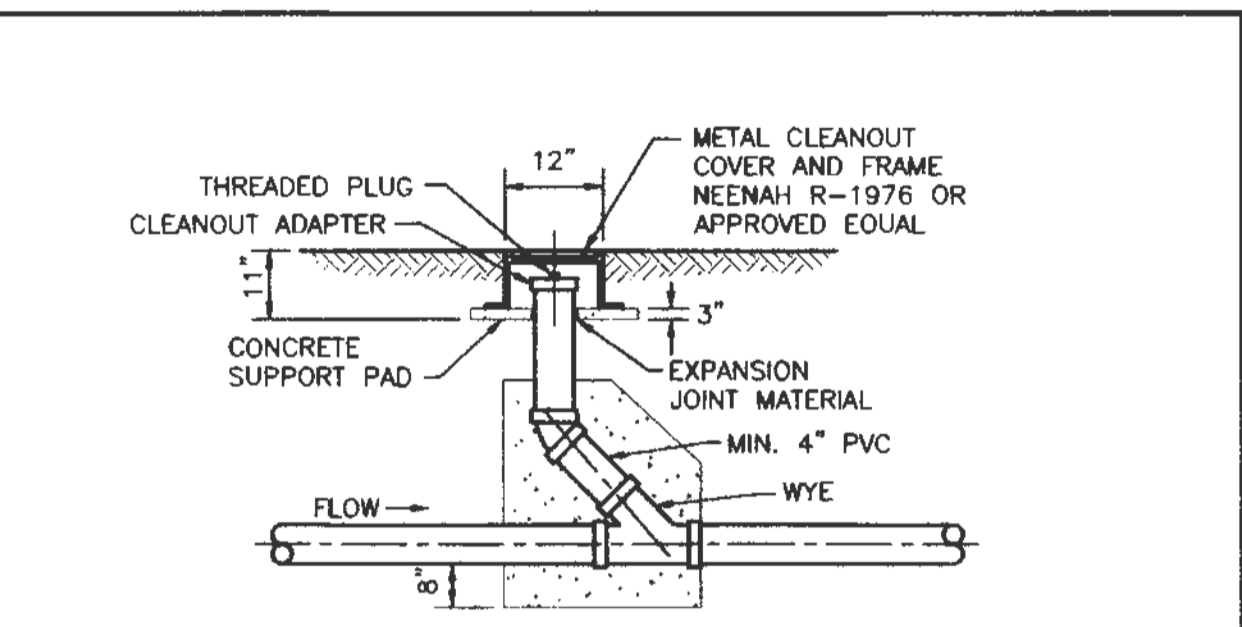


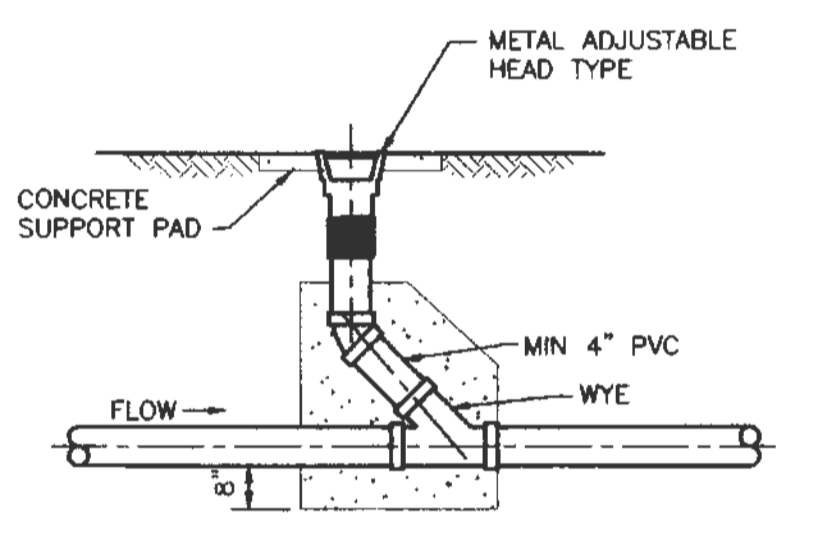
- NOTES:**
1. GROUDED RIP-RAP IS REQUIRED AT ALL CREEK CROSSINGS WHERE THE EMBANKMENTS CROSSED ARE STEEPER THAN 1 VERTICAL TO 2 HORIZONTAL RATIO SLOPE; AND ALSO WHERE THERE IS 3 FEET OR LESS COVER OVER THE TOP OF THE SEWER MAIN.
 2. PLACE RIP-RAP ON LOWER 3/4 OF SLOPE. GRADE UPPER 1/4 OF SLOPE AT 1 VERTICAL TO 2 HORIZONTAL SLOPE FOR SOD OR 1 VERTICAL TO 2.5 HORIZONTAL SLOPE FOR SEED AND STRAW.
 3. RIP-RAP TO BE "MSD 5" CRADATION, MINIMUM 12" THICK, GROUDED WITH 8 SACK MIX, SAND-CEMENT SLURRY, BROOM FINISH.
 4. INCORPORATE A 3 FEET DEEP TOE WALL ON EMBANKMENT'S UPPER EDGE OF RIP-RAP.
 5. TOP SURFACE OF RIP-RAP SHOULD NOT BE HIGHER THAN ADJACENT GROUND SURFACE.
 6. IF PIPE HAS LESS THAN 12" COVER, A PAVED CHANNEL MAY BE REQUIRED.
 7. DUCTILE IRON PIPE IS REQUIRED WITHIN THE CREEK LIMITS.

