

VICINITY MAP
NOT TO SCALE

STORMWATER COLLECTION SYSTEM SUMMARY OF PIPES													
FROM	TO	SIZE (IN.)	LENGTH (FT.)	SLOPE (%)	DISCHARGE (CU.FT./SEC.)	TOTAL DISCHARGE (AC)	C	I	VELOCITY	FLOW DEPTH	Q PIPE FULL MAX. DISCHARGE	UPSTREAM INVERT	DOWNSIDE INVERT
1	2	15" RCP	80.05	1.00	1.22	1.22	.30	.60	6.80	4.04	.37	6.95	1022.64
2	3	15" RCP	157.00	1.13	1.03	2.23	.16	.95	6.80	5.00	.49	7.39	1021.64
3	EX. 4	18" RCP	23.10	0.56	1.61	8.03	.25	.95	6.80	5.06	1.26	8.46	1019.77
5	6	15" RCP	16.41	0.50	3.55	3.55	.55	.95	6.80	4.11	.83	4.91	1021.41
6	3	18" RCP	146.24	1.00	0.64	4.19	.10	.95	6.80	5.61	11.30	1021.33	1019.87

1. ALL DRAINAGE STRUCTURES TO HAVE INLET PROTECTION PER VIRGINIA DCR STD/SPECIFICATIONS.
2. ADJUST PIPE LENGTHS, SLOPES, INVERTS, ETC. IN FIELD AS REQUIRED. CONTRACTOR TO COORDINATE WITH ENGINEER. CHANGES MUST BE APPROVED THROUGH CITY OF ROANOKE, PLANNING, BUILDING, AND ECONOMIC DEVELOPMENT.
3. ALL STRUCTURES TO HAVE INLET PROTECTION.
4. CONTRACTOR TO VERIFY ALL EXISTING STRUCTURES/PIPES LOCATIONS, INVERTS AND SIZES PRIOR TO CONSTRUCTION.
5. ALL STORM DRAINAGE PIPE TO BE RCP.

DS #	REF. ELEV.	DESCRIPTION	DS #	REF. ELEV.	DESCRIPTION
1	1027.40±	DI - RIM EL.	EX. 4	1023.06	DI - RIM EL.
2	1027.50±	CB - RIM EL.	5	1025.50±	CB - RIM EL.
3	1025.00±	CB - RIM EL.	6	1023.50±	DI - RIM EL.

CB - CATCH BASIN HP - HIGH POINT
DI - DRAIN INLET LP - LOW POINT

NOTE: NONE OF THIS PROPERTY LIES WITHIN THE LIMITS OF A 100 YEAR FLOOD BOUNDARY AS DESIGNATED BY FEMA. THIS OPINION IS BASED ON AN INSPECTION OF THE FLOOD INSURANCE RATE MAPS AND HAS BEEN VERIFIED BY ACTUAL FIELD ELEVATIONS. SEE COMMUNITY PANEL NUMBER 510130 0041 D, MAP NUMBER 51161C0041 D, DATED OCTOBER 15, 1993. "ZONE X"

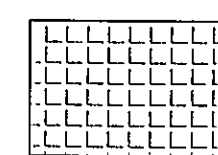
ABBREV.	DESCRIPTION
AEP	Appalachian Electric Power
APCO	Appalachian Power Company
DI	Drop Inlet
OU	Overhead Utilities
W	Waterline

LEGEND

Existing Property Monument
Sanitary Sewer Manhole
Utility Pole
Sign
Directional Arrow
Property Corner

