

Project Name: 3150 Dutton Avenue Apartments

Date: 7/19/2017



Storm Water Low Impact Development Submittal Coversheet

To be submitted with all SW LID submittals

1. Submittal Information:

Submittal Date: _____

Initial SW LIDS ☒ Final SW LIDs ☐

Design Manual Used for design:

- ☐ 2005 Standard Urban Storm Water Mitigation Plan
- ☐ 2011 Storm Water Low Impact Development Technical Design
- ☒ Manuel 2017 Storm Water Low Impact Development Technical Design Manuel

2. Applicant Information:

Applicant Name (Owner or Developer): Mark Garay

Mailing Address: 430 Ridge Road

City/State/Zip: Tiburon, CA 94920

Phone/Email/Fax: 415-399-0100 / mark@paladinfunding.com

Project Name: 3150 Dutton Avenue Apartmer

Date: 7/19/2017



Storm Water Low Impact Development Submittal Coversheet

To be submitted with all SW LID submittals

3. Project Information:

Project Name: 3150 Dutton Avenue Apartments

Site Address: 3150 Dutton Avenue

City/State/Zip: Santa Rosa, CA 95407

APN (s): 043-133-013

Permit # (s):

Subdivision ☐ Grading Permit ☐ Building Permit ☐ Design Review ☒

Use Permit ☐ Hillside Development ☐ Encroachment ☐ Time Extension ☐

Other:

Project Name: 3150 Dutton Avenue Apartments

Date: 7/19/2017



Storm Water Low Impact Development Submittal Coversheet

To be submitted with all SW LID submittals

4. Design Information:

Narrative:

Project Description

- ☒ Description of proposed project type, size, location, and any specific uses or features.
- ☒ Description of any sensitive features (creeks, wetlands, trees, etc.) and whether they are going to be preserved, removed or altered.
- ☒ Description of the existing site.
- ☒ Description of how this project triggers these requirements (impervious area, CALGreen, 401 Permit, etc.).
- ☒ Describe any "on-site offset" used.

Pollution Prevention and Runoff Reduction Measures

- ☒ Description of all proposed pollution prevention measures (street sweeping, covered trash enclosures, indoor uses, etc).
- ☒ Description of all Runoff Reduction Measures (Interceptor Trees, Impervious Area Disconnection, and/or Alternative Driveway Design).

Type of BMPs Proposed

- ☒ Description of the types of BMPs selected including priority group that each is in.
- ☒ Description of level of treatment and volume capture achieved for each BMP.

Maintenance

- ☒ Description of maintenance for each type of BMP.
- ☒ Description of funding mechanism.
- ☒ Designation of Responsible Party.

Project Name: 3150 Dutton Avenue Apartm

Date: 7/19/2017



Storm Water Low Impact Development Submittal Coversheet

To be submitted with all SW LID submittals

Exhibits:

Proposed SUSMP Exhibit:

- ☒ Exhibit should include: street names, property lines, storm drainage system, waterways, title block, scale and north arrow.
- ☒ Tributary areas shown for all inlets (including off-site drainage areas).
- ☒ C value for each tributary area.
- ☒ Soil Type of existing site.
- ☒ New or replaced impervious area shown.
- ☒ All inlets and BMP, shown (including unique identifier).
- ☒ All interceptor trees shown.
- ☒ All proposed BMPs shown including dimensions.

Existing Condition Exhibit

- ☒ Exhibit should include: street names, property lines, proposed storm drainage system, waterways, title block, scale, and north arrow.
- ☒ Soil Type of existing site.
- ☒ Proposed tributary areas shown for all proposed inlets (including offsite drainage areas). Existing impervious areas.
- ☒ Existing impervious area.

BMP Details:

- ☒ Preliminary detail for each type of BMP selected- provide a preliminary 8.5"x11" detail for each BMP type or include on submitted drawings. These can be taken straight from the Fact Sheets if no significant changes are proposed.

On Plans:

- ☒ Show all applicable elements of the selected BMPs on the appropriate plan sheets.

Calculations:

- ☒ Calculations and summary sheet using the Storm Water Calculator found at www.srcity.org/stormwaterLID
- ☒ Supplemental or supporting calculation if applicable.
- ☒ Calculations; from the "storm water calculator" for each inlet.

Initial Storm Water Low Impact Development Submittal

For

3150 Dutton Avenue Apartments

3150 Dutton Avenue
Santa Rosa, California
APN 043-113-013

JN 17138
September 19, 2018

Prepared for:
Mark Garay
430 Ridge Road
Tiburon, CA 94920

James L. Jensen, RCE 73042
My license expires 12/31/2018



Prepared by:

 **adobe associates, inc.**
civil engineering | land surveying | wastewater

1220 N. Dutton Ave., Santa Rosa, CA 95401
P. (707) 541-2300 F. (707) 541-2301
Website: www.adobeinc.com

Prepared By: JR
Checked By: BT

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Appendix C – Roadside Bio-Retention and Fact Sheets

Appendix D – Soil Classification Fact Sheets

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**Initial Storm Water Low Impact Development Submittal
For
3150 Dutton Avenue Apartments
3150 Dutton Ave – Santa Rosa, California**

Project Description:

The proposed project is located at 3150 Dutton Avenue in Santa Rosa, California. This project proposes to develop an apartment complex that will include 2-4 story apartment buildings, recreational areas, asphalt parking, concrete pathways, required Low Impact Development (LID) features and associated hardscape and landscaping. The amount of proposed impervious surface triggers the Hydromodification Requirement of 100% Capture, necessitating the Storm Water Low Impact Development Submittal and installation of Post Construction BMPs.

The existing property is currently undeveloped and consists of grassy vegetation and a few vegetated earthen mounds. There are no existing developments on site. Existing slopes in the area of the proposed improvements are relatively flat, typically less than 5%. Current runoff flows from high points located on vegetated earthen piles and flow through existing grassy vegetation towards the south western property boundaries. There is a small area of existing wetlands on the eastern portion of the property. Proposed improvements will be outside the wetland area to ensure they are not disturbed.

Surface runoff will be directed to the northern or southern bio-retention strips. A series of curb cuts will allow the surface runoff to discharge into the bio-retention strips. A storm drain network has been designed to capture overflow runoff from the bio-retention strips and outfall to the existing stormdrain in Dutton Avenue as shown on the Preliminary Grading and Drainage Plan.

