WW

# County of Fairfax, Virginia

*To protect and enrich the quality of life for the people, neighborhoods and diverse communities of Fairfax County*

FAIRFAX COUNTY
RECEIVED
NOV - 5 2007
DIVISION OF
ZONING ADMINISTRATION

September 10, 2007

Keith C. Martin
Sack, Harris & Martin, P.C.
8270 Greensboro Drive, Suite 810
McLean, Virginia 22102

RE: Proffered Condition Amendment Application PCA 1999-MV-025-04
(Concurrent with Special Exception Application SE 2007-MV-005)

Dear Mr. Martin:

Enclosed you will find a copy of an Ordinance adopted by the Board of Supervisors at a regular meeting held on September 10, 2007, approving Proffered Condition Amendment Application PCA 1999-MV-025-04 in the name of Marketplace Car Wash, LLC. The Board's action amends the proffers for Rezoning Application RZ 1999-MV-025, previously approved for commercial development to permit a car wash and associated modifications to proffers and site design with an overall Floor Area Ratio (FAR) of 0.13 (concurrent with Special Exception Application SE 2007-MV-005). The subject property is located on the west side of Lorton Market Street, approximately 250 feet from its intersection with Lorton Road on approximately 1.04 acres of land zoned C-6 [Tax Map 107-4 ((23)) C], in the Mount Vernon District, and is subject to the proffers dated August 29, 2007.

Sincerely,

Nancy Vehrs

Nancy Vehrs
Clerk to the Board of Supervisors
NV/dms
Enclosure

**Office of Clerk to the Board of Supervisors**
12000 Government Center Parkway, Suite 533
Fairfax, Virginia 22035
Phone: 703-324-3151 ♦ Fax: 703-324-3926 ♦ TTY: 703-324-3903
Email: clerktothebos@fairfaxcounty.gov

Cc: Chairman Gerald E. Connolly
Supervisor Gerry Hyland, Mount Vernon District
Janet Coldsmith, Director, Real Estate Division. Dept. of Tax Administration
Regina Coyle, Director, Zoning Evaluation Division, DPZ
Diane Johnson-Quinn, Deputy Zoning Administrator, Dept. of Planning and Zoning
Thomas Conry, Dept. Manager. – GIS - Mapping/Overlay
Angela K. Rodeheaver, Section Chief, Transportation. Planning Division
Ellen Gallagher, Capital Projects and Operations Div., Dept. of Transportation
Audrey Clark, Director – Building Plan Review, DPWES
Ken Williams, Plans & Document Control, ESRD, DPWES
Department of Highways-VDOT
Sandy Stallman, Park Planning Branch Manager, FCPA
Charlene Fuhrman-Schulz, Development Officer, DHCD/Design Development Division
District Planning Commissioner
Barbara J. Lippa, Executive Director, Planning Commission
Jose Comayagua, Director, Facilities Management
Gary Chevalier, Office of Capital Facilities/Fairfax County Public Schools
Karyn Mooreland, Chief Capital Projects Sections, Dept. of Transportation

At a regular meeting of the Board of Supervisors of Fairfax County, Virginia, held in the Board Auditorium in the Government Center at Fairfax, Virginia, on the 10th day of September, 2007, the following ordinance was adopted.

**AN ORDINANCE AMENDING THE ZONING ORDINANCE PROFFERED CONDITION AMENDMENT PCA 1999-MV-025-04 (CONCURRENT WITH SE 2007-MV-005)**

**WHEREAS,** Marketplace Car Wash, LLC filed in the proper form an application to amend the proffers for RZ 1999-MV-025 hereinafter described, by amending conditions proffered and accepted pursuant to Virginia Code Ann. 15.2-2303(a), and

**WHEREAS,** at a duly called public hearing the Planning Commission considered the application and the propriety of amending the Zoning Ordinance in accordance therewith, and thereafter did submit to this Board its recommendation, and

**WHEREAS,** this Board has today held a duly called public hearing and after due consideration of the reports, recommendation, testimony and facts pertinent to the proposed amendment, the Board is of the opinion that the Ordinance should be amended,

**NOW, THEREFORE, BE IT ORDAINED,** that that certain parcel of land situated in the Mount Vernon District, and more particularly described as follows (see attached legal description):

Be, and hereby is further restricted by the amended conditions proffered and accepted pursuant to Virginia Code Ann., 15.2-2303(a), which conditions are incorporated into the Zoning Ordinance as it affects said parcel, and

**BE IT FURTHER ENACTED,** that the boundaries of the Zoning Map heretofore adopted as a part of the Zoning Ordinance be, and they hereby are, amended in accordance with this enactment, and that said zoning map shall annotate and incorporate by reference the additional conditions governing said parcels.

GIVEN under my hand this 10th day of September, 2007.

Nancy Vehrs

Nancy Vehrs
Clerk to the Board of Supervisors

PROFFERS
Marketplace Car Wash, LLC
PCA 1999-MV-025-4

August 29, 2007

Pursuant to §15.2-2303(A), Code of Virginia, 1950, as amended, the undersigned applicant and property owner for themselves and for their successors and assigns (hereinafter, "Applicant"), filed for a Proffered Condition Amendment ("PCA") on property identified as Tax Map reference 107-4((23)) Parcel C (hereinafter referred to as "Application Property") hereby agree to the following amendments to the Proffers approved in RZ 1999-MV-025 dated April 18, 2000 where are hereby reaffirmed and incorporated, provided the Board of Supervisors approve PCA 1999-MV-025-4.

REVISE TO READ:

1. GENERALIZED DEVELOPMENT PLAN

a. Subject to the provisions of Section 18-204 of the Fairfax County Zoning Ordinance, development of the Application Property shall be in substantial conformance with the GDP/SE Plat, prepared by Bowman Consulting, dated March 1, 2007, revised through May 24, 2007.

b. Pursuant to Paragraph 4 of Section 18-204 of the Zoning Ordinance, minor modifications from the GDP Plat may be permitted as determined by the Zoning Administrator. The Applicant shall have the flexibility to modify the layout shown on the GDP without required approval of a Proffered Condition Amendment (PCA) provided such changes are in substantial conformance with the GDP as determined by the Zoning Administrator, agents or assigns and neither increase the total gross square footage, decrease the amount of required parking, decrease the amount of open space, nor decrease distance from the face of buildings to the closest property line. Any such modifications shall not impact the limits of clearing and grading and buffers shown on GDP.

c. The Car Wash tunnel shall utilize a conveyor belt system without any raised metal tracks, in substantial conformance with the floor plan attached hereto as "Exhibit B".

ADD TO:

3. Uses

a. The following uses shall be permitted within the Guidelines as shown on the GDP/SE plat:

- Car Wash (Pad B only): up to 5,200 square feet of gross floor area.

ADD TO:

6. Architecture

b. Add last sentence: The architecture of the building within Pad B shall be consistent with the elevation shown on attached Exhibit "A".

NEW:

In the event there are cars waiting to be washed stacked back to a point where the next car would block the travel aisle, an employee shall give the driver a discount coupon and direct the driver to turn into the travel aisle and exit.

NEW:

In order to encourage employees to utilize public transportation, the Applicant shall relocate the existing bus stop from the northeast corner of the site to a more central location along the frontage and provide a bus shelter or a 5' by 8' concrete pedestrian waiting pad as determined by FCDOT at the time of site plan review).

NEW:

The Applicant acknowledges that at such time as the use on Tax Map 107-4((23)) B (Pad A) is developed, the northernmost entrance along Lorton Market Street may be reconfigured to prohibit cars to enter or exit Tax Map 107-4((23))C (Pad B) and the Applicant shall grant necessary permission to make such improvements.

NEW:

Within forty five days of approval of PCA 1999-MV-025-4 and SE 2007-MV-005, the applicant shall landscape around the clock tower on Tax Map 107-4 ((23)) Parcel A at a minimum cost of $30,000 in substantial conformance with Exhibit "C".

[Signature Lines Begin on Following Pages]

APPLICANT/CONTRACT PURCHASER
Marketplace Car Wash, LLC

By: _____
Guy Paolozzi
Member/Manager

By: _____
Keith C. Martin
Member/Manager

TITLE OWNER
Elmwood, L.L.C.

By: KSI America, L.P., its sole member
By: KSI Services/America, LLC, general partner
By: Kettler Inc., its manager

By: _____
Richard W. Hausler, President

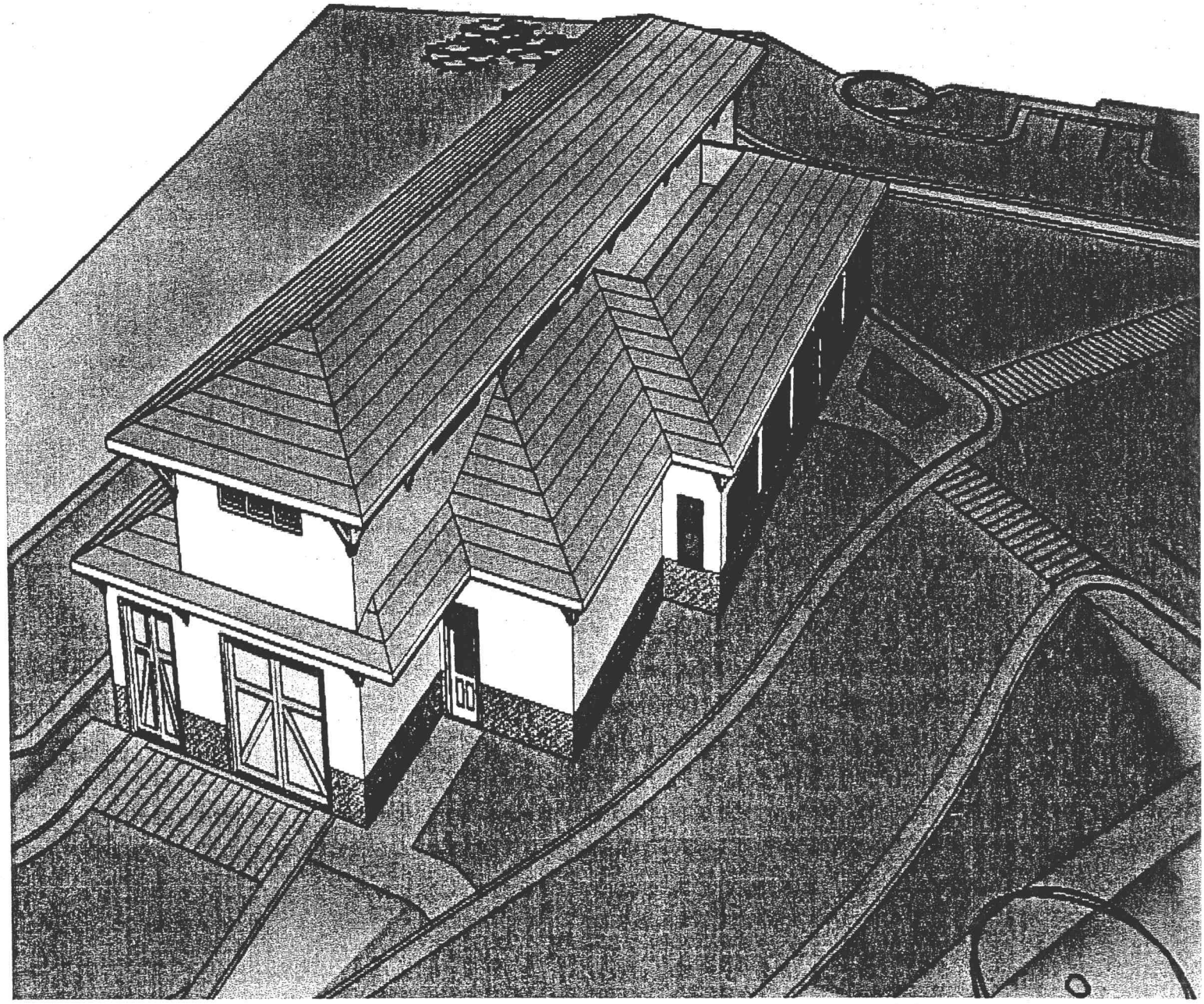
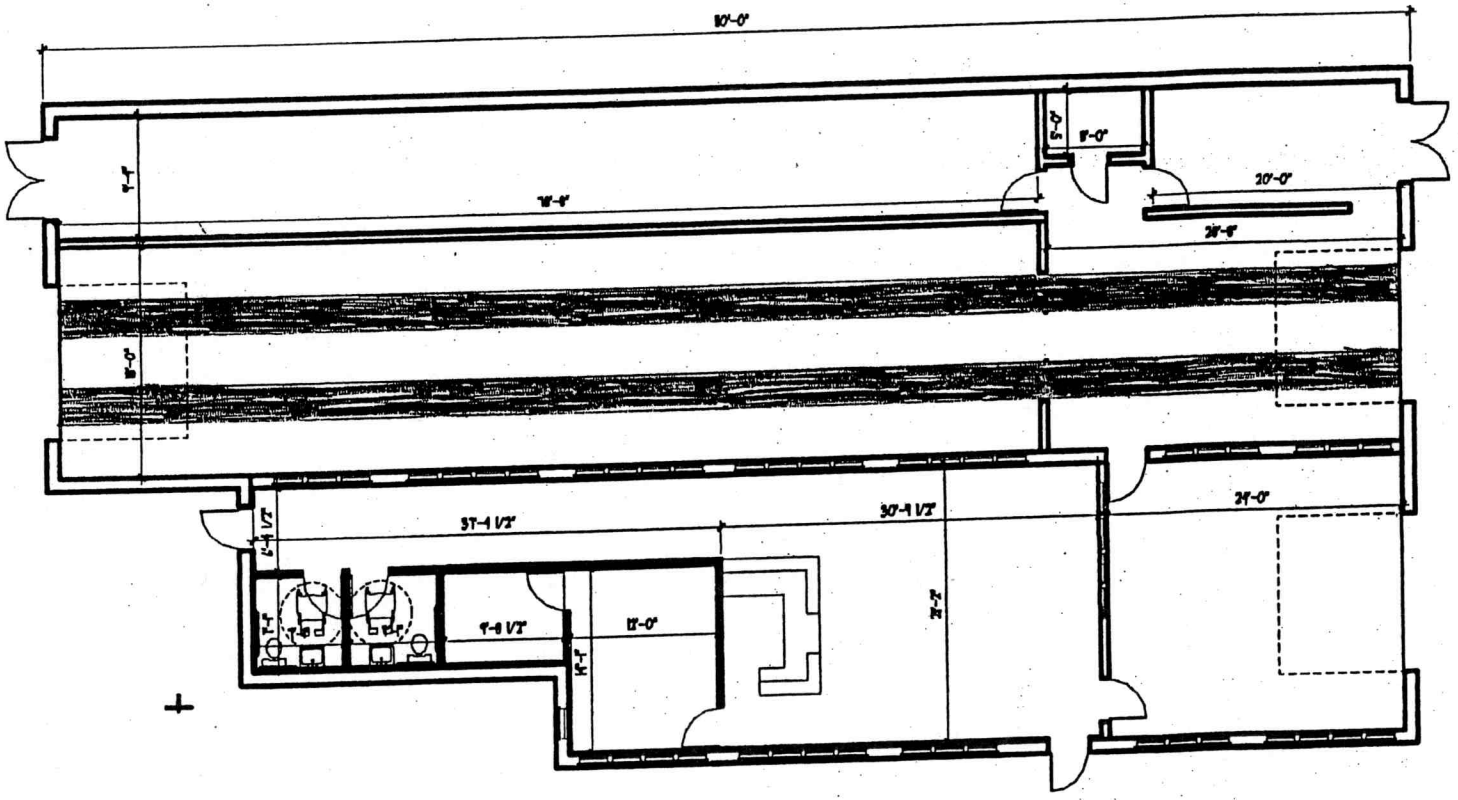
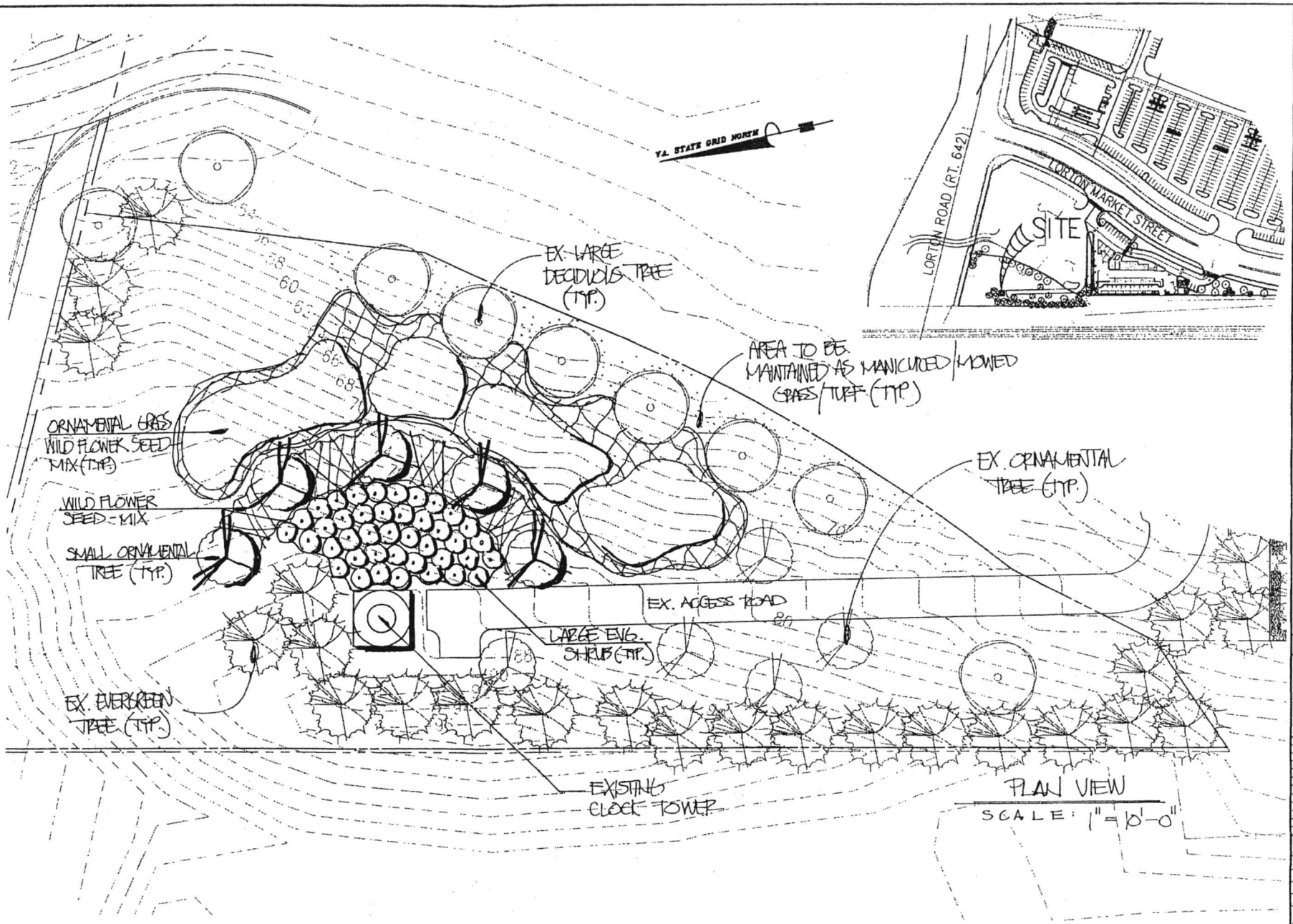


