FOR CONTRACT NO.: 12-0E5704

INFORMATION HANDOUT

WATER QUALITY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO
BOARD ORDER NO. R9-2008-0002
NPDES PERMIT NO. CAG919002

PERMITS

UNITED STATES ARMY CORPS OF ENGINEERS

AGREEMENTS

CALIFORNIA DEPARTMENT OF FISH AND GAME

ENCROACHMENT PERMITS

ORANGE COUNTY FLOOD CONTROL DISTRICT
PERMIT NO. 2009-00689

MATERIALS INFORMATION

FOUNDATION RECOMMENDATIONS FOR SAN JUAN CREEK ROAD UNDERCROSSING LEFT SIDE WIDENING, BR. NO. 55-0298

FOUNDATION RECOMMENDATIONS FOR RETAINING WALL NO. 477

FOUNDATION RECOMMENDATIONS FOR RETAINING WALL NO. 485

FOUNDATION RECOMMENDATIONS FOR SAN JUAN CREEK BRIDGE LEFT SIDE WIDENING, BR. NO. 55-0228

FINAL MATERIALS LETTER REPORT

BATTERY BACKUP SYSTEM

ROUTE: 12-Ora-5-8.5/9.4

California Regional Water Quality Control Board

San Diego Region
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Environmental Protection

Arnold Schwarzenegger
Governor

GENERAL WASTE DISCHARGE REQUIREMENTS
FOR DISCHARGES
FROM GROUNDWATER EXTRACTION AND SIMILAR DISCHARGES
TO SURFACE WATERS WITHIN THE SAN DIEGO REGION
EXCEPT FOR SAN DIEGO BAY (WDR)

ORDER NO. R9-2008-0002
NPDES NO. CAG919002

A Discharger, as described in the following table that has complied with the requirements for coverage under this General "Waste Discharge Requirements" (WDR), is subject to waste discharge requirements, once permit coverage is effective, as set forth in this WDR.

Dischargers	Any person with discharges from ground water extraction activities to surface waters within the San Diego Region, except for San Diego Bay that do not cause, have the reasonable potential to cause, or contribute to an instream excursion above any applicable State or federal water quality objectives/criteria or cause acute or chronic toxicity in the receiving water.

This WDR was adopted by the Regional Board on:	March 12,2008
This WDR shall become effective on:	March 12, 2008
This WDR shall expire on:	March 12, 2013
The U.S. Environmental Protection Agency and the California Regional Water Quality Control Board, San Diego Region have classified these discharges as minor discharges.	

IT IS HEREBY ORDERED that Order No. 2001-96 is rescinded upon the effective date of this WDR except for enforcement purposes, as specified elsewhere in this Order, and; in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted therein, and the provisions of the federal Clean Water Act, and regulations and guidelines adopted therein, Dischargers shall comply with the requirements in this WDR.

I, John H. Robertus, Executive Officer, do hereby certify the following is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region on March 12, 2008.

for John H. Robertus, Executive Officer

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I. DISCHARGE INFORMATION

A. Groundwater Extraction

Existing and proposed discharges of groundwater extraction waste to surface waters within the San Diego Region from construction groundwater extraction, foundation groundwater extraction and groundwater extraction related to groundwater remediation cleanup projects (collectively groundwater extraction):

1. Result from similar operations (all involve extraction and discharge of groundwater);
2. Are the same type of wastes (all are groundwater containing or potentially containing petroleum hydrocarbons, solvents, or other pollutants);
3. Require similar effluent limitations for the protection of the beneficial uses of similar receiving waters;
4. Require similar monitoring; and
5. Are more appropriately regulated under a general permit rather than individual permits.

II. PERMIT INFORMATION

A. Application

To obtain coverage under this WDR a Discharger must submit the following to the California Regional Water Quality Control Board, San Diego Region (Regional Board):

1. A Notice of Intent (NOI), including the following information:
   a. Owner and Operator name;
   b. Owner and Operator address;
   c. Owner and Operator telephone number;
   d. Site name
   e. Site address
   f. Type of discharges;
   g. Name of receiving waterbody and conveyance(s);
2. An initial sampling and monitoring report;
3. A project map(s) that shows the essential features of the groundwater extraction system within the Regional Board boundary, and the corresponding surface water or storm drain to which water will be discharged; and
4. Payment of the application fee, equal to the first annual fee, made payable to "SWRCB."

The NOI form is included within this WDR package as Attachment B.

The WDR NOI, including, map(s), the application fee, and other attachments, must be submitted to the following address:

CRWQCB – San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Attn: Groundwater Extraction to San Diego Region
Core Regulatory Unit
NOTICE OF INTENT

B. Coverage

Permit coverage will be effective when all of the following have occurred:

1. The Discharger has submitted a complete NOI application (including initial sampling and monitoring report), as determined by the Regional Board; and
2. The Regional Board issues the Discharger's a Notice of Enrollment, which includes the discharge flow limit, any additional or increase in monitoring due to specific circumstances of the discharge, and any other additional requirements.
3. Current dischargers enrolled in Order No. 2001-96 shall re-enroll no later than 365 days after adoption of this WDR, each discharger currently enrolled in Order No. 2001-96 shall continue to comply with Order No. 2001-96 until obtaining permit coverage under this WDR.

C. Eligibility Criteria

This WDR is intended to cover all discharges of groundwater extraction wastes to surface waters within the San Diego Region Except San Diego Bay, from groundwater extraction due to construction and other groundwater extraction activities regardless of volume, including discharges less than 100,000 gallons per day. Dischargers must meet the following criteria to be subject to waste discharge requirements by this WDR:

1. The discharge of extracted groundwater due to groundwater extraction activities is discharged to surface waters within San Diego Region except San Diego Bay;

2. Pollutant concentrations in the discharge comply with the Discharge Specifications of this WDR.

This WDR does <u>not</u> cover:

STORM WATER - Storm water runoff due to construction activities. These activities may be covered under the statewide general NPDES permit for storm water discharges associated with construction activities (CAS000002), the statewide general NPDES permit for storm water runoff associated with small linear underground/overhead construction projects (CAS000005), and/or Clean Water Act (CWA) Section 401 Water Quality Certifications.

SANITARY SEWER - Discharges to a sanitary sewer. These discharges do not need coverage under the NPDES Program. Contact the agency controlling the sanitary sewer for approval prior to discharging to its conveyance system.

UTILITY VAULTS - Discharges from utility vaults and underground structures. These activities may be covered under the statewide general NPDES permit for discharges from utility vaults and underground structures to surface water Order No. 2006-0008-DWQ (CAG990002).

HYDROSTATIC1POTABLE WATER – Discharges from drinking water well development. These discharges are covered under Order No. R9-2002-0020 (CAG679001).

D. Discharge to a Municipal Separate Storm Sewer System (MS4)

Prior to discharging into an MS4, the Discharger shall demonstrate alternatives to discharging extracted groundwater waste into an MS4 and why it is technically or economically infeasible to implement these alternatives.

Without prior approval from the appropriate local agency with jurisdiction over the MS4, the discharger shall not discharge extracted groundwater waste under this WDR into an MS4.

Local agencies responsible for operating the MS4s may not passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the MS4 operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

Therefore, at least 30 days prior to initiating an extracted groundwater discharge to an MS4, the Discharger shall notify and receive authorization from the appropriate local agency with jurisdiction over the MS4. This requirement encourages communication between Dischargers enrolled under this WDR and local agencies responsible for MS4s in an effort to reduce misunderstandings and concerns over the types of discharges covered by this WDR.

E. Termination of Discharges

Dischargers shall submit a written request referred to as a "Notice of Termination (NOT)" to this Regional Board when coverage under this WDR is no longer required. The NOT letter constitutes a notice that the owner (and hislher agent) of the site has ceased the discharge of ground water associated with the groundwater extraction activities at the site under this WDR.

The NOT should include "Notice of Termination (NOT)" in the subject line, the Waste Discharge Identification Number (WDID) assigned to the project by the Regional Board when enrolled in the WDR, the name and address of the owner, and be signed and dated by the owner in accordance with the signatory requirements of the WDR. The Discharger shall continue to comply with the

requirements of the WDR until the Regional Board approves the NOT. Submittal of a NOT letter does not guarantee termination. Approval of the NOT does not relieve the Discharger's responsibility for paying any applicable outstanding invoices of annual fees as a result of enrollment under this WDR, nor does it relieve the Discharger from enforcement from existing violations.

F. Re-Enrollment of Renewed Permit

Dischargers enrolled under previous General Permit Order No. 2001-96 that plan on continuing their discharge, must re-enroll by submitting an NOI to obtain coverage under this WDR. Re-enrollees shall re-enroll no later than 365 days after the date of adoption of this WDR to achieve compliance with the new effluent limitations and criteria established by this WDR.

G. Transferring Ownership

Enrollment under the WDR for a specific project is not transferable. In the event of any change in ownership of land or waste discharge facilities presently owned by the enrolled Discharger, the Discharger must notify the new succeeding owner of the existence of this WDR by letter 120 days prior to property transfer, a copy of which must be immediately forwarded to the Regional Board office. Additionally, the Discharger must submit a NOT to the Regional Board. The new succeeding owner must submit a new NOI in application of enrollment under this WDR.

III. Findings

The Regional Board finds:

A. Background

This WDR supersedes Order No. 2001-96. The NPDES No. CAG919002 remains the same. Dischargers enrolled under previous Order No. 2001-96 must obtain coverage under this new WDR to continue their discharge subject to waste discharge requirements in this WDR.

B. Discharge Subject to Waste Discharge Requirements

To be subject to waste discharge requirements in this WDR for continued and future discharge to waters of the United States, Dischargers must submit an NOI and obtain coverage in order to be regulated under this WDR as provided in 40 CFR section 122.28 (b)(2).

C. Discharge Description

Existing and proposed discharges of groundwater extraction waste to surface waters within the San Diego Region except San Diego Bay from construction groundwater extraction, foundation groundwater extraction and groundwater extraction related to groundwater remediation (collectively referred to as Groundwater Extraction).

D. Legal Authorities

These waste discharge requirements are issued pursuant to Sections 13263 and 13377 of the California Water Code (CWC). The Regional Board shall prescribe requirements as to the nature of any proposed discharge and shall issue waste discharge requirements which apply and ensure compliance with all applicable provisions of the Federal Water Pollution Control Act, also referred as the Clean Water Act (CWA).

These waste discharge requirements issued by the Regional Board shall also serve as an NPDES permit for point source discharges from groundwater extraction waste to surface waters within'the San Diego Region except San Diego Bay.

States may request authority to issue general NPDES permits pursuant to 40 CFR section 122.28. On June 8, 1989, the California State Water Resources Control Board (State Board) submitted an application to USEPA requesting revisions to its NPDES Program in accordance with 40 CFR sections 122.28, 123.62, and 403.10. The application included a request to add general permit authority to its approved NPDES Program. On September 22, 1989, USEPA, Region 9, approved the State Board's request and granted authorization for the State of California to issue general NPDES permits.

E. Background and Rationale for Requirements

The Regional Board developed the requirements in this WDR based on information submitted as part of the applications for several like agencies, individuals, and entities, through monitoring and reporting programs, and through special studies. Attachments A through F, which contain background information and rationale for WDR requirements, are hereby incorporated into this WDR and constitute part of the Findings for this WDR.

F. California Environmental Quality Act (CEQA)

This action to adopt a NPDES permit is exempt from the provisions of CEQA (Public Resources Code section 21100, et seq.) in accordance with CWC section 13389.

G. Technology-Based Effluent Limitations (TBELs)

Permits shall include applicable TBELs and standards. (40 CFR § 122.44(a)). This WDR does not include numeric-TBELs because USEPA has not promulgated effluent limitation guidelines for groundwater extraction.

H. Water Quality-Based Effluent Limitations (WQBELs)

Permits shall include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. (40 CFR § 122.44(d)). Where numeric water quality criteria have not been established, WQBELs may be established using USEPA CWA section 304(a)criteria guidance, proposed State criteria or a State policy interpreting

narrative criteria supplemented with other relevant information, or an indicator parameter. (40 CFR § 122.44(d)).

I. Water Quality Control Plan

The Regional Board's Water Quality Control Plan for the San Diego Basin (hereinafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The Basin Plan was adopted by the Regional Board on September 8, 1994, and was subsequently approved by the State Board on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and the State Board.

In addition, State Board Resolution No. 88-63 establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal and domestic supplies. Requirements of this WDR specifically implement the applicable provisions of the Basin Plan and State Board policy.

J. National Toxics Rule (NTR) and California Toxics Rule (CTR)

The USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995, and November 9,1999. The CTR was adopted by USEPA on May 18, 2000, and amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to these discharges.

K. State Implementation Policy

On March 2, 2000, the State Board adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Regional Boards in their Basin Plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by the USEPA Regional Administrator. The alternate test procedures provision became effective on May 22,2000. The SIP became effective on May 18,2000. The SIP includes procedures for determining the need for WQBELs and for calculating WQBELs. The SIP also requires Dischargers to submit sufficient data to make the determination, and if necessary to calculate the WQBELs. The State Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives, and provisions for chronic toxicity control. Requirements of this WDR implement the SIP.

L. Compliance Schedules and Interim Requirements

Current dischargers enrolled in Order No. 2001-96 shall re-enroll no later than 365 days after adoption of this WDR, each discharger currently enrolled in Order

No. 2001-96 shall continue to comply with Order No. 2001-96 until obtaining permit coverage under this WDR.

M. Antidegradation Policy
Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Board established California's antidegradation policy in State Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Boards' Basin Plans implement, and incorporate by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharges are consistent with the antidegradation provision of 40 CFR section 131.12 and State Board Resolution No. 68-16.

N. Anti-Backsliding Requirements
Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations of 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this WDR are at least as stringent as the effluent limitations in the previous Order.

O. Monitoring and Reporting
Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Boards to require technical and monitoring reports. The Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements to implement federal and State requirements. This MRP is provided in Attachment E.

P. Standard and Special Provisions
Standard Provisions, which in accordance with 40 CFR sections 122.41 and 122.42 apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D. The Regional Board has also included in this WDR special provisions applicable to the enrolled Dischargers. A rationale for the special provisions contained in this WDR is provided in the attached Fact Sheet (Attachment F).

Q. Notification of Interested Parties
The Regional Board has notified the Dischargers, interested agencies and persons of its intent to prescribe WDRs for these discharges, and has provided them with an opportunity to submit their written comments and recommendations. Notification details are provided in the Fact Sheet (Attachment F) of this WDR.

R. Consideration of Public Comment

The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharges. Details of the Public 'Hearing are provided in the Fact Sheet of this WDR.

S. Alaska Rule

On March 30, 2000, USEPA revised its regulation that specifies when new and revised State and Tribal water quality standards (WQS) become effective for CWA purposes (40 CFR section 131.21, 65 FR 24641, April 27,2000). Under the revised regulation (also known as the Alaska. rule), USEPA must approve new and revised standards submitted to USEPA after May 30, 2000, before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30,2000, may be used for CWA purposes, whether or not approved by USEPA.

T. Ocean Plan

In order to protect the beneficial uses of receiving waters from excessive concentrations of pollutants as a result of groundwater extraction waste discharges, this Order does not provide for a mixing zone or a zone of initial dilution except when the discharge is to the surf zone. This Order allows initial dilution of 3 in a surf zone.

IV. Discharge Prohibitions

A. The discharge of wastewater at a location, or in a manner different from that described in the Findings, NOI, or Notice of Enrollment letter from the Regional Board is prohibited.

B. The discharge of wastewater shall not create or cause conditions of nuisance or pollution.

C. The discharge shall not cause, have a reasonable potential to cause, or contribute to an in-stream excursion above any applicable criterion promulgated by USEPA pursuant to section 303 of the CWA, or water quality objective adopted by the State or Regional Boards.

D. The discharge of waste to areas designated by the State Board as being of special (ASBS) biological significance is prohibited. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.

E. The discharge of groundwater extraction wastes from a specific site in excess of the flowrate specified in the Notice of Enrollment from the Regional Board is prohibited, unless the enrollee obtains a revised discharge Notice of Enrollment authorizing an increased flowrate.

F. The addition of pollutants to extracted groundwater to be discharged to surface waters within the San Diego Region except San Diego Bay is prohibited. The

only exception to this prohibition is that chemicals may be added to extracted groundwater to control biofouling in treatment systems, provided that extracted groundwater discharged meets the effluent limitations for such chemicals established by this WDR and in the discharge Notice of Enrollment issued by the Regional Board.

G. The discharge of groundwater extraction wastes to surface waters within the San Diego Region except San Diego Bay is prohibited unless an NOI has been submitted, and the Regional Board has provided the Discharger with a written Notice of Enrollment identifying the discharge subject to waste discharge requirements.

H. The discharge of groundwater extraction wastes from a groundwater remediation operation after the date groundwater has been remediated to the satisfaction of the Regional Board is prohibited.

I. Compliance with Discharge Prohibitions contained in the Basin Plan is also required as a condition of this WDR.

J. Discharges of wastes in a manner, or to a location which have not been specifically regulated by waste discharge requirements of this WDR are prohibited.

K. The discharge of any radiological, chemical, or biological warfare agent, or high level radiological waste is prohibited.

L. The dumping or deposition, from shore, of oil, garbage, trash, or other solid municipal, industrial, or agricultural waste directly into waters subject to tidal action or adjacent to waters subject to tidal action in any manner which may permit it to be washed into waters subject to tidal action is prohibited.

M. The dumping or deposition of chemical agents or explosives into waters subject to tidal action is prohibited.

V. Effluent Limitations and Discharge Specifications

A. Effluent Limitations

Summary of Water Quality-Based Effluent Limitations
Discharge Point
Summary of Water Quality-based Effluent Limitations Table

I. –DISCHARGES TO BAYS AND-HARBORS

The discharge of groundwater extraction waste to Mission Bay, Oceanside Harbor, Del Mar Boat Basin, or Dana Point Harbor shall not contain pollutants in excess of the following effluent limitations:

General / Inorganic / Biological

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Maximum	6-Month Median
Settleable Solids	ml/L	1.0 [OP]	1.5 [OP]	-	3.0 [OP]	-
Total Suspended Solids	mg/L	30 [AB]	-	-	50 [AB]	-
Hydrogen Sulfide	µg/L	2 [AB]	-	4 [AB]	10 [AB]	-
Total Residual Chlorine	µg/L	-	-	8 [OP]	60 [OP]	2 [OP]
Acute Toxicity	Tua			0.3 [OP]		
Chronic Toxicity	Tuc			1.0 [OP]		
Total Coliform	MPNI 100 ml				1000.0 [AB]	
Fecal Coliform	MPNI 100 ml				200.0 [AB]	
pH	Units	Within limit of 6.0 to 9.0 at all times [OP]				

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Minimum	6-Month Median
Dissolved Oxygen (DO)	mg/L				> 5.0 [AB]	

Petroleum

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Maximum	6-Month Median
MTBE	µg/L				5 [DHS]	
Benzene	µg/L	-	-	-	5 [AB]	-
Ethylbenzene	µg/L	-	-	-	5 [AB]	-
Toluene	µg/L	-	-	-	5 [AB]	-
Xylene	µg/L	-	-	-	5 [AB]	-
Total Petroleum Hydrocarbons	mg/L	-	-	-	0.5 [AB]	-

Metals

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Tributyltin (TBT)	µg/L	0.0014 [OP]			

Organics

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Phenolic Compounds (non-chlorinated)	µg/L	-	120 [OP]	300 [OP]	30 [OP]
Chlorinated Phenolics	µg/L	0.025 [CTR]	0.049 [CTR]	10 [OP]	1 [OP]
▮,1,2,2-tetrachlorethane (PCA)	µg/L	2.3 [OP]	-	-	-
▮,1,1-trichloroethane (TCA)	µg/L	5.4E5 [OP]	-	-	-
▮,1,2-trichloroethane (TCA)	µg/L	9.4 [OP]	-	-	-
1,2-dichloroethane	µg/L	28 [OP]	-	-	-
Tetrachloroethylene (PCE)	µg/L	2.0 [OP]	-	-	-
Trichloroethylene (TCE)	µg/L	27 [OP]	-	-	-
Vinyl chloride	µg/L	36 [OP]	-	-	-
Carbon tetrachloride	µg/L	0.90 [OP]	-	-	-
Base/Neutral Organic Compounds	µg/L			10 [AB]	

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Ammonia (as N)	µg/L		2400 [OP]	6000 [OP]	600 [OP]
Endosulfan	ng/L	-	18 [OP]	27 [OP]	9 [OP]
HCH	ng/L	-	8 [OP]	12 [OP]	4 [OP]
Dichloromethane	µg/L	450 [OP]	-	5 [AB]	-
Halomethanes	µg/L	-	-	5 [AB]	-
PAHs	ng/L	8.8 [OP]	-	-	-
TCDD Equivalents	pg/L	0.0039 [OP]	-	-	-

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous. Maximum	6-Month Median
Turbidity	µg/L	75 [OP]	2.2 [CTR]	225	-

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Minimum	6-Month Median
Turbidity	NTU	75 [OP]	100 [OP]	225 [OP]	-
Turbidity	NTU	Shall not exceed the turbidity of the receiving water. [AB]			
126 Priority Pollutants from "Inland Surface Waters"					

2. DISCHARGES TO LAGOONS/ESTUARIES

The discharge of groundwater extraction waste discharges to saline lagoons (only Buena Vista Lagoon is fresh water) and estuaries of the region shall not contain pollutants in excess of the following effluent limitations:

Includes limits to the Bays and Harbors Limitations

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Total Nitrogen	mg/L	-	-	2.0 [AB]	1.0 [AB]
Total Phosphorus	mg/L	-	-	.0.2 [AB]	0.1 [AB]
pH	Units	Within limit of 7.0 to 8.5 at all times [AB]			
All Parameters and Effluent Limitations from "Bays and Harbors"					

3. DISCHARGES TO THE SURF ZONE

The discharge of groundwater extraction waste to the surf zone (3:1 dilution factor) shall not contain pollutants in excess of the following effluent limitations:

Discharges to the Surf Zone Calculation

The formula used to calculate effluent limits for consituents discharged to the surf zone is from Table B in the Ocean Plan except for Toxicity and Radioactivity.

$$Ce=Co+Dm(Co-Cs)$$

Ce = the effluent concentration limit, ug/L
Co = the concentration (water quality objective) to be met at the completion of initial dilution, ug/L
Dm = minimum probable initial dilution expressed as parts seawater per part wastewater

Dm = 3 from findings from the 2001-96 Order.
Cs = background seawater concentration (see Table C), ug/L

Table C
BACKGROUND SEAWATER CONCENTRATIONS (Cs)

Waste Consitituent	Cs (ug/L)
Arsenic	3
Copper	2
Mercury	0.0005
Silver	0.16
Zinc	8
For all other Table B parameters	0

DISCHARGES TO THE SURF ZONE
(3:1 DILUTION FACTOR)[AB]

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
TCR	µg/L		32 [OP]	240 [OP]	8 [OP]
Ammonia (as Nitrogen)	µg/L		9600 [OP]	24,000 [OP]	2400 [OP]
Arsenic	µg/L		119 [OP]	311 [OP]	23 [OP]
Cadmium	µg/L		16 [OP]	40 [OP]	4 [OP]
Chromium (hexavalent)	µg/L		32 [OP]	80 [OP]	8 [OP]
Copper	µg/L		42 [OP]	114 [OP]	6 [OP]
Lead	µg/L		32 [OP]	80 [OP]	8 [OP]
Mercury	µg/L		0.64 [OP]	[illegible].60 [OP]	0.16 [OP]
Nickel	µg/L		80 [OP]	200 [OP]	20 [OP]
Silver	µg/L		10.7 [OP]	27.5 [OP]	2.32 [OP]
Zinc	µg/L		296 [OP]	776 [OP]	56 [OP]
Cyanide	µg/L		16 [OP]	40 [OP]	4 [OP]
Phenolic Compounds (Non-chlorinated)	µg/L		480 [OP]	1200 [OP]	120 [OP]
1,1,2,2-tetrachloroethane	µg/L		9.2 [OP]		
Tributyltin (TBT)	µg/L		0.0056 [OP]		
1,1,-trichoroethane	µg/L		2,160,000 [OP]		

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	instantaneous Maximum	6-Month Median
1,1,2-trichloroethane	µg/L		37.6 [OP]		
Carbon tetrachloride	µg/L		3.6 [OP]		
PCBs	µg/L		0.000076 [OP]		
Tetrachloroethylene	µg/L		8 [OP]		
Trichloroethylene	µg/L		108 [OP]		
Vinyl chloride	µg/L		144 [OP]		
Selenium	µg/L		240 [OP]	600 [OP]	60 [OP]
Endosulfan	µg/L		0.072 [OP]	0.108 [OP]	0.036 [OP]
Endrin	µg/L		0.016 [OP]	0.024 [OP]	0.008 [OP]
HCH	µg/L		0.032 [OP]	0.048 [OP]	0.016 [OP]
Acrolein	µg/L	880 [OP]			
Antimony	µg/L	4800 [OP]			
bis(2-chloroethoxy) methane	µg/L	17.6 [OP]			
bis(2-chloroisopropyl) ether	µg/L	4800 [OP]			
Chlorobenzene	µg/L	2280 [OP]			
di-n-butyl phthalate	µg/L	14,000 [OP]			
Dichlorobenzenes	µg/L	20,400 [OP]			
1,1-dichloroethylene	µg/L	3.6 [OP]			
Diethyl phthalate	µg/L	132,000 [OP]			
Dimethyl phthalate	µg/L	3,280,000 [OP]			
4,6-dinitro-2-methylphenol	µg/L	880 [OP]			
2,4-dinitrophenol	µg/L	16 [OP]			
Ethylbenzene	µg/L	16,400 [OP]			
Fluoranthene	µg/L	60 [OP]			
Hexachlorocyclopentadiene	µg/L	232 [OP]			

