| TYPE | YEAR | PROJECT NO. | SHEET NO. |
|---|---|---|---|
| CONSTRUCTION | 2014 | STP-101(16) | U7-1 |
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CUMBERLAND COUNTY

## INDEX OF DRAWINGS


SHT NO. U7-1 NOTES & UTILITY OWNER
SHT NO. U7-2 STA 193+00-206+00
SHT NO. U7-3 STA 206+00-209+00
SHT NO. U7-4 DETAILS
SHT NO. U7-5 DETAILED SPECIFICATIONS


| ITEM NUMBER | DESCRIPTION | UNIT | QUANTITY | FOOTNOTES TO THE ITEM TO BE SHOWN ON PLANS/SPECS |
|---|---|---|---|---|
| | | | | (NUMBERED FOOTNOTES LOCATED AT THE BOTTOM OF THIS ITEM LIST) |
| | | | | |
| 797-03.04 | 2 IN PVC FORCE MAIN | L.F. | 330 | FOOTNOTE #1 |
| 797-03.06 | 4 IN PVC FORCE MAIN | L.F. | 300 | FOOTNOTE #1 |
| 797-06.72 | BORE/JACK 6 IN STEEL CASING PIPE ROCK | L.F. | 90 | FOOTNOTE#10 |
| 797-06.74 | BORE/JACK 10 IN STEEL CASING PIPE ROCK | L.F. | 110 | FOOTNOTE#10 |
| 797-08.01 | DI FITTINGS | Lbs | 527 | INCLUDES FITTINGS, GLANDS AND RESTRANT DEVISES DESCRIBED IN POUNDS |
| 797-08.02 | PVC FITTINGS | Lbs | 5 | INCLUDES FITTINGS, GLANDS AND RESTRANT DEVISES DESCRIBED IN POUNDS |
| 797-09.28 | 4 IN AIR/VAC VALVE ASSEMBLY | EACH | 1 | FOOTNOTE #6 |

FOOTNOTE 1:
INCLUDES ALL MATERIALS, LABOR, EQUIPMENT FOR COMPLETE EXCAVATION INCLUDING BUT NOT LIMITED TO BEDDING, BACKFILLING, THRUST BLOCKING, PIPE FUSION, APPURTENANCES, FLOWABLE FILL, MAINTAINING THE TRENCH, TESTING, CHECK DAMS, AND ANY OTHER LABOR OR MATERIAL REQUIRED TO COMPLETE FOR GRAVITY SEWER LINES OR FORCE MAINS AS SPECIFIED ON THE PLANS. DUCTILE IRON PIPE GRAVITY SEWER LINES SHALL BE EPOXY LINED.
FOOTNOTE 6:
INCLUDES ALL MATERIALS, LABOR, EQUIPMENT, INCLUDING BUT NOT LIMITED TO MACHINERY, TOOLS OR APPARATUS NECESSARY FOR INSTALLATION OF ASSEMBLIES AS DESCRIBED AND DETAILED IN THE PLANS AND SPECS.
FOOTNOTE 10:
INCLUDES ALL MATERIALS, LABOR, AND EQUIPMENT INCLUDING BUT NOT LIMITED TO CASING PIPE, PIPE SPACERS, CASING END SEALS, ANY OTHER APPURTENANCE TO COMPLETE THE WORK AS SPECIFIED ON THE PLANS, AND TRAFFIC CONTROL IF CASING PIPE HAS CARRIER PIPE, THE CARRIER PIPE SHALL BE PAID AT THE OPEN CUT ITEM.

SPECIAL FOOTNOTE:
ALL PVC FORCE MAIN FOR THIS PROJECT MUCT BE "BLUE PIPE".

NOTE 1:
ALL KNOWN UTILITIES WERE FIELD LOCATED BY FAIRFIELD GLADE COMMUNITY CLUB (FGCC). ENGINEER TAKES NO RESPONSIBILITY AS TO THE ACCURACY OF THE LOCATION OR ACTUAL QUANTITIES OF UTILITIES SHOWN.

NOTE 2:
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS, LABOR AND EQUIPMENT TO PROPERLY HYDROSTATICALLY TEST THE SEWER LINE INSTALLATION. CONTRACTOR SHALL WORK CLOSELY WITH FAIRFIELD GLADE REPRESENTATIVES PERTAINING TO THE DISINFECTION OF ALL NEW SEWER LINES.

FAIRFIELD GLADE COMMUNITY CLUB MAY BE CONTACTED AT 931-484-3780.

