APPENDIX IS-3

Hydrology and Water Quality Report

FOX FUTURE

(10201, 10267, 10271, and 10275 WEST PICO BOULEVARD, LOS ANGELES CA 90064)

HYDROLOGY AND WATER QUALITY REPORT

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1. INTRODUCTION

1.1. PROJECT DESCRIPTION

The Applicant[1], also referred to as FOX, is proposing a new development known as FOX FUTURE or the "Project." The Project includes the development of new media-related and general office uses along with supporting facilities, as well as parking and circulation improvements, landscaping, and open space.

The Project proposes the development of 2,101,583 square feet of floor area. With the proposed demolition of 465,507 square feet of floor area, a maximum of 1,580,868 square feet of floor area would be added to the Project Site, along with 59,717 square feet within buildings that would be adaptively reused, and 460,998 square feet of floor area that would be demolished and replaced.

The Project would be developed in two contiguous locations. Nearly all Project development would occur within the portion of the Century City South Specific Plan designated Specific Plan Area B ("SP Area B"). The remaining development would occur on parcels currently occupied by three existing buildings that are located on the north side of Pico Boulevard west of and abutting SP Area B ("Pico Properties"). Development within both SP Area B and the Pico Properties compose the Project Site ("Project Site"). SP Area B is located at 10201 Pico Boulevard and includes 52.97 acres, whereas the Pico Properties are located at 10267, 10271, and 10275 Pico Boulevard and include a total of 0.33 acres. Thus, the Project Site encompasses a total of 53.30 acres. The Project Site is located within the West Los Angeles Community Plan ("Community Plan") area of the City of Los Angeles.

The 53-acre Project Site is located in the Century City district of the City of Los Angeles, approximately 10 miles west of Downtown Los Angeles and 6 miles east of the Pacific Ocean.

1.1.1. SP AREA B

The proposed redevelopment of portions of SP Area B would result in 2,092,348 square feet of new floor area. With the proposed demolition of 460,998 square feet, a maximum of 1,631,350 square feet of net new media-related and general office uses along with supporting parking facilities, circulation improvements, landscaping, and open space would occur within SP Area B. With total on-site development of 1,805,056 square feet, on-site development within SP Area B would total 3,436,406 square feet at Project buildout.

1.1.2. PICO PROPERTIES

The Project proposes reusing two of the buildings within the Pico Properties (10271 and 10275 Pico Boulevard) for a child care facility that is being relocated from SP Area B and for general office use. The third building at 10267 Pico Boulevard would be

[1] The Project Site is currently owned by Fox Studio Lot, LLC; Pico Property, LLC; and 10271-10275 W Pico Boulevard, LLC; hereafter collectively referred to as the Applicant.

demolished. The three buildings that compose the Pico Properties have a current combined floor area of 13,744 square feet, and total building square footage under the Project would be 9,235 square feet, a reduction of 4,509 square feet compared to existing conditions.

1.2. SCOPE OF WORK

This report describes the existing surface water hydrology, surface water quality, groundwater level, and groundwater quality at the Project Site. In addition, the report includes an analysis of the Project's potential impacts related to surface water hydrology, surface water quality, groundwater level, and groundwater quality.

2. REGULATORY FRAMEWORK

There are several plans, policies, and programs regarding hydrology and water quality at the federal, state, regional, and local levels. Described below, these include:

- United States Clean Water Act
- Federal Antidegradation Policy
- United States Safe Drinking Water Act
- National Flood Insurance Program
- California Porter-Cologne Water Quality Act (California Water Code)
- California Antidegradation Policy
- California Toxics Rule
- California Sustainable Groundwater Management Act of 2014
- County of Los Angeles Hydrology Manual
- National Pollution Discharge Elimination System (NPDES) Permit Program
- Los Angeles Municipal Code Section 62.105, Construction "Class B" Permit
- Los Angeles Municipal Code Sections 12.40 through 12.43, Landscape Ordinance
- Los Angeles Municipal Code Section 64.70, Stormwater and Urban Runoff Pollution Control Ordinance
- Los Angeles Municipal Code Section 64.72, Stormwater Pollution Control Measures for Development Planning and Construction Activities
- City of Los Angeles Low Impact Development Ordinance (No. 181,899)
- City of Los Angeles Water Quality Compliance Master Plan for Urban Runoff
- Stormwater Program – Los Angeles County MS4 Permit Citywide Implementation

2.1. SURFACE WATER HYDROLOGY

County of Los Angeles Hydrology Manual

Per the City of Los Angeles Special Order No. 007-1299, December 3, 1999, the City has adopted the Los Angeles County (County) Department of Public Works (LACDPW) Hydrology Manual (Hydrology Manual) as its basis of design for storm drainage facilities. The Hydrology Manual requires that a storm drain conveyance system be designed for a 25-year storm event and that the combined capacity of a storm drain and street flow system accommodate flow from a 50-year storm event. Areas with sump conditions are required to have a storm drain conveyance system capable of conveying flow from a 50-year storm event.[2] 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 review and approval from the County Flood Control District department. While the storm drain lines adjacent to the Project Site are City-owned pipes, these pipes connect to County-owned pipes before ultimately draining to Ballona Creek.

Los Angeles Municipal Code

Any proposed drainage improvements within the street right of way or any other property 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 private property to a City catch basin or an underground storm drain pipe requires a storm drain connection permit from the City of Los Angeles Department of Public Works, Bureau of Engineering.

National Flood Insurance Program

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 mandate the Federal Emergency Management Agency (FEMA) to evaluate flood hazards.[3] FEMA provides flood insurance rate maps (FIRMs) for local and regional planners to promote sound land use and development practices by identifying potential flood areas based on the current conditions. To delineate a FIRM, FEMA conducts

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[2] Los Angeles County Department of Public Works Hydrology Manual, January 2006, http://ladpw.org/wrd/publication/index.cfm, accessed November 2, 2022.

[3] The National Flood Insurance Act of 1968, as amended, and The Flood Disaster Protection Act of 1973, 42 U.S.C. 4001 et. seq.

engineering studies referred to as flood insurance studies (FIS). Using information gathered in these studies, FEMA engineers and cartographers delineate special flood hazard areas (SFHA) on FIRMs.

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]

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

[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.

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 the 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 SWRCB 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, including the Los Angeles RWQCB (LARWQCB), 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 (CFR) 131.12) requires states to develop statewide anti-degradation policies and identify methods for implementing them. Pursuant to the 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

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[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. July 2011.

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 Toxics Rule

In 2000, the EPA promulgated the California Toxics 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 Toxics 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 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 CWC, 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 groundwater, 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 LARWQCB 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 General Permit

SWRCB Order No. 2012-0006-DWQ, referred to as the "General Permit," was adopted on July 17, 2012. This General Permit establishes a risk-based approach to stormwater control requirements for construction projects. The main objectives of the 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. Establish maintenance commitments on post-construction pollution control measures

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

[7] Los Angeles Regional Water Quality Control Board. LARWQCB Basin Plan. http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/ . accessed November 2, 2022.

adopted in September 2004. *Part B Planning Activities*, 5th Edition was adopted in July 2011. 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 best management practices (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 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. The Standard Urban Stormwater Mitigation Plan (SUSMP) provisions that are applicable to new residential and commercial developments include, but are not limited to, the following:[8]

- Peak Storm Water Runoff Discharge Rate: Post-development peak storm water runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increased peak storm water discharge rate will result in increased potential for downstream erosion;
- Conserve natural areas;
- Minimize Storm Water Pollutants of Concern;
- Protect Slopes and Channels;
- Provide storm drain system Stenciling and Signage;
- Properly design outdoor material storage areas;
- Properly design trash storage areas; and
- Provide proof of ongoing BMP Maintenance of any structural BMPs installed.

[8] Los Angeles Waterboard SUSMP website, https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/susmp/susmp_details.shtml accessed November 2, 2022.

Design Standards for Structural or Treatment Control BMPs:

- Structural or Treatment control BMPs selected for use at any project covered by this SUSMP shall meet the design standards of this Section unless specifically exempted. Post-construction Structural or Treatment Control BMPs shall be designed to:

  A. Mitigate (infiltrate or treat) storm water runoff from either:

  1. The 85th percentile 24-hour runoff event determined as the maximized capture stormwater volume for the area, from the formula recommended in *Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998)*, or

  2. The volume of annual runoff based on unit basin storage water quality volume, to achieve 80% or more volume treatment by the method recommended in *California Stormwater Best Management Practices Handbook—Industrial/ Commercial, (1993)*, or

  3. The volume of runoff produced from a 0.75-inch storm event, prior to its discharge to a stormwater conveyance system, or

  4. The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for "treatment" (0.75-inch average for the Los Angeles County area) that achieves approximately the same reduction in pollutant loads achieved by the 85th percentile 24-hour runoff event

  AND

  B. Control peak flow discharge to provide stream channel and over bank flood protection, based on flow design criteria selected by local agency.

Stormwater Pollution Prevention Plan

California mandates 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. The Project's construction BMPs will be identified in an Erosion Control Plan and submitted to the State Waterboard prior to the start of construction. A construction

site subject to the General Permit must prepare and implement a SWPPP that meets the requirements of the General Permit.[9,10]

A SWPPP is meant to identify potential sources and types of pollutants associated with construction activity and list BMPs that would prohibit pollutants from being discharged from the construction site into the public storm drain system. BMPs typically address stabilization of construction areas, minimization of erosion during construction, sediment control, control of pollutants from construction materials, and post-construction stormwater management (e.g., the minimization of impervious surfaces or treatment of stormwater runoff). The SWPPP is also required to include a discussion of the proposed program to inspect and maintain all BMPs.

A Project Site-specific SWPPP could include, but would not be limited to, the following BMPs:

- Erosion Control BMPs – consist of management of soil surface to prevent soil particles from detaching. Selection of the appropriate erosion control BMPs would be based on minimizing areas of disturbance, stabilizing disturbed areas, and protecting slopes/channels. Such BMPs may include, but would not be limited to, use of geotextiles and mats, earth dikes, drainage swales, and slope drains.

- Sediment Control BMPs – consist of treatment controls that trap soil particles that have been detached by water or wind. Selection of the appropriate sediment control BMPs would be based on keeping sediments on-site and controlling site boundaries. Such BMPs may include, but would not be limited to, use of silt fences, sediment traps, and sandbag barriers, street sweeping and vacuuming, and storm drain inlet protection.

- Wind Erosion Control BMPs – consist of applying water to prevent or minimize dust nuisance.

- Tracking Control BMPs – consist of preventing or reducing the tracking of sediment off-site by vehicles leaving the construction area. These BMPs include street sweeping and vacuuming. Project sites are required to maintain a stabilized construction entrance to prevent off-site tracking of sediment and debris.

- Non-Stormwater Management BMPs – also referred to as "good housekeeping practices," involve keeping a clean, orderly construction site.

- Waste Management and Materials Pollution Control BMPs – consist of implementing procedural and structural BMPs for handling, storing, and disposing

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[9] State Water Resources Control Board. State Water Resources Control Board. July 2012, http://www.swrcb.ca.gov/water_issues/programs/npdes/. accessed November 2, 2022.

[10] USEPA. U.S. Environmental Protection Agency - NPDES. July 2012, https://www.epa.gov/npdes.

of wastes generated by a construction project to prevent the release of waste materials into stormwater runoff or discharges through the proper management of construction waste.

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 July 31, 2021, the LARWQCB adopted Order No. R4-2021-0105 under the CWA and the Porter-Cologne Act, which became effective September 11, 2021. 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 85 cities and most of the unincorporated areas of Los Angeles County as well as 10 cities and unincorporated areas of Ventura County. Under the Permit, the Los Angeles County Flood Control District (LACFCD) is designated as the Principal Permittee. The other permittees are the 85 Los Angeles County cities (including the City of Los Angeles) and Los Angeles County as well as the Ventura County Watershed Protection District, the 10 Ventura County cities and Ventura 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 Co-Permittees.

The Permit provides discharge prohibitions, effluent limitations and discharge specifications, receiving water limitations, standard provisions, monitoring and reporting program requirements, and minimum control measures. The Permit provides the following updates to previous Permits: full trash capture requirements, Priority Development Projects and applicable performance requirements, definition of technical infeasibility, and alternative compliance for on-site flow-based BMPs.

Stormwater Quality Management Program (SQMP)

In compliance with the General 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 SQMP requires the County of Los Angeles and the 85 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;
- 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 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 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 Total Maximum Daily Load (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 and a financial plan 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.

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:

- 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)

In October 2011, the City of Los Angeles passed the Stormwater LID Ordinance (Ordinance No. 181899, updated September 2015 (Ordinance No. 183833)).), amending LAMC Chapter VI, Article 4.4, Sections 64.70.01 and 64.72 to expand the applicability of the existing SUSMP requirements by imposing rainwater Low Impact Development (LID) strategies on projects that add, create or replace 500 square feet or more of impervious area. The Stormwater LID Ordinance went into effect on May 12, 2012. The current City of Los Angeles Planning and Land Development Handbook for LID was published on May 9, 2016.

LID is a stormwater management strategy designed to address 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.[11]

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

[11] City of Los Angeles. "Development Best Management Practices Handbook." May, 2016

- 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 off-site 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 will adopt the LID standards as issued by the LARWQCB and the City of Los Angeles Department of Public Works. The LID Ordinance will conform to the regulations outlined in the NPDES permit and SUSMP.

2.3. GROUNDWATER

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

As required by the CWC, 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 groundwater, 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.

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.

Safe Drinking Water Act (SDWA)

The Federal Safe Drinking Act, established in 1974, sets drinking water standards throughout the United States and is administered by the USEPA. The drinking water standards established in the SDWA, as set forth in the 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 California Code of Regulations (CCR), Title 22, Division 4, Chapter 15, that are at least as stringent as those developed by the USEPA under the federal Safe Drinking Water Act.

Sustainable Groundwater Management Act of 2014

The Sustainable Groundwater Management Act of 2014 (SGMA) creates a framework for sustainable, local groundwater management in California. SGMA allows local agencies to customize groundwater sustainability plans to their regional economic and environmental needs. This act requires local regions to create a groundwater sustainability agency (GSA) and to adopt groundwater management plans for groundwater basins or subbasins that are designated as medium or high priority. High-priority and medium-priority basins or subbasins must adopt groundwater management plans by 2020 or 2022, depending upon whether the basin is in critical overdraft. The Project Site is in the Coastal Plain of Los Angeles Groundwater Basin. The Groundwater Basin is classified as a very low priority and does not have a specific subbasin groundwater management plan.

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 CWC 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.

NPDES Permit for Discharges of Groundwater from Construction and Project Dewatering

Dewatering operations are practices that discharge non-stormwater, such as groundwater, that must be removed from a work location into the drainage system to proceed with construction into the water table. Discharges from dewatering operations can contain high levels of fine sediments, which if not properly treated, could lead to exceedance of the NPDES requirements. A NPDES Permit for dewatering discharges was adopted by the LARWQCB on September 13, 2018 (Order No. R4-2018-0125, General NPDES Permit No. CAG994004). Similar to the Construction General Permit, to be authorized to discharge under this permit, the developer must submit a Notice of Intent (NOI) to

discharge groundwater generated from dewatering operations during construction in accordance with the requirements of this Permit.[12]

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 area under the jurisdiction of Caltrans.

The Watershed is highly developed: residential (64%), industrial (4%), vacant/open space (17%), and commercial (8%) are the predominant land uses. Overall, 76% 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, which is a slow, steady flow. The average wet weather flow is ten times higher, and even more during large storms.[13] Refer to Figure 1 for the 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 up to approximately

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[12] Los Angeles Regional Water Quality Control Board (LARWQCB), Order No. R4-2018-0125, General NPDES Permit No. CAG994004, Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties, September 13, 2018.

[13] City of Los Angeles Stormwater Program website, http://www.lastormwater.org/about-us/about-watersheds/ballona-creek/; accessed November 2, 2022.

71,400 cubic feet of stormwater per second into the Santa Monica Bay from a 50-year frequency storm event.[14]

3.1.2. LOCAL

3.1.2.1. SP AREA B

Based on a review of existing conditions, the Project Site slopes downward from the northeast corner to the southwest corner of the Project Site with approximately 68 feet of elevation change (from 313 to 245 feet above mean sea level). Without the existing storm drain system, the Project Site would convey sheet flows southeast to the exit at Pico Boulevard and Motor Avenue, south to the southernmost exit at Pico Boulevard, and southwest to the exit at Tennessee Avenue.

Stormwater runoff from the Project Site is conveyed through a network of City-owned pipes and County-owned pipes and channels that ultimately drains to Ballona Creek. There are three storm drain points of connection from the Project Site to the public storm drain system:

1. A 30-inch storm drain lateral at the southeast corner of the Project Site that connects to a 54-inch City-owned pipe in Pico Boulevard. Stormwater collected in this pipe flows northeast through City pipes, then joins with the County-owned Benedict Canyon Channel at the intersection of Pico Boulevard and Roxbury Drive. Benedict Canyon Channel flows south to Ballona Creek.
2. A 36-inch storm drain lateral at the southwest corner of the Project Site that connects to a 36-inch City-owned pipe in Almayo Avenue. Stormwater collected in this pipe flows south through City pipes, then joins with the County-owned Sepulveda Channel at the intersection of Queensland Street and Military Avenue. Sepulveda Channel flows south to Ballona Creek.
3. A 12-inch storm drain lateral at the northwest corner of the Project Site that connects to a 24-inch City-owned pipe in Olympic Boulevard. Stormwater collected in this pipe flows south through City pipes, then also joins with the County-owned Sepulveda Channel at the intersection of Queensland Street and Military Avenue. Sepulveda Channel flows south to Ballona Creek.

3.1.2.2. PICO PROPERTIES

Onsite stormwater runoff from the Pico Properties sheet flows towards the driveway on Fox Hills Drive. The surface water then travels north along Fox Hills Drive, where it is received by a catch basin at the corner of Fox Hills and Almayo Avenue. The stormwater is then conveyed through the above-mentioned 36-inch city-owned pipe

[14] Ballona Creek Watershed, http://www.ladpw.org/wmd/watershed/bc/; accessed November 2, 2022.

in Almayo Avenue, before flowing South and discharging into the Sepulveda Channel.