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Nitrobenzene	µg/L	19.6 OP			
Thallium	µg/L	8 OP			
Acrylonitrile	µg/L	0.4 OP			
Aldrin	µg/L	0.000088 OP			
Benzene	µg/L	23.6 OP			
Benzidine	µg/L	0.000276 OP			
Beryllium	µg/L	0.132 OP			
Bis(2-chloroethyl) ether	µg/L	0.1 8 OP			
Bis(2-ethylhexyl) phthalate	µg/L	14 OP			
Chlordane	µg/L	0.000092 OP			
Chloroform	µg/L	520 OP			
DDT	µg/L	0.00068 OP			
3,3-dichlorobenzidine	µg/L	0.0324 OP			
1,2-dichloroethane	µg/L	112 OP			
Dichloromethane	µg/L	1,800 OP			
1,3-dichloropropene	µg/L	35.6 OP			
Dieldrin	µg/L	0.00016 OP			
2,4-dinitrotoluene	µg/L	10.4 OP			
1,2-diphenylhydrazine	µg/L	0.64 OP			
Halomethanes	µg/L	520 OP			
Heptachlor	µg/L	0.0002 OP			
Hexachlorobenzene	µg/L	0.00084 OP			
Hexachlorobutadine	µg/L	56 OP			
Hexachloroethane	µg/L	10 OP			

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
N-nitrosodimethylamine	µg/L	29.2 [OP]			
N-nitrosodiphenylamine	µg/L	10 [OP]			
PAHs	µg/L	0.0352 [OP]			
TCDD equivalents	µg/L	1.56E-08 [OP]			
Toxaphene	µg/L	0.00084 [OP]			
2,4,6-trichlorophenol	µg/L	1.16 [OP]			

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Maximum	MDEL
Settleable Solids		1 [OP]	1.5 [OP]	3 [OP]	
Suspended Solids		75% [OP] *			
		*Suspended Solids AMEL is 75% removal unless the average monthly influent is 80 mg/L or less, then the effluent limit shall be 60 mg/L. [OP]			
pH		Within limit of 6.0 and 9.0 at all times. [OP]			
Toluene		340,000 [OP]			
Xylene				5 [AB]	
Total Petroleum Hydrocarbons				500 [AB]	
Aute Toxicity	TUa				0.3 [OP]
Chronic Toxicity	TUc				[illegible] [OP]
Turbidity	NTU	75 [OP]	[illegible]00 [OP]	225 [OP]	

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Maximum	Shellfish Harvesting
Total Coliform	MPN/100 mL	1,000 [OP]		10,000 [OP]	
Total Coliform	MPN/100 mL			1,000 [OP] *	
		*Total coliform density shall not exceed 1,000 per 100 mL when the ratio of fecal/total coliform exceeds 0.1 [OP]			
Total Coliform					70 [OP] **

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Maximum	Shellfish Harvesting
Total Coliform					230 [OP] **
		**The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL. [OP]			
Fecal Coliform	MPN/100 mL	200 [OP]		400 [OP]	
Enterococcus	MPN/100 mL	35 [OP]		104 [OP]	

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Minimum	6-Month Median
Dissolved Oxygen (DO)	mg/L				5.0 [AB]	

[OP] Basis – Ocean Plan 2005
[AB] Basis – Anti-Backsliding, values from the previous permit
[DHS] Basis – Department of Health Services
[CTR] Basis – California Toxics Rule/ State Implementation Plan 2005

4. DISCHARGES TO INLAND SURFACE WATERS

The discharge of groundwater extraction waste to inland surface waters (including Buena Vista Lagoon) shall not contain pollutants in excess of the following effluent limitations:

GENERAL CONSTITUENTS

Constituent	Unit	AMEL	Daily Maximum	Instantaneous Maximum	Basis
Settleable Solids	ml/L	0.1	---	0.2	AB
Total Suspended Solids	mg/L	30	---	50	
Percent Sodium	%	---	---	60	AB
Total Nitrogen	mg/L	1.0		2.0	
Total Phosphorus	mg/L	0.1		0.2	
Methylene Blue Active Substances	mg/L	---	---	0.5	"
Turbidity	NTU	Shall not exceed the ambient turbidity of the surface water at any time.			"
Fluoride	mg/L	---	---	1.0	"
Hydrogen Sulfide	µg/L	2	4	10	AB
Total Residual Chlorine (TRC)	µg/L	2	8	10	AB
pH	Units	Within the limits of 6.5 and 8.5 at all times.			AB
Acute Toxicity	TUa	---	---	0.59	AB
Chronic Toxicity	TUc	---	1	---	AB

Constituent	Unit	AMEL	Daily Maximum	Instantaneous Maximum	Basis
Dissolved Oxygen	mg/L	Shall not be less than 5.0 at any time in waters with designated warm fresh-water habitat beneficial uses or less than 6.0 in waters with cold fresh water habitat beneficial uses.			AB
Total Colifonn	MPN/100mL	---	---	1000	"
Fecal Colifonn	MPN/100mL	---	---	200	"

VOLATILES, METALS, PRIORITY POLLUTANTS:

Beneficial Use:	Municipal/Potable Supply Instantaneous			Non-municipal/Non-potable Instantaneous		
Constituent	Unit	Maximum	Basis	Unit	Maximum	Basis
Dibromochloropropane	µg/L	0.2	DOHS	µg/L	0.2	AB
Ethylene Dibromide	µg/L	0.02	DOHS	µg/L	0.02	AB
Xylene	µg/L	5	AB	µg/L	5	AB
Chlorinated Phenolics	µg/L	1	DOHS	µg/L	10	AB
Remaining Base/Neutral Compounds	µg/L	10	AB	µg/L	10	AB
Total Petroleum Hydrocarbons	mg/L	0.5	"	mg/L	0.5	AB
Iron**	mg/L	0.3	"	mg/L	0.3	AB
Manganese	mg/L	0.05	"	mg/L	0.05	AB
MTBE	µg/L	5	DOHS			
126 Priority Pollutants (Including metals)	40 CFR 131.38 - Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California.					See Below

126 Priority Pollutants - 40 CFR 131.38 - Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California.

The effluent limits for eight priority pollutants will be developed on a case-by-case basis because the freshwater criteria are based on site-specific water quality data.

Seven metals are dependent on water hardness, Cadmium, Copper, Chromium (III), Lead, Nickel, Silver, and Zinc [See Table I to 40 CFR 131.38(b)(2)], and the "Conversion Factors" for Cadmium and Lead are also water hardness dependent. [See Table 3 of 40 CFR 131.38(b)(2)]

In order to calculate the effluent limits for these seven metals the following equations from 40 CFR 131.38(b)(2) will be needed:

Cd CFa=1.136672-((LN(hardness))*0.041838)
Cd CFc = 1.101672-((LN(hardness))*0.041838)
Pb CFa&c = I.46203-((LN(hardness))*0.145712)
Criterion=WER*CFx*(exp(mA*LN(hardness)+bA

Pentachlorophenol is dependent on the pH value. [See Footnote "f" to Table in 40 CFR 131.38(b)(1)]

To calculate the effluent limit for Pentachlorophenol use this equation:
CMC = exp(1.005(pH)−4.869). CCC = exp(1.005(pH)−5.134)

The remainder of the criteria is not water quality dependent and the effluent limits can be calculated. However, not all the effluent limits will apply to all sites because of the Beneficial use designation for "Municipal" may not apply to all sites.

Effluent Limits for Human Health Municipal and Non-Municipal

		Human Health			
				NON-MUN	
		AMEL	MDEL	AMEL	MDEL
		(µg/L)	(µg/L)	(µg/L)	(µg/L)
A					
1	Antimony	14	28	4300	8600
2	Arsenic				
3	Beryllium				
4	Cadmium				
5a	Chromium (III)				
5b	Chromium (IV)				
6	Copper	1300	2600		
7	Lead				
8	Mercury	0.05	0.1	0.051	0.1
9	Nickel				
10	Selenium				
11	Silver				
12	Thallium				
13	Zinc	700	1400	220000	440000
14	Cyanide	7000000	14000000		
15	Asbestos	1.3E-08	2.6E-08	1.4E-08	2.8E-08
16	2,3,7,8-TCDD (Dioxin)	320	640	780	1600
17	Acrolein	0.059	0.12	0.66	1.3
18	Acrylonitrile	1.2	2.4	71	140
19	Benzene	4.3	8.6	360	720
20	Bromoform	0.25	0.5	4.4	8.8
21	Carbon Tetrachloride	680	1400	21000	42000
22	Chlorobenzene	0.41	0.82	34	68
23	Chlorodibromomethane				

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
24	Chloroethane				
25	2-Chloroethylvinyl Ether				
26	Chloroform				
27	Dichlorobromomethane	0.56	1.1	46	92
28	1,1-Dichloroethane				
29	1,2-Dichloroethane	0.38	0.76	99	200
30	1,1-Dichloroethylene	0.057	0.11	3.2	6.4
31	1,2-Dichloropropane	0.52	1	39	78
32	1,3-Dichloropropylene	10	20	1700	3400
33	Ethylbenzene	3100	6200	29000	58000
34	Methyl Bromide	48	96	4000	8000
35	Methyl Chloride				
36	Methylene Chloride	4.7	9.4	1600	3200
37	1,1,2,2-Tetrachloroethane	0.17	0.34	11	22
38	Tetrachloroethylene	0.8	1.6	8.9	18
39	Toluene	6800	14000	200000	400000
40	1,2-Trans-Dichloroethylene	700	1400	140000	280000
41	1,1,1-Trichloroethane				
42	1,1,2-Trichloroethane	0.6	1.2	40	80
43	Trichloroethylene	2.7	5.4	81	160
44	Vinyl Chloride	2	4	530	1100
45	2-Chlorophenol	120	240	400	800
46	2,4-Dichlorophenol	93	190	790	1600
47	2,4-Dimethylphenol	540	1100	2300	4600
48	2-Methyl-4,6-Dinitrophenol	13	27	770	1500
49	2,4-Dinitrophenol	70	140	14000	28000
50	2-Nitrophenol				
51	4-Nitrophenol				
52	3-Methyl-4-Chlorophenol				
53	Pentachlorophenol	0.28	0.56	8.2	16
54	Phenol	21000	42000	4500000	9000000
55	2,4,6-Trichlorophenol	2.1	4.2	6.5	13
56	Acenaphthene	1200	2400	2700	5400

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
57	Acenaphthylene				
58	Anthracene	9600	19000	110000	220000
59	Benzidine	0.00012	0.00024	0.00054	0.0011
60	Benzo(a)Anthracene	0.0044	0.0088	0.049	0.098
61	Benzo(a)Pyrene	0.0044	0.0088	0.049	0.098
62	Benzo(b)Fluoranthene	0.0044	0.0088	0.049	0.098
63	Benzo(ghi)Perylene				
64	Benzo(k)Fluoranthene	0.0044	0.0088	0.049	0.098
65	Bis(2-Chloroethoxy)Methane				
66	Bis(2-Chloroethyl)Ether	0.031	0.062	1.4	2.8
67	Bis(2-Chloroisopropyl)Ether	1400	2800	170000	340000
68	Bis(2-Ethylhexyl)Phthalate	1.8	3.6	5.9	12
69	4-Bromophenyl Phenyl Ether				
70	Butylbenzyl Phthalate	3000	6000	5200	10000
71	2-Chloronaphthalene	1700	3400	4300	8600
72	4-Chlorophenyl Phenyl Ether				
73	Chrysene	0.0044	0.0088	0.049	0.098
74	Dibenzo(a,h)Anthracene	0.0044	0.0088	0.049	0.098
75	1,2 Dichlorobenzene	2700	5400	17000	34000
76	1,3 Dichlorobenzene	400	800	2600	5200
77	1,4 Dichlorobenzene	400	800	2600	5200
78	3,3'-Dichlorobenzidine	0.04	0.08	0.077	0.15
79	Diethyl Phthalate	23000	46000	120000	240000
80	Dimethyl Phthalate	310000	630000	2900000	5800000
81	Di-n-Butyl Phthalate	2700	5400	12000	24000
82	2,4-Dinitrotoluene	0.11	0.22	9.1	18
83	2,6-Dinitrotoluene				
84	Di-nOctyl Phthalate				
85	1,2-Diphenylhydrazine	0.04	0.08	0.54	1.1
86	Fluoranthene	300	600	370	740
87	Fluorene	1300	2600	14000	28000
88	Hexachlorobenzene	0.00075	0.0015	0.00077	0.0015
89	Hexachlorobutadiene	0.44	0.88	50	100

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
90	Hexachlorocyclopentadiene	240	480	17000	34000
91	Hexachloroethane	1.9	3.8	8.9	18
92	Inden(1,2,3-cd) Pyrene	0.0044	0.0088	0.049	0.098
93	Isophorone	8.4	17	600	1200
94	Naphthalene				
95	Nitrobenzene	17	34	1900	3800
96	N-Nitrosodimethylamine	0.00059	0.0012	8.1	16
97	N-Nitrosodi-n-Propylamine	0.005	0.01	1.4	2.8
98	N-Nitrosodiphenylamine	5	10	16	32
99	Phenanthrene				
100	Pyrene	960	1900	11000	22000
101	1,2,4-Trichlorobenzene				
102	Aldrin	0.00013	0.00026	0.00014	0.00028
103	alpha-BHC	0.0039	0.0078	0.013	0.026
104	beta-BHC	0.014	0.028	0.046	0.092
105	gamma-BHC	0.019	0.038	0.063	0.13
106	delta-BHC				
107	Chlordane	0.00057	0.0011	0.00059	0.0012
108	4,4'-DDT	0.00059	0.0012	0.00059	0.0012
109	4,4'-DDE	0.00059	0.0012	0.00059	0.0012
110	4,4'-DDD	0.00083	0.0017	0.00084	0.0017
111	Dieldrin	0.00014	0.00028	0.00014	0.00028
112	alpha-Endosulfan	110	220	240	480
113	beta-Endosulfan	110	220	240	480
114	Endosulfan Sulfate	110	220	240	480
115	Endrin	0.76	1.5	0.81	1.6
116	Endrin Aldehyde	0.76	1.5	0.81	1.6
117	Heptachlor	0.00021	0.00042	0.00021	0.00042
118	Heptachlor Epoxide	0.0001	0.0002	0.00011	0.00022
119	Polychlorinated biphenyls (PCBs)	0.00017	0.00034	0.00017	0.00034
120					
121	"				

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
122	"				
123	"				
124	"				
125	"				
126	Toxaphene	0.00073	0.0015	0.00075	0.0015

Effluent Limits for Freshwater and Saltwater

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
A					
1	Antimony				
2	Arsenic	250	120	59	29
3	Beryllium				
4	Cadmium	*	*	16	8
5a	Chromium (III)	*	*		
5b	Chromium (IV)	16	8.1	83	41
6	Copper	*	*	5.8	2.9
7	Lead	*	*	14	7
8	Mercury				
9	Nickel	*	*	14	6.8
10	Selenium	8.2	4.1	120	58
11	Silver	*	*	2.2	1.1
12	Thallium				
13	Zinc	*	*	95	47
14	Cyanide	8.5	4.2	1	0.5
15	Asbestos				
16	2,3,7,8-TCDD (Dioxin)				
17	Acrolein				
18	Acrylonitrile				
19	Benzene				
20	Bromoform				
21	Carbon Tetrachloride				

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
22	Chlorobenzene				
23	Chlorodibromomethane				
24	Chloroethane				
25	2-Chloroethylvinyl Ether				
26	Chloroform				
27	Dichlorobromomethane				
28	1,1-Dichloroethane				
29	1,2-Dichloroethane				
30	1,1-Dichloroethylene				
31	1,2-Dichloropropane				
32	1,3-Dichloropropylene				
33	Ethylbenzene				
34	Methyl Bromide				
35	Methyl Chloride				
36	Methylene Chloride				
37	1,1,2,2-Tetrachloroethane				
38	Tetrachloroethylene				
39	Toluene				
40	1,2-Trans-Dichloroethylene				
41	1,1,1-Trichloroethane				
42	1,1,2-Trichloroethane				
43	Trichloroethylene				
44	Vinyl Chloride				
45	2-Chlorophenol				
46	2,4-Dichlorophenol				
47	2,4-Dimethylphenol				
48	2-Methyl-4,6-Dinitrophenol				
49	2,4-Dinitrophenol				
50	2-Nitrophenol				
51	4-Nitrophenol				
52	3-Methyl-4-Chlorophenol				
53	Pentachlorophenol	**	**	13	6.5
54	Phenol				
55	2,4,6-Trichlorophenol				

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
56	Acenaphthene				
57	Acenaphthylene				
58	Anthracene				
59	Benzidine				
60	Benzo(a)Anthracene				
61	Benzo(a)Pyrene				
62	Benzo(b)Fluoranthene				
63	Benzo(ghi)Perylene				
64	Benzo(k)Fluoranthene				
65	Bis(2-Chloroethoxy)Methane				
66	Bis(2-Chloroethyl)Ether				
67	Bis(2-Chloroisopropyl)Ether				
68	Bis(2-Ethylhexyl)Phthalate				
69	4-Bromophenyl Phenyl Ether				
70	Butylbenzyl Phthalate				
71	2-Chloronaphthalene				
72	4-Chlorophenyl Phenyl Ether				
73	Chrysene				
74	Dibenzo(a,h)Anthracene				
75	1,2 Dichlorobenzene				
76	1,3 Dichlorobenzene				
77	1,4 Dichlorobenzene				
78	3,3'-Dichlorobenzidine				
79	Diethyl Phthalate				
80	Dimethyl Phthalate				
81	Di-n-Butyl Phthalate				
82	2,4-Dinitrotoluene				
83	2,6-Dinitrotoluene				
84	Di-nOctyl Phthalate				
85	1,2-Diphenylhydrazine				
86	Fluoranthene				
87	Fluorene				
88	Hexachlorobenzene				
89	Hexachlorobutadiene				

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
90	Hexachlorocyclopentadiene				
91	Hexachloroethane				
92	Inden(1,2,3-cd) Pyrene				
93	Isophorone				
94	Naphthalene				
95	Nitrobenzene				
96	N-Nitrosodimethylamine				
97	N-Nitrosodi-n-Propylamine				
98	N-Nitrosodiphenylamine				
99	Phenanthrene				
100	Pyrene				
101	1,2,4-Trichlorobenzene				
102	Aldrin	3	1.5	1.3	0.65
103	alpha-BHC				
104	beta-BHC				
105	gamma-BHC	0.95	0.47	0.16	0.08
106	delta-BHC				
107	Chlordane	0.007	0.0035	0.0066	0.0033
108	4,4'-DDT	0.0016	0.00082	0.0016	0.00082
109	4,4'-DDE				
110	4,4'-DDD				
111	Dieldrin	0.092	0.046	0.0031	0.0016
112	alpha-Endosulfan	0.092	0.046	0.014	0.0071
113	beta-Endosulfan	0.092	0.046	0.014	0.0071
114	Endosulfan Sulfate				
115	Endrin	0.059	0.029	0.0038	0.0019
116	Endrin Aldehyde				
117	Heptachlor	0.0062	0.0031	0.0059	0.0029
118	Heptachlor Epoxide	0.0062	0.0031	0.0059	0.0029
119	Polychlorinated biphenyls (PCBs)	0.023	0.011	0.049	0.025
120					
121					
122					

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
123	"				
124	"				
125	"				
126	Toxaphene	0.00033	0.00016	0.00033	0.00016

* Use equations from 40 CFR 131.38(b)(2)
** Use equations from 40 CFR 131.38(b)(1) footnote "f"

Mass Limits

All permit limitations, standards or prohibitions shall be expressed in terms of mass except for pH, or other pollutants which cannot appropriately be expressed by mass or under certain circumstances including "when applicable standards and limitations are expressed in terms of other units of measurement." (40 CFR § 122.45(f)(1)). Therefore, all concentration limits stated above except for Settleable Solids, Acute Toxicity, Chronic Toxicity, Total Coliform, Fecal Coliform, pH, and Dissolved Oxygen shall also have a mass limit based on its concentration limit times the discharge flow limit in the Notice of Enrollment expressed in pounds per day (lbs/d) as shown in the equations below:

Concentration Limit * Flow Limit * Conversion Factor = Mass Limit
(mg/l) * (MGD) * 8.34 [lb*L/(Million Gallons*mg)] = lbslday
(µg/l) * (MGD) * 0.00834 [lb*L/(Million Gallons*µg)] = lbslday
(mg/l) * (gpd) * 0.00000834 [lb*L/(Gallons*mg)] = lbs/day
(µg/l) * (gpd) * 0.00000000834 [lb*L/(Million Gallons*µg)] = lbslday

5. Interim Effluent Limitations (Not Applicable)

6. Land Discharge Specifications (Not Applicable)

7. Reclamation Specifications (Not Applicable)

B. Land Discharge Specifications (Not Applicable)

C. Reclamation Specifications (Not Applicable)

VI. Receiving Water Limitations

A. Surface Water Limitations-

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this WDR. The discharge of groundwater extraction waste from any site'shall not, separately or jointly with any other discharge, cause violations of the following water quality objectives. These

limitations apply unless more stringent provisions exist in either the Basin Plan, or an applicable State plan. The more stringent limitation shall apply.

1. Bacterial Characteristics

   a. Water-Contact Standards
   Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water-contact sports, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

   (1) Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).

   (2) The fecal coliform density based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

   b. Shellfish Harvesting Standards
   At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

   The median total coliform density shall not exceed 70 per 100 ml, and not more than 10 percent of the samples shall exceed 230 per 100 ml.

2. Physical Characteristics
   a. Floating particulates and grease and oil shall not be visible.
   b. The discharge of waste shall not cause aesthetically undesirable discoloration of the surface waters.
   c. Natural light shall not be significantly reduced.
   The rate of deposition of solids and the characteristics of inert solids in the sediments shall not be changed such that benthic communities are degraded.

3. Chemical Characteristics
   a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen demanding waste materials.
   b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
d. The concentration of substances set forth in the Discharge Specifications in marine sediments shall not be increased to levels which would degrade indigenous biota.
e. The concentration of organic materials in the sediments shall not be increased to levels which would degrade marine life.
f. Nutrient materials shall not cause objectionable aquatic growth or degrade indigenous biota.

4. Biological Characteristics
   a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.
   b. The natural taste, odor, and color of fish, shellfish, or other aquatic resources used for human consumption shall not be altered.
   c. The concentration of organic materials in fish, shellfish or other aquatic resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

5. Radioactivity
   Discharge of radioactive waste shall not degrade marine life.

6. Toxic Materials Limitations for Marine Waters (Surf Zone) Ocean Plan, 2005

OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE

Chemical	Units of Measurement	6-Month Median	Daily Maximum	Instantaneous Maximum
Arsenic	µg/L	8	32	80
Cadmium	µg/L	1	4	10
Chromium (Hexavalent)	µg/L	2	8	20
Copper	µg/L	3	12	30
Lead	µg/L	2	8	20
Mercury	µg/L	0.04	0.16	0.4
Nickel		5	20	50
Selenium		15	60	150
Silver	µg/L	0.7	2.8	7
Zinc	µg/L	20	80	200
Cyanide	µg/L	1	4	10
Total Chlorine Residual	µg/L	2	8	60
Ammonia (as nitrogen)	µg/L	600	2400	6000
Chronic Toxicity	TUc		1	
Phenolic Compounds (Non-chlorinated)	µg/L	30	120	300
Chlorinated Phenolics	µg/L	1	4	10
Endosulfan	ng/L	9	18	27
Endrin	ng/L	2	4	6

Chemical	Units of Measurement	6-Month Median	Daily Maximum	Instantaneous Maximum
HCH	ng/L	4	8	12
Radioactivity	Not to exceed limits specified in Title 17, Chapter 15, Subchapter 4, Group 3, Article 3, Section 30269 of the California Code of Regulations.			

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH -- NONCARCINOGENS

Chemical	Units of Measurement	30-dav Averages
Acrolein	µg/L	220
Antimony	mg/L	1.2
bis(2-chloroethoxy)methane	µg/L	4.4
bis(2-chloroisopropyl) ether	mg/L	1.2
Chlorobenzene	µg/L	570
Chromium (III)	mg/L	190
Di-n-butyl phthalate	mg/L	3.5
Dichlorobenzenes	mg/L	5.1
1,1-dichloroethylene	mg/L	7.1
Diethyl phthalate	mg/L	33
Dimethyl phthalate	mg/L	820
4,6-dinitro-2-methylphenol	µg/L	220
2,4-dinitrophenol		4.0
Ethylbenzene	mg/L	4.1
Fluoranthene	µg/L	15
Hexachlorocyclopentadiene	µg/L	58
Isophorone	mg/L	150
Nitrobenzene	µg/L	4.9
Thallium	µg/L	14
Toluene	mg/L	85
1,1,2,2-tetrachloroethane	mg/L	1.2
Tributyltin	ng/L	1.4
1,1,1-trichloroethane	mg/L	540
1,1,2-trichloroethane	mg/L	43

OBJECTIVES FOR PROTECTION OF HUMAN HEALTH -- CARCINOGENS

Chemical	Units of Measurement	30-day Average
Acrylonitrile	µg/L	0.1
Aldrin	ng/L	0.022
Benzene	µg/L	5.9
Benzidine	ng/L	0.069
Beryllium	ng/L	33
bis(2-chloroethyl) ether	µg/L	0.045
bis(2-ethylhexyl) phthalate	µg/L	3.5
Carbon tetrachloride	µg/L	0.9
Chlordane	ng/L	0.023
Chloroform	mg/L	0.13
DDT	ng/L	0.17

Chemical	Units of Measurement	30-day Average
1,4-dichlorobenzene	µg/L	18
3,3-dichlorobenzidine	ng/L	8.1
1,2-dichloroethane	mg/L	0.13
Dichloromethane	mg/L	0.45
1,3-dichloropropene	µg/L	8.9
Dieldrin	ng/L	0.04
2,4-dinitrotoluene	µg/L	2.6
1,2-diphenylhydrazine	µg/L	0.16
Halomethanes	mg/L	0.13
Heptachlor	ng/L	0.72
Hexachlorobenzene	ng/L	0.21
Hexachlorobutadiene	µg/L	14
Hexachloroethane	µg/L	2.5
N-nitrosodimethylamine	µg/L	7.3
N-nitrosodiphenylamine	µg/L	2.5
PAHs	ng/L	8.8
PCBs	ng/L	0.019
TCDD equivalents	pg/L	0.0039
Tetrachloroethylene	µg/L	99
Toxaphene	ng/L	0.21
Trichloroethylene	µg/L	27
2,4,6-trichlorophenol	µg/L	0.29
Vinyl chloride	µg/L	36

7. Toxic Materials Limitations and Objectives for Inland Surface Waters (Fresh)

(a) Discharges of extracted groundwater shall not cause violations of surface water quality objectives presented by hydrographic subunit and subarea in Table 3-2 of the Comprehensive Water Quality Control Plan Report, San Diego Basin (9), as amended.