Exhibit A




1 / A3 FLOOR PLAN
SCALE: 1/8" = 1'-0"

REFERENCED: 10A1




Bowman CONSULTING

Bowman Consulting Group, Ltd.
3863 Centerview Drive
Suite 300
Chantilly, Virginia 20151
Phone: (703) 464-1000
Fax: (703) 481-6410
www.bowmanconsulting.com

ENHANCED CLOCK TOWER
LANDSCAPE PLAN
LORTON STATION SOUTH

FAIRFAX COUNTY, VIRGINIA

XXXX
COUNTY PROJECT NUME

PLAN STATUS

| DATE | DESCRIPTION |
|---|---|
| JB DESIGN | JCB DRAWN |
| SCALE | H: 1"=10' |
| JOB No. | 1299-01-005 |
| DATE : | AUGUST 08, 20 |
| FILE No. | |
| SHEET | 1 OF |

Cad file name : P:\1299 - LORTON STATION SOUTH\1299-16-002 (PLN)\Planning\Exhibit\CLOCK TOWER\PBASE.dwg

# CAR WASH

## LORTON STATION SOUTH COMMERCIAL CENTER

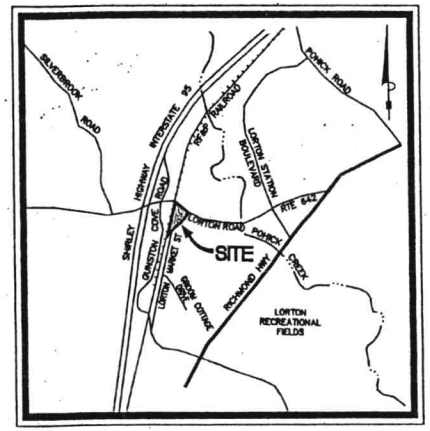
ADDITION OF CAR WASH USE TO PREVIOUSLY PROFFERED PLAN

MOUNT VERNON DISTRICT FAIRFAX COUNTY, VIRGINIA

## GENERALIZED DEVELOPMENT PLAN
## SPECIAL EXCEPTION PLAT

MAY 24, 2007
APRIL 20, 2007
MARCH 01, 2007

RECEIVED
Department of Planning & Zoning
OCT 16 2007
Zoning Evaluation Division




VICINITY MAP
SCALE: 1" = 2000'

**APPLICANT:**

MARKET PLACE CAR WASH, LLC.
10015 HIGH HILL PLACE
GREAT FALLS, VA 22066

**PREPARED BY:**

BOWMAN CONSULTING GROUP, LTD.
14020 THUNDERBOLT PLACE, SUITE 300
CHANTILLY, VA 20151

**AGENT:**

SACK, HARRIS, AND MARTIN, P.C.
8270 GREENSBORO DRIVE
SUITE 810
MCLEAN, VA 22102

**SHEET INDEX**

1. COVER SHEET
2. NOTES & TABULATIONS
3. LIMITS OF PCA / SEA
4. OVERALL SHOPPING CENTER SITE (RZ-1999-MV-025) *
5. SWM/BMP SUMMARY AND NARRATIVES **
5A. BMP DIVIDES, CALCULATIONS, AND NARRATIVE **
5B. SWM/ADEQUATE OUTFALL NARRATIVE & CALCULATIONS **
5C. SWM/ADEQUATE OUTFALL NARRATIVE & CALCULATIONS **

* *ORIGINAL APPROVED REZONING AND SPECIAL EXCEPTION (RZ 1999-MV-025, SE 99-V-020) AS PREPARED BY DEWBERRY & DAVIS. FOR INFORMATION ONLY.*

** *SWM/BMP FACILITY AS APPROVED AND CONSTRUCTED WITH SITE PLAN 4865-SP-10-02 AS PREPARED BY BOWMAN CONSULTING GROUP FOR INFORMATION ONLY.*

Bowman CONSULTING

Bowman Consulting Group, Ltd.
14020 Thunderbolt Place
Suite 300
Chantilly, Virginia 20151
Phone: (703) 464-1000
Fax: (703) 481-9720

COVER SHEET
CAR WASH
LORTON STATION SOUTH COMMERCIAL CENTER

PCA 1999-MV-
SE 2007-MV-
COUNTY PROJECT

PLAN STATU
03/09/07 1st SUBMIS
04/20/07 2nd SUBMI
05/24/07 3rd SUBMI

DATE DESCR
JDB DESIGN RRM DRAWN
SCALE H: AS V:
JOB No. 1299-16
DATE: JANUAR
FILE No. 1299-D
SHEET 1

## GENERAL NOTES:

1. THIS PARTIAL PROFFERED CONDITION AMENDMENT PLAT & SPECIAL EXCEPTION AMENDMENT (PCA/SEA) ACCOMPANIES AN APPLICATION TO PERMIT A FULL SERVICE DRIVE THRU CAR WASH USE TO BE LOCATED ON PAD 'B'.

2. THE SUBJECT PROPERTY IS CURRENTLY ZONED TO THE C-6 ZONING DISTRICT AND IS LOCATED IN THE MOUNT VERNON MAGISTERIAL DISTRICT.

3. THE SUBJECT PROPERTY WAS ORIGINALLY APPROVED PURSUANT TO RZ 1999-MV-025 & SE 99-V-020 ON APRIL 20, 2000, WHICH INCLUDED THE REZONING OF 32.97 ACRES. SUBSEQUENTLY, THE REZONING HAS BEEN AMENDED TO INCLUDE A CHILD CARE CENTER UNDER PLAN (PCA 1999-MV-025-01 AND SEA 99-V-020-01) & A DRIVE-IN BANK UNDER PLAN (PCA 1999-MV-025-02 & SEA-V-020-02).

4. THE TOPOGRAPHY SHOWN ON SHEET 3, WITHIN THE AREA OF PAD 'B', IS AT A CONTOUR INTERVAL OF TWO (2) FEET AS OBTAINED FROM AERIAL PHOTOGRAPHY BY AIR SURVEY, INC..

5. ACCORDING TO COUNTY TAX RECORDS, THE SUBJECT PROPERTY IS IDENTIFIED AS TAX MAP 107-4 ((23)) C. THE THE METES & BOUNDS SHOWN ARE FROM A BOUNDARY SURVEY PREPARED BY BOWMAN CONSULTING, AND ARE RECORDED IN DB 13375/PG 491. THE AREA THAT IS SUBJECT TO THIS PARTIAL PCA/SE IS EQUAL TO 1.03946 ACRES.

6. STORMWATER MANAGEMENT (SWM) AND BEST MANAGEMENT PRACTICES (BMP) REQUIREMENTS FOR THIS SITE HAVE BEEN PROVIDED WITHIN THE ON-SITE SWM/BMP FACILITY PER APPROVED PLANS FOR LORTON MARKET STREET (FAIRFAX COUNTY PLAN # 4865-SP-005). THESE ABOVE GROUND FACILITIES, LOCATED ADJACENT TO AND NORTH OF PAD 'C', ARE GENERALLY SHOWN IN THE LOCATIONS DEPICTED ON SHEET 3 OF THIS PLAN.

7. THE LANDSCAPING AND OPEN SPACE AREAS AS REPRESENTED ON THE ORIGINAL REZONING ( RZ 1999-MV-25/ SE 99-V-020) ARE SUBJECT TO MINOR MODIFICATIONS AT TIME OF FINAL ENGINEERING AND DESIGN. LANDSCAPING AND TREE COVER WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 13 OF THE ZONING ORDINANCE. LANDSCAPING TO BE PROVIDED AS SHOWN ON SHEET 3 OF THE PLAN.

8. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO UTILITY EASEMENTS HAVING A WIDTH OF TWENTY-FIVE (25) OR GREATER LOCATED ON WITHIN THE SUBJECT PROPERTY OF THIS AMENDMENT.

9. THERE ARE NO EXISTING STRUCTURES ON THE SUBJECT PROPERTY.

10. THE NORTH/SOUTH SPINE ROAD IS DEDICATED AS A PUBLIC STREET (LORTON MARKET STREET) AND WAS BUILT WITH SITE PLAN #4865-SP-005.

11. AN EXISTING 5' WIDE SIDEWALK, CONSTRUCTED WITH SITE PLAN #4865-SP-005, RESIDES WITHIN THE RIGHT-OF-WAY OF LORTON MARKET STREET. ACCORDING TO THE COMPREHENSIVE TRAILS PLAN, NO ADDITIONAL TRAILS ARE REQUIRED FOR THE SUBJECT PROPERTY.

12. THERE IS NO FLOODPLAIN WITHIN THE SUBJECT PROPERTY AS DESIGNATED BY THE FEDERAL INSURANCE ADMINISTRATION, UNITED STATES GEOLOGICAL SURVEY OR FAIRFAX COUNTY. THERE IS NO RESOURCE PROTECTION AREAS (RPA) OR ENVIRONMENTAL QUALITY CORRIDOR (EQC) WITHIN THE SUBJECT PROPERTY.