3.1.3. PROJECT SITE

3.1.3.1. SP AREA B

Based on a review of existing conditions, SP Area B has been divided into three drainage areas, which are shown in Figure 2. The drainage areas are divided into the portion of the Project Site which flows into the Pico Boulevard pipe (Drainage Area A), that which flows into the Almayo Avenue pipe (Drainage Area B), and that which flows into the Olympic Boulevard pipe (Drainage Area C). All drainage areas generally slope south and are divided from one another by the existing storm drain system in the Project Site. The existing Project Site surface consists of media-related uses, as well as roads.

Table 1 below shows the existing volumetric flow rate generated by the 50-year storm event (Q_{50}).

Table 1- Existing Drainage Stormwater Runoff Calculations (SP Area B)			
Drainage Area	Area (acres)	Approx. Impervious (%)	Q_{50} (cfs) (volumetric flow rate measured in cubic feet per second)
A	24.7	89.2	67.9
B	21.3	95.7	68.6
C	7.0	90.5	20.7
TOTAL	53.0	92.0	157.2

3.1.3.2. PICO PROPERTIES

The Pico Properties consist of a single drainage area that flows north along Fox Hills Drive into the Almayo Avenue pipe (Drainage Area D).

Table 2 below shows the approximate existing volumetric flow rate generated by the 50-year storm event (Q_{50}).

Table 2- Existing Drainage Stormwater Runoff Calculations (Pico Properties)			
Drainage Area	Area (acres)	Approx. Impervious (%)	Q_{50} (cfs) (volumetric flow rate measured in cubic feet per second)
D	0.33	95.0	1.06

3.2. SURFACE WATER QUALITY

3.2.1. REGIONAL

As described above, the Project Site lies within the Ballona Creek Watershed. Constituents of concern listed for Ballona Creek under CWA Section 303(d) include cadmium (sediment), chlordane (tissue and sediment), coliform bacteria, copper (dissolved), cyanide, DDT, lead, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), selenium, sediment toxicity, Shellfish Harvesting Advisory, silver, toxicity, trash, viruses (Enteric), and zinc. TMDL data has been collected and recorded by the USEPA for the Ballona Creek Watershed. TMDLs that apply to the waterbody include PCBs (Polychlorinated biphenyls), DDT (Dichlorodiphenyltrichloroethane), Cadmium, Zinc, Chlordane, Indicator Bacteria, PAHs (Polycyclic Aromatic Hydrocarbons), Copper, Toxicity, Lead, Silver, Trash, and Viruses (enteric).[15] Water quality in Ballona Creek has been diminished due to pollutants from dense clusters of residential, industrial, and other urban activities.

3.2.2. LOCAL

In general, urban stormwater runoff occurs following precipitation events, with the volume of runoff flowing into the drainage system depending 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 sources of contaminants include surface areas where precipitation falls, as well as the air through which it falls. 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 of Los Angeles typically installs 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. PROJECT SITE

Any construction prior to the City of Los Angeles implementing the Standard Urban Stormwater Mitigation Plans (SUSMPs) in 2002 would likely not include any stormwater treatment facilities. Any construction occurring between 2002 and the adoption of Low Impact Development (LID) in 2012 would conform with the SUSMP requirements in effect at the time of building construction. Any construction therafter would conform to LID standards. Because some buildings on the Project site predate the adoption of SUSMP and LID, it is assumed that there are areas on site where pollutants such as sediment, nutrients, pesticides, metals, pathogens, and oil and grease occur in the existing surface water runoff.

[15] 2018 California Integrate Report Waterbody Fact Sheets (Excel Version); https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html.

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 Groundwater 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. Refer to Figure 3 for the Map of the Coastal Plain of the Los Angeles Groundwater Basin.

3.3.2. LOCAL

The Project Site is located within the Santa Monica Subbasin. The Santa Monica Subbasin is bounded on the north by the Santa Monica Mountains, on the east by the Inglewood fault, on the south by the Ballona escarpment, and on the west by the Pacific Ocean. Surface drainage flows southwest to Ballona Creek and the Pacific Ocean. Average annual precipitation ranges from 12 to 14 inches.

Groundwater in the Santa Monica Subbasin is replenished by percolation of precipitation and surface runoff onto the subbasin from the Santa Monica Mountains. The Inglewood fault may inhibit replenishment by underflow from the Central Basin to the east, though some inflow may occur at its northern end. (DWR 1961).[16]

3.3.3. PROJECT SITE

Historically, the highest groundwater reported is approximately 25 feet below the existing Project Site grade. This is based on comparison of the California Geological Survey Seismic Hazard Zone Report of the Beverly Hills Quadrangle along with other available information. The range of groundwater depth based on previous investigations is reported as 25 feet to 45 feet below ground surface.

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 LARWQCB. According to LARWQCB's Basin Plan, objectives applying to all ground waters of the region include

[16] https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/4_011_01_SantaMonicaSubbasin.pdf; accessed October 14, 2022.

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 is located within the Santa Monica Subbasin. Based upon LARWQCB's Basin Plan, constituents of concern listed for the Santa Monica Subbasin include boron, chloride, sulfate, and Total Dissolved Solids (TDS).

3.4.3. PROJECT SITE

3.4.3.1. SP AREA B

SP Area B is improved with media-related uses and roads, a limited portion of which is pervious. Infiltration through pervious areas may increase potential for surface water-borne contaminants, such as pesticides and fertilizers, to percolate into underlying soils and groundwater. Given the limited size of pervious areas (approximately 8%), it is unlikely that SP Area B would contribute substantially to groundwater recharge, or otherwise adversely affect groundwater quality. Fox holds several industrial wastewater discharge permits. All on-site activities occur in accordance with the requirements set forth in those permits. .

Based on available information, there are two drywells on SP Area B.

Based on available information, SP Area B is located within a methane zone risk area. Therefore, all development is subject to the Methane Mitigation Standards in Los Angeles Building Code Chapter 71. These standards require methane testing and potentially require methane mitigation based on testing results.

3.4.3.2. PICO PROPERTIES

The Pico Properties consist of three buildings, with associated surface parking. Given that pervious areas on the Pico Properties only account for approximately 0.03% of the total Project Site, it is unlikely that the Pico Properties would contribute substantially to groundwater recharge, or otherwise adversely affect groundwater quality.

Based on available information, the Pico Properties are located within a methane zone risk area. Therefore, all development is subject to the Methane Mitigation Standards in Los Angeles Building Code Chapter 71. These standards require methane testing and potentially require methane mitigation based on testing results.

[17] Los Angeles Regional Water Quality Control Board, Basin Plan, March 2013, http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/electronics_documents/Final%20Chapter%203%20Text.pdf accessed October 14, 2022.

4. SIGNIFICANCE THRESHOLDS

In accordance with Appendix G of the CEQA Guidelines, a project would have a significant impact related to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, 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 stormwater 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; or
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

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 adopted the LACDPW Hydrology Manual as its basis of design for storm drainage facilities. The 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. To provide a more conservative analysis, this report analyzes a 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 (Tc) 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 subarea independent of all adjacent subareas. Subareas were delineated by discharge point. There are three subareas in total, where each subarea discharges to a different City pipe (Refer to Section 3.1.2 for discharge locations). The subareas were then added together to produce the most conservative flow estimate. See Figure 4 for the HydroCalc Hydrology Results Existing, Figure 5 for HydroCalc Hydrology Results Proposed, and Figure 6 for the Beverly Hills 50-Year 24-Hour Isohyet Map.

5.2. SURFACE WATER QUALITY

5.2.1. CONSTRUCTION

Construction BMPs will be designed and maintained as part of the implementation of the SWPPP in compliance with the Construction General Permit. The SWPPP will be implemented when Project construction commences, before any Project Site clearing and grubbing or demolition activity takes place. During Project construction, the SWPPP will be referred to regularly and amended as needed throughout the construction process. As the total area of ground disturbance is greater than one acre, the Project will be required to file the SWPPP with the state and will be required to comply with the requirements of the Construction General Permit and local regulations.

5.2.2. OPERATION

The Project must comply with the requirements of the City's LID standards. Under Section 3.2.2. of the LID Manual, post-construction stormwater runoff from a new development must be infiltrated, evapotranspirated, captured and used, and/or treated through high

efficiency BMPs on-site for at least the volume of water produced by the greater of the 85th percentile storm or the 0.75-inch storm event. Less than 50% of the impervious surface of the Project Site is proposed to be altered under the proposed Project. The areas proposed for development total 13 acres within the 53-acre Project Site (i.e., 13 acres is approximately 24.5% of the entire Project Site area). Therefore, only the areas proposed for development under the Project must meet the requirements of the LID Standards Manual.[18]

The LID Manual prioritized the selection of BMPs used to comply with stormwater mitigation requirements (please refer to Exhibit 1 for Typical LID BMPs). The order of priority is:

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

Feasibility screening delineated in the LID Manual is applied to determine which BMPs 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. As described in Section 3.3.3, the historically highest groundwater level for the Project area is approximately 25 feet below the existing Project Site grade.

Ultimately, one or multiple stormwater management strategies will be incorporated into LADBS' building permit review and approval process. Through this existing regulatory process, stormwater management strategies will be implemented to conform to the LASAN regulatory guidelines.

5.3. GROUNDWATER HYDROLOGY

To determine the significance of the Project as it relates to the level of the underlying groundwater table of the Coastal Plain of Los Angeles – Santa Monica Groundwater Basin, the following considerations were reviewed and analyzed:

Analysis and Description of the Project's Existing Condition

- Identification of the Coastal Plain of Los Angeles – Santa Monica Basin as the underlying groundwater basin, and description of the level, quality, direction of flow, and existing uses for the water;

[18] The Development Best Management Practices Handbook, Part B Planning Activities, 5th 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.

- 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.

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.

5.4. GROUNDWATER QUALITY

In addition to the items discussed in Section 5.3 above, this report discusses the impact of both existing and proposed activities at the Project Site on the groundwater quality of the underlying Coastal Plain of Los Angeles – Santa Monica Groundwater Basin.

6. PROPOSED IMPACT ANALYSIS

6.1. CONSTRUCTION

6.1.1. SURFACE WATER HYDROLOGY

Construction activities for the Project include demolition of existing structures and flat work on-site, Project Site clearing, and excavation. Excavation depth varies throughout the Project Site: Subareas 1A and 6A are to be excavated to a maximum depth of 55 feet; Subareas 5A and 5B to a maximum depth of 75 feet; and Subareas 2A, 3A through 3F, and 4A to 5 feet below ground surface. There are potential dewatering requirements for Subareas 1A, 5A and 5B, and 6A, as discussed below under the heading of Groundwater Hydrology, as the proposed excavations in these Subareas could exceed the highest historical groundwater level of 25 feet below the ground surface.

It is anticipated that approximately 669,127 cubic yards of soil would need to be exported as a result of the Project. [19] These activities will temporarily expose the underlaying soils and may make the Project Site temporarily more permeable. Also, exposed and stockpiled soils could be subject to wind and conveyance into nearby storm drains during storm events. In addition, on-site watering activities to reduce airborne dust control could contribute to pollutant loading in runoff.

[19] Earthwork quantities assume a 15% swell factor.

However, as the construction site would be greater than one acre, the Project would be required to obtain coverage under the NPDES Construction General 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 for dust reduction on the Project Site so runoff does not impact off-site drainage facilities or receiving waters. Construction activities would be temporary, and flow directions and runoff volumes during construction would 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 Permit requirements, including preparation of a SWPPP, implementation of BMPs, and compliance with applicable City grading regulations, Project construction activities 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 the NPDES Construction General Permit in construction activities would prevent flooding, substantially increasing or decreasing the amount of surface water flow from the Project Site into a water body, or a permanent, adverse change to the movement of surface water. Examples include slope drains that can be used to intercept and direct surface runoff or groundwater into a stabilized area and compost socks and berms that act as three-dimensional biodegradable filtering structures to intercept runoff where sheet flow occurs.[20] Therefore, temporary Project construction-related impacts on surface water hydrology would be less than significant.

6.1.2. SURFACE WATER QUALITY

Construction activities such as earth moving, maintenance and operation of construction equipment, potential dewatering, and handling, storage and disposal of materials could contribute to pollutant loading in stormwater runoff. However, as previously discussed, the Project would be required to obtain coverage under the NPDES Construction General Permit (Order No. 2009-0009-DWQ). In accordance with the requirements of the permit, the Project would prepare and implement a Project 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 would not necessarily be limited to, erosion control, sediment control, non-stormwater management, and materials management BMPs. Refer to Exhibit 2 for typical SWPPP BMPs implemented during the construction of development projects.

With the implementation of the SWPPP and Project Site-specific BMPs, the Project would reduce or eliminate the discharge of potential pollutants into stormwater runoff. In addition,

[20] California Stormwater Quality Association BMP Handbooks Construction; https://www.casqa.org/resources/bmp-handbooks/construction.

the Project would be required to comply with City grading permit regulations, which require implementation of necessary measures, plans (including a wet weather erosion control plan if construction occurs during the rainy season), and inspections 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 waters of the State 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) a 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 a violation of the regulatory standards established by the Los Angeles Regional Water Quality Control Board. The Project would not create substantial additional sources of polluted runoff, nor would it conflict with the implementation of a water quality control plan. In addition, implementation of the Erosion Control Plan would ensure that Project construction activities would not result in substantial erosion or siltation on- or off-site, or risk release of other pollutants due to inundation. Therefore, temporary Project construction-related impacts on surface water quality would be less than significant.

6.1.3. GROUNDWATER HYDROLOGY

As stated above, construction activities for the Project would include excavating up to a depth of 75 feet below the existing Project Site grade (Refer to Section 6.1.1 for excavation depth variance throughout the Project Site). The City requires the use of the highest historical groundwater level for design and engineering purposes. The highest historical groundwater level is at approximately 25 feet below the ground surface, and, as such, dewatering initiatives should be part of construction planning and deployed if conditions warrant. Dewatering operations are practices that discharge non-stormwater, such as groundwater, that must be removed from a development location and discharged into the storm drain system to proceed with construction. Discharges from dewatering operations can contain high levels of fine sediments, which, if not properly treated, could exceed the NPDES requirements. If groundwater is encountered during construction, temporary pumps and filtration would be utilized in compliance with the NPDES permit. The temporary system would comply with all applicable NPDES requirements related to construction and discharges from dewatering operations. If dewatering is required, the treatment and disposal of the dewatered water would occur in accordance with the requirements of LARWQCB's Waste Discharge Requirements for Discharges of Groundwater from Construction and Project Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties.[21] It is anticipated that the Project impacts on groundwater hydrology during construction would be less than significant.

[21] Waterboard website, Coast Watersheds of Los Angeles and Ventura Counties https://www.waterboards.ca.gov/rwqcb4/board_decisions/tentative_orders/general/npdes/cag994004/index.html; accessed November 2, 2022

6.1.4. GROUNDWATER QUALITY

As discussed above, the Project would include excavations to a depth of up to 75 feet below the existing Project Site grade (Refer to Section 6.1.1 for excavation depth variance throughout the Project Site). The Project would also result in a net export of up to approximately 669,127 cubic yards of existing soil material. [22] While not anticipated, 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 applicable regulatory requirements as required.

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 that may result could increase the potential for hazardous materials to be released into groundwater. Compliance with all applicable federal, state, and local requirements concerning the handling, storage and disposal of hazardous waste, such as those applicable provisions of the CCR Title 22, 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. In addition, Project construction activities are not anticipated to affect existing wells, as there are no groundwater production wells or public water supply wells within one mile of the Project. Therefore, the Project would not result in any substantial increase in groundwater contamination through the release of hazardous materials, and Project impacts on groundwater quality would be less than significant.

6.2. OPERATION

6.2.1. SURFACE WATER HYDROLOGY

6.2.1.1. SP AREA B

It is forecasted that proposed Project buildout will minimally increase impervious area by 0.3%[23]. The proposed drainage condition is shown in Figure 7.

Table 3 below shows the proposed volumetric flow rate generated by the 50-year storm event (Q_{50}). Due to the minimal increase in impervious area, the flow rates shown in this table are equivalent to the flow rates shown in Table 1. Therefore, the existing stormwater system is anticipated to have the capacity to serve the new development.

[22] Earthwork quantities assume a 15% swell factor.
[23] SP Area B is 92.0% and 92.3% impervious under existing and Project conditions, respectively.

Table 3- Proposed Drainage Stormwater Runoff Calculations (SP Area B)			
Drainage Area	Area (acres)	Impervious (%)	Q_{50} (cfs) (volumetric flow rate measured in cubic feet per second)
A	24.7	88.6	67.9
B	21.3	97.0	68.6
C	7.0	91.2	20.7
TOTAL	53.0	92.3	157.2

6.2.1.2. PICO PROPERTIES

The proposed Project buildout will increase the pervious area within the Pico properties from approximately 5.0% to 13.8%. The proposed drainage condition is shown in Figure 7.

Table 4 below shows the approximate proposed volumetric flow rate generated by the 50-year storm event (Q_{50}). Due to the minimal decrease in impervious area, the flow rates shown in this table are equivalent to the flow rates shown in Table 2. Therefore, the existing stormwater system is anticipated to have the capacity to serve the new development.

Table 4- Proposed Drainage Stormwater Runoff Calculations (Pico Properties)			
Drainage Area	Area (acres)	Approx. Impervious (%)	Q_{50} (cfs) (volumetric flow rate measured in cubic feet per second)
D	0.33	86.2	1.06

The Project's stormwater infrastructure will be designed to convey the 50-year storm to the desired discharge location. Inlets within the Project Site will be sized to address ponding. Due to the Project maintaining or minimally decreasing the amount of impervious surface, the drainage within the Project Site is expected to be similar to the current condition.

