



Euclid-Hazard 7-Eleven Service Station Project

Appendix D

**Preliminary Water Quality Management Plan (PWQMP)
Euclid-Hazard 7-Eleven Service Station**

Preliminary Water Quality Management Plan (pWQMP)

Project Name:

7-Eleven

Prepared for:

ASi Development

5932 Bolsa Avenue, Suite 107

Huntington Beach, CA 92649

Joe Nguyen, General Manager

714-892-8810

Prepared by:

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Engineer's Seal

Prepared on:

August 28, 2018

Project Owner's Certification			
Permit/Application No.	<i>DP No. 2019-08</i>	Grading Permit No.	
Tract/Parcel Map No.	<i>Tract 841</i>	Building Permit No.	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract)			<i>APN: 100-231-01 Lot 1</i>

This Water Quality Management Plan (WQMP) has been prepared for ASI Development by NA & Associates, Inc.. The WQMP is intended to comply with the requirements of the local NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the San Diego Region (South Orange County). Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner: Joe Nguyen			
Title	General Manager		
Company	ASi Development		
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Signature		Date	

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Section 1 Discretionary Permit(s) and Water Quality Conditions

Project Information			
Permit/ Application No.	DP No. 2018-08 ER No. 2018-28	Site Address or Tract/Parcel Map No.	APN: 100-231-01 Lot 1 of Tract No. 841 813 N. Euclid Street. Santa Ana, CA 92703
Additional Information/ Comments:			
Water Quality Conditions			
Water Quality Conditions from prior approvals or applicable watershed-based plans	<p>D) Prior to Site Plan Approval, address the following items identified below:</p> <p>C) Orange County Fire Authority:</p> <p>26) Submit preliminary surface drainage/utility plan that depicts all applicable "Site Design," structural "Source Control," and "Treatment Control" Best Management Practices (BMPs) in accordance with the Orange County Drainage Area Management Plan (DAMP) and the City of Santa Ana Local Implementation Plan (LIP). Site drainage should go to the landscape swale and should not be in conflict with the landscape plantings.</p> <p>27) Submit two copies of the preliminary WQMP for review and approval to the Public Works Agency. Go to www.santa-ana.org/pwa/stonndrain/WaterQualityManagementPlanTemplates.asp for information on preparation of WQMPs.</p> <p>i. Preliminary Water Quality Management Plan (WQMP)/surface drainage/utility plan should depict all applicable "Site Design," structural "Source Control," and "Treatment Control" Best Management Practices (BMPs) in accordance with the most current Orange County Drainage Area Management Plan (DAMP) and the City of Santa Ana Local Implementation Plan (LIP).</p> <p>ii. The site plan shall incorporate improvements as determined by the Public Works Agency from the review of the preliminary WQMP and surface</p>		

drainage plan.

iii. The site plan to incorporate construction of any proposed "Site Design", BMPs, (such as walkways with open joints, sidewalks and parking lot aisles with minimum widths, draining sidewalks into adjacent landscaping, incorporating the landscape area into drainage system, etc.) to minimize the impervious areas and to maximize permeability and natural areas. Reference the most current Orange County DAMP and the LIP.

iv. Any proposed "Treatment Control" BMPs using the Best Available Technology (such as biofilters, dry or wet detention basins, landscape detentions, wet ponds or wetlands, drainage inserts, filtration basins, etc.) and recommended sizing calculations near pollutant source, so as to infiltrate and filter the pollutants of concern in post development runoff flow prior to its discharge into any receiving body of water or urban storm drain. Reference the most current Orange County DAMP and the City of Santa Ana LIP.

v. All new developments and significant redevelopments require preparation of a NPDES post-construction storm water management plan in accordance with the most current Orange County DAMP and the City of Santa Ana LIP that includes all applicable BMPs for this "Priority Project."

vi. Add a note to the site plan and the tentative map to read "The BMPs, shown on the approved site plan are only preliminary and will be revised or modified as necessary upon completion of the WQMP. Prior to the issuance of the grading permit, the approved grading/utility plan shall incorporate all required Structural BMPs. For assistance and an informational handout (including a WQMP template),"

29) Revise the site plan to add the note "This site will be designed and constructed in accordance with the California Regional Water Quality Control Board Santa Ana Region Order No. R8-2009-0030 discharge requirements (MS4 Permit)". Contact Mindy Ly (714) 647-5665 for additional information.

III. Prior to issuance of a building permit, address the following items:

NOTE: All new developments and exiting facilities with significant redevelopment, irrespective of their size or category (Priority or Non-priority) shall provide and have approved a WQMP prior to the issuance of a grading permit. The WQMP document shall describe all applicable BMPs consistent with the approved surface drainage/grading plan. Contact Mindy Ly at (714) 647-5665 for assistance.

2) Submit, for review and approval, a surface drainage/grading/erosion control plan, prepared by a registered civil engineer, showing the direction and means of flow to the adjacent street. The plan is to include existing and proposed elevations at and adjacent to all property lines. Drainage routed to the street must be directed beneath the sidewalk and through the curb. The plan shall depict all applicable "Site Design", structural "Source Control", and "Treatment Control" BMPs in accordance with the Orange County DAMP and the City of Santa Ana (LIP).

Section 2 Project Description

The project is located on a 0.64 acre site. The proposed project will consist of the construction of drive aisles, parking stalls, pedestrian ramps, sidewalks, a covered fueling area, trash enclosure and planter areas. The vicinity map located in Appendix B of this report shows the location of the project site.

2.1 General Description

Description of Proposed Project				
Site Location	813 N Euclid Street, Santa Ana, CA 92703. APN: 100-231-01			
Project Area (ft ²): 27,948	Number of Dwelling Units: _____		SIC Code: 5541	
Narrative Project Description:	<p>The existing site is an empty lot which is almost completely pervious surfaces. The total impervious surfaces in the existing condition are several concrete curbs and a 50 square foot concrete pad along the north property line which is approximately 0.2% of the total site. For the purposes of this report the site is considered 100 pervious surfaces.</p> <p>The proposed project will include the construction of a 3,050 square foot convenience store, a covered fueling area with four pump islands, underground storage tanks, asphalt drive aisles and parking stalls, a covered trash enclosure at the south end of the project, curbs and gutters, and landscaped areas. Landscaped areas will be on all property lines surrounding the site, as well as within a small planter area at the northwest corner of the proposed building. The post project condition will contain 6,087 square feet of landscaped area, which is approximately 22% of the total project area.</p>			
Project Area	Pervious		Impervious	
	Area (acres or sq ft)	Percentage	Area (acres or sq ft)	Percentage
Pre-Project Conditions	27,948	100	0	0
Post-Project Conditions	6,087	21.8	21,861	78.2

2.2 Post Development Drainage Characteristics

The proposed project will keep drainage patterns in the same general direction as in the existing condition. Storm water will sheet flow in the north westerly direction until it is collected in a proposed concrete 'v'-gutter or curb and gutter. Water will be directed to the northwest corner where it will be deposited into a Filterra unit, which will filter the water before dispatching it to the public storm drain system. No offsite storm water is anticipated to enter the project site. The site is bounded by a block wall to the east and south. To the north and west there is a public sidewalk which slopes away from the subject property and into the existing curb and gutter in the site adjacent streets. The Proposed Condition Exhibit in Appendix E of this report shows the proposed drainage management area, land covers, drainage patterns and proposed site features.

2.3 Property Ownership/Management

ASi Development

5932 Bolsa Avenue, Suite 107 Huntington Beach, CA 92649

714-892-8810

Contact: Joe Nguyen (General Manager)

The project does not transfer any infrastructure to public agencies.

Section 3 Site & Watershed Characterization

3.1 Site Conditions

3.1.1 Existing Site Conditions

The existing site is an empty, undeveloped lot that slopes in the northwest direction. The project has a drop in elevation of approximately 2 feet over a distance of approximately 220 feet, resulting in a gentle slope of 0.9% from the site's high point in the southeast corner to the site's low point in the northwest corner. Currently, no offsite waters come in with the site's onsite waters. The site is bounded by a block wall to the east and south, and by public sidewalks to the north and west. Since the site is an undeveloped piece of land, there are no existing utilities that are to remain onsite after construction. The Existing Condition Exhibit in Appendix E of this report shows the existing drainage management area, land covers, and drainage patterns.

Existing Land Uses				
Land Use Description	Total Area (acres)	Impervious Area (acres)	Pervious Area (acres)	Imperviousness (%)
Empty Lot	0.64	0	0.64	0
Total	0.64	0	0.64	0

3.1.2 Infiltration-Related Characteristics

Per Table VIII.1 of the Technical Guidance Document, infiltration is prohibited under all conditions for fueling stations. Infiltration is not allowed at the project site. The site has been designed in such a way as to keep a large amount of pervious surfaces onsite, resulting in a reduction of storm water runoff.

3.1.2.1 Hydrogeologic Conditions

The project site is not located within any groundwater contamination plumes. According to the Depth to Groundwater Map located in Appendix F of this report, the depth to groundwater is approximately 5 feet.

3.1.2.2 Soil and Geologic Infiltration Characteristics

The project site is located within C type soils with poor infiltration properties. The Hydrologic Soil Group Map can be found in Appendix F of this report. Additionally, according to Table VIII.1 of the Technical Guidance Document, infiltration is prohibited under all conditions for fueling stations. Infiltration is not allowed at the project site and need not be evaluated further.

3.1.2.3 Geotechnical Conditions

The proposed site does not contain any collapsible soils, expansive soils, steep slopes, or liquefaction potential. As mentioned above, infiltration type BMPs are prohibited at a fueling station site.

3.1.2.4 Summary of Infiltration Opportunities and Constraints of Existing Site

Per Table VIII.1 of the Technical Guidance Document, infiltration is prohibited under all conditions for fueling stations.

3.2 Proposed Site Development Activities

The proposed project will allow storm water to sheet flow in the north westerly direction until it is deposited into a Filterra unit, which will filter the water before dispatching it to the public storm drain system. No offsite storm water is anticipated to enter the project site. The site is bounded by a block wall to the east and south. To the north and west there is a public sidewalk which slopes away from the subject property and into the existing curb and gutter in the site adjacent streets. The Proposed Condition Exhibit in Appendix E of this report shows the proposed drainage management area, land covers, drainage patterns and proposed site features. The Grading Plan in Appendix D of this report shows conceptual grading and drainage patterns.

3.2.1 Overview of Site Development Activities

The proposed development will be a fueling station, which differs from the existing condition of an empty lot. The drainage patterns will not be altered. However, in the existing condition, storm water is allowed to flow over the existing sidewalks in Euclid Street and Hazard Road. In the proposed condition, all storm water will be captured and treated onsite prior to being dispatched to the public storm drain system. The project site is bounded on all sides in such a way that offsite run-on is not anticipated.

3.2.2 Project Attributes Influencing Stormwater Management

The proposed project is a fueling station with SIC: 5541. The proposed building is located in the southeast corner of the site and will be a convenience store. There will be no outdoor storage area for materials. There are no outdoor food preparation areas or loading docks proposed. No vehicle repair or washing will be conducted onsite. The parking stalls, located to the north and west of the building, and drive aisles surrounding the fuel pump area will have an asphalt paving ground cover. The ground cover immediately surrounding the fuel pumps, located in the west half of the site, will be concrete paving. All proposed fuel pumps will be covered by a canopy. A small covered trash enclosure is proposed along the southerly property line of the site.

There are several areas of proposed landscaping; one planter to the north and west of the site separating the project property and the public sidewalks, a landscaped planter to the east and south of the property between the proposed building and the neighboring properties, and a small island of landscaping to the northwest of the proposed building.

Expected materials delivered to the site will be food, drinks, fuel and associated items. The fuel will be stored in multiple underground storage tanks to the west of the proposed building. Food, drinks and other items will be stored within the proposed convenience store. The major wastes that are anticipated are trash and debris. These wastes will be collected and stored within the trash enclosure, and a waste management company will empty the bin on a regularly scheduled basis.

The proposed drainage patterns will remain in the same general direction as in the existing condition, in the northwest direction. There are no slopes, areas of run-on, or run-off at the project site.

Proposed Land Uses				
Land Use Description	Total Area (acres)	Impervious Area (acres)	Pervious Area (acres)	Imperviousness (%)
Retail Gasoline Outlet	0.64	0.50	0.14	78.2
Total	0.64	0.50	0.14	78.2

3.2.3 Effects on Infiltration and Harvest and Use Feasibility

The proposed project is a fueling station, therefore infiltration BMPs are prohibited. Appendix G of this report has both Worksheet I: Summary of Groundwater-related Feasibility Criteria and Worksheet J: Summary of Harvested Water Demand and Feasibility, from the Technical Guidance Document. These worksheets show that it is infeasible to utilize infiltration or harvest and use BMPs.

3.3 Receiving Waterbodies

Drainage from the project site will sheet flow in the north westerly directions, where runoff will then be collected in a concrete gutter. These gutters will convey the storm water into a Filterra unit where water will be filtered and then discharged through a PVC pipe and into the back of the existing catch basin in Euclid Street.

From the existing catch basin in Euclid Street, storm water flows in the northerly direction and then into a main storm drain line in Hazard Road. Storm water in the pipe in Hazard Road flows in the easterly direction until it is dispatched into the East Garden Grove Wintersburg Channel. Water flows in the southwesterly direction and deposited into Bolsa Bay, then to Huntington Harbour, Anaheim Bay, and eventually into the Pacific Ocean. The project does not discharge directly to an environmentally sensitive area.

303(d) listed impairments:

East Garden Grove Wintersburg Channel: Nutrients (Ammonia - Unionized)

Bolsa Bay: None

Huntington Harbour: Chlordane, Copper, Lead, Nickel, Pathogens, PCBs, Sediment Toxicity

Anaheim Bay: Dieldrin (tissue), Nickel, PCBs, Sediment Toxicity

3.4 Stormwater Pollutants or Conditions of Concern

Pollutants or Conditions of Concern				
Pollutant	Expected from Proposed Land Uses/ Activities (Yes or No)	Receiving Waterbody Impaired (Yes or No)	Priority Pollutant from WQIP or other Water Quality Condition? (Yes or No)	Pollutant of Concern (Primary, Other, or No)
Suspended-Solids	No	Yes		No
Nutrients	No	Yes		No
Heavy Metals	Yes	Yes		Primary
Bacteria/Virus/Pathogens	No	Yes	Yes	Primary
Pesticides	No	No		No
Oil and Grease	Yes	No		No

Toxic Organic Compounds	Yes	No		No
Trash and Debris	Yes	No		No
Dry Weather Runoff			Yes	Primary

3.5 Hydrologic Conditions of Concern

Does a hydrologic condition of concern exist for this project?

No - An HCOC does not exist for this receiving water because :

Project discharges directly to a protected conveyance (bed and bank are concrete lined the entire way from the point(s) of discharge to a receiving lake, reservoir, embayment, or the Ocean

Project discharges directly to storm drains which discharge directly to a reservoir, lake, embayment, ocean or protected conveyance (as described above)

The project discharges to an area identified in the WMAA as exempt from hydromodification concerns

Yes - An HCOC does exist for this receiving water because none of the above are applicable.

No Hydrologic Conditions of Concern are anticipated for the project site. Per the Hydromodification Analysis Maps provided in the Technical Guidance Document (TGD) the project site is not within an area of hydromodification concern. The map can be found in Appendix F of this report.

3.6 Critical Course Sediment Yield Areas

Not applicable.

Section 4 Site Plan and Drainage Plan

4.1 Drainage Management Area Delineation

The proposed project will keep the drainage management area exactly the same as in the existing condition. The site will remain one DMA, which flows from the southeast corner to the northwest corner. The BMP was placed at the low point of the site in the northwest corner. Landscaped areas were incorporated into the site to the maximum extent possible. Areas of landscape are spread throughout the site, along all property lines. Due to the fact that infiltration is not permitted at the project site, the areas of landscaping are not used as a BMP. They are simply added to maintain as much of the existing condition as possible. The Proposed Condition Exhibit, which shows land covers and drainage patterns, can be found in Appendix E of this report.

4.2 Overall Site Design BMPs

Minimize Impervious Area- *Impervious surfaces were kept to a minimum throughout the site. Drive aisles were kept to a minimum, and areas that could have been landscaped were made landscaping to maximize pervious surfaces.*

Maximize Natural Infiltration Capacity- *Although infiltration type BMPs are not permitted at the project site, areas of landscape were kept to a maximum, as described above.*

Preserve Existing Drainage Patterns and Time of Concentration- *The proposed and existing drainage patterns will be the same. Storm water will flow in the north westerly direction to the site's low point. However, in the existing condition storm water is allowed to leave the site, over the existing driveway and into the adjacent streets. In the proposed condition storm water will be captured and slowed within a Filterra unit prior to being dispatched into the public storm drain system.*

Disconnect Impervious Areas- *Impervious surfaces are disconnected in two ways at the project site. The first is that pervious surfaces on-site are not allowed to flow to the off-site surfaces. There is a proposed ridge at the property line to separate the flows. All on-site flows will flow to the proposed BMP. Another way impervious surface disconnection is incorporated into the site is that the roof drain downspouts are dispatched to the landscaped areas surrounding the proposed building.*

Protect Existing Vegetation and Sensitive Areas- *As previously mentioned, pervious surfaces are being protected to the greatest extent possible, with the proposed condition containing many areas of landscape.*

Revegetate Disturbed Areas- *Existing vegetated areas that are disturbed during construction activities will be re-planted prior to construction completion.*

Soil Stockpiling and Site Generated Organics- *Soil stockpiling and site generated organics are not anticipated at the project site.*

Firescaping-

Water Efficient Landscaping- *Proposed landscaping will be water efficient and drought tolerant to the greatest extent possible. Sprinklers will be maintained and monitored to ensure leakages and overspray are corrected in a timely manner.*

Slopes and Channel Buffers- *No slopes are proposed at the project site.*

4.3 DMA Characteristics and Site Design BMPs

4.3.1 DMA A

See the Proposed Condition Exhibit in Appendix E of this report. Said exhibit will delineate the drainage management area and flow patterns. As noted previously, the site flows from its high point in the southeast corner to its low point in the northwest corner. This is the drainage pattern for both the existing and proposed condition. The area of the DMA and the entire site is 27,948 square feet (0.64 acres). 6,087 square feet (0.14 acres) of the total site will be pervious surfaces, which is approximately 21.8% of the site. This percentage is much higher than a typical commercial site. The remaining 21,861 square feet (0.50 acres) of the site will be impervious surfaces.

The project's BMP will be located at the site's low point in the northwest corner. The BMP is a biofiltration type BMP in the form of a Filterra unit. The outlet pipe from the proposed Filterra unit will punch into the back of the existing catch basin in Euclid Street. Worksheet I of the Orange County Technical Guidance Document is included in Appendix G of this report showing infiltration infeasibility. Appendix G also contains Worksheet J of the TGD showing Capture and Use infeasibility.