Duckett Creek Sanitary District

TYPICAL CREEK CROSSING	Des. By: BSM	App. By: KLA	Detail No. 24
	Chd. By: MDOB	Date: 1-8-01	



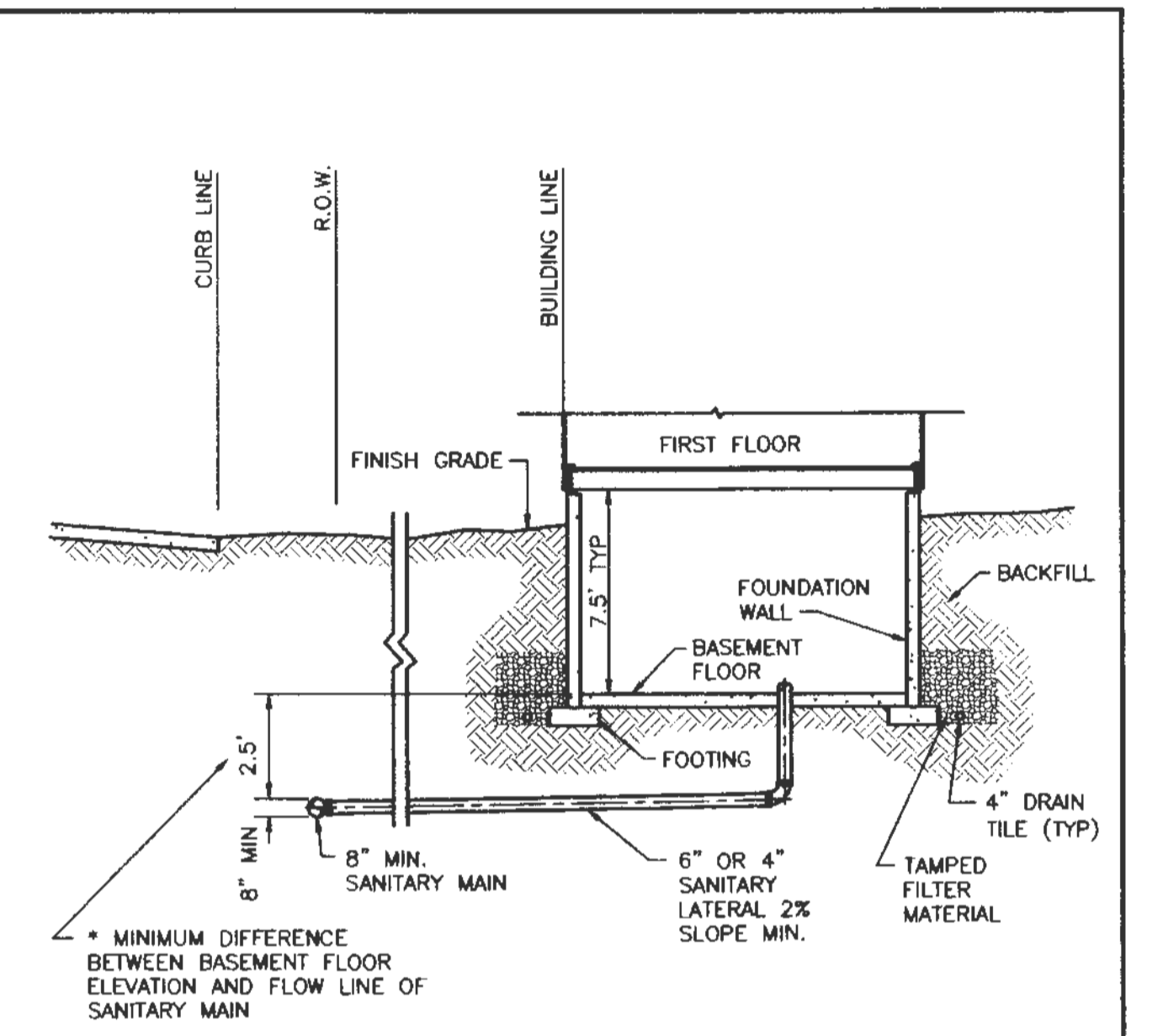
METAL FRAME AND COVER TYPE CLEANOUT