The LID regulatory measures for the Project would outline the stormwater treatment post-construction BMPs required to control pollutants associated with storm events up to the 85th percentile storm event. The Project's proposed BMPs would address the stormwater runoff quality and quantity.

Additionally, the Project Site is located within Zone X identified by FEMA and published in the FIRM.[24] Zone X is defined as areas of minimal flood hazard. Refer to Figure 8 for the FEMA Flood Hazard Map.

With the Project's regulatory required BMPs in place, 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 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.

6.2.2. SURFACE WATER QUALITY

Under Section 3.1.3. of the LID Manual, post-construction stormwater runoff from new projects must be infiltrated, evapotranspirated, captured and used, and/or treated through high efficiency BMPs on-site for the volume of water produced by the 85th percentile storm event. With implementation of LID BMPs, 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 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) a 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.

As is typical of most urban developments, stormwater runoff from the Project Site has the potential to introduce pollutants into the stormwater system. Potential pollutants that may be generated by the Project include sediment, nutrients, pesticides, metals, pathogens, and oil and grease. The pollutants listed above and any other pollutants generated by the Project would be addressed through the implementation of approved LID BMPs. It is conservatively assumed that all listed pollutants are currently generated on the Project Site.

Furthermore, operation of the Project would not result in discharges that would cause regulatory standards to be violated. The existing Project Site is approximately 92% impervious. As Project development affects less than 50% of the Project Site, per the provisions of the City's LID requirements, stormwater BMPs specifically intended to control and treat stormwater runoff from areas of proposed development would be implemented in compliance with LID regulatory requirements. An existing drywell currently treating building 795 will be demolished as part of the Project. The demolition of this drywell would occur in accordance with all regulatory requirements. The LID BMPs that would be implemented under the Project would address at a minimum the first flush or the equivalent of the greater between the 85th percentile storm and first 0.75-inch of

[24] FIRMs depict the 100-year floodplain as Zone A, Zone AO, Zone AH, Zones A1-A30, Zone AE, Zone A99, Zone AR, Zone AR/AE, Zone AR/AO, Zone AR/A1-A30, Zone AR/A, Zone V, Zone VE, and Zones V1-V30. FIRMs depict the 500-year floodplain as Zone B or Zone X (shaded).

rainfall for any storm event. The installed BMP systems will be designed with an internal bypass or overflow system to prevent upstream flooding due to large storm events. The stormwater which bypasses the BMP systems is greater than the 85th percentile storm volume and has significantly less pollutants than the first flush. The stormwater after the first flush would discharge to an approved discharge point in the public right-of-way. As such, the Project would not interfere with the implementation of a water quality control plan and would not increase concentrations of the items listed as constituents of concern for the Ballona Creek Watershed.

6.2.3. GROUNDWATER HYDROLOGY

It is anticipated that the Project buildout will minimally increase impervious area. Excess stormwater, which bypasses the BMP systems, would discharge to an approved discharge point in the public right-of-way and would 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 discussed above, the Project would include excavations to a depth of up to 75 feet below ground surface (Refer to Section 6.1.1 for excavation depth variance throughout the Project Site). The Project would also result in a net export of approximately 669,127 cubic yards of soil.[25] 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. If groundwater is encountered during construction this may require temporary or permanent dewatering operations which will have to follow the appropriate regulatory permits.

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

6.2.4. GROUNDWATER QUALITY

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 a spreading ground facility. However, the Project Site is located on the Cheviot Hills oil field and there are 22 abandoned oil wells on the Project Site.[26] Based on available information, these oil wells are plugged and are not located on any of the areas within the Project Site proposed for development.

[25] Earthwork quantities assume a 15% swell factor.

[26] CalGEM Well Finder. https://maps.conservation.ca.gov/doggr/wellfinder/#/-118.41029/34.05195/18 , accessed November 2, 2022.

In general, operational activities which could affect groundwater quality include spills of hazardous materials and leaking underground storage tanks. Surface spills from the handling of hazardous materials most often involve small quantities and are cleaned up in a timely manner, thereby resulting in little threat to groundwater. Other types of risks, such as leaking underground storage tanks, have a greater potential to affect groundwater. No underground storage tanks are currently operated or will be operated within the disturbed areas of the Project site.

Source control measures per the City's LID requirements, including good housekeeping, removal of trash and maintenance of driveways and parking areas, and proper use and storage of pesticides, would also reduce surface water quality impacts and would prevent pollutants from entering the groundwater by percolation within landscaped areas or other permeable surfaces. Any on-site use of hazardous materials to be used in association with operation of the Project, such as small quantities of potentially hazardous materials in the form of cleaning solvents, painting supplies, and pesticides for landscaping, as well as fuel storage associated with maintenance and/or emergency equipment, would be contained, stored, and used in accordance with manufacturers' instructions and handled in compliance with applicable standards and regulations such that no hazardous materials would be exposed to or otherwise would adversely impact groundwater quality. CASQA provides suggested protocols including, but not limited to, "spot cleaning" leaks and drips routinely, labeling drains within the facility boundary, posting signs to remind employees not to top off the fuel tank when filling, and reporting leaking vehicles to fleet maintenance.[27] Therefore, the Project would not affect or expand any potential areas of contamination, increase the level of contamination, or cause regulatory water quality standards at an existing production well to be violated, as set forth in the CCR, Title 22, Division 4, Chapter 15 and the Safe Drinking Water Act.

The Project is not anticipated to result in violations of any water quality standards or waste discharge requirements or otherwise substantially degrade groundwater quality. Additionally, the Project does not involve drilling to or through a clean or contaminated aquifer. Therefore, the Project's impact on groundwater quality would be less than significant.

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. In conjunction with forecasted growth in the Ballona Creek Watershed, the Project could cumulatively increase stormwater runoff flows. However, as noted above, the Project itself is not anticipated to have a net impact on stormwater flow volumes or drainage patterns. Also, in accordance with City requirements, the Project and related projects[28] would be required to implement BMPs to manage stormwater runoff in

[27] CASQA BMPs Vehicle and Equipment Fueling SC-20; https://www.casqa.org/sites/default/files/BMPHandbooks/sc-20_municipal_2003.pdf.

[28] Related projects list provided by Gibson Transportation Consulting, 2023.

accordance with LID guidelines. The City of Los Angeles Department of Public Works reviews projects on a case-by-case basis to ensure sufficient local and regional infrastructure is available to accommodate stormwater runoff and preclude flooding. Implementation of LID BMPs would, at a minimum, maintain existing runoff conditions, and possibly improve existing conditions. Therefore, potential cumulative impacts associated with the Project on surface water hydrology would be less than significant.

6.3.2. SURFACE WATER QUALITY

Future growth in the Ballona Creek Watershed would be subject to NPDES requirements relating to water quality for both construction and operation. The Project Site is located in a highly urbanized area, and like the Project, related projects in this area would be required to treat surface water. As such, it is anticipated that future development projects in this highly urbanized area are not likely to cause substantial changes in regional water quality. As noted above, the Project would have a less than significant impact on surface water quality due to the introduction of LID BMPs, which would be required for any new development at the Project Site. It is likewise anticipated that related projects would also be subject to LID requirements and implementation of measures to comply with TMDLs. Therefore with compliance with all applicable laws, rules and regulations, the Project's contribution to cumulative impacts to surface water quality would not be cumulatively considerable. As such, cumulative impacts would be less than significant.

The Project does not conflict with or obstruct any water quality control plan.

6.3.3. GROUNDWATER HYDROLOGY

The geographic context for the cumulative impact analysis on groundwater levels is the Santa Monica Subbasin. As noted above, no water supply wells, spreading grounds, or injection wells are located within a one-mile radius of the Project Site and the Project would not have an adverse impact on groundwater levels.

Furthermore, as previously discussed, the Project would minimally increase the amount of impervious surface area on the Project Site and comply with the City's LID requirements. As such, the Project is anticipated to have a less than significant impact on groundwater recharge. While any calculation of the extent to which related projects would increase or decrease surface imperviousness that might affect groundwater hydrology would be speculative, the development of such 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, the Project and related projects are located in a highly urbanized area, so any potential reduction or increase in groundwater would be minimal in the context of the regional groundwater basin. Therefore, cumulative impacts to groundwater hydrology would be less than significant.

6.3.4. GROUNDWATER QUALITY

Future growth in the Santa Monica 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, particularly in light of regulatory requirements to protect groundwater quality. As noted above, the Project would not have an adverse impact on groundwater quality. Also, it is anticipated that, like the Project, other future development projects would be subject to LARWQCB requirements and implementation of measures to comply with TMDLs in addition to requirements of CCR, Title 22, Division 4, Chapter 15 and the Safe Drinking Water Act. Thus, with compliance with all applicable laws, rules, and regulations, related project development would be unlikely to cause or increase groundwater contamination. based on the analysis provided above, the Proposed Project's contribution to cumulative impacts would not be cumulatively considerable. As such, cumulative impacts to groundwater quality would be less than significant.

7. LEVEL OF SIGNIFICANCE

The Project does not conflict with or obstruct the implementation of any water quality control plan or any sustainable groundwater management plan.

Based on the analysis contained in this report, Project-level and cumulative impacts on surface water hydrology, surface water quality, groundwater hydrology and groundwater quality would be less than significant.

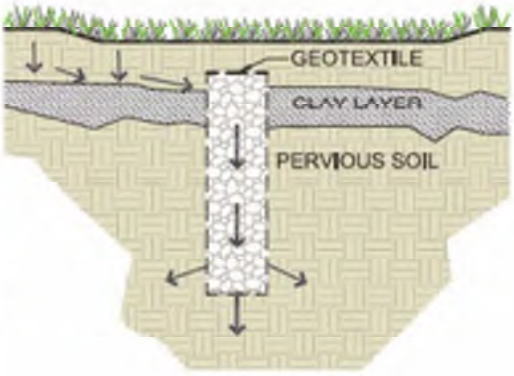
APPENDICES

Exhibit 1

TYPICAL LID BMPs

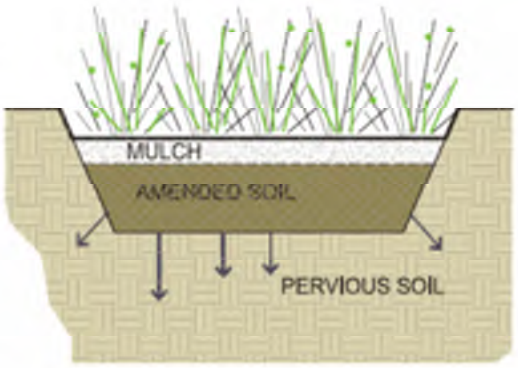
Dry Wells

A dry well is defined as an excavated, bored, drilled, or driven shaft or hole whose depth is greater than its width. Drywells are similar to infiltration trenches in their design and function, as they are designed to temporarily store and infiltrate runoff, primarily from rooftops or other impervious areas with low pollutant loading. A dry well may be either a drilled borehole filled with aggregate or a prefabricated storage chamber or pipe segment.



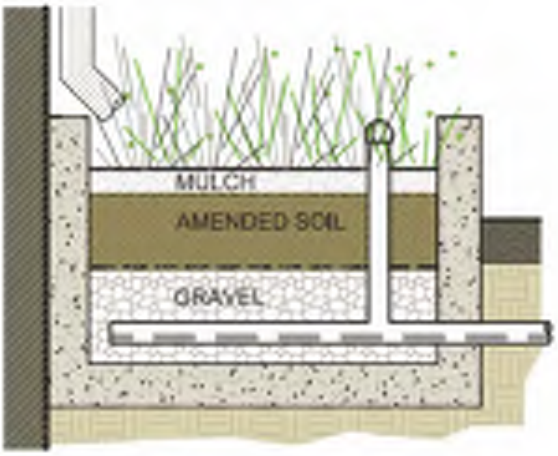
Bioretention

Bioretention stormwater treatment facilities are landscaped shallow depressions that capture and filter stormwater runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. The facilities normally consist of a ponding area, mulch layer, planting soils, plantings, and, optionally, a subsurface gravel reservoir layer.



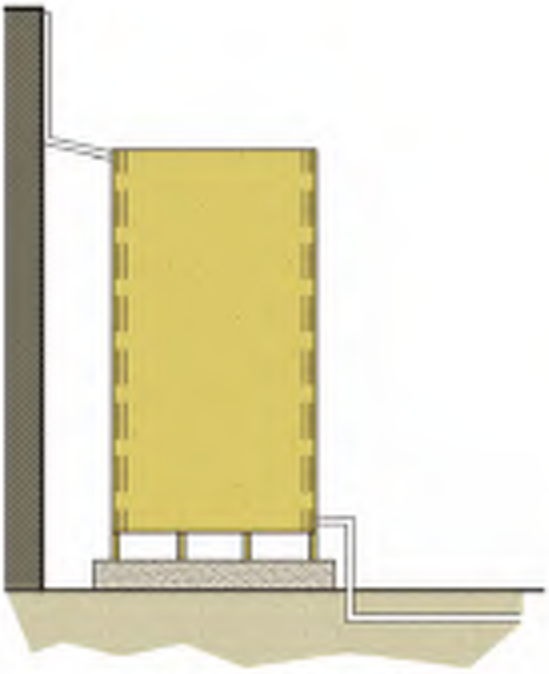
Planter Boxes

Planter boxes are bioretention treatment control measures that are completely contained within an impermeable structure with an underdrain (they do not infiltrate). They are similar to bioretention facilities with underdrains except they are situated at or above ground and are bound by impermeable walls. Planter boxes may be placed adjacent to or near buildings, other structures, or sidewalks.



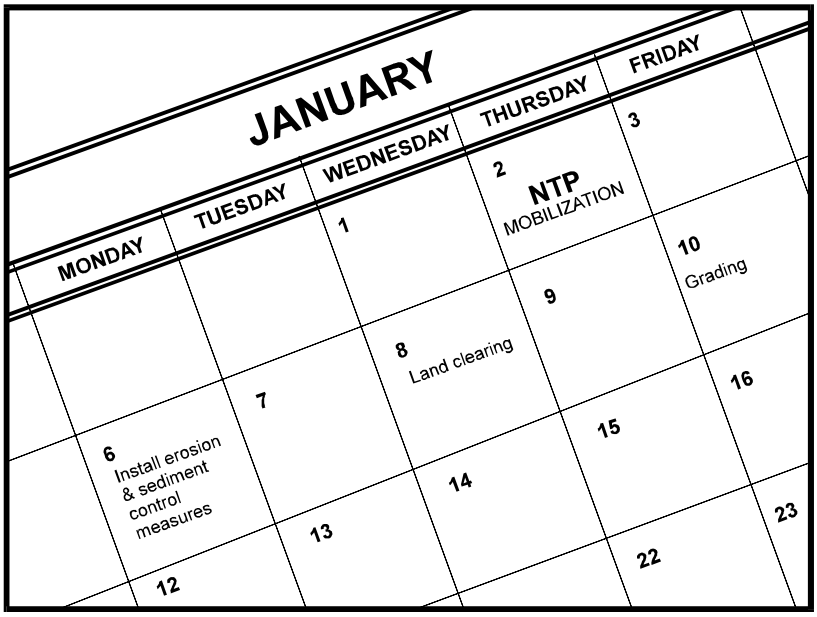
4.5 CAPTURE AND USE BMPS

Capture and Use refers to a specific type of BMP that operates by capturing stormwater runoff and holding it for efficient use at a later time. On a commercial or industrial scale, capture and use BMPs are typically synonomous with cisterns, which can be implemented both above and below ground. Cisterns are sized to store a specified volume of water with no surface discharge until this volume is exceeded. The primary use of captured runoff is for subsurface drip irrigation purposes. The temporary storage of roof runoff reduces the runoff volume from a property and may reduce the peak runoff velocity for small, frequently occurring storms. In addition, by reducing the amount of stormwater runoff that flows overland into a stormwater conveyance system, less pollutants are transported through the conveyance system into local streams and the ocean. The onsite use of the harvested water for non-potable domestic purposes conserves City-supplied potable water and, where directed to unpaved surfaces, can recharge groundwater in local aquifers.



Cistern Example

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	☑
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**

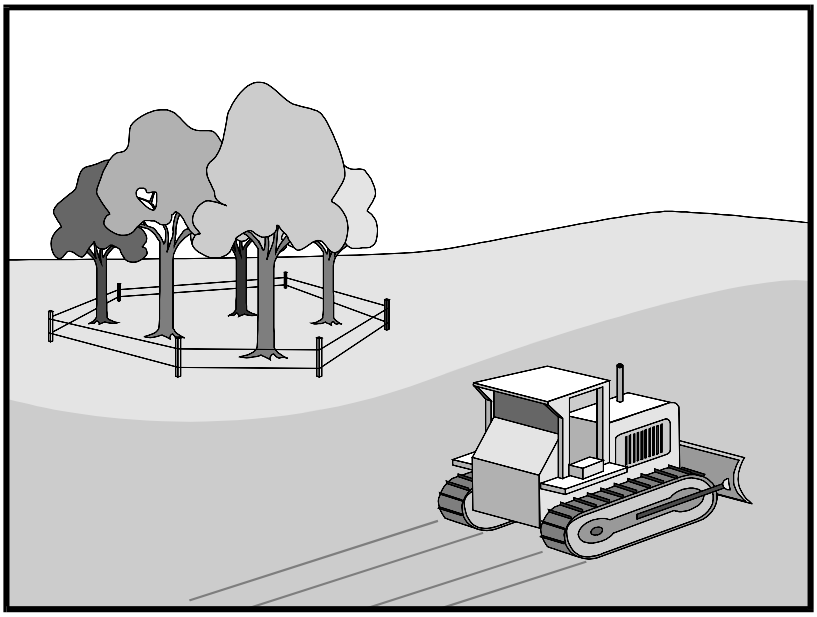
Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Preservation Of Existing Vegetation EC-2



Categories		
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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**

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:

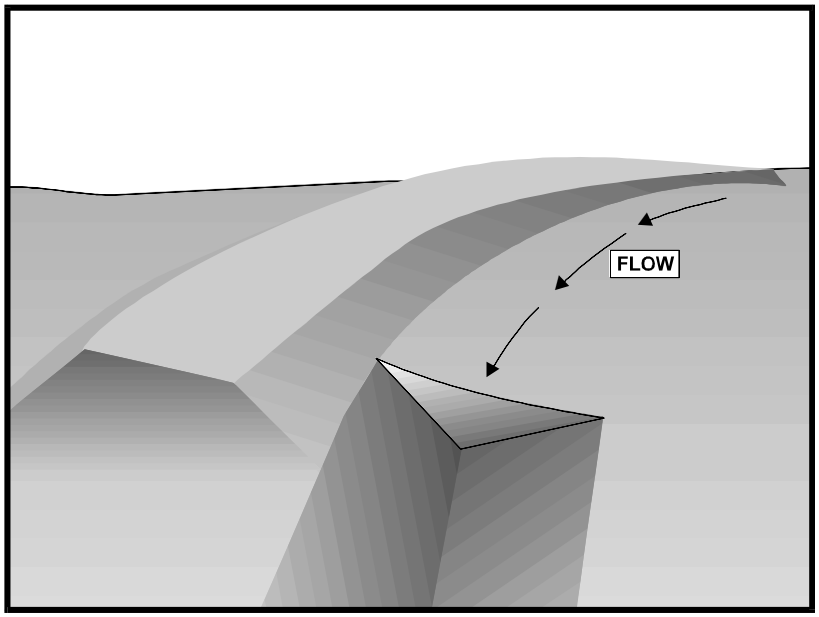
- Areas within the site where no construction activity occurs, or occurs at a later date. This BMP is especially suitable to multi year projects where grading can be phased.
- Areas where natural vegetation exists and is designated for preservation. Such areas often include steep slopes, watercourse, 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.

