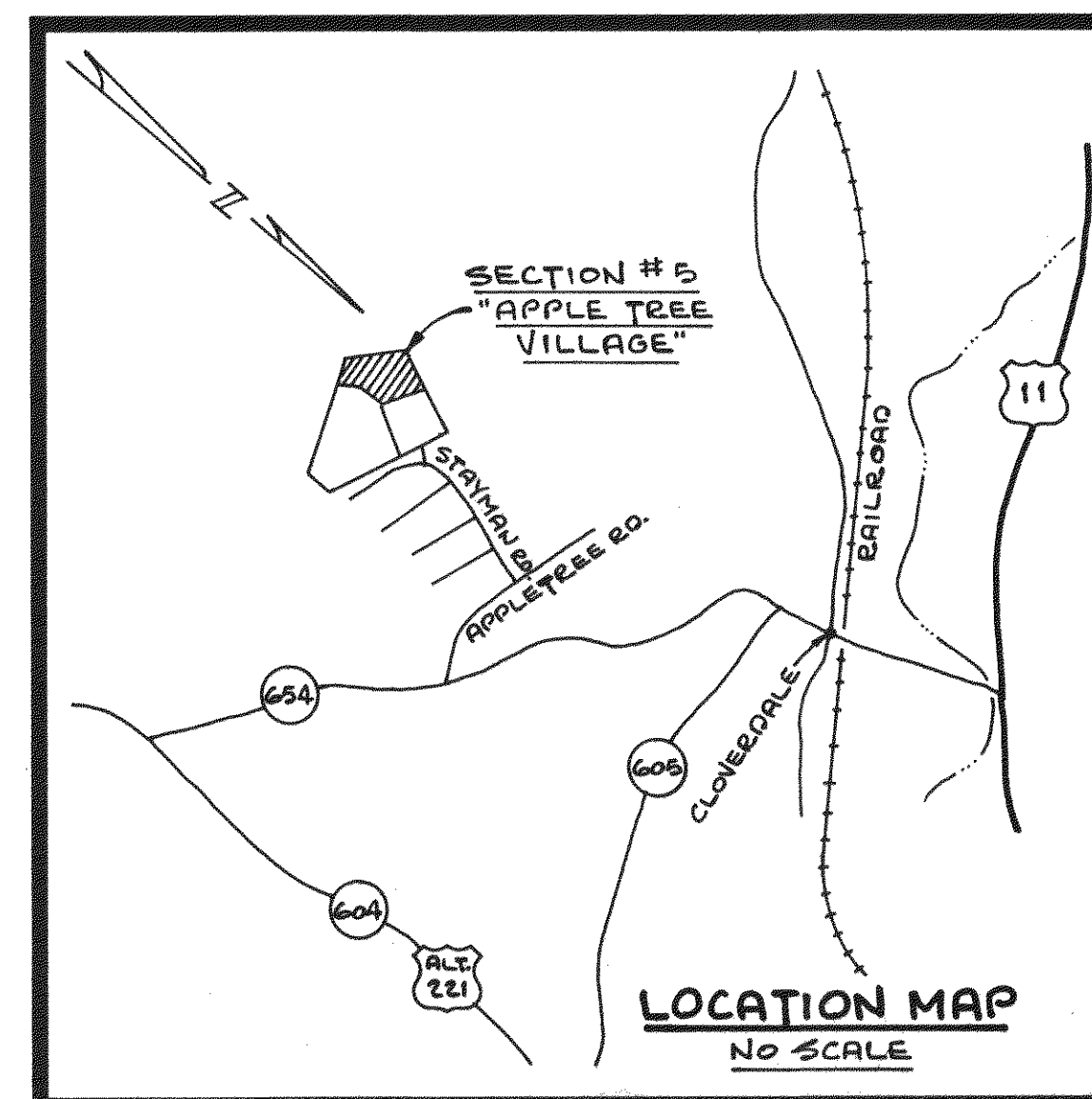


DEVELOPMENT PLANS
FOR
SECTION No. 5
"APPLE TREE VILLAGE"

SITUATED IN
Botetourt County, Virginia

DATE: 8 MARCH 1991

PROPERTY OF
FRUITWOOD DEVELOPERS INCORPORATED



APPROVED:

BOTETOURT COUNTY

DATE

RESIDENT ENGINEER, VIRGINIA DEPARTMENT
OF TRANSPORTATION

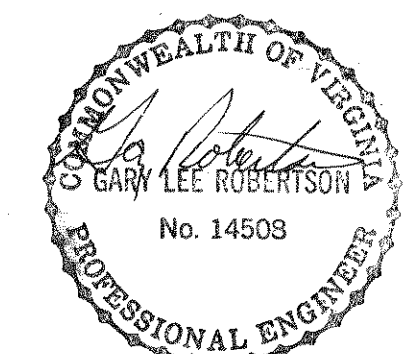
DATE

INDEX OF DRAWINGS

SHEET No. DESCRIPTION

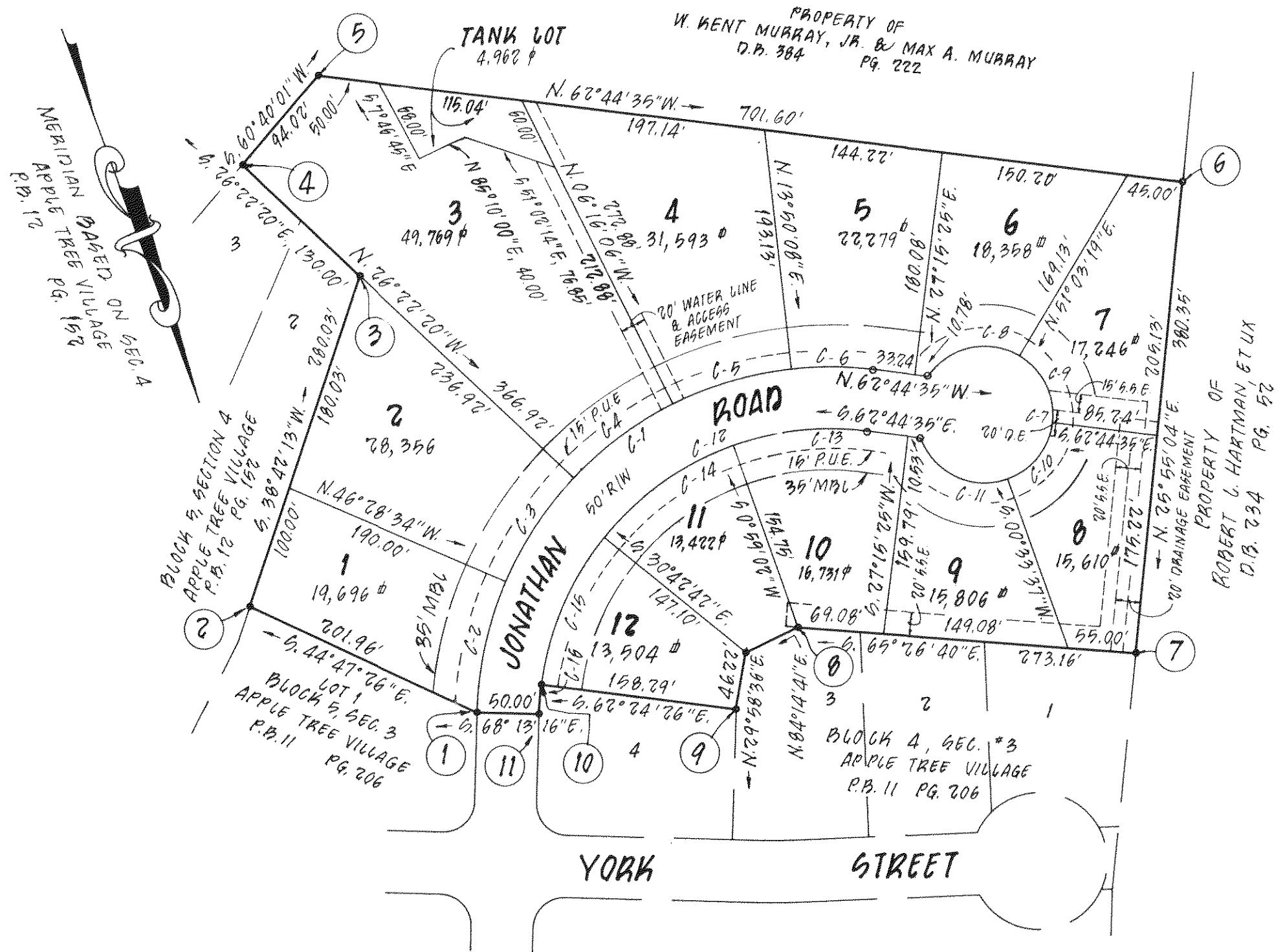
1. LUMSDEN ASSOCIATES COVER SHEET
2. RECORD PLAT
3. NOTES & DETAIL SHEET
4. CONSTRUCTION SPECIFICATIONS
5. PLAN & PROFILE
6. PLAN & PROFILE
7. EROSION CONTROL & DRAINAGE DIVIDES

LUMSDEN ASSOCIATES, P.C.
ENGINEERS-SURVEYORS-PLANNERS
ROANOKE, VIRGINIA



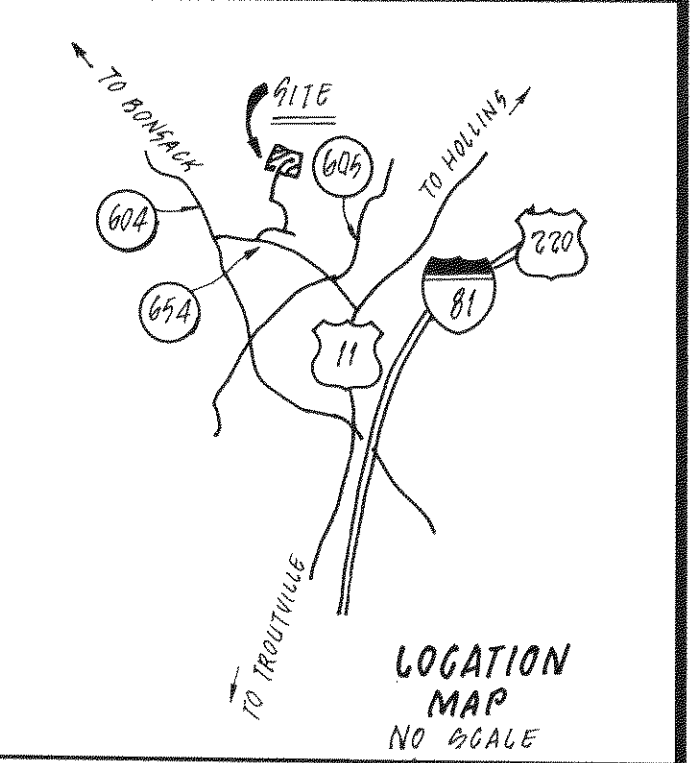
REVISED 4/26/91

COMM.# 907-H



CURVE DATA						
CURVE	ANGLE	RADIUS	ARC	CHORD	TANGENT	CH. BEARING
C-1	95°28'42"	285.00'	474.93'	421.85'	313.64'	S69°31'04"W
C-2	21°44'43"	285.00'	108.17'	107.52'	54.74'	N32°39'05"E
C-3	20°06'14"	285.00'	100.00'	99.49'	50.52'	N53°34'33"E
C-4	20°06'14"	285.00'	100.00'	99.49'	50.52'	N73°40'47"E
C-5	20°06'14"	285.00'	100.00'	99.49'	50.52'	S86°12'59"E
C-6	13°25'17"	285.00'	66.76'	66.61'	33.53'	S69°27'14"E
C-7	305°55'43"	55.00'	293.67'	50.00'		N27°15'25"E
C-8	86°45'45"	55.00'	83.29'	75.55'	51.98'	S82°19'34"E
C-9	66°12'06"	55.00'	63.55'	60.07'	35.86'	S05°50'38"E
C-10	63°18'12"	55.00'	60.77'	57.72'	33.91'	S58°54'31"W
C-11	89°39'40"	55.00'	86.07'	77.55'	54.68'	N44°36'33"W
C-12	95°28'42"	235.00'	391.61'	347.84'	258.62'	N69°31'04"E
C-13	16°16'37"	235.00'	66.76'	66.54'	33.61'	N70°52'53"W
C-14	41°41'31"	235.00'	171.00'	167.25'	89.48'	S80°08'03"W
C-15	31°41'44"	235.00'	130.00'	128.35'	66.71'	S43°26'26"W
C-16	5°48'51"	235.00'	23.85'	32.84'	11.93'	N24°41'09"E

NOTE:
1. ALL LOTS TO HAVE PRESSURE REDUCING VALVES
INSTALLED BY BUILDER.



BOTETOURT COUNTY SUBDIVISION AGENT _____ DATE _____

IN THE CLERK'S OFFICE OF THE CIRCUIT COURT
OF BOTETOURT COUNTY, VIRGINIA, THIS PLAT WITH
THE CERTIFICATE OF ACKNOWLEDGEMENT THERETO
ANNEXED IS ADMITTED TO RECORD ON _____,
1989, AT _____ O'CLOCK _____ M.