Pollution Prevention Measures and BMP Selection:

Two bio-retention areas will be installed between the parking areas and property lines along the north and south of the property. Runoff from the buildings and interior of the property would be routed to the bioretention areas through the stormdrain system, runoff from the parking areas would discharge through curb cuts. The gravel section of the bioretention areas have been sized to capture 100% of the runoff from a storm that produces 1" of rain in a 24-hour period to satisfy the Hydromodification requirement.

Proposed impervious areas will not discharge toward the existing wetland on the east side of the property. All drainage will be directed toward the designed BMP's.

Additional prevention measures are:

- Design of landscaping to prevent sediment entering the storm drain system and to meet vector control requirements (draw down less than 72 hours).
- Incorporate Integrated Pest Management (IPM) principles and techniques for design and maintenance.
- Contain litter and trash so that it is not dispersed by the wind or runoff during waste removal.
- Maintain stabilized construction entrance to reduce sediment transport offsite.
- Trash Capture devices must be installed in all inlets.
- Conduct street sweeping at regular intervals to reduce sediment tracking.

Treatment and Volume Capture:

The Hydromodification Requirement of 100% Capture will be achieved in the gravel section of the bio-retention areas. Treatment will be achieved in the planted amended soil section of the bio-retention areas.

Maintenance and Funding:

Monitoring and maintenance of the post-construction BMPs shall be the responsibility of the owner until such a time as ownership is transferred, this includes financial responsibility. There will be no maintenance responsibility inferred to the City. The bio-retention area should be inspected at regular intervals to ensure system is not clogged and is functioning as designed. Legal paperwork and maintenance agreements shall be included in the Final SWLID report.

Conclusion

Runoff from all impervious surfaces will be directed toward the proposed bio-retention areas that has been sized to meet the 100% Treatment and Hydromodification

APPENDIX A

Determination Worksheet

FOR OFFICE USE ONLY:

Does this project require permanent storm water BMP's?

☐ Y ☐ N

Date Submitted: _____



Print Form

File No:	Quadrant
Related Files:	
Set:	
Department Use Only	

2017 Storm Water LID Determination Worksheet

PURPOSE AND APPLICABILITY: This determination worksheet is intended to satisfy the specific requirements of "ORDER NO. R1-2015-0030, NPDES NO. CA0025054 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS." Additional design requirements imposed by Governing Agencies, such as local grading ordinances, CAL Green, CEQA, 401 permitting, and hydraulic design for flood control still apply as appropriate. Additionally, coverage under another regulation may trigger the requirement to design in accordance with the Storm Water LID Technical Design Manual.

Part 1: Project Information

3150 Dutton Avenue Apartments

Project Name

3150 Dutton Avenue

Project Site Address

Santa Rosa, CA 95407

Project City/State/Zip

Permit Number(s) - (if applicable)

Adobe Associates, Inc.

Designer Name

Santa Rosa, CA 95401

Designer City/State/Zip

Mark Garay

Applicant (owner or developer) Name

430 Ridge Road

Applicant Mailing Address

Tiburon, CA 94920

Applicant City/State/Zip

415-399-0100 / mark@paladinfunding.com

Applicant Phone/Email/Fax

1220 N. Dutton Avenue

Designer Mailing Address

707-541-2300 / dbrown@adobeinc.com

Designer Phone/Email

Type of Application/Project:

☐ Subdivision
 ☐ Grading Permit
 ☐ Building Permit
 ☐ Hillside Development
☒ Design Review
 ☐ Use Permit
 ☐ Encroachment
 ☐ Time Extensions
 ☐ Other : _____

PART 2: Project Exemptions

1. Is this a project that creates or replaces *less than* 10,000 square feet of impervious surface¹, including all project phases and off-site improvements?

☐ Yes
 ☒ No

¹ Impervious surface replacement, such as the reconstruction of parking lots or excavation to roadway subgrades, is not a routine maintenance activity. Reconstruction is defined as work that replaces surfaces down to the subgrade. Overlays, resurfacing, trenching and patching are defined as maintenance activities per section VI.D.2.b.

2. Is this project a routine maintenance activity² that is being conducted to maintain original line and grade, hydraulic capacity, and original purpose of facility such as resurfacing existing roads and parking lots?

☐ Yes ☒ No

3. Is this project a stand alone pedestrian pathway, trail or off-street bike lane?

☐ Yes ☒ No

4. Did you answer "YES" to any of the questions in Part 2?

☐ YES: This project will *not* need to incorporate permanent Storm Water BMP's as required by the NPDES MS4 Permit. Please complete the "Exemption Signature Section" on Page 4.

☒ NO: Please complete the remainder of this worksheet.

Part 3: Project Triggers

Projects that Trigger Requirements:

Please answer the following questions to determine whether this project requires permanent Storm Water BMP's and the submittal of a SW LIDs as required by the NPDES MS4 Permit order No. R1-2015-0030.

1. Does this project create or replace a combined total of 10,000 square feet or more of impervious surface¹ including all project phases and off-site improvements?

☒ Yes ☐ No

2. Does this project create or replace a combined total of 10,000 square feet or more of impervious streets, roads, highways, or freeway construction or reconstruction³? ☐ Yes ☒ No

3. Does this project create or replace a combined total of 1.0 acre or more of impervious surface¹ including all project phases and off-site improvements? ☒ Yes ☐ No

4. Did you answer "YES" to any of the above questions in Part 3?

☒ YES: This project will need to incorporate permanent Storm Water BMP's as required by the NPDES MS4 Permit. Please complete remainder of worksheet and sign the "Acknowledgement Signature Section" on Page 4.

☐ NO: This project will *not* need to incorporate permanent Storm Water BMP's as required by the NPDES MS4 permit. Please complete the "Exemption Signature Section" on Page 4.

¹ Impervious surface replacement, such as the reconstruction of parking lots or excavation to roadway subgrades, is not a routine maintenance activity. Reconstruction is defined as work that replaces surfaces down to the subgrade. Overlays, resurfacing, trenching and patching are defined as maintenance activities per section VI.D.2.b.

² "Routine Maintenance Activity" includes activities such as overlays and/or resurfacing of existing roads or parking lots as well as trenching and patching activities and reroofing activities per section VI.D.2.b.

³ "Reconstruction" is defined as work that extends into the subgrade of a pavement per section VI.D.2.b.

Part 4: Project Description

1. Total Project area: 5.95

☐ square feet
☒ acres

2. Existing land use(s): (check all that apply)

☐ Commercial ☐ Industrial ☐ Residential ☐ Public ☒ Other

Description of buildings, significant site features (creeks, wetlands, heritage trees), etc.:

The existing lot is undeveloped and consists of grassy vegetation.