4.3.2 DMA Summary

Drainage Management Areas				
DMA (Number/Description)	Total Area (acres)	Imperviousness (%)	Infiltration Feasibility Category (Full, Partial, or No Infiltration)	Hydrologic Source Controls Used
DMA A / Project Site	0.64	78.2	No Infiltration	Impervious area dispersion

4.4 Source Control BMPs

Non-Structural Source Control BMPs				
Identifier	Name	Check One		Reason Source Control is Not Applicable
		Included	Not Applicable	
N1	Education for Property Owners, Tenants and Occupants	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N2	Activity Restrictions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N3	Common Area Landscape Management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N4	BMP Maintenance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N5	Title 22 CCR Compliance (How development will comply)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N6	Local Industrial Permit Compliance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Project is not an industrial site.
N7	Spill Contingency Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N8	Underground Storage Tank Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N9	Hazardous Materials Disclosure Compliance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N10	Uniform Fire Code Implementation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N11	Common Area Litter Control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N12	Employee Training	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N13	Housekeeping of Loading Docks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No loading docks proposed.
N14	Common Area Catch Basin Inspection	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N15	Street Sweeping Private Streets and Parking Lots	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
N16	Retail Gasoline Outlets	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

N1 – Education for Property Owners, Tenants and Occupants; The owner shall employ an educational program to staff encompassing the importance of stormwater management and BMP implementation within 30 days of lease signing and annually thereafter.

N2 - Activity Restrictions; The project will establish the following policies prohibiting activities during operations. It is the responsibility of the owner to make its subcontractors and tenants aware, and ensure implementation of the above restrictions.

- *Prohibit discharge of fertilizer, pesticides, or animal waste to the street or storm drain.*
- *Prohibit blowing or sweeping of debris into street or storm drain.*
- *Require dumpster lid to be closed while not in use.*
- *Prohibit discharge of paint or mortar to the street or storm drain.*
- *Prohibit vehicle or equipment washing, repair, or maintenance onsite.*

N3 – Common Area Landscape Management; It is the owner's or maintenance subcontractor's responsibility to perform an inspection of the irrigation system (specifically: overspray, poorly directed sprinkler heads, broken sprinkler heads, etc.) and turf/planter areas (specifically: dead or dying vegetation and areas that are eroding) every two weeks. Should an issue arise, it should be repaired as soon as feasibly possible.

N4 – BMP Maintenance; It is the owner's responsibility to ensure the BMPs are being maintained. The owner may hire a qualified subcontractor to maintain the BMPs. The owner shall submit an annual self certification statement to the effect that all BMPs have been inspected and maintained for that year. All inspection and maintenance records shall be retained indefinitely.

*N5 - Title 22 CCR Compliance - It is the owner's responsibility to familiarize themselves, and implement the practices and procedures within the California Code of Regulation (CCR), Title 22, Division 4.5, Chapters 10 through 55. Said CCR can be found at the following website:
<https://www.dtsc.ca.gov/LawsRegsPolicies/Title22/>*

N7 - Spill Contingency Plan; In the event of a spill or leak, the owner or tenant shall shut off the pumps using the emergency pump shut off switch. The procedures described in the Spill Guidelines in Appendix I of this report should be performed and the proper authorities should be contacted.

N8 - Underground Storage Tank Compliance; Underground Storage Tanks must be tested and inspected periodically to ensure proper function. It is the responsibility of the owner to hire a qualified subcontractor to perform these tests. The procedures for testing are included in Appendix I of this WQMP. See the "Guidelines for Testing Spill Buckets" and "Release Prevention Compliance Measures Matrix". The frequencies for these operations vary. See the appropriate guidelines in Appendix I for the proper frequency.

N9 - Hazardous Materials Disclosure Compliance; A Chemical Inventory and Business Emergency Plan must be prepared annually and/or at the discretion of the Orange County Fire Authority.

N10 - Uniform Fire Code Implementation; Compliance with Article 80 of the Uniform Fire Code enforced by fire protection agency, must be performed at all times.

N11 - Common Area Litter Control; The owner or qualified maintenance subcontractor shall inspect the common areas for litter on a routine basis on a daily basis. Project area to be patrolled for litter and trash receptacles to be emptied at least weekly.

N12 - Employee Training; The owner shall provide applicable Orange County Stormwater Management brochures, and Employees to be trained on stormwater protection and activity restrictions at the time of hire and annually thereafter.

N14 - Common Area Catch Basin Inspection - The owner shall have all of the on-site drainage facilities inspected, cleaned and maintained on an annual basis. Cleaning shall take place in the late summer / early fall prior to the start of the rainy season.

N15 - Street Sweeping Private Streets and Parking Lots; Sweeping of the parking lot by professional maintenance crew shall be performed every two weeks at a minimum. Sweeping of immediate areas surrounding the building by staff weekly at a minimum.

N16 - Retail Gasoline Outlets; It is the owner's responsibility to familiarize themselves, and implement the procedures outlined in the "Best Management Practice Guide" in Appendix I of this report.

Structural Source Control BMPs				
Identifier	Name	Check One		Reason Source Control is Not Applicable
		Included	Not Applicable	
S1	Provide storm drain system stenciling and signage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No outdoor storage areas proposed.
S3	Design and construct trash and waste storage areas to reduce pollution introduction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S5	Protect slopes and channels and provide energy dissipation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No slopes proposed.
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	<input type="checkbox"/>	<input type="checkbox"/>	
S6	Dock areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No dock areas proposed.
S7	Maintenance bays	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No maintenance bays proposed.
S8	Vehicle wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No vehicle wash areas proposed.
S9	Outdoor processing areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No outdoor processing proposed.
S10	Equipment wash areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No equipment wash areas proposed.
S11	Fueling areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
S12	Hillside landscaping	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No hillside landscaping proposed.
S13	Wash water control for food preparation areas	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No food preparation areas proposed.
S14	Community car wash racks	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No car wash racks proposed.

S1 – Provide storm drain system stencilling and signage; Storm drain stencil shall be placed directly adjacent to the storm drain inlet and contain a graphical icon and/or a brief statement “NO DUMPING – DRAINS TO OCEAN”. The stencil shall either be painted or constructed of thermoplastic. When wear or damage makes the stencil illegible, it shall be replaced in a timely manner. Stencil and signage shall be inspected annually at a minimum for legibility and adhesion. Illegible stencils or signage shall be replaced as needed. It is the responsibility of the owner, or the owner’s qualified maintenance subcontractor, to perform inspections and repairs.

S3 – Design and construct trash and waste storage areas to reduce pollution introduction; The trash enclosure shall be paved and sufficiently impervious to prevent leaks and spills from penetrating the surface and impacting the underlying soils. Either roof/awning or trash can lid shall be installed to minimize direct contact with precipitation and collection of storm water within the secondary containment area. The trash enclosure shall be inspected annually for wear. If the pavement is found insufficient to prevent leaks and spill from penetrating to the underlying soil, it shall be repaired or replaced. It is the responsibility of the owner, or the owner’s qualified maintenance subcontractor to perform inspections and repairs.

S4 – Use of efficient irrigation systems & landscape design, water conservation, smart controllers, and source control; The project shall design the timing and application method of irrigation water to minimize the runoff of excess irrigation water into the stormwater conveyance system. The methods described in the WQMP to reduce excessive irrigation runoff shall be considered, and incorporated and implemented where determined applicable and feasible. Irrigation methods shall be reviewed monthly and adjusted as needed to minimize runoff due to excess irrigation. Broken irrigation equipment shall be replaced in a timely manner. It is the responsibility of the owner, or the owner’s qualified maintenance subcontractor to perform inspections and repairs.

S11 – Fueling areas; The fuel dispensing area shall be paved with portland cement concrete and be sufficiently impervious to prevent leaks and spills from penetrating the surface and impacting the underlying soils. The project shall provide a raised canopy over the fueling area. Should a spill occur, it should be cleaned up and disposed of properly and as soon as possible. Replace the planter media, if fuel has entered the Filterra Unit, after clean up of the spill is completed. In addition to proper clean up and disposal of spilled materials, extra care should be taken as to not allow any contaminated water to enter the public storm drain system. A “Contamination Site Report” in Appendix I of this WQMP should be filled out and sent to the appropriate agencies. Inspect paving areas for cracks on a monthly basis. Spills should be cleaned up immediately and planting media should be replaced immediately. It is the responsibility of the owner, or the owner’s qualified maintenance subcontractor to perform inspections and repairs.

Section 5 Low Impact Development BMPs

5.1 LID BMPs in DMA A

The project site is a gasoline outlet, and according to Table VIII.1 of the Technical Guidance Document, infiltration is prohibited under all conditions for fueling stations. Worksheet I of the TGD has been included in Appendix G of this report, showing infiltration infeasibility. Worksheet J is also included in Appendix G of this report, which shows that Harvest and Use BMPs are not feasible at the project site as well. The project site is proposing a biofiltration type BMP in the form of a Filterra unit to treat all required storm water runoff at the project site.

5.1.1 Hydrologic Source Controls for DMA A

Hydrologic Source Controls were implemented to the greatest extent possible. The site is using on-lot infiltration within the landscaped areas. The landscaped areas will be pervious and unlined as to allow storm water that falls within those areas to percolate into the ground. Due to the fact that the project site is a fueling station, infiltration type BMPs are not permitted, therefore only water that falls within the landscaped areas will be allowed to infiltrate into the underlying soils. The project site is also proposing trees which will slow the storm water from flowing to the downstream waters.

5.1.2 Structural LID BMP for DMA A

Due to the fact that the project site is a fueling station and infiltration BMPs are not feasible, the project is proposing the implementation of a Filterra unit, which is a biofiltration type BMP. Specifically, the Filterra unit falls under BIO: Proprietary Biotreatment, within the Orange County Technical Guidance Document. The Filterra unit has been sized according to Worksheet D: Capture Efficiency Method for Flow-Based BMPs from the TGD. This worksheet can be found in Appendix G of this report. Fact sheets and catalogs for the proposed unit can be found in Appendix H of this report.

5.2 Summary of LID BMPs

DMA Label	Required Treatment Flowrate (cfs)	Proposed BMP	Provided Treatment Flowrate (cfs)
DMA A	0.1184	6'x10' Filterra Unit	0.1389

Section 6 Hydromodification BMPs

No Hydrologic Conditions of Concern exist at the project site.

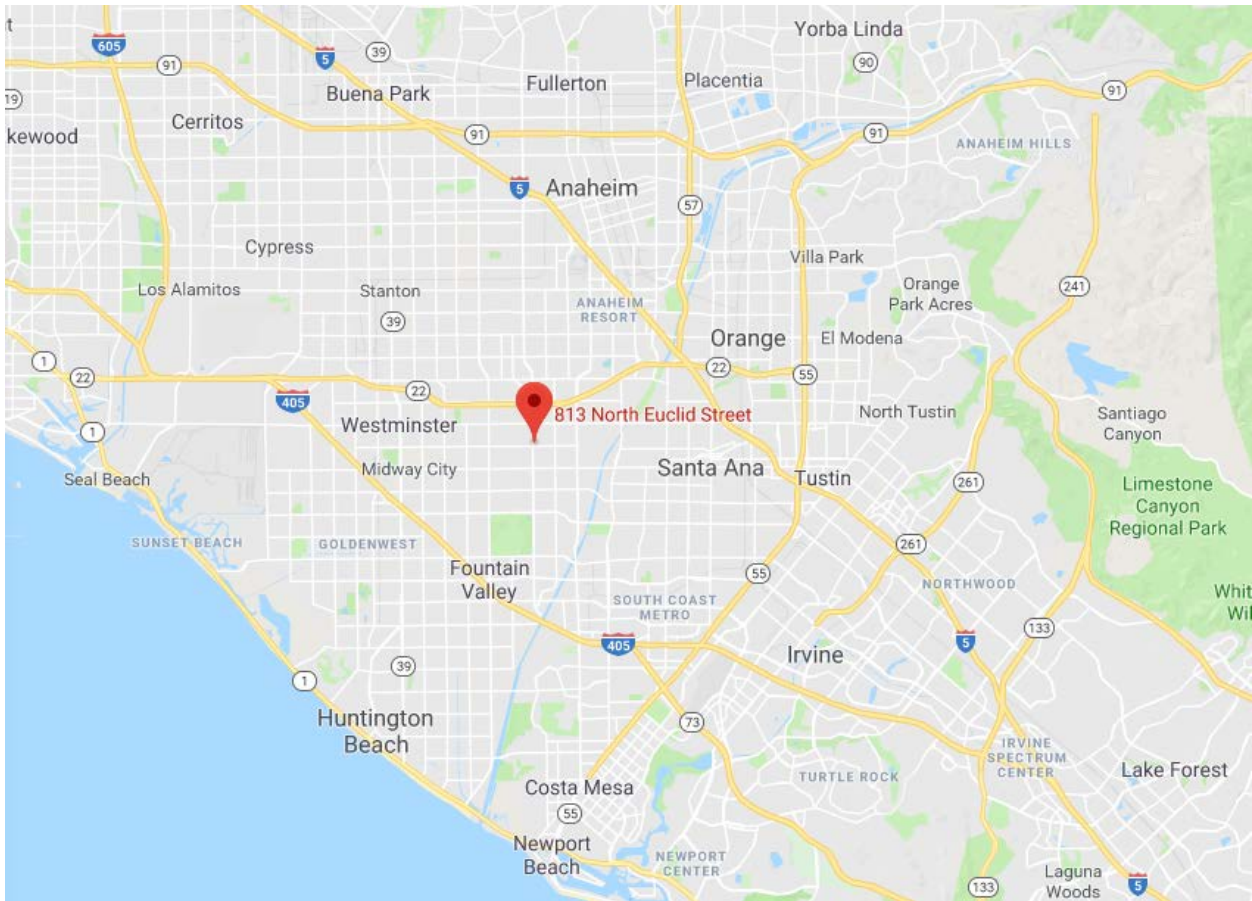
Section 7 Educational Materials Index

Educational Materials			
Residential Material (http://www.ocwatersheds.com)	Check If Applicable	Business Material (http://www.ocwatersheds.com)	Check If Applicable
The Ocean Begins at Your Front Door	<input checked="" type="checkbox"/>	Tips for the Automotive Industry	<input type="checkbox"/>
Tips for Car Wash Fund-raisers	<input type="checkbox"/>	Tips for Using Concrete and Mortar	<input checked="" type="checkbox"/>
Tips for the Home Mechanic	<input type="checkbox"/>	Tips for the Food Service Industry	<input type="checkbox"/>
Homeowners Guide for Sustainable Water Use	<input type="checkbox"/>	Proper Maintenance Practices for Your Business	<input checked="" type="checkbox"/>
Household Tips	<input type="checkbox"/>	Compliance BMPs for Mobile Businesses	<input type="checkbox"/>
Proper Disposal of Household Hazardous Waste	<input type="checkbox"/>	Other Material	Check If Attached
Recycle at Your Local Used Oil Collection Center (North County)	<input type="checkbox"/>		<input type="checkbox"/>
Recycle at Your Local Used Oil Collection Center (Central County)	<input type="checkbox"/>		<input type="checkbox"/>
Recycle at Your Local Used Oil Collection Center (South County)	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Tips for Maintaining a Septic Tank System	<input type="checkbox"/>		<input type="checkbox"/>
Responsible Pest Control	<input type="checkbox"/>		<input type="checkbox"/>
Sewer Spill	<input type="checkbox"/>		<input type="checkbox"/>
Tips for the Home Improvement Projects	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Horse Care	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Landscaping and Gardening	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Tips for Pet Care	<input type="checkbox"/>		<input type="checkbox"/>
Tips for Projects Using Paint	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Attachment A: Educational Materials

Education materials will be included in the Final WQMP.

Attachment B: Vicinity Map



Vicinity Map

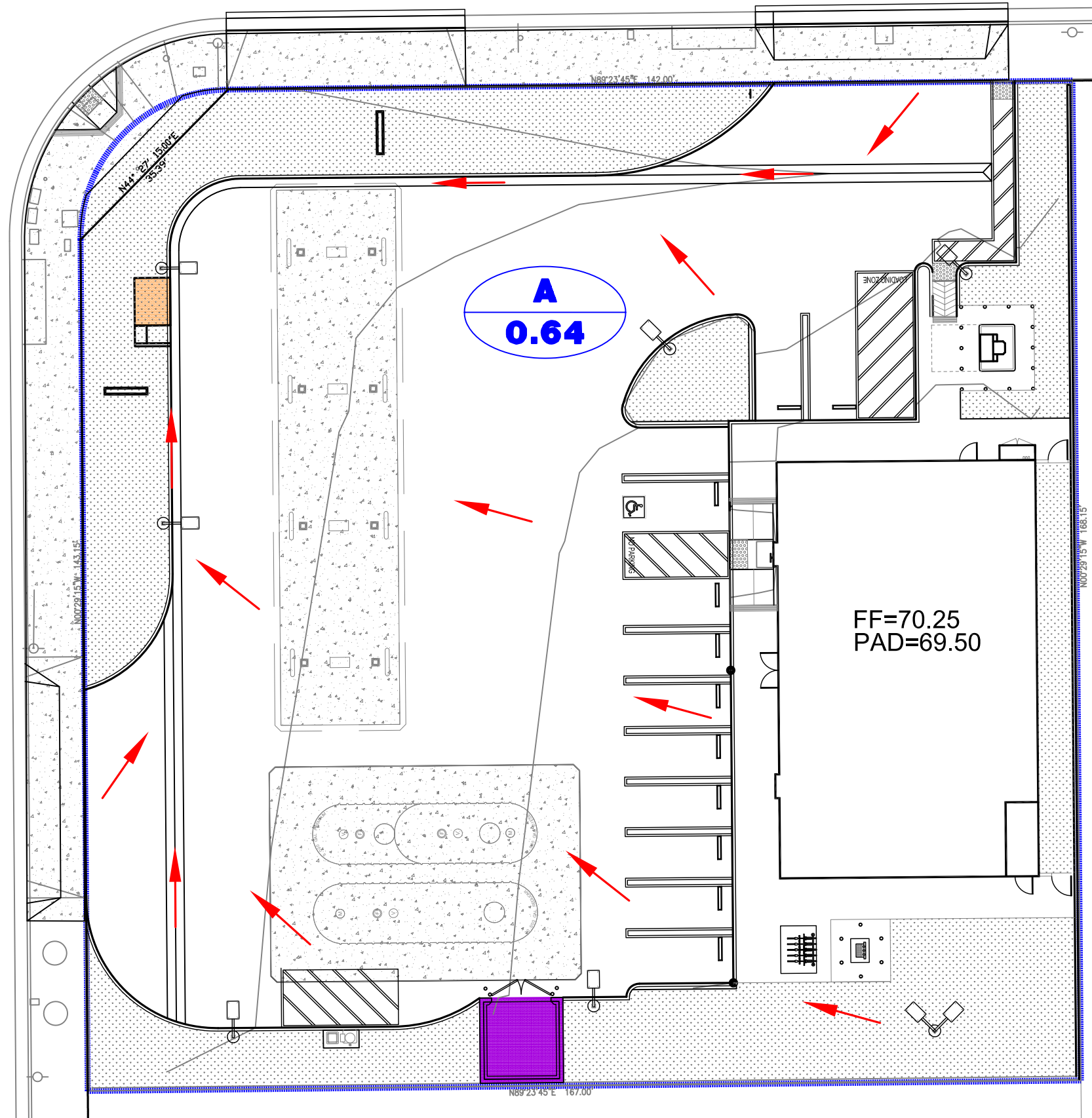
N.T.S.

Attachment C: Plot Plan




HAZARD RD.

PROJECT AREA: 27,948 S.F.


EUCLID ST.



