





January 16, 2016

Eli Goldman
Christopher Consultants
9900 Main Street
Fairfax, Virginia 22031

Re: Preliminary archaeological assessment for 301 S. Alfred St., Alfred Baptist St. Church

Dear Mr. Goldman:

Thank you for contacting our office and submitting a request for a preliminary assessment for 301 S. Alfred St., the block owned and occupied in part by the Alfred Street Baptist Church. We understand that the proposed undertaking will impact the entire block bound by Duke St. on the north, Alfred St. on the east, Wolfe St. on the south, and Patrick St. on the west.

Prior to the construction of the Alfred Street Baptist Church in 1855, the Colored Baptist Society began renting the property in 1818. Predating the Colored Baptist Society, the 1810 tax assessor rolls lists six domiciles on the 300 block of Alfred Street, most of them occupied by African American residents. The block was part of "The Bottoms," a neighborhood occupied predominantly by African Americans beginning in the early nineteenth century. Civil War-era maps depict the Alfred St. Baptist Church as well as several other developed lots concentrated on the southeast and the northwest corners of the block. By 1877, the block had been carved into over 20 separate properties, the majority of them situated on the east half of the block surrounding the Alfred St. Baptist Church.

In the early 1990s archaeologists conducted limited testing in proximity to the historic Alfred Street Baptist Church building. They encountered well preserved deposits in the yard to the west of the church; one buried well shaft also was sampled. Archaeologists also monitored construction of a new church annex on the north half of the block. The south half of the block (formal address 901 Wolfe Street—Olde Town West Properties LLC), however, has not been examined archaeologically. The south half of the block has the potential to contain significant archaeological deposits that pertain to the early growth and development of Alexandria, particularly the advancement of a free African American community.

Based on what we know about the basic trajectory of historical events for this property, we will require that the applicant hire an archaeological consultant to complete a Documentary Study and an Archaeological Evaluation for the project area. If significant resources are discovered, the consultant would then need to complete a Resource Management Plan, as outlined in the City of Alexandria Archaeological Standards. Preservation measures presented in the Resource Management Plan, as approved by the City Archaeologist, then would be implemented. A list of

105 North Union Street, #327, Alexandria, Virginia 22314-3217
Office of Historic Alexandria City of Alexandria, Virginia
Phone: 703/746-4399 e-mail: archaeology@alexandriava.gov fax: 703/838-4691
www.AlexandriaArchaeology.org



qualified archaeological consultants can be found on our website at:
http://alexandriava.gov/historic/archaeology/default.aspx?id=39440 I can also advise you on firms that have recently successfully completed archaeological projects of a similar scale should you care to contact me directly.

In the event that significant historical activity and/or significant archaeological resources are uncovered on the property, the applicant will need to hire a professional consultant to work with staff and the landscape designers to incorporate and interpret elements of the historical character and archaeological findings into the design of the open space and to prepare interpretive elements, which shall be erected as part of the development project.

In light of the fact that we are requiring at minimum a Documentary Study and Archaeological Evaluation, please ensure that the applicant is aware of this and to include funding for this work in the project budget. Should you have any questions or concerns please do not hesitate to contact me.

Sincerely,

[Signature]

Garrett Fesler, Ph.D.
Archaeologist

105 North Union Street, #327, Alexandria, Virginia 22314-3217
Office of Historic Alexandria City of Alexandria, Virginia
Phone: 703/746-4399 e-mail: archaeology@alexandriava.gov fax: 703/838-4691
www.AlexandriaArchaeology.org



ZONING TABULATIONS

SITE ADDRESSES & TAX MAP NUMBERS: 074.03-04-01 (301 S. ALFRED STREET)
074.03-04-02 (901 WOLFE STREET)
EXISTING ZONE: RM (TOWNHOUSE)
EXISTING SITE AREA: 074.03-04-01 - 41,119 S.F. OR 0.94 AC.
074.03-04-02 - 45,824 S.F. OR 1.05 AC.
TOTAL: 86,943 S.F. OR 1.99 AC.

PROPOSED SITE AREA: 86,943 S.F. OR 1.99 AC.
EXISTING USE: CHURCH (074.03-04-01)
TOWNHOMES (074.03-04-02)
PROPOSED IMPERVIOUS AREA=60,292 S.F. (1.38 Ac.)

