

# **STORMWATER CONTROL PLAN**

**for**

**913-915 WILSON AVE,  
VALLEJO, CA**

May 7, 2023

Reference:

Contra Costa Clean Water Program *Stormwater C.3 Guidebook, 8<sup>th</sup> Edition*

<http://www.cccleanwater.org/new-development-c-3/>

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**Owners Representative: Jay V. Zafra, 415.728.2804, [j.valderrama@zafra.us](mailto:j.valderrama@zafra.us)**

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Stormwater Control Plan Exhibit

IMP Sizing Calculator Output

*This Stormwater Control Plan was prepared using the template dated February 2018.*

**I. PROJECT DATA**

Table 1

Project Name/Number	913 & 915 Wilson Avenue/392600
Application Submittal Date	TBD
Project Location	913 & 915 Wilson Avenue Vallejo, California
Name of Developer	Hiemstra Properties
Project Phase No.	NA
Project Type and Description	Small professional office cluster with 3 new structures, deck, driveway and outdoor parking.
Project Watershed	Napa River
Total Project Site Area (acres)	0.81
Total Area of Land Disturbed (acres)	0.62
Total New Impervious Surface Area (square feet [ft <sup>2</sup> ])	11846
Total Replaced Impervious Surface Area (ft <sup>2</sup> )	3270
Total Pre-Project Impervious Surface Area (ft <sup>2</sup> )	3270
Total Post-Project Impervious Surface Area (ft <sup>2</sup> )	11846
50% Rule	Applies
Project Density	.07
Applicable Special Project Categories [Complete even if all treatment is Low Impact Development (LID)]	None.
Percent LID and non-LID treatment	100% LID
HMP Compliance	Exempt (less than one acre of impervious area created or replaced)

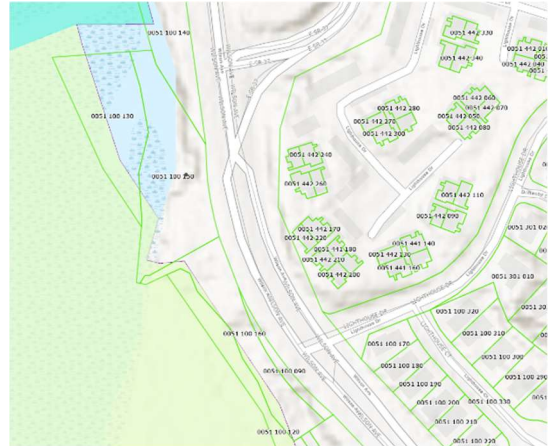
## II. SETTING

### II.A. Project Location and Description

This project involves the demolition of an existing driveway and remnant building foundations and the construction of proposed office, garage and tiny homes to be constructed at the subject site.

### II.B. Existing Site Features and Conditions

The site is located in the northwestern portion of the City of Vallejo on the west side of Wilson Avenue just south of Highway 37 as shown in Figure 1, "Aerial Vicinity Map". The irregular-shaped site is comprised of two parcels of land, APN's 051-100-150 and 160, totaling approximately 0.83 acres. The site is bounded on the east by Wilson Avenue and on the remaining sides by marshlands of the Napa River. The site is located approximately 3 feet lower in elevation than Wilson Avenue and continues to gently slope down towards the river. At the river's edge, a 6 to 7 feet high steep fill slope with scattered boulders extends down to the natural marsh deposits. A new single lane driveway and the



1 - Aerial Vicinity Map

remnants of two building concrete foundation exists in the central portion of the fill pad. In addition, the remnants of an old wood pier extend from the middle of the site out to the river. With the exception of the area around the driveway, the site is densely vegetated with trees, bushes, ivy and weeds.

