

Community Impact Statement

For

Oakland Pointe

Prepared For

***Connelly Development, LLC
125 Old Chapin Road
Lexington, SC 29072
803-798-0572***

*Original: October 25, 2017
Revised: January 10, 2018
Revised: September 26, 2018*

*AES Project Number: W10503-00
County Number: C-0072-2017*

Prepared by:



5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-8994

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I. INTRODUCTION

Connelly Development, LLC proposes to amend the Zoning Map of James City County, Virginia to create a Multifamily Residential District (R-5) on approximately 14.5 acres presently zoned General Agriculture (A-1). The proposed R-5 would consist of 126 affordable apartment units with access off of Oakland Drive. The property is located in the Stonehouse District adjacent to Oakland, Crosswalk Church and Villages at Candle Station. A vicinity map is included on page 6.

The purpose of this Community Impact Statement is to summarize and organize the planning efforts of the project team into a cohesive package for Staff review, addressing the pertinent planning issues, the requirements of the Multifamily Residential Zoning District, cultural, fiscal, and physical impacts of the proposed development to the County.

Connelly Development, LLC Bio

President Mr. Kevin Connelly is a second-generation builder, with a reputation for performance, value and integrity spanning more than 30 years. The Company approach is to build each project as if we were building it for ourselves- professionally, safely, within budget, on schedule and by partnering. Seventy percent of Mr. Connelly's work is for repeat clients.

Since becoming involved in the residential construction and development industry in 1987 Kevin has been instrumental in producing over 5,867 units of multi-family housing. He is very involved in all aspects of his company's day-to-day operations and has demonstrated the ability to exceed expectations. His experience and knowledge within the construction industry has been instrumental in resolving design challenges often coming up with an innovative approach that is more economically feasible.

Connelly Builders, Inc. has an Unlimited General Contractor License with the State of North Carolina, Georgia, Virginia and South Carolina. Connelly Builders has experience and capability of building anything from a single-family detached dwelling to a mid- rise residential structure.

Kevin is a native of Lexington, South Carolina and is very active within his community. He is a past member of the Lexington Jaycees having served as Vice President, is a member of the Lexington Chamber of Commerce, served as Committee Chairman for the Lexington Chamber of Ducks Unlimited. He is a very active member of the South Carolina Home Builders Association. Kevin is a Board Member, Investors Council Member, has served as Chairman of the Public Policy Committee, and past President of the South Carolina Affordable Housing Coalition.

Kevin is also very active in his church, Mt. Horeb United Methodist in Lexington. Recently Kevin served as co-chair of the building committee and was instrumental in planning, design, and overseeing construction of their \$16.4 million-dollar expansion, one of the largest expansions of the United Methodist Churches in the United States.

II. THE PROJECT TEAM

The organizations that participated in the preparation of the information provided with this rezoning submission are as follows:

- | | |
|---------------------|--|
| • Developer | - Connelly Development, LLC |
| • Civil Engineering | - AES Consulting Engineers |
| • Land Planning | - AES Consulting Engineers |
| • Traffic | - DRW Consultants, LLC |
| • Environmental | - Kerr Environmental Services Corp. |
| • Archaeology | - Circa~ Cultural Resource Management, LLC |
| • Attorney | - Kaufman & Canoles |

Key Components of this Community Impact Statement are:

- Existing Conditions
- Project Description
- Planning Considerations
- Analysis of Impacts to Public Facilities and Services
- Analysis of Environmental Impacts
- Analysis of Storm Water Management
- Traffic Impact Analysis
- Fiscal Impact Study
- Conclusions

III. EXISTING CONDITIONS

Site Location - See Figure 1, Vicinity Map, page 6

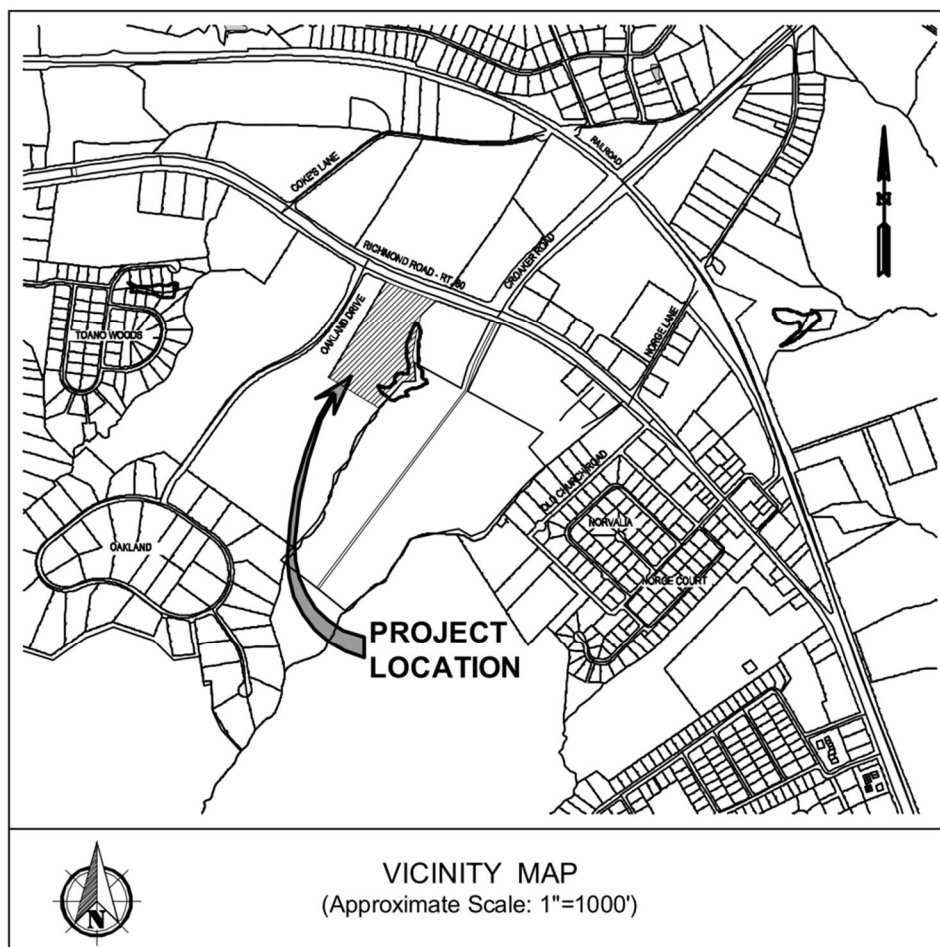
The Existing Conditions Map (included in the Appendix) details the location of buffers, wetlands, soils and slopes. The Master Plan also adheres to all items noted in the environmental constraints analysis as spelled out in Section 24-23 of the Zoning Ordinance. A pre-development site analysis revealed the following results:

Gross Site Area	14.54 acres
<i>RPA Buffers</i>	4.52 acres
<i>Non-RPA Wetland areas</i>	0.00 acres
<i>Areas of 25% or greater slopes (beyond RPA Buffers)</i>	0.00 acres
<u>Total Non-Developable Area</u>	<u>4.52 acres</u>
Gross Developable Area	10.02 acres

IV. PROJECT DESCRIPTION

Connelly Development, LLC proposes to establish an R-5, Multifamily Residential District on the 14.54 acre property. The proposed property will consist of a maximum of 126 apartment units with a clubhouse, multi-use field area, two playground areas (one for toddlers and one for elementary school aged children), pavilion (with charcoal grills), dog run area and a trail/sidewalk system. The concept, as depicted on the Master Plan (included in the Appendix), shows the proposed layout of the site. The roads serving the community will be private and there will be one entrance that will tie into Oakland Drive. Pedestrian connectivity shall be provided to the adjacent properties with a proposed 5' concrete sidewalk. A separate 4' shoulder bike lane will extend from property line to property line along the existing pavement at the property's frontage (conforming to the County's bike lane program). This project will consist of 100% affordable housing through the VHDA program and it will serve a greater need for affordable housing throughout James City County (JCC) in accordance with the JCC Strategic Plan.

Figure 1



VICINITY MAP

for

Oakland Pointe

James City County, Virginia

V. PLANNING CONSIDERATIONS

A. Land Use & Density

The entire 14.54 acre parcel is currently zoned as A-1, General Agriculture District and the Comprehensive Plan designates this parcel as Moderate Density Residential (4 to 12 units/acre). Initial discussions with James City County Staff have indicated that the proposed residential development with affordable housing would be an appropriate neighbor to the existing communities and a good land use fit for this particular site.

The proposed site has a gross density of 8.67 units per acre, which is below the maximum density allowed in the Moderate Density Residential (MDR) classification of the Comprehensive Plan. After subtracting non-developable areas, the net developable area for the site is 12.93 acres which results in a proposed net density of 9.75 units/acre. While this is also within the range of the MDR, the allowable density per the R-5 zoning district (for projects with 101-200 units and three stories or more) is 9.0 units/acre. In order to adhere to the Zoning Ordinance, a bonus point for Earth-Craft Gold certification shall be utilized to meet the required density. With the bonus point added (10% above the base density of 9.0); the new maximum density for the site is 9.90 units/acre. Our proposed density of 9.75 units/acre falls within the newly established density.

B. Environmental

Watershed protection surrounding Yarmouth Creek played an important role when making decisions regarding this property. The proposed development was laid out to provide as much undisturbed open space as possible and limit disturbance to the existing RPA buffer while avoiding impacts to the existing wetlands.

C. Historic & Archeological

Circa~ Cultural Resource Management, LLC has completed a Phase I archaeological investigation for the property. The study has been provided to James City County and it found that no further investigation is required for the property.

D. Zoning Strategy

Since residential apartments are not an allowed use within the A-1 District, a rezoning is being sought to create a Multifamily Residential District (R-5) designation for the property. The Multifamily Residential District is an appropriate vehicle for this proposal and falls in line with the Comprehensive Plan that shows this area as moderate density residential (4 to 12 units/acre). This district provides opportunities for development which reduces land consumption, reduces the amount of land devoted to streets and other impervious surfaces by requiring increased amounts of open space, buffers and

recreational amenities. The conclusions that follow in this report will summarize how this proposal meets the criteria and purpose of the Multifamily Residential District.

While the Zoning Ordinance establishes maximum building heights for the R-5 zoning district, Connelly Development, LLC requests a waiver to permit apartment building heights not to exceed 40 feet. A formal waiver request has been provided to James City County under separate cover.

E. Parks and Recreation

Connelly Development, LLC proposes to provide recreational amenities (1.45 acres of recreation space provided versus 1.26 acres required) designed to satisfy the JCC Recreational Facility Development Guidelines. These amenities shall include a clubhouse, multi-use field area, two playground areas (one for toddlers and one for elementary school aged children), pavilion (with charcoal grills), dog run area and a trail/sidewalk system. The playground areas will each consist of at least five elements and possible facility elements are listed on the Master Plan.

With this application Connelly Development, LLC also requests a waiver to provide alternate amenities from what is detailed in the JCC Recreational Facility Development Guidelines. A formal waiver request has been provided to James City County under separate cover.

VI. ANALYSIS OF IMPACTS TO PUBLIC FACILITIES AND SERVICES

A. Public Water & Sewer Facilities

The proposed development will generate 39,060 GPD (average project daily flow). As this flow is less than 40,000 GPD, an HRSD flow acceptance letter is not required.

Water service shall be provided by looping the system and connecting to the existing 16" JSCA water main located along Richmond Road. The Utility Master Plan is included in the Appendix and shows the proposed waterline layout to serve the development. The site will include a master meter near the property line (at the connection) and all onsite water distribution system features beyond the master meter will be privately owned and maintained. Hydrants will be provided to meet JSCA minimum standards and as otherwise directed by the Fire Marshall.

A fire hydrant flow test was conducted by JCSA on October 18, 2017 and the results of the test indicate approximately 5,850 gpm of flow at 20 psi. These results will be placed into a water model which will be completed and submitted prior to or with the final site plan. The model will examine volume and pressures throughout the immediate water system area, however based on the flows obtained during the test there should be adequate availability for the 126 proposed units.

Sanitary sewer service is provided to the site by a proposed (privately owned and maintained) on-site gravity sewer collection system which will convey wastewater flows to a proposed grinder pump station which will also be privately owned and maintained. Flows will then be directed from the station via proposed sewer force main to an existing 6" JCSA sewer force main along Richmond Road. Per conversations with JCSA, a portion of the existing force main heading towards Lift Station 6-6 shall be disconnected and reconnected into the Lift Station 6-8 service area. This shall be done due to the fact that Lift Station 6-6 would have to be upgraded to handle the additional flow, while Lift Station 6-8 has capacity for this development.