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Earth Dikes and Drainage Swales EC-9



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	☑
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**

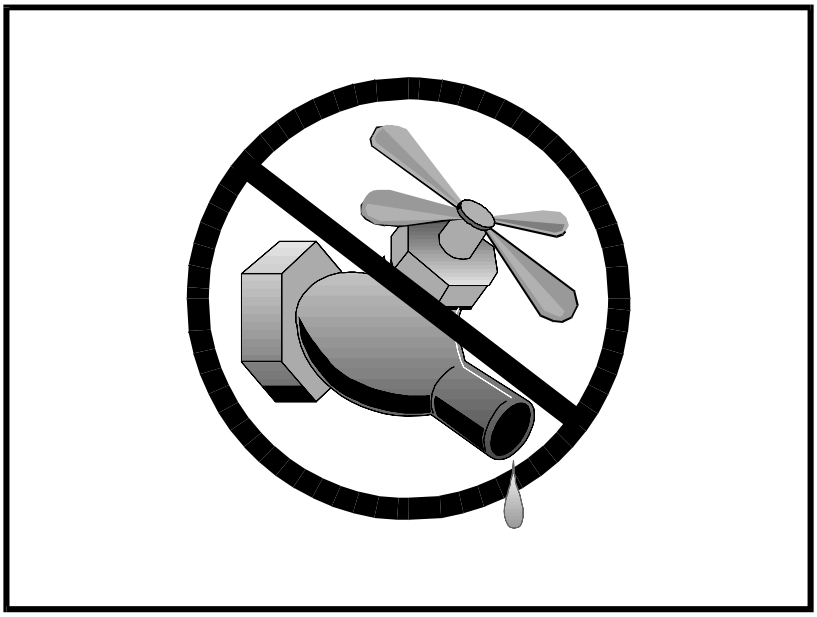
Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Water Conservation Practices NS-1



Categories		
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SE	Sediment Control	☒
TC	Tracking Control	
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NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
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.

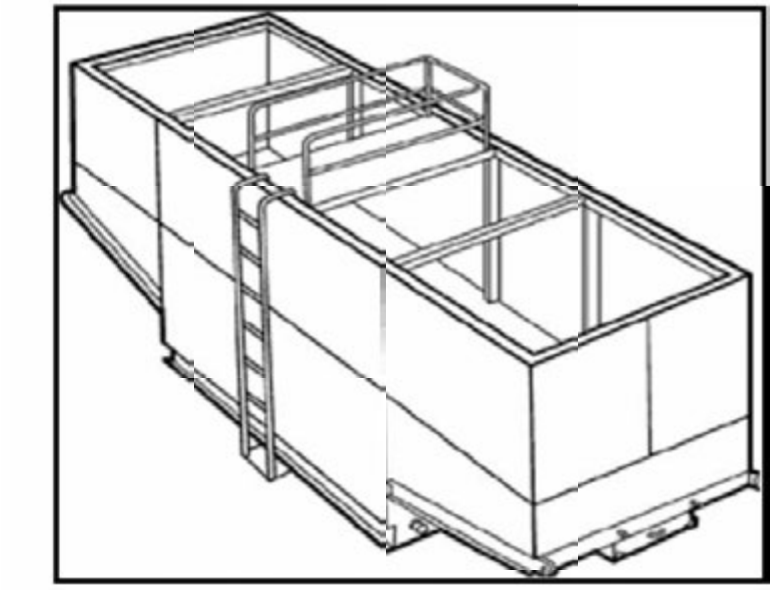
Limitations

- 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.

Dewatering Operations NS-2



Categories		
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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**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

SE-5: Fiber Roll

SE-6: Gravel Bag Berm

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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.

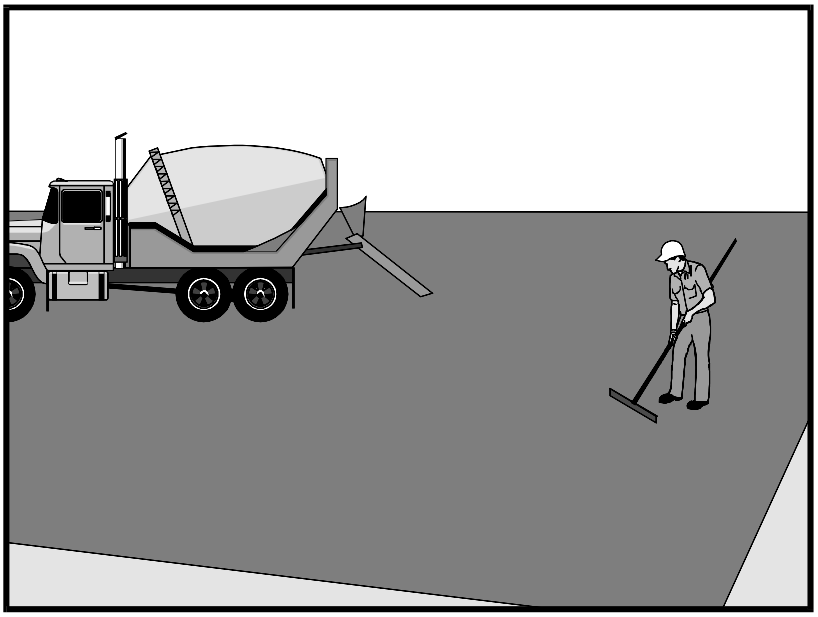
The dewatering operations described in this fact sheet are not Active Treatment Systems (ATS) and do not include the use of chemical coagulations, chemical flocculation or electrocoagulation.

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

Paving and Grinding Operations NS-3



Categories		
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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**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

Description and Purpose

Prevent or reduce the discharge of pollutants from paving operations, using measures to prevent runon 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

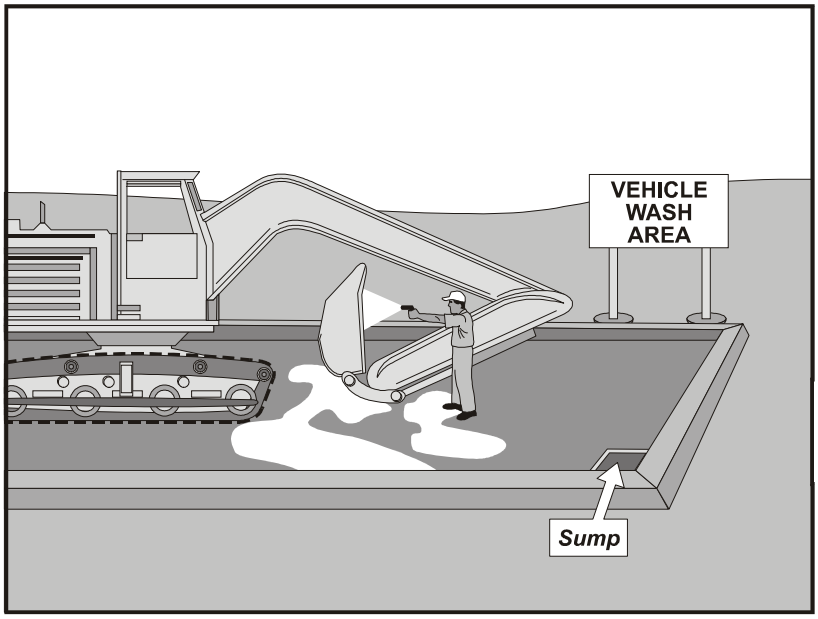
These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

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.

Vehicle and Equipment Cleaning NS-8



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	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	
Metals	
Bacteria	
Oil and Grease	☑
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

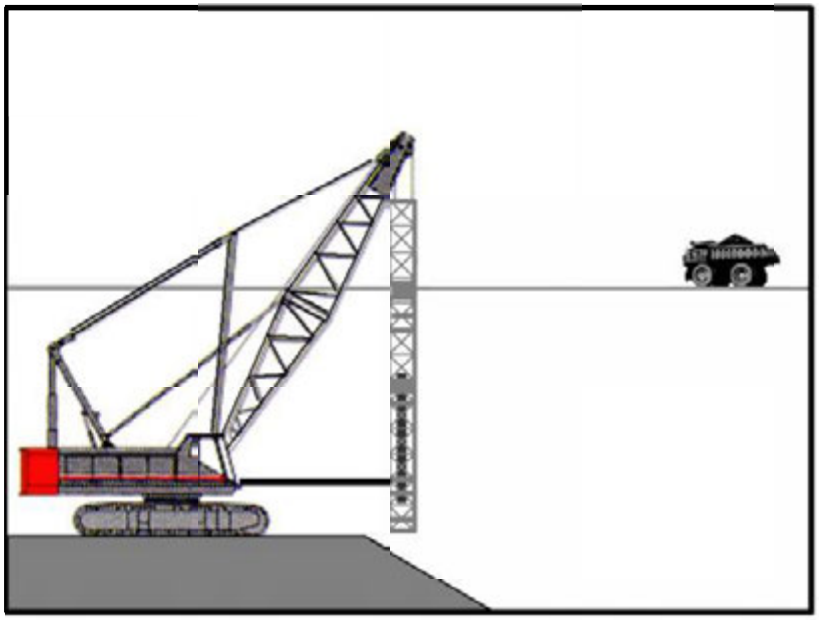
Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

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:

Pile Driving Operations NS-11



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	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	☑
Organics	

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.

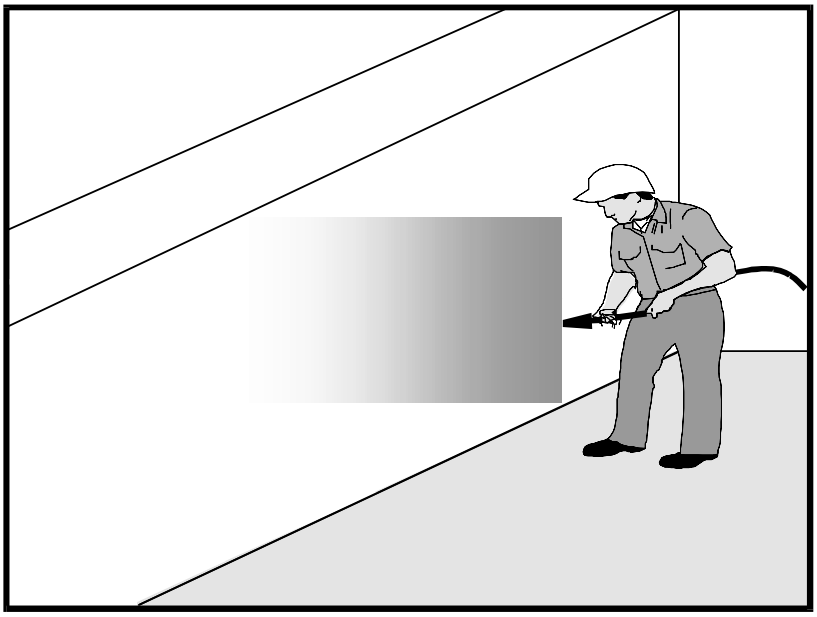
Limitations

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.

Concrete Curing NS-12



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	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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.

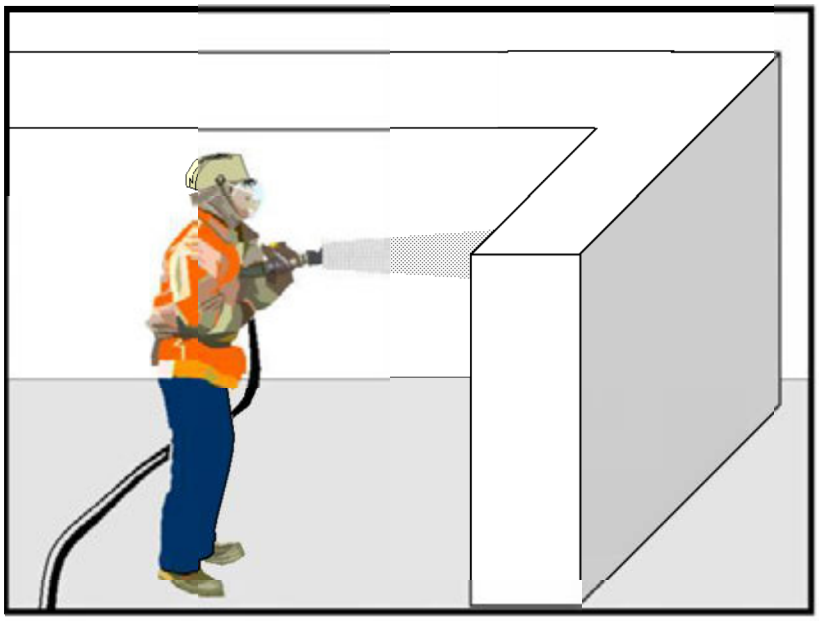
Suitable Applications

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.

Concrete Finishing NS-13



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	☑

Legend:
☑ Primary Category
☒ Secondary Category

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	☑

Potential Alternatives

None

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.

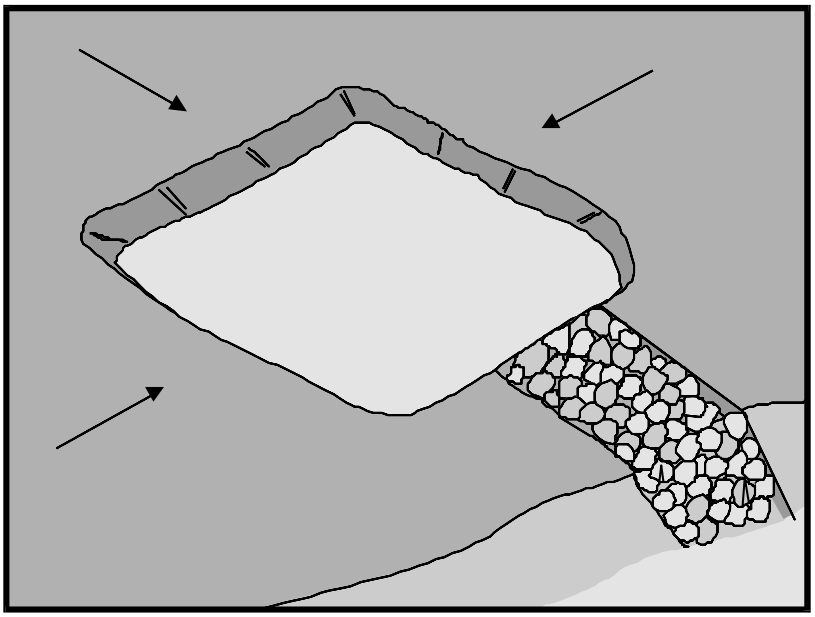
The General Permit incorporates Numeric Action Levels (NAL) for pH (see Section 2 of this handbook to determine your project's risk level and if you are subject to these requirements).

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.

Sediment Trap SE-3



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	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-2 Sediment Basin (for larger areas)

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.

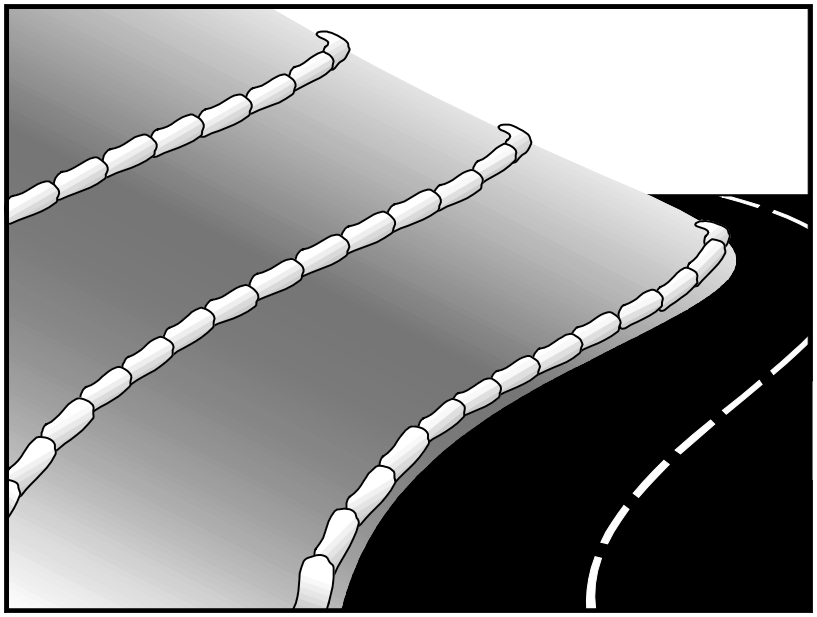
Trap design guidance provided in this fact sheet is not intended to guarantee compliance with numeric discharge limits (numeric action levels or numeric effluent limits for turbidity). Compliance with discharge limits requires a thoughtful approach to comprehensive BMP planning, implementation, and maintenance. 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

Gravel Bag Berm SE-6



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	☒
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**

Targeted Constituents

Sediment	☑
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

Street Sweeping and Vacuuming SE-7

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	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	☑
Metals	
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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.