(b) Discharges of extracted groundwater shall not cause violations of the following objectives in inland surface waters:

1. No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.

2. For the protection of public health and aquatic species, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of toxics in excess of the maximum contaminant levels for contaminants set forth in the California Code of Regulations, Title 22, as amended, or water quality objectives listed in 40 CFR 131.38 (Attachment D), for the protection of aquatic species and protection of human health, whichever concentration for a specific chemical is less. Current maximum

contaminant levels for the protection of human health from the ingestion of water are as follows:

	Constituent	Title22 Maximum Contaminant Level (mg/L)
a. Inorganic	Aluminum	1
	Arsenic	0.05
	Barium	1
	Cadmium	0.01
	Chromium	0.05
	Lead	0.05
	Mercury	0.002
	Nitrate	45
	Selenium	0.01
	Silver	0.05

	Constituent	Title22 Maximum Contaminant Level (mg/L)
b. Organic	Atrazine	0.003
	Bentazon	0.018
	Benzene	0.001
	Carbon Tetrachloride	0.0005
	2,4-D	0.1
	Dibromochloropropane	0.0002
	1,4-Dichlorobenzene	0.005
	1,2-Dichloroethane	0.0005
	1,1-Dichloroethylene	0.006
	1,3-Dichloropropene	0.0005
	Endrin	0.0002
	Ethyl Benzene	0.68
	Ethylene Dibromide	0.00002
	Lindane	0.004
	Methoxychlor	0.1
	Molinate	0.02
	Monochlorobenzene	0.03
	Simazine	0.01
	1,1,2,2-Tetrachloroethane	0.001
	Tetrachloroethylene	0.005
	Thiobencarb	0.07
	Toxaphene	0.005
	2,4,5-TP Silvex	0.01
	1,1,1-Trichloroethane	0.2
	1,1,2-Trichloroethane	0.032
	Trichloroethylene	0.005
	Vinyl Chloride	0.0005
	Xylenes (Single or sum of isomers)	1.75

8. Mineral Objectives for Inland Surface Waters (fresh):

Hydrographic Unit	**Objective (mg/L)**			
	TDS	**Chloride**	**Sulfate**	**Boron**
San Juan Unit				
1.10	1000	400	500	0.75
1.20,1.30,1.40,1.50	500	250	250	0.75
Santa Margarita Unit				
2.20,2.40,2.50,2.60	500	250	250	0.75
2.70,2.80,2.90,2.10,2.30	750	300	300	0.75
San Luis Rey Unit				
3.10,3.20,3.30	500	250	250	0.75
Carlsbad Unit				
4.10,4.40				
4.20,4.30,4.50,4.60	500	250	250	0.75
San Dieguito Unit				
5.10,5.20,5.30,5.40, 5.50	500	250	250	0.75
Penasquitos Unit				
6.10,6.20,6.40	500	250	250	0.75
6.30,6.50	---	---	---	---
San Diego Unit				
7.10	1000	400	500	1.0
7.11	1500	400	500	1.0
7.12c/d,	1000/1500	400	500	1.0
7.20,7.30,7.40	300	50	65	1.0
Coronado Unit				
10.10	NA	NA	NA	NA
Sweetwater River Unit				
9.10	1500	500	500	0.75
9.20,9.30	500	250	250	0.75
Otay Unit				
10.20	1000	400	500	0.75
10.30	500	250	250	0.75
Tijuana Unit				
11.11	2100	NA	NA	NA
11.20,11.30,11.40,11.50				
11.60,11.70,11.80	500	250	250	1.0

9. Waters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use.

10. Radioactivity: Discharges of radioactive waste shall not degrade marine life.

B. Groundwater Limitations (Not Applicable)

VII. Provisions

A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this WDR.

2. Regional Board Standard Provisions. The Discharger shall comply with the following provisions:

   a. The Discharger shall comply with all requirements and conditions of this WDR. Any permit non-compliance constitutes a violation of the CWA and/or of the CWC and is grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of an application for permit renewal, modification, or reissuance.

   b. The Discharger shall comply with all applicable federal, state, and local laws and regulations for handling, transport, treatment, or disposal of waste or the discharge of waste to waters of the state in a manner which causes or threatens to cause a condition of pollution, contamination or nuisance as those terms are defined in CWC 13050.

   c. The Porter-Cologne Water Quality Control Act provides for civil and criminal penalties comparable to, and in some cases greater than, those provided for under the CWA.

   d. Any noncompliance with this WDR is a violation of the CWC and/or the CWA and is grounds for denial of an application for Order renewal or modification.

   e. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to WDRs, shall create a vested right to continue the discharge. All discharges of waste into waters of the state are privileges, not rights.

   f. For the purposes of this WDR, the term "permittee" used in parts of 40 CFR incorporated into this WDR by reference and/or applicable to this WDR shall have the same meaning as the term "Discharger" used elsewhere in this WDR.

g. This WDR expires on March 12, 2013, after which, the terms and conditions of this permit are automatically continued pending issuance of a new WDR, provided that all requirements of USEPA's NPDES regulations at 40 CFR 122.6 and the State's regulations at CCR Title 23, Section 2235.4 regarding the continuation of expired Orders and waste discharge requirements are met.

h. Except as provided for in 40 CFR 122.7, no information or documents submitted in accordance with or in application for this permit will be considered confidential, and all such information and documents shall be available for review by the public at the office of the Regional Water Board.

i. A copy of this WDR shall be maintained on-site at the Facility, and shall be available to Regional Water Board, State Water Board, and EPA personnel and/or their authorized representatives at all times.

j. The Discharger shall comply with any interim limitations established by addendum, enforcement action, or revised waste discharge requirements that have been or may be adopted by the Regional Water Board.

k. Failure to comply with provisions or requirements of this WDR, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

l. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, effluent limitation, discharge specification, or receiving water limitation of this WDR, the Discharger shall notify the Regional Water Board by telephone (858) 467-2952 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation. Other noncompliance requires written notification as above at the time of the normal monitoring report.

m. The Discharger is required to retain records, including all monitoring information and copies of all reports required by this WDR, for five years unless directed otherwise by the Regional Board.

n. This WDR may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of USEPA

guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations (CFR) 122.62, 122.63, 122.64, and 124.5.

o. Dischargers enrolled in this WDR planning to discharge extracted groundwater waste after the expiration date of March 12, 2013 may be subject to new prohibitions or requirements based on the re-issuance of this WDR after March 12, 2013.

p. The enrollee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this WDR and the Notice of Enrollment from the Regional Board, including such accelerated or additional monitoring as may be necessary to determine the nature, and effect of the noncomplying discharge.

q. This WDR or the Notice of Enrollment from the Regional Board, may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

(1) Violation of any terms or conditions of this.WDR or the Notice of Enrollment from the Regional Board;

(2) Obtaining enrollment in this WDR, or a Notice of Enrollment from the Regional Board, by misrepresentation or failure to disclose fully all relevant facts;

(3) A change in any condition that requires either a temporary or permanent reduction or elimination of the discharge subject to waste discharge requirements; or

(4) A finding that monitoring "indicator" pollutants listed in this WDR do not ensure compliance with water quality criteria or objectives for the pollutants expected to be represented by the "indicator" pollutants.

r. The filing of a request by the enrollee for modification, revocation and reissuance, or termination of this WDR or an associated discharge Notice of Enrollment from the Regional Board, or a notification of planned change in or anticipated noncompliance with this WDR or discharge Notice of Enrollment does not stay any condition of this WDR or the Notice of Enrollment from the Regional Board.

s. Notwithstanding Provision 2.e above, if any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in this WDR, the Regional Board may institute proceedings under these regulations to modify or revoke and reissue this WDR to conform to the toxic effluent standard or prohibition.

t. In addition to any other grounds specified herein, this WDR or a Notice of Enrollment from the Regional Board shall be modified or revoked at any time if, on the basis of any data, the Regional Board determines that continued discharges may cause unreasonable degradation of the aquatic environment.

u. The Regional Board or the Director of the USEPA may require any person requesting enrollment under this WDR or subject to waste discharge requirements under this WDR to apply for and obtain an individual NPDES permit. Cases where an individual NPDES permit may be required include but are not limited to those described in 40 CFR 122.28 (b)(3)(i) and (b)(3)(ii), and where the volume of a discharge exceeds 10 million gallons per year, or the duration of a discharge exceeds 3 years.

v. It shall not be a defense for the enrollee in an enforcement action that effluent limitation violations are a result of analytical variability rendering the results inaccurate. The validity of the testing results, whether or not the enrollee has monitored or sampled more frequently than required by this WDR, shall not be a defense to an enforcement action.

w. A copy of this WDR, and the Notice of Enrollment from the Regional Board shall be posted at a prominent location at or near the enrollee's facility, and shall be available to operating personnel at all times.

x. The enrollee shall .take all reasonable steps to minimize or prevent any discharge in violation of this WDR which has a reasonable likelihood of adversely affecting human health or the environment.

y. For the purposes of this WDR, the term permit, general permit, and order, shall have the same meaning as the term WDR used elsewhere in this WDR.

z. For the purpose of this WDR, the term Discharger and enrollee shall have the same meaning as the term discharger used elsewhere in this WDR.

B. Monitoring and Reporting Program Requirements

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this WDR.

C. Special Provisions

1. Reopener Provisions (Not Applicable)

2. Special Studies, Technical Reports and Additional Monitoring Requirements (Not Applicable)

3. Best Management Practices and Pollution Prevention Plan (Not Applicable)

4. Compliance Schedules (Not Applicable)

5. Construction, Operation and Maintenance Specifications (Not Applicable)

6. Special Provisions for Municipal Facilities (POTWs Only) (Not Applicable)

7. Other Special Provisions

   The Dischargers shall dispose of solids removed from liquid wastes in a manner that is consistent with Title 27 of the CCR and approved by the Regional Board.

8. Order No. R9-2008-0002 may be modified by the Regional Board and EPA to enable the discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the region. During these coordinated sampling efforts, the discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the Southern California Bight. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the discharger's sampling effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the discharger's existing monitoring program. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.

VIII. Compliance Determination-

Compliance with the effluent limitations contained in Section IV of this WDR will be determined as specified below:

A. Average Monthly Effluent Limitation (AMEL)

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for that month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

B. Average Weekly Effluent Limitation (AWEL)

If the average of daily discharges over a calendar week exceeds the AWEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that week for that parameter, resulting in seven days of non-compliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Discharger will be considered out of compliance for that calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

C. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for that parameter for that one day only within the reporting period. For any one day during which no sample is taken, no compliance determination can be made for that day.

D. Instantaneous Minimum Effluent Limitation

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, a violation will be flagged and the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

E. Instantaneous Maximum Effluent Limitation

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, a violation will be flagged and the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately

(e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

F. Six-Month Median Effluent Limitation

The Discharger shall determine the six-month median effluent value (SMEV) for a given parameter by calculating the statistical median of all daily effluent values (DEVs) for each parameter within each six-month calendar period (January-June and July-December). The SMEV determination for a given six-month calendar period shall not include DEVs from any other six-month calendar period. If only a single DEV is obtained for a parameter during a six-month calendar period, that DEV shall be considered the SMEV for that parameter for that given six-month calendar period. The SMEV shall be attributed to each day of the six-month calendar period for determination of compliance with the six-month median effluent limitation (SMEL) for a given parameter for each day of that given six-month calendar period, resulting in approximately 180 days of non-compliance depending on the number of days in the six-month calendar period. If the SMEV exceeds the six-month median, the Discharger will be considered out of compliance for each day for the six-month period. The SMEV cannot be determined for any six month calendar period during which no DEV is obtained.

Attachment A – Definitions

Arithmetic Mean (μ), also called the average: the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL): the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL): the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative Pollutants: those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Carcinogenic Pollutants: substances that are known to cause cancer in living organisms.

Coefficient of Variation (*CV*): a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Cone of Depression: A depression in the water table that develops around a pumped well.

Cone of Influence: The depression, roughly conical in shape, produced in a water table by the pumping of water from a well.

Contamination Site: A site that is currently under investigation or cleanup for any medium (air, soil, water), or is provided oversight by any local, state, or federal environmental regulatory agency, such as the County of San Diego, Air Pollution Control District, and Department of Toxics Substance Control, or the quality of surface water or groundwater at a site has been altered by wastes to a degree which unreasonably affects either the waters for beneficial uses or facilities which serve these beneficial uses.

Daily Discharge: Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12 a.m. through 11:59 p.m.) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or;

(2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day, or other 24-hour period defined as a day), or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if one day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ): those sample results less than the Reporting Level (RL), but greater than or equal to the laboratory's Method Detection Limit (MDL).

Dilution Credit: the amount of dilution granted to a Discharger in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio, or determined through conducting a mixing zone study, or modeling of the discharge and receiving water.

Effluent Concentration Allowance (ECA): a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays: indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Notice of Enrollment: A notice from the Regional Board to the discharger that the NOI application has been accepted and the project is enrolled in this WDR. The Notice of Enrollment will specify the discharge flow limit, any additional or increase in monitoring due to specific circumstances of the discharge, or other requirements.

Estimated Chemical Concentration: the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the Minimum Level value.

Estuaries: waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Inland Surface Waters: all surface waters of the State that do not include the ocean, enclosed bays, or estuaries. Inland surface water consist of freshwater and do not have any measurable salinity.

Instantaneous Maximum Effluent Limitation: the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation: the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Daily Effluent Limitation (MDEL): the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median: the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the n12 and $n/2+1$).

Method Detection Limit (MDL): the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML): the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone: a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND): those sample results less than the laboratory's MDL.

Notice of Intent (NOI): A form completed and signed by a Discharger notifying the Regional Board that the Discharger is applying for enrollment under the terms and conditions of the WDR and will comply with the WDR for a groundwater extraction activity at a specific site.

Notice of Termination (NOT): A letter completed and signed by a Discharger notifying the Regional Board that the Discharger no longer wishes to discharge under the WDR. Submission of a NOT constitutes notice that the owner (and his/her agent) of the site identified on the letter has ceased discharge groundwater associated with groundwater extraction activities at the site under this WDR.

Ocean Waters: the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Board's California Ocean Plan.

Permanent groundwater extraction activities: Groundwater extraction operations for structures which 1) are not designed or constructed to withstand hydrostatic pressure or do not preclude infiltration of groundwater, and 2) require removal of groundwater to prevent water infiltration to the structure(s).

Persistent pollutants: substances for which degradation or decomposition in the environment is nonexistent or very slow.

Radius of Influence: The radial distance from the center of a wellbore to the point where there is no lowering of the water table or potentiometric surface (the edge of the cone of depression).

Reporting Level (RL): the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this WDR. The MLs included in this WDR correspond to approved analytical methods for reporting a sample result that are selected by the Regional Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP, or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Satellite Collection System: the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Six-Month Median Effluent Limitation: the highest allowable median of all daily discharges, based on 24-hour flow-weighted composite samples, for any 180-day period.

Source of Drinking Water: any water designated as municipal or domestic supply (MUN) in a Regional Board Basin Plan.

Standard Deviation *(o)*: a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

n is the number of samples.

Temporary Discharge: Discharge of extracted groundwater waste from groundwater cleanup with a projected cleanup date and subsurface excavation that requires groundwater extraction that is not a permanent groundwater extraction activity.

Discharges of groundwater for the purpose of protecting subterranean structures from groundwater infiltration are not considered groundwater cleanup projects, whether or not such discharges cleanup or remove pollutants from the groundwater. These activities may be covered under the statewide general NPDES permit for discharges from utility vaults and underground structures to surface water (CAG990002).

Toxicity Reduction Evaluation (TRE): a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical[s] responsible for toxicity. These procedures are performed in three phases [characterization, identification, and confirmation] using aquatic organism toxicity tests.)

Waters of the United States or waters of the U.S.: (40 e-CFR 122.2, March 20, 2007) (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition; (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial sea; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Attachment B1 – Notice of Intent Form

NOTICE OF INTENT

TO DISCHARGE GROUNDWATER EXTRACTION WASTE TO SURFACE WATERS WITHIN THE SAN DIEGO REGION

EXCEPT FOR SAN DIEGO BAY

SUBJECT TO GENERAL WASTE DISCHARGE REQUIREMENTS IN ORDER NO. R9-2008-0002 (NPDES NO. CAG919002)

GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM GROUNDWATER EXTRACTION AND SIMILAR WASTE DISCHARGES TO SURFACE WATERS WITHIN THE SAN DIEGO REGION EXCEPT FOR SAN DIEGO BAY (WDR)

Attach Form 200 (completed and signed) and additional sheets as necessary to provide complete information requested in this Notice of Intent (NOI).

I. STIPULATION OF APPLICABILITY AND CERTIFICATION

☐ I have determined that the groundwater extracted waste discharge will be to navigable waters of the United States within the San Diego Region and that any violation of effluent limits will be subject to Mandatory Minimum Penalties under California Water Code section 13385(h) and (i).

☐ I have determined that this discharge is eligible for enrollment in this General "Waste Discharge Requirements" (WDR) because the discharge will comply with the Discharge Specifications of this WDR.

☐ I have read this WDR Order No. R9-2008-0002 and hereby certify that:

1. I understand the requirements of Order No. R9-2008-0002.
2. The enclosed information describing my proposed groundwater extraction waste discharge is accurate and describes a discharge that meets the requirements of Order No. R9-2008-0002, which is the applicable general groundwater extraction waste discharge permit.
3. I will comply with all terms, conditions, and requirements of WDR Order No. R9-2008-0002.

I. STIPULATION OF APPLICABILITY AND CERTIFICATION

I certify under penalty of law that this document, Form 200, and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those directly responsible for gathering the information, the information submitted is true, accurate, and complete to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. In addition, I certify that the provisions of the permit, including the criteria for eligibility will be complied with.

A. Printed Name:	
B. Signature*:	C. Date:
D. Title:	

*The appropriate person must sign the application form.
Acceptable signatures are:
1. for a corporation, a principal executive officer of at least the level of senior vice-president;
2. for a partnership or individual (sole proprietorship), a general partner or the proprietor;
3. for a governmental or public agency, either a principal executive officer or ranking elected/appointed official.

II. ITEMS REQUIRED FOR DETERMINING ELIGIBILITY

☐ **A.** Identify and discuss technical and economic feasibility of alternative disposal options.

☐ B. If discharging to an MS4, obtain authorization from the appropriate municipality and submit proof.

☐ C. Submit scale appropriate vicinity map(s).

☐ D. Submit a completed and signed Form 200 (*Application/Report of Waste Discharge, General Information for Waste Discharge Requirements or NPDES Permit).*

III. NOTICE OF INTENT STATUS

A. Is this a renewal of an expiring WDR? 1. ☐ No 2. ☐ Yes, Order No.: _____

IV. GROUNDWATER EXTRACTION INFORMATION

A. Nature of Groundwater Extraction Activity:
1. ☐ Subsurface Excavation
   a. ☐ Foundation b. ☐ Tunneling c. ☐ Construction d. ☐ Footing e. ☐ Other _____
2. ☐ Remediation Project
3. ☐ Other _____

B. ☐ This project is associated with a project that requires Regional Board license, permit, or oversight?
Explain: Construction storm water, 401 Certifications, WDR, UST or cleanup project, etc.

C. Duration and Start Date
1. Proposed Start Date of Groundwater Extraction Discharge: _____

2. Estimated Duration of Groundwater Extraction Discharge: _____

D. 1. ☐ Describe the historical use of the land within the conelradius of influence.

2. ☐ Identify all known contamination sites and ground water plumes within half mile of each groundwater extraction point to be used in the project.
Attach a source of contamination description and list of constituents.
Attach site assessment (If one has been done)

E. For each discharge point identify the location of discharge according to the following: (show in vicinity map)
1. ☐ Storm Drain, ☐ Attach proof of authorization from the appropriate municipality for the discharge into the storm drain or conveyance used to convey the discharge.
2. ☐ Directly into surface water, ☐ submerged or ☐ on the surface

3. Salinity of the Tributary at the discharge point _____

F. Will treatment be required to meet the Discharge Specifications of this WDR?
1. ☐ Yes 2. ☐ No
If Yes, attach the following:
a. ☐ A report certifying the adequacy of each component of the treatment facilities or other type of contingency plan. The report shall also certify that:
(1) ☐ all treatment facility startup and operation instruction manuals are adequate and available to operating personnel,
(2) ☐ adequate treatment facility maintenance and testing (if treatment facilities are on "standby") schedules are included in the treatment facility operations manual,
(3) ☐ treatment facilities and appurtenances can be fully operational, as designed, within 24 hours, and
(4) ☐ influent and effluent sampling locations or ports are located in areas where samples representative of the waste stream to be monitored can be obtained.
b. ☐ The design engineer shall affix his/her signature and engineering license number to this certification report.

IV. GROUNDWATER EXTRACTION INFORMATION

G. Additional Attachments
1. ☐ Describe best management practices (bmp) and contingency plan.
2. ☐ Provide the results of the analysis of the groundwater to be extracted for all of those constituents, as determined by the sampling requirement criteria described in this WDR, for the proposed receiving water type.

V. RECEIVING WATER INFORMATION

A. Name of receiving water(s): (San Diego River, Rainbow Creek, Pacific Ocean, etc.)

B. Describe the types of receiving waters affected: (bay, creek, river, etc.)

C. Receiving water flows seasonally 1.☐ Yes 2 . 0 No

D. More than one discharge point is proposed?

1.☐ Yes 2 . 0 No If Yes, how many? _____

And distance between points _____
Include in Vicinity Map
3. Location of Discharge Points: (attach)
Example: Outfall 001 (Latitude and Longitude)

E. Proposed Flow (MGD or gpd) of the discharge:
1. Maximum Discharge: _____
2. Average Daily Flowrate: _____
3. Basis for flow rate estimates (if necessary attach):

F. Hydrologic Subarea Number(s) at the point of discharge:

VI. APPLICATION FEE

The initial fee and annual fee are based upon the type of pollutants to be discharged or potentially discharged.

Make checks payable to "SWRCB" and include the project's name in the "memo" field.

☐ **Category 3 Lowest Threat to Water Quality**
The discharge will not require any treatment.
Current fee is $1,000 plus $185 surcharge = $1,185

☐ **Category 2 Moderate Threat to Water Quality**
The discharge will be from a well that has a contaminated site within the radius of influence.
Current fee is $2,900 plus $537 surcharge = $3,437

☐ **Category 1 Highest Threat to Water Quality**
The discharge will require treatment to meet effluent limitations.
Current fee is $4,800 plus $888 surcharge = $5,688

VII. ANTIDEGREDATION POLICIES

A. ☐ Statement of compliance with 40 CFR 131.12 and State Water Resources Control Board Resolution No. 68-16 (attach) (collectively antidegredation policies)

40 CFR 131.12 Antidegradation policy.
(a) The State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:
(1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
(2) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.
(3) Where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.
(4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the Act.

RESOLUTION NO, 68-16
STATEMENT OF POLICY WITH RESPECT TO MAINTAINING HIGH QUALITY OF WATERS IN CALIFORNIA
WHEREAS the California Legislature has declared that it is the policy of the State that the granting of permits and licenses for unappropriated water and the disposal of wastes into the waters of the State shall be so regulated as to achieve highest water quality consistent with maximum benefit to the people of the State and shall be controlled so as to promote the peace, health, safety and welfare of the people of the State; and
WHEREAS water quality control policies have been and are being adopted for waters of the State; and
WHEREAS the quality of some waters of the State is higher than that established by the adopted policies and it is the intent and purpose of this Board that such higher quality shall be maintained to the maximum extent possible consistent with the declaration of the Legislature;

NOW, THEREFORE, BE IT RESOLVED:
1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.
2. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur, and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.
3. In implementing this policy, the Secretary of the Interior will be kept advised and will be provided with such information as he will need to discharge his responsibilities under the Federal Water Pollution Control Act.

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the Secretary of the Interior as part of California's water quality control policy submission.
CERTIFICATION
The undersigned, Executive Officer of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on October 24, 1968.
Dated: October 28, 1968
Kerry W. Mulligan, Executive Officer
State Water Resources Control Board

VIII. CALIFORNIA CONSTITUTION COMPLIANCE

A. ☐ Discuss the potential uses of the extracted groundwaters, efforts made to ensure use to the fullest extent possible and compliance with Article 10, Section 2 of the California Constitution (attach)

CALIFORNIA CONSTITUTION
ARTICLE 10 WATER
SEC. 2. It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water. Riparian rights in a stream or water course attach to, but to no more than so much of the flow thereof as may be required or used consistently with this section, for the purposes for which such lands are, or may be made adaptable, in view of such reasonable and beneficial uses; provided, however, that nothing herein contained shall be construed as depriving any riparian owner of the reasonable use of water of the stream to which the owner's land is riparian under reasonable methods of diversion and use, or as depriving any appropriator of water to which the appropriator is lawfully entitled.

This section shall be self-executing, and the Legislature may also enact laws in the furtherance of the policy in this section contained.