13. THE VAST MAJORITY OF THE SITE HAS BEEN CLEARED & GRADED THUS THE DEVELOPER HAS REQUESTED A WAIVER FROM THE REQUIREMENT THAT AN EXISTING VEGETATION MAP (EVM) BE SUBMITTED WITH THIS APPLICATION.

14. THE MINIMUM YARD REQUIREMENTS SET FORTH IN THE C-6 DISTRICT REGULATIONS OF THE ZONING ORDINANCE ARE AS FOLLOWS:

    FRONT YARD: CONTROLLED BY A 45° ANGLE OF BULK PLANE, BUT NOT LESS THAN 40 FEET.
    SIDE YARD: NO REQUIREMENT.
    REAR YARD: 20 FEET.

15. PURSUANT TO THE PREVIOUSLY APPROVED PROFFERS, APPLICATION AND SITE PLAN (RZ 1999-MV-025/PCA 1996-MV-037/SE 99-V-020), A WAIVER OF THE BARRIER REQUIREMENTS ALONG THE EASTERN, SOUTHERN, AND WESTERN BOUNDARIES AS GRANTED IN ACCORDANCE WITH SECT. 13-304 OF THE ZONING ORDINANCE.

16. PURSUANT TO THE PREVIOUSLY APPROVED PROFFERS, APPLICATION AND SITE PLAN (RZ 1999-MV-025/PCA 1996-MV-037/SE 99-V-020), A MODIFICATION OF THE TRANSITIONAL SCREENING REQUIREMENTS ALONG THE EASTERN, SOUTHERN, AND NORTHERN BOUNDARIES WAS GRANTED IN ACCORDANCE WITH SECT. 13-304 OF THE ZONING ORDINANCE.

17. THE SUBJECT PROPERTY IS LOCATED IN SUBUNIT E-8 OF THE LORTON-SOUTH ROUTE 1 PLANNING SECTOR OF THE ADOPTED COMPREHENSIVE PLAN FOR A MIX OF USES. THE PROPOSED DEVELOPMENT IS CONSISTENT WITH THAT RECOMMENDATION.

18. AT A MINIMUM, PARKING WILL BE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 11 OF THE ZONING ORDINANCE. THE DEVELOPER RESERVES THE RIGHT TO PROVIDE FEWER OR MORE THAN THE NUMBER OF PARKING SPACES PRESENTED HEREON PROVIDED THAT THE AMOUNT OF OPEN SPACES IS NOT DECREASED.

19. A STATEMENT THAT CONFIRMS THE OWNERSHIP OF THIS SUBJECT PROPERTY AND THE NATURE OF THE DEVELOPER'S INTEREST IN SAME IS PROVIDED IN AN AFFIDAVIT SUBMITTED SEPARATELY.

20. THE FOOTPRINT OF THE BUILDING SHOWN HEREON MAY BE MODIFIED IN ACCORDANCE WITH PAR. 4 OF SECT 9-004 AND PAR. 5 SECT. 18-204 OF THE ZONING ORDINANCE. THE TOTAL GROSS FLOOR AREA AND THE BUILDING HEIGHT PRESENTED IN THE TABULATIONS IS TO BE CONSIDERED A MAXIMUM. THE DEVELOPER RESERVES THE RIGHT TO DEVELOP A LESSER AMOUNT OF GROSS FLOOR AREA (GFA) FROM THE TOTAL PRESENTED IN THE TABULATION AND THE BUILDING FOOTPRINT. ANY CHANGE TO THE GFA WILL MODIFY THE ASSOCIATED PARKING LOT LAYOUT ACCORDINGLY. ADDITIONAL PARKING SPACES MAY BE PROVIDED WHERE A BUILDING FOOTPRINT IS REDUCED, SHIFTED OR MODIFIED SO LONG AS THE AREA OF OPEN SPACE PROVIDED IS NOT DECREASED. IT IS UNDERSTOOD THAT SUCH DEVIATIONS ARE PERMITTED PROVIDED THE RESULTS ARE IN SUBSTANTIAL CONFORMANCE WITH THIS PLAN.

21. ADDITIONAL SITE FEATURES SUCH AS PLANTERS, ENTRANCE SIGNS, TRASH/RECYCLING FACILITIES AND/OR WALLS NOT REPRESENTED HEREON MAY BE PROVIDED.

22. DEVELOPMENT OF THE PROPERTY HAS AND WILL COMMENCE WHEN ALL REQUIRED APPROVALS AND PERMITS HAVE BEEN OBTAINED. IT IS CURRENTLY ANTICIPATED THAT DEVELOPMENT OF THE AMENDED PORTION OF THIS APPLICATION WILL COMMENCE UPON RECEIPT OF THE REQUIRED APPROVALS AND PERMITS. HOWEVER, THIS MAY CHANGE SUBJECT TO MARKET CONDITIONS.

23. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO GRAVES LOCATED ON THE PROPERTY SUBJECT TO THIS AMENDMENT.

24. TO THE BEST OF OUR KNOWLEDGE THE USE REPRESENTED HEREON WILL NOT GENERATE, UTILIZE, STORE, TREAT AND/OR DISPOSE OF ANY HAZARDOUS OR TOXIC SUBSTANCES AS SET FORTH IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 116.4, 302.4, AND 355; ANY HAZARDOUS WASTE AS SET FORTH IN COMMONWEALTH OF VIRGINIA/DEPARTMENT OF WASTE MANAGEMENT VR 672-10-1 – VIRGINIA HAZARDOUS WASTE MANAGEMENT REGULATIONS; AND/OR ANY PETROLEUM PRODUCTS AS DEFINED IN TITLE 40, CODE OF FEDERAL REGULATIONS PART 280; HOWEVER, ANY SUCH SUBSTANCES THAT MAY BE UTILIZED, STORED AND/OR DISPOSED OF IN CONJUNCTION WITH THE USES WILL BE IN ACCORDANCE WITH SAID REGULATIONS.

25. THERE ARE NO AREAS THAT HAVE SCENIC ASSETS OR NATURAL FEATURES DESERVING OF PROTECTION OR PRESERVATION ON THE SITE.

26. THERE ARE NO COMMUNITY OR PUBLIC FACILITIES BEING PROPOSED IN CONJUNCTION WITH THE DEVELOPMENT OF THIS PROPERTY.

27. PUBLIC IMPROVEMENTS HAVE INCLUDED THE CONSTRUCTION AND DEDICATION OF LORTON MARKET STREET .

28. ARCHITECTURAL SKETCHES/PHOTOGRAPHIC ILLUSTRATIVES OF THE BUILDING ARE INCLUDED UNDER SEPARATE COVER.

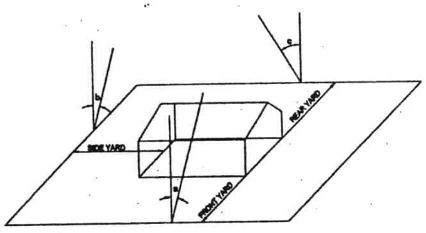
29. WITH THE EXCEPTION OF THE WAIVERS REQUESTED ABOVE, TO THE BEST OF OUR KNOWLEDGE, THE PROPOSED DEVELOPMENT OF THE SUBJECT PROPERTY CONFORMS TO ALL CURRENT APPLICABLE LAND DEVELOPMENT ORDINANCES, REGULATIONS, AND ADOPTED STANDARDS.

## ZONING ORDINANCE SECTION 9-011
## SPECIAL EXCEPTION SUBMISSION REQUIREMENTS

1. APPLICATION FORM TO BE SUBMITTED UNDER SEPARATE COVER.
2. TWENTY-THREE (23) COPIES OF A 24" X 36" PLAT AT A SCALE OF NOT LESS THAN (1" = 50') AND A 8.5" X 11" REDUCTION SHALL BE PROVIDED UPON REQUEST AT THE TIME OF APPLICATION ACCEPTANCE.
   - A. BOUNDARY OF THE ENTIRE PROPERTY WITH BEARING & DISTANCES HAS BEEN SHOWN ON SHEET 4. SEE GENERAL NOTE #5.
   - B. THE SITE TABULATIONS FOR THE PARTIAL PCA/SE ON 1.03946 AC. AND THE OVERALL TABULATIONS OF THE ORIGINAL REZONING (PCA 1999-MV-025/SEA 99-V-20) ON 32.97 AC. ± HAVE BEEN PROVIDED ON SHEET 2 OF THE PLAN.
   - C. SCALE AND NORTH ARROW PROVIDED ON EACH SHEET AS REQUIRED.
   - D. THE PROPOSED CAR WASH TO BE A MAXIMUM OF 6,000 G.S.F. OVERALL DIMENSIONS ARE AS SHOWN ON SHEET 3 OF THE PLAN. THE MAXIMUM PROPOSED HEIGHT IS 35 FEET. THERE ARE NO EXISTING STRUCTURES ON THE SUBJECT PROPERTY. PROPOSED SIGNAGE TO BE PROVIDED UNDER SEPERATE COVER.
   - E. MINIMUM YARD REQUIREMENTS AND A GRAPHIC DEPICTION OF THE BULK PLANE HAVE BEEN PROVIDED ON SHEET 2 OF THE PLAN. DISTANCES FROM EXISTING STRUCTURES AND LOT LINES ARE AS SHOWN ON SHEET 3 OF THE PLAN. SEE GENERAL NOTE #14.
   - F. EXISTING ROADS WITH NAME, ROUTE NUMBERS, AND DIMENSIONS ARE AS SHOWN ON SHEET 3 OF THE PLAN. SEE GENERAL NOTE #27.
   - G. INGRESS AND EGRESS ARE AS SHOWN ON SHEETS 3 AND 4 OF THE PLAN.
   - H. THE PARKING TABULATIONS FOR THE PARTIAL PCA/SE ON 1.03946 AC. AND THE OVERALL PARKING TABULATIONS OF THE ORIGINAL REZONING (PCA 1999-MV-025/SEA 99-V-20) ON 32.33 AC.± HAVE BEEN PROVIDED ON SHEET 2 OF THE PLAN. DISTANCES OF PARKING FROM THE PROPERTY LINE ARE AS SHOWN ON SHEET 3 OF THE PLAN. SEE GENERAL NOTE #18.
   - I. THE SITE WILL BE SERVED BY PUBLIC WATER AND SEWER SERVICE TO BE PROVIDED BY FAIRFAX WATER AND FAIRFAX COUNTY WASTE WATER COLLECTION RESPECTIVELY.
   - J. NO STORMWATER MANAGEMENT IS REQUIRED FOR THIS SITE. THE ABOVE GROUND STORMWATER MANAGEMENT/BMP FACILITY WAS BUILT WITH FAIRFAX COUNTY SITE PLAN 4865-SP-005 AND WAS ENGINEERED TO HANDLE ALL THE STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICE (BMP) REQUIREMENTS FOR THIS SITE. THE STORMWATER SHEETS FROM SITE PLAN 4865-SP-005 DEPICTIONG THE LOCATION AND SWM/BMP COMPUTATIONS WILL BE SUBMITTED UNDER SEPERATE COVERSEE GENERAL NOTE #6.
   - K. THE MAXIMUM F.A.R. HAS BEEN STATED IN THE SITE TABULATIONS FOR THE PARTIAL PCA/SE ON 1.03946 AC.± AND THE OVERALL TABULATIONS OF THE ORIGINAL REZONING (RZ 1999-MV-025/SE 99-V-20) ON 32.97 AC.± AS SHOWN ON SHEET 2 OF THE PLAN.
   - L. THE EXISTING TOPOGRAPHY SHOWN ON SHEET 3 OF THE PLAN IS AT A CONTOUR INTERVAL OF 2' AND WAS MAPPED USING AERIAL PHOTRGRAMATTIC METHODS BY AIR SURVEYS, INC.
   - M. INFORMATION REGARDING THE LIMITS OF CONSTRUCTION & GRADING AND SITE LANDSCAPING IS SHOWN ON SHEET 3 OF THE PLAN. SEE GENERAL NOTES #7 AND #13.
   - N. THERE ARE NO FLOODPLAINS, EQC, OR RPA THAT EXIST ON THE SITE. SEE GENERAL NOTE #12.
   - O. ANY ADDITIONAL SITE FEATURES AND OR AMENITIES IF PROVIDED ARE AS SHOWN ON SHEET 3 OF THE PLAN.
   - P. SEE GENERAL NOTE #8.
   - Q. THERE ARE NO REQUIRED TRAILS PER THE COMPREHENSIVE PLAN THAT ARE TO BE PROVIDED ON THIS PARTIAL PCA/SE. SEE GENERAL NOTE #11.
   - R. SEE GENERAL NOTE #23.
   - S. SEAL AND SIGNATURE PROVIDED ON EACH SHEET OF THE PLAT AS REQUIRED.
3. FAIRFAX COUNTY TAX MAP AT A SCALE OF (1"-500') TO BE PROVIDED UNDER SEPARATE COVER.
4. ALL PHOTO DOCUMENTATION OF THE PROPERTY TO BE PROVIDED UNDER SEPARATE COVER.
5. NOT APPLICABLE FOR COMMERCIAL DEVELOPMENT.
6. AFFIDAVIT TO BE PROVIDED UNDER SEPARATE COVER.
7. A WRITTEN STATEMENT TO BE PROVIDED UNDER SEPARATE COVER.
8. OWNERSHIP AND INTEREST TO BE PROVIDED UNDER SEPARATE COVER.
9. NOT APPLICABLE
10. APPLICATION FEE TO BE INCLUDED UNDER SEPARATE COVER.