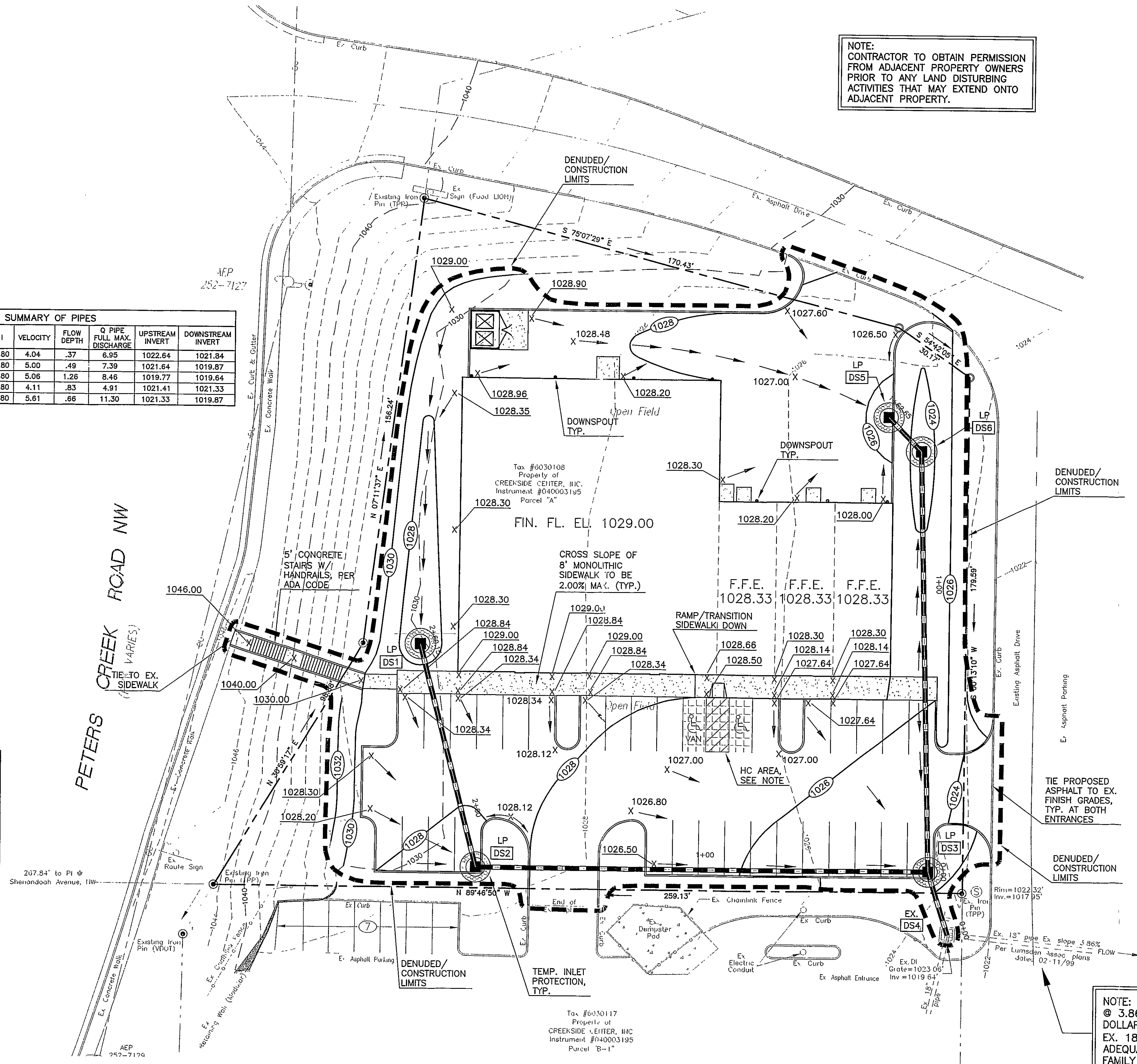
GRADING LEGEND

	STORM STRUCTURE NUMBER
	TEMP. INLET PROTECTION
	PROP. DRAINAGE FLOW
	PROP. SPOT ELEVATION
	PROP. CONTOUR LINE
	EX. CONTOUR LINE
	DENUDED/CONSTRUCTION LIMITS



CONTRACTOR TO SLOPE ALL HANDICAP AREAS AT A MAX. 2.0% IN ALL DIRECTIONS. CONTRACTOR TO INSURE PAVEMENT GRADE IS CORRECT. ALL HANDICAP RAMPS TO MEET ADA CODES.