ADJUSTABLE HEAD TYPE CLEANOUT

Duckett Creek Sanitary District

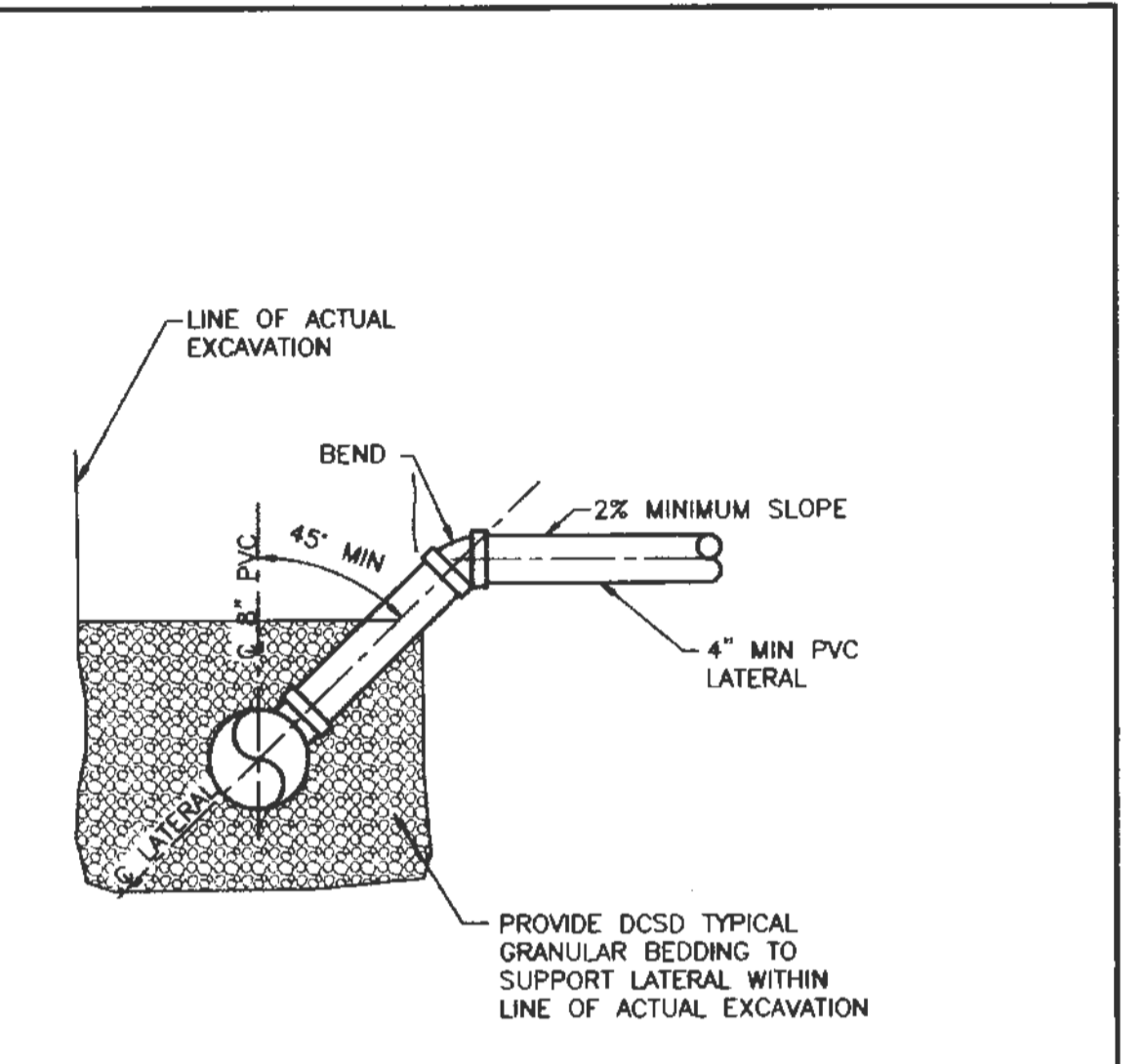
TYPICAL SEWER LATERAL CLEANOUT DETAILS	Des. By: BSM	App. By: KLA	Detail No. 25
	Chd. By: MDOB	Date: 1-8-01	



