

Project Name: **Oakwood - Van Dorn**  
 Date: **6/27/2016**

**CLEAR ALL**  
 (Ctrl+Shift+R)

- 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					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				3.85	3.85
Impervious Cover (acres)				2.36	2.36
					6.21

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
Pj (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)	4.76
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**LAND COVER SUMMARY -- POST DEVELOPMENT**

Land Cover Summary	
Forest/Open Space Cover (acres)	0.00
Weighted Rv (forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	3.85
Weighted Rv (turf)	0.25
% Managed Turf	62%
Impervious Cover (acres)	2.36
Rv (impervious)	0.95
% Impervious	38%
Site Area (acres)	6.21
Site Rv	0.52

Treatment Volume and Nutrient Loads	
Treatment Volume (acre-ft)	0.2670
Treatment Volume (cubic feet)	11,632
TP Load (lb/yr)	7.31
TN Load (lb/yr) (Informational Purposes Only)	52.28

**ONSITE PHOSPHOROUS REMOVAL (LVL 1 INFILTRATION)**

Total Phosphorus	
FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	7.31
TP LOAD REDUCTION REQUIRED (lb/yr)	4.76
TP LOAD REDUCTION ACHIEVED (lb/yr)	3.95
TP LOAD REMAINING (lb/yr)	3.36
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.81

**OFFSITE PHOSPHOROUS REMOVAL (LVL 1 INFILTRATION)**

Total Phosphorus	
FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	8.22
TP LOAD REDUCTION REQUIRED (lb/yr)	4.76
TP LOAD REDUCTION ACHIEVED (lb/yr)	3.88
TP LOAD REMAINING (lb/yr)	2.34
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.22

TOTAL ONSITE + OFFSITE PHOSPHOROUS REMOVAL= 7.83 LBS/YR > 5.06 LBS/YR REQ'D

**STORMWATER MANAGEMENT NARRATIVE**

THE EXISTING ONSITE ENHANCED EXTENDED DETENTION POND PROVIDES DETENTION FOR APPROXIMATELY 8.22 ACRES OF OFFSITE AND ONSITE AREA. UNDER THE PROPOSED CONDITIONS SHOWN BELOW, DETENTION WILL BE PROVIDED FOR APPROXIMATELY 11.06 ACRES OF ONSITE AND OFFSITE AREA.

THE DETENTION SYSTEM SHOWN BELOW IS SIZED TO MEET FAIRFAX COUNTY CODE, CHAPTER 124, WATER QUANTITY REQUIREMENTS FOR BOTH CHANNEL PROTECTION AND FLOOD PROTECTION CRITERIA FOR THE 5.14 ACRES OF ONSITE AREA. THE ONE, TWO, AND TEN-YEAR STORM RELEASES HAVE BEEN CALCULATED USING THE METHOD IN §124-4-4(b)(3)(c). THUS, THE EXTENT OF REVIEW WILL BE LIMITED TO PROVIDING CROSS-SECTIONS DOWNSTREAM TO SHOW A DEFINED OUTFALL CHANNEL. IN ADDITION, DETENTION IS PROVIDED FOR OAKWOOD ROAD AND THE RIGHT TURN LANE ON S. VAN DORN STREET.

\*NOTE: THE SIZES OF THE SYSTEM DOES NOT ACCOUNT FOR ANY RUNOFF REDUCTION ON ADJUSTMENTS, THEREFORE REFLECTING THE APPROXIMATE SIZE IF INFILTRATION TESTING DOES NOT PROVIDE THE RESULTS NEEDED FOR A LEVEL 1 INFILTRATION FACILITY AS DETERMINED BY VA DEQ.

