Appendix IS-3

Water Resources Technical Report

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CMNTY CULTURE

WATER RESOURCES TECHNICAL REPORT
JUNE 2022

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1. INTRODUCTION

1.1. PROJECT DESCRIPTION

CMNTY Culture Campus ("Applicant"), a black-owned development company whose mission is to develop sustainable equitable projects, proposes to construct a new mixed-use office building geared toward the entertainment and creative industries ("Project"). The Project, located at the northeast corner of the intersection of W. Sunset Boulevard and N. Highland Avenue at 6767 West Sunset Boulevard ("Project Site") in the Hollywood Community of the City of Los Angeles ("City"), involves the development of a new approximately 503,520 square foot ("sf") 13-story tower with four shared floors including a fifth-story open terrace courtyard.

The Applicant, with deep roots in the entertainment industry, seeks to integrate uses within a single campus to connect creative individuals from diverse backgrounds. In furtherance of this mission, the Project has been designed to incorporate all aspects of the entertainment vertical, including approximately 432,190 sf of creative office space, which includes a 3,310 square foot lecture hall with 120 seats, 5,330 sf of retail/restaurant, and 66,000 sf of recording and production studio and ancillary uses (including an outdoor event performance terrace) allocated throughout the campus. In addition, the Project will include approximately 1,000 automobile parking spaces located throughout a 6-level subterranean parking garage.

The approximately 82,011-square-foot Project Site is bounded by Selma Avenue to the north, Sunset Boulevard to the south, Highland Avenue to the west, and McCadden to the east. As part of the Project, processed through the requested Vesting Tentative Tract Map, the existing alley that runs through the Project Site would be merged into the Project increasing the total lot area from 82,011 square feet to 83,920 square feet. The proposed floor area ratio ("FAR") would be approximately 6:0:1 averaged across the Project Site.

The Project proposes the development of 12 contiguous lots totaling approximately 1.88 acres (82,011 sf) within the Hollywood Community Plan ("Community Plan") area. Located on a block bound by Selma Avenue to the north, Sunset Boulevard to the south, Highland Avenue to the west and McCadden Place to the south, the Project would introduce an innovative commercial creative campus that would be consistent with the established neighborhood in Hollywood that serves commercial and entertainment uses.

Existing improvements at the Site include: a two-story shopping center at the corner of Highland Avenue and Sunset Boulevard with approximately 24,114 sf of floor area; a single-story commercial nursery at the corner of Sunset Boulevard and McCadden Place, totaling approximately 16,369.5 sf; a single-story private school along Highland Avenue to the north of the shopping center structure comprised of two buildings, totaling approximately 21,795 sf; two 6,875-sf parking structures along McCadden Place; and a single-story private school building with approximately 5,612 sf of floor area along the northern portion of Highland Avenue.

The Community Plan designates the Project Site as Regional Center Commercial, which corresponds to the Project Site's current zoning designation of C4-2D-SN and C4-2D. It will also correspond to the proposed zoning designation of C2-2-SN and C2-2. The Project Site is located within 500 feet of Hollywood High School.

This application is for the new development of the above-described project, which consists of the construction of new commercial uses, including approximately 423,190 sf of creative office, 5,330 sf of retail/restaurant, and 66,000 sf of recording and production studio and ancillary uses, including a lecture hall, and an outdoor performance event terrace in the heart of Hollywood. These uses would be allocated throughout a new approximately 503,520 sf structure with two interconnected towers – a 10-story tower and a 13-story with four shared floors – incorporating ground floor commercial space, including a restaurant and retail store, two levels of recording space, ten levels of office, and six levels of subterranean parking. Included among these uses would be the soundproofed, world class music and production recording studios, as well as an event terrace. These uses bring new forms of entertainment, media and content creation to Hollywood, attract new forms of media and content creation, and bring synergy to Hollywood by providing a venue for creatives to meet and collaborate. The Project will help Hollywood adapt to the changing industry to reinforce its image as the international as the international center of the motion picture industry. Not only will the Project contribute to the revitalization of Hollywood with modern entertainment-focused uses through the redevelopment of underutilized property, but it will also bring much needed, new services, offices, and media support spaces to the community. The Project would seek both to retain existing local industry-leading companies in Hollywood and attract new pioneers and employers in the entertainment and media industries to the Project Site by providing a world class recording studio venue and offices in the heart of Hollywood.

Additionally, the location of the Project Site, which is directly to the east of Hollywood High School, which emphasizes performing arts and media, allows the Project to provide potential opportunities for students to immerse themselves in their areas of study in direct proximity to a high-quality creative-driven development focused on the music, entertainment, and media industries.

Sunset Boulevard, which adjoins the Site to the South is a designated Avenue I, with an existing width of approximately 100 feet. Pursuant to the Mobility 2035 Element, this Avenue I has a designated right-of-way width of 100 feet with a designated roadway width of 70 feet.

Highland Avenue, which adjoins the Site to the west is a designated Avenue I, with an existing width of approximately 100 feet. Pursuant to the Mobility 2035 Element, this Avenue I has a designated right-of-way width of 100 feet with a designated roadway width of 70 feet.

Selma Avenue, which adjoins the Site to the north is a designated Local Street – Standard, with an existing width of approximately 60 feet. Pursuant to the Mobility 2035 Element, this Local Street has a designated right-of-way width of 60 feet with a designated roadway width of 36 feet.

McCadden Place, which adjoins the Site to the east is a designated Local Street – Standard, with an existing width of approximately 46 feet. Pursuant to the Mobility 2035 Element, this Local Street has a designated right-of-way width of 60 feet with a designated roadway width of 36 feet.

Construction of the Project would involve site preparation activities including mass excavation and grading. The basement depth would be approximately 65 feet below ground surface (bgs) to the lowest subterranean parking level. The total excavation depth, including a presumed mat slab, would yield an approximate total excavation of 87 feet below existing grade, excluding stormwater tanks, sump pits, etc. An estimated 363,000 cubic yards would be excavated and exported off site.

1.2. SCOPE OF WORK

This report provides a description of the existing surface water hydrology, surface water quality, groundwater level, and groundwater quality at the Project Site. 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

2.1. SURFACE WATER HYDROLOGY

County of Los Angeles Hydrology Manual

Per the City's Special Order No. 007-1299, December 3, 1999, the City has adopted the Los Angeles County Department of Public Works Hydrology Manual as its basis of design for storm drainage facilities. The Los Angeles County Department of Public Works' 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.[1] The County also limits the allowable discharge into existing storm drain facilities based on the municipal separate storm sewer system (MS4) Permit and 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 requires the approval/review from the County Flood Control District department.

Los Angeles Municipal Code (LAMC)

Any proposed drainage improvements within the street right of way or any other property owned by, to be owned by, or under the control of the City requires the approval of a B-permit (Section 62.105, LAMC). Under the B-permit process, storm drain installation

[1] Los Angeles County Department of Public Works Hydrology Manual, January 2006, <http://ladpw.org/wrd/publication/index.cfm>..

plans are subject to review and approval by the City of Los Angeles Department of Public Works Bureau of Engineering. Additionally, any connections to the City's storm drain system from a property line to a catch basin or a storm drain pipe requires a storm drain permit from the City of Los Angeles Department of Public Works, Bureau of Engineering.

2.2. SURFACE WATER QUALITY

Clean Water Act

The Clean Water Act was first introduced in 1948 as the Water Pollution Control Act. The Clean Water Act authorizes Federal, state, and local entities to cooperatively create comprehensive programs for eliminating or reducing the pollution of state waters and tributaries. The primary goals of the Clean Water Act are to restore and maintain the chemical, physical, and biological integrity of the nation's waters and to make all surface waters fishable and swimmable. As such, the Clean Water Act forms the basic national framework for the management of water quality and the control of pollutant discharges. The Clean Water Act also sets forth a number of objectives in order to achieve the above-mentioned goals. These objectives include regulating pollutant and toxic pollutant discharges; providing for water quality that protects and fosters the propagation of fish, shellfish and wildlife; developing waste treatment management plans; and developing and implementing programs for the control of non-point sources of pollution.[2]

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

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

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2 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.

3 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.

and (3) industrial facilities owned or operated by small municipal separate storm sewer systems. The NPDES permit program is typically administered by individual authorized states.

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

In California, the NPDES stormwater permitting program is administered by the State Water Resources Control Board (SWRCB). The SWRCB was created by the Legislature in 1967. The joint authority of water distribution and water quality protection allows the Board to provide protection for the State's waters, through its nine Regional Water Quality Control Boards (RWQCBs). The RWQCBs develop and enforce water quality objectives and implement plans that will best protect California's waters, acknowledging areas of different climate, topography, geology, and hydrology. The RWQCBs develop "basin plans" for their hydrologic areas, issue waste discharge requirements, enforce action against stormwater discharge violators, and monitor water quality.[4]

Federal Anti-Degradation Policy

The Federal Anti-degradation Policy (40 Code of Federal Regulations 131.12) requires states to develop statewide anti-degradation policies and identify methods for implementing them. Pursuant to the Code of Federal Regulations (CFR), state anti-degradation policies and implementation methods shall, at a minimum, protect and maintain (1) existing in-stream water uses; (2) existing water quality, where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource.

California Porter-Cologne Act

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

As discussed above, under the California Water Code (CWC), the State of California is divided into nine RWQCBs, governing the implementation and enforcement of the CWC and CWA. The Project Site is located within Region 4, also known as the Los Angeles Region. Each RWQCB is required to formulate and adopt a Basin Plan for its region. This Plan must adhere to the policies set forth in the CWC and established by the SWRCB. The

[4] USEPA. U.S. Environmental Protection Agency - Clean Water Act. < http://www.epa.gov/lawsregs/laws/cwa.html>

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 Los Angeles Regional Water Quality Control Board (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 adopted a plan entitled "Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties" (Basin Plan). Specifically, the Basin Plan designates beneficial uses for surface and groundwaters, sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's antidegradation 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.[5]

The Basin Plan is a resource for the RWQCB 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.

[5] Los Angeles Regional Water Quality Control Board. LARWQCB Basin Plan http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/

NPDES Permit Program

The NPDES permit program was first established under authority of the Clean Water Act 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.

Construction General Permit

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

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

California mandates requirements for all construction activities disturbing more than one acre of land to develop and implement Stormwater Pollution Prevention Plans (SWPPP). The SWPPP documents the selection and implementation of Best Management Practices (BMPs) for a specific construction project, charging Owners with stormwater quality management responsibilities. A construction site subject to the Construction General Permit must prepare and implement a SWPPP that meets the requirements of the Construction General Permit.[6, 7]

Los Angeles County Municipal Storm Water System (MS4) Permit

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

On November 8, 2012, the LARWQCB adopted Order No. R4-2012-0175 under the CWA and the Porter-Cologne Act. This Order is the NPDES Permit or MS4 permit for municipal

[6] State Water Resources Control Board. State Water Resources Control Board. August 2019. http://www.swrcb.ca.gov/water_issues/programs/npdes/

[7] USEPA. U.S. Environmental Protection Agency - NPDES. < https://www.epa.gov/npdes>.

stormwater and urban runoff discharges within Los Angeles County. The requirements of this Order (the "Permit") cover 84 cities and most of the unincorporated areas of Los Angeles County. Under the Permit, the Los Angeles County Flood Control District (LACFCD) is designated as the Principal Permittee. The Permittees are the 84 Los Angeles County cities (including the City of Los Angeles) and Los Angeles County. Collectively, these are the "Co-Permittees". The Principal Permittee helps to facilitate activities necessary to comply with the requirements outlined in the Permit but is not responsible for ensuring compliance of any of the Permittees.

Stormwater Quality Management Program (SQMP)

In compliance with the Los Angeles County MS4 Permit, the Co-Permittees are required to implement a stormwater quality management program (SQMP) with the goal of accomplishing the requirements of the Permit and reducing the amount of pollutants in stormwater runoff. The SWMP requires the County of Los Angeles and the 84 incorporated cities to:

- Implement a public information and participation program to conduct outreach on storm water pollution;
- Control discharges at commercial/industrial facilities through tracking, inspecting, and ensuring compliance at facilities that are critical sources of pollutants;
- 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 MS4 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 stormwater 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-Permittee:

   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 stormwater 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-stormwater discharges to the storm drain system including discharge to the MS4 from various development types.

Standard Urban Stormwater Mitigation Plan (SUSMP)

Under the Los Angeles County Municipal NPDES Permit, permittees are required to implement a development planning program to address storm water pollution. These programs require project applicants for certain types of projects to implement Standard Urban Stormwater Mitigation Plans (SUSMP) throughout the operational life of their projects. The purpose of SUSMP is to reduce the discharge of pollutants in storm water by outlining BMPs which must be incorporated into the design plans of new development and redevelopment. A project is subject to SUSMP if it falls under one of the categories listed below:

1. Single-family hillside homes.

2. Ten or more unit homes (including single family homes, multifamily homes, condominiums, and apartments).

3. Automotive service facilities.

4. Restaurants.

5. 100,000 or more square-feet of impervious surface in industrial/commercial development.

6. Retail gasoline outlet.

7. Parking lots with 5,000 square feet or more of surface area or with 25 or more parking spaces.

8. Redevelopment projects in subject categories that meet redevelopment thresholds.

9. Located within or directly adjacent to or discharging directly to an environmentally sensitive area if the discharge is likely to impact a sensitive biological species or

habitat and the development creates 2,500 square feet or more of impervious surface.

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

On March 2, 2007, City Council Motion 07-0663 was introduced by the City of Los Angeles City Council to develop a water quality master plan with strategic directions for planning, budgeting and funding to reduce pollution from urban runoff in the City of Los Angeles. The Water Quality Compliance Master Plan for Urban Runoff was developed by the Bureau of Sanitation, Watershed Protection Division in collaboration with stakeholders to address the requirements of this Council Motion. The primary goal of the Water Quality Compliance Master Plan for Urban Runoff is to help meet water quality regulations. Implementation of the Water Quality Compliance Master Plan for Urban Runoff is intended over the next 20 to 30 years to result in cleaner neighborhoods, rivers, lakes and bays, augmented local water supply, reduced flood risk, more open space, and beaches that are safe for swimming.

The Water Quality Compliance Master Plan for Urban Runoff also supports the Mayor and Council's efforts to make Los Angeles the greenest major city in the nation.

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

- Water Quality Management Initiative, which describes how Water Quality Management Plans for each of the City's watershed and TMDL-specific Implementation Plans will be developed to ensure compliance with water quality regulations.

- The Citywide Collaboration Initiative, which recognizes that urban runoff management and urban (re)development are closely linked, requiring collaborations of many City agencies. This initiative requires the development of City policies, guidelines, and ordinances for green and sustainable approaches for urban runoff management.

- The Outreach Initiative, which promotes public education and community engagement with a focus on preventing urban runoff pollution.

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

City of Los Angeles Stormwater Program

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

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

Los Angeles Municipal Code

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

- 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 – City of Los Angeles

In October 2011, the City of Los Angeles passed an ordinance (Ordinance No. 181,899) amending LAMC Chapter VI, Article 4.4, Sections 64.70.01 and 64.72 to expand the applicability of the existing Standard Urban Stormwater Mitigation Plan (SUSMP) requirements by imposing rainwater Low Impact Development (LID) strategies on projects that require building permits. The LID ordinance became effective on May 12, 2012.

LID is a stormwater management strategy with goals to mitigate the impacts of increased runoff and stormwater pollution as close to its source as possible. LID promotes the use of natural infiltration systems, evapotranspiration, and the reuse of stormwater. The goal of these LID practices is to remove nutrients, bacteria, and metals from stormwater while also reducing the quantity and intensity of stormwater flows. Through the use of various infiltration strategies, LID is aimed at minimizing impervious surface area. Where infiltration is not feasible, the use of bioretention, rain gardens, green roofs, and rain barrels that will store, evaporate, detain, and/or treat runoff may be used.[8]

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

- Require the use of LID practices in future developments and redevelopments to encourage the beneficial use of rainwater and urban runoff;
- Reduce stormwater/urban runoff while improving water quality;
- Promote rainwater harvesting;
- Reduce offsite runoff and provide increased groundwater recharge;

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

- 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.

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 groundwaters, sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's antidegradation policy, and describes implementation programs to protect all waters in the Los Angeles Region. In addition, the Basin Plan incorporates (by reference) all applicable State and Regional Board plans and policies and other pertinent water quality policies and regulations. Those of other agencies are referenced in appropriate sections throughout the Basin Plan.

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

Safe Drinking Water Act (SDWA)

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

California Water Plan

The California Water Plan provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The

California Water 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 California Water Plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the State's water needs.

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

3. ENVIRONMENTAL SETTING

3.1. SURFACE WATER HYDROLOGY

3.1.1. REGIONAL

The Project Site is located within the Ballona Creek Watershed (Watershed) in the Los Angeles Basin. The Watershed encompasses an area of approximately 130 square miles extending from the Santa Monica Mountains and the Ventura-Los Angeles County line on the north, to the Harbor Freeway (110) on the east, and to the Baldwin Hills on the south. Ballona Creek is a 9-mile-long flood protection channel that drains the Watershed to the Pacific Ocean. The major tributaries to Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous storm drains. Refer to Figure 7 for Ballona Creek Watershed Map.

3.1.2. ON SITE

Under existing conditions, the existing site consists of four drainage areas, which are described below and shown in Figure 2.[9] The drainage area is determined by the drainage patterns and flow paths of stormwater that are tributary to a common point or area. For the purposes of the pre-development analysis, the existing site was analyzed across four different tributary areas; Area A1, which is the northeastern portion of the existing site, Area A2, which is an existing alley along McCadden Place, Area A3, which is the southeastern portion of the existing site, and Area B which is the western portion of the site. Drainage from Area A1, A2, and A3 are directed via sheet flow into an existing side opening catch basin at the western corner of McCadden Place and Sunset Boulevard. Drainage from Area B is directed both via curb face discharge along Highland Avenue, as well as sheet flow across an existing parking lot to the south. Both drainage paths direct

[9] The tributary drainage areas to each discharge point, or area, were determined from a topographical survey and site observations.

runoff to an existing side opening catch basin on the eastern corner of Highland Avenue and Sunset Boulevard.

The Site consists of a two-story shopping center at the corner of Highland Avenue and Sunset Boulevard, a single-story commercial nursery at the corner of Sunset Boulevard and McCadden Place, a single-story private school along Highland Avenue to the north of the shopping center structure comprised of two buildings, two parking structures along McCadden Place, and a single-story private school building along the northern portion of Highland Avenue. The percent impervious varies among each area, as each area contains a different type of development; Area A1 was calculated to be 96.9%, as it is an existing asphalt parking lot with landscape planters. Area A2 was assumed to be 100%, as it is an existing paved concrete alley. Area A3 was calculated to be approximately 60%, as it is an existing plant nursery with small buildings and covered areas over impervious asphalt, concrete, and decomposed granite surfaces. Area B was calculated to be 99.6%, as it consists of developed buildings, a parking lot, and landscaped area. A summary of existing impervious conditions is found in Table 1 below.

Generally, the Project Site is relatively flat and slopes downward from north to south. Due to the existing site being split into four areas for the purposes of hydrology analysis, multiple flow paths were assessed to calculate the total volumetric flow rate. Each area has its own flow path and slope, which can be found in Figures 3A, 3B, 3C, and 3D[10].

Figure 3A, 3B, 3C, and 3D show all the input parameters used for analyzing the existing Site. Table 1 shows the existing volumetric flow rates and volumes generated by a 50-year storm event within the existing project boundary.

Table 1- Existing Drainage Stormwater Runoff Calculations for Project Area

Drainage Area	Area (Acres)	Percent Imperviousness (%)	Q50 (cfs) (Volumetric flow rate measured in cubic feet per second)
A1	0.34	96.9%	1.00
A2	0.02	100%	0.06
A3	0.38	60%	1.21
B	1.19	99.6%	3.51
Total	**1.93**	**91.3%**	**5.78**

3.1.3. LOCAL

[10] The entire length of the existing Project Site is approximately 480 feet measured from northwest to southeast.

Offsite underground storm drain facilities in the Project vicinity (see Figure 2) consist of the following:

- **Sunset Boulevard:** There is an 18-inch storm main in Sunset Boulevard between Highland Avenue and McCadden Place. There is a catch basin located on the east side of McCadden Street; it captures sheet flow from the northerly part of Highland Avenue towards Sunset Boulevard. There is also a catch basin located on the northern side of Sunset Boulevard; it captures sheet flow from the easterly part of Sunset Boulevard towards Highland Avenue. Both catch basins discharge into the 18-inch storm drain line through a 12-inch lateral. The estimated full-flow capacity of the 12-inch pipe is 17.63 cfs, as shown on Figure 2A.

- **McCadden Place:** There is a 57-inch storm main in McCadden Place between Selma Avenue and Sunset Boulevard. There is a catch basin located on the west side of McCadden Street; it captures sheet flow from the northerly part of McCadden Place towards Sunset Boulevard. It discharges into the 57-inch storm drain line through a 12-inch lateral. The estimated full-flow capacity of the 12-inch pipe is 36.10 cfs, as shown on Figure 2B.

The underground main pipes, laterals and catch basins noted above are owned and maintained by the City of Los Angeles. Stormwater runoff from the Project Site is discharged into offsite storm drainage catch basins and underground storm drainage pipes, which convey stormwater through various underground pipe networks into Ballona Creek.

3.2. Surface Water Quality

3.2.1. Regional

As stated above, the Project Site lies within the Ballona Creek Watershed. Constituents of concern listed for Ballona Creek under California's Clean Water Act Section 303(d) List include cadmium (sediment), chlordane (tissue & 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. No TMDL data have been recorded by EPA for this waterbody.