UTILITY INFORMATION

FAIRFIELD GLADE COMMUNITY CLUB
P.O. BOX 2000
FAIRFIELD GLADE,TN 38558
CONTACT: TIM MARTIN
(931) 484-3780

FAIRFIELD GLADE COMMUNITY CLUB
P.O. BOX 2000 FAIRFIELD GLADE, TENNESSEE 38558

S.R. 101 (PEAVINE ROAD) SEWERLINE RELOCATION

FECS
FIELD'S ENGINEERING CONSULTANT SERVICES, LLC
77 COTHER STREET
CROSSVILLE, TENNESSEE 38555
(931) 456-6071

NOTES & UTILITY OWNER

| TYPE | YEAR | PROJECT NO. | SHEET NO. |
|---|---|---|---|
| CONSTRUCTION | 2014 | STP-101(16) | U7-2 |
| | | | |
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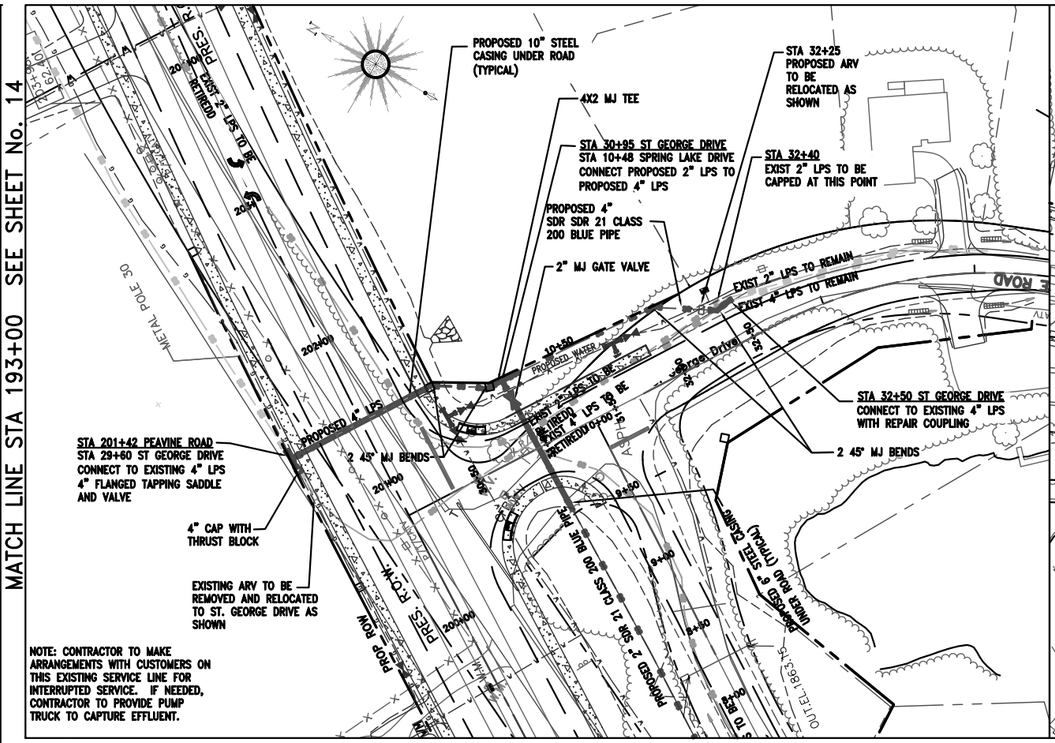
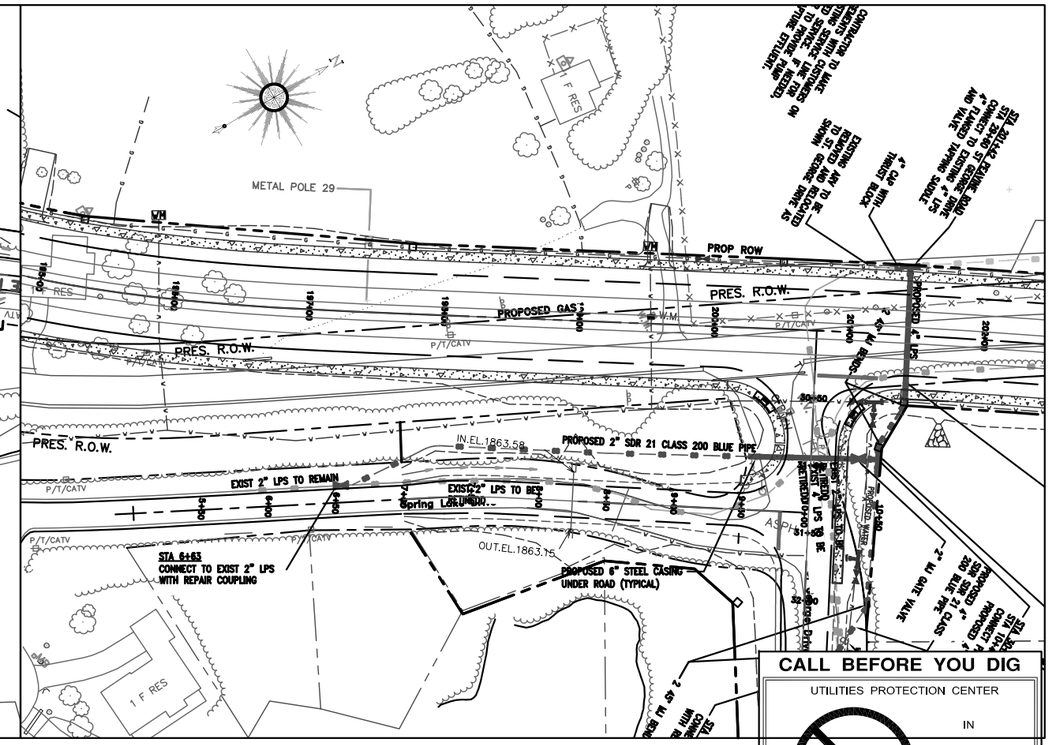
| | | | |

CUMBERLAND COUNTY

MATCH LINE STA 193+00 SEE SHEET No. 14




NOTE: CONTRACTOR TO MAKE ARRANGEMENTS WITH CUSTOMERS ON THIS EXISTING SERVICE LINE FOR INTERRUPTED SERVICE. IF NEEDED, CONTRACTOR TO PROVIDE PUMP TRUCK TO CAPTURE EFFLUENT.