All system components shall be designed to JCSA standards; however onsite water and sewer features will be privately owned and maintained. Please refer to the Utility Master Plan (included in the Appendix) for the preliminary layout of the on-site water and sanitary sewer system. Please find "Table 1" which shows the anticipated wastewater flows for the project.

Table 1 – Projected Wastewater Flows

Type of Development	No. of Units	Flow (GPD/Unit)	Average Daily Flow (GPD)	Duration (hrs)	Avg. Flow (GPM)	Peak Flow (GPM)
RESIDENTIAL						
Apartment Units	126	310	39,060	24	27.1	67.8
TOTAL			39,060		27.1	67.8

B. Fire Protection and Emergency Services

There are currently five (5) fire stations providing fire protection and Emergency Medical Services (EMS) services to James City County. Two (2) stations are located within a reasonable distance to the project site. These are Fire Stations 1 and 4. The closest fire station to the subject site within James City County is Fire Station 1, located at 3135 Forge Road, approximately 2 miles west of this project site. However, both of these stations are within a 10 minute drive of the project site. Response time to the site is within appropriate limits if an emergency event occurs which requires additional fire and life safety support. The proximity of the site to these two fire stations affords the future residents of the project more than adequate response to potential emergencies.

C. Solid Waste

The proposed development on the subject property will generate solid wastes that will require collection and disposal to promote a safe and healthy environment. Multiple dumpster locations are provided on site where trash and recycle material can be deposited into the appropriate vehicle for transport of both materials to a solid waste transfer station.

D. Utility Service Providers

Virginia Natural Gas, Dominion Virginia Power, Cox Communications, and Verizon Communications provide respectively; natural gas, electricity, cable TV service, and telephone service to this area. The current policy of these utility service providers is to extend service to the development at no cost to the developer when positive revenue is identified; plus, with new land development, these utility service providers are required to place all new utility service underground.

E. Schools

The proposed development will generate approximately 39 students K-12. This figure is based on the proposal to build 126 apartment units at a student generation rate of 0.31 per apartment unit. This calculation is provided as part of the Fiscal Impact Analysis (included within the Appendix). The calculated number of K-5 students generated from the proposed development is 17 (44%), grade level 6-8 is 9 (23%) and grade level 9-12 is 13 (33%). The multiplier used for each grade level is based on the pro rata share of students currently enrolled in each grade level as reported in the 2016-2017 enrollment report published by James City County.

The proposed development will be zoned for students to attend Norge Elementary School, Toano Middle School and Warhill High School. All of these schools are currently operating below capacity.

VII. ANALYSIS OF ENVIRONMENTAL IMPACTS

A. Wetlands & Resource Protection Areas

There are existing wetlands and associated Resource Protection Area (RPA) buffers on site and they are shown within the Master Plan (included in the Appendix). The only anticipated impacts to the RPA buffer are for the installation of forebays within the existing on-site BMP and corresponding storm outfalls. The impacts related to the installation of forebays and corresponding storm outfalls can be approved administratively per County Staff.

The wetlands have been field located per delineation by Kerr Environmental Services Corp. and a confirmation of the wetlands and RPA buffers shall be provided by the Army Corps of Engineers during the site plan stage.

B. Soils

The USDA Web Soil Survey shows several soil types within the property boundary. This property is predominantly situated on low to moderately drained soils of Craven-Uchee Complex, Emporia Complex and Johnston Complex soil types. Soils mapping can be seen on the Existing Conditions Map (included in the Appendix).

VIII. ANALYSIS OF STORMWATER MANAGEMENT

A. Water Quality

The Virginia Runoff Reduction Method (VRRM) as set forth by the Virginia Department of Environmental Quality (DEQ) governs the water quality requirements for both new and re-development projects. Since this proposed project will be constructed on mostly wooded area, this site is classified as a “New Development” project. Following the procedures for a new development, the required pollutant load reduction will be calculated to ensure the proposed development does not have a negative impact on downstream waterways. This reduction is measured in total phosphorus, a chemical that the DEQ has determined that drives all other pollutants levels. Essentially, if phosphorus is reduced, so are all the other pollutants.

The VRRM spreadsheet has been included in the Appendix detailing the site soil data, required pollutant removal, and Best Management Practices (BMPs) provided to achieve improved water quality. For this proposed site, 9.03 lbs/year of phosphorus load reduction is required. The existing wet pond (Marston Pond) located on site will be converted to a Level 2 Wet Pond (DEQ SPEC #14) and will be used to treat 13.45 acres of the proposed development, including 4.62 acres of impervious area, in order to achieve this requirement. The existing pond was designed to handle an area equivalent to 60% impervious for the entire parcel (approximately 8.73 acres) however our site is only proposing approximately 4.62 acres of impervious cover (or approximately 32%). Using this Level 2 Wet Pond, 10.82 lbs/year of phosphorus load reduction will be achieved. This load reduction exceeds the requirement by 1.79 lbs/year. Additionally, this Level 2 Wet Pond will need to meet the specifications as set forth by the DEQ, including but not limited to providing adequate treatment volume.