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 source of contaminants includes 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. ON-SITE

Based on the project survey by KPFF shown in Figure 1 (dated February 8, 2021), site observations, and the fact that the existing site was developed prior to the enforcement of storm water quality BMP design, implementation, and maintenance, it appears the Project Site currently does not implement Best Management Practices (BMPs) and has no means of treatment for stormwater runoff.

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 comprises the Hollywood, Santa Monica, Central, and West Coast Subbasins. Groundwater flow in the Basin is generally south-southwesterly and may be restricted by natural geological features. Replenishment of groundwater basins occurs mainly by percolation of precipitation throughout the region via permeable surfaces, spreading grounds, and groundwater migration from adjacent basins, as well as injection wells designed to pump freshwater along specific seawater barriers to prevent the intrusion of salt water.

3.3.2. LOCAL

Within the Basin, the Project Site specifically overlies the Hollywood Subbasin (Subbasin), which underlies the northeastern portion of the Basin. The Subbasin is bounded on the north by the Santa Monica Mountains and the Hollywood fault, on the east by the Elysian Hills, on the west by the Inglewood fault zone, and on the south by the La Brea high, formed by an anticline that brings impermeable rocks close to the surface.[11]

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

The Project Site is located toward the northern portion of the Subbasin.

3.3.3. ON-SITE

[11] http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/4-11.02.pdf

The existing Project Site consists of a two-story shopping center at the corner of Highland Avenue and Sunset Boulevard, a single-story commercial nursery at the corner of Sunset Boulevard and McCadden Place, a single-story private school along Highland Avenue to the north of the shopping center structure comprised of two buildings, two parking structures along McCadden Place, and a single-story private school building along the northern portion of Highland Avenue; the total existing area is approximately 82,007 SF. The Project Site is bounded by Highland Avenue to the west, McCadden Place to the east, and Sunset Boulevard to the south. Due to the impervious condition of the Project Site, there is no recharge potential under existing conditions.

As described in the Geotechnical Feasibility Investigation Report prepared for the Project Site by Group Delta Consultants, Inc, on January 4, 2022, groundwater was not encountered during a field investigation performed to a depth of approximately 60 feet below ground surface. Groundwater was reported in a previous report in the area (Geotechnologies 2016) at depths from 69 to 78 feet below ground surface. The historically highest ground water level in the site area is about 50 feet below ground surface near the southern end of the Site and becoming deeper toward the north. However, shallower perched ground water or rainfall infiltration may be present seasonally following rains and could be encountered during basement excavation.[12]

3.4. GROUNDWATER QUALITY

3.4.1. REGIONAL

As stated above, the City of Los Angeles overlies the Los Angeles Coastal Plain Groundwater Basin, which falls under the jurisdiction of the Los Angeles Regional Water Quality Control Board (LARWQCB). According to LARWQCB's Basin Plan, objectives applying to all ground waters of the region include bacteria, chemical constituents and radioactivity, mineral quality, nitrogen (nitrate, nitrite), and taste and odor.[13]

3.4.2. LOCAL

As stated above, the Project Site specifically overlies the Hollywood Subbasin. Based upon LARWQCB's Basin Plan, constituents of concern listed for the Hollywood Subbasin include boron, chloride, sulfate, Total Dissolved Solids (TDS), and nitrate.[14]

3.4.3. ON-SITE

The majority of the Project is considered impervious and therefore does not contribute to groundwater recharge. Though Area A3 is considered 60% impervious, this is due to

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[12] Group Delta Consultants, INC. Geotechnical Feasibility Investigation Report for CNMTY Culture Hollywood Project, dated on January 4, 2022.

[13] Los Angeles Regional Water Quality Control Board, Basin Plan, September 11, 2014 https://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.html, accessed September 10, 2021.

[14] Ibid.

above-ground potted plants at the existing plant nursery and does not represent a significant potential for groundwater recharge. Due to the imperviousness of the Project Site, it is not possible for surface water-borne contaminants to percolate into groundwater and affect groundwater quality. Although the Project Site contains pervious areas, compliance with all existing hazardous waste regulations would reduce contaminant percolation. Nonetheless, groundwater quality may be impacted by past and existing activities at the Project Site.

Other types of risk such as underground storage tanks (USTs) have a greater potential to impact groundwater. According to the Phase 1 Environmental Assessment by Group Delta Consultants[15], "According to records provided by Los Angeles Fire Department Underground Tanks Division (LAFD UST), Los Angeles Department of Building and Safety (LADBS), and South Coast Air Quality Management District (SCAQMD), the Site was occupied by a gasoline service station at the corner of North Highland Avenue and Sunset Boulevard at 6767 and 6775 Sunset Boulevard from 1965 to 1989. One 550-gallon waste oil UST was installed in 1970. The USTs were of single-walled steel construction. Four USTs were removed under the supervision of the LAFD: two 10,000-gallon USTs, one 6,000-gallon UST, and one 550-gallon waste oil UST. Approximately 20 cubic yards of impacted soil was excavated and removed from the north end of the gasoline tanks pit. According to hazardous waste manifests dated April 21 through 23, 1987, the impacted soil was disposed off-Site. The existing two-story commercial office building was constructed in the area of the former gas station in 1990. The entire footprint of the parcel was excavated to approximately 15 feet below ground surface to accommodate the existing commercial office building. Based on regulatory status and subsequent redevelopment of the Site, the former release from the gasoline service station on Site represents a Historical Recognized Environmental Condition (HREC) to the Site." Therefore, former USTs from the Project Site would not propose a significant impact on groundwater quality.

In the event contaminated soils are encountered during construction, or construction occurs in areas of known or potential contamination, the nature and extent of the contamination would be determined and appropriate handling, disposal, and/or treatment would be implemented in accordance with applicable regulatory requirements, including SCAQMD Rule 1166[16]. With the implementation of these recommendations, the former release from the gasoline service station from the Project Site would not propose a significant impact on groundwater quality.

4. SIGNIFICANCE THRESHOLDS

In accordance with the significance thresholds described by the California Environmental Quality Act (CEQA), the Project has been analyzed for potential impacts on hydrology,

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[15] Phase I Environmental Site Assessment Report, by Group Delta Consultants, Inc., dated June 23, 2021.

[16] South Coast Air Quality Management District. Rules and Compliance, Rule 1166, http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1166.pdf?sfvrsn=4,.

water quality, and groundwater. This report includes an analysis of the Project with respect to the CEQA Appendix G thresholds as described below.

4.1. Surface Water Hydrology

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

Would the project:

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

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

- Cause flooding during the projected 50-year developed storm event, which would have the potential to harm people or damage property or sensitive biological resources;
- Substantially reduce or increase the amount of surface water in a water body; or
- Result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.

4.2. Surface Water Quality

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

Would the project:

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

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

The CWC includes the following definitions:

- "Pollution" means an alteration of the quality of the waters of the state to a degree which unreasonably affects either of the following: 1) the waters for beneficial uses or 2) facilities which serve these beneficial uses. "Pollution" may include "Contamination".
- "Contamination" means an impairment of the quality of the waters of the state by waste to a degree, which creates a hazard to the public health through poisoning or though the spread of disease. "Contamination" includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected.
- "Nuisance" means anything which meets all of the following requirements: 1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; 2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and 3) occurs during, or as a result of, the treatment or disposal of wastes.[17]

4.3. GROUNDWATER HYDROLOGY

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

Would the project:

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

In the context of the above questions from the Appendix G of the CEQA Guidelines, the

[17] City of Los Angeles.LA. CEQA Thresholds Guide. 2006 https://planning.lacity.org/eir/CrossroadsHwd/deir/files/references/A07.pdf. Accessed May 18, 2022.

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

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

4.4. GROUNDWATER QUALITY

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

Would the project:

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

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

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

5. METHODOLOGY

5.1. SURFACE WATER HYDROLOGY

The Project Site is located within the City of Los Angeles, and drainage collection, treatment and conveyance are regulated by the City. Per the City's Special Order No. 007-1299, December 3, 1999, the City adopted the Los Angeles County Department of Public Works (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. The *L.A. CEQA Thresholds Guide*, however, establishes the 50-year frequency design storm event as the criteria to analyze potential impacts on surface water hydrology as a result of development. To provide a more conservative analysis, this report analyzes the larger storm event threshold, i.e., the 50-year frequency design storm event.

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.

The LACDPW developed a time of concentration calculator, Hydrocalc, to automate time of concentration calculations as well as the peak runoff rates and volumes using the Modified Rational Method design criteria as outlined in the Hydrology Manual. The data input requirements include: sub-area size, soil type, land use, flow path length, flow path slope and rainfall isohyet. The Hydrocalc Calculator was used to calculate the storm water peak runoff flow rate for the Project conditions by evaluating an individual sub-area independent of all adjacent subareas. See Figure's 3A-3D, 4A-4C, and 5A-5C for the Hydrocalc Calculator results, and Figure 6 for LA County Hydrology Data Map.

5.2. SURFACE WATER QUALITY

5.2.1. CONSTRUCTION

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

5.2.2. OPERATION

The Project will meet the requirements of the City's LID standards.[18] Under section 3.1.3. 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 onsite for at least the volume of water produced by the greater of the 85th percentile storm or the 0.75 inch storm event. The LID Manual prioritized the selection of BMPs used to comply with stormwater mitigation requirement. The order of priority is:

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

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

The historic high groundwater level is at least 50 feet below the ground surface. According to the Geotechnical Report prepared for the Project Site[19], it noted that infiltration may not be considered feasible due to potential adverse impacts to the performance of the planned improvements.

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[18] Development Best Management Practices Handbook, Part B Planning Activities, 5th edition was adopted by the City of Los Angeles, Board of Public Works on May 9, 2016 to reflect Low Impact Development (LID) requirements that took effect May 12, 2012.

[19] Group Delta Consultants, INC. Geotechnical Feasibility Investigation Report for CNMTY Culture Hollywood Project, dated on January 4, 2022.

A stormwater capture system will likely be required and sized per LID guidelines. However, if capture and use is later determined to not be feasible, the Project would then be required to implement High Efficiency Biofiltration/Bioretention Systems.

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

Vdesign (gallons) = (85th percentile or 0.75 inch * 7.48 gallons/cubic foot) * Catchment Area (sq. ft.)

Where:

Catchment Area = (Impervious Area x 0.9) + [(Pervious Area + Undeveloped Area) x 0.1]

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

5.3. GROUNDWATER

To determine the level of significant impact of this Project, under the above threshold and as it relates to the level of the underlying groundwater table of the Hollywood Subbasin Groundwater Basin, the analysis included a review of the following considerations:

Analysis and Description of the Project's Existing Condition

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

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

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

6. PROJECT IMPACT ANALYSIS

6.1. CONSTRUCTION

6.1.1. SURFACE WATER HYDROLOGY

Construction activities for the Project would include demolition of an existing two-story shopping center, a single-story commercial nursery, a single-story private school, two parking structures, and a single-story private school, excavating down approximately 65 feet bgs for the six levels of basement, and a maximum of approximately 87 feet bgs in the approximate lowest proposed bottom of excavation surfaces from the approximate highest current ground surface; the excavations would serve the subterranean parking, elevators, the mixed-used development buildings, and the hardscape and landscape surrounding the buildings. Throughout the Project Site, the elevation difference is 11 feet with an overall gradient of approximately 2%. It is anticipated that grading activities of approximately 363,000 net cubic yards of soil. Construction activities would have the potential to temporarily alter existing drainage patterns and flows within the Project Site by exposing the underlying soils and making the Project Site temporarily more permeable. Exposed and stockpiled soils could be subject to erosion and conveyance into nearby storm drains during storm events. In addition, construction activities such as earth moving, maintenance/operation of construction equipment, and handling/storage/disposal of materials could contribute to pollutant loading in stormwater runoff.

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

In addition, the Project will comply with all applicable City grading permit regulations, plans, and inspections to reduce sedimentation and erosion. Thus, through compliance with NPDES General Construction Permit requirements, implementation of BMPs, and compliance with applicable City grading regulations, the Project would not substantially alter the Project Site drainage patterns in a manner that would result in substantial erosion or siltation. The Project would not result in a permanent adverse change to the movement of surface water. Therefore, construction-related impacts to surface water hydrology would be less than significant.

6.1.2. SURFACE WATER QUALITY

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

As discussed below, the Project will require dewatering during construction. Dewatering operations are practices that discharge non-stormwater, such as groundwater, that must be removed from a work location to proceed with construction into the drainage system. Discharges from dewatering operations can contain high levels of fine sediments, which if not properly treated, could lead to exceedance of the NPDES requirements. During construction, temporary dewatering systems such as dewatering tanks, sand media particulate, pressurized bag filters, and cartridge filters would be utilized in compliance with the NPDES permit. These temporary systems, which are further described below, would comply with all relevant NPDES requirements related to construction and discharges from dewatering operations.

With implementation of the Erosion Control Plan, site-specific BMPs would reduce or eliminate the discharge of potential pollutants from stormwater runoff. In addition, the Project Applicant would be required to comply with City grading permit regulations and inspections to reduce sedimentation and erosion. Construction of the Project would not result in discharge that would cause: (1) pollution which would alter the quality of the water of the State (i.e., Ballona Creek) to a degree which unreasonably affects beneficial uses of the waters; (2) contamination of the quality of the water of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of diseases; or (3) nuisance that would be injurious to health; affect an entire community or neighborhood, or any considerable number of persons; and occurs during or as a result of the treatment or disposal of wastes. Furthermore, construction of the Project would not result in discharges that would cause regulatory standards to be violated in the Ballona Creek Watershed. Therefore, temporary 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 down approximately 65 feet bgs for the six levels of basement, and a maximum of approximately 87 feet bgs in the approximate lowest proposed bottom of excavation surfaces from the approximate highest current ground surface. The historically highest groundwater level is on the order of 50 feet below grade as stated in the Geotechnical Feasibility Investigation

Report for CMNTY Culture, 10877 Wilshire Blvd, Suite 1500, Los Angeles, CA 90024, January 4, 2022.[20]

Therefore, it is recommended that a qualified dewatering consultant should be retained to establish a temporary dewatering plan during construction. Dewatering operations are expected, and appropriate compliance and containment measures would be implemented to avoid impacts associated with potential groundwater discharges. As stated above, possible dewatering systems to be used as listed in the California Stormwater Quality Association (CASQA) BMP Handbook are as follows:

- Dewatering Tanks:
  A dewatering tank removes debris and sediment. Flow enters the tank through the top, passes through a fabric filter, and is discharged through the bottom of the tank. The filter separates the solids from the liquids.

- Sand Media Particulate Filters:
  Water is treated by passing it through canisters filled with sand media. Generally, sand filters provide a final level of treatment. They are of then used as secondary or higher level of treatment after a significant amount of sediment and other pollutants have been removed using other methods.

- Pressurized Bag Filters:
  A pressurized bag filter is a unit composed of single filter bags made from polyester felt material. The water filters through the unit and is discharged through a header. Vendors provide bag filters in a variety of configurations. Some units include a combination of bag filters for enhanced contaminant removal.

- Cartridge Filters:
  Cartridge filters provide a high degree of pollutant removal by utilizing a number of individual cartridges as part of a larger filtering unit. Similar to sand media particulate filters, they are often used as a secondary level of treatment after a significant amount of sediment and other pollutants are removed. Units come with various cartridge configurations (for use in series with bag filters) or with a larger single cartridge filtration unit (with multiple filters within).

Due to the operation of temporary dewatering systems local groundwater hydrology in the immediate vicinity of the Site is minimally affected. The purpose of dewatering operations is for the protection of both existing and proposed building structures. Due to the limited and temporary nature of temporary dewatering operations, regional impacts to groundwater flow and level are not considered to be significant. Therefore, as Project development would not adversely impact the rate or direction of flow of groundwater and no water supply wells would be affected, the Project would not result in a significant impact on groundwater hydrology during construction.

[20] Group Delta Consultants, INC. Geotechnical Feasibility Investigation Report for CNMTY Culture Hollywood Project, dated on January 4, 2022.

6.1.4. GROUNDWATER QUALITY

As stated above, construction activities for the Project would include excavating down approximately 65 feet bgs for the six levels of basement, and a maximum of approximately 87 feet bgs in the approximate lowest proposed bottom of excavation surfaces from the approximate highest current ground surface. The Project would also result in a net export of existing soil material. As discussed in section 3.4.3, any contaminated soils found would be captured within that volume of excavated material, removed from the Project Site, and deposited at an approved disposal facility in accordance with regulatory requirements. There are no USTs within the Project Site, so therefore, it will not create a significant adverse effect on groundwater quality. See section 3.4.3 for further discussion regarding USTs onsite.

During on-site grading and building construction, hazardous materials, such as fuels, paints, solvents, and concrete additives, could be used and would require proper management and, in some cases, disposal. The management of any resultant hazardous wastes could increase the opportunity for hazardous materials releases into groundwater. Compliance with all applicable federal, state, and local requirements concerning the handling, storage, and disposal of hazardous waste, would reduce the potential for the construction of the Project to release contaminants into groundwater that could affect existing contaminants, expand the area or increase the level of groundwater contamination, or cause a violation of regulatory water quality standards at an existing production well. There is one active groundwater well within approximately 1.71 miles southwest of the Project Site.[21] Due to compliance with measures as listed above and the implementation of BMPs, as there are no groundwater production wells or public water supply wells within one mile of the Project Site, construction activities would not be anticipated to affect existing wells. Therefore, the Project would not result in any substantial increase in groundwater contamination through hazardous materials releases during construction and impacts on groundwater quality would be less than significant.

6.2. OPERATION

6.2.1. SURFACE WATER HYDROLOGY

The proposed Project's percentage of impervious area will slightly increase compared to the existing conditions at the Project Site. For the purposes of the report calculations, it is assumed that the proposed site will be approximately 90% impervious. Specifically, the existing Project Site, is approximately 1.88 acres and is currently developed with an existing two-story shopping center, a single-story commercial nursery, a single-story private school, two parking structures, and a single-story private school. The existing Project Site contains approximately 91.3% impervious surface coverage. In the existing condition, storm water discharges from the Project Site without filtration.

[21] Los Angeles County Department of Public Works, Groundwater Wells Data, http://dpw.lacounty.gov/general/wells/ accessed May 16, 2022.

Under the proposed conditions illustrated in Figure 3, the Project Site would consist of three drainage areas that would drain via surface flow to the proposed BMPs.

- Proposed Drainage Area A1 represents the northeastern portion of the proposed Project Site.
- Proposed Drainage Area A2 represents the southeastern portion of the proposed site.
- Proposed Drainage Area B represents the western portion of the proposed site.

Table 2 shows the proposed volumetric flow rates generated by a 50-year storm event for the Site. Figures 5A, 5B, and 5C show all the input parameters used for analyzing the proposed Project Site.

Table 2 – Proposed Onsite Drainage Stormwater Runoff Calculations			
Drainage Area	Area (Acres)	Percent Imperviousness (%)	Q50 (cfs) (Volumetric flow rate measured in cubic feet per second)
A1	0.34	90%	1.00
A2	0.40	90%	1.28
B	1.19	90%	3.25
Total	**1.93**	**90%**	**5.53**

Compliance with the LID requirements for the Project Site would ensure stormwater treatment with post-construction BMPs that are required to control pollutants associated with storm events up to the 85th percentile storm event, per the City's Stormwater Program. To meet the LID requirements, it is estimated that up to 5,725 cubic feet of stormwater for the base project will need to be mitigated within the Project Site (see Figures 5A, 5B, and 5C for Hydrocalc Calculations). To manage this LID design volume, the Applicant would install infiltration or capture and use BMPs to the satisfaction of City of Los Angeles Bureau of Sanitation. Typical LID BMPs are illustrated in Exhibit 2. The observed historically high groundwater level is at approximately 50 feet below the ground surface.[22] According to the Geotechnical Feasibility Investigation Report prepared by Group Delta Consultants, it has been discussed that infiltration may not be considered feasible due to potential adverse impacts to the performance of the planned improvements. However, site specific percolation testing will be further performed during the design phase of the project to finally determine the feasibility of infiltration.

[22] Group Delta Consultants, INC. Geotechnical Feasibility Investigation Report for CNMTY Culture Hollywood Project, dated on January 4, 2022.

Table 3 summarizes the pre- and post-Project 50-year design storm event peak flow rates from the Project Site.

Table 3 – Pre- and Post-Project 50-year frequency peak flow rates for Project Area				
Drainage Area	**Project Site Area (Acres)**	**Pre-Project Q50 (cfs)** (volumetric flow rate measured in cubic feet per second)	**Post-Project Q50 (cfs)** (volumetric flow rate measured in cubic feet per second)	**Decrease from Existing to Proposed Condition (%)**
Entire Site	1.88	5.78	5.53	4.3%

The 50-yr peak flow rate of the entire site decreases approximately 4.3%. This is due to a reduction in site imperviousness and increasing the time of concentration due to the geometry of the proposed site and the introduction of LID BMPs. As the percent impervious has been conservatively assumed to be 90% impervious, there are no significant impacts associated with a decrease in volumetric flowrate. The Project will also improve current conditions by capturing and treating the 85th percentile storm, and thus improving the quality of the stormwater discharged to the public infrastructure.

As part of the LID plan for the Project to manage post-construction stormwater runoff, the Project would likely install building roof drain downspouts, catch basins, and planter drains throughout the Project Site; this will collect roof and site runoff and direct stormwater away from buildings through a series of building storm drain pipes. This on-site stormwater conveyance system would serve to prevent on-site flooding of the Project Site.

