

Appendix J

Water Resources Technical Report



**1360 VINE ST PROJECT
WATER RESOURCES TECHNICAL REPORT
SEPTEMBER 2020**

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1. INTRODUCTION

1.1. PROJECT DESCRIPTION

ONNI Capital, LLC, the Applicant, proposes a mixed-use development within the Hollywood Community of the City of Los Angeles. The Project Site consists of 13 contiguous lots located on the east side of North Vine Street between West De Longpre Avenue and West Afton Place with a gross lot area of 89,500 square feet and a net lot area (after dedications) of 81,050 square feet. Specifically, the Project Site consists of six lots along West De Longpre Avenue and seven lots along West Afton Place and is currently occupied by a mix of uses that consist of low-rise commercial uses along North Vine Street, including a post-production facility, restaurants, and neighborhood retail uses, and an eight-unit multi-family building fronting on Afton Place on the eastern most lot. There are also six bungalows located on the Project Site with three fronting on Afton Place and three fronting on De Longpre Avenue. The six bungalows are contributing structures within the Afton Square District, a designated California Register historic district.

The Project includes two options herein referred to as “Residential Option” and “Office Option.”

The Residential Option would develop a new high-rise building with four levels of subterranean parking consisting of up to 429 new residential units, including 36 units designated for Very Low Income households, an approximately 55,000-square-foot grocery store, approximately 5,000 square feet of neighborhood-serving commercial retail uses, and 8,988 square feet of uses in the bungalows. The bungalows would be rehabilitated and adapted for reuse as either restaurants or residential units, in which case the development would still propose a total of 429 residential units. The new building would be 360 feet 4 inches in height when accounting for rooftop mechanical equipment.¹ Overall, the Residential Option would provide approximately 484,421 square feet of floor area within the Project Site.

The Office Option would develop a new high-rise building with eight levels of subterranean parking with approximately 463,521 square feet of office uses and 11,914 square feet of restaurant uses in the proposed building, as well as 8,988 square feet of uses in the bungalows. The bungalows would be rehabilitated and adapted for reuse as either restaurants, 12 residential units, or offices. The new building would be 330 feet when accounting for rooftop mechanical equipment.² Upon completion, the Office Option would provide approximately 484,423 square feet of floor area within the Project Site.

For both options, a Preservation Plan would be implemented to relocate and adapt for reuse the six historic bungalows within the eastern portion of the Project Site. To provide for the

¹ Under the Residential Option, the new building would include Levels 1 through 32 and would have a height of 345 feet 4 inches. With the 15-foot rooftop mechanical parapet, the maximum building height would be 360 feet 4 inches.

² Under the Office Option, the new building would include Levels 1 through 17 and would have a height of 300 feet. With the 30-foot rooftop mechanical parapet, the maximum building height would be 330 feet.

new uses, an eight-unit multi-family building, low-rise commercial buildings, and ancillary buildings adjacent to the bungalows that are non-contributing features to the historic district would be demolished.

Under the Residential Option, the 32-story high-rise building would feature a rectangular podium comprised of Levels 1 through 9, which would contain neighborhood-serving commercial retail uses, a grocery store, and residential units. The residential tower of the high-rise building would be situated atop the podium within the northwest portion of the Project Site. As such, the height of the Project would transition from the highest point of the building at Vine Street and De Longpre Avenue to the lower scaled historic bungalows and other residential uses to the east. The new building would be separated from the relocated bungalows on the east portion of the Site by an approximately 22- to 57-foot buffer that would include pedestrian walkways that would provide access to the bungalows and the ground floor of the new building, as well as access between De Longpre Avenue and Afton Place. The buffer would include abundant landscaping and trees. New landscaping and trees would be planted between each bungalow to along the eastern boundary line.

Under the Office Option, the new 17-story high-rise building has been designed in a modern architectural style with a sloped glass façade and balconies at the corners fronting Vine Street. The ground level would include restaurant, and the upper levels would include offices and associated uses with a roof garden at the penthouse level. The south-facing balconies at the corner fronting Vine Street would be landscape-treated and would break the façade with patterns while also create opportunities for outdoor activities for the office levels. The glazed sloping fascia on the west side of the building would direct focus to the ground level, which could be used as an outdoor restaurant patio in the future. Additionally, a spacious terrace with landscaping and seating proposed at the ground level along Afton Place would enhance the livability of the surrounding neighborhood. The Office Option would include a private buffer to separate the new high-rise building in the western portion of the Project Site and the relocated bungalows within the eastern portion of the Project Site.

1.2. SCOPE OF WORK

This report provides a description of the existing surface water hydrology, surface water quality, groundwater level, and groundwater quality at the Project Site. It also analyzes the Project's potential impacts related to surface water hydrology, surface water quality, groundwater level, and groundwater quality.

2. REGULATORY FRAMEWORK

2.1. SURFACE WATER HYDROLOGY

County of Los Angeles Hydrology Manual

Per the City of Los Angeles (City) Special Order No. 007-1299, December 3, 1999, the City has adopted the Los Angeles County (County) Department of Public Works

Hydrology Manual as its basis of design for storm drainage facilities. The 2006 LACDPW Hydrology Manual requires projects to have drainage facilities that meet the Urban Flood level of protection. The Urban Flood is runoff from a 25-year frequency design storm falling on a saturated watershed. A 25-year frequency design storm has a probability of 1/25 of being equaled or exceeded in any year. Areas with sump conditions are required to have a storm drain conveyance system capable of conveying flow from a 50-year storm event.³ The County also limits the allowable discharge into existing storm drain facilities based on the municipal separate storm sewer systems (MS4) Permit, which is enforced on all new developments that discharge directly into the County's storm drain system. Any proposed drainage improvements of County owned storm drain facilities such as catch basins and storm drain lines require approval/review from the County Flood Control District department.

Los Angeles Municipal Code

Any proposed drainage improvements within the street right of way or any other property owned by, to be owned by, or under the control of the City requires the approval of a B-permit (Section 62.105, Los Angeles Municipal Code (LAMC)). Under the B-permit process, storm drain installation plans are subject to review and approval by the City of Los Angeles Department of Public Works, Bureau of Engineering. Additionally, any connections to the City's storm drain system from a property line to a catch basin or a storm drain pipe requires a storm drain permit from the City of Los Angeles Department of Public Works, Bureau of Engineering.

2.2. SURFACE WATER QUALITY

Clean Water Act

The Clean Water Act was first introduced in 1948 as the Water Pollution Control Act. The Clean Water Act authorizes Federal, state, and local entities to cooperatively create comprehensive programs for eliminating or reducing the pollution of state waters and tributaries. The primary goals of the Clean Water Act are to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. As such, the Clean Water Act forms the basic national framework for the management of water quality and the control of pollutant discharges. The Clean Water Act also sets forth a number of objectives in order to achieve the above-mentioned goals. These objectives include regulating pollutant and toxic pollutant discharges; providing for water quality that protects and fosters the propagation of fish, shellfish and wildlife; developing waste treatment management plans; and developing and implementing programs for the control of non-point sources of pollution.⁴

³ Los Angeles County Department of Public Works Hydrology Manual, January 2006, <http://ladpw.org/wrd/publication/index.cfm>, accessed February 7, 2020.

⁴ Non-point sources of pollution are carried through the environment via elements such as wind, rain, or stormwater and are generated by diffuse land use activities (such as runoff from streets and sidewalks or agricultural activities) rather than from an identifiable or discrete facility.

Since its introduction, major amendments to the Clean Water Act have been enacted (e.g., 1961, 1966, 1970, 1972, 1977, and 1987). Amendments enacted in 1970 created the U.S. Environmental Protection Agency (USEPA), while amendments enacted in 1972 deemed the discharge of pollutants into waters of the United States from any point source unlawful unless authorized by a USEPA National Pollutant Discharge Elimination System (NPDES) permit. Amendments enacted in 1977 mandated development of a “Best Management Practices” Program at the state level and provided the Water Pollution Control Act with the common name of “Clean Water Act,” which is universally used today. Amendments enacted in 1987 required the USEPA to create specific requirements for discharges.

In response to the 1987 amendments to the Clean Water Act and as part of Phase I of its NPDES permit program, the USEPA began requiring NPDES permits for: (1) municipal separate storm sewer systems (MS4) generally serving, or located in, incorporated cities with 100,000 or more people (referred to as municipal permits); (2) 11 specific categories of industrial activity (including landfills); and (3) construction activity that disturbs five acres or more of land. Phase II of the USEPA’s NPDES permit program, which went into effect in early 2003, extended the requirements for NPDES permits to: (1) numerous small municipal separate storm sewer systems,⁵ (2) construction sites of one to five acres, and (3) industrial facilities owned or operated by small municipal separate storm sewer systems. The NPDES permit program is typically administered by individual authorized states.

In 2008, the USEPA published draft Effluent Limitation Guidelines (ELGs) for the construction and development industry. On December 1, 2009 the EPA finalized its 2008 Effluent Guidelines Program Plan.

In California, the NPDES stormwater permitting program is administered by the State Water Resources Control Board (SWRCB). The SWRCB was created by the Legislature in 1967. The joint authority of water distribution and water quality protection allows the Board to provide protection for the State’s waters, through its nine Regional Water Quality Control Boards (RWQCBs). The RWQCBs develop and enforce water quality objectives and implement plans that will best protect California’s waters, acknowledging areas of different climate, topography, geology, and hydrology. The RWQCBs develop “basin plans” for their hydrologic areas, issue waste discharge requirements, enforce action against stormwater discharge violators, and monitor water quality.⁶

Federal Anti-Degradation Policy

The Federal Anti-Degradation Policy (40 Code of Federal Regulations 131.12) requires states to develop statewide anti-degradation policies and identify methods for

⁵ A small municipal separate storm sewer system (MS4) is any MS4 not already covered by the Phase I program as a medium or large MS4. The Phase II Rule automatically covers on a nationwide basis all small MS4s located in “urbanized areas” as defined by the Bureau of the Census (unless waived by the NPDES permitting authority), and on a case-by-case basis those small MS4s located outside of urbanized areas that the NPDES permitting authority designates.

⁶ USEPA. U.S. Environmental Protection Agency - Clean Water Act.
< <http://www.epa.gov/lawsregs/laws/cwa.html>>. accessed on February 7, 2020..

implementing them. Pursuant to the Code of Federal Regulations (CFR), state anti-degradation policies and implementation methods shall, at a minimum, protect and maintain (1) existing in-stream water uses; (2) existing water quality, where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource.

California Porter-Cologne Act

The Porter-Cologne Water Quality Control Act established the legal and regulatory framework for California's water quality control. The California Water Code authorizes the SWRCB to implement the provisions of the CWA, including the authority to regulate waste disposal and require cleanup of discharges of hazardous materials and other pollutants.

As discussed above, under the California Water Code (CWC), the State of California is divided into nine RWQCBs, governing the implementation and enforcement of the CWC and CWA. The Project Site is located within Region 4, also known as the Los Angeles Region. Each RWQCB is required to formulate and adopt a Basin Plan for its region. This Plan must adhere to the policies set forth in the CWC and established by the SWRCB. The RWQCB is also given authority to include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

California Anti-Degradation Policy

The California Anti-Degradation Policy, otherwise known as the *Statement of Policy with Respect to Maintaining High Quality Water in California* was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the Federal Anti-Degradation Policy, the California Anti-Degradation Policy applies to all waters of the State, not just surface waters. The policy states that whenever the existing quality of a water body is better than the quality established in individual Basin Plans, such high quality shall be maintained and discharges to that water body shall not unreasonably affect present or anticipated beneficial use of such water resource.

California Toxic Rule

In 2000, the EPA promulgated the California Toxic Rule, which establishes water quality criteria for certain toxic substances to be applied to waters in the State. The EPA promulgated this rule based on the EPA's determination that the numeric criteria are necessary in the State to protect human health and the environment. The California Toxic Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water such as inland surface waters and enclosed bays and estuaries that are designated by the Los Angeles RWQCB (LARWQCB) as having beneficial uses protective of aquatic life or human health.

Board Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties

As required by the California Water Code, the LARWQCB has adopted a plan entitled “Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties” (Basin Plan). Specifically, the Basin Plan designates beneficial uses for surface and groundwaters, sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy, and describes implementation programs to protect all waters in the Los Angeles Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. Those of other agencies are referenced in appropriate sections throughout the Basin Plan.⁷

The Basin Plan is a resource for the LARWQCB and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. Finally, the Basin Plan provides valuable information to the public about local water quality issues.

NPDES Permit Program

The NPDES permit program was first established under authority of the CWA to control the discharge of pollutants from any point source into the waters of the United States. As indicated above, in California, the NPDES stormwater permitting program is administered by the SWRCB through its nine RWQCBs.

The Construction General Permit

SWRCB Order No. 2012-0006-DWQ known as “The Construction General Permit” was adopted on July 17, 2012. This NPDES permit establishes a risk-based approach to stormwater control requirements for construction projects by identifying three project risk levels. The main objectives of the Construction General Permit are to:

1. Reduce erosion
2. Minimize or eliminate sediment in stormwater discharges
3. Prevent materials used at a construction site from contacting stormwater
4. Implement a sampling and analysis program
5. Eliminate unauthorized non-stormwater discharges from construction sites
6. Implement appropriate measures to reduce potential impacts on waterways both during and after construction of projects

⁷ Los Angeles Regional Water Quality Control Board. LARWQCB Basin Plan.
<http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/> accessed February 7, 2020.

7. Establish maintenance commitments on post-construction pollution control measures

California mandates requirements for all construction activities disturbing more than one acre of land to develop and implement Stormwater Pollution Prevention Plans (SWPPP). The SWPPP documents the selection and implementation of Best Management Practices (BMPs) for a specific construction project, charging owners with stormwater quality management responsibilities. A construction site subject to the Construction General Permit must prepare and implement a SWPPP that meets the requirements of the Construction General Permit.^{8, 9}

Los Angeles County Municipal Storm Water System (MS4) Permit

As described above, USEPA regulations require that MS4 permittees implement a program to monitor and control pollutants being discharged to the municipal system from both industrial and commercial projects that contribute a substantial pollutant load to the MS4.

On November 8, 2012, the LARWQCB adopted Order No. R4-2012-0175 under the CWA and the Porter-Cologne Act. This Order is the NPDES permit or MS4 permit for municipal stormwater and urban runoff discharges within Los Angeles County. The requirements of this Order (the “Permit”) cover 84 cities and most of the unincorporated areas of Los Angeles County. Under the Permit, the Los Angeles County Flood Control District (LACFCD) is designated as the Principal Permittee. The Permittees are the 84 Los Angeles County cities (including the City of Los Angeles) and Los Angeles County. Collectively, these are the “Co-Permittees”. The Principal Permittee helps to facilitate activities necessary to comply with the requirements outlined in the Permit but is not responsible for ensuring compliance of any of the Permittees.

Stormwater Quality Management Program (SQMP)

In compliance with the Permit, the Co-Permittees are required to implement a stormwater quality management program (SQMP) with the goal of accomplishing the requirements of the Permit and reducing the amount of pollutants in stormwater runoff. The SWMP requires the County of Los Angeles and the 84 incorporated cities to:

- Implement a public information and participation program to conduct outreach on storm water pollution;
- Control discharges at commercial/industrial facilities through tracking, inspecting, and ensuring compliance at facilities that are critical sources of pollutants;

⁸ State Water Resources Control Board. State Water Resources Control Board. August 2019 http://www.swrcb.ca.gov/water_issues/programs/npdes/. Accessed on February 7, 2020.

⁹ USEPA. U.S. Environmental Protection Agency - NPDES. August 2019, <https://www.epa.gov/npdes>. Accessed on February 7, 2020.

- Implement a development planning program for specified development projects;
- Implement a program to control construction runoff from construction activity at all construction sites within the relevant jurisdictions;
- Implement a public agency activities program to minimize storm water pollution impacts from public agency activities; and
- Implement a program to document, track, and report illicit connections and discharges to the storm drain system.

The Permit contains the following provisions for implementation of the SQMP by the Co-Permittees:

1. General Requirements:

- Each permittee is required to implement the SQMP in order to comply with applicable stormwater program requirements.
- The SQMP shall be implemented and each permittee shall implement additional controls so that discharge of pollutants is reduced.

2. Best Management Practice Implementation:

- Permittees are required to implement the most effective combination of BMPs for stormwater/urban runoff pollution control. This should result in the reduction of storm water runoff.

3. Revision of the SQMP:

- Permittees are required to revise the SQMP in order to comply with requirements of the RWQCB while complying with regional watershed requirements and/or waste load allocations for implementation of Total Maximum Daily Loads (TMDLs) for impaired waterbodies.

4. Designation and Responsibilities of the Principal Permittee:

The Los Angeles County Flood Control District is designated as the Principal Permittee who is responsible for:

- Coordinating activities that comply with requirements outlined in the NPDES Permit;
- Coordinating activities among Permittees;
- Providing personnel and fiscal resources for necessary updates to the SQMP;

- Providing technical support for committees required to implement the SQMP; and
- Implementing the Countywide Monitoring Program required under this Order and assessing the results of the monitoring program.

5. Responsibilities of Co-Permittees:

Each Co-Permittee is required to comply with the requirements of the SQMP as applicable to the discharges within its geographical boundaries. These requirements include:

- Coordinating among internal departments to facilitate the implementation of the SQMP requirements in an efficient way;
- Participating in coordination with other internal agencies as necessary to successfully implement the requirements of the SQMP; and
- Preparing an annual Budget Summary of expenditures for the storm water management program by providing an estimated breakdown of expenditures for different areas of concern, including budget projections for the following year.

6. Watershed Management Committees (WMCs):

- Each WMC shall be comprised of a voting representative from each Permittee in the Watershed Management Area (WMA).
- Each WMC is required to facilitate exchange of information between co-permittees, establish goals and deadlines for WMAs, prioritize pollution control measures, develop and update adequate information, and recommend appropriate revisions to the SQMP.

7. Legal Authority:

- Co-Permittees are granted the legal authority to prohibit non-storm water discharges to the storm drain system including discharge to the MS4 from various development types.

City of Los Angeles Water Quality Compliance Master Plan for Urban Runoff

On March 2, 2007, City Council Motion 07-0663 was introduced by the City of Los Angeles City Council to develop a water quality master plan with strategic directions for planning, budgeting and funding to reduce pollution from urban runoff in the City of Los Angeles. The Water Quality Compliance Master Plan for Urban Runoff was developed by the Bureau of Sanitation, Watershed Protection Division in collaboration with stakeholders to address the requirements of this Council Motion. The primary goal of the Water Quality Compliance Master Plan for Urban Runoff is to help meet water quality regulations.

Implementation of the Water Quality Compliance Master Plan for Urban Runoff is intended over the next 20 to 30 years to result in cleaner neighborhoods, rivers, lakes and bays, augmented local water supply, reduced flood risk, more open space, and beaches that are safe for swimming. The Water Quality Compliance Master Plan for Urban Runoff also supports the Mayor and Council's efforts to make Los Angeles the greenest major city in the nation.

The Water Quality Compliance Master Plan for Urban Runoff identifies and describes the various watersheds in the City, summarizes the water quality conditions of the City's waters, identifies known sources of pollutants, describes the governing regulations for water quality, describes the BMPs that are being implemented by the City, discusses existing TMDL Implementation Plans and Watershed Management Plans. Additionally, the Water Quality Compliance Master Plan for Urban Runoff provides an implementation strategy that includes the following three initiatives to achieve water quality goals:

- Water Quality Management Initiative, which describes how Water Quality Management Plans for each of the City's watershed and TMDL-specific Implementation Plans will be developed to ensure compliance with water quality regulations.
- The Citywide Collaboration Initiative, which recognizes that urban runoff management and urban (re)development are closely linked, requiring collaborations of many City agencies. This initiative requires the development of City policies, guidelines, and ordinances for green and sustainable approaches for urban runoff management.
- The Outreach Initiative, which promotes public education and community engagement with a focus on preventing urban runoff pollution.

The Water Quality Compliance Master Plan for Urban Runoff includes a financial plan that provides a review of current sources of revenue, estimates costs for water quality compliance, and identifies new potential sources of revenue.

City of Los Angeles Stormwater Program

The City of Los Angeles supports the policies of the Construction General Permit and the Los Angeles County NPDES permit through the *Development Best Management Practices Handbook. Part A Construction Activities*, 3rd Edition, and associated ordinances were adopted in September 2004. *Part B Planning Activities*, 5th Edition was adopted in May 2016. The Handbook provides guidance for developers in complying with the requirements of the Development Planning Program regulations of the City's Stormwater Program. Compliance with the requirements of this manual is required by City of Los Angeles Ordinance No. 173,494. The handbook and ordinances also have specific minimum BMP requirements for all construction activities and require dischargers whose construction projects disturb one acre or more of soil to prepare a SWPPP and file a Notice of Intent (NOI) with the SWRCB. The NOI informs the SWRCB of a particular project and results

in the issuance of a Waste Discharger Identification (WDID) number, which is needed to demonstrate compliance with the Construction General Permit.

The City of Los Angeles implements the requirement to incorporate stormwater BMPs through the City's plan review and approval process. During the review process, project plans are reviewed for compliance with the City's General Plan, zoning ordinances, and other applicable local ordinances and codes, including storm water requirements. Plans and specifications are reviewed to ensure that the appropriate BMPs are incorporated to address storm water pollution prevention goals.

Los Angeles Municipal Code

Section 64.70 of the LAMC sets forth the City's Stormwater and Urban Runoff Pollution Control Ordinance. The ordinance prohibits the discharge of the following into any storm drain system or receiving waters:

- Any liquids, solids, or gases which by reason of their nature or quantity are flammable, reactive, explosive, corrosive, or radioactive, or by interaction with other materials could result in fire, explosion or injury.
- Any solid or viscous materials, which could cause obstruction to the flow or operation of the storm drain system.
- Any pollutant that injures or constitutes a hazard to human, animal, plant, or fish life, or creates a public nuisance.
- Any noxious or malodorous liquid, gas, or solid in sufficient quantity, either singly or by interaction with other materials, which creates a public nuisance, hazard to life, or inhibits authorized entry of any person into the storm drain system.
- Any medical, infectious, toxic or hazardous material or waste.

Additionally, unless otherwise permitted by a NPDES permit, the ordinance prohibits industrial and commercial developments from discharging untreated wastewater or untreated runoff into the storm drain system. Furthermore, the ordinance prohibits trash or any other abandoned objects/materials from being deposited such that they could be carried into the storm drains. Lastly, the ordinance not only makes it a crime to discharge pollutants into the storm drain system and imposes fines on violators, but also gives City public officers the authority to issue citations or arrest business owners or residents who deliberately and knowingly dump or discharge hazardous chemicals or debris into the storm drain system.

Earthwork activities, including grading, are governed by the Los Angeles Building Code, which is contained in LAMC, Chapter IX, Article 1. Specifically, Section 91.7013 includes regulations pertaining to erosion control and drainage devices, and Section 91.7014 includes general construction requirements, as well as requirements regarding flood and mudflow protection.

