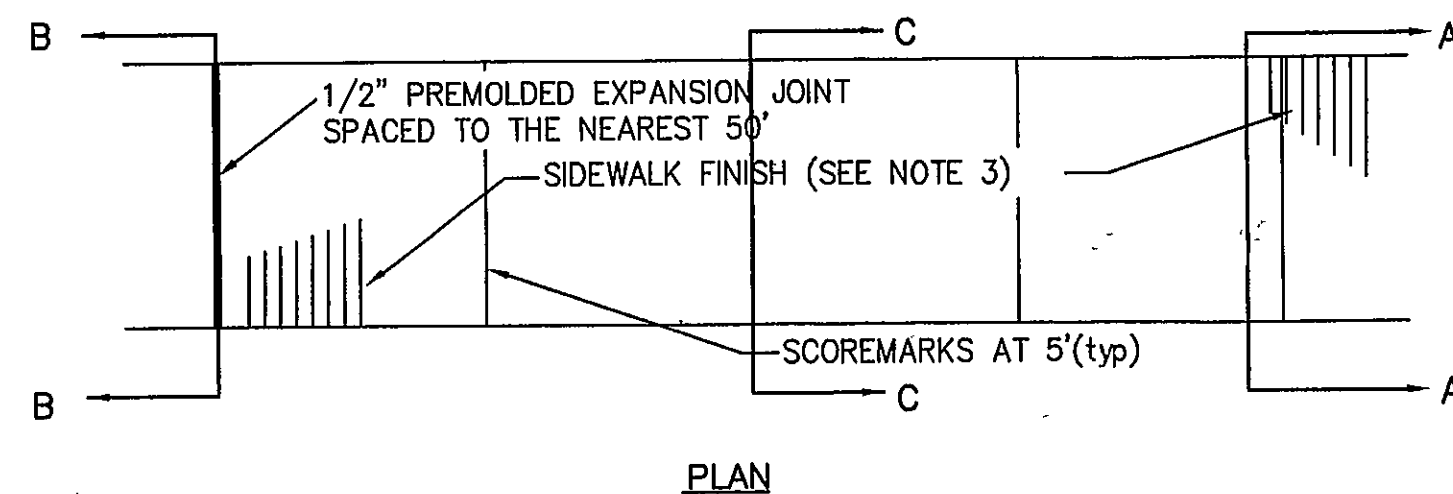


- GENERAL NOTES:
- Standard Residential "Entrance" shall have a minimum curb radius(R) of 2.5 feet.
 - Maximum entrance width to be 14 feet.
 - Where curb & gutter already exists both curb & gutter shall be removed. If proposed entrance falls within five(5) feet of an existing joint removal & reconstruction shall be to that joint. Any concrete removed at other than an existing joint shall be cut with a mechanical saw specifically manufactured for that purpose.
 - Where sidewalk exists or is to be constructed across driveways the thickness thereof must correspond with the thickness of the entrance.
 - Whenever "Entrances" exceeds twenty-four(24) feet in width a 1/2" preformed expansion joint filler shall be installed through the center perpendicular to flow line.
 - Finish "Entrances" shall have a "course broom finish" running parallel to flow line.
 - Curing shall be accomplished by the use of a liquid membrane seal containing white pigment applied at the rate of one(1) gallon per 150 square feet.
 - All "Entrances" shall be constructed according to City of Roanoke specifications and to the lines and grades established by the construction plans and actual field elevations.

