YARD	
ASH AREA NO. 1	


ASH AREA NO. 1 NORTH DRAINAGE CULVERT CROSS SECTIONS

DESIGNED BY: J.E. SPALDING	DRAWN BY: R.R. PETTY	CHECKED BY: M.C. VAUGHAN	SUPERVISED BY: S.H. BICKEL	REVIEWED BY: R.S. HARRIS	APPROVED BY: M.S. TURNBOW	ISSUED BY: J.C. KAMMEYER
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JOHNSONVILLE FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2010	DATE 06/26/14	30	C	10W535-15	R 0
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SECTION OR DETAIL NO.



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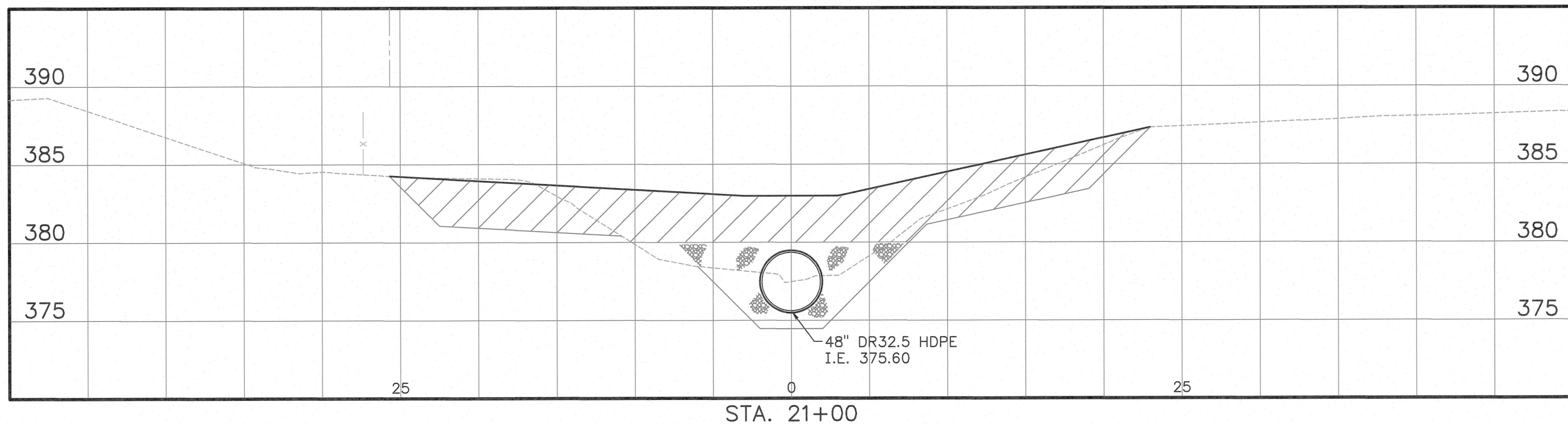
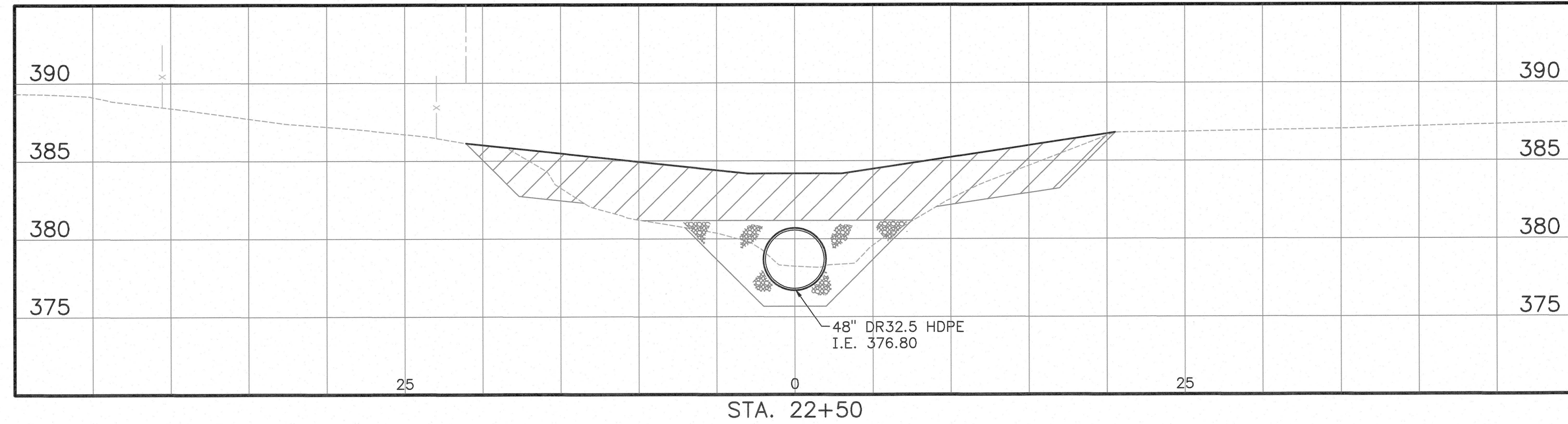
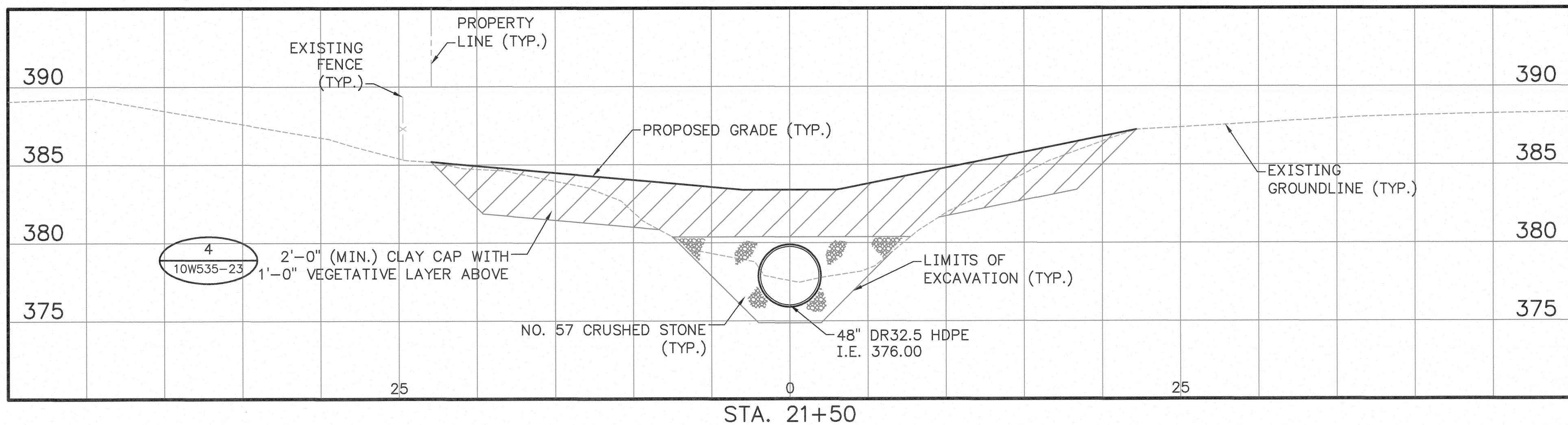
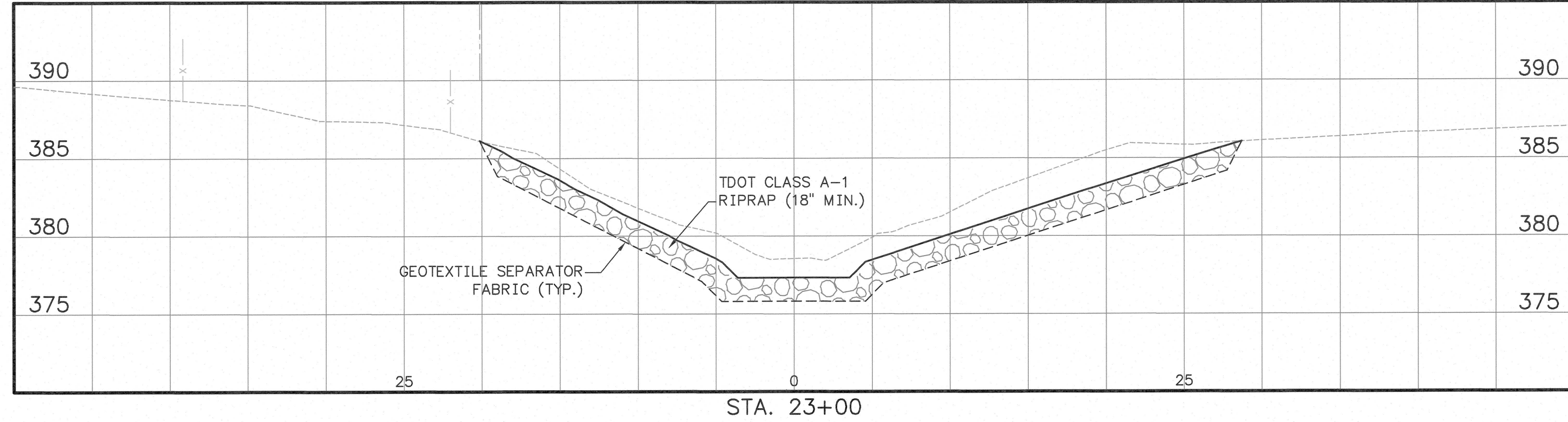
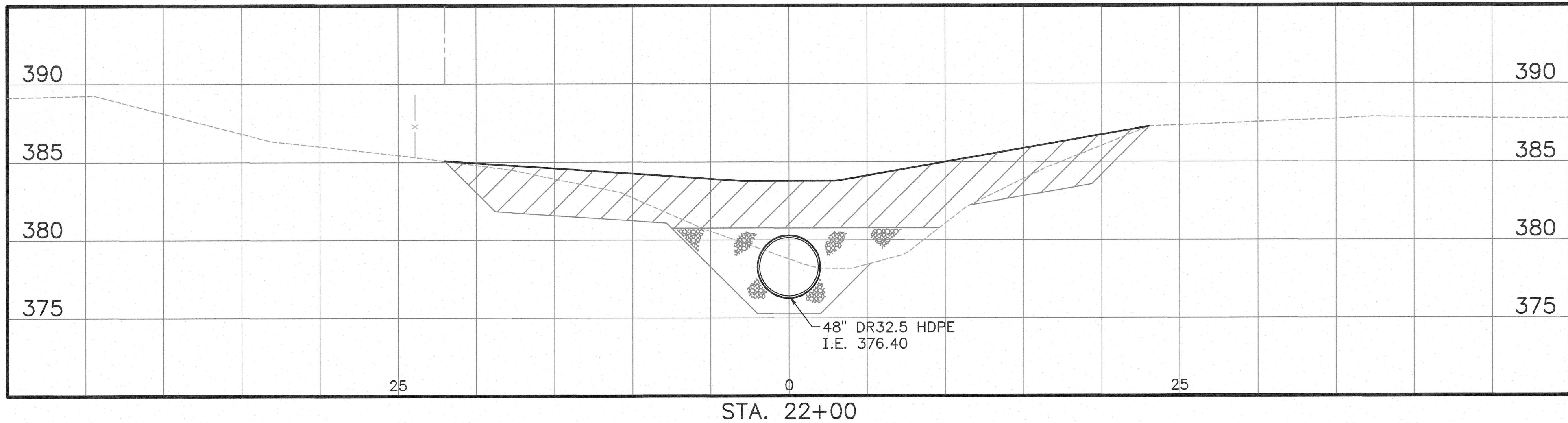
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SEE XXW535-535 FOR LIST OF
DESIGN, COMPANION, REFERENCE
DRAWINGS AND SUPPORTING
DESIGN CALCULATIONS NUMBER.

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PLOT DATE: 06/26/2014 USER: PETTY, RICHARD
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A
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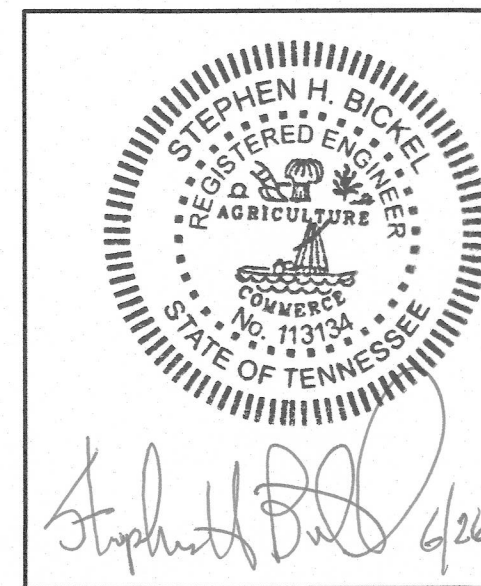
LEGEND

- EXISTING GROUND
- PROPOSED GRADE
- PROPERTY LINE
- FENCE
- CLAY BACKFILL
- TDOT NO. 57 CRUSHED STONE
- TDOT CLASS A-1 RIPRAP
- GROUTED RIPRAP
- GEOMEMBRANE