TESTEE: _____, CLERK
DEPUTY CLERK _____

KNOW ALL MEN BY THESE PRESENTS, TO WIT:

THAT FRUITWOOD DEVELOPERS, INCORPORATED, IS THE FEE SIMPLE OWNER AND PROPRIETOR OF THE LAND SHOWN
HEREON TO BE SUBDIVIDED, KNOWN AS SECTION #4, "APPLE TREE VILLAGE" SUBDIVISION, BOUNDED AS SHOWN HEREON
IN DETAIL BY OUTSIDE CORNERS 1 THROUGH 11 TO 1, INCLUSIVE, WHICH COMPRISES A PORTION OF THE LAND CONVEYED
TO SAID OWNER BY DEED FROM LUCILLE BROWN LAKES DATED FEBRUARY 19, 1985, RECORDED IN THE CLERK'S OFFICE
OF THE CIRCUIT COURT OF BOTETOURT COUNTY IN DEED BOOK 301, PAGE 725, WHICH LAND IS SUBJECT TO TWO (2) DEEDS
OF TRUST; ONE TO CLAUDE D. CARTER AND WILLIAM R. RAKES, TRUSTEES, SECURING COLONIAL AMERICAN NATIONAL BANK,
DATED DECEMBER 16, 1983, RECORDED IN DEED BOOK 290, PAGE 407, THE SECOND DEED OF TRUST TO CLAUDE D. CARTER,
TRUSTEE, SECURING COLONIAL AMERICAN NATIONAL BANK, BY DEED DATED FEBRUARY 27, 1985, RECORDED IN DEED BOOK
301, PAGE 760.

THE SAID OWNER CERTIFIES THAT IT HAS SUBDIVIDED THIS LAND, AS SHOWN THEREON, ENTIRELY WITH ITS OWN FREE
WILL AND CONSENT AND PURSUANT TO AND IN COMPLIANCE WITH SECTIONS 15.1-465 THRU 1511-485 OF THE VIRGINIA CODE
OF 1950, AS AMENDED TO DATE, AND FURTHER PURSUANT TO AND IN COMPLIANCE WITH THE COUNTY OF ROANOKE "LAND SUB-
DIVISION ORDINANCES". THE SAID OWNER DOES, BY VIRTUE OF THE RECORDATION OF THIS PLAT, DEDICATE IN FEE SIMPLE
TO THE COUNTY OF BOTETOURT ALL THE LAND EMBRACED WITHIN THE STREETS OF THIS SUBDIVISION AND ALL THE EASEMENTS
ARE HEREBY DEDICATED FOR PUBLIC USE.

THE SAID OWNER DOES AS A CONDITION PRECEDENT TO THE APPROVAL OF THE PLAT AND SUBDIVISION AND THE ACCEP-
TANCE OF THE DEDICATION OF THE STREETS SHOWN HEREON BY THE BOARD OF SUPERVISORS AND BOTETOURT COUNTY, ON ITS
OWN BEHALF AND FOR AND ON ACCOUNT OF ITS HEIRS, SUCCESSORS, DEVISEES AND ASSIGNS, SPECIFICALLY RELEASES THE
COUNTY AND THE VIRGINIA DEPARTMENT OF TRANSPORTATION FROM ANY AND ALL CLAIM OR CLAIMS FOR DAMAGES WHICH SUCH
OWNERS, ITS HEIRS, SUCCESSORS, DEVISEES AND ASSIGNS MAY OR MIGHT HAVE AGAINST THE COUNTY AND THE VIRGINIA DE-
PARTMENT OF TRANSPORTATION BY REASON OF ESTABLISHING PROPER GRADE LINES ON AND ALONG SUCH STREETS AS SHOWN ON
THIS PLAT OF THE LAND SUBDIVIDED (OR SUCH CHANGED STREETS AS MAY BE AGREED UPON IN THE FUTURE) AND BY REASON
OF DOING NECESSARY GRADING, CUTTING OR FILLING FOR THE PURPOSE OF PLACING SUCH STREETS UPON THE PROPER GRADE
AS MAY, FROM TIME TO TIME, BE ESTABLISHED BY SAID COUNTY OR VIRGINIA DEPARTMENT OF TRANSPORTATION, AND SAID
COUNTY OR VIRGINIA DEPARTMENT OF TRANSPORTATION SHALL NOT BE REQUIRED TO CONSTRUCT AND RETAINING WALL OR WALLS
ALONG THE STREET AND PROPERTY LINES THEREOF.

IN WITNESS WHEREOF ARE HEREBY PLACED THE FOLLOWING SIGNATURES AND SEAL THIS _____ DAY OF _____,
1989.

FRUITWOOD DEVELOPERS, INCORPORATED

BY: _____ BY: _____ BY: _____
W. DAVID HALE, PRESIDENT COLONIAL AMERICAN NATIONAL BANK CLAUDE D. CARTER, TRUSTEE

STATE OF VIRGINIA
OF _____

I, _____, A NOTARY PUBLIC IN AND FOR THE AFORESAID _____ AND STATE DO
HEREBY CERTIFY THAT CLAUDE D. CARTER, TRUSTEE, HAS PERSONALLY APPEARED BEFORE ME IN MY JURISDICTION AND
ACKNOWLEDGED THE SAME ON _____, 1988.

MY COMMISSION EXPIRES ON _____

STATE OF VIRGINIA
OF _____

I, _____, A NOTARY PUBLIC IN AND FOR THE AFORESAID _____ AND
STATE DO HEREBY CERTIFY THAT W. DAVID HALE, PRESIDENT OF FRUITWOOD DEVELOPERS, INCORPORATED,
HAS PERSONALLY APPEARED BEFORE ME IN MY JURISDICTION AND ACKNOWLEDGED THE SAME ON _____,
1989.

MY COMMISSION EXPIRES ON _____

NOTARY PUBLIC

STATE OF VIRGINIA
OF _____

I, _____, A NOTARY PUBLIC IN AND FOR THE AFORESAID _____ AND
STATE DO HEREBY CERTIFY THAT _____, WITH COLONIAL AMERICAN NATIONAL BANK, HAS
PERSONALLY APPEARED BEFORE ME IN MY JURISDICTION AND ACKNOWLEDGED THE SAME ON _____,
1989.

MY COMMISSION EXPIRES ON _____

NOTARY PUBLIC

PLAT OF
SECTION No. 5

"APPLE TREE VILLAGE"

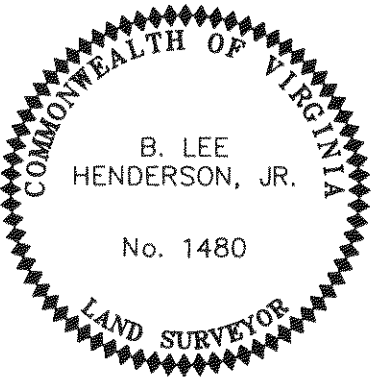
AMSTERDAM MAGISTERIAL DISTRICT
BOTETOURT COUNTY, VIRGINIA

PROPERTY OF
FRUITWOOD DEVELOPERS INCORPORATED

SCALE: 1" = 100' DATE: 8 MARCH 1991

LUMSDEN ASSOCIATES, P.C.
ENGINEERS - SURVEYORS - PLANNERS
ROANOKE, VIRGINIA

COMM. #907H



VIRGINIA DEPARTMENT OF TRANSPORTATION NOTES.

1. QUALITY CONTROL

STREETS TO BE GRADED, PAVED AND ALL STRUCTURAL COMPONENTS ERECTED IN ACCORDANCE WITH CURRENT VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS AND ROAD DESIGN STANDARDS.

ALL MATERIALS USED SHALL BE TESTED IN ACCORDANCE WITH STANDARD POLICIES. THE DEVELOPER MUST CONTACT THE OFFICE OF THE RESIDENT ENGINEER, PRIOR TO BEGINNING ANY CONSTRUCTION AT WHICH TIME AN INSPECTION AND TESTING PROCEDURE POLICY WILL BE DRAWN. THE DEVELOPER WILL PRODUCE TEST REPORTS FROM APPROVED INDEPENDENT LABORATORIES AT THE DEVELOPER'S EXPENSE.

THE PAVEMENT DESIGNS SHOWN ARE BASED ON A SUBGRADE CBR VALUE OF 10 OR GREATER. THE SUBGRADE SOIL IS TO BE TESTED BY AN INDEPENDENT LABORATORY AND THE RESULTS SUBMITTED TO THE VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO BASE CONSTRUCTION. SHOULD THE SUBGRADE CBR VALUES BE LESS THAN 10, THEN ADDITIONAL BASE MATERIAL WILL BE REQUIRED IN ACCORDANCE WITH DEPARTMENTAL SPECIFICATIONS.

THE SUBGRADE MUST BE APPROVED BY VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO PLACEMENT OF THE BASE. BASE MUST BE APPROVED BY VIRGINIA DEPARTMENT OF TRANSPORTATION FOR DEPTH, TEMPLATE AND COMPACTION BEFORE SURFACE IS APPLIED.

2. UTILITIES

ALL NECESSARY UTILITY LATERALS WILL BE CONSTRUCTED PRIOR TO PLACEMENT OF BASE MATERIAL AND CONDUIT PROVISIONS MADE FOR THE SAME (I.E. WATER, SEWER, GAS AND TELEPHONE).

GAS OR PETROLEUM TRANSMISSION LINES WILL NOT BE PERMITTED WITHIN THE PAVEMENT OR SHOULDER ELEMENT OF THIS DEVELOPMENT. SERVICE LATERALS CROSSING ANY PIPE LINES LOCATED OUTSIDE THE PAVEMENT BUT INSIDE THE RIGHT OF WAY WILL BE CONSTRUCTED IN CONFORMITY WITH ASA B 31.8 SPECIFICATIONS AND SAFETY REGULATIONS. DISTRIBUTION LINES WITH PRESSURES LESS THAN 120 LBS. ARE UNAFFECTED BY THE ABOVE.

PERMITS WILL BE REQUIRED FOR ALL UTILITIES WITHIN STREET RIGHT OF WAY PRIOR TO ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM.

ANY EASEMENTS GRANTED TO A UTILITY COMPANY FOR PLACEMENT OF POWER, TELEPHONE, ETC. MUST BE RELEASED PRIOR TO ACCEPTANCE.

3. PRIVATE ENTRANCES

DRIVEWAYS CONNECTING TO ROADS WITHOUT CURB & GUTTER SHALL CONFORM TO THE PAVEMENT, SHOULDER & SLOPE.

PERMITS WILL BE REQUIRED FOR ALL PRIVATE ENTRANCES CONSTRUCTED ON STREET RIGHTS OF WAY AFTER ACCEPTANCE INTO THE SECONDARY HIGHWAY SYSTEM.

4. EROSION CONTROL AND LANDSCAPING

CARE MUST BE TAKEN DURING CONSTRUCTION TO PREVENT EROSION, DUST AND MUD FROM DAMAGING ADJACENT PROPERTY, CLOGGING DITCHES, TRACKING PUBLIC STREETS AND OTHERWISE CREATING A PUBLIC OR PRIVATE NUISANCE TO SURROUNDING AREAS.

THE ENTIRE CONSTRUCTION AREA INCLUDING DITCHES, CHANNELS, AND OR PAVEMENT ARE TO BE BACKFILLED AND SEEDED AT THE EARLIEST POSSIBLE TIME AFTER FINAL GRADING.

DRAINAGE EASEMENTS MUST BE DEFINED BY EXCAVATED DITCHES OR CHANNELS FOR THEIR FULL LENGTH TO WELL DEFINED EXISTING NATURAL WATERCOURSES.

THE ROAD WILL BE REVIEWED DURING CONSTRUCTION FOR THE NEED OF PAVED DITCHES. IF EROSION IS ENCOUNTERED IN ANY DRAINAGE EASEMENT, IT WILL BE THE RESPONSIBILITY OF THE DEVELOPER TO SOD, RIP RAP, GROUT, PAVE OR TO DO WHATEVER IS NECESSARY TO CORRECT THE PROBLEM.

ALL VEGETATION AND OVERBURDEN TO BE REMOVED FROM SHOULDER TO SHOULDER PRIOR TO THE CONDITIONING (CUTTING AND/OR PREPARATION) OF THE SUBGRADE.

5. INTERSECTION PAVEMENT RADIUS

MINIMUM PAVEMENT RADIUS OF 25 FEET IS REQUIRED AT ALL STREET INTERSECTION.

6. CONNECTIONS TO STATE-MAINTAINED ROADS

WHILE THESE PLANS HAVE BEEN APPROVED, SUCH APPROVAL DOES NOT EXEMPT CONNECTIONS WITH EXISTING STATE-MAINTAINED ROADS FROM CRITICAL REVIEW AT THE TIME PERMIT APPLICATIONS ARE MADE. THIS IS NECESSARY IN ORDER THAT THE PREVAILING CONDITIONS BE TAKEN INTO CONSIDERATION REGARDING SAFETY ACCOMPANIMENTS SUCH AS TURNING LANES.

7. GUARDRAILS

STANDARD GUARDRAIL WITH SAFETY END SECTIONS MAY BE REQUIRED ON FILLS AS DEEMED NECESSARY BY THE RESIDENT ENGINEER. AFTER COMPLETION OF ROUGH GRADING OPERATIONS, THE OFFICE OF THE RESIDENT ENGINEER, SHALL BE NOTIFIED SO THAT A FIELD REVIEW MAY BE MADE OF THE PROPOSED LOCATIONS.

WHERE GUARDRAILS ARE TO BE INSTALLED THE SHOULDER WIDTH SHALL BE INCREASED IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS.

8. STORM DRAINAGE

FIELD REVIEW WILL BE MADE DURING CONSTRUCTION TO DETERMINE THE NEED AND LIMITS OF PAVED DITCHES AND/OR DITCH STABILIZATION TREATMENTS, AND TO DETERMINE THE NEED AND LIMITS OF ADDITIONAL DRAINAGE EASEMENTS. ALL DRAINAGE EASEMENTS MUST BE CUT AND MADE TO FUNCTION TO A NATURAL WATERCOURSE. ANY EROSION PROBLEMS ENCOUNTERED IN AN EASEMENT MUST BE CORRECTED BY WHATEVER MEANS NECESSARY PRIOR TO SUBDIVISION ACCEPTANCE.

