

Arlington County Chesapeake Bay Preservation Ordinance Stormwater Requirements Worksheet

Step 1. Enter site characteristics and determine impact area

Total Site Area	Area (sf)	%
Existing Impervious Cover	32631	0.0%
Proposed Impervious Cover	1950	6.0%
Average Land Cover condition	5221	16.0%
90% of Existing Impervious Cover	0	0.0%
Impact area (sf)	pre<=avg; post<=avg	Yes
	pre<=avg; post>avg	No
	pre>avg	No
Total Impact Area		0
Impact area > 50% of total impervious area?		No
Impact Area Requirement		0
Maximum Watershed Management Fund fee	\$	2.50

Step 2. Determine onsite stormwater treatment requirements

Vehicle-related pavement	Area (sf)	
Vehicle-related pavement required to be treated	0	
Required min. treatment efficiency	50%	
Treatment credit needed	0	
Onsite vehicle-related pavement treated	Impervious area treated (sf)	Treatment efficiency
BMP type	(A)	(B)
	0	0%
	0	0%
Total onsite stormwater treatment credits		0

Step 3. Additional treatment

BMP type	Impervious area treated (sf)	Treatment efficiency	Treatment Credit (sf)
	(A)	(B)	(A X B)
	0	0%	0
	0	0%	0
Total additional treatment credits			0

Step 4. Determine compliance

Impact area	Area (sf)	
Total treatment credits	0	
Remaining impact area	0	
Total Watershed Management Fund fee	\$	-

NOTE: THE IMPERVIOUS AREA CONSISTS OF THE ONSITE EXISTING AND PROPOSED CONCRETE SIDEWALK AROUND THE PERIMETER OF THE PROPERTY FOR PUBLIC SIDEWALKS.

BMP NARRATIVE

PER CHESAPEAKE BAY PRESERVATION ORDINANCE 61.0(F)(1)(A) AND GUIDELINE MANUAL TO THE CHESAPEAKE BAY PRESERVATION ORDINANCE 4.1 IF BOTH PRE-AND POST DEVELOPMENT IMPERVIOUS COVER ARE LESS THAN OR EQUAL TO 16%, THERE ARE NO POLLUTANT REMOVAL REQUIREMENTS FOR THE SITE. THEREFORE, WATER QUALITY CONTROL IS NOT REQUIRED FOR THIS PROJECT.

AN ADMINISTRATIVE EXCEPTION OF SECTION 4.2 OF THE ARLINGTON COUNTY CHESAPEAKE BAY ORDINANCE FOR ON SITE TREATMENT IS REQUESTED UNDER SECTION 61-16. THE TOTAL ON-SITE VEHICLE PAVEMENT AREA IS 0 SQUARE FEET WHICH IS BELOW THE 2,000 SQUARE FEET.

DUE TO THE NATURE OF THE SUBSURFACE PASSIVE IRRIGATION SYSTEM OVER 75% OF THE ONSITE AREA WILL INFILTRATE THROUGH THE SURFACE TREATMENTS (PERVIOUS PAVEMENT, CRUSHER FINES, MANICURED LAWN, DECKING, PLANTING, ETC.) AND WILL CIRCULATE BENEATH THE SURFACE. THE SUBSURFACE PASSIVE IRRIGATION SYSTEM-RETAINS-STORES-AND-REUSES-RAINWATER THAT WILL BE REUSED BY THE PLANT MEDIA. THE RESERVOIR PROVIDES APPROXIMATELY 6,600 GAL. (888 CF) OF ADDITIONAL STORAGE.

THE EPIC SYSTEM IS A SUB SURFACE IRRIGATION / STORMWATER REUSE SYSTEM WITH COMPREHENSIVE WATER MANAGEMENT FEATURES. THE SYSTEM WORKS ON LOW FLOW / HYDRAULICS PROPERTIES OF THE SAND/SOIL MIX AND THE STORAGE CAPACITY OF THE UNDERGROUND CHAMBERS. THE SYSTEM HAS BEEN DESIGNED TO PROVIDE LEVEL IRRIGATION PLAINS IN A TIERED APPROACH. EACH ZONE WATER LEVEL IS CONTROLLED BY THE ASSOCIATED DRAIN VAULT AND EVENTUALLY OUTFALLS INTO THE "RAINTANK" RESERVOIR. THE SYSTEM IS PUMPED / FLUSHED PERIODICALLY THROUGH THE ENTIRE SYSTEM TO PROMOTE WATER EXCHANGE.