3. Existing impervious surface area: 0

☐ square feet
☒ acres

4. Proposed Land Use(s): (check all that apply)

☐ Commercial ☐ Industrial ☒ Residential ☐ Public ☐ Other

Description of buildings, significant site features (creeks, wetlands, heritage trees), etc.:

The proposed project site consists of 2-4 story apartment buildings, asphalt parking, concrete pathways and patios, and recreational areas.

5. Existing impervious surface area: 4.04

☐ square feet
☒ acres

Acknowledgment Signature Section:

As the property owner or developer, I understand that this project is required to implement permanent Storm Water Best Management Practices and provide a Storm Water Low Impact Development Submittal (SW LIDS) as required by the City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) Permit Order No. R1-2015-0030. *Any unknown responses must be resolved to determine if the project is subject to these requirements.

Applicant Signature

Date

Exemption Signature Section:

As the property owner or developer, I understand that this project as currently designed does not require permanent Storm Water BMP's nor the submittal of a Storm Water Low Impact Development Submittal (SW LIDS) as required by the City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer Systems (MS4) Permit*. I understand that redesign may require submittal of a new Determination Worksheet and may require permanent Storm Water BMP's.

Applicant Signature

Date

* This determination worksheet is intended to satisfy the specific requirements of "ORDER NO. R1-2015-0030, NPDES NO. CA0025054 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS." Additional design requirements imposed by Governing Agencies, such as local grading ordinances, CAL Green, CEQA, 401 permitting, and hydraulic design for flood control still apply as appropriate. Additionally, coverage under another regulation may trigger the requirement to design in accordance with the Storm Water LID Technical Design Manual.

Implementation Requirements: All calculations shall be completed using the "Storm Water Calculator" available at: www.srcity.org/stormwaterlid

Hydromodification Control/100% Volume Capture: Capture (infiltration and/or reuse) of 100% of the volume of runoff generated by a 1.0" 24-hour storm event, as calculated using the "Urban Hydrology for Small Watersheds" TR-55 Manual method. This is a retention requirement.

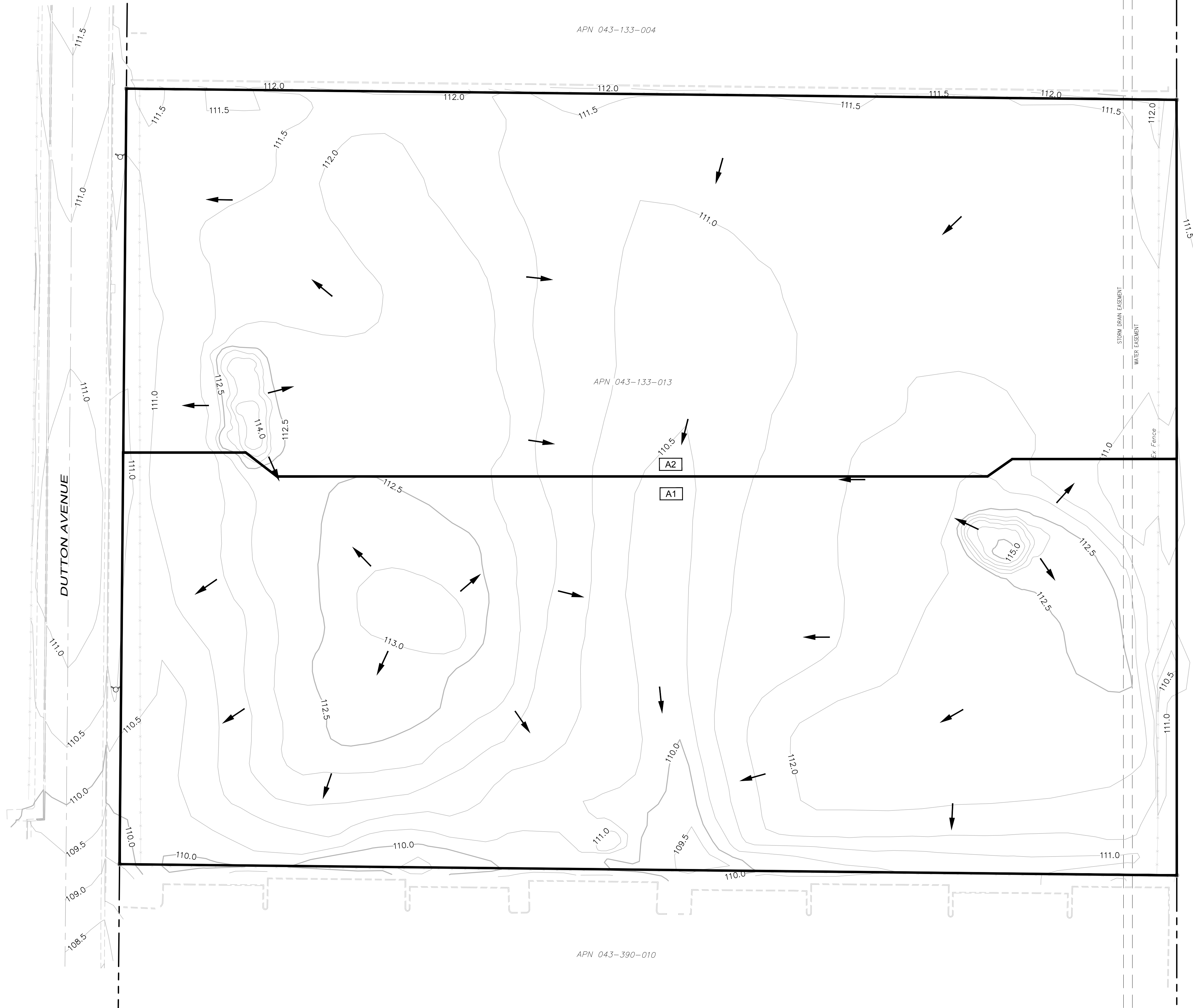
Treatment Requirement: Treatment of 100% of the flow calculated using the modified Rational Method and a known intensity of 0.20 inches per hour.

Delta Volume Capture Requirement: Capture (infiltration and/or reuse) of the increase in volume of storm water due to development generated by a 1.0" 24-hour storm event, as calculated using the "Urban Hydrology for Small Watersheds" TR-55 Manual method. This is a retention requirement.