LEGEND:

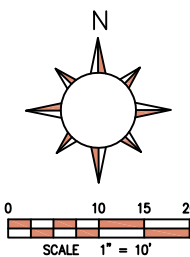
-  Direction of Drainage
-  Catchment Area Limits
-  - Catchment Area Designation
- Acreage

BMPS:

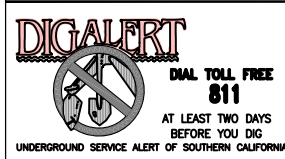
-  - Filterra Unit
-  - Trash Enclosure

LAND COVERS:

-  - Landscaping
-  - Concrete



DP No. 2018-08



REVISION	BY	DATE

BASIS OF BEARINGS
 N89°23'45"E
 CENTERLINE OF HAZARD ROAD
 PER TRACT MAP NO. 568, MM 23/41

BENCHMARK
 COUNTY OF ORANGE BENCHMARK SA-226-70
 ELEVATION: 74.189 NAVD 88 (2005 ADJ)

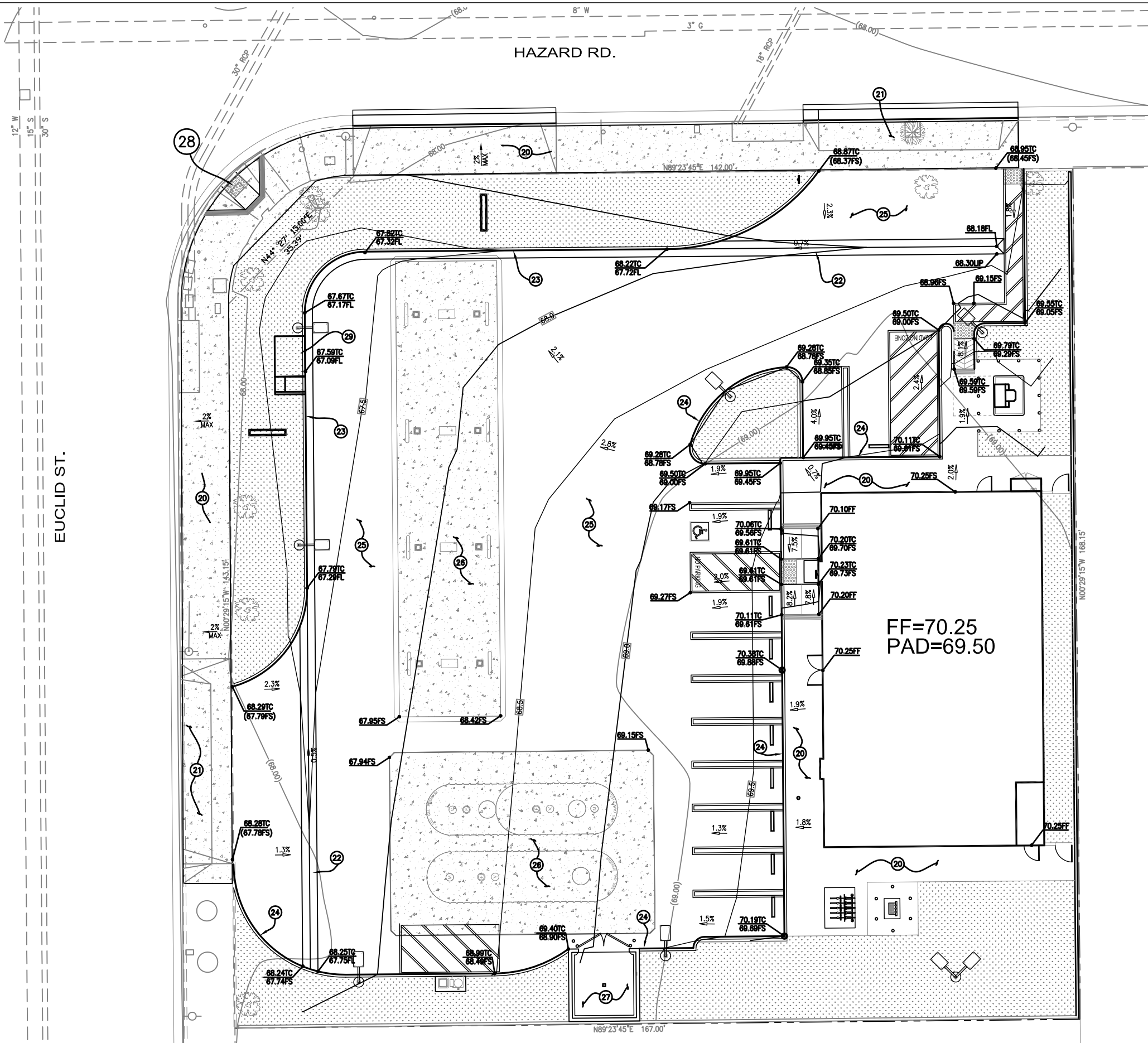
PLANS PREPARED BY:
 **NA & Associates, Inc.**
 22672 LAMBERT ST. # 606, LAKE FOREST, CA 92630
 PHONE: (949) 753-0800 FAX: (949) 800-8403



PLANS PREPARED FOR:
 **Asi DEVELOPMENT**
 5932 Bolsa Avenue, Ste. #107
 Huntington Beach, CA 92649
 T: 714-892-8810
 714-892-8812
 F: 800-342-0507

DATE: 08/31/18	JOB NO. 1801.00	R.C.E. C60846	DATE
PLOT PLAN			SHEET
813 N Euclid St @ W Hazard Ave Santa Ana, CA 92703			1 OF 1

Attachment D: Grading Plan

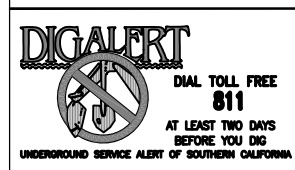
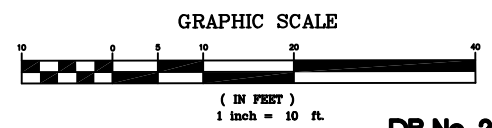


CONSTRUCTION NOTES	QUANTITIES
20 CONSTRUCT 4" THICK SIDEWALK OVER COMPACTED NATIVE SOIL PER ORANGE COUNTY PUBLIC WORKS STD. PLAN 1205. CROSS SLOPE WITHIN ADA PATH OF TRAVEL NOT TO EXCEED 2%. SLOPE IN DIRECTION OF ADA PATH OF TRAVEL NOT TO EXCEED 5%.	3,250 S.F.
21 CONSTRUCT DRIVEWAY APPROACH PER CITY STD. 1112, CASE 1.	3 EA.
22 CONSTRUCT 3" WIDE "V" GUTTER PER DETAIL ON SHEET 6.	22 L.F.
23 CONSTRUCT 6" CURB AND GUTTER PER SANTA ANA STD. PLAN 1101 TYPE A2-6.	72 L.F.
24 CONSTRUCT 6" PCC CURB ONLY PER SFPWC STD. PLAN 120-2 AND PER OCPW STD. PLAN 120-2-0C.	300 L.F.
25 CONSTRUCT 3" AC OVER 6" AB FOR PARKING STALLS, 4" AC OVER 11" AB IN TRAFFIC AREAS.	1155 S.F.
26 CONSTRUCT 7.5" PCC OVER 4" AB PER SOILS REPORT RECOMMENDATIONS.	1 EA.
27 CONSTRUCT COVERED TRASH ENCLOSURE PER ARCHITECTURAL PLANS.	1 EA.
28 CONSTRUCT CURB RAMP TYPE 1 PER CITY STD. 1122.	
29 CONSTRUCT 6"X8" FILTERRA UNIT.	1 L.F.

SUBGRADE TOLERANCES:
 SUBGRADE FOR PAVEMENT, SIDEWALK, CURB AND GUTTER, DRIVEWAYS, OR OTHER ROADWAY STRUCTURES SHALL NOT VARY MORE THAN 0.02 FOOT FROM THE SPECIFIED GRADE AND CROSS SECTION. SUBGRADE FOR SUBBASE OR BASE MATERIAL SHALL NOT VARY MORE THAN 0.04 FOOT FROM THE SPECIFIED GRADE AND CROSS SECTION. VARIATIONS WITHIN THE ABOVE SPECIFIED TOLERANCES SHALL BE COMPENSATING SO THAT THE AVERAGE GRADE AND CROSS SECTION SPECIFIED ARE MET.

FINISH GRADES TOLERANCES:
 SIDEWALK, CURB AND GUTTER, DRIVEWAYS, SHALL NOT VARY MORE THAN 0.02 FOOT FROM THE SPECIFIED GRADE AND CROSS SECTION.

NOTE:
 -LANDSCAPE & HARDSCAPE PER LANDSCAPE PLANS.
 -IF THERE IS A DIFFERENCE BETWEEN SPOT ELEVATIONS AND CONTOURS, SPOT ELEVATIONS HOLD.
 -CONTRACTOR TO PROTECT ALL EXISTING UTILITIES IN AND SURROUNDING THE SITE IN PLACE.

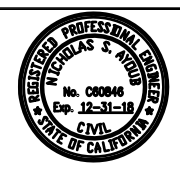


REVISION	BY	DATE

BASE OF BEARING
 N89°23'45"E
 CENTERLINE OF HAZARD ROAD
 PER TRACT MAP NO. 568, MM 23/41

BENCHMARK
 COUNTY OF ORANGE BENCHMARK SA-226-70
 ELEVATION: 74.189 NAVD 88 (2005 ADJ)

PLANS PREPARED BY:
 NA & Associates, Inc.
 22672 LAMBERT ST. # 806, LAKE FOREST, CA 92630
 PHONE: (949) 753-0800 FAX: (949) 800-8493



PLANS PREPARED FOR:
 5832 Bolsa Avenue, Ste. #107
 Huntington Beach, CA 92649
 T: 714-892-8810
 F: 714-892-8812
 F: 800-342-0507

DATE: 08/31/18	JOB NO. 1801.00	R.C.E. C08048	DATE
PRECISE GRADING PLAN			SHEET
813 N Euclid St @ W Hazard Ave Santa Ana, CA 92703			2
			OF
			6

DP No. 2018-08

Attachment E: Existing & Proposed Conditions

HAZARD RD.

SITE AREA: 27,948 s.f. / 0.64 ACRES

LEGEND:

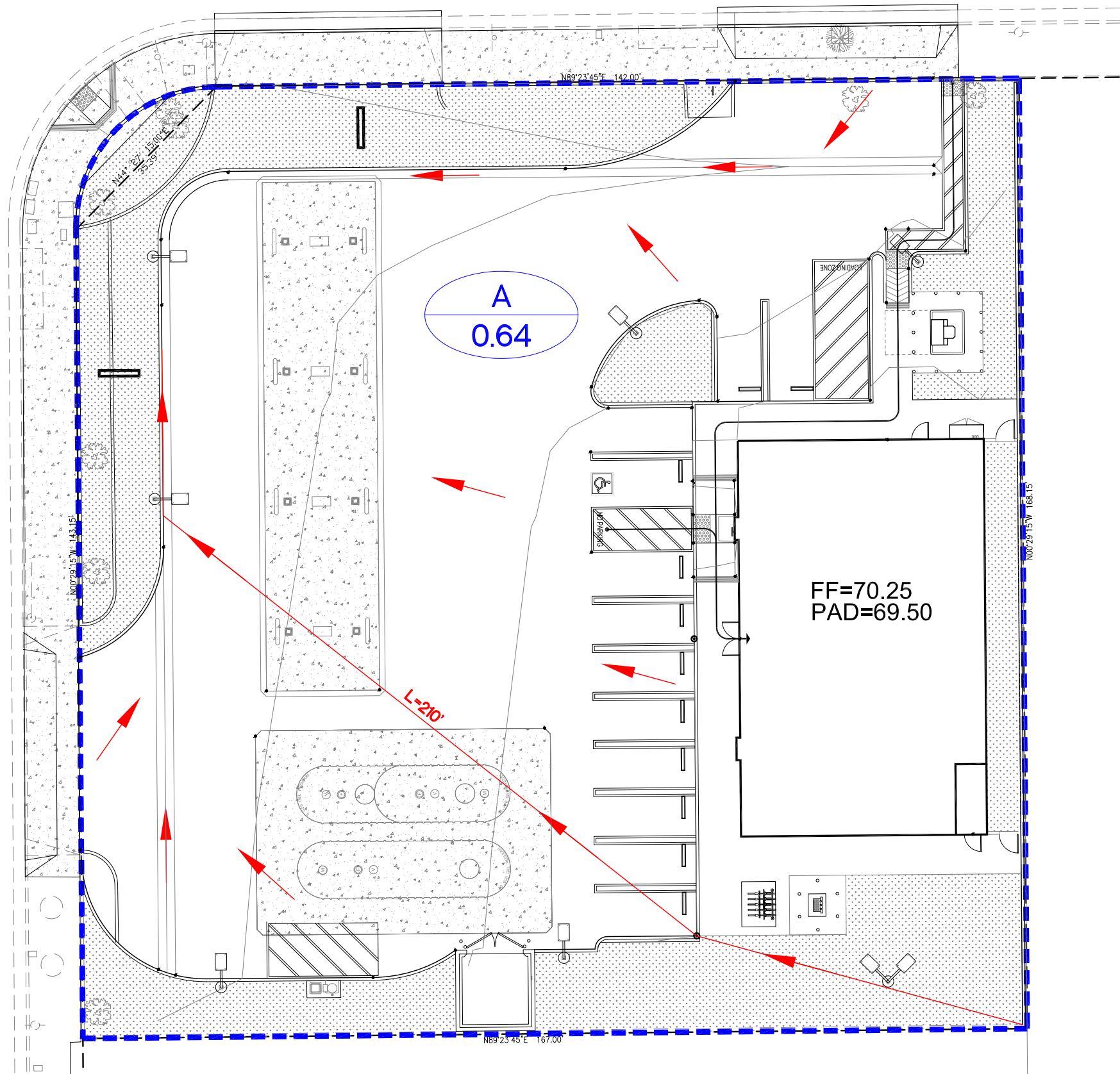
- Direction of Drainage

DRAINAGE AREA IDENTIFICATION
DRAINAGE AREA ACREAGE

LAND COVERS:

- Landscaping
- Concrete
- Asphalt Paving

EUCLID ST.



5932 Bolsa Avenue, Ste. #107
Huntington Beach, CA 92649
T: 714-892-8810
714-892-8812
F: 800-342-0507

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Stamp:

9/4/18



Project Location:

813 North Euclid St
@ W Hazard Ave
Santa Ana, CA 92703
New Building 3,045 S.F.

No.	Date	Revision

Project No.: 38384
Scale:
Drawn / Checked by:
Date: January 8, 2018

Drawing Title:
PROPOSED CONDITION
Sheet:
2 OF 2

DIGALERT
DIAL TOLL FREE
1-800-422-4133
AT LEAST TWO DAYS
BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

Nicholas S. Avoules
NA & Associates, Inc.
22672 LAMBERT ST. #606, LAKE FOREST, CA 92650
PHONE: (949) 753-0600 FAX: (949) 600-8493

CUP EXHIBITS

Attachment F: Soils & Rainfall Maps

SUBJECT TO FURTHER REVISION

LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
 Soils: Natural Resources Conservation Service (NRCS)
 Soil Survey - soil_ca678, Orange County & Western Riverside
 Date of publication: 2006-02-08
<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

Project Location

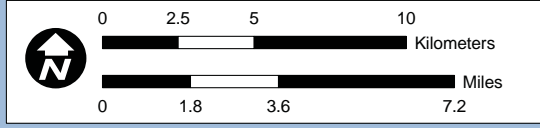
NRCS HYDROLOGIC SOILS GROUPS

ORANGE COUNTY INFILTRATION STUDY

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

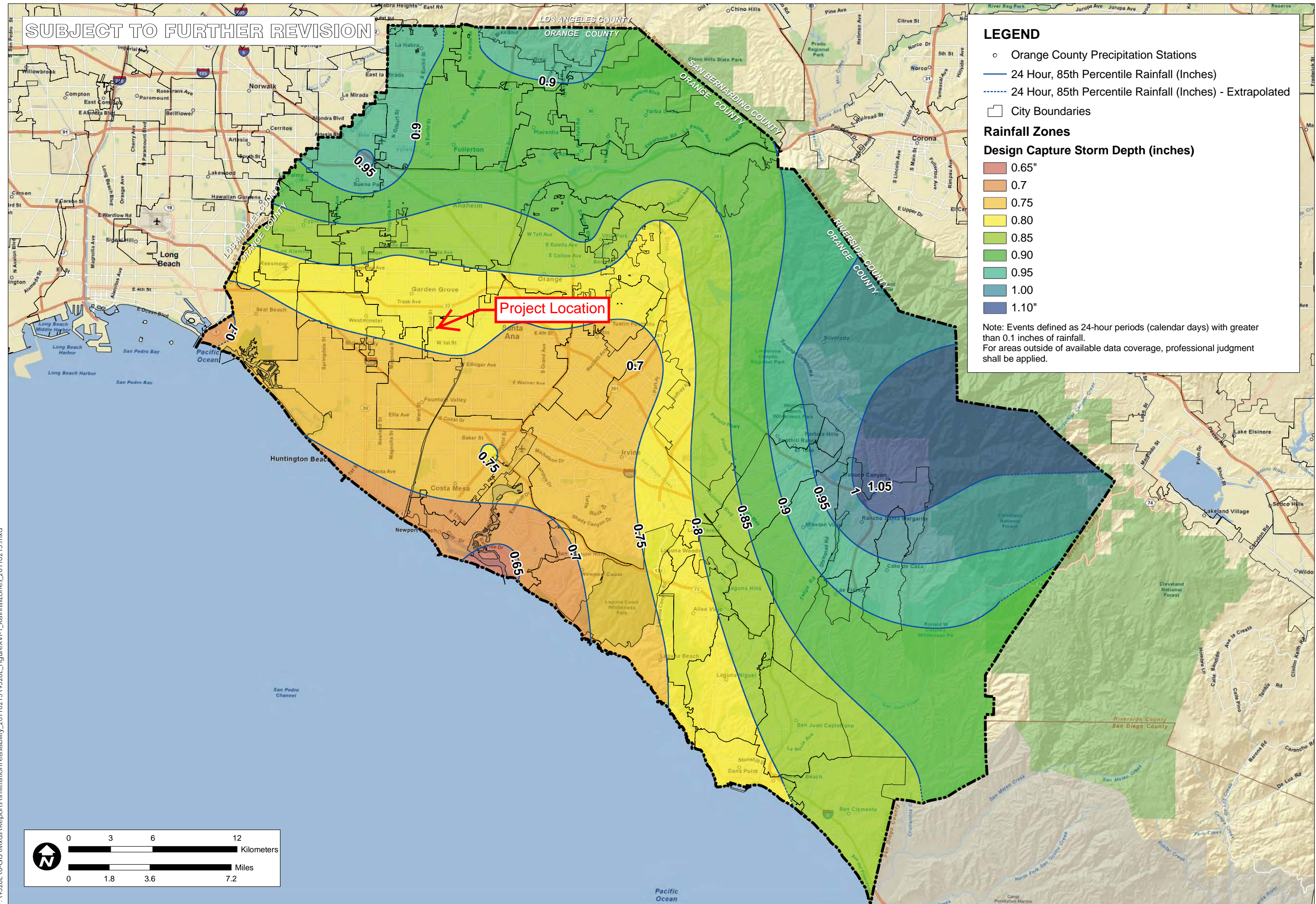


FIGURE XVI-2a



P:\9526E\6-GIS\Mxds\Reports\Infiltration\Feasibility_20110215\9526E_FigureXVI-2a_HydroSoils_20110215.mxd

SUBJECT TO FURTHER REVISION



LEGEND

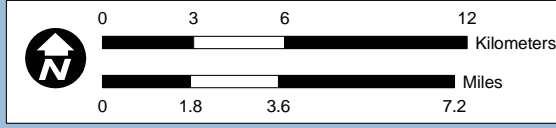
- Orange County Precipitation Stations
- 24 Hour, 85th Percentile Rainfall (Inches)
- - - 24 Hour, 85th Percentile Rainfall (Inches) - Extrapolated
- City Boundaries

Rainfall Zones

Design Capture Storm Depth (inches)

- 0.65"
- 0.7
- 0.75
- 0.80
- 0.85
- 0.90
- 0.95
- 1.00
- 1.10"

Note: Events defined as 24-hour periods (calendar days) with greater than 0.1 inches of rainfall.
For areas outside of available data coverage, professional judgment shall be applied.