Low Impact Development (LID) – City of Los Angeles

In October 2011, the City of Los Angeles passed an ordinance (Ordinance No. 181899) amending LAMC Chapter VI, Article 4.4, Sections 64.70.01 and 64.72 to expand the applicability of the existing Standard Urban Stormwater Mitigation Plan (SUSMP) requirements by imposing rainwater Low Impact Development (LID) strategies on projects that require building permits. The LID ordinance became effective on May 12, 2012.

LID is a stormwater management strategy with goals to mitigate the impacts of increased runoff and stormwater pollution as close to its source as possible. LID promotes the use of natural infiltration systems, evapotranspiration, and the reuse of stormwater. The goal of these LID practices is to remove nutrients, bacteria, and metals from stormwater while also reducing the quantity and intensity of stormwater flows. Through the use of various infiltration strategies, LID is aimed at minimizing impervious surface area. Where infiltration is not feasible, the use of bioretention, rain gardens, green roofs, and rain barrels that will store, evaporate, detain, and/or treat runoff may be used.¹⁰

The intent of the City of Los Angeles LID standards is to:

- Require the use of LID practices in future developments and redevelopments to encourage the beneficial use of rainwater and urban runoff;
- Reduce stormwater/urban runoff while improving water quality;
- Promote rainwater harvesting;
- Reduce offsite runoff and provide increased groundwater recharge;
- Reduce erosion and hydrologic impacts downstream; and
- Enhance the recreational and aesthetic values in our communities.

The City of Los Angeles Bureau of Sanitation, Watershed Protection Division has adopted the LID standards as issued by the LARWQCB and the City of Los Angeles Department of Public Works. The LID Ordinance conforms to the regulations outlined in the NPDES Permit.

2.3. GROUNDWATER

Board Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties

As required by the California Water Code, the LARWQCB has adopted the Basin Plan. Specifically, the Basin Plan designates beneficial uses for surface and groundwaters, sets narrative and numerical objectives that must be attained or maintained to protect the

¹⁰ City of Los Angeles. “Development Best Management Practices Handbook.” May 2016.

designated beneficial uses and conform to the State's anti-degradation policy, and describes implementation programs to protect all waters in the Los Angeles Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. Those of other agencies are referenced in appropriate sections throughout the Basin Plan.

The Basin Plan is a resource for the Regional Board and others who use water and/or discharge wastewater in the Los Angeles Region. Other agencies and organizations involved in environmental permitting and resource management activities also use the Basin Plan. Finally, the Basin Plan provides valuable information to the public about local water quality issues.

Safe Drinking Water Act (SDWA)

The Federal Safe Drinking Act, established in 1974, sets drinking water standards throughout the country and is administered by the USEPA. The drinking water standards established in the SDWA, as set forth in the Code of Federal Regulations (CFR), are referred to as the National Primary Drinking Water Regulations (Primary Standards, Title 40, CFR Part 141) and the National Secondary Drinking Water Regulations (Second Standards, 40 CFR Part 143). California passed its own Safe Drinking Water Act in 1986 that authorizes the State's Department of Health Services (DHS) to protect the public from contaminants in drinking water by establishing maximum contaminants levels (MCLs), as set forth in the CCR, Title 22, Division 4, Chapter 15, that are at least as stringent as those developed by the USEPA, as required by the federal Safe Drinking Water Act.

California Water Plan

The California Water Plan (the Plan) provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The Plan, which is updated every five years, presents basic data and information on California's water resources including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The Plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the State's water needs.

The goal for the California Water Plan Update is to meet Water Code requirements, receive broad support among those participating in California's water planning, and be a useful document for the public, water planners throughout the state, legislators and other decision-makers.

3. ENVIRONMENTAL SETTING

3.1. SURFACE WATER HYDROLOGY

3.1.1. REGIONAL

The Project Site is located within the Ballona Creek Watershed (Watershed) in the Los Angeles Basin. The Watershed covers approximately 130 square miles in the coastal plain of the Los Angeles Basin. Its boundaries are the Santa Monica Mountains to the north, the Harbor Freeway (110) to the east, and the Baldwin Hills to the south. The watershed includes the cities of Beverly Hills, West Hollywood, portions of the cities of Los Angeles, Culver City, Inglewood and Santa Monica, unincorporated areas of Los Angeles County, and areas under the jurisdiction of Caltrans.

The watershed is highly developed: residential (64%), vacant/open space (17%), and commercial (8%) are the predominant land uses. Overall, 49% of the watershed is covered by roads, rooftops and other impervious surfaces.

Ballona Creek flows as an open channel for just under 10 miles from mid-Los Angeles (south of Hancock Park) through Culver City, reaching the Pacific Ocean at Playa del Rey (Marina del Rey Harbor).

The Estuary portion (from Centinela Avenue to the outlet) is soft bottomed, while the remainder of the creek is lined in concrete. Ballona Creek is fed by a network of underground storm drains, which reaches north into Beverly Hills and West Hollywood. Major tributaries of the Creek and Estuary include Centinela Creek, Sepulveda Channel, and Benedict Canyon Channel.

The average dry weather flow at the Watershed's terminus in Playa del Rey is 25 cubic feet per second – a slow, steady flow. The average wet weather flow is ten times higher, or even more during large storms.¹¹ Refer to Figure 9 for Ballona Creek Watershed Map.

Ballona Creek flows generally southwest, ultimately discharging into the Pacific Ocean at the Santa Monica Bay. Ballona Creek is designed to discharge to Santa Monica Bay up to approximately 71,400 cubic feet of stormwater per second from a 50-year frequency storm event.¹²

Refer to Figure 9 for Ballona Creek Watershed Map.

3.1.2. LOCAL

Underground storm drainage facilities are located offsite along Vine Street and are owned and maintained by the City of Los Angeles. Surface drainage along De Longpre Avenue flows east until it intersects N El Centro Avenue. Surface drainage along Afton Place flows until it intersects N El Centro Avenue. The flow along N El Centro Avenue is generally

¹¹ <https://www.lacitysan.org/san/faces/home/portal/s-lsh-wwd/s-lsh-wwd-wp/s-lsh-wwd-wp-ewmp/s-lsh-wwd-wp-ewmp-bc>; Accessed February 7, 2020

¹² <http://www.ladpw.org/wmd/watershed/bc/>; accessed February 7, 2020.

southwest until it discharges into a catch basin at the intersection of N El Centro Avenue and Fountain Avenue. From this catch basin, water flows in underground storm drainage facilities west where it connects to Vine Street flowing generally south. Stormwater runoff from the Project Site is discharged into the offsite storm drainage catch basins and underground storm drainage pipes which convey stormwater through various underground pipe networks into Ballona Creek. Ballona Creek flows generally southwest, ultimately discharging into the Pacific Ocean at the Santa Monica Bay. Ballona Creek is designed to discharge to Santa Monica Bay up to approximately 71,400 cubic feet of stormwater per second from a 50-year frequency storm event.

3.1.3. ON SITE

The Site consists of six lots along De Longpre Avenue and seven lots along Afton Place and is currently occupied by a mix of uses that consist of low-rise commercial uses along Vine Street, including a post-production facility, restaurants, and neighborhood retail uses, and an eight-unit multi-family building fronting on Afton Place on the eastern most lot. There are also six bungalows located on the Site with three fronting on Afton Place and three fronting on De Longpre Avenue.

Generally, the Project Site slopes downward from north to south approximately 5 feet, and west to east with a decrease in grade of approximately 1 foot from the western property line to the eastern property line. The roof drainage of commercial buildings in Area A as shown on Figure 1 collects internally and follows the overall grading trend and drains to the southeast toward Area B. Emergency overflow roof drains outlets along the Project Site's frontage on Vine Street and De Longpre Avenue.

Drainage from Area B sheet flows to a strip grate at the southern edge of the area. The strip grate drains to underground storm drain infrastructure that outlets onto Afton Place.

Roof drainage from the commercial building in Area A also follows the general grading trend of the Site, flowing south to Afton Place, with overflow roof drains out letting along the building frontage along Vine Street and Afton Place.

Based on the Los Angeles County Hydrology Manual, the Project Site is underlain by soil type 006 Hanford Fine Sandy Loam (HF-1). As this type of soil has a limited capacity to absorb stormwater during an intense rain event (i.e., a 50-year storm event), existing site soils are anticipated to runoff in a similar manner as runoff from paved surfaces.

Figure 1 illustrates the existing on-site drainage pattern.

Figure 3 shows all the input parameters used for analyzing the existing site. Table 1 shows the existing volumetric flow rate generated by a 50-year storm event.

Table 1- Existing Drainage Stormwater Runoff Calculations			
Drainage Area	Area (Acres)	Percent Imperviousness (%)	Q50 (cfs) (volumetric flow rate measured in cubic feet per second)
A1	0.2223	100	0.7
A2	0.2416	100	0.8
A3	0.4264	97.7	1.4
B	1.1652	87.8	3.7
Total	2.0556	96.4	6.6

3.2. SURFACE WATER QUALITY

3.2.1. REGIONAL

As stated above, the Project Site lies within the Ballona Creek Watershed. Constituents of concern listed for Ballona Creek under California's Clean Water Act Section 303(d) List include cadmium (sediment), trash, coliform bacteria, copper (dissolved), lead, Escherichia (E.Coli), selenium, sediment toxicity, Shellfish Harvesting Advisory, silver, toxicity, viruses (Enteric), and zinc. No TMDL data have been recorded by EPA for this waterbody ..¹³

3.2.2. LOCAL

In general, urban stormwater runoff occurs following precipitation events with the volume of runoff flowing into the drainage system depends on the intensity and duration of the rain event. Contaminants that may be found in stormwater from developed areas include sediments, trash, bacteria, metals, nutrients, organics and pesticides. The source of contaminants includes surface areas where precipitation falls, as well as the air it falls through. Contaminants on surfaces such as roads, maintenance areas, parking lots, and buildings, which are usually contained in dry weather conditions, may be carried by rainfall runoff into drainage systems. The City has installed catch basins with screens to capture debris before entering the storm drain system. In addition, the City conducts routine street cleaning operations as well as periodic cleaning and maintenance of catch basins to reduce stormwater pollution within the City.

3.2.3. ON SITE

Based on a site investigation, the Project Site currently does not implement Best Management Practices (BMPs) and has no means of treatment for stormwater runoff. As stated above, the commercial building's roof drainage collects internally and drains to curb

¹³ USEPA. 2016 Waterbody Report for Ballona Creek, available at: https://iaspub.epa.gov/waters10/attains_waterbody.control?p_auid=CAR4051300019980918142302&p_list_id=CAR4051300019980918142302&p_cycle=2016; accessed March 6, 2020..

outlets along the Project Site's frontage on Vine Street, De Longpre Avenue and Afton Place. This drainage flows south on Vine Street and enters a catch basin on the northeast corner of Vine Street and Afton Place. The hardscape surface drainage collects and drains to Afton Place. This drainage flows east along Afton Place until it intersects N El Centro Avenue. The flow along N El Centro Avenue is generally southwest until it discharges into a catch basin at the intersection of N El Centro Avenue and Fountain Avenue. Refer to Figure 1 for the existing on-site drainage pattern.

3.3. GROUNDWATER HYDROLOGY

3.3.1. REGIONAL

Groundwater use for domestic water supply is a major beneficial use of groundwater basins in Los Angeles County. The City of Los Angeles overlies the Los Angeles Coastal Plain Groundwater Basin (Basin). The Basin is comprised of the Hollywood, Santa Monica, Central, and West Coast Subbasins. Groundwater flow in the Basin is generally south-southwesterly and may be restricted by natural geological features. Replenishment of groundwater basins occurs mainly by percolation of precipitation throughout the region via permeable surfaces, spreading grounds, and groundwater migration from adjacent basins, as well as injection wells designed to pump freshwater along specific seawater barriers to prevent the intrusion of salt water.

3.3.2. LOCAL

Within the Basin, the Project Site specifically overlies the Hollywood Subbasin (Subbasin), which underlies the northeastern portion of the Basin. The Subbasin is bounded on the north by the Santa Monica Mountains and the Hollywood fault, on the east by the Elysian Hills, on the west by the Inglewood fault zone, and on the south by the La Brea high, formed by an anticline that brings impermeable rocks close to the surface.¹⁴

Groundwater in the Subbasin is replenished by percolation of precipitation and stream flow from the Santa Monica Mountains to the north. Urbanization in this area has decreased the amount of pervious surface area allowing direct percolation. Therefore, natural recharge is somewhat limited. The natural safe yield of the Subbasin is estimated to be approximately 3,000 acre-feet per year (AFY).

The primary producer from the Subbasin is the city of Beverly Hills, which currently owns and operates 4 groundwater production wells in the Subbasin. These wells have a combined capacity of 2,083 gallons per minute (gpm) and are treated by a reverse osmosis desalter.¹⁵ Groundwater flow within the Subbasin generally flows east to west.

The Project Site is located toward the eastern portion of the Subbasin. Refer to Figure 8 for the Hollywood Groundwater Basin Map.

¹⁴ California Groundwater Bulletin 118: Coastal Plain of Los Angeles Groundwater Basin, Central Subbasin-Interim Update 2016
https://water.ca.gov/LegacyFiles/groundwater/bulletin118/docs/Bulletin_118_Interim_Update_2016.pdf accessed on March 5, 2020.

¹⁵City of Beverly Hills, 2015 Urban Water Management Plan; accessed March 6, 2020.

3.3.3. ON-SITE

The existing Project Site is improved with existing buildings and mostly paved surfaces, and therefore does not substantially contribute to groundwater recharge. The below discussion is based upon a review on-site explorations conducted as part of the *Geotechnical Investigations* for the Project Site by Geocon West Inc., dated September 2016 and August 17, 2020.

The site is located within the Hollywood Groundwater Basin of the Los Angeles County Coastal Plain Basins. The basin can be 660 feet in depth and contains three water bearing units, the Fernando Formation, Lakewood Formation, and upper alluvial soils. The main potable groundwater aquifer is sourced from the deep Fernando Formation; however, some groundwater can seasonally perch within the shallow alluvium.

Groundwater was encountered in soil borings B1 and B2 at depths of 48 and 39 feet below the ground surface during Geocon West's field investigation. These groundwater levels are not static groundwater levels but represent the first water encountered in the borings. The water levels encountered in the borings, particularly in boring B2, likely represent perched water since they are approximately the same elevation or at a higher elevation than the historic high groundwater levels reported by CDMG (1998) for this area. Clayey sand bed that strongly suggests this is a perched water condition. Considering the historic high groundwater levels (CDMG, 1998) and the depth to perched water encountered in our borings, groundwater may be encountered during construction. It is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed, especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall. In addition, recent requirements for stormwater infiltration could result in shallower seepage conditions in the immediate site vicinity.¹⁶

3.4. GROUNDWATER QUALITY

3.4.1. REGIONAL

As stated above, the City of Los Angeles overlies the Los Angeles Coastal Plain Groundwater Basin, which falls under the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). According to LARWQCB's Basin Plan, objectives applying to all ground waters of the region include bacteria, chemical constituents and radioactivity, mineral quality, nitrogen (nitrate, nitrite), and taste and odor.¹⁷

3.4.2. LOCAL

As stated above, the Project Site specifically overlies the Hollywood Subbasin. Based upon LARWQCB's Basin Plan, constituents of concern listed for the Hollywood Subbasin include Total Dissolved Solids (TDS), sulfate, boron, chloride and nitrate.¹⁸

3.4.3. ON-SITE

¹⁶ Geotechnical reports titled "Geotechnical Investigation, Proposed High-Rise Redevelopment", by Geocon West, Inc., dated September 2016 and August 17, 2020.

¹⁷ Los Angeles Regional Water Quality Control Board, Basin Plan, accessed August 17, 2020, https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/2019/chap3updatedMay2019.pdf

¹⁸ Ibid.

The existing Project Site is fully improved with the existing buildings and mostly paved hardscape surfaces, and therefore does not substantially contribute to groundwater recharge. Therefore, the existing Project Site does not contribute to groundwater pollution or otherwise adversely impact groundwater quality.

Other types of risk such as underground storage tanks have a greater potential to impact groundwater. According to the Phase I ESA for the Project Site, there is no record of underground storage tanks previously installed or utilized at the Project Site.

4. SIGNIFICANCE THRESHOLDS

In accordance with the significance thresholds described by the California Environmental Quality Act (CEQA), the Project has been analyzed for potential impacts on hydrology, water quality, and groundwater. This report includes an analysis of the Project with respect to the CEQA Appendix G thresholds as described below.

4.1. SURFACE WATER HYDROLOGY

Appendix G of the CEQA Guidelines provides a set of sample questions that address impacts with regard to surface water hydrology. These questions are as follows:

Would the project:

- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would:
 - Result in substantial erosion or siltation on- or off-site;
 - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
 - Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems, or provide substantial additional sources of polluted runoff; or
 - Impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.

In the context of the above questions from the Appendix G of the CEQA Guidelines, the City of Los Angeles considers factors from the *L.A. CEQA Thresholds Guide*, which states that a project would normally have a significant impact on surface water hydrology if it would:

- Cause flooding during the projected 50-year developed storm event, which would have the potential to harm people or damage property or sensitive biological resources;

- Substantially reduce or increase the amount of surface water in a water body; or
- Result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.

4.2. SURFACE WATER QUALITY

Appendix G of the CEQA Guidelines provides a set of sample questions that address impacts with regard to surface water quality. These questions are as follows:

Would the project:

- Violate any water quality standard or waste discharge requirements or otherwise substantially degrade surface water quality; or
- Conflict with or obstruct implementation of a water quality control plan.

In the context of the above questions from Appendix G, the City of Los Angeles considers factors from the *L.A. CEQA Thresholds Guide*, which states that a project would normally have a significant impact on surface water quality if it would result in discharges that would create pollution, contamination or nuisance, as defined in Section 13050 of the California Water Code (CWC) or that cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body.

The CWC includes the following definitions:

- “Pollution” means an alteration of the quality of the waters of the state to a degree which unreasonably affects either of the following: 1) the waters for beneficial uses or 2) facilities which serve these beneficial uses. “Pollution” may include “Contamination”.
- “Contamination” means an impairment of the quality of the waters of the state by waste to a degree, which creates a hazard to the public health through poisoning or through the spread of disease. “Contamination” includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.
- “Nuisance” means anything which meets all of the following requirements: 1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; 2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and 3) occurs during, or as a result of, the treatment or disposal of wastes.¹⁹

¹⁹ City of Los Angeles, *L.A. CEQA Thresholds Guide*, 2006
<http://www.environmentla.org/programs/Thresholds/Complete%20Threshold%20Guide%202006.pdf>. Accessed February 7, 2020.

4.3. GROUNDWATER HYDROLOGY

Appendix G of the CEQA Guidelines provides sample questions that address impacts with regard to groundwater. These questions are as follows:

Would the project:

- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Conflict with or obstruct implementation of a sustainable groundwater management plan.

In the context of the above questions from the Appendix G of the CEQA Guidelines, the City of Los Angeles considers factors from the *L.A. CEQA Thresholds Guide*, which states that a project would normally have a significant impact on groundwater hydrology if it would:

- Change potable water levels sufficiently to:
 - Reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or to respond to emergencies and drought;
 - Reduce yields of adjacent wells or well fields (public or private); or
 - Adversely change the rate or direction of flow of groundwater; or
- Result in demonstrable and sustained reduction of groundwater recharge capacity.

4.4. GROUNDWATER QUALITY

Appendix G of the CEQA Guidelines provides a set of sample questions that address impacts with regard to groundwater quality. These questions are as follows:

Would the project:

- Violate any water quality standard or waste discharge requirements or otherwise substantially degrade ground water quality; or
- Conflict with or obstruct implementation of a water quality control plan.

In the context of the above questions from the Appendix G of the CEQA Guidelines, the City of Los Angeles considers factors from the *L.A. CEQA Thresholds Guide*, which states that a project would normally have a significant impact on groundwater hydrology if it would:

- Affect the rate or change the direction of movement of existing contaminants;

- Expand the area affected by contaminants;
- Result in an increased level of groundwater contamination (including that from direct percolation, injection or salt water intrusion); or
- Cause regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations (CCR), Title 22, Division 4, and Chapter 15 and in the Safe Drinking Water Act.

5. METHODOLOGY

5.1. SURFACE WATER HYDROLOGY

The Project Site is located within the City of Los Angeles, and drainage collection, treatment and conveyance are regulated by the City. Per the City's Special Order No. 007-1299, December 3, 1999, the City has adopted the Los Angeles County Department of Public Works (LACDPW) Hydrology Manual as its basis of design for storm drainage facilities. The 2006 LACDPW Hydrology Manual requires projects to have drainage facilities that meet the Urban Flood level of protection. The Urban Flood is runoff from a 25-year frequency design storm falling on a saturated watershed. A 25-year frequency design storm has a probability of 1/25 of being equaled or exceeded in any year. The *L.A. CEQA Thresholds Guide*, however, establishes the 50-year frequency design storm event as the threshold to analyze potential impacts on surface water hydrology as a result of development. To provide a more conservative analysis, this report analyzes the larger storm event threshold, i.e., the 50-year frequency design storm event.

The Modified Rational Method was used to calculate storm water runoff. The “peak” (maximum value) runoff for a drainage area is calculated using the formula, $Q = CIA$

Where,

Q = Volumetric flow rate (cfs)

C = Runoff coefficient (dimensionless)

I = Rainfall Intensity at a given point in time (in/hr)

A = Basin area (acres)

The Modified Rational Method assumes that a steady, uniform rainfall rate will produce maximum runoff when all parts of the basin area are contributing to outflow. This occurs when the storm event lasts longer than the time of concentration. The time of concentration (T_c) is the time it takes for rain in the most hydrologically remote part of the basin area to reach the outlet.

The method assumes that the runoff coefficient (C) remains constant during a storm. The runoff coefficient is a function of both the soil characteristics and the percentage of impervious surfaces in the drainage area.

LACDPW has developed a time of concentration calculator, Hydrocalc, to automate time of concentration calculations as well as the peak runoff rates and volumes using the

Modified Rational Method design criteria as outlined in the Hydrology Manual. The data input requirements include: sub-area size, soil type, land use, flow path length, flow path slope and rainfall isohyet. The Hydrocalc Calculator was used to calculate the storm water peak runoff flow rate for the Project conditions by evaluating an individual sub-area independent of all adjacent subareas. See Figures 3 and 4 for the Hydrocalc Calculator results and Figure 5 for the Rainfall Isohyet Map.

5.2. SURFACE WATER QUALITY

5.2.1. CONSTRUCTION

The methodology to determine impacts related to construction regarding surface water quality is largely based upon determination of construction BMPs. Construction BMPs will be designed and maintained as part of the implementation of the SWPPP in compliance with the Construction General Permit. The SWPPP shall begin when construction commences, before any site clearing and grubbing or demolition activity. During construction, the SWPPP will be referred to regularly and amended as changes occur throughout the construction process. The Notice of Intent (NOI), Amendments to the SWPPP, Annual Reports, Rain Event Action Plans (REAPs), and Non-Compliance Reporting will be posted to the State's SMARTS website in compliance with the requirements of the Construction General Permit. In addition, as part of the NOI application a risk level evaluation will be performed to determine the risk level category (risk level 1, 2, or 3) for the Project based on a detailed construction schedule, soil type, site slope, and location. Each of the three risk level categories establishes specific monitoring and testing requirements.