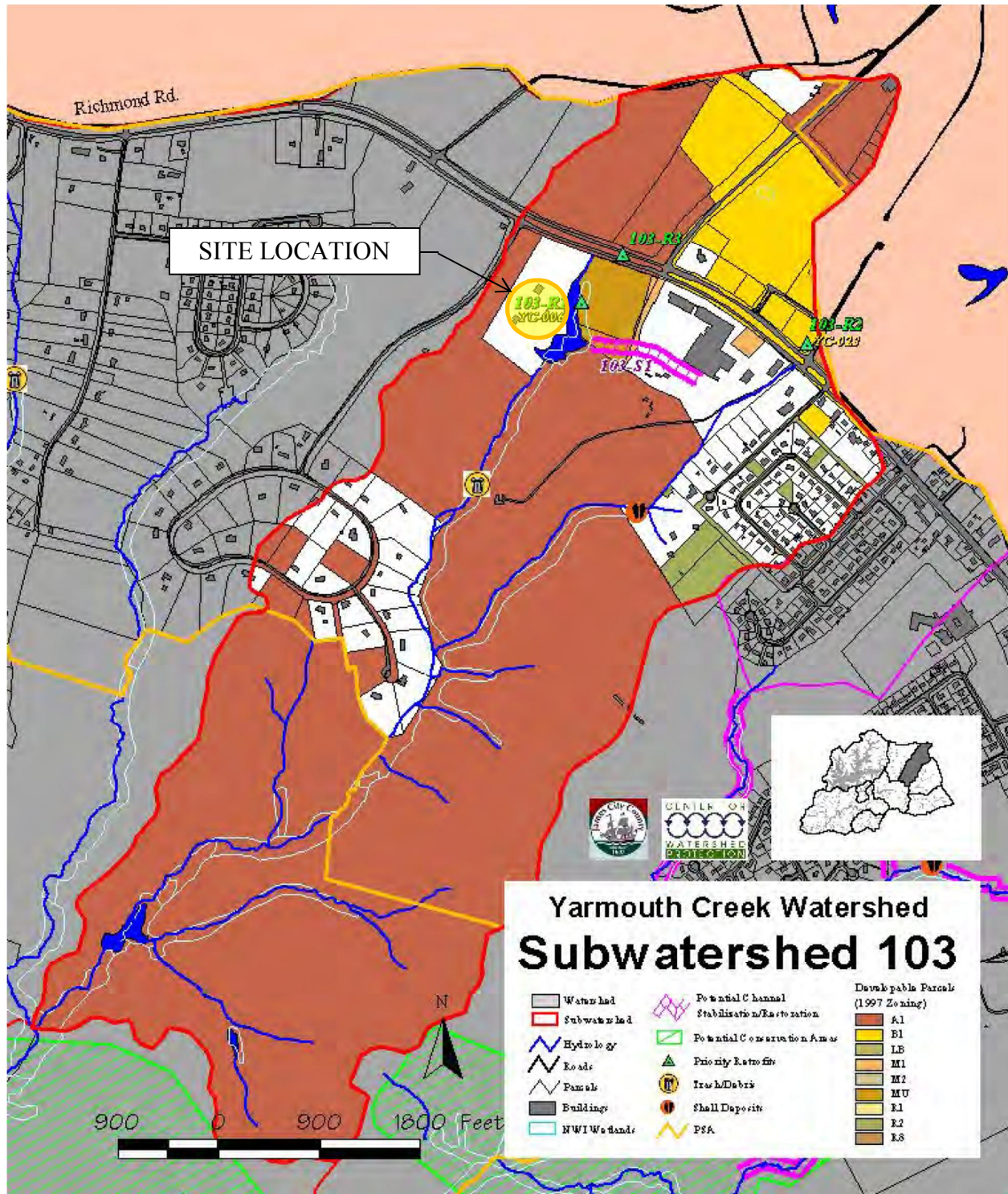
B. Water Quantity

Water quantity control is required to ensure that the post-construction stormwater runoff is controlled to a point that is either at or below the existing condition in terms of flow rates. This quantity of stormwater will be reduced by storing the increased stormwater runoff for a period of time before releasing it back into the downstream waterway. The Level 2 Wet Pond as previously used for water quality control will also be used to store the stormwater to reduce the flow. The Runoff Reduction Method will be used in combination with the SCS Method to calculate the required volume for the Level 2 Wet Pond. Appropriate measures will be taken to ensure that the 1, 2, 10, and 100-year storms are properly contained within the Level 2 Wet Pond and discharged over time with appropriate flows to maintain or better the existing condition.

C. *Special Stormwater Criteria*

Oakland Pointe is located in Subwatershed No. 103, an area considered to be “sensitive” by the Yarmouth Creek Watershed Management Plan as shown below in Figure 2. This plan was put in place to help prevent any degradation of the ecosystem and waterways downstream of Yarmouth Creek. Based on the anticipated disturbed area for this project, a total of three (3) Special Stormwater Criteria (SSC) measures will be required. Per conversations with JCC staff, SSC measures are a Board adopted policy and must be administered despite the newly implemented stormwater regulations and Virginia Runoff Reduction Method (VRRM) requirements. However, JCC staff will allow VRRM measures such as bioretentions, rain gardens, dry swales and the like to also be utilized as SSC measures in order to meet the stormwater requirements of this project. In addition, a forebay has been added to Marston Pond (near the entrance to the site) which is recommended per the Yarmouth Creek Watershed Management Plan. This forebay shall be designed for off-site drainage in its current condition while the other two proposed forebays will be designed for on-site drainage.

Figure 2



D. Storm Sewer System

The proposed storm sewer system will be comprised mainly of curb inlets and reinforced concrete pipes that are placed throughout the site at critical locations. This system will be used to convey the stormwater runoff into the proposed forebays, which will then outfall into the Level 2 Wet Pond for treatment. The Stormwater Master Plan (included in the Appendix) provides the drainage area divide for the stormwater facility. During final design, storm pipe, structures and the forebays will be located accordingly and calculations will be provided.

IX. ANALYSIS OF IMPACTS TO TRAFFIC

DRW Consultants, LLC has completed the required traffic study for the property. The report and findings have been provided to VDOT and James City County for review. Turn lane and entrance improvements have been added to the Master Plan in accordance with the study. These improvements include a proposed westbound 100'x100' turn lane/taper at Oakland Drive and the modification of an existing eastbound 200'x200' turn lane/taper into a 400' turn lane with 100' taper at the intersection of Richmond Road and Prickett Road.

X. FISCAL IMPACT STUDY

A Fiscal Impact Analysis has been prepared and is included in this submittal to the County for review.

XI. CONCLUSIONS

Oakland Pointe represents an appropriate use of land on this site in James City County. This proposed project helps to fill a growing regional need of affordable housing in James City County.

This proposed community meets the intent of the Comprehensive Plan with assurances for the provision of ample open space and its efficient use. The project team's experience in construction assures the county of high standards of design, layout and construction. Oakland Pointe will provide a model for the development of affordable housing in James City County.

The traffic study has concluded that minor turn lane/stacking improvements to Richmond Road will be necessary, while the proposed development will not have a significant impact to the school system. The fiscal analysis concludes a net negative fiscal impact to the County at build out. However, this development addresses the County's long-term need for affordable housing.

There are adequate public utilities with capacity to serve this project. The site is capable of being served by public sewer and water. Fire and life safety issues have been addressed with this application.

Finally, the careful planning of this project with regard to open space, buffers, carefully planned stormwater management systems and limits on impervious surfaces assures the County that the sensitive Subwatershed No. 103 of the Yarmouth Creek Watershed will be protected.