The subsurface was found to consist of 10 to 11.5 feet of fill overlying 3.5 to 8 feet of native soil further overlying bedrock. The fill consists of stiff to very stiff, silty and sandy clay with varying amounts of mudstone and sandstone fragments and brick debris with possible boulders. (Hydrologic Soil Group "D"). The fill is moderately to highly expansive. Red brick debris was encountered within the fill on the north side of the property. The native soils consist of west and soft to firm clay that is locally known as Bay Mud. Bedrock was encountered beneath the fill and native soils at depths ranging from 16 to 19 feet below the ground surface. The bedrock was found to be weak, moderately to highly weathered and closely to intensely fractured. Groundwater ranges in depths from 7.5 to 11 feet below the existing ground surface or at elevations ranging from approximately -3 to -3.5 feet below mean sea level. The property fronts Wilson Avenue. The existing municipal storm drain is in the south bound lane of Wilson Avenue.

### II.C. Opportunities and Constraints for Stormwater Control

The primary opportunity for Stormwater Control for the subject site is to utilize bioretention areas and vegetated swale throughout the site to improve water quality runoff before discharge. In addition, to take advantage of the existing site conditions and opportunities, runoff from as many of the landscaped areas as possible is routed directly to existing natural ground surface downstream (self-treating). The bioretention areas and vegetated swale design will provide stormwater treatment for other DMS's.

Currently, all stormwater runoff is discharged into the Bay with very minimal treatment. The proposed stormwater design after construction is completed, provides for bioretention for treatment prior to release.

Setback areas - ten feet along the frontage and five feet on all other sides of the property are potential

locations for treatment BMPs; however, the south side of the property already has a municipal storm drain system in the public right of way. The City storm drain system in Wilson Street is deep enough to provide sufficient hydraulic head to route runoff across the surface of the site to then drain treated runoff to the City storm drain.

### **III. LOW IMPACT DEVELOPMENT DESIGN STRATEGIES**

#### **III.A. Optimization of Site Layout**

##### *III.A.1. Limitation of development envelope*

The site is densely developed infill within the existing urbanized area. The subject property redevelops a site that currently old foundations and concrete flat work for a residential driveway. The property currently has no useful value. The proposed project is a multiuse development that combines office and retail space, plus provides additional public access along the waterfront. The Hiemstra Property will be a model home showcase for manufactured homes, which will also serve as the headquarters for Hiemstra Real Estate. This project has the endorsement of the local Housing Authority Director as an essential development to provide affordable housing in the City of Vallejo.

##### *III.A.2. Preservation of natural drainage features*

On-site drainage will be collected and treated prior to conveyance to the existing storm drain system that crosses Wilson Avenue south of the project at the Wilson Avenue and Lighthouse Drive intersection.

##### *III.A.3. Setbacks from creeks, wetlands, and riparian habitats*

Project wetlands have been identified and the project will be setback from the identified limits.

##### *III.A.4. Minimization of imperviousness*

The layout of the development maximizes the use of an irregular lot, while minimizing the placement of concrete for driveways and public thoroughfares that will provide the necessary access to the site.

##### *III.A.5. Use of drainage as a design element*

The project uses landscaping elements to treat runoff. Bioretention planters will store the water onsite during heavy storms. The planters will provide an aesthetic landscape amenity and provide natural habitat that will add to the biodiversity of the Vallejo waterfront.

#### **III.B. Use of Permeable Pavements**

Permeable pavements are impractical for this site due to existing topography and subsurface conditions.

#### **III.C. Dispersal of Runoff to Pervious Areas**

A drainage inlet is located at the low point of the driveway. Stormwater will be collected and directed to a bioretention basin.

#### **III.D. Bioretention or other Integrated Management Practices**

[See the guidance, *Guidebook* pp. 27-29, for siting and designing bioretention facilities. Describe how the facilities in your project have been designed to be consistent with this guidance. In addition, ensure your stormwater control design is fully coordinated with the site plan, grading plan, and landscaping plan being proposed for the site. See *Guidebook* p. 43.]

**IV. DOCUMENTATION OF DRAINAGE DESIGN**

**IV.A. Descriptions of each Drainage Management Area**

Table IV.A.1. Drainage Management Areas

<i>DMA Name</i>	<i>Area (SF)</i>	<i>Surface Type/Description</i>	<i>DMA Type/Drains to</i>
DMA-1	6480	Paving	Drains to IMP#1
DMA-2	2205	Sidewalk	Drains to IMP#1
DMA-3	2999	Roof (3)	Drains to IMP#2
DMA-4	13320	Landscape	Self-Retaining

*IV.A.1. Drainage Management Area Descriptions*

**DMA 1**, totaling 6,480 square feet, drains the asphalt parking area. DMA -1 drains to Bioretention facility #1. Runoff will enter the facility through curb cuts.