5.2.2. OPERATION

The Project will meet the requirements of the City's LID standards.²⁰ Under section 3.1.3. of the LID Manual, post-construction stormwater runoff from a new development must be infiltrated, evapotranspired, captured and used, and/or treated through high efficiency BMPs onsite for at least the volume of water produced by the greater of the 85th percentile storm or the 0.75 inch storm event. The LID Manual prioritized the selection of BMPs used to comply with stormwater mitigation requirement. The order of priority is:

1. Infiltration Systems
2. Stormwater Capture and Use
3. High Efficient Biofiltration/Bioretenention Systems
4. Combination of Any of the Above

Feasibility screening delineated in the LID manual is applied to determine which BMP will best suit the Project. Specifically, LID guidelines require that infiltration systems maintain at least 10 feet of clearance to the groundwater, property line, and any building structure.

²⁰ The Development Best Management Practices Handbook, Part B Planning Activities, 4th edition was adopted by the City of Los Angeles, Board of Public Works on July 1, 2011 to reflect Low Impact Development (LID) requirements that took effect May 12, 2012.

Based on the screening criteria, as described above, infiltration is not considered feasible at this Project Site due to the relatively high groundwater and the proximity of the existing and proposed structures to the groundwater. Therefore, Capture and Reuse BMPs (cisterns) are considered appropriate for the Project.

According to the City's LID Handbook, all cisterns shall be sized to capture the runoff generated from the greater of the 85th percentile storm and the 0.75-inch storm event at a minimum:

$$V_{\text{design}} \text{ (gallons)} = (85\text{th percentile or } 0.75 \text{ inch} * 7.48 \text{ gallons/cubic foot}) * \text{Catchment Area (sq. ft.)}$$

Where:

$$\text{Catchment Area} = (\text{Impervious Area} * 0.9) + [(\text{Pervious Area} + \text{Undeveloped Area}) * 0.1]$$

For catchment areas given in acres, multiply the above equation by 43,560 sq. ft./acre.

5.3. GROUNDWATER

The significance of this Project as it relates to the level of the underlying groundwater table of the Hollywood Groundwater Basin included a review of the following considerations:

Analysis and Description of the Project's Existing Condition

- Identification of the Hollywood Subbasin as the underlying groundwater basin, and description of the level, quality, direction of flow, and existing uses for the water;
- Description of the location, existing uses, production capacity, quality, and other pertinent data for spreading grounds and potable water wells in the vicinity (usually within a one-mile radius), and;
- Area and degree of permeability of soils on the Project Site, and;

Analysis of the Proposed Project Impact on Groundwater Level

- Description of the rate, duration, location and quantity of extraction, dewatering, spreading, injection, or other activities;
- The projected reduction in groundwater resources and any existing wells in the vicinity (usually within a one-mile radius); and
- The projected change in local or regional groundwater flow patterns.

In addition, this report discusses the impact of both existing and proposed activities at the Project Site on the groundwater quality of the underlying Hollywood Subbasin.

Short-term groundwater quality impacts could potentially occur during construction of the Project as a result of soil or shallow groundwater being exposed to construction materials, wastes, and spilled materials. These potential impacts are qualitatively assessed.

6. PROJECT IMPACT ANALYSIS

6.1. CONSTRUCTION

6.1.1. SURFACE WATER HYDROLOGY

Construction activities for the Project proposes to demolish the commercial buildings and multi-family building and includes a Preservation Plan to relocate, preserve, and rehabilitate the historic bungalows on the eastern portion of the Site. For the Residential Option, the estimated depth of excavation for the subterranean parking would be approximately 45 feet below grade, and approximately 142,000 cubic yards of export material and soil would need to be hauled from the Project Site. For the Office Option, the estimated depth of excavation for the subterranean parking would be approximately 83 feet below grade, and approximately 321,060 cubic yards of export material and soil would need to be hauled from the Project Site. Additional excavation is expected for sump pits, elevator pits, etc. These activities have the potential to temporarily alter existing drainage patterns and flows on the Project Site by exposing the underlying soils, modifying flow direction, and making the Project Site temporarily more permeable. Also, exposed and stockpiled soils could be subject to erosion and conveyance into nearby storm drains during storm events. In addition, on-site watering activities to reduce airborne dust could contribute to pollutant loading in runoff.

However, as the construction site would be greater than one acre, the Project would be required to obtain coverage under the NPDES General Construction stormwater permit. In accordance with the requirements of this permit, the Project would implement a SWPPP that specifies BMPs and erosion control measures to be used during construction to manage runoff flows and prevent pollution. BMPs would be designed to reduce runoff and pollutant levels in runoff during construction. The NPDES and SWPPP measures are designed to (and would in fact) contain and treat, as necessary, stormwater or construction watering on the Project site so runoff does not impact off-site drainage facilities or receiving waters. Construction activities are temporary and flow directions and runoff volumes during construction will be controlled.

In addition, the Project would be required to comply with all applicable City grading permit regulations that require necessary measures, plans, and inspections to reduce sedimentation and erosion. Thus, through compliance with all NPDES General Construction Permit requirements, implementation of BMPs, and compliance with applicable City grading regulations, the Project would not substantially alter the Project Site drainage patterns in a manner that would result in substantial erosion, siltation, or flooding on- or off-site. Similarly, adherence to standard compliance measurements in construction activities would ensure that construction of the Project would not cause flooding, substantially increase or decrease the amount of surface water flow from the Project Site into a water body, or result in a permanent, adverse change to the movement of surface water.

Therefore, construction-related impacts to surface water hydrology would be less than significant.

6.1.2. SURFACE WATER QUALITY

Construction activities such as earth moving, maintenance/operation of construction equipment, dewatering, and handling/storage/disposal of materials could contribute to pollutant loading in stormwater runoff. However, as previously discussed, construction contractors disturbing greater than one acre of soil would be required to obtain coverage under the NPDES General Construction Permit (order No. 2012-0006-DWQ). In accordance with the requirements of the permit, the Project Applicants would prepare and implement a site-specific SWPPP adhering to the California Stormwater Quality Association (CASQA) BMP Handbook. The SWPPP would specify BMPs to be used during construction. BMPs would include but not be limited to: erosion control, sediment control, non-stormwater management, and materials management BMPs. Refer to Exhibit 1 for typical SWPPP BMPs to be implemented during construction of the Project.

The Project is expected to require dewatering during construction. Dewatering operations are practices that discharge non-stormwater, such as groundwater, that must be removed from a work location to proceed with construction into the drainage system. Discharges from dewatering operations can contain high levels of fine sediments, which if not properly treated, could lead to exceedance of the NPDES requirements. During construction, temporary pumps and filtration would be utilized in compliance with the NPDES permit. The temporary system would comply with all relevant NPDES requirements related to construction and discharges from dewatering operations.

With the implementation of site-specific BMPs included as part of the Erosion Control Plan, the Project would reduce or eliminate the discharge of potential pollutants from the stormwater runoff. In addition, the Project Applicant would be required to comply with City grading permit regulations, which require necessary measures, plans (including a wet weather erosion control plan if construction occurs during the rainy season), and inspection to reduce sedimentation and erosion. Therefore, with compliance with NPDES requirements and City grading regulations, construction of the Project would not result in discharge that would cause: (1) pollution which would alter the quality of the water of the State (i.e., Ballona Creek) to a degree which unreasonably affects beneficial uses of the waters; (2) contamination of the quality of the water of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of diseases; or (3) nuisance that would be injurious to health; affect an entire community or neighborhood, or any considerable number of persons; and occurs during or as a result of the treatment or disposal of wastes. Furthermore, construction of the Project would not result in discharges that would cause regulatory standards to be violated in Ballona Creek. Therefore, temporary construction-related impacts on surface water quality would be less than significant.

6.1.3. GROUNDWATER HYDROLOGY

As stated above, for the Residential Option, the estimated depth of excavation for the subterranean parking would be approximately 45 feet below grade. For the Office Option, the estimated depth of excavation for the subterranean parking would be approximately 83 feet below grade. Additional excavation is expected for sump pits, elevator pits, etc. As described in the Geotechnical Investigation²¹ prepared for the Project Site, groundwater was observed at 48 and 39 feet below ground surface. Therefore, it is recommended that a qualified dewatering consultant should be retained to establish a temporary dewatering plan during construction. Temporary dewatering operations would be in compliance with all applicable regulations and requirements, including with all relevant NPDES requirements related to construction and discharges from dewatering operations. Due to the operation of dewatering systems being temporary, local groundwater hydrology in the immediate vicinity of the Site is minimally affected. The purpose of dewatering operations is for the protection of both existing and proposed building structures. Due to the limited and temporary nature of temporary dewatering operations, regional impacts to groundwater flow and level are not considered to be significant. Therefore, as Project development would not adversely impact the rate or direction of flow of groundwater and no water supply wells would be affected, the Project would not result in a significant impact on groundwater hydrology during construction.

6.1.4. GROUNDWATER QUALITY

As stated above, for the Residential Option, the estimated depth of excavation for the subterranean parking would be approximately 45 feet below grade. For the Office Option, the estimated depth of excavation for the subterranean parking would be approximately 83 feet below grade. The Project would also result in a net export of existing soil material. Although not anticipated at the Project Site, any contaminated soils found would be captured within that volume of excavated material, removed from the Project Site, and remediated at an approved disposal facility in accordance with regulatory requirements.

During on-site grading and building construction, hazardous materials, such as fuels, paints, solvents, and concrete additives, could be used and would therefore require proper management and, in some cases, disposal. The management of any resultant hazardous wastes could increase the opportunity for hazardous materials releases into groundwater. Compliance with all applicable federal, state, and local requirements concerning the handling, storage and disposal of hazardous waste, would reduce the potential for the construction of the Project to release contaminants into groundwater that could affect existing contaminants, expand the area or increase the level of groundwater contamination, or cause a violation of regulatory water quality standards at an existing production well. Due to compliance with measures as listed above and the implementation of BMPs, though there are groundwater production wells or public water supply wells within one mile of the Project Site, construction activities would not be anticipated to affect existing wells. Therefore, the Project would not result in any substantial increase in groundwater

²¹ Geotechnical reports titled “Geotechnical Investigation, Proposed High-Rise Redevelopment”, by Geocon West, Inc., dated September 2016 and August 17, 2020.

contamination through hazardous materials releases and impacts on groundwater quality would be less than significant.

6.2. OPERATION

6.2.1. SURFACE WATER HYDROLOGY

The Project is expected to decrease the overall percentage of impervious area from the current condition at the Project Site. Specifically, the Project Site is currently improved with a mix of uses that consist of low-rise commercial uses along North Vine Street, including a post-production facility, restaurants, and neighborhood retail uses, and an eight-unit multi-family building fronting on Afton on the eastern most lot. There are also six bungalows located on the Site with three fronting on Afton Place and three fronting on De Longpre Avenue with approximately 96% impervious surface coverage. In the existing condition, based upon a site visit, stormwater discharges from the Project Site without filtration. Upon buildout, both Project options would develop a building and paved areas creating a post-project condition of approximately 79% impervious surface area.

Accordingly, there is no incremental increase in the imperviousness of the Project Site that would substantially increase runoff volumes into the existing storm drain system. Therefore, peak flow rates would not increase.

Table 2 shows the proposed 50-year frequency design storm event peak flow rate within the Project Site. As shown in Table 3, a comparison of the pre and post peak flow rates indicates no increase in stormwater runoff. Consequently, the Project would not cause flooding during the 50-year developed storm event, would not create runoff which would exceed the capacity of existing or planned drainage systems, would not require construction of new stormwater drainage facilities or expansion of existing facilities, would not substantially reduce or increase the amount of surface water in a water body, or result in a permanent adverse change to the movement of surface water. As such, operation of the Project would result in a less than significant impact on surface water hydrology. Figure 2 illustrates the proposed on-site drainage pattern.

Table 2- Proposed Drainage Stormwater Runoff Calculations			
Drainage Area	Area (Acres)	Percent Imperviousness (%)	Q50 (cfs) (volumetric flow rate measured in cubic feet per second)
A	1.00	96.0	3.17
B	1.00	62.6	3.17
Total	2.00	79.3	6.34

Table 3- Drainage Stormwater Runoff Calculations Summary

Project Condition	Area (Acres)	Percent Imperviousness (%)	Q50 (cfs) (volumetric flow rate measured in cubic feet per second)
Existing	2.06	96.4	6.6
Proposed	2.00	79.3	6.34

The LID requirements for the Project Site would outline the stormwater treatment post-construction BMPs required to control pollutants associated with storm events up to the 85th percentile storm event, per the City’s Stormwater Program. The Project Capture and Reuse BMPs (cisterns) will control stormwater runoff with no increase in runoff resulting from the Project. Refer to Exhibit 2 for typical LID BMPs.

As shown in Figure 1 and Figure 2, Project drainage is expected to flow to Afton Place in both the existing and proposed conditions. Thus, the Project would not impact existing storm drain infrastructure serving the Project Site and runoff would continue to follow the same discharge paths and drain to the same stormwater systems.

The Project Site is within the potential inundation area of the Hollywood Reservoir according to the City of Los Angeles General Plan Safety Element, Exhibit G: Inundation & Tsunami Hazard Areas (Refer to Figure 6). Dam safety regulations are the primary means of reducing damage or injury due to inundation occurring from dam failure. The California Division of Safety of Dams regulates the siting, design, construction, and periodic review of all dams in the State. In addition, the Los Angeles Department of Water and Power (LADWP) operates the dam and mitigates the potential for over flow and seiche hazard through control of water levels and dam wall height. These measures include seismic retrofits and other related dam improvements completed under the requirements of the 1972 State Dam Safety Act. The City’s Local Hazard Mitigation Plan²² provides a list of existing programs, proposed activities, and specific projects that may assist the City of Los Angeles in reducing risk and preventing loss of life and property damage from natural and human-caused hazards, including dam failure. The Hazard Mitigation Plan evaluation of dam failure vulnerability classifies dam failure as a moderate risk rating. Further, in the event of a dam failure at the Hollywood Reservoir, existing urban development north of the Project Site, including the US 101 Freeway, would serve as a physical barrier between the upstream portion of the reservoirs/dams and the Project Site. Therefore, considering the above information and risk reduction projects, the risk of flooding from inundation by a seiche or dam failure is considered low and impacts are less than significant.

In addition, the Project Site is not located within a 100-year flood plain or within an area that could be impacted by a seiche, tsunami or mudflow (Refer to Figure 7). Therefore, impacts related to those potential issues are less than significant.

6.2.2. SURFACE WATER QUALITY

²² City of Los Angeles Emergency Management Department, *Local Hazard Mitigation Plan*, January 2018.

Under Section 3.1.3. of the LID Manual, post-construction stormwater runoff from new projects must be infiltrated, evapotranspired, captured and used, and/or treated through high efficiency BMPs onsite for the volume of water produced by the 85th percentile storm event. Consistent with LID requirements to reduce the quantity and improve the quality of rainfall runoff that leaves the Project Site, the Project would include the installation of Capture and Use or Biofiltration Planter BMPs as established by the LID Manual. The installed BMP systems will be designed with an internal bypass overflow system to prevent upstream flooding during major storm events. As the majority of potential contaminants are anticipated to be contained within the “first flush” 85th percentile storm event, major storms are not anticipated to cause an exceedance of regulatory standards.

The LID Manual has established the following order of priority for selection of the type of BMPs to be implemented for a certain Project.

1. Infiltration Systems
2. Stormwater Capture and Use
3. High Efficiency Biofiltration / Bioretention Systems
4. Combination of Any of the Above

The City of Los Angeles implements a screening requirement that the depth of bottom of infiltration facility to the observed groundwater should be greater than 10 feet. As stated above, for the Residential Option, the estimated depth of excavation for the subterranean parking would be approximately 45 feet below grade. For the Office Option, the estimated depth of excavation for the subterranean parking would be approximately 83 feet below grade. With a historic high groundwater level at the site as shallow as 45 feet below grade, 0 feet of infiltration depth is available. Based on these conditions, on-site stormwater infiltration would not be feasible for the Project.

The second BMP selection on the priority list is Stormwater Capture and Use which operates by capturing stormwater runoff and holding it for irrigation during dry periods. Captured stormwater will be used to offset the potable irrigation demand that will occur during the rainy season (October 1 to April 30, 7 months). Feasibility of this proposed BMP will be determined according to the criteria established in the LID manual, along with coordination with the City.

As is typical of most urban developments, stormwater runoff from the Project Site has the potential to introduce pollutants into the stormwater system. Anticipated and potential pollutants generated by the Project are sediment, nutrients, pesticides, metals, pathogens, and oil and grease.

The pollutants listed above are expected to, and would in fact, be mitigated through the implementation of approved LID BMPs. In addition, the implementation of the following LID BMPs would be included to manage post-construction stormwater runoff.

- Provide storm drain system stenciling and signage to discourage illegal dumping;

- Design material storage areas and loading docks within structures or enclosures to prevent leaks or spills of pollutants from entering the storm drain system;
- Provide evidence of ongoing BMP maintenance as part of a legal agreement with the City of Los Angeles. Recorded covenant and agreements for BMP maintenance are part of standard building permit approval processing; and
- Design post-construction structural or treatment control BMPs before storing the stormwater. Stormwater treatment facilities and systems would be designed to meet the requirements of the Manual.

Under section 3.1.3. of the LID Manual, post-construction stormwater runoff from a new development must be infiltrated, evapotranspired, captured and used, and/or treated through high efficiency BMPs onsite for at least the volume of water produced by the greater of the 85th percentile storm or the 0.75-inch storm event. In accordance with the feasibility discussion in Methodology Section 5.2. Surface Water Quality, the Project is anticipated to implement Capture and Reuse BMPs (cisterns) for managing stormwater runoff in accordance with current LID requirements. Since there are currently no existing onsite BMPs, stormwater run-off during post-Project conditions will result in improved surface water quality.

In addition to the requirements listed above, the Estimated Total Water Usage (ETWU) for irrigation from October 1 – April 30 must be greater than or equal to the volume of water produced by the stormwater quality design storm event. Based on these requirements, the total storage volume and landscape area needed within the Project Site was determined to be approximately 39,883 gallons and 7,412 square feet, respectively. Table 6 below shows the amount of runoff volume to be captured and the minimum landscape area required to use the captured volume. A summary of the calculations consistent with the LID manual are provided in Exhibit 3.

Table 4- Proposed Onsite Capture and Use Volume and Landscape Area Calculations

Proposed Drainage Area	Area (Acres)	Storage Volume (Gallons)	Minimum Landscape Required (Square Feet)
A	1.00	23,569	4,380
B	1.00	16,314	3,032
Total	2.00	39,883	7,412

Due to the incorporation of the required LID BMP(s), operation of the Project would not result in discharges that would cause: (1) pollution which would alter the quality of the waters of the State (i.e., Ballona Creek) to a degree which unreasonably affects beneficial uses of the waters; (2) contamination of the quality of the waters of the State by waste to a

degree which creates a hazard to the public health through poisoning or through the spread of diseases; or (3) nuisance that would be injurious to health; affect an entire community or neighborhood, or any considerable number of persons; and occurs during or as a result of the treatment or disposal of wastes. Furthermore, operation of the Project would not result in discharges that would cause regulatory standards to be violated. Thus, operational impacts on surface water quality would be less than significant.

6.2.3. GROUNDWATER HYDROLOGY

Regarding groundwater recharge, the entire Project Site is virtually impervious in the existing condition (i.e., 96%), and there is minimal groundwater recharge potential. Upon buildout, the Project's impervious hardscape and structures would cover approximately 79% of the Project Site. As such, the Project would reduce impervious surfaces on-site when compared to existing conditions, increasing the on-site pervious area. Given the subterranean parking structure underneath the pervious surfaces, the groundwater recharge potential remains minimal. As stated above, the stormwater which bypasses the BMP systems would discharge to an approved discharge point in the public right-of-way and not result in infiltration of a large amount of rainfall that would affect groundwater hydrology, including the direction of groundwater flow. Therefore, the Project's potential impact on groundwater recharge is less than significant.

As stated above, for the Residential Option, the estimated depth of excavation for the subterranean parking would be approximately 45 feet below grade. For the Office Option, the estimated depth of excavation for the subterranean parking would be approximately 83 feet below grade. Additional excavation is expected for sump pits, elevator pits, etc. As described in the Geotechnical Investigation prepared by Geocon West for the Project Site, the historic high groundwater level in the vicinity of the Project site was on the order of 45 feet below grade. The subterranean levels of the Project are to be designed such that they are able to withstand hydrostatic forces and incorporate comprehensive waterproofing systems in accordance with current industry standards and construction methods. As such, permanent dewatering operations are not expected, and the groundwater level is expected to return to the existing level at the Project Site after construction is complete. Though there are supply wells within one mile of the Project Site, compliance with the above requirements is expected to and would in fact mitigate adverse impacts to wells. Furthermore, the Project would not include new injection or supply wells. Based on the above, operation of the Project would result in a less than significant impact on groundwater hydrology, including groundwater levels.

6.2.4. GROUNDWATER QUALITY

Operational activities which could affect groundwater quality include spills of hazardous materials and leaking underground storage tanks. No underground storage tanks are currently operated or will be operated by the Project.

In addition, while the development of new buildings would slightly increase the use of existing on-site hazardous materials as described above, compliance with all applicable existing regulations at the Project Site regarding the handling and potentially required

cleanup of hazardous materials would prevent the Project from affecting or expanding any potential areas of contamination, increasing the level of contamination, or causing regulatory water quality standards at an existing production well to be violated, as defined in the California Code of Regulations, Title 22, Division 4, Chapter 15 and the Safe Drinking Water Act.

The Project does not include the installation or operation of water wells, or any extraction or recharge system that is in the vicinity of the coast, an area of known groundwater contamination or seawater intrusion, a municipal supply well or spreading ground facility.

The Project is not anticipated to result in releases or spills of contaminants that could reach a groundwater recharge area or spreading ground or otherwise reach groundwater through percolation. The Project does not involve drilling to or through a clean or contaminated aquifer.

Based on the above, operation of the Project would result in a less than significant impact on groundwater quality.

6.3. CUMULATIVE IMPACT ANALYSIS

6.3.1. SURFACE WATER HYDROLOGY

The geographic context for the cumulative impact analysis on surface water hydrology is the Ballona Creek Watershed. The Project in conjunction with forecasted growth in the Ballona Creek Watershed could cumulatively increase stormwater runoff flows. However, as noted above, the Project would have no net increase on stormwater flows. Also, in accordance with City requirements, related projects and other future development projects would be required to implement BMPs to manage stormwater in accordance with LID guidelines. Furthermore, the City of Los Angeles Department of Public Works would review each future development project on a case-by-case basis to ensure sufficient local and regional infrastructure is available to accommodate stormwater runoff. Therefore, the Project's contribution to cumulative impacts on surface water hydrology would not be cumulatively considerable, and cumulative impacts on surface water hydrology would be less than significant.