2.5 0 5 10 FEET
GRAPHIC SCALE

ISSUED FOR CONSTRUCTION

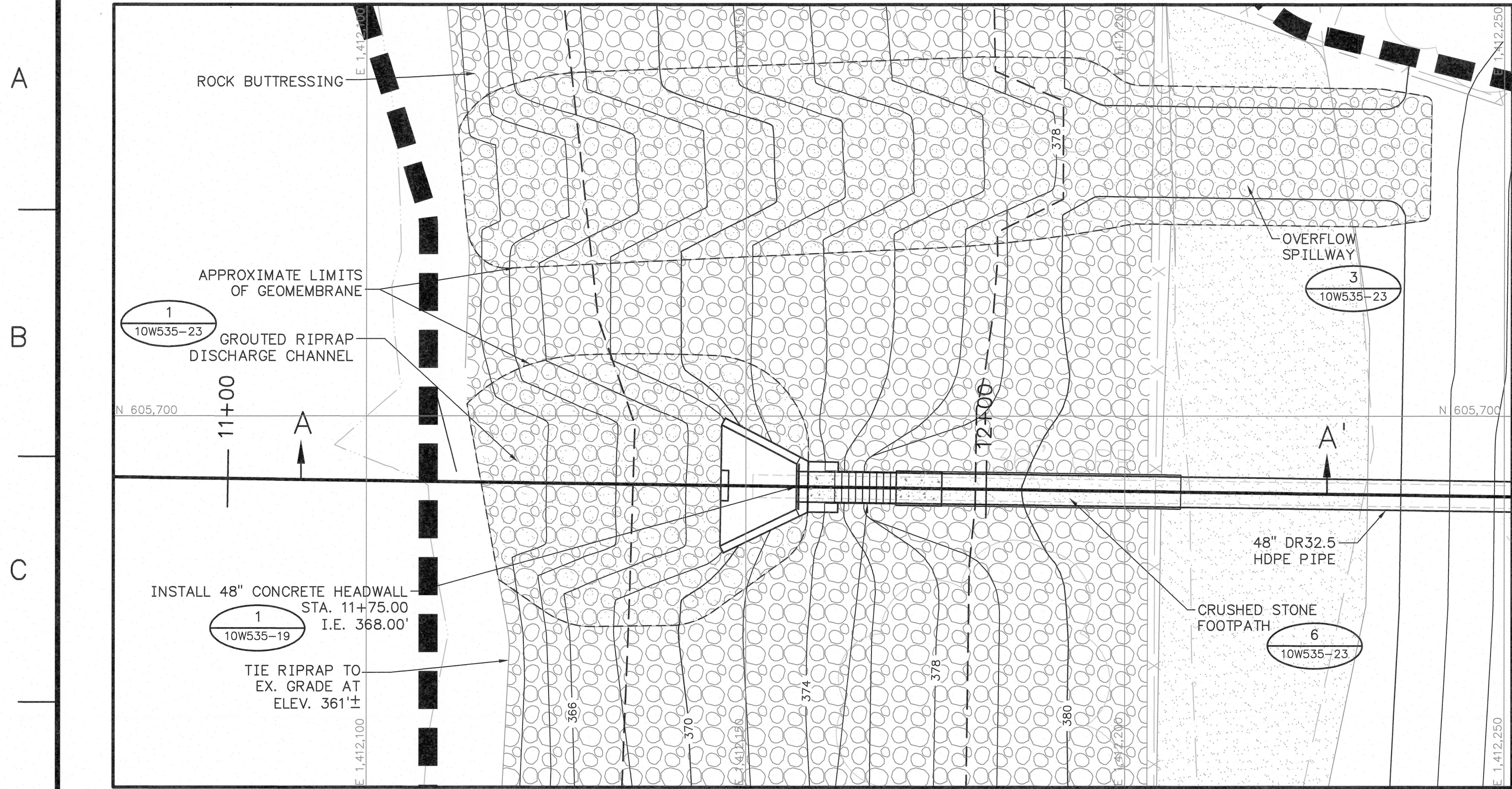
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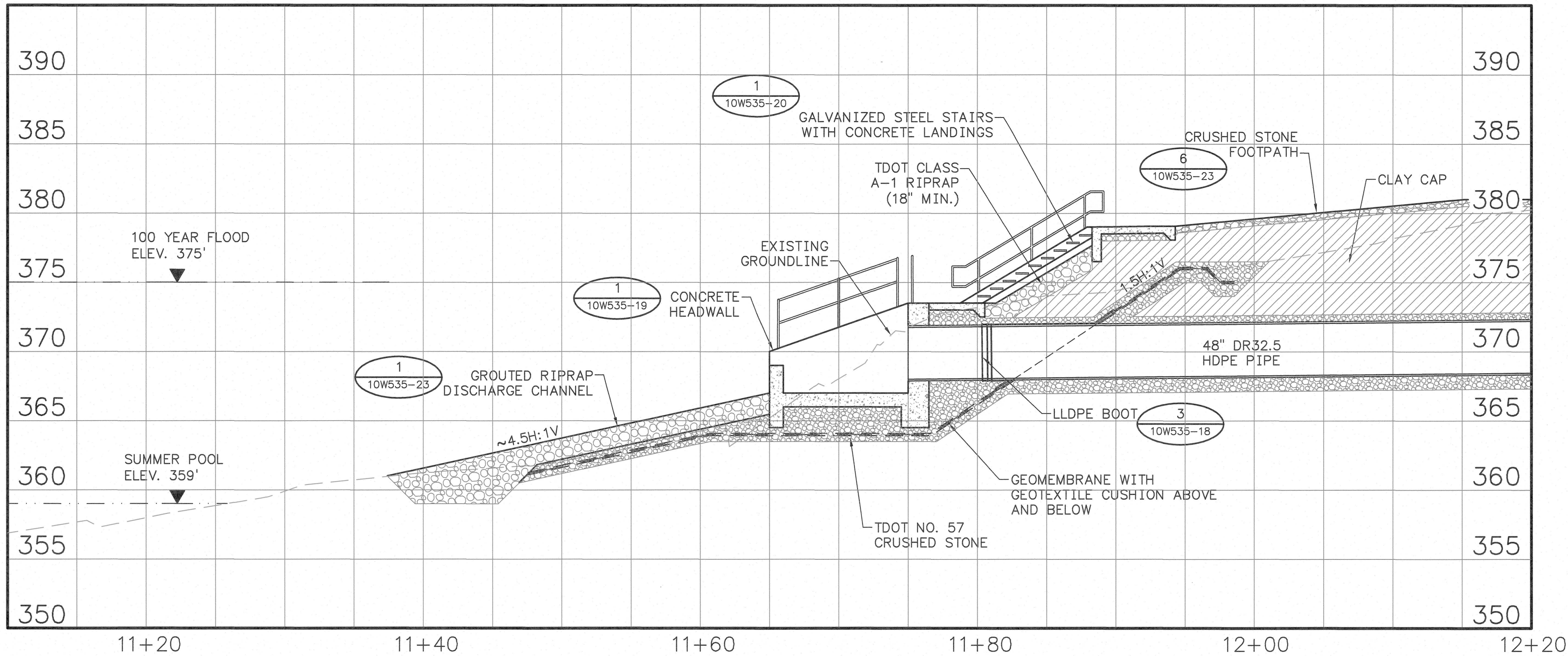
DESIGNED BY: J.E. SPALDING
DRAWN BY: R.R. PETTY
CHECKED BY: M.C. VAUGHAN
SUPERVISED BY: S.H. BICKEL
REVIEWED BY: R.S. HARRIS
APPROVED BY: M.S. TURNBOW
ISSUED BY: J.C. KAMMEYER

REV.	DATE	DSGN	DRWN	CHKD	SUPV	RVND	APPR	ISSD	PROJECT ID	AS CONST	REV
R 0	06/26/14	JES	RRP	MCV	SHB	RSH	MST	JCK	601939	-	-
ISSUED FOR CONSTRUCTION											
SCALE: 1" = 5'											
EXCEPT AS NOTED											
YARD ASH AREA NO. 1											
ASH AREA NO. 1 NORTH DRAINAGE CULVERT CROSS SECTIONS											
JOHNSONVILLE FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING											
AUTOCAD R 2010 DATE 06/26/14 30 C 10W535-16 R 0											

PLOT FACTOR:1
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DO NOT ALTER MANUALLYPLOT DATE: 06/26/2014 USER: PETTY, RICHARD
V:\1000\ACTIVE\10509\JOHNSONVILLE\DRAWING\DWG\10W535-12-17-10.dwg



1 PLAN VIEW - OUTLET HEADWALL
10W535-18 SCALE: 1"=10'-0"



2 SECTION - OUTLET HEADWALL
10W535-18 SCALE: 1"=5'-0"

LEGEND

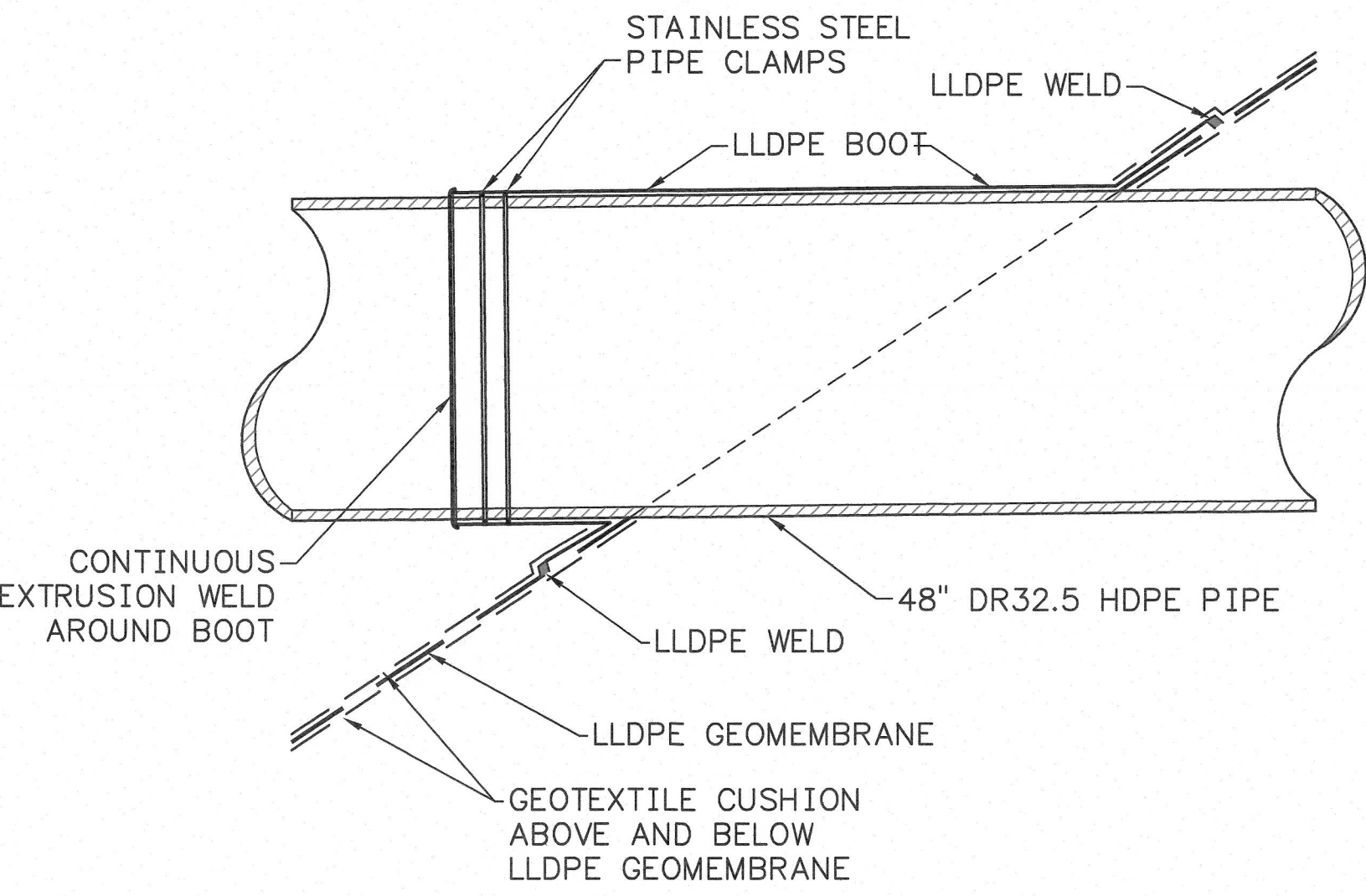
- BASELINE
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- GROUTED RIPRAP
- ROCK BUTTRESSING
- CRUSHED STONE PEDESTRIAN PATH
- LIMITS OF GEOMEMBRANE
- LIMITS OF CONSTRUCTION
- TREE LINE
- EDGE OF WATER
- FENCE LINE
- UNPAVED ROAD

SURVEY CONTROL NOTE:

A GLOBAL POSITIONING SYSTEM (GPS) BASE STATION HAS BEEN ESTABLISHED AND TRANSFORMATION PARAMETERS DETERMINED BY TVA USING SELECTED SURVEY CONTROL MONUMENTS. CONTACT WITH TVA SURVEYING DEPARTMENT (423)751-8416 OR (423)751-2571 SHALL BE MADE BEFORE ANY SURVEY OR CONSTRUCTION WORK IS COMMENCED. BASE STATION FREQUENCIES AND TRANSFORMATION PARAMETERS WILL BE PROVIDED TO THE CONTRACTOR FOR USE IN CONSTRUCTION ACTIVITIES AT THE SITE. PREVIOUSLY USED OR ESTABLISHED CONTROL POINTS AND MONUMENTS SHALL NOT BE USED BY THE CONTRACTOR WITHOUT PRIOR APPROVAL BY TVA SURVEYING DEPARTMENT.

TOPOGRAPHIC MAPPING SOURCE NOTES:

- THESE DRAWINGS WERE PREPARED BY STANTEC CONSULTING, INC. USING TOPOGRAPHIC INFORMATION PROVIDED BY TVA DATED APRIL 2012 AND DECEMBER 2013.
- SURVEY COORDINATES ARE REFERENCED TO TENNESSEE STATE PLANE COORDINATE SYSTEM (LAMBERT), NAD27, ELEVATIONS ARE BASED ON NGVD 29.



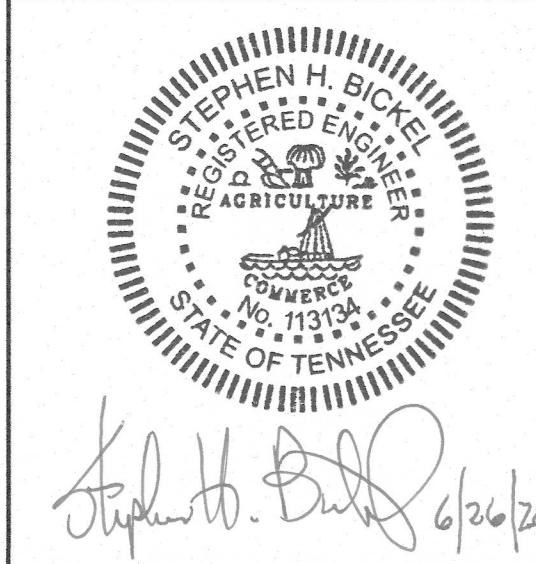
3 DETAIL - LLDPE BOOT
10W535-18 SCALE: 1/2"=1'-0"

NOTES:

- LLDPE WELDS SHALL BE CONTINUOUS, EXTRUSION TYPE, AND SPARK TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.
- LLDPE BOOT SKIRTS SHALL BE RECTANGULAR AND AT LEAST 18" LARGER THAN THE OUTSIDE OF THE PIPE.
- STAINLESS STEEL PIPE CLAMPS SHALL BE TYPE 306 SS MINIMUM 1" WIDE.