PROPOSED USE: CHURCH
PROPOSED IMPERVIOUS AREA=62,477 S.F. (1.43 Ac.)
MAXIMUM FLOOR AREA: (FAR= 1.5) 1.5 X 86,943= 130,415 SF

GROSS BUILDING AREA PROPOSED: 331,809 SF
(EXISTING + PROPOSED EXPANSION + PARKING) (42,777 SF + 123,714 SF + 165,618 SF)
NET FLOOR AREA PROPOSED: 119,402 SF
(EXISTING + PROPOSED) (35,704 SF + 83,698 SF)

MAXIMUM BUILDING HEIGHT PROPOSED: 45'
OPEN SPACE REQUIRED: NONE
OPEN SPACE PROPOSED: AT GRADE 16,000 SF OR 0.37 AC.
ABOVE GRADE 1,250 SF OR 0.03 AC.
TOTAL 17,250 SF OR 0.40 AC.

AVERAGE FINISHED GRADE: 33.0'
BUILDING SETBACK REQUIRED: 0.0'
BUILDING SETBACK PROPOSED: PATRICK STREET = 10.0'
DUKE STREET = 9.2' (TO EXISTING CHURCH)
ALFRED STREET = 0.9' (TO EXISTING CHAPEL)
WOLFE STREET = 0.0'

LOT FRONTAGE REQUIRED: N/A
LOT FRONTAGE PROPOSED: PATRICK STREET = 330'
DUKE STREET = 220'
ALFRED STREET = 330'
WOLFE STREET = 180'

LOT AREA: N/A

PARKING REQUIRED: 1 PARKING SPACE PER 5 SEATS: 2,044/5= 409 SPACES
(SEATS INCLUDE SANCTUARY, CHAPEL ORCHESTRA, CHOIR AND BALCONIES)

PARKING PROVIDED: COMPACT 0 SPACES
STANDARD 290 SPACES
HANDICAP 18 SPACES
TOTAL 308 SPACES
NOTE: COMPACT SPACES ARE 8' x 16' AND STANDARD SPACES ARE 9' x 18.5'

Table with 3 columns: ON-SITE PARKING, OFF-SITE PARKING, TOTAL. Values: 308, SEE TABLE, 550

(DOES NOT INCLUDE SURPLUS LOTS)

Table with 5 columns: LOCATION, AIRLINE DISTANCE FROM ASBC (FT), NUMBER OF SPACES, AGREEMENT DATE, WITHIN 300 FT? Rows include TOWNHOUSE OFFICE LOT 1000, ALEXANDRIA GATEWAY, COAL YARD LOT, 117 N. ALFRED STREET, and TOTAL.

LOADING SPACES REQUIRED: NONE

LOADING SPACES PROVIDED: 1 SPACE

APPROXIMATE TOTAL AREA DISTURBED: 91,348 SF OR 2.097 AC.

EXISTING AVG. DAILY TRIPS: (INCLUDES TOWNHOMES) WEEKDAY= 571
SUNDAY= 2341

PROPOSED AVG. DAILY TRIPS: WEEKDAY= 1903
SUNDAY= 3602

STORM WATER MANAGEMENT NARRATIVE
TO COMPLY WITH THE STORM WATER REQUIREMENTS IN ACCORDANCE WITH ARTICLE XIII OF THE ZONING ORDINANCE, THIS PROJECT WILL PROVIDE ON-SITE TREATMENT OF SITE RUNOFF THROUGH THE USE OF MULTIPLE, CITY-APPROVED BMP FACILITIES OR STRUCTURES TO MEET BOTH POLLUTANT LOAD REDUCTION AND THE WATER QUALITY VOLUME DEFAULT. SEE SHEETS C700 TO C706 FOR STORMWATER DESIGN CALCULATION AND ANALYSIS.

SANITARY SEWER OUTFALL NARRATIVE
THIS PROJECT PROPOSES TO CONNECT TO THE EXISTING 15" SEWER THAT RUNS OFF OF THE SITE TO THE EAST AND TIES TO EX. MH 5542. PER MEMO TO INDUSTRY 2002-0007, AN IN DEPTH ADEQUATE ANALYSIS WILL BE PERFORMED WITH FINAL SITE PLANS TO ANALYZE THE SYSTEM UNTIL IT RUNS TO A 24" PIPE. THIS PROJECT IS LOCATED IN A COMBINED SEWER AREA. SEE SHEET C600 FOR SANITARY SEWER OUTFALL ANALYSIS.