MATCH LINE STA 206+00 SEE SHEET No. 16

NOTE 1:
ALL KNOWN UTILITIES WERE FIELD LOCATED BY FAIRFIELD GLADE COMMUNITY CLUB (FGCC). ENGINEER TAKES NO RESPONSIBILITY AS TO THE ACCURACY OF THE LOCATION OR ACTUAL QUANTITIES OF UTILITIES SHOWN.

CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS, LABOR AND EQUIPMENT TO MAKE TIE-INS AS SHOWN ON PLANS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR RECONNECTING ALL EXISTING SERVICES AS SHOWN ON PLANS. ENGINEER MAKES NO GUARANTEE AS TO THE ACCURACY OF THESE TIE-INS.

FGCC MAY BE CONTACTED AT 931-484-3780.

SANITARY SEWER LINE LEGEND

EXISTING TO REMAIN

NEW INSTALLATION

TEMPORARY RELOCATION

TO BE REMOVED OR RETIRED IN PLACE

EXISTING UTILITY DATA AS PROVIDED BY TDOT

CALL BEFORE YOU DIG

UTILITIES PROTECTION CENTER

IN

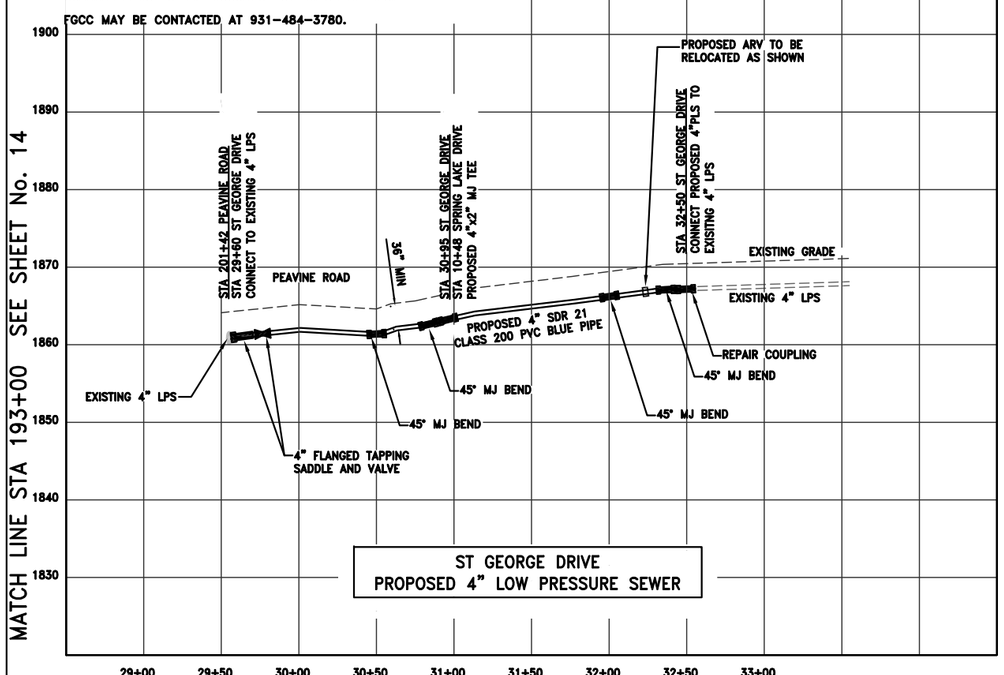
TENNESSEE

CALL

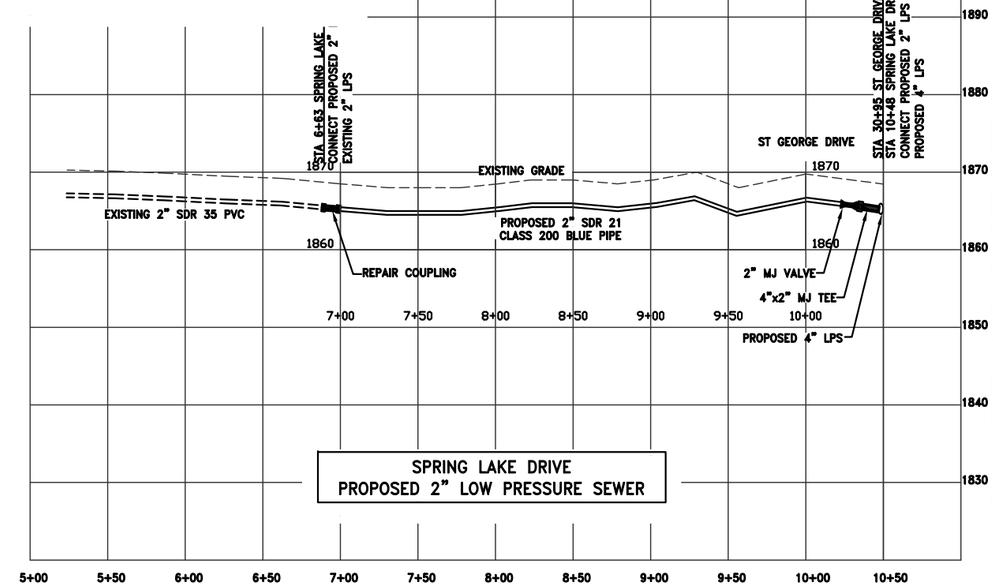
1 - 800 - 351 - 1111

THREE WORKING DAYS BEFORE YOU DIG

IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE. THEREFORE CERTIFICATION TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS WITHHELD.