STD. CITY OF ROANOKE ENTRANCE

NO SCALE



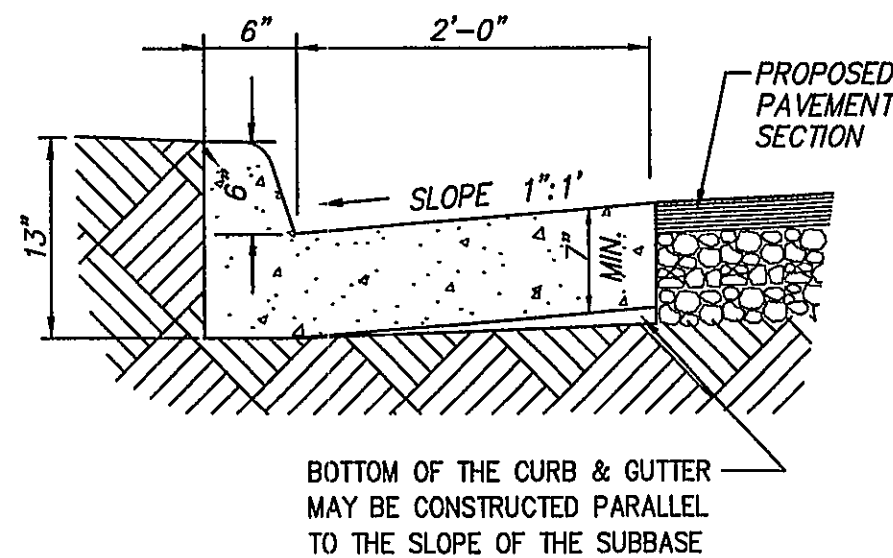
STANDARD CONCRETE PEDESTRIAN SIDEWALK NOTES

- ALL CONCRETE SHALL BE CLASS A, 3000 PSI.
- SPACING FOR EXPANSION JOINTS SHALL BE AT MAXIMUM 50' INTERVALS.
- SIDEWALK FINISH: SIDEWALK SHALL BE FIRST SMOOTH TROWELED, THEN ENDING WITH A LIGHT BROOM FINISH, UNLESS OTHERWISE NOTED.
- WHEN SIDEWALK ABUTS A CURBING OR A PREVIOUS CONCRETE POUR, A 1/2" PREFORMED EXPANSION JOINT IS TO BE USED.
- CURING SHALL BE ACCOMPLISHED BY THE USE OF A LIQUID MEMBRANE SEAL CONTAINING WHITE PIGMENT, APPLIED AT THE RATE OF ONE (1) GALLON PER 150 SQUARE FEET.

PUBLIC SIDEWALK

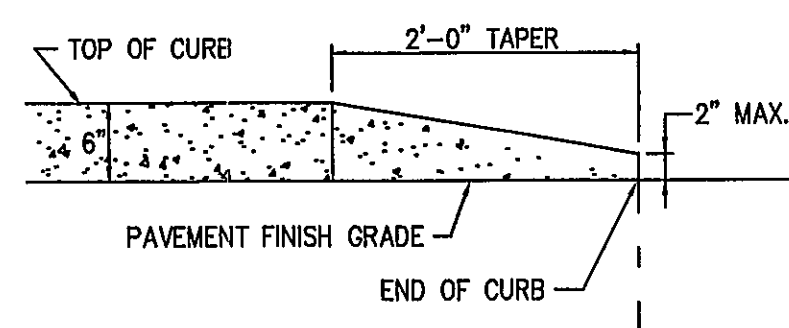
NO SCALE

GENERAL CITY OF ROANOKE ENGINEER NOTES:
WORK SHALL NOT COMMENCE IN PUBLIC RIGHT-OF-WAY BEFORE APPROVAL BY AN INSPECTOR AND A PERMIT IS OBTAINED.
NOTIFY CONSTRUCTION INSPECTORS OFFICE AT 853-2856 - 48 HOURS BEFORE WORK BEGINS.
DO NOT POUR ANY CONCRETE BEFORE FORMS HAVE BEEN INSPECTED AND APPROVED.
USE ONLY STANDARD METAL FORMS AS APPROVED BY VDOT (WOOD FORMS WILL NOT BE PERMITTED).
JOINTS OR SCORE MARKS ARE TO BE SHARP AND CLEAN WITHOUT SHOWING EDGES OF JOINTING TOOL.
ALL RADIUS SHOWN SHALL BE 1/2" UNLESS OTHERWISE NOTED FOR PREMOLDED EXPANSION JOINTS.
ALL CONCRETE SHALL BE CLASS A 3000 P.S.I.