Submit the **NOI,** first annual fee, map, and other attachments to the following address:

CRWQCB – San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Attn: Groundwater Extraction to San Diego Region
Core Regulatory Unit
NOTICE OF INTENT

IX. STATE USE ONLY

WDID:	Staff Initials:	Status: ☐ Complete ☐ Incomplete ☐ Withdrawn ☐ Pending Additional Information
Date NOI Received:	Check #:	
Date NOI Processed:	Fee Amount Received: $	
CIWQS Place # :	CIWQS Reg. Meas. # :	
Comments:		

Attachment B2 – Priority Toxic Pollutants
Source: [65 FR 31711, May 18,2000, as amended at 66 FR 9961, Feb. 13,2001; 68 FR 62747, Nov. 6,20031

Table in Paragraph (b)(1) of 40 CFR 131.38 —126 PRIORITY POLLUTANTS
Numeric criteria for priority toxic pollutants for the State of California

A		B Freshwater		C Saltwater		D Human Health (10^{-6} risk for carcinogens) For consumption of:	
# Compound	CAS Number	Criterion Maximum Conc. [c] B1	Criterion Continuous Conc. [d] B2	Criterion Maximum Conc. [d] C1	Criterion Continuous Conc. [d] C2	Water & Organisms (µg/L) D1	Organisms Only (µg/L) D2
1. Antimony	7440360					14 a,s	4300 a,t
2. Arsenic [b]	7440382	340 i,m,w	150 i,m,w	69 i,m	36 i,m		
3. Beryllium	7440417					n	n
4. Cadmium [b]	7440439	4.3 e,i,m,w,x	2.2 e,i,m,w	42 i,m	9.3 i,m	n	n
5a. Chromium (III)	16065831	550 e,i,m,o	180 e,i,m,o			n	n
5b. Chromium (VI) [b]	18540299	16 i,m,w	11 i,m,w	1100 i,m	50 i,m	n	n
6. Copper [b]	7440508	13 e,i,m,w,x	9.0 e,i,m,w	4.8 i,m	3.1 i,m	1300	
7. Lead [b]	7439921	65 e,i,m	2.5 e,i,m	210 i,m	8.1 i,m	n	n
8. Mercury [b]	7439976	[Reserved]	[Reserved]	[Reserved]	[Reserved]	0.050 a	0.051 a
9. Nickel [b]	7440020	470 e,i,m,w	52 e,i,m,w	74 i,m	8.2 i,m	610 a	4600 a
10. Selenium [b]	7782492	[Reserved] p	5.0 q	290 i,m	71 i,m	n	n
11. Silver [b]	7440224	3.4 e,i,m		1.9 i,m			
12. Thallium	7440280					1.7 a,s	6.3 a,t
13. Zinc [b]	7440666	120 e,i,m,w,x	120 e,i,m,w	90 i,m	81 i,m		
14. Cyanide [b]	57125	22 o	5.2 o	1 r	1 r	700 a	220,000 a,j
15. Asbestos	1332214					7,000,000 fibers/L k,s	
16. 2,3,7,8-TCDD (Dioxin)	1746016					0.000000013 c	0.000000014 c
17. Acrolein	107028					320 s	780 t
18. Acrylonitrile	107131					0.059 a,c,s	0.66 a,c,t
19. Benzene	71432					1.2 a,c	71 a,c
20. Bromoform	75252					4.3 a,c	360 a,c
21. Carbon Tetrachloride	56235					0.25 a,c,s	4.4 a,c,t
22. Chlorobenzene	108907					680 a,s	21,000 a,j,t
23. Chlorodibromomethane	124481					0.401 a,c	34 a,c
24. Chloroethane	75003						
25. 2-Chloroethylvinyl Ether	110758						

Table in Paragraph (b)(1) of 40 CFR 131.38—126 PRIORITY POLLUTANTS

Numeric criteria for priority toxic pollutants for the State'of California

A		B Freshwater		C Saltwater		D Human Health (10^{-6} risk for carcinogens) For consumption of:	
# Compound	CAS Number	Criterion Maximum Conc. [d] B1	Criterion Continuous Conc. [d] B2	Criterion Maximum Conc. [d] C1	Criterion Continuous Conc. [d] C2	Water & Organisms (µg/L) D1	Organisms Only (µg/L) D2
26. Chloroform	67663					[Reserved]	[Reserved]
27. Dichlorobromomethane	75274					0.56 a,c	46 a,c
28. 1,1-Dichloroethane	75343						
29. 1,2-Dichloroethane	107062					0.38 a,c,s	99 a,c,t
30. 1,1-Dichloroethylene	75354					0.057 a,c,s	3.2 a,c,t
31. 1,2-Dichloropropane	78875					0.52 a	39 a
32. 1,3-Dichloropropylene	542756					10 a,s	1,700 a,t
33. Ethylbenzene	100414					3,100 a,s	29,000 a,t
34. Methyl Bromide	74839					48 a	4,000 a
35. Methyl Chloride	74873					n	n
36. Methylene Chloride	75092					4.7 a,c	1,600 a,c
37. 1,1,2,2-Tetrachloroethane	79345					0.17 a,c,s	11 a,c,t
38. Tetrachloroethylene	127184					0.8 c,s	8.85 c,t
39. Toluene	108883					6,800 a	200,000 a
40. 1,2-Trans-Dichloroethylene	156605					700 a	140,000 a
41. 1,1,1-Trichloroethane	71556					n	n
42. 1,1,2-Trichloroethane	79005					0.60 a,c,s	42 a,c,t
43. Trichloroethylene	79016					2.7 c,s	81 c,t
44. Vinyl Chloride	75014					2 c,s	525 c,t
45. 2-Chlorophenol	95578					120 a	400 a
46. 2,4-Dichlorophenol	120832					93 a,s	790 a,t
47. 2,4-Dimethylphenol	105679					540 a	2,300 a
48. 2-Methyl-4,6-Dinitrophenol	534521					13.4 s	765 t
49. 2,4-Dinitrophenol	51285					70 a,s	14,000 a,t
50. 2-Nitrophenol	88755						
51. 4-Nitrophenol	100027						
52. 3-Methyl-4-Chlorophenol	59507						
53. Pentachlorophenol	87865	19 f,w	15 f,w	13	7.9	0.28 a,c	8.2 a,c,j
54. Phenol	108952					21,000 a	4,600,000 a,j,t
55. 2,4,6-Trichlorophenol	88062					2.1 a,c	6.5 a,c
56. Acenaphthene	83329					1,200 a	2,700 a
57. Acenaphthylene	208968						
58. Anthracene	120127					9,600 a	110,000 a

Table in Paragraph (b)(1) of 40 CFR 131.38 —126 PRIORITY POLLUTANTS

Numeric criteria for priority toxic pollutants for the State of California

A		B Freshwater		C Saltwater		D Human Health (10^{-6} risk for carcinogens) For consumption of:	
# Compound	CAS Number	Criterion Maximum Conc. [a] B1	Criterion Continuous Conc. [d] B2	Criterion Maximum Conc. [d] C1	Criterion Continuous Conc. [d] C2	Water & Organisms (µg/L) D1	Organisms Only (µg/L) D2
59. Benzidine	92875					0.00012 a,c,s	0.00054 a,c,t
60. Benzo(a)Anthracene	56553					0.0044 a,c	0.049 a,c
61. Benzo(a)Pyrene	50328					0.0044 a,c	0.049 a,c
62. Benzo(b)Fluoranthene	205992					0.0044 a,c	0.049 a,c
63. Benzo(ghi)Perylene	191242						
64. Benzo(k)Fluoranthene	207089					0.0044 a,c	0.049 a,c
65. Bis(2-Chloroethoxy)Methane	111911						
66. Bis(2-Chloroethyl)Ether	111444					0.031 a,c,s	1.4 a,c,t
67. Bis(2-Chloroisopropyl)Ether	39638329					1,400 a	170,000 a,t
68. Bis(2-Ethylhexyl)Phthalate	117817					1.8 a,c,s	5.9 a,c,t
69. 4-Bromophenyl Phenyl Ether	101553						
70. Butylbenzyl Phthalate	85687					3,000 a	5,200 a
71. 2-Chloronaphthalene	91587					1,700 a	4,300 a
72. 4-Chlorophenyl Phenyl Ether	7005723						
73. Chrysene	218019					0.0044 a,c	0.049 a,c
74. Dibenzo(a,h)Anthracene	53703					0.0044 a,c	0.049 a,c
75. 1,2 Dichlorobenzene	95501					2,700 a	17,000 a
76. 1,3 Dichlorobenzene	541731					400	2,600
77. 1,4 Dichlorobenzene	106467					400	2,600
78. 3,3'-Dichlorobenzidine	91941					0.04 a,c,s	0.077 a,c,t
79. Diethyl Phthalate	84662					23,000 a,s	120,000 a,t
80. Dimethyl Phthalate	131113					313,000 s	2,900,000 t
81. Di-n-Butyl Phthalate	84742					2,700 a,s	12,000 a,t
82. 2,4-Dinitrotoluene	121142					0.11 c,s	9.1 c,t
83. 2,6-Dinitrotoluene	606202						
84 Di-n-Octyl Phthalate	117840						
85. 1,2-Diphenylhydrazine	122667					0.040 a,c,s	0.54 a,c,t
86. Fluoranthene	206440					300 a	370 a
87. Fluorene	86737					1,300 a	14,000 a
88. Hexachlorobenzene	118741					0.00075 a,c	0.00077 a,c
89. Hexachlorobutadiene	87683					0.44 a,c,s	50 a,c,t
90. Hexachlorocyclopentadiene	77474					240 a,s	17,000 a,j,t
91. Hexachloroethane	67721					1.9 a,c,s	8.9 a,c,t

Table in Paragraph (b)(1) of 40 CFR 131.38—126 PRIORITY POLLUTANTS

Numeric criteria for priority toxic pollutants for the State of California

A		B Freshwater		C Saltwater		D Human Health (10^{-6} risk for carcinogens) For consumption of:	
# Compound	CAS Number	Criterion Maximum Conc. [c] B1	Criterion Continuous Conc. [d] B2	Criterion Maximum Conc. [c] C1	Criterion Continuous Conc. [d] C2	Water & Organisms (µg/L) D1	Organisms Only (µg/L) D2
92. Indeno(1,2,3-cd) Pyrene	193395					0.0044 a,c	0.049 a,c
93. Isophorone	78591					8.4 c,s	600 c,t
94. Naphthalene	91203						
95. Nitrobenzene	98953					17 a,s	1,900 a,j,t
96. N-Nitrosodimethylamine	62759					0.00069 a,c,s	8.1 a,c,t
97. N-Nitrosodi-n-Propylamine	621647					0.005 a	1.4 a
98. N-Nitrosodiphenylamine	86306					5.0 a,c,s	16 a,c,t
99. Phenanthrene	85018						
100. Pyrene	129000					960 a	11,000 a
101. 1,2,4-Trichlorobenzene	120821						
102. Aldrin	309002	3 g		1.3 g		0.00013 a,c	0.00014 a,c
103. alpha-BHC	319846					0.0039 a,c	0.013 a,c
104. beta-BHC	319857					0.014 a,c	0.046 a,c
105. gamma-BHC	58899	0.95 w		0.16 g		0.019 c	0.063 c
106. delta-BHC	319868						
107. Chlordane	57749	2.4 g	0.0043 g	0.09 g	0.004 g	0.00057 a,c	0.00059 a,c
108. 4,4'-DDT	50293	1.1 g	0.001 g	0.13 g	0.001 g	0.00059 a,c	0.00059 a,c
109. 4,4'-DDE	72559					0.00059 a,c	0.00059 a,c
110. 4,4'-DDD	72548					0.00083 a,c	0.00084 a,c
111. Dieldrin	60571	0.24 w	0.056 w	0.71 g	0.0019 g	0.00014 a,c	0.00014 a,c
112. alpha-Endosulfan	959988	0.22 g	0.056 g	0.034 g	0.0087 g	110 a	240 a
113. beta-Endosulfan	33213659	0.22 g	0.056 g	0.034 g	0.0087 g	110 a	240 a
114. Endosulfan Sulfate	1031078					110 a	240 a
115. Endrin	72208	0.086 w	0.036 w	0.037 g	0.0023 g	0.76 a	0.81 a,j
116. Endrin Aldehyde	7421934					0.76 a	0.81 a,j
117. Heptachlor	76448	0.52 g	0.0038 g	0.053 g	0.0036 g	0.00021 a,c	0.00021 a,c
118. Heptachlor Epoxide	1024573	0.52 g	0.0038 g	0.053 g	0.0036 g	0.00010 a,c	0.00011 a,c
119-125. Polychlorinated biphenyls (PCBs)			0.014 u		0.03 u	0.00017 c,v	0.00017 c,v
126. Toxaphene	8001352	0.73	0.0002	0.21	0.0002	0.00073 a,c	0.00075 a,c
Total Number of Criteria [h]		22	21	22	20	92	90

Footnotes to
Table in paragraph(b)(1) of 40 CFR 131.38 —126 PRIORITY POLLUTANTS:

a. Criteria revised to reflect the Agency q l * or RfD, as contained in the Integrated Risk Information System (IRIS) as of October 1, 1996. The fish tissue bioconcentration factor (BCF) from the 1980 documents was retained in each case.

b. Criteria apply to California waters except for those waters subject to objectives in Tables III–2A and III–2B of the San Francisco Regional Water Quality Control Board's (SFRWQCB) 1986 Basin Plan that were adopted by the SFRWQCB and the State Water Resources Control Board, approved by EPA, and which continue to apply. For copper and nickel, criteria apply to California waters except for waters south of Dumbarton Bridge in San Francisco Bay that are subject to the objectives in the SFRWQCB's Basin Plan as amended by SFRWQCB Resolution R2–2002–0061, dated May 22,2002, and approved by the State Water Resources Control Board. EPA approved the aquatic life site-specific objectives on January 21, 2003. The copper and nickel aquatic life site-specific objectives contained in the amended Basin Plan apply instead.

c. Criteria are based on carcinogenicity of 10 (-6) risk.

d. Criteria Maximum Concentration (CMC) equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects. Criteria Continuous Concentration (CCC) equals the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. ug/L equals micrograms per liter.

e. Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. The equations are provided in matrix at paragraph (b)(2) of this section. Values displayed above in the matrix correspond to a total hardness of 100 mg/l.

f. Freshwater aquatic life criteria for pentachlorophenol are expressed as a function of pH, and are calculated as follows: Values displayed above in the matrix correspond to a pH of 7.8. CMC = exp(1.005(pH)−4.869). CCC = exp(1.005(pH)−5.134).

g. This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 44015–80–019), Chlordane (EPA 440/5–80–027), DDT (EPA 440/5–80–038), Endosulfan (EPA 440/5–80–046), Endrin (EPA 440/5–80–047), Heptachlor (440/5–80–052), Hexachlorocyclohexane (EPA 440/5–80–054), Silver (EPA 44015–80–071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

h. These totals simply sum the criteria in each column. For aquatic life, there are 23 priority toxic pollutants with some type of freshwater or saltwater, acute or chronic criteria. For human health, there are 92 priority toxic pollutants with either "water + organism" or "organism only" criteria. Note that these totals count chromium as one pollutant even though EPA has developed criteria based on two valence states. In the matrix, EPA has assigned numbers 5a and 5b to the criteria for chromium to reflect the fact that the list of 126 priority pollutants includes only a single listing for chromium.

i. Criteria for these metals are expressed as a function of the water-effect ratio, WER, as defined in paragraph (c) of this section. CMC = column B l or C1 value×WER; CCC = column B2 or C2 value×WER.

j. No criterion for protection of human health from consumption of aquatic organisms (excluding water) was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow a calculation of a criterion, even though the results of such a calculation were not shown in the document.

k. The CWA 304(a) criterion for asbestos is the MCL.

l.' [Reserved]

m. These freshwater and saltwater criteria for metals are expressed in terms of the dissolved fraction of the metal in the water column. Criterion values were calculated by using EPA's Clean Water Act 304(a) guidance values (described in the total recoverable fraction) and then applying the conversion factors in §131.36(b)(1) and (2).

n. EPA is not promulgating human health criteria for these contaminants. However, permit authorities should address these contaminants in NPDES permit actions using the State's existing narrative criteria for toxics.

o. These criteria were promulgated for specific waters in California in the National Toxics Rule ("NTR"), at §131.36. The specific waters to which the NTR criteria apply include: Waters of the State defined as bays or estuaries and waters of the State defined as inland, i.e., all surface waters of the State not ocean waters. These waters specifically include the San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This section does not apply instead of the NTR for this criterion.

p. A criterion of 20 ug/l was promulgated for specific waters in California in the NTR and was promulgated in the total recoverable form. The specific waters to which the NTR criterion applies include: Waters of the San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta; and waters of Salt Slough, Mud Slough (north) and the San Joaquin River, Sack Dam to the mouth of the Merced River. This section does not apply instead of the NTR for this criterion. The State of California adopted and EPA approved a site specific criterion for the San Joaquin River, mouth of Merced to Vernalis; therefore, this section does not apply to these waters.

q. This criterion is expressed in the total recoverable form. This criterion was promulgated for specific waters in California in the NTR and was promulgated in the total recoverable form. The specific waters to which the NTR criterion applies include: Waters of the San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta; and waters of Salt Slough, Mud Slough (north) and the San Joaquin River, Sack Dam to Vernalis. This criterion does not apply instead of the NTR for these waters. This criterion applies to additional waters of the United States in the State of California pursuant to 40 CFR 131.38(c). The State of California adopted and EPA approved a site-specific criterion for the Grassland Water District, San Luis National Wildlife Refuge, and the Los Banos State Wildlife Refuge; therefore, this criterion does not apply to these waters.

r. These criteria were promulgated for specific waters in California in the NTR. The specific waters to which the NTR criteria apply include: Waters of the State defined as bays or estuaries including the San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This section does not apply instead of the NTR for these criteria.

s. These criteria were promulgated for specific waters in California in the NTR. The specific waters to which the NTR criteria apply include: Waters of the Sacramento-San Joaquin Delta and waters of the State defined as inland (i.e., all surface waters of the State not bays or estuaries or ocean) that include a MUN use designation. This section does not apply instead of the NTR for these criteria.

t. These criteria were promulgated for specific waters in California in the NTR. The specific waters to which the NTR criteria apply include: Waters of the State defined as bays and estuaries including San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta; and waters of the State defined as inland (i.e., all surface waters of the State not bays or estuaries or ocean) without a MUN use designation. This section does not apply instead of the NTR for these criteria.

u. PCBs are a class of chemicals which include aroclors 1242, 1254, 1221, 1232, 1248, 1260, and 1016, CAS numbers 53469219,11097691,11104282,11141 165, 12672296,11096825, and 12674112, respectively. The aquatic life criteria apply to the sum of this set of seven aroclors.

v. This criterion applies to total PCBs, e.g., the sum of all congener or isomer or homolog or aroclor analyses.

w. This criterion has been recalculated pursuant to the 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water, Office of Water, EPA–820-B–96–001, September 1996. See also Great Lakes Water Quality Initiative Criteria Documents for the Protection of Aquatic Life in Ambient Water, Office of Water, EPA–80–B–95–004, March 1995.

x. The State of California has adopted and EPA has approved site specific criteria for the Sacramento River (and tributaries) above Hamilton City; therefore, these criteria do not apply to these waters.

40 CFR 131.38 Editorial Note: At 66 FR 9961, Feb. 13, 2001, §131.38 was amended in the table to paragraph (b)(1) under the column heading for "B Freshwater" by revising the column headings for "Criterion Maximum Concentration" and "Criterion Continuous Concentration"; under the column heading for "C Saltwater" by revising the column headings for "Criterion Maximum Concentration" and "Criterion Continuous Concentration"; and by revising entries "23." and "67.", effective Feb. 13, 2001. However, this is a photographed table and the amendments could not be incorporated into the text. For the convenience of the user, the amended text is set forth as follows:

1) § 131.38 Establishment of Numeric Criteria for priority toxic pollutants for the State of California.

(b)(1) * * *

A		B Freshwater		C Saltwater		D Human Health (10^{-6} risk for carcinogens) For **consumption** of:	
# Compound	CAS number	Criterion maximum conc. (µg/L)[d] B1	Criterion continous conc. (µg/L)[d] B2	Criterion maximum conc. (µg/L)[d] C1	Criterion continious conc. (µg/L)[d] C2	Water & organisms (µg/L) D1	Organisms only
*	*	*	*	*	*	*	
23. Chlorodibromomethane	124481					[a,c]0.41	[a,c]34
*	*	*	*	*	*	*	
67. Bis(2-Chloroisopropyl)Ether	108601					[a]1,400	[a,t]170,000
*	*	*	*	*	*	*	

Attachment C – (Not applicable)

Attachment D – Standard Provisions

I. Standard Provisions – Permit Compliance

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this WDR. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or denial of a permit renewal application [40 CFR §122.41(a)].

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this WDR has not been modified to incorporate the requirement [40 CFR §122.41(a)(1)].

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this WDR [40 *CFR §122.41(c)*].

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this WDR that has a reasonable likelihood of adversely affecting human health or the environment [40 *CFR §122.41(d)*].

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this WDR. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this WDR [40 *CFR §122.41(e)*].

E. Property Rights

1. This WDR does not convey any property rights of any sort or any exclusive privileges [40 CFR §122.41(g)].

2. The issuance of this WDR does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations [40 CFR §122.5(c)].

F. Inspection and Entry

The Discharger shall allow the Regional Water Quality Control Board (Regional Board), California State Water Resources Control Board (State Board), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to [40 CFR *§122.41(i)*] [CWC *13383(c)*]:

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this WDR [40 CFR 5122.41(i)(1)];

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this WDR [40 CFR 5122.41(i)(2)];

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this WDR [40 CFR 5122.41(i)(3)];

4. Sample or monitor, at reasonable times, for the purposes of assuring WDR compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location [40 CFR 5122.41(i)(4)].

G. Bypass

1. Definitions

   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility [40 CFR 5122.41(m)(1)(i)].

   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production [40 CFR §122.41(m)(1)(ii)].

2. Bypass not exceeding limitations – The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3 and I.G.5 below [40 CFR §122.41(m)(2)].

3. Prohibition of bypass – Bypass is prohibited, and the Regional Board may take enforcement action against a Discharger for bypass, unless [40 CFR §122.41(m)(4)(i)]:

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage [40 CFR §122.41(m)(4)(A)];

   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance [40 CFR §122.41(m)(4)(B)]; and

   c. The Discharger submitted notice to the Regional Board as required under Standard Provision – Permit Compliance I.G.5 below [40 CFR §122.41(m)(4)(C)].

4. The Regional Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above [40 CFR §122.41(m)(4)(ii)].

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass [40 CFR §122.41(m)(3)(i)].

   b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below [40 CFR §122.41(m)(3)(ii)].

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation [40 CFR *§122.41(n)(1)*].

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph H.2 of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for

noncompliance, is final administrative action subject to judicial review [40 CFR §122.41(n)(2)].

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that [40 CFR §122.41(n)(3)]:

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset [40 CFR §122.41(n)(3)(i)];

   b. The permitted facility was, at the time, being properly operated [40 CFR §122.41(n)(3)(i)];

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b [40 CFR §122.41(n)(3)(iii)]; and

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above [40 CFR §122.41(n)(3)(iv)].

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof [40 CFR §122.41(n)(4)].

II. Standard Provisions – Permit Action

A. General

This WDR may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any WDR condition [40 *CFR §122.41(f)*].

If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the CWA for a toxic pollutant which is present in the discharge, and that standard or prohibition is more stringent than any limitation on the pollutant in this WDR, this WDR shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition and the Discharger so notified.

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this WDR after the expiration date of this WDR, the Discharger must apply for and obtain a new permit [40 *CFR §122.41(b)*] or submit a new NOI for re-enrollment.

C. Transfers

This Order is not transferable to any person because the Regional Board is required to modify or revoke and reissue this Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the CWC [40 *CFR §122.41(l)(3)*] [*40 CFR §122.61*]. A new owner or operator shall submit an NOI application to enroll in this WDR and the previous owner or operator shall submit a NOT.

D. Severability

The provisions of this WDR are severable and if any provisions of this WDR or the application of any provisions of this WDR to any circumstance is held invalid, the applications of such provision to other circumstances and the remainder of this WDR shall not be affected thereby.

E. Pollution, Contamination, or Nuisance [CWC §13050]

Neither the treatment nor the discharge shall create a condition of pollution, contamination or nuisance.

III. Standard Provisions – Monitoring

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [40 CFR §122.41(j)(1)].

B. Monitoring results must be conducted according to test procedures under 40 CFR section 136 or, in the case of sludge use or disposal, approved under 40 CFR section 136 unless otherwise specified in 40 CFR section 503 unless other test procedures have been specified in this WDR [40 CFR §122.41(j)(4)] [40 CFR §122.44(i)(1)(iv)].

IV. Standard Provisions – Records

A. Except for records of monitoring information required by this WDR related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR section 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this WDR, and records of all data used to complete the application for this WDR, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Board Executive Officer at any time [40 CFR §122.41(j)(2)].

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements [40 CFR §122.41(j)(3)(i)];

2. The individual(s) who performed the sampling or measurements [40 CFR §122.41(j)(3)(ii)];

3. The date(s) analyses were performed [40 CFR §122.41(j)(3)(iii)];

4. The individual(s) who performed the analyses [40 CFR §122.41(j)(3)(iv)];

5. The analytical techniques or methods used [40 CFR §122.41(j)(3)(v)]; and

6. The results of such analyses [40 CFR §122.41(j)(3)(vi)].

C. Claims of confidentiality for the following information will be denied [40 CFR §122.7(b)]:

1. The name and address of any permit applicant or Discharger [40 CFR §122.7(b)(1)]; and

2. Permit applications and attachments, permits and effluent data [40 CFR §122.7(b)(2)].

V. Standard Provisions – Reporting

A. Duty to Provide Information

The Discharger shall furnish to the Regional Board, State Board, or USEPA within a reasonable time, any information which the Regional Board, State Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this WDR or to determine compliance with this WDR. Upon request, the Discharger shall also furnish to the Regional Board, State Board, or USEPA copies of records required to be kept by this WDR [*40* CFR *§122.41(h)*] [CWC *13267*].

B.. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the Regional Board, State Board, and/or USEPA shall be signed and certified in accordance with paragraph (B.2) and (B.3) of this provision [40 CFR §122.41(k)].

2. All permit applications shall be signed as follows:

a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures [40 CFR §122.22(a)(1)];

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively [40 CFR §122.22(a)(2)]; or

c. For a municipality, State, federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA) [40 CFR §122.22(a)(3)].