6.3.2. SURFACE WATER QUALITY

The geographic context for the cumulative impact analysis on surface water quality is the Ballona Creek Watershed. As with the Project, cumulative growth in the Ballona Creek Watershed (inclusive of the related projects) would be subject to NPDES requirements regarding water quality for both construction and operation. In addition, it is anticipated that the related project and other future development projects would also be subject to SWPPP and LID requirements and implementation of measures to comply with total maximum daily loads. Furthermore, increases in regional controls associated with other elements of the MS4 Permit would improve regional water quality over time. Additionally, with implementation of the Project, new BMPs for the treatment of stormwater runoff would be installed, thus improving the surface water quality runoff from the site compared to existing conditions. Therefore, with compliance with all applicable laws, rules and

regulations, the Project's contribution to cumulative impacts on surface water quality would not be cumulatively considerable, and cumulative impacts on surface water quality would be less than significant.

6.3.3. GROUNDWATER HYDROLOGY

The geographic context for the cumulative impact analysis on groundwater level is the Hollywood Subbasin. The Project in conjunction with forecasted growth in the region above the Hollywood Subbasin could cumulatively increase groundwater demand. However, as noted above, water supply wells, spreading grounds, or injection wells are located within a one-mile radius of the Project Site. Any calculation of the extent to which the related projects would extract or otherwise directly utilize groundwater would be speculative. Nevertheless, in accordance with the Beverly Hills Master Plan and the Los Angeles County Public Works well records, groundwater levels within the Hollywood Subbasin are monitored and the City of Beverly Hills works closely with other agencies in the Hollywood Subbasin to prevent overdraft.²⁴ Therefore, potential cumulative impacts associated with the Project on groundwater hydrology would be less than significant.

Furthermore, as previously discussed, implementation of the Project would result in a reduced impervious surface area. Development of the related projects could result in changes in impervious surface area within their respective project sites. While any calculation of the extent to which the related projects would increase or decrease impervious or pervious surfaces that might affect groundwater hydrology would be speculative, the development of such related projects would be subject to review and approval pursuant to all applicable regulatory requirements, including any required mitigation of potential groundwater hydrology impacts. In addition, as the related projects are located in a highly urbanized area, any potential reduction in groundwater recharge due to the overall net change in impervious area within the area encompassed by the related project sites would be minimal in the context of the regional groundwater basin, and would thus not result in a significant cumulative effect to groundwater hydrology.

Based on the above, the Project's contribution to cumulative impacts on groundwater hydrology would not be cumulatively considerable, and cumulative impacts to groundwater hydrology would be less than significant.

6.3.4. GROUNDWATER QUALITY

Future growth in the Hollywood Subbasin would be subject to LARWQCB requirements relating to groundwater quality. In addition, since the Project Site is located in a highly urbanized area, future land use changes or development are not likely to cause substantial changes in regional groundwater quality. As noted above, the Project does not have an adverse impact on groundwater quality. Also, it is anticipated that, like the Project, other future development projects would also be subject to LARWQCB requirements and

²⁴ City of Beverly Hills, *2015 City of Beverly Hills Urban Water Management Plan*, June 21, 2016, <https://www.beverlyhills.org/cbhfiles/storage/files/115079846772769831/FinalCityofBeverlyHills2015UWMPReport.pdf> ; accessed June 25, 2020.

implementation of measures to comply with total maximum daily loads in addition to requirements of California Code of Regulations, Title 22, Division 4, Chapter 15 and the Safe Drinking Water Act. Therefore, based on the fact that the Project does not have an adverse impact on groundwater quality and through compliance with all applicable laws, rules and regulations, the Project's contribution to cumulative impacts would not be cumulatively considerable, and cumulative impacts to groundwater quality would be less than significant.

7. LEVEL OF SIGNIFICANCE

Based on the analysis contained in this report, no significant impacts have been identified for surface water hydrology, surface water quality, groundwater hydrology or groundwater quality for this Project.

APPENDIX

FIGURE 1: EXISTING ON-SITE DRAINAGE PATTERN

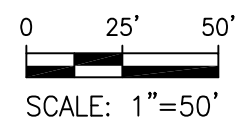
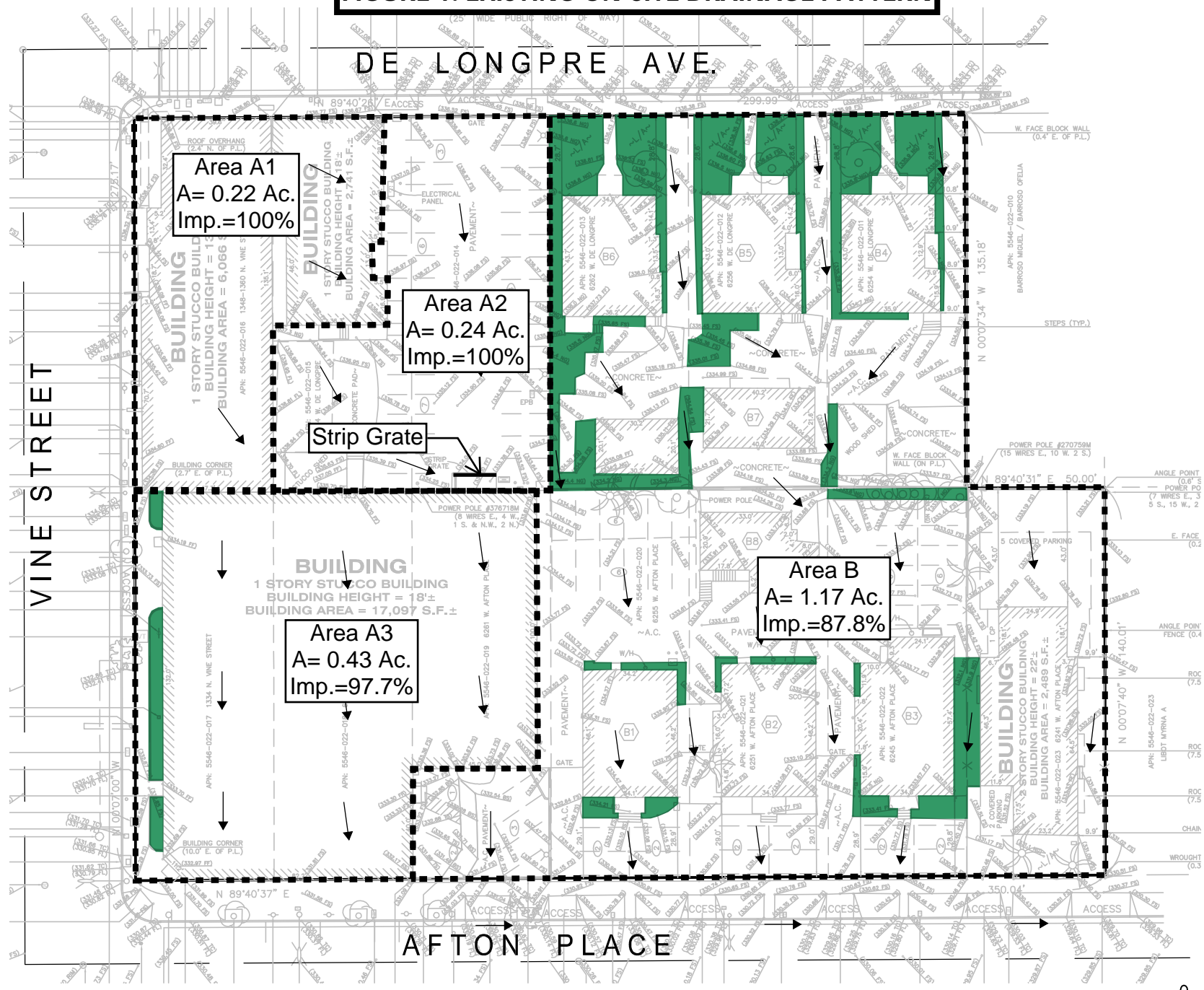


FIGURE 2: PROPOSED ON-SITE DRAINAGE PATTERN

OFFICE OPTION AND
RESIDENTIAL OPTION
SITE PLAN

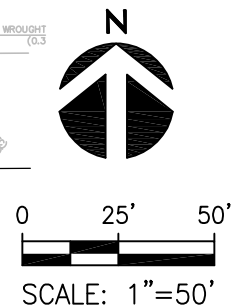
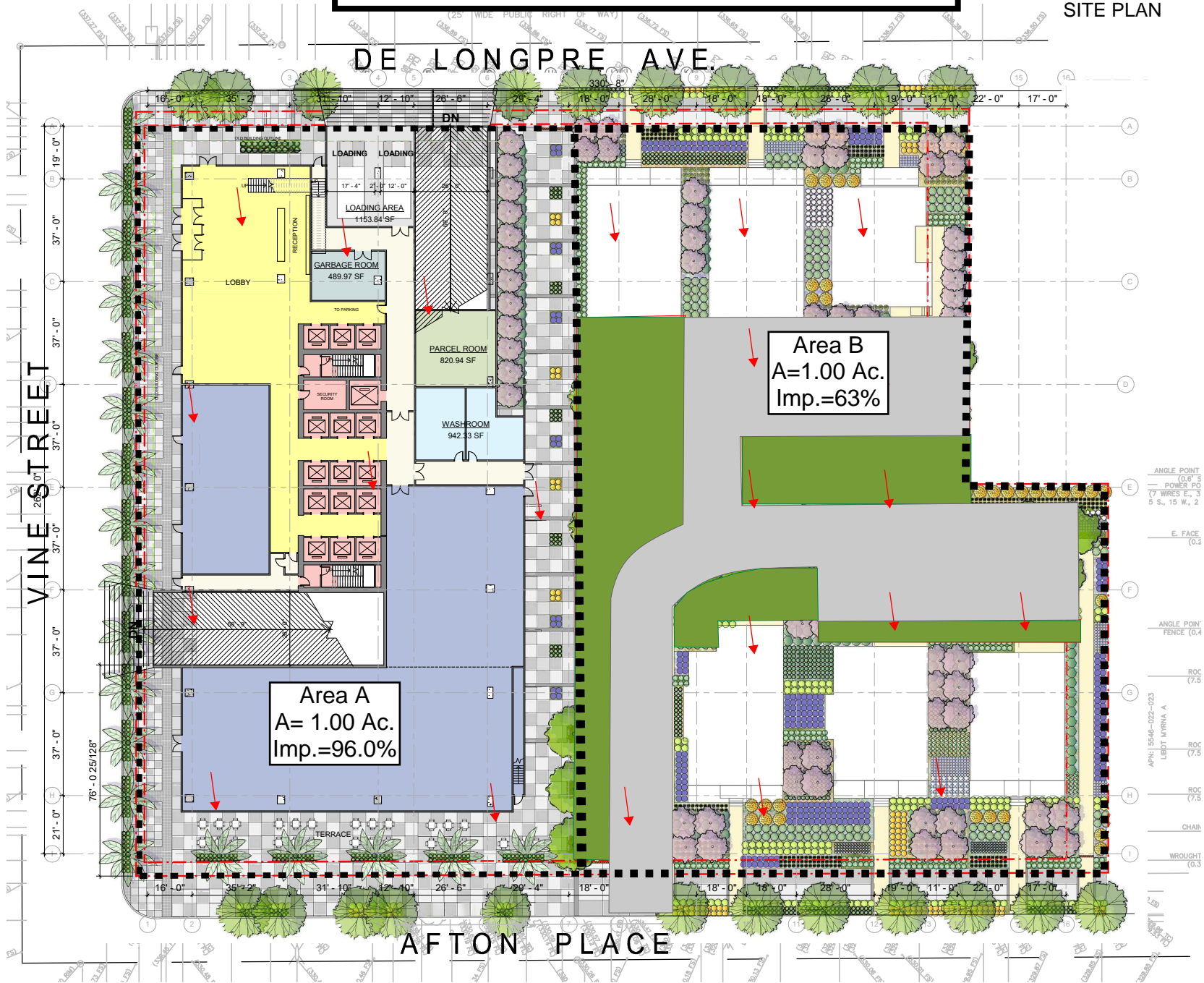


FIGURE 3A: HYDROCALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA A1)

Peak Flow Hydrologic Analysis

File location: X:/2016-Civil Projects/C16-054 - Vine Street Mixed Use (LA Civil)/General Information/1360 Vine Street/Water Resources/Figures/Figure 3
Version: HydroCalc 1.0.2

Input Parameters

Project Name	1360 Vine Street
Subarea ID	A1
Area (ac)	0.22
Flow Path Length (ft)	150.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.9
Percent Impervious	1.0
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.8582
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.697
Burned Peak Flow Rate (cfs)	0.697
24-Hr Clear Runoff Volume (ac-ft)	0.0965
24-Hr Clear Runoff Volume (cu-ft)	4205.5213

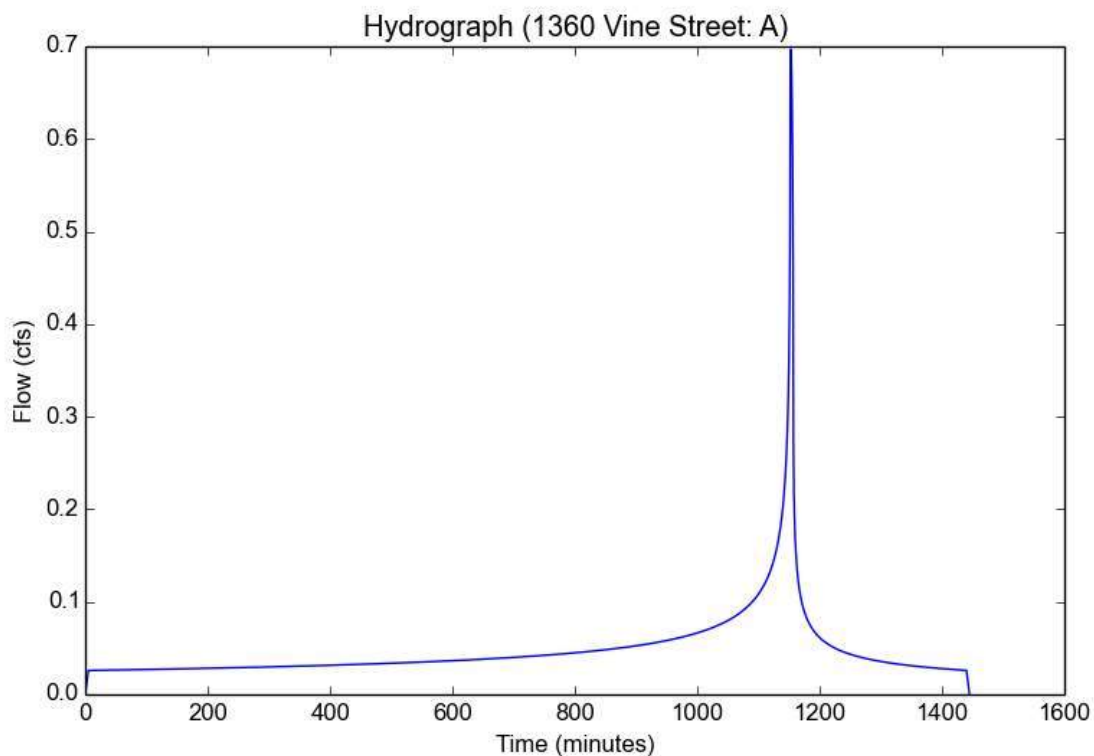


FIGURE 3B: HYDROCALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA A2)

Peak Flow Hydrologic Analysis

File location: X:/2016-Civil Projects/C16-054 - Vine Street Mixed Use (LA Civil)/General Information/1360 Vine Street/Water Resources/Figures/Figure 3
Version: HydroCalc 1.0.2

Input Parameters

Project Name	1360 Vine Street
Subarea ID	A2
Area (ac)	0.24
Flow Path Length (ft)	140.0
Flow Path Slope (vft/hft)	0.0214
50-yr Rainfall Depth (in)	5.9
Percent Impervious	1.0
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.8582
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.7603
Burned Peak Flow Rate (cfs)	0.7603
24-Hr Clear Runoff Volume (ac-ft)	0.1053
24-Hr Clear Runoff Volume (cu-ft)	4587.8414

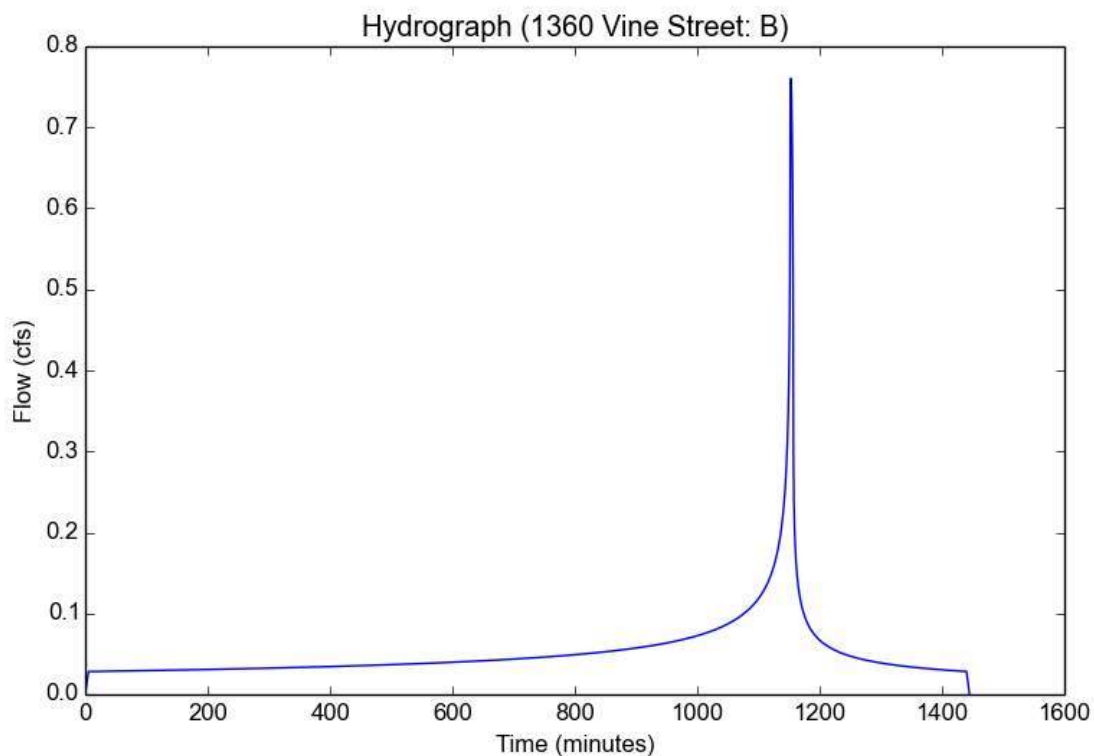


FIGURE 3C: HYDROCALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA A3)

Peak Flow Hydrologic Analysis

File location: X:/2016-Civil Projects/C16-054 - Vine Street Mixed Use (LA Civil)/General Information/1360 Vine Street/Water Resources/Figures/Figure 3
Version: HydroCalc 1.0.2

Input Parameters

Project Name	1360 Vine Street
Subarea ID	A3
Area (ac)	0.43
Flow Path Length (ft)	172.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.977
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.8582
Developed Runoff Coefficient (Cd)	0.899
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.3608
Burned Peak Flow Rate (cfs)	1.3608
24-Hr Clear Runoff Volume (ac-ft)	0.1854
24-Hr Clear Runoff Volume (cu-ft)	8075.8628

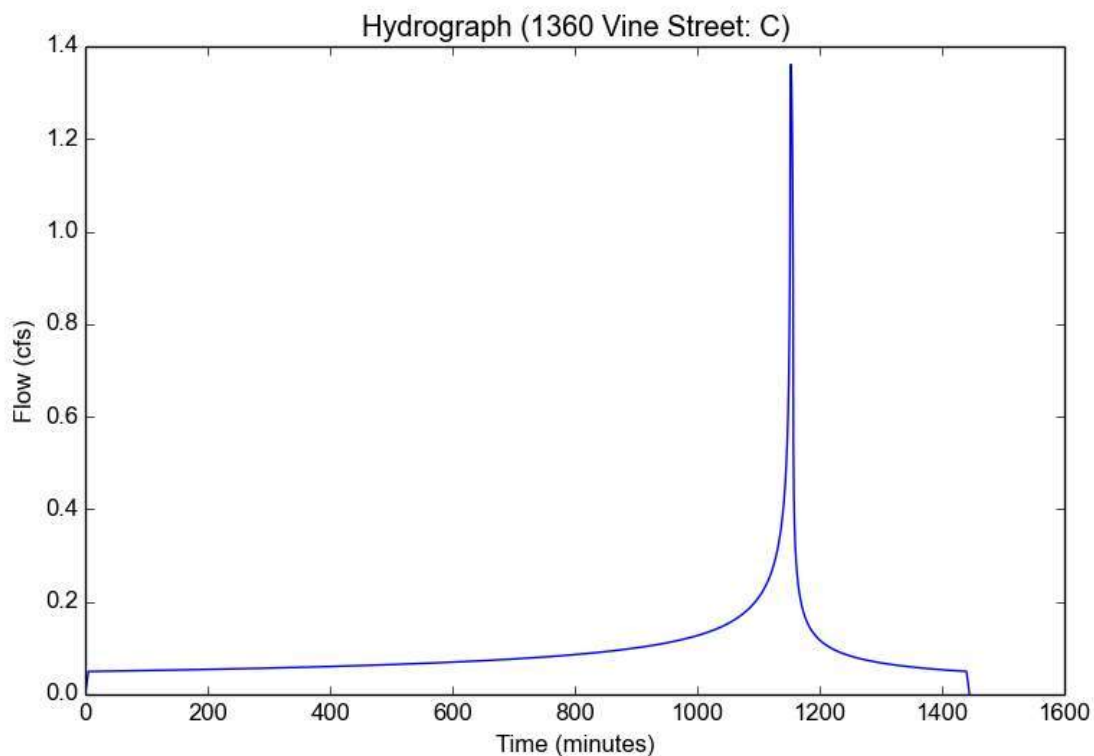


FIGURE 3D: HYDROCALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA B)

Peak Flow Hydrologic Analysis

File location: X:/2016-Civil Projects/C16-054 - Vine Street Mixed Use (LA Civil)/General Information/1360 Vine Street/Water Resources/Figures/Figure 3
Version: HydroCalc 1.0.2

Input Parameters

Project Name	1360 Vine Street
Subarea ID	B
Area (ac)	1.17
Flow Path Length (ft)	340.0
Flow Path Slope (vft/hft)	0.019
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.878
Soil Type	6
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.8582
Developed Runoff Coefficient (Cd)	0.8949
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.6856
Burned Peak Flow Rate (cfs)	3.6856
24-Hr Clear Runoff Volume (ac-ft)	0.4657
24-Hr Clear Runoff Volume (cu-ft)	20287.1236

