

ESDv REQUIRED

STORMWATER MANAGEMENT ANALYSIS - WESTWOOD SHOPPING CENTER

Combined SWM Concept	
TOTAL SITE AREA:	450,000 SF
Existing Impervious Area	414,000 SF
Percent Impervious (I)	92.0%
Therefore Redevelopment	>40%
TOTAL DISTURBED AREA:	480,000 SF
Impervious Area	422,400 SF
Percent Impervious (I)	88.0%
Target PE (Table 5-3)	1.80 in.
IV	0.94
TOTAL ESD VOLUME REQUIRED:	60,624 CF

ESDv PROVIDED

STORMWATER MANAGEMENT ANALYSIS - WESTWOOD SHOPPING CENTER

TOTAL OF ALL STORMWATER FACILITIES						
Name	Media Depth (in)	Area (ft ²)	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Maximum ESD Volume 2.6" To BMP (CF)	ESD Volume (CF)
Green Roof	8	46,030	6,168	0	9,475	6,168
Bioretention	24	14,038	28,075	151,233	27,933	26,497
TOTAL	N/A	60,068	34,243	151,233	37,407	32,665
ESDv Required =						60,624
ESDv % =						53.9%
Equiv. PE =						0.97

Green Roof						
Name	Media Depth (in)	Area (ft ²)	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Maximum ESD Volume of 2.6" To BMP (CF)	Volumetric Runoff Coeff. (Rv) =
Extensive GR - (Grocery-1)	8	6,040	809	0	1,243	0.95
Extensive GR - (Grocery-2)	8	14,990	2,069	0	3,385	0.95
Extensive GR - (Multi)	8	35,000	3,350	0	5,146	0.95

Extensive Green Roof Table 1				Soil/Sand Ratio (Sw) =
Roof Thickness	RCN	ESDv/af	Equiv. PE (in.)	0.4
4"	88.00	0.077	1	
8"	77.00	0.134	1.7	

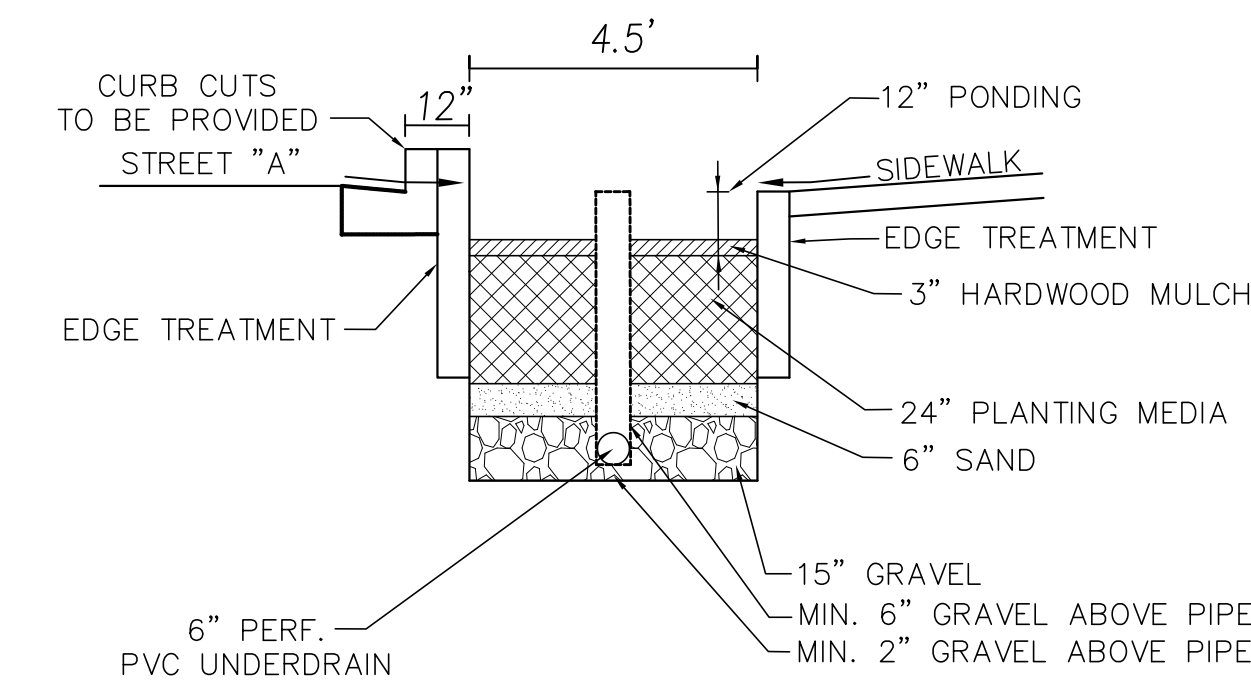
Bioretention (STANDARD WITH UNDERDRAIN)												
Name	Filter Media Depth (ft)	Ponding Depth (ft)	Sand Layer Depth (ft)	Area (ft ²)	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Total Area Draining to BMP (SF)	Maximum ESD Volume 2.6" To BMP (CF)	Volumetric Runoff Coeff. (Rv) =	ESD Volume (CF)	Impervious Area Draining to MAX BMP (SF)	Equiv. PE (in.)
*Micro-Bio	2	1	0.5	67.5	135	903	1,070	170	0.81	135	588	1.78
Multiple by # of Planters	47			3172.5	6,345	42,418	50,290	7,962		6,345	27,633	
**Micro-Bio	2	1	0.5	116	232	1,234	1,328	237	0.57	232	1,011	2.17
Multiple by # of Planters	15			1740	3,480	18,510	31,914	2,510		3,480	15,167	
MB-1	2	1	0.5	680	1,360	2,260	10,000	1,381	0.70	1,360	5,827	2.19
MB-2	2	1	0.5	510	1,020	5,900	10,900	1,054	0.55	1,020	4,445	2.14
MB-3	2	1	0.5	940	1,880	10,000	12,000	1,918	0.80	1,880	8,194	2.18
MB-4	2	1	0.5	610	1,220	6,400	10,000	1,229	0.63	1,220	5,317	2.20
MB-5 (GRDCERY)	2	1	0.5	2025	4,050	17,975	20,000	3,506	0.86	3,506	17,651	2.22
MB-6 (MULTI)	2	1	0.5	500	1,000	5,900	6,900	1,052	0.88	1,000	4,358	2.11
MB-7 (MULTI)	2	1	0.5	2170	4,340	17,710	20,000	3,506	0.85	3,506	19,787	2.23
MB-8 (TOTAL PLAZA)	2	1	0.5	1580	3,160	20,000	24,000	3,785	0.80	3,180	13,859	1.86