UTILITY CONTACTS:

WASHINGTON GAS
MR. PAT ESTRADA-PALMA
6801 INDUSTRIAL ROAD
SPRINGFIELD, VA 22151
(703) 750-4289

DOMINION VIRGINIA POWER
MR. KEN HOLMES
907 WEST GLEBE ROAD.
ALEXANDRIA, VA 22305
(703) 838-2478

COMCAST CABLE
MR. GUSTAVO CATELLON
2707 WILSON BLVD.
ARLINGTON, VA 22201
(703) 926-0534

VIRGINIA AMERICAN WATER COMPANY
STEVEN CHEN
2225 DUKE STREET
ALEXANDRIA, VA 22314
(703) 706-3863

CITY OF ALEXANDRIA DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
301 KING STREET, ROOM 4100
ALEXANDRIA, VA 22314
(703) 746-4025

VERIZON
MR. STEVE H PURYEAR, SUPERVISOR-ENGINEERING
2980 FAIRVIEW PARK DRIVE, 6TH FLOOR
FALLS CHURCH, VA 22042
(703) 204-5072

GENERAL NOTES

- 1. BOUNDARY AND PHYSICAL IMPROVEMENTS SHOWN HEREON IS BASED ON A CURRENT FIELD SURVEY PERFORMED BY THIS FIRM BETWEEN SEPTEMBER 27, 2013 AND OCTOBER 24, 2013.
2. THE SUBJECT SITE IS LOCATED ON CITY OF ALEXANDRIA ASSESSMENT MAP 074.03-04-01 AND 074.03.04-02, ZONED RM (TOWNHOUSE).
3. THE PROPERTY SHOWN HEREON IS LOCATED ON THE FLOOD INSURANCE RATE MAP (FIRM), COMMUNITY PANEL NO. 515519 0041E, REVISED ON JUNE 16, 2011. BY GRAPHIC DEPICTION ONLY, THE PROPERTY SHOWN HEREON IS SHOWN INV IN- FLOOD ZONE "X", AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.
A FIELD SURVEY WAS NOT PERFORMED TO DETERMINE THE FLOOD ZONES LISTED HEREON. AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
4. OWNER: ALFRED STREET BAPTIST CHURCH
301 S. ALFRED STREET
ALEXANDRIA, VA 22314
(267) 895-1722
5. IN ACCORDANCE WITH THE CITY OF ALEXANDRIA'S MARINE CLAY AREAS MAP DATED NOVEMBER 1976, THERE ARE NO AREAS OF MARINE CLAY LOCATED IN THE VICINITY OF THIS SITE.
6. IN ACCORDANCE WITH THE RESOURCE PROTECTION AREAS MAP ADOPTED JUNE 12, 2004 BY THE CITY COUNCIL OF ALEXANDRIA, THERE ARE NO RESOURCE PROTECTION AREAS LOCATED ON THIS PROPERTY.
7. THIS PROJECT IS LOCATED IN A COMBINED SEWER AREA.
8. TO THE BEST OF OUR KNOWLEDGE THERE IS AN UNDERGROUND STORAGE TANKS CURRENTLY LOCATED AT THE PROPERTY. THE SITE IS NOT LOCATED WITHIN 1,000 FEET OF A SANITARY LANDFILL. RESIDUAL CONCENTRATIONS OF PETROLEUM HYDROCARBONS FROM UNDERGROUND STORAGE TANKS FORMERLY PRESENT AT THE PROPERTY ARE LIKELY TO BE ENCOUNTERED DURING EXCAVATION. APPROPRIATE PROCEDURES FOR THE HANDLING AND DISPOSAL OF PETROLEUM IMPACTED SOIL WILL BE ADDRESSED IN A SOIL MANAGEMENT PLAN. SHOULD ANY UNANTICIPATED UNDERGROUND STORAGE TANKS OR DRUMS BE ENCOUNTERED AT THE SITE, THE APPLICANT SHALL IMMEDIATELY NOTIFY THE CITY OF ALEXANDRIA FIRE DEPARTMENT AND DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES, OFFICE OF ENVIRONMENTAL QUALITY.
9. TO THE BEST OF OUR KNOWLEDGE THERE ARE LIMITED AREAS ON-SITE CONTAINING CONTAMINATED SOILS. THERE IS NO CONTAMINATED GROUNDWATER.
10. THERE IS NO OBSERVABLE EVIDENCE OF CEMETERIES OR BURIAL GROUNDS.

ENVIRONMENTAL SITE ASSESSMENT

THERE ARE NO RPA'S, TIDAL WETLANDS, SHORES, TRIBUTARY STREAMS, FLOODPLAINS, CONNECTED WETLANDS, ISOLATED WETLANDS, HIGHLY ERODIBLE/PERMEABLE SOILS OR BUFFER AREAS ASSOCIATED WITH SHORES, STREAMS OR WETLANDS LOCATED ON THIS SITE.