ORANGE COUNTY TECHNICAL GUIDANCE DOCUMENT
RAINFALL ZONES

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E

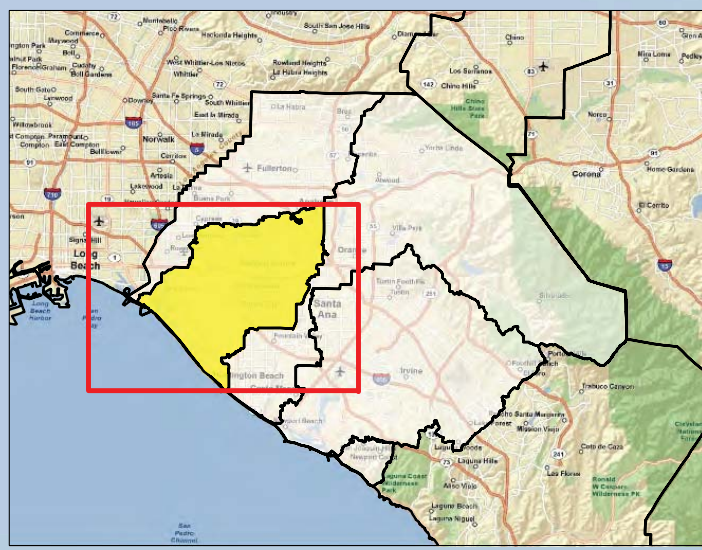
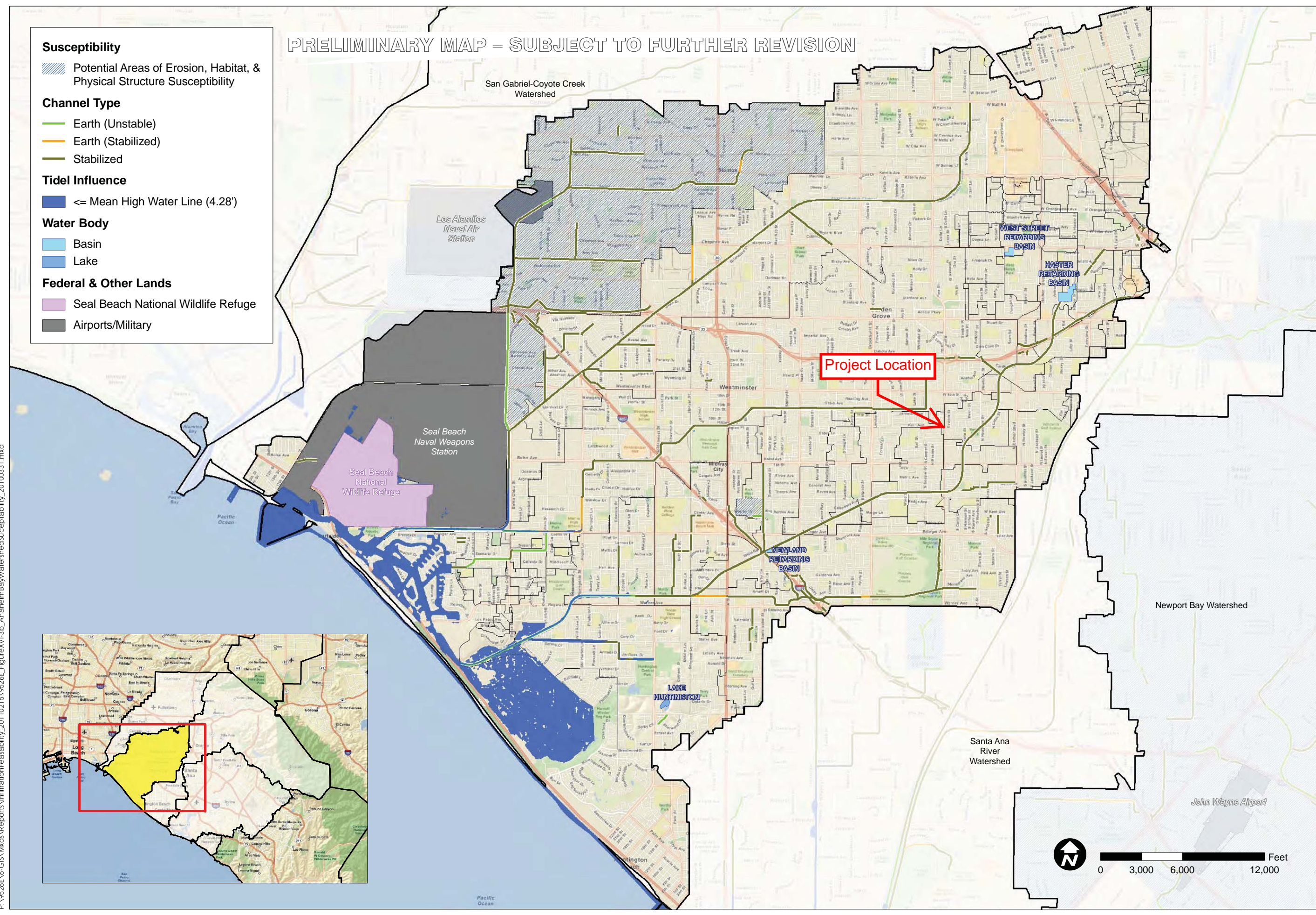


FIGURE
XVI-1

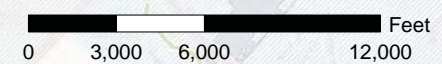
P:\9526E\6-GIS\Mxds\Reports\Infiltration\Feasibility_20110215\9526E_FigureXVI-1_RainfallZones_20110215.mxd

PRELIMINARY MAP - SUBJECT TO FURTHER REVISION

- Susceptibility**
- Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility
- Channel Type**
- Earth (Unstable)
 - Earth (Stabilized)
 - Stabilized
- Tidel Influence**
- <= Mean High Water Line (4.28')
- Water Body**
- Basin
 - Lake
- Federal & Other Lands**
- Seal Beach National Wildlife Refuge
 - Airports/Military



Project Location



SUSCEPTIBILITY ANALYSIS
ANAHEIM BAY-
HUNTINGTON HARBOR

ORANGE COUNTY
WATERSHED
MASTER PLANNING

SCALE 1" = 3000'

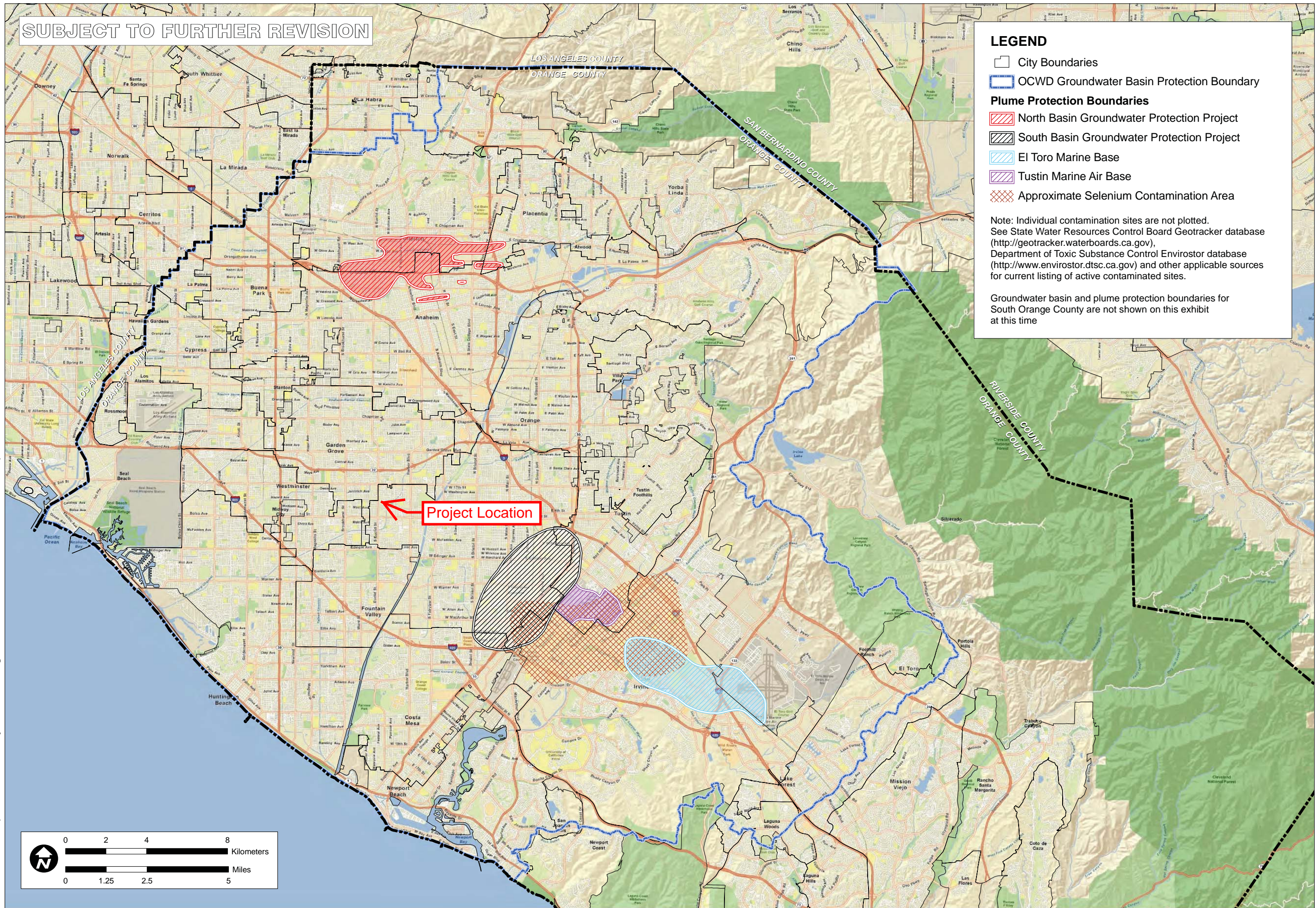
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E



FIGURE
XVI-3b

P:\9526E\6-GIS\Mxd's\Reports\Infiltration\Feasibility_20110215\9526E_FigureXVI-3b_AnahemBayWatershedSusceptibility_20100331.mxd

SUBJECT TO FURTHER REVISION

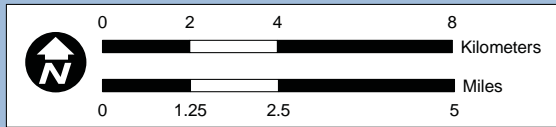


LEGEND

- City Boundaries
- OCWD Groundwater Basin Protection Boundary
- Plume Protection Boundaries**
- North Basin Groundwater Protection Project
- South Basin Groundwater Protection Project
- El Toro Marine Base
- Tustin Marine Air Base
- Approximate Selenium Contamination Area

Note: Individual contamination sites are not plotted. See State Water Resources Control Board Geotracker database (<http://geotracker.waterboards.ca.gov>), Department of Toxic Substance Control Envirostor database (<http://www.envirostor.dtsc.ca.gov>) and other applicable sources for current listing of active contaminated sites.

Groundwater basin and plume protection boundaries for South Orange County are not shown on this exhibit at this time



TITLE
NORTH ORANGE COUNTY
GROUNDWATER PROTECTION
AREAS

JOB
ORANGE COUNTY
INFILTRATION STUDY
ORANGE CO. CA

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/22/10
JOB NO.	9526-E



FIGURE
XVI-2f

P:\9526E\6-GIS\Mxds\Reports\Infiltration\Feasibility_20110215\9526E_FigureXVI-2f_NorthOCGroundwaterProtectionAreasStreetMap_20110215.mxd

SUBJECT TO FURTHER REVISION

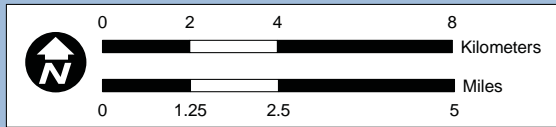
LEGEND

- Depth To First Groundwater Contours
- City Boundaries
- ▭ OCWD Groundwater Basin Protection Boundary

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

Project Location



NORTH ORANGE COUNTY
MAPPED DEPTH TO FIRST
GROUNDWATER

ORANGE COUNTY
INFILTRATION STUDY

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E



FIGURE
XVI-2d

P:\9526E\6-GIS\Mkds\Reports\Infiltration\Feasibility_20110215\9526E_FigureXVI-2d_DepthToGroundwaterOverview_20110215.mxd

Attachment G: Calculations & Worksheets

Worksheet I: Summary of Groundwater-related Feasibility Criteria

1	Is project large or small? (as defined by Table VIII.2) circle one	Large	Small	
2	What is the tributary area to the BMP?	A	0.64	acres
3	What type of BMP is proposed?			
4	What is the infiltrating surface area of the proposed BMP?	A _{BMP}	0	sq-ft
5	What land use activities are present in the tributary area (list all) fueling station, parking			
6	What land use-based risk category is applicable?	L	M	H
7	If M or H, what pretreatment and source isolation BMPs have been considered and are proposed (describe all): Not applicable. See field #18 below for infiltration in-feasibility due to fueling station.			
8	What minimum separation to mounded seasonally high groundwater applies to the proposed BMP? See Section VIII.2 (circle one)	5 ft	10 ft	
9	Provide rationale for selection of applicable minimum separation to seasonally high mounded groundwater: Not applicable. See field #18 below for infiltration in-feasibility due to fueling station.			
10	What is separation from the infiltrating surface to seasonally high groundwater?	SHGWT	0	ft
11	What is separation from the infiltrating surface to mounded seasonally high groundwater?	Mounded SHGWT	0	ft
12	Describe assumptions and methods used for mounding analysis:			

Worksheet I: Summary of Groundwater-related Feasibility Criteria

13	Is the site within a plume protection boundary (See Figure VIII.2)?	Y	N	<input type="radio"/> N/A
14	Is the site within a selenium source area or other natural plume area (See Figure VIII.2)?	Y	N	<input type="radio"/> N/A
15	Is the site within 250 feet of a contaminated site?	Y	N	<input type="radio"/> N/A
16	If site-specific study has been prepared, provide citation and briefly summarize relevant findings:			
17	Is the site within 100 feet of a water supply well, spring, septic system?	Y	<input type="radio"/> N	<input type="radio"/> N/A
18	Is infiltration feasible on the site relative to groundwater-related criteria?	Y	<input type="radio"/> N	
<p>Provide rationale for feasibility determination:</p> <p>Infiltration BMPs are not feasible at the project site. According to Table VIII.1 of the Technical Guidance Document, infiltration is prohibited under all conditions at a fueling station.</p>				

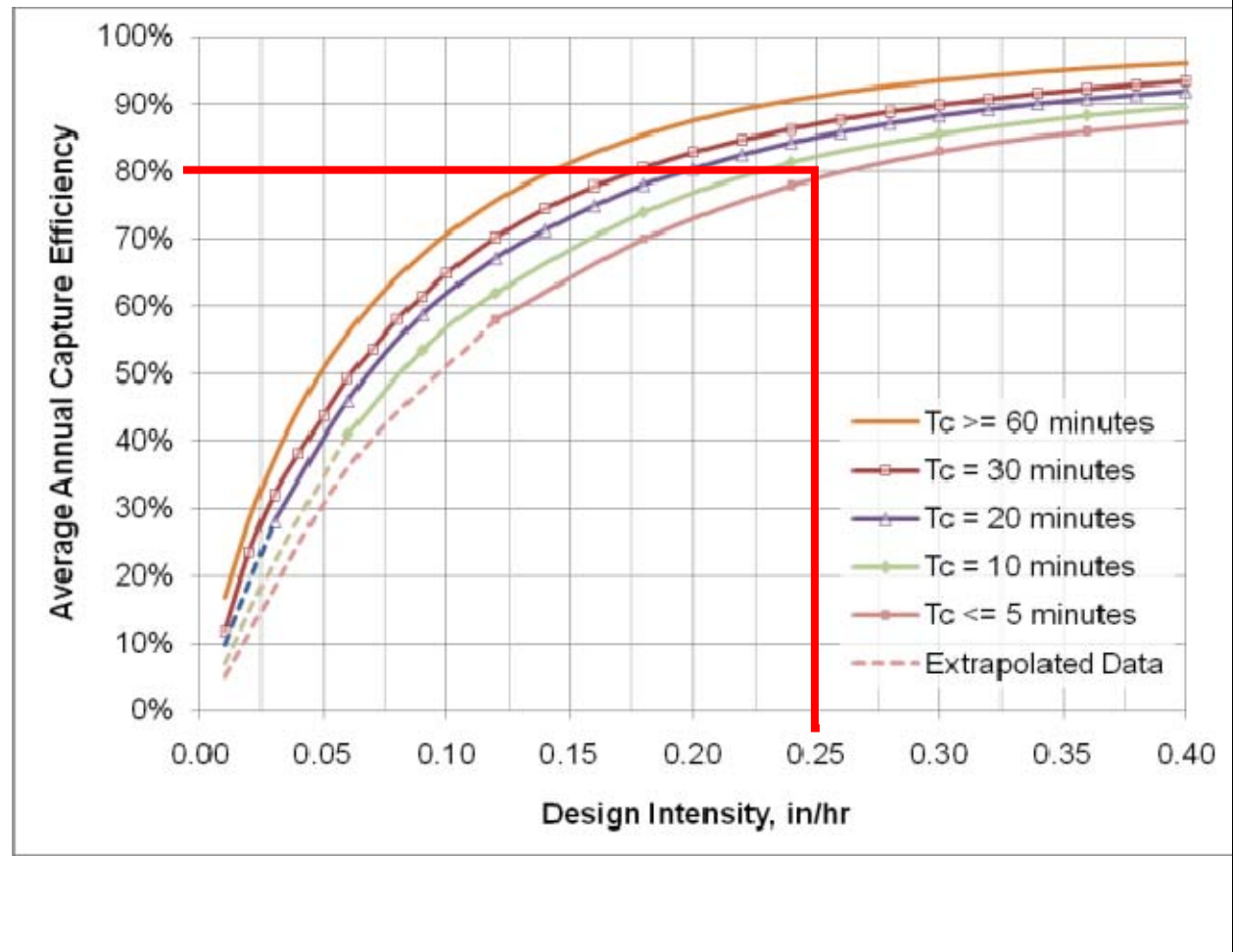
Note: if a single criterion or group of criteria would render infiltration infeasible, it is not necessary to evaluate every question in this worksheet.