TOTAL						
Name	Media Depth (in)	Area (ft ²)	Storage Capacity of BMP (CF)	Impervious Area Draining to BMP (SF)	Maximum ESD Volume 2.6" To BMP (CF)	ESD Volume (CF)
Green Roof	Varies	46,030	6,168	0	9,475	6,168
Micro-Bio	N/A	14,038	28,075	151,233	27,933	26,497
TOTAL	N/A	60,068	34,243	151,233	37,407	32,665

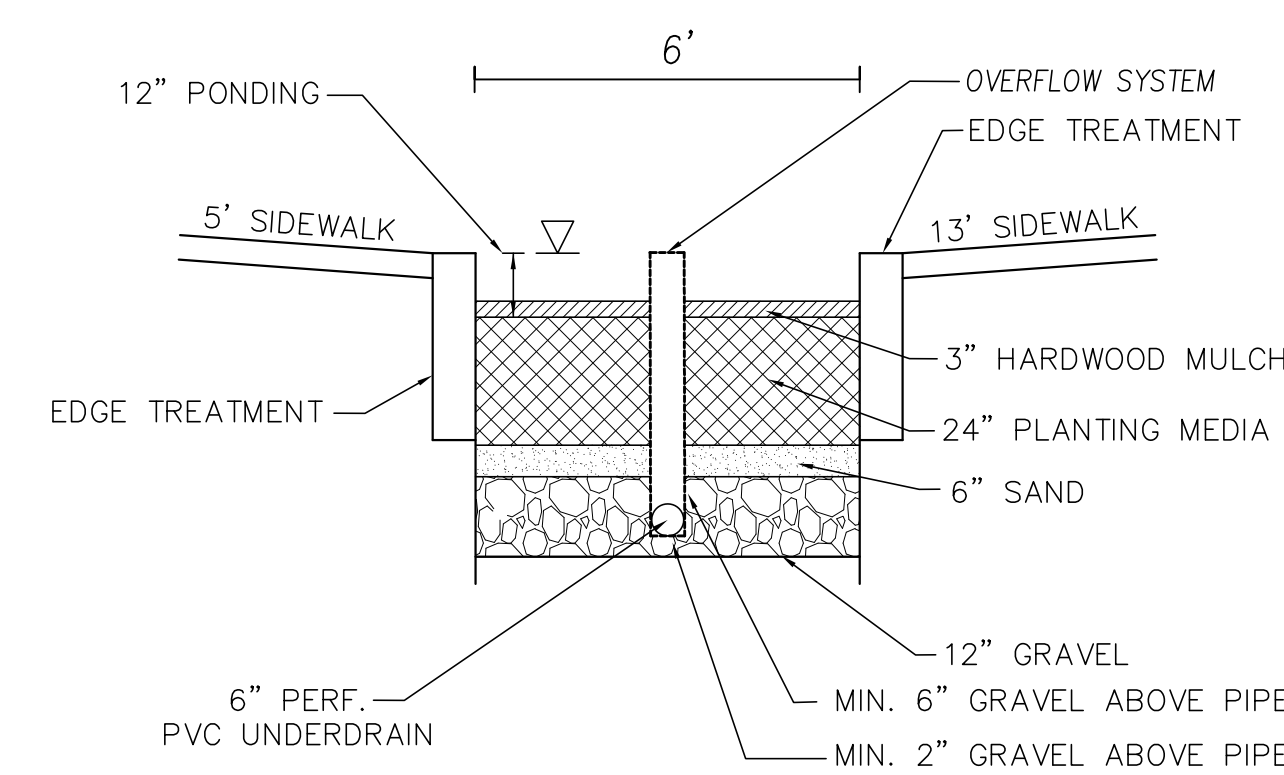
*Typical TH with green area and s/w draining to micro-bio (including area of micro-bio)
 **Typical Westbard Planter with green area, bike path, and s/w draining to micro-bio (including area of micro-bio)