* NOTE: DIFFERENCE IN DEPTH INCREASES WITH PIPE SIZE

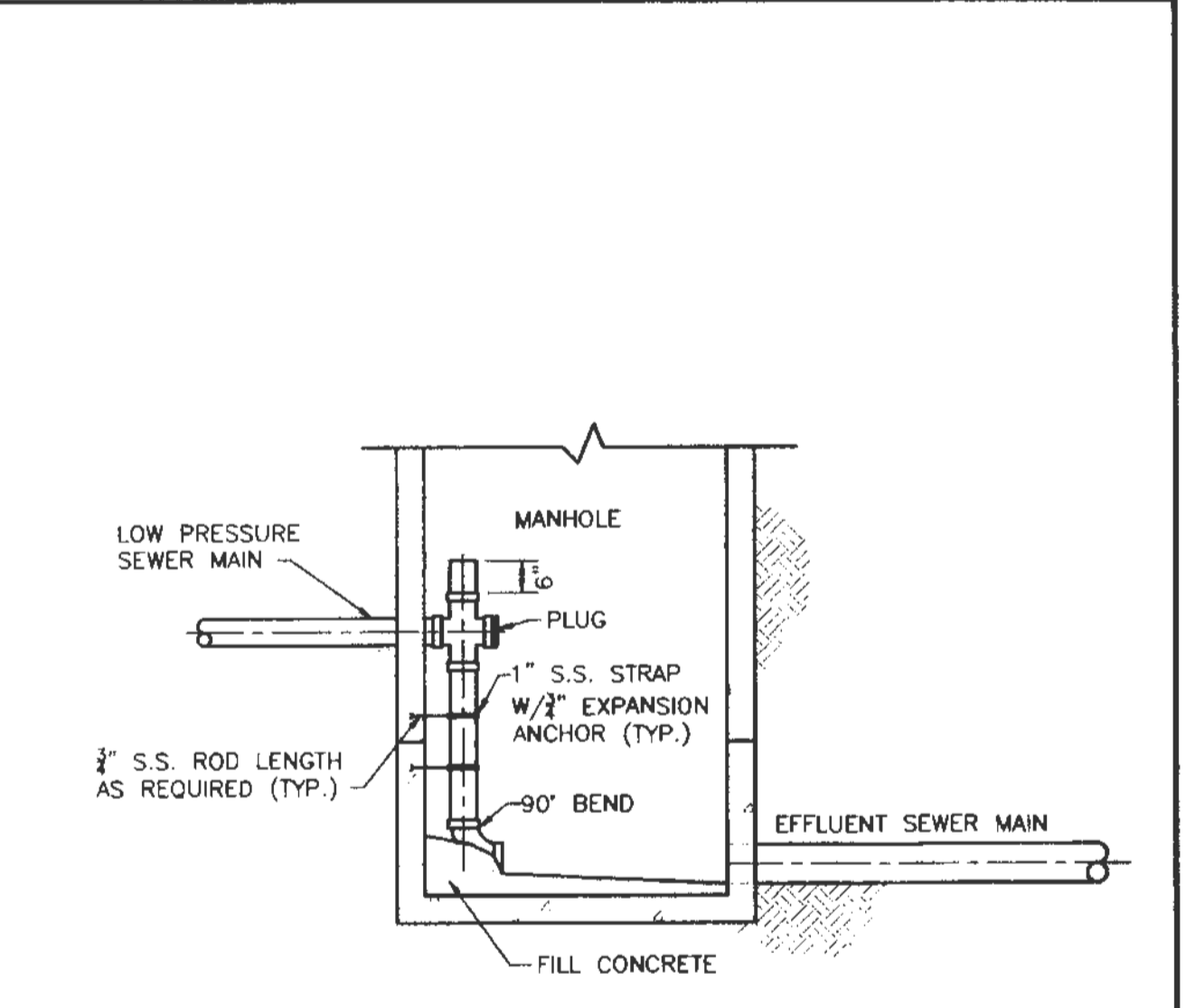
Duckett Creek Sanitary District

TYPICAL SANITARY SEWER LATERAL PROFILE	Des. By: BSM	App. By: KLA	Detail No. 26