ARCHAEOLOGY NOTES

- 1. THE APPLICANT/DEVELOPER SHALL CALL ALEXANDRIA ARCHAEOLOGY IMMEDIATELY (703-746-4399) IF ANY BURIED STRUCTURAL REMAINS (WALL FOUNDATIONS, WELLS, PRIVIES, CISTERNS, ETC.) OR CONCENTRATIONS OF ARTIFACTS ARE DISCOVERED DURING DEVELOPMENT. WORK MUST CEASE IN THE AREA OF THE DISCOVERY UNTIL A CITY ARCHAEOLOGIST COMES TO THE SITE AND RECORDS THE FINDS.
2. THE APPLICANT/DEVELOPER SHALL NOT ALLOW ANY METAL DETECTION TO BE CONDUCTED ON THE PROPERTY, UNLESS AUTHORIZED BY ALEXANDRIA ARCHAEOLOGY.

AFFORDABLE HOUSING

THE APPLICANT IS WORKING WITH CITY STAFF ON AFFORDABLE HOUSING.

GREEN BUILDING NARRATIVE

THE PROPOSED DESIGN WILL MEET LEED SILVER CERTIFICATION REQUIREMENTS AND WILL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING GREEN SITE & BUILDING TECHNIQUES TO ACHIEVE CERTIFICATION: BICYCLE FACILITIES, EV PARKING FOR GREEN VEHICLES, GREEN ROOF, INDOOR WATER USE REDUCTION, BUILDING LEVEL ENERGY METERING, STORAGE AND COLLECTION OF RECYCLABLES, LOW-EMITTING MATERIALS, INTERIOR LIGHTING AND DAYLIGHTING.

GEOTECHNICAL REPORT NOTE

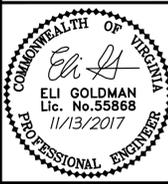
CONTRACTOR IS ADVISED TO REVIEW SEPARATELY PREPARED GEOTECHNICAL REPORT FOR DESCRIPTION OF SOILS AND SUBSURFACE CONDITIONS, PREPARED BY ECS MID-ATLANTIC, LLC FOR HCO, INC ON OCTOBER 23, 2017. CONTRACTOR TO FOLLOW THE RECOMMENDATIONS PROVIDED IN THE REPORT.

SOIL DATA

IN THE ABOVE MENTIONED GEOTECHNICAL REPORT, THE SUBSURFACE CONDITIONS ARE DESCRIBED TO CONSIST OF TOP SOIL AT THE SURFACE, UNDERLAIN BY FILL MATERIALS. THE FILL MATERIALS EXTENDED TO A DEPTH OF 2.5' BELOW THE SURFACE. BENEATH THE FILL MATERIALS, LOOSE TO MEDIUM DENSE SAND, SILT AND SOFT TO STIFF CLAY WERE ENCOUNTERED.

Table with 2 columns: DATE, REVISION

christopher consultants
engineering - surveying - land planning
9900 main street (fourth floor) - fairfax, va 22030
phone 703.273.6620 - fax 703.273.7636



NOTES AND TABULATIONS

ALFRED STREET BAPTIST CHURCH PRELIMINARY PLAN
CITY OF ALEXANDRIA, VIRGINIA

APPROVED SPECIAL USE PERMIT NO. 2015-0029
DEPARTMENT OF PLANNING & ZONING
DIRECTOR DATE
DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES
SITE PLAN NO.
DIRECTOR DATE
CHARMAN, PLANNING COMMISSION DATE
DATE RECORDED
INSTRUMENT NO. DEED BOOK NO. PAGE NO.

PROJECT NO:11099.002.00
SCALE: 1"=30'
DATE: 11/06/17
DESIGN: EG
DRAWN: JS
CHECKED: EG
SHEET No.

C101
107212





















**EXISTING CONDITION SITE NARRATIVE**

THE SITE CONSISTS OF TWO PARCELS THAT CONTAIN A TOTAL OF 1.99 ACRES AND HAS A CHURCH AND 11 TOWN HOUSES. THE SITE IS BOUNDED; TO THE NORTH BY DUKE STREET, TO THE WEST BY PATRICK STREET, TO THE EAST BY ALFRED STREET, AND TO THE SOUTH BY WOLFE STREET.

REVIEW OF EXISTING TOPOGRAPHY INDICATES THAT THE WESTERLY PORTION OF THE PROPERTY DRAINS TO THE SOUTHWEST CORNER (EXISTING STORM 664) OF THE PROPERTY. THE EASTERLY PORTION OF THE PROPERTY DRAINS TO THE SOUTHEAST CORNER (EXISTING STORM 540) OF THE PROPERTY.