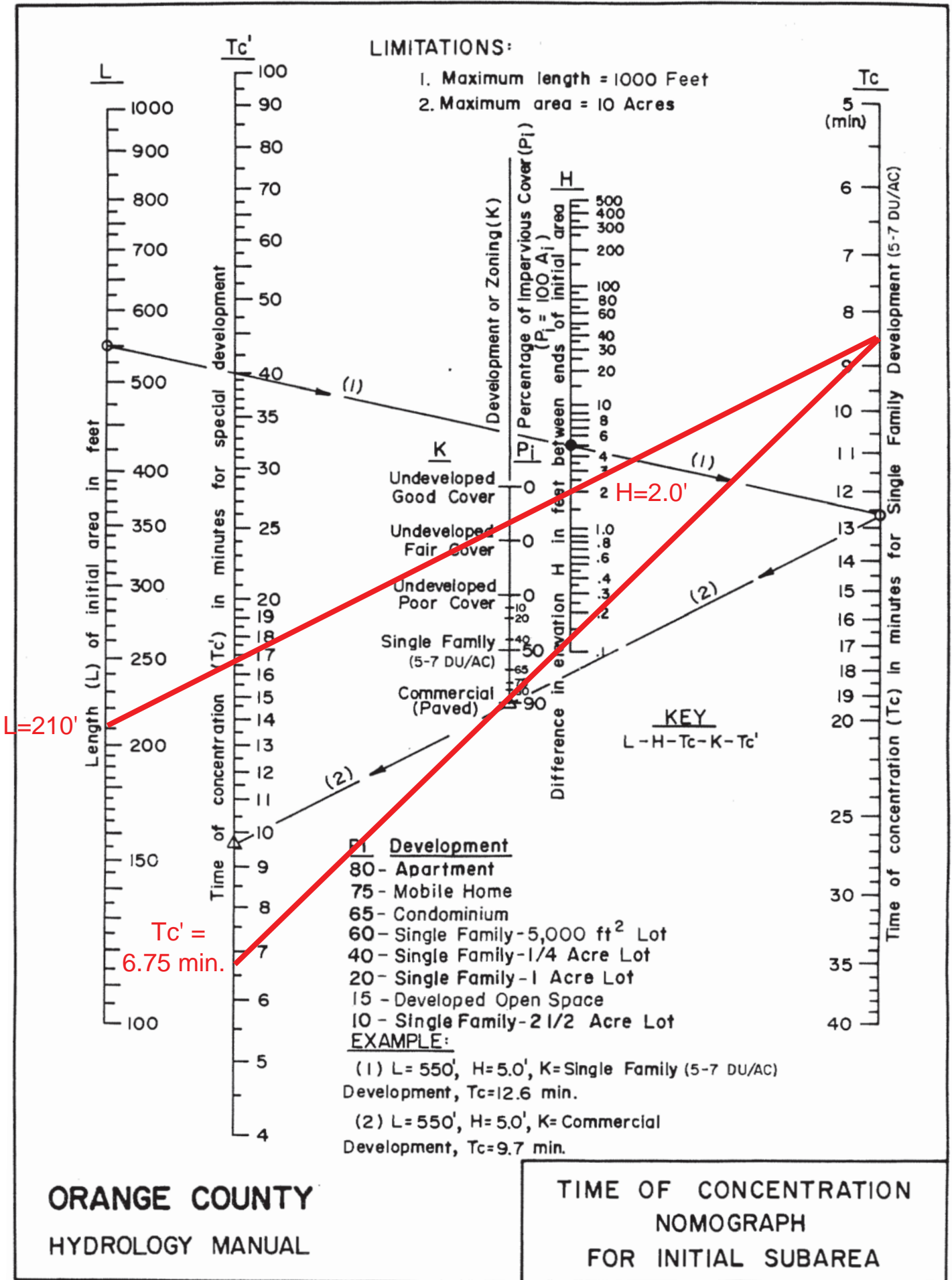
Worksheet J: Summary of Harvested Water Demand and Feasibility

1	What demands for harvested water exist in the tributary area (check all that apply):		
2	Toilet and urinal flushing		X
3	Landscape irrigation		X
4	Other: _____		<input type="checkbox"/>
5	What is the design capture storm depth? (Figure III.1)	d	0.8 inches
6	What is the project size?	A	0.64 ac
7	What is the acreage of impervious area?	IA	0.50 ac
For projects with multiple types of demand (toilet flushing, irrigation demand, and/or other demand)			
8	What is the minimum use required for partial capture? (Table X.6)		332 gpd
9	What is the project estimated wet season total daily use (Section X.2)?		75 gpd
10	Is partial capture potentially feasible? (Line 9 > Line 8?)		NO
For projects with only toilet flushing demand			
11	What is the minimum TUTIA for partial capture? (Table X.7)		165
12	What is the project estimated TUTIA?		75
13	Is partial capture potentially feasible? (Line 12 > Line 11?)		NO
For projects with only irrigation demand			
14	What is the minimum irrigation area required based on conservation landscape design? (Table X.8)		0.95 ac
15	What is the proposed project irrigated area? (multiply conservation landscaping by 1; multiply active turf by 2)		0.14 ac
16	Is partial capture potentially feasible? (Line 15 > Line 14?)		NO
Provide supporting assumptions and citations for controlling demand calculation:			

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See Appendix IV.2)	$T_c =$	6.75	
2	Using Figure III.4, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	$I_1 =$	0.25	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (Worksheet A)	$d_{HSC} =$	0	inches
4	Enter capture efficiency corresponding to d_{HSC} , Y_2 (Worksheet A)	$Y_2 =$	0	%
5	Using Figure III.4, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency (Y_2), I_2	$I_2 =$	0	
6	Determine the design intensity that must be provided by BMP, $I_{design} = I_1 - I_2$	$I_{design} =$	0.25	
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), A (acres)	$A =$	0.64	acres
2	Enter Project Imperviousness, imp (unitless)	$imp =$	0.782	
3	Calculate runoff coefficient, $C = (0.75 \times imp) + 0.15$	$C =$	0.74	
4	Calculate design flowrate, $Q_{design} = (C \times I_{design} \times A)$	$Q_{design} =$	0.1184	cfs
Supporting Calculations				
Describe system:				
The proposed project will use a 6'x10' Filterra unit which is capable of treating 0.1389 cfs.				
Provide time of concentration assumptions:				
Figure D-1 of the Orange County Hydrology Manual was used to determine the site's time of concentration. The project specific nomograph can be found on the following page.				

Graphical Operations






Attachment H: BMP Fact Sheets

BIO-7: Proprietary Biotreatment

Proprietary biotreatment devices are devices that are manufactured to mimic natural systems such as bioretention areas by incorporating plants, soil, and microbes engineered to provide treatment at higher flow rates or volumes and with smaller footprints than their natural counterparts. Incoming flows are typically filtered through a planting media (mulch, compost, soil, plants, microbes, etc.) and either infiltrated or collected by an underdrain and delivered to the storm water conveyance system. Tree box filters are an increasingly common type of proprietary biotreatment device that are installed at curb level and filled with a bioretention type soil. For low to moderate flows they operate similarly to bioretention systems and are bypassed during high flows. Tree box filters are highly adaptable solutions that can be used in all types of development and in all types of soils but are especially applicable to dense urban parking lots, street, and roadways.

<p style="text-align: center; margin: 0;"><i>Also known as:</i></p> <ul style="list-style-type: none"> ➤ <i>Catch basin planter box</i> ➤ <i>Bioretention vault</i> ➤ <i>Tree box filter</i>

<p>Proprietary biotreatment <i>Source:</i> http://www.americastusa.com/index.php/filterra/</p>

Feasibility Screening Considerations

- Proprietary biotreatment devices that are unlined may cause incidental infiltration. Therefore, an evaluation of site conditions should be conducted to evaluate whether the BMP should include an impermeable liner to avoid infiltration into the subsurface.

Opportunity Criteria

- Drainage areas of 0.25 to 1.0 acres.
- Land use may include commercial, residential, mixed use, institutional, and subdivisions. Proprietary biotreatment facilities may also be applied in parking lot islands, traffic circles, road shoulders, and road medians.
- Must not adversely affect the level of flood protection provided by the drainage system.

OC-Specific Design Criteria and Considerations

- Frequent maintenance and the use of screens and grates to keep trash out may decrease the likelihood of clogging and prevent obstruction and bypass of incoming flows.
- Consult proprietors for specific criteria concerning the design and performance.
- Proprietary biotreatment may include specific media to address pollutants of concern. However, for proprietary device to be considered a biotreatment device the media must be capable of supporting rigorous growth of vegetation.
- Proprietary systems must be acceptable to the reviewing agency. Reviewing agencies shall have the discretion to request performance information. Reviewing agencies shall have the discretion to deny the use of a proprietary BMP on the grounds of performance, maintenance considerations, or other relevant factors.

- In right of way areas, plant selection should not impair traffic lines of site. Local jurisdictions may also limit plant selection in keeping with landscaping themes.

Computing Sizing Criteria for Proprietary Biotreatment Device

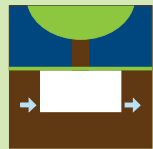
- Proprietary biotreatment devices can be volume based or flow-based BMPs.
- Volume-based proprietary devices should be sized using the Simple Design Capture Volume Sizing Method described in [Appendix III.3.1](#) or the Capture Efficiency Method for Volume-Based, Constant Drawdown BMPs described in [Appendix III.3.2](#).
- The required design flowrate for flow-based proprietary devices should be computed using the Capture Efficiency Method for Flow-based BMPs described in [Appendix III.3.3](#).

Additional References for Design Guidance

- Los Angeles Unified School District (LAUSD) Stormwater Technical Manual, Chapter 4:
http://www.laschools.org/employee/design/fs-studies-and-reports/download/white_paper_report_material/Storm_Water_Technical_Manual_2009-opt-red.pdf?version_id=76975850
- Los Angeles County Stormwater BMP Design and Maintenance Manual, Chapter 9:
http://dpw.lacounty.gov/DES/design_manuals/StormwaterBMPDesignandMaintenance.pdf
- Santa Barbara BMP Guidance Manual, Chapter 6:
http://www.santabarbaraca.gov/NR/rdonlyres/91D1FA75-C185-491E-A882-49EE17789DF8/0/Manual_071008_Final.pdf



Filterra[®] Bioretention System



Solutions
Guide

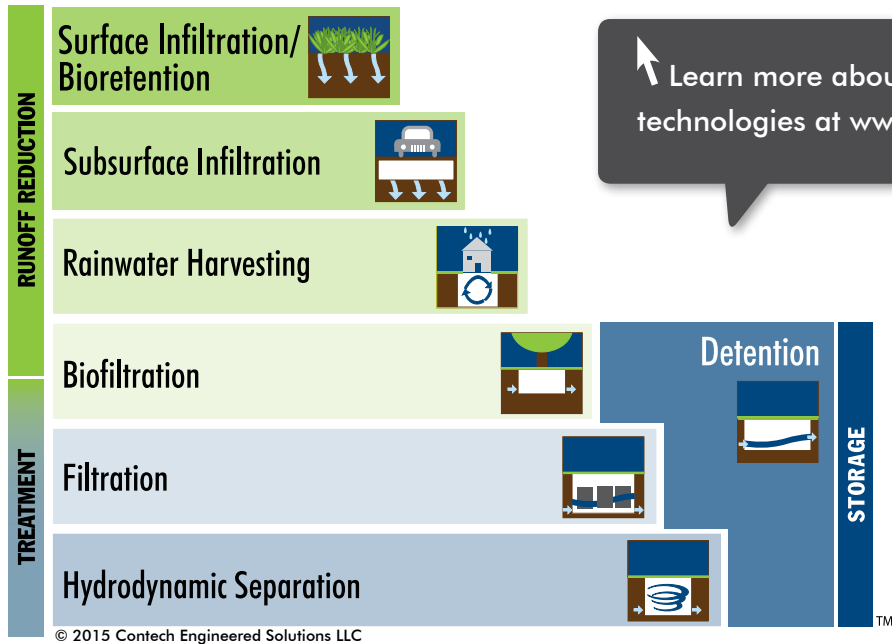


Stormwater Solutions from Contech



Selecting the Right Stormwater Solution Just Got Easier...

It's simple to choose the right stormwater solution to achieve your goals with the Contech Stormwater Solutions Staircase. First, select the runoff reduction practices that are most appropriate for your site, paying particular attention to pretreatment needs. If the entire design storm cannot be retained, select a treatment best management practice (BMP) for the balance. Finally, select a detention system to address any outstanding downstream erosion.



Learn more about all of our stormwater technologies at www.ContechES.com/stormwater

Low Impact Development Site Planner

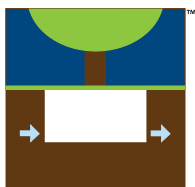
The Low Impact Development (LID) Site Planner is a free, web-based tool intended to guide you in preliminary selection of the most effective and likely to be approved stormwater control measures that are technically feasible given known site constraints. To utilize this tool, visit www.conteches.com/lidsiteplanner

Benefits of the tool include:

- A fast, easy-to-use tool that follows a Low Impact Development design approach consistent with regulations that prioritize Green Infrastructure.
- Helps minimize the cost and delay of redesigns by prompting users to consider a wide range of common site constraints early in the design process.
- Captures specific site conditions precluding the use of infeasible BMPs.
- Allows flexibility to select flow through treatment controls where runoff reduction is not feasible.
- Provides a summary report with links to design guides, standard details, and specifications for stormwater management approaches that are likely to be feasible and approved on the project.



Bioretention as a Stormwater Management Strategy



Filtration and Biological Treatment in One System

Stormwater management regulations such as Low Impact Development (LID) and Green Infrastructure (GI) have proliferated throughout the United States.

Implementing LID and GI in urban environments is challenging, as they often require a large footprint. That doesn't mean LID/GI is not possible, it just means the solution may take a more engineered form. Contech has addressed this need by developing a unique solution – the Filterra Bioretention System.

What is Filterra?

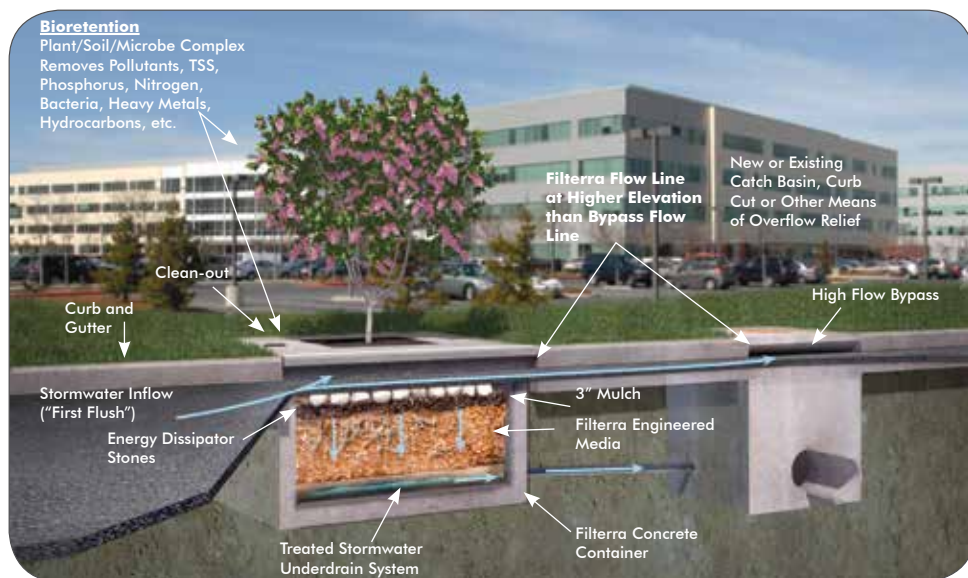
Filterra is an engineered biofiltration device with components that make it similar to bioretention in pollutant removal and application, but has been optimized for high volume/flow treatment in a compact system. Its small footprint allows Filterra to be used on highly developed sites such as commercial parking lots, residential streets, parking lots, and urban streetscapes. Filterra is adaptable and can be used alone or in combination with perforated pipes or chambers to optimize runoff reduction.



How The Standard Offline Filterra Systems Works

Stormwater runoff enters the Standard Offline Filterra system through a curb-inlet opening and flows through a specially designed filter media mixture contained in a landscaped modular container. The biofiltration media captures and immobilizes pollutants; some of these pollutants are then decomposed, volatilized and incorporated into the biomass of the Filterra system's micro/macro fauna and flora. Stormwater runoff flows through the media and into an underdrain system at the bottom of the container, where the treated water is discharged. The Standard Offline Filterra system utilizes a downstream catch basin or curb inlet for bypass flows allowing for the shallowest profile and most flexible design of any of the Filterra configurations.

In areas where runoff reduction and infiltration are mandated or desirable, Filterra can be paired with other Contech products such as ChamberMaxx or an Urban Green Rainwater Harvesting system to provide even greater alignment with LID/GI goals.



Learn more at www.ContechES.com/filterra



Filterra® Features & Benefits

- **Regulatory Compliance** – Multiple third-party field tests confirmed Filterra meets regulatory requirements for pollutant removal under TAPE, TARP, and NJCAT testing.
- **Value** – Filterra offers a cost effective stormwater treatment system featuring easy installation and simple maintenance.
- **Aesthetics** – Landscaping enhances the appearance of your site making it more attractive while removing pollutants.
- **Flexible** – Multiple sizes and a variety of configurations available to meet site-specific needs.
- **Versatile** – Filterra is ideal for both new construction and urban retrofits, as well as:
 - » Streetscapes
 - » Urban settings
 - » Parking lots
 - » Roof drains
 - » Roadways
 - » Residential subdivisions
- **Easy Installation** – Delivered on-site, ready to lift and place.
- **Activation** – Performed by Contech-certified providers to ensure effective performance from the start.
- **Maintenance** – Simple and safe (no confined space access), and the first year of maintenance is included with the purchase of every system.



Third-party field testing confirmed Filterra meets regulatory requirements for pollutant removal under nationally recognized TAPE, TARP, and NJCAT testing protocols.

Additional Filterra® Configurations

Filterra is offered in multiple configurations to meet site specific needs. These additional configurations make Filterra a versatile yet effective stormwater BMP with a low life-cycle cost.

Filterra Internal Bypass – Curb

The Filterra Internal Bypass – Curb incorporates a curb inlet treatment chamber and internal high flow bypass in a single structure. This eliminates the need for a separate bypass structure and enables placement on grade or in a “sag” or “sump” condition.

Filterra Internal Bypass – Pipe

The Filterra Internal Bypass – Pipe treats stormwater runoff from rooftops or other sub-grade sources such as area drains. Higher flows bypass the biofiltration treatment system via an overflow/bypass pipe.

Filterra Street Tree

The Filterra Street Tree accommodates trees larger than the standard small-medium-sized trees used in standard Filterra units. These larger trees can provide benefits to site landscape designs on canopy cover, tree count, or percentage of green area.

Filterra Sedimentation Chamber

The Filterra Sedimentation Chamber includes a pre-treatment chamber that provides settling for debris and sediment, meeting water quality volume temporary hold requirements in some jurisdictions.

Filterra Bioscape®

The Filterra Bioscape system available with or without the concrete vault provides an option for larger drainage areas where standard Filterra is not feasible. Contech provides activation and maintenance services to ensure quality and ease of Filterra component placement.



Filterra[®] Media — Proven Pollutant Removal

At the heart of the Filterra system is Filterra engineered biofiltration media; a specified gradation of washed aggregate and organic material homogeneously blended under strict quality controlled conditions. Using data from independent, third-party studies including the University of Virginia (TARP), Herrera Environmental Consultants (TAPE), Terraphase Engineering (NJCAT), North Carolina State University (TAPE & TARP) and Geosyntec Consultants, the filter media has been optimized to operate under high flow rates while maintaining pollutant removal performance. Filterra media is tested for hydraulic functionality, fertility, and particle size distribution to ensure uniform performance.

Filterra media also supports a vegetation component consisting of grasses, shrubs, or trees that assist with the adsorption of pollutants through biological uptake/storage and pollutant consumption by microbes within the plant root zone.