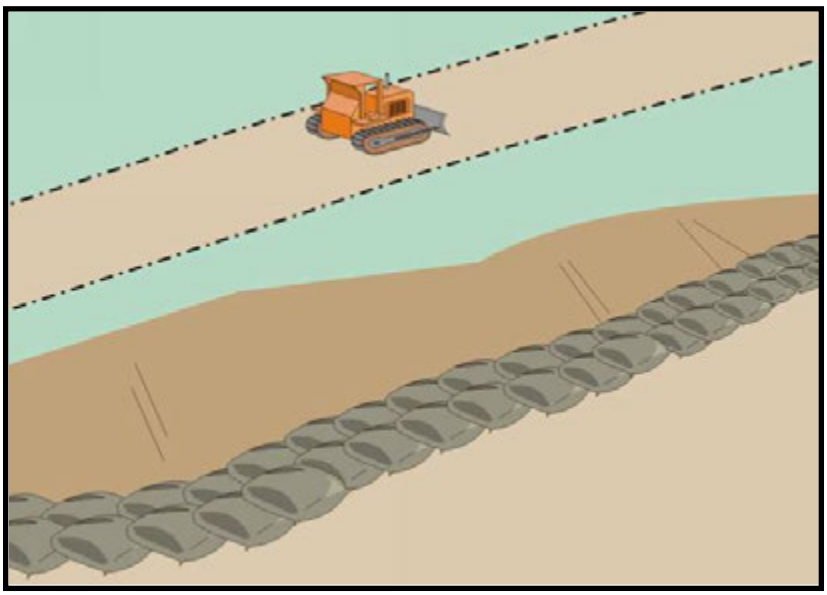
Limitations

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.

Sandbag Barrier SE-8



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	

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	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

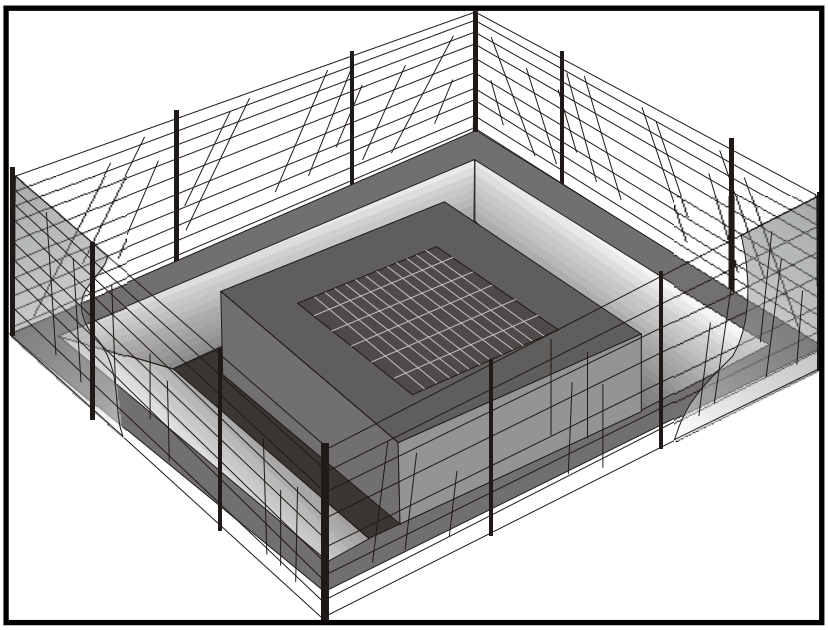
SE-5 Fiber Rolls

SE-6 Gravel Bag Berm

SE-12 Manufactured Linear Sediment Controls

SE-14 Biofilter Bags

Storm Drain Inlet Protection SE-10



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	☑
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	☑
Nutrients	
Trash	☒
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

SE-1 Silt Fence

SE-5 Fiber Rolls

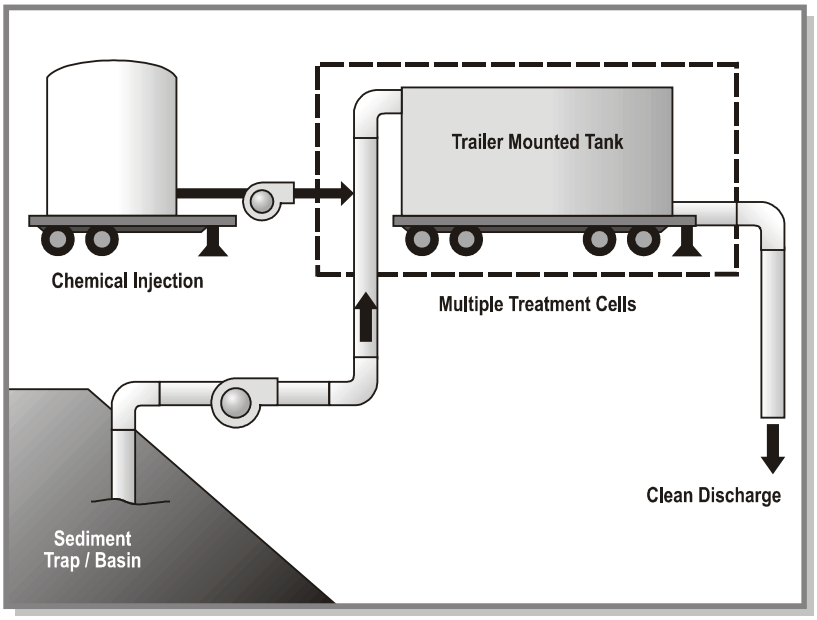
SE-6 Gravel Bag Berm

SE-8 Sandbag Barrier

SE-14 Biofilter Bags

SE-13 Compost Socks and Berms

Active Treatment Systems SE-11



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	

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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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.

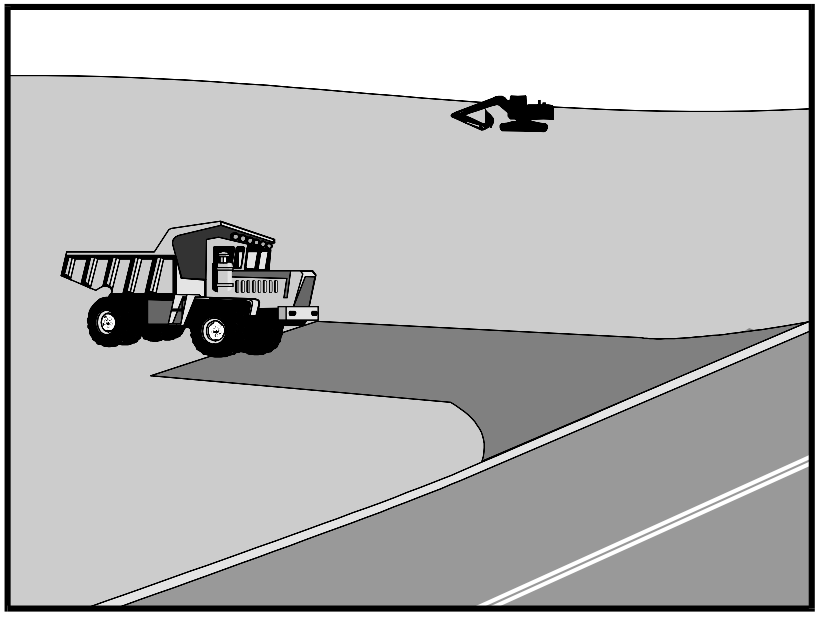
Suitable Applications

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:

Stabilized Construction Entrance/Exit TC-1



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	

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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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

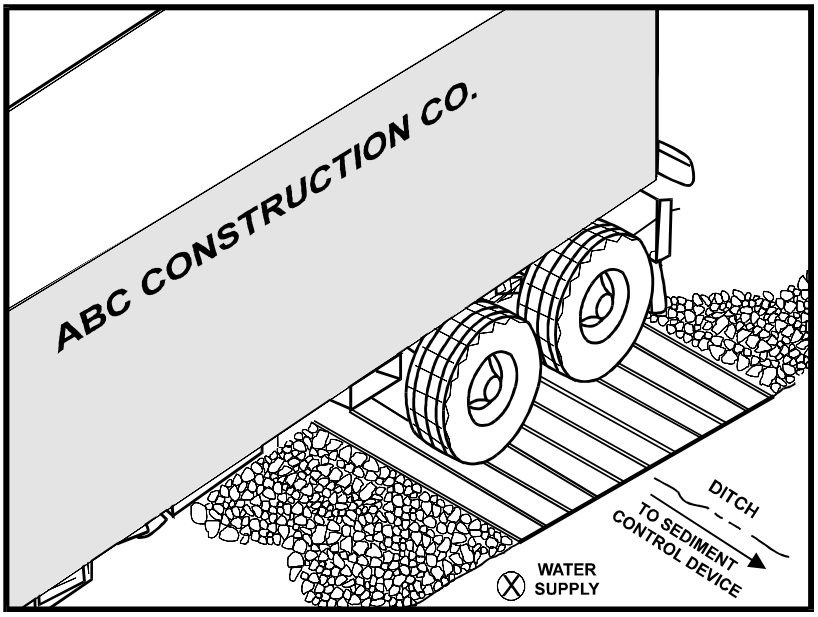
Use at construction sites:

- 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.

Entrance/Outlet Tire Wash TC-3



Description and Purpose

A tire wash is an area located at stabilized construction access points to remove sediment from tires and under carriages 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	☒
TC	Tracking Control	☑
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

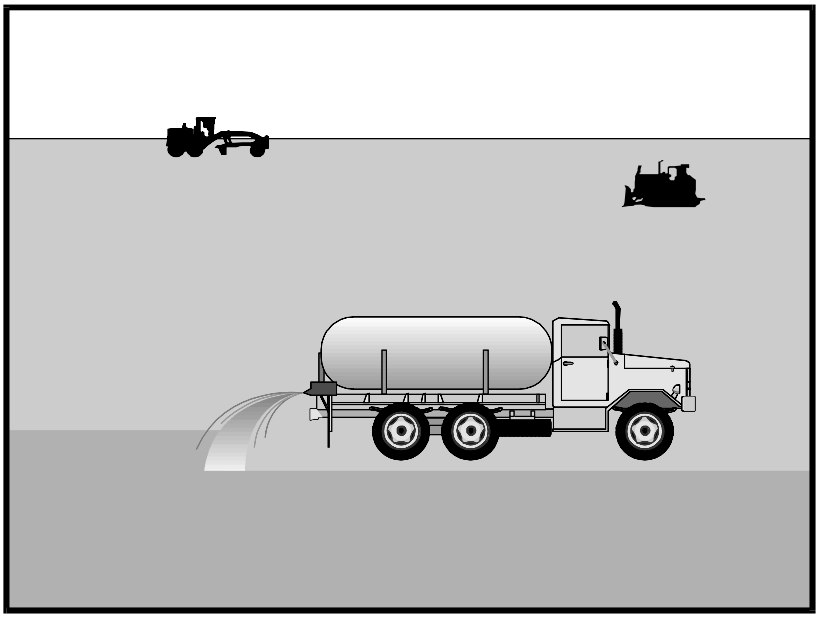
Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

TC-1 Stabilized Construction Entrance/Exit

Wind Erosion Control WE-1



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	

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

EC-5 Soil Binders

Description and Purpose

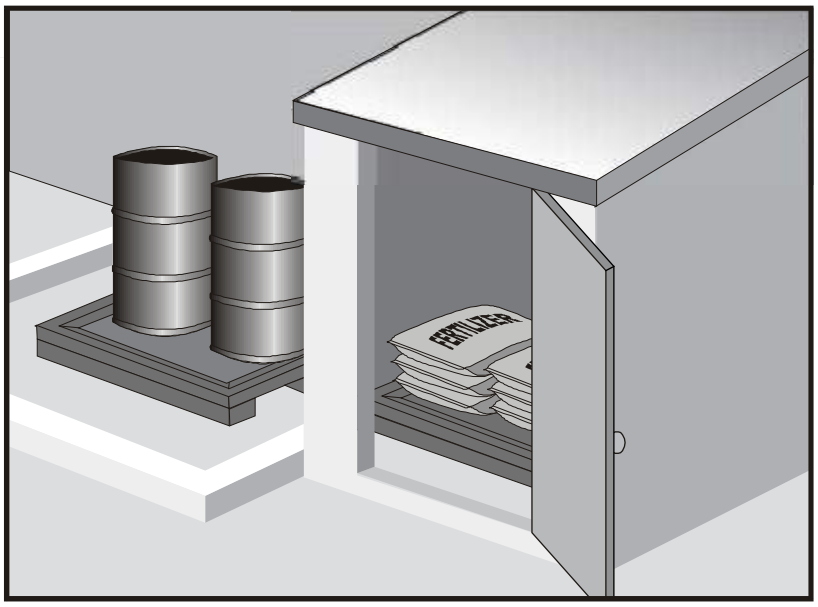
Wind erosion or dust control consists of applying water or other chemical dust suppressants as necessary to prevent or alleviate dust nuisance generated by construction activities. Covering small stockpiles or areas is an alternative to applying water or other dust palliatives.

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:

Material Delivery and Storage WM-1



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	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

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:

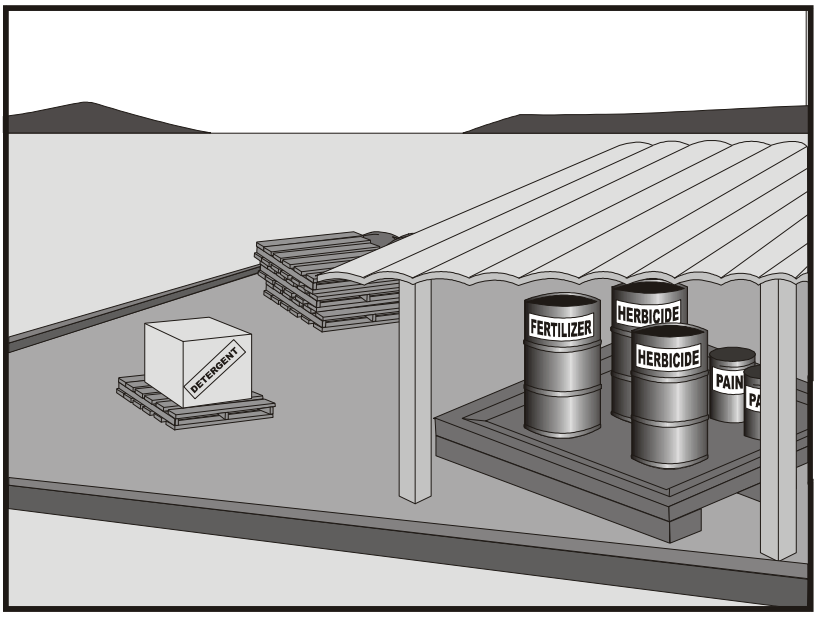
- Soil stabilizers and binders
- Pesticides and herbicides
- Fertilizers
- Detergents
- Plaster
- Petroleum products such as fuel, oil, and grease

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Material Use WM-2



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	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

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Description and Purpose

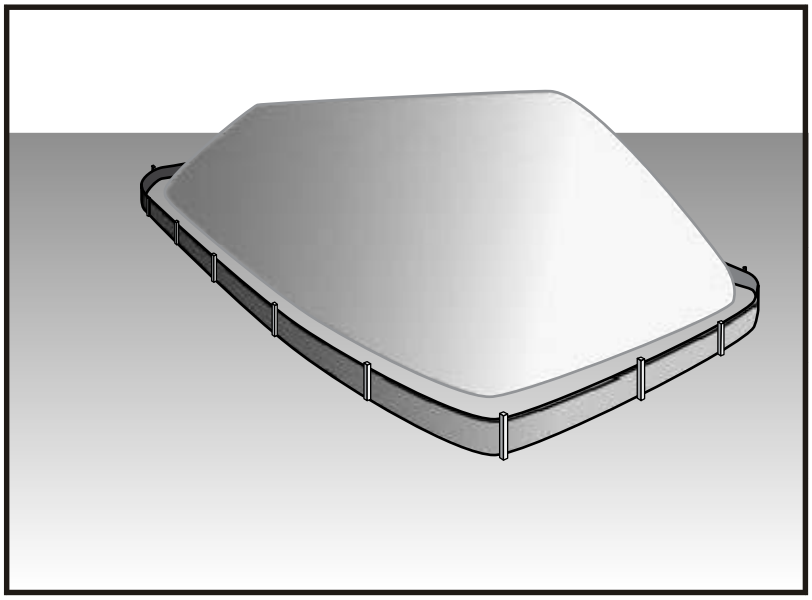
Prevent or reduce the discharge of pollutants to the storm drain system or watercourses from material use by using alternative products, minimizing hazardous material use onsite, and training employees and subcontractors.