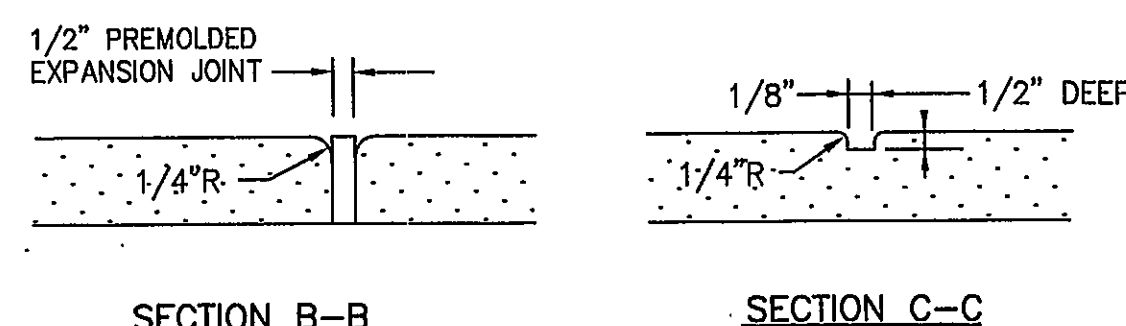
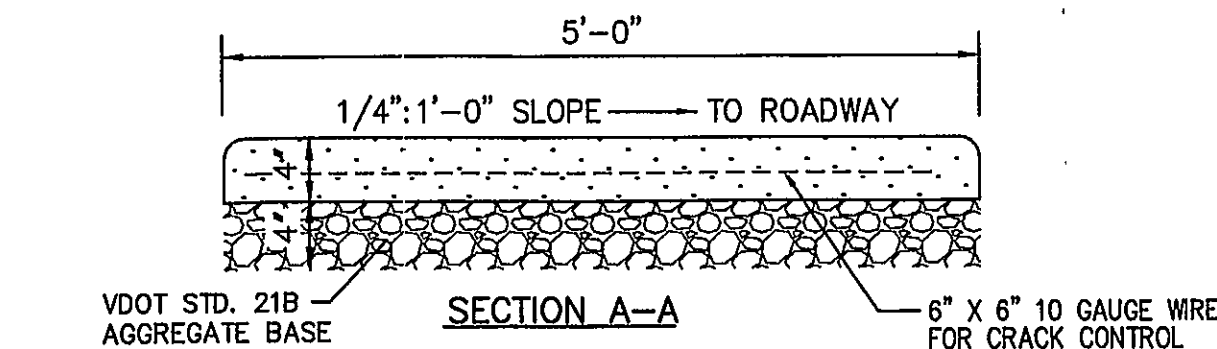
STD. CITY OF ROANOKE CURB & GUTTER

NO SCALE



CURB TAPER DETAIL

NO SCALE



SECTION B-B

SECTION C-C

SITE SUMMARY

TAX MAP NUMBER:6050507
ZONING:R-5
MIN. LOT AREA:5000 S.F.
MIN. LOT FRONTAGE:50'
MIN. FRONT YARD:20 FT.
MAX. FRONT YARD:40 FT.
MIN. SIDE YARD:4'
MIN. COMBINED SIDE YARD:10'
MIN. REAR YARD:15'
MAX. BUILDING HEIGHT:35'
MAX. IMPERVIOUS SURFACE RATIO:60%
PARKING: DEVELOPER SHALL PROVIDE A MINIMUM OF TWO (2) OFF-STREET PARKING SPACES FOR EACH LOT.
PROPERTY IS IN F.E.M.A. DEFINED ZONE X UNSHADED.
THIS OPINION IS BASED UPON AN EXAMINATION OF F.E.M.A. MAP NUMBER 51161C0041F, REVISED DATE FEBRUARY 4, 2005 AND HAS BEEN VERIFIED BY ACTUAL FIELD ELEVATIONS.