MEASURED POLLUTANT REMOVAL PERFORMANCE			
Pollutant	Median Removal Efficiency	Median Effluent Concentration (mg/L)	Third Party Reference Studies
Total Suspended Solids	86%	3.3	UVA 2006, Herrera 2009, Herrera 2014, NC State 2015
Total Phosphorus (TAPE)	70%	0.05	Herrera 2014, NC State 2015
Total Nitrogen	34%	0.54	NC State 2015
Total Copper	55%	0.004	UVA 2006, Herrera 2009
Dissolved Copper	43%	0.003	Herrera 2009
Total Zinc	56%	0.04	UVA 2006, Herrera 2009, NC State 2015
Dissolved Zinc	54%	0.1	Herrera 2009
Total Petroleum Hydrocarbons	87%	0.71	Herrera 2009

Information above is based on results from third party field studies following industry recognized protocols such as TAPE and TARP. Relevant studies are noted for each pollutant, and corresponding data was aggregated to provide realistic and repeatable performance expectations.

Some jurisdictions recognize higher removal rates - see your Contech Stormwater Consultant for performance expectations.



Filterra media has been **optimized** to operate under high flow rates while maintaining pollutant removal performance.

Filterra® – Regulatory Approvals

Based on more than 20 years of research and development, testing and field monitoring, Filterra's performance has been recognized by some of the nation's most significant regulatory agencies, including the states of Washington, Virginia, Maryland and New Jersey, the District of Columbia, the Texas Commission on Environmental Quality and the Atlanta (GA) Regional Commission, and the City of Portland (OR). Highlights regarding these approvals include:

- Granted ESD (Environmental Site Design) status by the state of Maryland Department of the Environment (MDE).
- GULD-approved for ALL pollutants of concern with the state of Washington Department of Ecology (WA-Ecology) with (2) TAPE field tests.
- Multiple third-party nationally recognized field/lab tests completed: (1) TARP, (2) TAPE, (1) NJCAT and (1) NC-DENR.



Filterra® – In the Field

We make it easy! The Filterra system is delivered to the job site with all components except vegetation and mulch.

Filterra – Installation

- Contractor off-loads top and vault separately.
- Set vault to grade on 6" compacted stone, install piping, backfill, set top.
- Leave protective throat plate and tree grate covers in place.

Filterra – Activation

- Contractor completes and returns Activation Checklist paperwork.
- Vegetation selection guidance based on your climate zone.
- Contech-certified providers conduct on-site activation with installation of mulch and plant vegetation.

Filterra – Maintenance

- The first year of maintenance is included with every system.
- Maintenance is low-cost, low-tech and simple:
 - » Remove trash, sediment, and mulch.
 - » Replace with a fresh 3" layer of mulch.
 - » Can be completed by landscape contractor.
 - » No confined space entry.



The **first year of maintenance** is included with the purchase of every Filterra system.

Learn more at www.ContechES.com/filterra



Next Steps

Dig Deeper

Find all the information you need at www.ContechES.com, including field and laboratory test results, approvals, brochures, design guides, standard details and specifications within the product section of our site.

Connect with Us

We're here to make your job easier – and that includes being able to get in touch with us when you need to. www.ContechES.com/localresources.

While you're there, be sure to check out our upcoming seminar schedule or request an in-house technical presentation.

Start a Project

If you are ready to begin a project, contact your local representative to get started. Or you can check out our design toolbox for all our online resources at www.ContechES.com/startaproject.

Links to Stormwater Design Tools:

To use the Land Value Calculator, visit: www.ContechES.com/lvc

To use the Design Your Own Detention System tool, visit: www.ContechES.com/dyods

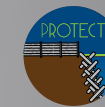
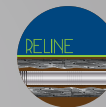
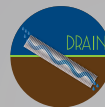
To use the Design Your Own Hydrodynamic Separator tool, visit: www.ContechES.com/dyohds

To use the Rainwater Harvesting Runoff Reduction Calculator tool, visit: www.ContechES.com/rwh-calculator

To use the Low Impact Development Site Planner tool, visit: www.ContechES.com/lidsiteplanner



COMPLETE SITE SOLUTIONS



STORMWATER SOLUTIONS

Helping to satisfy stormwater management requirements on land development projects

- Stormwater Treatment
- Detention/Infiltration
- Rainwater Harvesting
- Biofiltration/Bioretenion

PIPE SOLUTIONS

Meeting project needs for durability, hydraulics, corrosion resistance, and stiffness

- Corrugated Metal Pipe (CMP)
- Steel Reinforced Polyethylene (SRPE)
- High Density Polyethylene (HDPE)
- Polyvinyl Chloride (PVC)

STRUCTURES SOLUTIONS

Providing innovative options and support for crossings, culverts, and bridges

- Plate, Precast & Truss bridges
- Hard Armor
- Retaining Walls
- Tunnel Liner Plate

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Filtrerra Brochure 3M 11/16



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FSC

Key Features of High Performance Biofiltration

High Performance Biofiltration complements the increasing focus on Low Impact Development (LID). Compact and sustainable high performance biofiltration systems provide value in land savings as well as easy installation and maintenance.

How do you ensure the LID solution you specify will live up to expectations?

QUALITIES OF HIGH PERFORMANCE BIOFILTRATION

- **High Pollutant Removal** – Acceptable removals of all major stormwater pollutants, including TSS, phosphorus, and metals should be verified through multiple, third party field tests meeting nationally recognized protocol requirements.
- **Active Biological Processes** – Ecosystems facilitated by plants and organics are essential for replenishment of the media's adsorption capacity and to long term pollutant removal including phosphorus, nitrogen, and metals.
- **High Biofiltration Media Flow Rate** – High flow rates allow for reduced footprint, ideal for accomplishing LID goals in urban environments.
- **Proven Longevity** – Biofiltration systems are designed to function long-term without the need for media replacement. Third party testing should be conducted on installed systems of varying ages to prove performance over time.
- **Easy Routine Maintenance** – Proper design should allow for maintenance intervals no more than twice per year and at minimal cost.



QUESTIONS ENGINEERS SHOULD ASK REGARDING MANUFACTURED BIOFILTRATION BMP'S

- Can the manufacturer provide third party verified pollutant removal testing AND long-term performance testing?
- Are plants and organic materials incorporated into the design to facilitate biological processes necessary for media longevity?
- How many components must be maintained and at what frequency to ensure proper system functionality?

Key Features of High Performance Biofiltration

WHY ARE PLANTS AND ORGANIC MATERIAL IMPORTANT IN BIOFILTRATION SYSTEMS?

Biofiltration media remains in operation for the life of the system. Plants and organics facilitate a sustainable biological cycle within the Filterra system. This biological cycle is essential for regenerating the system's hydraulic function and pollutant removal capacity through decomposition, degradation and uptake of captured pollutants. Biofiltration systems lacking a sustainable biological cycle will suffer from reduced pollutant removal performance and increased maintenance frequency over time.

1 Organic Mulch Layer

- Filters heavy sediment to protect media from excessive loading and scour.
- Organic molecules and microorganisms within the mulch help to trap and degrade metals and hydrocarbons.
- Provides water retention for plants.
- Decomposes to replenish system organics as they are consumed within the media.

2 Filterra Media

- Filters fine pollutants and nutrients.
- Organics remove dissolved metals through cation exchange.
- Organics serve as food source for root-zone microorganisms.

3 Root-Zone Microorganisms

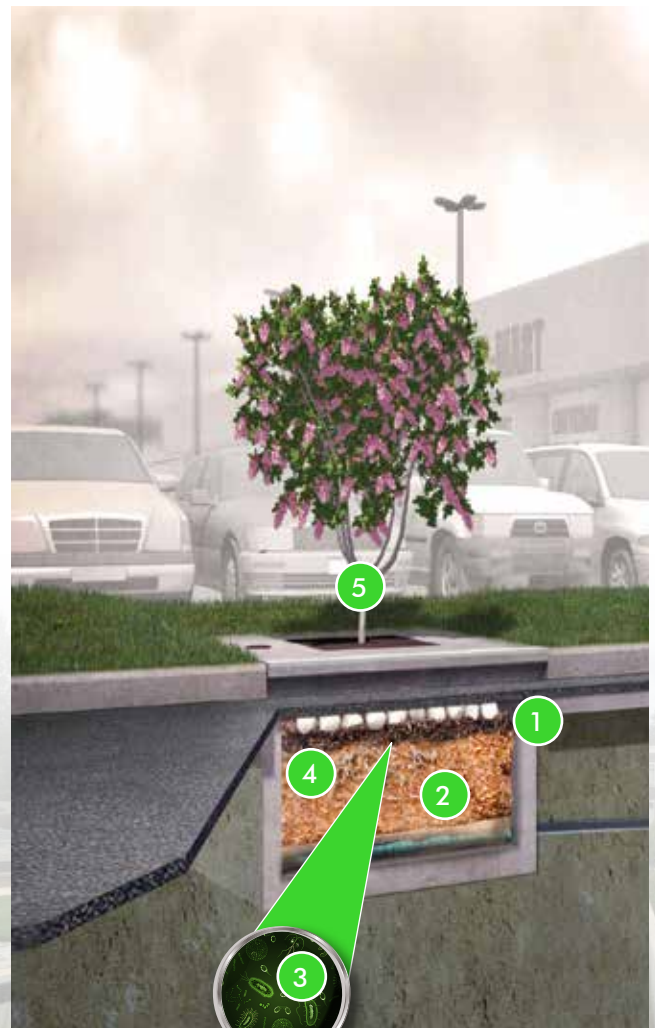
- Facilitate regeneration of media pollutant removal capacity.
- Digest and transform organics, organic pollutants and inorganic nutrients into forms easily absorbed by plants.

4 Plant Roots

- Absorb stormwater and pollutants transformed by microorganisms, regenerating media pollutant removal capacity.
- Provide hospitable environment for root-zone microorganisms.
- Penetrate media to ensure long term hydraulic performance.

5 Plant Mass

- Utilizes nutrients including N and P for plant health.
- Integrates heavy metals into biomass.
- Provides evapotranspiration of water within the system.





Filterra Sizing Spreadsheet
Uniform Intensity Approach
Storm Intensity = 0.20 in/hr

Filterra Infiltration Rate = 100 (in/hr)
 Filterra Flow per Square Foot = 0.0023 (ft3/sec/ft2)

Filterra Flow Rate, Q = 0.0023 ft3/sec x Filterra Surface Area
 Rational Method, Q = C x I x A

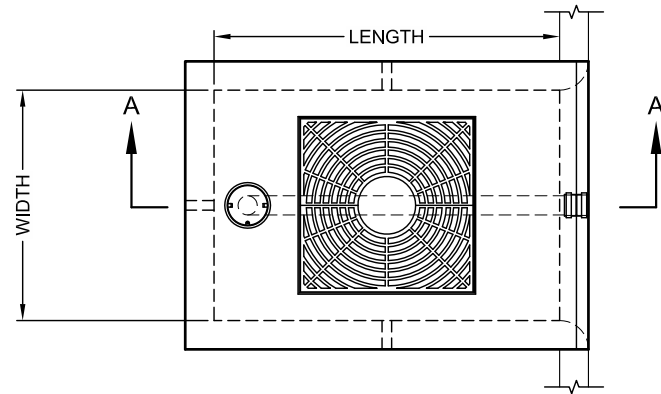
OR Site Flowrate, Q = (C x DI x DA x 43560) / (12 x 3600)
 DA = (12 x 3600 x Q) / (C x 43560 x DI)

where Q = Flow (ft3/sec)
 DA = Drainage Area (acres)
 DI = Design Intensity (in/hr)
 C = Runoff coefficient (dimensionless)

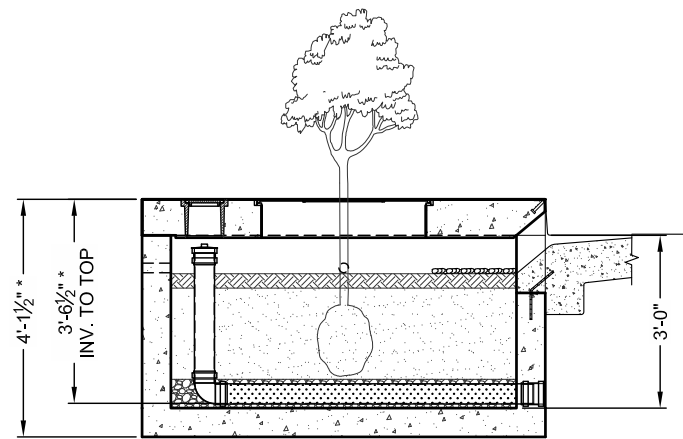
			DI 0.2	C 1.00	C 0.85	C 0.50
Available Filterra Box Sizes			Filterra Flow Rate, Q (ft3/sec)	100% Imperv. DA (acres)	Commercial max DA (acres)	Residential max DA (acres)
L (ft)	W (ft)	Filterra Surface Area (ft2)				
4	4	16	0.0370	0.184	0.216	0.367
6	4	24	0.0556	0.275	0.324	0.551
6.5	4	26	0.0602	0.298	0.351	0.597
8	4	32	0.0741	0.367	0.432	0.735
12	4	48	0.1111	0.551	0.648	1.102
6	6	36	0.0833	0.413	0.486	0.826
8	6	48	0.1111	0.551	0.648	1.102
10	6	60	0.1389	0.689	0.810	1.377
12	6	72	0.1667	0.826	0.972	1.653
13	7	91	0.2106	1.045	1.229	2.089

Area A

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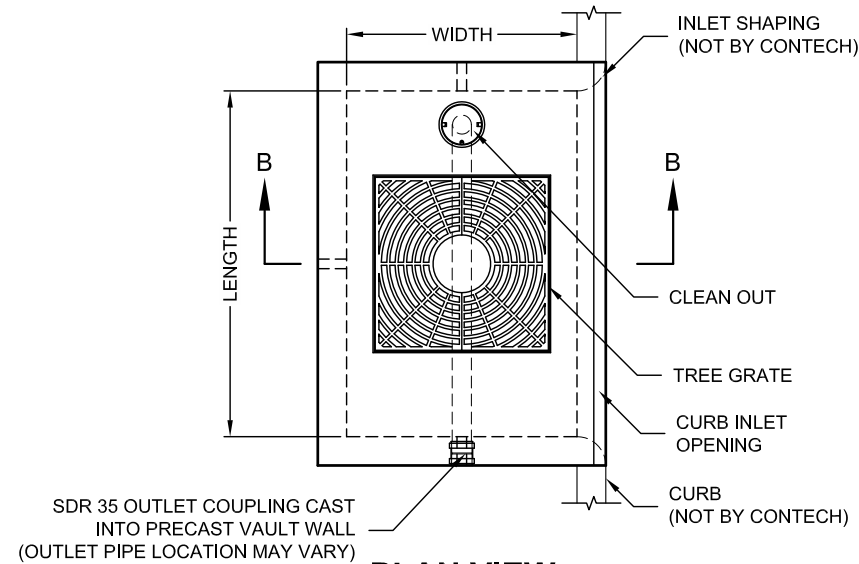
PLAN VIEW



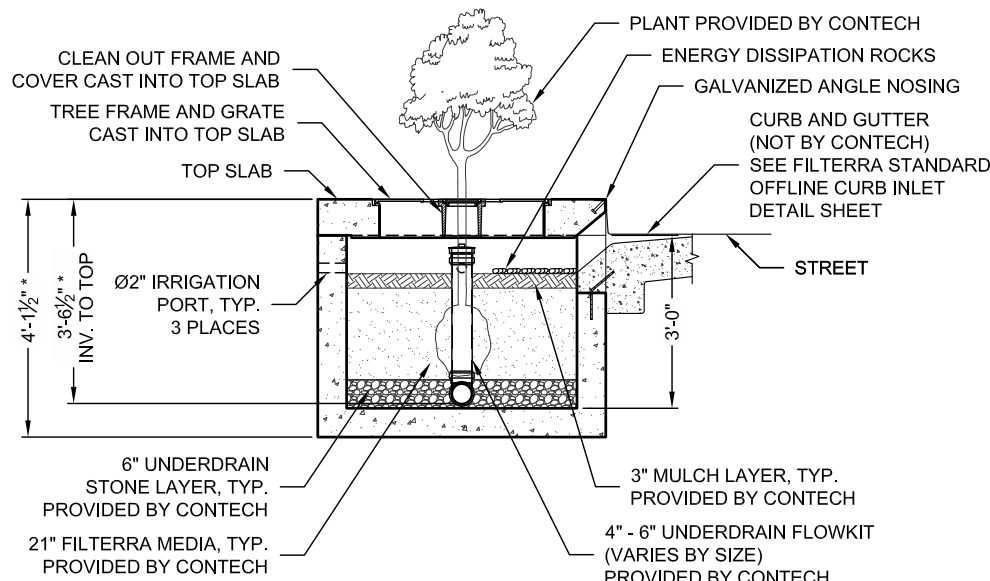
SECTION A-A

SHORT SIDE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0406	4 x 6	6'-0"	4'-0"	4" SDR 35	(1) 3' x 3'
FT0408	4 x 8	8'-0"	4'-0"	4" SDR 35	(1) 3' x 3'
FT0412	4 x 12	12'-0"	4'-0"	4" SDR 35	(2) 3' x 3'
FT0608	6 x 8	8'-0"	6'-0"	4" SDR 35	(1) 4' x 4'
FT0610	6 x 10	10'-0"	6'-0"	6" SDR 35	(1) 4' x 4'
FT0612	6 x 12	12'-0"	6'-0"	6" SDR 35	(2) 4' x 4'
FT0713	7 x 13	13'-0"	7'-0"	6" SDR 35	(2) 4' x 4'

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION



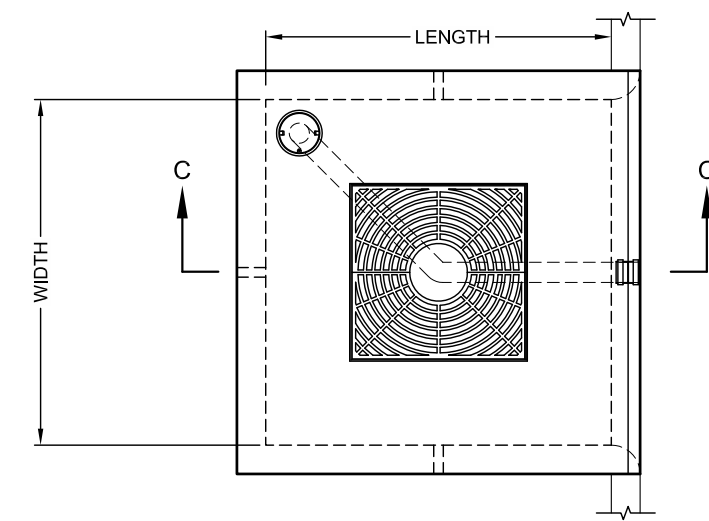
PLAN VIEW



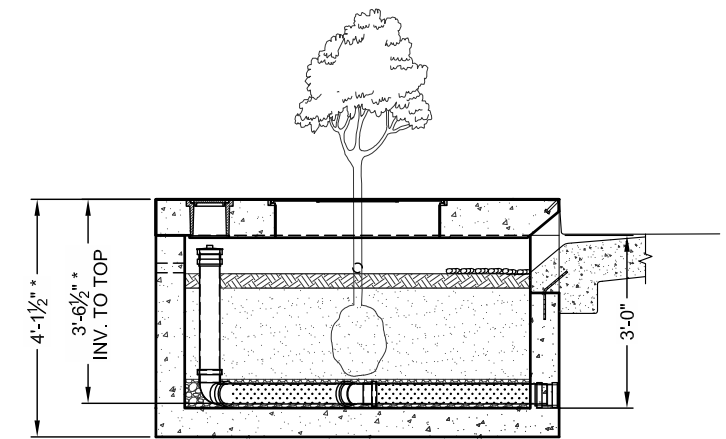
SECTION B-B

LONG SIDE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0604	6 x 4	6'-0"	4'-0"	4" SDR 35	(1) 3' x 3'
FT0804	8 x 4	8'-0"	4'-0"	4" SDR 35	(1) 3' x 3'
FT0806	8 x 6	8'-0"	6'-0"	4" SDR 35	(1) 4' x 4'
FT1006	10 x 6	10'-0"	6'-0"	6" SDR 35	(1) 4' x 4'
FT1204	12 x 4	12'-0"	4'-0"	4" SDR 35	(2) 3' x 3'
FT1206	12 x 6	12'-0"	6'-0"	6" SDR 35	(2) 4' x 4'
FT1307	13 x 7	13'-0"	7'-0"	6" SDR 35	(2) 4' x 4'

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION



PLAN VIEW



SECTION C-C

SQUARE INLET CONFIGURATION					
DESIGNATION	SIZE	LENGTH	WIDTH	OUTLET PIPE	TREE GRATE QTY & SIZE
FT0404	4 x 4	4'-0"	4'-0"	4" SDR 35	(1) 3' x 3'
FT0606	6 x 6	6'-0"	6'-0"	4" SDR 35	(1) 3' x 3'

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION

* DIMENSION MAY VARY ± 1/2" DEPENDING ON PRECASTER BUILD CONFIGURATION.



THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 4,377,374; 6,989,321; 7,625,485; 7,425,891; 7,633,412; RELATED FOREIGN PATENTS.



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FILTERRA
STANDARD OFFLINE CONFIGURATION DETAILS

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Attachment I: Gas Station Information

Fire Emergency or Spill Guidelines

In case of fire emergency or spill, the personnel on duty shall do the following:

- Turn off Pumps using emergency Pump shut-off Switches.
- Evacuate: Verbally announce to all persons on the site: "There is an emergency, Please turn off your engine and leave the site on foot immediately. All employees meet at the emergency assembly area."
- Call 911 and give the following information:
 - "There is a fire/gasoline spill at the gas station and convenience store located at 813 North Euclid Street, Santa Ana, California." If anyone is trapped or needs medical attention, tell the dispatcher. Stay on the phone and be prepared to answer any questions concerning the situation.
- Attempt to contain the spill if you can do so safely.
- Look around to ensure that everyone has left the station, particularly those vehicles who may need assistance or who may not have heard the emergency announcement. Assist or direct assistance to anyone having difficulty leaving the station area, and anyone who may be injured.
- Report to arriving emergency response personnel and provide them with any information or assistance they might need.
- Contact the Owner immediately.

Best Management Practice Guide

Retail Gasoline Outlets

California

Stormwater Quality Task Force

Prepared by

Retail Gasoline Outlet Work Group

March 1997

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Disclaimer

The statements and conclusions of this guide are those of the California Stormwater Quality Task Force (Task Force) and not necessarily those of the State of California. The mention of commercial products, their source, or their use in connection with material reported herein is not to be construed as either an actual or implied endorsement of such products.

The guide was produced and published by the California Stormwater Quality Task Force, an advisory body of municipal agencies regulated by the storm water program. This guide is not a publication of the State Water Resources Control Board or any Regional Water Quality Control Board, and none of these Boards has specifically endorsed the contents thereof. The purpose of this guide is to assist municipal agencies and retail gasoline outlets subject to storm water regulations, in attaining compliance with such regulations. This guide is not specifically intended for use in geographic areas not subject to federal or state storm water regulations, or at facilities that do not discharge storm water either directly to surface waters or indirectly, through municipal separate storm drain systems. Implementation of these best management practices can not be construed as compliance with all other applicable regulations, including local requirements.

Introduction

This guide represents the work of the California Stormwater Quality Task Force's (SWQTF) Retail Gasoline Outlet Work Group. The Work Group formed in May 1996 and met on a regular basis to review and discuss appropriate best management practices for fueling and other closely related activities likely to be found at retail fueling operations. Representatives from industry, municipalities, and regulatory agencies participated. Best management practices (BMPs) from throughout California, and elsewhere, were reviewed and considered for inclusion in this guide. The Work Group worked in the tradition of the SWQTF by raising and discussing issues in an open forum, and working to reach consensus on each issue. The Work Group worked in parallel and communicated with State and Regional Board staff responsible for storm water permit compliance.

These best management practices were developed with retail gasoline outlets primarily in mind, and may or may not have applicability to other facility types (e.g., cardlocks, bulk plants, fleet operations). The need for and application of these BMPs to other facility-types should be carefully reviewed on a case-by-case basis. During the development of this guide, storm water and wastewater issues were addressed together to avoid cross-media transfers of waste. In addition, the potential of these BMPs to affect other environmental media/regulations (e.g., hazardous waste) was considered before their inclusion in this guide.

Regulatory Context

The Federal Clean Water Act, as amended in 1987, and the State Porter-Cologne Act are the principle regulations for control of storm water pollutants. There are, however, other regulations that deal with the control of storm water pollutants. Examples include the Federal Coastal Zone Act Reauthorization Amendments of 1990, and the State Hazardous Waste Source Reduction and Management Review Act. The 1987 amendments to the Federal Clean Water Act added section 402(p) which establishes a framework for regulating municipal, industrial, and construction storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. On November 16, 1990, the USEPA published final regulations that establish application requirements for storm water permits from five classes of discharges (Phase 1) including storm water associated with industrial activity (industrial storm water) that discharges either directly to surface waters or indirectly through municipal separate storm drain systems. Municipalities with a population over 100,000 or those that have been determined to be a significant contributor of pollutants are also required to obtain a NPDES storm water permit.

As part of its storm water management program, a municipality is required to develop a program to monitor and control pollutants in storm water discharges from its municipal system. These programs must include structural and source control measures to reduce pollutants from runoff from commercial and industrial areas. Thus it is important for commercial and industrial facilities located within municipalities to realize that there may be municipal requirements on storm water discharges from their facilities.

In addition to the storm water requirements, both the Federal Clean Water Act and the State Porter-Cologne Act require the control of pollutants in wastewater discharges. The Porter-Cologne Act requires the development of Basin Plans for drainage basins in California. These basin plans are used in turn to identify more specific controls for discharges (e.g., wastewater treatment plant effluent). The basin plans are implemented through the NPDES program. Many municipalities, being subject to both storm water and wastewater regulations, will develop water quality protection programs that deal with both types of discharges in a coordinated and integrated way.

Purpose and Intent

The purpose of this guide is two-fold. First, to be a compilation of peer-reviewed best management practices for fueling and other closely related activities found at retail fueling operations. Second, to be a reference for municipalities, regulators, and facility owners and operators.

The intent of the SWQTF is that these best management practices serve as a “default” set of BMPs for use throughout California. Municipalities and retail gasoline outlets that have not yet adopted best management practices for these activities should give these practices strong consideration. Municipalities and retail gasoline outlets that do have and use BMPs should compare their current practices with those presented here. Substantive differences should be identified and re-evaluated. Successful implementation of these BMPs depends on a partnership between municipalities, regulators, and facility owners and operators. Each has a role to play:

- Municipalities should become familiar with these BMPs and incorporate them into their water quality protection programs, as appropriate.
- Regulators and inspectors should use these or similar BMPs to measure the pollution prevention efforts of facilities.

- Facility owners and operators should become familiar with these BMPs, teach their employees about them, and ensure that they are used on-site.

How to Use the Best Management Practices

Coverage - These best management practices cover three activities or areas:

- Fuel dispensing
- Air/water supply
- Outdoor waste receptacles

Retail gasoline outlets will have every combination of these activities/areas on-site, including other activities not covered by this guide. For example, a facility may have a fuel dispensing area, air/water supply area, indoor service bay, but no outdoor waste receptacles. These BMPs cover the first two areas but not the indoor service bay. Best management practices for the indoor service bay may be found elsewhere. The inclusion of best management practices for air/water supply areas is not intended to suggest that air and/or water must be supplied by retail gasoline outlets in geographic areas not otherwise required to do so.

Design - The design of this guide is purposely different from many BMP lists that are designed as a menu of BMPs from which the facility owner/operator, and the inspector, may choose some but not necessarily all BMPs. These BMP lists are designed so that if the activity/area is on-site, each numbered BMP listed below the activity should be implemented. For some BMPs, as described below, several implementation options are provided. The best management practices are meant to be implemented, monitored, and maintained on a year round basis. The guide also makes an important distinction between existing facilities and new or substantially remodeled facilities. A definition of new or substantially remodeled is also provided. The Work Group used these design elements to help clarify and unify expectations.

Options - Several of the best management practices provide facility owners and operators options for compliance. For example, one best management practice is:

- Minimize the possibility of storm water pollution from outside waste receptacles by doing at least one of the following:
 - a) use only watertight waste receptacle(s) and keep the lid(s) closed, or
 - b) grade and pave the waste receptacle area to prevent run-on of storm water, or
 - c) install a roof over the waste receptacle area, or
 - d) install a low containment berm around the waste receptacle area, or
 - e) use and maintain drip pans under waste receptacles.

It is the intent of these BMPs that a) through e) are options. Effective implementation of at least one of these options, chosen by the facility owner/operator, should be deemed implementation of this best management practice.

Other BMPs - The Work Group considered other BMPs not listed here including:

- Oil/water separators
- Catch basin inserts

The evidence reviewed by the Work Group indicated that the effectiveness and efficiency of these and other BMPs not listed was insufficient for them to pass peer review and therefore these BMPs can not be generally recommended for use statewide. There may be situations in which these BMPs would be effective and efficient (as evidenced by research), and therefore appropriate, but these situations should be the exception, not the rule. Members of the SWQTF are conducting studies on these and other BMPs. If that research shows that a particular BMP is effective and efficient, the SWQTF will consider adding it to this guide.

Best Management Practices

Existing Facilities

Fuel Dispensing Areas

1. Maintain fuel dispensing areas using dry cleanup methods such as sweeping for removal of litter and debris, or use of rags and absorbents for leaks and spills. Fueling areas should never be washed down unless the wash water is collected and disposed of properly.
2. Fit underground storage tanks with spill containment and overflow prevention systems meeting the requirements of Section 2635(b) of Title 23 of the California Code of Regulations.
3. Fit fuel dispensing nozzles with “hold-open latches” (automatic shutoffs) except where prohibited by local fire departments.
4. Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against “topping off” of vehicle fuel tanks.

Facility - General

1. “Spot clean” leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.

2. Maintain and keep current, as required by other regulations, a spill response plan and ensure that employees are trained on the elements of the plan.
3. Manage materials and waste to reduce adverse impacts on storm water quality.
4. Train all employees upon hiring and annually thereafter on proper methods for handling and disposing of waste. Make sure that all employees understand storm water discharge prohibitions, wastewater discharge requirements, and these best management practices. Use a training log or similar method to document training.
5. Label drains within the facility boundary, by paint/stencil (or equivalent), to indicate whether they flow to an oil/water separator, directly to the sewer, or to a storm drain. Labels are not necessary for plumbing fixtures directly connected to the sanitary sewer.
6. Inspect and clean if necessary, storm drain inlets and catch basins within the facility boundary before October 1 each year.

Outdoor Waste Receptacle Area

1. Spot clean leaks and drips routinely to prevent runoff of spillage.
2. Minimize the possibility of storm water pollution from outside waste receptacles by doing at least one of the following:
 - a) use only watertight waste receptacle(s) and keep the lid(s) closed, or
 - b) grade and pave the waste receptacle area to prevent run-on of storm water, or
 - c) install a roof over the waste receptacle area, or
 - d) install a low containment berm around the waste receptacle area, or
 - e) use and maintain drip pans under waste receptacles.

Air/Water Supply Area

1. Minimize the possibility of storm water pollution from air/water supply areas by doing at least one of the following:
 - a) spot clean leaks and drips routinely to prevent runoff of spillage, or
 - b) grade and pave the air/water supply area to prevent run-on of storm water, or
 - c) install a roof over the air/water supply area, or
 - d) install a low containment berm around the air/water supply area.

New or Substantially Remodeled Facilities

The elements listed below should be included in the design and construction of new or substantially remodeled facilities.

Fuel Dispensing Areas

1. Fuel dispensing areas must be paved with portland cement concrete (or, equivalent smooth impervious surface), with a 2% to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of storm water to the extent practicable. The fuel dispensing area is defined as extending 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus 1 foot, whichever is less. The paving around the fuel dispensing area may exceed the minimum dimensions of the “fuel dispensing area” stated above.
2. The fuel dispensing area must be covered, and the cover’s minimum dimensions must be equal to or greater than the area within the grade break or the fuel dispensing area, as defined above. The cover must not drain onto the fuel dispensing area.

Outdoor Waste Receptacle Area

1. Grade and pave the outdoor waste receptacle area to prevent run-on of storm water to the extent practicable.

Air/Water Supply Area

1. Grade and pave the air/water supply area to prevent run-on of storm water to the extent practicable.

Substantially Remodeled Facilities

One of the following criteria must be met before a facility is deemed to be substantially remodeled and the design elements described above are required to be included in the new design and construction:

- the canopy cover over the fuel dispensing area is new or is being substantially replaced (not including cosmetic/facial appearance changes only) and the footing is structurally sufficient to support a cover of the minimum dimensions described above, or
- one or more fuel dispensers are relocated or added in such a way that the portland cement concrete (or, equivalent) paving and grade break or the canopy cover over the fuel

dispensing area do not meet the minimum dimensions as defined above. Replacement of existing dispensers or underground storage tanks do not, by themselves, constitute a substantial remodel.

Special note on the paving BMP (#1 only) addressing Fuel Dispensing Areas under New or Substantially Remodeled Facilities

This best management practice is not specifically intended to apply to facilities that install a new canopy where no canopy existed.

Special note on the canopy BMP (#2 only) addressing Fuel Dispensing Areas under New or Substantially Remodeled Facilities

This best management practice is not specifically intended to apply to facilities that:

- are located in geographic areas not subject to federal or state storm water regulations
- do not discharge storm water either directly to surface waters or indirectly, through municipal separate storm drain systems
- do not add fuel dispensers
- replace, relocate, or add fuel dispensers within the parameters described in the BMP
- increase their throughput of fuel dispensed without modifying their equipment
- make only cosmetic or facial appearance changes to their existing canopy

For the purposes of the waste receptacle area and air/water supply area BMPs only, the facility is considered substantially remodeled if the area around the waste receptacle area or air/water supply area is being regraded or repaved.

Help

For assistance with implementation of these best management practices, municipal staff or facility owners and operators should contact their local storm water program representative, Regional Board or State Board storm water contact, or the Stormwater Quality Task Force.



Alan C. Lloyd, Ph.D.
Agency Secretary

State Water Resources Control Board

Division of Water Quality

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Arnold Schwarzenegger
Governor

LG 166

GUIDELINES FOR TESTING SPILL BUCKETS

(Available electronically at <http://www.waterboards.ca.gov/ust>)

To: Local Agencies and Other Interested Persons

The purpose of this letter is to provide guidance for testing spill containment structures (spill buckets) as required annually by California Health and Safety Code (HSC), Chapter 6.7, Section 25284.2. Although the HSC requires annual spill bucket testing, neither the HSC nor Title 23, Chapter 16, of the California Code of Regulations (CCR) specify how this testing should be done, or by whom.

In response to concerns expressed by local agencies and the regulated community regarding the need for consistent spill bucket testing procedures, State Water Resources Control Board (State Water Board) Underground Storage Tank (UST) Program staff convened a workgroup comprised of local UST regulatory agency inspectors, UST owners/operators, service technicians, Department of Toxic Substances Control (DTSC) staff, and State Water Board staff. The workgroup developed the enclosed spill bucket testing guidelines to promote consistency and effectiveness of spill bucket testing. Additionally, the workgroup developed the enclosed "Spill Bucket Testing Report Form" to record and submit test results to the appropriate local UST regulatory agency.¹

If you have questions regarding this document, please contact the UST Program at (916) 341-5775 or ust@waterboards.ca.gov.

Sincerely,

[Original Signed By]

Elizabeth L. Haven, Manager
Underground Storage Tank Program

Enclosure 1: Guidelines for Testing Spill Buckets
Enclosure 2: Spill Bucket Testing Report Form

¹ Unless otherwise specified, the testing guidelines described in the enclosures are not mandatory. We encourage implementation of these recommendations during spill bucket testing. We also encourage spill bucket manufacturers to incorporate these guidelines into their recommended testing procedures, to the extent practicable.



INTRODUCTION

This document is intended to provide underground storage tank (UST) owners and operators with a practical test method that can be used to meet the requirement for annual spill bucket testing. Typically, spill bucket testing can be completed with minimal added time or expense by the service technician while performing the annual Monitoring System Certification. These guidelines are intended to assist owners and operators with all spill buckets, both direct buried (in contact with earthen material) and located within secondary containment sumps, regardless of the date of installation. Although annual testing is required for spill buckets installed on UST fill pipes, we also recommend annual testing of spill buckets on vapor recovery risers². Spill buckets on vapor recovery risers may be exposed to liquid (condensed vapor) hazardous substances during fuel delivery. Therefore, ensuring that these buckets are liquid-tight helps reduce the risk of a release to the environment.

APPLICABLE REGULATORY REQUIREMENTS AND RECOMMENDATIONS

Health and Safety Code (HSC), Chapter 6.7, Section 25284.2 requires that spill buckets be tested annually. California Code of Regulations (CCR), Title 23, Section 2635(b) requires that all USTs be equipped with a spill bucket which has a minimum capacity of 5 gallons and is protected from galvanic corrosion. The purpose of the spill bucket is to collect and contain any product/waste that spills during filling of the UST. A spill bucket is neither intended nor designed for the *storage* of hazardous substance, but rather to *contain* a small spill. Therefore, any hazardous substance collected in a spill bucket must be promptly removed, either by draining it into the primary storage tank or collecting it and disposing of it properly. The purpose of spill bucket testing is to ensure that the spill bucket is capable of containing the substance until it is detected and properly removed.

SPILL BUCKET TESTING

These procedures should³ be followed when conducting visual inspection and vacuum or hydrostatic testing of spill buckets. *Note:* This document does not cover all site safety provisions that may be applicable when performing this type of work. When working at UST facilities, personnel must adhere to applicable federal, state, and local safety standards.

Part I: Spill Bucket Testing Preparation

- A. Notify the Local Agency.** Owners/operators should notify the local UST regulatory agency at least 48 hours prior to conducting the test.
- B. Spill Bucket Testing Qualifications.** We recommend that testing be conducted by a qualified service technician as defined in CCR, Title 23, Section 2715(i). Spill bucket testing performed by anyone other than a service technician should only be conducted when approved and witnessed by the local UST regulatory agency. *Note:* Some local UST regulatory agencies do not accept test results unless an agency inspector is present during the test and/or the test is performed by a qualified service technician.
- C. Secure the Work Area as Appropriate.** Use caution tape, cones, or other barricade to prevent traffic from entering the work area. When working at an UST facility, adhere to all applicable federal, state, and local safety standards.
- D. Cleaning and Visual Inspection of the Spill Bucket.** Spill buckets should be kept clean and free of liquid (water and fuel) and debris. If liquid or debris is found in the spill bucket it should be

² Some regulatory agencies may require testing of vapor recovery spill buckets pursuant to local ordinance.