ST GEORGE DRIVE
PROPOSED 4" LOW PRESSURE SEWER




SPRING LAKE DRIVE
PROPOSED 2" LOW PRESSURE SEWER

BARRY R. FIELD
REGISTERED ENGINEER
No. 21562
STATE OF TENNESSEE
3-17-14

FAIRFIELD GLADE COMMUNITY CLUB
POST OFFICE BOX 2000
FAIRFIELD GLADE, TENNESSEE 38558

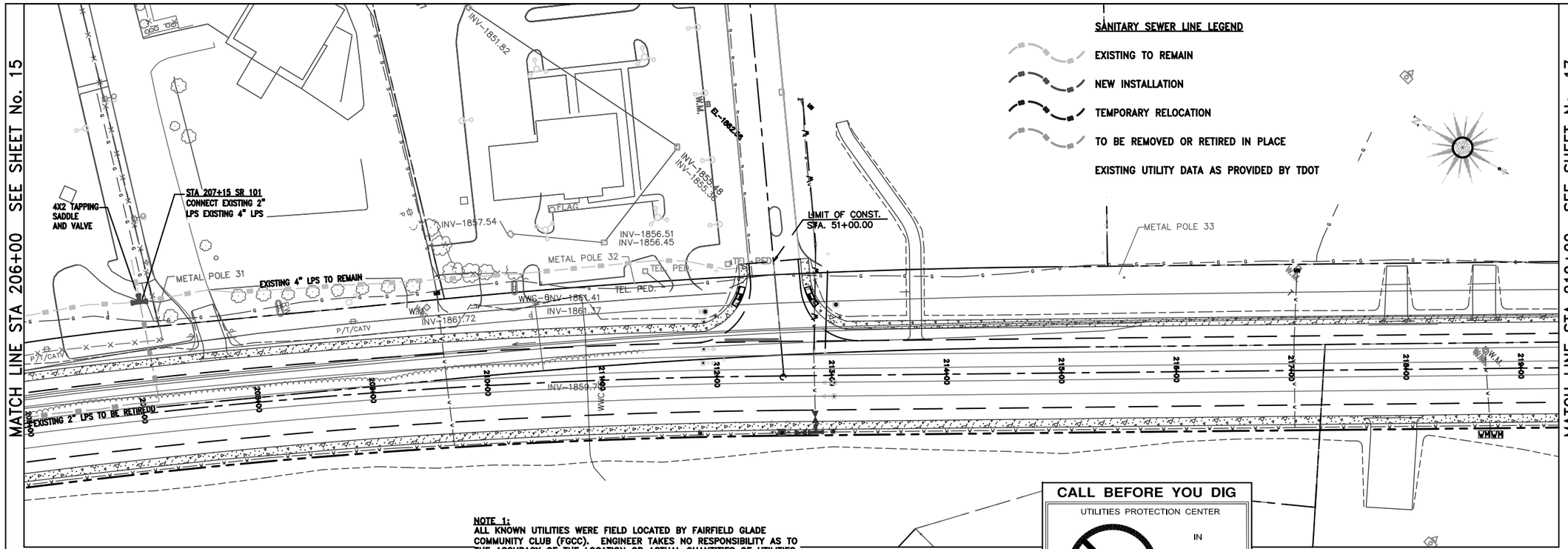
S.R. 101 (PEAVINE ROAD) SANITARY SEWER RELOCATION

FECS
FIELD'S ENGINEERING CONSULTANT SERVICES, LLC
77 COTHER STREET
CROSSVILLE, TENNESSEE 38555
(931) 456-6071

STA. 193+00 TO STA. 206+00
SCALE: 1"=50' H
1"=10' V

| TYPE | YEAR | PROJECT NO. | SHEET NO. |
|---|---|---|---|
| CONSTRUCTION | 2014 | STP-101(16) | U7-3 |
| | | | |
| | | | |

CUMBERLAND COUNTY




NOTE 1:
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CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS, LABOR AND EQUIPMENT TO MAKE TIE-INS AS SHOWN ON PLANS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR RECONNECTING ALL EXISTING SERVICES AS SHOWN ON PLANS. ENGINEER MAKES NO GUARANTEE AS TO THE ACCURACY OF THESE TIE-INS.

FGCC MAY BE CONTACTED AT 931-484-3780.