STORMWATER ALTERNATIVE

Title:	ESD Volume Calculations	By:	JBA	Date:	4/20/2018
Project:	Westwood Shopping Center	Location:	Bethesda	Project No.:	17-255
ESD Facility SWM VAULT SUMMARY					
Remaining Volume (REQUIRED)					
ESDv Required (DISTURBED AREA) =	60,624	cf			
ESDv Provided =	32,665	cf			
Pe Provided =	0.97	in			
Since the Pe provided is less than 1", there will be no reduction in CN calculated and the remaining ESDv will be provided via a SWM Alternative (i.e. structural)					
Remaining ESDv Required =	27,959	cf			
Volume Provided in Grocery Vault =	9,900	cf			
Volume Provided in Multi Vault =	9,900	cf			
Volume Provided in Plaza =	1,620	cf			
Volume Provided in Alley-1 =	2,430	cf			
Volume Provided in Pavers =	2,520	cf			
Volume Provided in Alley-2 =	2,520	cf			
CREDIT	-931	cf			

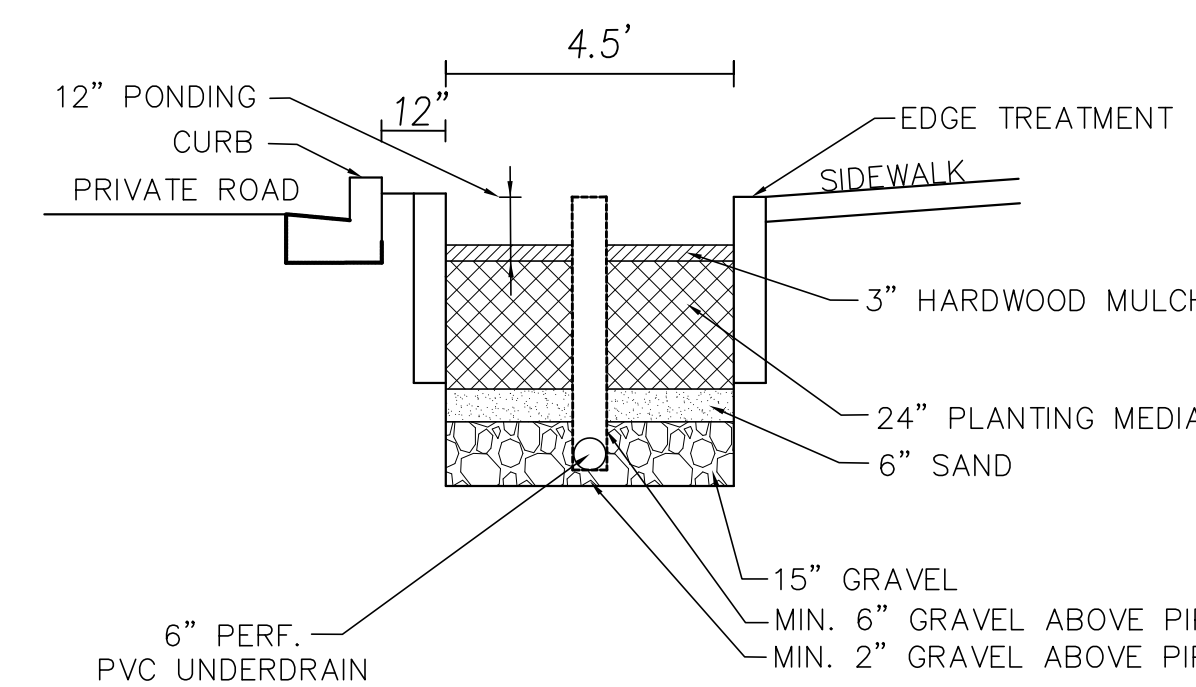


MICRO-BIORETENTION PLANTER
 MULTI BUILDING (TYP. SECTION)
 SCALE: 1"=3'