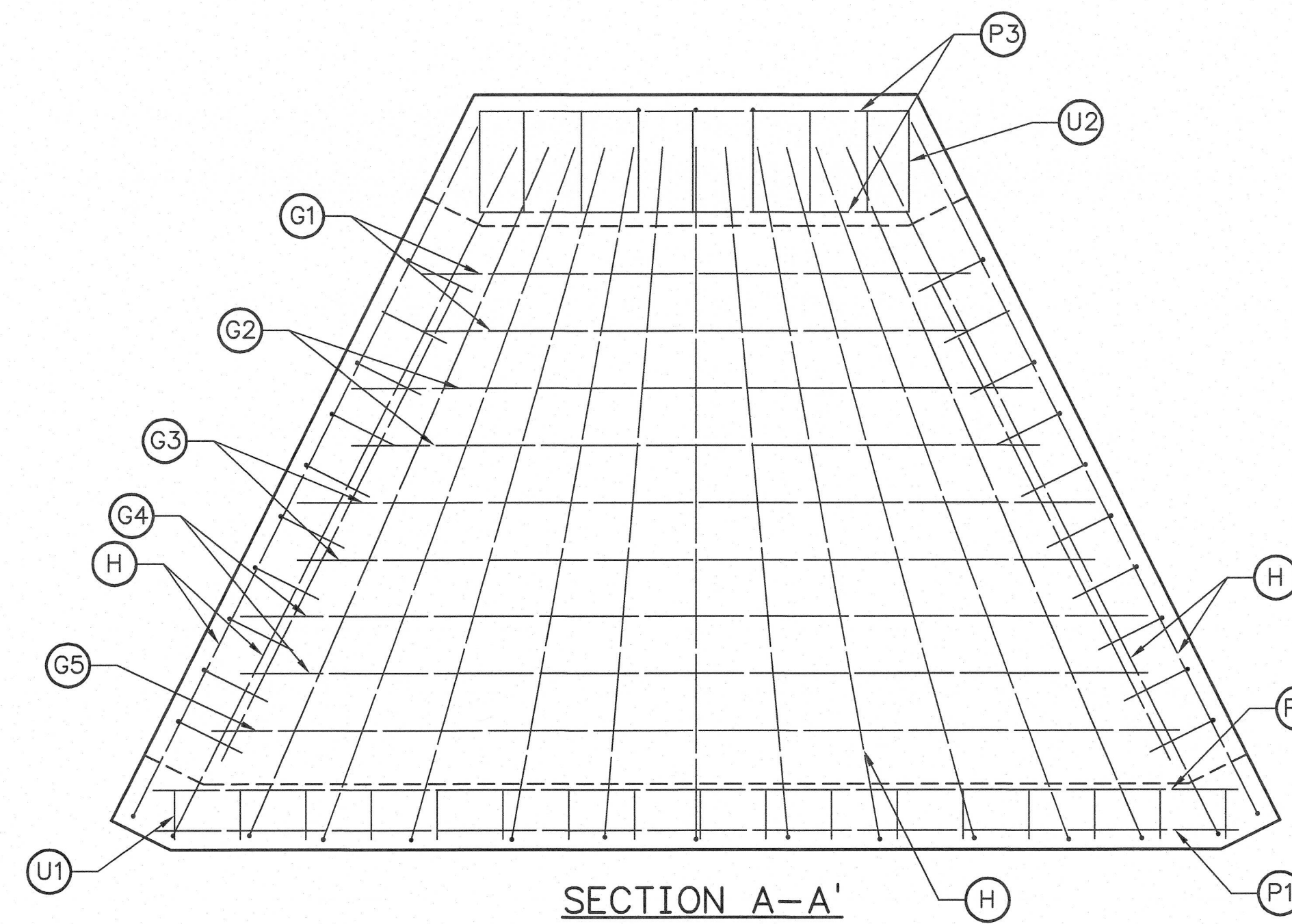
ISSUED FOR CONSTRUCTION

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY



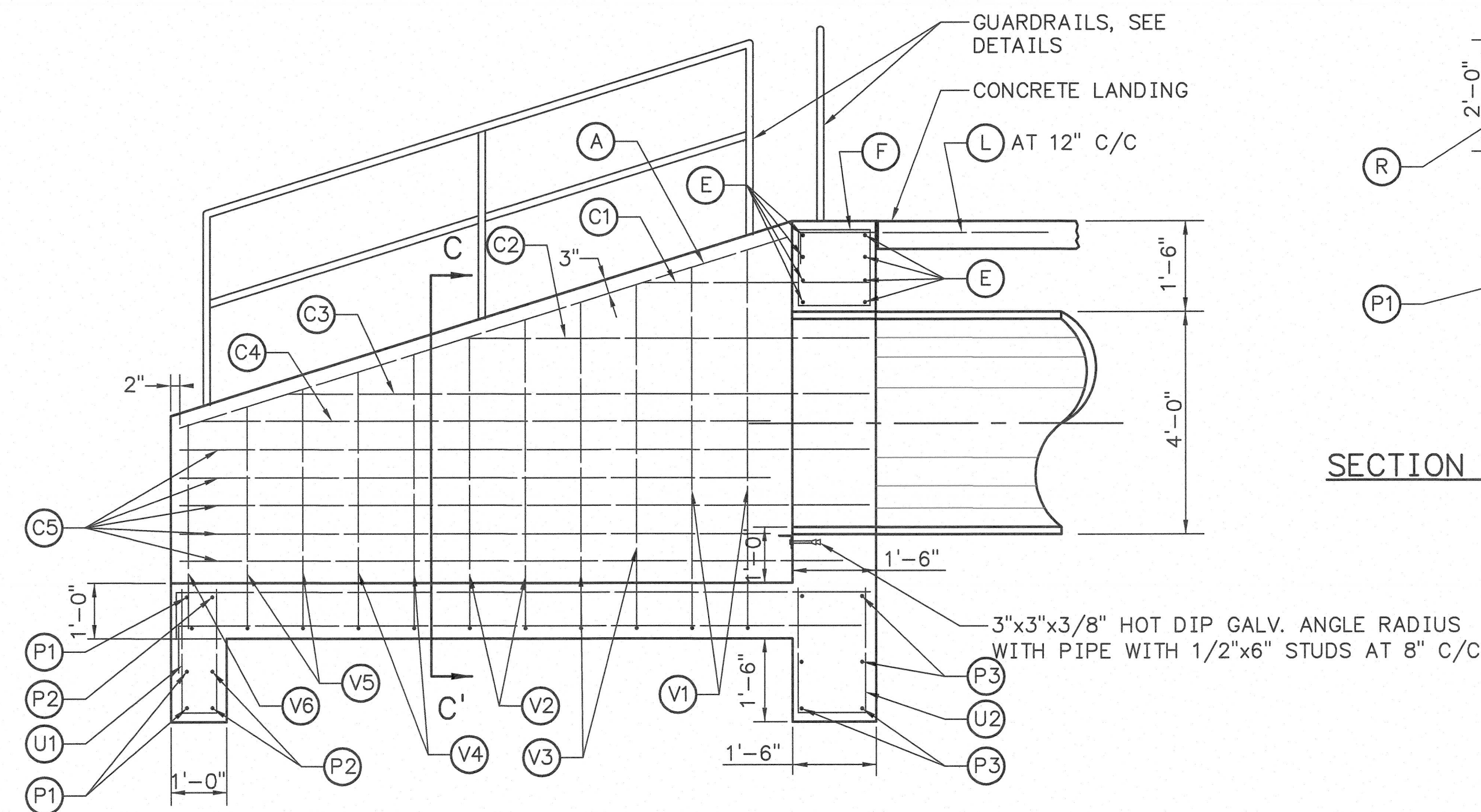
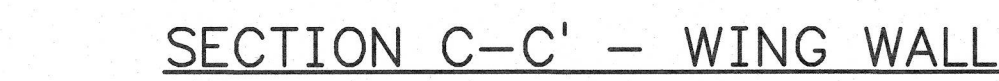
DESIGNED BY: J.E. SPALDING
DRAWN BY: R.R. PETTY
CHECKED BY: M.C. VAUGHAN
SUPERVISED BY: S.H. BICKEL
REVIEWED BY: R.L. SANCHEZ
APPROVED BY: M.S. TURNBOW
ISSUED BY: J.C. KAMMEYER

R	0	06/26/14	JES	RRP	MCV	SHB	RLS	MST	JCK	601939		
ISSUED FOR CONSTRUCTION												
REV.	NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVD	APPD	ISSD	PROJECT	AS CONST	REV
SCALE: AS SHOWN										EXCEPT AS NOTED		
YARD												
ASH AREA NO. 1												
ASH AREA NO. 1												
NORTH DRAINAGE CULVERT												
OUTLET DETAILS												
DESIGNED BY:		DRAWN BY:		CHECKED BY:		SUPERVISED BY:		REVIEWED BY:		APPROVED BY:		ISSUED BY:
J.E. SPALDING		R.R. PETTY		M.C. VAUGHAN		S.H. BICKEL		R.L. SANCHEZ		M.S. TURNBOW		J.C. KAMMEYER
JOHNSONVILLE FOSSIL PLANT												
TENNESSEE VALLEY AUTHORITY												
FOSSIL AND HYDRO ENGINEERING												
AUTOCAD R 2010		DATE 06/26/14		30	C	10W535-18					R 0	



PLAN VIEW

SECTION A-A'

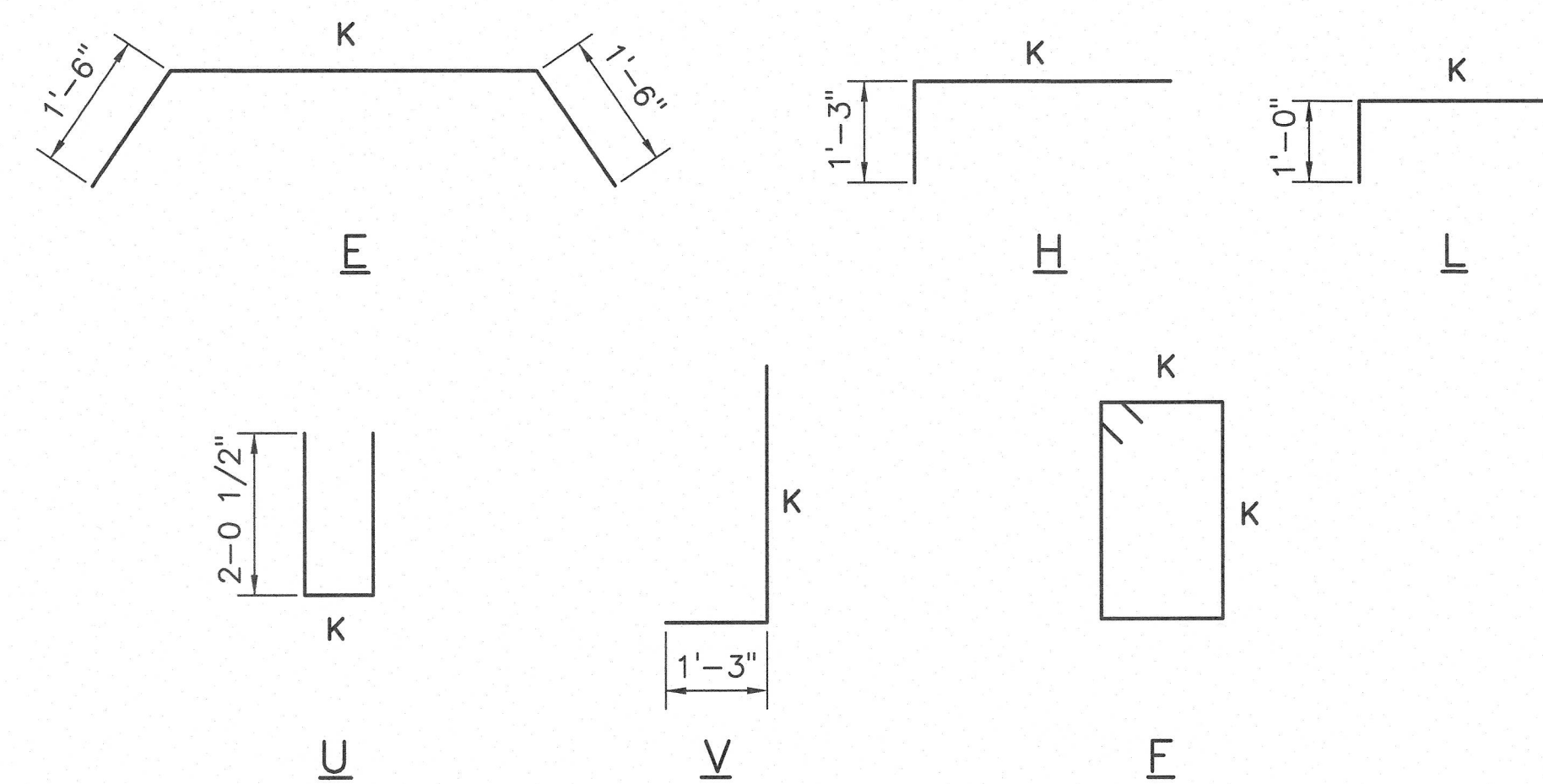


FRONT ELEVATION

SECTION B-B'

SECTION D'-D - ENERGY DISSIPATOR

BAR SCHEDULE				
MARK	SIZE	QTY.	LENGTH	K LENGTH
A	5	4	11'-7"	
C1	5	2	3'-3"	
C2	5	2	5'-5"	
C3	5	2	7'-6"	
C4	5	2	9'-8"	
C5	5	10	12'-4"	
E	5	8	7'-10"	4'-10"
F	3	10	5'-0"	1'-1 1/2"
G1	4	4	8'-4"	
G2	4	4	10'-6"	
G3	4	4	12'-2"	
G4	4	4	13'-10"	
G5	4	2	14'-9"	
H	4	38	11'-3"	10'-0"
J	5	12	8'-8"	
L	4	6	4'-2"	3'-2"
M	5	4	6'-0"	
N	5	8	4'-8"	
P1	5	3	16'-11"	
P2	5	3	16'-7"	
P3	5	6	6'-5"	
Q	4	6	3'-8"	
R	4	6	2'-2"	
U1	4	17	4'-6"	0'-5"
U2	4	9	6'-0"	0'-11"
V1	5	4	7'-9"	6'-6"
V2	5	4	7'-1"	5'-10"
V3	5	4	6'-6"	5'-3"
V4	5	4	5'-9"	4'-6"
V5	5	4	5'-3"	4'-0"
V6	5	2	4'-11"	3'-8"



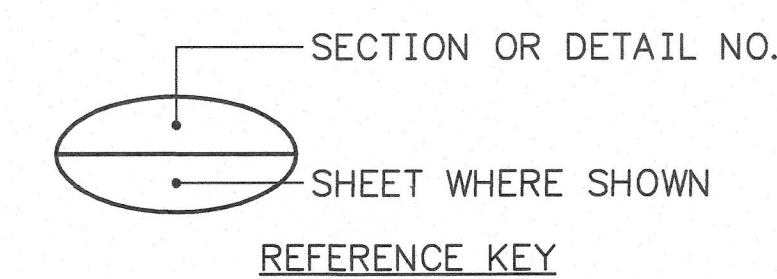
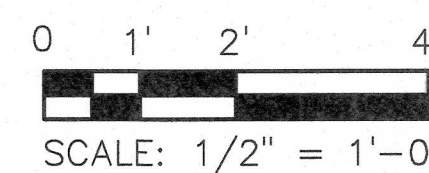
TYP. STANDARD DEVELOPMENT AND HOOK BARS

1

PLAN VIEW - OUTLET HEADWALL

ABBREVIATIONS:

BOTT.	BOTTOM
C/C	CENTER TO CENTER
CONT.	CONTINUOUS
E.F.	EACH FACE
E.W.	EACH WAY
GALV.	GALVANIZED
HORIZ.	HORIZONTAL
U.N.O.	UNLESS NOTED OTHERWISE

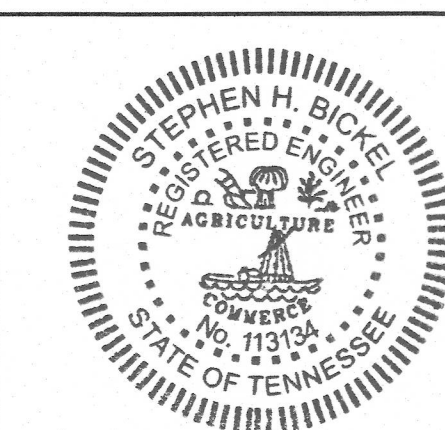


SEE XXWXXX-XXX FOR LIST OF
DESIGN, COMPANION, REFERENCE
DRAWINGS AND SUPPORTING
DESIGN CALCULATIONS NUMBER

NOTES:

1. ALL CONCRETE STRENGTH SHALL BE A MIN. OF 4,000 PSI.
2. REFER TO BAR SCHEDULE FOR DETAILING OF BAR PIECES.
3. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE. FRONT FACE OF HEADWALL AND ENDS OF WINGS SHALL REMAIN VERTICAL.
4. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" MIN. CLEAR DISTANCE.
5. CONTRACTOR TO PLACE AND COMPACT A 6" MIN. BEDDING OF TDOT NO. 57 CRUSHED STONE ON TOP OF A COMPACTED SUBGRADE.
6. CONTRACTOR MAY USE PRECAST IN-LIEU OF CAST IN PLACE.
7. FOR HEADWALLS WITH ENERGY DISSIPATORS THE CONTRACTOR SHALL SUBMIT A DETAIL OF LOCATIONS AND SIZES OF DISSIPATORS TO THE CQC MANAGER FOR APPROVAL.
8. PRIOR TO CASTING FOUNDATIONS, PREPARE THE SITE IN ACCORDANCE WITH PLANS, SPECIFICATIONS, AND REQUIRED COMPACTION.
9. CHAMFER OR ROUND ALL EXPOSED CORNERS MINIMUM 3/4".
10. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
11. PROVIDE CONTINUOUS REINFORCEMENT WHEREVER POSSIBLE; SPLICE ONLY AS SHOWN OR APPROVED; STAGGER SPLICES WHERE POSSIBLE; USE FULL TENSION SPLICE (CLASS "B") FOR CONTIGUOUS REINFORCING AND MATCHING DOWELS U.N.O.
12. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:
 - A. CONCRETE CAST AGAINST EARTH (NOT FORMED) 3"
 - B. FORMED CONCRETE EXPOSED TO THE EARTH OR WEATHER
 #8 THROUGH #18 BARS 2"
 #5 BARS AND SMALLER 1 1/2"
13. WALLS AND OTHER INTERSECTING ELEMENTS SHALL HAVE CORNER BARS TO PROVIDED CONTINUITY. USE CRSI STANDARDS OR AS SHOWN ON THE DRAWINGS.