3. All reports required by this WDR and other information requested by the Regional Board, State Board, or USEPA shall be signed by a person described in paragraph (B.2) of this provision, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in paragraph (B.2) of this provision [40 CFR §122.22(b)(1)];

b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company (a duly authorized representative may thus be either a named individual or any individual occupying a named position) [40 CFR §122.22(b)(2)]; and

c. The written authorization is submitted to the Regional Board, State Board, or USEPA [40 CFR §122.22(b)(3)].

4. If an authorization under paragraph (B.3) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (B.3) of this provision must be submitted to the Regional Board, State Board or USEPA prior to or together with any reports, information, or applications, to be signed by an authorized representative [40 CFR §122.22(c)].

5. Any person signing a document under paragraph (B.2) or (B.3) of this provision shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations" [40 CFR *§122.22(d)*].

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the MRP in this WDR [40 CFR §122.41(l)(4)].

2. Monitoring results must be reported on a Self-Monitoring Report (SMR) form or forms provided or specified by the Regional Board or State Board for reporting results of monitoring of sludge use or disposal practices [40 CFR §122.41(l)(4)(i)].

3. If the Discharger monitors any pollutant more frequently than required by this WDR using test procedures approved under 40 CFR section 136 or, in the case of sludge use or disposal, approved under 40 CFR 'section 136 unless otherwise specified in 40 CFR section 503, or as specified in this WDR, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the SMR or sludge reporting form specified by the Regional Board [40 CFR §122.41(l)(4)(ii)].

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this WDR [40 CFR §122.41(l)(4)(iii)].

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this WDR, shall be submitted no later than 14 days following each schedule date [40 *CFR §122.41(l)(5)*].

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours' from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance [40 CFR §122.41(l)(6)(i)].

2. The following shall be included as information that must be reported within 24 hours under this paragraph [40 CFR §122.41(l)(6)(ii)]:

   a. Any unanticipated bypass that exceeds any effluent limitation in this WDR [40 CFR §122.41(l)(6)(ii)(A)].

   b. Any upset that exceeds any effluent limitation in this WDR [40 CFR §122.41(l)(6)(ii)(B)].

   c. Violation of a maximum daily discharge limitation for any of the pollutants listed in this WDR to be reported within 24 hours [40 CFR §122.41(l)(6)(ii)(C)].

3. The Regional Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours [40 CFR §122.41(l)(6)(iii)].

F. Planned Changes

The Discharger shall give notice to the Regional Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when [40 *CFR §122.41(l)(1)*]:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR §122.29(b) [40 CFR §122.41(l)(1)(i)]; or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which

are subject neither to effluent limitations in this WDR nor to notification requirements under 40 CFR section 122.42(a)(1) (see Additional Provisions — Notification Levels VII.A.1) [40 CFR §122.41(l)(1)(ii)]; or

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan [40 CFR §122.41(l)(1)(iii)].

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Board or State Board of any planned changes in the permitted facility or activity that may result in noncompliance with the requirements of this WDR [40 *CFR §122.41(l)(2)].*

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting E.3, E.4, and E.5 at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E [40 *CFR §122.41(l)(7)*].

I. Discharge Monitoring Quality Assurance (DMQA) Program [STATE WATER BOARD/USEPA 106 MOA]

The Discharger shall conduct appropriate analyses on any sample provided by USEPA as part of the DMQA program. The results of such analyses shall be submitted to USEPA's DMQA manager.

J. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Board, State Board, or USEPA, the Discharger shall promptly submit such facts or information [40 *CFR §122.41(l)(8)*].

VI. Standard Provisions – Enforcement

A. The CWA provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The CWA provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved

under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions [40 CFR §122.41(a)(2)] [CWC 13385 and 133871.

B. Any person may be assessed an administrative penalty by the Regional Board for violating CWA section 301, 302, 306, 307, 308, 318 or 405, or any permit condition or limitation implementing any of such sections in a permit issued under CWA section 402. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day, during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000 [40 CFR 5122.41(a)(3)].

C. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both [40 CFR §122.41(j)(5)].

D. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this WDR, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by

a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both [40 CFR 9122.41(k)(2)].

VII. Additional Provisions – Notification Levels

A. Non-Municipal Facilities

Dischargers of existing manufacturing, commercial, mining, and silvicultural wastes shall notify the Regional Board as soon as they know or have reason to believe [*40* CFR *§122.42(a)*]:

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this WDR, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42(a)(1)]:

   a. 100 micrograms per liter (µg/L) [40 CFR §122.42(a)(1)(i)];

   b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony [40 CFR §122.42(a)(1)(ii)];

   c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42(a)(1)(iii)]; or

   d. The level established by the Regional Board in accordance with 40 CFR section 122.44(f) [40 CFR §122.42(a)(1)(iv)].

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this WDR, if that discharge will exceed the highest of the following "notification levels" [40 CFR §122.42(a)(2)]:

   a. 500 micrograms per liter (µg/L) [40 CFR §122.42(a)(2)(i)];

   b. 1 milligram per liter (mg/L) for antimony [40 CFR §122.42(a)(2)(ii)];

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge [40 CFR §122.42(a)(2)(iii)]; or

   d. The level established by the Regional Board in accordance with 40 CFR §122.44(f) [40 CFR §122.42(a)(2)(iv)].

B. Publicly-Owned Treatment Works (POTWs) (Not Applicable)

Attachment E – Monitoring and Reporting Program (MRP)

Title 40 of the Code of Federal Regulations (CFR) section 122.48 requires that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code sections 13267 and 13383 also authorize the California Regional Water Quality Control Board (Regional Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

1 General Monitoring Provisions

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring location identified in the representative sampling and analysis program. Another waste stream, body of water, or substance shall not dilute the monitored discharge. Monitoring points shall not be changed without notification to and the approval of the appropriate Regional Board.

B. Monitoring must be conducted according to USEPA test procedures approved under 40 CFR section 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act as amended, unless other test procedures are specified in this WDR and/or by the appropriate Regional Board.

C. If the Discharger monitors any pollutant more frequently than required by this WDR using test procedures approved under 40 CFR section 136, or as specified in this WDR or by the appropriate Regional Board, the results of the monitoring shall be included in the calculation and reporting of the data submitted in the Discharger's Annual Report. The increased frequency of monitoring shall also be reported.

D. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this WDR.

E. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the appropriate Regional Board.

F. All monitoring instruments and devices used by the Discharger to fulfill the monitoring program shall be properly maintained and calibrated to ensure accuracy. All flow measurement devices shall be calibrated at least once per year to ensure accuracy of the devices.

G. Order No. R9-2008-0002 may be modified by the Regional Board and EPA to enable the discharger to participate in comprehensive regional monitoring activities conducted in the Southern California Bight during the term of this permit. The intent of regional monitoring activities is to maximize the efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled scientific resources of the region. During these coordinated sampling efforts, the discharger's sampling and analytical effort may be reallocated to provide a regional assessment of the impact of the discharge of municipal wastewater to the

Southern California Bight. Anticipated modifications to the monitoring program will be coordinated so as to provide a more comprehensive picture of the ecological and statistical significance of monitoring results and to determine cumulative impacts of various pollution sources. If predictable relationships among the biological, water quality and effluent monitoring variables can be demonstrated, it may be appropriate to decrease the discharger's sampling effort. Conversely, the monitoring program may be intensified if it appears that the objectives cannot be achieved through the discharger's existing monitoring program. These changes will improve the overall effectiveness of monitoring in the Southern California Bight. Minor changes may be made without further public notice.

II. Monitoring Locations

A. Dischargers enrolling for the first time under this WDR shall develop a representative sampling and analysis program to be used as case studies to represent the typical types of discharges occurring within their service areas. This study, to be submitted as the first annual report, will include the monitoring locations and rationale for choosing those locations.

B. Re-enrollees must submit a new case study defining monitoring locations and rationale for these locations, if there are new types of discharges.

III. Influent Monitoring Requirements (Not Applicable)

IV. Effluent Monitoring Requirements

A. Dischargers who are enrolling for the first time under this WDR shall develop a representative sampling and analysis program based on the discharge anticipated from the extracted groundwater activity as compared to the Effluent Limitations and Discharge Specifications established in this Permit to ensure the discharge will not violate Regional Board Discharge Prohibitions.

B. The Regional Board may increase monitoring requirements on a case-by-case basis. Additional monitoring for individual discharges may be required, where necessary, to show that during the term of the discharge, applicable water quality objectives will be maintained.

C. For certain metals, the hardness of the receiving water is required to calculate the effluent limit, therefore the Discharger shall measure the hardness of the receiving water at the same frequency as metals analysis.

D. Treatment System Status

The daily status (e.g., onsite, in operation/on standby, etc.) of any treatment systems used to achieve compliance with this WDR or the Notice of Enrollment from the Regional Board shall be reported monthly.

E. GROUNDWATER DISCHARGE MONITORING

1. For discharges associated with gasoline or diesel underground or above ground storage tanks (Remediation Projects) (as determined by the Regional Board), the discharge monitoring shall be conducted as listed below. For remediation of groundwaters containing individual solvents (e.g. trichloroethylene, tetrachloroethane, etc.) not associated with fuel products, or other substances with effluent concentration limitations in Order No. R9-2008-0002 , the monitoring requirements may be modified in the Notice of Enrollment to include a sampling frequency of once every two weeks for the individual compound(s) present in lieu of benzene, ethylbenzene, toluene, and xylene (collectively BTEX) monitoring requirements, provided that BTEX are not present, and the results reported monthly:

(a) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Flowrate	gpd	NA	daily	monthly
Total Nitrogen	mg/L	grab	quarterly	quarterly
	lb/d	"	"	"
Total Phosphorus	mg/L	"	"	"
	lb/d	"	"	"
Settleable Solids	ml/L	"	"	"
	lb/d	"	"	"
Total Suspended Solids	mg/L	"	quarterly	quarterly
	lb/d	"	"	"

(b) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Hydrogen Sulfide	µg/L	grab	semiannually	semiannually
	lb/d	"	"	"
Total Residual Chloride (TRC)	µg/L	"	daily if chlorinating	monthly
	lb/d	"		"
pH	Units	"	monthly	monthly
Benzene	µg/L	"	every 2 weeks	monthly
	lb/d	"		"
Ethylbenzene	µg/L	"	"	"
	lb/d	"	"	"
Toluene	µg/L	"	"	"
	lb/d	"	"	"
Xylene	µg/L	"		
	lb/d	"	"	"
MTBE	µg/L	"	"	"

Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Total Petroleum Hydrocarbons		grab	monthly	monthly
	lb/d	"	"	"
Tributyltin	µg/L	"	semiannually	semiannually
	lb/d		"	"
Arsenic	µg/L	"	"	"
	lb/d	"	"	"
Cadmium	µg/L	"	"	"
	lb/d	"	"	"
Chromium (hexavalent)	µg/L	"	"	"
	lb/d	"	"	"
Copper [CTR]		"	"	"
	lb/d	"	"	"
Lead		"	quarterly	quarterly
	lb/d	"	"	"
Mercury	µg/L	"	semiannually	semiannually
	lb/d	"	"	"
Nickel		"	"	"
	lb/d	"	"	"
Silver	µg/L	"	"	"
	lb/d	"	"	"
Zinc		"	"	"
	lb/d	"	"	"
Cyanide	µg/L	"	"	"
	lb/d	"	"	"
Phenolic Compounds (non-chlorinated)	µg/L	"	"	"
	lb/d	"	"	"

(c) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Chlorinated Phenolics	µg/L	grab	semiannually	semiannually
	lb/d	"	"	"
Acute Toxicity	TUa	"	quarterly	quarterly
Chronic Toxicity	TUc	"	"	"
1,1,2,2-Tetrachloroethane (PCA)	µg/L	"	semiannually	semiannually
1,1,1-Trichloroethane (TCA)	mg/L	"	"	"
1,1,2-Trichloroethane (TCA)	mg/L	"	"	"
1,2-Dichloroethane	µg/L	"	"	"
Tetrachloroethylene (PCE)	µg/L	"	"	"

Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Trichloroethylene (TCE)	µg/L	"	"	"
Vinyl chloride[6]	µg/L	"	"	"
Carbon Tetrachloride	µg/L	"	"	"
Base/Neutrals	µg/L	"	"	"
	lb/d	"	"	"
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2. For discharges which are not associated with gasoline or diesel underground or above ground storage tanks (as determined by the Regional Board), discharge monitoring shall be conducted as follows:

(d) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Flowrate	gpd	na	daily	quarterly
Total Nitrogen	mg/L	grab	quarterly	quarterly
Total Phosphorus	mg/L	"	"	"
Settleable Solids	ml/L	"	"	"
	lb/d	"	"	"
Total Suspended Solids	mg/L	"	"	"
	lb/d	"	"	"
Hydrogen Sulfide	mg/L	"	semiannually	semiannually
	lb/d	"	"	"
Total Residual Chlorine (TRC)	µg/L	"	daily if chlorinating	monthly
	lb/d	"	"	"
pH	Units	"	monthly	quarterly

(e) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Total Petroleum Hydrocarbons	µg/L	grab	quarterly	quarterly
	lb/d	"	"	"
MTBE	µg/L	"	"	"
Tributyltin	µg/L	"	semiannually	semiannually
	lb/d	"	"	"
Arsenic	µg/L	"	"	"
	lb/d	"	"	"
Cadmium	µg/L	"	"	"
	lb/d	"	"	"
Chromium (hexavalent)	µg/L	"	"	"
	lb/d	"	"	"
Copper	µg/L	"	"	"
	lb/d	"	"	"

Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Lead	µg/L	"	"	"
	lb/d	"	"	"
Mercury	µg/L	"	"	"
	lb/d	"	"	"
Nickel	µg/L	"	"	"
	lb/d	"	"	"
Silver	µg/L	"	"	"
	lb/d	"	"	"
Zinc	µg/L	"	"	"
	lb/d	"	"	"
Cyanide	µg/L	"	"	"
	lb/d	"	"	"
Phenolic Compounds (non-chlorinated)	µg/L	"	"	"
	lb/d	"	"	"
Chlorinated Phenolics	µg/L	"	"	"
	lb/d	"	"	"
Acute Toxicity	TUa	"	quarterly	quarterly
Chronic Toxicity	TUc	"	"	"
Base/Neutrals	µg/L	"	semiannually	semiannually
	lb/d	"	"	"
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3. For long term discharges (greater than 6 months) in RURAL AREAS (as determined by the Regional Board), discharge monitoring shall be conducted as follows:

(f) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Flowrate	gpd	na	daily	monthly
Total Nitrogen	mg/L	grab	quarterly	quarterly
Total Phosphorus	mg/L	"	"	"
	lb/d	"	"	"
Settleable Solids	ml/L	"	"	"
	lb/d	"	"	"
Total Suspended Solids	mg/L	"	"	"
Hydrogen Sulfide	µg/L	"	"	"
Total Petroleum Hydrocarbons		"	"	"
Total Residual Chlorine (TRC)	µg/L	"	daily if chlorinating	monthly
	lb/d	"	"	"
pH	Units	"	monthly	quarterly
MTBE	µg/L	"	quarterly	quarterly
Acute Toxicity	TUa	"	semiannually	semiannually
Chronic Toxicity	TUc	"	"	"
Base/Neutrals		"	"	"
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4. For short term (duration of 6 months or less at a particular groundwater extraction site) discharges in RURAL AREAS, monitoring shall be conducted as follows:

(g) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Flowrate	gpd	na	daily	monthly
Total Nitrogen	mg/L	grab	every two weeks	monthly
Total Phosphorus	mg/L	"	"	"
	lb/d	"	"	"
Settleable Solids	ml/L	"	"	"
	lb/d	"	"	"
Total Suspended Solids	mg/L	"	"	"
Hydrogen Sulfide	µg/L	"	"	"
Total Petroleum Hydrocarbons	µg/L	"	every two weeks	monthly
Total Residual Chlorine (TRC)	µg/L	"	daily if chlorinating	"
	lb/d	"		"
pH	Units	"	monthly	quarterly
MTBE	µg/L	"	quarterly	"
			Analysis	**Reporting**

(h) Constituent	Units	Sample Type	Frequency	Frequency
Acute Toxicity	TUa	grab	semiannually	semiannually
Chronic Toxicity[5]	TUc	"	"	"
Base/Neutrals[7]	µg/L	"	"	"
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5. For short term (duration of 6 months or less at a particular groundwater extraction site) discharges in URBAN AREAS, discharge monitoring shall be conducted as follows:

(i) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Flowrate	gpd	NA	daily	monthly
Total Nitrogen	mg/L	grab	every other week	"
Total Phosphorus	mg/L	"	"	"
Settleable Solids	ml/L	"	"	"
	lb/d	"	"	"
Total Suspended	mg/L	"	"	"
Solids	lb/d	"	"	"
Hydrogen Sulfide	mg/L	"	"	"
	lb/d	"	"	"
Total Residual	µg/L	"	daily if	"
Chlorine (TRC)	lb/d	"	chlorinating	"
pH	Units	"	every other week	"
Total Petroleum	µg/L	"	"	"
Hydrocarbons	lb/d	"	"	"
MTBE	µg/L	"	"	"
Tributyltin	µg/L	"	semiannually	semiannually
	lb/d	"	"	"
Arsenic	µg/L	"	"	"
	lb/d	"	"	"
Cadmium	µg/L	"	"	"
	lb/d	"	"	"
Chromium	µg/L	"	"	"
(hexavalent)	lb/d	"	"	"
Copper	µg/L	"	"	"
	lb/d	"	"	"
Lead	µg/L	"	"	"
	lb/d	"	"	"
Mercury	µg/L	"	"	"
	lb/d	"	"	"
Nickel	µg/L	grab	"	"
	lb/d	"	"	"

(j) Constituent	Units	Sample Type	Analysis Frequency	Reporting Frequency
Silver	µg/L	"	semiannually	semiannually
	lb/d	"	"	"
Zinc	µg/L	"	"	"
	lb/d	"	"	"
Cyanide	µg/L	"	"	"
	lb/d	"	"	"
Phenolic Compounds (non-chlorinated)	µg/L	"	"	"
	lb/d	"	"	"
Chlorinated Phenolics	µg/L	"	"	"
	lb/d	"	"	"
Chronic Toxicity	TUc	"	quarterly	quarterly
Base/Neutrals	µg/L	"	"	"
	lb/d	"	"	"
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6. For discharges associated with Sewer System Replacement, or Wastewater Treatment Plant Construction or Expansion Proiects, in addition to monitoring for those Constituents listed in Monitoring Provision E, discharge monitoring shall be conducted for the following:

Constituent	Units	Sample Type	Minimum Frequency Of Analysis	Reporting Frequency
Total Coliform	MPN100/ml	grab	weekly	Monthly
Fecal Coliform	"	"	"	"
Dissolved Oxygen	mg/L	"	"	"
126 Priority Pollutants – Attachment B2	---	"	semiannually	Semiannually

E. RECEIVING WATER MONITORING

The discharger shall obtain a monthly upstream sample of the receiving water if the discharge is to a river or stream; or from an area unaffected by the discharge for other receiving waters, and analyze the sample for turbidity and report the results monthly. The turbidity of the receiving water is necessary to determine compliance of the effluent turbidity. The discharger shall also submit a monthly report discussing any turbidity plumes created by the discharge including a description (e.g., color, extent, duration, etc.) of any turbidity plumes.

For discharges to surf zones, in lieu of obtaining turbidity samples in unaffected areas, the discharger shall submit a monthly report describing (e.g., color, extent, duration, etc.) any turbidity plumes caused by the discharge.

The Regional Board may increase receiving water monitoring requirements on a case-by-case basis. Additional receiving water monitoring for individual discharges may be required, where necessary, to show that during the term of the discharge, applicable surface water quality objectives will be maintained.

For certain metals, the hardness of the receiving water is required to calculate the effluent limit, therefore the discharger shall measure the hardness of the receiving water at the same frequency as metals analysis.

F. ANNUAL SUMMARY OF MONITORING DATA

A summary of monitoring data for the previous year shall be submitted to the Regional Board previous to March 1st of each year. The report shall contain both tabular and graphical summaries of the previous year's data. If the duration of the discharge is six months or less, an annual summary is not required.

G. REPORT OF DISCHARGE TERMINATION

Within thirty days of the termination of the discharge, the discharger shall submit a letter to the Regional Board specifying the date the groundwater extraction waste discharge was terminated.

H. REPORTING FREQUENCY

Monitoring reports shall be submitted to the Regional Board in accordance with the following schedule:

REPORTING FREQUENCY	REPORT PERIOD	REPORT DUE
Monthly	January, February March, April, May June, July, August September, October November, December	By the 30th day of the following month*.

* The monthly report for January is due no later than February 28th

Quarterly	January - March	April 30
	April - June	July 30
	July - September	October 30
	October - December	January 30
Semiannually	January - June	July 30
	July - December	January 30
Annual	January - December	March 1

Laboratories analyzing monitoring samples shall be certified by the Department of Health Services, in accordance with the provision of Water Code Section 13176, and must include quality assurance/quality control data with their reports.

The results of such analysis shall be reported in the annual report. Grab samples shall be collected at the applicable point of discharge (either at the storm drain or the receiving water). If a Discharger monitors the above constituents more frequently than required by this WDR, then the results of such monitoring shall be included in the calculation and reporting of the data submitted in the annual report. Separate annual reports are required for each region.

I The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this WDR, and records of all data used to complete the application for this WDR, for a period of at least five years from the date of the sample, measurement, report, or application. This period may be extended by request of this Regional Board. These records shall include:

1. The date, place, and time of site inspections, sampling, visual observation, and/or measurement;
2. The individual(s) who performed the site inspections, sampling, visual observations, and/or measurements;
3. The dimension, size and/or volume of vault;
4. Flow measurements (if required) and duration of discharge;
5. The estimated volume of discharge;
6. The date and time of analyses;
7. The laboratory, staff, or wholesaler who performed the analyses; and
8. Analytical results.

J. Toxicity Reduction Evaluation (TRE)

The enrollee shall develop a Toxicity Reduction Evaluation (TRE) workplan. The workplan shall be subject to the approval of the Regional Board and shall be modified as directed by the Regional Board. Enrollees shall submit the TRE workplan to the Regional Board upon request of the Regional Board. The TRE

workplan shall be developed no later than six months after adoption of this WDR in accordance with the following manuals:

1. Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070).

2. Toxicity Identification Evaluation (TIE), Phase I (EPA/600/6-91/005F).

3. Methods for Aquatic Toxicity Identification Evaluations, Phase II (EPA/600/R-921080).

4. Methods for Aquatic Toxicity Identification Evaluations, Phase III (EPA/600/R-92/081).

K. If toxicity-testing results show a violation of any acute toxicity limitation identified in Discharge Specifications of this WDR, the enrollee shall:

1. Take all reasonable measures necessary to immediately minimize toxicity; and

2. Increase the frequency of the toxicity test(s), which showed a violation, to at least two times per month until the results of at least two consecutive toxicity tests do nof show violations.

L. If the Regional Board determines that toxicity testing shows consistent violation of any acute toxicity limitation identified in Discharge Specifications of this WDR, the enrollee shall conduct a TRE that includes all reasonable steps to identify the source of toxicity. Once the source of toxicity is identified, the enrollee shall take all reasonable steps to reduce the toxicity to meet the toxicity limitations identified in Discharge Specifications of this WDR.

M. Within 14 days of completion of the TRE, the enrollee shall submit the results of the TRE, including a summary of the findings, data generated, a list of corrective actions necessary to achieve consistent compliance with all the toxicity limitations of this WDR and to prevent recurrence of violations of those limitations, and a time schedule for implementation of such corrective actions. The corrective actions and time schedule shall be modified at the direction of the Regional Board.

V. Whole Effluent Toxicity Testing Requirements

Whole effluent toxicity (WET) tests measure the aggregate toxic effect of a mixture of pollutants that may be present in a waste stream and provides information on potential toxic impacts to receiving waters from the discharge of wastes. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach provides a means of assessing compliance with the narrative toxicity water quality objective for aquatic life protection of the Basin Plan while implementing numeric criteria for toxicity.

There are two types of WET tests: acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and development.

This order requires that a Toxicity Reduction Evaluation (TRE) be conducted if a discharge causes or contributes to chronic toxicity in a receiving water body. This WDR requires the Discharger to periodically monitor the toxicity of its discharge and to develop a TRE Workplan if the toxicity effluent limitations are exceeded.

VI. Land Discharge Monitoring Requirements (Not Applicable)

VII. Reclamation Monitoring Requirements (Not Applicable)

VIII. Receiving Water Monitoring Requirements – SURFACE WATER AND GROUNDWATER (Not Applicable)

IX. Other Monitoring Requirements (Not Applicable)

X. Reporting Requirements

A. General Monitoring and Reporting Requirements

All reports submitted in response to this WDR shall comply with signatory requirements set forth in the Standard Provisions.

B. Self Monitoring Reports (SMRs) to State and Regional Board

1. At any time during the term of this permit, the State or Regional Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. The Discharger shall submit annual monitoring results to the Regional Board by the 20th day of March for the preceding calendar year. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this WDR. If the Discharger monitors any pollutant more frequently than required by this WDR, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. The Discharger shall submit SMRs in accordance with the following requirements:

   a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that are entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

   b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of this WDR; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

   c. SMRs must be submitted to the appropriate Regional Board, signed and certified as required by the Standard Provisions (Attachment D).

C. Discharge Monitoring Reports (DMRs) to EPA

When requested by USEPA, the Discharger shall also complete and submit Discharge Monitoring Reports to USEPA. The submittal date shall be specified in the request.

D. OTHER REPORTS (NOT APPLICABLE)

Attachment F – Fact Sheet

As described in section III of this WDR, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this WDR.

I. Permit Information

A, INTRODUCTION

This Order establishes a WDR regulating the discharge of groundwater extraction waste discharges to surface waters in the San Diego Region except San Diego Bay from all construction groundwater extraction, and similar waste discharges.

B. BACKGROUND

In 1972, the Federal Water Pollution Control Act, currently referred to as the Federal Clean Water Act (CWA), was amended to provide that the discharge of pollutants to waters of the United States from any point source is prohibited, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The federal regulations allow authorized states to issue either general permits or individual permits to regulate discharges of pollutants to waters of the United States. On January 28, 1991, the California Regional Water Quality Control Board, San Diego Region (Regional Board) issued a General Waste Discharge Requirement for Groundwater Remediation and Dewatering Wastes Discharges to Surface Waters within the San Diego Region except for San Diego Bay (Order No. 91-10). The permit was reissued two more times on June 13, 1996 (Order No. 96-41) and October 10,2001 (Order No. 2001-96).