THERE ARE NO RESOURCE PROTECTION AREAS ON THIS PROPERTY.

**PROPOSED CONDITION SITE NARRATIVE**

THIS PROJECT PROPOSES A NEW CHURCH BUILDING AND EXPANSION OF THE EXISTING ALFRED STREET BAPTIST CHURCH. THERE WILL BE BELOW GRADE GARAGE AND GREEN ROOF ON THE NEW CHURCH EXPANSION. A BAYFILTER VAULT IS LOCATED OUTSIDE THE BUILDING IN THE SOUTHEAST CORNER OF THE PROPERTY. THE STREETS CAPES ALONG THE PERIMETER OF THE SITE WILL ALSO BE CONSTRUCTED.

**WATER QUALITY TREATMENT (BMP) NARRATIVE**

TO COMPLY WITH THE CHESAPEAKE BAY ACT (CBA) AND ARTICLE XIII OF THE ZONING ORDINANCE, THE PROJECT WILL PROVIDE WATER QUALITY TREATMENT THROUGH THE USE OF A BAYFILTER AND GREEN ROOF. THIS DESIGN WILL BE FINALIZED WITH THE FINAL SITE PLAN.

**SITE AREA**

THE LIMITS OF THIS BMP ANALYSIS WILL BE THE PROPERTY LIMITS (SEE SHEET C701). THE AREA WITHIN THESE LIMITS IS 1.99 ACRES. THIS AREA WILL BE USED FOR COMPUTING THE STATE AND CITY BMP REQUIREMENT.

**WQV TREATMENT**

THE WQV TO BE TREATED AS PER THE CITY OF ALEXANDRIA SUPPLEMENT TO THE NORTHERN VIRGINIA BMP HANDBOOK IS 1816 CU FT/ ACRE OF IMPERVIOUS SURFACE. THEREFORE WQV REQUIRED = 1.77 x 1816 = 3,214 CU FT.

**BMP TREATMENT PROVIDED**

FOR THIS PROJECT, 1.71 AC OF ON-SITE IMPERVIOUS COVER IS TREATED WITH THE BAYFILTER AND GREEN ROOF.

**STORM WATER MANAGEMENT / BEST MANAGEMENT PRACTICES NARRATIVE**

**BEST MANAGEMENT PRACTICES (BMP) - STORMWATER QUALITY**

TO MEET THE STATE REQUIREMENTS FOR STORMWATER QUALITY, THE VIRGINIA RUNOFF REDUCTION METHOD SPREADSHEET FOR RE-DEVELOPMENT MUST BE FILLED OUT AND MEET ALL POLLUTANT LOAD REDUCTION REQUIREMENTS. THE CITY REQUIREMENT IS MORE STRINGENT IN THIS CASE, THE ENTIRE SITE'S WATER QUALITY VOLUME (WQV) NEEDS TO BE TREATED (13-109-E-1). THE PRE-DEVELOPMENT IMPERVIOUS AREA IS 1.37 ACRES AND THE POST-DEVELOPMENT AREA IS 1.43 ACRES. SINCE THERE IS A NET INCREASE IN IMPERVIOUS AREA (0.06 AC.) FOR THE SITE, THE TOTAL PHOSPHORUS LOAD SHALL NOT EXCEED 0.41 POUNDS PER YEAR TO THE INCREASED IMPERVIOUS AREA. A 20% REDUCTION OF PHOSPHORUS SHALL BE APPLIED TO THE PRE-DEVELOPMENT LOAD WILL BE REQUIRED TO BE MET. THE SITE IS BEING DESIGNED TO CAPTURE AND TREAT AS MUCH WATER AS POSSIBLE WITH A BAYFILTER AND GREEN ROOF.

**STORMWATER QUANTITY (CHANNEL PROTECTION / FLOOD PROTECTION)**

REFER TO SHEETS C702 FOR NARRATIVE AND COMPUTATIONS.