**CALL BEFORE YOU DIG**

UTILITIES PROTECTION CENTER

IN

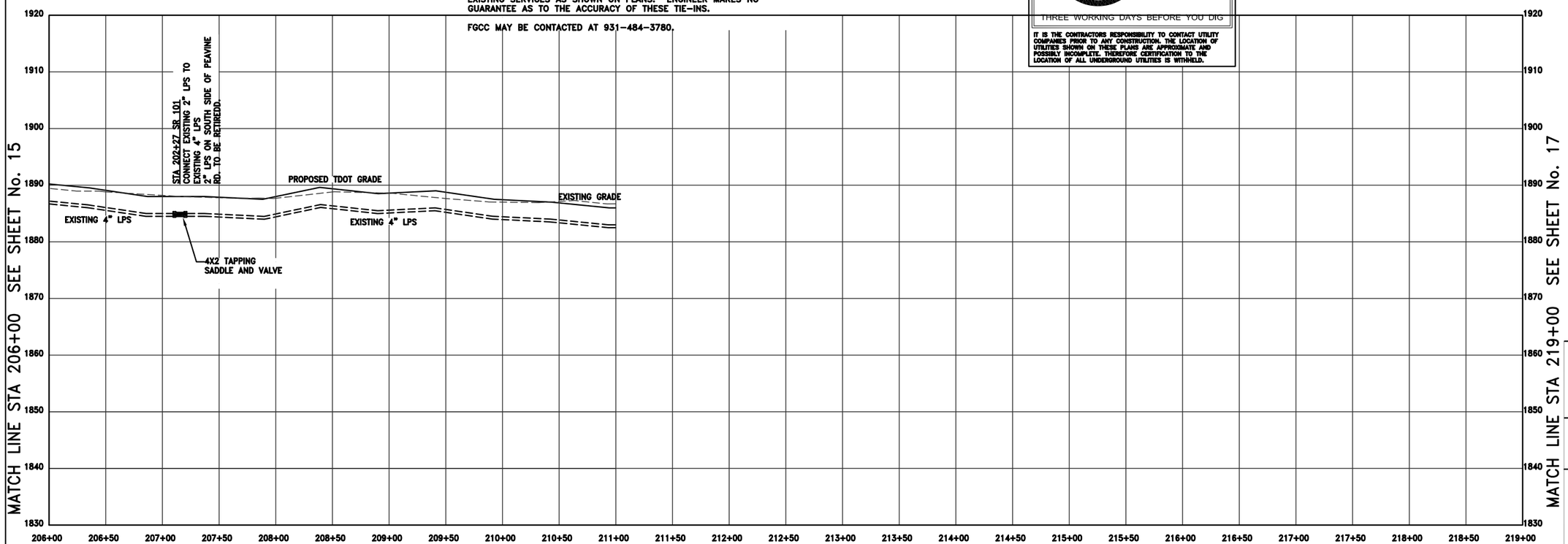
TENNESSEE

CALL

1 - 800 - 351 - 1111

THREE WORKING DAYS BEFORE YOU DIG

IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION. THE LOCATION OF UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE. THEREFORE CERTIFICATION TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS WITHHELD.



FAIRFIELD GLADE COMMUNITY CLUB
POST OFFICE BOX 2000
FAIRFIELD GLADE, TENNESSEE 38558

S.R. 101 (PEAVINE ROAD) SANITARY SEWER RELOCATION

FECS
FIELD'S ENGINEERING CONSULTANT SERVICES, LLC
77 COTHER STREET
CROSSVILLE, TENNESSEE 38555
(931) 456-6071

STA. 206+00 TO STA. 219+00
SCALE: 1"=50' H
1"=10' V

| TYPE | YEAR | PROJECT NO. | SHEET NO. |
|---|---|---|---|
| CONSTRUCTION | 2014 | STP-101(16) | U7-4 |
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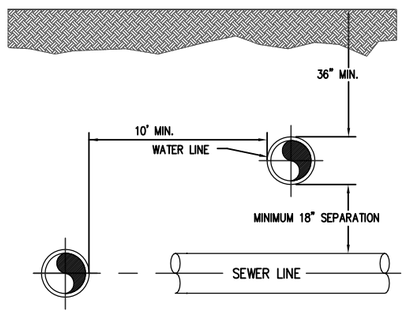
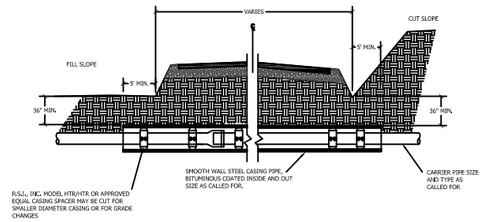
CUMBERLAND COUNTY

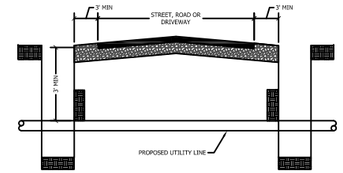



SEPARATION OF PIPED UTILITIES




A STATE HIGHWAY CROSSING
SCALE: N.T.S.

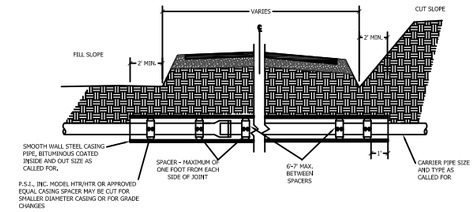
ALL CASINGS AND CONDUITS INSTALLED UNDER STATE ROADS SHALL MEET OR EXCEED THE MINIMUM AASHTO REQUIREMENTS.



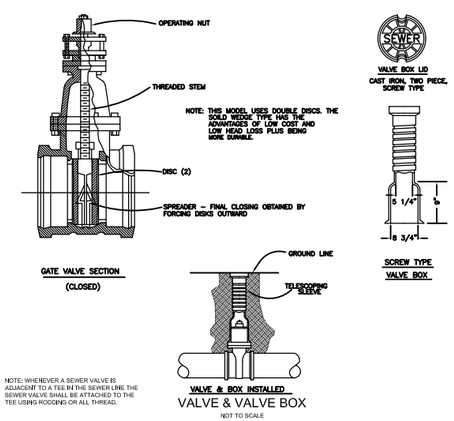

B TYPICAL UNCASED BORE DETAIL
SCALE: N.T.S.