In accordance with Title 40, Code of Federal Regulations (CFR), the Regional Board must meet general program requirements prior to the re-issuance and adoption of a general NPDES permit. General program requirements include preparing a draft WDR, public noticing, allowing a public comment period, and conducting a public hearing. To meet these requirements, the Regional Board prepared a draft WDR. The tentative WDR was made available to interested parties and posted on the Regional Board's website on February 5, 2008 for comments. A public hearing to receive testimony from interested parties was scheduled for March 12, 2008. A public hearing notice was posted in the San Diego Union-Tribune, The Riverside Press-Enterprise, and The Orange County Register, major newspapers in the San Diego Region, on February 8, 2008. The public written comment period ended March 5, 2008 and the public oral comment period ended March 12, 2008 at the Regional Board meeting.

C. GENERAL CRITERIA

Extracted groundwater may contain pollutants which may be found in groundwaters as a result of decomposition of organic materials (e.g., hydrogen

sulfide), leaking underground storage tanks and fuel lines, surface spills, sewage, past use of liquid waste impoundments, or the potential presence of nutrients (phosphorus and nitrogen compounds).

The San Diego Regional Water Quality Control Board (hereinafter Regional Board) is aware that petroleum pollutant plumes exist in groundwaters in areas subject to construction groundwater extraction. In addition to construction groundwater extraction discharges, groundwater remediation projects required by cleanup and abatement orders issued by the Regional Board may require the discharge of treated groundwater. In addition to petroleum products and solvents, groundwaters may contain elevated concentrations of other pollutants that could degrade surface waters. These other pollutants may include metals, nutrients (nitrogen and phosphorus), hydrogen sulfide, solids, and other inorganic and organic compounds.

Existing and proposed discharges of groundwater extraction waste from construction groundwater extraction, foundation groundwater extraction, and groundwater cleanup projects:

a) Result from similar operations (all involve extraction and discharge of groundwater);

b) Are the same type of waste (all are groundwater);

c) Require similar effluent limitations for the protection of the beneficial uses of the receiving waters;

d) Require similar monitoring; and

e) Are more appropriately regulated under a general permit rather than individual permits.

Order No. 2001-96, applied to all groundwater extraction waste discharges of greater than 100,000 gpd. For purposes of renewing NPDES permit No. 2001-96 (Tentative Order No. R9-2008-0002), historical monitoring data has been reviewed. Based on the data review results, lack of complaints of adverse impacts to water quality and/or beneficial uses of the receiving waters, and lack of documentation of adverse impacts to water quality and/or beneficial uses of the receiving waters, discharges of groundwater to all receiving waters within the region except discharges to San Diego Bay less than 100,000 gallons per day and where no known contamination exists, probably will not have an adverse effect on the receiving water/environment.

This WDR does <u>not</u> cover:

STORM WATER - Storm water runoff due to construction activities. These activities may be covered under the statewide general NPDES permit for storm water discharges associated with construction activities (CAS000002), the

statewide general NPDES permit for Storm Water Runoff Associated With Small Linear Underground/Overhead Construction Projects (CAS000005), and/or Clean Water Act (CWA) Section 401 Water Quality Certifications.

SANITARY SEWER - Discharges to a sanitary sewer. These discharges do not need coverage under the NPDES Program, although the agency controlling the sanitary sewer must approve discharges to its conveyance system.

UTILITY VAULTS - Discharges from utility vaults and underground structures. These activities may be covered under the statewide general NPDES permit for discharges from utility vaults and underground structures to surface water Order No. 2006-0008-DWQ (CAG990002).

HYDROSTATIC1POTABLE WATER – Discharges from drinking water well development. These discharges are covered in Order No. R9-2002-0020 (CAG679001).

Notification Requirements

The purpose of this WDR is to facilitate regulation of discharges from groundwater extraction activities. To obtain coverage under this WDR, the Discharger must submit a Notice of Intent (NOI), a project map(s), an initial Monitoring Report, and first annual fee. Signing the certification on the NOI signifies that the Discharger intends to comply with the provisions and requirements of this WDR. AN NOI must be signed to be valid.

D. DISCHARGE TO A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)

Prior to discharging into an MS4, the Discharger shall demonstrate alternatives to discharging extracted groundwater waste into an MS4 and why it is technically or economically infeasible to implement these alternatives.

Without prior approval from the appropriate local agency with jurisdiction over the MS4, the discharger shall not discharge extracted groundwater waste under this WDR into an MS4.

Local agencies responsible for operating the MS4s may not passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the MS4 operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

Therefore, at least 30 days prior to initiating an extracted groundwater discharge to an MS4, the Discharger shall notify and receive authorization from the appropriate local agency with jurisdiction over the MS4. This requirement encourages communication between Dischargers enrolled under this WDR and

local agencies responsible for MS4s in an effort to reduce misunderstandings and concerns over the types of discharges covered by this WDR.

E. DISCHARGE DESCRIPTION

Groundwaters in some urban areas are known to be contaminated with petroleum products and solvents due to underground storage tank leaks and pipeline leaks. Discharges of groundwater to receiving waters within the region will be required to comply with the effluent limitations contained in this Order and protect the beneficial uses of the receiving waters.

Regional Board staff expects that a number of the groundwater project proponents will propose discharges to surface waters which will require National Pollutant Discharge Elimination System (NPDES) permits.

Any discharge of untreated groundwater to a surface water may cause or contribute to excursions above narrative water quality objectives contained in the Ocean Plan and/or Basin Plan as a result of the potential discharge of petroleum related compounds, solvents, and metals.

Enrollees under this WDR that are in close proximity of the ocean, a bay, harbor, lagoon or estuary, may encounter saline groundwater, in which case the use of EPA Method 1638, and EPA Method 1640 (Clean Technologies) would be appropriate for the analysis of metals in saline samples.

FACILITY DESCRIPTIONS - TREATMENT FACILITIES AND OUTFALLS

This general NPDES permit contains effluent limitations which may require the application of 'best available treatment economically achievable' for the removal of petroleum products and organic compounds from each groundwater project proponent's discharge. The general NPDES permit will require each Enrollee to certify the adequacy of each component of treatment facilities or a contingency plan prior to initiating a discharge. Each Enrollee's certification report shall contain a requirement-by-requirement analysis, based on accepted engineering practice, of how the contingency plan or process and physical design of the facilities will ensure compliance with this Order.

Groundwater may be discharged to a variety of receiving waters, storm drains, or other conveyance systems tributary to receiving waters within the region. Because outfalls are not designed to achieve maximum initial dilution and dispersion of discharges, initial dilution factors for discharges to inland surface waters, bays, estuaries, and lagoons are conservatively assumed to equal zero.

An initial dilution factor of three is assumed for discharges to the surf zone. The initial dilution factor is based on a preliminary dilution model submitted by Professor Gerhard H. Jirka, School of Civil and Environmental Engineering, Cornell University, for a dewatering project for the international treatment facility ocean outfall near Tijuana. This particular model assumes that:

a) Mixing of the dewatering discharge is primarily controlled by wave-induced turbulence and longshore conditions;

b) 0.55 meter wave height with a 15 second period occurring with a 95 percent exceedance probability;

c) A longshore velocity of 5 to 10 centimeters per second; and

d) A near-shore beach slope of 3 percent.

The model results in an initial dilution ratio of six. Since the model does not represent topographic and wave conditions throughout the region, the initial dilution factor for discharges to surf zones was halved.

F. DESCRIPTION OF WASTEWATER AND BIOSOLIDS TREATMENT OR CONTROLS (NOT APPLICABLE)

G. DISCHARGE POINTS AND RECEIVING WATERS

Under the WDR, there may be multiple discharge points. Additional information regarding the receiving waters can be found in the completed NOI which describes the discharge and identifies the points of discharge.

The Comprehensive Water Quality Control Plan Report, San Diego Basin (9), (Basin Plan) was adopted by this Regional Board on September 8, 1994, and subsequently approved by the State Water Resource Control Board (hereinafter SWRCB) on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the SWRCB. The Basin Plan designates beneficial uses, narrative and numerical water quality objectives, and prohibitions which are applicable to the groundwater extraction waste discharges regulated under this Order.

The Basin Plan identifies the following beneficial uses of the surface waters in the San Diego Region to be protected (not all surface waters have all of the beneficial uses listed below):

- Municipal and domestic supply;
- Agricultural supply;
- Industrial service supply;
- Industrial process supply;
- Groundwater recharge;
- Freshwater replenishment;
- Navigation;
- Hydropower generation;

- Contact water recreation;
- Non-contact water recreation;
- Commercial and sport fishing;
- Warm freshwater habitat;
- Cold freshwater habitat;
- Preservation of Biological Habitats of Special Significance;
- Inland saline water habitat;
- Wildlife habitat;
- Rare, threatened, or endangered species;
- Marine habitat;
- Migration of aquatic organisms;
- Spawning, reproduction, and/or early development;
- Shellfish harvesting;
- Estuarine habitat; and
- Aquaculture

In order to protect these beneficial uses, the Basin Plan establishes water quality objectives (for bacterial, physical, chemical, and biological characteristics, and for radioactivity), general requirements for management of waste discharge to the bays/harbors, quality requirements for waste discharges (effluent water quality requirements), discharge prohibitions, and general provisions.

The SWRCB adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on April 21, 2005. The Ocean Plan identifies the following beneficial uses of state ocean waters to be protected:

- Industrial water supply;
- Navigation;
- Aesthetic enjoyment;
- Water contact recreation;
- Non-contact water recreation;
- Fish migration;
- Mariculture;
- Marine habitat;
- Preservation and enhancement of areas of special biological significance;
- Preservation and enhancement of rare and endangered species;
- Fish spawning;
- Shellfish harvesting
- Ocean commercial and sport fishing;

The Ocean Plan establishes water quality objectives (for bacterial, physical, chemical, and biological characteristics, and for radioactivity), general requirements for management of waste discharge to the ocean, quality requirements for waste discharges (effluent water quality requirements), discharge prohibitions, and general provisions.

Beneficial uses of the bays and estuaries in the San Diego Region are similar to those of the Ocean Waters of the State. In order to protect the beneficial uses of the bays and estuaries, discharge specifications and receiving water quality limitations for some parameters, derived from the Ocean Plan, have been included in this Order for discharges to bays and estuaries (when open to the ocean and consisting of marine waters). If a lagoon or estuary is not open to the Pacific Ocean and consists of fresh water, discharges shall comply with the requirements established in this Order for discharges to inland surface waters.

This region has continuous and ephemeral rivers and streams, bays, estuaries, lagoons, and approximately 85 miles of coastline. No receiving waters covered under the terms and conditions of this Order have been designated an outstanding national resource water by the SWRCB. However, Heisler Park Ecological Reserve, located in coastal waters near the City of Laguna Beach, the San Diego-La Jolla Ecological Reserve, and the San Diego Marine Life Refuge, located in coastal waters near La Jolla, a community of the City of San Diego, have been designated an Area of Special Biological Significance (ASBS) by the SWRCB. The Water Quality Control Plan for Ocean Waters of California (Ocean Plan) contains the following prohibitions applicable to ASBSs:

"Waste shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas."

Order No. R9-2008-0002 prohibits the discharge of extraction waste to the above ASBSs

H. SUMMARY OF EXISTING REQUIREMENTS AND SELF-MONITORING REPORT DATA

Order No. 2001-96, which this WDR replaces, requires the Discharger not to exceed the Effluent Limitations for a number of constituents, and to monitor and report the concentration and mass of the constituents in their discharge. Significant changes occurred in the Effluent Limitation requirements for some constituents. Effluent Limitations under Order No. 2001-96 were developed using the CTR, while the SIP was used for this WDR.

I. Compliance Summary (Not Applicable)

J. Planned Changes (Not Applicable)

II. Applicable Plans, Policies, and Regulations

The requirements contained in this WDR are based on the requirements and 'authorities described in this section.

A. Legal Authorities

This WDR is issued pursuant to CWA section 402 and implementing regulations adopted by the USEPA and Chapter 5.5, Division 7 of the California Water Code (CWC). It shall serve as an NPDES permit for point source discharges from groundwater extraction waste discharges to surface waters. This WDR also serves as Waste Discharge Requirements (WDRs) pursuant to Article 4, Chapter 4 of the CWC for discharges that are not subject to regulation under CWA section 402.

States may request authority to issue general NPDES permits pursuant to 40 CFR section 122.28. On June 8, 1989, the State Board submitted an application to the USEPA requesting revisions to its NPDES Program in accordance with 40 CFR 122.28, 123.62, and 403.10. The application included a request to add general permit authority to its approved NPDES Program. On September 22, 1989, the USEPA, Region 9, approved the State Board's request and granted authorization for the State to issue general NPDES permits.

B. California Environmental Quality Act (CEQA)

This action to adopt a NPDES permit is exempt from the provisions of CEQA (Public Resources Code section 21100, et seq.) in accordance with CWC section 13389 for the following reasons: 1) A Discharger cannot obtain coverage under this WDR if pollutants in the discharge, cause, contribute, or have the reasonable potential to cause or contribute to a water quality standards violation; 2) The permit requires Dischargers to monitor and report the discharge to ensure the Dischargers will not cause a violation; and 3) The Regional Board's granting of the exceptions does not have the potential for causing significant adverse environmental effects. See California Code of Regulations, Title 14, section 15061(b)(3).

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plan**
   On September 8, 1994, the Regional Board adopted a Water Quality Control Plan for the San Diego Region (hereinafter Basin Plan), that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Board assigns the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plans.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR)**
   USEPA adopted the NTR on December 22, 1992, which was amended on May 4, 1995, and November 9,1999, and the CTR on May 18,2000, which was amended on February 13, 2001. These rules include water quality criteria for priority pollutants and are applicable to this discharge.

3. **State Implementation Policy (SIP)**
On March 2, 2000, the State Board adopted the SIP, which became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Boards in their basin plans, with the exception of the provision on alternate test procedures for individual discharges that have been approved by USEPA Regional Administrator. The alternate test procedures provision was effective on May 22,2000. The SIP became effective on May 18,2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP includes procedures for determining the need for and calculating Water Quality-Based Effluent Limitations (WQBELs), and requires Dischargers to submit data sufficient to do so. The State Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this WDR implement the SIP.

4. **Antidegradation Policy**
Section 131.12 of 40 CFR requires that State water quality standards include an antidegradation policy consistent with the federal policy. The State Board established California's antidegradation policy in State Board Resolution No. 68-16, which incorporates the requirements of the federal antidegradation policy where applicable. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. As discussed in detail in this Fact Sheet, the permitted discharge shall be consistent with the antidegradation provision of 40 CFR section 131.12 and State Board Resolution No. 68-16.

5. **Anti-Backsliding Requirements**
Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. All effluent limitations in the WDR are at least as stringent as the effluent limitations in the previous Order unless specified.

6. **Monitoring and Reporting Requirements**
Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Boards to require technical and monitoring reports. The MRP establishes monitoring and reporting requirements to implement Federal and State requirements. This MRP is provided in Attachment E.

D. Impaired Water Bodies on CWA 303(d) List

The federal Clean Water Act requires States to identify and make a list of surface water bodies that are polluted. These water bodies, referred to in law as "water quality limited segments," do not meet water quality standards even after discharges of wastes from point sources have been treated by the minimum required levels of pollution control technology. Wastewater treatment plants, a city's storm drain system, or a boat yard, are a few examples of point sources that discharge wastes to surface waters. States are required to compile the water bodies into a list, referred to as the "Clean Water Act Section 303(d) List of Water Quality Limited Segments" (303(d) List). States must also prioritize the water bodies on the list and develop action plans, called total maximum daily loads (TMDLs) to improve the water quality.

The State Board updated the 2004-2006 303(d) List for California on October 25, 2006, and EPA approved it on November 30,2006.

There are approximately 100 impaired water bodies on the 303(d) List in the San Diego Region. Most TMDLs for water bodies within the San Diego Region are under development or have not been started. However, four TMDLs for the San Diego Region need only State Board approval to be complete, and three are already complete. Of the three completed TMDLs, two impact the water quality of San Diego Bay and the third impacts the water quality of Rainbow Creek.

E. Other Plans, Polices and Regulations

Ocean Plan
The State Board adopted the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) in 2005, it was approved by USEPA, and became effective on February 14, 2006. The Ocean Plan identifies the following beneficial uses of state ocean waters to be protected:

a. Industrial water supply;
b. Navigation;
c. Aesthetic enjoyment;
d. Water contact recreation;
e. Non-contact water recreation;
f. Ocean commercial and sport fishing;
g. Mariculture;
h. Preservation and enhancement of Areas of Special Biological Significance;
i. Preservation and enhancement of rare and endangered species;
j. Marine habitat;
k. Fish migration;
l. Fish spawning; and
m. Shellfish harvesting.

In order to protect the above beneficial uses, the Ocean Plan establishes water quality objectives (for bacteriological, physical, chemical, and biological characteristics, and for radioactivity), general requirements for management of waste discharged to the ocean, quality requirements for waste discharges (effluent quality requirements), discharge prohibitions, and general provisions.

Limits derived from the Ocean Plan have been included in this WDR to protect beneficial uses of enclosed bays and estuaries because their beneficial uses are similar to those of the ocean waters of the State.

F. BASIS FOR WASTE DISCHARGE REQUIREMENTS

Section 402 of the federal Clean Water Act (CWA) gives the U.S. EPA the authority to issue NPDES permits for discharges into navigable waters and to prescribe conditions for such permits necessary to carry out the provisions of the CWA. In California, EPA has delegated this authority to the State of California.

The discharge of extracted groundwater threatens to cause or contribute to excursions above narrative water quality objectives as a result of the discharge of petroleum related compounds, metals, and organics. On May 26, 1989, the U.S. EPA enacted revisions to 40 CFR 122 (NPDES regulations). When a proposed discharged of a compound or chemical threatens to cause or contribute to an excursion above a State narrative water quality standard and a numeric water quality standard for the specific chemical has not been established, the NPDES revisions require the Regional Board to:

a) Establish an effluent limitation using a proposed State water quality objective or standard or an explicit State policy or regulation interpreting its narrative water quality objective which will protect and maintain water quality and designated beneficial uses of the receiving water;

b) Establish effluent limitations on a case-by-case basis, using EPA's water quality criteria published under 307(a) of the Federal Clean Water Act; or

c) Establish effluent limitations on an indicator parameter for the pollutants of concern (State Board memorandum dated November 3,1989).

Groundwater pollutant plumes are often complex mixtures of hundreds of petroleum related compounds (e.g. gasoline contains over 200 chemical compounds) which makes complete chemical analyses very expensive and sometimes impracticable or impossible due to sample matrix interferences, constituent masking, or the lack of standard analytical techniques. Since water quality criteria for many of the petroleum hydrocarbon compounds have not been proposed or established by the State or EPA, the permit will require monitoring groundwater discharged using "indicator constituents" for the detection and evaluation of complex mixtures of petroleum related compounds such as gasoline and solvents. The indicator constituents used for evaluating compliance with the narrative water quality criteria in the permit for discharges of gasoline related products are benzene, ethylbenzene, toluene, xylene, and total petroleum

hydrocarbons, since it is believed that fuels have been adequately studied to justify limiting the analysis to these compounds.

On June 8, 1989, the SWRCB submitted an application to the U.S. EPA requesting revisions to its NPDES program in accordance with 40 CFR 123.62 and 403.10. The application included a request to add general permit authority to its approved NPDES program. States may request authority to issue general permits pursuant to 40 CFR 122.28. On September 22, 1989, the EPA, Region IX, approved the SWRCB's request and granted authorization for the State's issuance of general NPDES permits.

40 CFR 122.28 provides for the issuance of general permits to regulate discharges of waste which result from similar operations, are the same type of waste, require the same effluent limitations, require similar monitoring, and are more appropriately regulated under a general permit rather than individual permits.

In order to protect the beneficial uses of groundwaters and receiving waters in the region as a result of escalating numbers of groundwater extraction waste discharges, new permanent groundwater extraction waste discharges will be considered for enrollment on a case-by-case basis. The regulation of discharges from new permanent groundwater extraction operations to receiving waters will reduce the waste of groundwater as intended by Article X of the California Constitution and Section 275 of the California Water Code, and may reduce the potential number of new permanent discharges as intended by the federal Clean Water Act (Section 101(a)(1)) and the Water Quality Control Policy for Enclosed Bays and Estuaries of California.

The practice of permanent groundwater extraction for the purpose of protecting underground parking or other structures and the subsequent discharge of the groundwaters, without using the groundwaters to the "fullest extent to which they are capable, "as required by the California Constitution, is an unreasonable use of such waters, if the waters have designated beneficial uses. Article X, Section 2, of the California Constitution requires that "water resources of the State be put to beneficial use to the fullest extent of which they are capable and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." Water Code Section 275 states, "The department and board shall take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in this state."

On March 2, 2000, the SWRCB, in Resolution No. 2000-15, adopted a Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Policy). The Policy implements the provisions promulgated by the U.S. Environmental Protection Agency (U.S. EPA) in the California Toxics Rule (CTR). Criteria for 126 priority pollutants are established by the CTR.

U.S. EPA promulgated this rule to fill a gap in California water quality standards that was created in 1994 when a State court overturned the State's water quality control plans containing water quality criteria for priority toxic pollutants. The Federal criteria are legally applicable in the State of California for inland surface waters, enclosed bays and estuaries for all purposes and programs under the Clean Water Act.

The Policy was effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the National Toxics Rule (NTR) and to the priority pollutant objectives established by Regional Boards in their water quality control plans (basin plans).

The U.S. EPA promulgated the final California Toxic Rule (CTR) on May 18, 2000, as required by Section 303(c)(2)(B) of the federal Clean Water Act. The CTR regulations, codified in 40 CFR 131.38, establish numeric criteria for water quality standards for priority toxic pollutants for the State of California.

The Policy establishes:

a) implementation provisions for priority pollutant criteria promulgated by the U.S. EPA through the National Toxic Rule (NTR) and the CTR, and for priority pollutant objectives established in the Basin Plan;

b) monitoring requirements for 2,3,7,8-TCDD (tetrachlorodibenzo-p-dioxin) equivalents; and

c) Chronic toxicity control provisions.

Pursuant to Section 5.3 of the Policy, the Regional Board may, after compliance with the California Environmental Quality Act (CEQA), allow short-term or seasonal exceptions from meeting the priority pollutant criteria/objectives if determined to be necessary to implement control measures either:

a) For resource or pest management (i.e., vector or weed control, pest eradication, or fishery management) conducted by public entities to fulfill statutory requirements, including, but not limited for, those in the California Fish and Game, Food and Agriculture, Health and Safety, and Harbors and Navigation codes; or

b) Regarding drinking water conducted to fulfill statutory requirements under the federal Safe Drinking Water Act or the California Health and Safety Code. Such categorical exceptions may also be granted for draining municipal storm water conveyances for cleaning or maintenance, or for draining water treatment facilities for cleaning or maintenance.

Section 5.3 of the Policy states that, where site-specific conditions in individual water bodies or watersheds differ sufficiently from statewide conditions and those differences cannot be addressed through other provisions of this policy the SWRCB

may, in compliance with the California Environmental Quality Act (CEQA), subsequent to a public hearing, and with the concurrence of the U.S. Environmental Protection Agency, grant an exception to meeting a priority pollutant criterion/objective or any other provision of this Policy where the State Board determines:

a) The exception will not compromise protection of enclosed bay, estuarine, and inland surface waters for beneficial uses; and

b) The public interest will be served.

Section 402(a)(1) of the Clean Water Act authorizes the issuance of best available technology effluent limitations in NPDES permits using best professional judgement. Using best professional judgement, best available technology economically achievable for the removal of volatile and semi-volatile organic compounds, and analytical practical quantitation levels is the basis for effluent limitations, for these compounds, in the Discharge Specifications of the Order. Thus, best available technology economically achievable for the removal of organic compounds is the basis for effluent limitations for xylene and other volatile hydrocarbons, and base/neutral compounds (not included in 40 CFR 131.38).

Water Quality Based Effluent Discharge Specifications (limits) were established for this groundwater extraction waste discharge permit, using 40 CFR 131.38 (Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California), and the State's Implementation Policy. Water Quality Based Effluent Discharge Limits do not apply to discharges of extracted groundwater to the surf zone.

In general, there are two accepted technologies in use for the removal of synthetic organic compounds from water: aeration and adsorption. Removal efficiencies of volatile organic compounds through aeration processes can be estimated based on each compound's Henry's Law Coefficient (increasing coefficients indicate increasing volatility). Benzene is relatively soluble in water when compared to other fuel constituents and solvents. Any compound which has a Henry's Law coefficient greater than that of benzene will theoretically volatilize faster than benzene (assuming molecular or chemical interactions are nonexistent or minimized). Most of the compounds associated with fuel products and solvents commonly found in contaminated groundwater have Henry's Law Coefficients greater than that of benzene and will be efficiently removed through aeration if benzene is removed. The general consensus in the literature is that a 99 percent removal efficiency of volatile compounds with similar concentrations may be achieved through aeration processes. Based on best professional judgement, if benzene is removed from groundwater to levels approaching detection limits (practical quantitation level), other volatile organic compounds of concern (e.g., tetrachloroethylene, trichloroethylene, carbon tetrachloride, etc.) will be removed from the discharged groundwater as well.

Organic compounds which are not removed from groundwaters through aeration processes may be removed through adsorption processes (e.g., granular activated carbon). When properly designed and operated, most granular activated carbon systems can lower the concentration of synthetic organic contaminants to below detection limits.

In general, most synthetic organic contaminants can be removed from groundwaters using the aeration of adsorption processes or a combination thereof. Establishing effluent limitations in the practical quantitation limit range (1 to 5 □g/L) and monitoring requirements for BTEX as indicators of fuels, 40 CFR 136 listed volatile compounds as indicators of solvents, and base/neutral compounds as indicators of diesel product, will, based on best professional judgement, ensure that compounds of concern are not discharged in levels which will cause excursions from narrative water quality criteria or objectives.

