

DESIGN AND CONSTRUCTION STANDARDS FOR SANITARY SEWER:

THE CONTRACTOR SHALL INSTALL ALL SANITARY SEWER IN CONFORMANCE WITH THE BOTETOURT COUNTY WATER AND SEWER CONSTRUCTION STANDARDS AND SPECIFICATIONS, DATED 2007. SPECIFIC INFORMATION LISTED BELOW IS AN EXCERPT FROM THAT DOCUMENT. SPECIFIC SITE INFORMATION IS ADDRESSED WITHIN THIS SECTION.

A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD ON ALL SEWER PROJECTS BY BOTETOURT COUNTY AT LEAST ONE DAY PRIOR TO ANY CONSTRUCTION WORK BEING PERFORMED. THE CONTRACTOR'S SUPERINTENDENT /FOREMAN SHALL ALSO ATTEND THIS MEETING. SEE COVER FOR SPECIFIC INFORMATION AND PAYMENTS THAT MUST OCCUR PRIOR TO REQUESTING A PRE-CONSTRUCTION CONFERENCE.

GENERAL:
 UNDER NO CIRCUMSTANCES SHALL STORMWATER, SURFACE WATER, GROUND WATER, ROOF RUNOFF, SUBSURFACE DRAINAGE, OR UNTREATED INDUSTRIAL PROCESS WATER BE DISCHARGED INTO ANY PUBLIC SANITARY SEWER SYSTEM.

PIPE MATERIALS:
BEDDING: ALL PIPE (PVC AND DUCTILE IRON) SHALL BE BEDDED IM COMPACTED GRANULAR MATERIAL AND COMPACTED GRANULAR BEDDING SHALL COMPLETELY COVER THE PIPE BARREL TO A DEPTH OF 6 INCHES OVER TOP OF PIPE. GRANULAR MATERIAL SHALL BE WELL-GRADED, CRUSHED STONE MEETING VDOT #57 OR #67 STONE.

ALLOWABLE PIPE MATERIAL:
MAIN LINE: POLYVINYL CHLORIDE (PVC) MANUFACTURED WITH ASTM 3034-77 (SDR-35). PIPE SHALL BE UNPLASTICIZED PVC WITH INTEGRAL RUBBER RING WALL BELL AND SPIGOT JOINTS FURNISHED IN 12.5' AND 20' NOMINAL LENGTHS. INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM 2321 AND MANUFACTURER'S RECOMMENDATIONS. PVC SEWER PIPE SHALL BE STORED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS (MFR REC) ON FLAT, EVEN SURFACES AND SHALL REMAIN RACKED ON THE PALLETS AS DELIVERED TO THE SITE UNTIL THE TRENCH IS READY FOR PIPE PLACEMENT. THIS JOB DOES NOT HAVE EXCESSIVE DEPTHS REQUIRING THICKER WALL PIPE SUCH AS SDR-26, SDR-21, OR DR-18. THERE SHALL BE NO CHANGE IN PIPE SIZE OR MATERIAL FROM MANHOLE TO MANHOLE.

SERVICE CONNECTIONS: PVC SEWER PIPE CONFORMING TO ASTM 3034-77 (SDR-35) OR SCHEDULE 40 PVC CONFORMING TO ASTM 1785. SDR-35 JOINTS SHALL BE MADE WITH BONDED-IN-BELL ELASTOMERIC SEAL. SCHEDULE 40 PVC JOINTS SHALL BE MADE WITH A SOLVENT WELD BELL AND SPIGOT JOINT USING PVC PIPE CLEANER AND GLUE AS SUPPLIED BY THE MANUFACTURER. THERE SHALL BE NO BENDS IN SERVICE LINE FROM MAIN TO CLEANOUT, EXCEPT AS SHOWN ON THIS PLAN (I.E. SSCO #9 TO SSCO #8).