### ANGLE OF BULK PLANE DETAIL

** NOT TO SCALE




NOTES:

1) MINIMUM YARD REQUIREMENTS
   - FRONT YARD: ∢a 45° BUT NOT LESS THAN 40'.
   - SIDE YARD: ∢b NO REQUIREMENT
   - REAR YARD: ∢c NOT LESS THAN 20'.
2) MAXIMUM BUILDING HEIGHT = 40'
3) PROPOSED BUILDING HEIGHT = 35'

## SITE TABULATIONS:

### GDP/SE FOR PAD 'B' CAR WASH

| | |
|---|---|
| PARTIAL PCA/SE SUBJECT LAND AREA | 1.03946 AC ± OR 45,279 S.F. ± |
| EXISTING GROSS FLOOR AREA (GFA) (PAD 'B' SUBJECT OF THIS APPLICATION) | UP TO 2,500 SF |
| PROPOSED CAR WASH GROSS FLOOR AREA: | 5,200 ± SF |
| PAD 'B' FLOOR AREA RATIO | .115 F.A.R. |
| PARKING REQUIRED: | 4 SPACES PER DETAILING BAY = 4 + 1 SPACE PER EMPLOYEE = 14 FOR TOTAL OF 18 SPACES |
| PARKING PROVIDED: | 18 SPACES |
| SERVICE BAYS PROPOSED: | 1 |
| STACKING SPACES REQUIRED: | 10 PER SERVICE BAY |
| STACKING SPACES PROVIDED: | 10 TOTAL |
| (SEE SHEET 3 FOR STACKING GEOMETRY) | |
| OPEN SPACE REQUIRED (15%): | .155 AC. OR 6,751.8 S.F. |
| OPEN SPACE PROVIDED (24%): | .249 AC OR 10,846.44 |

### OVERALL SHOPPING CENTER ORIGINAL APPROVAL (CASE # RZ-1999-MV-025)

| | |
|---|---|
| CURRENT ZONING | C-6 |
| TOTAL LAND AREA | 32.97± AC |
| APPROVED GROSS FLOOR AREA | 187,750 SF |
| SHOPPING CENTER (MAIN BUILDING) | 134,500 SF |
| SPECIAL EXCEPTION USES (PADS A, B & C) | 16,250 SF |
| NON-RETAIL | 37,000 SF |
| TOWNHOUSE OFFICE | 21,000 SF |
| SHOPPING CENTER (MAIN BUILDING) | 16,000 SF |
| PERMITTED MAXIMUM FLOOR AREA RATIO | 0.40 |
| APPROVED FLOOR AREA RATIO | 0.13 |
| MAXIMUM BUILDING HEIGHT (PERMITTED/PROPOSED): | 40 FT* |
| PARKING SPACES REQUIRED | 737 |
| RETAIL (150,750 ÷ 1,000 x 4) | 603 |
| OFFICE & OTHER NONRETAIL USES (37,000 ÷ 1,000 x 3.6) | 134 |
| PARKING SPACES PROVIDED | 912** |
| OPEN SPACE REQUIRED (15%) | 4.64± AC |
| OPEN SPACE PROVIDED (30%) | 10.00± AC |

* EXCLUSIVE OF THE PROPOSED 65± FOOT CLOCK TOWER

** THERE ARE APPROXIMATELY 85 SPACES RESERVED FOR COMMUTER PARKING DURING NORMAL WORKING HOURS INCLUDED IN THIS TOTAL

### MINIMUM STORMWATER INFORMATION FOR REZONING, SPECIAL EXCEPTION, SPECIAL PERMIT AND DEVELOPMENT PLAN APPLICATIONS

The following information is required to be shown or provided in all zoning applications, or a waiver request of the submission requirement with justification shall be attached. Note: Waivers will be acted upon separately. Failure to adequately address the required submission information may result in a delay in processing this application.

This information is required under the following Zoning Ordinance paragraphs:

| | |
|---|---|
| Special Permits (8-011 2J & 2L) | Special Exceptions (9-011 2J & 2L) |
| Cluster Subdivision (9-615 1G & 1N) | Commercial Revitalization Districts (9-622 2A (12) & (14)) |
| Development Plans PRC District (16-302 3 & 4L) | PRC Plan (16-303 1E & 1O) |
| FDP P Districts (except PRC) (16-502 1F & 1Q) | Amendments (18-202 10F & 10I) |

☑ 1. Plat is at a minimum scale of 1"=50' (unless it is depicted on one sheet with a minimum scale of 1"=100').

☑ 2. A graphic depicting the stormwater management facility(ies) and limits of clearing and grading accommodate the stormwater management facility(ies), storm drainage pipe systems and outlet protection, pond spillways, access roads, site outfalls, energy dissipation devices, and stream stabilization measures as shown on Sheet ____.

☐ 3. Provide:

| Facility Name/ Type & No. | On-site area served (acres) | Off-site area served (acres) | Drainage area (acres) | Footprint area (sf) | Storage Volume (cf) | If pond, dam height (ft) |
|---|---|---|---|---|---|---|
| [illegible] | | | | | | |
| | | | | | | |
| | | | | | | |
| Totals | | | | | | |

☑ 4. Onsite drainage channels, outfalls and pipe systems are shown on Sheet ____. Pond inlet and outlet pipe systems are shown on Sheet ____.

☑ 5. Maintenance access (road) to stormwater management facility(ies) are shown on Sheet ____. Type of maintenance access road surface noted on the plat is ____ (asphalt, geoblock, gravel, etc.).

☑ 6. Landscaping and tree preservation shown in and near the stormwater management facility is shown on Sheet ____.

☑ 7. A 'stormwater management narrative' which contains a description of how detention and best management practices requirements will be met is provided on Sheet ____.

☑ 8. A description of the existing conditions of each numbered site outfall extended downstream from the site to a point which is at least 100 times the site area or which has a drainage area of at least one square mile (640 acres) is provided on Sheet ____.

☑ 9. A description of how the outfall requirements, including contributing drainage areas of the Public Facilities Manual will be satisfied is provided on Sheet ____.

☑ 10. Existing topography with maximum contour intervals of two (2) feet and a note as to whether it is an air survey or field run is provided on Sheets ____.

☐ 11. A submission waiver is requested for ____.

☑ 12. Stormwater management is not required because THE ABOVE GROUND STORMWATER MANAGEMENT/BMP FACILITY WAS BUILT WITH FAIRFAX COUNTY SITE PLAN 4865-SP-005 AND WAS ENGINEERED TO HANDLE ALL THE STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICE (BMP) REQUIREMENTS FOR THIS SITE. SEE SHEETS 5-5C FOR THE STORMWATER SHEETS FROM SITE PLAN 4865-SP-005 DEPICTING THE LOCATION AND SWM/BMP COMPUTATIONS WILL BE SUBMITTED UNDER SEPARATE COVER.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Suite 300
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Phone: (703) 464-1000
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www.bowmanconsulting.com

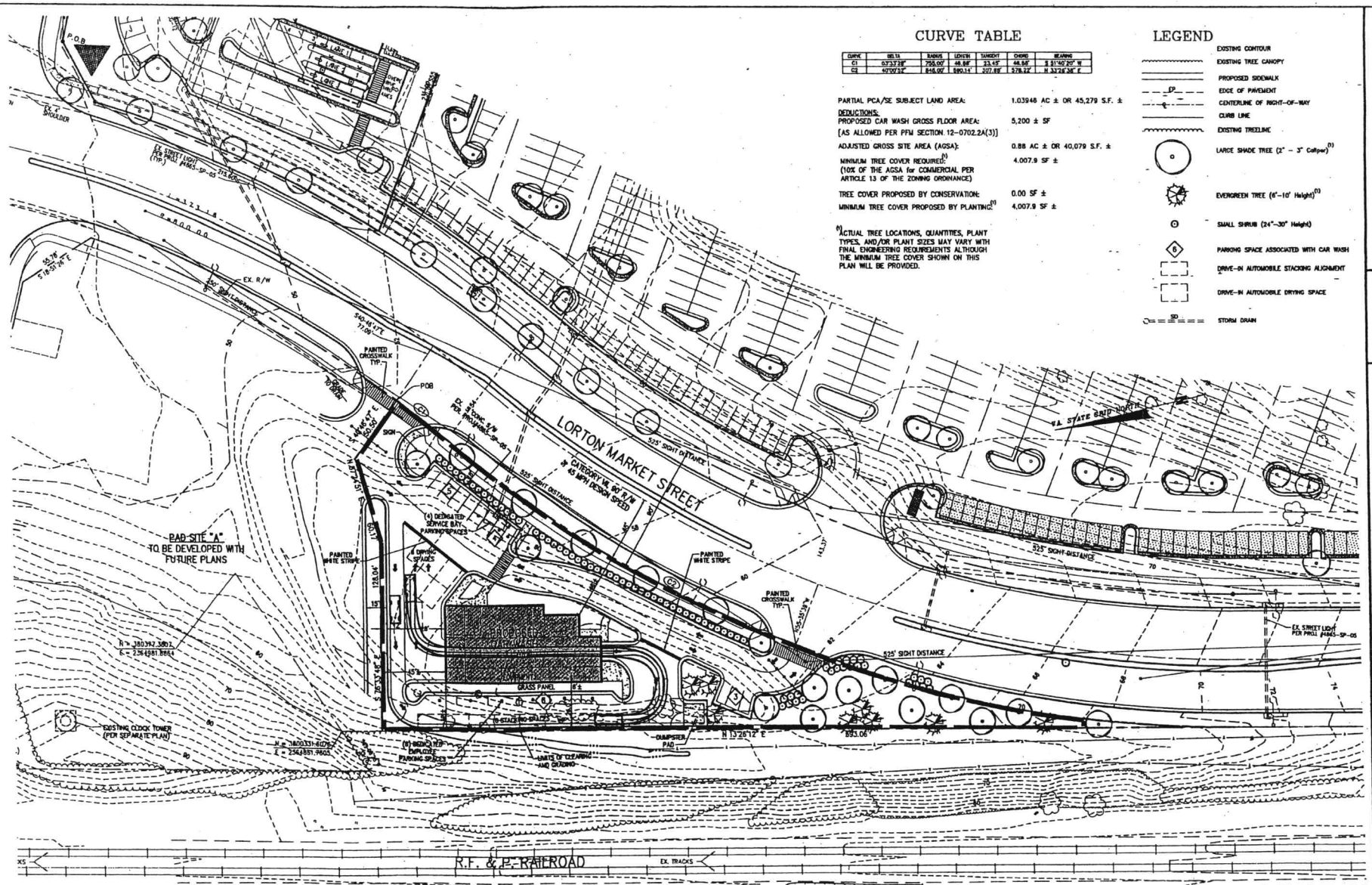

NOTES & TABULATIONS
CAR WASH
LORTON STATION SOUTH COMMERCIAL CENTER

PCA 1999-MV-0
SE 2007-MV-0
COUNTY PROJECT NU

PLAN STATUS

| | |
|---|---|
| 03/01/07 | 1st SUBMISS |
| 04/20/07 | 2nd SUBMISS |
| 05/24/07 | 3rd SUBMISS |

| | |
|---|---|
| DATE | DESCRI |
| JOB DESIGN | RRM DRAWN |
| SCALE | H: NO S V: |
| JOB No. | 1299-18-0 |
| DATE: | JANUARY |
| FILE No. | 1299-D-Z |
| SHEET | 2 O |




## CURVE TABLE

| CURVE | DELTA | RADIUS | LENGTH | TANGENT | CHORD | BEARING |
|---|---|---|---|---|---|---|
| C1 | 03°33'28" | 755.00' | 46.88' | 23.45' | 46.88' | S 51°40'20" W |
| C2 | 40°00'52" | 846.00' | 590.14' | 307.88' | 578.22' | N 33°26'38" E |

PARTIAL PCA/SE SUBJECT LAND AREA: 1.03946 AC ± OR 45,279 S.F. ±

DEDUCTIONS:

PROPOSED CAR WASH GROSS FLOOR AREA: 5,200 ± SF
[AS ALLOWED PER PFM SECTION 12-0702.2A(3)]

ADJUSTED GROSS SITE AREA (AGSA): 0.88 AC ± OR 40,079 S.F. ±

MINIMUM TREE COVER REQUIRED:(1) 4,007.9 SF ±
(10% OF THE AGSA for COMMERCIAL PER ARTICLE 13 OF THE ZONING ORDINANCE)

TREE COVER PROPOSED BY CONSERVATION: 0.00 SF ±

MINIMUM TREE COVER PROPOSED BY PLANTING:(1) 4,007.9 SF ±

(1) ACTUAL TREE LOCATIONS, QUANTITIES, PLANT TYPES, AND/OR PLANT SIZES MAY VARY WITH FINAL ENGINEERING REQUIREMENTS ALTHOUGH THE MINIMUM TREE COVER SHOWN ON THIS PLAN WILL BE PROVIDED.