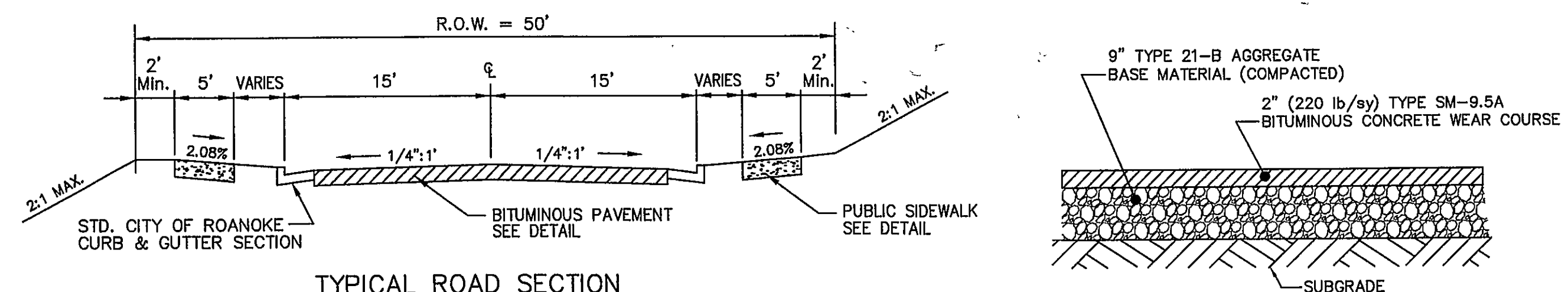
OWNER/ DEVELOPER: R. FRALIN DEVELOPMENT CORP.
P.O. BOX 6244
CHRISTIANSBURG, VA 24068

ACREAGE BEING DEVELOPED: 10.016 ACRES
ACREAGE BEING DISTURBED: 8.361 ACRES
ACREAGE FOR STREET PURPOSES: 1.665 ACRES

NOTES:

- ALL PROPOSED ROADS TO BE PUBLIC.
- ALL SANITARY SEWER EASEMENTS TO BE PUBLIC.
- ALL SANITARY SEWER LINES TO BE SDR-35 PIPE.
- ALL SANITARY SEWER MANHOLES SHALL HAVE STANDARD FRAMES AND COVERS UNLESS OTHERWISE NOTED.
- ALL WATERLINE EASEMENTS TO BE PUBLIC.
- ALL WATERLINE TO BE DUCTILE IRON PIPE.
- ALL STORM SEWER EASEMENTS TO BE PUBLIC, UNLESS OTHERWISE NOTED.
- ALL STORM SEWER PIPE TO BE CLASS III RCP UNLESS OTHERWISE NOTED.
- ALL STORMWATER MANAGEMENT EASEMENTS TO BE PRIVATE AND TO BE MAINTAINED BY THE HOMEOWNER'S ASSOCIATION.
- TRASH REMOVAL AND RECYCLING TO BE HANDLED BY CITY OF ROANOKE CURBSIDE PICKUP.

TYPICAL ROAD SECTION



TYPICAL ROAD SECTION

CBR TESTS AND FINAL PAVEMENT SPECIFICATIONS TO BE PROVIDED TO THE DESIGN ENGINEER FOR APPROVAL PRIOR TO INSTALLATION

NOTE: SIDEWALK LOCATION TO BE PLACED ACCORDING TO CONSTRUCTION PLANS

NOTE:

THE PRELIMINARY PAVEMENT DESIGNS SHOWN ARE BASED ON A PREDICTED SUB-GRADE CBR VALUE OF 10.0 AND A RESILIENCY FACTOR (RF) OF 2.0 AS SHOWN IN APPENDIX I OF THE "2000 VIRGINIA DEPARTMENT OF TRANSPORTATION PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS". THE SUB-GRADE SOIL IS TO BE TESTED BY AN INDEPENDENT LABORATORY AND THE RESULTS SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO BASE CONSTRUCTION. THESE TESTS SHALL BE MADE AT EACH CHANGE IN SUBGRADE SOILS AND AT A MAXIMUM SPACING OF 500 FEET WHERE SUBGRADE SOILS REMAIN CONSTANT. SPACING OF CBR TESTS SHALL BE IN ACCORDANCE WITH THE VDOT PAVEMENT DESIGN GUIDE, AND A MINIMUM OF TWO CBR SAMPLES WILL BE REQUIRED FOR CUL-DE-SAC OR DEAD END STREETS OF LESS THAN 500 FEET IN LENGTH. SHOULD THE SUB-GRADE CBR VALUE AND/OR THE RF VALUE BE LESS THAN THE PREDICATED VALUES, ADDITIONAL BASE MATERIAL WILL BE REQUIRED IN ACCORDANCE WITH THE ENGINEER REQUIREMENTS. REFER TO THE SAME MANUAL FOR THE NUMBER AND LOCATIONS OF THE REQUIRED SOIL SAMPLES TO BE TESTED.

THE SUB-GRADE SHALL BE APPROVED BY ROANOKE CITY PRIOR TO PLACEMENT OF THE BASE. BASE SHALL BE APPROVED BY ROANOKE CITY FOR DEPTH, TEMPLATE AND COMPACTION BEFORE SURFACE IS APPLIED. THE SUBBASE WILL NOT BE INSPECTED BY THE CITY PRIOR TO RECEIVING THE CBR TESTS AND SOIL CLASSIFICATIONS. CONTACT THE CITY SEVEN (7) DAYS PRIOR TO SCHEDULING PLACEMENT OF AGGREGATE BASE COURSE(S) FOR AN INSPECTION.

BACKFILLING AND COMPACTION:

- BACKFILL MATERIAL SHALL BE VDOT NO. 21A AGGREGATE, PLACED IN LOOSE LIFTS NOT EXCEEDING 6", AND COMPACTED TO AT LEAST 95% MAXIMUM DRY DENSITY WITHIN 2 PERCENTAGE POINTS OF OPTIMUM MOISTURE (VTM-1) WITH THE USE OF MECHANICAL TAMPERS OR VIBRATORY ROLLERS. WATER COMPACTION IS NOT PERMITTED. LOCAL MATERIAL CLASSIFIED AS TYPE I SELECT MATERIAL MAY BE USED AS BACKFILL UPON PRIOR APPROVAL BY THE CITY ENGINEER. MATERIAL CLASSIFICATION SHALL BE PERFORMED ON THE ACTUAL SOIL TO VERIFY THAT SOIL MEETS VDOT SPECIFICATIONS FOR TYPE I SELECT MATERIAL BY A QUALIFIED TESTING LABORATORY AND TEST RESULTS SHALL BE CERTIFIED BY A VIRGINIA REGISTERED PROFESSIONAL ENGINEER. DENSITY REQUIREMENTS ARE THE SAME AS ABOVE, HOWEVER, MOISTURE CONTENT FOR SOILS MAY BE WITHIN 20% OF OPTIMUM.
- DENSITY AND MOISTURE TESTING IS REQUIRED ON BOTH AGGREGATE AND SOIL BACKFILL. ALL TESTING SHALL BE PERFORMED AND CERTIFIED BY A GEOTECHNICAL ENGINEER OR A VDOT CERTIFIED TECHNICIAN. RESULTS SHALL BE PROVIDED TO THE INSPECTOR WITHIN 24-HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE SOLE RESPONSIBILITY OF THE PERMITTEE. THE PERMITTEE SHALL SUBMIT WRITTEN TEST RESULTS TO THE INSPECTOR'S OFFICE.
- FIELD DENSITY TESTING METHODS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO PERFORMING ANY TESTING. A PERMITTEE THAT PERFORMS MORE THAN TEN (10) EXCAVATIONS A MONTH UNDER THESE STANDARDS MAY SUBMIT A WRITTEN QUALITY CONTROL PLAN TO REDUCE THE NUMBER OF REQUIRED FIELD DENSITY TESTS. THE QUALITY CONTROL PLAN MUST INCLUDE THE EXCLUSIVE USE OF A VDOT-CERTIFIED AGGREGATE. THE QUALITY CONTROL PLAN SHALL BE SUBMITTED TO THE CITY ENGINEER FOR REVIEW AND APPROVAL.
- FLOWABLE FILL MAY BE USED AS AN ALTERNATE TO AGGREGATE OR SELECT MATERIAL. FLOWABLE FILL SHALL MEET THE REQUIREMENTS OF VDOT SPECIAL PROVISIONS FOR FLOWABLE BACKFILL. THE MATERIAL MUST BE PLANT-CERTIFIED TO PROVIDE A 28-DAY COMPRESSIVE STRENGTH BETWEEN 30 AND 200 PSI. A CERTIFICATE OF MIX DESIGN MUST BE SUBMITTED TO THE INSPECTOR PRIOR TO PLACING THE MATERIAL IN THE TRENCH. A MINIMUM OF FOUR 6 X 12 TEST CYLINDERS SHALL BE TAKEN EVERY 50 CY OF PLACEMENT. CYLINDERS SHALL BE TESTED BY A QUALIFIED TESTING LABORATORY FOR 28-DAY STRENGTH. RESULTS SHALL BE PROVIDED TO THE INSPECTOR'S OFFICE WITHIN 24 HOURS OF TESTING COMPLETION. THE COST OF ALL TESTING IS THE RESPONSIBILITY OF THE PERMITTEE. IF THE REPORT INDICATED THE COMPRESSIVE STRENGTHS ARE NOT BETWEEN 30 AND 200 PSI, THE PERMITTEE WILL BE RESPONSIBLE FOR REMOVING AND REPLACING THE BACKFILL WITH ACCEPTABLE BACKFILL AND COMPLETING THE RESTORATION OF THE STREET AT NO COST TO THE CITY.