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

Stockpile Management WM-3



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	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

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

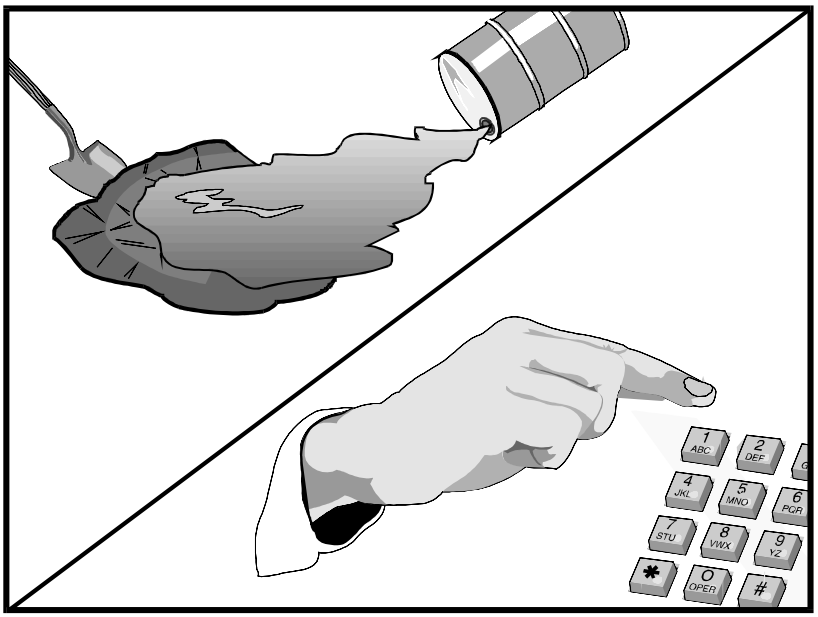
Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Spill Prevention and Control WM-4



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	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

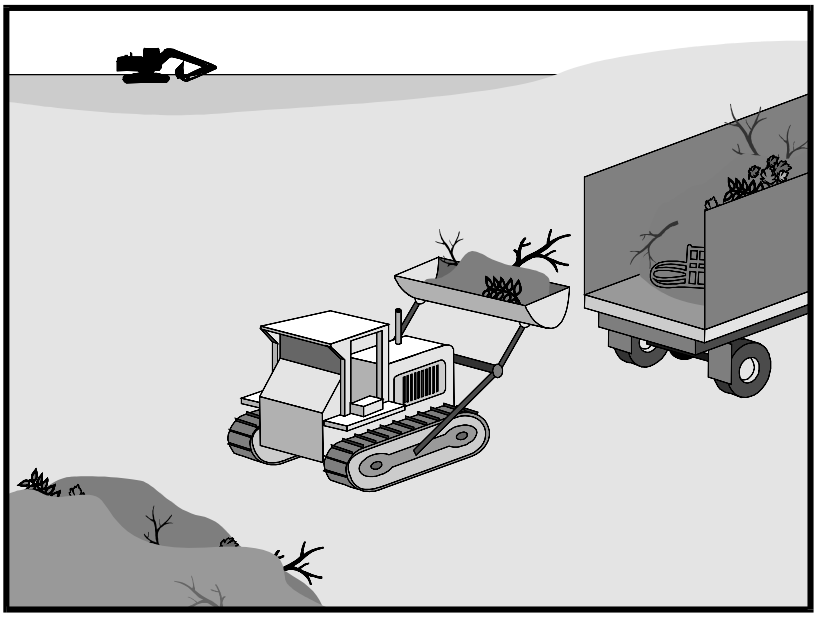
Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Solid Waste Management WM-5



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	☑

Legend:
☑ **Primary Objective**
☒ **Secondary Objective**

Targeted Constituents	
Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑

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.

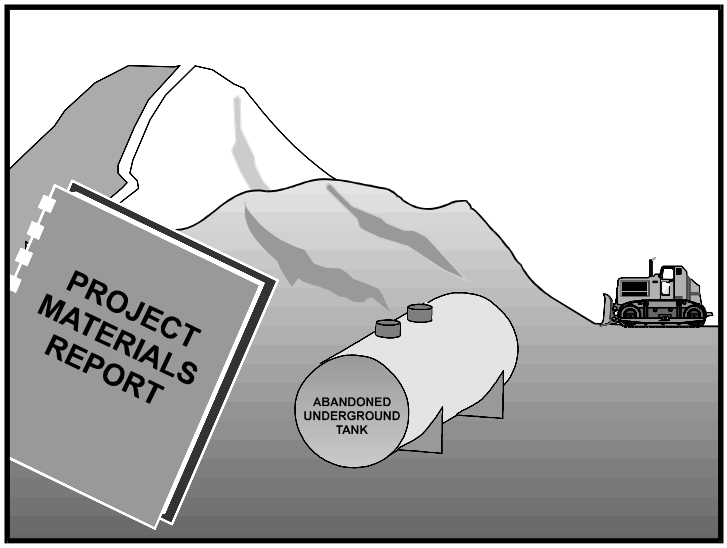
Suitable Applications

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

CASQA
CALIFORNIA STORMWATER QUALITY ASSOCIATION

Contaminated Soil Management WM-7



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	☑

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

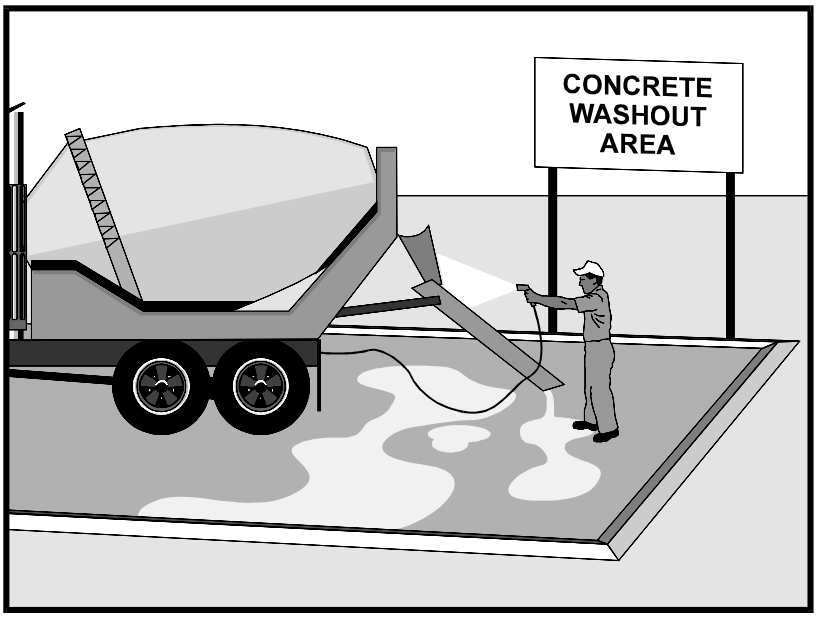
Most owners and developers conduct pre-construction environmental assessments as a matter of routine. Contaminated soils are often identified during project planning and development with known locations identified in the plans, specifications and in the SWPPP. The contractor should review applicable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

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	☑
Oil and Grease	☑
Organics	☑

Potential Alternatives

None

Concrete Waste Management WM-8



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	☑

Legend:

☑ **Primary Category**

☒ **Secondary Category**

Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	☑
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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).

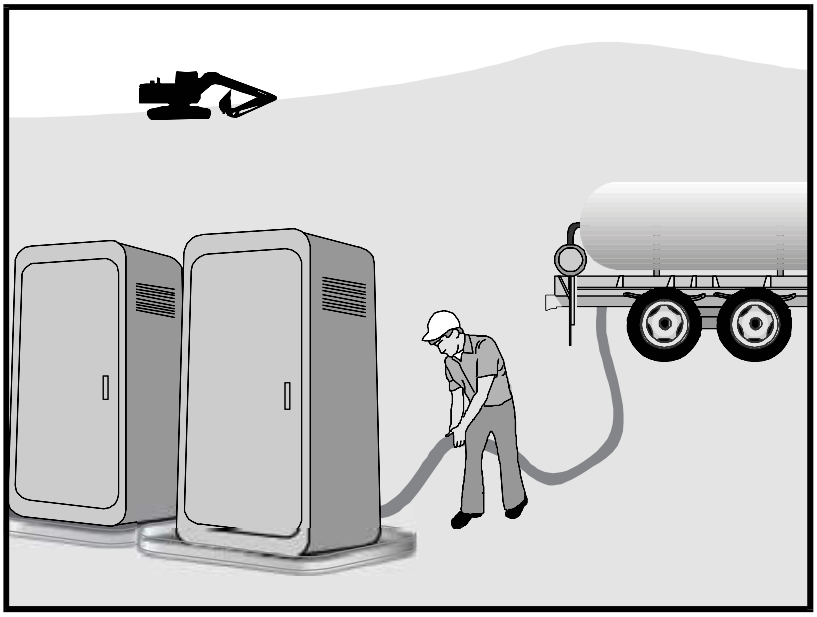
Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into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

Sanitary/Septic Waste Management WM-9



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	☑

Legend:
☑ **Primary Category**
☒ **Secondary Category**

Targeted Constituents	
Sediment	
Nutrients	☑
Trash	☑
Metals	
Bacteria	☑
Oil and Grease	
Organics	☑

Potential Alternatives

None

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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.

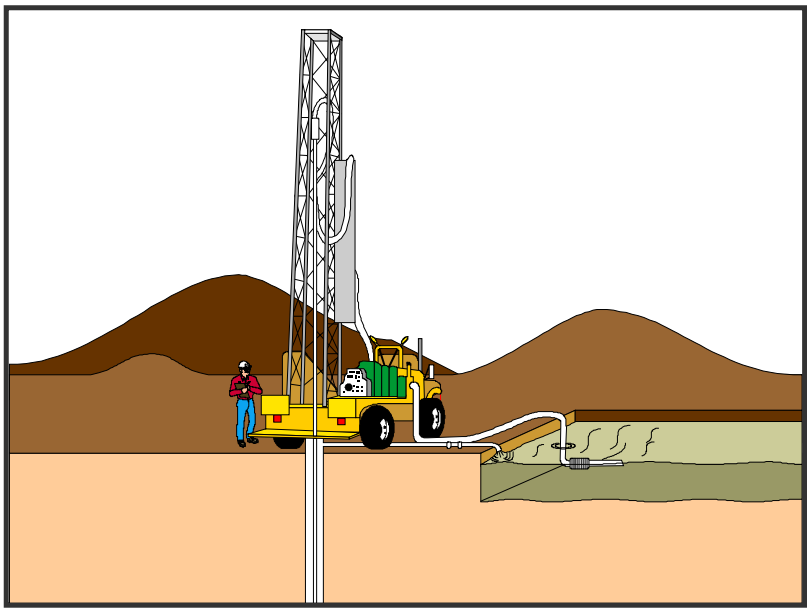
Implementation

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.

Liquid Waste Management WM-10



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	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

Sediment	☑
Nutrients	☑
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	

Potential Alternatives

None

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

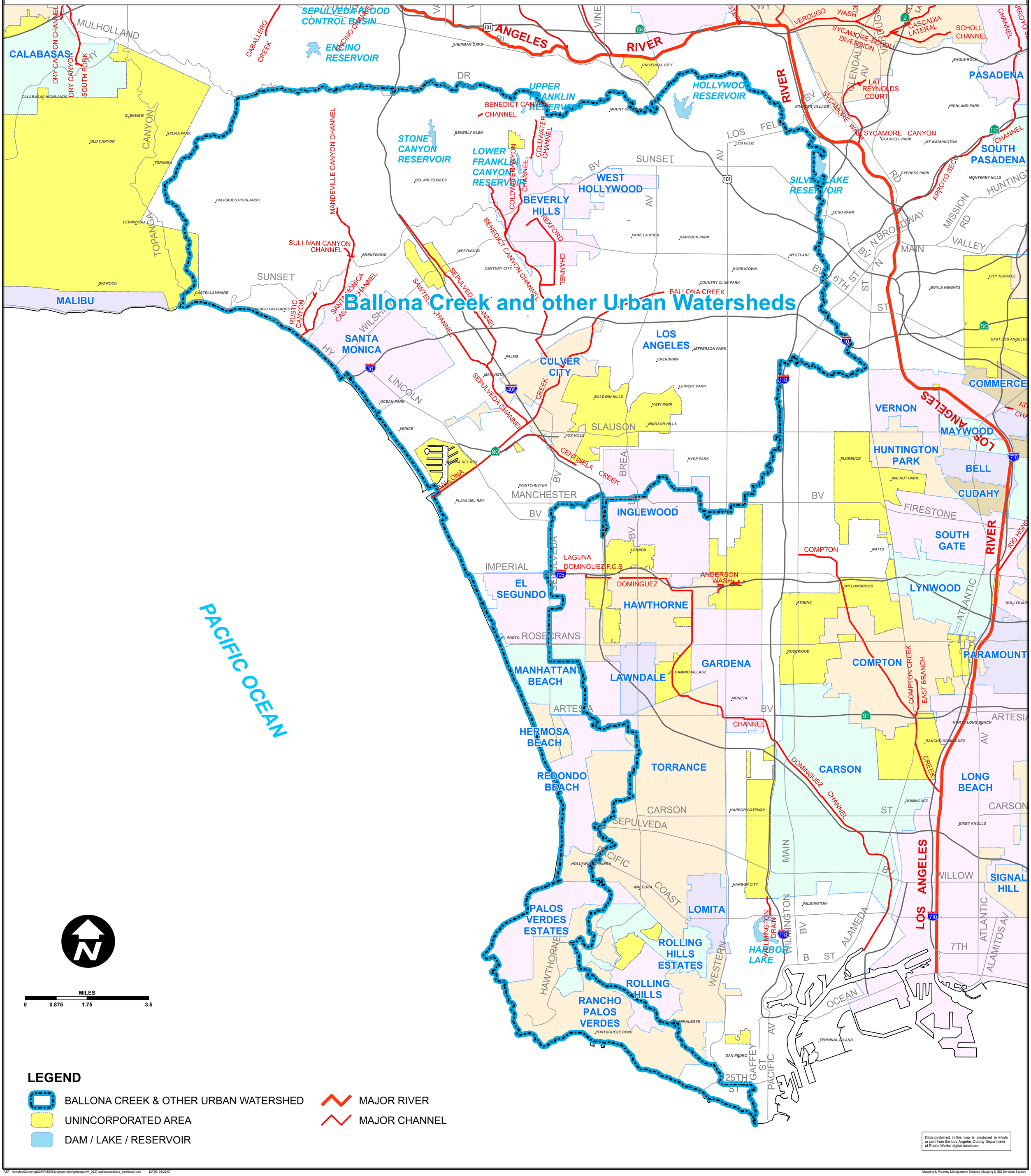
Liquid waste management is applicable to construction projects that generate any of the following non-hazardous by-products, residuals, or wastes:

- 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

Figure 1
COUNTY OF LOS ANGELES
BALLONA CREEK & OTHER URBAN WATERSHEDS



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.

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O: 213.418.0201
F: 213.266.5294
www.kpff.com

CONSULTANTS

STAMP

REVISIONS

DATE		ISSUED FOR
xx	1	xx

DATE	xx
PROJECT NUMBER	xx
DESIGNED BY	xx
DRAWN BY	xx
CHECKED BY	xx
SCALE	AS SPECIFIED

KEY MAP

PROJECT DESCRIPTION
JOB NAME

XXXXX
XXXXX

DRAWING TITLE
XXXXX

SHEET NUMBER (EXHIBIT NUMBER)
EX-1

LEGEND:

EXISTING STORM DRAIN LINE ———SD———

0 30' 60'
SCALE: 1"=60'

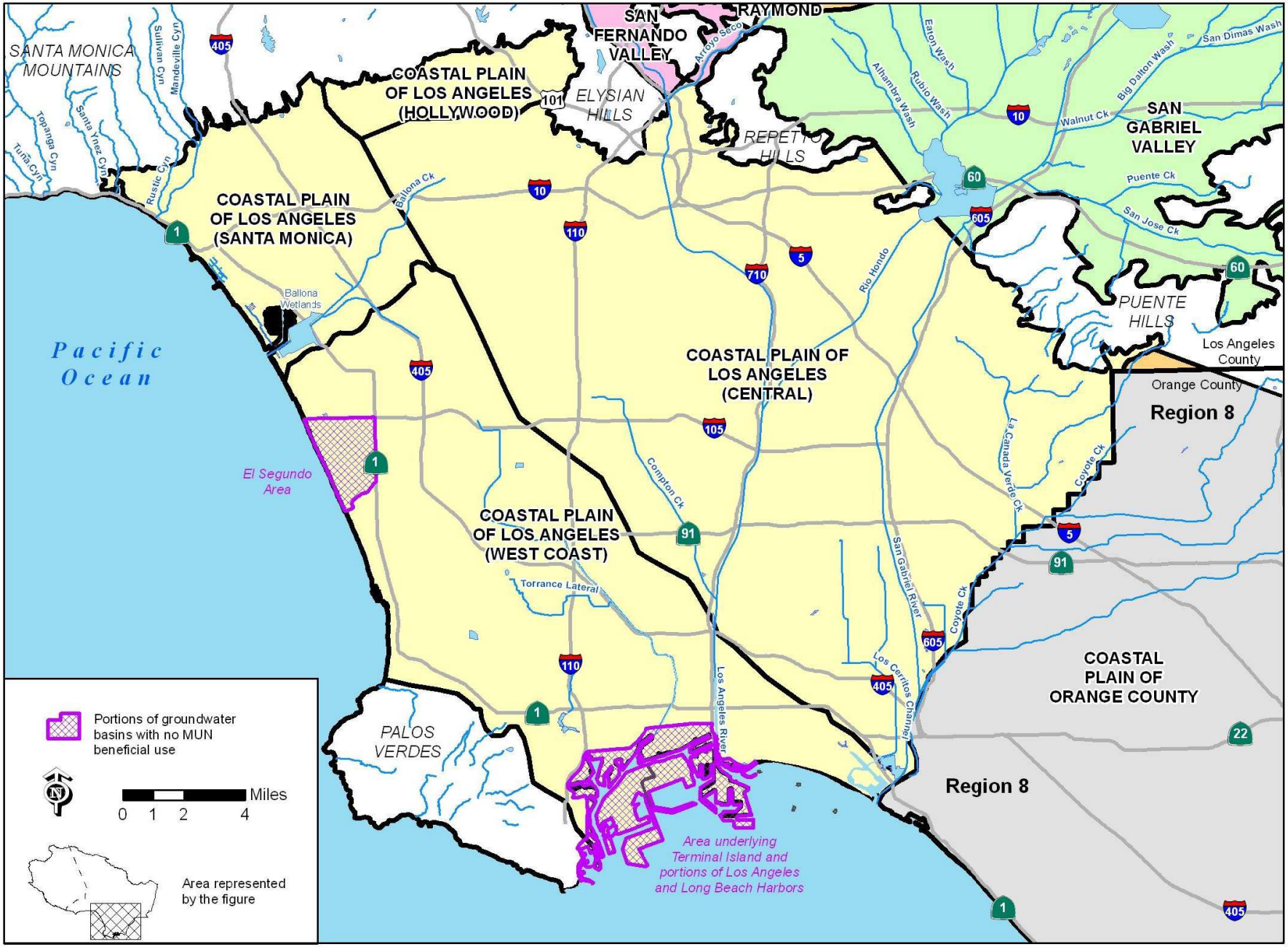


Figure 2-15. Los Angeles Coastal Groundwater Basins.