ISSUED FOR CONSTRUCTION

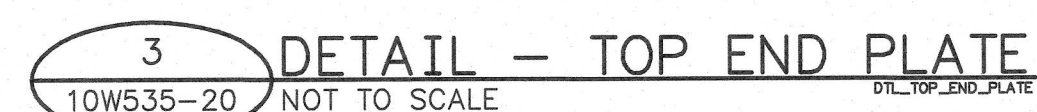


Supreme H. B. 6/26/2014

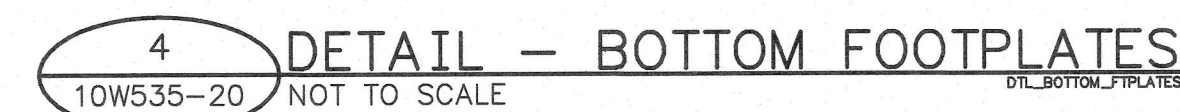
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R O		06/26/14		JES		RRP		MCV		SHB		RLS		MST		JCK		801939		-		-					
ISSUED FOR CONSTRUCTION																											
REV.		DATE		DGN		DRWN		DWG		SUPV		RVWD		APPD		ISSD		PROJECT ID		AS CONST		REV CD					
SCALE: AS SHOWN																						EXCEPT AS NOTED					
YARD																											
ASH AREA NO. 1																											
ASH AREA NO. 1																											
NORTH DRAINAGE CULVERT																											
OUTLET HEADWALL DETAILS																											
DESIGNED BY:				DRAWN BY:				CHECKED BY:				SUPERVISED BY:				REVIEWED BY:				APPROVED BY:				ISSUED BY:			
J.E. SPALDING				R.R. PETTY				M.C. VAUGHAN				S.H. BICKEL				R.L. SANCHEZ				M.S. TURNBOY				J.C. KAMMEYER			
JOHNSONVILLE FOSSIL PLANT																											
TENNESSEE VALLEY AUTHORITY																											
FOSSIL AND HYDRO ENGINEERING																											
AUTOCAD R 2010				DATE 06/26/14				30		C		10W535-19								R O							



1. CONCRETE STRENGTH SHALL BE A MIN. OF 4,000 PSI.
2. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" (MIN.) CLEAR DISTANCE.
3. CONTRACTOR SHALL PLACE AND COMPACT A 6" (MIN.) BEDDING OF TDOT NO. 57 CRUSHED STONE ON TOP OF A COMPACTED SUBGRADE.
4. STAIRS SHALL BE DESIGNED FOR A 100 PSF (MIN.) LIVE LOAD.
5. ALL STEEL UTILIZED FOR THE STAIRS SHALL BE HOT DIP GALVANIZED.
6. CONTRACTOR MAY SUBMIT ALTERNATE STAIR DESIGN TO THE ENGINEER FOR APPROVAL.



1. STAIRS SHALL BE DESIGNED FOR 100 PSF LIVE LOAD MIN.
2. ALL STAIR MATERIAL SHALL BE HOT DIP GALVANIZED.
3. CONTRACTOR MAY SUBMIT ALTERNATE STAIR DESIGN MEMBERS FOR APPROVAL BY ENGINEER OF RECORD.
4. SEE OUTLET HEADWALL DETAILS SHEET FOR ADDITIONAL CONCRETE NOTES.

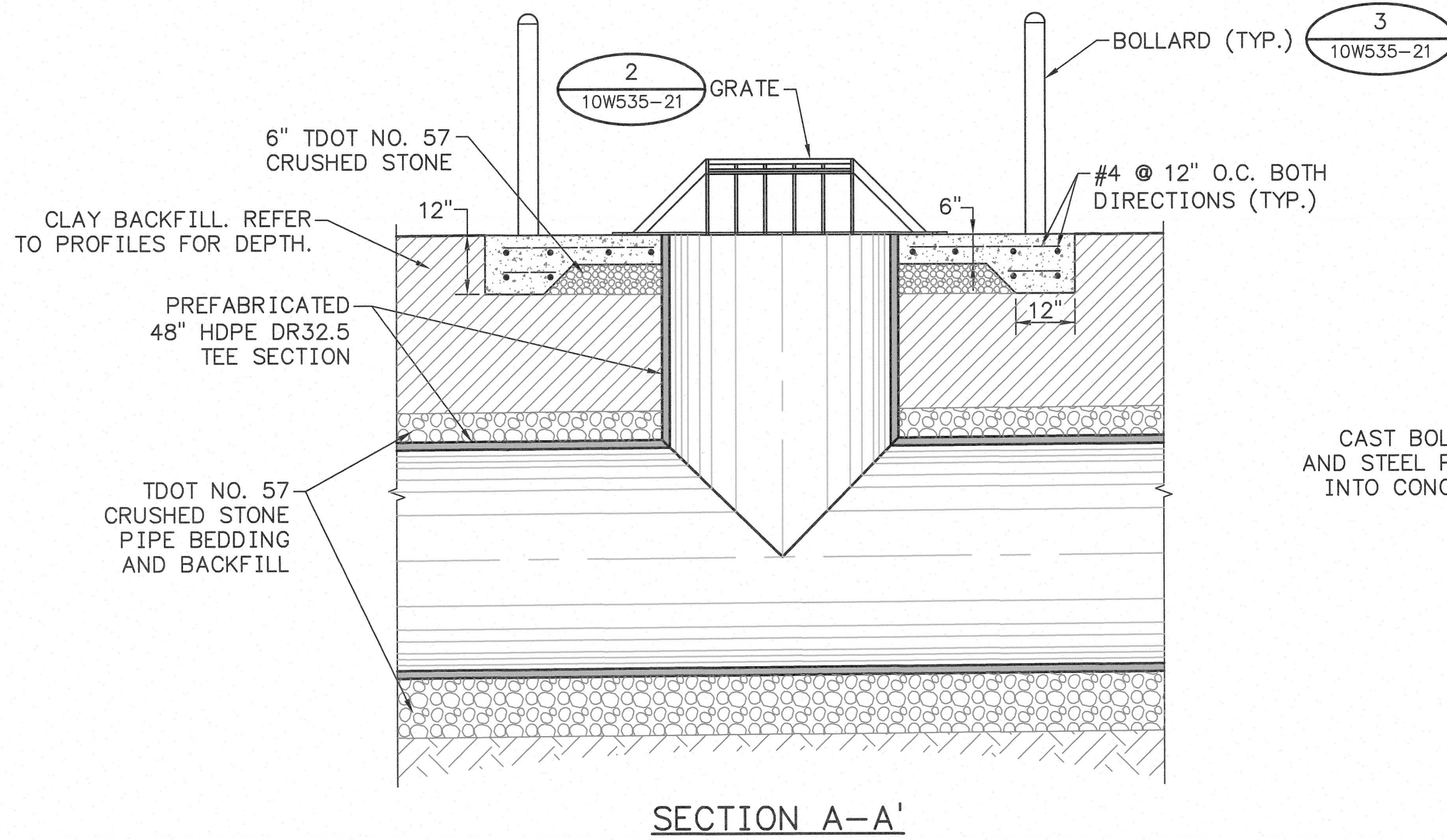
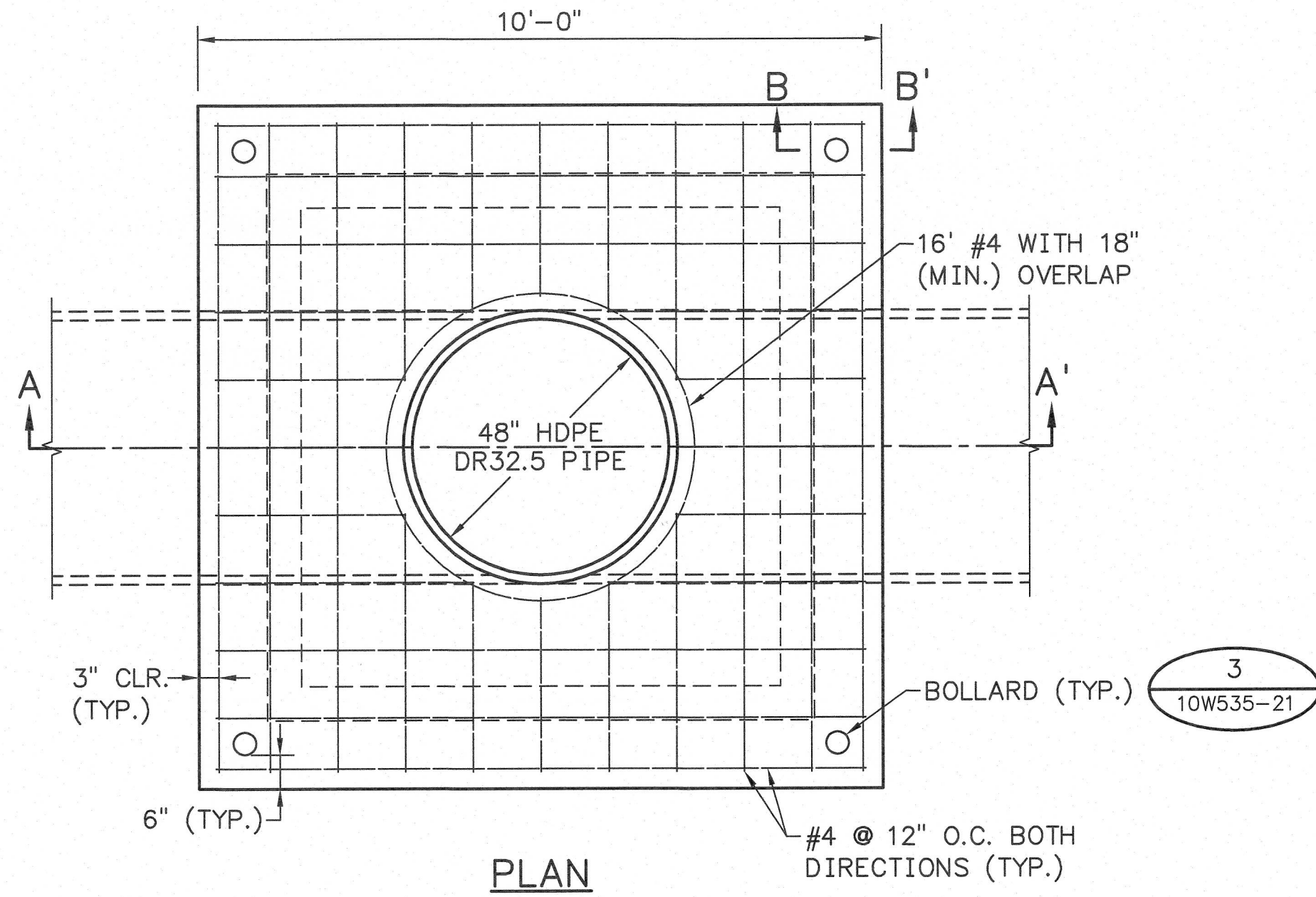


- | | |
|------|------------------|
| C/C | CENTER TO CENTER |
| CLR. | CLEAR |
| E.W. | EACH WAY |
| GA. | GAUGE |
| MIN. | MINIMUM |
| TYP. | TYPICAL |