DITCH SLOPES ARE TO BE FOUR TO ONE (4:1) FOR SHOULDER WIDTHS OF SIX FEET (6') AND THREE TO ONE (3:1) FOR SHOULDER WIDTHS OF FOUR FEET (4'), UNLESS OTHERWISE SPECIFIED IN THE PLANS.

9. ENTRANCE PERMIT

CONTRACTOR SHALL OBTAIN ENTRANCE PERMIT TO THE EXISTING VIRGINIA DEPARTMENT OF TRANSPORTATION RIGHT OF WAY FROM RESIDENT ENGINEER PRIOR TO ROAD CONSTRUCTION.

10. INSPECTION

AN INSPECTOR WILL NOT BE FURNISHED EXCEPT FOR PERIODIC PROGRESS INSPECTION, THE ABOVE MENTIONED FIELD REVIEWS AND CHECKING FOR REQUIRED STONE DEPTHS. THE DEVELOPER WILL BE REQUIRED TO POST A SURETY TO GUARANTEE THE ROAD FREE OF DEFECTS FOR ONE YEAR AFTER ACCEPTANCE BY THE DEPARTMENT OF TRANSPORTATION.

11. STREET MAINTENANCE

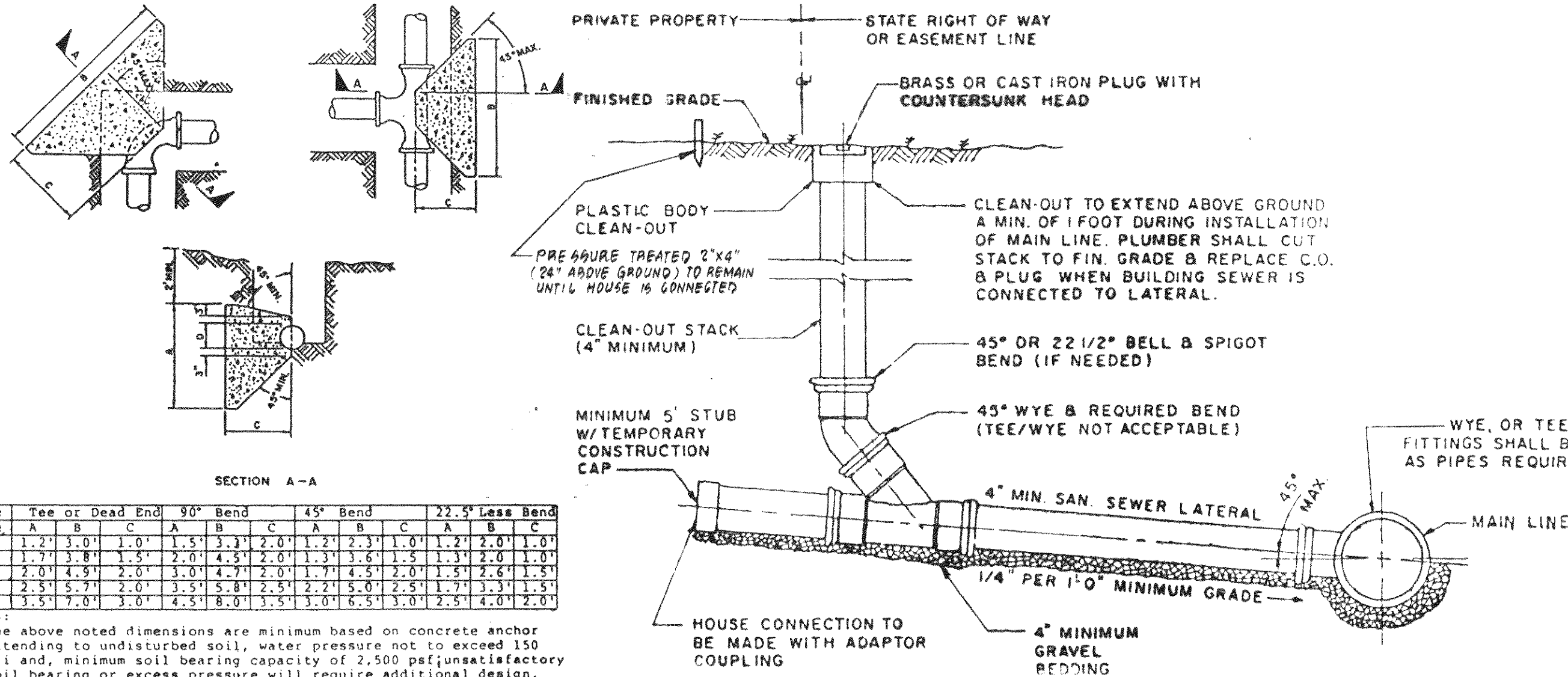
THE STREETS MUST BE PROPERLY MAINTAINED UNTIL ACCEPTANCE. AT SUCH TIME AS ALL REQUIREMENTS HAVE BEEN MET FOR ACCEPTANCE, ANOTHER INSPECTION WILL BE MADE TO DETERMINE THAT THE STREET HAS BEEN PROPERLY MAINTAINED.

12. UNDERGROUND UTILITIES

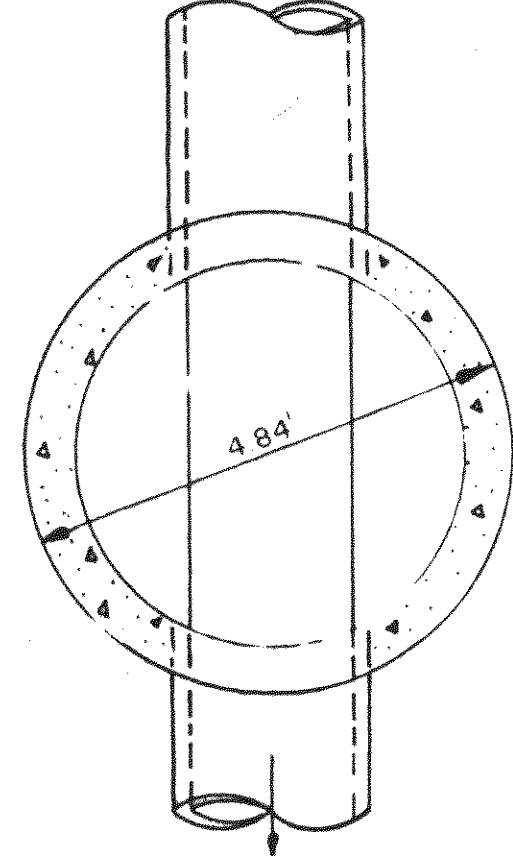
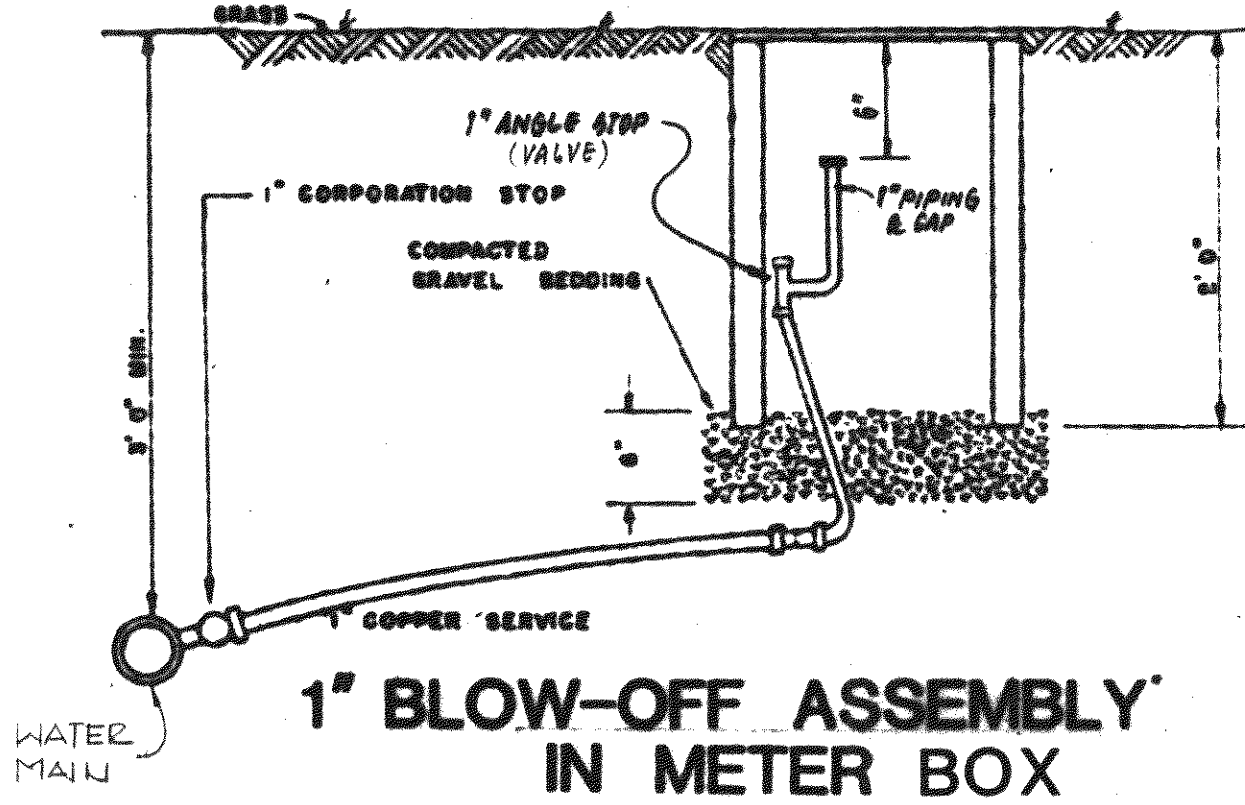
CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON THE PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK BY CONTACTING MISS UTILITY. CONTACT SITE ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON THE PLANS. IF THERE APPEARS TO BE A CONFLICT, AND UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THIS PLAN, CALL "MISS UTILITY" OF CENTRAL VIRGINIA AT 1-800-552-7001.

13. REVISIONS OF SPECIFICATIONS AND STANDARDS

APPROVAL OF THESE PLANS WILL BE BASED ON SPECIFICATIONS AND STANDARDS IN EFFECT AT THE TIME OF APPROVAL AND WILL BE SUBJECT, UNTIL COMPLETION OF THE ROADWAY AND ACCEPTANCE BY THE DEPARTMENT, TO FUTURE REVISIONS OF THE SPECIFICATIONS AND STANDARDS.