| STEEL CASING PIPE | CASING SIZE |
|---|---|
| NOMINAL PIPE SIZE (Diameter in Inches) | (Inside diameter in Inches) |
| 4 | 8-10 |
| 6 | 10-12 |
| 8 | 14-16 |
| 10 | 16-18 |
| 12 | 18-20 |
| 15 | 22-24 |

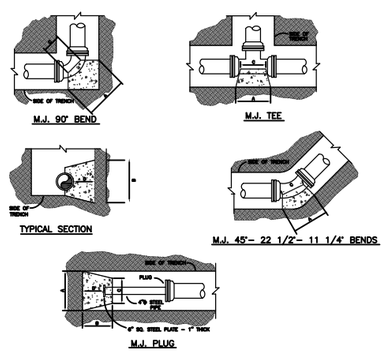
B BORE & JACK DETAILS
10 SCALE: N.T.S.




C CITY / COUNTY ROADS AND PAVED DRIVEWAY
SCALE: N.T.S.



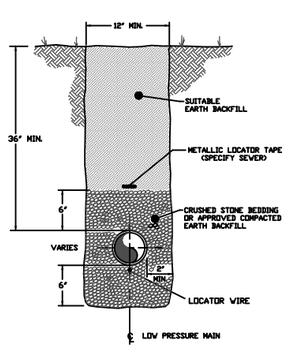

VALVE & VALVE BOX
NOT TO SCALE




| 90° BEND | | | | | | |
|---|---|---|---|---|---|---|
| SIZE | 8" | 4" | 6" | 8" | 10" | 12" |
| A | 36" | 36" | 36" | 36" | 48" | 72" |
| B | 16" | 16" | 24" | 33" | 48" | 72" |
| C | 9" | 9" | 12" | 18" | 27" | 36" |
| D | 6" | 8" | 12" | 16" | 22" | 24" |
| 45° BEND | | | | | | |
| SIZE | 8" | 4" | 6" | 8" | 10" | 12" |
| A | 12" | 12" | 18" | 24" | 36" | 36" |
| B | 12" | 12" | 18" | 24" | 33" | 72" |
| C | 9" | 9" | 12" | 18" | 27" | 36" |
| D | 6" | 6" | 9" | 12" | 17" | 18" |
| 22-1/2° BEND | | | | | | |
| SIZE | 8" | 4" | 6" | 8" | 10" | 12" |
| A | 9" | 9" | 12" | 18" | 27" | 36" |
| B | 9" | 9" | 12" | 18" | 27" | 48" |
| C | 9" | 9" | 12" | 18" | 24" | 12" |
| D | 4" | 4" | 6" | 9" | 11" | 12" |
| 11-1/4° BEND | | | | | | |
| SIZE | 8" | 4" | 6" | 8" | 10" | 12" |
| A | 9" | 9" | 11" | 12" | 24" | 36" |
| B | 9" | 9" | 11" | 12" | 24" | 36" |
| C | 9" | 9" | 12" | 18" | 24" | 12" |
| D | 4" | 4" | 5" | 6" | 9" | 12" |

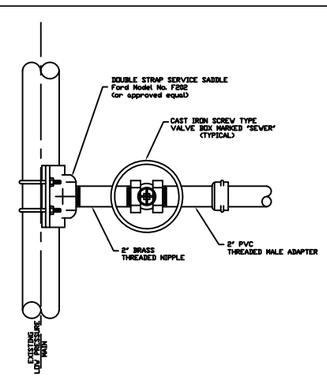
| TEE | | | | | | |
|---|---|---|---|---|---|---|
| SIZE | | | | | | |
| Main | 8"-4" | 6"-6" | 8"-12" | 10"-10" | 12" | 12" | 12" | 12" |
| Branch | 8"-4" | 6"-4" | 8"-8" | 10"-12" | 6"-4" | 8"-6" | 10"-12" | 12" | 14"-12" |
| A | 36" | 36" | 42" | 36" | 42" | 42" | 36" | 76" |
| B | 36" | 36" | 42" | 36" | 42" | 42" | 36" | 76" |
| C | 12" | 12" | 12" | 12" | 12" | 12" | 12" | 30" |
| D | 13" | 13" | 22" | 13" | 22" | 36" | 36" | 84" |
| PLUG | | | | | | | | |
| SIZE | 8" | 4" | 6" | 8" | 10" | 12" | 12" | 12" |
| A | 36" | 36" | 36" | 34" | 42" | 36" | 76" |
| B | 36" | 36" | 36" | 34" | 42" | 36" | 76" |
| C | 12" | 12" | 12" | 12" | 12" | 12" | 30" |
| D | 11" | 11" | 11" | 15" | 22" | 36" | 36" |

THRUST BLOCK DETAILS & DIMENSIONS
NOTE: NULL IF MECHANICAL JOINT.
THRUST BLOCK TO BE POURED AGAINST UNDISTURBED EARTH.

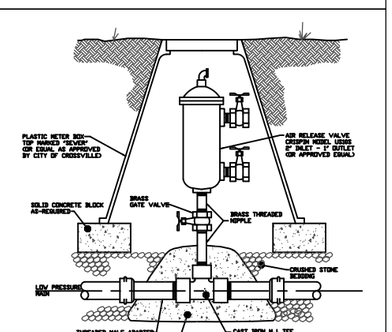



TYPICAL BEDDING DETAIL

NOTE: METALLIC LOCATOR TAPE (SEWER) TO BE INSTALLED IN TRENCH 6" - 8" ABOVE SEWER LINE.