³ The term "should," as used in these guidelines, is to be construed as a recommendation and not a mandate.

carefully removed and properly disposed of prior to testing, and this should be documented on the “Spill Bucket Testing Report Form.” Spill buckets should be clean before testing. Fuel, rags, absorbents, water, and other materials used to clean the spill bucket may contain some residual hazardous substance, and may need to be managed/disposed of as hazardous waste. After cleaning, the spill bucket and fill cap should be inspected for any visible signs of leakage or damage. A spill bucket that is visibly damaged or leaking (e.g., obvious leaks on the fill pipe below the bucket, cracked spill bucket bottom or sides, etc.) does not need to be tested, but should be recorded as a failure on the “Spill Bucket Testing Report Form” and must be fixed or replaced. After fixing or replacing, the spill bucket must be tested. Prior to replacing a spill bucket, check with the local UST regulatory agency to see if a permit is required.

Part II: Test Procedures

Several approaches to testing spill buckets are currently in use. Although a simple hydrostatic “lake test” is most common, other methods such as vacuum testing or precision liquid level measurement devices can be used as well. In fact, these test methods may be preferable to the lake test because they are more sensitive, faster, and, in the case of vacuum methods, generate no hazardous waste and can identify the location of leaks. Common test methods are discussed below:

A. Vacuum Test Methods

Vacuum-based testing is performed by placing a sealed lid over the spill bucket while a partial vacuum is drawn within the bucket. The vacuum level within the sealed spill bucket is measured over time, and a pass/fail determination is made based on the rate at which the vacuum level decays. Use of a leak indicating solution (e.g., soapy water) and a clear lid to seal the spill bucket provides a visual indication of leaks as air entering the spill bucket causes bubbles. The test duration and pass/fail criteria for vacuum testing must be at least as sensitive as discussed in part II, section B(1), below. Vacuum testing must also test at least the same volume of the spill bucket as discussed in part II, section B(1). *Note: The pressure-based drop tube/overflow prevention valve test (TP-201.IC or 1D) required by the Air Resources Board (ARB) does not test the same volume of the spill bucket, and therefore is not considered to be an equivalent method.*

Because they are quick, can identify the location of leaks, and generate no hazardous waste, vacuum-based methods are preferred for testing spill buckets. While vacuum testing has many advantages over the traditional hydrostatic lake test, there are some important limitations to be aware of:

1. Special equipment is required for vacuum-based testing, so tests should only be conducted by a qualified service technician.
2. Some spill buckets cannot be sealed at the top and therefore cannot be tested using vacuum-based methods.
3. Applying vacuum in excess of the manufacturer’s maximum recommended level may damage the spill bucket. ***Never apply vacuum exceeding the manufacturer’s maximum recommended level.***
4. Components within the spill bucket, such as the fill adapter, nipple, vapor recovery adapter, or drop tube should not be removed in order to perform the vacuum test. If the fill adapter, nipple, vapor recovery adapter, or drop tube are removed for testing or troubleshooting, or the spill bucket drain valve is fixed or replaced, a qualified technician must conduct drop tube and drain valve leak checks per ARB test procedure(s).

B. Hydrostatic Methods

- 1) **Standard Lake Test** - A standard lake test for spill buckets is easy to perform and requires no special equipment. The test is performed by filling the spill bucket with test fluid and observing the fluid level over time. Any drop in fluid level is an indication that the spill bucket may be leaking. Recommended procedures for a standard lake test are as follows:
 - a) **Test Duration and Fluid** - A lake test of at least one hour is recommended. Water with a small amount (a few drops) of common soap or detergent (such as “Dawn”) is the recommended testing fluid. Adding a small amount of soap to the water reduces surface tension, making the test fluid properties more similar to fuel. Use of fuel as a test fluid may pose a fire and safety hazard, and increase the probability of an unauthorized release in the event of spill bucket failure. Therefore, it is not recommended, especially for testing of direct-bury spill buckets.⁴
 - b) **Test Fluid Level** - It is our understanding that spill buckets commonly fail at the upper sealing area, around the joint(s) where two or more parts of the spill bucket assembly come together. Therefore, it is important to test as much of the spill bucket volume as is possible. The test fluid should cover the top joint, and be no less than 1.5 inches below the top of the spill bucket, regardless of the spill bucket’s capacity. This level will typically be above the fill cap, meaning that a leaking cap will result in a failed test. Technicians should inspect the cap and gasket, and repair or replace defective parts prior to adding test fluid. A tape measure or other measuring device should be used to measure the level of test fluid at the start of the test and again at the end of the test.
 - c) **Test Pass/Fail Criteria** - Any observable decrease in test fluid level during the test should be declared a failure. This includes test fluid loss caused by a failed spill bucket drain valve. Even if a failed drain valve is leaking test fluid into the UST rather than to the environment, it may adversely affect performance of the UST vapor recovery system and be a source of vapor releases from the UST. Therefore, failed drain valves should be promptly repaired and the spill bucket re-tested.
- 2) **Accelerated Precision Hydrostatic Test** - Hydrostatic tests of less than one hour can be used if they are at least as sensitive as the procedures described above in part B(1). To achieve the same sensitivity as the one-hour lake test in less time, accelerated hydrostatic tests require the use of precision measuring equipment. This specialized measurement equipment should only be used by a qualified service technician who has been trained in the proper use of the equipment. Accelerated hydrostatic testing should use the same test fluid and test at least the same volume of the spill bucket as discussed in part B(1). The test duration and pass/fail criteria should be made by the manufacturer of the measurement equipment, based on the sensitivity of the equipment. More sensitive equipment allows for shorter test duration. However, pass/fail criteria should not be less stringent than those prescribed for the one-hour lake test in part II, section B(1).

Part III: Reporting of Test Results

Spill bucket test results should be recorded on the enclosed “Spill Bucket Testing Report Form” or, if testing is done at the time of secondary containment testing, in Section 9 of the “Secondary Containment Testing Report Form.” These forms can be found at <http://www.waterboards.ca.gov/ust/forms/>. UST

⁴ Some local UST regulatory agencies may prohibit the use of fuel as test fluid in spill buckets, especially direct-bury.

owners and operators should submit spill bucket test results (pass or fail) to the local UST regulatory agency within 30 days of the completion of the test. Additionally, UST owners and operators must maintain test results on-site or off-site at a readily available location, if approved by the local UST regulatory agency, for a period of at least *three* years, as is required by CCR, Title 23, Section 2712(b).

Part IV: Management of Hydrostatic Test Fluids

- A. Classification of Test Fluid.** Thorough cleaning of spill buckets prior to testing will minimize contamination of the test fluid. In order to reduce the amount of hazardous waste generated from hydrostatic spill bucket testing, the Department of Toxic Substances Control (DTSC) recommends using new test fluid whenever possible. If the spill bucket is cleaned of all hazardous substance residues prior to the beginning of the test, the test fluid will typically not become hazardous waste.
- B. Reuse of Test Fluid.** If all hazardous substance residue is not cleaned from the spill bucket prior to the beginning of the test, or if the test fluid is used or reused repeatedly and contaminants build up in the test fluid, then the test fluid may become hazardous. Test fluid that is reused is not considered to be waste pursuant to U.S. EPA' s "continued use" policy, provided that the test fluid is not disposed of, burned or incinerated, accumulated speculatively, or reclaimed. The hazardous waste generator⁵ shall determine if the test fluid is a hazardous waste. More information regarding hazardous waste determination can be found in CCR, Title 22, Section 66262.11.
- C. Leakage of Test Fluid.** If the test fluid is reused and the test fluid leaks from the spill bucket during a test (i.e., the test fails), or if it is otherwise accidentally disposed of to the environment, the hazardous waste generator must take all appropriate measures to address the release (e.g., implement the facility' s emergency response/contingency plan).
- D. Disposal and Transportation of Test Fluid.** If the test fluid is reused, immediately following its final reuse, the generator must classify the test fluid pursuant to CCR, Title 22, Section 66262.11. If the reused test fluid is hazardous waste, it must be managed in accordance with all applicable requirements. Hazardous waste generators may accumulate hazardous wastes in closed tanks or containers, and must complete a Uniform Hazardous Waste Manifest and use a registered hazardous waste transporter to transport the hazardous waste to either a permitted hazardous waste facility or to another location authorized to accept the waste. The disposal of hazardous waste is not allowed without a permit from DTSC. Hazardous waste generators who wish to conduct hazardous waste treatment on-site must first obtain a permit per CCR, Title 22, Section 66270.1 or HSC, Section 25189.5. *Note:* Hazardous waste may not be disposed of to sewers, storm drains, surface waters, or to the land without a permit from DTSC and the Regional Water Quality Control Board.

⁵ A hazardous waste generator is defined in CCR, Title 22, Section 66261.2.

Release Prevention Compliance Measures Matrix

Regulatory Subject Area	Measure #	SOC Measure / Federal Citation	In Compliance?		
			N/A	Y	N
I. Spill Prevention	1	Spill prevention device is present and functional. [280.20(c)(1)(i), 280.21(d)]			
II. Overfill Prevention	2	Overfill prevention device is present and operational. [280.20(c)(1)(ii), 280.21(d)]			
		<input type="checkbox"/> Automatic shutoff is operational (i.e., device not tampered with or inoperable). [280.20(c)(1)(ii)(A), 280.21(d)] <input type="checkbox"/> Alarm is operational. [280.20(c)(1) (ii)(B), 280.21(d)] <input type="checkbox"/> Alarm is audible or visible to delivery driver. [280.20(c)(1) (ii)(B), 280.21(d)] <input type="checkbox"/> Ball float is operational. [280.20(c)(1)(ii)(B), 280.21(d)]			
III a. Operation and Maintenance	3	Repaired tanks and piping were tightness tested within 30 days of repair completion (not required w/internal inspections or if monthly monitoring is in use). [280.33(d)]			
III b. Operation and Maintenance of Corrosion Protection	4	CP systems were tested/inspected within 6 months of repair of any cathodically protected UST system. [280.33(e)]			
	5	Corrosion protection system is properly operated and maintained to provide continuous protection. [280.31(a)(b), 280.70(a)] <input type="checkbox"/> UST system (Choose one) <ul style="list-style-type: none"> <input type="checkbox"/> UST in operation <input type="checkbox"/> UST in temporary closure <input type="checkbox"/> CP System is properly operated and maintained <ul style="list-style-type: none"> <input type="checkbox"/> CP system is performing adequately based on results of testing. [280.31(b)]; - or - <input type="checkbox"/> CP system tested within required period and operator is conducting or has completed appropriate repair in response to test results reflecting CP system not providing adequate protection. 			

Release Prevention Compliance Measures Matrix

Regulatory Subject Area	Measure #	SOC Measure / Federal Citation	In Compliance?		
			N/A	Y	N
III b. Operation and Maintenance of Corrosion Protection (Continued)	6	UST systems with impressed current cathodic protection are inspected every 60 days. [280.31(c)]			
	7	Lined tanks are inspected periodically and lining is in compliance. [280.21(b)(1)(ii)]			
IV. Tank and Piping Corrosion Protection	8	Buried metal tank and piping (which includes fittings, connections, etc.) is corrosion protected. [280.20(a), 280.20(b), 280.21(b), 280.21(c)]			
		<input type="checkbox"/> Buried metal piping components (such as swing joints, flex-connectors, etc.) are isolated from the ground or cathodically protected. For new USTs – tanks and piping installed after 12/22/88 [280.20(a), 280.20(b)]: <input type="checkbox"/> Steel tank or piping is coated with suitable dielectric material and cathodically protected. [280.20(a)(2), 280.20(b)(2)] <input type="checkbox"/> Tank is fiberglass, clad, or jacketed and piping is fiberglass or flexible plastic. [280.20(a)(1), 280.20(a)(3), 280.20(a)(5), 280.20(b)(1), 280.20(b)(4)] <input type="checkbox"/> Records are available to document that CP is not necessary. [280.20(a)(4)(ii), 280.20(b)(3)(ii)] For existing USTs – tanks and piping installed on or before 12/22/88 [280.21(b), 280.21(c)]: <input type="checkbox"/> Tank and piping meet new UST requirements. [280.21(a)(1)] <input type="checkbox"/> Steel tank is internally lined. [280.21 (b)] <input type="checkbox"/> Metal tank and piping are cathodically protected. [280.21(b)(2), 280.21(c)]			

Notes: N/A – Indicates that the measure is not applicable.

Any mark in the “N” (No) column means that the facility is not in Significant Operational Compliance (SOC) with Release Prevention Compliance Measures.

In order for a compliance measure to be in SOC, all applicable check-box items must be in compliance.

Spill Bucket Testing Report Form

This form is intended for use by contractors performing annual testing of UST spill containment structures. The completed form and printouts from tests (if applicable), should be provided to the facility owner/operator for submittal to the local regulatory agency.

1. FACILITY INFORMATION

Facility Name:	Date of Testing:
Facility Address:	
Facility Contact:	Phone:
Date Local Agency Was Notified of Testing :	
Name of Local Agency Inspector (if present during testing):	

2. TESTING CONTRACTOR INFORMATION

Company Name:				
Technician Conducting Test:				
Credentials ¹ :	CSLB Contractor	ICC Service Tech.	SWRCB Tank Tester	Other (Specify) _____
License Number(s):				

3. SPILL BUCKET TESTING INFORMATION

Test Method Used:	Hydrostatic	Vacuum	Other	
Test Equipment Used:	Equipment Resolution:			
Identify Spill Bucket (By Tank Number, Stored Product, etc.)	1	2	3	4
Bucket Installation Type:	Direct Bury Contained in Sump	Direct Bury Contained in Sump	Direct Bury Contained in Sump	Direct Bury Contained in Sump
Bucket Diameter:				
Bucket Depth:				
Wait time between applying vacuum/water and start of test:				
Test Start Time (T _I):				
Initial Reading (R _I):				
Test End Time (T _F):				
Final Reading (R _F):				
Test Duration (T _F - T _I):				
Change in Reading (R _F - R _I):				
Pass/Fail Threshold or Criteria:				
Test Result:	Pass Fail	Pass Fail	Pass Fail	Pass Fail

Comments – (include information on repairs made prior to testing, and recommended follow-up for failed tests)

CERTIFICATION OF TECHNICIAN RESPONSIBLE FOR CONDUCTING THIS TESTING

I hereby certify that all the information contained in this report is true, accurate, and in full compliance with legal requirements.

Technician's Signature: _____

Date: _____

¹ State laws and regulations do not currently require testing to be performed by a qualified contractor. However, local requirements may be more stringent.

UNDERGROUND STORAGE TANK UNAUTHORIZED RELEASE (LEAK)/ CONTAMINATION SITE REPORT

EMERGENCY <input type="checkbox"/> Yes <input type="checkbox"/> No		HAS STATE OFFICE OF EMERGENCY SERVICES REPORT BEEN FILED? <input type="checkbox"/> Yes <input type="checkbox"/> No		FOR LOCAL AGENCY USE ONLY I HEREBY CERTIFY THAT I AM A DESIGNATED GOVERNMENT EMPLOYEE AND THAT I HAVE REPORTED THIS INFORMATION TO LOCAL OFFICIALS PURSUANT TO SECTION 25180.7 OF THE HEALTH AND SAFETY CODE.	
REPORT DATE		CASE #			
REPORTED BY	NAME OF INDIVIDUAL FILING REPORT		PHONE		SIGNATURE
	REPRESENTING <input type="checkbox"/> LOCAL AGENCY <input type="checkbox"/> REGIONAL BOARD <input type="checkbox"/> OWNER/OPERATOR <input type="checkbox"/> OTHER...		COMPANY OR AGENCY NAME		
	ADDRESS STREET CITY STATE ZIP				
RESPONSIBLE PARTY	NAME <input type="checkbox"/> Unknown			PHONE	
	ADDRESS STREET CITY STATE ZIP				
SITE LOCATION	FACILITY NAME (IF APPLICABLE)		OPERATOR		PHONE
	ADDRESS STREET CITY COUNTY ZIP				
	CROSS STREET				
IMPLEMENTING AGENCIES	LOCAL AGENCY AGENCY NAME			PHONE	
	REGIONAL BOARD			PHONE	
SUBSTANCES INVOLVED	(1) NAME			QUANTITY LOST (GALLONS) _____ <input type="checkbox"/> Unknown	
	(2)			_____ <input type="checkbox"/> Unknown	
DISCOVERY/ABATEMENT	DATE DISCOVERED		HOW DISCOVERED <input type="checkbox"/> Tank Test <input type="checkbox"/> Tank Removal <input type="checkbox"/> Nuisance Conditions <input type="checkbox"/> Inventory Control <input type="checkbox"/> Subsurface Monitoring <input type="checkbox"/> Other...		
	DATE DISCHARGE BEGAN <input type="checkbox"/> Unknown		METHOD USED TO STOP DISCHARGE (CHECK ALL THAT APPLY) <input type="checkbox"/> Remove Contents <input type="checkbox"/> Close Tank <input type="checkbox"/> Repair Tank <input type="checkbox"/> Change Procedure <input type="checkbox"/> Replace Tank <input type="checkbox"/> Other... <input type="checkbox"/> Repair Piping		
	HAS DISCHARGE BEEN STOPPED? <input type="checkbox"/> Yes <input type="checkbox"/> No		IF YES, DATE		
SOURCE/ CAUSE	SOURCE OF DISCHARGE <input type="checkbox"/> Tank Leak <input type="checkbox"/> Piping Leak <input type="checkbox"/> Unknown <input type="checkbox"/> Other...		CAUSE(S) <input type="checkbox"/> Overfill <input type="checkbox"/> Corrosion <input type="checkbox"/> Rupture/Failure <input type="checkbox"/> Unknown <input type="checkbox"/> Spill <input type="checkbox"/> Other...		
	CASE TYPE CHECK ONE ONLY <input type="checkbox"/> Undetermined <input type="checkbox"/> Soil Only <input type="checkbox"/> Groundwater <input type="checkbox"/> Drinking Water - (CHECK ONLY IF WATER WELLS HAVE ACTUALLY BEEN AFFECTED)				
CURRENT STATUS	CHECK ONE ONLY				
	<input type="checkbox"/> No Action Taken <input type="checkbox"/> Leak Being Confirmed <input type="checkbox"/> Remediation Plan <input type="checkbox"/> Preliminary Site Assessment Workplan Submitted <input type="checkbox"/> Preliminary Site Assessment Underway		<input type="checkbox"/> Case Closed (Cleanup Completed or Unnecessary) <input type="checkbox"/> Pollution Characterization <input type="checkbox"/> Post Cleanup Monitoring in Progress <input type="checkbox"/> Cleanup Underway		
REMEDIAL ACTION	CHECK APPROPRIATE ACTION(S)				
	<input type="checkbox"/> Cap Site (CD) <input type="checkbox"/> Contamination Barrier (CB) <input type="checkbox"/> Vacuum Extract (VE) <input type="checkbox"/> Excavate & Dispose (ED)		<input type="checkbox"/> Excavate & Treat (ET) <input type="checkbox"/> No Action Required (NA) <input type="checkbox"/> Remove Free Product (FP) <input type="checkbox"/> Pump & Treat Groundwater (GT)		<input type="checkbox"/> Treatment at Hookup (HU) <input type="checkbox"/> Enhanced Bio Degradation (IT) <input type="checkbox"/> Replace Supply (RS) <input type="checkbox"/> Vent Soil (VS)
COMMENTS					

Attachment J: Operations and Maintenance Plan

An Operations and Maintenance Plan will be included in the Final WQMP.