APPENDIX B

Exhibits and Calculations

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DRAINAGE AREA TABLE

A1 = 3.07 AC
(133,657 SF)

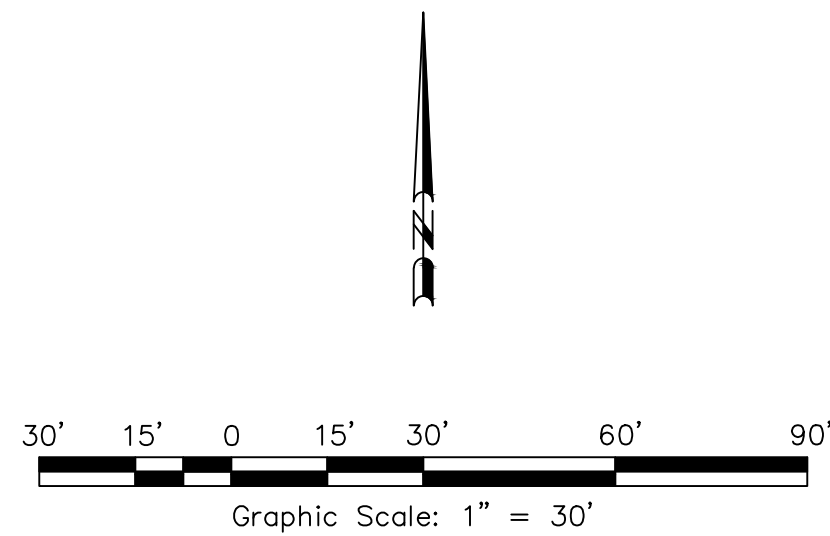
A2 = 2.88 AC
(125,464 SF)

DRAINAGE AREA LEGEND

A1 DRAINAGE AREA
DRAINAGE AREA BOUNDARY

NOTE:

MEAN SEASONAL PRECIPITATION = 30"
K-FACTOR = 1
SOIL TYPE D

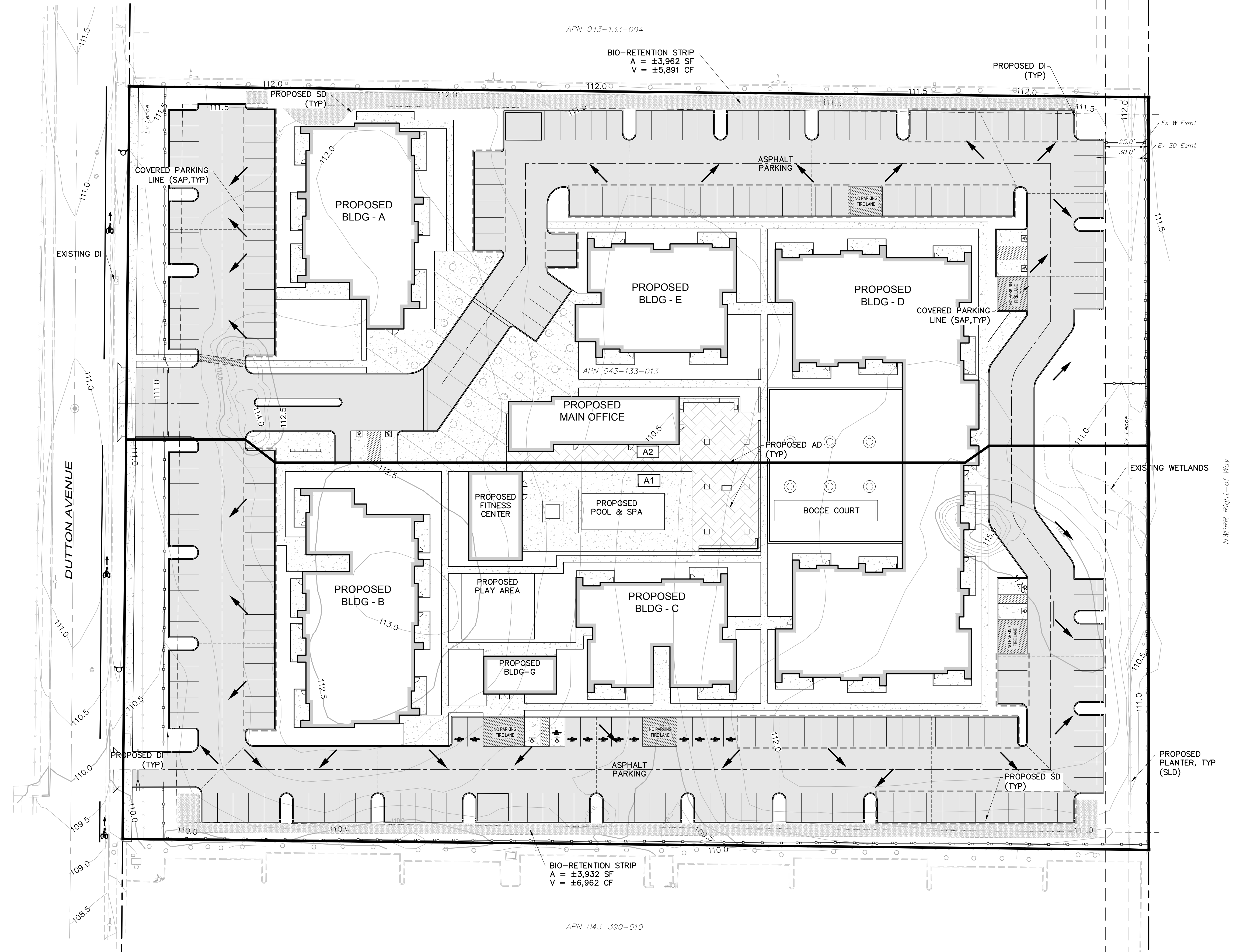


**EXISTING CONDITIONS EXHIBIT
BIORETENTION OPTION**

GARAY APARTMENTS
3150 Dutton Avenue, Santa Rosa, CA
APN 043-113-013

adobe associates, inc.
civil engineering | land surveying | wastewater
1220 N. Dutton Ave., Santa Rosa, CA 95401
P. (707) 541-2300 F. (707) 541-2301
Website: www.adobeinc.com
"A Service You Can Count On!"