Due to the implementation of the LID BMPs and on-site stormwater volume mitigation, the 50-year peak flow volume will not significantly increase for the base Project Site area. In the situation of a rainfall exceeding the 85th percentile storm, the LID system would overflow to the curb face located along either Highland Avenue, Sunset Boulevard, or McCadden Place. This would connect to the underground storm mains running in Sunset Boulevard, and ultimately discharge to Ballona Creek.

Consequently, the Project would not cause flooding during the 50-year developed storm event, would not create runoff which would exceed the capacity of the 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.

Earthquake-induced flooding can result from the failure of dams or other water-retaining structures resulting from earthquakes. According to the City of Los Angeles General Plan Safety Element, Exhibit G: Inundation & Tsunami Hazard Areas (Refer to Figure 9), the Project Site is not in a potential dam inundation area. Dam safety regulations are the primary means of reducing damage or injury due to inundation occurring from dam failure.

The California Division of Safety of Dams regulates the siting, design, construction, and periodic review of all dams in the State. In addition, the Los Angeles Department of Water and Power (LADWP) operates the dams in the Project Site area and mitigates the potential for overflow and seiche hazard through control of water levels and dam wall height. These measures include seismic retrofits and other related dam improvements completed under the requirements of the 1972 State Dam Safety Act. The City's Local Hazard Mitigation Plan,[23] which was revised in January 2018, provides a list of existing programs, proposed activities and specific projects that may assist the City of Los Angeles in reducing risk and preventing loss of life and property damage from natural and human-caused hazards, including dam failure. The Hazard Mitigation Plan evaluation of dam failure vulnerability classifies dam failure as a moderate risk rating. Therefore, considering the above information and risk reduction projects, the risk of flooding from inundation by a seiche or dam failure is considered low.

Additionally, the Project Site is not located within a Special Flood Hazard Area (100-year floodplain), or Moderate Flood Hazard Area (500-year floodplain) identified by the Federal Emergency Management Agency (FEMA) and published in the Flood Insurance Rate Maps (FIRM).[24] The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 500-year floodplain is labeled Zone C or Zone X (unshaded). As shown on Figure 8, the Project Site is located within Zone X (unshaded) and is therefore located outside of the 100- and 500-year floodplain.[25]

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 onsite for the volume of water produced by the 85th percentile storm event. Consistent with LID requirements to reduce the quantity and improve the quality of rainfall runoff that leaves the Project Site, the Project would include the installation of Capture and Use or Biofiltration Planter BMPs as established by the LID Manual. The installed BMP systems will be designed with an internal bypass overflow system to prevent upstream flooding during major storm events. As the majority of potential contaminants are anticipated to be contained within the "first flush" 85th percentile storm event, major storms are not anticipated to cause an exceedance of regulatory standards.

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

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[23] City of Los Angeles Emergency Management Department, *Local Hazard Mitigation Plan,* dated January, 2018.

[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).

[25] Based on FIRM Map Number 06037C1605F, revised on 9/26/2008.

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

- Provide storm drain system stenciling and signage to discourage illegal dumping;
- Design material storage areas and loading docks within structures or enclosures to prevent leaks or spills of pollutants from entering the storm drain system and;
- Provide evidence of ongoing BMP maintenance as part of a legal agreement with the City of Los Angeles. Recorded covenant and agreements for BMP maintenance are part of standard building permit approval processing.

Based on the above, with implementation of BMPs such as those described above, operation of the Project would not result in discharges that would cause: (1) pollution which would alter the quality of the waters of the State (i.e., Ballona Creek) to a degree which unreasonably affects beneficial uses of the waters; (2) contamination of the quality of the waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of diseases; or (3) nuisance that would be injurious to health; affect an entire community or neighborhood, or any considerable number of persons; and occurs during or as a result of the treatment or disposal of wastes. Furthermore, operation of the Project would not result in discharges that would cause regulatory standards to be violated in the Ballona Creek Watershed. Thus, operational impacts on surface water quality would be less than significant.

6.2.3. GROUNDWATER LEVEL

The Project will develop hardscape and structures that cover the majority (90-percent) of the Project footprint with impervious surfaces. However, the Project would include the installation of LID BMPs, which would mitigate at minimum the first flush or the equivalent of the greater between the 85th percentile storm and first 0.75-inch of 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 would discharge to an approved discharge point in the public right-of-way and not result in infiltration of a large amount of rainfall, which would affect groundwater hydrology, including the direction of groundwater flow.

As described in the Geotechnical Feasibility Investigation Report prepared for the Project Site, the historic high groundwater level in the vicinity of the Project site was on the order of 50 feet below grade.[26] The proposed structure should utilize a hydrostatic design; the hydrostatic design shall withstand hydrostatic forces and incorporate comprehensive waterproofing systems in accordance with current industry standards and construction methods. As such, permanent dewatering operations are not expected, and the groundwater

[26] Group Delta Consultants, INC. Geotechnical Feasibility Investigation Report for CNMTY Culture Hollywood Project, dated on January 4, 2022.

level is expected to return to the existing level at the Project after construction is complete. Based on the above, operation of the Project would result in a less than significant impact on groundwater hydrology, including groundwater levels.

6.2.4. GROUNDWATER QUALITY

Operational activities which could affect groundwater quality include spills of hazardous materials and leaking underground storage tanks. 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. As mentioned in section 3.4.3, no USTs in the Project Site areas are intended for construction. There are records of USTs associated with what is now the existing two-story commercial office building, which sits on the Project Site; the USTs and the impacted soil in question have since been removed and disposed off-Site. Furthermore, there will be no proposed USTs that will be operated with the Project. While the development of the new Project would comply with all applicable existing regulations at the Project Site, prevention methods will be enforced so the Project will 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 defined in the California Code of Regulations, Title 22, Division 4, Chapter 15[27] and the Safe Drinking Water Act. [28] Furthermore, as described above, operation of the Project would not require extraction from the groundwater supply based on the depth of excavation for the proposed uses and the depth of groundwater below the Project Site. Additionally, the Project would include the installation of LID BMPs, which would mitigate at minimum the first flush or the equivalent of the greater between the 85th percentile storm and first 0.75-inch of rainfall for any storm event.

Operation of the Project will not require extraction from the groundwater supply. The Project does not include the installation or operation of water wells, or any extraction or recharge system that is in the vicinity of the coast, an area of known groundwater contamination or seawater intrusion, a municipal supply well or spreading ground facility. The Project does not include surface or subsurface application or introduction of potential contaminants or waste materials during construction or operation. The Project is not anticipated to result in releases or spills of contaminants that could reach a groundwater recharge area or spreading ground or otherwise reach groundwater through percolation. Additionally, the Project would include the installation of structural BMPs as a means of pretreatment prior to infiltration or capture and use of the first flush or equivalent of the greater between the 85th percentile storm event and the first 0.75-inch of rainfall for any storm event, which would allow for treatment of runoff generated on-site prior to discharging to catch basins in the public right of way.

[27] https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/RWregulations_20181001.pdf, accessed May 17, 2022
[28] https://www.epa.gov/laws-regulations/summary-safe-drinking-water-act., accessed May 17, 2022

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

6.3. Cumulative Impact Analysis

6.3.1. Surface Water Hydrology

The geographic context for the cumulative impact analysis on surface water hydrology is the Ballona Creek Watershed. In accordance with City requirements, the Project and related projects would be required to implement BMPs to manage stormwater runoff in accordance with LID guidelines. Furthermore, 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. Therefore, potential cumulative impacts associated with the Project on surface water hydrology would not be cumulatively considerable and less than significant.

6.3.2. Surface Water Quality

Future growth, including the related projects, 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 it is anticipated that future development projects would also be subject to LID requirements. The Project would comply with all applicable laws, rules and regulations, so Project cumulative impacts to surface water quality would be less than significant.

6.3.3. Groundwater Hydrology

Cumulative groundwater hydrology impacts could result from the overall utilization of groundwater basins located in proximity to the Project and the related projects. In addition, interruptions to existing hydrology flow by dewatering operations of underground water would have the potential to affect groundwater levels. The purpose of dewatering operations is for the protection of both existing and proposed building structures. The dewatering system expected for construction of the Project would be temporary, would not operate at all times, and would only be activated when the level of the water reaches the permitted level that initiates the dewatering operations. While short-term, periodic dewatering has the potential to have a minimal effect on groundwater hydrology locally at the Project, dewatering operations at such a temporary, localized level would not have the potential to affect regional groundwater hydrology.

Similar to the Project, other proposed projects within the groundwater basin will likely incorporate structural designs for subterranean levels that are able to withstand hydrostatic forces and incorporate comprehensive waterproofing systems in accordance with current industry standards and construction methods. If any related project requires permanent dewatering systems, such systems would be regulated by the SWRCB. Should excavation for other related projects extend beneath the groundwater level, temporary groundwater dewatering systems will be designed and implemented in accordance with SWRCB permit requirements. These dewatering operations would be limited to temporary and local impact

to the groundwater level. Based on the above, cumulative impacts to groundwater hydrology would be less than significant.

6.3.4. GROUNDWATER QUALITY

Future growth in the Los Angeles Hollywood Coastal Plain Hollywood Subbasin would be subject to LA RWQCB requirements relating to groundwater quality. In addition, since the Project is located in a highly urbanized area, future land use changes or development are not likely to cause substantial changes in regional groundwater quality. As noted above, the Project does not have an adverse impact on groundwater quality. Also, it is anticipated that the Project and other future development projects would also be subject to LARWQCB requirements and implementation of measures to comply with total maximum daily loads. Therefore, since the Project does not have an adverse impact and through compliance with all applicable laws, rules and regulations, cumulative impacts to groundwater quality would be less than significant.

7. LEVEL OF SIGNIFICANCE

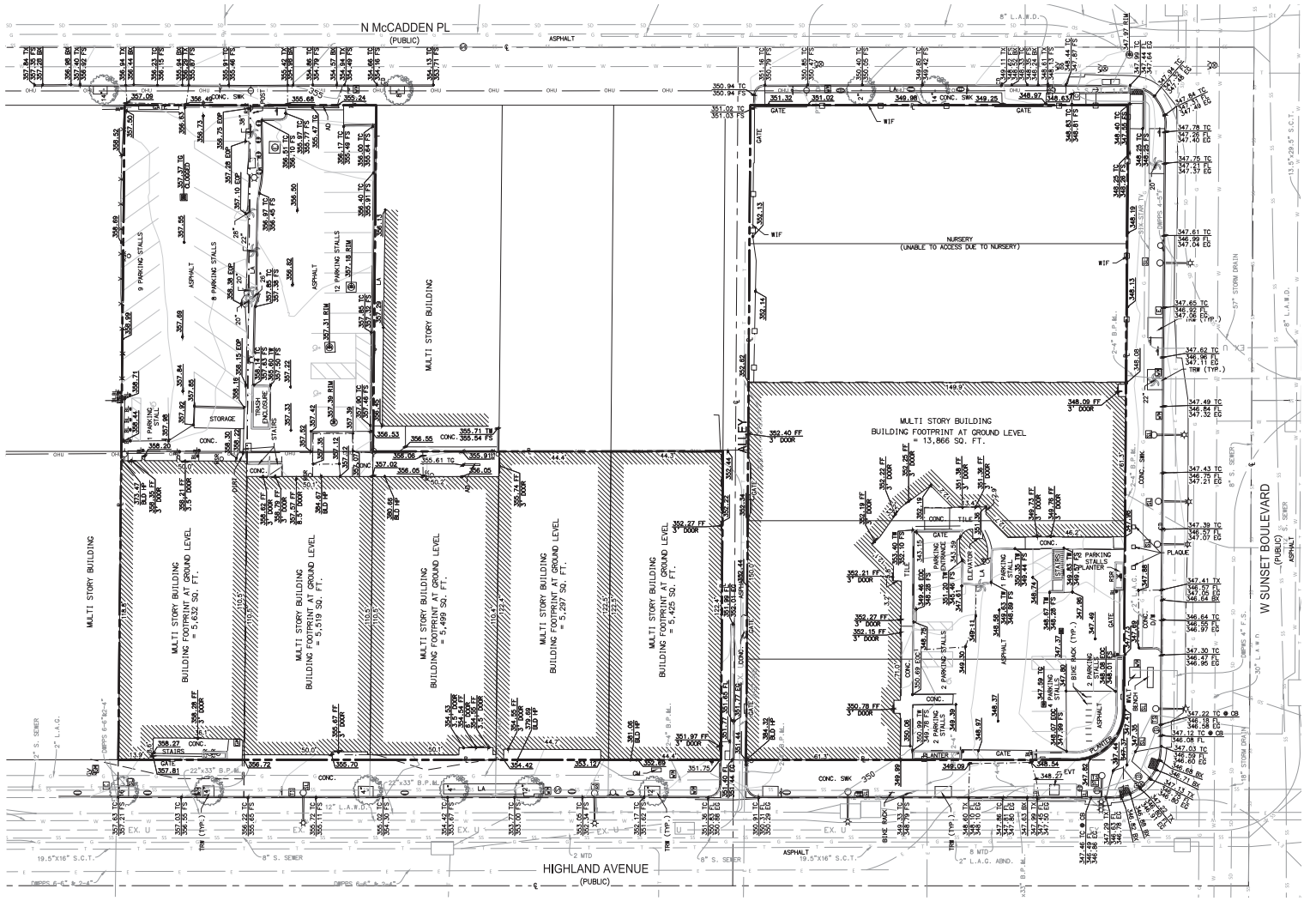
Based on the analysis contained in this report, no significant impacts have been identified for surface water hydrology, surface water quality, groundwater hydrology or groundwater quality for this Project.

APPENDICES

FIGURE 1

ABBREVIATIONS

AC	ASPHALT CONCRETE
APR.	APRON
AD	AREA DRAIN
BFP	BACK FLOW PREVENTER
BL	BOLLARD
BLD	BUILDING
BW	BACK OF WALK
BX	CURB TRANSITION BOTTOM
℄	CENTERLINE
CATV	CABLE TV
CD	CURB DRAIN
CB	CATCH BASIN
CLF	CHAIN LINK FENCE
APS.	COLUMN
APT.	COMMUNICATIONS
CONC.	CONCRETE
COR	CORNER
DWY	DRIVEWAY APRON
DR	DOOR
EG	EDGE OF GUTTER
ELEV	ELEVATION
ELEC.	ELECTRICAL
ELP	ELECTRICAL PANEL
ELV	ELECTRICAL VAULT
EPB	ELECTRICAL PULLBOX
EOC	EDGE OF CONCRETE
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FL	FLOW LINE
FS	FINISHED SURFACE (HARDSCAPE)
GB	GRADE BREAK
GV	GAS VALVE
LA	LANDSCAPE AREA
MH	MANHOLE
OHU	OVERHEAD UTILITY WIRES
PLTR	PLANTER
ℙ	PROPERTY LINE
R/W	RIGHT-OF-WAY
RCP	REINFORCED CONC PIPE
RET WALL	RETAINING WALL (CONCRETE)
SCO	SEWER CLEANOUT
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SLPB	STREET LIGHT PULLBOX
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SWK	SIDEWALK
TC	TOP OF CURB
TRW	TREE WELL
TS	TRAFFIC SIGNAL
TSCB	TRAFFIC SIGNAL CABINET
TW	TOP OF WALL
TX	CURB TRANSITION TOP
TPB	TRAFFIC PULLBOX
TYP.	TYPICAL
UNK	UNKNOWN
UPB	UNKNOWN PULLBOX
VLT	VAULT
WD	WATER DRAIN
WL	WALL
WVLT	WATER VAULT
WV	WATER VALVE
N	NORTHERLY
S	SOUTHERLY
E	EASTERLY
W	WESTERLY



LEGEND

- AIR RELEASE VALVE
- AREA DRAIN (SQUARE)
- AREA DRAIN (CIRCLE)
- BACKFLOW PREVENTER
- BOLLARD
- BENCHMARK
- BIKE RACK
- BLOW-OFF VALVE
- CURB DRAIN
- CONTROL POINT
- CABLE TV PULLBOX
- COMMUNICATIONS PULLBOX
- ELECTRONIC TEST STATION
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- FLAG POLE
- FIBER OPTIC PULLBOX
- GROUND LIGHT
- GAS MANHOLE
- GAS VALVE
- GAS METER
- GUY WIRE
- GREASE INTERCEPTOR
- HOSE BIB
- IRRIGATION CONTROL BOX
- IRRIGATION CONTROL VALVE
- AREA LIGHT
- MAILBOX
- MONITORING WELL
- PALM
- PARKING METER
- POST INDICATOR VALVE
- FOUND MONUMENT AS NOTED

- ELECTRIC CABINET
- ELECTRIC MANHOLE
- ELECTRIC METER
- UTILITY POLE
- ELECTRIC PULLBOX
- ROOF DRAIN
- SEWER CLEAN OUT
- SEWER MANHOLE
- HANDICAP PARKING
- SIGN
- SPRINKLER
- STORM DRAIN MANHOLE
- STREET LIGHT
- STREET LIGHT PULLBOX
- TELEPHONE BOX
- TELEPHONE CABINET
- TELEPHONE MANHOLE
- TRAFFIC PULLBOX
- TRAFFIC SIGNAL CABINET
- TRAFFIC SIGNAL (NO ARM)
- TRAFFIC SIGNAL
- TREE
- UNIDENTIFIED PULLBOX
- UNIDENTIFIED CABINET
- UNIDENTIFIED CLEAN OUT
- UNIDENTIFIED MANHOLE
- UNIDENTIFIED CONTROL VALVE
- VENT
- WATER MANHOLE
- WATER METER
- WATER VALVE
- RISER
- DETECTOR CHECK VALVE
- DRINKING FOUNTAIN

LINETYPES

- BUILDING LINE
- BUILDING OVERHANG
- CENTER LINE
- CHAINLINK FENCE
- CONC LINE
- CURB FACE WITH BACK OF CURB (0.5' O/S)
- ELECTRICAL LINE
- GAS LINE
- GRADEBREAK
- OVERHEAD UTILITY LINES
- PROPERTY LINE
- RIGHT OF WAY LINE
- STORM DRAIN LINE
- SANITARY SEWER LINE
- TELECOMMUNICATIONS LINE
- WALL
- WROUGHT IRON FENCE
- WATER LINE

N

0 10' 20'
SCALE: 1"=20'

NO.	DATE	REVISIONS
6		
5		
4		
3		
2		
1		

PROJECT #	2100022
DATE PREPARED	02/08/2021
DRAWN BY	NL
CHECKED BY	CJ

CMNTY PROJECT

PREPARED FOR:

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SHEET 6 OF 6

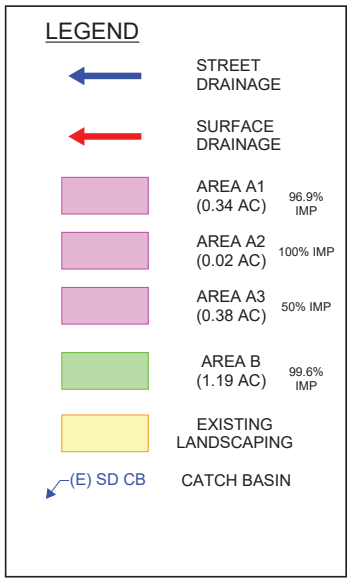
FIGURE 2 - EXISTING SITE DRAINAGE

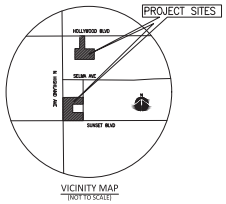
PROJECT SUMMARY:

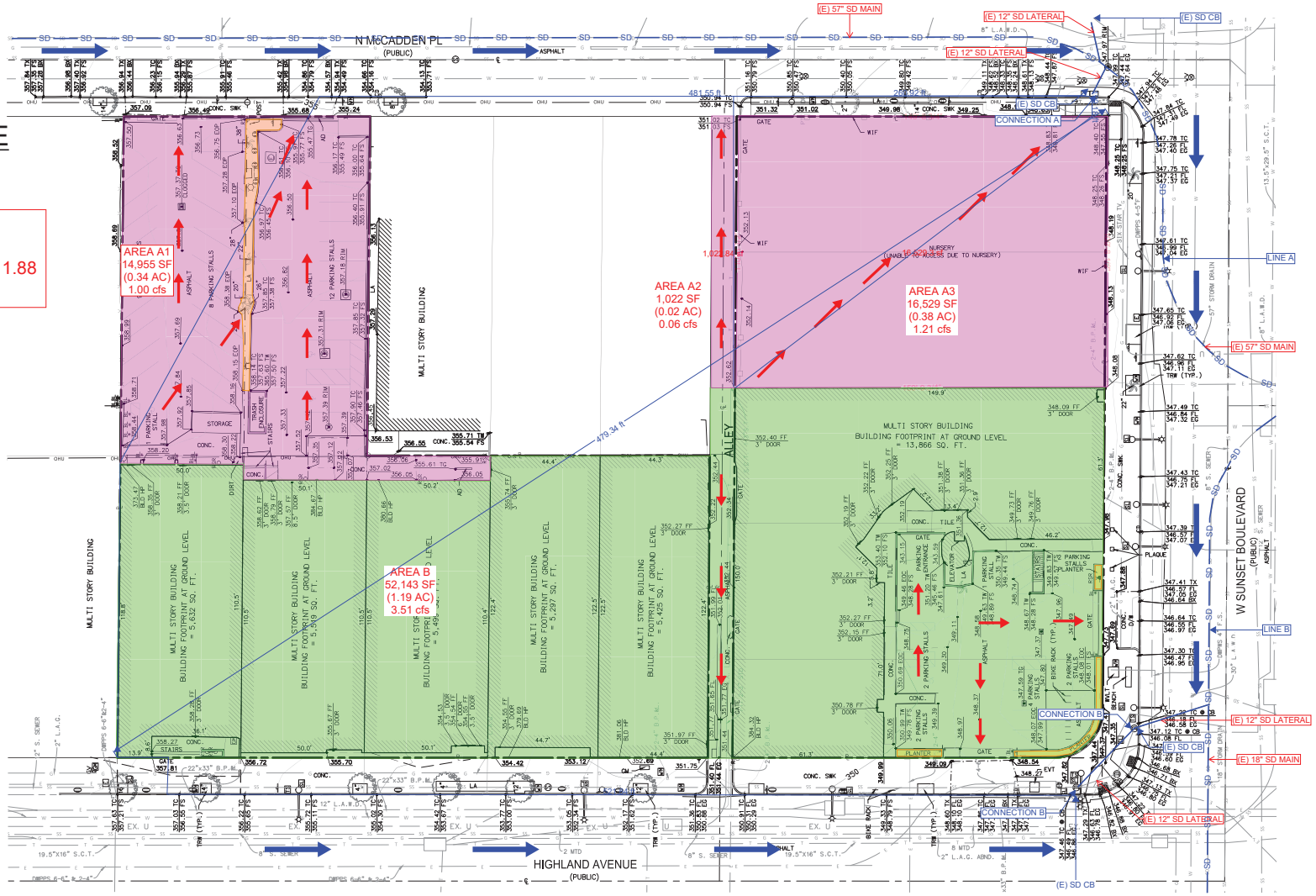
EXISTING PROJECT AREA = 82,007 SF = 1.88 AC