AS THE STORMWATER IS RECIRCULATED THROUGHOUT THE PROJECT, THE ENTIRE SITE ACTS AS AN IRRIGATION / REUSE SYSTEM. BASED ON LOCAL RAINFALL DATA, A WATER BUDGET WAS CALCULATED AND DETERMINED THE WATER DEMAND (IRRIGATION) IS GREATER THAN THE 10-YR STORAGE VOLUME. THEREFORE, THE NET RELEASE OF THE 10-YR STORM EVENT WILL BE 0.0 CFS. ADDITIONAL STORAGE VOLUME IS BEING PROVIDED TO ACCOUNT FOR ADDITIONAL IRRIGATION NEEDS. IN THE EVENT THERE ARE MULTIPLE STORM EVENTS, THE 12" OVERFLOW PIPE WILL ACT AS A CONTROL STRUCTURE AND THE 12" OVERFLOW PIPE HAS SUFFICIENT CAPACITY TO PASS THE 10-YR STORM EVENT (SEE SHEET CJ-201).

ARLINGTON COUNTY STORMWATER DETENTION CALCULATION

1. SITE DESCRIPTION

LOCATION:	POTOMAC WATERSHED
TOTAL SITE AREA A =	32631 SF OR 0.7491 AC
IMPERVIOUS AREA A _{imp} =	1950 SF OR 0.0448 AC
COMPOSITE C =	0.336
T _c =	5 MIN
I ₁₀ =	7.30 IN/HR
I ₁₀₀ =	10.00 IN/HR

2. PREDEVELOPMENT RUNOFF

C =	0.20 (SPECIFIED BY ORDINANCE)
Q ₁₀ =	1.09 CFS

3. UNDETAINED FLOW

UNDETAINED AREA A =	912 SF OR 0.0209 AC
C =	0.90
Q ₁₀ =	0.14 CFS

4. ALLOWABLE RELEASE RATE

ALLOWABLE Q ₁₀ =	PRE Q ₁₀ - UNDETAINED Q ₁₀
ALLOWABLE Q ₁₀ =	0.96 CFS

5. STORAGE VOLUME REQUIRED

DETAINED AREA A =	3179 SF OR 0.7282 AC
DETAINED IMPERVIOUS AREA A _{imp} =	1038 SF OR 0.0238 AC
COMPOSITE C =	0.320
TOTAL A* ² C =	0.233 AC

TIME (MIN)	TIME (SEC)	I ₁₀ (CFS)	IMP AC (A* ² C)	Q ₁₀ (CFS)	VOL. (CF)	DISCHARGE (CFS)	VOL. (CF)	STORAGE (CF)
5	300	7.30	0.233	1.701	510	0.96	287	223
10	600	5.90	0.233	1.375	825	0.96	574	251
15	900	5.10	0.233	1.188	1069	0.96	861	209
20	1200	4.50	0.233	1.049	1258	0.96	1147	111
25	1500	4.00	0.233	0.932	1398	0.96	1434	(36)
30	1800	3.71	0.233	0.864	1556	0.96	1721	(165)
35	2100	3.35	0.233	0.781	1639	0.96	2008	(369)
40	2400	3.15	0.233	0.734	1761	0.96	2295	(533)
50	3000	2.73	0.233	0.636	1908	0.96	2868	(960)
60	3600	2.30	0.233	0.536	1929	0.96	3442	(1513)
90	5400	1.90	0.233	0.443	2391	0.96	5163	(2773)
120	7200	1.48	0.233	0.345	2483	0.96	6884	(4401)
180	10800	1.10	0.233	0.256	2768	0.96	10326	(7558)