CONSTRUCTION:
 ALL CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH PLANS AND SPECS. ALL MATERIALS SHALL BE NEW AND UNUSED. CONTRACTOR SHALL PROVIDE FIELD STAKEOUT INCLUDING ADEQUATE LINE AND GRADE STAKES. ANY DEVIATION IN LOCATION OR LINE GRADE SHALL BE SHOWN IN REVISED DRAWINGS AND SUBMITTED TO THE BOTETOURT COUNTY UTILITY DEPARTMENT FOR REVIEW AND APPROVAL BEFORE THE CHANGES SHALL BE CONSTRUCTED. THE DESIGN ENGINEER OF RECORD MUST CONCUR WITH ANY REVISION.

EXCAVATION SHALL CONFORM TO THE PLANS. THE WIDTH OF EXCAVATION FOR TRENCHES SHALL BE PER BOTETOURT COUNTY DETAIL BC #G-01 AND/OR #G-02, WHILE MEETING THE VIRGINIA OSHA REGULATIONS. COMPLIANCE WITH PROVISIONS OF THE OVERHEAD HIGH VOLTAGE LINE SAFETY ACT IS REQUIRED. THIS SANITARY SEWER LINE IS IN CLOSE PROXIMITY TO OVERHEAD LINES. EXCAVATION SHALL NOT BE CARRIED BELOW THE ESTABLISHED GRADES, OR SHALL BE BACKFILLED WITH SUITABLE, THOROUGHLY COMPACTED GRANULAR BEDDING MATERIAL.

DEWATERING EQUIPMENT SHALL BE SIZED TO MAINTAIN THE TRENCH IN A SATISFACTORY DE-WATERED CONDITION SUITABLE FOR PIPE LAYING AND BACKFILLING. PIPE LAYING WILL BE PERMITTED ONLY WHERE THE DEPTH OF WATER IS MAINTAINED BELOW THE BEDDING MATERIAL. BEDDING MATERIAL SHALL NOT BE PLACED ON UNSUITABLE TRENCH MATERIAL.

NO MORE THAN 150' OF TRENCH SHALL BE OPENED IN ADVANCE OF THE COMPLETED PIPE LAYING. TRENCH WALLS SHALL BE PROTECTED IN ACCORDANCE WITH OSHA REGULATIONS. EXCAVATION AT MANHOLES AND SIMILAR STRUCTURES SHALL PROVIDE A MINIMUM CLEARANCE OF 18" BETWEEN THE OUTER SURFACE OF THE STRUCTURE AND THE EMBANKMENT OR SHEETING.

ROCK EXCAVATION: IF ROCK IS ENCOUNTERED, THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER. GENERAL CONFORMANCE TO BOTETOURT COUNTY SECTION 202.02 SHALL APPLY. PRIOR TO ANY BLASTING, AN ALTERNATIVE METHOD OF DIRECTION AND GRADE SHALL BE EVALUATED. IF UNSUITABLE MATERIALS ARE ENCOUNTERED, THE CONTRACTOR SHALL CONTACT THE GEOTECHNICAL ENGINEER OF RECORD TO DETERMINE THE LIMITS OF UNSUITABILITY. AFTER THE DETERMINATION, THE MATERIAL SHALL BE EXCAVATED UNTIL A STABLE FOUNDATION IS ACHIEVED. GRANULAR MATERIAL, VDOT 21-A SHALL BE PLACED IN 6-INCH LIFTS AND COMPACTED UNTIL THE TRENCH BOTTOM HAS BEEN STABILIZED. STANDARD GRANULAR PIPE BEDDING MATERIAL SHALL THEN BE PLACED AS PREVIOUSLY SPECIFIED.

ALL MATERIAL EXCAVATED, AND NOT USED AS BACKFILL, SHALL BE MOVED TO THE SITE AND USED IN FILL AREAS, IF MATERIAL IS ACCEPTABLE.