SANITARY SEWER MANHOLE DATA

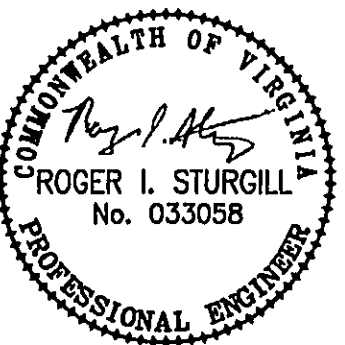
LINE	BEARING	DISTANCE
Existing to 'A'	N. 21°35'35" E.	121.2'
'A' to 'A2'	N. 06°06'00" W.	102.5'
'A2' to 'B'	S. 83°54'00" W.	20.0'
'B' to 'C'	S. 86°44'51" E.	359.2'
'A2' to 'D'	N. 82°28'27" E.	261.2'
'B' to 'E'	N. 06°06'00" W.	166.9'
'E' to 'F'	N. 12°32'00" E.	288.2'
'F' to 'G'	N. 26°31'59" W.	131.9'

STATIONS AND OFFSETS ARE MEASURED ALONG A BASELINE FROM CENTER OF MANHOLE TO CENTER OF MANHOLE WITH 0+00.0 BEING THE BEGINNING AT THE LOWER MANHOLE.

THE MIN. FLOOR ELEVATION IS BASED ON SEC. 200.02-2-G-1-H OF THE WESTERN VIRGINIA WATER AUTHORITY WATER & SEWER REGULATIONS. LOT OWNERS REQUESTING A LOWER SERVICE ELEVATION WILL REQUIRE THE USE OF A PRIVATE SEWAGE PUMP FACILITY, INSTALLED AND MAINTAINED BY THE HOMEOWNER.