	Chd. By: MDOB	Date: 1-9-01	



Duckett Creek Sanitary District

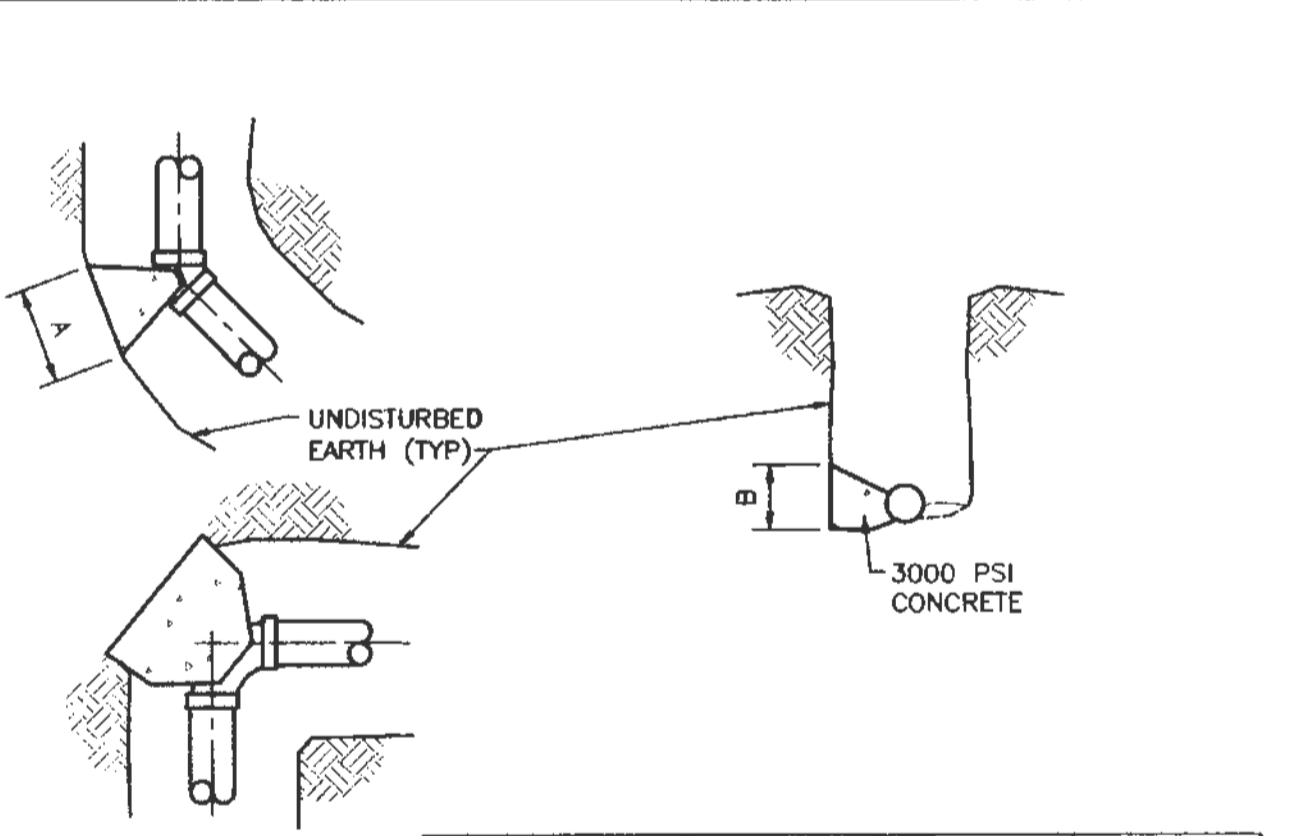
SANITARY SEWER LATERAL RISER DETAIL	Des. By: BSM	App. By: KLA	Detail No. 27
	Chd. By: MDOB	Date: 1-9-01	