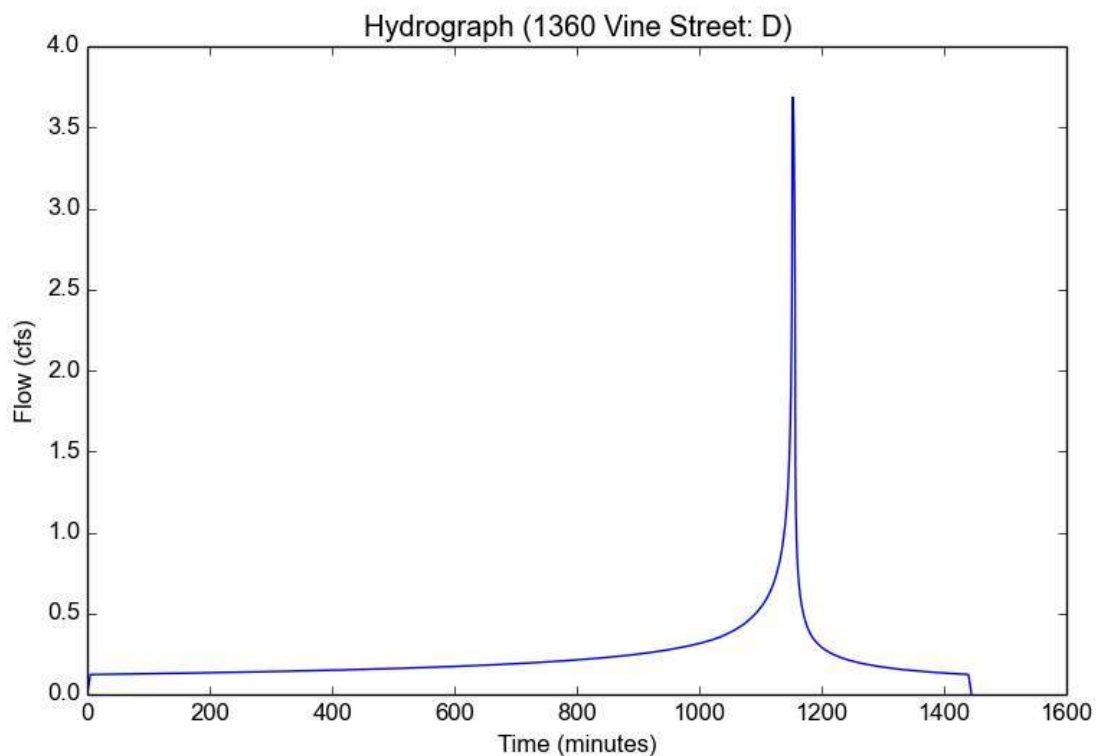


FIGURE 4A: HYDROCALC HYDROLOGY RESULTS FOR PROPOSED SITE (AREA A)

Peak Flow Hydrologic Analysis

File location: P:/2016/1600400 Vine Street Redevelopment/ENGR/EIR/Water Resources/Figures/Figure 3 and 4 - Hydrocalc/1360 VINE ST - Proposed P
Version: HydroCalc 1.0.2

Input Parameters

Project Name	1360 VINE ST
Subarea ID	Sub Area A Proposed
Area (ac)	1.0
Flow Path Length (ft)	100.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.96
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9482
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.1681
Burned Peak Flow Rate (cfs)	3.1681
24-Hr Clear Runoff Volume (ac-ft)	0.4249
24-Hr Clear Runoff Volume (cu-ft)	18507.1211

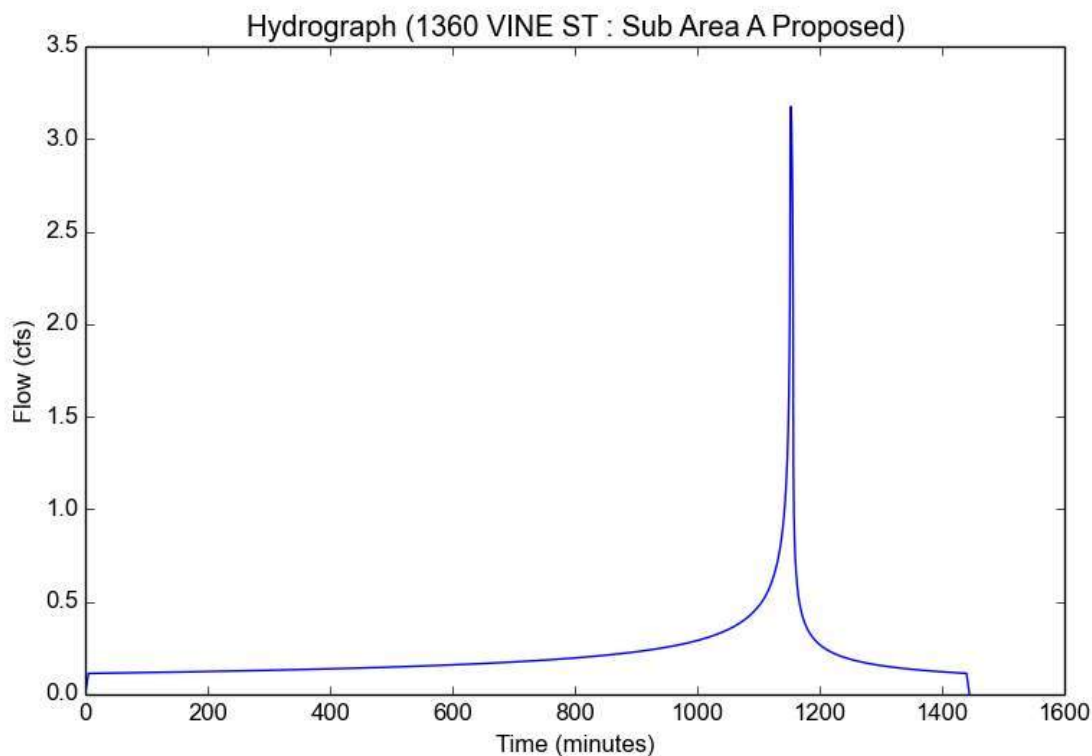


FIGURE 4B: HYDROCALC HYDROLOGY RESULTS FOR PROPOSED SITE (AREA B)

Peak Flow Hydrologic Analysis

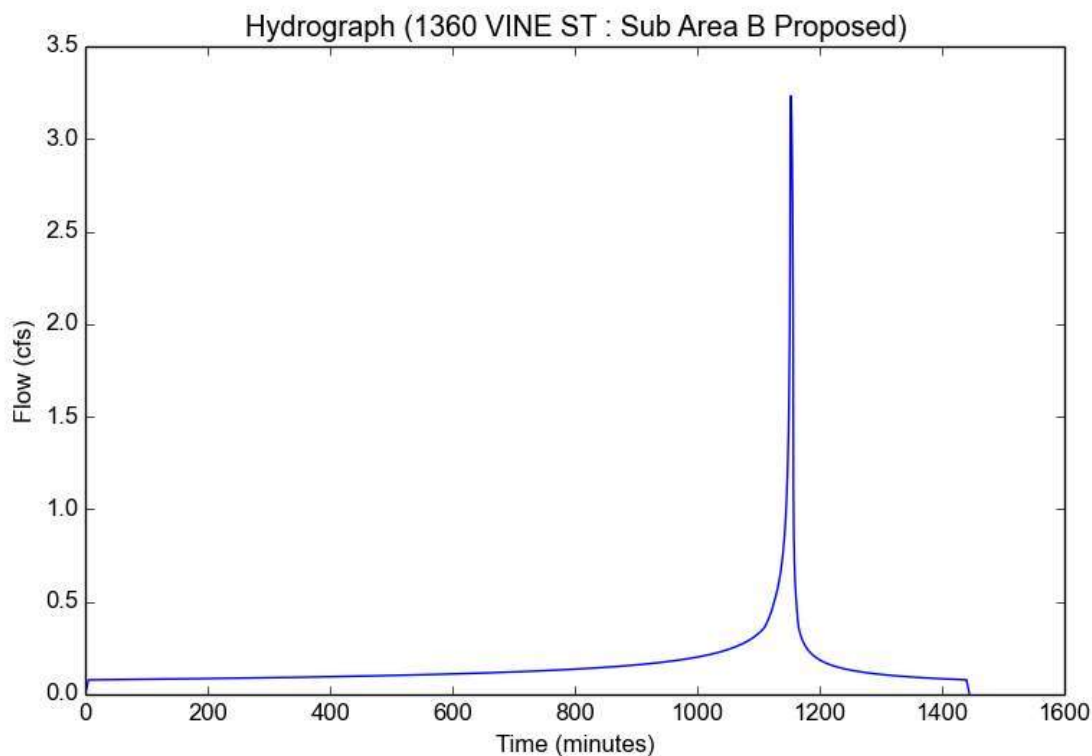
File location: P:/2016/1600400 Vine Street Redevelopment/ENGR/EIR/Water Resources/Figures/Figure 3 and 4 - Hydrocalc/1360 VINE ST - Proposed P
Version: HydroCalc 1.0.2

Input Parameters

Project Name	1360 VINE ST
Subarea ID	Sub Area B Proposed
Area (ac)	1.0
Flow Path Length (ft)	100.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	5.9
Percent Impervious	0.626
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

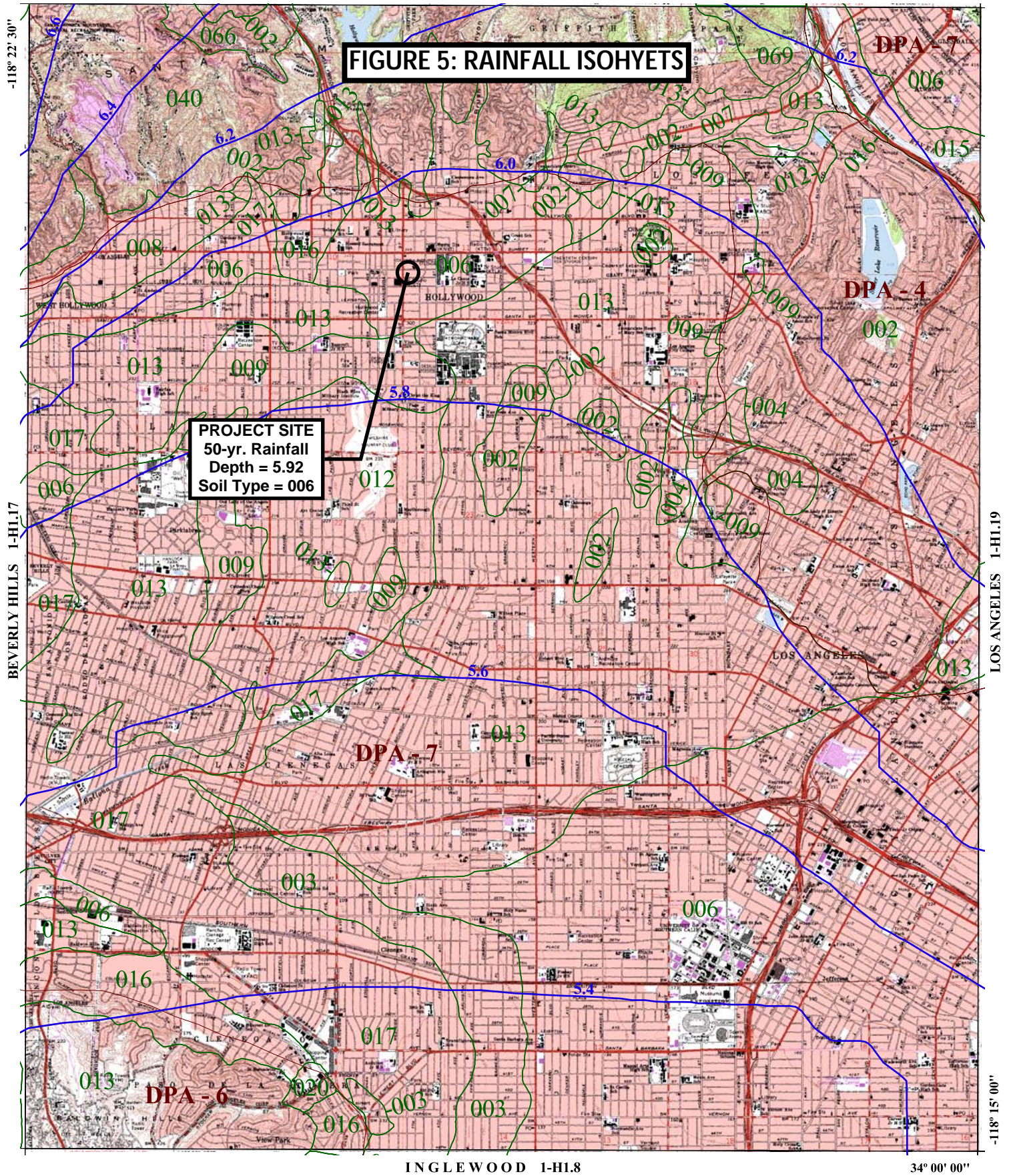
Output Results

Modeled (50-yr) Rainfall Depth (in)	5.9
Peak Intensity (in/hr)	3.5201
Undeveloped Runoff Coefficient (Cu)	0.9482
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.1681
Burned Peak Flow Rate (cfs)	3.1681
24-Hr Clear Runoff Volume (ac-ft)	0.3081
24-Hr Clear Runoff Volume (cu-ft)	13422.9323



34° 07' 30"

BURBANK 1-H1.28

FIGURE 5: RAINFALL ISOHYETS

016

SOIL
CLASSIFICATION
AREA

7.2

INCHES OF
RAINFALL

DPA - 6

DEBRIS
POTENTIAL
AREA

1 0 1 2 Miles

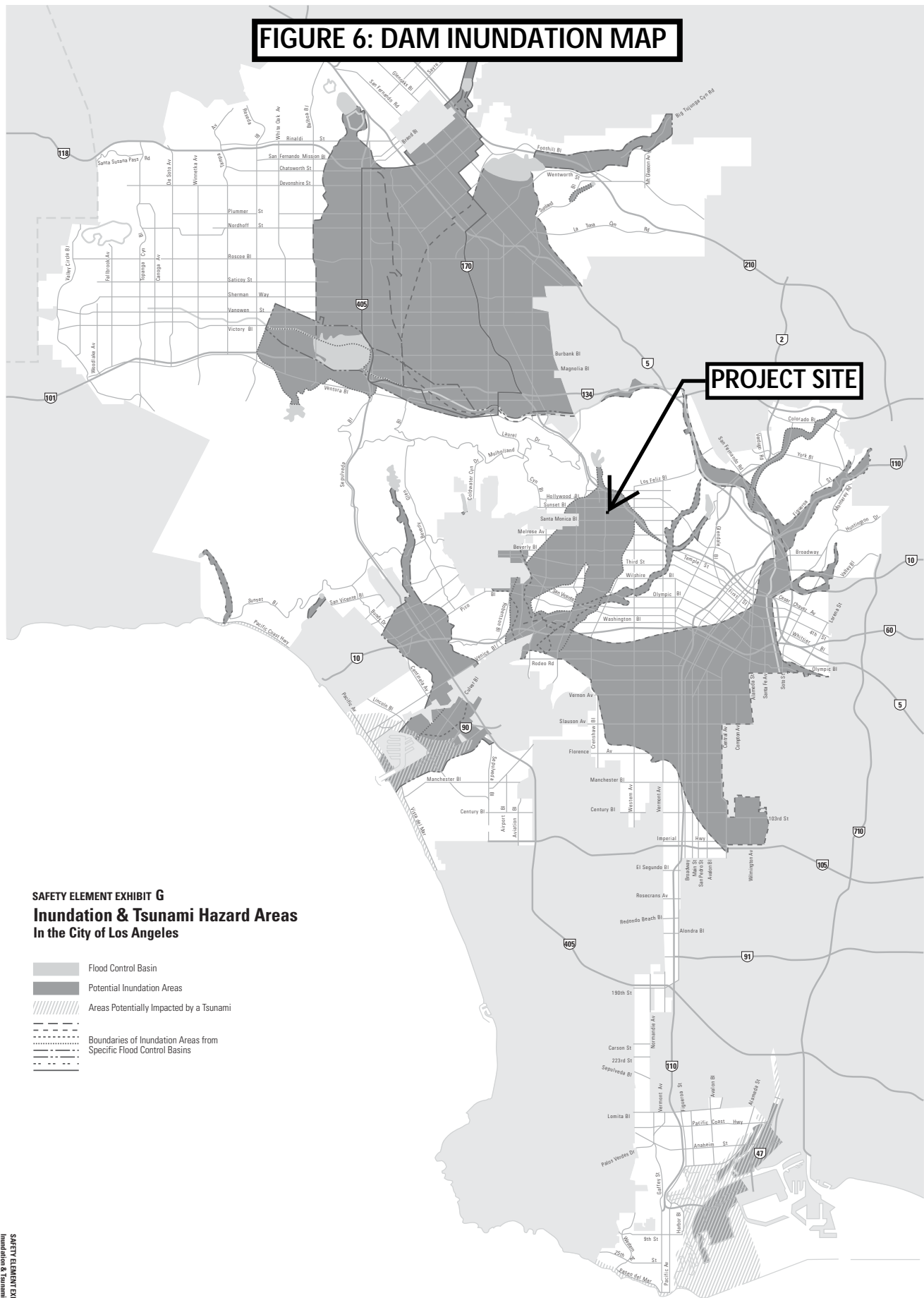
25-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.878
 10-YEAR 24-HOUR ISOHYET REDUCTION FACTOR: 0.714

HOLLYWOOD
50-YEAR 24-HOUR ISOHYET

Soil Type 006
 ISO 50 yr., 24 hr. 5.92

1-H1.18

FIGURE 6: DAM INUNDATION MAP



SAFETY ELEMENT EXHIBIT G
Inundation & Tsunami Hazard Areas
In the City of Los Angeles

- Flood Control Basin
- Potential Inundation Areas
- Areas Potentially Impacted by a Tsunami
- Boundaries of Inundation Areas from Specific Flood Control Basins

SAFETY ELEMENT EXHIBIT G
 Inundation & Tsunami Hazard Areas

Source: Environmental Impact Report, Framework Element, Los Angeles City General Plan, May 1995; Technical Appendix to the Safety Element of the Los Angeles County General Plan Hazard Reduction in Los Angeles County, Volume 2, Plate 6, "Flood and Inundation Hazards" January 1990; California Environmental Quality Act of 1970 (CEQA); Public Resources Code Section 21000 et. seq. with guidelines as amended, 1992; California Government Code Title 7 chapter 3, article 5 section 85302(g), as amended 1993.

Prepared by the General Plan Framework Section • City of Los Angeles Planning Department • Citywide Graphics • March, 1994 • Council File No. 89-2104

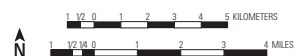
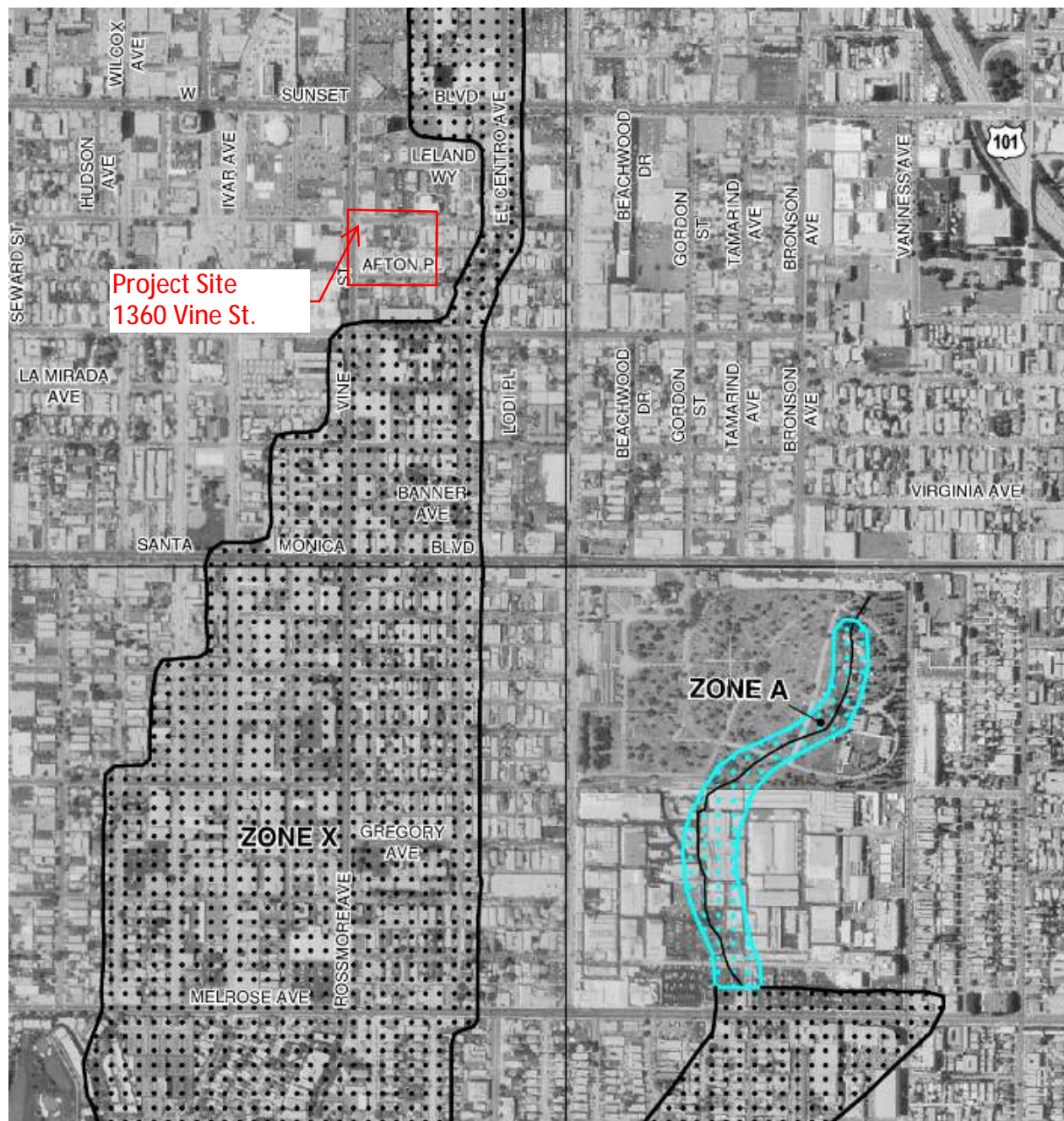


FIGURE 7: Flood Insurance Rate Map



NFIP **PANEL 1605F**

FIRM
FLOOD INSURANCE RATE MAP
LOS ANGELES COUNTY,
CALIFORNIA
AND INCORPORATED AREAS

PANEL 1605 OF 2350
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LOS ANGELES COUNTY	060015	1605	F
BENTLEY HILLS, CITY OF	060064	1606	F
LOS ANGELES, CITY OF	060101	1606	F
WEST HOLLYWOOD, CITY OF	060220	1606	F

Notes to User: This Map Number shown above should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
06037C1605F

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency



OTHER FLOOD AREAS

ZONE X

Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.



OTHER AREAS

ZONE X

Areas determined to be outside the 0.2% annual chance floodplain.