T:\2017 PROJECTS\7138.dwg Adobe-Design (Prelim Grading\Drainage)\7138-Proposed Condition Exhibit Bioretention Option.dwg, Zephyr Plot, 9/20/2018 12:58:37 PM



DRAINAGE AREA TABLE

A1 = 3.07 AC
(133,657 SF)

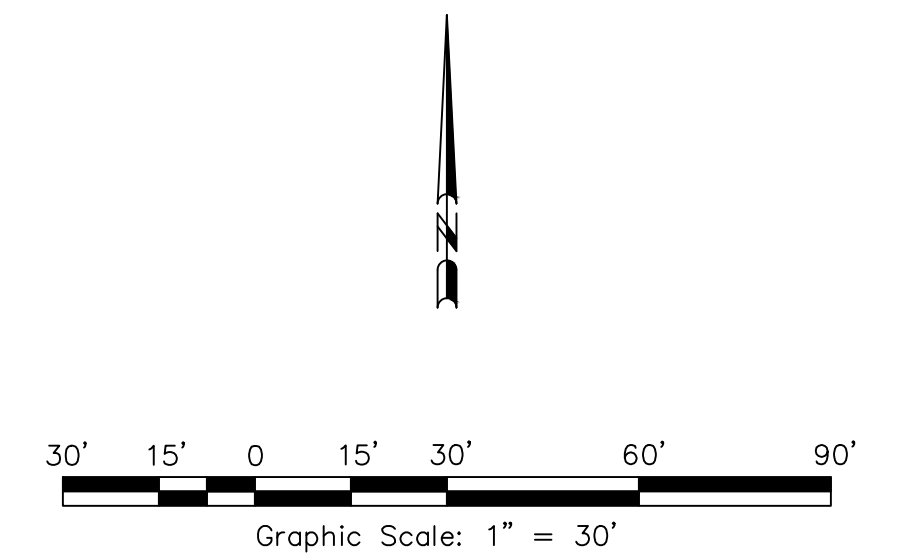
A2 = 2.88 AC
(125,464 SF)

DRAINAGE AREA LEGEND

- A1 DRAINAGE AREA
- DRAINAGE AREA BOUNDARY
- FLOW DIRECTION

NOTE:

MEAN SEASONAL PRECIPITATION = 30"
K-FACTOR = 1
SOIL TYPE D



PROPOSED CONDITIONS EXHIBIT BIORETENTION OPTION

GARAY APARTMENTS
3150 Dutton Avenue, Santa Rosa, CA
APN 043-113-013

Worksheet 2: Runoff Curve Number and Runoff

Project:	17138-3150 Dutton Ave	By:	ZR	Date:	7/5/2018
Location:	A1				

PRE-Construction Conditions (Bioretention ● Option)

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN*			Area Acres Miles ² Percent	Product of CNxArea
		Table 2-2a	Figure 2-3	Figure 2-4		
Wright Loam, Hydrologic Soil Group D	Herbacious-mixture of grass, weeds, and low-growing brush, with brush the minor element. (Fair)	89			3.07	273.23

*Use only one CB source per line

Totals

3.07

273.23

CN (weighted) =

$\frac{\text{Total Product}}{\text{Total Area}}$

=

89.00

Use CN

89

Worksheet 2: Runoff Curve Number and Runoff

Project:	17138-3150 Dutton Ave	By:	ZR	Date:	7/5/2018
Location:	A1				

POST-Construction Conditions (Bioretention Option)

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN*			Area Acres Miles ² Percent	Product of CNxArea
		Table 2-2a	Figure 2-3	Figure 2-4		
Wright Loam, Hydrologic Soil Group D	Herbacious-mixture of grass, weeds, and low-growing brush, with brush the minor element. (Fair)	89			0.91	80.901
Wright Loam, Hydrologic Soil Group D	Impervious (Buildings, Concrete Pathways, Asphalt Parking)	98			2.16	211.778

*Use only one CB source per line

	Totals	3.07	292.679
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CN (weighted) =	$\frac{\text{Total Product}}{\text{Total Area}}$	=	95.34	Use CN	95
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Worksheet 2: Runoff Curve Number and Runoff

Project: 17138-3150 Dutton Ave	By: ZR	Date: 7/5/2018	
Location: A2			

PRE-Construction Conditions (Bioretention Option)

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN*			Area Acres Miles ² Percent	Product of CNxArea
		Table 2-2a	Figure 2-3	Figure 2-4		
Wright Loam, Hydrologic Soil Group D	Herbacious-mixture of grass, weeds, and low-growing brush, with brush the minor element. (Fair)	89			2.88	256.32

*Use only one CB source per line

Totals

2.88 256.32

CN (weighted) = $\frac{\text{Total Product}}{\text{Total Area}}$ = 89.00

Use CN

89

Worksheet 2: Runoff Curve Number and Runoff

Project: 17138-3150 Dutton Ave By: ZR Date: 7/5/2018
 Location: A2

POST-Construction Conditions (Bioretention Option)

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN*			Area Acres Miles ² Percent	Product of CNxArea
		Table 2-2a	Figure 2-3	Figure 2-4		
Wright Loam, Hydrologic Soil Group D	Herbacious-mixture of grass, weeds, and low-growing brush, with brush the minor element. (Fair)	89			1.01	89.89
Wright Loam, Hydrologic Soil Group D	Impervious (Buildings, Concrete Pathways, Asphalt Parking)	98			1.87	183.26

*Use only one CB source per line

Totals 2.88 273.15

CN (weighted) = $\frac{\text{Total Product}}{\text{Total Area}}$ = 94.84

Use CN 95



STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: **17138 - 3150 Dutton Ave**

BMP ID: **A1**

BMP Design Criteria: **100% Capture & Treatment**

Type of BMP Design: **Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter**

BMP's Physical Tributary Area: **133,656.6** ft²

Description/Notes:

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = **6,276.53** ft³

Post development hydrologic soil type within tributary area: **D: 0 - 0.05 in/hr infiltration (transmission) rate**

Post development ground cover description: **Brush: weed-grass mixture with brush major element - Fair (50% to 75% ground cover)**

CN_{POST}:

User Composite post development CN: **95.0**

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = **100.25** %

BMP Volume Below Ground

Porosity: **0.40**

Depth below perforated pipe if present: **4.00** ft

Width: **0.00** ft

Length: **0.00** ft

Area: **3,932.72** ft²

Ponded Water Above Ground

Depth: **0.00** ft

Width: **0.00** ft

Length: **0.00** ft

Area: **0.00** ft²



STORM WATER CALCULATOR

BMP Tributary Parameters		Project Name: 17138 - 3150 Dutton Ave	
BMP ID:	A2		
BMP Design Criteria:	100% Capture & Treatment		
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter		
BMP's Physical Tributary Area:	125,464.1 ft²		
Description/Notes:			

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$		$V_{HYDROMOD} =$ 5,891.79 ft ³
Post development hydrologic soil type within tributary area:	D: 0 - 0.05 in/hr infiltration (transmission) rate	
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Fair (50% to 75% ground cover)	
CN _{POST} :		
User Composite post development CN:	95.0	