LOT	DOWNSIDE MANHOLE	DIST.	TOP OF S.S. MAIN	MIN. F.F. ELEVATION	APPROX. F.F. ELEV.
1	'C'	-MH-	1076.2	1079.5	1079.5
2	'B-west'	311'	1071.6	1074.6	1079.5
3	'B-west'	259'	1066.7	1069.7	1076.0
4	'B-west'	207'	1061.7	1064.7	1070.0
5	'B-west'	155'	1056.8	1059.8	1065.0
6	'B-west'	103'	1051.9	1054.9	1060.0
7	'B-west'	51'	1046.9	1049.9	1055.0
8	'A'	19'	1040.1	1043.1	1052.0
9	'A'	17'	1040.1	1043.1	1051.5
10	'A2-east'	62'	1041.3	1044.3	1051.5
11	'A2-east'	114'	1041.9	1044.9	1051.5
12	'A2-east'	166'	1042.4	1045.4	1051.5
13	'A2-east'	222'	1043.0	1046.0	1051.5
14	'D'	-MH-	1043.3	1046.3	1051.5
15	'D'	-MH-	1043.3	1046.3	1051.5
16	-	-	-	-	-
17	'A2-east'	140'	1042.0	1045.0	1049.5
18	'A2-east'	71'	1041.4	1044.4	1049.5
19	'A2-east'	28'	1041.0	1044.0	1049.5
20	'B-north'	141'	1049.8	1052.8	1053.5
21	'E'	59'	1061.0	1064.0	1065.5
22	'E'	117'	1070.5	1073.5	1079.5

LOT	DOWNSIDE MANHOLE	DIST.	TOP OF S.S. MAIN	MIN. F.F. ELEVATION	APPROX. F.F. ELEV.
23	'E'	179'	1080.7	1083.7	1095.5
24	'E'	251'	1092.6	1095.6	1103.5
25	'F'	-MH-	1098.7	1101.7	1111.5
26	'F'	43'	1105.2	1108.2	1118.5
27	'F'	115'	1115.4	1118.4	1124.5
28	'G'	-MH-	1117.7	1120.7	1121.0
29	'F'	69'	1108.9	1111.9	1114.0
30	'E'	262'	1094.5	1097.5	1100.0
31	'E'	189'	1082.3	1085.3	1090.0
32	'E'	135'	1073.5	1076.5	1089.0
33	'E'	77'	1063.9	1066.9	1079.5
34	'E'	23'	1055.0	1058.0	1071.0
35	'B-north'	143'	1049.9	1052.9	1063.0
36	'B-north'	64'	1045.6	1048.6	1060.0
37	'B-west'	103'	1051.9	1054.9	1065.0
38	'B-west'	159'	1057.2	1060.2	1071.0
39	'B-west'	215'	1062.5	1065.5	1076.5
40	'B-west'	271'	1067.8	1070.8	1082.0
41	'B-west'	342'	1074.5	1077.5	1085.5
42	'C'	-MH-	1076.2	1079.2	1087.5



REFLECTING TOMORROW
www.balzer.cc
PLANNERS • ARCHITECTS
ENGINEERS • SURVEYORS

1208 Corporate Circle
Roanoke, Virginia 24078
Phone: 540/772-9580
FAX: 540/772-9050

501 Branchway Road
Richmond, Virginia 23236
Phone: 804/784-0271
FAX: 804/784-2635

880 Technology Park Drive
Suite 200
Glen Allen, Virginia 23060
Phone: 804/655-0132
FAX: 804/655-0135

448 Peppers Ferry Road, NW
Christiansburg, Virginia 24073
Phone: 804/381-4290
FAX: 804/381-4291

1567 Commerce Road
Suite 201
Verona, Virginia 24482
Phone: 540/248-3220
FAX: 540/248-3221

MAPLE RIDGE
CIVIL NOTES AND DETAILS
ROANOKE CITY, VIRGINIA

DRAWN BY: JVJ

DESIGNED BY: JVJ

CHECKED BY: SMH

DATE: 09/29/2006

REVISIONS:

1st - 02/26/2007 per City Review

2nd - 04/20/2007 per City Review

3rd - 05/15/2007 per City Review

4th - 08/28/2007 Owner Reviews

5th - 09/20/2007 per City Review

SHEET NO.

C-3

JOB NO.

R0400131.03