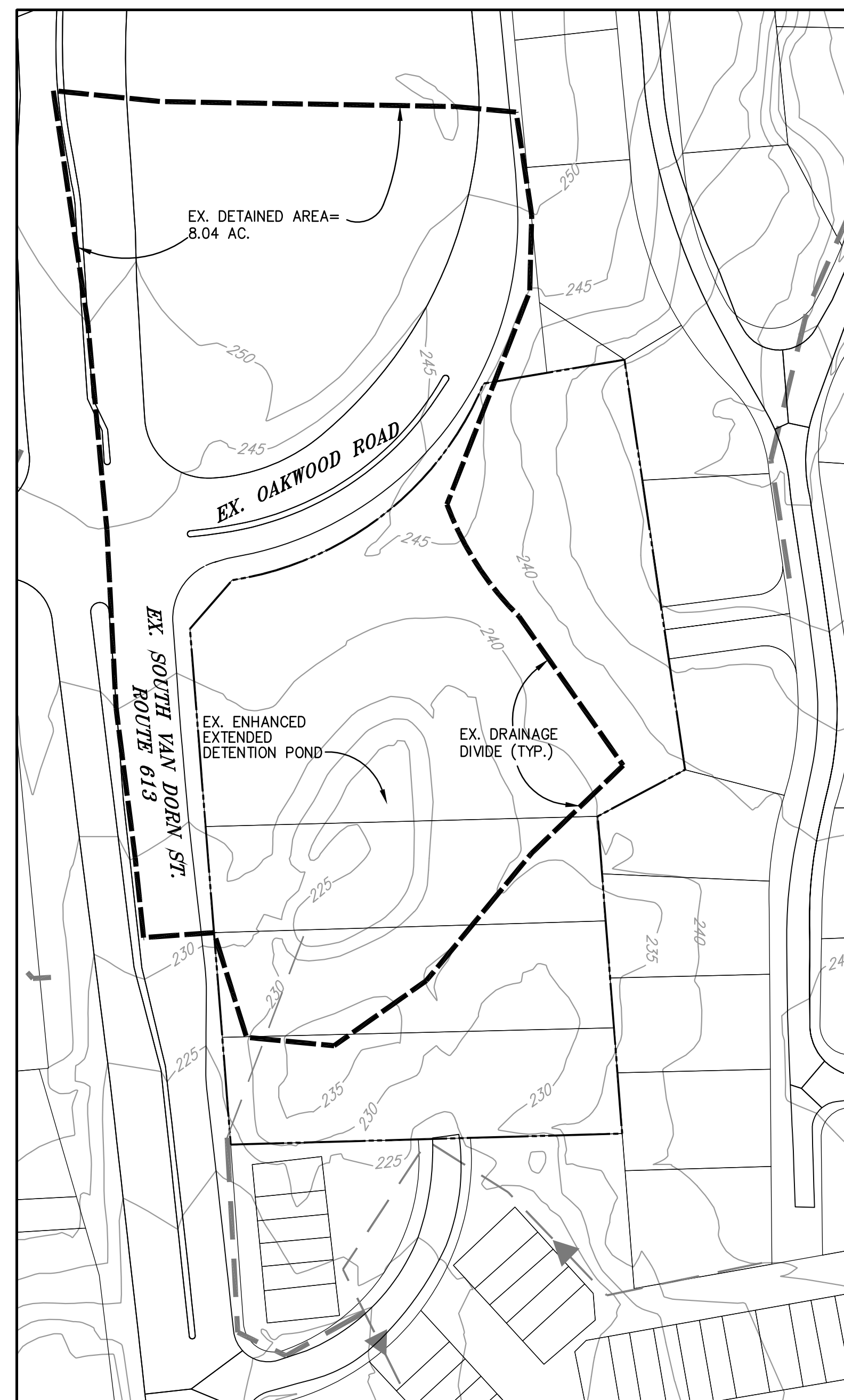
**WATER QUALITY NARRATIVE**

AN EXISTING ENHANCED EXTENDED DETENTION POND PROVIDES WATER QUALITY FOR 4.66 ACRES OF OFFSITE AREA. WE ARE ASSUMING THE EXISTING ENHANCED EXTENDED DETENTION POND IS CURRENTLY SERVING TO TREAT THE OFFSITE AREA AT A 50% PHOSPHOROUS REMOVAL RATE. USING THE EQUATION IN FAIRFAX COUNTY BULLETIN 15-01 (CON. 5-21 IN 1999 ed. OF THE VSMH) THE EXISTING OFFSITE PHOSPHOROUS LOAD WAS CALCULATED TO BE 0.57 LBS/YR. THE NEW STORMWATER MANAGEMENT FACILITY MUST PROVIDE THE SAME LEVEL OF PHOSPHOROUS REMOVAL FOR THE OFFSITE AREAS IN ADDITION TO MEETING CURRENT WATER QUALITY REQUIREMENTS FOR THE PROPOSED ONSITE DEVELOPMENT. THEREFORE, THE PROPOSED SITE IMPROVEMENTS MUST REMOVE 0.29 LBS/YR (50% OF 0.59 LBS/YR) PLUS PHOSPHOROUS REMOVAL TO MEET THE ONSITE REQUIREMENT.

THE TOTAL ONSITE PHOSPHOROUS LOAD REDUCTION REQUIRED FOR NEW DEVELOPMENT IN THE WATER QUALITY REGULATIONS IN FAIRFAX COUNTY CODE CHAPTER 124-4-2 WAS CALCULATED TO BE 4.76 LB/YR. THEREFORE, THE PROPOSED SITE STORMWATER MANAGEMENT MUST REMOVE 0.29 LBS/YR OF PHOSPHOROUS TO COMPENSATE FOR THE LOST OFFSITE WATER QUALITY IN ADDITION TO REMOVING 4.76 LB/YR OF PHOSPHOROUS TO MEET THE ONSITE REQUIREMENTS. THIS RESULTS IN A TOTAL PHOSPHOROUS REMOVAL REQUIREMENT OF 5.05 LBS/YR. TO MEET WATER QUALITY REQUIREMENTS FOR THIS SITE, WE HAVE ASSUMED THAT LEVEL 1 INFILTRATION RATES (DEFINED BY VA DEQ AS FIELD RATES OF 0.5-1.0 in/hr) WILL BE AVAILABLE AND THAT THE STORMTECH SYSTEM SHOWN WILL SERVE AS BOTH DETENTION AND WATER QUALITY FACILITIES. IF INFILTRATION TESTING IS SUCCESSFUL, THE STORMTECH DETENTION SYSTEM SERVING AS A LEVEL 1 INFILTRATION FACILITY WILL BE SUFFICIENT TO MEET THE REQUIRED WATER QUALITY CRITERIA. IF INFILTRATION TESTING IS UNSUCCESSFUL, WATER QUALITY REQUIREMENTS MAY BE MET BY TAKING 40% REMOVAL CREDIT FOR THE STORMTECH ISOLATOR ROW AS WELL AS THE PURCHASE OF OFFSITE NUTRIENT CREDITS.