BACKFILL: IN AREAS WHERE THE SANITARY SEWER MAIN / LATERAL IS IN GRASSED AREAS AT THE COMPLETION OF THE PROJECT, BACKFILL SHALL BE PLACED IN 6-INCH LIFTS AND COMPACTED TO 95% STANDARD PROCTOR, UNTIL THE MATERIAL HAS REACHED AN ELEVATION OF 1' FROM EXISTING GRADE. THE CONTRACTOR SHALL THEN BACKFILL THE REMAINING 1' AND COMPACT TO 90% STANDARD PROCTOR. THIS IS A MORE STRINGENT REQUIREMENT THAN THE BOTETOURT COUNTY STANDARD. THE MORE STRINGENT REQUIREMENT IS TO INSURE NO SETTLING ON PROPERTIES NOT OWNED BY THE DEVELOPER, AND BECAUSE GRASSED AREAS ARE STILL WITHIN HIGH TRAFFIC AREAS OR STEEP SLOPES. BOTETOURT COUNTY MAY REQUIRE COMPACTION TEST PER SECTION 203.03. ALL OTHER BACKFILL REQUIREMENTS OF SECTION 203.03 APPLY. IN AREAS WHERE THE SANITARY SEWER MAIN / LATERAL IS UNDER PAVED AREAS AT THE COMPLETION OF THE PROJECT, THE BACKFILL SHALL BE COMPACTED TO 95% COMPACTION TO THE SUBGRADE ELEVATION.

PIPE INSTALLATION: ALL SANITARY SEWER MAINS AND LATERALS SHALL HAVE A MINIMUM OF 3' COVER AS MEASURED FROM THE TOP OF PIPE TO FINISHED GRADE. ALL PIPE AND FITTINGS SHALL BE CAREFULLY HANDLED WITH NON-METALLIC SLINGS OR OTHER APPROVED DEVICES TO PREVENT DAMAGE TO PROTECTIVE COATINGS OR JOINTS. EACH SECTION OF PIPE SHALL BE THOROUGHLY INSPECTED FOR DEFECTS BEFORE BEING LOWERED INTO THE TRENCH. SEE SECTION 203.04 FOR SPECIFIC DETAILS.

SERVICE CONNECTIONS: SEE SECTION 203.05 FOR SPECIFIC INSTRUCTIONS. THIS PROJECT REQUIRES A SAMPLING MANHOLE. A CLEANOUT SHALL BE PLACED AT THE PROPERTY LINE, DUE TO GRADE BREAK. THE SAMPLING MANHOLE SHALL BE INSTALLED BETWEEN THE PROPERTY LINE CLEANOUT AND THE MANHOLE AS SHOWN FOR NO VERTICAL OR HORIZONTAL BREAKS AT THE SAMPLING MANHOLE. THE SAMPLING MANHOLE SHALL BE CONSTRUCTED FOR TRAFFIC LOAD SITUATIONS.

THIS PROJECT REQUIRES THE INSTALLATION OF AN OILWATER SEPARATOR. THE DESIGN OF THE OILWATER SEPARATOR IS BASED ON ASSUMPTIONS. THE CONTRACTOR SHALL VERIFY THE ASSUMPTIONS WITH THE ARCHITECT PRIOR TO INSTALLATION. SECTION 203.05 APPLIES TO THIS ITEM.