BMP Sizing Tool: Hydromodification Requirement		Percent of Goal Achieved = 100.87 %
	BMP Volume Below Ground	Ponded Water Above Ground
Porosity:	0.40	
Depth below perforated pipe if present:	3.75 ft	Depth: 0.00 ft
Width:	0.00 ft	Width: 0.00 ft
Length:	0.00 ft	Length: 0.00 ft
Area:	3,962.12 ft ²	Area: 0.00 ft ²

Project Name: 3150 Dutton Avenue Apartments

	Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...										BMP in priority selected?		Unique Identifier of BMP per planes	Explanation of selection	Other notes:
				High Ground Water	Contamination	Slope Constraints	Achieves...	Treatment	Volume Capture	Runoff Reduction Measure	Yes	No						
Universal BMP- to be considered on all projects.	Living Roof	N/A	N/A	X	X	X		X	X									
	Rainwater Harvesting	N/A	N/A	X	X	X			X									
Runoff Reduction Measures	Interceptor Trees	N/A	N/A	X	X	X				X								
	Bovine Terrace	RRM-01	Bovine Terrace	X						X								
	Vegetated Buffer Strip	RRM-02	Vegetated Buffer Strip							X								
	Impervious Area Disconnection	N/A	N/A	X	X	X				X								
Priority 1- to be installed with no underdrains or liners. Must drain all staging water within 72 hours.	Bioretention	P1-02	Roadside Bioretention - no C & G					X	X			X						
	Vegetated Swale- with Bioretention	P1-06	Swale with Bioretention					X	X									
	Constructed Wetlands	N/A	N/A					X	X									
Priority 2 BMPs- with subsurface drains installed above the capture volume.	Bioretention	P2-02	Roadside Bioretention - Flush Design Roadside					X	X									
		P2-03	Roadside Bioretention- Contiguous SW					X	X									
		P2-04	Roadside Bioretention- Curb Opening					X	X									
		P2-05	Roadside Bioretention- No C & G					X	X									
	Constructed Wetlands	N/A	N/A					X	X									

Date: _____

Page ____ of ____

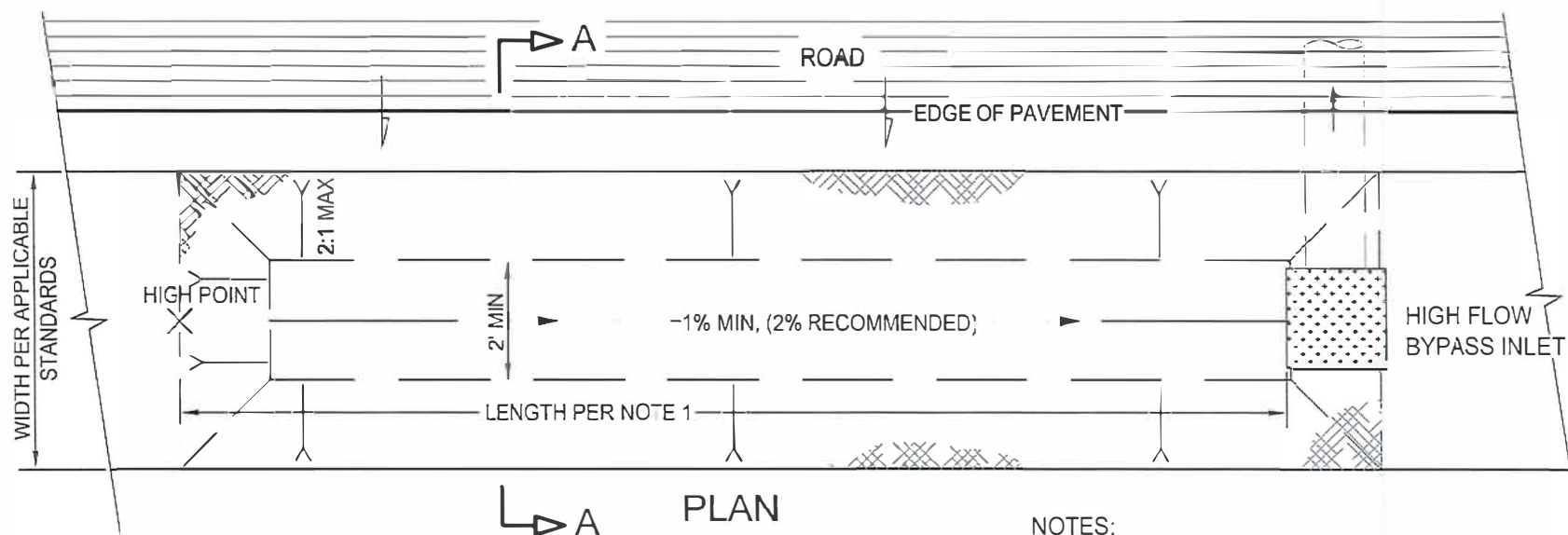
BMP Selection Table

APPENDIX B

Best Management Practice (BMP)	Detail Sheet	Detail Title	Can be used with...	High Ground Water Contamination	Slope Constraints	Achieves...	Treatment	Volume Capture	Runoff Reduction Measure	BMP in priority selected?	Yes	No	Unique Identifier of BMP per planes	Explanation of selection	Other notes:
Priority 3 BMPs- installed with subdrains and/or impermeable liner. Does not achieve volume capture and must be used as part of a treatment train.	Bioretention	P3-02	Roadside Bioretention - Flush Design Roadside	X	X	X	X								
		P3-03	Roadside Bioretention- Contiguous SW	X	X	X	X								
		P3-04	Roadside Bioretention- Curb Opening	X	X	X	X								
	Flow Through Planters	P3-05	Flow Through Planters	X	X	X	X								
	Vegetated Swale	P3-06	With Bioretention	X	X	X	X	X							
		P3-07	Vegetated Swale	X	X	X	X								
Priority 4 BMPs- does not achieve volume capture and must be used as part of a	Tree Filter Unit			X	X	X	X								
	Modular Bioretention			X	X	X	X								
Priority 5 BMPs- does not achieve volume capture and must be used as part of a treatment train.	Chambered Separator Units			X	X	X	X								
	Centrifugal Separator Units			X	X	X	X								
	Trash Excluders			X	X	X	X								
	Filter Inserts			X	X	X	X								
Priority 6 BMPs- see the "Offset Program" chapter for details.	Offset Program						N/A	N/A	N/A						
Other	Detention			X											