**Miscellaneous Information**

Total WQV treated:  yes  no  
 Detention on Site:  yes  no  
 Project is within which watershed? CAMERON RUN  
 Project Discharges to which body of water? CAMERON RUN

**WQVD CALCULATIONS**

REQUIRED = (1816 CU FT/ACRE) \* (1.77 ACRES) = 3,214 CU FT

PROVIDED = (1816 CU FT/ACRE) \* (1.71 ACRES) = 3,105 CU FT

NOT CAPTURED WQVD = 3,214 - 3,105 CU FT = 109 CU FT

**IMPERVIOUS AREA COVERAGE**

TOTAL IMPERVIOUS AREA = 1.77 ACRES

TOTAL IMPERVIOUS TREATED = 1.71 ACRES

UNTREATED IMPERVIOUS AREA = 1.77 - 1.71 = 0.06 ACRES

NOTE: A FEE IN LIEU OF WILL BE PAID TO THE WQVF FOR THE 0.06 ACRES (2,614 SF) OF UNTREATED IMPERVIOUS AREA.

NOTE: THIS PLAN PROPOSES A BAYFILTER AND GREEN ROOF FOR STORMWATER QUALITY TREATMENT AND QUANTITY CONTROL. THE BAYFILTER WILL BE LOCATED OUTSIDE THE PROPOSED BUILDING, SOUTHEAST CORNER OF THE PROPERTY.

**BMP MAINTENANCE AGREEMENT NOTE:**

THE APPLICANT SHALL EXECUTE A MAINTENANCE SERVICE CONTRACT WITH A PRIVATE CONTRACTOR FOR A MINIMUM OF THREE YEARS. A COPY OF THE CONTRACT SHALL BE PLACED IN THE BMP OPERATION AND MAINTENANCE MANUAL PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY. A COPY OF THE CONTRACT SHALL BE SUBMITTED TO THE CITY. THE APPLICANT SHALL PREPARE AN OWNER'S OPERATION AND MAINTENANCE MANUAL FOR ALL THE BEST MANAGEMENT PRACTICES (BMPs) USED ON SITE. THE MANUAL SHALL INCLUDE AT A MINIMUM: AN EXPLANATION OF THE FUNCTIONS AND OPERATIONS OF THE BMP(S); DRAWINGS AND DIAGRAMS OF THE BMP(S) AND ANY SUPPORTING UTILITIES; CATALOG CUTS ON MAINTENANCE REQUIREMENTS; MANUFACTURER CONTACT NAMES AND PHONE NUMBERS; A COPY OF THE EXECUTED MAINTENANCE SERVICE CONTRACT; AND A COPY OF THE MAINTENANCE AGREEMENT WITH THE CITY. PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY, A COPY OF THE OPERATION AND MAINTENANCE MANUAL SHALL BE SUBMITTED TO THE CITY ON A DIGITAL MEDIA.

**DESIGN PROFESSIONAL INSPECTION NOTE**

THE STORMWATER BEST MANAGEMENT PRACTICES (BMPs) REQUIRED FOR THIS PROJECT SHALL BE CONSTRUCTED AND INSTALLED UNDER THE DIRECT SUPERVISION OF THE DESIGN PROFESSIONAL OR HIS DESIGNATED REPRESENTATIVE. PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY, THE DESIGN PROFESSIONAL SHALL SUBMIT A WRITTEN CERTIFICATION TO THE DIRECTOR OF THES THAT THE BMPs ARE:  
 A. CONSTRUCTED AND INSTALLED AS DESIGNED AND IN ACCORDANCE WITH THE APPROVED FINAL SITE PLAN.  
 B. CLEAN AND FREE OF DEBRIS, SOIL AND LITTER BY EITHER HAVING BEEN INSTALLED OR BROUGHT INTO SERVICE AFTER SITE WAS STABILIZED.

**SITE DATA:**

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

2011 BMP Standards and Specifications | 2013 Draft BMP Standards and Specifications

Project Name: Alfred Street Baptist Church  
 Date: 11/11/2016

Linear Development Project?  No

CLEAR ALL (Ctrl+Shift+F8)

data input cells  
 constant values  
 calculation cells  
 final results

**Site Information**

**Post-Development Project (Treatment Volume and Loads)**

Enter Total Disturbed Area (acres) = 1.99

Maximum reduction required: 20%  
 The site's net increase in impervious cover (acres) is: 0.39  
 Post-Development TP Load Reduction for Site (lb/yr): 1.31

Check:  
 BMP Design Specifications List: 2013 Draft Stds & Specs  
 Linear project? No  
 Land cover areas entered correctly?   
 Total disturbed area entered?

