

**NOTES:**  
 1. WATER QUALITY TREATMENT WILL BE BASED ON THE REQUIREMENTS OF THE CITY OF DAVIS MANUAL OF STORMWATER QUALITY CONTROL STANDARDS FOR NEW DEVELOPMENT AND REDEVELOPMENT AND WILL BE MET BY USE OF STORMWATER BIO-RETENSION PLANTERS.

**KEYNOTES**  
 (1) STORMWATER BIO-RETENSION PLANTER.  
 (2) FILTERA BIO-RETENSION TREE PLANTER.  
 → PROPOSED OVERLAND DRAINAGE PATTERN.

**PRELIMINARY STORMWATER TREATMENT CONTROL SIZING CALCULATIONS:**

**SHED #1**

Table 5-5. Calculation Table for Determination of Design Imperviousness ( $I_{wo}$ )

Site Element	Unit Area (ft <sup>2</sup> )	Percent Imperviousness	Weighting Factor	Weighted % Imperviousness
Asphalt/concrete pavement	3,507	100	0.83	83
Gravel pavement	0	40	0.00	0
Roofs	0	90	0.00	0
Porous pavement	0	35 <sup>94</sup>	0.00	0
Lawn/turf	695	0	0.17	0
Open space	0	0	0.00	0
<b>Total Contributing Area</b>	<b>4,202</b>			<b>83</b>

C=0.64 [Equation on Page 5-9]  
 $V_u=0.33$  (24-hr drawdown) [CASQA 80% capture methodology]  
 $SQDV=V_u \times \text{Area} = 0.33 \text{ in.} \times 4,202 \text{ s.f.} \times 1 \text{ ft}/12 \text{ in.} = 116 \text{ c.f.}$  (24-hr drawdown)  
 $A = X\text{-sectional area of swale} = D \times (\text{Bottom} + \text{Top}) / 2 = 1.0 \text{ ft.} \times (0.67 \text{ ft.} + 3.67 \text{ ft.}) / 2 = 2.17 \text{ s.f.}$   
 $L = \text{Required swale length} = SQDV / A = 116 \text{ c.f.} / 2.17 \text{ s.f.} = \mathbf{54 \text{ ft. (66' provided)}}$

**SHED #2**

Table 5-5. Calculation Table for Determination of Design Imperviousness ( $I_{wo}$ )

Site Element	Unit Area (ft <sup>2</sup> )	Percent Imperviousness	Weighting Factor	Weighted % Imperviousness
Asphalt/concrete pavement	2,993	100	0.85	86
Gravel pavement	0	40	0.00	0
Roofs	0	90	0.00	0
Porous pavement	0	35 <sup>94</sup>	0.00	0
Lawn/turf	475	0	0.14	0
Open space	0	0	0.00	0
<b>Total Contributing Area</b>	<b>3,468</b>			<b>86</b>

C=0.67 [Equation on Page 5-9]  
 $V_u=0.34$  (24-hr drawdown) [CASQA 80% capture methodology]  
 $SQDV=V_u \times \text{Area} = 0.34 \text{ in.} \times 3,468 \text{ s.f.} \times 1 \text{ ft}/12 \text{ in.} = 99 \text{ c.f.}$  (24-hr drawdown)  
 $A = X\text{-sectional area of swale} = D \times (\text{Bottom} + \text{Top}) / 2 = 1.0 \text{ ft.} \times (1.67 \text{ ft.} + 4.67 \text{ ft.}) / 2 = 3.17 \text{ s.f.}$   
 $L = \text{Required swale length} = SQDV / A = 99 \text{ c.f.} / 3.17 \text{ s.f.} = \mathbf{32 \text{ ft. (34' provided)}}$

**SHED #3**

Table 5-5. Calculation Table for Determination of Design Imperviousness ( $I_{wo}$ )

Site Element	Unit Area (ft <sup>2</sup> )	Percent Imperviousness	Weighting Factor	Weighted % Imperviousness
Asphalt/concrete pavement	1,107	100	0.05	5
Gravel pavement	0	40	0.00	0
Roofs	18144	90	0.86	77
Porous pavement	0	35 <sup>94</sup>	0.00	0
Lawn/turf	1,860	0	0.09	0
Open space	0	0	0.00	0
<b>Total Contributing Area</b>	<b>21,111</b>			<b>82</b>