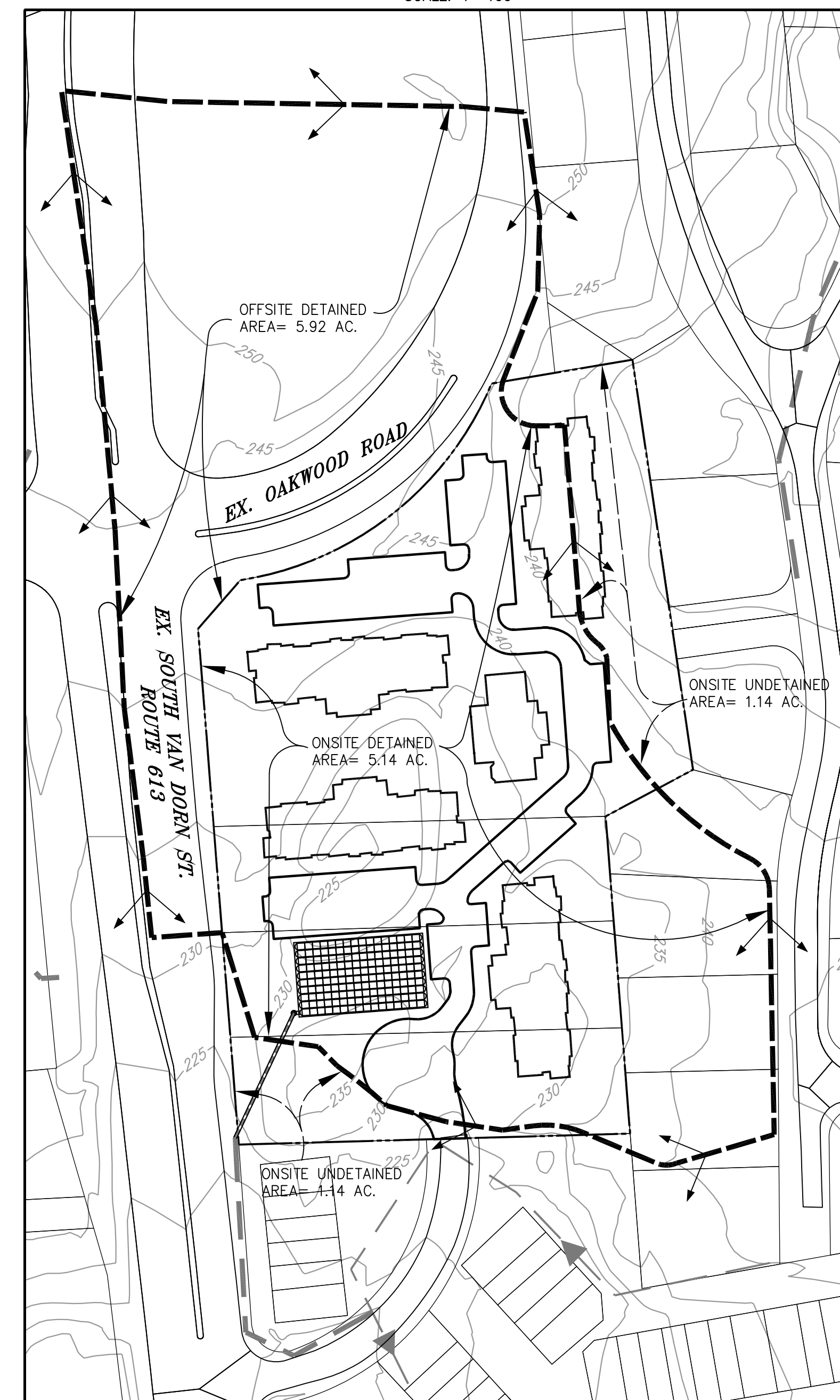
**EXISTING CONDITIONS PLAN**

SCALE: 1"=100'



**MC-3500 STORMTECH SYSTEM (160 CHAMBERS - 9,210 SF)**

SCALE: 1"=100'



STORMWATER MANAGEMENT EXHIBIT

OAKWOOD ROAD PROPERTY

LEE DISTRICT  
 FAIRFAX COUNTY, VIRGINIA

BC REVISIONS

DESIGNED BY: BWB
DRAFTED BY: BWB
CHECKED BY: DGC
DATE: APRIL, 2016
SCALE: HOR. 1"= 100' VERT.
SHEET 1 OF
CO. NO.
CAD NAME: GIS
LAYOUT: Exhibit
FILE NO.

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