APPENDIX

- 2 - Master Plan Drawings (includes Architectural Drawings)
 - 3 - Rendered Conceptual Plan
 - 4 - Recreational Space Exhibit
 - 5 - Rendered Proposed Road Improvement Plan
- 6 - VRRM Summary - BMP Pollutant Removal Calculation
 - 7 - Fiscal Impact Analysis Worksheet
 - 8 - Traffic Analysis

- NOTES:
1. PROJECT WILL BE DEVELOPED TO ACHIEVE EARTH-CRAFT GOLD CERTIFICATION.
 2. FINAL LAYOUT OF 5' SIDEWALK TO BE DETERMINED DURING THE DESIGN STAGE OF DEVELOPMENT AND BASED ON FIELD CONDITIONS.
 3. THE 4' MULCH TRAIL SHALL MEANDER THROUGH THE RPA BUFFER IN ORDER TO AVOID CLEARING AND MINIMIZING DISTURBANCE TO THE GREATEST EXTENT POSSIBLE.

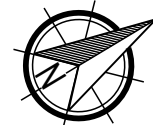


RENDERED CONCEPTUAL PLAN

OAKLAND POINTE

JAMES CITY COUNTY, VIRGINIA

(AES PROJECT #: W10503-00 - AES PROJECT CONTACT: T. RYAN STEPHENSON, P.E.)



Revised: 9/26/2018

DATE: 10/25/2017

SCALE: 1"=50'

SHEET 1 of 1



CONSULTING ENGINEERS

Hampton Roads | Central Virginia | Middle Peninsula

5248 Olde Towne Road, Suite 1
Williamsburg, Virginia 23186
Phone: (757) 253-0040
Fax: (757) 220-8994
www.aesva.com

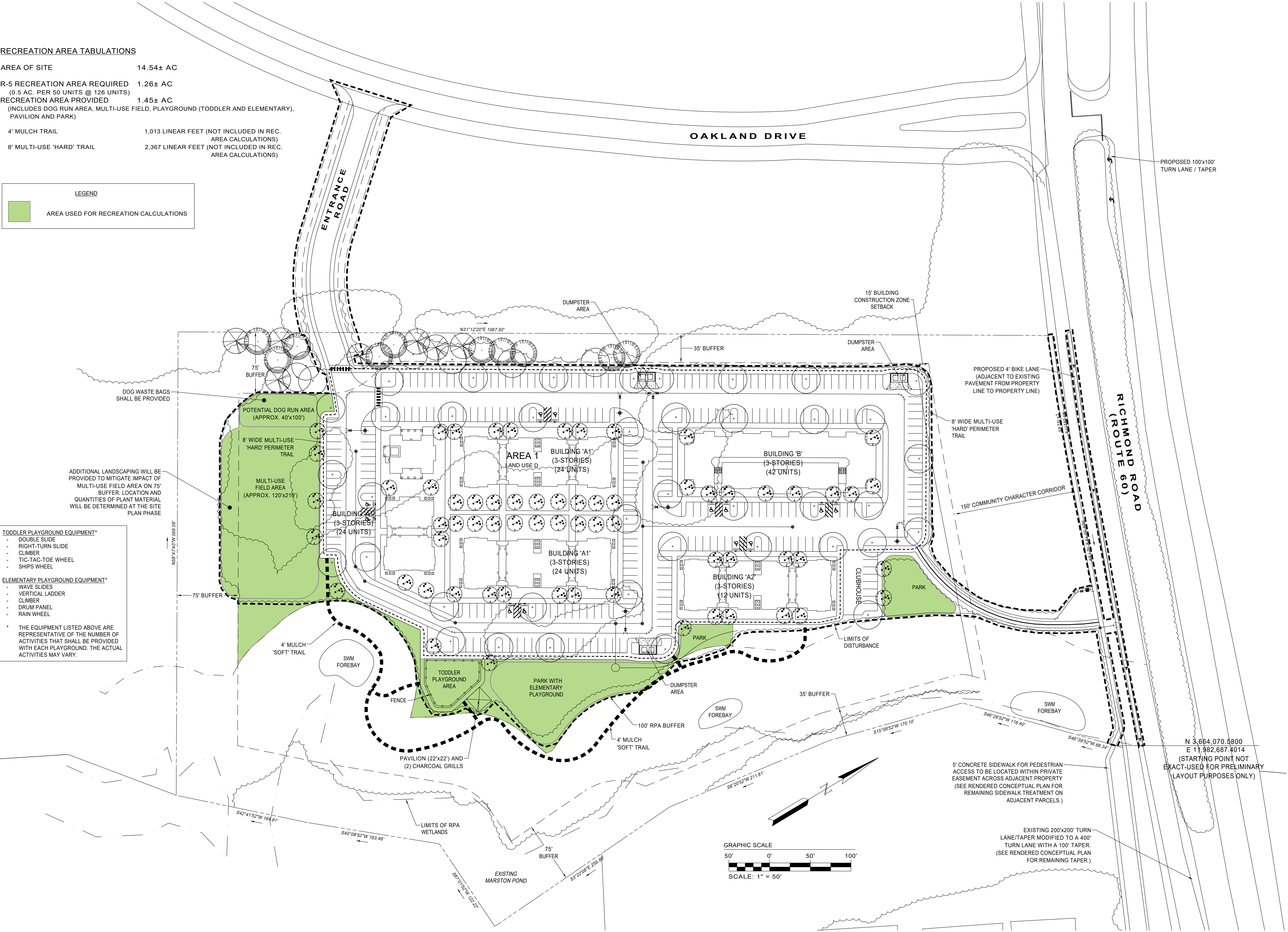
RECREATION AREA TABULATIONS

AREA OF SITE	14.54± AC
R-5 RECREATION AREA REQUIRED (0.5 AC. PER 50 UNITS @ 126 UNITS)	1.26± AC
RECREATION AREA PROVIDED (INCLUDES DOG RUN AREA, MULTI-USE FIELD, PLAYGROUND (TODDLER AND ELEMENTARY), PAVILION AND PARK)	1.45± AC
4' MULCH TRAIL	1,013 LINEAR FEET (NOT INCLUDED IN REC. AREA CALCULATIONS)
8' MULTI-USE 'HARD' TRAIL	2,367 LINEAR FEET (NOT INCLUDED IN REC. AREA CALCULATIONS)

LEGEND

AREA USED FOR RECREATION CALCULATIONS

- TODDLER PLAYGROUND EQUIPMENT*
- DOUBLE SLIDE
 - RIGHT-TURN SLIDE
 - CLIMBER
 - TIC-TAC-TOE WHEEL
 - SHIPS WHEEL
- ELEMENTARY PLAYGROUND EQUIPMENT*
- WAVE SLIDES
 - VERTICAL LADDER
 - CLIMBER
 - DRUM PANEL
 - RAIN WHEEL
- THE EQUIPMENT LISTED ABOVE ARE REPRESENTATIVE OF THE NUMBER OF ACTIVITIES THAT SHALL BE PROVIDED WITH EACH PLAYGROUND. THE ACTUAL ACTIVITIES MAY VARY.