Pre-Development Land Cover (acres)	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) - undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) - disturbed, graded for yards or other turf to be reseeded/managed				0.61	0.61
Impervious Cover (acres)				1.38	1.38
					1.99

Post-Development Land Cover (acres)	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) - undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) - disturbed, graded for yards or other turf to be reseeded/managed				0.22	0.22
Impervious Cover (acres)				1.77	1.77
Area Check	OK	OK	OK	OK	1.99

**Constants**

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
TP (unitless correction factor)	0.90

**Runoff Coefficients (Rv)**

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

**LAND COVER SUMMARY - PRE-REDEVELOPMENT**

Land Cover Summary-Pre	Listed	Adjusted <sup>1</sup>
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv/forest	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.61	0.22
Weighted Rv(turf)	0.25	0.25
% Managed Turf	31%	14%
Impervious Cover (acres)	1.38	1.38
Rv(impervious)	0.95	0.95
% Impervious	69%	86%
Total Site Area (acres)	1.99	1.60
Site Rv	0.74	0.85

**Treatment Volume and Nutrient Load**

Pre-Development Treatment Volume (acre-ft)	0.1220	0.1138
Pre-Development Treatment Volume (cubic feet)	5,313	4,959
Pre-Development TP Load (lb/yr)	3.34	3.12
Pre-Development TP Load per acre (lb/acre/yr)	1.68	1.95
Baseline TP Load (lb/yr) (0.41 lb/acre/yr applied to pre-development area excluding pervious land proposed for new impervious cover)		0.66

<sup>1</sup>Adjusted Land Cover Summary: Pre-Development land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-Development acreage (minus acreage of new impervious cover).

Column 1 shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lb/acre/yr).

**Post-Development Requirement for Site Area**

TP Load Reduction Required (lb/yr)	1.31
Linear Project TP Load Reduction Required (lb/yr)	

**Nitrogen Loads (Informational Purposes Only)**

Pre-Development TN Load (lb/yr)	23.88	Final Post-Development TN Load (Post-Development & New Impervious) (lb/yr)	28.33
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**LAND COVER SUMMARY - RE-DEVELOPMENT**

Land Cover Summary-Post (Final)	Land Cover Summary-Post	Land Cover Summary-Post	Land Cover Summary-Post
Post Re-Dev. & New Impervious	Post-Re-Development	Post-Development New Impervious	
Forest/Open Space Cover (acres)	0.00	Forest/Open Space Cover (acres)	0.00
Weighted Rv/forest	0.00	Weighted Rv/forest	0.00
% Forest	0%	% Forest	0%
Managed Turf Cover (acres)	0.22	Managed Turf Cover (acres)	0.22
Weighted Rv (turf)	0.25	Weighted Rv (turf)	0.25
% Managed Turf	11%	% Managed Turf	14%
Impervious Cover (acres)	1.77	ReDev. impervious Cover (acres)	1.38
Rv(impervious)	0.95	Rv(impervious)	0.95
% Impervious	89%	% Impervious	86%
Final Site Area (acres)	1.99	Total ReDev. Site Area (acres)	1.60
Final Post Dev Site Rv	0.87	Re-Dev Site Rv	0.85

**Treatment Volume and Nutrient Load**

Final Post-Development Treatment Volume (acre-ft)	0.1447	Post-Development Treatment Volume (acre-ft)	0.1138	Post-Development Treatment Volume (acre-ft)	0.0309
Final Post-Development Treatment Volume (cubic feet)	6,303	Post-Development Treatment Volume (cubic feet)	4,959	Post-Development Treatment Volume (cubic feet)	1,345
Final Post-Development TP Load (lb/yr)	3.96	Post-Development TP Load (lb/yr)*	3.12	Post-Development TP Load (lb/yr)	0.85
Final Post-Development TP Load per acre (lb/acre/yr)	1.99	Post-Development TP Load per acre (lb/acre/yr)	1.95		
Max. Reduction Required (Below Pre-Development) (%)	20%				
TP Load Reduction Required for ReDevelopment Area (lb/yr)	0.62	TP Load Reduction Required for New Impervious Area (lb/yr)	0.69		

**Drainage Area A**

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)				0.02	0.02	0.25
Impervious Cover (acres)				1.71	1.71	0.95
Total					1.73	

Total Phosphorus Available for Removal in D.A. A (lb/yr) 3.72  
 Total Phosphorus Available for Removal in D.A. A (lb/yr) 5.915

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft <sup>3</sup> )	Runoff Reduction (ft <sup>3</sup> )	Remaining Runoff Volume (ft <sup>3</sup> )	Total BMP Treatment Volume (ft <sup>3</sup> )	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
1. Vegetated Roof (RR)	45		0.27		419	512	931	0	0.58	0.20	0.32	14.a. MTD - Hydrodynamic	
14.a. Manufactured Treatment Device-Hydrodynamic	0	0.02	1.44	512	0	5,496	5,496	50	0.32	3.13	1.72	1.72	