NOTE: CONTRACTOR TO OBTAIN PERMISSION FROM ADJACENT PROPERTY OWNERS PRIOR TO ANY LAND DISTURBING ACTIVITIES THAT MAY EXTEND ONTO ADJACENT PROPERTY.



GENERAL GRADING NOTES

1. THE UTILITIES AND THE LOCATIONS THEREOF, SHOWN ON THE DRAWING, REPRESENT THE DESIGNER'S UNDERSTANDING OF EXISTING UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND EXISTENCE OF ALL UTILITIES (ELECTRICAL, MECHANICAL, WATER, TELEPHONE, GAS, ETC.) WITHIN THE CONSTRUCTION AREA WITH THE OWNER AND/OR THE APPROPRIATE UTILITY COMPANY PRIOR TO BEGINNING ANY EXCAVATION. THE OMISSION OF, OR THE INCLUSION OF UTILITY LOCATIONS ON PLANS IS NOT TO BE CONSIDERED AS THE NONEXISTENCE OF, OR A DEFINITE LOCATION OF EXISTING UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. CONTACT U-LOCO (800-632-4949).
2. ALL LANDSCAPE AREAS DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
3. APPROVAL OF THIS PLAN IS NOT AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, CONTRACTOR MUST HAVE WRITTEN PERMISSION FROM THE OWNER(S) BEFORE PROCEEDING.
4. ALL CONSTRUCTION AND CONSTRUCTION MATERIALS WITHIN CITY OF ROANOKE RIGHT-OF-WAY AND DOT RIGHT-OF-WAY SHALL CONFORM TO THEIR STANDARD SPECIFICATIONS (VIRGINIA DEPARTMENT OF TRANSPORTATION).
5. CONTRACTOR TO PROVIDE ALL EROSION CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL AUTHORITIES.
6. ALL HANDICAP RAMPS, PARKING SPACES, ETC. TO MEET ALL ADA CODES.
7. ALL DRIVEWAYS SHALL BE BUILT IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION DEVELOPMENT STANDARDS & CITY OF ROANOKE.
8. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR THE LOCATION AND DIMENSIONS OF BUILDING AND SURROUNDING AREAS.
9. USE WYES, BENDS, TEES, ETC. AS NECESSARY FOR ALL DRAINAGE PIPES DRAINING ROOF LEADERS, DOWN SPOUTS, ETC.
10. CONTRACTOR TO SUBMIT ALL SITE CONSTRUCTION SHOP DRAWINGS TO ENGINEER FOR APPROVAL. ANY SUBSTITUTIONS OR REVISIONS TO MATERIALS OR CONSTRUCTION SHALL BE APPROVED FIRST BY ENGINEERING PRIOR TO CONSTRUCTION.
11. ALL DESIGN & CONSTRUCTION AND CONSTRUCTION MATERIALS SHALL CONFORM TO VIRGINIA DEPARTMENT OF TRANSPORTATION DEVELOPMENT STANDARDS & SPECIFICATIONS AS WELL AS CITY OF ROANOKE & ROANOKE COUNTY LAND DEVELOPMENT STANDARDS.
12. TOP SOIL TO BE STRIPPED AND STOCKPILED IN AREA DESIGNATED BY ENGINEER.
13. ANY UNSUITABLE MATERIALS ON SITE ARE TO BE QUALIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO REMOVING. CONTRACTOR MUST NOTIFY OWNER OR OWNER REPRESENTATIVE IN CASE UNSUITABLE MATERIAL IS UNCOVERED.
14. ANY EXCESS SOIL CAN BE WASTED ON SITE IN AREAS DESIGNATED BY OWNER OR OWNER'S REPRESENTATIVE. USE AS MUCH SOIL AS IS ALLOWED TO ENSURE STABILIZED CONDITIONS.
15. CONTRACTOR TO COORDINATE WITH GEOTECHNICAL ENGINEER ANY SUBSURFACE DRAINAGE SYSTEMS TO BE INSTALLED. IF INITIAL SOILS REPORT RECOMMENDED SUBSURFACE DRAINAGE SYSTEMS BE INSTALLED UNDER FOOTINGS AND BUILDING AREA, CONNECTIONS TO BE FIELD COORDINATED.
16. ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE STATE EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
17. GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF THE STATE EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
18. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE SHOWN ON THE PLAN. ALL GRADED SLOPES MUST BE SEED AND MULCHED WITHIN 15 DAYS OF COMPLETION GRADING. ALL REMAINING AREAS ARE TO BE SEED AND MULCHED WITHIN 90 DAYS.
19. NON-STANDARD ITEMS (IE: PAVERS, IRRIGATION SYSTEMS, ETC.) IN THE RIGHT-OF-WAY REQUIRE A RIGHT-OF-WAY ENCROACHMENT AGREEMENT WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION BEFORE INSTALLATION.

