# HARRIMAN UTILITY BOARD **2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT STATE CONTRACT NO. 12079**

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CTI ENGINEERS, INC. 112 DURWOOD ROAD SUITE A KNOXVILLE, TN 37922 865-246-2750



JOHN KING, PE TENNESSEE LICENSE NO. 103702 DATE

## **DRAWING NO.**



REVISED DRAWINGS ARE AS INDICATED BY "RD"

I CERTIFY THAT THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY THE HARRIMAN UTILITY BOARD



SCALE: 1'' = 2000'

CANDACE VANNASDALE, PE DATE MANAGER OF GWS ADMINISTRATION & ENGINEERING

CTI PROJECT NO. K17015



**BIRCH & OAK STREET PLAN** SCALE: 1" = 200'

#### **GENERAL NOTES**

#### **GRADING AND EXCAVATION**

1.	WHEN SPECIFIC GRADING REQUIREMENTS ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL GRADE ALL AREAS WITHIN THE LIMITS OF CONSTRUCTION, OR OTHERWISE DISTURBED BY CONSTRUCTION, TO DRAIN AND TO MATCH THE EXISTING, ADJACENT GROUND.
2.	THE CONTRACTOR SHALL PERFORM ALL NECESSARY STRIPPING OF EXISTING TOPSOIL ON THE JOBSITE.
3.	ON THE PROJECT, NEWLY GRADED, EARTH AREAS NOT TO BE PAVED, RIP-RAPPED, OR STABILIZED, SHALL BE SEEDED IN ACCORDANCE WITH THE SPECIFICATIONS. PRIOR TO SEEDING, A FOUR INCH LAYER OF TOPSOIL SHALL BE PLACED ON THESE AREAS IN ACCORDANCE WITH SAID SPECIFICATIONS.
4.	THE CONTRACTOR SHALL DISPOSE OF, AT HIS OWN EXPENSE, ALL UNSUITABLE AND/OR SURPLUS, EXCAVATED MATERIAL.
5.	EXCAVATION ADJACENT TO EXISTING PAVEMENT SHALL BE MADE TO A NEAT LINE.
6.	ALL TREES THAT ARE CUT OR KNOCKED DOWN WITHIN THE LIMITS OF CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT THE CONTRACTOR'S EXPENSE. BURNING SHALL NOT BE PERMITTED.
7.	BACKFILLING, COMPACTING, GRADING, AND SITE-CLEANUP SHALL OCCUR DAILY AS PIPE INSTALLATION PROGRESSES.
	EROSION/POLLUTION CONTROL
8.	ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL REQUIREMENTS SHALL BE FOLLOWED DURING CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO CONTROL EROSION AND WATER POLLUTION THROUGH THE CONSTRUCTION PERIOD. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE IN PLACE BEFORE EXCAVATION OPERATIONS BEGIN. CLEARING AND GRUBBING SHALL BE HELD TO A MINIMUM WIDTH NECESSARY TO ACCOMMODATE CONSTRUCTION SLOPES. EMBANKMENTS AND EXCAVATED AREAS SHALL BE PROMPTLY STABILIZED TO MINIMIZE EROSION. BALED STRAW EROSION CHECKS AND SILT FENCE SHALL BE USED ALONG THE TOE OF FILL SLOPES, IN DITCHES, AND IN OTHER AREAS WHERE EROSION IS A PROBLEM AND SILT-LADEN RUNOFF MAY ENTER A DRAINAGE DITCH, STREAM OR ADJACENT PROPERTY.
9.	ANY STOCKPILED SOIL OR FILL MATERIAL SHALL BE LOCATED AND TREATED IN A MANNER TO PREVENT SILT ENTERING STREAMS. NO EXCAVATED MATERIAL SHALL BE DISCHARGED INTO DITCHES. THE CONTRACTOR SHALL DISPOSE OF ALL EXCAVATED MATERIAL IN A LOCATION, APPROVED BY THE ENGINEER, ABOVE THE NORMAL HIGH WATER ELEVATION.
10.	THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL EROSION CONTROL PROVISIONS AS SET FORTH IN THE EROSION & SEDIMENT CONTROL HANDBOOK AVAILABLE FROM THE TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION.
11.	THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN AND SHALL MAINTAIN THE EROSION CONTROL MEASURES THROUGHOUT THE LENGTH OF THE CONTRACT AS REQUIRED.
12.	THE CONTRACTOR SHALL PROVIDE TEMPORARY EROSION AND WATER CONTROL MEASURES (SUCH AS WATTLES, CHECK DAMS, WASHOUTS, AND SILT FENCES, ETC.) AS SHOWN ON THE EROSION CONTROL PLAN AND AS DIRECTED BY THE ENGINEER. THESE TEMPORARY MEASURES SHALL BE COORDINATED WITH THE PERMANENT EROSION CONTROL FEATURES TO ASSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION CONTROL THE PROJECT.
	UTILITIES
13.	LOCATIONS OF UTILITIES, PUBLIC AND/OR PRIVATE, ARE APPROXIMATE ONLY, AND THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD. IT IS POSSIBLE THAT SOME EXISTING FACILITIES ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING ALL UNDERGROUND UTILITY FACILITIES LOCATED AND MARKED PRIOR TO THE BEGINNING OF CONSTRUCTION.
14.	THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY OWNERS PRIOR TO INTERRUPTING ANY ELECTRICAL, COMMUNICATIONS, GAS, WATER, OR SEWER SERVICES. THE CONTRACTOR SHALL ALSO NOTIFY AFFECTED UTILITY CUSTOMERS AT LEAST 24 HOURS BEFORE INTERRUPTING THE CUSTOMERS' SERVICE. WHERE INDIVIDUAL SERVICES ARE TO BE DISCONTINUED FOR MORE THAN 4 HOURS, THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR PROVIDING TEMPORARY SERVICE SATISFACTORY TO THE AFFECTED CUSTOMER. THE REPAIR OR REPLACEMENT OF UTILITY COMPONENTS SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE UTILITY OWNER. NO SEPARATE PAYMENT SHALL BE MADE FOR THESE ACTIVITIES, AND COMPENSATION, THEREFORE, SHALL BE INCLUDED IN THE CONTRACT PRICES FOR OTHER ITEMS.

15. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. SHOULD SPECIAL EQUIPMENT BE REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR SHALL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FOR FURNISHING SPECIAL EQUIPMENT SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.

ENCASED.



#### SPENCER DRIVE PLAN SCALE: 1" = 200'

#### **UTILITIES (CONTINUED)**

PLAN

NORTH

16. IF ANY UTILITY IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY OWNER. REPAIR OF THE UTILITY SHALL THEN BE ACCORDING TO THE OWNER'S INSTRUCTIONS. 17. ALL CUTS AND FILLS SHALL BE IN PLACE, AND ALL FILLS COMPACTED, PRIOR TO THE INSTALLATION OF WATER LINES AND APPURTENANCES.

18. TRANSITION JOINTS ON PIPES OF DIFFERENT MATERIALS MUST BE APPROVED BY THE ENGINEER, AND CONSTRUCTION MUST BE DONE WITH APPROVED FITTINGS AND/OR ADAPTERS.

19. ALL PROPOSED PIPING AND MISCELLANEOUS APPURTENANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, CONTRACT DRAWINGS, AND SPECIFICATIONS.

20. WHERE WATER PIPE CROSSES THE SEWER MAIN, THE WATER PIPE WITHIN 10 FEET OF THE POINT OF CROSSING SHALL BE AT LEAST 18 INCHES ABOVE THE SEWER MAIN OR THE WATER PIPE SHALL BE

21. TOPS OF ALL BOXES SHALL BE RAISED FLUSH WITH FINISHED GRADES AND BE VISIBLE.

22. THE WATER LINES SHALL BE TESTED AND APPROVED PER THE REQUIREMENTS OF THE SPECIFICATIONS.

23. THE CROWN OF THE WATER LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 36-INCHES BELOW THE EXISTING SURFACE WITHIN RIGHTS-OF-WAY AND 30-INCHES BELOW THE EXISTING SURFACE IN OTHER AREAS EXCEPT WHERE ADDITIONAL BURIAL IS NEEDED TO ACCOMMODATE INSTALLATION OF APPURTENANCES AND CROSSINGS.

24. THE CROWN OF THE WATER LINES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 30-INCHES LOWER THAN THE SURFACE OF ADJACENT ROADWAYS SO AS TO ALLOW FUTURE DRIVEWAY CUTS THAT WILL NOT IMPACT OR DISTURB THE WATER LINE.