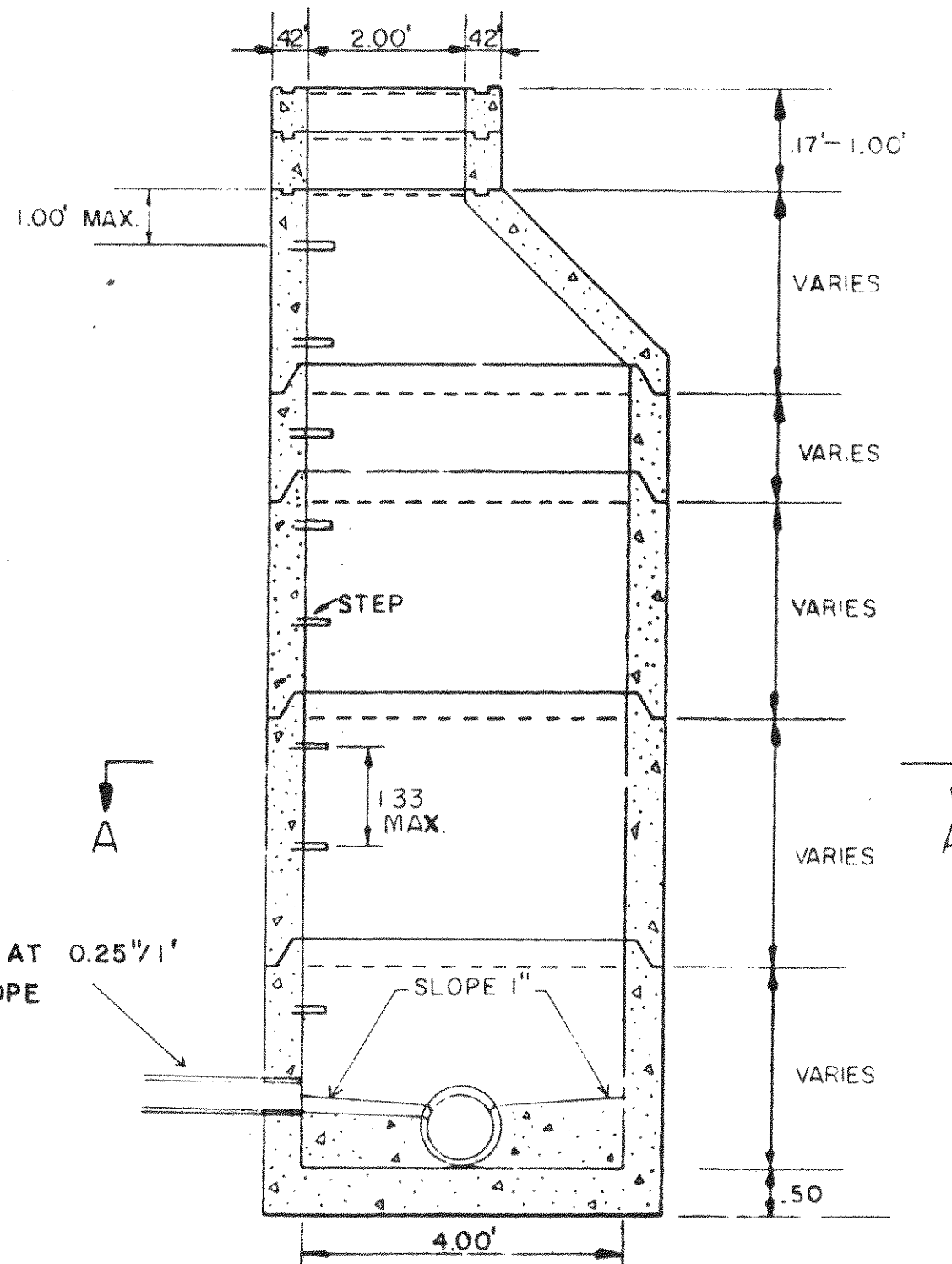


HORIZONTAL & VERTICAL THRUST BLOCKS

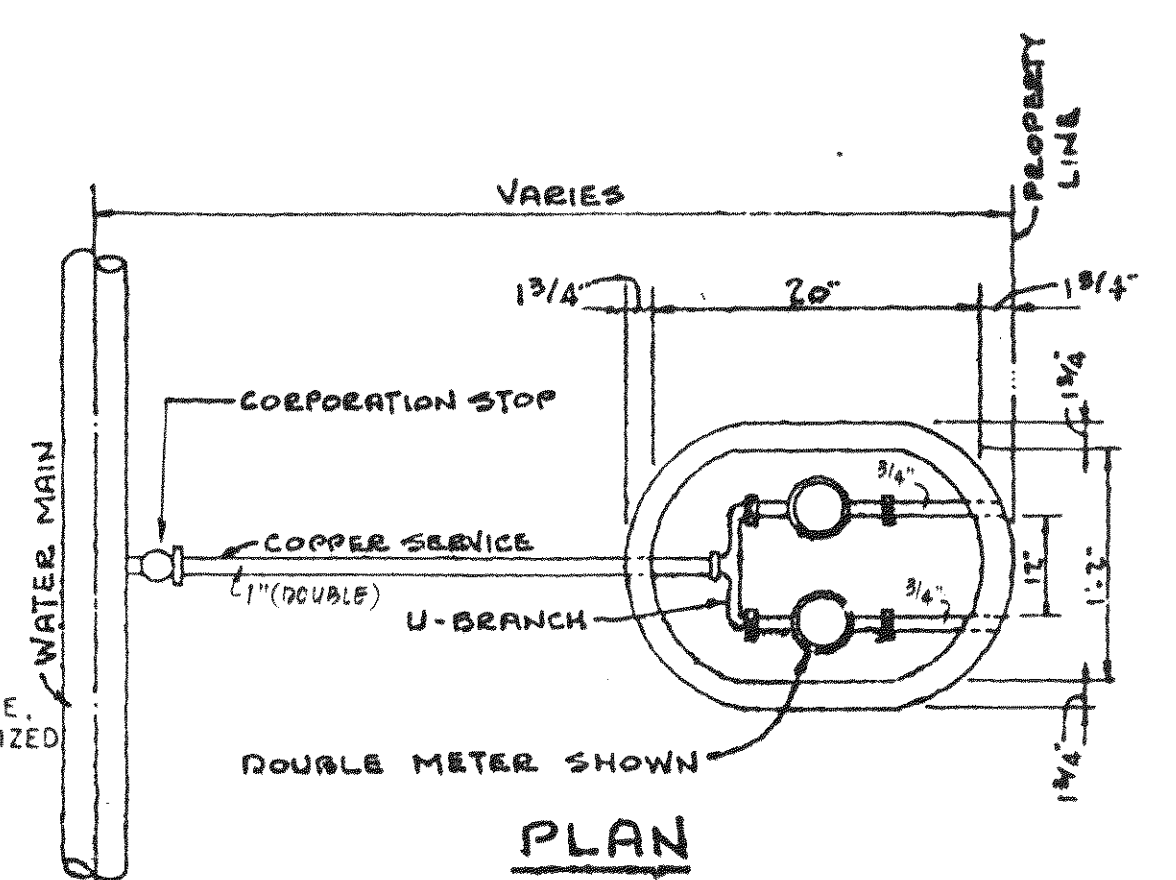


SECTION A-A STANDARD MANHOLE

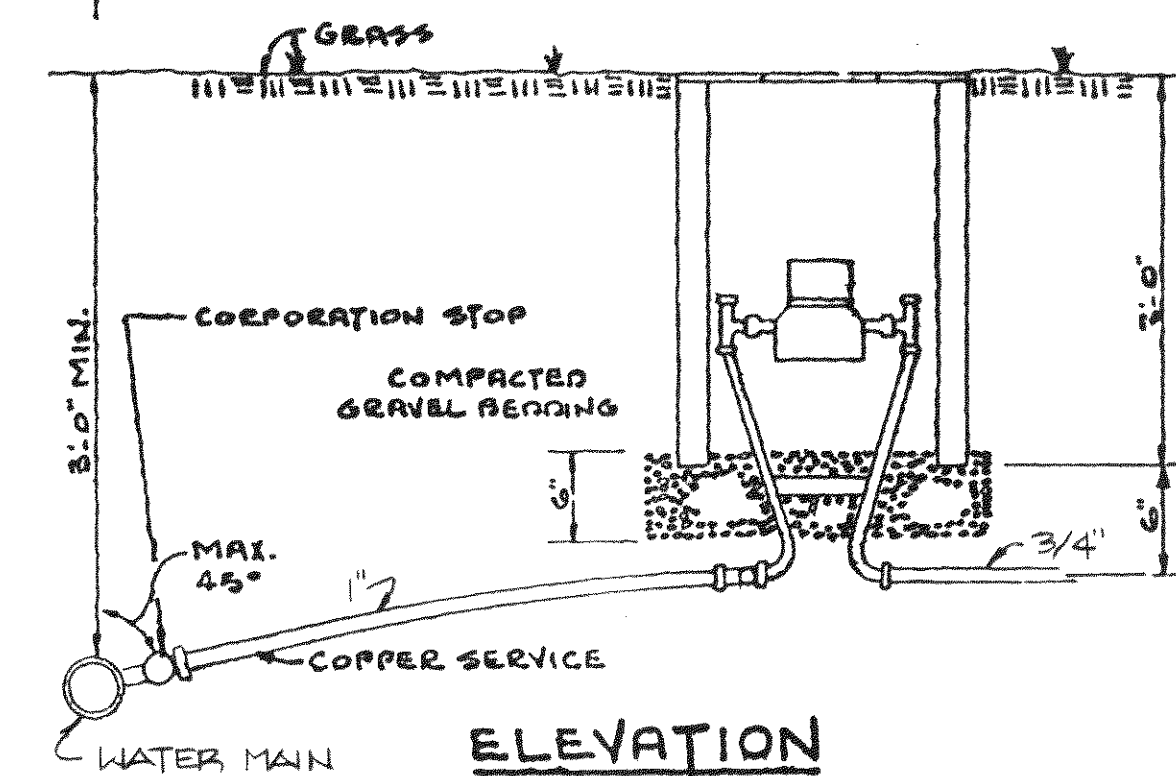
4" SEWER CONNECTION AT 0.25"/1' MINIMUM SLOPE



STANDARD MANHOLE



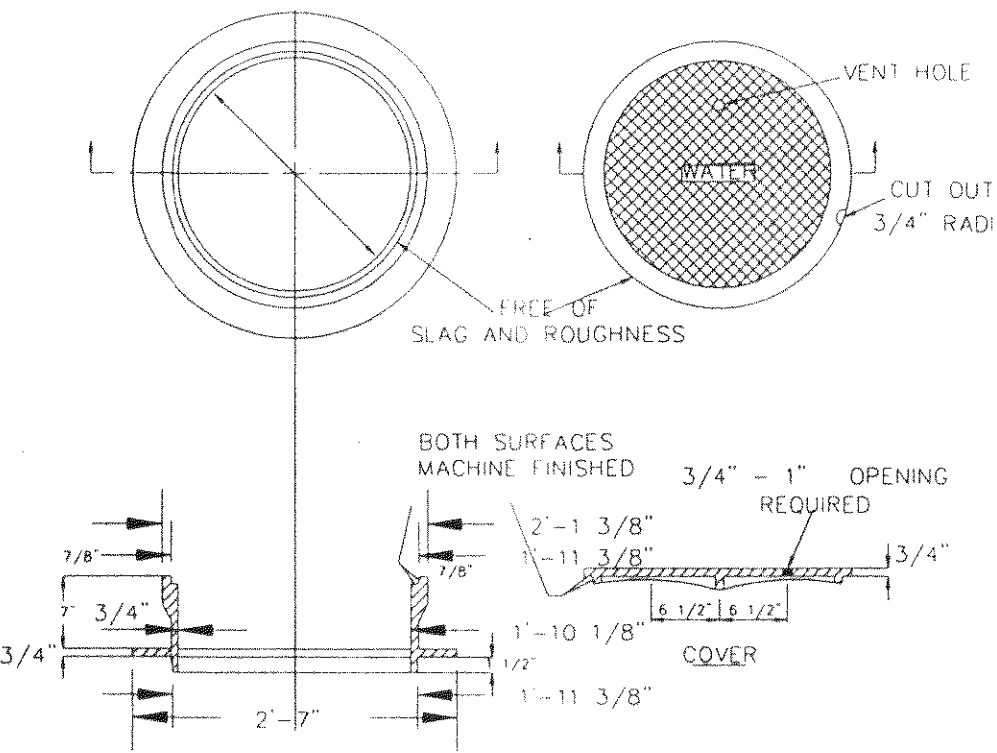
PLAN



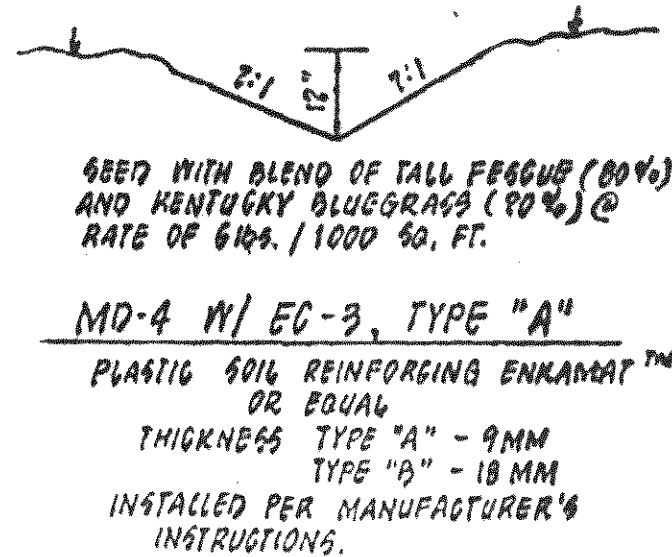
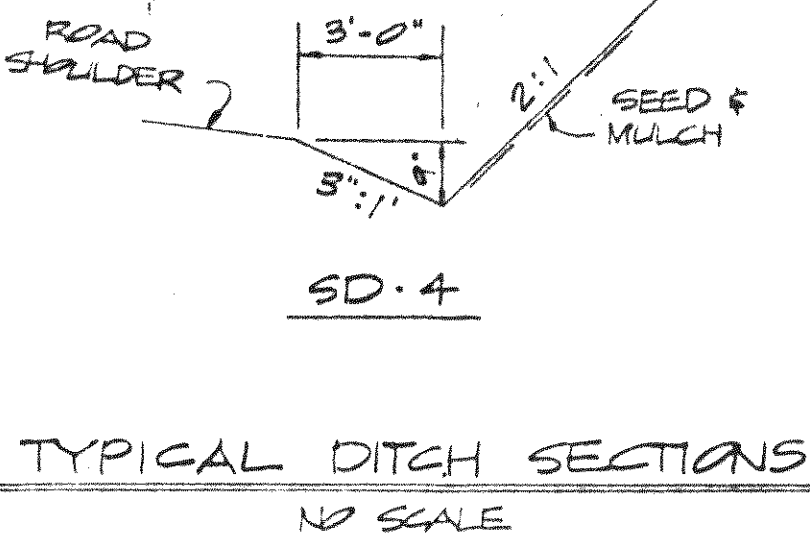
ELEVATION

METER-METER BOX NO SCALE

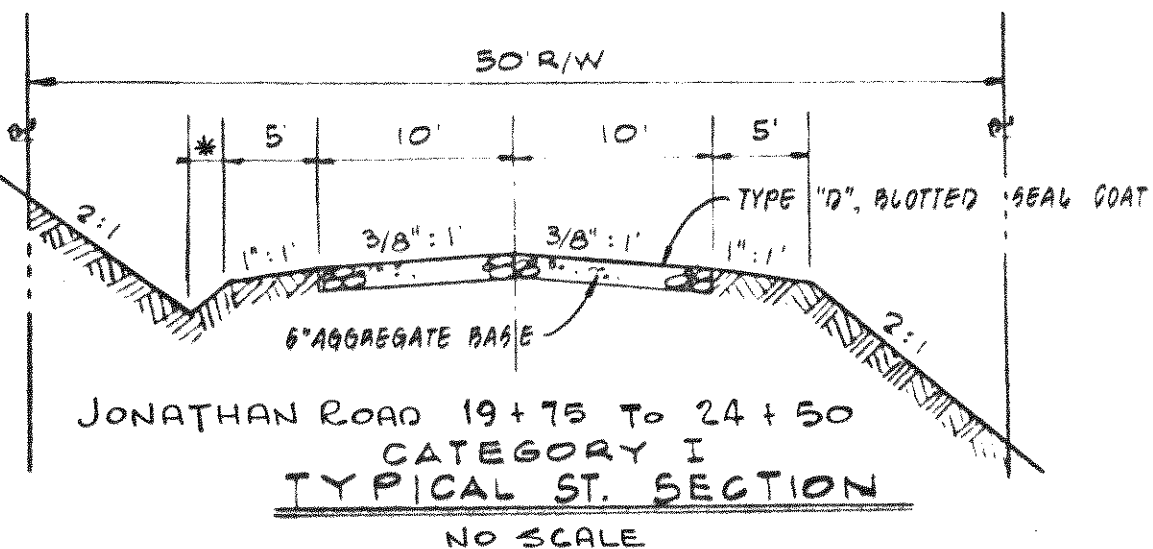
NOTE: 1. SUBSTITUTE SEWER FOR WATER ON SANITARY SEWER MANHOLE FRAME & COVERS.