STORAGE VOLUME REQUIRED = 251 CF

6. STORAGE VOLUME PROVIDED

STORAGE OF RESI-EPIC SYSTEM

TOTAL SURFACE AREA =	1928 SF
AVERAGE PONDING DEPTH =	0.4 IN
GRAVEL OR SAND VOID RATE =	0.4
STORAGE =	2562 CF

OR 19168 GALLONS

STORAGE OF RAIN TANK SYSTEM

NUMBER OF RAIN TANK =	60
MODULE =	QUAD
EFFECTIVE STORAGE OF EACH TANK =	14.8 CF
STORAGE OF RAIN TANK =	888 CF

OR 6643 GALLONS

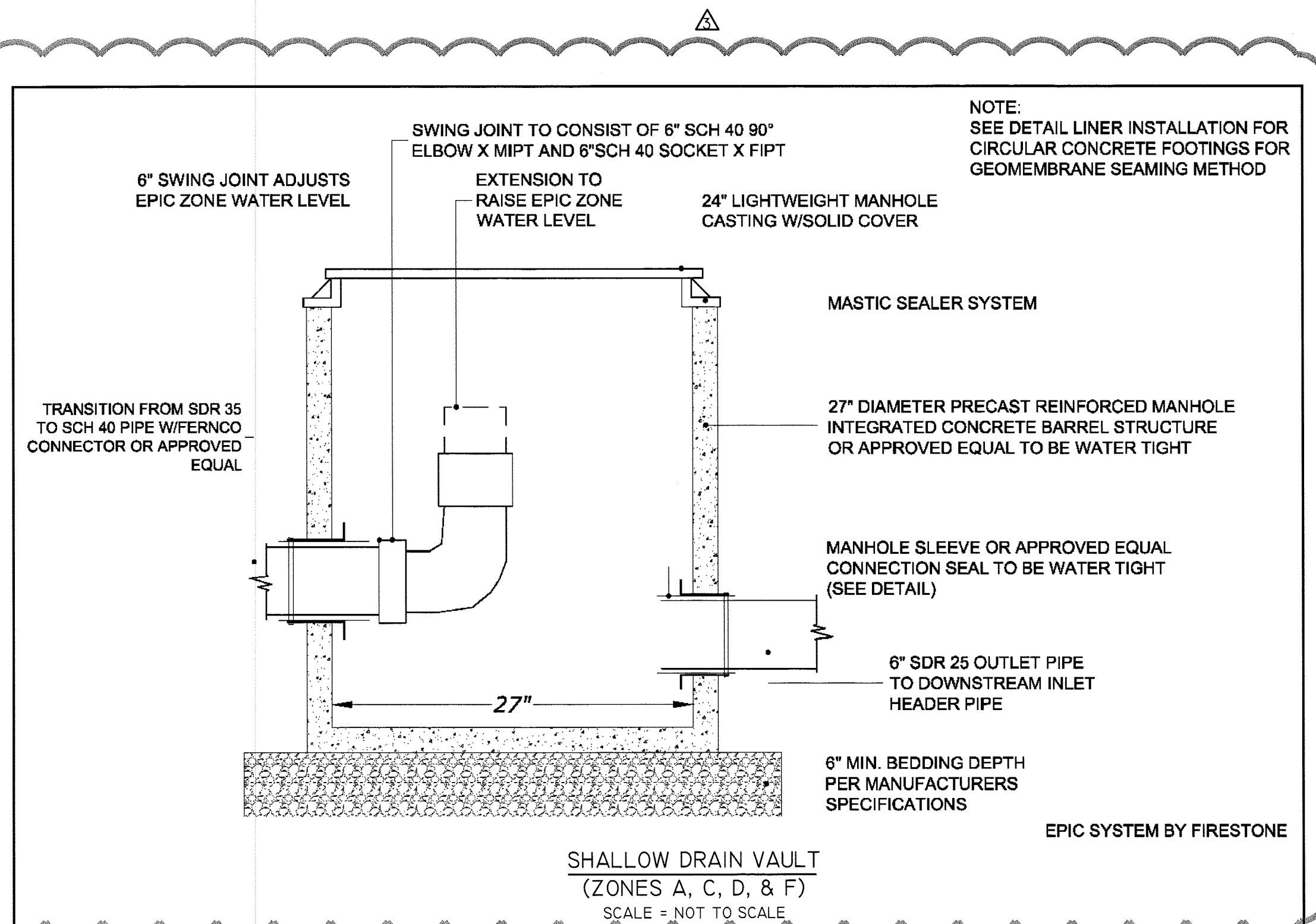
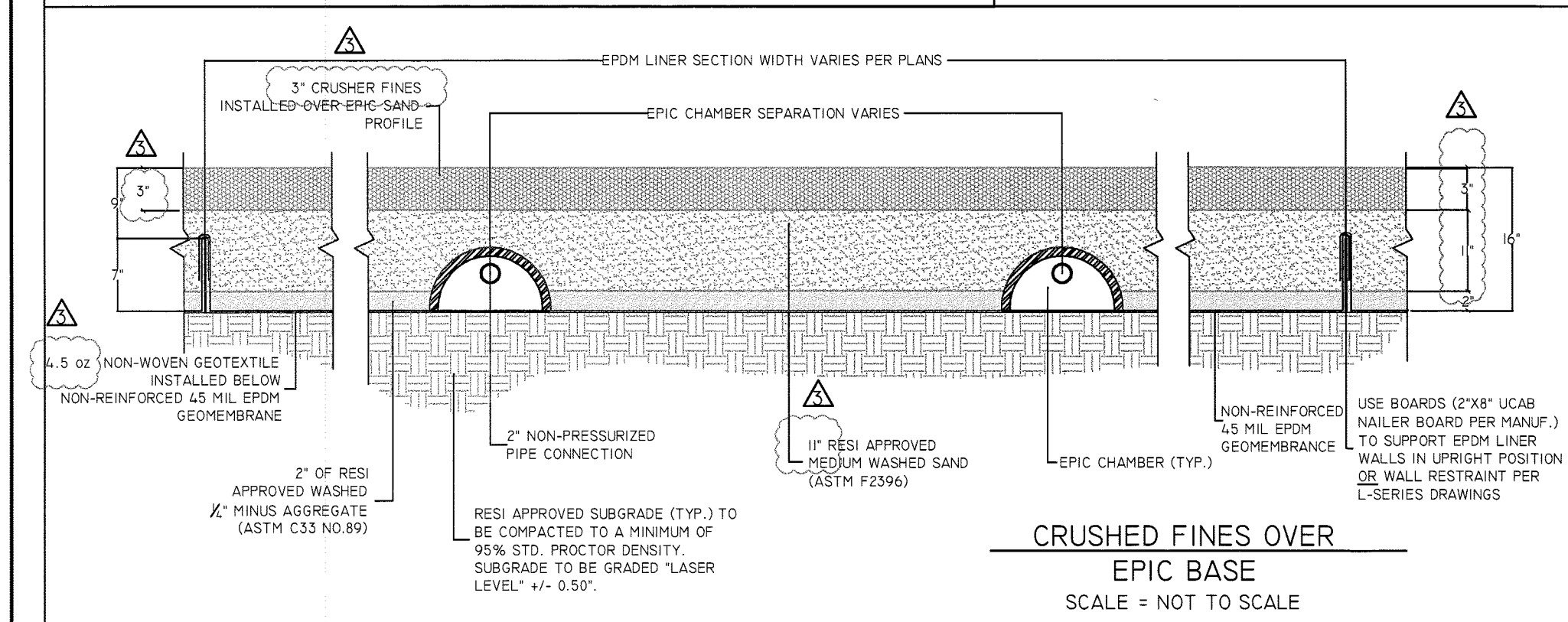
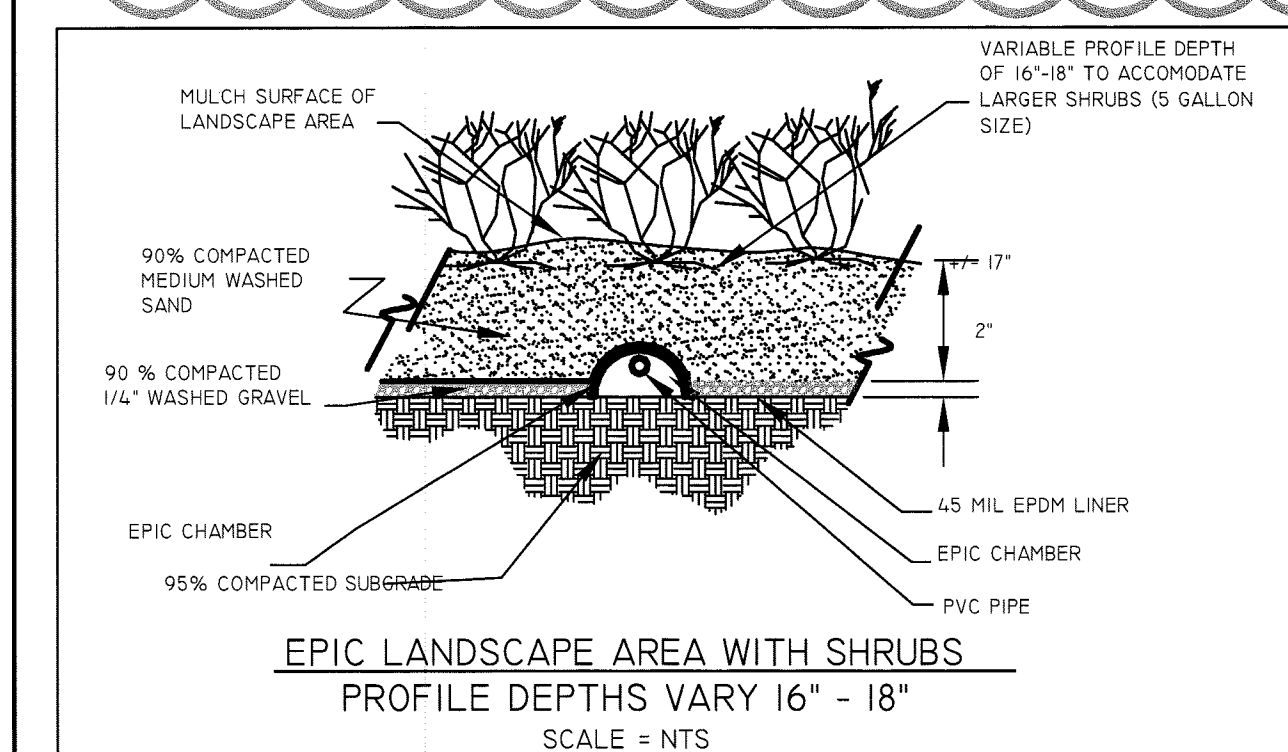
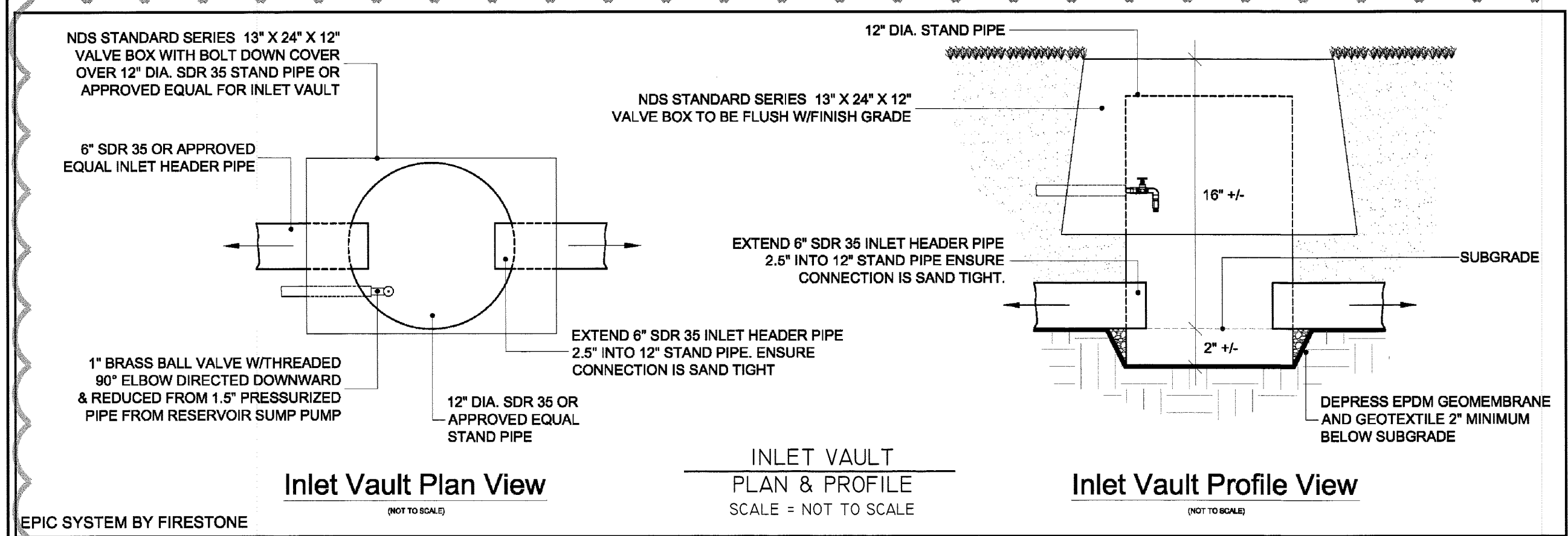
TOTAL STORAGE VOLUME PROVIDED = 3450 CF