#### MISCELLANEOUS

25. THE ENGINEER SHALL HAVE THE AUTHORITY TO DESIGNATE AND/OR LIMIT AREAS OF CONSTRUCTION. 26. THE OWNER MAKES NO REPRESENTATIONS ABOUT SUBSURFACE CONDITIONS THAT MAY BE ENCOUNTERED WITHIN THE LIMITS OF THE PROJECT. THE CONTRACTOR SHOULD SATISFY HIMSELF BY ON SITE INSPECTIONS, CORE DRILLINGS, OR OTHER METHODS OF THE SUBSURFACE CONDITIONS THAT MAY BE ENCOUNTERED. THE RISK OF ENCOUNTERING AND CORRECTING UNFAVORABLE SUBSURFACE CONDITIONS SHALL BE BORNE SOLELY BY THE CONTRACTOR.

27. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL FIELD LAYOUTS.

28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PAYMENT FOR TESTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND ORDERING APPROPRIATE TESTS AS REQUIRED.

29. THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS OF THE PROJECT WITHIN TEN (10) DAYS AFTER SUBSTANTIAL COMPLETION OF THE WORK.

**30.** SHOULD THERE BE A CONFLICT BETWEEN THESE GENERAL NOTES, CONTRACT DRAWINGS, AND/OR SPECIFICATIONS, THE MOST RESTRICTIVE INTERPRETATION IN FAVOR OF THE OWNER SHALL PREVAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY CLARIFICATION OR INTERPRETATION OF GENERAL NOTES, CONTRACT DRAWINGS, AND/OR SPECIFICATIONS, IN ADVANCE AND IN WRITING, FROM THE ENGINEER. 31. MAIN AND SERVICE LINE PIPING INCLUDING APPURTENANCES SHALL "PASS" PRESSURE TESTING PRIOR TO

ANY PAYMENT BY THE OWNER FOR THOSE ITEMS. 32. ALL 2-INCH POLYETHYLENE PIPE SHALL BE CONTINUOUS WITH NO "BUTT FUSED" CONNECTIONS.

#### **UTILITY OWNERS**

HARRIMAN UTILITY BOARD 300 NORTH ROANE STREET HARRIMAN, TN 37748 ELECTRIC – HEATH LEWIS (865) 719–9248 GAS, WATER, AND SEWER - JEFF MIZE (865) 755-4173

AT&T TENNESSEE 9733 PARKSIDE DRIVE KNOXVILLE, TN 37922 DAVID OVERMAN (865) 539-8579

XFINITY/COMCAST 5720 ASHEVILLE HIGHWAY KNOXVILLE, TN 37924 JT POPE (865) 862-5060

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MAPPING INFORMATION (CONTC PROVIDED BY HARRIMAN UTILIT









![](_page_6_Figure_0.jpeg)

А	В	DEPTH C	PIPE SIZE X	А	В	DEPTH C			
11¼	BEND		90° BEND & UNBALANCED TEE						
<b>'</b> –9"	1'-0"	0'-8"	8"	1'-0"	2'-0"	2'-3"			
'-9"	1'-0"	0'-6"	6"	1'-0"	1'–3"	2'-0"			
'-6"	1'-0"	0'-4"	2"-4"	0'-9"	1'-0"				
DEAD	END		45° BEND						
'-7"	2'-9"	2'-3"	8"	0'-9"	1'–8"	1'-6"			
'-5"	1'–3"	1'–5"	6"	0'-9"	1'-0"	1'-6"			
°-4"	0'–10'	0'–11"	2"-4"	0'-9"	1'-0"	1'-0"			
TEE				22 <b>*</b>	BEND				
'-6"	4'-0"	2'-3"	8"	0'-9"	0'-9" 1'-0"				
'-0"	2'-8"	1'-6"	6"	0'-9"	0-10"	1'-0"			
'-0"	2'-0"	1'-0"	2"-4"	0'-9"	0'-7"	1'-0"			
DIMENSIONS FOR HORIZONTAL & VERTICAL BENDS									

NOTE : ALL CONCRETE FOR THRUST BLOCKS SHALL BE READY-MIXED 3000 psi (MINIMUM) CLASS "B". MIX DESIGN SHALL BE SUBMITTED 225 psi & 20001b/ft2 SOIL RESISTANCE TYPICAL FOR UNDISTURBED SAND AND GRAVEL CEMENTED WITH CLAY. FOR OTHER SOILS THE BEARING FACE OF THE THRUST BLOCKS SHOULD BE INCREASED BY THE FOLLOWING FACTORS.