MANHOLE FRAME AND COVER



* 3' FOR DEPTH = 9"
4' FOR DEPTH = 12"



REVISION	DATE	DESCRIPTION
1	4/14/91	REVISED AS PER REVIEW COMMENTS
DESIGNED		NOTES & DETAILS FOR
DRAWN		SECTION No. 5
CHECKED		"APPLETREE VILLAGE"
		AMSTERDAM MAGISTERIAL DISTRICT
		BOTETOURT COUNTY, VIRGINIA
		PROPERTY OF
		FRUITWOOD DEVELOPERS, INCORPORATED
LUMSDEN ASSOCIATES, P.C.	SCALE: NO SCALE	COMM: 907H
ENGINEERS-SURVEYORS-PLANNERS	DATE: 8 MAR. 1991	SHEET 3 of 1
ROANOKE, VIRGINIA		

CONSTRUCTION SPECIFICATIONS

SPECIAL CONDITIONS

- A minimum cover of three (3) feet over the proposed lines is required.
- No work shall begin without notifying Botetourt County 24 hours in advance. The contractor is responsible for obtaining any and all necessary permits.
- No work shall begin without written approval of construction plans.
- Work shall be subject to inspection by the County Inspectors and design engineer.
- Contractor shall be responsible for locating and uncovering all valve boxes after surface treatment of roads and adjusting boxes to final road grades, if necessary.
- All existing utilities may be shown or may not be shown in the exact location. The contractor shall comply with the State Water Works regulations, Section 12.05.03 where lines cross.
- The contractor shall notify the County of any field corrections to the approved plans prior to such construction.
- All trenches within the existing or future Virginia State Department of Highways and Transportation right-of-way must be compacted in six inch layers.
- All lines to be staked prior to construction.
- Contractor to coordinate with the Engineer to provide as-built plans. Contractor shall maintain a set of red-line plans showing as-built location of all structures. As-built information to be submitted to design engineer for preparation of record as-built plans. Such as-built plans shall be submitted to Botetourt County prior to County acceptance.
- All construction shall be in accordance to approved construction practices of the applicable trades.
- Unless noted otherwise herein all construction shall be in accordance to the latest edition of AWWA standards.

EXCAVATION, STABILIZATION AND BEDDING

- TRENCHING**
 - Excavation for trenches shall include the removal of all material encountered regardless of classification in accordance with the elevations and grades at the locations and stations indicated on the plans or specified herein.
 - Excavation, unless otherwise specified, shall be open cut. The Contractor shall open no more than two hundred (200) feet of trench at one time during the laying of pipe, unless approved by the Engineer.
 - Trenches shall be excavated in straight lines and shall be accurately graded in order to establish a true elevation for the invert of the pipe.
 - The width of trenches, from existing grade to one (1) foot above the top of the pipe shall be of sufficient width to permit the proper installation of bracing, shoring or sheeting.
 - The sides of the trenches shall be as vertical as practical.
 - Excavation for structures shall allow a minimum of twelve (12) inches clear between the structure and the sides of the trench or any required bracing, shoring or sheeting.
 - Excavated materials suitable for backfill shall be stockpiled in an orderly manner at a sufficient distance from the sides of the trench in order to avoid overloading the banks of the trench and to prevent slides or cave-ins.
 - Excavated materials which are not required or approved for backfill shall be removed from the site and disposed of by the Contractor, at his expense.
 - Contractor to adhere to all local, state and federal construction laws, including OSHA Trench Safety Regulations.

B. TRENCH STABILIZATION

- Trench stabilization material shall be coarse aggregate size number 2 and shall conform with VDOT Section 203 and/or ASTM C 33.
- Whenever excessively wet or unstable material is encountered in the bottom of the trench, which in the opinion of the Engineer is incapable of properly supporting the pipe or structures, such material shall be removed and backfilled with trench stabilization material and shall be graded to allow for the compacted bedding material.
- All unauthorized overdepths of excavation shall be backfilled, at the Contractor's expense, with trench stabilization material and shall be graded to allow for the compacted bedding material.

C. COMPACTED BEDDING MATERIAL

- Bedding material shall be coarse aggregate size Number 57 and shall conform with VDOT Section 203 and/or ASTM C 33.
- The bottom of the pipe trench shall be excavated to a minimum overdepth of six (6) inches below the bottom of the pipe, to provide for the compacted bedding material. Bedding material shall be placed, shaped and compacted.
- Bel holes and depressions required for the joining of the pipe shall be dug after the compacted bedding material has been graded and shaped and shall be only of the length, depth and width required to make the joint properly.

PIPE, JOINTS AND FITTINGS

A. SCOPE OF WORK

- All materials and appurtenances required for the work shall be new, or first class quality and shall be furnished, delivered, erected, connected and finished in every detail as specified or indicated. All materials found defective, regardless of the circumstances, shall be replaced with new material at the expense of the Contractor.
- The materials specified for the construction shall comply with the latest revisions of the applicable American Society for Testing Materials (ASTM), American National Standards Institute (ANSI) and/or the Virginia Department of Transportation (VDOT) standards.

B. OPTIONAL PIPE SELECTIONS

- The Contractor shall install only one (1) type of pipe between structures except where ductile iron pipe is specified or indicated. Where existing pipe is to be replaced or extended the same type of pipe shall be installed, unless specified or indicated otherwise.
- Water line shall be either PVC or ductile iron.
- Sanitary sewers with an inside diameter less than or equal to twelve (12) inches shall be either polyvinyl chloride or ductile iron pipe, at the Contractor's option, unless specified or indicated otherwise. Contractor shall obtain approval of pipe material by Botetourt County Engineer prior to beginning construction.
- Service laterals shall be either ductile iron or polyvinyl chloride pipe, at the Contractor's option, unless specified or indicated otherwise.

C. TYPES OF PIPE (*)

- Polyvinyl chloride (PVC) water pipe shall be AWWA C900 DR 18 minimum, unless specified or indicated otherwise.
- Ductile iron pipe shall conform with AWWA C 151/ANSI 21.51 and fittings shall conform with AWWA C 110/ANSI 21.10. The pipe and fittings shall be bituminous coated and end of the pipe, except for a jack-type tool or other device approved by the Engineer. Mechanical joints shall be thoroughly cleaned, the gland slipped over the spigot end of the pipe, and the gasket, painted with soap solution and placed on the spigot end, the spigot end of the pipe seated in the bell, the gasket pressed into place within the bell, the gland moved into position, and bolts and nuts assembled by hand and tightened with an approved torque-limiting wrench.
- PVC sewer pipe and fittings shall be SDR 35 (ASTM D 3034).

D. JOINTS COUPLINGS AND APPURTENANCES (*)

- PVC pipe and fittings shall be bell and spigot type joints. The bell and spigot joint shall be sealed with elastomeric gaskets conforming to ASTM D 3212. The joints shall be made in strict accordance with the recommendation of the pipe manufacturer.
- Ductile iron pipe and fittings shall be either mechanical or bell and spigot type joints as specified or indicated. Joints shall be made with a single watertight rubber gasket manufactured in accordance with AWWA C 111/ANSI 21.11. The joints shall be made in strict accordance with the recommendations of the pipe manufacturer.
- Gate Valves shall be iron-body, bronze-mounted, double-disc, parallel-seal, O-ring sealed, inside-screw, non-rising stem, fitting with 2 inch square operating nut for valve vault service, all in accordance with AWWA Standard C500 (latest revision). Connections shall be suitable for the pipe with which it is used. The valves shall be suitable for 200 p.s.i. water working pressure and shall be tested at twice the rated working pressure. All gate valves shall be installed in valve vaults and equipped with a 2-inch square operating nut. The nut shall be marked with an arrow and the word "OPEN" and shall open by turning to the right (clockwise).
- All other materials and appurtenances to be in accordance with details shown on plans.

PIPE INSTALLATION

A. GENERAL

- The Contractor shall not lay pipe or place manholes until all water has been removed from the trench, or when in the opinion of the Engineer, the trench or the weather conditions are unsuitable for work.
- Pipe that may require field cutting shall be done so in a neat and workmanlike manner, so as to leave a smooth end at right angles to the axis of the pipe. Care shall be taken to avoid damage to the pipe and any coatings or linings. Ductile iron pipe shall not be cut with an oxyacetylene torch.
- The materials shall be visually inspected for defects before lowering the pipe or placing the manholes into the trench. During the laying operation no tools, clothing or other material shall be placed in the pipe or manhole. The interior of the pipe shall be clear of all soil, debris and superfluous materials prior to and during the installation.
- The Contractor shall exercise every precaution to prevent foreign material from entering the pipe while it is being placed in the trench. Failure by the contractor to take such precautions may result in the Engineer requiring a heavy, tightly woven canvas bag of suitable size be placed over each end of the pipe and removed only when the joint can be made properly.
- The pipe and manholes shall be lowered carefully into the trench by suitable means and handled with care at all times to avoid damage. Under no circumstances shall the materials be dropped or dumped into the trenches.
- When work is not in progress, the Contractor shall plug the open ends of the pipe to prevent trench water or other substances from entering the pipe. The plug shall be watertight and shall remain in place until any required dewatering has been completed.
- Parallel installation - Water lines shall be laid at least ten feet horizontally from a sewer or sewer manhole whenever possible. When local conditions prevent a horizontal separation of ten feet, the water line may be laid closer to a sewer or sewer manhole provided that:
 - The invert of the water main shall be at least 18 inches above the crown of the sewer.
 - Where this vertical separation cannot be obtained, the sewer shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling.
 - The sewer manhole shall be of water-tight construction and tested in place.

Crossing - Water lines crossing sewers shall be laid to provide a separation of at least 18 inches between the bottom of the water line and the top of the sewer whenever possible. When local conditions prevent this vertical separation, the following construction shall be used:

- Sewers passing over or under water lines shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling.
- Water lines passing under sewers shall, in addition, be protected by providing:
 - A vertical separation of at least 18 inches

between the bottom of the sewer and the top of the water line,

- Adequate structural support for the sewers to prevent excessive deflection of the joints and maintaining the horizontal alignment and vertical setting on and breaking of the waterline, and
- That the length of the water line be centered at the point of the crossing so that joints shall be equal distance and as far as possible from the sewer.

Before joints are made the pipe shall be well bedded on a firm foundation and no pipe shall be brought into position until the preceding length has been thoroughly embedded and secured in place. Any defects due to settlement shall be made good by the Contractor at his expense. Bell holes shall be dug sufficiently large to insure the making of proper joints.

Pipe shall be jointed in full accordance with manufacturer's recommendations. Push-on joints shall be thoroughly cleaned, the rubber gasket inserted in the bell socket, a thin film of approved gasket lubricant applied, the spigot end of the pipe centered into the socket and the joint completed by forcing the spigot end to the bottom of the socket by a jack-type tool or other device approved by the Engineer. Mechanical joints shall be thoroughly cleaned, the gland slipped over the spigot end of the pipe, and the gasket, painted with soap solution and placed on the spigot end, the spigot end of the pipe seated in the bell, the gasket pressed into place within the bell, the gland moved into position, and bolts and nuts assembled by hand and tightened with an approved torque-limiting wrench.

B. INSTALLING WATER MAINS

- The water main shall be laid and maintained at the required lines and grades with fittings and valves at the required locations.
- Deflection of the line of pipe, in either, the vertical or horizontal plane to avoid obstructions, or in locations where long and sharp curves are required, the amount of deflection shall not exceed approved AWWA standards. Alignment that may require deflections in excess of the recommended limitations, special bends, or a sufficient number of shorter lengths of pipe to provide the angular deflections within the limits as set forth, shall be approved by the Engineer.
- All plugs, except mechanical joint plugs at connections for future lines, all tees, and all bends in water mains under pressure shall be provided with reaction backing consisting of concrete thrust blocks. Valves for connections to future lines and fire hydrants shall be anchored to the water main with the rods.

C. DISINFECTION OF WATER MAINS

- All pipe shall be disinfected, tested and flushed in accordance with AWWA Standard C601 (latest revision).
- Contractor shall provide all materials, equipment, necessary tools and perform all work required for the sterilization, testing and flushing of the water main.
- No tested section of water line shall be approved to deliver water service until a favorable laboratory report has been achieved. Any tested section of water line failing to meet the requirements specified shall be repaired by the Contractor and retested until the results are within the limits specified.
- The water main or valved off section that has been completed shall be filled, tested and flushed. Test locations shall be suitable to the discretion of the Engineer and as valves and blow-offs permit.
- After testing and before final inspection of the completed systems, water mains and service laterals shall be flushed and disinfected in accordance with AWWA Specifications C601 (latest revision). Flushing shall be accomplished at a flow velocity of not less than 2.5 feet per second.