Figure 4 - HydroCalc Hydrology Results
Existing Conditions

Peak Flow Hydrologic Analysis

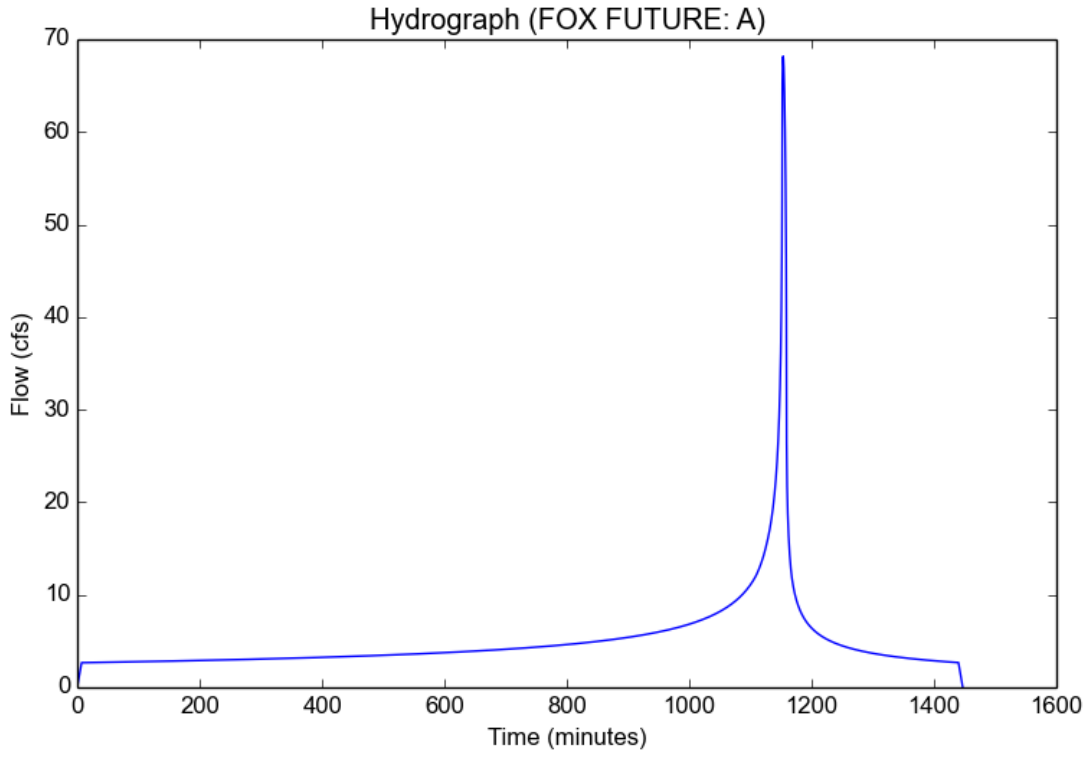
File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Existing/FOX FU
Version: HydroCalc 1.0.2

Input Parameters

Project Name	FOX FUTURE
Subarea ID	A
Area (ac)	24.7
Flow Path Length (ft)	490.0
Flow Path Slope (vft/hft)	0.012
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.892
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.0561
Undeveloped Runoff Coefficient (Cu)	0.9292
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	67.9382
Burned Peak Flow Rate (cfs)	67.9382
24-Hr Clear Runoff Volume (ac-ft)	10.0776
24-Hr Clear Runoff Volume (cu-ft)	438982.0965



Peak Flow Hydrologic Analysis

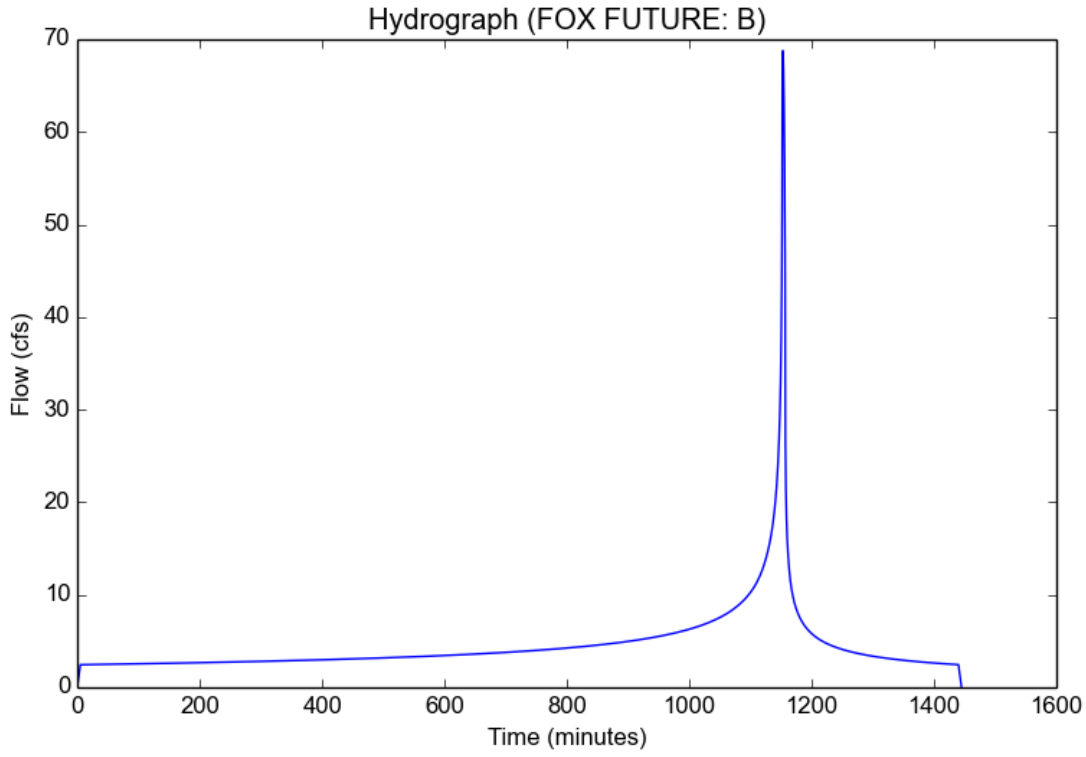
File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Existing/FOX FU
Version: HydroCalc 1.0.2

Input Parameters

Project Name	FOX FUTURE
Subarea ID	B
Area (ac)	21.3
Flow Path Length (ft)	410.0
Flow Path Slope (vft/hft)	0.029
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.957
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.5798
Undeveloped Runoff Coefficient (Cu)	0.9493
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	68.6241
Burned Peak Flow Rate (cfs)	68.6241
24-Hr Clear Runoff Volume (ac-ft)	9.181
24-Hr Clear Runoff Volume (cu-ft)	399924.5373



Peak Flow Hydrologic Analysis

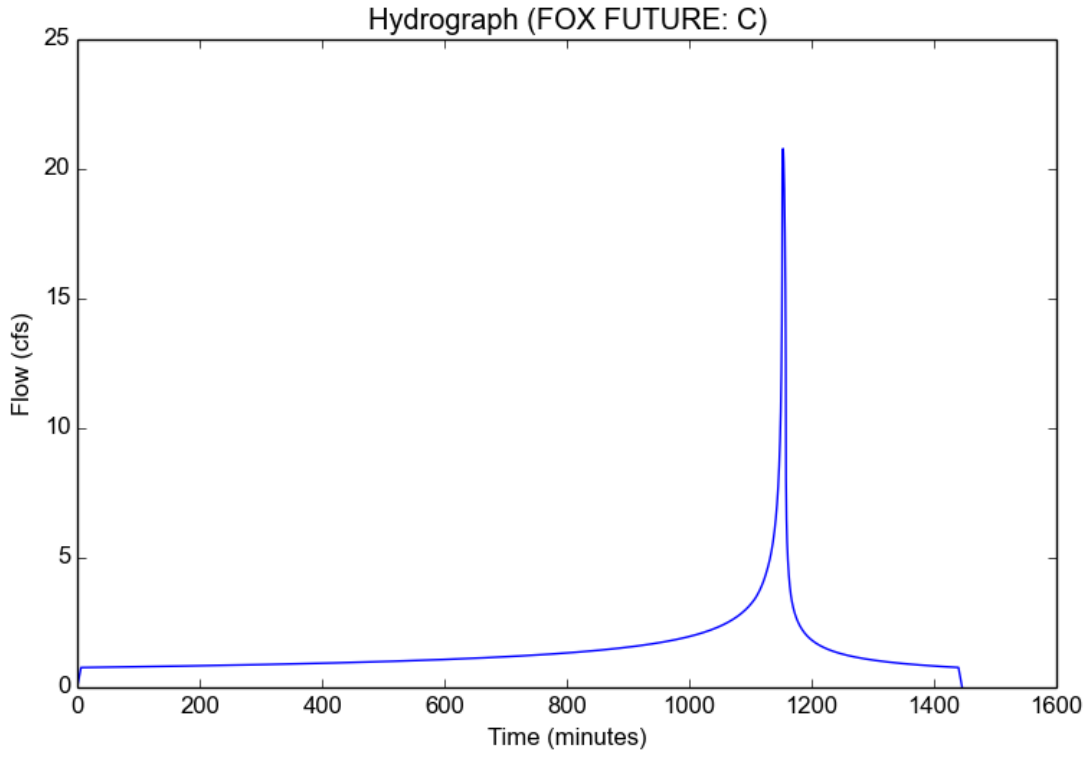
File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Existing/FOX FU
Version: HydroCalc 1.0.2

Input Parameters

Project Name	FOX FUTURE
Subarea ID	C
Area (ac)	7.0
Flow Path Length (ft)	380.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.905
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.2858
Undeveloped Runoff Coefficient (Cu)	0.9388
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	20.7005
Burned Peak Flow Rate (cfs)	20.7005
24-Hr Clear Runoff Volume (ac-ft)	2.8882
24-Hr Clear Runoff Volume (cu-ft)	125810.7786



Peak Flow Hydrologic Analysis

File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Existing/FOX FU
Version: HydroCalc 1.0.2

Input Parameters

Project Name	FOX FUTURE
Subarea ID	D
Area (ac)	0.33
Flow Path Length (ft)	105.0
Flow Path Slope (vft/hft)	0.065
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.95
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.5798
Undeveloped Runoff Coefficient (Cu)	0.9493
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0632
Burned Peak Flow Rate (cfs)	1.0632
24-Hr Clear Runoff Volume (ac-ft)	0.1414
24-Hr Clear Runoff Volume (cu-ft)	6160.3322

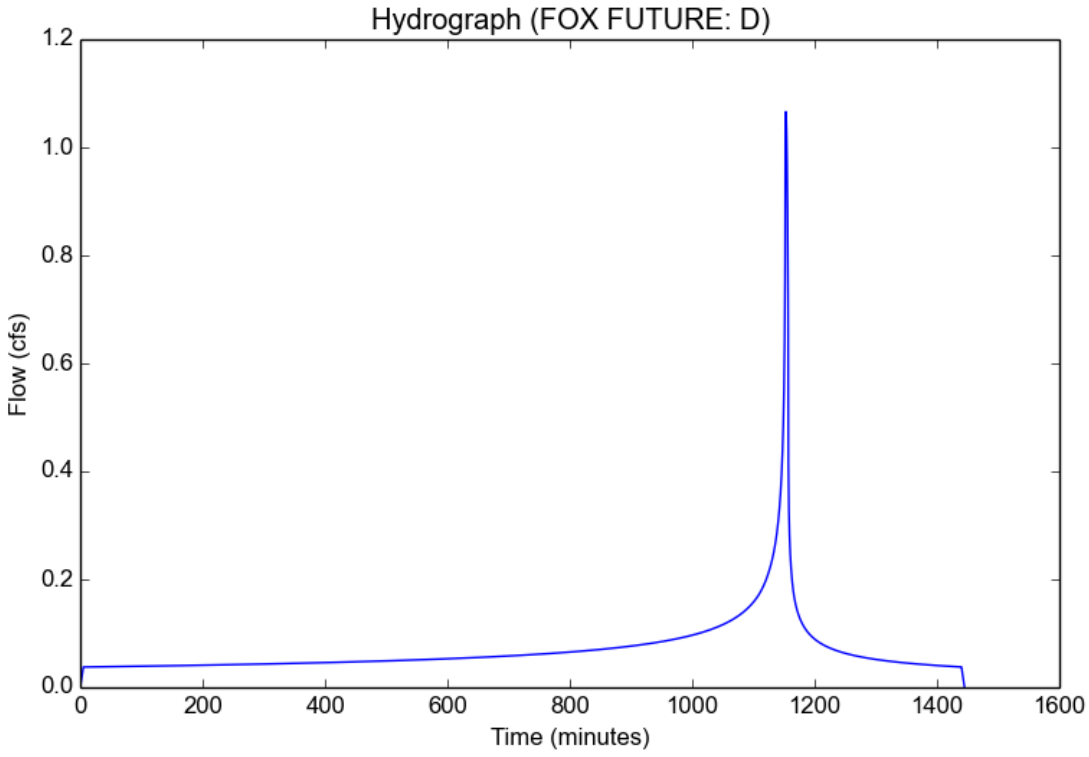


Figure 5 - HydroCalc Hydrology Results
Proposed Conditions

Peak Flow Hydrologic Analysis

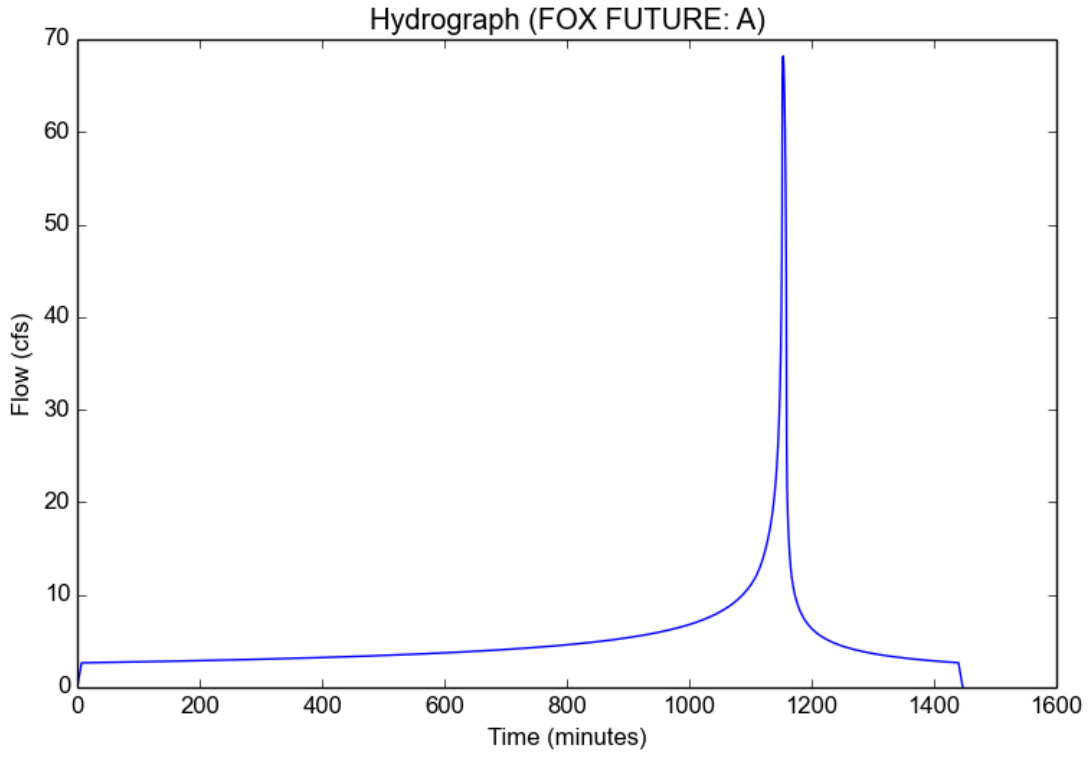
File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Proposed/FOX F
Version: HydroCalc 1.0.2

Input Parameters

Project Name	FOX FUTURE
Subarea ID	A
Area (ac)	24.7
Flow Path Length (ft)	490.0
Flow Path Slope (vft/hft)	0.012
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.886
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.0561
Undeveloped Runoff Coefficient (Cu)	0.9292
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	67.9382
Burned Peak Flow Rate (cfs)	67.9382
24-Hr Clear Runoff Volume (ac-ft)	10.0251
24-Hr Clear Runoff Volume (cu-ft)	436693.9744