APPENDIX C

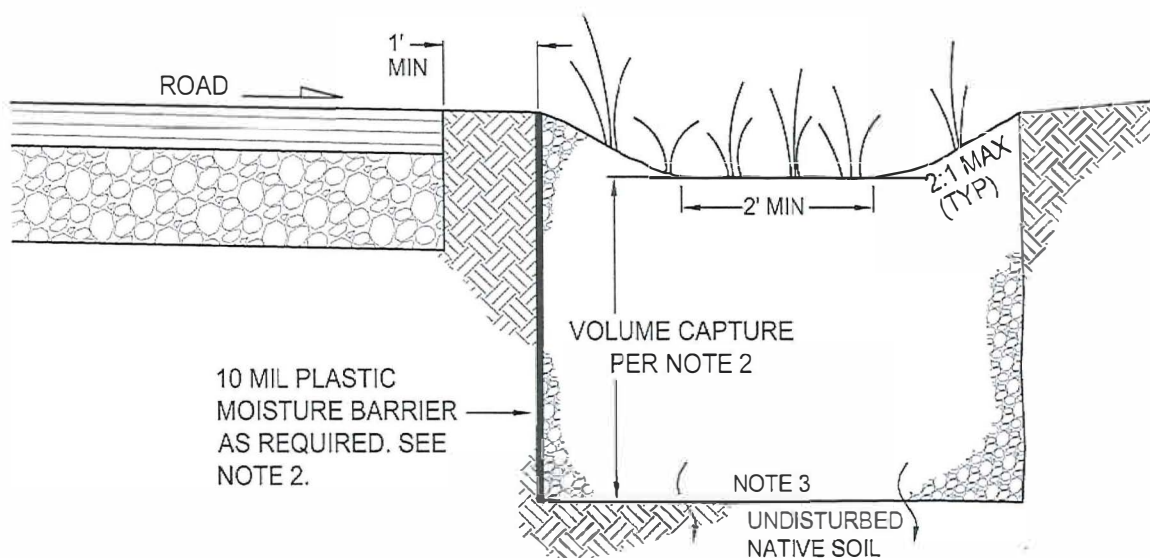
Roadside Bio-Retention and Fact Sheets



PLAN

NOTES:

1. IF SWALE PROVIDES TREATMENT, LENGTH SHALL BE DESIGNED TO PROVIDE 12 MINUTES OF CONTACT TIME IF FLOW ENTERS UNIFORMLY ALONG LENGTH. LENGTH SHALL PROVIDE 5 MINUTES OF CONTACT TIME IF 90% OR MORE OF THE FLOW ENTERS AT THE UPSTREAM END.
2. SOIL TO BE SPECIFIED BY DESIGN ENGINEER TO MEET VOLUME CAPTURE AND GOVERNING AGENCY REQUIREMENTS. IF NON-STRUCTURAL SOIL IS SELECTED A CUTOFF WALL IS REQUIRED IN PLACE OF A MOISTURE BARRIER.
3. SWALE MUST CONVEY HIGH FLOWS PER GOVERNING AGENCY DESIGN STANDARDS.



SECTION A-A

PRIORITY 1
ROADSIDE BIORETENTION
- NO CURB AND GUTTER

SCALE: NONE DATE: 03/29/17

DWN. DIT
CHK. HM

P1-02

Not to Scale

APPENDIX D

Soil Classification Fact Sheets

Soil Map—Sonoma County, California

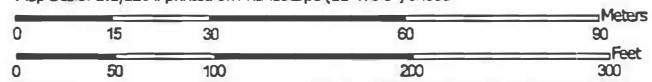


Soil Map may not be valid at this scale.

122° 43' 24\"/>



Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

7/12/2017
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 10, Sep 27, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 14, 2011—Aug 15, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Sonoma County, California (CA097)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WhA	Wright loam, wet, 0 to 2 percent slopes	4.6	79.2%
WoA	Wright loam, shallow, wet, 0 to 2 percent slopes	1.2	20.8%
Totals for Area of Interest		5.9	100.0%

Sonoma County, California

WhA—Wright loam, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hfkM

Elevation: 60 to 300 feet

Mean annual precipitation: 30 inches

Mean annual air temperature: 55 degrees F

Frost-free period: 240 to 260 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Wright and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wright

Setting

Landform: Terraces

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium

Typical profile

H1 - 0 to 7 inches: loam

H2 - 7 to 25 inches: loam

H3 - 25 to 62 inches: clay

H4 - 62 to 73 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: About 25 inches to abrupt textural change

Natural drainage class: Somewhat poorly drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): 3w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Unnamed

Percent of map unit: 5 percent

Landform: Flood plains

Hydric soil rating: Yes

Huichica

Percent of map unit: 3 percent

Hydric soil rating: No

Yolo

Percent of map unit: 3 percent

Hydric soil rating: No

Zamora

Percent of map unit: 3 percent

Hydric soil rating: No

Clear lake

Percent of map unit: 1 percent

Landform: Flood plains

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 10, Sep 27, 2016

Sonoma County, California

WoA—Wright loam, shallow, wet, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hfkp

Elevation: 60 to 300 feet

Mean annual precipitation: 30 inches

Mean annual air temperature: 55 degrees F

Frost-free period: 240 to 260 days

Farmland classification: Not prime farmland

Map Unit Composition

Wright and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Wright

Setting

Landform: Terraces, hills

Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Side slope, tread

Down-slope shape: Linear, concave

Across-slope shape: Linear, convex

Parent material: Alluvium

Typical profile

H1 - 0 to 7 inches: loam

H2 - 7 to 15 inches: loam

H3 - 15 to 62 inches: clay

H4 - 62 to 73 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: About 15 inches to abrupt textural change

Natural drainage class: Somewhat poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: About 0 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: D

Hydric soil rating: Yes

Minor Components

Huichica

Percent of map unit: 5 percent

Hydric soil rating: No

Yolo

Percent of map unit: 5 percent

Hydric soil rating: No

Clear lake

Percent of map unit: 3 percent

Landform: Depressions

Hydric soil rating: Yes

Unnamed

Percent of map unit: 2 percent

Landform: Depressions

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Sonoma County, California

Survey Area Data: Version 10, Sep 27, 2016

APPENDIX E

Maintenance Documentation

Date: _____
Start Time: _____
Stop Time: _____

Inspection Status Codes:
S = Satisfactory * - See Notes on Form C
D = Deficient

[illegible]

Re-Inspection Required:

Form C
Storm Water Quality Feature Maintenance Check List
- Inspection Notes -

Date: _____

Inspect or: _____

Project: _____

Address: _____

[illegible]

RECORDING REQUESTED BY
AND WHEN RECORDED MAIL TO: _____

City of Santa Rosa- Utilities Department
Storm Water & Creeks Section- Supervising Engineer
69 Stony Circle
Santa Rosa CA 95401