On January 1,1998, Senate Bill (SB) 521 was passed. SB521 adds language, applicable to leaking underground storage tanks, to the Health & Safety Code as follows: "Section 25299.37.1. No closure letter pursuant to this chapter shall be issued unless the soil or groundwater, or both, where applicable, at the site have been tested for Methyl Tertiary Butyl Ether (MTBE) and the results of that testing are known to the Regional Board." Subsequently, on February 20, 1998, the San Diego Regional Board, Site Mitigation & Cleanup Unit, issued written notification to interested parties of Mandatory MTBE Sampling For Underground Storage Tank (UST) Site Closures-Senate Bill (SB) 521. The February 20, 1998, notification specifies that "For ground water impacted sites or soil sites that may threaten ground water, both soil and ground water sampling and analysis for MTBE will be required."

The Porter-Cologne Water Quality Control Act (January 1, 2000), Section 13272.1 and Section 13285, address discharges of MTBE. The California Department of Health Services (DHS) last update (March 9, 2000) of California's Maximum Contaminant Levels (MCLs) for MTBE states the following:

As established by the DHS, the primary MCL is 13 µg/L for MTBE and the secondary MCL is 5 µg/L.

The Order requires that groundwater discharged to bays and estuaries must not contain pollutants in excess of applicable receiving water quality objectives contained in 40 CFR 131.38 (Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California), or effluent limitations based on achievable concentrations using best available technology (BAT), whichever results in a lower effluent concentration. Effluent limitations based on BAT are equal to or less than the practical quantitation level. Since the assumed initial dilution factor for the discharge is zero, a discharge could not cause an excursion from numeric receiving water quality objectives for Tables 1 and 2 (Groundwater Extraction Discharges to Bays and Harbors, and Groundwater Extraction Waste Discharges to Lagoons/Estuaries), if the discharge is in compliance with the effluent limitations contained in the Order. Likewise,

discharges to the surf zone cannot cause excursions from water quality objectives based on the preceding, and assuming that the dilution factor will always be greater than three.

For discharges to inland surface waters, effluent limitations are based on the EPA water quality criteria for the protection of aquatic species, the EPA water quality criteria for the protection of human health, effluent concentrations achievable using best available technology, 40 CFR 131.38 (Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California), or, in the cases where the receiving water is designated potable or municipal supply waters, maximum contaminant levels for municipal waters established by the California Department of Health Services. Since the assumed initial dilution factor for the discharge is zero and a mixing zone is not allowed, a discharge could not cause an excursion from numeric receiving water quality objectives if the discharge is in compliance with the effluent limitations contained in the Order.

No evidence that groundwaters in the region contain biocides, dioxins, or radiation has been found to date. However, discharges of pesticides in detectable concentrations to inland surface waters are prohibited by the Comprehensive Water Quality Control Plan Report, San Diego Basin (9) (Basin Plan), and by the Order.

In the adoption of waste discharge requirements and effluent limitations to protect the beneficial uses of waters of the State, Section 1300 et seq., of the California Water Code, authorizes the use of relevant water quality objectives or other criteria in the absence of numerical effluent concentration limitations in the Bays and Estuaries Policy.

Compliance with effluent limitations shall be determined as follows (pursuant to 40 CFR – 131.38):

a) Dischargers shall be deemed out of compliance with an effluent limitation if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (ML).

b) Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) when there is evidence (e.g., sample results reported as "Detected, but Not Quantified" (DNQ) when the effluent limitation is less than the Method Detection Limit (MDL), sample results from analytical methods more sensitive than those methods included in the permit, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that the priority pollutant is present in the effluent above an effluent limitation and either:

1) A sample result is reported as DNQ and the effluent limitation is less than the reported ML; or

2) A sample result is reported as Non-Detect (ND) and the effluent limitation is less than the MDL.

When determining compliance with an Average Monthly Effluent Limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

a) The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

b) The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

If a sample result, or the arithmetic mean or median of multiple sample results, is below the reported ML, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP, the discharger shall not be deemed out of compliance.

III. Rationale For Effluent Limitations and Discharge Specifications

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. Effluent limitations are based on the following principles:

A. 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards;

B. 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality criteria have not been established, three options exist to protect water quality: 1) 40 CFR section 122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a); 2) proposed state criteria or a state policy interpreting narrative criteria supplemented with other relevant information may be used; or 3) an indicator parameter may be established;

C. Any discharge of untreated groundwater to surface water in the San Diego Reigon threatens to cause or contribute to excursions above narrative water quality objectives contained in the Basin Plan as a result of the potential discharge of petroleum related compounds, solvents, and metals.

On May 26, 1989, USEPA enacted revisions to NPDES program regulations (40 CFR 122). When a proposed discharge of a compound or chemical threatens to cause or contribute to an excursion above a State narrative water quality standard and a numeric water quality standard for the specific chemical has not been established, the NPDES program regulations require the Regional Board to do the following: 1) Establish effluent limitations using a proposed State water quality objective or standard, or an explicit State policy or regulation interpreting its narrative water quality objective which will protect and maintain water quality and designated beneficial uses of the receiving water; 2) Establish effluent limitations on a case-by-case basis, using USEPA's water quality criteria published under CWA section 307(a); or 3) Establish effluent limitations on an indicator parameter for the pollutants of concern; and

D. 40 CFR section 122.44(l) requires that when a permit is renewed or reissued, effluent limitations must be at least as stringent as the effluent limitations in the previous permit. Since this permit is a renewal of a previous permit, anti-backsliding is applicable and the following pollutants are included:

Settleable Solids
Total Suspended Solids
Hydrogen Sulfide
Total Residual Chlorine
pH
Benzene
Ethylbenzene
Toluene
Xylene
Total Petroleum Hydrocarbons
Arsenic
Cadmium
Chromium (hexavalent)
Copper
Lead
Mercury
Nickel
Silver
Zinc
Cyanide
Phenolic Compounds (non-chlorinated)
Chlorinated Phenolics
1,1,2,2-tetrachlorethane (PCA)
1,1,1-trichloroethane (TCA)
1,1,2-trichloroethane (TCA)
1,2-dichloroethane
Tetrachloroethylene (PCE)
Trichloroethylene (TCE)
Vinyl chloride
Carbon tetrachloride
Base/Neutral Organic Compounds
Acute Toxicity
Chronic Toxicity
Tributyltin (TBT)
Total Coliform
Fecal Coliform
Dissolved Oxygen (DO)

E. Methyl Tertiary-Butyl Ether (MTBE), is a chemical compound that is manufactured by the chemical reaction of methanol and isobutylene.

MTBE is produced in very large quantities (over 200,000 barrels per day in the U.S. in 1999) and is almost exclusively used as a fuel additive in motor gasoline. It is one of a group of chemicals commonly known as "oxygenates" because they raise the oxygen content of gasoline. At room temperature, MTBE is a volatile, flammable and colorless liquid that dissolves rather easily in water.

Because MTBE dissolves easily in water and does not "cling" to soil very well, it migrates faster and farther in the ground than other gasoline components, thus making it more likely to migrate to groundwater extraction wells. MTBE does not degrade (breakdown) easily and is difficult and costly to remove from groundwater.

On January 1, 1998, Senate Bill (SB) 521 was passed. SB521 adds language to the Health & Safety Code which is applicable to leaking underground storage tanks as follows: "section 25299.37.1. No closure letter pursuant to this chapter shall be issued unless the soil or groundwater, or both, where applicable, at the site have been tested for Methyl Tertiary Butyl Ether (MTBE) and the results of that testing are known to the Regional Board." Subsequently, on February 20, 1998, the Regional Board, Site Mitigation & Cleanup Unit, issued written notification to interested parties of Mandatory MTBE Sampling For Underground Storage Tank (UST) Site Closures-Senate Bill (SB) 521. The February 20, 1998, notification specifies that "For ground water impacted sites or soil sites that may threaten ground water, both soil and ground water sampling and analysis for MTBE will be required."

Sections 13272.1 and Section 13285 of the CWC address discharges of MTBE. The California Department of Health Services (DHS) adopted limits for Maximum Contaminant Levels for MTBE. The Primary MCL of 13 µg/L was adopted by DHS on May 17, 2000. The Secondary MCL (for taste and odor not health affects) of 5 µg/L was adopted on January 7, 1999. The UST program uses the more conservative secondary MCL of 5 µg/L.

F. Discharge Prohibitions

Discharges under this WDR are required to be nontoxic. Toxicity is the adverse response of organisms to chemicals or physical agents. This prohibition is based on the Basin Plan, which require that all waters be maintained free of toxic substances in concentrations that are lethal or produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. The Basin Plan also requires waters to be free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, or animal life. This objective applies regardless of whether

the toxicity is caused by a single substance or the interactive effect of multiple substances.

Mass emission rate limitations will be determined using the discharge flowrate and effluent concentration limitations specified in this WDR; therefore, the daily maximum discharge flowrate limitation for each discharge will be specified in the discharge Notice of Enrollment from the Regional Board. The discharge flowrate will be designated as the maximum discharge flowrate and the Discharger shall be prohibited from discharging in excess of the maximum discharge flowrate.

1. The discharge of groundwater to surface waters is prohibited unless authorized, exempted, or issued an individual NPDES permit by the Regional Board.

2. The discharge of wastes to areas designated by the SWRCB, and recommended by the Regional Board, as areas of special biological significance is prohibited. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.

3. The discharge of groundwater extraction waste to surface waters from permanent groundwater extraction operations in basins with designated beneficial uses of industrial, agricultural, or municipal and domestic supply are prohibited unless such extracted groundwater (not used beneficially) is used beneficially (Application Requirements, Section F.17, and F.18). If the Enrollee of such extracted groundwater wishes to discharge to surface waters, it shall be the responsibility of the Enrollee to obtain an individual NPDES Permit for the discharge.

4. The discharge of groundwater extraction waste to enclosed bays, harbors, lagoons, and estuaries, or tributaries thereto, is prohibited unless the Enrollee demonstrates to the satisfaction of the Regional Board that alternative disposal sites (e.g., surf zone) are not practicable as required in Application Requirements, Sections F.17, and F.18.

5. The discharge of groundwater extraction waste to any surface water from a groundwater extraction project after the date of completion of construction of structures requiring groundwater extraction, or from a groundwater remediation operation after the date the groundwater has been remediated to the satisfaction of the Regional Board, is prohibited.

6. The discharge of groundwater in excess of the flowrate specified in each Enrollee's Notice of Enrollment is prohibited unless the

Enrollee obtains a revised discharge Notice of Enrollment authorizing an increased flowrate.

7. No individual pesticide or combination of pesticides shall be present in the water column, sediments, or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife or aquatic organisms.

   Water designated for use as domestic or municipal supply (MUN) (drinking water) shall not contain concentrations of pesticides in excess of the maximum contaminant levels specified in California Code of Regulations, Title 22, Table 64444-A of Section 64444 (Organic Chemicals). (See Basin Plan Chapter 3-13).

8. Compliance with the waste discharge prohibitions contained in the Basin Plan is a condition of this Order.

9. The discharge of groundwater extraction waste to a storm water conveyance system without notifying and receiving authorization from the agency having jurisdiction over the storm water conveyance system is prohibited.

10. The discharge of wastes tributary or directly to areas designated as being of special biological significance by the SWRCB is prohibited. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.

G. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

The CWA requires that TBELs be established based on several levels of controls:

Best Practicable Treatment Control Technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. The BPT standards apply to toxic, conventional, and nonconventional pollutants.

Best Available Technology Economically Achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. The BAT standards apply to toxic and nonconventional pollutants.

Best Conventional Pollutant Control Technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

New Source Performance Standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop Effluent Limitations, Guidelines and Standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 of the NPDES regulations authorize the use of Best Professional Judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in 40 CFR section 125.3.

2. Applicable Technology-Based Effluent Limitations

The USEPA has not developed numeric Technology-Based effluent limitations for pollutants in discharges from groundwater extraction.

H. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in 40 CFR section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, achieve applicable water quality objectives and criteria contained in state plans and policies, and meet water quality criteria in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The designated beneficial uses of surface waters throughout the State may include municipal, domestic, industrial, and agricultural supply; water contact and non-contact recreation; navigation; groundwater recharge and freshwater replenishment; hydropower generation; wildlife habitat; cold

freshwater and warm freshwater habitat; fish migration and fish spawning; marine habitat; estuarine habitat; shellfish harvesting; ocean commercial and sport fishing; areas of special biological significance; and preservation of rare and endangered species. To the extent that the Basin Plan designates additional or different beneficial uses, the Basin Plan shall apply.

3. Determining the Need for WQBELs

All applicable provisions of sections 301 and 402 of the CWA must be met for NPDES permits for discharges to surface waters. These provisions require controls of pollutant discharges that utilize BAT and BCT to reduce pollutant and any more stringent controls necessary to meet water quality standards.

As specified in the SIP, the Regional Board shall conduct an analysis for each priority pollutant with applicable criterion or objective to determine if a water quality-based effluent limitation is required.

Data are unavailable to conduct an analysis because a WDR as a General Permit, does not require a Report of Waste Discharge. Therefore, the discharger shall conduct an initial sample based on flow to determine the requirements.

Reasonable Potential Analysis (RPA)

In order to determine what to sample for and what frequency, an initial set of data is required.

If the discharger proposes to discharge less than 100,000 gallons per day, then the discharger shall initially conduct Monitoring Program A (sample for the entire constituents listed in III.D. and MTBE).

However it the discharger proposes to discharge 100,000 gallons per day or more, then the discharger shall initially conduct Monitoring Program B (sample the entire constituents listed in III.D., MTBE, and all 126 priority pollutants).

Based on the initial monitoring program if the discharge does not require treatment to meet the discharge specifications of this WDR, then the discharger will only need to conduct Monitoring Program A (if discharging less than 100,000 gallons per day) or Monitoring Program B (if discharging 100,000 gallons per day or more) once per year. This will provide data to identify reasonable potential for future effluent limits.

If the discharge will require treatment prior to discharge, then in addition to the once per year monitoring required listed above, the discharger will also monitor for all the constituents listed in the discharge specification with

effluent limits at the frequency required in the Monitoring and Reporting Program stated in Attachment E because of the reasonable potential of exceeding the effluent limits in the discharge specifications of this WDR.

If there are any contaminated sites within the radius of influence of the groundwater extraction activities, then the constituent of concern will be monitored at the frequency required in the Monitoring and Reporting Program stated in Attachment E because of the reasonable potential of exceeding the effluent limits in the discharge specifications of this WDR. If the constituent of concern is not listed in the Monitoring and Reporting Program stated in Attachment E then a monitoring and reporting frequency will be stated in the Notice of Enrollment.

Table summarizing effluent limits and monitoring

DISCHARGE	EFFLUENT LIMITS	MONITORING PROGRAM
< 100,000		• Program A Annual
>= 100,000		• Program B Annual
Treatment	Yes	• Monitoring and Reporting Program in Attachment E
Contaminated Site in Radius of Influence		• Monitor and Report constituent(s) of concern as stated in the Notice of Enrollment

4. WQBEL Calculations

The Average Monthly Effluent and Maximum Daily Effluent WQBELs were calculated using a statistical approach with the following considerations and assumptions:

No dilution credit is considered for the discharge. Therefore, the discharge must comply with the Water Quality Objective at the point of discharge.

The WQBEL based on the CTR were implemented using the procedure list in the SIP. The procedure is listed below with copper as the example.

CTR/SIP calculations - Copper Example:

Criteria for Priority Toxic Pollutant in the State of California is described in the CTR table listed in 40 CFR 131.38.

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A		B Freshwater		C Saltwater		D Human Health (10^{-6} risk for carcinogens) For consumption of:	
# Compound	CAS Number	Criterion Maximum Conc. [d] B1	Criterion Continuous Conc. [d] B2	Criterion Maximum Conc. [d] C1	Criterion Continuous Conc. [d] C2	Water & Organisms (µg/L) D1	Organisms Only (µg/L) D2
1. Antimony	7440360					14 a,s	4300 a,t
2. Arsenic [b]	7440382	340 i,m,w	150 i,m,w	69 i,m	36 i,m		
3. Beryllium	7440417					n	n
4. Cadmium [b]	7440439	4.3 e,i,m,w,x	2.2 e,i,m,w	42 i,m	9.3 i,m	n	n
5a. Chromium (III)	16065831	550 e,i,m,o	180 e,i,m,o			n	n
5b. Chromium (VI) [b]	18540299	16 i,m,w	11 i,m,w	1100 i,m	50 i,m	n	n
6. Copper [b]	7440508	13 e,i,m,w,x	9.0 e,i,m,w	4.8 i,m	3.1 i,m	1300	

Saltwater criterion maximum concentration (CMC) = 4.8 µg/L
Saltwater criterion continuous concentration (CCC) = 3.1 µg/L

These criteria are expressed in terms of the, dissolved fraction of the metal in the water column. [See footnote “m” to Table in paragraph (b)(1) of 40 CFR 131.381

40 CFR 122.45(c) requires that this WDR include effluent limitations as a total recoverable concentration.

The SIP requires that if it is necessary to express a dissolved metal or selenium value as total recoverable and a site-specific translator has not yet been developed, the Regional Board shall use the applicable conversion factor from 40 CFR 131.38.

The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column [See note to Table 2 of Paragraph (b)(2) to 40 CFR 131.381

Total recoverable concentration * CF = Dissolved concentration criterion

or

Total recoverable concentration = Dissolved concentration criterion / CF

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(iv) Table 2 to paragraph (b)(2) of this section:

Metal	Conversion factor (CF) for freshwater acute criteria	CF for freshwater chronic criteria	CF for saltwater acute criteria	CF for saltwater chronic criteria
Antimony	(d)	(d)	(d)	(d)
Arsenic	1.000	1.000	1.000	1.000
Beryllium	(d)	(d)	(d)	(d)
Cadmium	0.944	0.909	0.994	0.994
Chromium (III)	0.316	0.860	(d)	(d)
Chromium (VI)	0.982	0.962	0.993	0.993
Copper	0.960	0.960	0.83	0.83

CF for copper = 0.83

Total recoverable concentrations for copper:
4.8 µg/L dissolved (CMC) / 0.83 (CF) = 5.8 µg/L total recoveralbe for CMC
3.1 µg/L dissolved (CCC) 10.83 (CF) = 3.7 µg/L total recoveralbe for CCC

Effluent variability multiplier and Coefficient of Variation (CV)
For each concentration based on an aquatic life criterion, the long-term average (LTA) is calculated by multiplying the concentration with a factor that adjusts for effluent variability. The multiplier can be found in Table 1 of the SIP. Since this is a WDR without existing data points, the number of effluent data points is less than ten; the CV shall be set equal to 0.6 per the SIP.

Table 1. Effluent Concentration Allowance (ECA) Multipliers for Calculating Long-Term Averages (LTAs)

Coefficient Of Variation (CV)	Acute Multiplier	Chronic Multiplier
	99th Percentile Occurrence Probability	99th Percentile Occurrence Probability
0.1	0.797	0.891
0.2	0,643	0.797
0.3	0.527	0.715
0.4	0.440	**0.643**
0.5	0.373	0.581
0.6	0.321	0.527

Therefore, from Table 1 of the SIP, the effluent variability multiplier will be as follows:
Acute Multiplier = 0.321
Chronic Multiplier = 0.527

The long-term average (LTA) is calculated by multiplying the total recoverable concentrations for copper with the acute and chronic multipliers:

LTA acute = 5.8 µg/L * 0.321 = 1.9 µg/L
LTA chronic = 3.7 µg/L * 0.527 = 2.0 µg/L

The MDEL and AMEL will be based on the most limiting of the acute and chronic LTA, in the case for copper it will be LTA acute of 1.9 µg/L.

Water quality-based effluent limits are calculated by multiplying the most limiting LTA with a factor (multiplier) that adjusts for the averaging periods and exceedance frequencies of the criteria and the effluent limitations. The multiplier can be found in Table 2 of the SIP. Since this is a WDR without existing data points, the CV will be set equal to 0.6 and since sampling frequency is four times a month or less, n shall be set equal to 4 per SIP (n=4).

Table 2. Long-Term Average (LTA) Multipliers for Calculating Effluent Limitations

Coefficient of Variation	MDEL Multiplier	AMEL Multiplier			MDEL/AMEL Multiplier		
	99th Percentile Occurrence Probability	95th Percentile Occurrence Probability			MDEL = 99'' Percentile AMEL = 95th Percentile Occurrence Probability		
(CV)		n = 4	n = 8	n = 30	n = 4	n = S	n = 30
0.1	1.25	1.05	1.06	1.03	1.16	1.18	*1.22*
0.2	1.55	1.17	1.12	1.06	1.33	1.39	4.46
0.3	1.90	1.26	1.18	1.09	1.50	1.60	1.74
0.4	2.27	1.36	1.25	1.12	1.67	1.82	*2.02*
0.5	2.68	1.45	1.31	1.16	1.84	2.04	2.32
6.6	3.11	1.55	1.35	*1.19*	2.01	2.25	2.62

Therefore, from Table 2 of the SIP, the LTA multipliers will be as follows:
MDEL Multiplier = 3.11
AMEL Multiplier = 1.55

The MDEL and AMEL limits are calculated by multiplying the LTA with an LTA multiplier for each limit:
Maximum Daily Effluent Limit (MDEL) = 1.9 µg/L * 3.11 = 5.8 µg/L
Average Monthly Effluent Limit (AMEL) = 1.9 µg/L * 1.55 = 2.9 µg/L

I. Whole Effluent Toxicity (WET)

Whole effluent toxicity (WET) tests measure the aggregate toxic effect of a mixture of pollutants that may be present in a waste stream and provides information on potential toxic impacts to receiving waters from the

discharge of wastes. WET tests measure the degree of response of exposed aquatic test organisms to an effluent. The WET approach provides a means of assessing compliance with the narrative toxicity water quality objective for aquatic life protection of the Basin Plan while implementing numeric criteria for toxicity. There are two types of WET tests: acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and development.

The SIP requires that a Toxicity Reduction Evaluation (TRE) be conducted if a discharge causes or contributes to chronic toxicity in a receiving water body. This WDR requires the Discharger to periodically monitor the toxicity of its discharge and to develop a TRE Workplan if the toxicity effluent limitations are exceeded.

J. Anti-Backsliding Effluent Limitations

Sections 402(o)(2) and 303(d)(4) of the CWA and 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. The following limits designated with AB in the Final Effluent Limitations table below have the same limit as the previous permit.

K. Final Effluent Limitations

Summary of Water Quality-Based Effluent Limitations
Discharge Point
Summary of Water Quality-based Effluent Limitations Table

Mass Limits
All permit limitations, standards or prohibitions shall be expressed in terms of mass except for pH, or other pollutants which cannot appropriately be expressed by mass or under certain circumstances including "when applicable standards and limitations are expressed in terms of other units of measurement." (40 CFR § 122.45(f)(1)). Therefore, all concentration limits stated above except for Settleable Solids, Acute Toxicity, Chronic Toxicity, Total Coliform, Fecal Coliform, pH, and Dissolved Oxygen shall also have a mass limit based on its concentration limit times the discharge flow limit in the Notice of Enrollment expressed in pounds per day (lbs/d) as shown in the equations below:

Concentration Limit * Flow Limit * Conversion Factor = Mass Limit
(mg/l) * (MGD) * 8.34 [lb*L/(Million Gallons*mg)] = lbs/day

(µg/l) * (MGD) * 0.00834 [lb*L/(Million Gallons*µg)] = lbs/day
(mg/l) * (gpd) * 0.00000834 [lb*L/(Gallons*mg)] = lbs/day
(µg/l) * (gpd) * 0.00000000834 [lb*L/(Million Gallons*µg)] = lbs/day

B. DISCHARGE SPECIFICATIONS

1. DISCHARGES TO BAYS AND HARBORS

The discharge of groundwater extraction waste to Mission Bay, Oceanside Harbor, Del Mar Boat Basin, or Dana Point Harbor shall not contain pollutants in excess of the following effluent limitations:

General / Inorganic / Biological

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Maximum	6-Month Median
Settleable Solids	ml/L	1.0 [OP]	1.5 [OP]	-	3.0 [OP]	-
Total Suspended Solids	mg/L	30 [AB]	-	-	50 [AB]	-
Hydrogen Sulfide	µg/L	2 [AB]	-	4 [AB]	10 [AB]	-
Total Residual Chlorine	µg/L	-	-	8 [OP]	60 [OP]	2 [OP]
Acute Toxicity	Tua			0.3 [OP]		
Chronic Toxicity	Tuc			1.0 [OP]		
Total Coliform	MPNI 100 ml				1000.0 [AB]	
Fecal Coliform	MPNI 100 ml				200.0 [AB]	
pH	Units	Within limit of 6.0 to 9.0 at all times [OP]				

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Minimum	6-Month Median
Dissolved Oxygen (DO)	mg/L				> 5.0 [AB]	

Petroleum

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Maximum	6-Month Median
MTBE	µg/L				5 [DHS]	
Benzene	µg/L	-	-	-	5 [AB]	-
Ethylbenzene	µg/L	-	-	-	5 [AB]	-
Toluene	µg/L	-	-	-	5 [AB]	-
Xylene	µg/L	-	-	-	5 [AB]	-

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Maximum	6-Month Median
Total Petroleum Hydrocarbons	mg/L	-	-	-	0.5 [AB]	-

Metals

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Tributyltin (TBT)	µg/L	0.0014 [OP]			

Organics

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Phenolic Compounds (non-chlorinated)	µg/L	-	120 [OP]	300 [OP]	30 [OP]
Chlorinated Phenolics	µg/L	0.025 [CTR]	0.049 [CTR]	10 [OP]	1 [OP]
▮,1,2,2-tetrachlorethane (PCA)	µg/L	2.3 [OP]	-	-	-
▮,1,1-trichloroethane (TCA)	µg/L	5.4E5 [OP]	-		-
1,1,2-trichloroethane (TCA)	µg/L	9.4 [OP]	-	-	-
1,2-dichloroethane	µg/L	28 [OP]	-	-	-
Tetrachloroethylene (PCE)	µg/L	2.0 [OP]	-	-	-
Trichloroethylene (TCE)	µg/L	27 [OP]	-	-	-
Vinyl chloride	µg/L	36 [OP]	-	-	-
Carbon tetrachloride	µg/L	0.90 [OP]	-	-	-
Base/Neutral Organic Compounds	µg/L			10 [AB]	

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Ammonia (as N)	µg/L		2400 [OP]	6000 [OP]	600 [OP]

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Endosulfan	ng/L	-	18 [OP]	27 [OP]	9 [OP]
HCH	ng/L	-	8 [OP]	12 [OP]	4 [OP]
Dichloromethane	µg/L	450 [OP]	-	5 [AB]	-
Halomethanes	µg/L	-	-	5 [AB]	-
PAHs	ng/L	8.8 [OP]	-	-	-
TCDD Equivalents	pg/L	0.0039 [OP]	-	-	-
Turbidity	µg/L	75 [OP]	2.2 [CTR]	225	-

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Minimum	6-Month Median
Turbidity	NTU	75 [OP]	100 [OP]	225 [OP]	-
Turbidity	NTU	Shall not exceed the turbidity of the receiving water. [AB]			
126 Priority Pollutants from "Inland Surface Waters"					

2. DISCHARGES TO LAGOONS/ESTUARIES

The discharge of groundwater extraction waste discharges to saline lagoons (only Buena Vista Lagoon is fresh water) and estuaries of the region shall not contain pollutants in excess of the following effluent limitations:

Includes limits to the Bays and Harbors Limitations

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Total Nitrogen	mg/L	-	-	2.0 [AB]	1.0 [AB]
Total Phosphorus	mg/L	-	-	.0.2 [AB]	0.1 [AB]
pH	Units	Within limit of 7.0 to 8.5 at all times [AB]			
All Parameters and Effluent Limitations from "Bays and Harbors"					

3. DISCHARGES TO THE SURF ZONE

The discharge of groundwater extraction waste to the surf zone (3:1 dilution factor) shall not contain pollutants in excess of the following effluent limitations:

Discharges to the Surf Zone Calculation

The formula used to calculate effluent limits for consituents discharged to the surf zone is from Table B in the Ocean Plan except for Toxicity and Radioactivity.