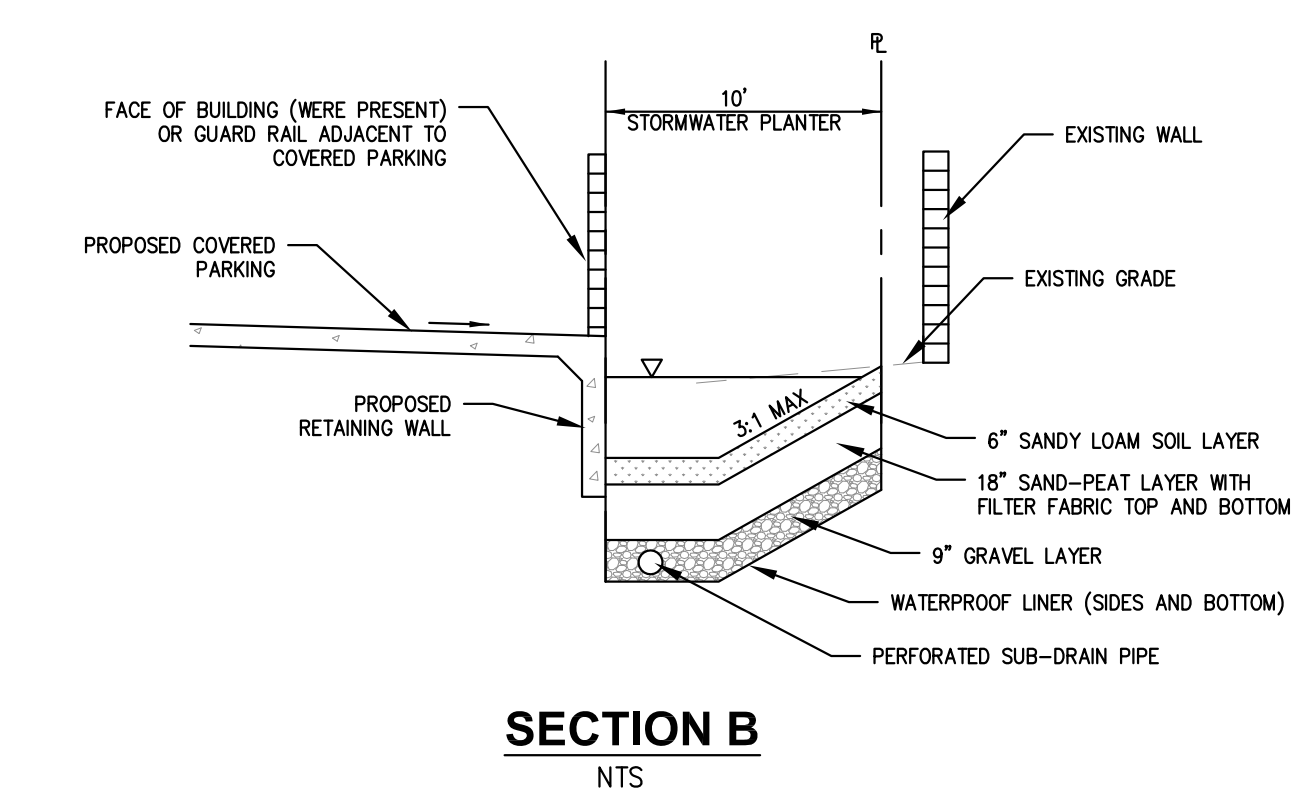
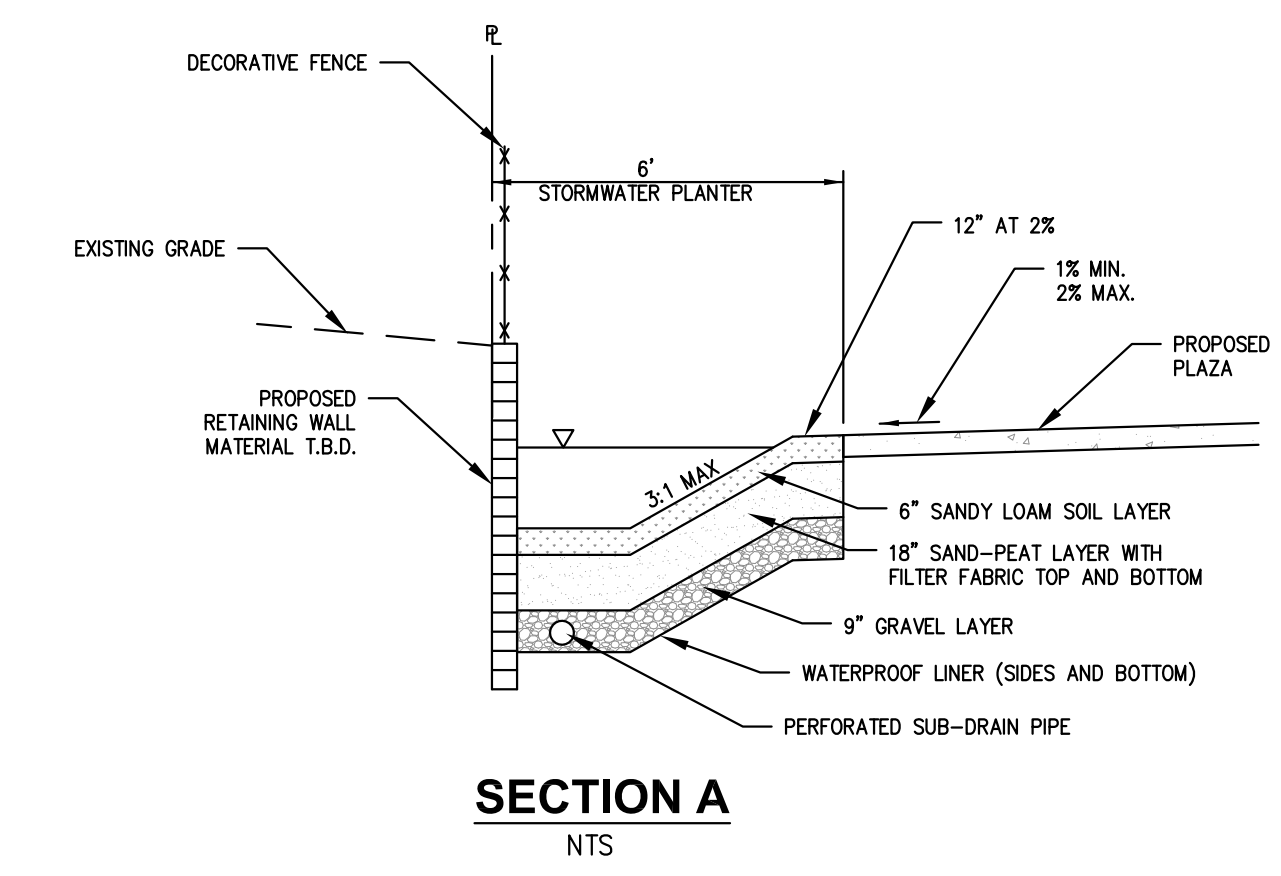
C=0.62 [Equation on Page 5-9]  
 $V_u=0.32$  (24-hr drawdown) [CASQA 80% capture methodology]  
 $SQDV=V_u \times \text{Area} = 0.32 \text{ in.} \times 21,111 \text{ s.f.} \times 1 \text{ ft}/12 \text{ in.} = 563 \text{ c.f.}$  (24-hr drawdown)  
 $A = X\text{-sectional area of swale} = D \times (\text{Bottom} + \text{Top}) / 2 = 1.0 \text{ ft.} \times (3.67 \text{ ft.} + 6.67 \text{ ft.}) / 2 = 7.17 \text{ s.f.}$   
 $L = \text{Required swale length} = SQDV / A = 563 \text{ c.f.} / 7.17 \text{ s.f.} = \mathbf{79 \text{ ft. (103' provided)}}$