TOTAL SITE AREA: 45,906± SF (1.05± ACRES)
TOTAL DENUDED AREA: 43,971± SF (1.01± ACRES)
TOTAL IMPERVIOUS AREA: 32,408± SF (0.74± ACRES)

NOTE: DOWNSPOUTS ARE LOCATED ALONG THE REAR OF THE BUILDING. ALL ROOF DRAINAGE TO SPILL OUT & ONTO ASPHALT PARKING, RUNNING AWAY FROM BUILDING AND INTO STORM COLLECTION SYSTEM.

NOTE: ALL CONSTRUCTION, CONSTRUCTION MATERIALS, SPECIFICATIONS & DETAILS SHALL BE IN ACCORDANCE WITH CITY OF ROANOKE, VIRGINIA DCR & VDOT GUIDELINE AND CONSTRUCTION PRACTICES.

NOTE: EX. 18" PIPE WILL CARRY 20.64 CFS @ 3.86%, WITH PIPE FLOWING FULL. FAMILY DOLLAR SITE WILL DISCHARGE 8.03 CFS INTO EX. 18" PIPE, THEREFORE EX. 18" PIPE IS ADEQUATE TO CARRY NEW FLOWS FROM THE FAMILY DOLLAR PROJECT.

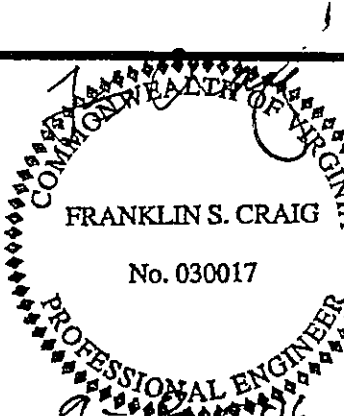
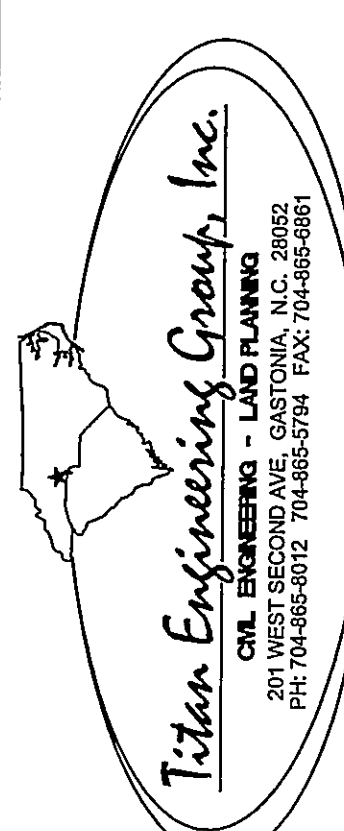
NOTE: EXISTING PIPE SYSTEM TO DETENTION POND LOCATED BEHIND THE FOOD LION BUILDING WAS DESIGNED, MODELED AND APPROVED TO HANDLE ALL STORM RUNOFF FROM THIS OUTPARCEL.



SCALE: 1" = 20'

ISSUE DATE: JULY 13, 2006

NO.	DATE	REVISIONS
1	08/25/06	PER CITY OF ROANOKE COMMENTS



**FAMILY DOLLAR STORE
631 PETERS CREEK ROAD
ROANOKE COUNTY
ROANOKE, VA.**

**GRADING /
DRAINAGE PLAN**

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