Peak Flow Hydrologic Analysis

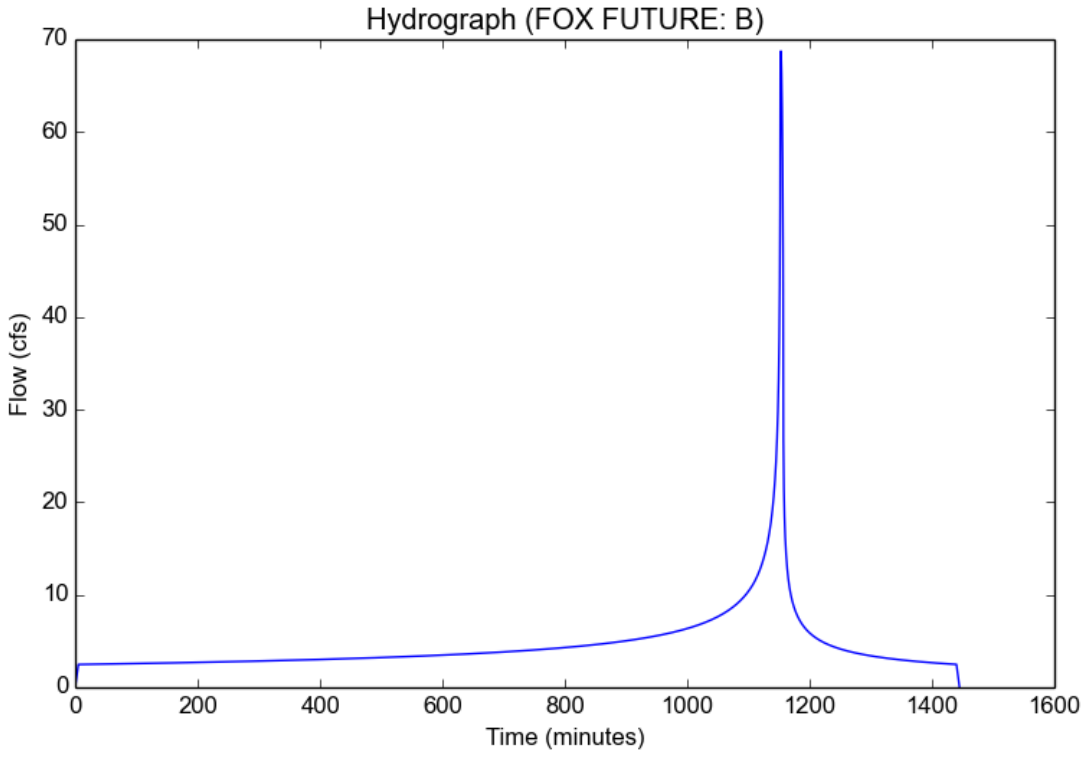
File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Proposed/FOX F
Version: HydroCalc 1.0.2

Input Parameters

Project Name	FOX FUTURE
Subarea ID	B
Area (ac)	21.3
Flow Path Length (ft)	410.0
Flow Path Slope (vft/hft)	0.029
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.97
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.5798
Undeveloped Runoff Coefficient (Cu)	0.9493
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	68.6241
Burned Peak Flow Rate (cfs)	68.6241
24-Hr Clear Runoff Volume (ac-ft)	9.2792
24-Hr Clear Runoff Volume (cu-ft)	404201.7164



Peak Flow Hydrologic Analysis

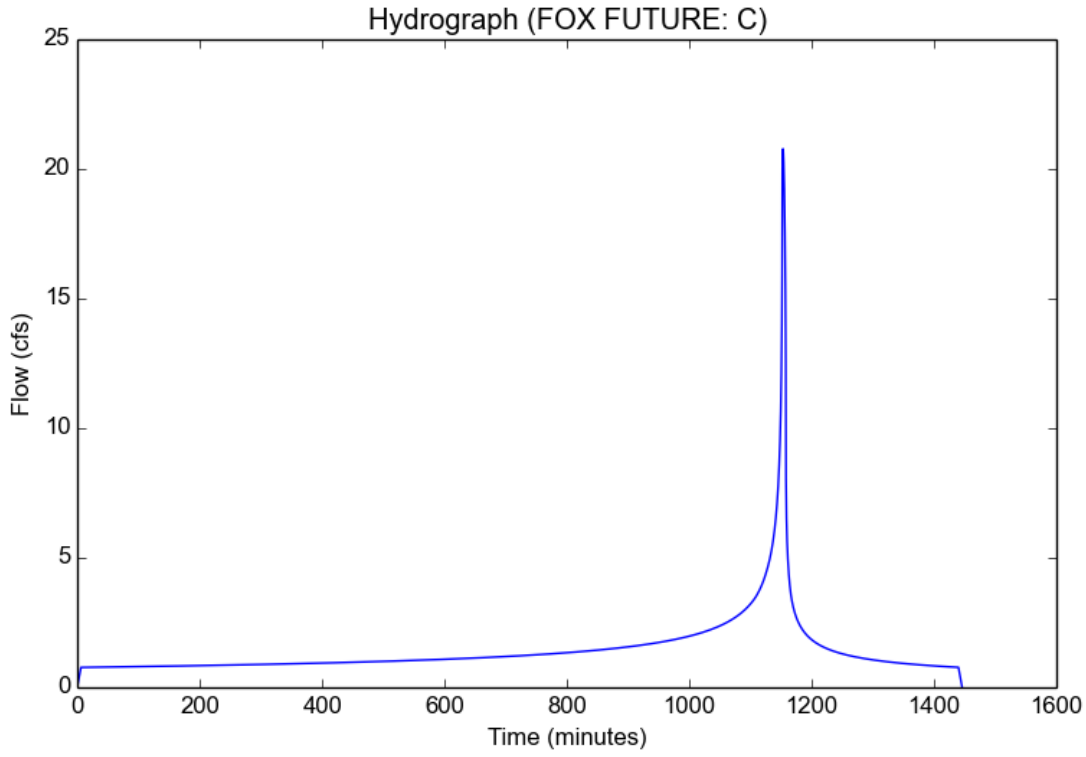
File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Proposed/FOX F
Version: HydroCalc 1.0.2

Input Parameters

Project Name	FOX FUTURE
Subarea ID	C
Area (ac)	7.0
Flow Path Length (ft)	380.0
Flow Path Slope (vft/hft)	0.011
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.912
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.2858
Undeveloped Runoff Coefficient (Cu)	0.9388
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	20.7005
Burned Peak Flow Rate (cfs)	20.7005
24-Hr Clear Runoff Volume (ac-ft)	2.9056
24-Hr Clear Runoff Volume (cu-ft)	126567.4626



Peak Flow Hydrologic Analysis

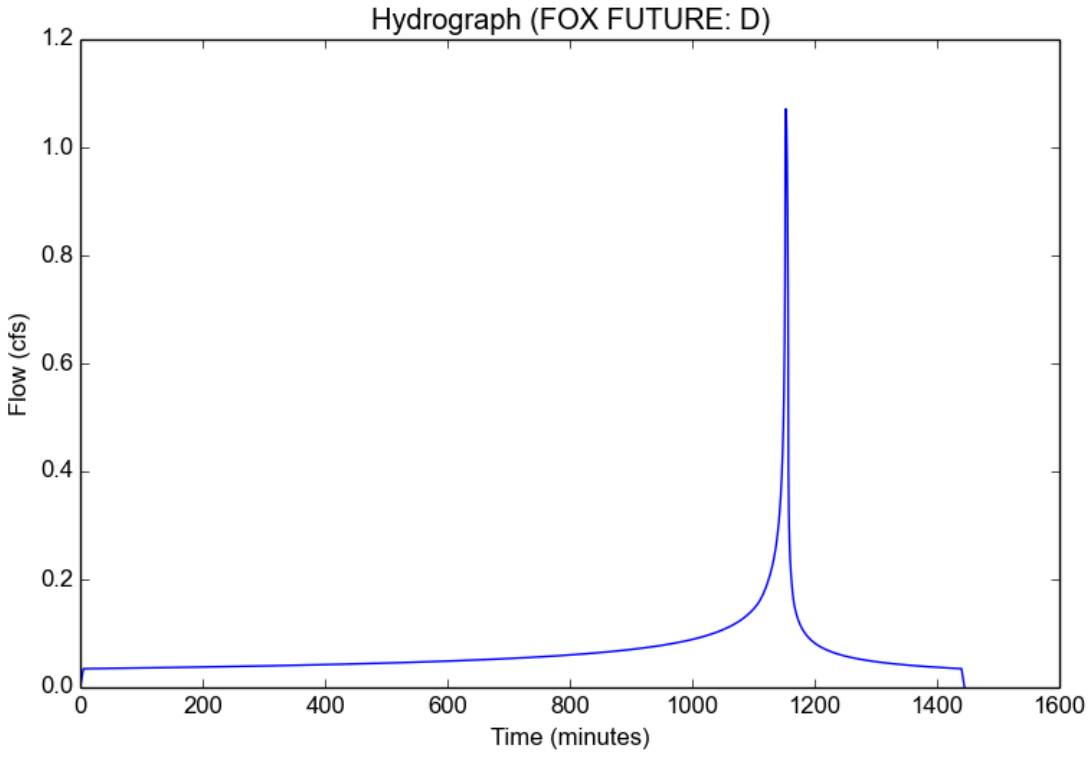
File location: P:/2022/2200654 Fox Studios EIR/2 ENGR/EIR-Technical Reports/Hydrology & Water Resources/Attachments/HydroCalc/Proposed/FOX F
Version: HydroCalc 1.0.2

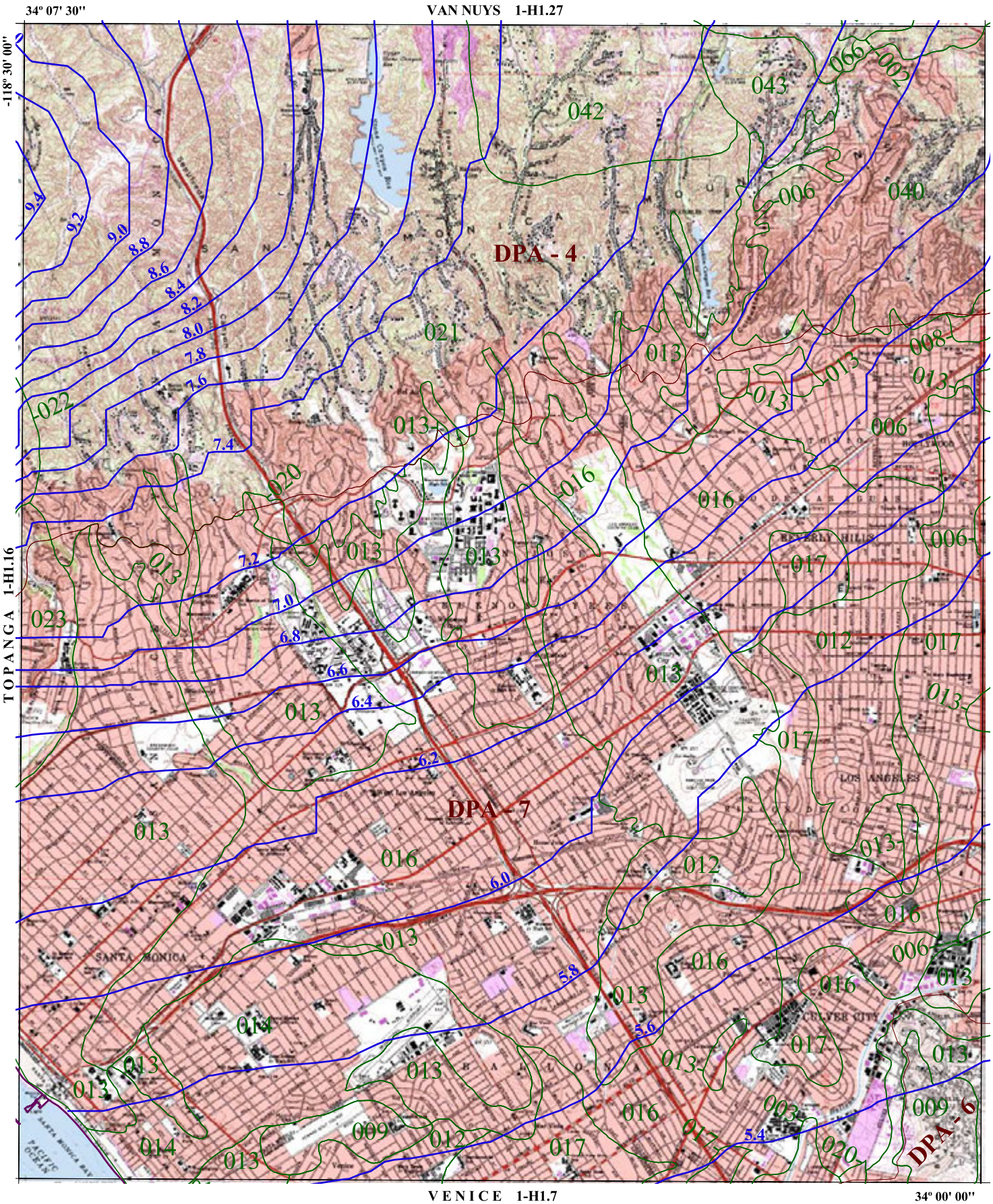
Input Parameters

Project Name	FOX FUTURE
Subarea ID	D
Area (ac)	0.33
Flow Path Length (ft)	105.0
Flow Path Slope (vft/hft)	0.065
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.862
Soil Type	13
Design Storm Frequency	50-yr
Fire Factor	0
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	6.0
Peak Intensity (in/hr)	3.5798
Undeveloped Runoff Coefficient (Cu)	0.9493
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.0632
Burned Peak Flow Rate (cfs)	1.0632
24-Hr Clear Runoff Volume (ac-ft)	0.1311
24-Hr Clear Runoff Volume (cu-ft)	5711.7613





016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

N W E S

1 0 1 2 Miles

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

BEVERLY HILLS
50-YEAR 24-HOUR ISOHYET

1-H1.17

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

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O: 213.418.0201
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CONSULTANTS

STAMP

REVISIONS

DATE		ISSUED FOR
xx	1	xx

DATE	xx
PROJECT NUMBER	xx
DESIGNED BY	xx
DRAWN BY	xx
CHECKED BY	xx
SCALE	AS SPECIFIED

KEY MAP

PROJECT DESCRIPTION
JOB NAME

XXXXX
XXXXX

DRAWING TITLE
PERVIOUS-IMPERVIOUS AREA CALCULATIONS

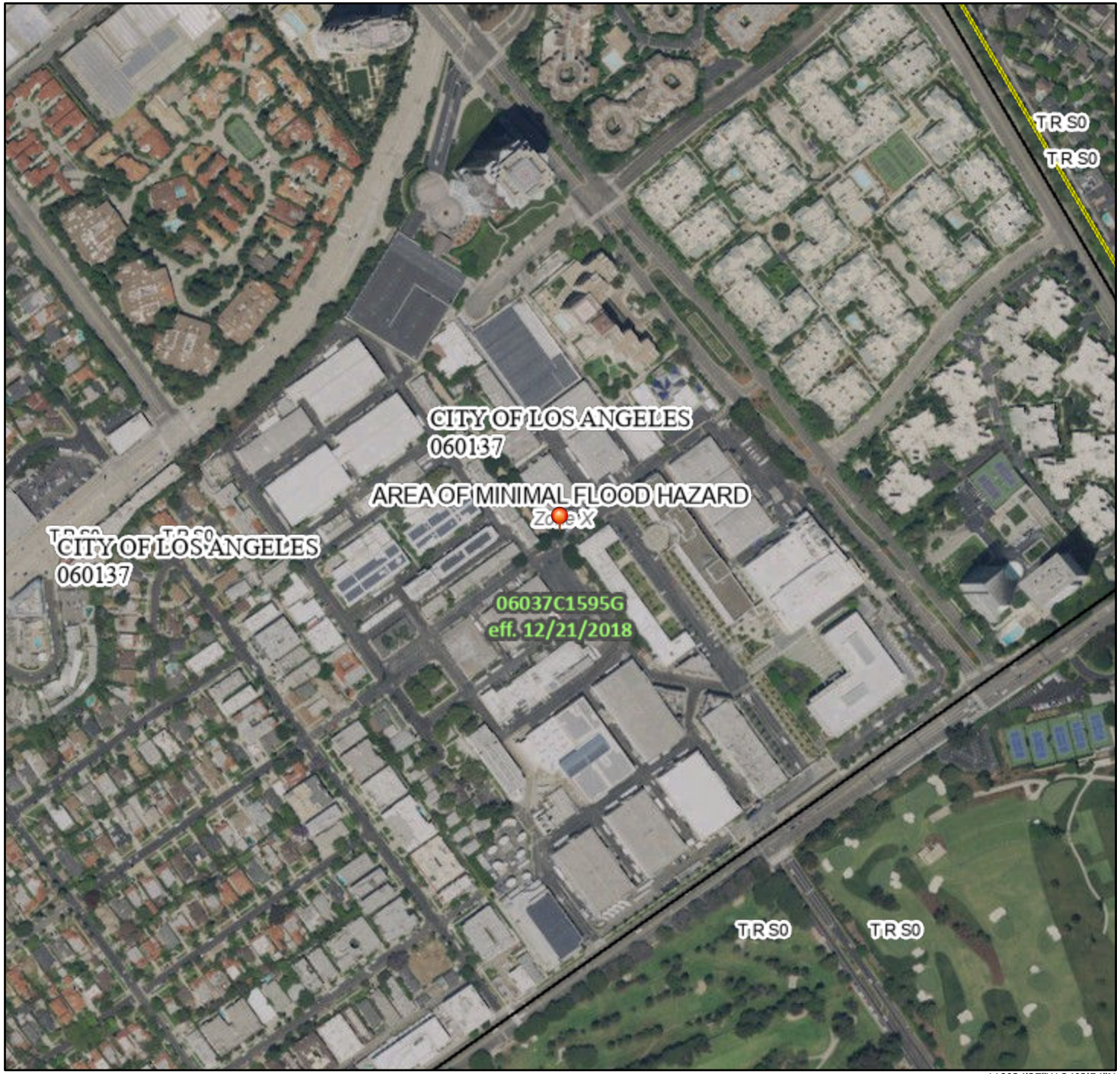
SHEET NUMBER (EXHIBIT NUMBER)
EX-1

P:\2022\2205654 Fox Studios EIR\5 CAD Sheets\Exhibit\2205654-C-EX-3.dwg, Jul 31, 2023 - 10:31am

National Flood Hazard Layer FIRMette

FEMA

118°25'4"W 34°3'23"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

118°24'27"W 34°2'54"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/28/2023 at 7:50 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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