Project/Property: _____
APN(s): _____

Santa Rosa, California

**DECLARATION OF COVENANTS REGARDING MAINTENANCE OF
STORM WATER BMP FACILITIES**

This Declaration of Covenants Regarding Maintenance of Storm Water BMP Facilities ("Declaration") is made on this _____ day of _____, 20____, by _____
_____, ("Landowner") **IF BUSINESS ENTITY, ADD TYPE**

RECITALS

- A. Landowner is the fee simple owner of certain real property located in the City of Santa Rosa ("City"), Sonoma County, California, **INSERT LOT #s & DEVELOPMENT DESCRIPTION, APN #s** and more fully described in Exhibit A to this Declaration ("Property").
- B. The City's National Pollutant Discharge Elimination System ("NPDES") Municipal Separate Storm Sewer System ("MS4") Permit, Order number R1-2009-0050, issued by the North Coast Regional Water Quality Control Board, requires the City to implement and enforce specific requirements for the construction and maintenance of onsite storm water management facilities/best management practices (collectively, "BMP") for development, redevelopment, and other applicable projects with the goal of mitigating impacts to storm water quality and runoff volume discharges into the MS4.
- C. Provisions of Chapter 17-12 and other applicable sections of the Santa Rosa City Code shall apply to the construction, inspection and maintenance of BMP facilities and the enforcement of MS4 Permit requirements.
- D. On **INSERT DATE**, **WHO (City Engineer OR Chief Building Official)** approved Landowner's **IMPROVEMENT PLANS or BUILDING PERMIT SITE PLAN** ("Plan") and a Final Standard Urban Stormwater Mitigation Plan (SUSMP) for the Property which require the construction and maintenance of BMP facilities on the Property (the "BMP Facilities") by Landowner. The BMP Facilities required under the SUSMP may include both built and

landscaping features. The PLAN, SUSMP may be inspected at the City of Santa Rosa, Department of Utilities, Storm Water & Creeks Section, 69 Stony Circle upon appointment.

- E. The PLAN, SUSMP requires that Landowner make and execute this Declaration.

DECLARATION OF COVENANTS

NOW, THEREFORE, in consideration of the foregoing recitals, Landowner hereby covenants, agrees and declares as follows:

1. Landowner shall, at Landowner's sole cost and expense, construct, inspect, and maintain the BMP Facilities in accordance with the Plan and the SUSMP. Landowner shall assure that all BMPs remain fully functional and that all areas identified in the Plan and SUSMP for treatment and/or volume capture discharge to the specified BMP as designed.
2. Landowner shall keep all records related to annual inspections of BMP's by City and all records related to BMP maintenance for a period of at least five years. The records shall include records of any BMP Facilities corrections, repairs, and replacements. Landowner shall make these records available to the City upon request.
3. In the event Landowner fails to maintain the BMP Facilities in good working condition as solely determined by the City, the City may enter upon the Property and take whatever steps it deems reasonably necessary to maintain and/or make in good working condition, such BMP Facilities. It is expressly understood that the City is under no obligation to maintain or repair the BMP Facilities, and in no event shall this Declaration be construed to impose such an obligation on the City.
4. In the event that the City performs work of any nature, or expends any funds in the performance of such work for labor, use of equipment, supplies, materials, or the like, due to failure of the Landowner to perform its maintenance obligations under this Declaration, as solely determined by City, Landowner shall reimburse the City within 60 days of receipt of notice for all costs incurred by the City to undertake such work. Costs shall include, but are not limited to, the actual cost of construction, maintenance and/or repair, and administrative costs directly related to such work.
5. Any violation of the Plan or SUSMP by Landowner shall be deemed a public nuisance under Chapter 1-30 of the Santa Rosa City Code and City shall be entitled to the remedies available to it under Chapter 1-30 in addition to those available to it under Chapter 17-12. The remedies identified herein shall be in addition to and cumulative of all other remedies, criminal or civil, which may be pursued by the City.

6. Landowner shall indemnify, defend and hold harmless the City and its employees, officials, and agents, from and against any liability, (including liability for claims, suits, actions, arbitration proceedings, administrative proceedings, regulatory proceedings, losses, expenses or costs of any kind, whether actual, alleged or threatened, interest, defense costs, and expert witness fees), where the same relates to, or arises out of, the construction, presence, existence, inspection, or maintenance of BMP Facilities on the Property or the performance of the covenants underlying this Declaration by Landowner, its officers, employees, agents, contractors or sub-contractors, excepting only that resulting from the sole, active negligence or intentional misconduct of the City, its employees, officials, or agents. This indemnification obligation is not limited in any way by any limitation on the amount or type of damages or compensation payable to or for the Landowner or its agents under workers' compensation acts, disability benefits acts or other employees' benefits acts. If any judgment or claim against the City, its officials, agents, or employees, shall be entered, Landowner shall pay all cost and expenses in connection therewith.
7. If any provisions of this Declaration shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.
8. This Declaration shall be governed according to the laws of the State of California. The parties hereto agree that the forum for the adjudication of any dispute related to this Declaration shall be brought exclusively and solely in Sonoma County, California.
9. Landowner shall not assign this Declaration to a third party without the express prior written consent of the City, provided that such consent will not be unreasonably withheld and that such consent shall not be required for Landowner to sell or lease the property to a third party.
10. Landowner binds itself, its partners, successors, legal representatives and assigns to the City, and to the partners, successors, legal representatives and assigns of the City with respect to all promises and agreements contained herein.
11. This Declaration shall be recorded by Landowner, and shall: a) constitute a "covenant running with the land;" b) be binding upon Landowner and Landowner's successors, heirs, and assigns in perpetuity; and, 3) benefit the City of Santa Rosa, its successors, and assigns. Any breach of this Declaration shall render Landowner

or Landowner's heirs, successors or assigns liable pursuant to the provisions of the Santa Rosa City Code.

12. Any notice, submittal or communication required or permitted to be served on Landowner or City may be served by personal delivery to the person or the office of the person identified below. Service may also be made by mail, by placing first-class postage, and addressed as indicated below, and depositing in the United States mail to:

City Representative:

Landowner or Landowner Representative:

City of Santa Rosa
Utilities Department
Storm Water & Creeks Section
Supervising Engineer
69 Stony Circle
Santa Rosa CA 95401

Name: _____
Address: _____

Executed as of the day and year first above stated.

LANDOWNER:

Name: _____

Signatures of Authorized Persons:

By: _____

Print Name: _____

Title: _____

By: _____

Print Name: _____

Title: _____

ATTACHMENTS:

Exhibit A- Property Description

Notary Acknowledgment