FIGURE 8: HOLLYWOOD GROUNDWATER BASIN MAP

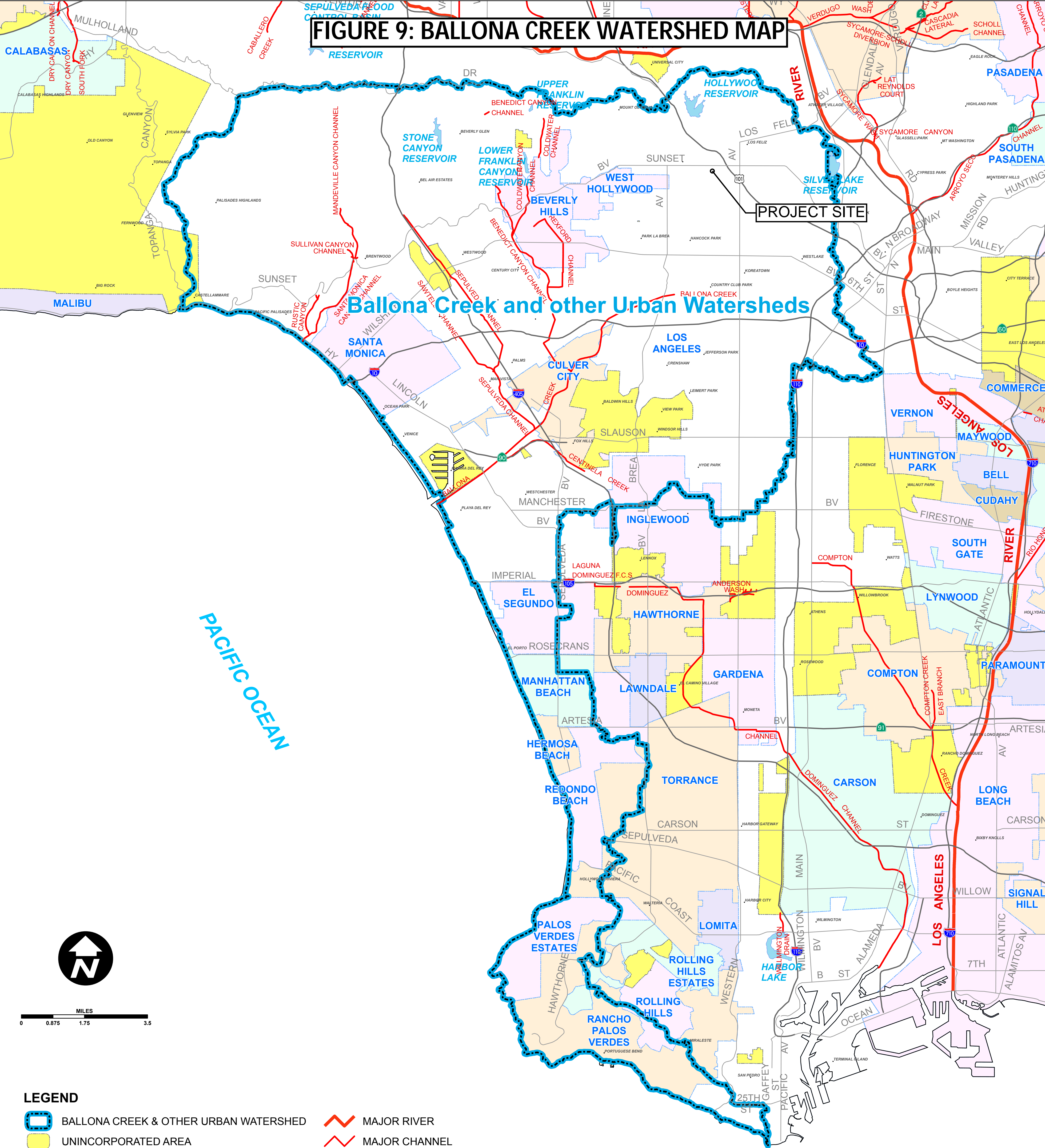




BALLONA CREEK & OTHER URBAN WATERSHEDS



FIGURE 9: BALLONA CREEK WATERSHED MAP



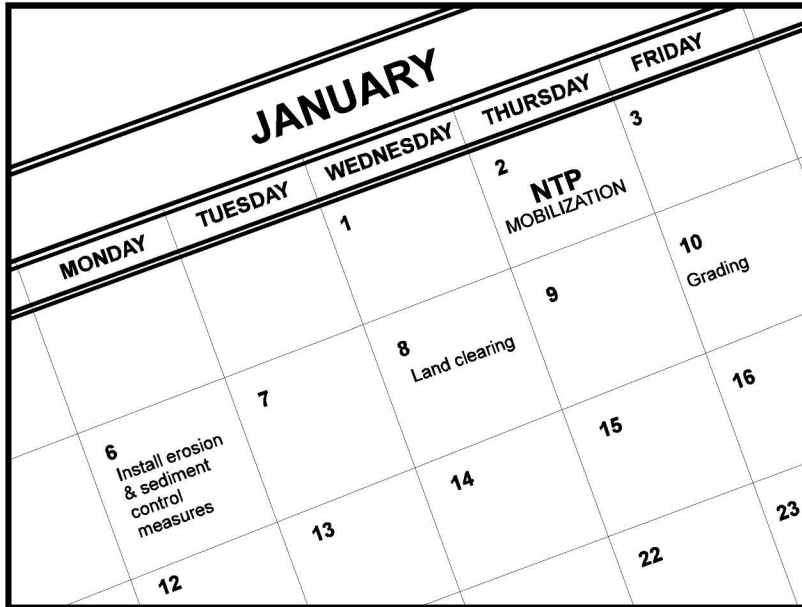
LEGEND

- BALLONA CREEK & OTHER URBAN WATERSHED
- UNINCORPORATED AREA
- DAM / LAKE / RESERVOIR
- MAJOR RIVER
- MAJOR CHANNEL

Data contained in this map is produced in whole or part from the Los Angeles County Department of Public Works' digital database.

Scheduling

EC-1



Description and Purpose

Scheduling is the development of a written plan that includes sequencing of construction activities and the implementation of BMPs such as erosion control and sediment control while taking local climate (rainfall, wind, etc.) into consideration. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking, and to perform the construction activities and control practices in accordance with the planned schedule.

Suitable Applications

Proper sequencing of construction activities to reduce erosion potential should be incorporated into the schedule of every construction project especially during rainy season. Use of other, more costly yet less effective, erosion and sediment control BMPs may often be reduced through proper construction sequencing.

Limitations

- Environmental constraints such as nesting season prohibitions reduce the full capabilities of this BMP.

Implementation

- Avoid rainy periods. Schedule major grading operations during dry months when practical. Allow enough time before rainfall begins to stabilize the soil with vegetation or physical means or to install sediment trapping devices.
- Plan the project and develop a schedule showing each phase of construction. Clearly show how the rainy season relates

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	<input checked="" type="checkbox"/>
WE	Wind Erosion Control	<input checked="" type="checkbox"/>
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ Primary Objective
- ☒ Secondary Objective

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

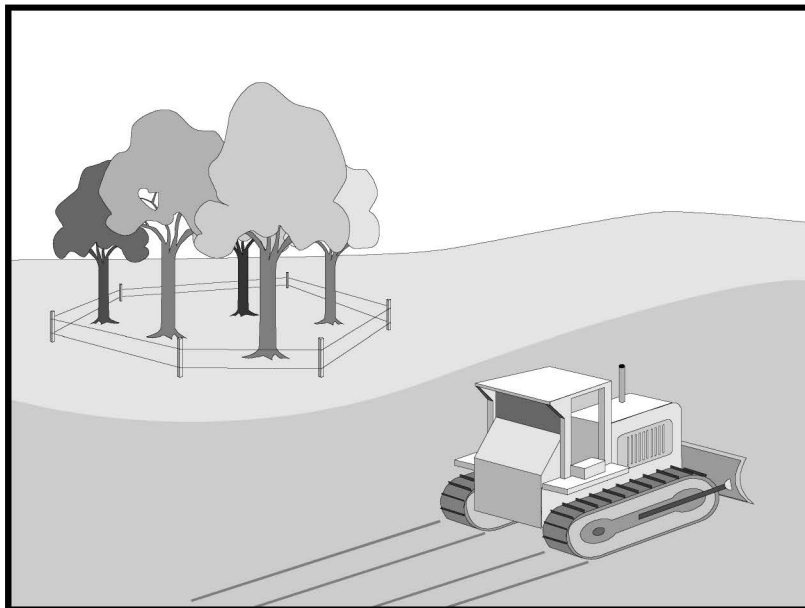
Potential Alternatives

None

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Preservation Of Existing Vegetation EC-2



Description and Purpose

Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil from erosion.

Suitable Applications

Preservation of existing vegetation is suitable for use on most projects. Large project sites often provide the greatest opportunity for use of this BMP. Suitable applications include the following:

- Areas within the site where no construction activity occurs, or occurs at a later date. This BMP is especially suitable to multi year projects where grading can be phased.
- Areas where natural vegetation exists and is designated for preservation. Such areas often include steep slopes, watercourse, and building sites in wooded areas.
- Areas where local, state, and federal government require preservation, such as vernal pools, wetlands, marshes, certain oak trees, etc. These areas are usually designated on the plans, or in the specifications, permits, or environmental documents.
- Where vegetation designated for ultimate removal can be temporarily preserved and be utilized for erosion control and sediment control.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ Primary Objective
- ☒ Secondary Objective

Targeted Constituents

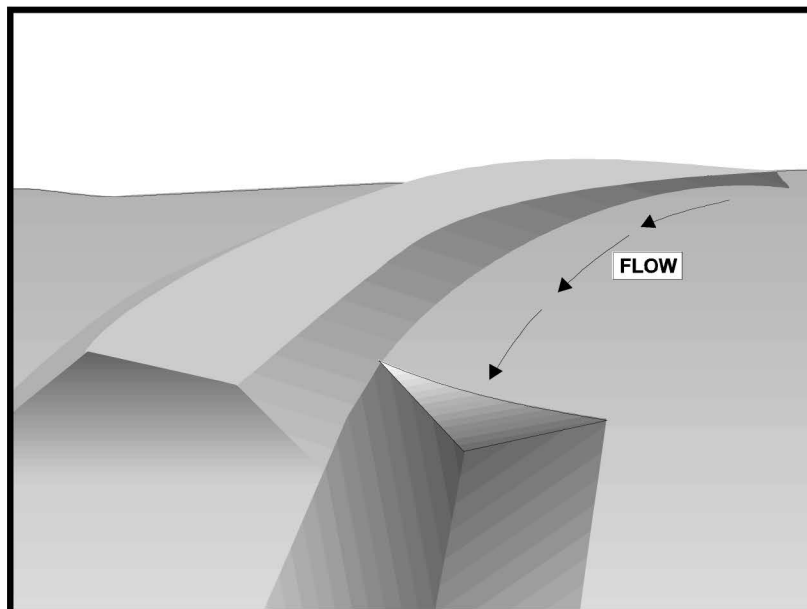
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

An earth dike is a temporary berm or ridge of compacted soil used to divert runoff or channel water to a desired location. A drainage swale is a shaped and sloped depression in the soil surface used to convey runoff to a desired location. Earth dikes and drainage swales are used to divert off site runoff around the construction site, divert runoff from stabilized areas and disturbed areas, and direct runoff into sediment basins or traps.

Suitable Applications

Earth dikes and drainage swales are suitable for use, individually or together, where runoff needs to be diverted from one area and conveyed to another.

- Earth dikes and drainage swales may be used:
 - To convey surface runoff down sloping land
 - To intercept and divert runoff to avoid sheet flow over sloped surfaces
 - To divert and direct runoff towards a stabilized watercourse, drainage pipe or channel
 - To intercept runoff from paved surfaces
 - Below steep grades where runoff begins to concentrate
 - Along roadways and facility improvements subject to flood drainage

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and the transport of pollutants offsite. These practices can reduce or eliminate non-stormwater discharges.

Suitable Applications

Water conservation practices are suitable for all construction sites where water is used, including piped water, metered water, trucked water, and water from a reservoir.

Limitations

- None identified.

Implementation

- Keep water equipment in good working condition.
- Stabilize water truck filling area.
- Repair water leaks promptly.
- Washing of vehicles and equipment on the construction site is discouraged.
- Avoid using water to clean construction areas. If water must be used for cleaning or surface preparation, surface should be swept and vacuumed first to remove dirt. This will minimize amount of water required.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

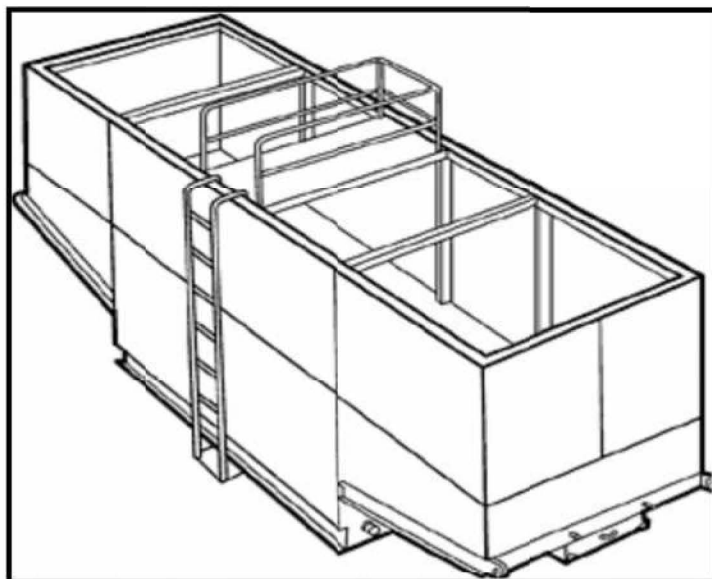
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

Dewatering operations are practices that manage the discharge of pollutants when non-stormwater and accumulated precipitation (stormwater) must be removed from a work location to proceed with construction work or to provide vector control.

The General Permit incorporates Numeric Action Levels (NAL) for turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Discharges from dewatering operations can contain high levels of fine sediment that, if not properly treated, could lead to exceedances of the General Permit requirements or Basin Plan standards.

The dewatering operations described in this fact sheet are not Active Treatment Systems (ATS) and do not include the use of chemical coagulations, chemical flocculation or electrocoagulation.

Suitable Applications

These practices are implemented for discharges of non-stormwater from construction sites. Non-stormwaters include, but are not limited to, groundwater, water from cofferdams, water diversions, and waters used during construction activities that must be removed from a work area to facilitate construction.

Practices identified in this section are also appropriate for implementation when managing the removal of accumulated

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

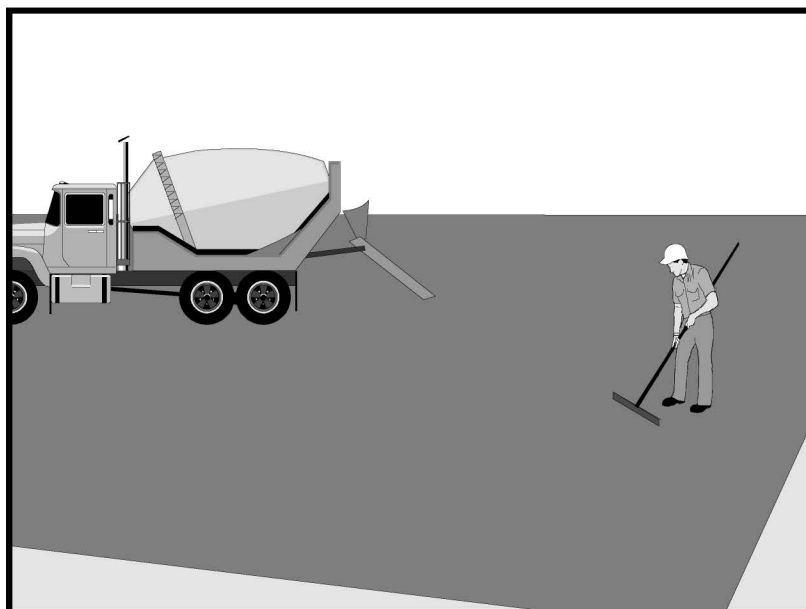
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

- SE-5: Fiber Roll
- SE-6: Gravel Bag Berm

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Description and Purpose

Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runoff and runoff pollution, properly disposing of wastes, and training employees and subcontractors.

The General Permit incorporates Numeric Action Levels (NAL) for pH and turbidity (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials associated with paving and grinding operations, including mortar, concrete, and cement and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

Limitations

- Paving opportunities may be limited during wet weather.

Discharges of freshly paved surfaces may raise pH to environmentally harmful levels and trigger permit violations.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

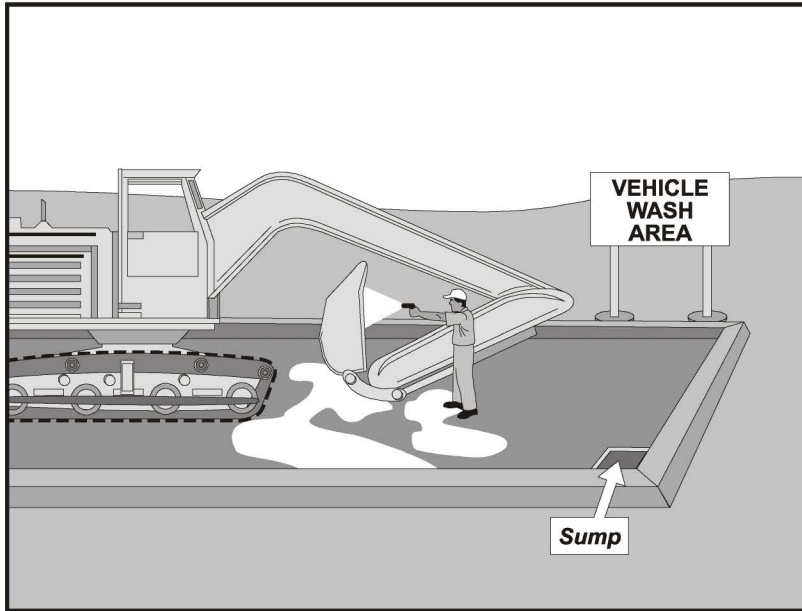
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

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Description and Purpose

Vehicle and equipment cleaning procedures and practices eliminate or reduce the discharge of pollutants to stormwater from vehicle and equipment cleaning operations. Procedures and practices include but are not limited to: using offsite facilities; washing in designated, contained areas only; eliminating discharges to the storm drain by infiltrating the wash water; and training employees and subcontractors in proper cleaning procedures.

Suitable Applications

These procedures are suitable on all construction sites where vehicle and equipment cleaning is performed.

Limitations

Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

Implementation

Other options to washing equipment onsite include contracting with either an offsite or mobile commercial washing business. These businesses may be better equipped to handle and dispose of the wash waters properly. Performing this work offsite can also be economical by eliminating the need for a separate washing operation onsite.

If washing operations are to take place onsite, then:

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

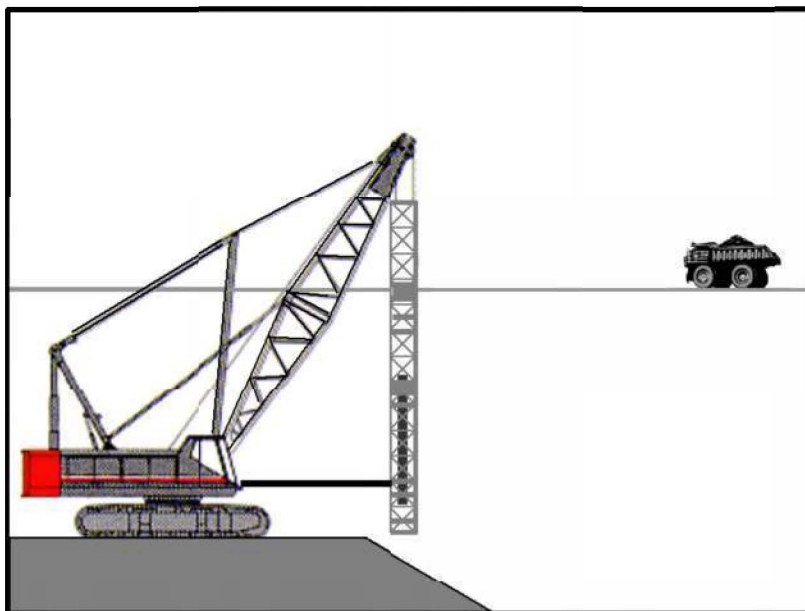
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Nutrients	<input checked="" type="checkbox"/>
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

The construction and retrofit of bridges and retaining walls often include driving piles for foundation support and shoring operations. Driven piles are typically constructed of precast concrete, steel, or timber. Driven sheet piles are also used for shoring and cofferdam construction. Proper control and use of equipment, materials, and waste products from pile driving operations will reduce or eliminate the discharge of potential pollutants to the storm drain system, watercourses, and waters of the United States.

Suitable Applications

These procedures apply to all construction sites near or adjacent to a watercourse or groundwater where permanent and temporary pile driving (impact and vibratory) takes place, including operations using pile shells as well as construction of cast-in-steel-shell and cast-in-drilled-hole piles.

Limitations

None identified.

Implementation

- Use drip pans or absorbent pads during vehicle and equipment operation, maintenance, cleaning, fueling, and storage. Refer to NS-8, Vehicle and Equipment Cleaning, NS-9, Vehicle and Equipment Fueling, and NS-10, Vehicle and Equipment Maintenance.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

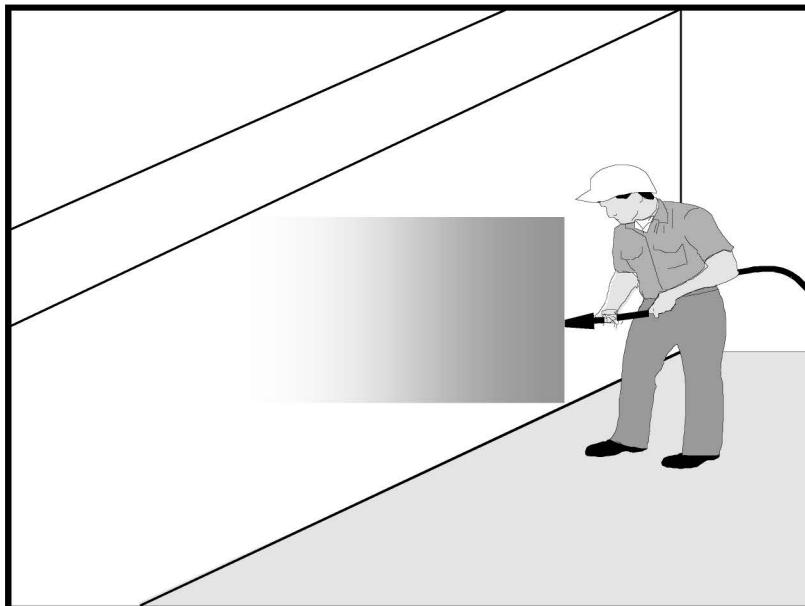
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

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Description and Purpose

Concrete curing is used in the construction of structures such as bridges, retaining walls, pump houses, large slabs, and structured foundations. Concrete curing includes the use of both chemical and water methods.

Concrete and its associated curing materials have basic chemical properties that can raise the pH of water to levels outside of the permitted range. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and may contain chemicals, metals, and fines. The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Proper procedures and care should be taken when managing concrete curing materials to prevent them from coming into contact with stormwater flows, which could result in a high pH discharge.