LA Hydrology Data:

85th Percentile Isohyet: 1.0 in
50 Yr = 6.0 in
Soil Type: 016







LINETYPES

- BUILDING LINE
- BUILDING OVERHANG
- CENTER LINE
- CHAINLINK FENCE
- CONC LINE
- CURB FACE WITH BACK OF CURB (0.5" O/S)
- ELECTRICAL LINE
- GAS LINE
- GRADEBREAK
- OVERHEAD UTILITY LINES
- PROPERTY LINE
- RIGHT OF WAY LINE
- STORM DRAIN LINE
- SANITARY SEWER LINE
- TELECOMMUNICATIONS LINE
- WALL
- WROUGHT IRON FENCE
- WATER LINE

SCALE: 1"=20'

NO.	DATE	REVISIONS
6		
5		
4		
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1		

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FIGURE 2A

Sunset Blvd - 12" SD Lateral

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.24500	ft/ft
Normal Depth	1.00	ft
Diameter	1.00	ft
Discharge	17.63	ft³/s

Results

Discharge	17.63	ft³/s
Normal Depth	1.00	ft
Flow Area	0.79	ft²
Wetted Perimeter	3.14	ft
Hydraulic Radius	0.25	ft
Top Width	0.00	ft
Critical Depth	1.00	ft
Percent Full	100.0	%
Critical Slope	0.24003	ft/ft
Velocity	22.45	ft/s
Velocity Head	7.83	ft
Specific Energy	8.83	ft
Froude Number	0.00	
Maximum Discharge	18.97	ft³/s
Discharge Full	17.63	ft³/s
Slope Full	0.24500	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%

Sunset Blvd - 12" SD Lateral

GVF Output Data

Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.00	ft
Critical Depth	1.00	ft
Channel Slope	0.24500	ft/ft
Critical Slope	0.24003	ft/ft

FIGURE 2B

McCadden Place - 12 Inch SD Lateral

Project Description

Friction Method	Manning Formula
Solve For	Full Flow Capacity

Input Data

Roughness Coefficient	0.013	
Channel Slope	1.02700	ft/ft
Normal Depth	1.00	ft
Diameter	1.00	ft
Discharge	36.10	ft³/s

Results

Discharge	36.10	ft³/s
Normal Depth	1.00	ft
Flow Area	0.79	ft²
Wetted Perimeter	3.14	ft
Hydraulic Radius	0.25	ft
Top Width	0.00	ft
Critical Depth	1.00	ft
Percent Full	100.0	%
Critical Slope	1.02700	ft/ft
Velocity	45.97	ft/s
Velocity Head	32.84	ft
Specific Energy	33.84	ft
Froude Number	0.00	
Maximum Discharge	38.84	ft³/s
Discharge Full	36.10	ft³/s
Slope Full	1.02700	ft/ft
Flow Type	Critical	

GVF Input Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%

McCadden Place - 12 Inch SD Lateral

GVF Output Data

Normal Depth Over Rise	100.00	%
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	1.00	ft
Critical Depth	1.00	ft
Channel Slope	1.02700	ft/ft
Critical Slope	1.02700	ft/ft

FIGURE 3 - PROPOSED SITE DRAINAGE

PROJECT SUMMARY:

PROPOSED PROJECT AREA = 83,920 SF = 1.93 AC

LA Hydrology Data:
85th Percentile Isohyet: 1.0 in
50 Yr = 6.0 in
Soil Type: 016

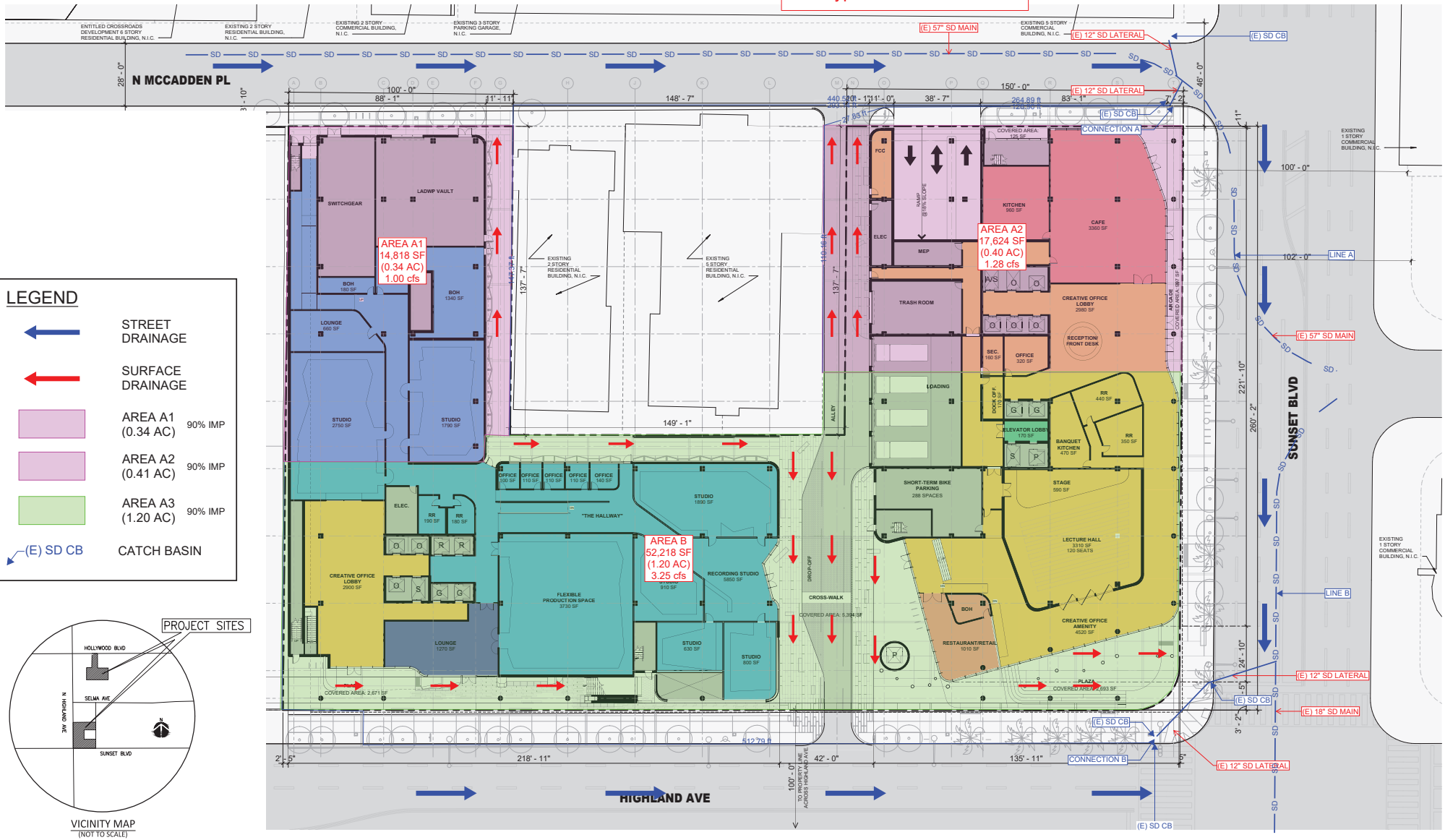


FIGURE 3A: HYDRO-CALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA A1)

Peak Flow Hydrologic Analysis

File location: //kpfflacivil.com/share/projects/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/Existing/CMNTY - AREA
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CMNTY
Subarea ID	AREA A1
Area (ac)	0.34
Flow Path Length (ft)	481.55
Flow Path Slope (vft/hft)	0.0221
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.969
Soil Type	16
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)	0.864
Developed Runoff Coefficient (Cd)	0.8989
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	1.0042
Burned Peak Flow Rate (cfs)	1.0042
24-Hr Clear Runoff Volume (ac-ft)	0.1481
24-Hr Clear Runoff Volume (cu-ft)	6450.0097

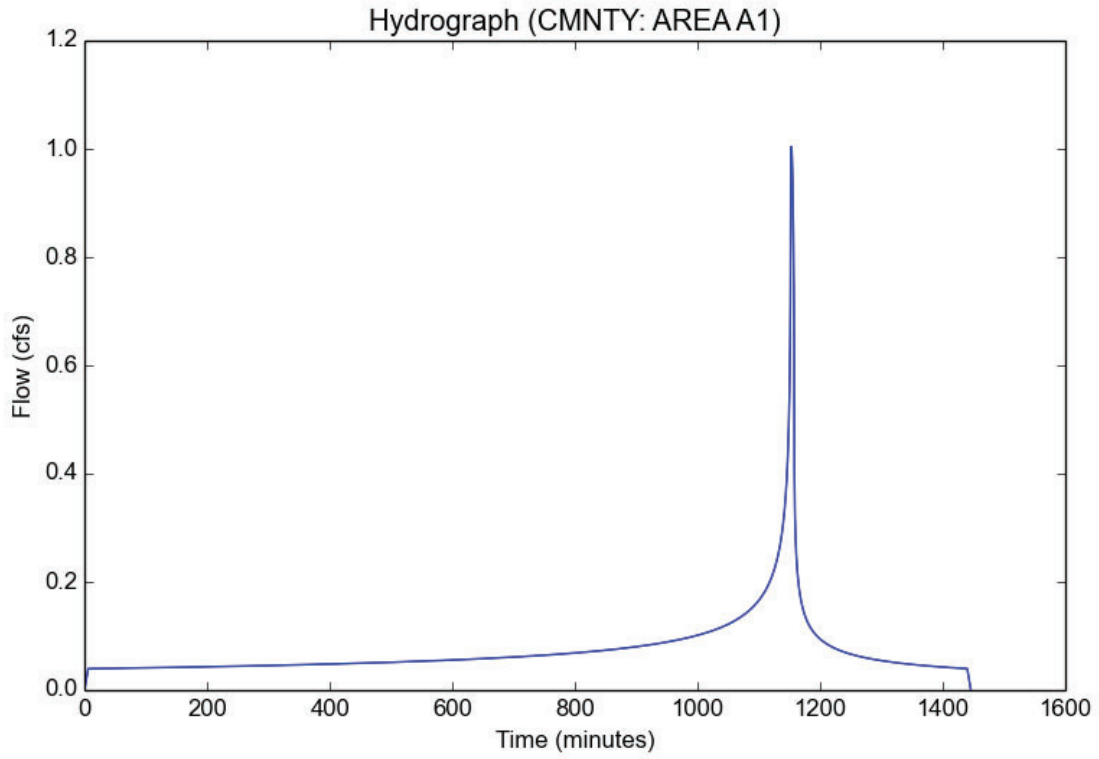


FIGURE 3B: HYDRO-CALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA A2)

Peak Flow Hydrologic Analysis

File location: //kpfflacivil.com/share/projects/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/Existing/CMNTY - AREA
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CMNTY
Subarea ID	AREA A2
Area (ac)	0.02
Flow Path Length (ft)	260.92
Flow Path Slope (vft/hft)	0.0195
50-yr Rainfall Depth (in)	6.0
Percent Impervious	1.0
Soil Type	16
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)	0.8791
Developed Runoff Coefficient (Cd)	0.9
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	0.0644
Burned Peak Flow Rate (cfs)	0.0644
24-Hr Clear Runoff Volume (ac-ft)	0.0089
24-Hr Clear Runoff Volume (cu-ft)	388.8001

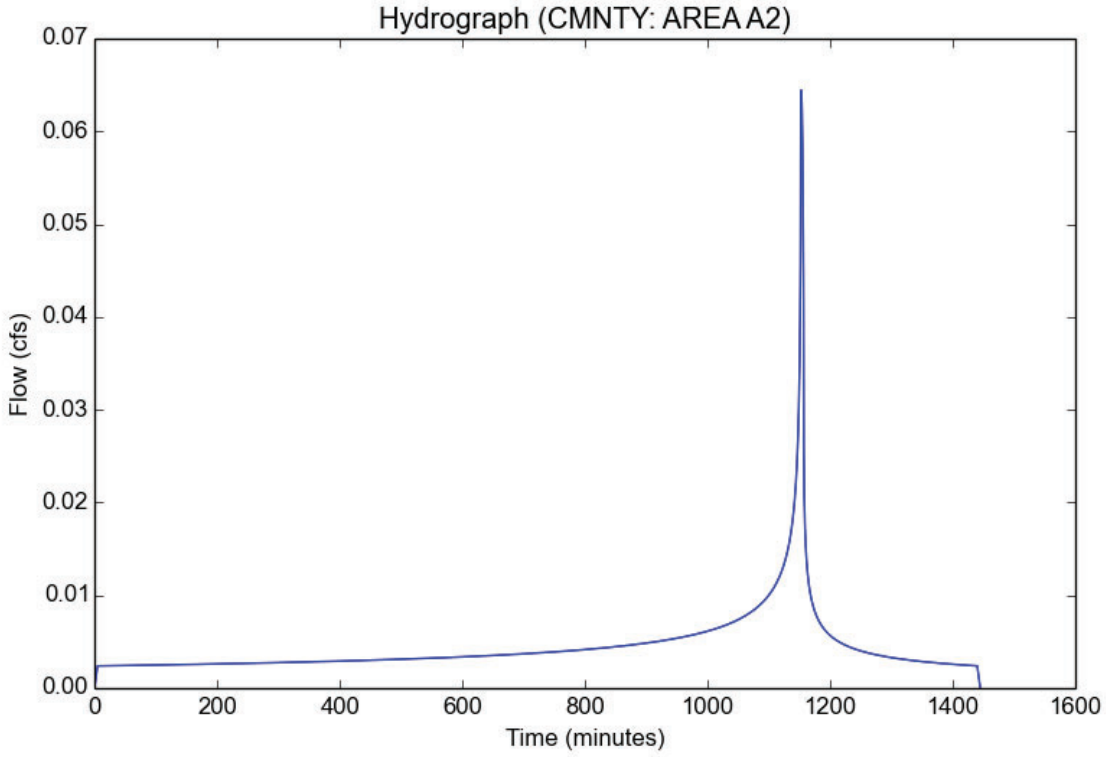


FIGURE 3C: HYDRO-CALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA A3)

Peak Flow Hydrologic Analysis

File location: P:/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/Existing/CMNTY - AREA A3rev.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CMNTY
Subarea ID	AREA A3
Area (ac)	0.38
Flow Path Length (ft)	190.18
Flow Path Slope (vft/hft)	0.0267
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.6
Soil Type	16
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)	0.8791
Developed Runoff Coefficient (Cd)	0.8916
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.2129
Burned Peak Flow Rate (cfs)	1.2129
24-Hr Clear Runoff Volume (ac-ft)	0.1168
24-Hr Clear Runoff Volume (cu-ft)	5086.0306

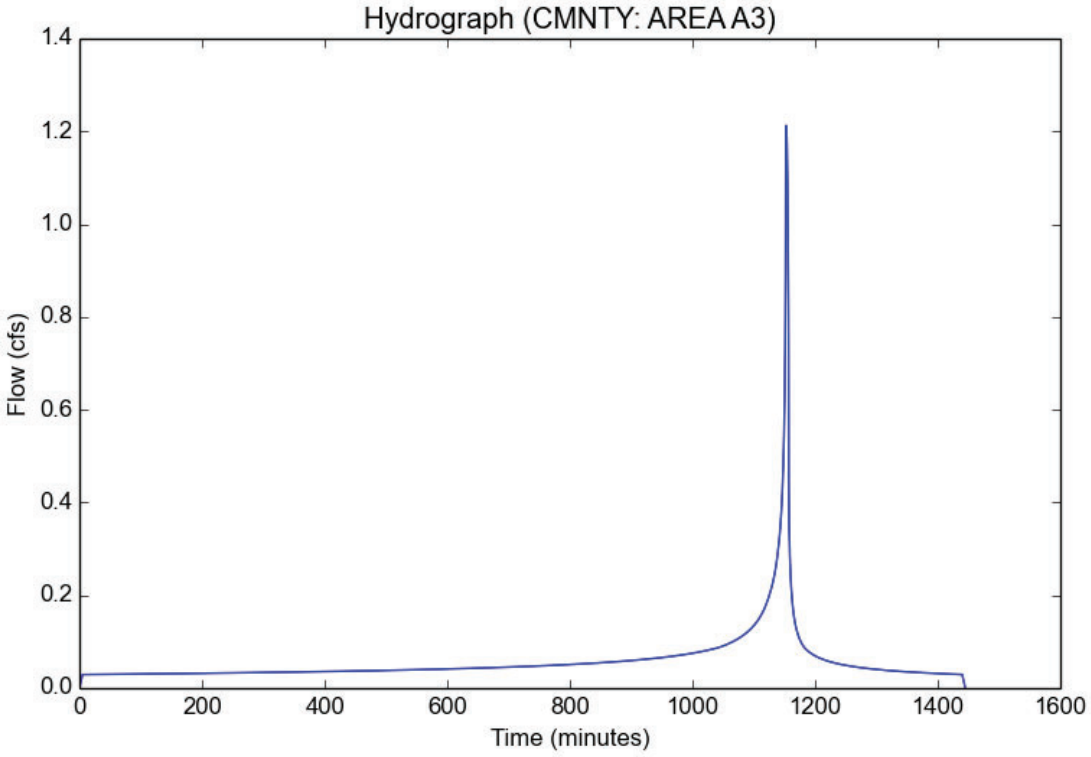


FIGURE 3D: HYDRO-CALC HYDROLOGY RESULTS FOR EXISTING SITE (AREA B)

Peak Flow Hydrologic Analysis

File location: P:/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/Existing/CMNTY - AREA B.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CNMTY
Subarea ID	AREA B
Area (ac)	1.19
Flow Path Length (ft)	521.84
Flow Path Slope (vft/hft)	0.0227
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.996
Soil Type	16
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)	0.864
Developed Runoff Coefficient (Cd)	0.8999
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	3.5185
Burned Peak Flow Rate (cfs)	3.5185
24-Hr Clear Runoff Volume (ac-ft)	0.5294
24-Hr Clear Runoff Volume (cu-ft)	23061.5361

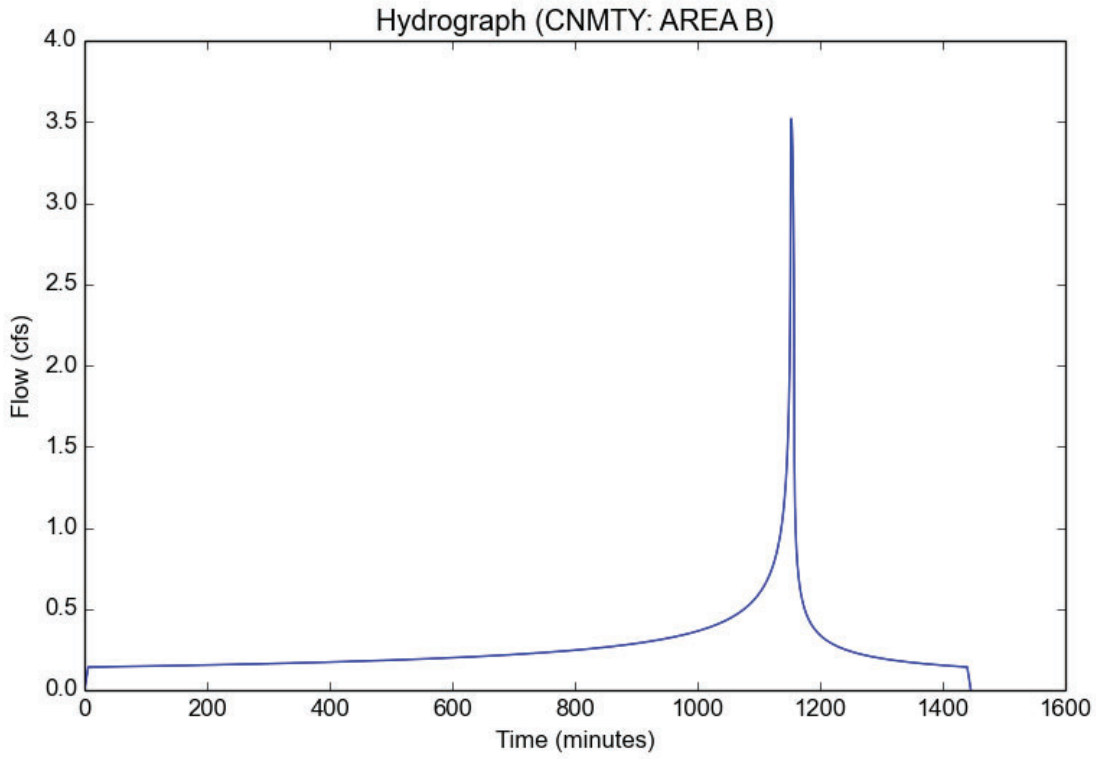


FIGURE 4A: HYDRO-CALC HYDROLOGY RESULTS FOR PROPOSED SITE (AREA A1)