NOTE: INVERT-BOTTOM SHALL BE WORKED TO PROVIDE POSITIVE DRAINAGE THROUGH MANHOLE

Duckett Creek Sanitary District

LOW PRESSURE SEWER MAIN CONNECTION AT MANHOLE	Des. By: BSM	App. By: KLA	Detail No. 28
	Chd. By: MDOB	Date: 1-9-01	



MAIN SIZE	A x B	A x B	A x B	A x B
2"	.5' x 1'	.5' x 1'	1' x 1'	1' x 1'
4"	1' x 1'	1' x 1'	1.5' x 1'	1' x 1'
6"	1' x 1'	1.5' x 1'	2' x 1'	1.5' x 1'
8"	1' x 1'	2' x 1'	2' x 1'	2' x 1'

Duckett Creek Sanitary District

THRUST BLOCK DETAIL AND SIZE SCHEDULE	Des. By: BSM	App. By: KLA	Detail No. 29
	Chd. By: MDOB	Date: 1-9-01	

DUCKETT CREEK SANITARY DISTRICT CONSTRUCTION NOTES

1. Underground utilities have been plotted from available information and therefore location shall be considered approximate only. The verification of the location of all underground utilities, either shown or not shown on these plans, shall be the responsibility of the contractor and shall be located prior to any grading or construction of improvements.
2. Gas, water and other underground utilities shall not conflict with the depth or horizontal location of existing or proposed sanitary and storm sewers, including house laterals.
3. All existing site improvements disturbed, damaged or destroyed shall be repaired or replaced to closely match preconstruction conditions.
4. All fill including places under proposed storm and sanitary sewer lines and paved areas including trench backfills within and off the road right-of-way shall be compacted to 90 percent of maximum density as determined by the Modified AASHTO 1-180 Compaction Test (ASTM D1557). All tests shall be verified by a Soils Engineer concurrent with grading and backfilling operations. The compacted fill shall be free of rutting and shall be non-yielding and non-pumping during proofrolling and compaction.
5. The contractor shall prevent all storm, surface water, mud and construction debris from entering the existing sanitary sewer system.
6. All sanitary sewer flowlines and tops built without elevations furnished by the engineer will be the responsibility of the sewer contractor.
7. It is the responsibility of the contractor to adjust all sanitary sewer manholes (that are affected by the development) to finish grade.
8. Easements shall be provided for all sanitary sewers, storm sewers and all utilities on the record plat.
9. All sanitary sewer construction and materials shall conform to the current construction standards of the Duckett Creek Sanitary District.
10. The Duckett Creek Sanitary District shall be notified at least 48 hours prior to construction for coordination of inspection.
11. All sanitary sewer building connections shall be designed so that the minimum vertical distance from the low point of the basement to the flowline of a sanitary sewer at the corresponding building connection shall not be less than the diameter of the pipe plus the vertical distance of 2% feet.
12. All sanitary sewer manholes shall be waterproofed on the exterior in accordance with Missouri Dept. of Natural Resources specification 10 CSR-8.12(7)(E).