## LEGEND

- EXISTING CONTOUR
- EXISTING TREE CANOPY
- PROPOSED SIDEWALK
- EDGE OF PAVEMENT
- CENTERLINE OF RIGHT-OF-WAY
- CURB LINE
- EXISTING TREELINE
- LARGE SHADE TREE (2" – 3" Caliper)(1)
- EVERGREEN TREE (6'–10' Height)(1)
- SMALL SHRUB (24"–30" Height)
- PARKING SPACE ASSOCIATED WITH CAR WASH
- DRIVE-IN AUTOMOBILE STACKING ALIGNMENT
- DRIVE-IN AUTOMOBILE DRYING SPACE
- STORM DRAIN

CAR WASH LOCATION (PAD SITE "B")
SCALE: 1"=30'

SPECIAL EXCEPTION AMENDMENT NOTES:

Bowman

Bowman Consulting Group, Ltd.
14020 Thunderbolt Place
Suite 300
Chantilly, Virginia 20151
Phone: (703) 484-1000

LIMITS OF PCA / SEA
CAR WASH

PCA 1999-
SE 2007-
COUNTY PROJE

PLAN ST
03/01/07 1st S
04/20/07 3rd S
05/24/07 3rd S

DATE
JOB DESIGN
SCALE
JOB No. 129
DATE: JAN
FILE No. 129
SHEET 3

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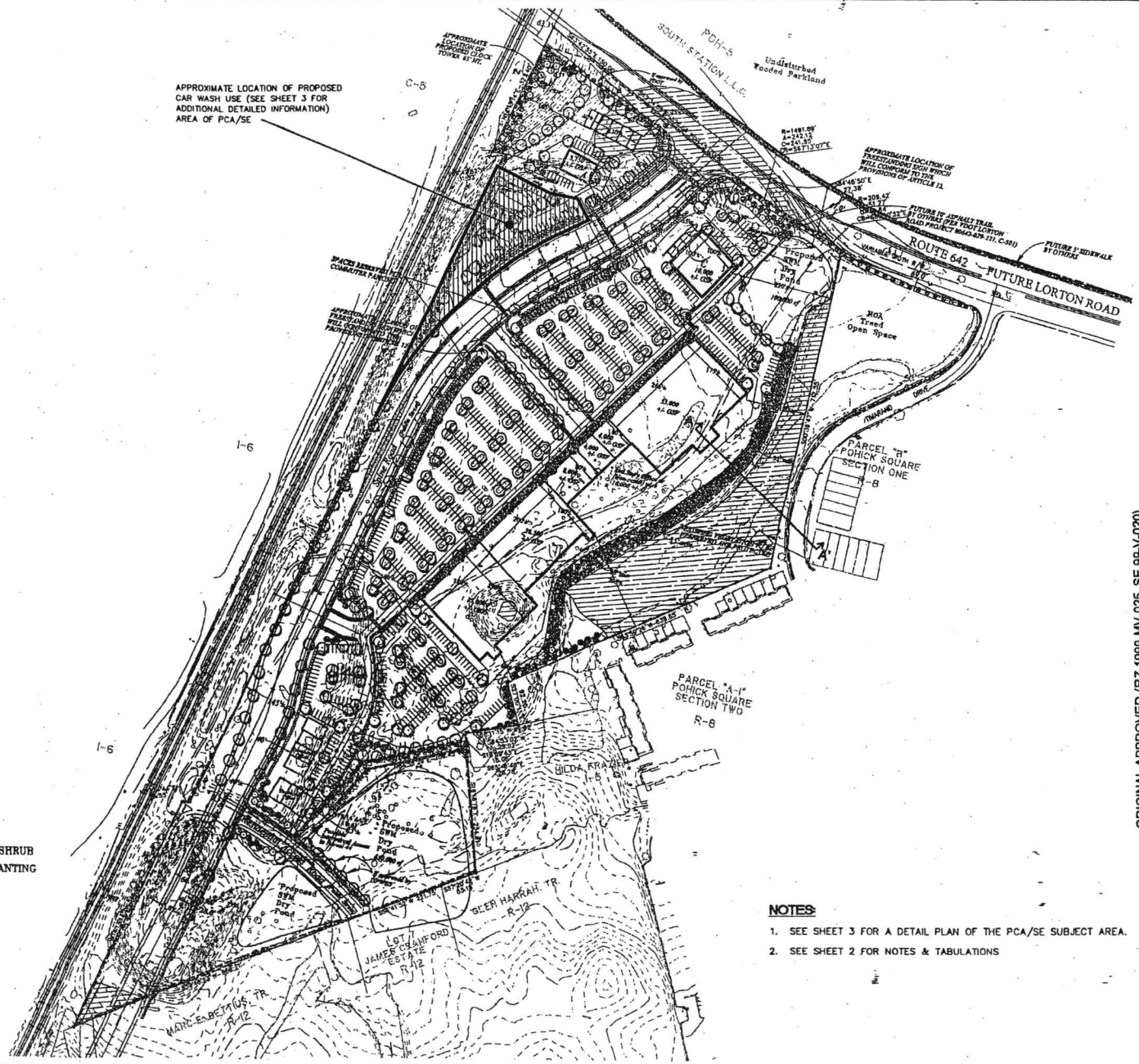


ORIGINAL APPROVED (RZ 1999-MV-025, SE 99-V-020)
AS PREPARED BY DEWBERRY & DAVIS - FOR INFORMATION ONLY

**NOTES:**

1. SEE SHEET 3 FOR A DETAIL PLAN OF THE PCA/SE SUBJECT AREA.
2. SEE SHEET 2 FOR NOTES & TABULATIONS

Bowman

OVERALL SHOPPING CENTER SITE (RZ-1999-MV-025)

**CAR WASH**

LORTON STATION SOUTH COMMERCIAL CENTER

PCA 1999-MV
SE 2007-MV

COUNTY PROJECT

| PLAN STAT | |
|---|---|
| 03/01/07 | 1st SUBM |
| 04/20/07 | 2nd SUBM |
| 05/24/07 | 3rd SUBM |
| DATE | DESC |
| JOB DESIGN | DRAW |
| SCALE | H:1", V: |
| JOB No. | 1299-1 |
| DATE: | JANUA |
| FILE No. | 1299-D |
| SHEET | 4 |

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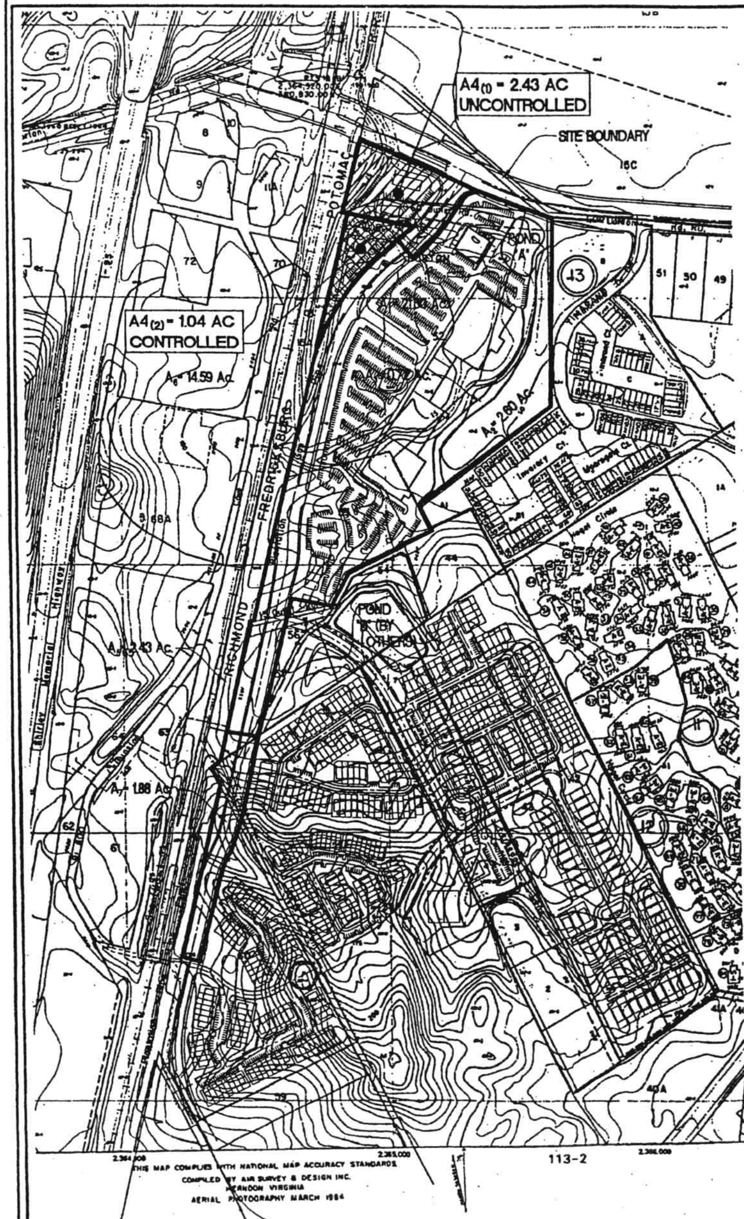


( IN FEET )
1 inch = 200 ft.

VA. STATE GRID NORTH

## BEST MANAGEMENT PRACTICES NARRATIVE

BMP REQUIREMENTS FOR THIS SITE AND THE FUTURE ADJACENT COMMERCIAL AREA (SEE MAP THIS SHEET) ARE PROVIDED BY WAY OF A PROPOSED DRAWDOWN DRY POND (POND "A" PER PROJ. #4885-SP-05) AND CREATION OF A CONSERVATION EASEMENT FOR UNDISTURBED OPEN SPACE. 40% PHOSPHORUS REMOVAL CREDIT IS TAKEN FOR THE DRY POND AND 100% PHOSPHORUS REMOVAL CREDIT IS TAKEN FOR THE CONSERVATION EASEMENT. THS TOTAL PHOSPHORUS REMOVAL FOR THIS SITE EXCEEDS THE REQUIRED 40% (SEE SUPPORTING CALCULATIONS THIS SHEET). THIS REQUIREMENT IS ACHIEVED BY PROVIDING BMP STORAGE VOLUME IN THE POND FOR APPROXIMATELY 14.59 ACRES OF OFF-SITE INDUSTRIAL AREA. IN CONCLUSION, ALTHOUGH THE RUNOFF FOR THIS SITE REMAINS UNCONTROLLED, THE BMP REQUIREMENTS FOR THIS DEVELOPMENT HAVE BEEN ADEQUATLY PROVIDED.

## STORMWATER MANAGEMENT NARRATIVE

A STORMWATER MANAGEMENT (SWM) WAIVER HAS BEEN REQUESTED FOR THIS SITE. (SEE SHEET 18). THEREFORE, PROVISIONS FOR STORMWATER DETENTION ARE NOT PROPOSED WITH THIS SITE.

## ADEQUATE OUTFALL NARRATIVE

STORMWATER RUNOFF FROM THIS SITE WILL DISCHARGE INTO A PROPOSED STORM SEWER SYSTEM WHICH DISCHARGES DIRECTLY INTO THE BED AND BANKS CHANNEL OF POHICK CREEK, WITHIN POHICK CREEK'S 100-YEAR FLOOD PLAIN. POHICK CREEK HAS A DRAINAGE AREA OF APPROXIMATELY 5,060 ACRES AT LORTON ROAD. ACCORDING TO SECTION 6-0203-6C OF THE FAIRFAX COUNTY PFM, POHICK CREEK SATISFIES REQUIREMENTS FOR AN ADEQUATE OUTFALL. IT IS THE OPINION OF THE SUBMITTING ENGINEER THAT NO ADVERSE IMPACTS TO DOWNSTREAM PROPERTIES WILL RESULT OF THE PROPOSED DEVELOPMENT AND THAT ADEQUATE OUTFALL HAS BEEN PROVIDED.

## ADEQUATE OUTFALL NARRATIVE

STORMWATER FROM THIS SITE (LABELED AS AREA A4(2) ON MAP, THIS SHEET IS COLLECTED IN A CLOSED CONDUIT SYSTEM THAT CONVEYS TO EXISTING SWM/BMP IN THE WATER ACROSS LORTON MARKET STREET OSS TIMBRAND POND 'A'. THE POND DISCHARGES TO THE EAST ACROSS TIMBRAND DRIVE AND DIRECTLY INTO THE BED AND BANKS CHANNEL OF POHICK CREEK'S 100 YR FLOODPLAIN. STORMWATER FROM OFFSITE AREA A4(1) IS COLLECTED IN A CLOSED CONDUIT SYSTEM UNDER LORTON ROAD. THE RECEIVING CLOSED CONDUIT SYSTEM WAS DESIGNED BY VDOT WITH THE WIDENING OF LORTON ROAD ANTICIPATING THE PROPOSED DRAINAGE FROM THE DEVELOPMENT OF THIS AREA. THE STORM WATER BYPASSES POND 'A' AND DISCHARGES EVENTUALLY INTO THE BED AND BANKS OF POHICK CREEK WITHIN POHICK CREEK'S 100YR FLOODPLAIN. POHICK CREEK HAS A DRAINAGE AREA OF APPROX. 5,060 ACRES AT LORTON ROAD, WHICH IS GREATER THAN 100 TIMES THE CONTRIBUTING SITE AREA. ACCORDING TO SECTION 6-0203.2B OF THE FAIRFAX COUNTY PFM, POHICK CREEK SATISFIES THE REQUIREMENTS FOR AN ADEQUATE OUTFALL. DETAILED SUPPORTING CALCULATIONS WILL BE PROVIDED WITH FINAL ENGINEERING. IT IS THE OPINION OF THE SUBMITTING ENGINEER (BOWMAN CONSULTING GROUP, LTD) THAT NO ADVERSE IMPACTS TO DOWNSTREAM PROPERTIES WILL RESULT FROM THE PROPOSED DEVELOPMENT AND THAT ADEQUATE OUTFALL HAS BEEN PROVIDED.

## BMP FACILITY DESIGN CALCULATIONS

Plan Name: SUDS CAR WASH
Plan Number:
Date: May 24, 2007
Engineer: ARV

**PART 1: SUBAREA DESIGNATION AND DESCRIPTION**

| | | "C" | ACRES |
|---|---|---|---|
| A1 | CONTROLLED, DRY POND | 0.85 | 21.300 |
| A2 | UNDISTURBED - CONSERVATION EASEMENT | 0.30 | 2.600 |
| A3 | UNCONTROLLED | 0.30 | 0.720 |
| A4(1) | ON-SITE, UNCONTROLLED | 0.75 | 2.430 |
| A4(2) | ON-SITE, CONTROLLED, DRY POND | 0.75 | 1.040 |
| A5 | OFF-SITE TO DRY POND | 0.30 | 2.430 |
| A6 | OFF-SITE TO DRY POND | 0.80 | 14.580 |
| | | TOTAL | 45.11 |

**PART 2: COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR THE SITE**

(A) AREA OF SITE (a) 28.09 Ac

| Subarea | Description | "C" | ACRES | C X A |
|---|---|---|---|---|
| A1 | CONTROLLED, DRY POND | 0.85 | 21.300 | 18.11 |
| A2 | UNDISTURBED - CONSERVATION EASEMENT | 0.30 | 2.600 | 0.78 |
| A3 | UNCONTROLLED | 0.30 | 0.720 | 0.22 |
| A4(1) | ON-SITE, UNCONTROLLED | 0.75 | 2.430 | 1.82 |
| A4(2) | ON-SITE, CONTROLLED, DRY POND | 0.75 | 1.040 | 0.78 |
| | | | | TOTAL = 21.70 |

WT."C" = 0.77

**PART 3: CALCULATE TOTAL PHOSPHOROUS REMOVAL FOR SITE.**

| Subarea | BMP Type | Removal EFF. (%) | Area Ratio | C Factor Ratio | Product |
|---|---|---|---|---|---|
| A1 | DRY POND | 40 | 0.758 | 1.100 | 33.37 |
| A2 | CONS. ESMT | 100 | 0.093 | 0.388 | 3.59 |
| A3 | UNCONTROLLED | – | – | – | 0.00 |
| A4(1) | UNCONTROLLED | – | – | – | 0.00 |
| A4(2) | DRY POND | 40 | 0.037 | 0.971 | 1.44 |
| A5 | OFF-SITE TO DRY POND | 40 | 0.017 | 0.388 | 0.27 |
| A6 | OFF-SITE TO DRY POND | 40 | 0.104 | 1.035 | 4.30 |
| | | | | TOTAL = | 42.97 Percent (%) |

**PART 4: DETERMINE COMPLIANCE WITH PHOSPHOROUS REMOVAL REQUIREMENT**

(A) SELECT REQUIREMENT (a) 40%

* WATER SUPPLY OVERLAY DISTRICT (OCCOQUAN WATERSHED) = 50% (FAIRFAX COUNTY AND PRINCE WILLIAM COUNTY)
* CHESAPEAKE BAY PRESERVATION AREA (NEW DEVELOPMENT) = 40% (FAIRFAX COUNTY) 50% (PRINCE WILLIAM COUNTY)
* CHESAPEAKE BAY PRESERVATION AREA (REDEVELOPMENT) = [1-0.9 x (T PRE/T POST)] X 100 = __ %

(B) IF LINE 3(a) 42.97 > OR = LINE 4(a) 40% THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.