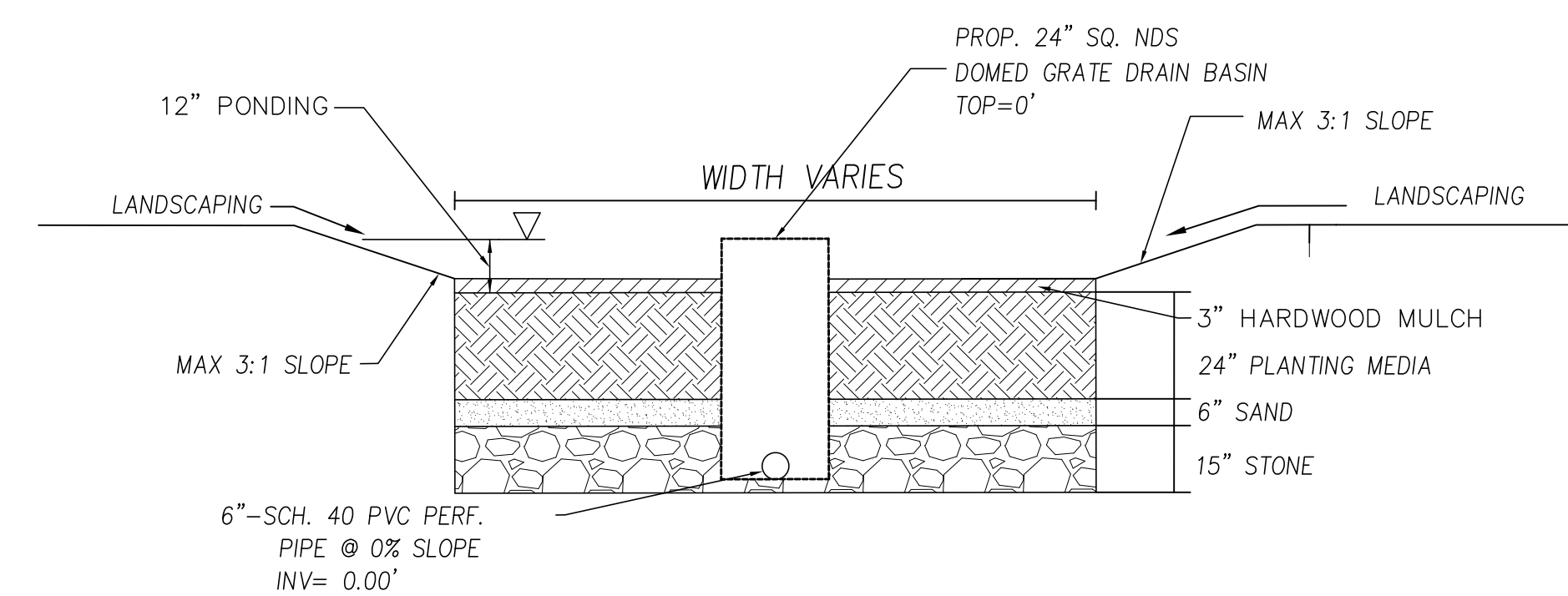


MICRO-BIORETENTION PLANTER
 WESTBARD AVE. (TYP. SECTION)
 SCALE: 1"=3'

*CONCRETE PLANTER TO BE WATERPROOFED



MICRO-BIORETENTION PLANTER
 PRIVATE ROAD (TYP. SECTION)
 SCALE: 1"=3'



MICRO-BIORETENTION (SURFACE)
 SCALE: 1"=3'

WESTWOOD SHOPPING CENTER

7TH ELECTION DISTRICT
 BETHESDA, MARYLAND

Applicant / Owner:
 Equity One (Northeast Portfolio) LLC
 c/o Regency Centers, L.P.



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 Sam Steibel



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 Kevin Johnson



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 Jim Voeitke



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 Gabriela Canamar



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 Nancy Randall

SITE PLAN NO. 820180190

STORMWATER MANAGEMENT CONCEPT PLAN DETAILS

MAY 1, 2018

DRAWN BY: AMB CHECKED BY: KJJ

REV.	ISSUE	DATE

DRAWING STAMP

SHEET NUMBER

SP-SMW-2