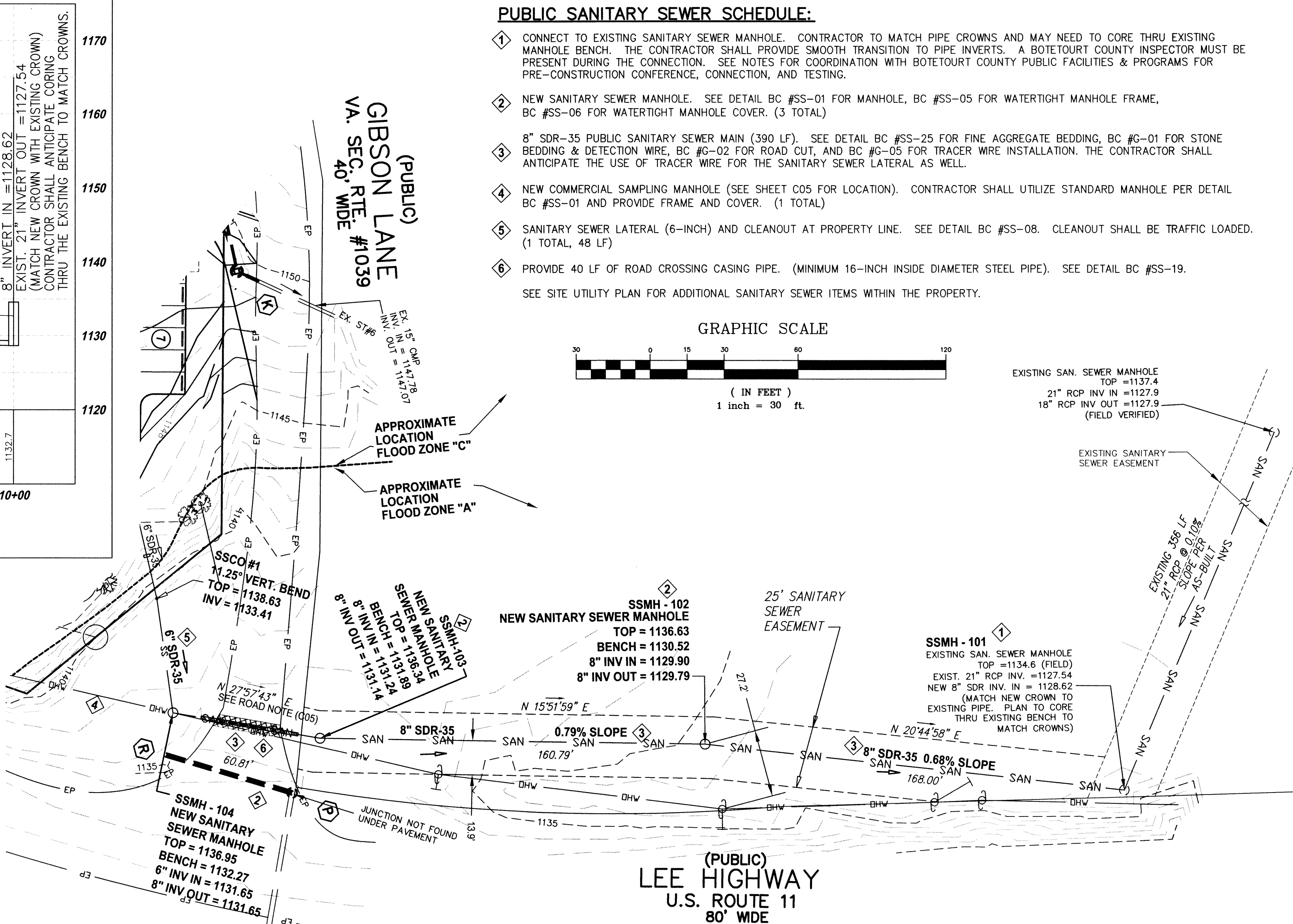
REFER TO SECTION 203.06 FOR SPECIFICS OF MANHOLES. DETAIL BC #SS-01 ALSO APPLIES TO MANHOLES. THE CONTRACTOR SHALL NOTE THAT SHOP DRAWINGS OF SANITARY SEWER STRUCTURES ARE REQUIRED FOR REVIEW AND APPROVAL BY BOTETOURT COUNTY, PRIOR TO A PRE-CONSTRUCTION CONFERENCE.