**SHED #4**

Table 5-5. Calculation Table for Determination of Design Imperviousness ( $I_{wo}$ )

Site Element	Unit Area (ft <sup>2</sup> )	Percent Imperviousness	Weighting Factor	Weighted % Imperviousness
Asphalt/concrete pavement	1,268	100	0.95	95
Gravel pavement	0	40	0.00	0
Roofs	0	90	0.00	0
Porous pavement	0	35 <sup>94</sup>	0.00	0
Lawn/turf	72	0	0.05	0
Open space	0	0	0.00	0
<b>Total Contributing Area</b>	<b>1,340</b>			<b>95</b>

C=0.81 [Equation on Page 5-9]  
 $V_u=0.42$  (24-hr drawdown) [CASQA 80% capture methodology]  
 $SQDV=V_u \times \text{Area} = 0.42 \text{ in.} \times 1,340 \text{ s.f.} \times 1 \text{ ft}/12 \text{ in.} = 47 \text{ c.f.}$  (24-hr drawdown)  
 $SQDF= C \times I \times \text{Area} = 0.81 \times 0.2 \text{ in/hr} \times 1,340 \text{ s.f.} \times 1 \text{ ac}/43560 \text{ sf} = 0.005 \text{ cfs}$   
**4'x4' Filterra Unit required per manufacturer**



DATE SIGNED: \_\_\_\_\_  
 THESE DRAWINGS ARE NOT CONSIDERED FINAL UNTIL THE ENGINEER'S SEAL BELOW HAS BEEN SIGNED AND DATED.

DESIGNED BY: RT  
 DRAWN BY: RT  
 CHECKED BY: SG  
 SCALE: 1" = 20'

APPRO. BY: \_\_\_\_\_  
 REVISIONS: \_\_\_\_\_  
 NO. DATE: \_\_\_\_\_

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**901 THIRD STREET MIXED USE  
 PRELIMINARY STORMWATER QUALITY  
 CONTROL PLAN**

DAVIS CALIFORNIA

SHEET  
**C03**  
 OF

DATE: 9/1/2016  
 JOB NO: 1444.03