BOWMAN CONSULTING GROUP

SWM/BMP SUMMARY AND NARRATIVES

LORTON STATION SOUTH SECTION 6

MOUNT VERNON DISTRICT FAIRFAX COUNTY, VIRGINIA

BLAKE A. SMITH No. 033894 PROFESSIONAL ENGINEER

PLAN STATUS
ISSUED TO CLIENT
1st SUB. DPWES

| DATE | DESCRIPTION |
|---|---|

BAS DESIGN | SH DRAWN | BAS CHKD
SCALE H: 1"=200'
JOB No. 1299-01-006
DATE MAY 31, 2000
FILE No. 1299-D-CP-007
SHEET 10 OF 24

Bowman CONSULTING

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Chantilly, Virginia 20151
Phone: (703) 464-1000
Fax: (703) 481-9720

SWM/BMP SUMMARY AND NARRATIVES
CAR WASH
LORTON STATION SOUTH COMMERCIAL CENTER

PCA 1999-MV
SE 2007-MV
COUNTY PROJECT

PLAN STATUS
03/01/07 1st SUBM
04/20/07 2nd SUBM
05/24/07 3rd SUBM

JOB DESIGN RRM DRAWN
SCALE H: N/ V:
JOB No. 1299-1
DATE: JANUA
FILE No. 1299-D
SHEET 5

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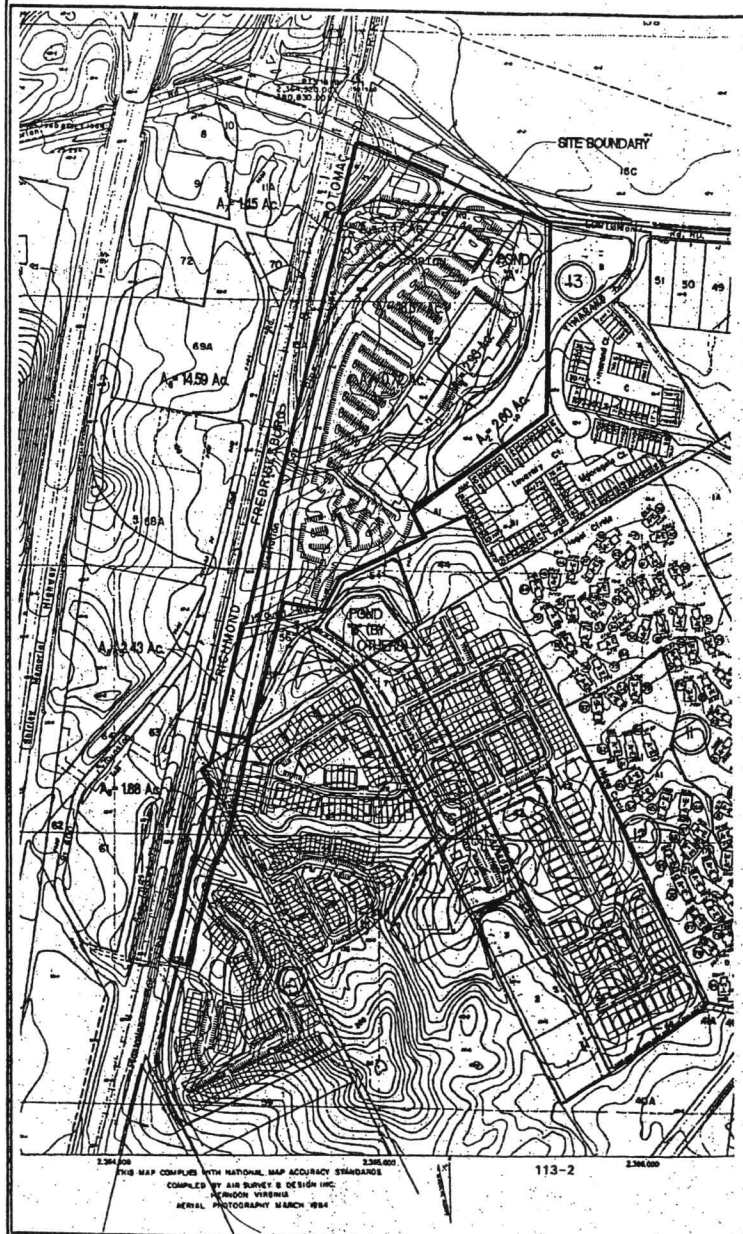



( IN FEET )
1 inch = 200 ft.

N VA. STATE GRID NORTH

## BMP DESIGN CALCULATIONS

PART 1
WATERSHED SUBAREAS ARE DELINEATED ON THIS SHEET.

| SUBAREA DESIGNATION (1) | "C" (2) | ACRES (3) |
|---|---|---|
| $A_1$ CONTROLLED-DRY POND | 0.85 | 18.37 |
| $A_2$ UNDISTURBED-CONSERVATION ESM'T. | 0.30 | 2.80 |
| $A_3$ UNCONTROLLED | 0.30 | 0.75 |
| $A_4$ CONTROLLED-DRY POND | 0.75 | 4.47 |
| $A_5$ OFFSITE-TO DRY POND | 0.30 | 2.43 |
| $A_6$ OFFSITE-TO DRY POND | 0.80 | 14.59 |
| $A_7$ OFFSITE-TO DRY POND | 0.30 | 1.88 |
| $A_8$ UNCONTROLLED | 0.90 | 2.93 |
| $A_9$ CONTROLLED-TO POND "B" | 0.90 | 1.84 |

PART 2
COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR THIS SITE

(A) AREA OF THE SITE (a) 28.09 ACRES

| SUBAREA DESIGNATION (1) | "C" (2) | | ACRES (3) | | PRODUCT (4) |
|---|---|---|---|---|---|
| $A_1$ CONTROLLED-DRY POND | 0.85 | X | 18.37 | = | 15.61 |
| $A_2$ UNDISTURBED-CONSERVATION ESM'T. | 0.30 | X | 2.80 | = | 0.75 |
| $A_3$ UNCONTROLLED | 0.30 | X | 0.75 | = | 0.23 |
| $A_4$ CONTROLLED-DRY POND | 0.75 | X | 4.47 | = | 2.80 |
| $A_8$ UNCONTROLLED | 0.90 | X | 2.93 | = | 2.64 |

(b) TOTAL = 21.85
(C) WEIGHTED AVERAGE "C" FACTOR (b) / (a) = (c) 0.78

PART 3
COMPUTE THE TOTAL PHOSPHORUS REMOVAL FOR THE SITE

| SUBAREA DESIGNATION (1) | BMP TYPE (2) | REMOVAL EFF. (%) (3) | | AREA RATIO (4) | | "C" FACTOR RATIO (5) | | PRODUCT (6) |
|---|---|---|---|---|---|---|---|---|
| $A_1$ | DRY POND | 40 | X | 0.85 | = | 1.09 | = | 28.34 |
| $A_2$ | CONS. ESM'T | 100 | X | 0.09 | = | 1.00 | = | 9.00 |
| $A_3$ | UNCONTROLLED | | X | | = | | = | |
| $A_4$ | DRY POND | 40 | X | 0.15 | = | 0.96 | = | 4.61 |
| $A_5$ | OFFSITE-TO DRY POND | 40 | X | (2.43/14.59) (.09) | = | 1.09 | = | 0.59 |
| $A_6$ | OFFSITE-TO DRY POND | 40 | X | (14.59/14.59) (.09) | = | 1.03 | = | 0.93 |
| $A_7$ | OFFSITE-TO DRY POND | 40 | X | (1.88/14.59) (.09) | = | 0.98 | = | 0.10 |
| $A_8$ | UNCONTROLLED | | X | | = | | = | |

(c) TOTAL = 46.85

DETERMINE COMPLIANCE WITH PHOSPHOROUS REMOVAL REQUIREMENT

PHOSPHOROUS REMOVAL PROVIDED (3c) = 46.85% > 40% REQUIRED, ∴ PHOSPHOROUS REMOVAL PROVIDED

PART 4
DETERMINE COMPLIANCE WITH PHOSPHORUS REMOVAL REQUIREMENT

(A) SELECT REQUIREMENT (a) 40%

- WATER SUPPLY OVERLAY DISTRICT (OCCOQUAN WATERSHED) = SOR (FAIRFAX COUNTY AND PRINCE WILLIAM COUNTY)
- CHESAPEAKE BAY PRESERVATION AREA (NEW DEVELOPMENT) = 40R (FAIRFAX COUNTY) 50R (PRINCE WILLIAM COUNTY)
- CHESAPEAKE BAY PRESERVATION AREA (REDEVELOPMENT) = [1-0.9 x (T. PRE/T. POST)] x 100 = ___%

(b) IF LINE 3(a) 46.85 ≥ LINE 4(a) 40% THEN PHOSPHORUS REMOVAL REQUIREMENT IS SATISFIED.

PART 7
COMPUTE THE WEIGHTED AVERAGE "C" FACTOR FOR THE PROPOSED BMP FACILITY

(A) AREA TO THE PROPOSED BMP FACILITY (a) 25.53 ACRES

| (B) SUBAREA DESIGNATION (1) | (2) | "C" (3) | | ACRES (4) | | PRODUCT |
|---|---|---|---|---|---|---|
| $A_1$ | DRY POND | 0.85 | X | 18.37 | = | 15.61 |
| $A_4$ | DRY POND | 0.75 | X | 3.47 | = | 2.60 |
| $A_5$ | OFFSITE-TO DRY POND | 0.30 | X | 0.57 (2.43) | = | 0.17 |
| $A_6$ | OFFSITE-TO DRY POND | 0.80 | X | 0.10 (14.59) | = | 2.33 |
| $A_7$ | OFFSITE-TO DRY POND | 0.30 | X | 0.11 (1.88) | = | 0.06 |

(c) TOTAL = 20.78
(b)/(a) = 0.81

PART 8
DETERMINE THE STORAGE REQUIRED FOR POND

(A) EXTENDED DETENTION DRY POND

CHART A6-40 VALUE (APPENDIX 4-3) FOR BMP STORAGE PER ACRE
[(4375 X "C") - 875] OR [31.25 X % IMP.] = (a) 2,700 cf/ac

DESIGN 1 (48 HOUR DRAWDOWN)
LINE (a) 25.53 X LINE 8(a) 2,700 = 68,931 cf

PART 9
OUTLET COMPUTATION
DETERMINE THE REQUIRED ORIFICE SIZE FOR POND

(A) BMP STORAGE REQUIREMENT (S) FOR POND (c) 68,931

(B) MAXIMUM HEAD (h) AT THE REQUIRED BMP STORAGE FROM THE ELEVATION-STORAGE CURVE FOR THE FACILITY (b) 6.65'

(C) PEAK OUTFLOW RATE (Qp) AT THE MAXIMUM HEAD FOR A DRAWDOWN TIME OF 48 HOURS [Qp = S/(0.5 X 3600 X 48)] 0.0000118 X LINE (a) 68,931 = (c) 0.80

(D) REQUIRED ORIFICE AREA (A) [A = Qp/(0.6 X (64.4 X h)^0.5)]
LINE (c) 0.80 / [0.60 X (64.4 X LINE (b) 6.65)^0.5] = (d) 0.084 SF

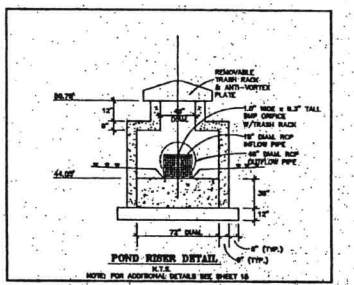
REQUIRED AREA = 0.084 SF X 144 = 8.38 SQ. IN.
USE 1.5" X 8.3" SLOT

## BEST MANAGEMENT PRACTICES NARRATIVE

BMP REQUIREMENTS FOR THIS SITE AND THE FUTURE ADJACENT COMMERCIAL AREA (SEE MAP THIS SHEET) ARE PROVIDED BY WAY OF A PROPOSED DRAWDOWN DRY POND (POND "A") AND CREATION OF A CONSERVATION EASEMENT FOR UNDISTURBED OPEN SPACE. 40% PHOSPHORUS REMOVAL CREDIT IS TAKEN FOR THE DRY POND AND 100% PHOSPHORUS REMOVAL CREDIT IS TAKEN FOR THE CONSERVATION EASEMENT. THE TOTAL PHOSPHORUS REMOVAL FOR THIS SITE EXCEEDS THE REQUIRED 40% (SEE SUPPORTING CALCULATIONS THIS SHEET).

### SECTION G BMP NARRATIVE

SECTION G IS CONTAINED WITHIN THE BMP AREAS SHOWN ON THIS SHEET. AS THESE CALCULATIONS SHOW, BMP REQUIREMENTS HAVE BEEN SATISFIED FOR SECTION G.