13. All PVC sanitary sewer pipe shall conform to the requirements of ASTM D-3034 Standard Specification for PSM (Polyvinyl Chloride Sewer Pipe, SDR-35 or equal, with "clean" 1/2 inch to 1 inch granular stone bedding uniformly graded. This bedding shall extend from 4 inches below the pipe to springline of pipe. Immediate backfill over pipe shall consist of same size "clean" or "minus" stone from springline of pipe to 6 inches above the top of pipe.
14. All sanitary and storm sewer trench backfills shall be water jettted. Granular backfill will be used under pavement areas.
15. All pipes shall have positive drainage through manholes. Flat invert structures not allowed.
16. Epoxy Coating shall be used on all sanitary sewer manholes that receive pressurized mains.
17. All creek crossings shall be lined with rip-rap as directed by District inspectors.
18. Brick shall not be used on sanitary sewer manholes.
19. Existing sanitary sewer service shall not be interrupted.
20. Maintain access to existing residential driveways and streets.
21. Pre-manufactured adapters shall be used at all PVC to DIP connections. Rubber boot / Mission-type couplings will not be allowed.
22. Any permits, licenses, easements, or approvals required to work on public or private properties or roadways are the responsibility of the developer.
23. "Type N" Lock-Type Cover and Locking Device (Lock-Lug) shall be used where lock-type covers are required.
24. All sanitary sewer system work shall be conducted under the inspection of a representative of the District. All work may not require inspection but the District's representative may designate specific areas that must be inspected before the work is backfilled. All testing must be witnessed by the District's inspector and the Contractor shall furnish all testing equipment as approved by the District. Testing shall include:
 - A mandrel test of all gravity sewers using a mandrel with a diameter that has a diameter 95% of the inside pipe diameter. If the mandrel test fails on any section of pipe, that section of pipe shall be uncovered and replaced. No expansion devices will be allowed to be used to "force" the pipe that is deformed back into round. Any string lines used in mandrel testing shall be removed after testing is completed.
 - An air pressure test of all gravity sewers to a pressure of 5 PSI with no observed drop in pressure during a test period of 5 minutes.
 - A vacuum test of all manholes for a period of 1 minute and the vacuum shall be 10" of mercury and may not drop below 9" of mercury at the end of the 1 minute test.

Revised August 2012

PROJECT TITLE
MUIRFIELD MANOR
PRS No. 13033.MCHO.00R

PICKETT, RAY & SILVER INC
CIVIL ENGINEERING, LAND SURVEYING,
AND NATURAL RESOURCES SERVICES
St. Peters
2215 S. Highway 101
St. Peters, MO 65250
Phone (636) 397-1121 Fax (636) 397-1104
www.prs3.com 1-800-708-3918

ENGINEERS AUTHENTICATION
THE RESPONSIBILITY FOR PROFESSIONAL ENGINEERING LIABILITY FOR THIS PROJECT IS HEREBY LIMITED TO THE SET OF PLANS AUTHENTICATED BY THE SEAL, SIGNATURE, AND DATE MEMBER ATTACHED. IT IS THE RESPONSIBILITY OF THE ENGINEER TO VERIFY THE ACCURACY OF ALL OTHER ENGINEERING PLANS DRAWN BY THIS FIRM AND IMMEDIATELY INCLUDE REVISIONS AFTER THIS DATE UNLESS REAUTHORIZED.

PICKETT, RAY & SILVER, INC
NO LICENSE #000328
Signature
1/24/16
DOUGLAS S. TIDMAN
PROFESSIONAL ENGINEER LICENSE E-23345

Developer / Owner Information
MCKELVEY HOMES
218 Chesterfield Towne Centre
Chesterfield, Missouri 63005
Phone: 636-530-6900

MCKELVEY HOMES
Building a Better Tomorrow
CITY OF OFALLON - Duckett Creek Sanitary District Details

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