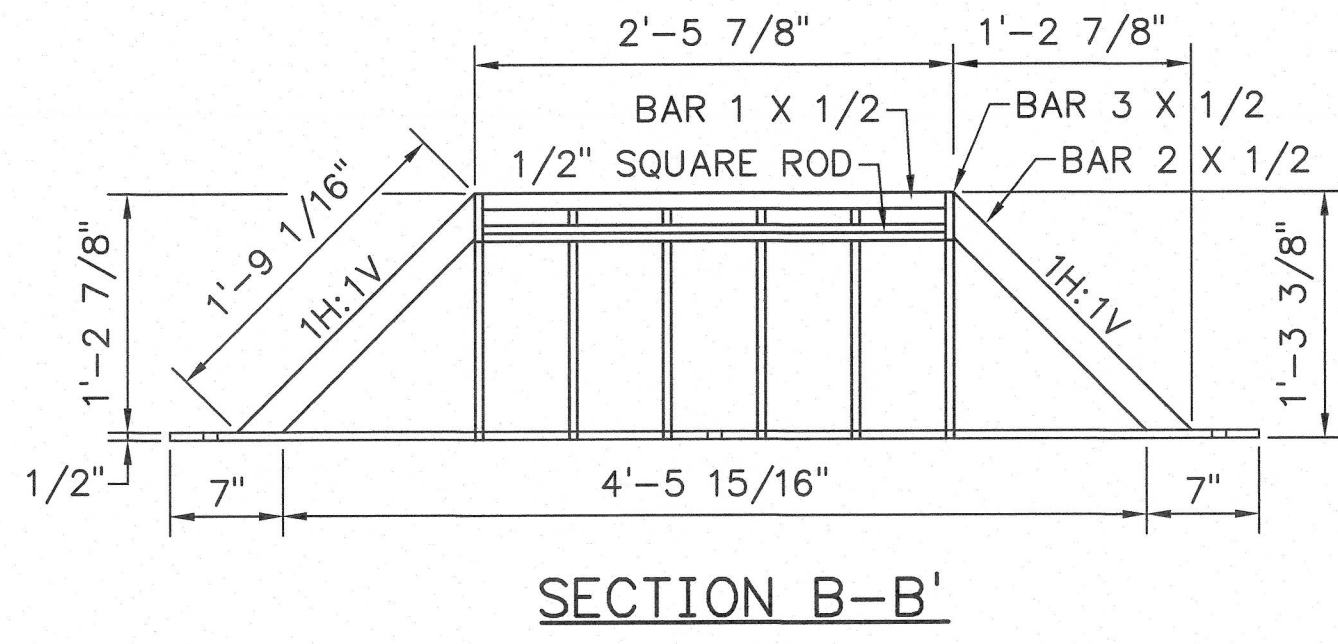
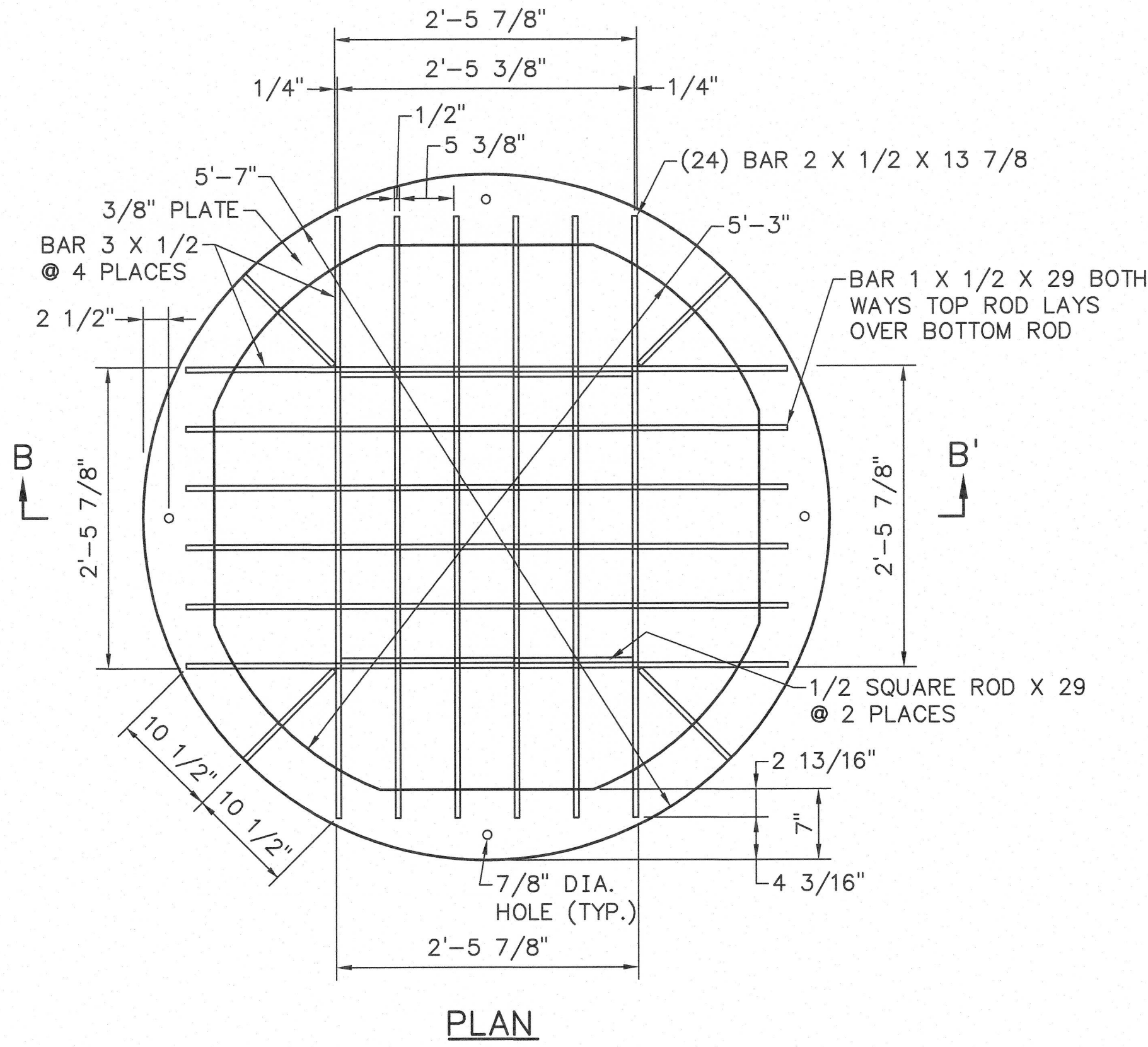
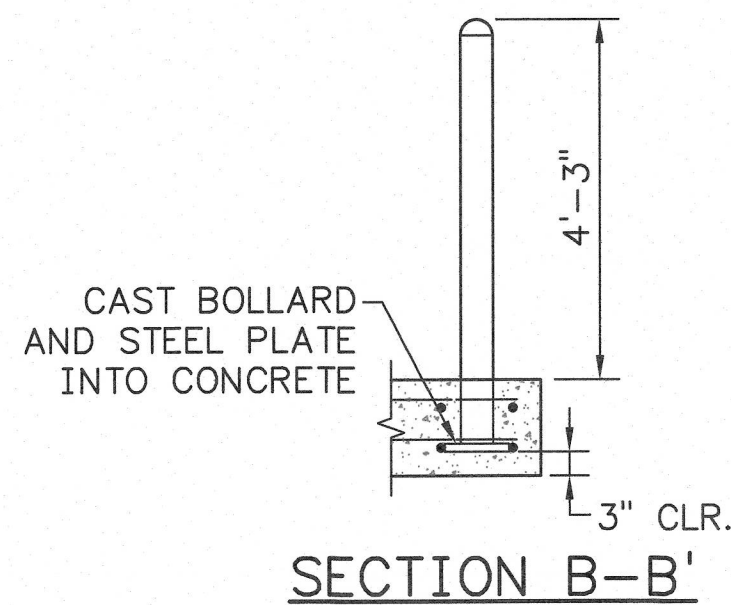


R	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIST/DPLN INTERVIEW		
R	O	06/26/14	JES	RRP	MCV	SMB	RLS	MST	JCK	801939	-	-	-	-	-	-	-	-			
ISSUED FOR CONSTRUCTION																					
KW	NO.	DATE	DSGN	DRWN	CHGD	SUPV	RWND	APPRD	ISBD	PROJECT ID	AS CONST	REV CD									
SCALE: AS SHOWN													EXCEPT AS NOTED								
YARD ASH AREA NO. 1																					
ASH AREA NO. 1 NORTH DRAINAGE CULVERT STAIR DETAILS																					
DESIGNED BY: J.E. SPALDING		DRAWN BY: R.R. PETTY		CHECKED BY: M.C. VAUGHAN		SUPERVISED BY: S.H. BICKEL		REVIEWED BY: R.L. SANCHEZ		APPROVED BY: M.S. TURNBOW		ISSUED BY: J.C. KAMMEYER									
JOHNSONVILLE FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING																					
AUTOCAD R 2010		DATE 06/26/14		30		C		10W535-20								R 0					

A
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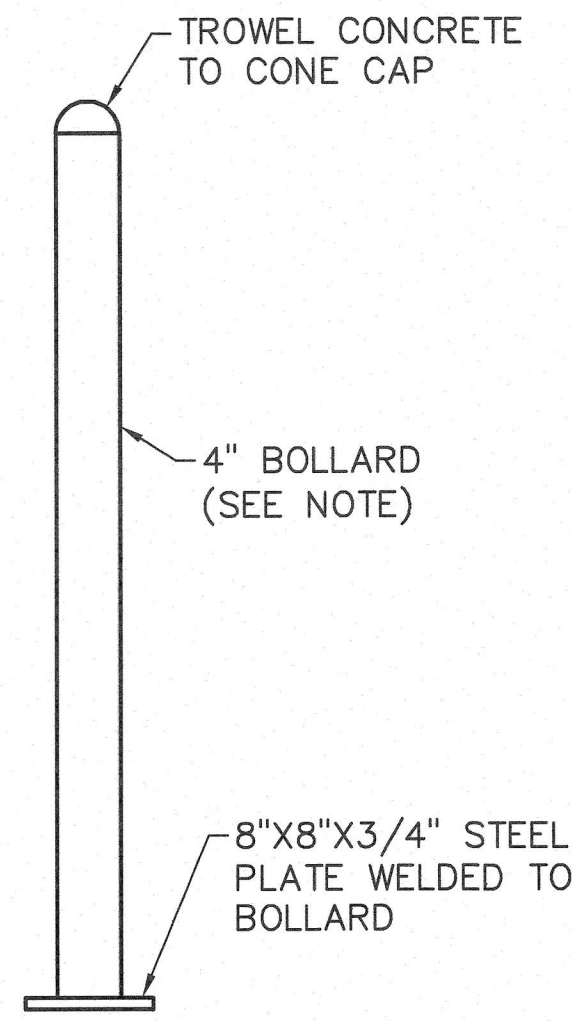


1 10W535-21 SCALE: 1/2"=1'-0"



- NOTES:
1. GRATE SHALL BE J.R. HOE AND SONS OR APPROVED EQUAL.
 2. THE GRATE SHALL BE FABRICATED OF STRUCTURAL STEEL.
 3. ALL STEEL UTILIZED FOR THE GRATE SHALL BE HOT DIP GALVANIZED.
 4. WELDS TO BE CONTINUOUS (ALL AROUND) FILLET WELD WITH 3/16" LEG.

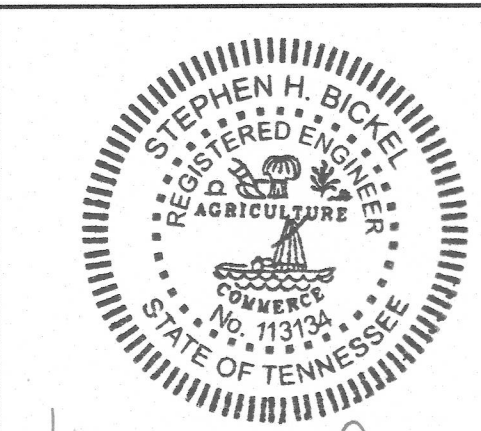
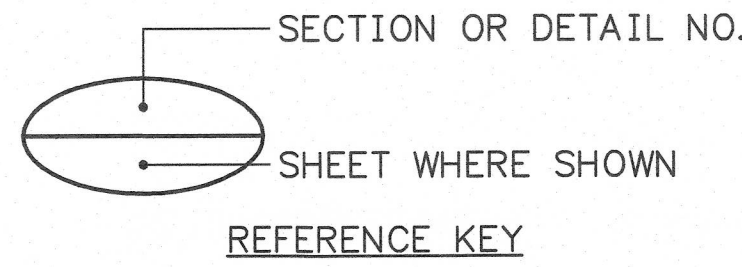
2 10W535-21 SCALE: 1"=1'-0"



NOTE:
BOLLARD SHALL BE TS 3/16" T X 4" DIA. X 5'L. CARBON STEEL FILLED WITH CONCRETE PRIMER-FINISHED COAT TO BE OSHA STANDARD YELLOW

3 10W535-21 SCALE: 1"=1'-0"

ISSUED FOR CONSTRUCTION



6/24/2014

R - - - - -									
R 0	06/26/14	JES	RRP	MCV	SHB	RLS	MST	JCK	601939
ISSUED FOR CONSTRUCTION									
REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVND	APPD	ISSD	PROJECT ID
SCALE: AS SHOWN									EXCEPT AS NOTED
YARD									
ASH AREA NO. 1									
ASH AREA NO. 1									
NORTH DRAINAGE CULVERT									
STORM WATER INLET DETAILS									
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:			
J.E. SPALDING	R.R. PETTY	M.C. VAUGHAN	S.H. BICKEL	R.L. SANCHEZ	M.S. TURNBOW	J.C. KAMMEYER			
JOHNSONVILLE FOSSIL PLANT									
TENNESSEE VALLEY AUTHORITY									
FOSSIL AND HYDRO ENGINEERING									
AUTOCAD R 2010	DATE	06/26/14	30	C	10W535-21				R 0

SEE XYW535-535 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

PLOT DATE: 06/26/2014 USER: PETTY, RICHARD
V:\1755\ACTIVE\175550103\GEO\TECHNICAL\DRAWINGS\CHIEF\J\FILES\GRAIN IMPROV\REV\175550103-21-BOLLING

A

B

C

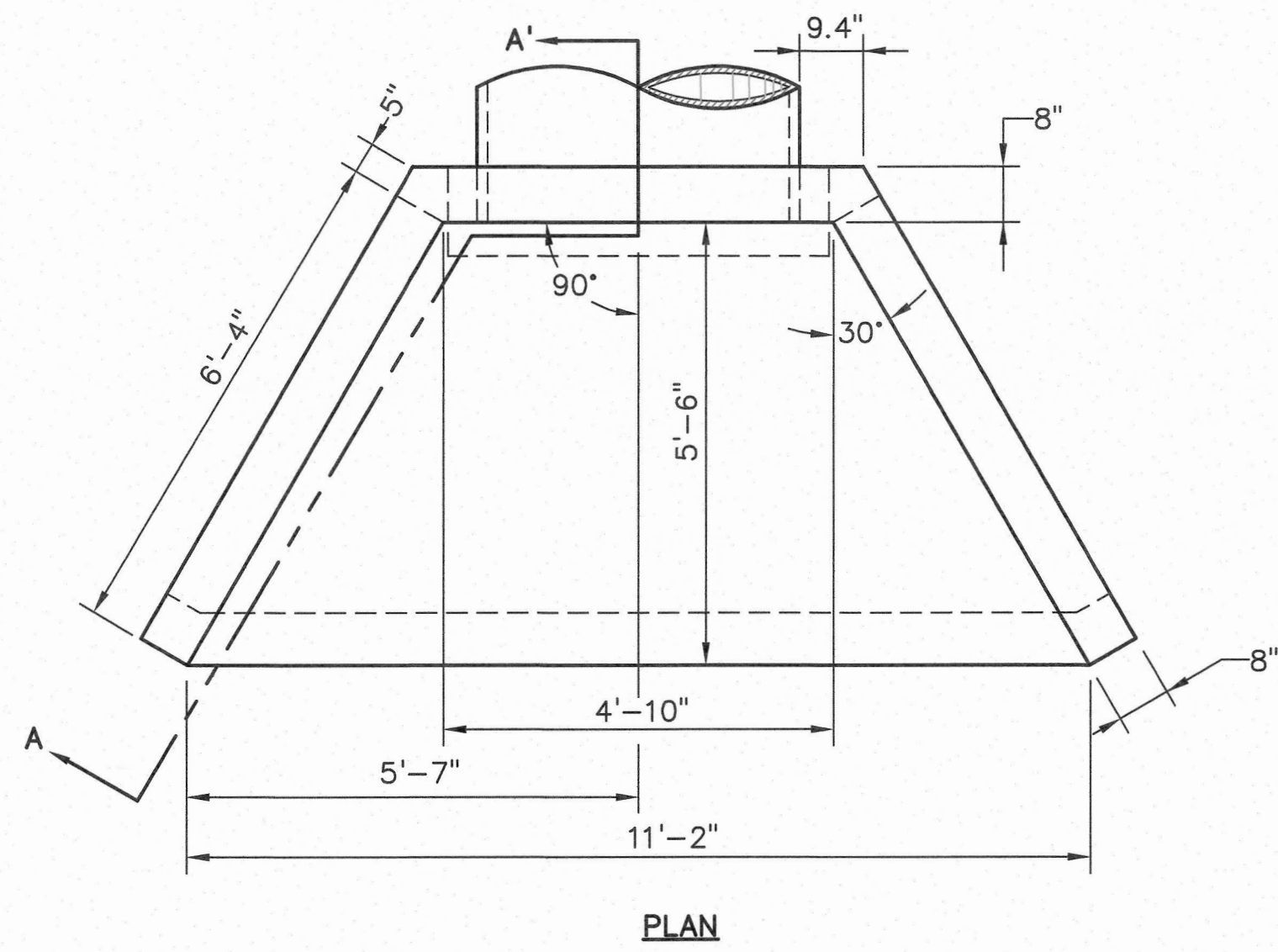
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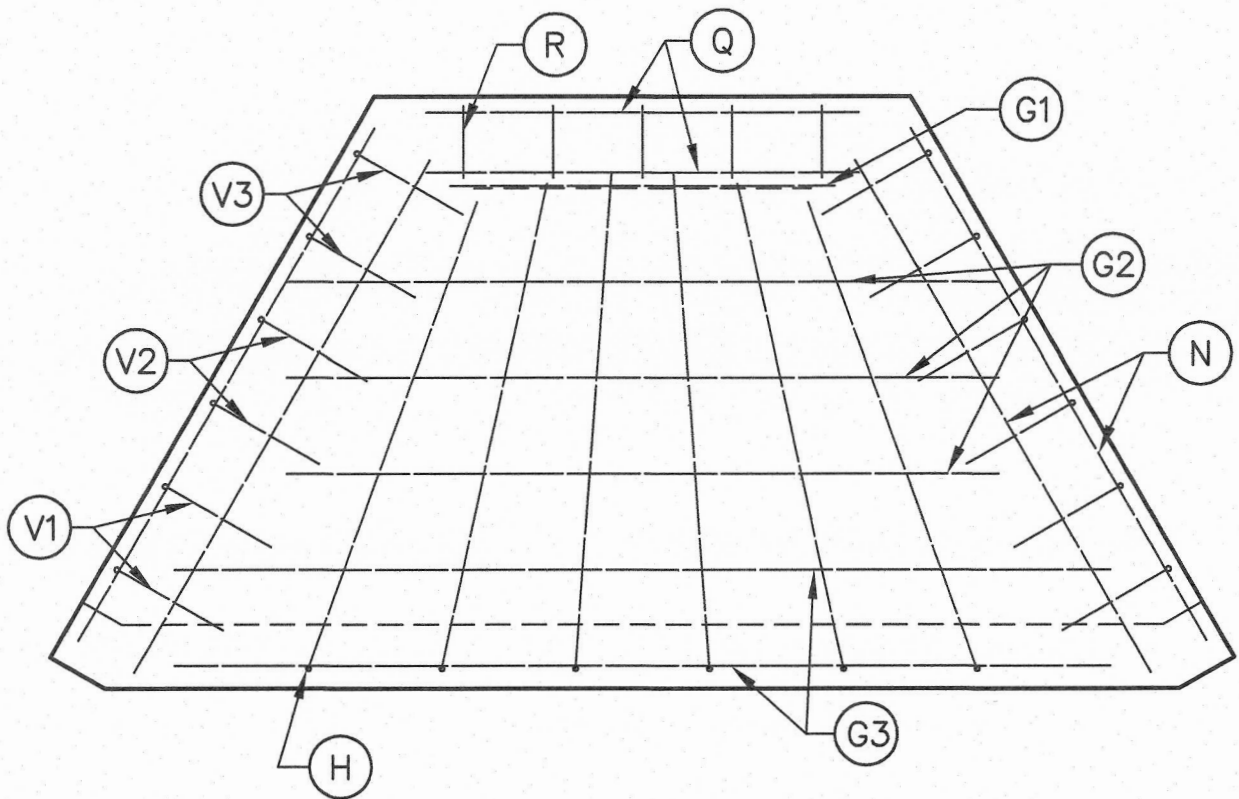
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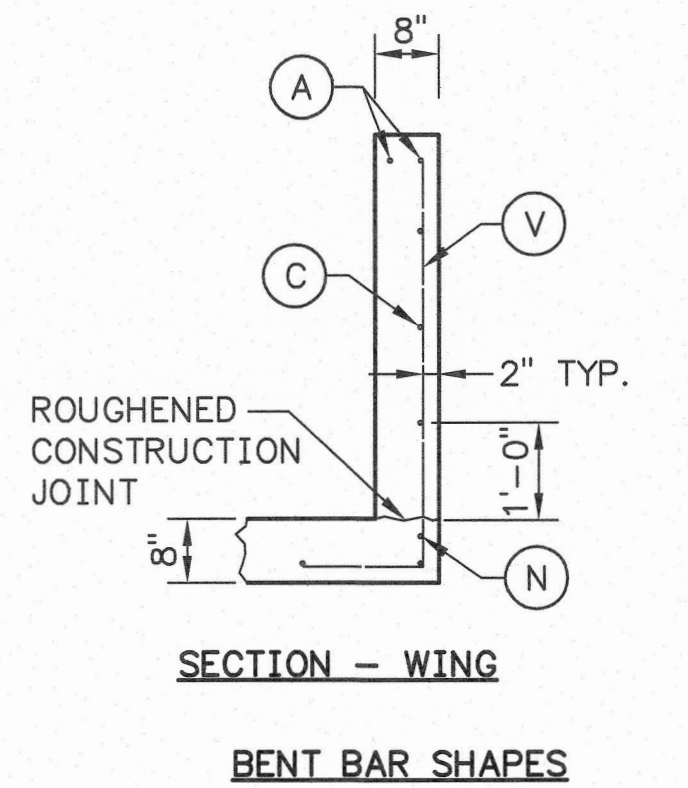
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PLAN