Peak Flow Hydrologic Analysis

File location: //kpfflacivil.com/share/projects/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/Proposed/CMNTY - ARE
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CMNTY
Subarea ID	AREA A1
Area (ac)	0.34
Flow Path Length (ft)	440.5
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.9
Soil Type	16
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)	0.864
Developed Runoff Coefficient (Cd)	0.8964
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	1.0014
Burned Peak Flow Rate (cfs)	1.0014
24-Hr Clear Runoff Volume (ac-ft)	0.1399
24-Hr Clear Runoff Volume (cu-ft)	6094.7859

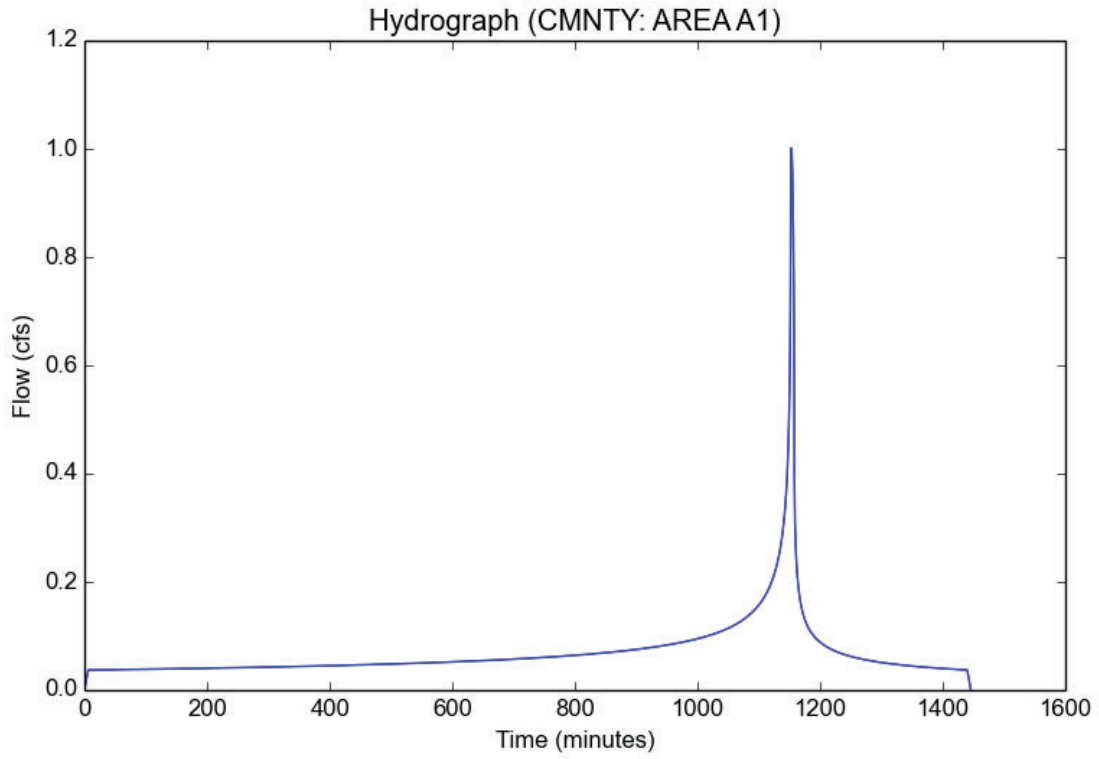


FIGURE 4B: HYDRO-CALC HYDROLOGY RESULTS FOR PROPOSED SITE (AREA A2)

Peak Flow Hydrologic Analysis

File location: //kpfflacivil.com/share/projects/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/Proposed/CMNTY - ARE
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CMNTY
Subarea ID	AREA A2
Area (ac)	0.4
Flow Path Length (ft)	265.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.9
Soil Type	16
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)	0.8791
Developed Runoff Coefficient (Cd)	0.8979
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.2857
Burned Peak Flow Rate (cfs)	1.2857
24-Hr Clear Runoff Volume (ac-ft)	0.1646
24-Hr Clear Runoff Volume (cu-ft)	7170.4309

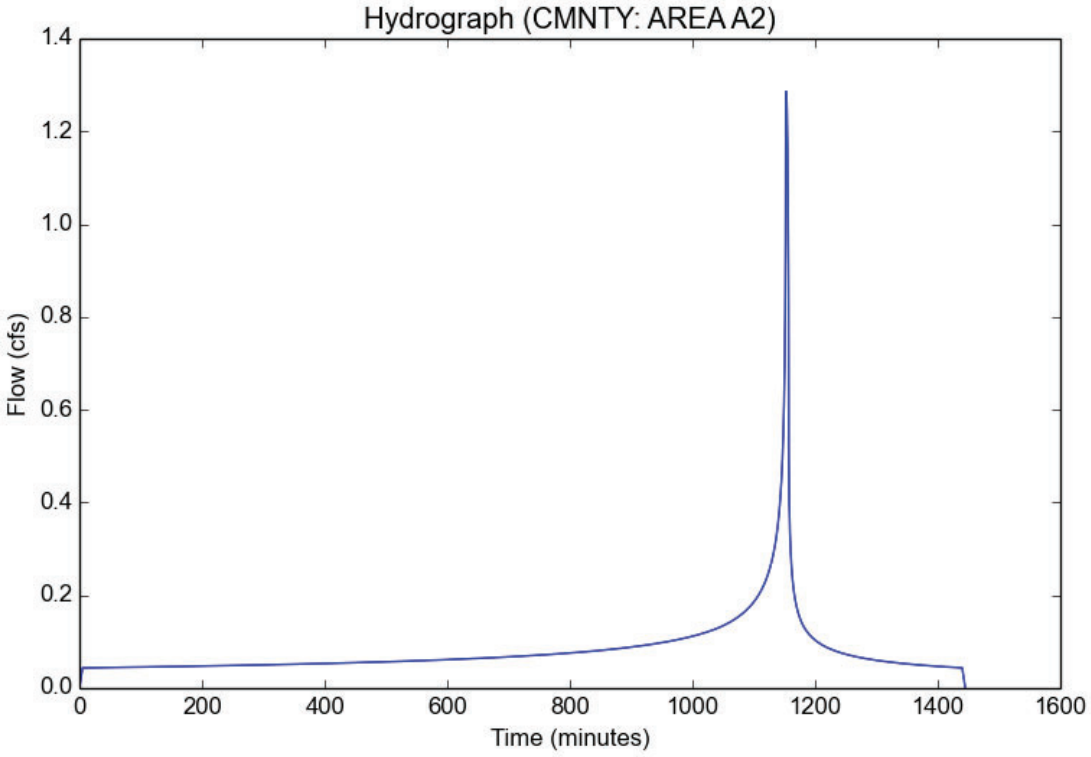


FIGURE 4C: HYDRO-CALC HYDROLOGY RESULTS FOR PROPOSED SITE (AREA B)

Peak Flow Hydrologic Analysis

File location: P:/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/Proposed/CMNTY - AREA B.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CNMTY
Subarea ID	AREA B
Area (ac)	1.19
Flow Path Length (ft)	513.0
Flow Path Slope (vft/hft)	0.01
50-yr Rainfall Depth (in)	6.0
Percent Impervious	0.9
Soil Type	16
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)	0.8523
Developed Runoff Coefficient (Cd)	0.8952
Time of Concentration (min)	7.0
Clear Peak Flow Rate (cfs)	3.2558
Burned Peak Flow Rate (cfs)	3.2558
24-Hr Clear Runoff Volume (ac-ft)	0.4897
24-Hr Clear Runoff Volume (cu-ft)	21331.4771

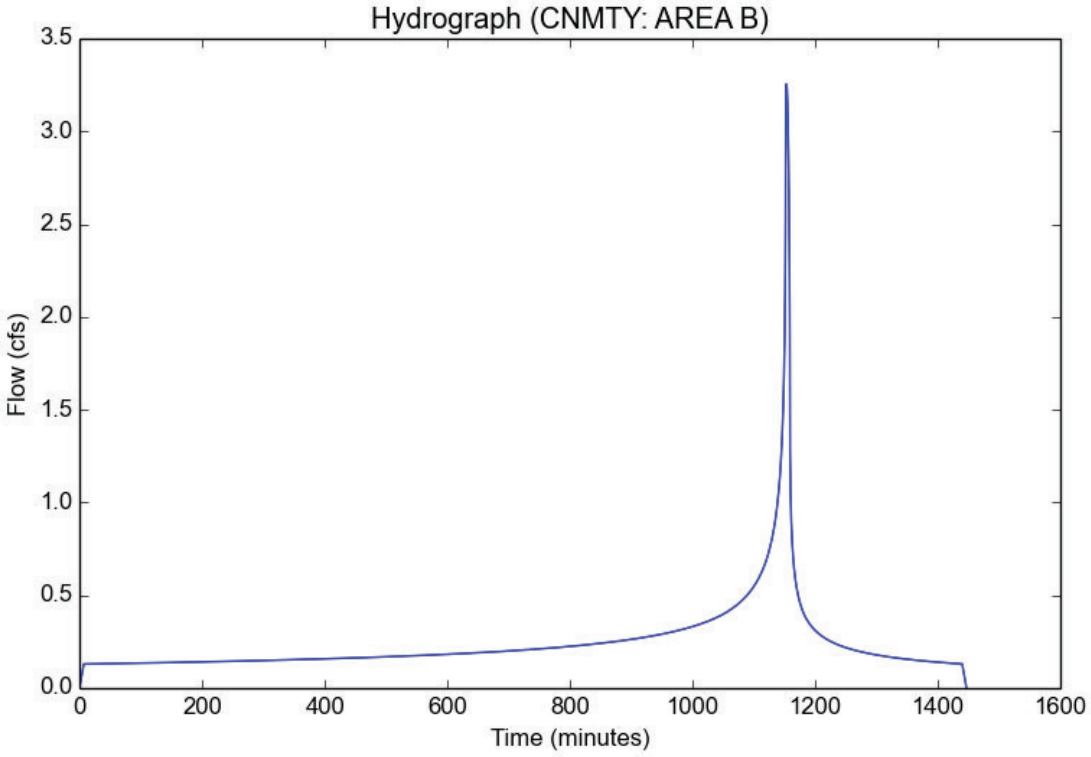


FIGURE 5A: HYDROLOGIC ANALYSIS FOR PROPOSED LID DESIGN VOLUME (AREA A1)

Peak Flow Hydrologic Analysis

File location: //kpfflacivil.com/share/projects/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/85th Percentile/CMNTY -
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CMNTY
Subarea ID	AREA A2
Area (ac)	0.34
Flow Path Length (ft)	440.5
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.0
Percent Impervious	0.9
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.0
Peak Intensity (in/hr)	0.2912
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.82
Time of Concentration (min)	23.0
Clear Peak Flow Rate (cfs)	0.0812
Burned Peak Flow Rate (cfs)	0.0812
24-Hr Clear Runoff Volume (ac-ft)	0.023
24-Hr Clear Runoff Volume (cu-ft)	1003.6867

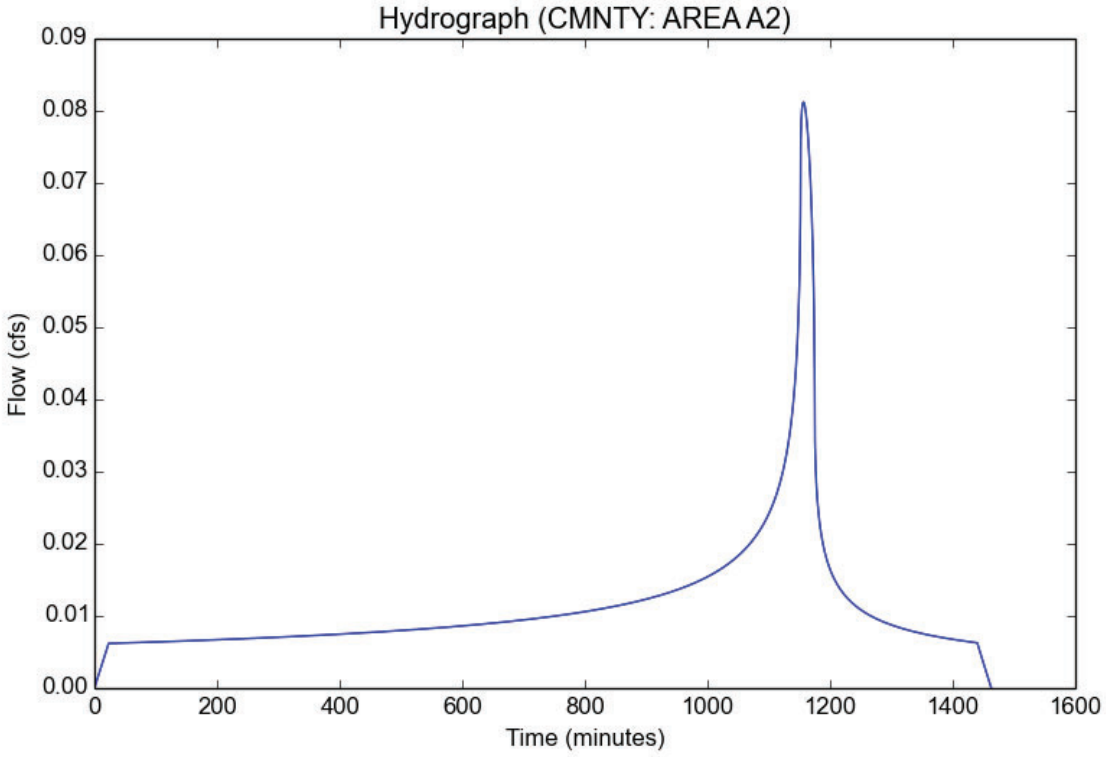


FIGURE 5B: HYDROLOGIC ANALYSIS FOR PROPOSED LID DESIGN VOLUME (AREA A2)

Peak Flow Hydrologic Analysis

File location: //kpfflacivil.com/share/projects/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/85th Percentile/CMNTY -
Version: HydroCalc 1.0.2

Input Parameters

Project Name	CMNTY
Subarea ID	AREA A2
Area (ac)	0.4
Flow Path Length (ft)	265.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.0
Percent Impervious	0.9
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.0
Peak Intensity (in/hr)	0.3357
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.82
Time of Concentration (min)	17.0
Clear Peak Flow Rate (cfs)	0.1101
Burned Peak Flow Rate (cfs)	0.1101
24-Hr Clear Runoff Volume (ac-ft)	0.0271
24-Hr Clear Runoff Volume (cu-ft)	1180.8043

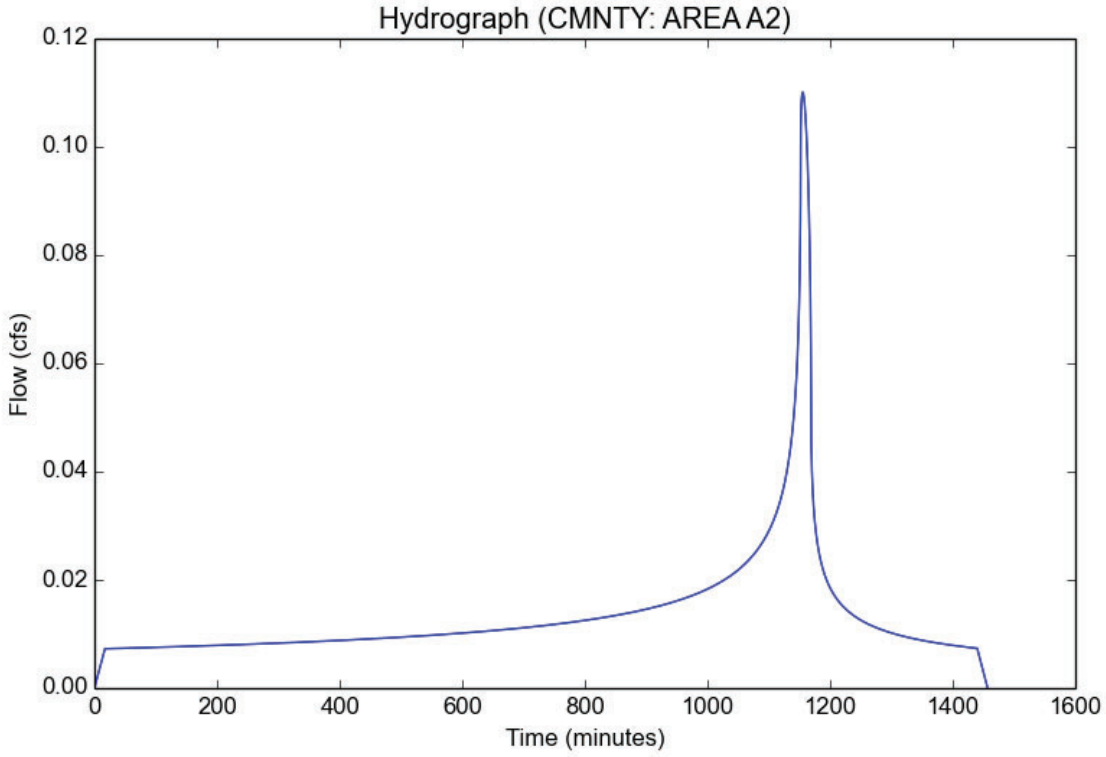


FIGURE 5C: HYDROLOGIC ANALYSIS FOR PROPOSED LID DESIGN VOLUME (AREA B)

Peak Flow Hydrologic Analysis

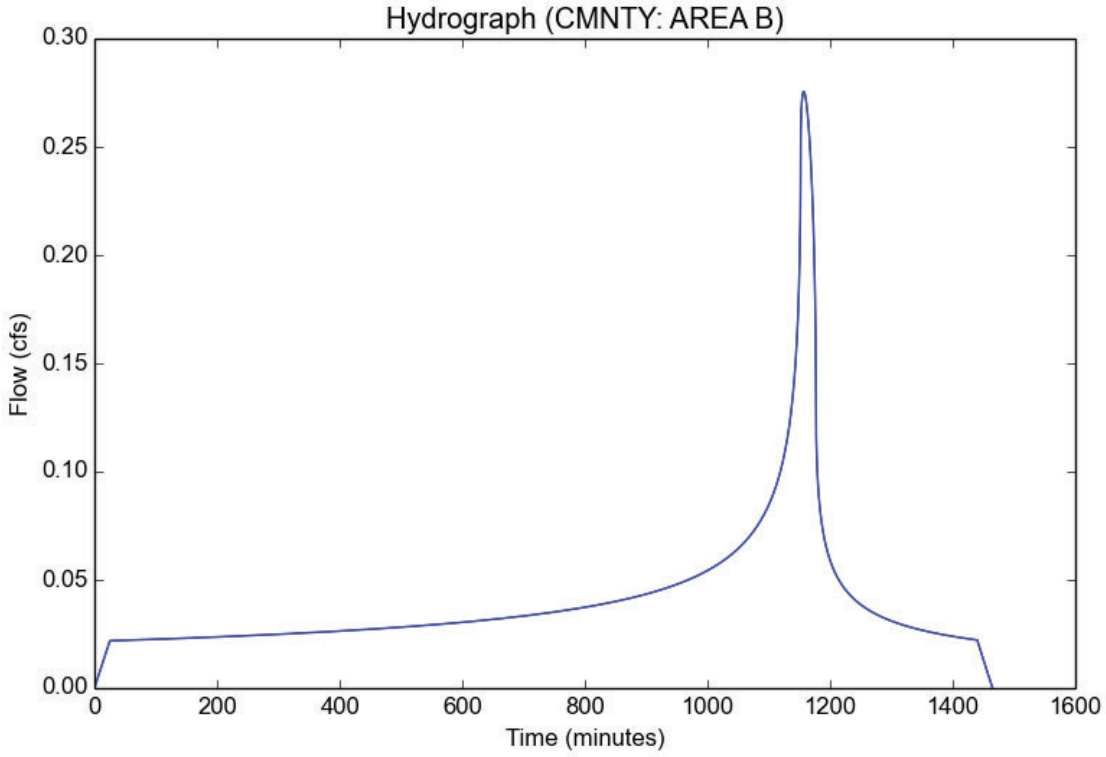
File location: //kpfflacivil.com/share/projects/2021/2100005 CMNTY Culture/2 ENGR/EIR/Water Resources/Appendix/Hydrocalc/85th Percentile/CMNTY -
Version: HydroCalc 1.0.2