Disinfection as described in AWWA C651 - "Placing of calcium hypochlorite tablets" shall be used. 5 gram calcium hypochlorite tablets with 3.25 g available chlorine per tablet shall be attached at the inside top of the pipe by an adhesive such as Permatex No. 1 or equal. The following number of tablets for the given pipe size shall be used for an initial dose of 25 mg/l (ppm) chlorine:

Pipe Diameter	Number Tablets Per 18-20 Ft. Pipe Section
6"	1
8"	2
10"	3
12"	4
16"	7

or the number of tablets equal to 0.0012dL rounded to the next higher integer, where d is the inside diameter, in inches and L is the length of the pipe section, in feet. Use of the continuous feed or slug method of disinfecting may only be used to re-chlorinate a water pipe after the initial disinfection or in other specific cases approved by the Design Engineer. When filling the pipeline for disinfection, the rate of filling must result in a velocity of less than 1 ft./sec.

The disinfection solution shall remain in the pipe line for not less than twenty-four (24) hours, after which time a chlorine residual of 10 ppm at all parts of the line shall be required.

Following chlorination, the piping shall be thoroughly flushed. The Virginia Waterworks Regulations require at least two consecutive satisfactory bacteriological samples at 24 hour intervals from the distribution system at maximum spacing of 2000 feet before the system can be placed in service. If the initial testing is not satisfactory the new lines will be retested until satisfactory results are achieved. The Contractor shall pay all costs associated with disinfection and testing of installed facilities including any bacteriological samples and retesting if required. Samples will be collected in accordance with the Virginia Waterworks Regulations.

D. INSTALLING SEWER PIPE & MANHOLES

- The installation of the sanitary sewer system shall begin at the downstream manhole and proceed upstream. The downstream sections shall be completed, tested and approved prior to allowing sanitary sewage to enter the system.
- The pipe shall be installed in accordance with the pipe manufacturer's recommendations and as directed by the

Engineer. The pipe shall be laid in true straight lines with the bell ends upstream and with the invert of the pipe being the true elevation and grade of the system.

- The Contractor shall be responsible for establishing and maintaining the horizontal alignment and vertical elevation and grade of the system in accordance with the survey information indicated on the plans.
- The horizontal alignment of the pipe shall be maintained by a transit or theodolite plumbed over the center of the downstream manhole. The vertical elevation and grade shall be maintained by not less than three (3) batter boards placed between manholes or by an adjustable laser level mounted at the invert of the downstream manhole with target(s) placed in the bell and of the pipe being laid.
- Sewer pipe shall be installed in 4 inch gravel bedding and to springline of pipe and in accordance with manufacturers recommendations.
- The sanitary sewer system shall be laid and joined completely in-place in order that each long and section of pipe between the manholes shall have a smooth and uniform invert.
- The pipe shall be connected to manholes through precast openings and joined with either a flexible boot adapter or a pipe seal gasket.
- Drainage channels to be constructed of fill material shall be graded and shaped to the topsoil subgrade with material free of stones larger than four (4) inches in diameter and shall be placed in layers not to exceed eight (8) inches and compacted with mechanical tampers.

E. CONNECTION TO EXISTING SYSTEMS

- The new pipe connection to be made to an existing manhole where no stub or opening exists, shall be made through an opening of maximum diameter cut into the manhole wall at the required location and elevation.
- The existing invert channels and benches shall be reworked as required to form a new flow channel from the new connection to the existing flow channel.
- The new pipe connected to an existing manhole shall be secured in position and the remaining opening shall be filled and sealed with brick and mortar. The outer surface of the connection shall be given a coat of heavy bituminous waterproofing compound.

E. SERVICE CONNECTIONS

- The Contractor shall make all service connections to the sewer pipe and from manholes where shown on the plans and/or where located in the field. The service connections to the sewer pipe shall be made with a tee or tee wye branch fitting.
- The wye and tee wye branch fittings for service connections shall be commercially manufactured and installed in strict accordance with the recommendations of the pipe manufacturer.
- The sewer pipe shall not be cut or tapped for service connections except when and where permitted by the Engineer.
- All service connections shall be made with four (4) inch pipe as a minimum, unless the size of an existing service connection dictates otherwise, and shall be installed on a minimum grade of one-quarter (1/4) inch per one (1) foot from the sewer pipe or manhole to the property or easement line.
- Future service connections shall extend to the property or easement line with cleanout and be properly capped with a watertight fitting to prevent infiltration into the sewerage system. The fitting shall be installed in strict accordance with the recommendations of the pipe manufacturer.
- Future service connections shall be field marked by a treated, solid wood (2 x 4) marker three (3) feet long set vertically plumb with the end of the capped extension. The tops of the markers shall be painted yellow and set 24" above the finished grade. The location and invert depth of the service connection shall be shown on the as-built plans.

BACKFILLING

A. JOB CONDITIONS

- Prior to placing backfill, all organic, rubbish debris or other unsuitable or objectionable material within the trench shall be removed.
- Prior to placing backfill, the trench box shall be removed. All concrete forms shall be removed. All shoring or sheeting shall be removed and cut off at the depth stipulated by the Engineer.
- Backfill material shall be placed in uniform horizontal layers and thoroughly compacted with proper mechanical or hand operated tampers or other equipment as approved by the Engineer to perform such work.
- Backfill material shall be placed and compacted so as to not unevenly support, damage or displace the alignment of the pipe or structures.
- Backfill shall not be placed or compacted against cast in place concrete until it has obtained sufficient strength to withstand the backfilled pressure placed upon it.
- Upon the completion of backfilling, all excess soil, stones and debris shall be removed from the site and disposed of by the Contractor.

B. BACKFILL MATERIAL

- Materials for backfill shall be approved excavated material or approved suitable material obtained from other sources. All material shall be approved by Soil Engineer.
- Material shall consist of durable natural granular material or granular aggregates free of organic material, loam, debris, or other objectionable material which cannot be thoroughly compacted.
- Material shall not contain stones larger in diameter than those specified herein, granite, broken concrete, masonry rubble or other material which in the opinion of the Engineer is unsuitable for backfill.
- Excessively wet excavated material shall not be used as backfill. Frozen material shall not be placed in the trench, nor shall approved backfill be placed upon frozen material. However, backfilling may be allowed in freezing weather with prior approval of the Engineer.

C. BACKFILL BELOW UNPAVED AREAS

- Backfill from the top of the pipe bedding or bottom of the pipe trench to one (1) foot above the top of the pipe shall be free of stones larger than two (2) inches in diameter and shall be placed in layers not to exceed six (6) inches and compacted with hand operated tampers.
- Backfill from one (1) foot above the top of the pipe to the topsoil subgrade shall be free of stones larger than six (6) inches in diameter and shall be placed in layers not to exceed twelve (12) inches and compacted with mechanical tampers.
- Drainage channels to be constructed of fill material shall be graded and shaped to the topsoil subgrade with material free of stones larger than four (4) inches in diameter and shall be placed in layers not to exceed eight (8) inches and compacted with mechanical tampers.

D. BACKFILL BELOW EXISTING OR NEW PAVED AREAS AND SIDEWALKS

- Backfill from the top of the pipe bedding or bottom of the pipe trench to one (1) foot above the top of the pipe shall be free of stones larger than two (2) inches in diameter and shall be placed in layers not to exceed six (6) inches and compacted with hand tampers.
- Backfill from one (1) foot above the top of the pipe to the pavement subgrade shall be free of stones larger than four (4) inches in diameter and shall be placed in layers not to exceed eight (8) inches and compacted with mechanical tampers.

INSPECTION AND TESTS

A. TESTING OF SANITARY SEWER

- The Contractor shall prove the watertightness of the sewer system or portions thereof by one of the following tests, at such times as the Engineer may direct. Tests shall be made only in the presence of the Engineer. The Contractor shall furnish all labor and equipment required for the test and shall make any necessary repairs until test results are satisfactory. Botetourt County Engineer shall be notified of all tests 48 hours prior to conducting such tests. All tests shall be coordinated with the Design Engineer for his attendance and observation.

B. AIR TEST

The testing equipment, procedure, and results will all be subject to the strict approval of the Engineer. Results of the air test will be reviewed for compliance with ASTM designation C-828, current revision. The air test is to be conducted between two (2) consecutive manholes. The test equipment shall consist of two (2) plugs (one tapped and equipped for air inlet connection), a shut-off valve, a pressure regulating valve, a pressure reduction valve, and a monitoring pressure gauge having a pressure range from 0 to .5 psi, graduated in 0.10 psi with an accuracy of plus/minus .04 psi. The test equipment shall be set up outside the manhole for easy access and reading. Air shall be supplied to the test slowly and shall be regulated to prevent the pressure inside the pipe from exceeding 3.0 psig. The pipeline shall be filled until a constant internal pressure of 3.5 psig is maintained. The internal pressure shall be maintained at 3.5 psig or slightly above for a five (5) minute stabilization period, after which time the internal pressure will be adjusted to 3.5 psig, the air supply shut off and the test begun. No person shall remain in the manhole while pipe is being pressurized or throughout the test for safety purposes. A pressure drop of 1.0 psi from 3.5 to 2.5 psig shall be allowed for the test times specified in the following table, based upon the designated pipe size and test segment length.

AIR TEST TABLE

BASED ON EQUATIONS FROM ASTM C-828-80 SPECIFICATIONS TIME (MIN:SEC) REQUIRED FOR PRESSURE DROP FROM 3.5 TO 2.5 PSI WHEN TESTING ONE PIPE DIAMETER ONLY.

PIPE DIAMETER, INCHES	LENGTH OF TEST SEGMENT	25	4	6	8	10	12	15	18
25	0:04	0:10	0:18	0:28	0:40	1:02	1:29		
50	0:09	0:20	0:35	0:55	1:19	2:04	2:58		
75	0:13	0:30	0:53	1:23	1:59	3:06	4:27		
100	0:18	0:40	1:10	1:50	2:28	4:08	5:56		
125	0:22	0:50	1:28	2:18	3:18	5:09	7:26		
150	0:26	0:59	1:46	2:45	3:58	6:11	8:30		
175	0:31	1:09	2:03	3:13	4:37	7:05			
200	0:35	1:19	2:21	3:40	5:17				
225	0:40	1:29	2:38	4:08	5:40				
250	0:44	1:39	2:56	4:35					8:31
275	0:48	1:49	3:14	4:43					9:21
300	0:53	1:59	3:31						10:12
350	1:02	2:19	3:47						11:54
400	1:10	2:38							13:36
450	1:19	2:50							15:19
500	1:28								17:01

Should the 1.0 psi drop occur in less time than that specified in the table, the sewer segment shall have failed. If the time required for the pressure to drop 1.0 psi is greater than that shown in the table, the sewer segment shall have passed. For a more detailed description of the air test method refer to ASTM designation C-828, current revision. An air pressure correction shall be required when the prevailing ground water is above the sewer line being tested and shall be calculated as follows:

Ground Water Depth (ft) + 3.5 = Starting Test Pressure

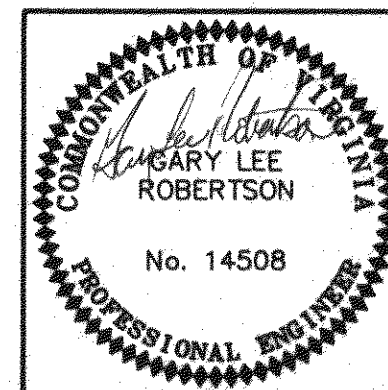
Ending Test Pressure = Starting Pressure - 1.0 psi

There is no change from time requirements established for the backfill test.

- Manholes shall be tested by exfiltration by plugging lines with inflatable stoppers and filling the manhole with water for 12 hour soak period. Leakage shall not exceed one-half (1/2) gallon per hour in the two hour test period following the soak period. An approved air test for manholes will also be considered. Ex-filtration tests performed by approved vacuum tests procedures shall be acceptable.