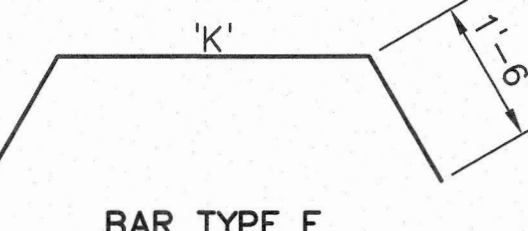


SECTION B-B'

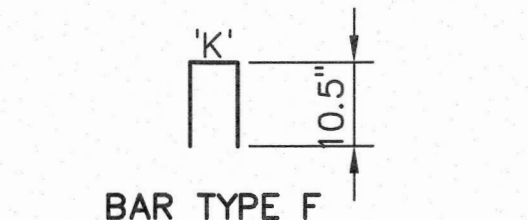


SECTION - WING

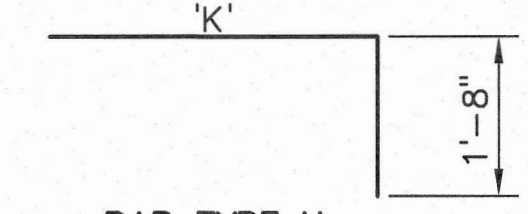
BENT BAR SHAPES



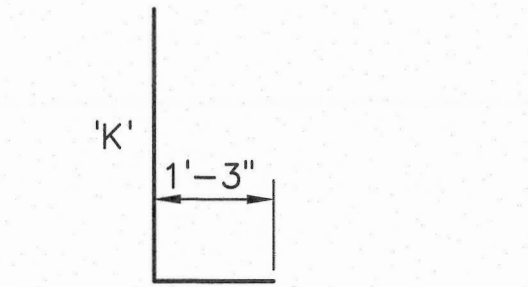
BAR TYPE E



BAR TYPE F



BAR TYPE H



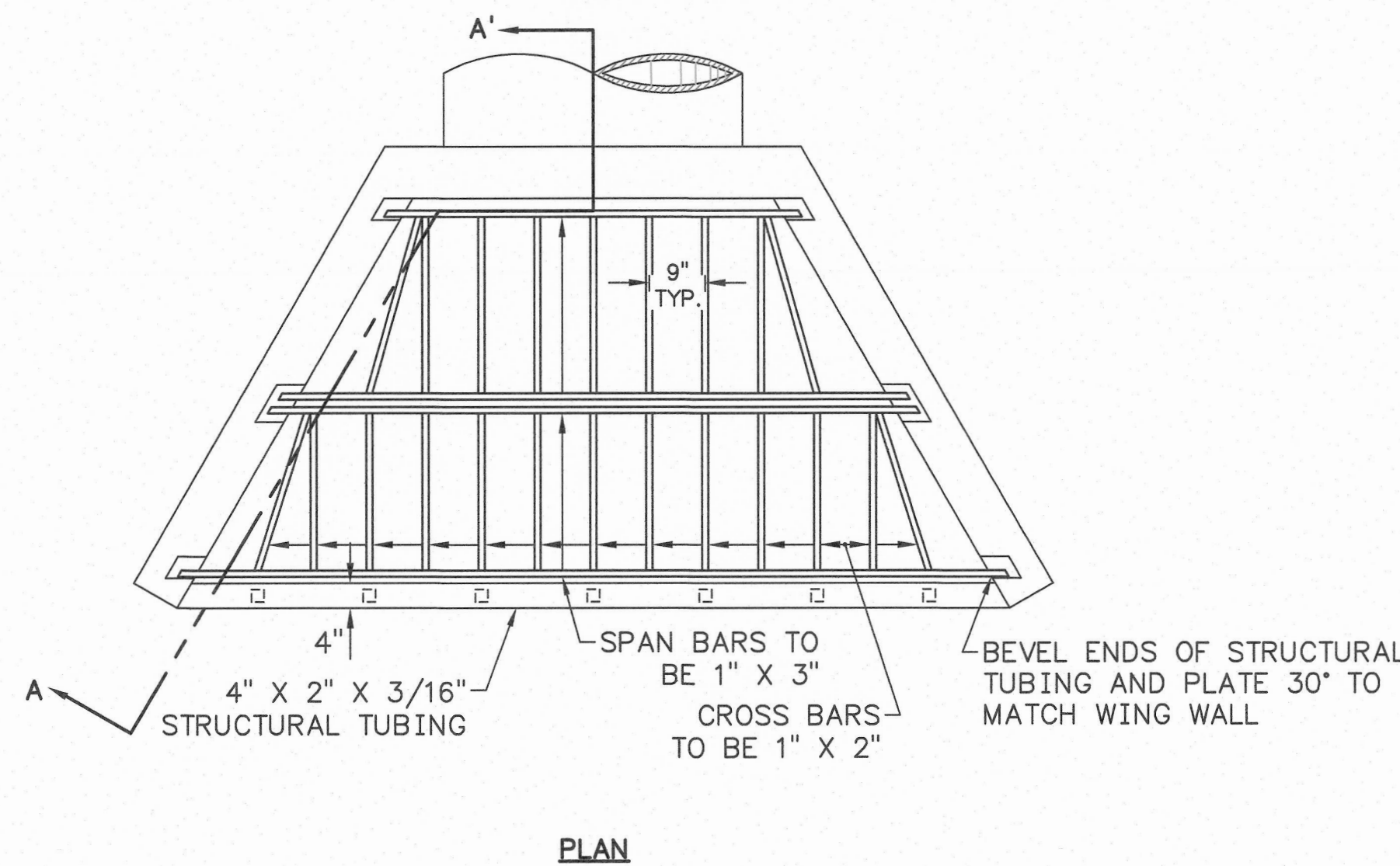
BAR TYPE V

MARK	SIZE	QTY.	LENGTH	'K' LENGTH
A	5	4	6'-11"	
C1	4	2	1'-10"	
C2	4	2	3'-10"	
C3	4	2	5'-10"	
C4	4	2	6'-2"	
E1	5	3	8'-1"	5'-1"
E2	5	3	8'-5"	5'-5"
F	4	5	2'-1"	0'-4"
G1	4	1	4'-0"	
G2	4	3	7'-5"	
G3	4	3	9'-9"	
H	4	6	6'-10"	5'-2"
N	4	6	6'-2"	
Q	4	2	4'-6"	
R	4	5	0'-9"	
V1	5	4	3'-9"	2'-6"
V2	5	4	4'-9"	3'-6"
V3	5	4	5'-9"	4'-6"

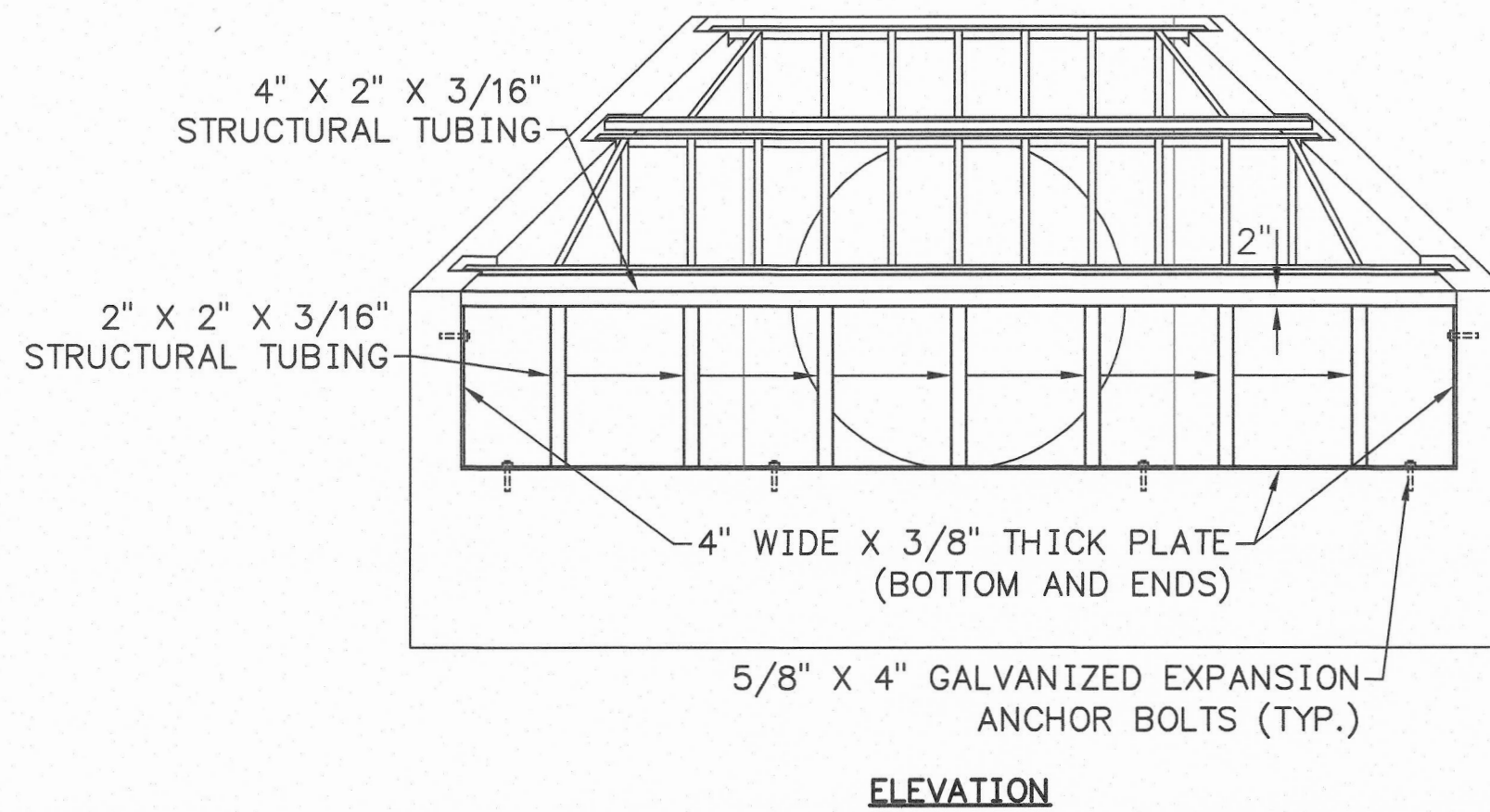
NOTES:

1. THE CONTRACTOR MAY USE A PRECAST CONCRETE HEADWALL.
2. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" CLEAR DISTANCE.
3. BARS C, G AND V ARE SPACED 1'-0" O.C. ALL OTHER BARS SHALL BE EVENLY SPACED.
4. BARS V ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE END OF EACH WING.
5. BARS C ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE TOP OF EACH WING.
6. ALL EXPOSED CONCRETE EDGES TO BE CHAMFERED 3/4".
7. CONTRACTOR SHALL VERIFY DIMENSIONS OF INLET HEADWALL PRIOR TO FABRICATING TRASH RACK AND GRATES.
8. TRASH RACK SHALL BE FABRICATED FROM STRUCTURAL STEEL TUBING BARS AND PLATE.
9. WELDS TO BE CONTINUOUS (ALL AROUND) FILLET WELDS WITH 3/16" LEG.
10. TRASH RACK SHALL BE HOT DIP GALVANIZED.