**DMA #2**, totaling 2,205 square feet, drains the site sidewalk. DMA #2 drains to Bioretention Facility #1.

**DMA #3**, totaling 2,999 square feet, drains roof for all 3 buildings. DMA #3 drains to Bioretention #2, and will be connected via a tight-lined downspout and bubble-up.

**DMA #4**, totaling 3,477 square feet, drains a landscaped area. DMA #4 will be retained and the area reconfigured. Drainage from DMA 4 will be curbed self treating.

**IV.B. Integrated Management Practice Descriptions**

IV.B.1.

Runoff from impervious areas on the site, including roofs and paved areas, will be routed to two bioretention facilities. (See Exhibit)

Each of the facilities will be designed and constructed to the criteria in the Stormwater C.3 Guidebook, 8th Edition, including the following features:

- Surrounded by a concrete curb. Where adjacent to pavement, curbs will be thickened and an impermeable vertical cutoff wall will be included.
- Each layer built flat, level, and to the elevations specified in the plans:
  - Bottom of Gravel Layer (BGL)

- Top of Gravel Layer (TGL)
  - Top of Soil Layer (TSL)
  - Overflow Grate
  - Facility Rim
- 12 inches Class 2 permeable, Caltrans specification 68.202F(3)
- 18 inches sand/compost mix meeting the specifications approved by the Regional Water Quality Control Board in April 2016.
- 4 in. dia. PVC SDR 35 perforated pipe underdrain, installed with the invert at the top of the Class 2 permeable layer with holes facing down, and connected to the overflow structure at the same elevation.
- 6-inch-deep reservoir between top of soil elevation and overflow grate elevation
- Concrete drop inlet with frame overflow structure, with grate set to specified elevation, connected to storm drain in Wilson Avenue
- Vertical cutoff walls to protect adjacent pavement
- Plantings selected for suitability to climate and location, bioretention soil media (well-drained, low-fertility), and for water conservation
- Irrigation system on a separate zone, with drip emitters and "smart" irrigation controllers

<i>IMP Name</i>	<i>Area (square feet)</i>	<i>Non-LID Treatment System</i>	<i>Minimum Design Criteria Referenced</i>
IMP#1	395 SF		C.3.b - non-regulated
IMP #2	200 SF		C.3.b - non-regulated

**IV.C. Tabulation and Sizing Calculations**

The project is Sizing is based on the treatment only and follows Contra Costa the requirements for non-regulated projects under C.3.b, which requires a minimum of 4% of tributary equivalent impervious area. See Contra Costa IMP software sizing calculations.

**V. SOURCE CONTROL MEASURES**

**V.A. Site activities and potential sources of pollutants**

**V.B. Source Control Table**

Table 3. Source Controls

<i>Potential source of runoff pollutants</i>	<i>Permanent source control BMPs</i>	<i>Operational source control BMPs</i>
Inlets	All inlets will be marked with "No Duming! Flows to Local Waterways" or similar	Markings will be regularly inspected and repainted or replaced as needed. Lessees will receive stormwater pollution prevention brochures. Lease agreements will include the following provision: "Tenant shall not allow anyone to discharge anything to storm drains or to store
Landscape maintenance	Existing mature trees to be retained. Landscaping will minimize irrigation and runoff and be selected for pest resistance, and will minimize the need for fertilizers and pesticides. Plants will be selected appropriate to site soils, slopes, climate, sun, wind rain, land use, air movement, ecological consistency, and plant interactions.	Landscaping will be maintained using minimum or no pesticides. IPM information will be provided to new owners, lessees, and operators.