SERVICE CONNECTION TO EXISTING MAIN
NO SCALE




AUTOMATIC AIR RELEASE VALVE
NO SCALE

FAIRFIELD GLADE COMMUNITY CLUB
P.O. BOX 2000 FAIRFIELD GLADE, TENNESSEE 38558

S.R. 101 (PEAVINE ROAD) SEWERLINE RELOCATION

FECS
FIELD'S ENGINEERING CONSULTANT SERVICES, LLC
77 COTHER STREET
CROSSVILLE, TENNESSEE 38555
(931) 456-6071

DETAILS

| TYPE | YEAR | PROJECT NO. | SHEET NO. |
|---|---|---|---|
| CONSTRUCTION | 2014 | STP-101(16) | U7-5 |
| | | | |
| | | | |
| | | | |

CUMBERLAND COUNTY

## DETAILED SPECIFICATIONS

**Scope of Work**
Project consists of the construction of a Sanitary Sewer Collection System Relocation Project to serve the Fairfield Glade Community Club (FGCC). The Relocation Project is being performed to accommodate the relocation and widening of Peavine Road, State Route 101. Field's Engineering Consultant Services, LLC and the Fairfield Glade Community Club will coordinate with utility contractor pertaining to all work performed. The Fairfield Glade Community Club can be contacted at (931) 484-3780 and Field's Engineering Consultant Services, LLC at (931) 456-6071. As detailed on the drawings, the relocation project will begin at Peavine Fire Tower Road and end at the intersection of Lakeview Drive. **The Fairfield Glade Community Club only has Sewer Collection Mains in the St. George Drive area.**

**Easement & Rights-of-Way**
All work will be performed on properties owned by the State of Tennessee. However, Contractor is required to consult with Owner prior to any initiation of work in an area that is not located in the new Rights-of-Way of Peavine Road.

**Rip-Rap**
Where rip-rap (not shown on plans) is ordered by Engineer, it shall be considered as a separate/extra pay item.

**Connecting to Existing Sewer Appurtenances**
Contractor is responsible for properly tapping existing Sanitary Sewer mains to new main where applicable. This appurtenance is the property of the Fairfield Glade Community Club.

Mr. Ken Fore, Fairfield Glade Community Club, Sewer Department Foreman, shall be contacted prior to any work on any existing Sewer appurtenance. Telephone Number: (931) 200-9295.

**Subsurface Conditions**
Engineer and/or Owner assume **NO** responsibility of subsurface conditions. Contractor shall be responsible for determining requirements for dissevering, rock excavation, unstable ground conditions, sheeting/shoring, etc. **NO** item pertaining to Contractor's misjudgment of subsurface conditions will be a separate/extra pay item. Contractor assumes **all** responsibility pertaining to subsurface conditions. **In no way will any unexpected subsurface conditions due to excessive rock, topsoil depth, or any other condition be considered an extra pay item.**

**Safety**
Contractor is solely responsible for complying with all prevailing local, state, and federal safety procedures. All work under this contract shall be done in strict compliance with the Occupational Safety and Health Act (OSHA) of 1970 (PL 91-596) and under Section 107 of the Work Hours and Safety Standards Act (PL 91-54).

Engineer and/or Owner assume **NO** responsibility as to assure that Contractor abides by said safety procedures.

**GENERAL**
The Sanitary Sewer System shall conform to the Rules of Tennessee Dept. of Environment and Conservation, Division of Water Pollution Control, Minimum Design Criteria for Public Sewer Systems.

The Sewer pipe shall be furnished and installed as illustrated in the details and drawings while maintaining not less than thirty six (36) inches of cover. All work is to be performed by an experienced worker. All materials and accessories are to be installed in accordance with the following specifications and by the manufacturer's recommendations.

The **CONTRACTOR** is to use top quality materials and shall practice proper storage, handling, and installation methods. The trench bottoms should be properly graded and bedded to provide proper, continuous support for the pipe except at the bell where holes should be dug to allow for bell.

**LOCATOR WIRE**
Locator wire shall be number twelve (#12) solid bare copper. Wire shall be buried continuously and four inches (4") below Sewer main.

**LOCATOR TAPE**
Locator tape shall be approximately 3-inches wide with "SEWER" or equal repetitively printed on entire length of tape. Tape shall be of a magnetic variety to allow for future locating with pertinent metal detection equipment. Tape shall be buried continuously twelve inches (12") above Sewer main.

**HANDLING OF MATERIALS AND ACCESSORIES**
All materials shall be stored in a location where contamination or physical damage will not be possible. All materials must be delivered and unloaded by proper method as to not damage them in any way.

All equipment required to safely handle pipe and accessories shall be provided at the construction site when pipe laying is in progress. All pipe and joints **must** be properly inspected for defects and cleaned immediately before installation.

**POLYVINYL CHLORIDE PIPE FOR SEWER MAINS**
Pipe for this project shall be of polyvinyl chloride variety colored BLUE. Pipe for the sewer mains shall be a variety of sizes and specifications as shown on the drawings. All pipe shall have push together elastomeric bell and joints designed so that pipe and fittings may be connected without the utilization of solvent cement or special equipment. All pipe shall be furnished in nominal lengths of 20 feet. Every length of pipe shall have size, class, and Manufacturer plainly marked on pipe. All pipe stored on site shall be per Manufacturer's instructions at all times prior to actual installation. **Varying classes of pipe are required for this project. Refer to drawings for exact amount, location, and class of pipe.**

**THRUST BLOCKS AND RESTRAINTS**
Thrust blocks must be 2,500 psi poured in place concrete. The thrust blocks must be installed at all points of unbalanced pressure where pipe could pull apart. Thrust blocks shall conform to the details as shown on drawings.