SAND 2 SAND & GRAVEL 1.33 SHALE 0.4

SOFT CLAY, MUCK AND PEAT SHALL USE RESTRAINED JOINTS IN LIEU

![](_page_6_Figure_5.jpeg)

TO BE USED ON CON DESIGNATED BY THE

CONCRETE PA NOT TO SCALE

![](_page_6_Figure_8.jpeg)

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SURFACE EXCAVATED TRENCH WIDTH MIN = PIPE O.D. + 1' MAX = PIPE O.D. + 2' *IL MAX = PIPE O.D. + 2' MAX = PIPE O.D. + 2' MIL MAX = PIPE O.D. + 2' MIL MIL MIL MIL MIL MIL MIL MIL	DESCRIPTIONS
HAUNCHING*	DESIGN JLK JLK NO. JMG JMG CHECKED JLK APPROVED JLK
FOUNDATION IF REOD ROCK EARTH ROCK EARTH NOTE: CRUSHED ROCK MATERIAL SHALL BE CLEAN GRADED CRUSHED ROCK, SIZE 7 (½" TO NO.4) PIPE BEDDING NOT TO SCALE PAVING NOTES 1. COST OF SAW CUTTING, COMPACTING, MINERAL AGGREGATE, HOT MIX, ETC. TO BE INCLUDED IN THE UNIT PRICE FOR ASPHALT OR OTHER PAVEMENT REPLACEMENT IN THE DID SCHEDULE. 2. IT IS THE INTENTION OF THE OWNER TO INSTALL ALL LINES OUT OF PAVEMENT IF POSSIBLE, IN ROAD SHOULDERS OR DITCHES; IF LINE IS INSTALLED UNDER PAVEMENT FOR CONVENIENCE OF CONTRACTOR, NO SEPARATE PAYMENT WILL BE MADE FOR EXTRA PAVEMENT AND CRUSHED ROCK BACKFILL REQUIRED. 3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ROAD CUT PERMITS PRIOR TO CUTTING ROADWAY PAVEMENTS.	2017 HARRIMAN CDBG WATER SYSTEM IMPROVEMENTS PROJECT STATE CONTRACT NO. 12079 DETAIL SHEET 2 OF 2 DETAIL SHEET 2 OF 2
A" MINIMUM CLASS "A" CONCRETE MATCH EXISTING SURFACE FINISH WWF 6 X 6 X W2.9 X W2.9 PAVEMENT BED AREA SECONTE DE USED ON CONCRETE DRIVEWAYS AND ELSEWHERE AS CSIGNATED BY THE ENGINEER.	JOB NO. K17015-01 ISSUE DATE 02/15/2018
SCALE	SCALE AS SHOWN DRAWING NO. 7.0

![](_page_7_Figure_0.jpeg)

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2" 24"MIN. 24"MIN. -45' TO 60' CTYP.) STAKING DETAIL		REVISI	DESCRIPTIONS			
<u>TES:</u> E DEPTH AND WIDTH OF THE WEIR SECTION OF E WATTLE SHALL BE DESIGNED TO PASS THE <sup>-</sup> /24hr OR 5yr/24hr STORM EVENT WITHOUT ERTOPPING THE CHANNEL.		DESIGN	JLK NO.	JMG	CHECKED	APPROVED JLK
AKE PER MANUFACTURERS RECOMMENDATIONS		2017 HARRIMAN CDBG WATER SYSTEM	IMPROVEMENTS PROJECT	STATE CONTRACT NO. 12079		EROSION CONTROL DETAILS
SOXX CURBSIDE OPTION "B" PLAN RB FILTRESS 8" SOXX SECURE SOXX TO GRATE WITH RUBBER TIE DOWNS					ENGINEERS, INC.	112 DURWOOD ROAD, SUITE A KNOXVILLE, TN 37922 865-246-2750
ECTION IINED BY ENGINEER. LEGEND	Know what's below.			JOE K170 ISSUE 02/15 SC	3 NO. 015-01 E DATE 5/2018 GALE	
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