Suitable Applications

Suitable applications include all projects where Portland Cement Concrete (PCC) and concrete curing chemicals are placed where they can be exposed to rainfall, runoff from other areas, or where runoff from the PCC will leave the site.

Limitations

- Runoff contact with concrete waste can raise pH levels in the water to environmentally harmful levels and trigger permit violations.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ Primary Category
- ☒ Secondary Category

Targeted Constituents

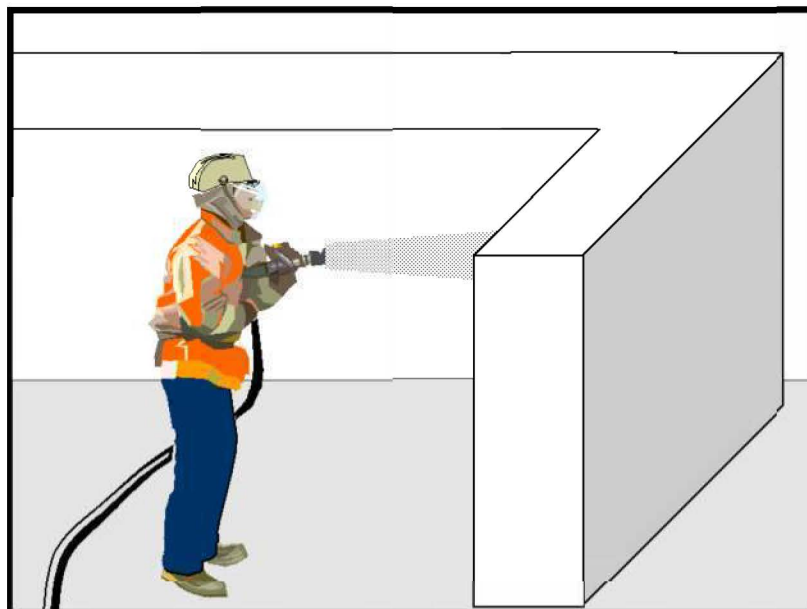
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Nutrients	
Trash	
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

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Description and Purpose

Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Stormwater and non-stormwater exposed to concrete finishing by-products may have a high pH and may contain chemicals, metals, and fines. Proper procedures and implementation of appropriate BMPs can minimize the impact that concrete-finishing methods may have on stormwater and non-stormwater discharges.

The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Concrete and its associated curing materials have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows, which could lead to exceedances of the General Permit requirements.

Suitable Applications

These procedures apply to all construction locations where concrete finishing operations are performed.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

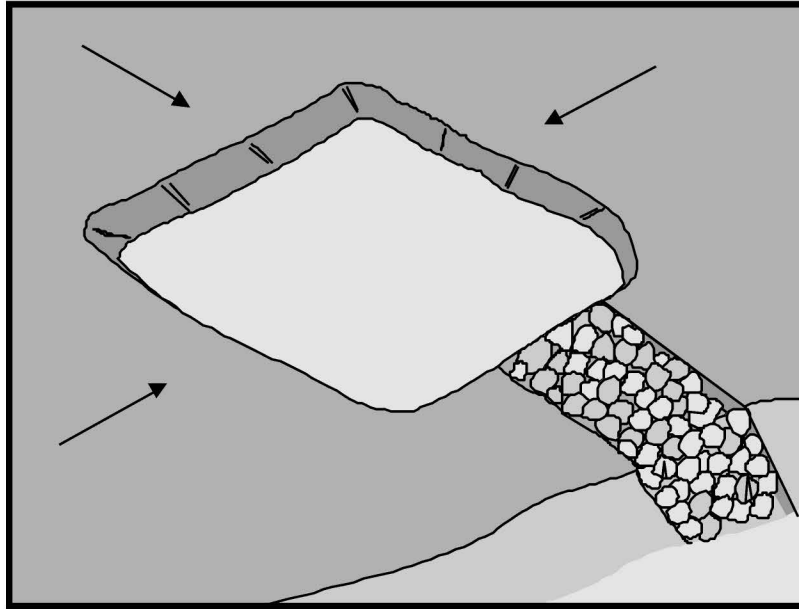
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Nutrients	
Trash	
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

A sediment trap is a containment area where sediment-laden runoff is temporarily detained under quiescent conditions, allowing sediment to settle out or before the runoff is discharged by gravity flow. Sediment traps are formed by excavating or constructing an earthen embankment across a waterway or low drainage area.

Trap design guidance provided in this fact sheet is not intended to guarantee compliance with numeric discharge limits (numeric action levels or numeric effluent limits for turbidity). Compliance with discharge limits requires a thoughtful approach to comprehensive BMP planning, implementation, and maintenance. Therefore, optimally designed and maintained sediment traps should be used in conjunction with a comprehensive system of BMPs.

Suitable Applications

Sediment traps should be considered for use:

- At the perimeter of the site at locations where sediment-laden runoff is discharged offsite.
- At multiple locations within the project site where sediment control is needed.
- Around or upslope from storm drain inlet protection measures.
- Sediment traps may be used on construction projects where the drainage area is less than 5 acres. Traps would be

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

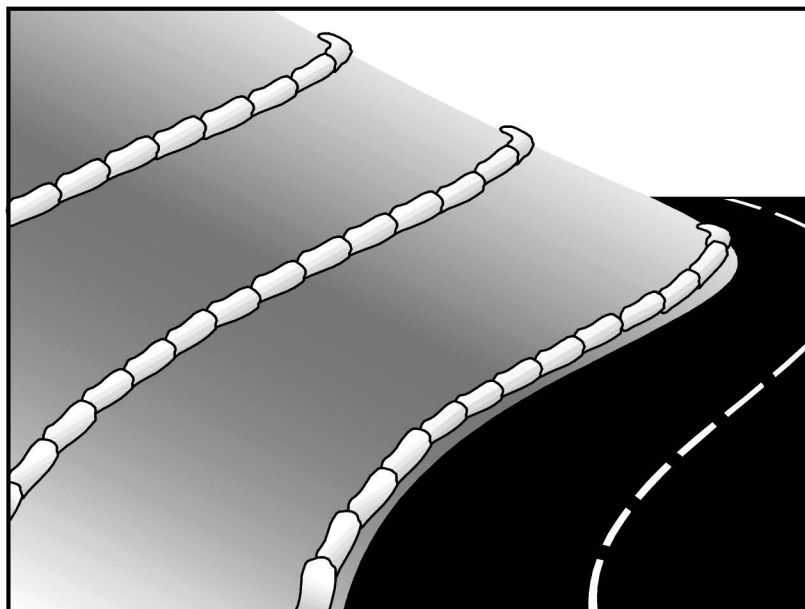
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Nutrients	
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-2 Sediment Basin (for larger areas)

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Description and Purpose

A gravel bag berm is a series of gravel-filled bags placed on a level contour to intercept sheet flows. Gravel bags pond sheet flow runoff, allowing sediment to settle out, and release runoff slowly as sheet flow, preventing erosion.

Suitable Applications

Gravel bag berms may be suitable:

- As a linear sediment control measure:
 - Below the toe of slopes and erodible slopes
 - As sediment traps at culvert/pipe outlets
 - Below other small cleared areas
 - Along the perimeter of a site
 - Down slope of exposed soil areas
 - Around temporary stockpiles and spoil areas
 - Parallel to a roadway to keep sediment off paved areas
 - Along streams and channels
- As a linear erosion control measure:
 - Along the face and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-1 Silt Fence
- SE-5 Fiber Roll
- SE-8 Sandbag Barrier
- SE-12 Temporary Silt Dike
- SE-14 Biofilter Bags

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Description and Purpose

Street sweeping and vacuuming includes use of self-propelled and walk-behind equipment to remove sediment from streets and roadways, and to clean paved surfaces in preparation for final paving. Sweeping and vacuuming prevents sediment from the project site from entering storm drains or receiving waters.

Suitable Applications

Sweeping and vacuuming are suitable anywhere sediment is tracked from the project site onto public or private paved streets and roads, typically at points of egress. Sweeping and vacuuming are also applicable during preparation of paved surfaces for final paving.

Limitations

Sweeping and vacuuming may not be effective when sediment is wet or when tracked soil is caked (caked soil may need to be scraped loose).

Implementation

- Controlling the number of points where vehicles can leave the site will allow sweeping and vacuuming efforts to be focused, and perhaps save money.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking should be swept or vacuumed on a daily basis.

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	<input checked="" type="checkbox"/>
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

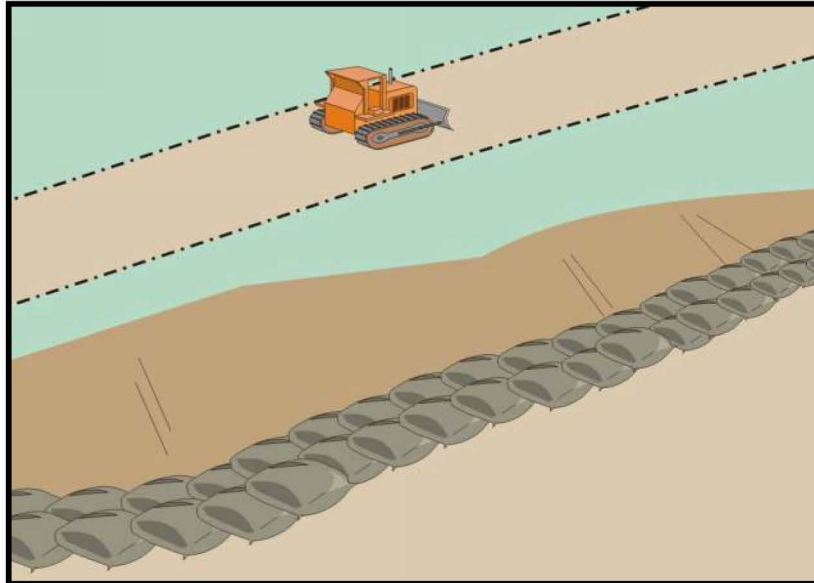
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

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Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Description and Purpose

A sandbag barrier is a series of sand-filled bags placed on a level contour to intercept or to divert sheet flows. Sandbag barriers placed on a level contour pond sheet flow runoff, allowing sediment to settle out.

Suitable Applications

Sandbag barriers may be a suitable control measure for the applications described below. It is important to consider that sand bags are less porous than gravel bags and ponding or flooding can occur behind the barrier. Also, sand is easily transported by runoff if bags are damaged or ruptured. The SWPPP Preparer should select the location of a sandbag barrier with respect to the potential for flooding, damage, and the ability to maintain the BMP.

- As a linear sediment control measure:
 - Below the toe of slopes and erodible slopes.
 - As sediment traps at culvert/pipe outlets.
 - Below other small cleared areas.
 - Along the perimeter of a site.
 - Down slope of exposed soil areas.
 - Around temporary stockpiles and spoil areas.
 - Parallel to a roadway to keep sediment off paved areas.
 - Along streams and channels.

Targeted Constituents

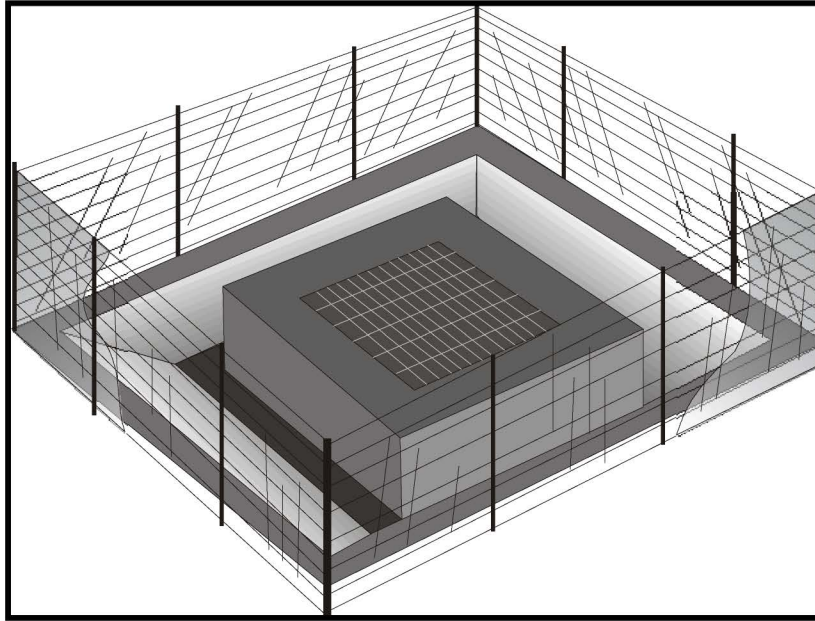
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-1 Silt Fence
- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-12 Manufactured Linear Sediment Controls
- SE-14 Biofilter Bags

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Description and Purpose

Storm drain inlet protection consists of a sediment filter or an impounding area in, around or upstream of a storm drain, drop inlet, or curb inlet. Storm drain inlet protection measures temporarily pond runoff before it enters the storm drain, allowing sediment to settle. Some filter configurations also remove sediment by filtering, but usually the ponding action results in the greatest sediment reduction. Temporary geotextile storm drain inserts attach underneath storm drain grates to capture and filter storm water.

Suitable Applications

- Every storm drain inlet receiving runoff from unstabilized or otherwise active work areas should be protected. Inlet protection should be used in conjunction with other erosion and sediment controls to prevent sediment-laden stormwater and non-stormwater discharges from entering the storm drain system.

Limitations

- Drainage area should not exceed 1 acre.
- In general straw bales should not be used as inlet protection.
- Requires an adequate area for water to pond without encroaching into portions of the roadway subject to traffic.
- Sediment removal may be inadequate to prevent sediment discharges in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

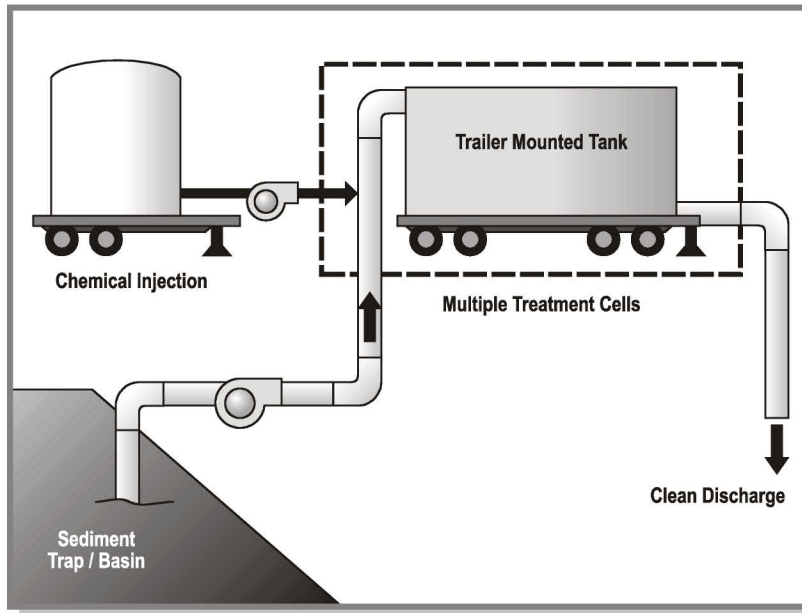
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

- SE-1 Silt Fence
- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-8 Sandbag Barrier
- SE-14 Biofilter Bags
- SE-13 Compost Socks and Berms

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Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Description and Purpose

Active Treatment Systems (ATS) reduce turbidity of construction site runoff by introducing chemicals to stormwater through direct dosing or an electrical current to enhance flocculation, coagulation, and settling of the suspended sediment. Coagulants and flocculants are used to enhance settling and removal of suspended sediments and generally include inorganic salts and polymers (USACE, 2001). The increased flocculation aids in sedimentation and ability to remove fine suspended sediments, thus reducing stormwater runoff turbidity and improving water quality.

Suitable Applications

ATS can reliably provide exceptional reductions of turbidity and associated pollutants and should be considered where turbid discharges to sediment and turbidity sensitive waters cannot be avoided using traditional BMPs. Additionally, it may be appropriate to use an ATS when site constraints inhibit the ability to construct a correctly sized sediment basin, when clay and/or highly erosive soils are present, or when the site has very steep or long slope lengths.

Limitations

Dischargers choosing to utilize chemical treatment in an ATS must follow all guidelines of the Construction General Permit Attachment F – Active Treatment System Requirements. General limitations are as follows:

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

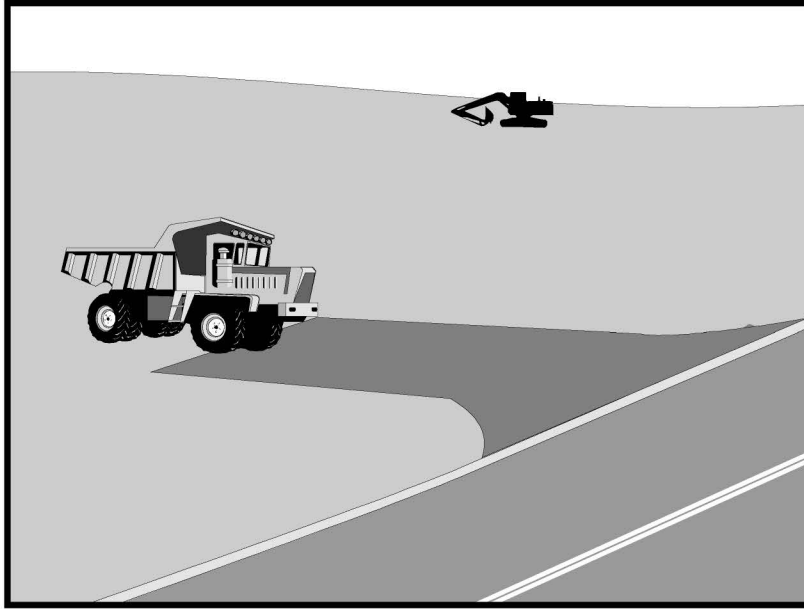
Potential Alternatives

None

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Stabilized Construction Entrance/Exit TC-1



Description and Purpose

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Suitable Applications

Use at construction sites:

- Where dirt or mud can be tracked onto public roads.
- Adjacent to water bodies.
- Where poor soils are encountered.
- Where dust is a problem during dry weather conditions.

Limitations

- Entrances and exits require periodic top dressing with additional stones.
- This BMP should be used in conjunction with street sweeping on adjacent public right of way.
- Entrances and exits should be constructed on level ground only.
- Stabilized construction entrances are rather expensive to construct and when a wash rack is included, a sediment trap of some kind must also be provided to collect wash water runoff.

Categories

EC	Erosion Control	<input checked="" type="checkbox"/>
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	<input checked="" type="checkbox"/>
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

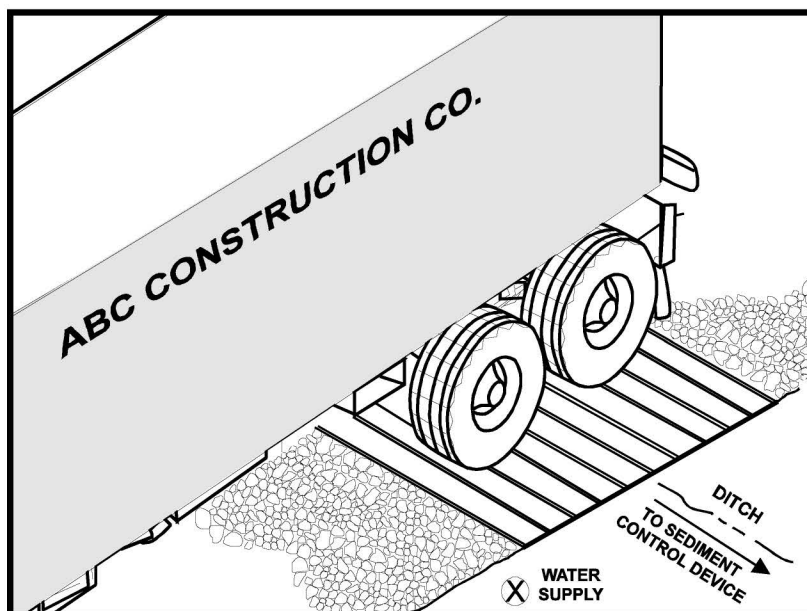
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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Description and Purpose

A tire wash is an area located at stabilized construction access points to remove sediment from tires and undercarriages and to prevent sediment from being transported onto public roadways.

Suitable Applications

Tire washes may be used on construction sites where dirt and mud tracking onto public roads by construction vehicles may occur.

Limitations

- The tire wash requires a supply of wash water.
- A turnout or doublewide exit is required to avoid having entering vehicles drive through the wash area.
- Do not use where wet tire trucks leaving the site leave the road dangerously slick.

Implementation

- Incorporate with a stabilized construction entrance/exit. See TC-1, Stabilized Construction Entrance/Exit.
- Construct on level ground when possible, on a pad of coarse aggregate greater than 3 in. but smaller than 6 in. A geotextile fabric should be placed below the aggregate.
- Wash rack should be designed and constructed/manufactured for anticipated traffic loads.

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	<input checked="" type="checkbox"/>
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ Primary Objective
- ☒ Secondary Objective

Targeted Constituents

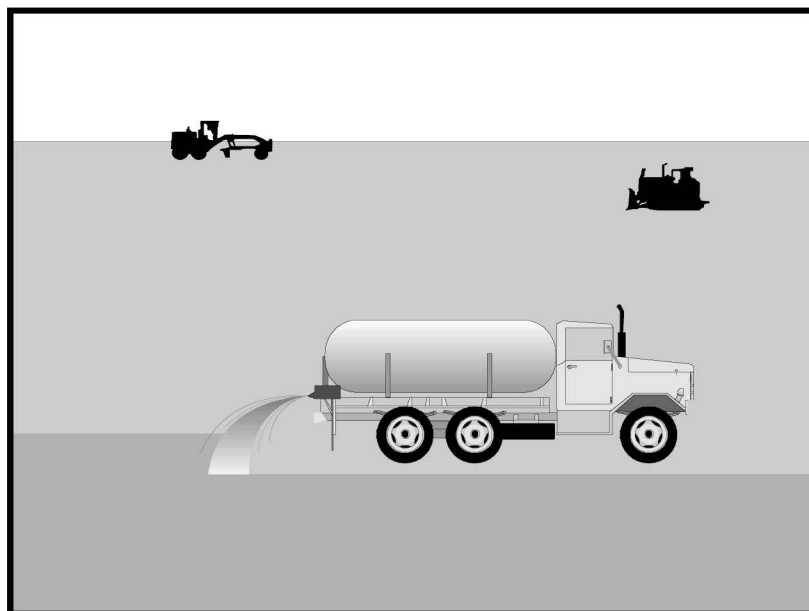
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

TC-1 Stabilized Construction Entrance/Exit

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Description and Purpose

Wind erosion or dust control consists of applying water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

California's Mediterranean climate, with a short "wet" season and a typically long, hot "dry" season, allows the soils to thoroughly dry out. During the dry season, construction activities are at their peak, and disturbed and exposed areas are increasingly subject to wind erosion, sediment tracking and dust generated by construction equipment. Site conditions and climate can make dust control more of an erosion problem than water based erosion. Additionally, many local agencies, including Air Quality Management Districts, require dust control and/or dust control permits in order to comply with local nuisance laws, opacity laws (visibility impairment) and the requirements of the Clean Air Act. Wind erosion control is required to be implemented at all construction sites greater than 1 acre by the General Permit.