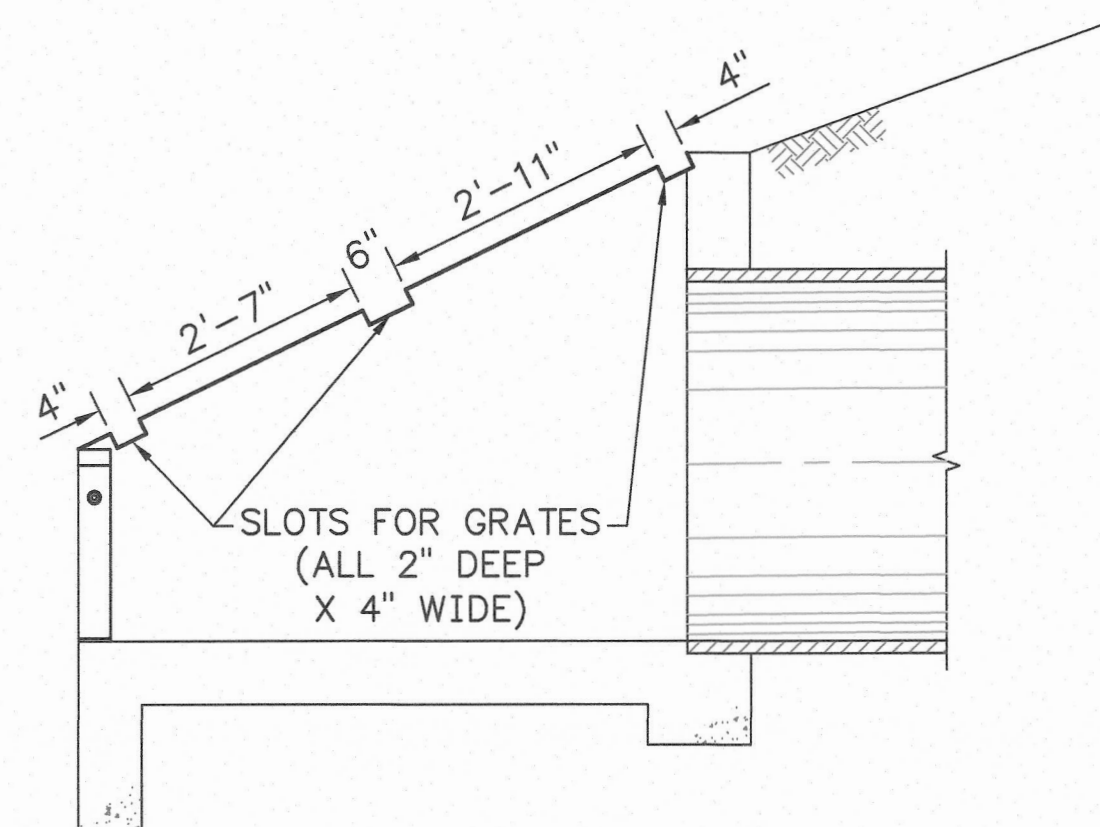
1 10W535-22 SCALE: 1/2"=1'-0" DETAIL - INLET HEADWALL



PLAN



ELEVATION

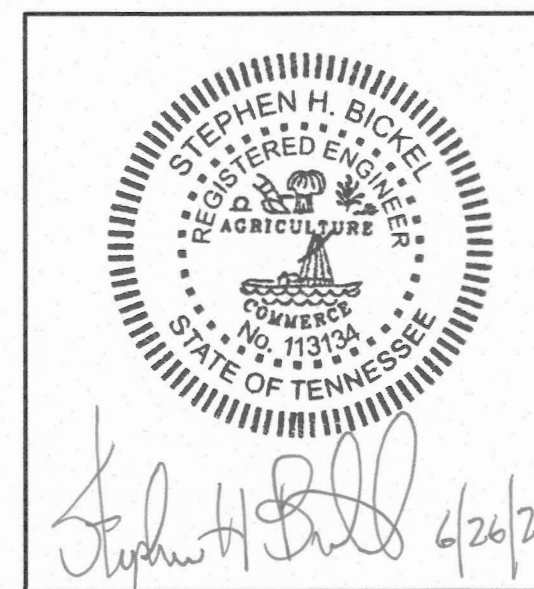


SECTION A-A'

2 10W535-22 SCALE: 1/2"=1'-0" DETAIL - TRASH RACK

ISSUED FOR CONSTRUCTION

SECTION OR DETAIL NO.
SHEET WHERE SHOWN
REFERENCE KEY

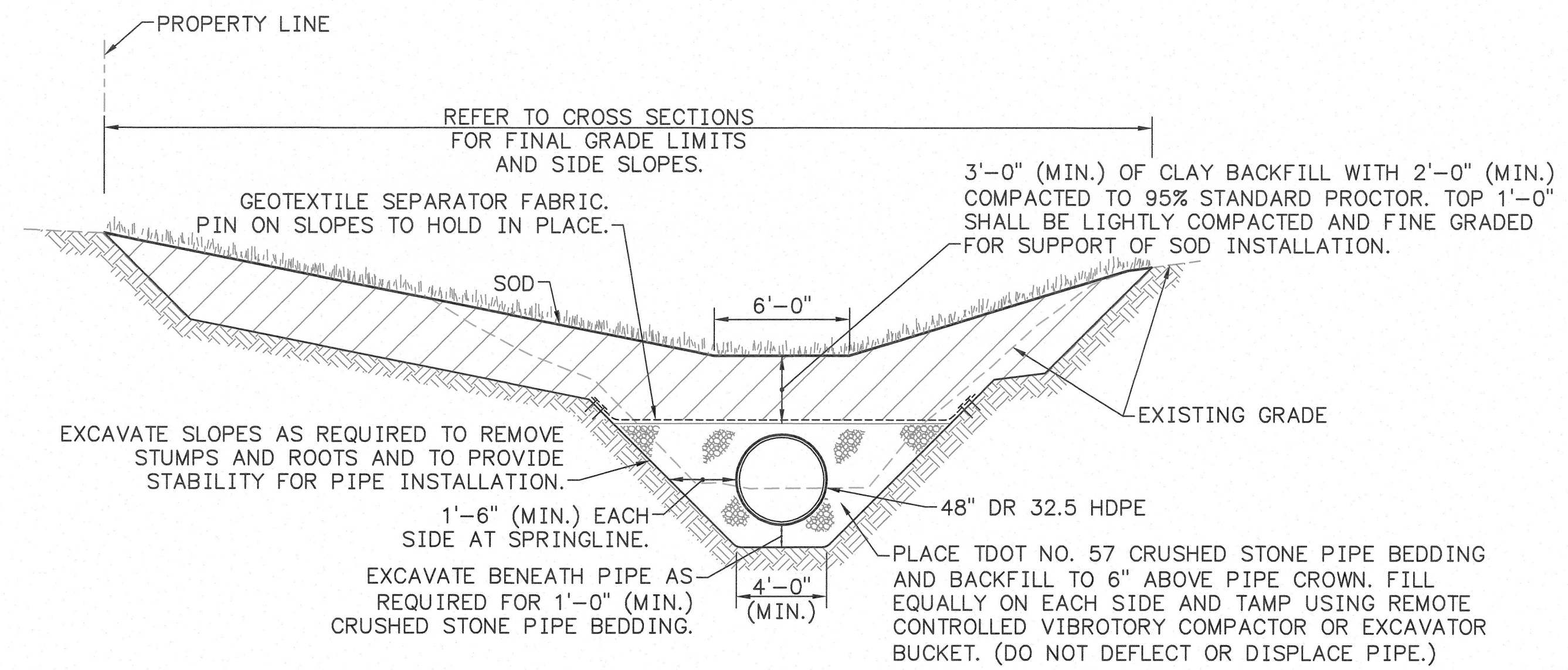


4/26/2014

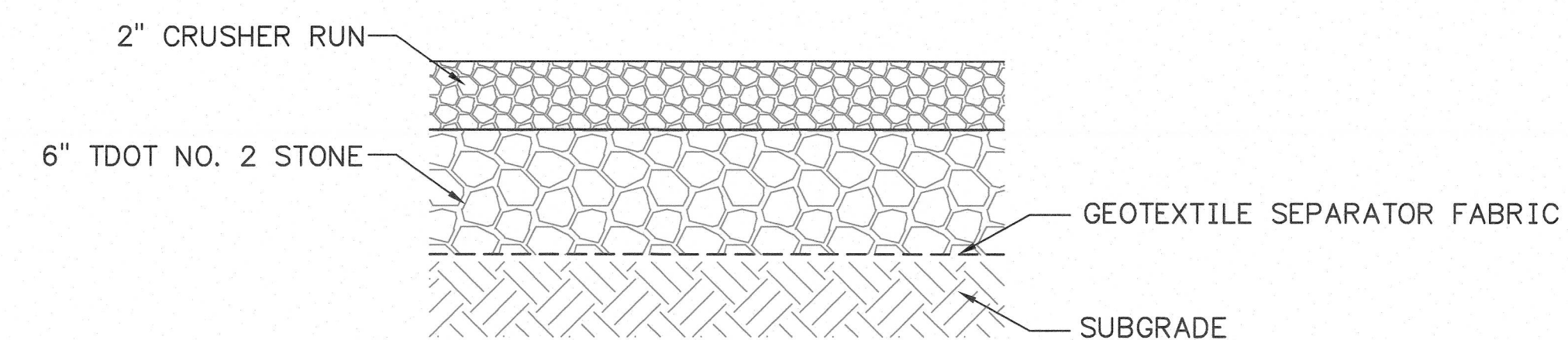
-											DISCIPLINE
-											INTERFACE
R 0	06/26/14	JES	RRP	MCV	SHB	RLS	MST	JCK	601939	-	
ISSUED FOR CONSTRUCTION											
REV.	DATE	DSGN	DRWN	CHKD	SUPV	RVND	APPD	ISSD	PROJECT	AS CONST	REV.
NO.									0		
SCALE: AS SHOWN										EXCEPT AS NOTED	
YARD											
ASH AREA NO. 1											
ASH AREA NO. 1											
NORTH DRAINAGE CULVERT											
INLET HEADWALL DETAILS											
DESIGNED BY:		DRAWN BY:		CHECKED BY:		SUPERVISED BY:		REVIEWED BY:		APPROVED BY:	
J.E. SPALDING		R.R. PETTY		M.C. VAUGHAN		S.H. BICKEL		R.L. SANCHEZ		M.S. TURNBOW	
										J.C. KAMMEYER	
JOHNSONVILLE FOSSIL PLANT											
TENNESSEE VALLEY AUTHORITY											
FOSSIL AND HYDRO ENGINEERING											
AUTOCAD R 2010		DATE 06/26/14		30	C	10W535-22				R 0	

STANTEC
TASK COMPLETED BY: REV NO.

PLOT FACTOR: 1
W TVA
C.A.D. DRAWING
DO NOT ALTER MANUALLY



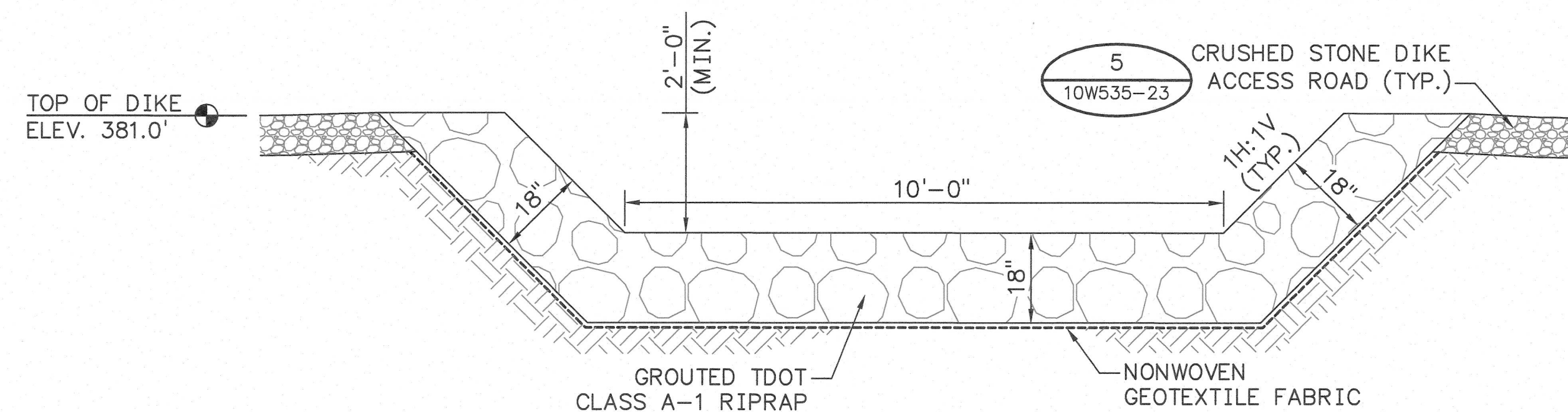
4 SECTION - PIPE AND CHANNEL
10W535-23 SCALE: 1"=5'



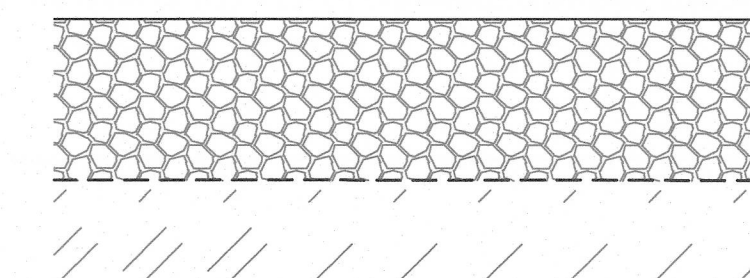
2 SECTION - RIPRAP CHANNEL LINING
10W535-23 SCALE: 1/2"=1'-0"

5
10W535-23

DETAIL - CRUSHED STONE DIKE ACCESS ROAD
SCALE: 1/2"=1'-0"

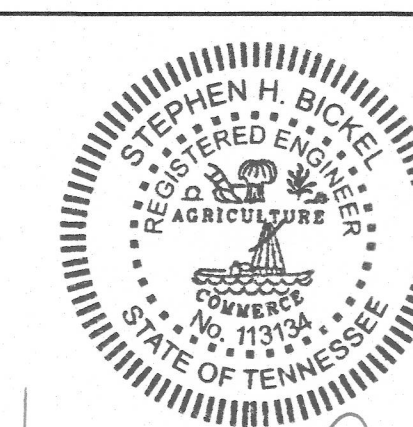
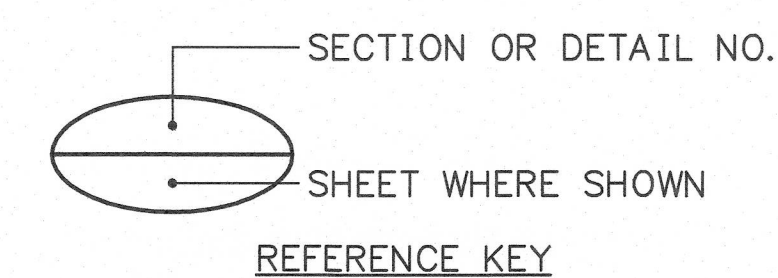