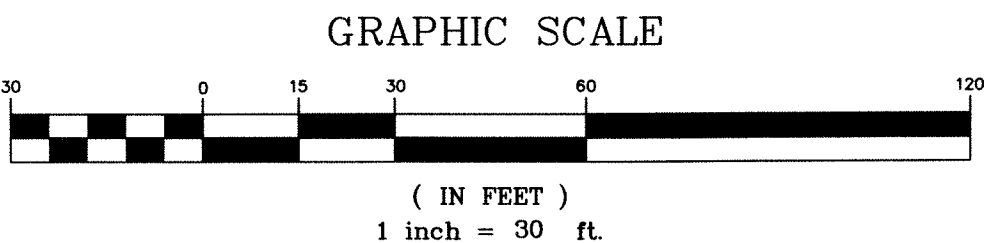
THE CONTRACTOR SHALL REVIEW SECTION 203.07 FOR PIPE CONNECTIONS TO MANHOLES..

THE CONTRACTOR SHALL REVIEW SECTION 203.08 FOR ACCEPTANCE TESTING. PLEASE NOTE THAT COORDINATION OF THE TESTING WITH BOTETOURT COUNTY IS CRITICAL TO INSURE THAT THE INSPECTOR IS AVAILABLE AT TIME OF TESTING.

IN ACCORDANCE WITH SECTION 204.00, PRIOR TO BOTETOURT COUNTY ACCEPTANCE OF A SEWER SYSTEM, THE FOLLOWING ITEMS MUST BE SUBMITTED (NOT ALL ITEMS ARE CONTRACTOR ITEMS):

1. DOCUMENTATION OF THE FOLLOWING TEST RESULTS: A) MANHOLE VACUUM TEST; B) SEWER LINE AIR TEST; C)SEWER LINE MANDREL.
2. RECORD DRAWINGS (AS-BUILTS) IN REPRODUCIBLE FORMAT INCLUDING: A) ONE (1) COMPLETE REPRODUCIBLE SET; B) ONE (1) DIGITAL COPY (AUTOCAD).
3. DEED CONVEYING THE SYSTEM FROM THE OWNER/DEVELOPER TO BOTETOURT COUNTY.
4. PLAT SHOWING ALL EASEMENTS.
5. SUBMITTAL OF A ONE-YEAR WARRANTY CONTRACT FROM THE DATE OF ACCEPTANCE.

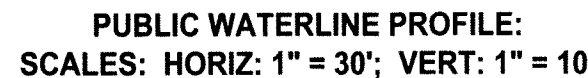




THE CONTRACTOR SHALL CONTACT THE SALEM RESIDENCY OFFICE (387-5488) AND MEET ON SITE TO DISCUSS IMPROVEMENTS TO AN EXISTING GRATE INLET AT THE INTERSECTION OF UPDIKE LANE AND ROUTE 11.

THE PROPOSED CONCRETE FLUME SHALL BE INSTALLED ADJACENT TO AN EXISTING CONCRETE HEADWALL THAT IS PRESENT AT THE SITE.

GRASSED AREAS ADJACENT TO THE PROPOSED FLUME SHALL BE PRESERVED OR RE-ESTABLISHED AT THE COMPLETION OF THE INSTALLATION.



INSTALLATION:
ALL INSTALLATION SHALL BE IN ACCORDANCE WITH CHAPTER 3 OF BOTETOURT COUNTY WATER AND SEWER CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND TESTED IN ACCORDANCE WITH THAT CHAPTER.
REFER TO SPECIFIC SITE DETAILS THAT APPLY ON "BOTETOURT COUNTY WATER DETAILS"

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**Comprehensive Site Plan for Stafford.
Reconstruction of Reliable Tractor
Situate on Gibson Lane (VA Sec. Rte. 1039)**

Added Offsite Storm Construction
PJB 11-05-07
Submit As Built DWG to County
PJB 6-1-2009

DATE: August 1, 2007.

Offsite Water Plan & Profile

C11
11 OF 14
PROJECT NUMBER:
06-0384-03