Rev.	Date	Description
1	12/21/17	JMB REVISED PER COUNTY COMMENTS
2	01/10/18	JMB REVISED PER COUNTY COMMENTS
3	02/22/18	JMB REVISED PER VDOT COMMENTS
4	09/26/18	JMB REVISED PER CHANGES IN ACCESS

THIS PLAN HAS NOT RECEIVED FINAL APPROVAL AND IS NOT APPROVED FOR CONSTRUCTION.

5248 Old Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 255-0040
Fax: (757) 220-8984
www.abes.com

ABES CONSULTING ENGINEERS

Hampton Roads | Central Virginia | Middle Peninsula

MASTER PLAN for OAKLAND POINTE

DEVELOPER: CONNELLY BUILDERS, INC.

STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts:	HWP/TRS
Project Number:	10503-00
Scale:	1"=50'
Date:	10/25/17
Sheet Title:	RECREATIONAL SPACE EXHIBIT



Rev.	Date	Description	Revised By
4	09/26/18	REVISED PER CHANGES IN ACCESS	JMB
3	02/22/18	REVISED PER VDOT COMMENTS	JMB
2	01/10/18	REVISED PER COUNTY COMMENTS	JMB
1	12/27/17	REVISED PER COUNTY COMMENTS	JMB

THIS PLAN HAS
NOT RECEIVED
FINAL APPROVAL
AND IS NOT
APPROVED FOR
CONSTRUCTION.

5248 Old Towne Road, Suite 1
Williamsburg, Virginia 23188
Phone: (757) 265-0040
Fax: (757) 220-8994
www.aesva.com

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Hampton Roads | Central Virginia | Middle Peninsula

MASTER PLAN
for
OAKLAND POINTE
DEVELOPER: CONNELLY BUILDERS, INC.
STONEHOUSE DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts: HWP/TRS
Project Number: 10503-00
Scale: 1"=50' Date: 10/25/17
Sheet Title:
**RENDERED
PROPOSED ROAD
IMPROVEMENTS
PLAN**
Sheet Number
1 of 1

☐ 2011 BMP Standards and Specifications☒ 2013 Draft BMP Standards and SpecificationsProject Name: **W10503 Oakland Pointe**Date: **10/20/2017**

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data input cells

constant values

calculation cells

final results

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Information

Post-Development Project (Treatment Volume and Loads)

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 mowed/managed			9.92		9.92
Impervious Cover (acres)			4.62		4.62
					14.54

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
P _i (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

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)

9.03

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary		Treatment Volume and Nutrient Loads	
Forest/Open Space Cover (acres)	0.00	Treatment Volume (acre-ft)	0.5476
Weighted Rv (forest)	0.00	Treatment Volume (cubic feet)	23,855
% Forest	0%	TP Load (lb/yr)	14.99
Managed Turf Cover (acres)	9.92	TN Load (lb/yr)	107.22
Weighted Rv (turf)	0.22	(Informational Purposes Only)	
% Managed Turf	68%		
Impervious Cover (acres)	4.62		
Rv (impervious)	0.95		
% Impervious	32%		
Site Area (acres)	14.54		
Site Rv	0.45		

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)			9.92		9.92	0.22
Impervious Cover (acres)			4.62		4.62	0.95
Total					14.54	

CLEAR BMP AREAS

Total Phosphorus Available for Removal in D.A. A (lb/yr)	14.99
Post Development Treatment Volume in D.A. A (ft ³)	23,855

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists--

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft ³)	Runoff Reduction (ft ³)	Remaining Runoff Volume (ft ³)	Total BMP Treatment Volume (ft ³)	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)													
1.a. Vegetated Roof #1 (Spec #5)	45				0	0	0	0	0	0.00	0.00	0.00	
1.b. Vegetated Roof #2 (Spec #5)	60				0	0	0	0	0	0.00	0.00	0.00	
2. Rooftop Disconnection (RR)													
2.a. Simple Disconnection to A/B Soils (Spec #1)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.b. Simple Disconnection to C/D Soils (Spec #1)	25			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.c. To Soil Amended Filter Path as per specifications (existing C/D soils) (Spec #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.d. To Dry Well or French Drain #1, Micro-Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.e. To Dry Well or French Drain #2, Micro-Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.f. To Rain Garden #1, Micro-Biorentention #1 (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
2.g. To Rain Garden #2, Micro-Biorentention #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
2.h. To Rainwater Harvesting (Spec #6)	0			0	0	0	0	0	0.00	0.00	0.00	0.00	
2.i. To Stormwater Planter, Urban Biorentention (Spec #9, Appendix A)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
3. Permeable Pavement (RR)													
3.a. Permeable Pavement #1 (Spec #7)	45			0	0	0	0	25	0.00	0.00	0.00	0.00	
3.b. Permeable Pavement #2 (Spec #7)	75				0	0	0	25		0.00	0.00	0.00	
4. Grass Channel (RR)													
4.a. Grass Channel A/B Soils (Spec #3)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.b. Grass Channel C/D Soils (Spec #3)	10			0	0	0	0	15	0.00	0.00	0.00	0.00	
4.c. Grass Channel with Compost Amended Soils as per specs (see Spec #4)	20			0	0	0	0	15	0.00	0.00	0.00	0.00	
5. Dry Swale (RR)													
5.a. Dry Swale #1 (Spec #10)	40			0	0	0	0	20	0.00	0.00	0.00	0.00	
5.b. Dry Swale #2 (Spec #10)	60			0	0	0	0	40	0.00	0.00	0.00	0.00	
6. Biorentention (RR)													
6.a. Biorentention #1 or Micro-Biorentention #1 or Urban Biorentention (Spec #9)	40			0	0	0	0	25	0.00	0.00	0.00	0.00	
6.b. Biorentention #2 or Micro-Biorentention #2 (Spec #9)	80			0	0	0	0	50	0.00	0.00	0.00	0.00	
7. Infiltration (RR)													
7.a. Infiltration #1 (Spec #8)	50			0	0	0	0	25	0.00	0.00	0.00	0.00	
7.b. Infiltration #2 (Spec #8)	90			0	0	0	0	25	0.00	0.00	0.00	0.00	
8. Extended Detention Pond (RR)													
8.a. ED #1 (Spec #15)	0			0	0	0	0	15	0.00	0.00	0.00	0.00	
8.b. ED #2 (Spec #15)	15			0	0	0	0	15	0.00	0.00	0.00	0.00	
9. Sheetflow to Filter/Open Space (RR)													
9.a. Sheetflow to Conservation Area, A/B Soils (Spec #2)	75			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.b. Sheetflow to Conservation Area, C/D Soils (Spec #2)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	
9.c. Sheetflow to Vegetated Filter Strip, A Soils or Compost Amended B/C/D Soils (Spec #2 & #4)	50			0	0	0	0	0	0.00	0.00	0.00	0.00	