G. MANHOLE TEST

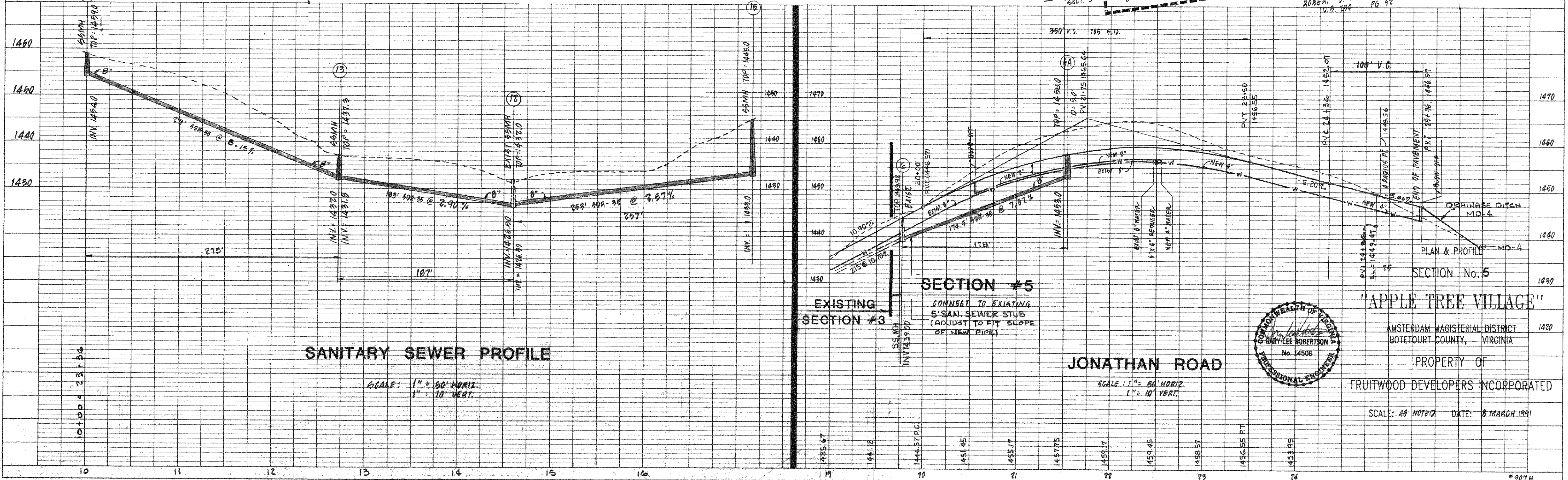
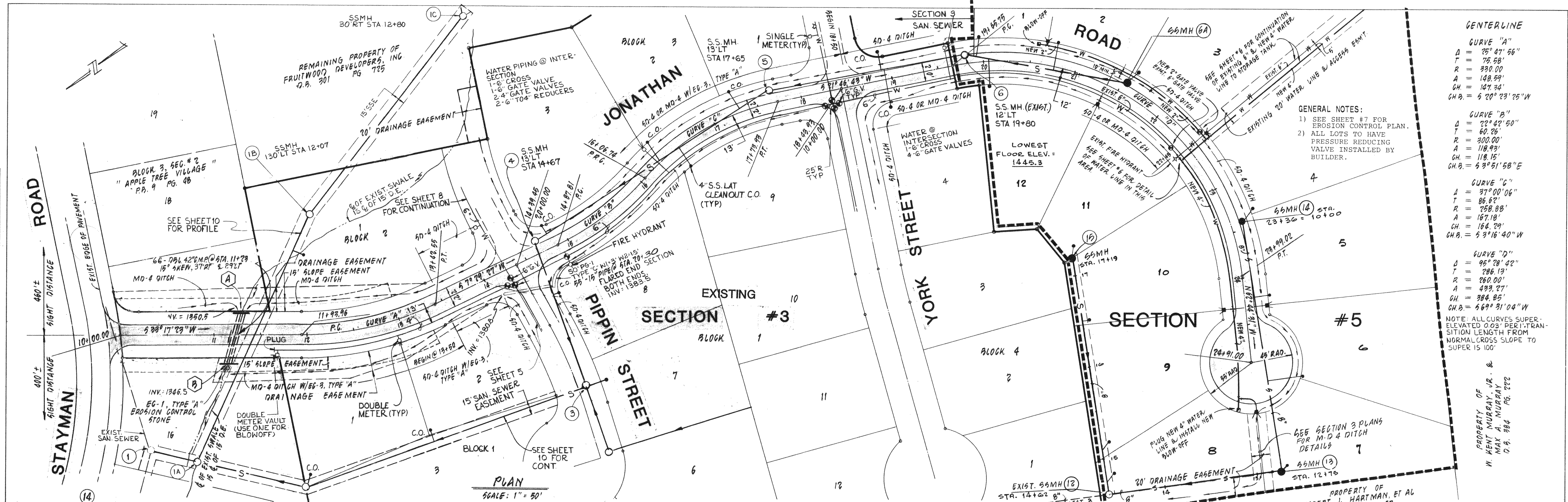
All sewer lines shall be tested by pulling a standard test mandrel between test sections.

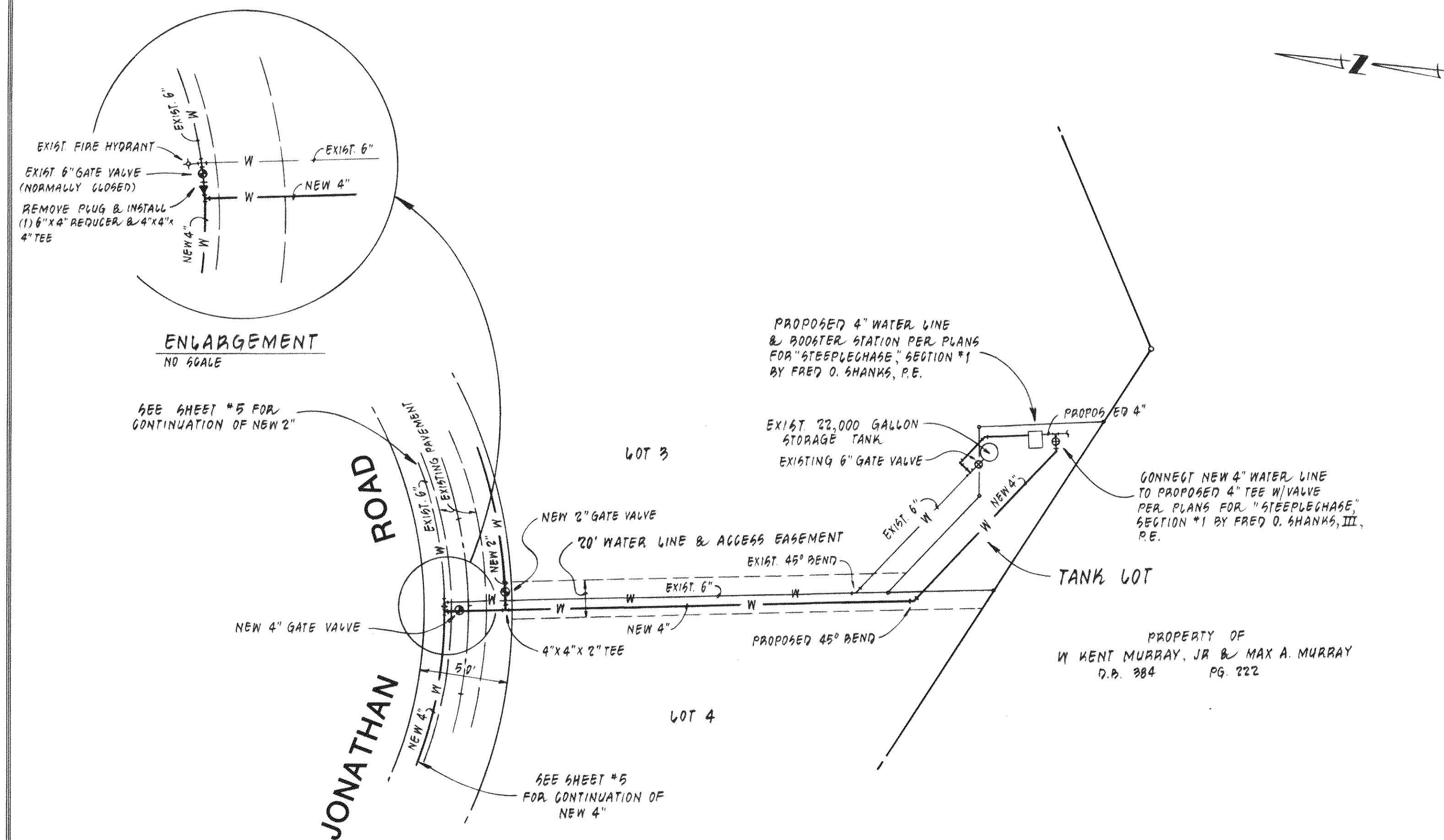


1		4/26/91	REVISED AS PER REVIEW COMMENTS
REVISION	DATE	DESCRIPTION	
CONSTRUCTION SPECIFICATIONS FOR SECTION No. 5 "APPLETREE VILLAGE" AMSTERDAM MAGISTERIAL DISTRICT BOTETOURT COUNTY, VIRGINIA PROPERTY OF FRUITWOOD DEVELOPERS, INCORPORATED			
DESIGNED	GLR		
DRAWN	AAC		
CHECKED	GLR		
LUMSDEN ASSOCIATES, P.C. ENGINEERS-SURVEYORS-PLANNERS ROANOKE, VIRGINIA		SCALE: AS SHOWN	COMM: #907H
DATE: 8 MAR, 1991		SHEET 4 of 7	

PLAN	DATE	BY
	NOTED	
NOTE BOOK	NO.	DATE
	NOTED	

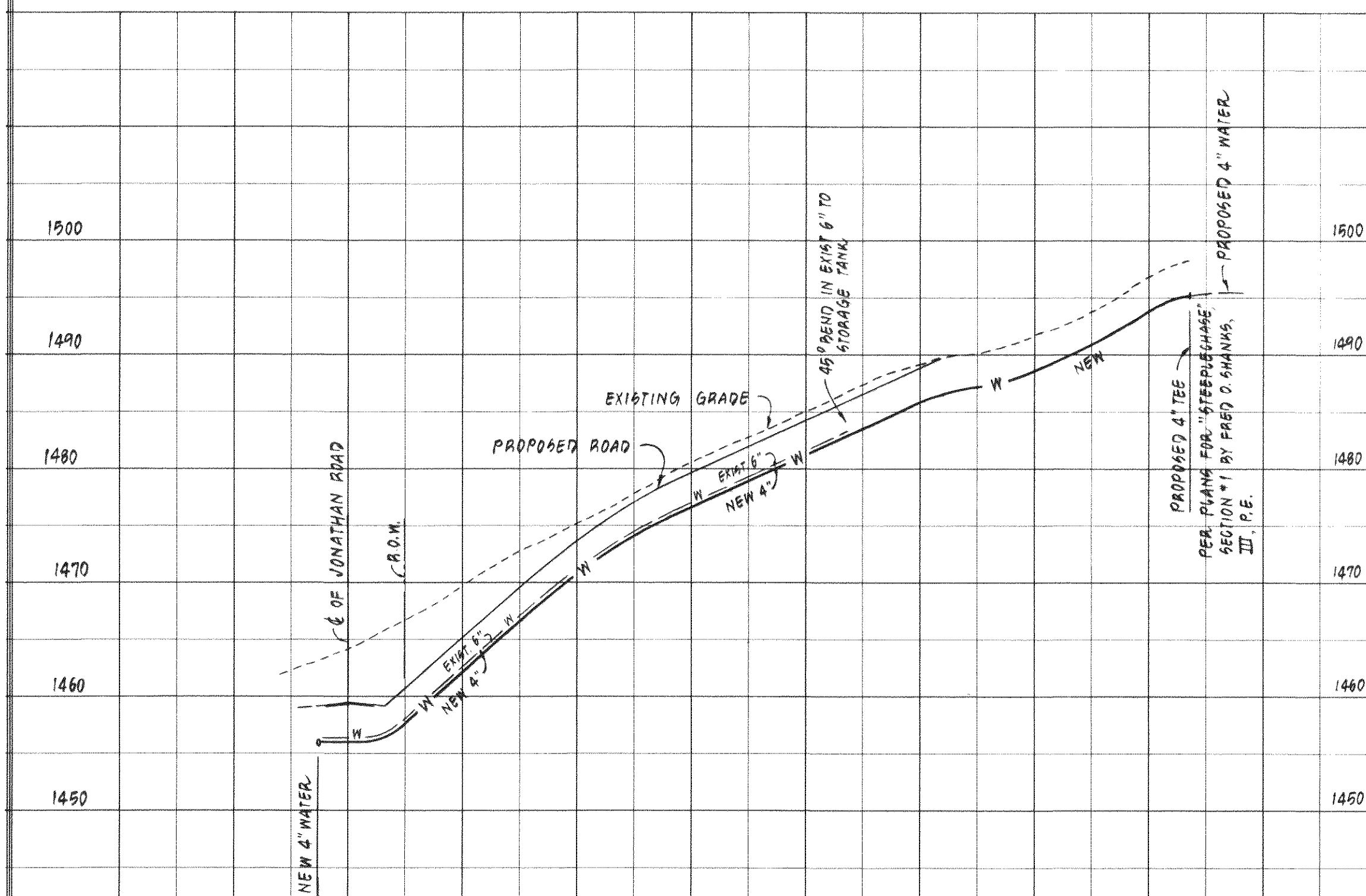
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NOTE BOOK	NO.	DATE
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PLAN