Refuse area.	Refuse and recycled materials will be handled in the refuse area shown on the Exhibit. This area is to be roofed, bermed, and equipped with a drain to a grease interceptor and then to the sanitary sewer.	All dumpsters will be posted with signs stating “Do not dump hazardous materials here” or similar.
Sidewalks and Parking lots		Trash receptacles to be provided in plaza area and on drive-through and emptied daily. Site to be policed at least twice daily for trash. Sidewalks, and parking lots will be swept regularly. Debris and washwater from periodic pressure washing will be collected and disposed of to the sanitary sewer.

**VI. STORMWATER FACILITY MAINTENANCE**

**VI.A. Ownership and Responsibility for Maintenance in Perpetuity**

Maintenance of stormwater facilities will be the responsibility of the property owner and will be performed by the owner’s contractors or employees as part of routine maintenance of buildings, grounds, and landscaping. The applicant has reviewed the City of Vallejo's standard agreement regarding the maintenance of stormwater facilities and commits to execute any necessary agreements prior to completion of construction. The applicant accepts responsibility for interim operation and maintenance of stormwater treatment and flow-control facilities until that responsibility is formally transferred to a subsequent owner.

**VI.B. Summary of Maintenance Requirements for Each Stormwater Facility**

The two bioretention facilities will be maintained on the following schedule at a minimum. Details of maintenance responsibilities and procedures will be included in a Stormwater Facility Operation and Maintenance Plan to be submitted for approval as required in the conditions of approval.

At no time will synthetic pesticides or fertilizers be applied, nor will any soil amendments, other than aged compost mulch or sand/compost mix, be introduced.

**Daily:** The facilities will be examined for visible trash during regular policing of the site, and trash will be removed.

**After Significant Rain Events:** A significant rain event is one that produces approximately a half- inch or more rainfall in a 24-hour period. Within 24 hours after each such event, the following will be conducted: The surface of the facility will be observed to confirm there is no ponding.

- Inlets will be inspected, and any accumulations of trash or debris will be removed.
- The surface of the mulch layer will be inspected for movement of material. Mulch will be replaced and raked smooth if needed.

**Prior to the Start of the Rainy Season:** In September or each year, the facility will be inspected to confirm there is no accumulation of debris that would block flow, and that growth and spread of plantings does not block inlets or the movement of runoff across the surface of the facility.

**Annual Landscape Maintenance:** In December – February of each year, vegetation will be cut back as needed, debris removed, and plants and mulch replaced as needed. The concrete work will be inspected for

damage. The elevation of the top of soil and mulch layer will be confirmed to be consistent with the 6-inch reservoir depth.

**VII. CONSTRUCTION PLAN C.3 CHECKLIST**

Table 3

4 and Exhibit	Drainage from DMAs 1 and 2 drains to Bioretention Facility #1; facility is designed as specified.	
4 and Exhibit	DMA 3 drains to Bioretention Facility #2, facility is designed as specified.	

**VIII. CERTIFICATIONS**

The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order R2-2015-0049.

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By

*Patricia Preston*

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Patricia Preston, P.E.

**Project Name: Hiemstra Properties**  
**Project Type: Treatment Only**  
**APN: 0061100-160**  
**Drainage Area: 35,422**  
**Mean Annual Precipitation: 17.5**

## Self-Treating DMAs

DMA Name	Area (sq ft)
DMA4	23,572.0

## IV. Areas Draining to IMPs

**IMP Name: IMP1**

**IMP Type: Bioretention Facility**

**Soil Group: IMP1**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
					IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA1	6,480	Concrete or Asphalt	1.00	6,480				
DMA2	1,950	Concrete or Asphalt	1.00	1,950				
<b>Total</b>				8,430				
				<b>Area</b>	0.040	1.000	337	395

**IMP Name: IMP2**

**IMP Type: Flow-Through Planter**

**Soil Group: IMP2**

DMA Name	Area (sq ft)	Post Project Surface Type	DMA Runoff Factor	DMA Area x Runoff Factor	IMP Sizing			
					IMP Sizing Factor	Rain Adjustment Factor	Minimum Area or Volume	Proposed Area or Volume
DMA3	3,420	Conventional Roof	1.00	3,420				
<b>Total</b>				3,420				
				<b>Area</b>	0.040	1.000	137	150