**Site Compliance Summary**

Maximum % Reduction Required Below Pre-Development Load 20%

Total Runoff Volume Reduction (ft <sup>3</sup> )	419
Total TP Load Reduction Achieved (lb/yr)	1.99
Total TN Load Reduction Achieved (lb/yr)	1.88
Remaining Post Development TP Load (lb/yr)	1.97
Remaining TP Load Reduction (lb/yr) Required	0.00

**\*\* TARGET TP REDUCTION EXCEEDED BY 0.68 LB/YEAR \*\***

**Drainage Area Summary**

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.02	0.00	0.00	0.00	0.00	0.02
Impervious Cover (acres)	1.71	0.00	0.00	0.00	0.00	1.71
Total Area (acres)	1.73	0.00	0.00	0.00	0.00	1.73

**Drainage Area Compliance Summary**

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
TP Load Reduced (lb/yr)	1.99	0.00	0.00	0.00	0.00	1.99
TN Load Reduced (lb/yr)	1.88	0.00	0.00	0.00	0.00	1.88

**Drainage Area A Summary**

**Land Cover Summary**

	A Soils	B Soils	C Soils	D Soils	Total	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.02	0.02	1
Impervious Cover (acres)	0.00	0.00	0.00	1.71	1.71	99
					1.73	

**BMP Selections**

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft <sup>3</sup> )	TP Load from Upstream Practices (lbs)	Untreated TP Load to Practice (lbs)	TP Removed (lb/yr)	TP Remaining (lb/yr)	Downstream Treatment to be Employed
1.a. Vegetated Roof #1 (Spec #5)		0.38	1,310.43		0.82	0.37	0.45	14.a. MTD - Hydrodynamic
14.a. Manufactured Treatment Device-Hydrodynamic	0.38	0.96	4,376.15	0.45	2.29	0.55	2.20	

Total Impervious Cover Treated (acres)	1.71
Total Turf Area Treated (acres)	0.02
Total TP Load Reduction Achieved in D.A. (lb/yr)	1.99
Total TN Load Reduction Achieved in D.A. (lb/yr)	1.88

**PROJECT SITE RUNOFF COMPUTATIONS:**

**PRE-DEVELOPMENT**  
 A = 1.99 ACRES  
 C = (0.61)(0.35) + (1.38)(0.90)  
 C = 1.99  
 T = 5 MINUTES  
 I<sub>s</sub> = 6.2 INCHES/HOUR  
 I<sub>p</sub> = 9.0 INCHES/HOUR  
 Q<sub>2</sub> = (0.73)(6.2)(1.99) = 9.01 CFS  
 Q<sub>0</sub> = (0.73)(9.0)(1.99) = 13.07 CFS

**POST-DEVELOPMENT**  
 A = 1.99 ACRES  
 C = (0.22)(0.35) + (1.77)(0.90)  
 C = 1.99  
 T<sub>c</sub> = 5 MINUTES  
 I<sub>s</sub> = 6.2 INCHES/HOUR  
 I<sub>p</sub> = 9.0 INCHES/HOUR  
 Q<sub>2</sub> = (0.84)(6.2)(1.99) = 10.35 CFS  
 Q<sub>0</sub> = (0.84)(9.0)(1.99) = 15.03 CFS

**NET INCREASE IN RUNOFF**  
 Q<sub>2</sub> = 10.35 CFS - 9.01 CFS = 1.34 CFS  
 Q<sub>0</sub> = 15.03 CFS - 13.07 CFS = 1.96 CFS

**APPROVED**  
 SPECIAL USE PERMIT NO. 2015-0029  
 DEPARTMENT OF PLANNING & ZONING

\_\_\_\_\_  
 DIRECTOR DATE

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES  
 SITE PLAN NO. \_\_\_\_\_

\_\_\_\_\_  
 DIRECTOR DATE

CHAIRMAN, PLANNING COMMISSION DATE

DATE RECORDED \_\_\_\_\_

INSTRUMENT NO. \_\_\_\_\_ DEED BOOK NO. \_\_\_\_\_ PAGE NO. \_\_\_\_\_

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**STORMWATER MANAGEMENT WATER QUALITY**

**ALFRED STREET BAPTIST CHURCH PRELIMINARY PLAN**  
 CITY OF ALEXANDRIA, VIRGINIA

PROJECT NO: 11099.002.00  
 SCALE: N/A  
 DATE: 11/06/17  
 DESIGN: EG  
 DRAWN: JS  
 CHECKED: EG

SHEET No.  
**C700**  
 107212