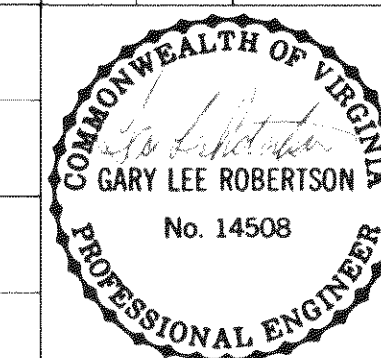
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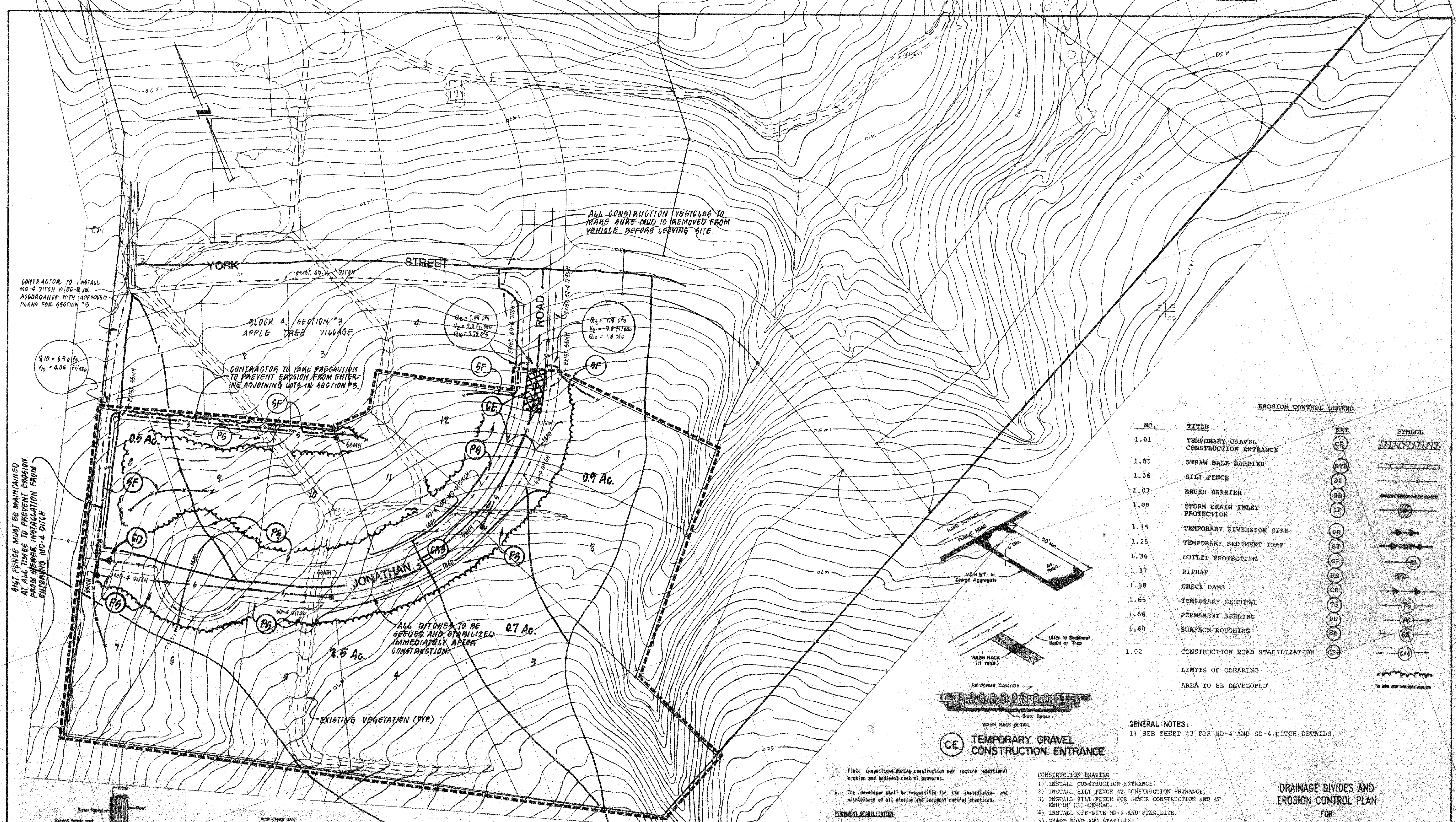


PROFILE

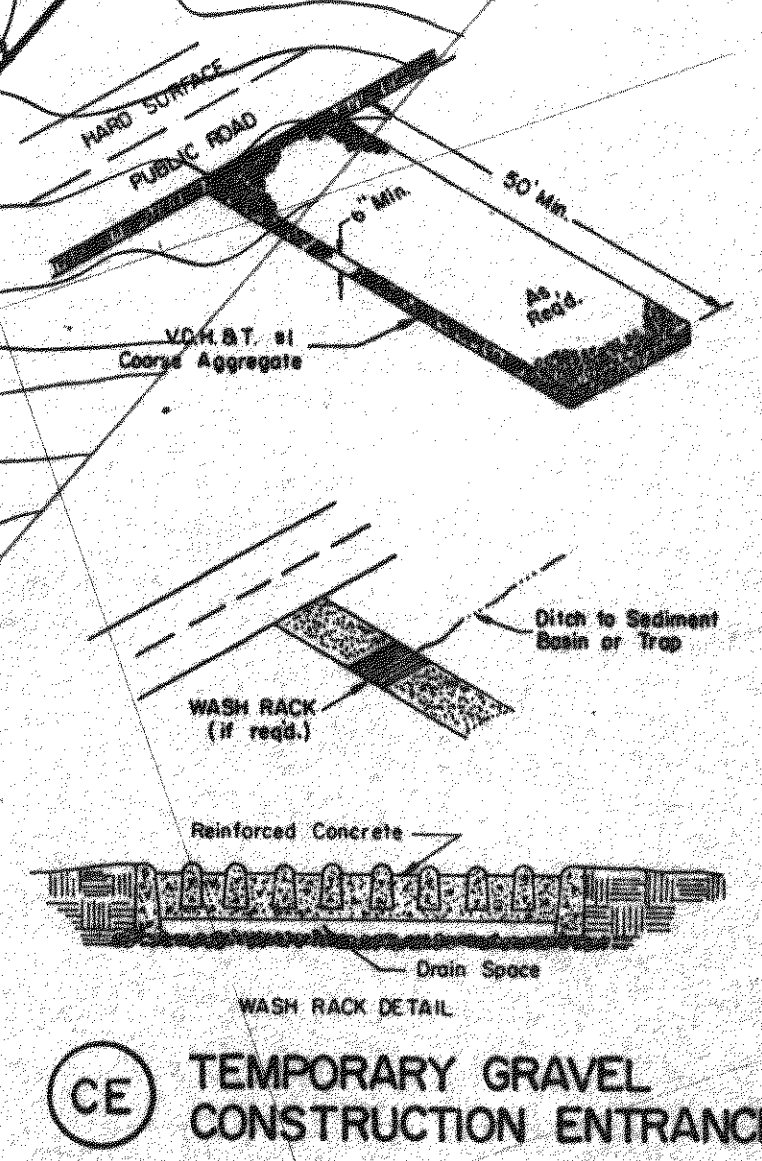
SCALE: 1" = 50' HORIZONTAL
1" = 10' VERTICAL

REVISION	DATE	DESCRIPTION
1	4/14/91	REVISED AS PER REVIEW COMMENTS
DESIGNED	GLR	PLAN & PROFILE FOR SECTION No. 5 "APPLETREE VILLAGE" AMSTERDAM MAGISTERIAL DISTRICT BOTETOURT COUNTY, VIRGINIA PROPERTY OF FRUITWOOD DEVELOPERS, INCORPORATED
DRAWN	RAC	
CHECKED	GLR	
LUMSDEN ASSOCIATES, P.C. ENGINEERS-SURVEYORS-PLANNERS ROANOKE, VIRGINIA		SCALE: AS SHOWN DATE: 8 MAR. 1991 COMM: *907H SHEET 6 of 7





EROSION CONTROL LEGEND			
NO.	TITLE	KEY	SYMBOL
1.01	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	CE	
1.05	STRAW BALE BARRIER	STB	
1.06	SILT FENCE	SP	
1.07	BRUSH BARRIER	BB	
1.08	STORM DRAIN INLET PROTECTION	IP	
1.15	TEMPORARY DIVERSION DIKE	DD	
1.25	TEMPORARY SEDIMENT TRAP	ST	
1.36	OUTLET PROTECTION	OP	
1.37	RIPRAP	RR	
1.38	CHECK DAMS	CD	
1.65	TEMPORARY SEEDING	TS	
1.66	PERMANENT SEEDING	PS	
1.60	SURFACE ROUGHING	SR	
1.02	CONSTRUCTION ROAD STABILIZATION	CRS	
	LIMITS OF CLEARING		
	AREA TO BE DEVELOPED		



GENERAL NOTES:
1) SEE SHEET #3 FOR MD-4 AND SD-4 DITCH DETAILS.

5. Field inspections during construction may require additional erosion and sediment control measures.

6. The developer shall be responsible for the installation and maintenance of all erosion and sediment control practices.

PERMANENT STABILIZATION
All areas disturbed by construction will be stabilized with permanent seeding immediately following finish grading. Seeding will be done according to standards and specifications of the Virginia Erosion and Sediment Control Handbook. Permanently seeded areas shall be protected during establishment with straw mulch.

MAINTENANCE
In general, all erosion and sediment control measures will be checked weekly and after each significant rainfall. The following items will be checked in particular:

1. All sediment trappings will be checked regularly for necessary sediment removal.
2. All storm drain inlets and outlets will be checked regularly for sediment buildup.
3. All silt barriers will be checked regularly for undermining or deterioration.
4. All seeded areas will be checked regularly to see that good stabilization is maintained. Areas should be fertilized and mowed as needed.

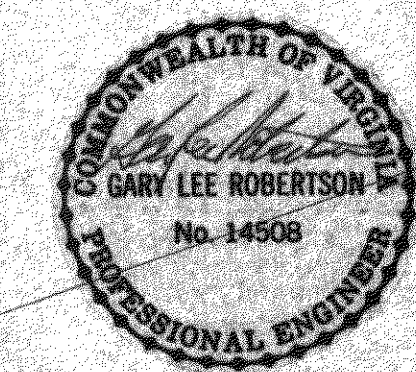
- CONSTRUCTION PHASING**
- 1) INSTALL CONSTRUCTION ENTRANCE.
 - 2) INSTALL SILT FENCE AT CONSTRUCTION ENTRANCE.
 - 3) INSTALL SILT FENCE FOR SEWER CONSTRUCTION AND AT END OF CUL-DE-SAC.
 - 4) INSTALL OFF-SITE MD-4 AND STABILIZE.
 - 5) GRADE ROAD AND STABILIZE.
 - 6) INSTALL UTILITIES AND DITCHES.
 - 7) STABILIZE DITCHES AND DENUDDED AREAS AS REQUIRED.
 - 8) PAVE ROAD.

DRAINAGE DIVIDES AND
EROSION CONTROL PLAN
FOR
SECTION No. 5
"APPLE TREE VILLAGE"
AMSTERDAM MAGISTERIAL DISTRICT
BOJETOURT COUNTY, VIRGINIA

PROPERTY OF
FRUITWOOD DEVELOPERS INCORPORATED

SCALE: 1" = 50' DATE: 8 MARCH 1991

LUMSDEN ASSOCIATES, P.C.
ENGINEERS - SURVEYORS - PLANNERS
ROANOKE, VIRGINIA



REVISED 4/26/91

CONTRACTOR TO INSTALL MD-4 DITCH WITH 3-IN. AGGREGATE WITH APPROVED PLANS FOR SECTION #3

BLOCK 4, SECTION #3
APPLE TREE VILLAGE

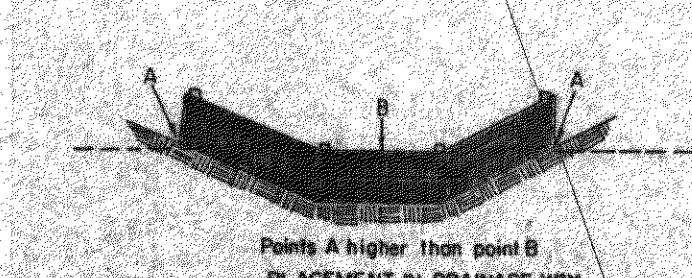
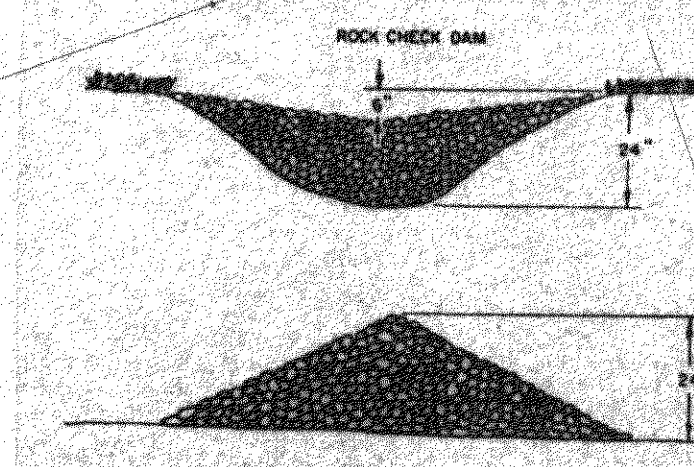
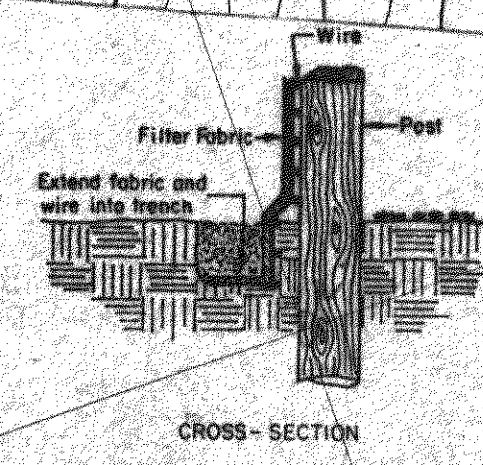
CONTRACTOR TO TAKE PRECAUTION TO PREVENT EROSION FROM ENTERING ADJOINING LOTS IN SECTION #3

ALL CONSTRUCTION VEHICLES TO MAKE SURE MUD IS REMOVED FROM VEHICLE BEFORE LEAVING SITE.

SILT FENCE MUST BE MAINTAINED AT ALL TIMES TO PREVENT EROSION FROM SEWER INSTALLATION FROM ENTERING MD-4 DITCH

ALL DITCHES TO BE SEED AND STABILIZED IMMEDIATELY AFTER CONSTRUCTION

EXISTING VEGETATION (TYP)



SF SILT FENCE

CD CHECK DAM