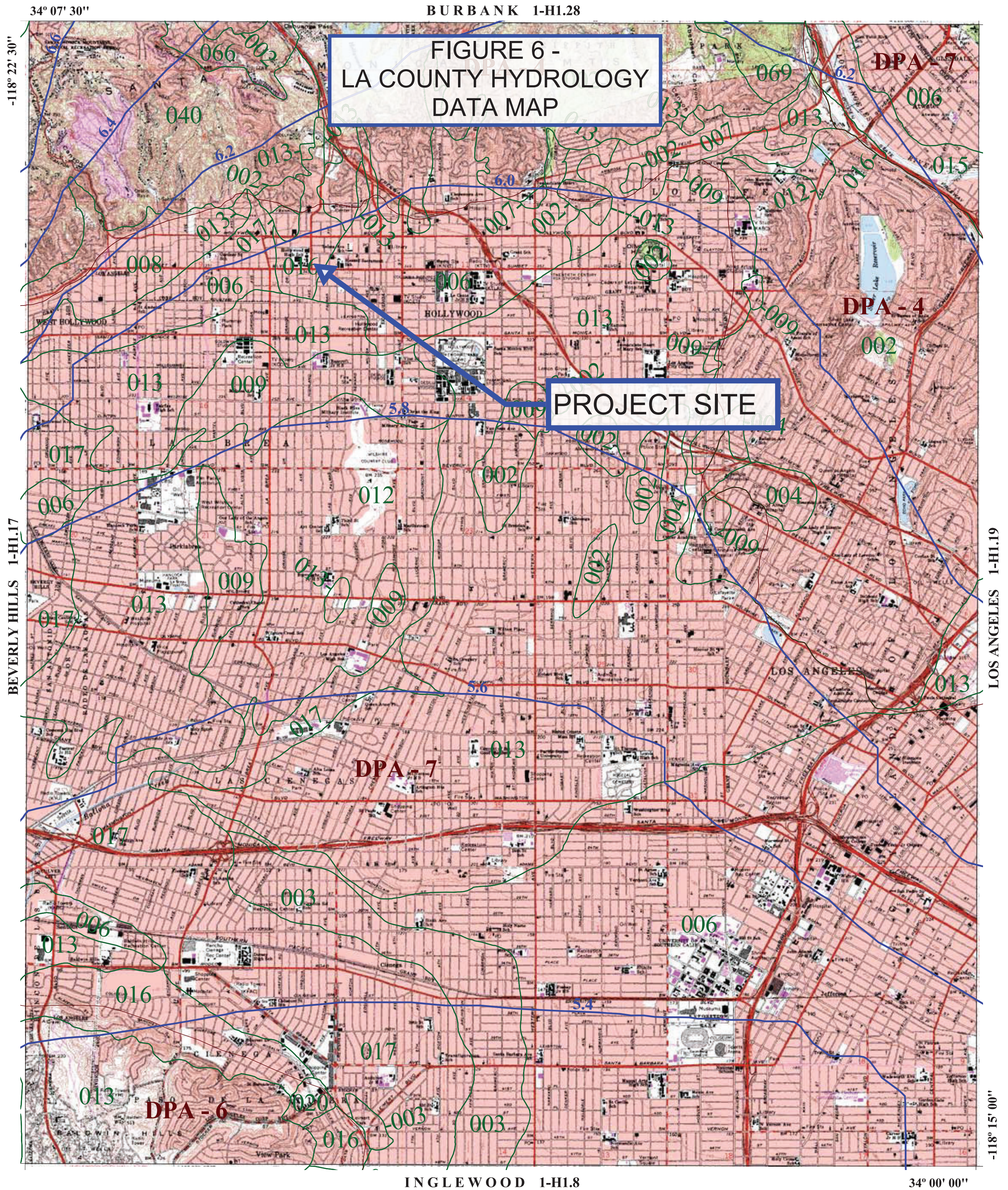
Input Parameters

Project Name	CMNTY
Subarea ID	AREA B
Area (ac)	1.2
Flow Path Length (ft)	513.0
Flow Path Slope (vft/hft)	0.01
85th Percentile Rainfall Depth (in)	1.0
Percent Impervious	0.9
Soil Type	16
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	1.0
Peak Intensity (in/hr)	0.28
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.82
Time of Concentration (min)	25.0
Clear Peak Flow Rate (cfs)	0.2755
Burned Peak Flow Rate (cfs)	0.2755
24-Hr Clear Runoff Volume (ac-ft)	0.0813
24-Hr Clear Runoff Volume (cu-ft)	3542.4282





016 SOIL CLASSIFICATION AREA

7.2 INCHES OF RAINFALL

DPA - 6 DEBRIS POTENTIAL AREA

1 0 1 2 Miles

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

HOLLYWOOD
50-YEAR 24-HOUR ISOHYET

1-H1.18

LOS ANGELES COUNTY PUBLIC WORKS Public Service That Works

COUNTY OF LOS ANGELES

BALLONA CREEK & OTHER URBAN WATERSHEDS

FIGURE 7: BALLONA CREEK WATERSHED MAP

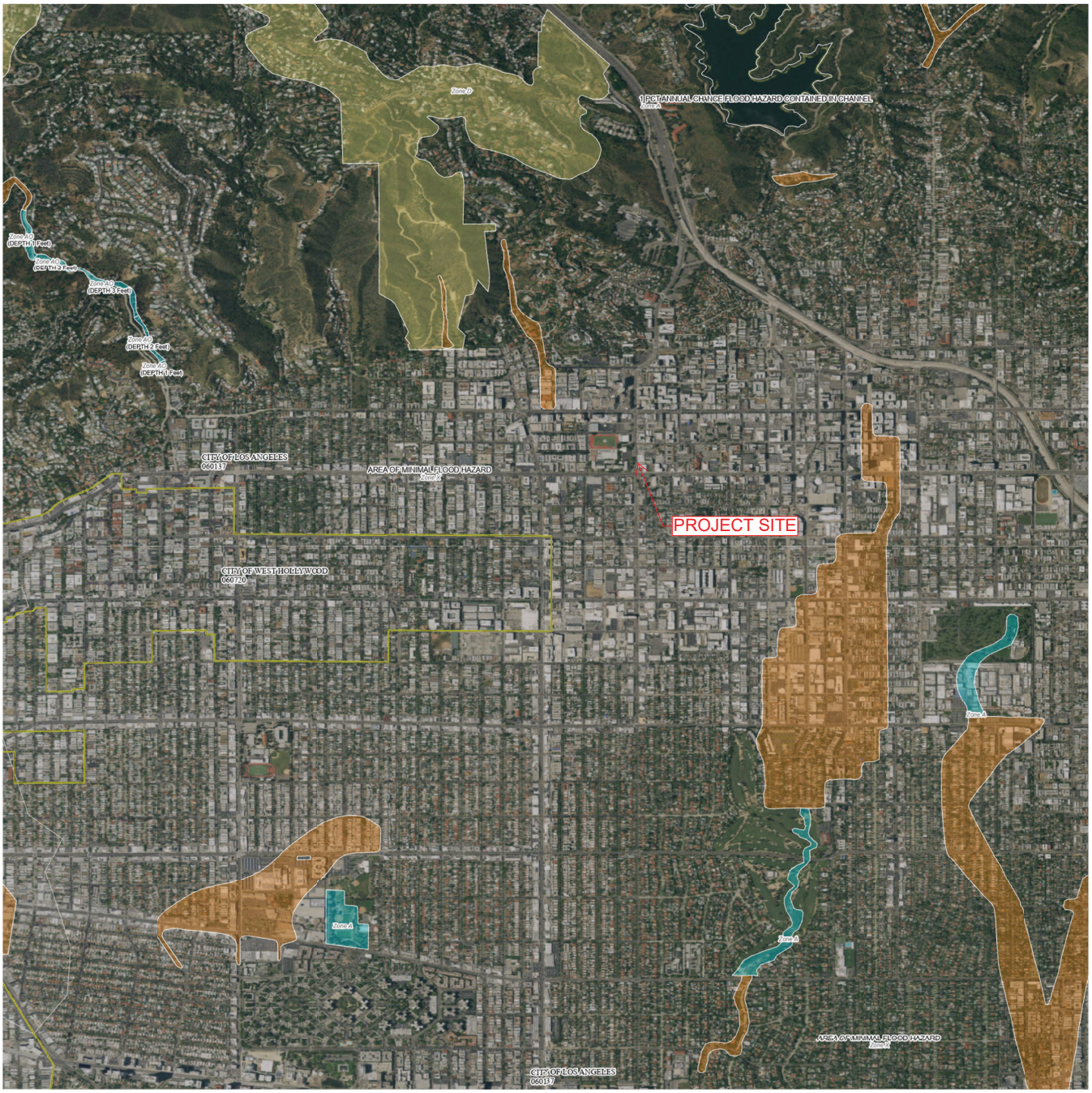
LEGEND

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

Mapping & Property Management Division, Mapping & GIS Services Section

118°22'30.9"W 34°7'43.19"N

FIGURE 8



118°18'44.19"W 34°3'31.84"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT 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 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). The basemap shown is the USGS National Map: Orthoimagery. Last refreshed October, 2020.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on 5/2/2022 7:14 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. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

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. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: No elevation features on this FIRM
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

N

0 105 210 420 630 840 Meters

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

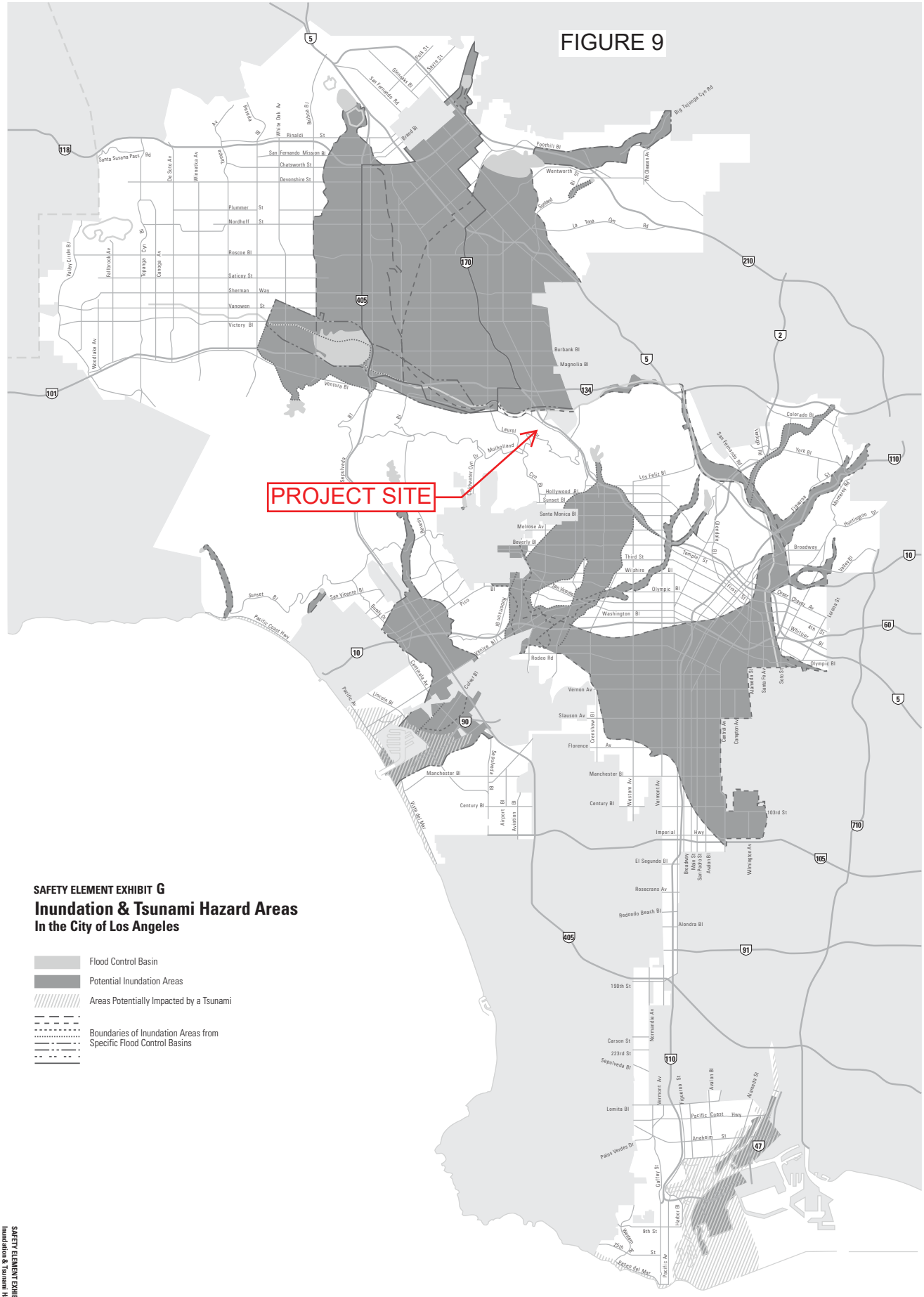
PANEL 1605 OF 2204

Panel Contains:

COMMUNITY	NUMBER	PANEL
CITY OF WEST HOLLYWOOD	060720	1605
CITY OF BEVERLY HILLS	060655	1605
CITY OF LOS ANGELES	060137	1605

MAP NUMBER
06037C1605F
EFFECTIVE DATE
September 26, 2008

FIGURE 9



SAFETY ELEMENT EXHIBIT G

Inundation & Tsunami Hazard Areas
In the City of Los Angeles

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

SAFETY ELEMENT EXHIBIT G
Inundation & Tsunami Hazard Areas

Sources: Environmental Impact Report, Framework Element, Los Angeles City General Plan, May 1995; Technical Appendix to the Safety Element of the Los Angeles County General Plan Hazard Reduction in Los Angeles County, Volume 2, Plate 6, "Flood and Inundation Hazards" January 1990; California Environmental Quality Act of 1970 (CEQA), Public Resources Code Section 21000 *et. seq.* with guidelines as amended, 1992; California Government Code Title 7 chapter 3, article 5 section 65302(g), as amended 1993.

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

N

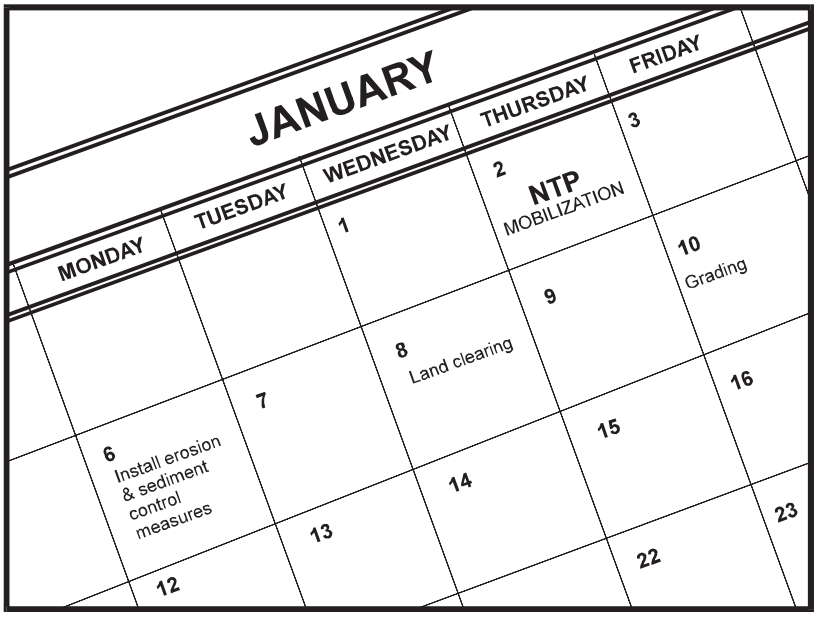
1 1/2 0 1 2 3 4 5 KILOMETERS

1 1/2 1/4 0 1 2 3 4 MILES

EXHIBIT 1: TYPICAL SWPPP BMPS

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**

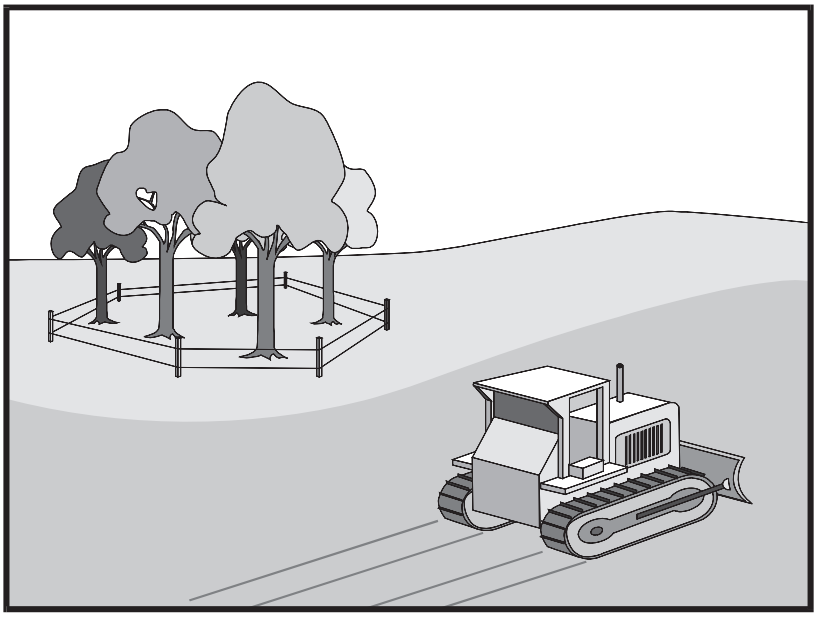
Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Preservation Of Existing Vegetation EC-2



Categories

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

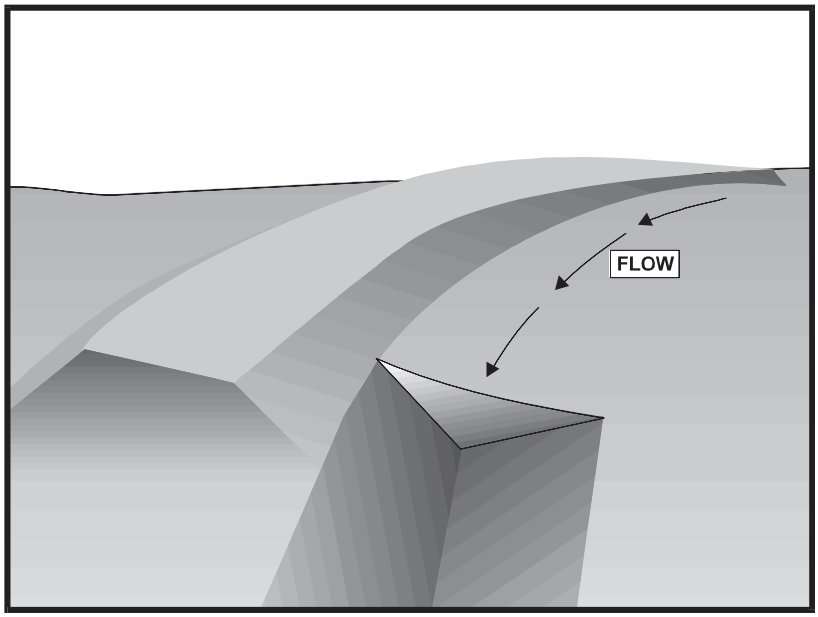
Carefully planned preservation of existing vegetation minimizes the potential of removing or injuring existing trees, vines, shrubs, and grasses that protect soil from erosion.

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.

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**

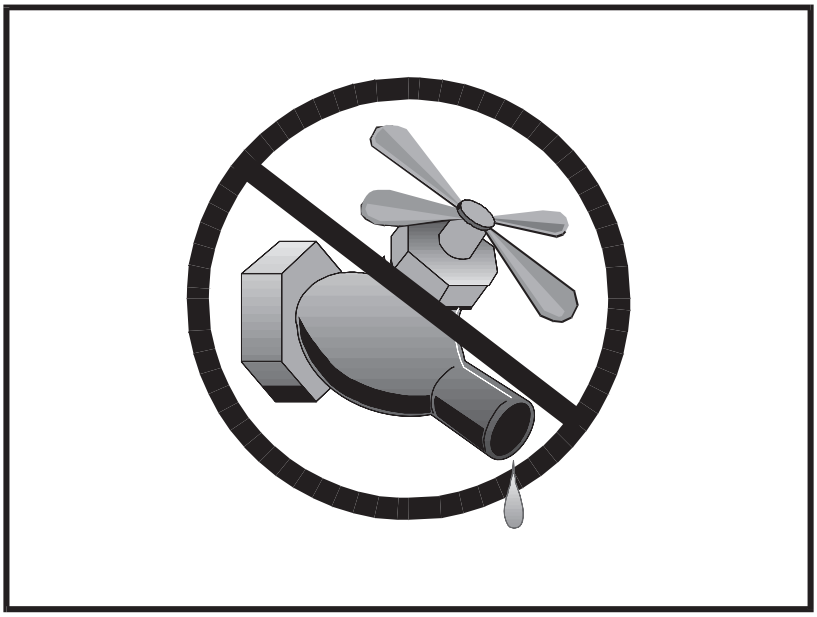
Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

Water Conservation Practices NS-1



Categories

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

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.