Suitable Applications

Most BMPs that provide protection against water-based erosion will also protect against wind-based erosion and dust control requirements required by other agencies will generally meet wind erosion control requirements for water quality protection. Wind erosion control BMPs are suitable during the following construction activities:

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	<input checked="" type="checkbox"/>
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

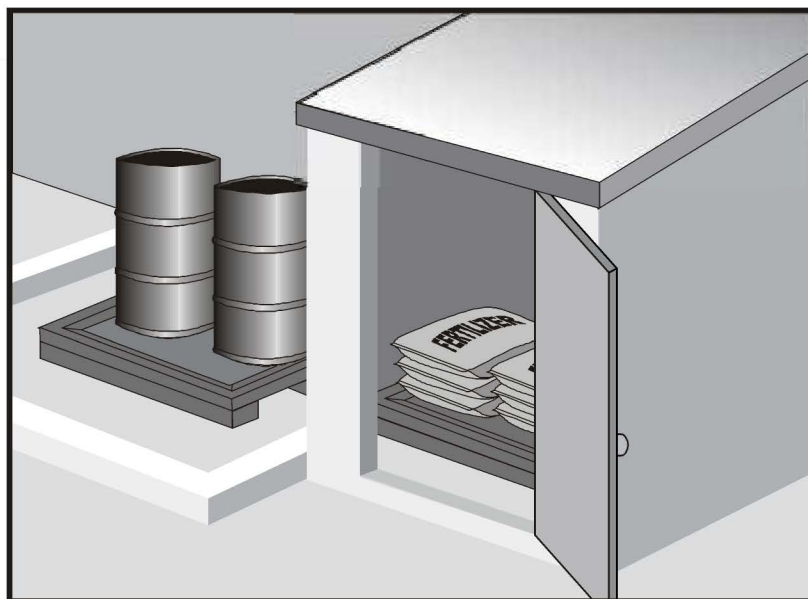
Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-5 Soil Binders

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Description and Purpose

Prevent, reduce, or eliminate the discharge of pollutants from material delivery and storage to the stormwater system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in watertight containers and/or a completely enclosed designated area, installing secondary containment, conducting regular inspections, and training employees and subcontractors.

This best management practice covers only material delivery and storage. For other information on materials, see WM-2, Material Use, or WM-4, Spill Prevention and Control. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

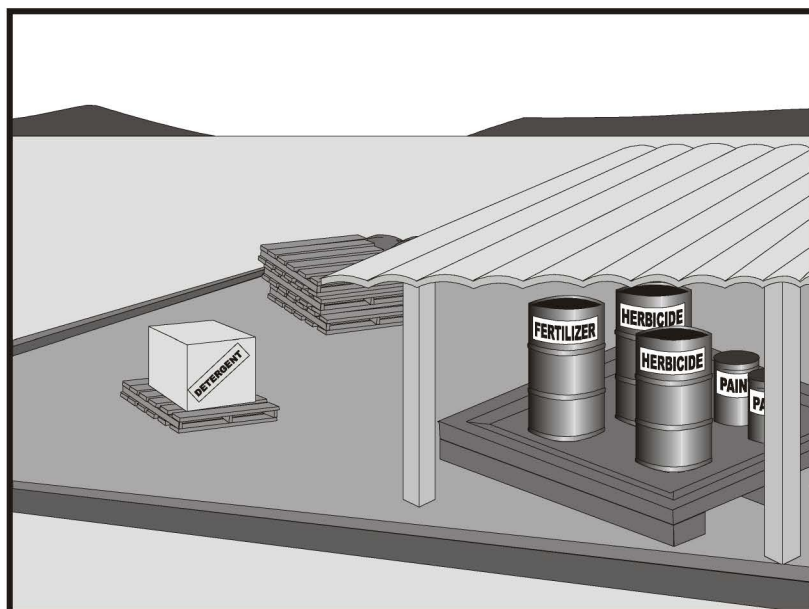
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Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for use at all construction projects. These procedures apply when the following materials are used or prepared onsite:

- Pesticides and herbicides
- Fertilizers
- Detergents
- Petroleum products such as fuel, oil, and grease
- Asphalt and other concrete components
- Other hazardous chemicals such as acids, lime, glues, adhesives, paints, solvents, and curing compounds
- Other materials that may be detrimental if released to the environment

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

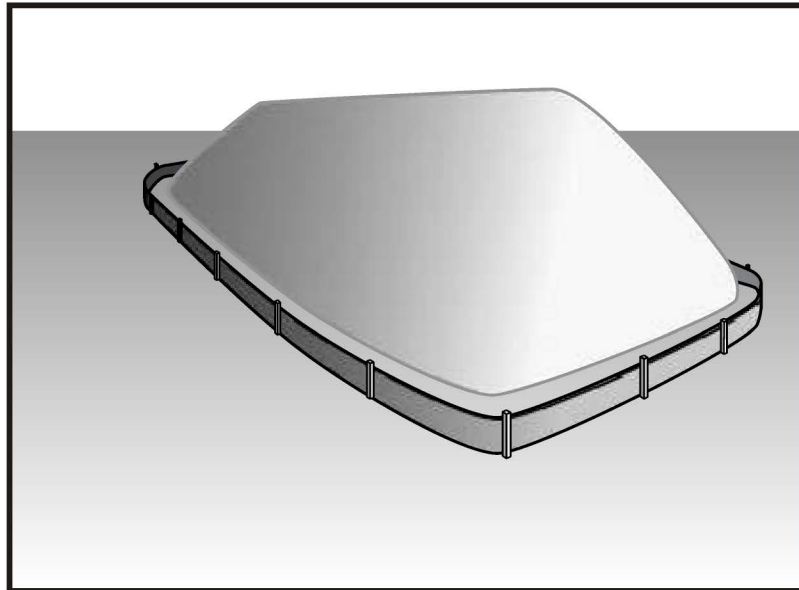
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Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and stormwater pollution from stockpiles of soil, soil amendments, sand, paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate sub base or pre-mixed aggregate, asphalt minder (so called “cold mix” asphalt), and pressure treated wood.

Suitable Applications

Implement in all projects that stockpile soil and other loose materials.

Limitations

- Plastic sheeting as a stockpile protection is temporary and hard to manage in windy conditions. Where plastic is used, consider use of plastic tarps with nylon reinforcement which may be more durable than standard sheeting.
- Plastic sheeting can increase runoff volume due to lack of infiltration and potentially cause perimeter control failure.
- Plastic sheeting breaks down faster in sunlight.
- The use of Plastic materials and photodegradable plastics should be avoided.

Implementation

Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

Categories

EC	Erosion Control	
SE	Sediment Control	<input checked="" type="checkbox"/>
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

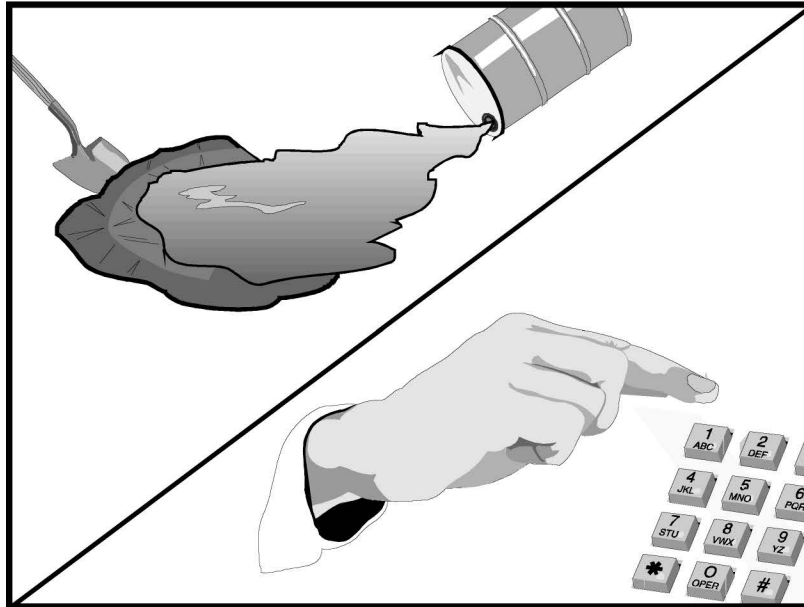
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Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

Prevent or reduce the discharge of pollutants to drainage systems or watercourses from leaks and spills by reducing the chance for spills, stopping the source of spills, containing and cleaning up spills, properly disposing of spill materials, and training employees.

This best management practice covers only spill prevention and control. However, WM-1, Materials Delivery and Storage, and WM-2, Material Use, also contain useful information, particularly on spill prevention. For information on wastes, see the waste management BMPs in this section.

Suitable Applications

This BMP is suitable for all construction projects. Spill control procedures are implemented anytime chemicals or hazardous substances are stored on the construction site, including the following materials:

- Soil stabilizers/binders
- Dust palliatives
- Herbicides
- Growth inhibitors
- Fertilizers
- Deicing/anti-icing chemicals

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

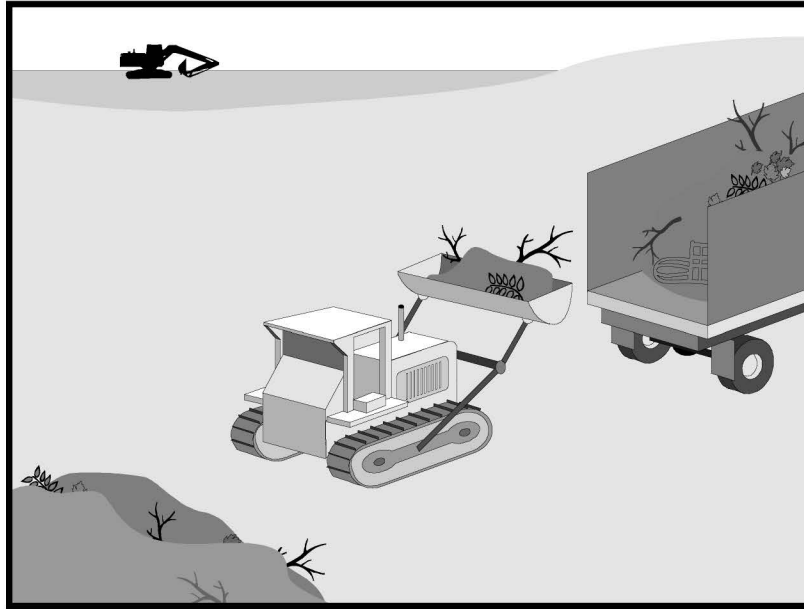
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Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors.

Suitable Applications

This BMP is suitable for construction sites where the following wastes are generated or stored:

- Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures (rubble), and building construction
- Packaging materials including wood, paper, and plastic
- Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces, and masonry products
- Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes
- Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Description and Purpose

Prevent or reduce the discharge of pollutants to stormwater from contaminated soil and highly acidic or alkaline soils by conducting pre-construction surveys, inspecting excavations regularly, and remediating contaminated soil promptly.

Suitable Applications

Contaminated soil management is implemented on construction projects in highly urbanized or industrial areas where soil contamination may have occurred due to spills, illicit discharges, aerial deposition, past use and leaks from underground storage tanks.

Limitations

Contaminated soils that cannot be treated onsite must be disposed of offsite by a licensed hazardous waste hauler. The presence of contaminated soil may indicate contaminated water as well. See NS-2, Dewatering Operations, for more information.

The procedures and practices presented in this BMP are general. The contractor should identify appropriate practices and procedures for the specific contaminants known to exist or discovered onsite.

Implementation

Most owners and developers conduct pre-construction environmental assessments as a matter of routine. Contaminated soils are often identified during project planning and development with known locations identified in the plans, specifications and in the SWPPP. The contractor should review applicable reports and investigate appropriate call-outs in the

Targeted Constituents

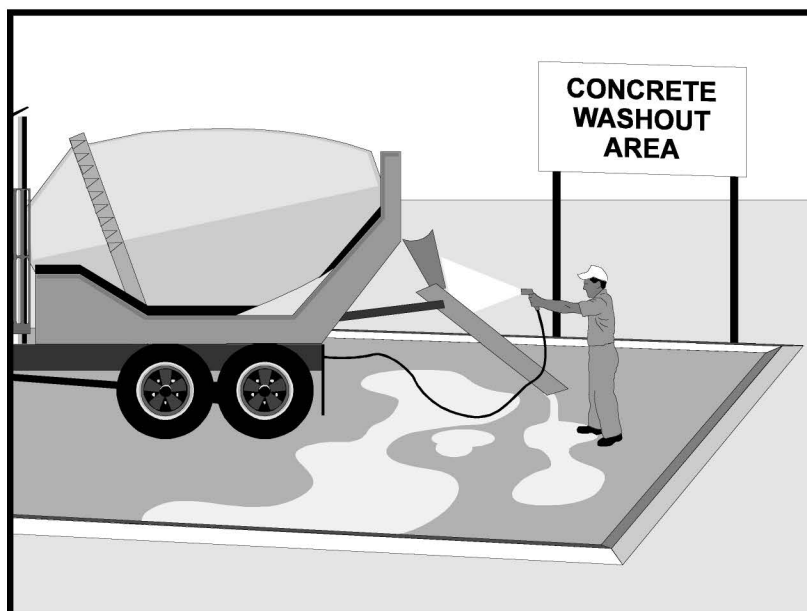
Sediment	
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

Prevent the discharge of pollutants to stormwater from concrete waste by conducting washout onsite or offsite in a designated area, and by employee and subcontractor training.

The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into contact with stormwater flows and raising pH to levels outside the accepted range.

Suitable Applications

Concrete waste management procedures and practices are implemented on construction projects where:

- Concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Slurries containing portland cement concrete (PCC) are generated, such as from saw cutting, coring, grinding, grooving, and hydro-concrete demolition.
- Concrete trucks and other concrete-coated equipment are washed onsite.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	<input checked="" type="checkbox"/>
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Category**
- ☒ **Secondary Category**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	
Organics	

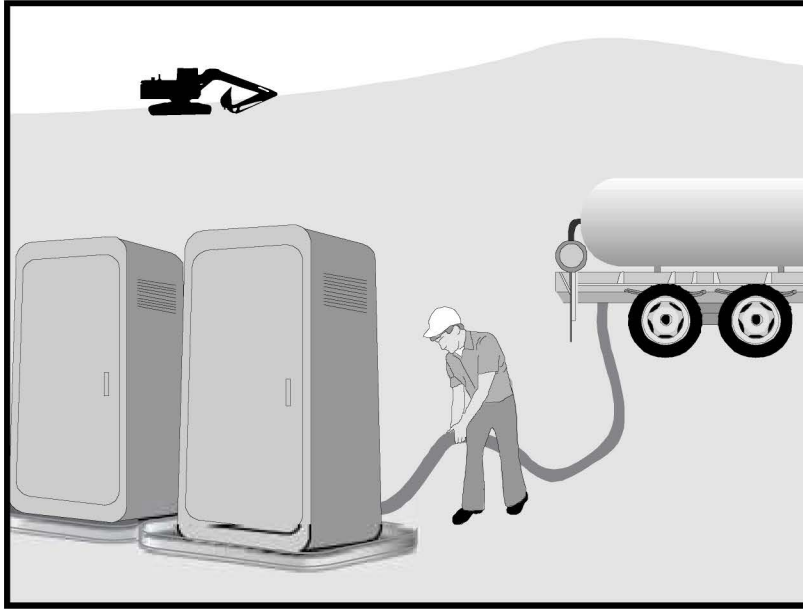
Potential Alternatives

None

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Sanitary/Septic Waste Management WM-9



Description and Purpose

Proper sanitary and septic waste management prevent the discharge of pollutants to stormwater from sanitary and septic waste by providing convenient, well-maintained facilities, and arranging for regular service and disposal.

Suitable Applications

Sanitary septic waste management practices are suitable for use at all construction sites that use temporary or portable sanitary and septic waste systems.

Limitations

None identified.

Implementation

Sanitary or septic wastes should be treated or disposed of in accordance with state and local requirements. In many cases, one contract with a local facility supplier will be all that it takes to make sure sanitary wastes are properly disposed.

Storage and Disposal Procedures

- Temporary sanitary facilities should be located away from drainage facilities, watercourses, and from traffic circulation. If site conditions allow, place portable facilities a minimum of 50 feet from drainage conveyances and traffic areas. When subjected to high winds or risk of high winds, temporary sanitary facilities should be secured to prevent overturning.

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ Primary Category
- ☒ Secondary Category

Targeted Constituents

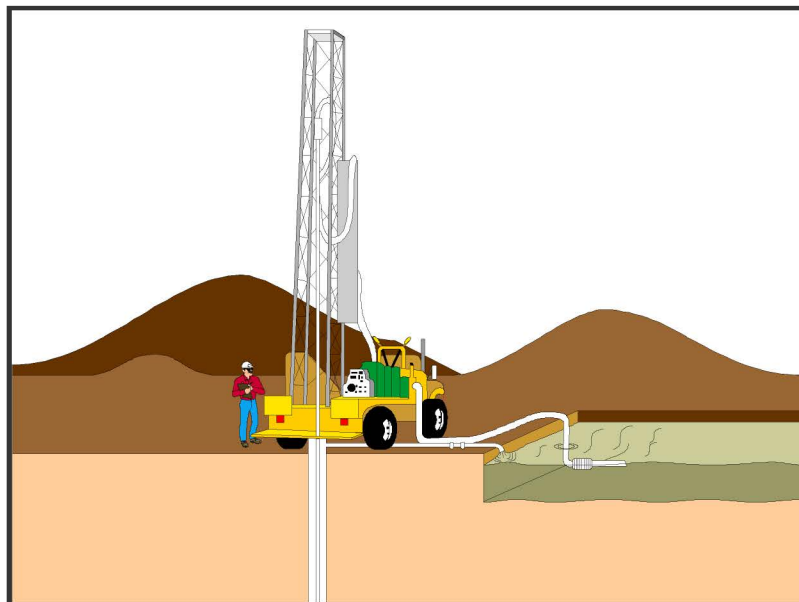
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Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	
Organics	<input checked="" type="checkbox"/>

Potential Alternatives

None

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Description and Purpose

Liquid waste management includes procedures and practices to prevent discharge of pollutants to the storm drain system or to watercourses as a result of the creation, collection, and disposal of non-hazardous liquid wastes.

Suitable Applications

Liquid waste management is applicable to construction projects that generate any of the following non-hazardous by-products, residuals, or wastes:

- Drilling slurries and drilling fluids
- Grease-free and oil-free wastewater and rinse water
- Dredgings
- Other non-stormwater liquid discharges not permitted by separate permits

Limitations

- Disposal of some liquid wastes may be subject to specific laws and regulations or to requirements of other permits secured for the construction project (e.g., NPDES permits, Army Corps permits, Coastal Commission permits, etc.).
- Liquid waste management does not apply to dewatering operations (NS-2 Dewatering Operations), solid waste management (WM-5, Solid Waste Management), hazardous wastes (WM-6, Hazardous Waste Management), or

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	<input checked="" type="checkbox"/>

Legend:

- ☒ **Primary Objective**
- ☒ **Secondary Objective**

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	

Potential Alternatives

None

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EXHIBIT 2: TYPICAL CAPTURE AND USE SYSTEM BMP

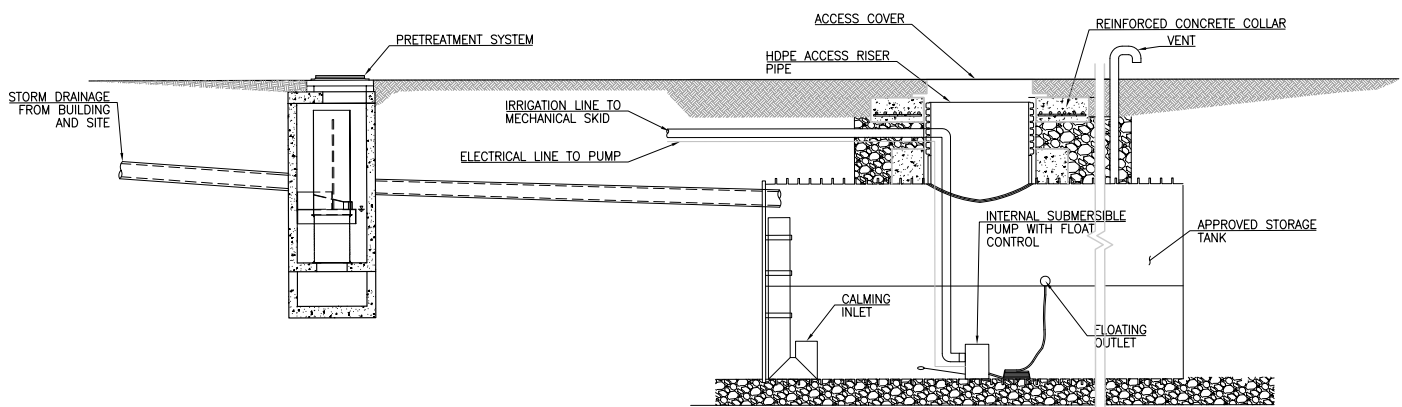


EXHIBIT 3: CAPTURE AND USE CALCULATIONS (AREA A)

Capture & Use Sizing

Note:

Red values to be changed by user.

Black values are automatically calculated.

Proposed Drainage Area A

[1]	Total Area (SF)		40841
[2]	Impervious Area (SF)		39217
[3]	Pervious Area (SF)	$[1] - [2] =$	1624
[4]	Catchment Area (SF)	$([2] * 0.9) + ([3] * 0.1) =$	35458
[5]	Design Rainfall Depth (in)	Greater of 0.75", 85th percentile	1.00
[6]	V_{design} (gal)	$[5] / 12 * 7.48 * [4] =$	22102
[7]	Planting Area (SF)		4150
[8]	Plant Factor*		0.4
[9]	$ETWU_{(7\text{-month})}$	$21.7 * 0.62 * [8] * [7] =$	22334
[10]	Is $V_{\text{design}} \leq ETWU_{(7\text{-month})}$?		YES

*The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.

Source: LID Handbook, City of LA (May 2012)

EXHIBIT 3: CAPTURE AND USE CALCULATIONS (AREA B)

Capture & Use Sizing

Proposed Drainage Area B		
[1]	Total Area (SF)	45808
[2]	Impervious Area (SF)	28691
[3]	Pervious Area (SF)	$[1]-[2] = 17117$
[4]	Catchment Area (SF)	$([2]*0.9)+([3]*0.1) = 27534$
[5]	Design Rainfall Depth (in)	Greater of 0.75", 85th percentile = 1.00
[6]	V_{design} (gal)	$[5]/12*7.48*[4] = 17163$
[7]	Planting Area (SF)	3200
[8]	Plant Factor*	0.4
[9]	$ETWU_{(7\text{-month})}$	$21.7*0.62*[8]*[7] = 17221$
[10]	Is $V_{\text{design}} \leq ETWU_{(7\text{-month})}$?	YES

*The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.

Source: LID Handbook, City of LA (May 2012)