POND RISER DETAIL
N.T.S.
MOVED FOR ADDITIONAL DETAILS SEE SHEET 10

NOTES:

1) STRUCTURE IS SHOWN SCHEMATICALLY. STRUCTURAL DRAWINGS SHALL BE PREPARED AND SUBMITTED TO THE DESIGN ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. ALL DESIGNS SHALL BE CERTIFIED BY A LICENSED VIRGINIA PROFESSIONAL ENGINEER. ALL CONNECTIONS/JOINTS IN STRUCTURE SHALL BE WATERTIGHT.
2) STRUCTURE TO BE PROVIDED IN GENERAL CONFORMANCE WITH FAIRFAX COUNTY PFM PLATE 63-6 & 61-6.
3) STEPS SHALL BE PROVIDED ON INTERIOR AND EXTERIOR OF RISER.
4) THE SPILLWAY DESIGN FLOOD (SDF) IS THE 100-YEAR STORM EVENT. THE FREEBOARD HYDROGRAPH (FBH) IS 1.5 TIMES THE 100 YEAR STORM EVENT, IN ACCORDANCE WITH PFM PLATE 6B-6.
5) THE SDF & FBH WERE ROUTED USING NO STORAGE BELOW THE RISER TOP.
6) A CLASS "C" DAM IS PROPOSED IN ACCORDANCE WITH PFM PLATE 84-6. A MINIMUM FREEBOARD OF 3' IS REQUIRED. FREEBOARD PROVIDED = (97.30 - 85.69 = 2.01 FT.).
7) A CLASS "C" DAM REQUIRES A GEOTECHNICAL REPORT AND A SEALED GEOTECHNICAL DESIGN. THE REPORT AND DESIGN SHALL BE SUBMITTED AS PART OF THE 2ND SUBMISSION OF THIS SITE PLAN.
8) DAM CONSTRUCTION SPECIFICATIONS SHALL COMPLY WITH PFM 6-1607 AND THE ATTACHED GEOTECHNICAL RECOMMENDATIONS.
9) SHOULD THE DAM FAIL, THE BREACH RUNOFF WILL NOT ADVERSELY IMPACT ANY DOWNSTREAM STRUCTURES.
10) SWM/BMP POND TO BE PRIVATELY MAINTAINED BY COMMERCIAL CENTER OWNER.
11) ALL AREA WITHIN PROP. CONSERVATION EASTS. ARE WATER QUALITY MANAGEMENT AREAS. BMP CREDIT ALLOWED FOR OPEN SPACE. NO USE OR DISTURBANCE IS PERMITTED W/O THE EXPRESS WRITTEN PERMISSION OF THE DIRECTOR OF DPWES.

### BUOYANCY CALCULATIONS

VOLUME OF CONC. IN RISER = 281.02 CF

DISPLACED VOLUME OF RISER= 444.01 CF
BOUYANT FORCE = (444.01)(62.4)= 27,706 LB.
WEIGHT OF STR.= (281.02)(150)= 42,153 LB.
FACTOR OF SAFETY= 1.52

THIS SHEET FOR INFORMATION PURPOSES ONLY!!

BOWMAN CONSULTING GROUP

BMP DIVIDES, CALCULATIONS, AND NARRATIVE
LORTON MARKET STREET
(FOR A FAST FOOD RESTAURANT W/ DRIVE-THRU & CAR WASH)
MOUNT VERNON DISTRICT FAIRFAX COUNTY, VIRGINIA

PLAN STATUS

| DATE | DESCRIPTION |
|---|---|
| 5/9/07 | 2ND BMP/DAM |

| BAS DESIGN | WRS DRAWN | BAS CHKD |
|---|---|---|

SCALE 1" = 200'
JOB No. 1299-01-002
DATE MARCH 1, 2000
FILE No. 1299-S-CP-03

SHEET 10A OF 24

Bowman Consulting Group, Ltd.
10701 Parkridge Boulevard, Suite 300
Reston, Virginia 20191
Phone: (703) 464-1000

BMP DIVIDES, CALCULATIONS, AND NARRATIVE
CAR WASH

PCA 1999-M
SE 2007-M
COUNTY PROJE

| DATE | DE |
|---|---|
| 03/01/07 | 1st SU |
| 04/30/07 | 2nd SU |
| 05/21/07 | 3rd SU |

JOB DESIGN DRA
SCALE H: N V:
JOB No. 1299-
DATE: JANU
FILE No. 1299-

SHEET 5A

Cad file name : P:\1299 - LORTON STATION SOUTH\1299-16-002 (PLN)\Planning\05A-SWM BMP.dwg

## EXISTING CONDITIONS

## PROPOSED CONDITIONS

## EX. POND 1:

DA = ±16.6 AC.
CN = 85(A/B SOILS)
tc = 10 MIN.
*$Q_2$ = ±33.0 cfs
*$Q_{10}$ = ±67.0 cfs
*$Q_{100}$ = ±105.0 cfs

*PEAK FLOW FROM GENERATED HYDROGRAPH FOR POST-DEVELOPED CONDITIONS. POST-DEVELOPED CONDITIONS ARE ASSUMED SINCE EX. POND ESM'TS/AGREEMENTS & ROUTING CALCS. WERE UNABLE TO BE FOUND. ONLY EVIDENCE FOUND IS THAT EX. POND 1 IS A SEDIMENT BASIN.

## EXISTING POND 2 & 3:

EX. POND 2:
*$Q_2$ = 7.0 cfs
*$Q_{10}$ = 8.0 cfs
*$Q_{100}$ = ±15.0 cfs (ASSUMED)

*PEAK FLOW FROM POND ROUTING CALCS. FOR GUNSTON SQUARE SECTION 2 (PLAN #5385-SP-02)

EXISTING POND 3
EX. POND 3 WAS CONSTRUCTED FOR FUTURE DEVELOPMENT USE, WHICH WAS NEVER CONSTRUCTED. THE CURRENT DISCHARGE FROM EX. POND 3 IS NEGLIGIBLE.

ADDITIONAL DISCHARGE:
DA = ±14.1AC. (DOES NOT INCLUDE DA TO EX. POND 2)
CN = 65. (A/B SOILS - WOODS/GRASS COMBINATION)
tc = 10 MIN.
*$Q_2$ = ±8.0 cfs
*$Q_{10}$ = ±24.0 cfs
*$Q_{100}$ = ±54.0 cfs (ASSUMED)

*PEAK FLOW FROM GENERATED HYDROGRAPH FOR EX. CONDITIONS.

COMBINED DISCHARGE:

| | | $Q_2$ | $Q_{10}$ | $Q_{100}$ |
|---|---|---|---|---|
| EX. POND 2 | : | ±7.0 cfs | ±8.0 cfs | ±15.0 cfs |
| EX. POND 3 | : | - | - | - |
| ADDITIONAL | : | ±8.0 cfs | ±24.0 cfs | ±54.0 cfs |
| *TOTAL | : | ±15.0 cfs | ±32.0 cfs | ±68.0 cfs |

*TOTAL PEAK FLOW INTO TERRACE TOWNE HOMES OF GUNSTON DEVELOPMENT.

## RESIDUAL AREA:

| | AREA | CN | A * CN |
|---|---|---|---|
| RESIDENTIAL : | ±18.0 AC. | 80 | 1440.0 |
| UNDEVELOPED : | ±80.1 AC. | 65 | 5206.5 |
| | 98.1 AC. | | 6646.5 |

WEIGHTED CN : 6646.5 / 98.1 AC. = ±68
tc = ±30 MIN.
*$Q_2$ = ±38.0 cfs
*$Q_{10}$ = ±128.0 cfs
*$Q_{100}$ = ±231.0 cfs

*PEAK FLOW FROM GENERATED HYDROGRAPH FOR EX. CONDITIONS.

## POND "B":

DA = ±42.0 AC. (FOR PRE-DEVELOPED CONDITION)
CN = 65 (A/B SOILS - WOODS/GRASS COMBINATION)
tc = ±30 MIN.
*$Q_2$ = ±13.0 cfs + ±15.0 cfs (EX. PONDS 2&3) = ±28.0 cfs
*$Q_{10}$ = ±40.0 cfs + ±32.0 cfs (EX. PONDS 2&3) = ±72.0 cfs
**$Q_{100}$ = ±288.6 cfs

*PEAK FLOW FROM GENERATED HYDROGRAPH FOR PRE-DEVELOPED CONDITIONS. PRE-DEVELOPED CONDITIONS ASSUMED SINCE POND B PLANS (PLAN #7464-SP-01 (BY OTHERS)) ARE NOT YET APPROVED. ALSO, PRE-DEVELOPED CONDITIONS ASSUME MAXIMUM ALLOWABLE DISCHARGE FOR 2 & 10-YR. EVENTS.

**PEAK FLOW FROM ACTUAL POND B ROUTING PER PLAN #7464-SP-01 (BY OTHERS)

## POND "A":

*$Q_2$ = ±58.3 cfs
*$Q_{10}$ = ±108.8 cfs
*$Q_{100}$ = ±207.8 cfs

*PEAK FLOW FROM POND ROUTING CALCS. FOR PROPOSED POND A.

## RESIDUAL AREA:

| | AREA | CN | A * CN |
|---|---|---|---|
| RESIDENTIAL : | ±12.6 AC. | 78 | 982.8 |
| UNDEVELOPED : | ±6.3 AC. | 60 | 378.0 |
| COMMERCIAL : | ±2.9 AC. | 90 | 261.0 |
| | 21.8 AC. | | 1621.8 |

WEIGHTED CN : 1621.8 / 21.8 AC. = ±74
tc = ±16 MIN.
*$Q_2$ = ±17.0 cfs
*$Q_{10}$ = ±50.0 cfs
*$Q_{100}$ = ±86.0 cfs

*PEAK FLOW FROM GENERATED HYDROGRAPH FOR EX. CONDITIONS.

## TOTAL EX. FLOW TO EX. CULVERTS:

| | | $Q_2$ | $Q_{10}$ | $Q_{100}$ |
|---|---|---|---|---|
| EX. POND 1 | : | ±33.0 cfs | ±67.0 cfs | ±105.0 cfs |
| EX. POND 2&3 | : | ±15.0 cfs | ±32.0 cfs | ±69.0 cfs |
| ADDITIONAL | : | ±38.0 cfs | ±128.0 cfs | ±231.0 cfs |
| *TOTAL | : | ±86.0 cfs | ±227.0 cfs | ±405.0 cfs |

## TOTAL PROP. FLOW TO EX. CULVERTS:

| | | $Q_2$ | $Q_{10}$ | $Q_{100}$ |
|---|---|---|---|---|
| POND "B" | : | ±28.0 cfs | ±72.0 cfs | ±288.6 cfs |
| POND "A" | : | ±38.3 cfs | ±105.0cfs | ±207.8 cfs |
| RESIDUAL AREA | : | ±17.0 cfs | ±50.0 cfs | ±86.0 cfs |
| *TOTAL | : | ±83.3 cfs | ±227.0 cfs | ±562.6 cfs |

## EX. POND 1
## ROUTED HYDROGRAPH RESULTS

TR-55 TABULAR HYDROGRAPH METHOD
Type II Distribution
(24 hr. Duration Storm)

Executed: 10-09-2000 10:10:35
Watershed file: --> d:\pondpack\lorton\overall\EXPD12Y .WSD
Hydrograph file: --> d:\pondpack\lorton\overall\EXPD12Y .HYD

Lorton Station South
Pond 1
2 - Year Pre-Developed Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Industrial | 16.60 | 85.0 | 0.20 | 0.10 | 3.20 | 1.76 | .11 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 16.60 acres or 0.02594 sq.mi
Peak discharge = 33 cfs

Lorton Station South
Pond 1
10 - Year Pre-Developed Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Industrial | 16.60 | 85.0 | 0.20 | 0.10 | 5.20 | 3.55 | .07 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 16.60 acres or 0.02594 sq.mi
Peak discharge = 67 cfs

Lorton Station South
Pond 1
100- Year Pre-Developed Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Industrial | 16.60 | 85.0 | 0.20 | 0.10 | 7.30 | 5.54 | .05 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 16.60 acres or 0.02594 sq.mi
Peak discharge = 105 cfs

## EX. RESIDUAL AREA
## ROUTED HYDROGRAPH RESULTS

Lorton Station South
Existing Residual Area
2 - Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Weighted | 98.10 | 68.0 | 0.50 | 0.50 | 3.20 | 0.73 | .29 | .30 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 98.10 acres or 0.15328 sq.mi
Peak discharge = 38 cfs

Lorton Station South
Existing Residual Area
10 - Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Weighted | 98.10 | 68.0 | 0.50 | 0.50 | 5.20 | 2.02 | .18 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 98.10 acres or 0.15328 sq.mi
Peak discharge = 128 cfs

Lorton Station South
Existing Residual Area
100- Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Weighted | 98.10 | 68.0 | 0.50 | 0.50 | 7.30 | 3.65 | .13 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 98.10 acres or 0.15328 sq.mi
Peak discharge = 231 cfs

## PROPOSED POND B
## ROUTED HYDROGRAPH RESULTS

Lorton Station South
Pond B
2 - Year Pre-Developed Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Woods/Grass | 42.00 | 65.0 | 0.50 | 0.50 | 3.20 | 0.60 | .34 | .30 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 42.00 acres or 0.06562 sq.mi
Peak discharge = 13 cfs

Lorton Station South
Pond B
10 - Year Pre-Developed Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Woods/Grass | 42.00 | 65.0 | 0.50 | 0.50 | 5.20 | 1.79 | .21 | .30 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 42.00 acres or 0.06562 sq.mi
Peak discharge = 40 cfs

## EX. POND 2 & 3
## ROUTED HYDROGRAPH RESULTS

Lorton Station South
Existing Residual Area - Pond 2 & 3
2 - Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Woods/Grass | 14.10 | 65.0 | 0.20 | 0.10 | 3.20 | 0.60 | .34 | .30 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 14.10 acres or 0.02203 sq.mi
Peak discharge = 8 cfs

Lorton Station South
Existing Residual Area - Pond 2 & 3
10 - Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Woods/Grass | 14.10 | 65.0 | 0.20 | 0.10 | 5.20 | 1.79 | .21 | .30 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 14.10 acres or 0.02203 sq.mi
Peak discharge = 24 cfs

Lorton Station South
Existing Residual Area - Pond 2 & 3
100- Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Woods/Grass | 14.10 | 65.0 | 0.20 | 0.10 | 7.30 | 3.34 | .15 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 14.10 acres or 0.02203 sq.mi
Peak discharge = 64 cfs

## PROPOSED RESIDUAL
## ROUTED HYDROGRAPH RESULTS

Lorton Station South
Proposed Residual Area
2 - Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Weighted | 21.80 | 74.0 | 0.20 | 0.30 | 3.20 | 1.04 | .22 | .30 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 21.80 acres or 0.03406 sq.mi
Peak discharge = 17 cfs

Lorton Station South
Proposed Residual Area
10 - Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Weighted | 21.80 | 74.0 | 0.20 | 0.30 | 5.20 | 2.52 | .14 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 21.80 acres or 0.03406 sq.mi
Peak discharge = 50 cfs

Lorton Station South
Proposed Residual Area
100- Year Storm Event

>>>> Input Parameters Used to Compute Hydrograph <<<<

| Subarea Description | AREA (acres) | CN | Tc (hrs) | * Tt (hrs) | Precip. (in) | Runoff (in) | Ia/p input/used | |
|---|---|---|---|---|---|---|---|---|
| Weighted | 21.80 | 74.0 | 0.20 | 0.30 | 7.30 | 4.30 | .1 | .10 |

* Travel time from subarea outfall to composite watershed outfall point.
Total area = 21.80 acres or 0.03406 sq.mi
Peak discharge = 86 cfs

Pond B (EDF)
100-Year Post-Developed Storm Event

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 359.00 cfs
Peak Outflow = 288.02 cfs
Peak Elevation = 85.18 ft

THIS SHEET FOR INFORMATION PURPOSES ONLY!!