When downward bends cannot be avoided the fitting shall be held in place by one of the following:

1. Steel rods and clamps which extend for two pipe lengths to each side of bend.
2. Steel rods which are anchored at least eighteen (18) inches in solid rock.
3. Poured concrete under pipe of sufficient volume to counteract unbalanced force with steel clamp anchored to concrete.
4. An approved locked flexible joint extending two (2) pipe lengths on each side.

Rods and bolts used shall be at least one-half (1/2) inch diameter and straps or clamps must be at least one-quarter (1/4) inch thick. All steel restraints shall be coated with coal tar epoxy and concrete shall be Class B.

**VALVE AND VALVE BOX (TOP MARKED "SEWER")**
Valve and valve box details shall be as illustrated on drawings.

The valve box shall be centered over the valve operating nut and installed vertically. Box shall be tall enough to extend to final grade while adjustable upper section is midway between upper and lower limits. Backfill shall be properly tamped around the upper section to prevent future settlement.

Valve box shall have 18" x 18" concrete surround with reinforcing steel as shown in details. All valve boxes in paved streets shall have a 6' x 6' concrete surround with reinforcing steel.

**SEPARATION FROM SEWER LINES**
Sewer and sewer lines must be separated at least ten (10) feet horizontally and eighteen (18) inches vertically from bottom of Sewer main to top of sewer main as per drawings.

When Sewer mains and sewer mains must cross, they must cross in a perpendicular fashion.

**TESTING AND DISINFECTION**

**GENERAL**

Subsequent to the completion of the construction work of the relocation project, all Sewer lines shall be hydrostatically tested. In the case that the pressure or leakage test is unsatisfactory, corrective measures shall be taken and the tests repeated until satisfactory results are obtained.

**LEAKAGE AND PRESSURE TESTS**
Polyvinyl chloride pipe shall be tested in accordance with ISO 2531. Testing for this project shall be performed as follows:

All constructed Sewer lines shall be subjected to a hydrostatic pressure of 150 psi for a period of two (2) hours. Any defective work that is identified during the hydrostatic test shall be replaced and the pressure test repeated.

The quantity of leakage under the aforementioned 200 psi shall not exceed 0.002 gallons per hour for each foot of Sewer line being subjected to the pressure test. Should the quantity of the leakage exceed the aforementioned limit, the Contractor shall locate and repair the defective area until the leakage is within the allowable limits. The CONTRACTOR shall provide all labor, tools, equipment and materials for making the test. The CONTRACTOR shall provide the Fairfield Glade Community Club with a pressure chart that indicates the integrity of the pressure test being within specified allowances.

**SOIL AND EROSION CONTROL**
The General Contractor is responsible for the soil and erosion control for this project. However, utility Contractor is responsible to assure that these measures are in place prior to the initiation of any work. Utility Contractor is also responsible for two (2) weekly inspections of the soil and erosion control measures that affect the Sewerline relocation project. These inspections should be documented in writing and kept on file.

**INTERRUPTION OF SEWER SERVICE**
Utility Contractor shall make all possible efforts to limit Sewer service interruption to two (2) hours. All planned interruptions should be reported to the FCC twenty four hours prior to the Sewer service being interrupted. Contractor is responsible for keeping sewer flowing and preventing any "bypass" events. In the event of a bypass event, Mr. Tim Martin of the FGCC shall be notified immediately.

**BUY AMERICAN CLAUSE**
All material to be utilized on this project shall be manufactured in the United States of America.

**AS-BUILT DRAWINGS**
The CONTRACTOR shall be responsible for preparing a set of "As-Built" drawings for the project. The drawings shall be turned over to the Fairfield Glade Community Club subsequent to the completion of the project.

**NOTE 1:**
**ALL KNOWN UTILITIES WERE FIELD LOCATED BY FAIRFIELD GLADE COMMUNITY CLUB (FGCC). ENGINEER TAKES NO RESPONSIBILITY AS TO THE ACCURACY OF THE LOCATION OR ACTUAL QUANTITIES OF UTILITIES SHOWN.**

**NOTE 2:**
**CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS, LABOR AND EQUIPMENT TO PROPERLY HYDROSTATICALLY TEST THE SEWER LINE INSTALLATION. CONTRACTOR SHALL WORK CLOSELY WITH FAIRFIELD GLADE REPRESENTATIVES PERTAINING TO THE DISINFECTION OF ALL NEW SEWER LINES.**

**FAIRFIELD GLADE COMMUNITY CLUB MAY BE CONTACTED AT 931-484-3780.**

BARRY R. FIELD
REGISTERED ENGINEER
3-17-14
NO. 21868
STATE OF TENNESSEE

FAIRFIELD GLADE COMMUNITY CLUB
P.O. BOX 2000 FAIRFIELD GLADE, TENNESSEE 38558

S.R. 101 (PEAVINE ROAD) SEWERLINE RELOCATION

FECS
FIELD'S ENGINEERING CONSULTANT SERVICES. LLC
77 COTHER STREET
CROSSVILLE, TENNESSEE 38555
(931) 456-6071

DETAILED SPECIFICATIONS