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
1. Vegetated Roof (RR)				
0		0.00	0.00	0.00
0		0.00	0.00	0.00

2. Rooftop Disconnection (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00

3. Permeable Pavement (RR)				
25	0.00	0.00	0.00	0.00
25		0.00	0.00	0.00

4. Grass Channel (RR)				
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00

5. Dry Swale (RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00

6. Biorentention (RR)				
40	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00

7. Infiltration (RR)				
15	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00

8. Extended Detention Pond (RR)				
10	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00

9. Sheetflow to Filter/Open Space (RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00

TOTAL IMPERVIOUS COVER TREATED (ac)	0.00	AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac)	0.00	AREA CHECK: OK.
TOTAL RUNOFF REDUCTION IN D.A. A (ft ³)	0	
TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr)		14.99
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)		0.00
TOTAL PHOSPHORUS REMAINING AFTER APPLYING RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)		14.99
SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS		

TOTAL RUNOFF REDUCTION IN D.A. A (ft ³)		0
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)		0.00
SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)		

10. Wet Swale (no RR)													
10.a. Wet Swale #1 (Spec #11)	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
10.b. Wet Swale #2 (Spec #11)	0			0	0	0	0	40	0.00	0.00	0.00	0.00	
11. Filtering Practices (no RR)													
11.a. Filtering Practice #1 (Spec #12)	0			0	0	0	0	60	0.00	0.00	0.00	0.00	
11.b. Filtering Practice #2 (Spec #12)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
12. Constructed Wetland (no RR)													
12.a. Constructed Wetland #1 (Spec #13)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
12.b. Constructed Wetland #2 (Spec #13)	0			0	0	0	0	75	0.00	0.00	0.00	0.00	
13. Wet Ponds (no RR)													
13.a. Wet Pond #1 (Spec #14)	0			0	0	0	0	50	0.00	0.00	0.00	0.00	
13.b. Wet Pond #1 (Coastal Plain) (Spec #14)	0			0	0	0	0	45	0.00	0.00	0.00	0.00	
13.c. Wet Pond #2 (Spec #14)	0	8.83	4.62	0	0	22,985	22,985	75	0.00	14.42	10.82	3.61	
13.d. Wet Pond #2 (Coastal Plain) (Spec #14)	0			0	0	0	0	65	0.00	0.00	0.00	0.00	
14. Manufactured Treatment Devices (no RR)													
14.a. Manufactured Treatment Device- Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

10. Wet Swale (Coastal Plain) (no RR)				
25	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
11. Filtering Practices (no RR)				
30	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00
12. Constructed Wetland (no RR)				
25	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00
13. Wet Ponds (no RR)				
30	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
40	0.00	103.19	41.28	61.92
30	0.00	0.00	0.00	0.00
14. Manufactured BMP (no RR)				
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00
0	0.00	0.00	0.00	0.00

TOTAL IMPERVIOUS COVER TREATED (ac)	4.62	AREA CHECK: OK.
TOTAL MANAGED TURF AREA TREATED (ac)	8.83	AREA CHECK: OK.
TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (lb/yr)		9.03
TOTAL PHOSPHORUS AVAILABLE FOR REMOVAL IN D.A. A (lb/yr)		14.99
TOTAL PHOSPHORUS REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)		10.82
TOTAL PHOSPHORUS REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)		0.00
TOTAL PHOSPHORUS LOAD REDUCTION ACHIEVED IN D.A. A (lb/yr)		10.82
TOTAL PHOSPHORUS REMAINING AFTER APPLYING BMP LOAD REDUCTIONS IN D.A. A (lb/yr)		4.17
SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS		
NITROGEN REMOVED WITH RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)		0.00
NITROGEN REMOVED WITHOUT RUNOFF REDUCTION PRACTICES IN D.A. A (lb/yr)		41.28
TOTAL NITROGEN REMOVED IN D.A. A (lb/yr)		41.28

Site Results (Water Quality Compliance)

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	4.62	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	4.62	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	9.92	0.00	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	8.83	0.00	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	
Site Treatment Volume (ft ³)	1					
Runoff Reduction Volume and TP By Drainage Area						
	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft ³)	0	0	0	0	0	0
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	14.99	0.00	0.00	0.00	0.00	14.99
TP LOAD REDUCTION ACHIEVED (lb/yr)	10.82	0.00	0.00	0.00	0.00	10.82
TP LOAD REMAINING (lb/yr)	4.17	0.00	0.00	0.00	0.00	4.17
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	41.28	0.00	0.00	0.00	0.00	41.28
Total Phosphorus						
FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	14.99					
TP LOAD REDUCTION REQUIRED (lb/yr)	9.03					
TP LOAD REDUCTION ACHIEVED (lb/yr)	10.82					
TP LOAD REMAINING (lb/yr):	4.17					
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00	**				
** TARGET TP REDUCTION EXCEEDED BY 1.79 LB/YEAR **						
Total Nitrogen (For Information Purposes)						
POST-DEVELOPMENT LOAD (lb/yr)	107.22					
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	41.28					
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	65.95					

Runoff Volume and Curve Number Calculations

Enter design storm rainfall depths (in):

1-year storm	2-year storm	10-year storm
0.00	0.00	0.00

Use NOAA Atlas 14 (<http://hdsc.mws.noa.gov/hdsc/pfds/>)

*Notes (see below):

[1] The curve numbers and runoff volumes computed in this spreadsheet for each drainage area are limited in their applicability for determining and demonstrating compliance with water quantity requirements. See VRRM User's Guide and Documentation for additional information.