3 SECTION - OVERFLOW SPILLWAY
10W535-23 SCALE: 1/2"=1'-0"

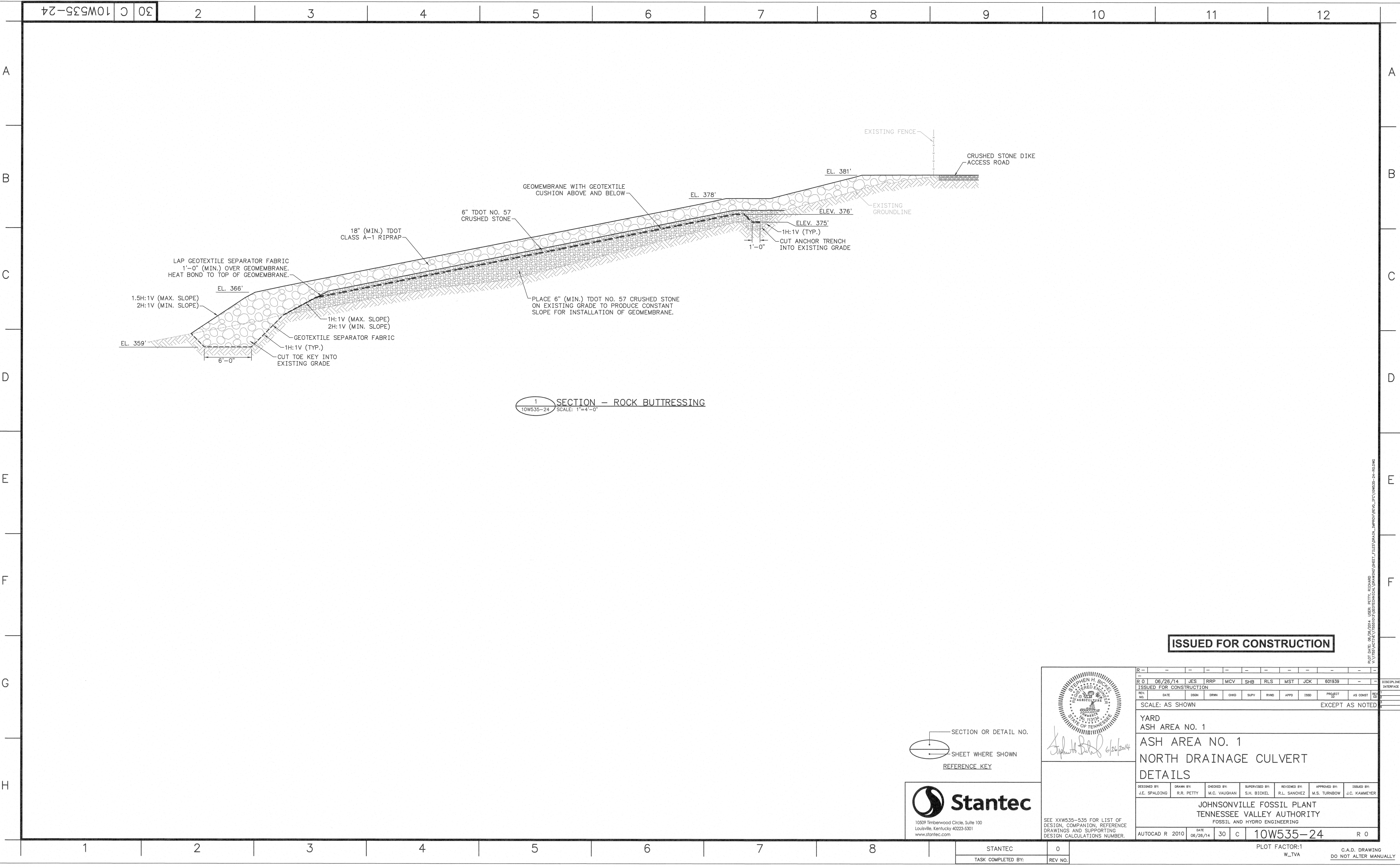


6
10W535-23

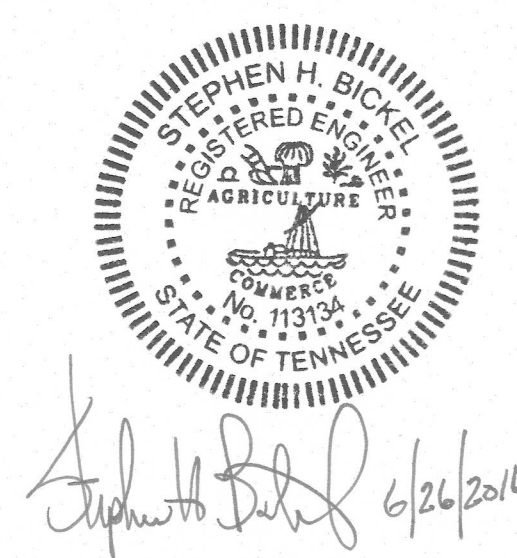
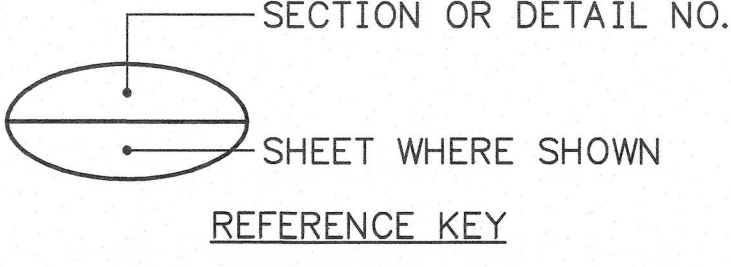
DETAIL - CRUSHED STONE FOOTPATH
SCALE: 1/2"=1'-0"



R	-	-	-	-	-	-	-	-	-	DISCIPLIN
R O	06/26/14	JES	RRP	MCV	SHB	RLS	MST	JCK	601939	ENTERACI
ISSUED FOR CONSTRUCTION										
REV.	DATE	DSGN	DRWN	CHKD	SUPLY	RYMD	APPD	ISSD	PROJECT	AS CONST
NO.									CO	
SCALE: AS SHOWN								EXCEPT AS NOTED		
YARD										
ASH AREA NO. 1										
ASH AREA NO. 1										
NORTH DRAINAGE CULVERT										
DETAILS										
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:				
J.E. SPALDING	R.R. PETTY	M.C. VAUGHAN		R.L. SANCHEZ	M.S. TURNBOW	J.C. KAMMEYER				
JOHNSONVILLE FOSSIL PLANT TENNESSEE VALLEY AUTHORITY FOSSIL AND HYDRO ENGINEERING										
AUTOCAD R 2010	DATE	30	C	10W535-23				R O		



1
10W535-24
SECTION - ROCK BUTTRESSING
SCALE: 1"=4'-0"



SEE XXW535-535 FOR LIST OF DESIGN, COMPANION, REFERENCE DRAWINGS AND SUPPORTING DESIGN CALCULATIONS NUMBER.

ISSUED FOR CONSTRUCTION

R	-	-	-	-	-	-	-	-	-	-	DISCIPLINE INTERFACE
R 0	06/26/14	JES	RRP	MCV	SHB	RLS	MST	JCK	601939	-	-
ISSUED FOR CONSTRUCTION											
REV. NO.	DATE	DSGN	DRWN	CHKD	SUPV	RVND	APPR	ISSD	PROJECT ID	AS CONST	REV. NO.
SCALE: AS SHOWN										EXCEPT AS NOTED	
YARD											
ASH AREA NO. 1											
ASH AREA NO. 1											
NORTH DRAINAGE CULVERT											
DETAILS											
DESIGNED BY:	DRAWN BY:	CHECKED BY:	SUPERVISED BY:	REVIEWED BY:	APPROVED BY:	ISSUED BY:					
J.E. SPALDING	R.R. PETTY	M.C. VAUGHAN	S.H. BICKEL	R.L. SANCHEZ	M.S. TURNBOW	J.C. KAMMEYER					
JOHNSONVILLE FOSSIL PLANT											
TENNESSEE VALLEY AUTHORITY											
FOSSIL AND HYDRO ENGINEERING											
AUTOCAD R 2010	DATE 06/26/14	30	C	10W535-24					R 0		

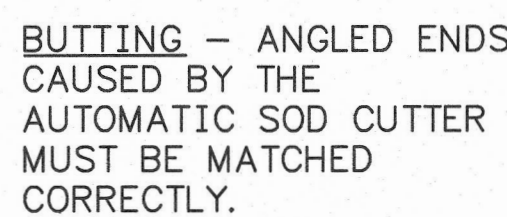
STANTEC	0
TASK COMPLETED BY:	REV NO.

PLOT FACTOR: 1 W_TVA
C.A.D. DRAWING DO NOT ALTER MANUALLY

PLOT DATE: 06/26/2014 USER: PETTY, RICHARD
V:\718\ACTIVE\REV\75561015\GEOTECHNICAL\DRAWINGS\01\JES\JES.DWG IMPROV\REV\01\JES\JES.DWG

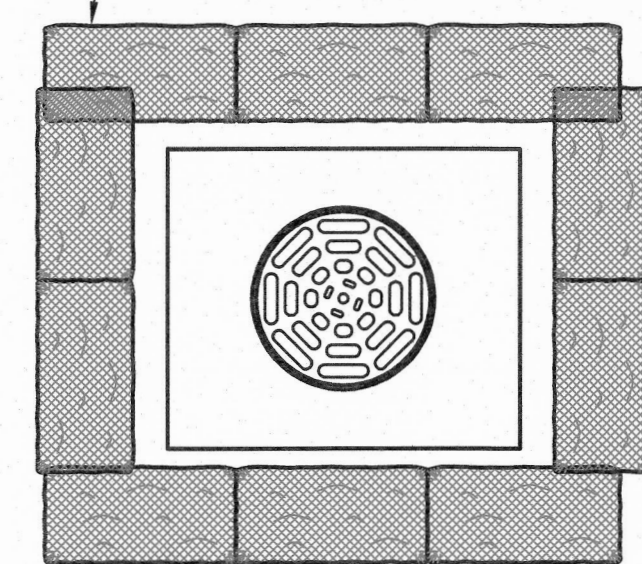


LAY SOD ACROSS THE DIRECTION OF FLOW IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE GAPS BETWEEN ADJACENT STRIPS AND DO NOT OVERLAP.



1
10W535-24

DETAIL - SOD INSTALLATION
NOT TO SCALE



PLAN

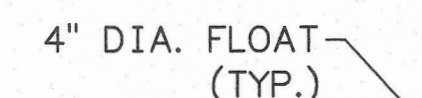
NOTES:
PLACE BAGS SUCH THAT THERE ARE NO GAPS BETWEEN BAGS. BAGS
MAY BE SINGLE OR DOUBLE LAYERS, AS THE SITUATION DICTATES.

2
10W535-24

DETAIL - SILT CONTROL ROCK BAG

NOT TO SCALE

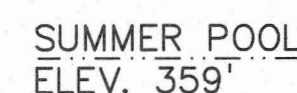
DTL_BAGOROC



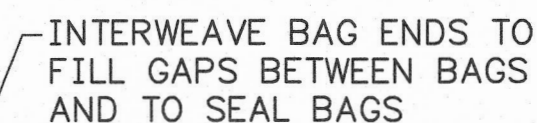
TYPICAL DEPTH 4' TO 5' VARIES
ON THE DEPTH OF THE CHANNEL

NOTE:
TO BE INSTALLED PER
MANUFACTURER'S INSTRUCTIONS.

4 TURBIDITY CURTAIN
10W535-24 NOT TO SCALE



SECTION A-A'

ELEVATION

NOTES:

1. INSTALL STONE BAG PROTECTION AT HEADWALL INLETS TO POOL WATER, PROVIDING OPPORTUNITY FOR SETTLING SEDIMENT BEFORE IT ENTERS HEADWALL.
2. BAG SPECIFICATIONS: APPROXIMATELY 18 1/2-INCH X 28-INCH WOVEN BAGS. STONE: USE TDOT NO. 57 STONE.
3. HEIGHT OF STONE BAGS ABOVE CULVERT INVERTS: CONSTRUCT A MINIMUM OF TWO COURSES OF BAGS. THE STONE-FILLED BAGS SHALL BE STACKED TO A HEIGHT EQUAL TO 1/2 THE DIAMETER OF THE CULVERT BEING PROTECTED.

5 HEADWALL INLET PROTECTION
10W535-24 NOT TO SCALE

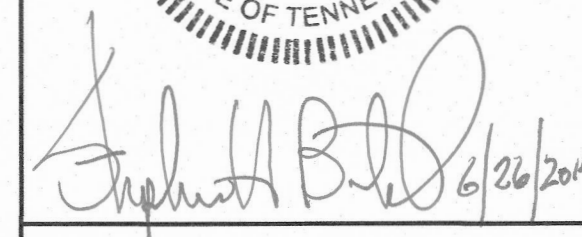
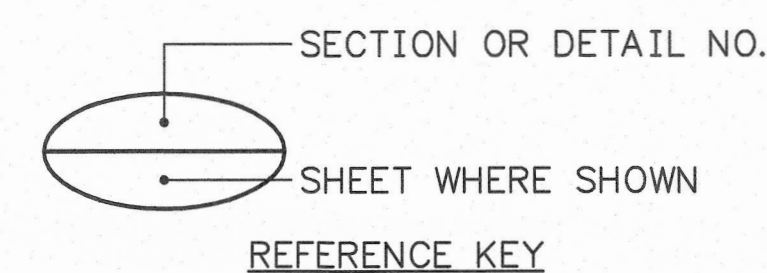
SEDIMENT FILTER BAG GENERAL NOTES:

1. CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE SEDIMENT FILTER BAG WHEN PUMPING
2. THE LENGTH AND WIDTH OF THE SEDIMENT BAG SHOWN ON THIS DRAWING MAY VARY PER VENDOR SPECIFICATIONS. THE MINIMUM "FOOTPRINT" OF THE BAG SHALL BE 225 SQUARE FEET.
3. SEDIMENT FILTER BAGS MAY BE EQUIPPED WITH A SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM FOUR-INCH DIAMETER PUMP DISCHARGE HOSE. A HOSE CONNECTION THROUGH A SLIT IN THE BAG IS ALSO ACCEPTABLE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF SIX-INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE.
4. THE PUMP DISCHARGE HOSE CONNECTION SLEEVE, OR SLIT, SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS.
5. SURROUND SEDIMENT FILTER BAG ASSEMBLY WITH SILT FENCE WITH WIRE BACKING. SEE TDOT STANDARD DRAWINGS EC-STR-3C AND EC-STR-3E FOR INSTALLATION DETAILS.
6. SEDIMENT TUBES OR FILTER SOCKS MAY BE USED AS AN ALTERNATIVE TO SILT FENCE WITH WIRE BACKING. SEE TDOT STANDARD DRAWINGS EC-STR-37 AND EC-STR-8 FOR INSTALLATION DETAILS. FILTER SOCKS MAY NOT REQUIRE STAKING WHEN APPROVED BY THE MANAGER.
7. SEDIMENT FILTER BAGS SHALL BE REPLACED WHEN SEDIMENT HAS ACCUMULATED TO ONE-HALF OF THE BAGS CAPACITY OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

FILTER BAG SPECIFICATIONS		
PROPERTIES		TEST METHOD
WEIGHT	10.0 OZ./YD.	ASTM D3776
TENSILE STRENGTH	250 LBS.	ASTM D4632
TENSILE ELONGATION AT BREAK	50%	ASTM D4632
PUNCTURE STRENGTH	100 LBS.	ASTM D4833
TRAPEZOIDAL TEAR	100 LBS.	ASTM D4533
MULLEN BURST	350 LBS.	ASTM D3786
WATER, FLOW RATE	80 GPM/FT. ²	ASTM D4491
PERMITTIVITY	1.2 SEC. -1	ASTM D4491
UV RESISTANCE	70% STR. RET.	ASTM D4355

3
10W535-24

DETAIL - SEDIMENT FILTER BAG
NOT TO SCALE



SEE XXW535-535 FOR LIST OF
DESIGN, COMPANION, REFERENCE
DRAWINGS AND SUPPORTING
DESIGN CALCULATIONS NUMBER.

[illegible]

YARD
ASH AREA NO. 1

ASH AREA NO. 1
NORTH DRAINAGE CULVERT
EPSC DETAILS

DESIGNED BY: J.E. SPALDING	DRAWN BY: P.B. PETTY	CHECKED BY: M.C. VAUGHAN	SUPERVISED BY: S.H. RICKEL	REVIEWED BY: R.J. SANCHEZ	APPROVED BY: M.S. TURNBROW	ISSUED BY: J.C. KAMMEYER
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JOHNSONVILLE FOSSIL PLANT
TENNESSEE VALLEY AUTHORITY
FOSSIL AND HYDRO ENGINEERING

AUTOCAD R 2010	DATE 06/26/14	30	C	10W535-25
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PLOT FACTOR:1
W_TVA

C.A.D. DRAWING
DO NOT ALTER MANUALLY