SWM/ADEQUATE OUTFALL NARRATIVE & CALCULATIONS
LORTON MARKET STREET
MOUNT VERNON DISTRICT FAIRFAX COUNTY, VIRGINIA

BOWMAN CONSULTING GROUP
ENGINEERS PLANNERS SURVEYORS

BLAKE A. SMITH No. 030594 4/16/01 PROFESSIONAL ENGINEER

PLAN STATUS
5/9/4 2ND SUB. DPWES

| DATE | DESCRIPTION |
|---|---|
| BAS DESIGN | WRS DRAWN | BAS CHKD |

SCALE H: 1"=50' V:
JOB No. 1299-01-002
DATE MARCH 1, 2000
FILE No. 1299-D-CP-007
~~28 of 36~~
SHEET 18 B of 24

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Fax: (703) 481-9720

SWM/ADEQUATE OUTFALL NARRATIVE & CALCULATIONS
CAR WASH
LORTON STATION SOUTH COMMERCIAL CENTER

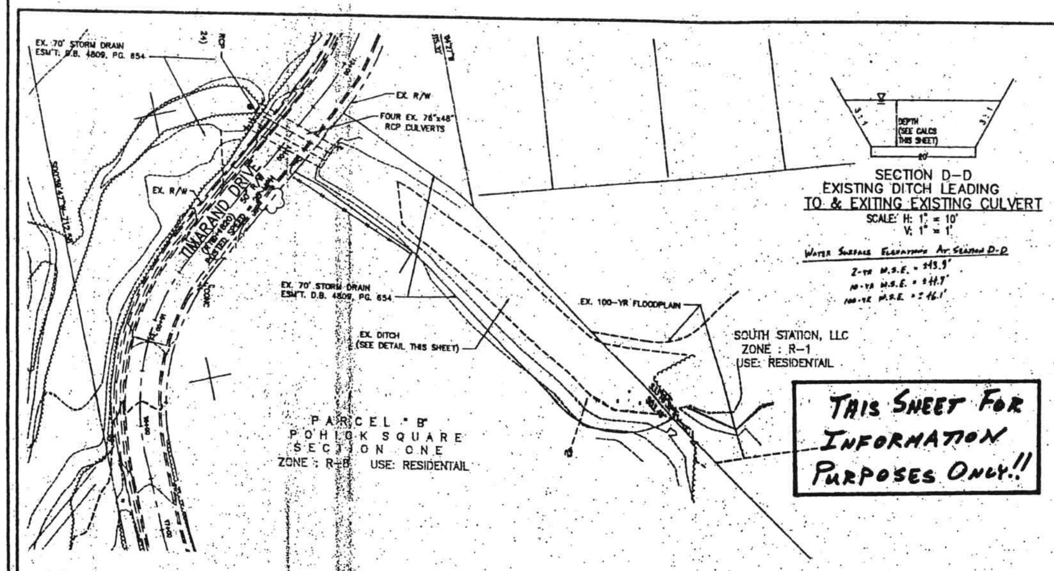
PCA 1999-MV
SE 2007-MV
COUNTY PROJECT

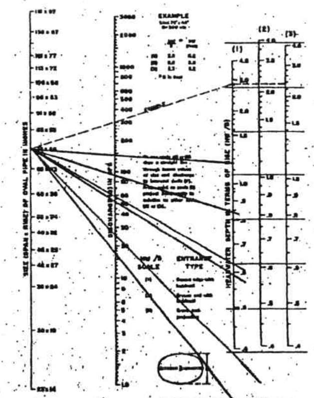
| PLAN STATUS | |
|---|---|
| 03/01/07 | 1st SUBM |
| 04/20/07 | 2nd SUBM |
| 05/24/07 | 3rd SUBM |

| DATE | DESC |
|---|---|
| JDB DESIGN | RRM DRAWN |

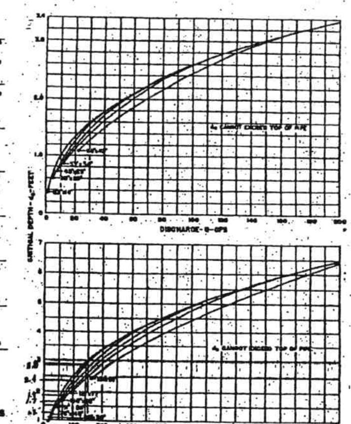
SCALE H: N/A V:
JOB No. 1299-16
DATE: JANUARY
FILE No. 1299-D-
SHEET 5B

Cad file name : P:\1299 - LORTON STATION SOUTH\1299-16-002 (PLN)\Planning\05A-SWM BMP.dwg



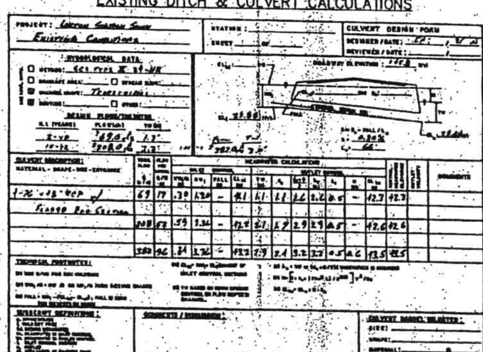



HEADWATER DEPTH FOR OVAL CONCRETE PIPE CULVERTS LONG AXIS HORIZONTAL WITH INLET CONTROL

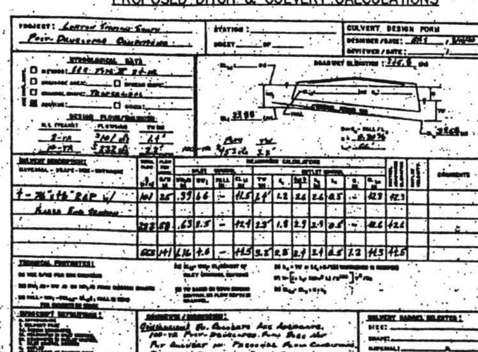


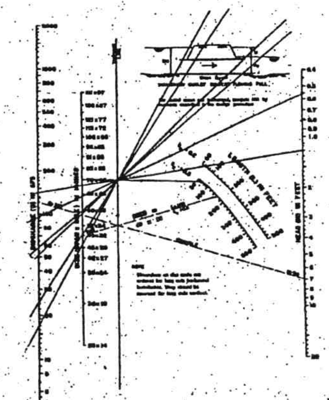
CRITICAL DEPTH OVAL CONCRETE PIPE LONG AXIS HORIZONTAL

## EXISTING DITCH & CULVERT CALCULATIONS



## PROPOSED DITCH & CULVERT CALCULATIONS

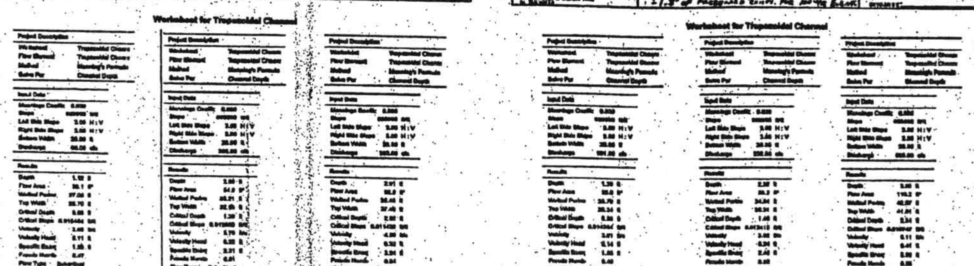




HEAD FOR OVAL CONCRETE PIPE CULVERTS LONG AXIS HORIZONTAL OR VERTICAL FLOWING FULL n=0.012

Worksheet for Trapezoidal Channel

Worksheet for Trapezoidal Channel



## SWM NARRATIVE

Full stormwater detention for the 2 and 10-yr storm events has been provided in the proposed detention pond serving the northern portion of the Lorton Station South overall development plus additional off-site drainage areas. These calculations summarize the overall drainage discharging into four existing 78"x48" RCP culverts under Timarand Drive. As these calculations show, the approximate existing peak flow to these culverts is as follows:

| | |
|---|---|
| 2-Year Storm Event: | 88 cfs |
| 10-Year Storm Event: | 227 cfs |

The approximate proposed peak discharge to these culverts is as follows:

| | |
|---|---|
| 2-Year Storm Event: | 83 cfs |
| 10-Year Storm Event: | 227 cfs |

The rip rap provided at the pond outlet will dissipate the velocity of the 2-year post-developed peak discharge to non-erosive levels. Stormwater management and best management practices for the southern portion of the Lorton Station South overall development will be served by a proposed detention pond currently under design (Plan #7484-SP-01)(by others).

## ADEQUATE OUTFALL NARRATIVE

Adequate outfall exists for the proposed development. Stormwater from the proposed development discharges into the proposed detention pond. The outlet storm system for the detention pond discharges directly into an existing trapezoidal channel contained within an existing drainage easement which leads from the site to the 100-year floodplain of Pohick Creek. The Board of Supervisors adopted the Pohick Creek floodplain on July 10, 1972. Pohick Creek at Lorton Road has a drainage area of approximately 6,080 acres. According to Section 6-0203.6C of the Fairfax County Public Facilities Manual, Pohick Creek satisfies county requirements for an adequate outfall.

Four 78"x48" RCP culverts run under Timarand Drive. These culverts adequately convey the 2, 10 and 100-year post-developed runoff from the proposed development and all the adjacent areas discharging to these culverts. Supporting calculations may be found in this plan (see sheet 23 & 24). As the calculations show, the post-developed peak runoff for the 100-year storm event results in a freeboard of approximately 1.3 feet for Timarand Drive for the post-developed 100-year storm event. Based on all these drainage considerations, it is the opinion of the submitting engineer that no adverse impacts to downstream properties will result as a consequence of the proposed development, and that adequate outfall has been provided.

ADDITIONALLY, THE RIP RAP PROVIDED AT THE CURB TURNOUT AND AT THE POND "X" OUTLET ARE DESIGNED TO DISSIPATE THE VELOCITY OF THE 2-YEAR POST-DEVELOPED PEAK DISCHARGE TO NON-EROSIVE LEVELS. FURTHERMORE, OVERLAND RELIEF IS PROVIDED SUCH THAT NO FLOODING OF STRUCTURES WILL OCCUR FOR THE 100-YEAR POST-DEVELOPED STORM EVENT.

## Section 6 SWM Narrative

As The Calculations on Sheets 10B and 10C Show, SWM Requirements For Section 6 Have Been Satisfied. Additionally, DPWES Has Verified That A Waiver For Off-Site SWM Facility Is Not Req'd, Since This Site Is Contained Within The Lorton Station South Development (New Development).

## Section 6 Adequate Outfall Narrative

As The Calculations on This Sheet Show, Adequate Outfall Is Satisfied With This Plan, Which Discharges By Way of A Storm Sewer System And An Improved Ditch Along Lorton Road (See Sheet 7) Into Pond A Proposed With The Lorton Market Street Plans (Plan #4865-SP-02). Runoff From The Site Is Discharged At Non-Erosive Velocities, And No Adverse Impacts To Downstream Properties Are Anticipated.

BOWMAN CONSULTING GROUP

SWM/ADEQUATE OUTFALL NARRATIVE & CALCULATIONS

LORTON MARKET STREET

(Fx. Co. Plan #4865-SP-02)

MOUNT VERNON DISTRICT FAIRFAX COUNTY, VIRGINIA

PLAN STATUS

| DATE | DESCRIPTION |
|---|---|
| 5/4/01 | 2nd Sub. DPWES |

| DESIGN | DRAWN | CHKD |
|---|---|---|
| BAS | WRS | BAS |

SCALE H: 1"=10' V: 1"=1'

JOB No. 1299-01-002

DATE MARCH 1, 2000

FILE No. 1299-D-CP-002

SHEET 10C OF 24

Bowman CONSULTING

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SWM/ADEQUATE OUTFALL NARRATIVE & CALCULATIONS

CAR WASH

LORTON STATION SOUTH COMMERCIAL CENTER

PCA 1999-MV-
SE 2007-MV-
COUNTY PROJECT N

PLAN STATUS

| | |
|---|---|
| 03/01/07 | 1st SUBMISS |
| 04/30/07 | 2nd SUBMIS |
| 05/24/07 | 3rd SUBMIS |

| JOB | RRM |
|---|---|
| DESIGN | DRAWN |

SCALE H: N/A V:

JOB No. 1299-16-

DATE: JANUARY

FILE No. 1299-D-2

SHEET 5C

Cad file name : P:\1299 - LORTON STATION SOUTH\1299-16-002 (PLN)\Planning\05A-SWM BMP.dwg