[2] Runoff Volume (RV) for pre- and post-development drainage areas must be in volumetric units (e.g., acre-feet or cubic feet) when using the Energy Balance Equation. Runoff measured in watershed-inches and shown in the spreadsheet as RV(watershed-inch) can only be used in the Energy Balance Equation when the pre- and post-development drainage areas are equal. Otherwise RV(watershed-inch) must be multiplied by the drainage area.

[3] Adjusted CNs are based on runoff reduction volumes as calculated in D.A. tabs. An alternative CN adjustment calculation for Vegetated Roofs is included in BMP specification No. 5.

Drainage Area Curve Numbers and Runoff Depths*

Curve numbers (CN, CNadj) and runoff depths (RV_{Developed}) are computed with and without reduction practices.

Drainage Area A			A Soils	B Soils	C Soils	D Soils	Total Area (acres):	14.54
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft³):	0
	CN	30	55	70	77			
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	9.92	0.00	0.00		
	CN	39	61	74	80			
Impervious Cover	Area (acres)	0.00	0.00	4.62	0.00	0.00		
	CN	98	98	98	98			
						CN(D.A. A)		
						82		
		1-year storm	2-year storm	10-year storm				
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00				
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00				
Adjusted CN*		100	100	100				
		*See Notes above						
Drainage Area B			A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft³):	0
	CN	30	55	70	77			
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	39	61	74	80			
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	98	98	98	98			
						CN(D.A. B)		
						0		
		1-year storm	2-year storm	10-year storm				
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00				
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00				
Adjusted CN*		0	0	0				
		*See Notes above						
Drainage Area C			A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft³):	0
	CN	30	55	70	77			
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	39	61	74	80			
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	98	98	98	98			
						CN(D.A. C)		
						0		
		1-year storm	2-year storm	10-year storm				
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00				
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00				
Adjusted CN*		0	0	0				
		*See Notes above						
Drainage Area D			A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft³):	0
	CN	30	55	70	77			
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	39	61	74	80			
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	98	98	98	98			
						CN(D.A. D)		
						0		
		1-year storm	2-year storm	10-year storm				
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00				
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00				
Adjusted CN*		0	0	0				
		*See Notes above						
Drainage Area E			A Soils	B Soils	C Soils	D Soils	Total Area (acres):	0.00
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00	0.00	Runoff Reduction Volume (ft³):	0
	CN	30	55	70	77			
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	39	61	74	80			
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.00	0.00		
	CN	98	98	98	98			
						CN(D.A. E)		
						0		
		1-year storm	2-year storm	10-year storm				
RV _{Developed} (watershed-inch) with no Runoff Reduction*		0.00	0.00	0.00				
RV _{Developed} (watershed-inch) with Runoff Reduction*		0.00	0.00	0.00				
Adjusted CN*		0	0	0				
		*See Notes above						

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

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Summary

Total Rainfall = 43 inches

Site Land Cover Summary

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	9.92	0.00	9.92	68
Impervious Cover (acres)	0.00	0.00	4.62	0.00	4.62	32
					14.54	100

Site Tv and Land Cover Nutrient Loads

Site Rv	0.45
Treatment Volume (ft ³)	23,855
TP Load (lb/yr)	14.99
TN Load (lb/yr)	107.22

Total TP Load Reduction Required (lb/yr)	9.03
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Site Compliance Summary

Total Runoff Volume Reduction (ft ³)	0
Total TP Load Reduction Achieved (lb/yr)	10.82
Total TN Load Reduction Achieved (lb/yr)	41.28
Remaining Post Development TP Load (lb/yr)	4.17
Remaining TP Load Reduction (lb/yr) Required	0.00

** TARGET TP REDUCTION EXCEEDED BY 1.79 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)	9.92	0.00	0.00	0.00	0.00	9.92
Impervious Cover (acres)	4.62	0.00	0.00	0.00	0.00	4.62
Total Area (acres)	14.54	0.00	0.00	0.00	0.00	14.54

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)	10.82	0.00	0.00	0.00	0.00	10.82

TN Load Reduced (lb/yr)	41.28	0.00	0.00	0.00	0.00	41.28
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Drainage Area A SummaryLand 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	9.92	0.00	9.92	68
Impervious Cover (acres)	0.00	0.00	4.62	0.00	4.62	32
					14.54	

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	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
Total Impervious Cover Treated (acres)	4.62							
Total Turf Area Treated (acres)	8.83							
Total TP Load Reduction Achieved in D.A. (lb/yr)	10.82							
Total TN Load Reduction Achieved in D.A. (lb/yr)	41.28							

Drainage Area B SummaryLand 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	0.00	0.00	0
Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00	0
					0.00	

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	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
Total Impervious Cover Treated (acres)	0.00							
Total Turf Area Treated (acres)	0.00							
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00							
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00							

Drainage Area C SummaryLand 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	0.00	0.00	0
Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00	0
					0.00	

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	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
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Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Drainage Area D SummaryLand 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	0.00	0.00	0
Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00	0
					0.00	

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	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
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Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Drainage Area E 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	0.00	0.00	0
Impervious Cover (acres)	0.00	0.00	0.00	0.00	0.00	0
					0.00	

BMP Selections

Practice	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	BMP Treatment Volume (ft ³)	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
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Total Impervious Cover Treated (acres)	0.00
Total Turf Area Treated (acres)	0.00
Total TP Load Reduction Achieved in D.A. (lb/yr)	0.00
Total TN Load Reduction Achieved in D.A. (lb/yr)	0.00

Runoff Volume and CN Calculations

	1-year storm	2-year storm	10-year storm
Target Rainfall Event (in)	0.00	0.00	0.00

Drainage Areas	RV & CN	Drainage Area A	Drainage Area B	Drainage Area C	Drainage Area D	Drainage Area E
CN		82	0	0	0	0
RR (ft ³)		0	0	0	0	0
1-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	100	0	0	0	0
2-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	100	0	0	0	0
10-year return period	RV wo RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	RV w RR (ws-in)	0.00	0.00	0.00	0.00	0.00
	CN adjusted	100	0	0	0	0