OR 25811 GALLONS

7. DETAINED DISCHARGE

TIME (MIN)	TIME (SEC)	I ₁₀ (CFS)	IMP AC (A* ² C)	Q ₁₀ (CFS)	VOL. (CF)	STORAGE (CF)	DISCHARGE (CF)	DISCHARGE (CFS)
5	300	7.30	0.233	1.701	510	3450	(294.0)	0.00
10	600	5.90	0.233	1.375	825	3450	(2626)	0.00
15	900	5.10	0.233	1.188	1069	3450	(2381)	0.00
20	1200	4.50	0.233	1.049	1258	3450	(2192)	0.00
25	1500	4.00	0.233	0.932	1398	3450	(2052)	0.00
30	1800	3.71	0.233	0.864	1556	3450	(1894)	0.00
35	2100	3.35	0.233	0.781	1639	3450	(1811)	0.00
40	2400	3.15	0.233	0.734	1761	3450	(1689)	0.00
50	3000	2.73	0.233	0.636	1908	3450	(1542)	0.00
60	3600	2.30	0.233	0.536	1929	3450	(1521)	0.00
90	5400	1.90	0.233	0.443	2391	3450	(1060)	0.00
120	7200	1.48	0.233	0.345	2483	3450	(968)	0.00
180	10800	1.10	0.233	0.256	2768	3450	(682)	0.00

DETAINED DISCHARGE = 0.00 CFS < ALLOWABLE Q₁₀ = 0.96 CFS



DEPARTMENT OF PARKS,
RECREATION AND
CULTURAL RESOURCES

Park Development Division
2100 Clarendon Boulevard, Suite 414
Arlington, VA 22201
Phone: 703.228.3323
Fax: 703.228.3328

IPB # 670-12

Project Name and Location

**13th and
Herndon Park
Improvements**

1299 N. HERNDON ST.
CLARENDON, VA 22201

Sheet Title

**STORMWATER
MANAGEMENT**



Approvals Date

Dineen Tisani 1/25/12
Department Director

J. Williams 1/25/12
Park Development Division Chief

P. Walker 1/20/12
Design Unit Supervisor

Revisions Date

PRCR REVIEW 12/22/2011

Designed: J. WILLIAMS
Drawn: J. WILLIAMS
Checked: R. WALKER

Filename: CJ-501-2789-0601.dwg
Plotted: Jan 04, 2012

Scale: N/A
Date: 22 DEC, 2011

ARLINGTON COUNTY, VIRGINIA
DEPARTMENT OF ENVIRONMENTAL SERVICES

13th & HERNDON PARK IMPROVEMENTS / ARLINGTON COUNTY PROJECT
BY-RIGHT
STORMWATER
MANAGEMENT

SCALE: 1"=25'	DESIGNED: J. WILLIAMS J. WILLIAMS	CHECKED: R. WALKER
SUBMITTED DATE: 22 DEC, 2011	APPROVED DATE: CHIEF TRANSP. PLANNING BUREAU	APPROVED DATE: CHIEF TRANSP. ENGINEERING BUREAU
APPROVED DATE: CHIEF WATER, SEWER, & STR. BUREAU	APPROVED DATE: CHIEF ENGINEERING BUREAU	APPROVED DATE: DIRECTOR OF ENV. SERVICES
SHEET CJ-501		CONTRACT H- SHEET 11 OF 39