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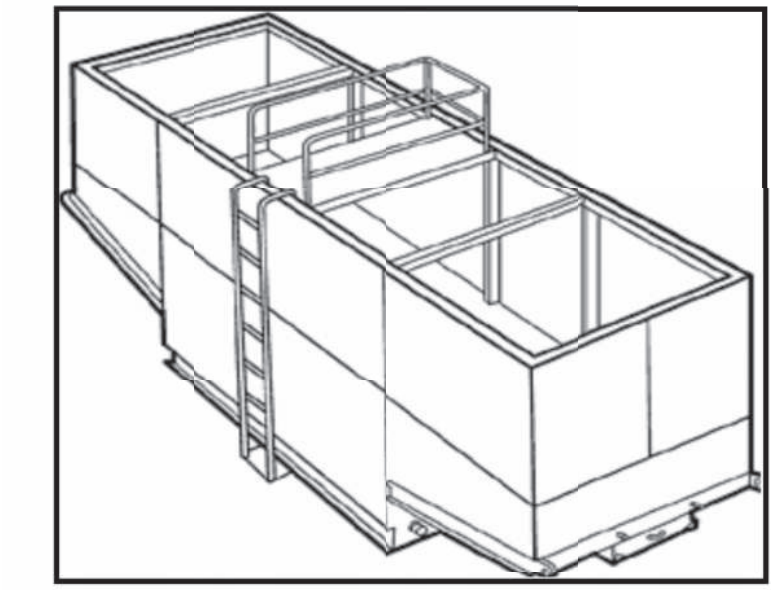
Dewatering Operations NS-2



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

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.

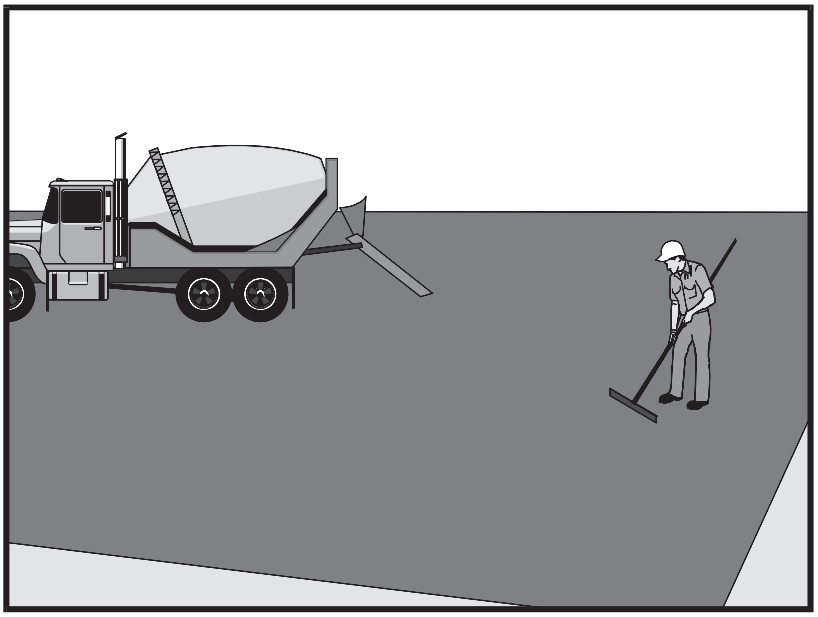
The dewatering operations described in this fact sheet are not Active Treatment Systems (ATS) and do not include the use of chemical coagulations, chemical flocculation or electrocoagulation.

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		
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 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

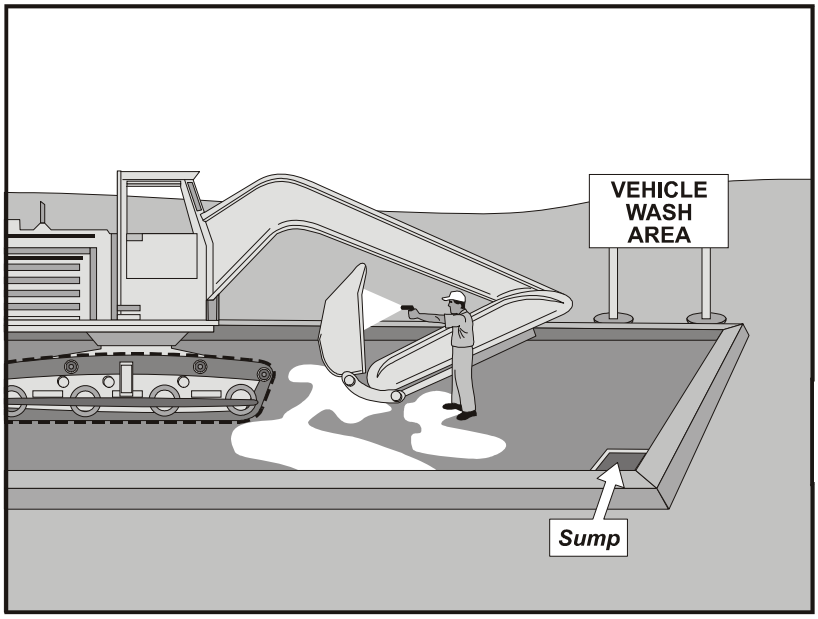
These procedures are implemented where paving, surfacing, resurfacing, or sawcutting, may pollute stormwater runoff or discharge to the storm drain system or watercourses.

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

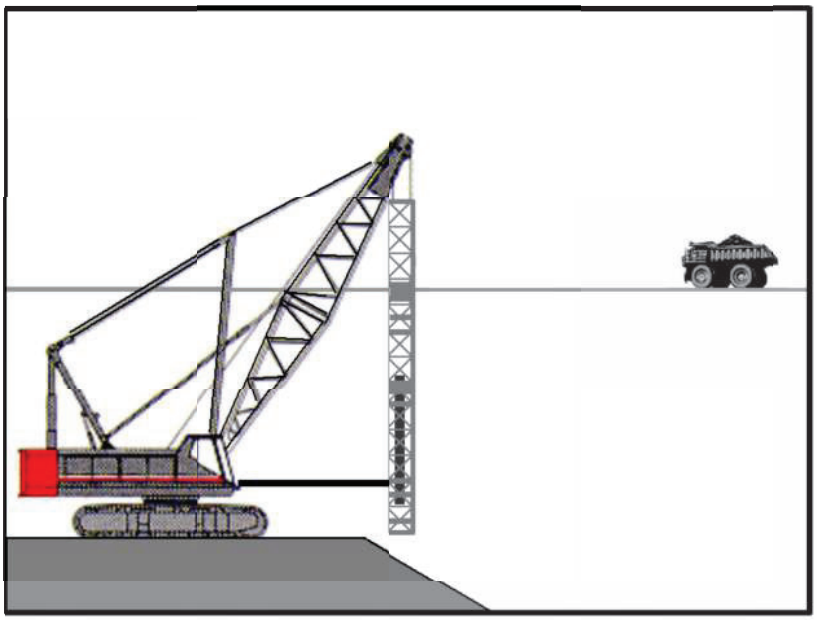
Even phosphate-free, biodegradable soaps have been shown to be toxic to fish before the soap degrades. Sending vehicles/equipment offsite should be done in conjunction with TC-1, Stabilized Construction Entrance/Exit.

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

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.

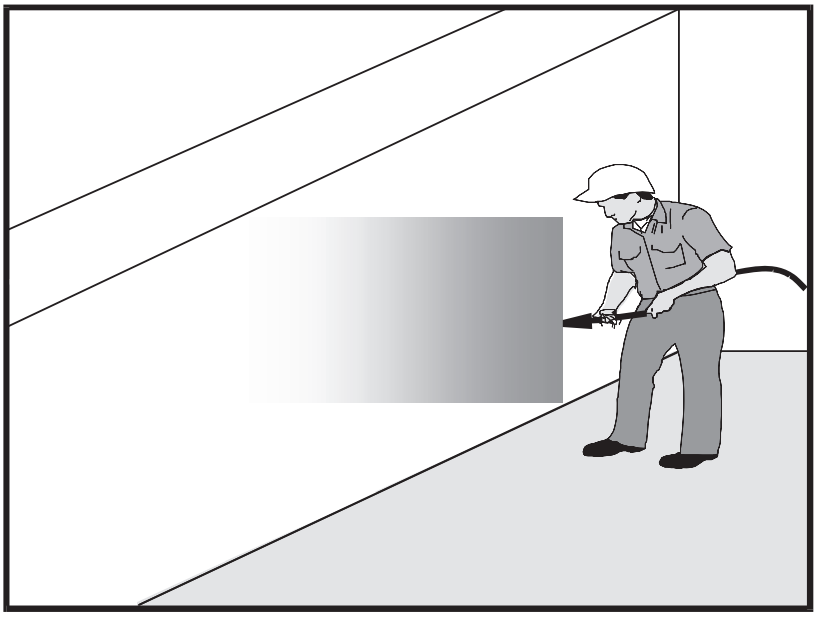
Limitations

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.

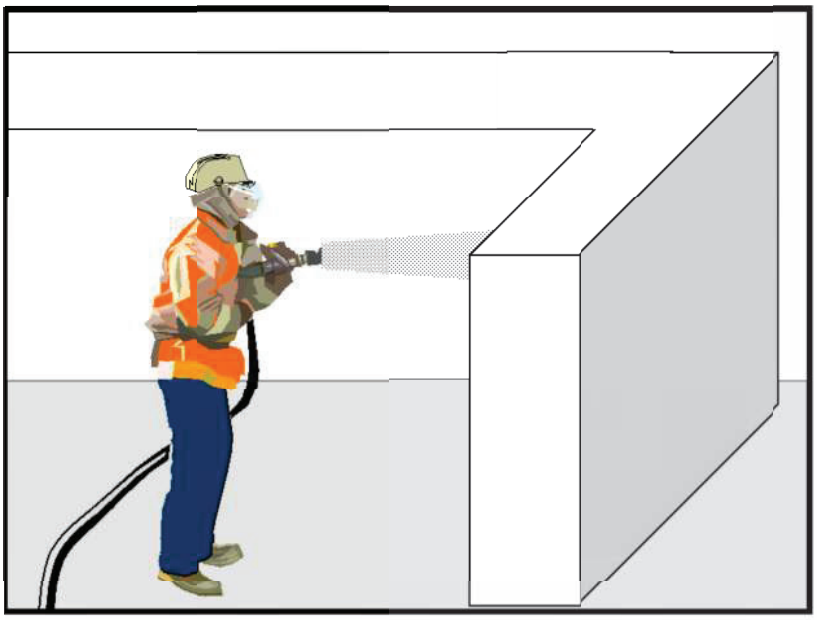
Suitable Applications

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



Description and Purpose

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

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

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

Suitable Applications

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

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	☑
WM	Waste Management and Materials Pollution Control	☑

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

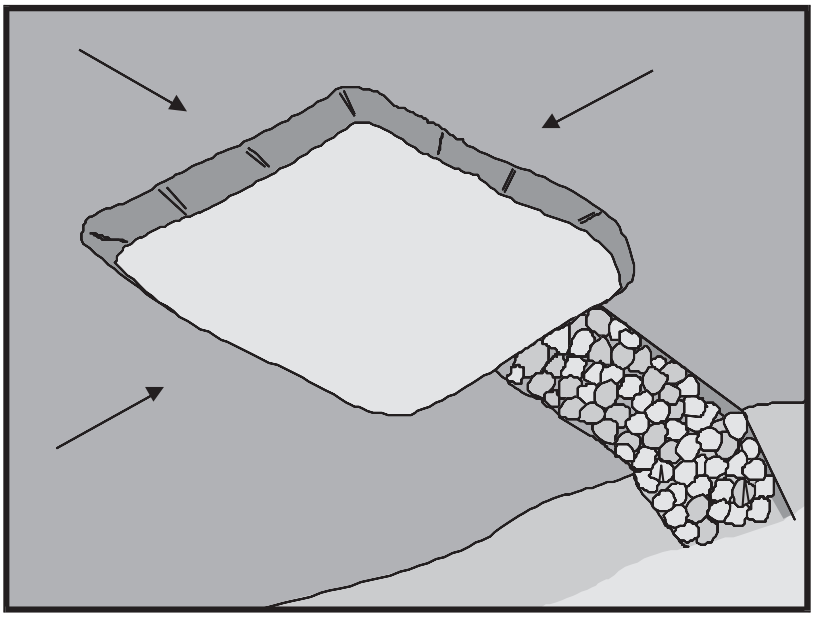
Targeted Constituents

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

Potential Alternatives

None

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.

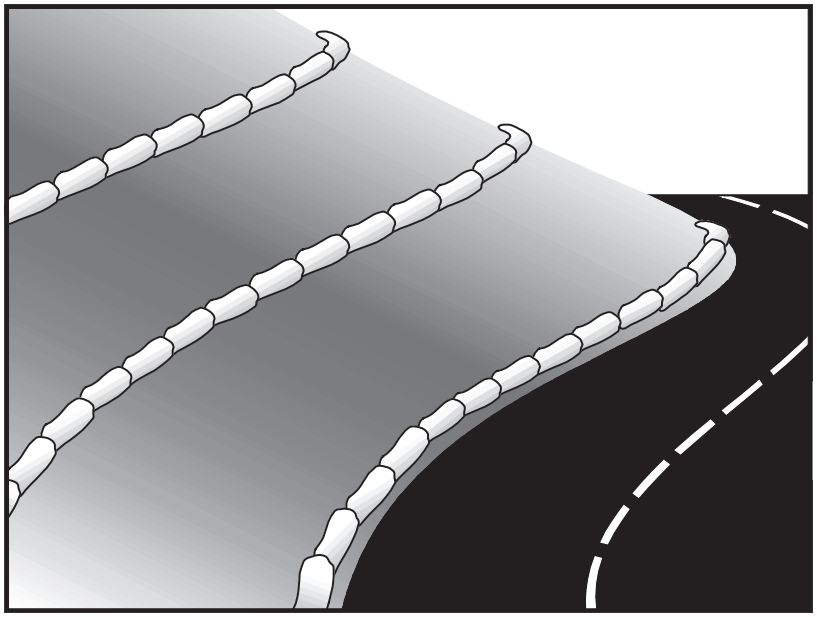
Trap design guidance provided in this fact sheet is not intended to guarantee compliance with numeric discharge limits (numeric action levels or numeric effluent limits for turbidity). Compliance with discharge limits requires a thoughtful approach to comprehensive BMP planning, implementation, and maintenance.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

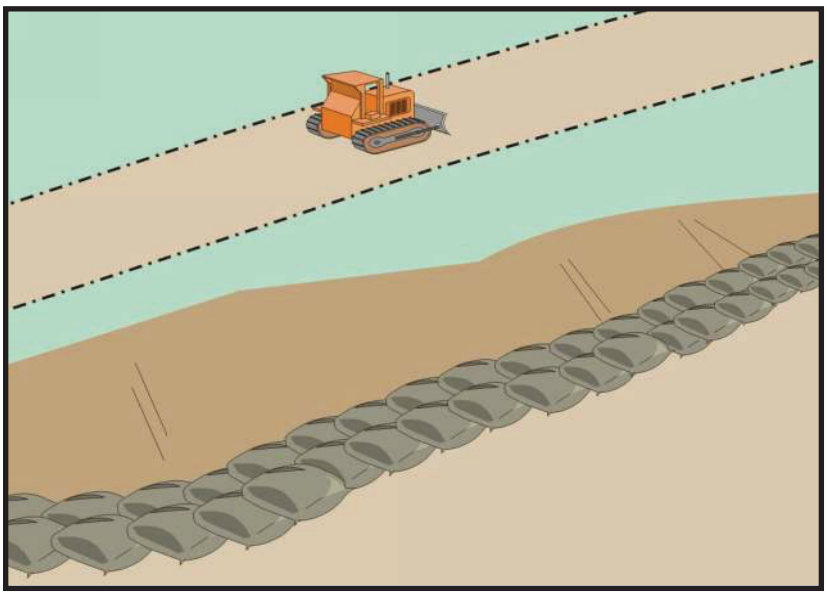
Limitations

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

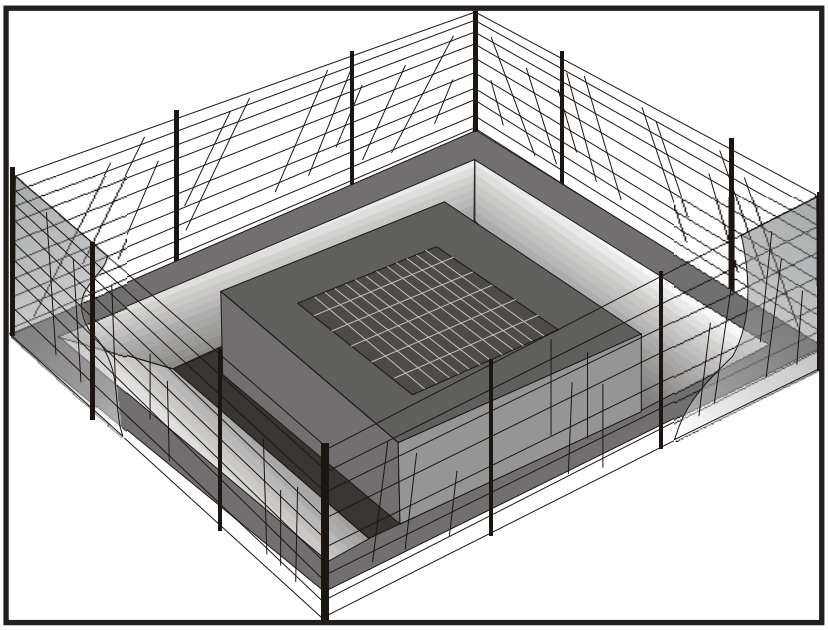
SE-5 Fiber Rolls

SE-6 Gravel Bag Berm

SE-12 Manufactured Linear Sediment Controls

SE-14 Biofilter Bags

Storm Drain Inlet Protection SE-10



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

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.

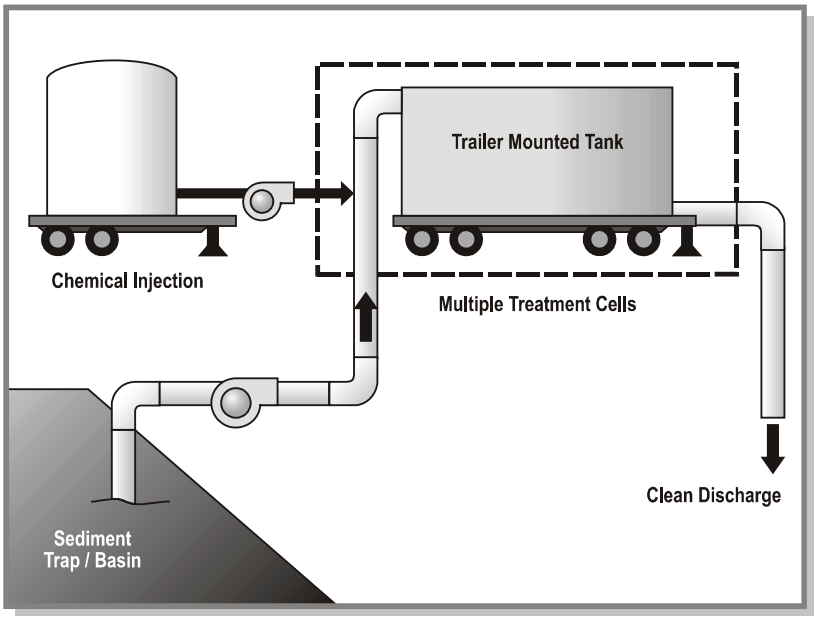
Suitable Applications

- 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

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

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:

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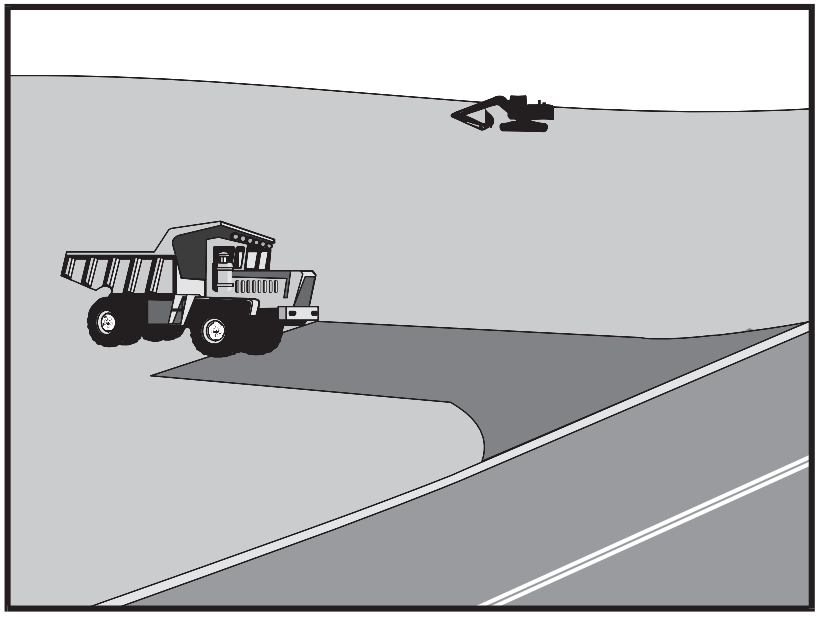
Stabilized Construction Entrance/Exit TC-1



Description and Purpose

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

Suitable Applications

Use at construction sites:

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

Limitations

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

Categories

EC	Erosion Control	☒
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**

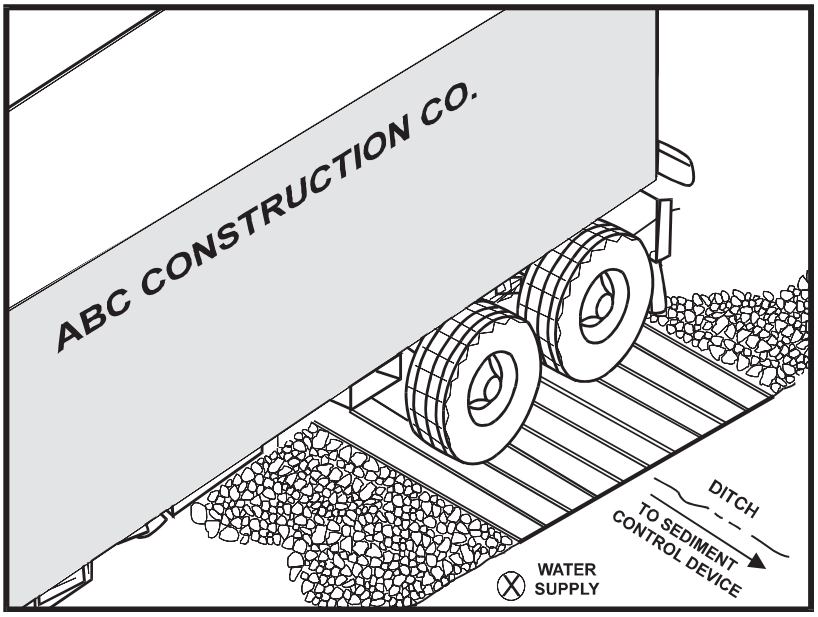
Targeted Constituents

Sediment	☑
Nutrients	
Trash	
Metals	
Bacteria	
Oil and Grease	
Organics	

Potential Alternatives

None

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**

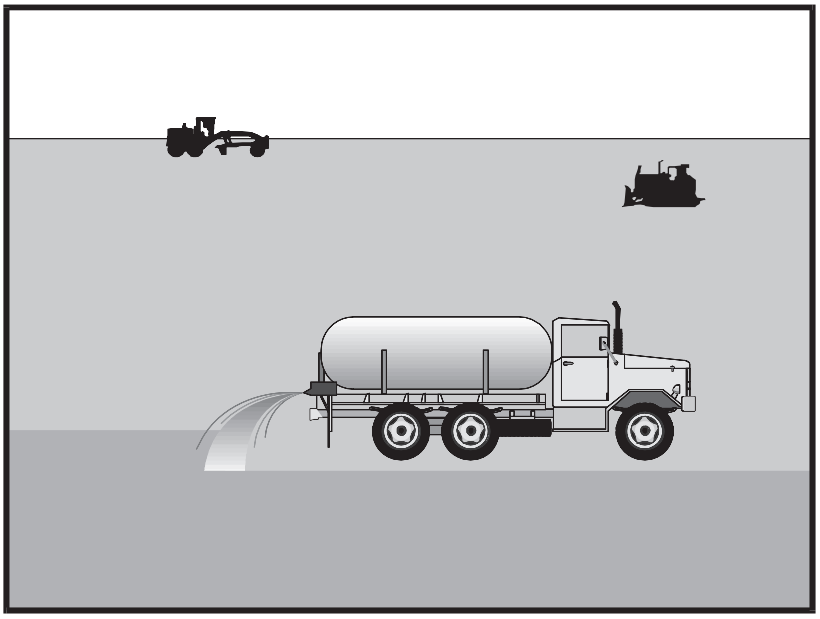
Targeted Constituents

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

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Description and Purpose

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

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

Suitable Applications

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

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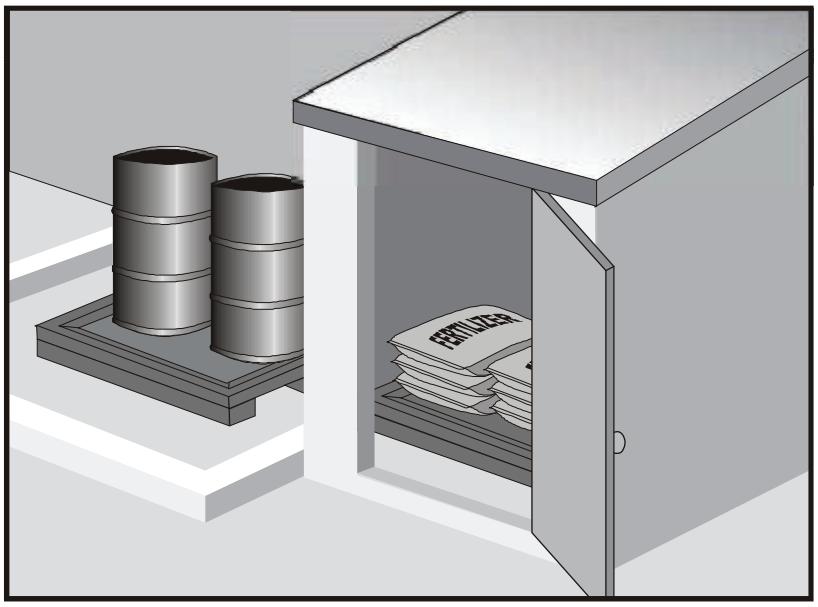
Material Delivery and Storage WM-1



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

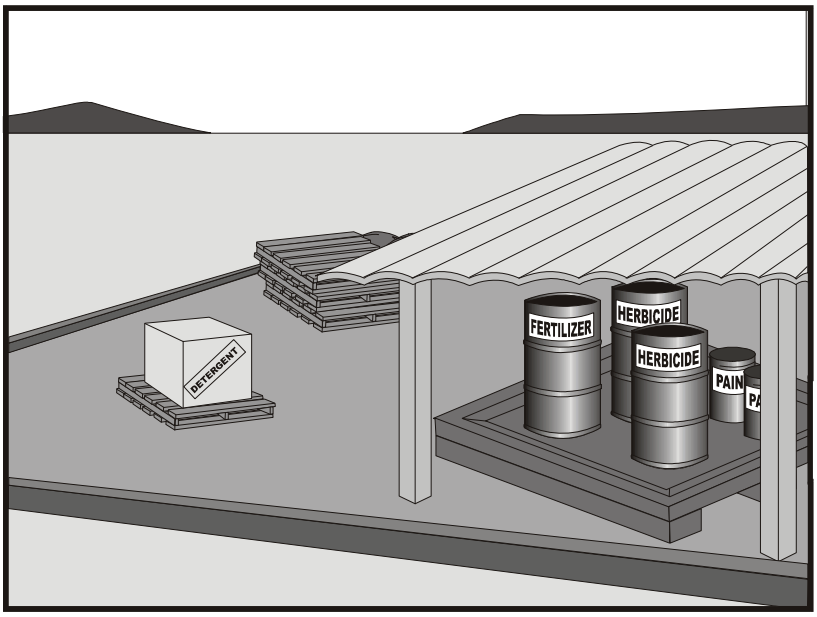
Targeted Constituents

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**

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

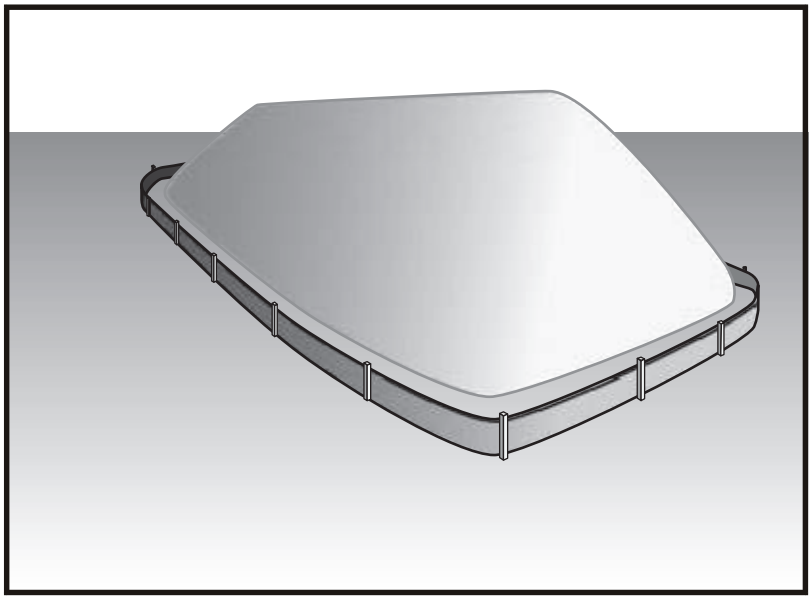
Targeted Constituents

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

Potential Alternatives

None

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

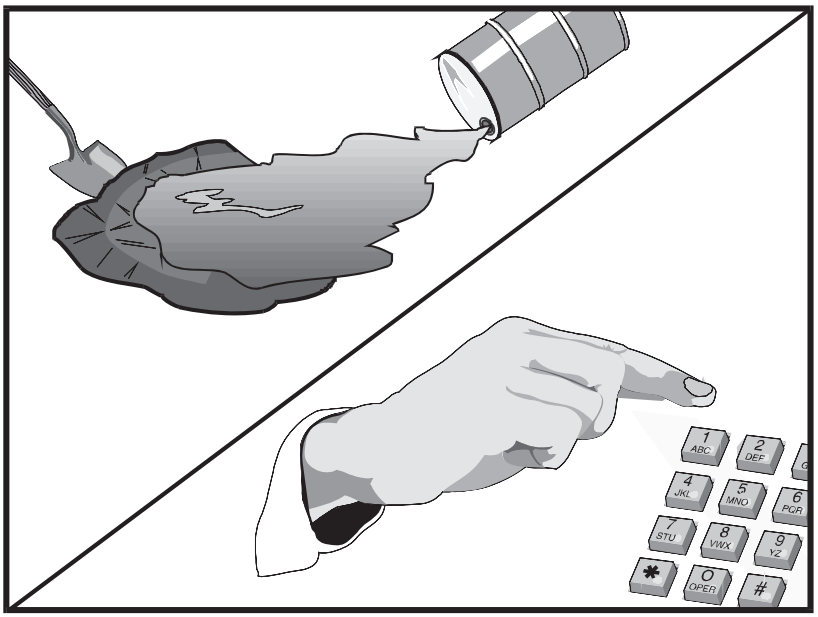
Protection of stockpiles is a year-round requirement. To properly manage stockpiles:

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

Potential Alternatives

None

Spill Prevention and Control WM-4



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

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.

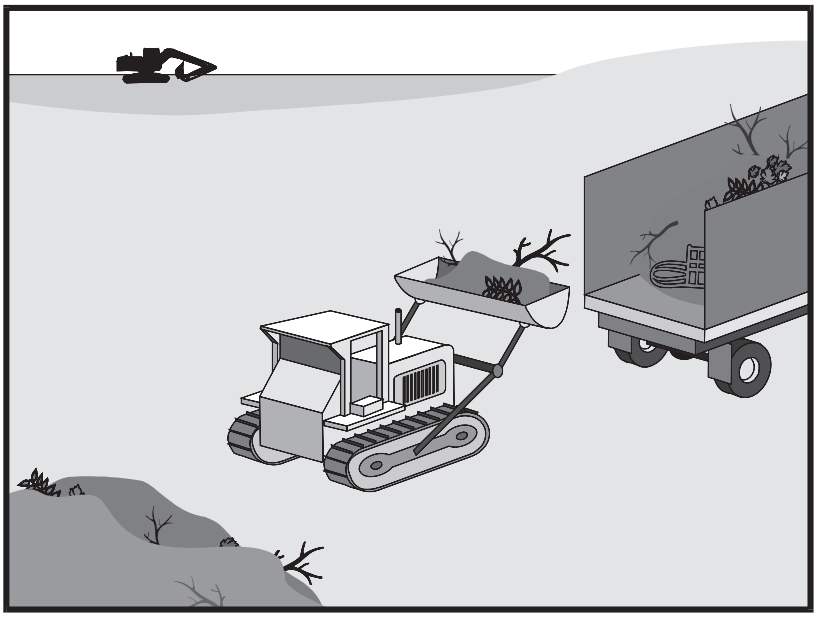
This best management practice covers only spill prevention and control. However, WM-1, Materials Delivery and Storage, and WM-2, Material Use, also contain useful information, particularly on spill prevention. For information on wastes, see the waste management BMPs in this section.

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

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

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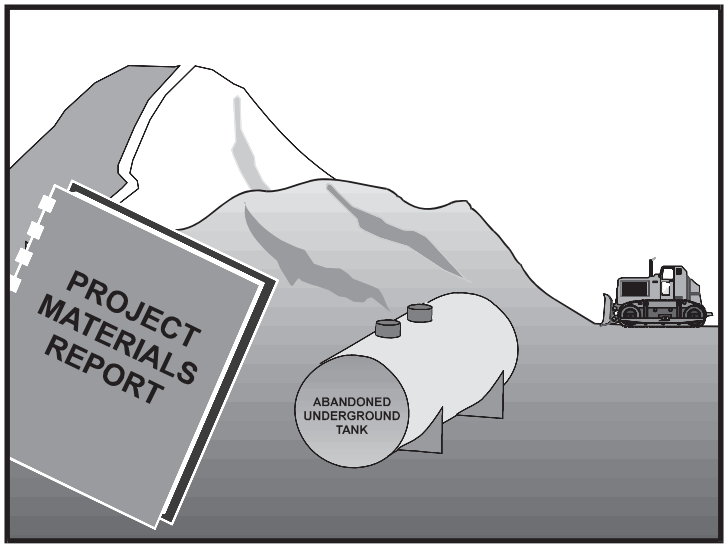
CALIFORNIA STORMWATER QUALITY ASSOCIATION

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

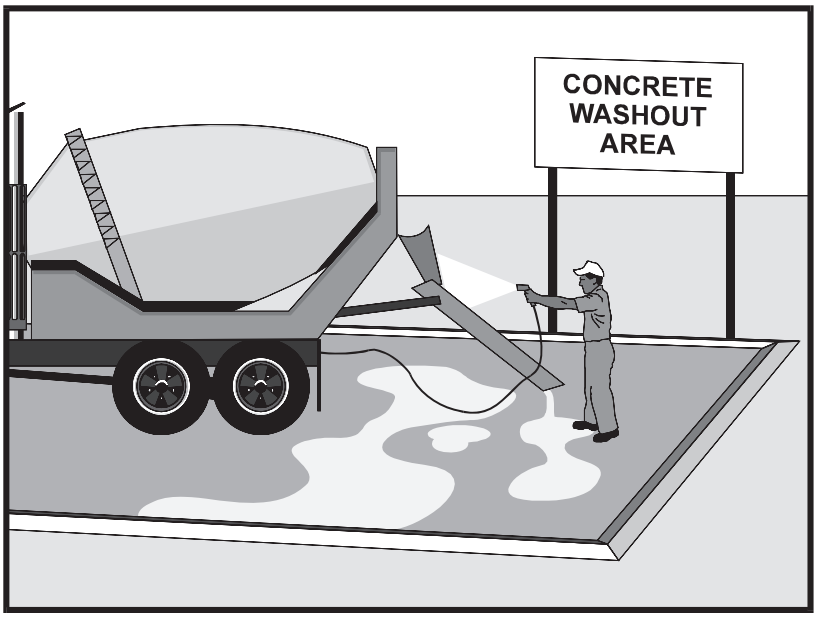
Most owners and developers conduct pre-construction environmental assessments as a matter of routine. Contaminated soils are often identified during project planning and development with known locations identified in the plans, specifications and in the SWPPP. The contractor should review applicable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

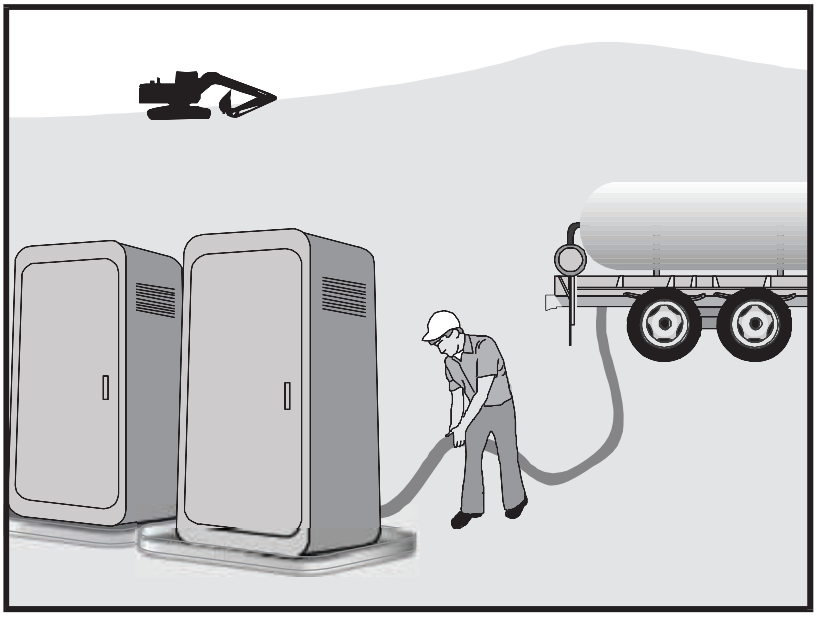
Many types of construction materials, including mortar, concrete, stucco, cement and block and their associated wastes have basic chemical properties that can raise pH levels outside of the permitted range. Additional care should be taken when managing these materials to prevent them from coming into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

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.

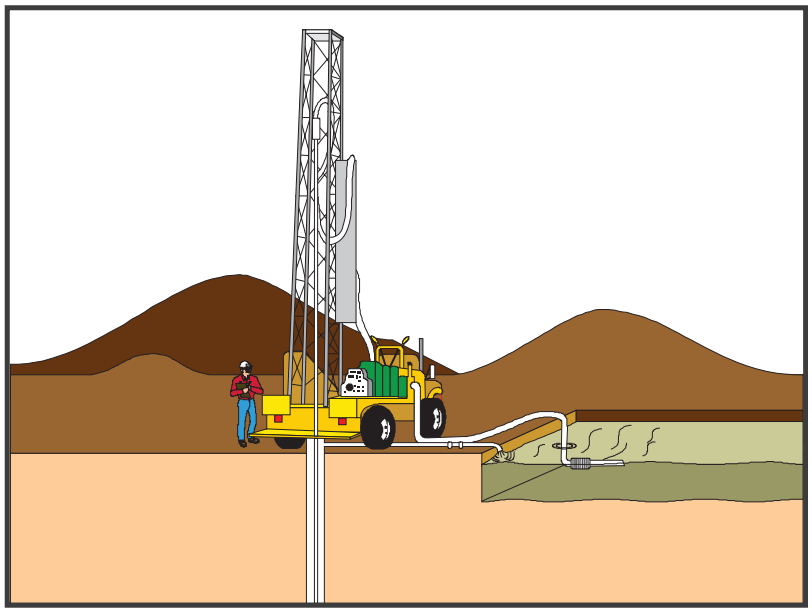
Implementation

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



Description and Purpose

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

Suitable Applications

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

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

Limitations

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

Categories

EC	Erosion Control	
SE	Sediment Control	
TC	Tracking Control	
WE	Wind Erosion Control	
NS	Non-Stormwater Management Control	
WM	Waste Management and Materials Pollution Control	☑

Legend:

☑ **Primary Objective**

☒ **Secondary Objective**

Targeted Constituents

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

Potential Alternatives

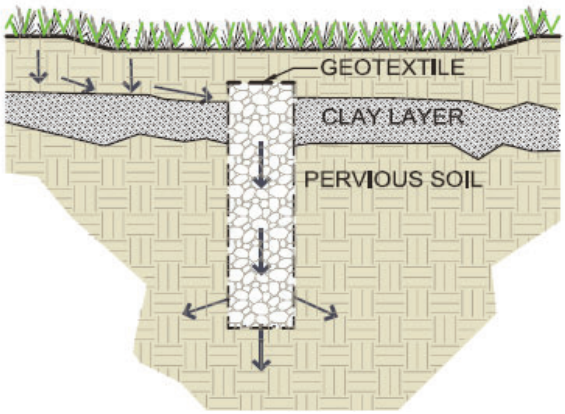
None

EXHIBIT 2

TYPICAL LID BMPs

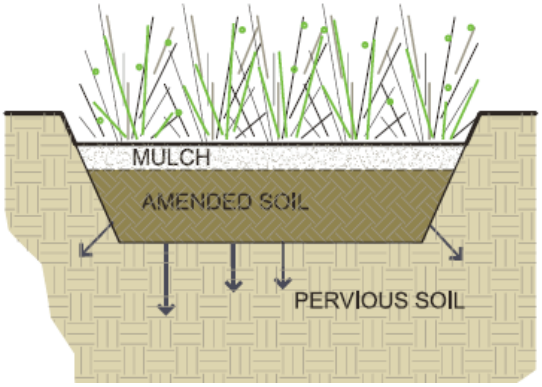
Dry Wells

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.

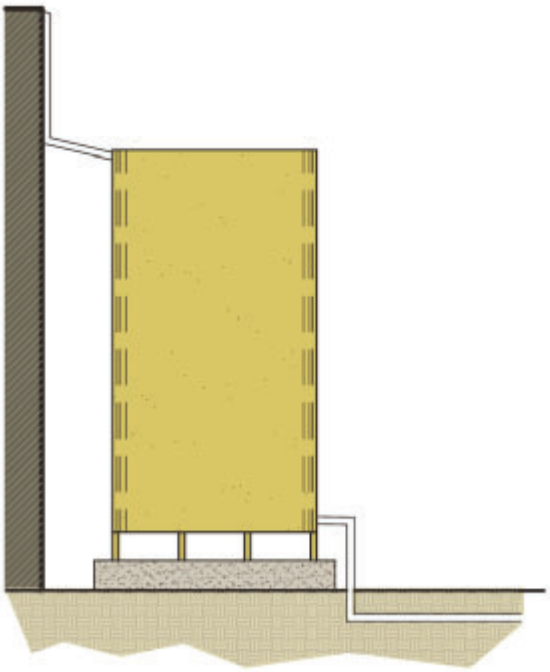


Bioretention

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.



4.5 CAPTURE AND USE BMPS



Cistern Example

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.