Ce=Co+Dm(Co-Cs)

Ce = the effluent concentration limit, ug/L
Co = the concentration (water quality objective) to be met at the completion of initial dilution, ug/L
Dm = minimum probable initial dilution expressed as parts seawater per part wastewater Dm = 3 from findings from the 2001-96 Order.
Cs = background seawater concentration (see Table C), ug/L

Table C
BACKGROUND SEAWATER CONCENTRATIONS (Cs)

Waste Consitituent	Cs (ug/L)
Arsenic	3
Copper	2
Mercury	0.0005
Silver	0.16
Zinc	8
For all other Table B parameters	0

DISCHARGES TO THE SURF ZONE
(3:1 DILUTION FACTOR)[AB]

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
TCR	µg/L		32 [OP]	240 [OP]	8 [OP]
Ammonia (as Nitrogen)	µg/L		9600 [OP]	24,000 [OP]	2400 [OP]
Arsenic	µg/L		119 [OP]	311 [OP]	23 [OP]
Cadmium	µg/L		16 [OP]	40 [OP]	4 [OP]
Chromium (hexavalent)	µg/L		32 [OP]	80 [OP]	8 [OP]
Copper	µg/L		42 [OP]	114 [OP]	6 [OP]
Lead	µg/L		32 [OP]	80 [OP]	8 [OP]

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Mercury	µg/L		0.64 OP	1.60 OP	0.16 OP
Nickel	µg/L		80 OP	200 OP	20 OP
Silver	µg/L		10.7 OP	27.5 OP	2.32 OP
Zinc	µg/L		296 OP	776 OP	56 OP
Cyanide	µg/L		16 OP	40 OP	4 OP
Phenolic Compounds (Non-chlorinated)	µg/L		480 OP	1200 OP	120 OP
▮,1,2,2-tetrachloroethane	µg/L		9.2 OP		
Tributyltin (TBT)	µg/L		0.0056 OP		
1,1,-trichoroethane	µg/L		2,160,000 OP		
1,1,2-trichloroethane	µg/L		37.6 OP		
Carbon tetrachloride	µg/L		3.6 OP		
PCBs	µg/L		0.000076 OP		
Tetrachloroethylene	µg/L		8 OP		
Trichloroethylene	µg/L		▮08 OP		
Vinyl chloride	µg/L		144 OP		
Selenium	µg/L		240 OP	600 OP	60 OP
Endosulfan	µg/L		0.072 OP	0.108 OP	0.036 OP
Endrin	µg/L		0.016 OP	0.024 OP	0.008 OP
HCH	µg/L		0.032 OP	0.048 OP	0.016 OP
Acrolein	µg/L	880 OP			
Antimony	µg/L	4800 OP			
bis(2-chloroethoxy) methane	µg/L	17.6 OP			
bis(2-chloroisopropyl) ether	µg/L	4800 OP			
Chlorobenzene	µg/L	2280 OP			
di-n-butyl phthalate	µg/L	14,000 OP			

Parameter	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Dichlorobenzenes	µg/L	20,400 OP			
1,1-dichloroethylene	µg/L	3.6 OP			
Diethyl phthalate	µg/L	132,000 OP			
Dimethyl phthalate	µg/L	3,280,000 OP			
4,6-dinitro-2-methylphenol	µg/L	880 OP			
2,4-dinitrophenol	µg/L	16 OP			
Ethylbenzene	µg/L	16,400 OP			
Fluoranthene	µg/L	60 OP			
Hexachlorocyclopentadiene	µg/L	232 OP			
Nitrobenzene	µg/L	19.6 OP			
Thallium		8 OP			
Acrylonitrile	µg/L	0.4 OP			
Aldrin	µg/L	0.000088 OP			
Benzene	µg/L	23.6 OP			
Benzidine	µg/L	0.000276 OP			
Beryllium	µg/L	0.132 OP			
Bis(2-chloroethyl) ether	µg/L	0.18 OP			
Bis(2-ethylhexyl) phthalate	µg/L	14 OP			
Chlordane	µg/L	0.000092 OP			
Chloroform	µg/L	520 OP			
DDT	µg/L	0.00068 OP			
3,3-dichlorobenzidine	µg/L	0.0324 OP			
1,2-dichloroethane	µg/L	112 OP			
Dichloromethane	µg/L	1,800 OP			
1,3-dichloropropene	µg/L	35.6 OP			

Parameter.	Units	Effluent Limitations			
		AMEL	MDEL	Instantaneous Maximum	6-Month Median
Dieldrin	µg/L	0.00016 OP			
2,4-dinitrotoluene	µg/L	10.4 OP			
1,2-diphenylhydrazine	µg/L	0.64 OP			
Halomethanes	µg/L	520 OP			
Heptachlor	µg/L	0.0002 OP			
Hexachlorobenzene	µg/L	0.00084 OP			
Hexachlorobutadine	µg/L	56 OP			
Hexachloroethane	µg/L	10 OP			
N-nitrosodimethylamine	µg/L	29.2 OP			
N-nitrosodiphenylamine	µg/L	10 OP			
PAHs	µg/L	0.0352 ▪ ▪			
TCDD equivalents	µg/L	1.56E-08 OP			
Toxaphene	µg/L	0.00084 OP			
2,4,6-trichlorophenol	µg/L	1.16 OP			

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Maximum	MDEL
Settleable Solids	ml/L	▮ OP	▮.5 OP	3 OP	
Suspended Solids		75% OP *			
		*Suspended Solids AMEL is 75% removal unless the average monthly influent is 80 mg/L or less, then the effluent limit shall be 60 mg/L. OP			
pH		Within limit of 6.0 and 9.0 at all times. OP			
Toluene		340,000 OP		- -	
Xylene				5 AB	
Total Petroleum Hydrocarbons				500 AB	
Aute Toxicity	TUa				0.3 OP

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Maximum	MDEL
Chronic Toxicity	TUc				[redacted] [OP]
Turbidity	NTU	75 [OP]	[redacted]00 [OP]	225 [OP]	

Parameter	Units	Effluent Limitations			
		AMEL	AWEL	Instantaneous Maximum	Shellfish Harvesting
Total Coliform	MPN/ 100 mL	1,000 [OP]		10,000 [OP]	
Total Coliform	MPN/ 100 mL			1,000 [OP] *	
		*Total coliform density shall not exceed 1,000 per 100 mL when the ratio of fecal/total coliform exceeds 0.1 [OP]			
Total Coliform					70 [OP] **
Total Coliform					230 [OP] **
		**The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL. [OP]			
Fecal Coliform	MPN/ 100 mL	200 [OP]		400 [OP]	
Enterococcus	MPN/ 100 mL	35 [OP]		[redacted]04 [OP]	

Parameter	Units	Effluent Limitations				
		AMEL	AWEL	MDEL	Instantaneous Minimum	6-Month Median
Dissolved Oxygen (DO)	mg/L				5.0 [AB]	

[OP] Basis – Ocean Plan 2005
[AB] Basis – Anti-Backsliding, values from the previous permit
[DHS] Basis – Department of Health Services
[CTR] Basis – California Toxics Rule/ State Implementation Plan 2005

4. DISCHARGES TO INLAND SURFACE WATERS

The discharge of groundwater extraction waste to inland surface waters (including Buena Vista Lagoon) shall not contain pollutants in excess of the following effluent limitations:

GENERAL CONSTITUENTS

Constituent	Unit	AMEL	Daily Maximum	Instantaneous Maximum	Basis
Settleable Solids	ml/L	0.1	---	0.2	AB
Total Suspended Solids	mg/L	30	---	50	
Percent Sodium	%	---	---	60	AB
Total Nitrogen	mg/L	1.0		2.0	"
Total Phosphorus	mg/L	0.1		0.2	
Methylene Blue Active Substances	mg/L	---	---	0.5	"
Turbidity	NTU	Shall not exceed the ambient turbidity of the surface water at any time.			"
Fluoride	mg/L	---	---	1.0	"
Hydrogen Sulfide	µg/L	2	4	10	AB
Total Residual Chlorine (TRC)	µg/L	2	8	10	AB
pH	Units	Within the limits of 6.5 and 8.5 at all times.			AB
Acute Toxicity	TUa	---	---	0.59	AB
Chronic Toxicity	TUc	---	1	---	AB
Dissolved Oxygen	mg/L	Shall not be less than 5.0 at any time in waters with designated warm fresh-water habitat beneficial uses or less than 6.0 in waters with cold fresh water habitat beneficial uses.			AB
Total Coliform	MPN/100mL	---	---	1000	"
Fecal Coliform	MPN/100mL	---	---	200	"

VOLATILES; METALS, PRIORITY POLLUTANTS:

Beneficial Use:	Municipal/Potable Supply Instantaneous			Non-municipal/Non-potable Instantaneous		
Constituent	Unit	Maximum	Basis	Unit	Maximum	Basis
Dibromochloropropane	µg/L	0.2	DOHS	µg/L	0.2	AB
Ethylene Dibromide	µg/L	0.02	DOHS	µg/L	0.02	AB
Xylene	µg/L	5	AB	µg/L	5	AB
Chlorinated Phenolics	µg/L	1	DOHS	µg/L	10	AB
Remaining Base/Neutral Compounds	µg/L	10	AB	µg/L	10	AB
Total Petroleum Hydrocarbons	mg/L	0.5	"	mg/L	0.5	AB
Iron	mg/L	0.3	"	mg/L	0.3	AB
Manganese	mg/L	0.05	"	mg/L	0.05	AB
MTBE	µg/L	5	DOHS			
126 Priority Pollutants (Including metals)	40 CFR 131.38 - Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California.					See Below

126 Priority Pollutants - 40 CFR 131.38 - Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California.

The effluent limits for eight priority pollutants will be developed on a case-by-case basis because the freshwater criteria are based on site-specific water quality data.

Seven metals are dependent on water hardness, Cadmium, Copper, Chromium (III), Lead, Nickel, Silver, and Zinc [See Table 1 to 40 CFR 131.38(b)(2)], and the "Conversion Factors" for Cadmium and Lead are also water hardness dependent. [See Table 3 of 40 CFR 131.38(b)(2)]

In order to calculate the effluent limits for these seven metals the following equations from 40 CFR 131.38(b)(2) will be needed:

Cd CFa=1.136672-((LN(hardness))*0.041838)
Cd CFc = 1.101672-((LN(hardness))*0.041838)
Pb CFa&c = 1.46203-((LN(hardness))*0.145712)
Criterion=WER*CFx*(exp(mA*LN(hardness)+bA

Pentachlorophenol is dependent on the pH value. [See Footnote "f" to Table in 40 CFR 131.38(b)(1)]

To calculate the effluent limit for Pentachlorophenol use this equation:
CMC = exp(1.005(pH)−4.869). CCC = exp(1.005(pH)−5.134)

The remainder of the criteria is not water quality dependent and the effluent limits can be calculated. However, not all the effluent limits will apply to all sites because of the Beneficial use designation for "Municipal" may not apply to all sites.

These priority pollutant effluent limits were calculated the same way as the effluent limits for the bays and harbors.

Effluent Limitations calculated from CTR and SIP

Effluent Limits for Human Health Municipal and Non-Municipal

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
A					
1	Antimony	14	28	4300	8600
2	Arsenic				
3	Beryllium				
4	Cadmium				
5a	Chromium (III)				

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
5b	Chromium (IV)				
6	Copper	1300	2600		
7	Lead				
8	Mercury	0.05	0.1	0.051	0.1
9	Nickel				
10	Selenium				
11	Silver				
12	Thallium				
13	Zinc	700	1400	220000	440000
14	Cyanide	7000000	14000000		
15	Asbestos	1.3E-08	2.6E-08	1.4E-08	2.8E-08
16	2,3,7,8-TCDD (Dioxin)	320	640	780	1600
17	Acrolein	0.059	0.12	0.66	1.3
18	Acrylonitrile	1.2	2.4	71	140
19	Benzene	4.3	8.6	360	720
20	Bromoform	0.25	0.5	4.4	8.8
21	Carbon Tetrachloride	680	1400	21000	42000
22	Chlorobenzene	0.41	0.82	34	68
23	Chlorodibromomethane				
24	Chloroethane				
25	2-Chloroethylvinyl Ether				
26	Chloroform				
27	Dichlorobromomethane	0.56	1.1	46	92
28	1,1-Dichloroethane				
29	1,2-Dichloroethane	0.38	0.76	99	200
30	1,1-Dichloroethylene	0.057	0.11	3.2	6.4
31	1,2-Dichloropropane	0.52	1	39	78
32	1,3-Dichloropropylene	10	20	1700	3400
33	Ethylbenzene	3100	6200	29000	58000
34	Methyl Bromide	48	96	4000	8000
35	Methyl Chloride				
36	Methylene Chloride	4.7	9.4	1600	3200
37	1,1,2,2-Tetrachloroethane	0.17	0.34	11	22

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
38	Tetrachloroethylene	0.8	1.6	8.9	18
39	Toluene	6800	14000	200000	400000
40	1,2-Trans-Dichloroethylene	700	1400	140000	280000
41	1,1,1-Trichloroethane				
42	1,1,2-Trichloroethane	0.6	1.2	40	80
43	Trichloroethylene	2.7	5.4	81	160
44	Vinyl Chloride	2	4	530	1100
45	2-Chlorophenol	120	240	400	800
46	2,4-Dichlorophenol	93	190	790	1600
47	2,4-Dimethylphenol	540	1100	2300	4600
48	2-Methyl-4,6-Dinitrophenol	13	27	770	1500
49	2,4-Dinitrophenol	70	140	14000	28000
50	2-Nitrophenol				
51	4-Nitrophenol				
52	3-Methyl-4-Chlorophenol				
53	Pentachlorophenol	0.28	0.56	8.2	16
54	Phenol	21000	42000	4500000	9000000
55	2,4,6-Trichlorophenol	2.1	4.2	6.5	13
56	Acenaphthene	1200	2400	2700	5400
57	Acenaphthylene				
58	Anthracene	9600	19000	110000	220000
59	Benzidine	0.00012	0.00024	0.00054	0.0011
60	Benzo(a)Anthracene	0.0044	0.0088	0.049	0.098
61	Benzo(a)Pyrene	0.0044	0.0088	0.049	0.098
62	Benzo(b)Fluoranthene	0.0044	0.0088	0.049	0.098
63	Benzo(ghi)Perylene				
64	Benzo(k)Fluoranthene	0.0044	0.0088	0.049	0.098
65	Bis(2-Chloroethoxy)Methane				
66	Bis(2-Chloroethyl)Ether	0.031	0.062	1.4	2.8
67	Bis(2-Chloroisopropyl)Ether	1400	2800	170000	340000
68	Bis(2-Ethylhexyl)Phthalate	1.8	3.6	5.9	12
69	4-Bromophenyl Phenyl Ether				
70	Butylbenzyl Phthalate	3000	6000	5200	10000

		Human Health			
		MUN		NON-MUN	
		AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)
71	2-Chloronaphthalene	1700	3400	4300	8600
72	4-Chlorophenyl Phenyl Ether				
73	Chrysene	0.0044	0.0088	0.049	0.098
74	Dibenzo(a,h)Anthracene	0.0044	0.0088	0.049	0.098
75	1,2 Dichlorobenzene	2700	5400	17000	34000
76	1,3 Dichlorobenzene	400	800	2600	5200
77	1,4 Dichlorobenzene	400	800	2600	5200
78	3,3'-Dichlorobenzidine	0.04	0.08	0.077	0.15
79	Diethyl Phthalate	23000	46000	120000	240000
80	Dimethyl Phthalate	310000	630000	2900000	5800000
81	Di-n-Butyl Phthalate	2700	5400	12000	24000
82	2,4-Dinitrotoluene	0.11	0.22	9.1	18
83	2,6-Dinitrotoluene				
84	Di-nOctyl Phthalate				
85	▮,2-Diphenylhydrazine	0.04	0.08	0.54	1.1
86	Fluoranthene	300	600	370	740
87	Fluorene	1300	2600	14000	28000
88	Hexachlorobenzene	0.00075	0.0015	0.00077	0.0015
89	Hexachlorobutadiene	0.44	0.88	50	100
90	Hexachlorocyclopentadiene	240	480	17000	34000
91	Hexachloroethane	1.9	3.8	8.9	18
92	Inden(1,2,3-cd) Pyrene	0.0044	0.0088	0.049	0.098
93	Isophorone	8.4	17	600	1200
94	Naphthalene				
95	Nitrobenzene	17	34	1900	3800
96	N-Nitrosodimethylamine	0.00059	0.0012	8.1	16
97	N-Nitrosodi-n-Propylamine	0.005	0.01	1.4	2.8
98	N-Nitrosodiphenylamine	5	10	16	32
99	Phenanthrene				
100	Pyrene	960	1900	11000	22000
101	1,2,4-Trichlorobenzene				
102	Aldrin	0.00013	0.00026	0.00014	0.00028
103	alpha-BHC	0.0039	0.0078	0.013	0.026

		Human Health			
		MUN		NON-MUN	
		AMEL	MDEL	AMEL	MDEL
		(µg/L)	(µg/L)	(µg/L)	(µg/L)
104	beta-BHC	0.014	0.028	0.046	0.092
105	gamma-BHC	0.019	0.038	0.063	0.13
106	delta-BHC				
107	Chlordane	0.00057	0.0011	0.00059	0.0012
108	4,4'-DDT	0.00059	0.0012	0.00059	0.0012
109	4,4'-DDE	0.00059	0.0012	0.00059	0.0012
110	4,4'-DDD	0.00083	0.0017	0.00084	0.0017
111	Dieldrin	0.00014	0.00028	0.00014	0.00028
112	alpha-Endosulfan	110	220	240	480
113	beta-Endosulfan	110	220	240	480
114	Endosulfan Sulfate	110	220	240	480
115	Endrin	0.76	1.5	0.81	1.6
116	Endrin Aldehyde	0.76	1.5	0.81	1.6
117	Heptachlor	0.00021	0.00042	0.00021	0.00042
118	Heptachlor Epoxide	0.0001	0.0002'	0.00011	0.00022
119	Polychlorinated biphenyls (PCBs)	0.00017	0.00034	0.00017	0.00034
120	"				
121	"				
122	"				
123	"				
124	"				
125	"				
126	Toxaphene	0.00073	0.0015	0.00075	0.0015

Effluent Limits for Freshwater.and Saltwater

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
A					
1	Antimony				
2	Arsenic	250	120	59	29
3	Beryllium				
4	Cadmium	*	*	16	8
5a	Chromium (III)	*	*		
5b	Chromium (IV)	16	8.1	83	41
6	Copper	*	*	5.8	2.9
7	Lead	*	*	14	7
8	Mercury				
9	Nickel	*	*	14	6.8
10	Selenium	8.2	4.1	120	58
11	Silver	*	*	2.2	1.1
12	Thallium				
13	Zinc	*	*	95	47
14	Cyanide	8.5	4.2	1	0.5
15	Asbestos				
16	2,3,7,8-TCDD (Dioxin)				
17	Acrolein				
18	Acrylonitrile				
19	Benzene				
20	Bromoform				
21	Carbon Tetrachloride				
22	Chlorobenzene				
23	Chlorodibromomethane				
24	Chloroethane				
25	2-Chloroethylvinyl Ether				
26	Chloroform				
27	Dichlorobromomethane				
28	1,1-Dichloroethane				
29	1,2-Dichloroethane				
30	1,1-Dichloroethylene				

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
31	1,2-Dichloropropane				
32	1,3-Dichloropropylene				
33	Ethylbenzene				
34	Methyl Bromide				
35	Methyl Chloride				
36	Methylene Chloride				
37	1,1,2,2-Tetrachloroethane				
38	Tetrachloroethylene				
39	Toluene				
40	1,2-Trans-Dichloroethylene				
41	1,1,1-Trichloroethane				
42	1,1,2-Trichloroethane				
43	Trichloroethylene				
44	Vinyl Chloride				
45	2-Chlorophenol				
46	2,4-Dichlorophenol				
47	2,4-Dimethylphenol				
48	2-Methyl-4,6-Dinitrophenol				
49	2,4-Dinitrophenol				
50	2-Nitrophenol				
51	4-Nitrophenol				
52	3-Methyl-4-Chlorophenol				
53	Pentachlorophenol	**	**	13	6.5
54	Phenol				
55	2,4,6-Trichlorophenol				
56	Acenaphthene				
57	Acenaphthylene				
58	Anthracene				
59	Benzidine				
60	Benzo(a)Anthracene				
61	Benzo(a)Pyrene				
62	Benzo(b)Fluoranthene				
63	Benzo(ghi)Perylene				
64	Benzo(k)Fluoranthene				

		(µg/L)	(µg/L)	(µg/L)	(µg/L)
65	Bis(2-Chloroethoxy)Methane				
66	Bis(2-Chloroethyl)Ether				
67	Bis(2-Chloroisopropyl)Ether				
68	Bis(2-Ethylhexyl)Phthalate				
69	4-Bromophenyl Phenyl Ether				
70	Butylbenzyl Phthalate				
71	2-Chloronaphthalene				
72	4-Chlorophenyl Phenyl Ether				
73	Chrysene				
74	Dibenzo(a,h)Anthracene				
75	1,2 Dichlorobenzene				
76	1,3 Dichlorobenzene				
77	1,4 Dichlorobenzene				
78	3,3'-Dichlorobenzidine				
79	Diethyl Phthalate				
80	Dimethyl Phthalate				
81	Di-n-Butyl Phthalate				
82	2,4-Dinitrotoluene				
83	2,6-Dinitrotoluene				
84	Di-nOctyl Phthalate				
85	1,2-Diphenylhydrazine				
86	Fluoranthene				
87	Fluorene				
88	Hexachlorobenzene				
89	Hexachlorobutadiene				
90	Hexachlorocyclopentadiene				
91	Hexachloroethane				
92	Inden(1,2,3-cd) Pyrene				
93	Isophorone				
94	Naphthalene				
95	Nitrobenzene				
96	N-Nitrosodimethylamine				
97	N-Nitrosodi-n-Propylamine				
98	N-Nitrosodiphenylamine				

		Freshwater		Saltwater	
		MDEL (µg/L)	AMEL (µg/L)	MDEL (µg/L)	AMEL (µg/L)
99	Phenanthrene				
100	Pyrene				
101	1,2,4-Trichlorobenzene				
102	Aldrin	3	1.5	1.3	0.65
103	alpha-BHC				
104	beta-BHC				
105	gamma-BHC	0.95	0.47	0.16	0.08
106	delta-BHC				
107	Chlordane	0.007	0.0035	0.0066	0.0033
108	4,4'-DDT	0.0016	0.00082	0.0016	0.00082
109	4,4'-DDE				
110	4,4'-DDD				
111	Dieldrin	0.092	0.046	0.0031	0.0016
112	alpha-Endosulfan	0.092	0.046	0.014	0.0071
113	beta-Endosulfan	0.092	0.046	0.014	0.0071
114	Endosulfan Sulfate				
115	Endrin	0.059	0.029	0.0038	0.0019
116	Endrin Aldehyde				
117	Heptachlor	0.0062	0.0031	0.0059	0.0029
118	Heptachlor Epoxide	0.0062	0.0031	0.0059	0.0029
119	Polychlorinated biphenyls (PCBs)	0.023	0.011	0.049	0.025
120	"				
121	"				
122	"				
123	"				
124	"				
125	"				
126	Toxaphene	0.00033	0.00016	0.00033	0.00016

* Use equations from 40 CFR 131.38(b)(2)
** Use equations from 40 CFR 131.38(b)(1) footnote "f"

5. Groundwater extraction waste discharged to surface waters must be essentially free of:

   a. Material that is floatable or will become floatable upon discharge.

   b. Settleable material or substances that form sediments which degrade[23] benthic communities or other aquatic life.

   c. Substances which will accumulate to toxic levels in aquatic sediments or biota.

   d. Substances that significantly[24] decrease the natural light to benthic communities and other aquatic life.

   e. Materials that result in aesthetically undesirable discoloration of surface waters.

6. Groundwater extraction waste discharged to surface waters shall not cause natural water quality conditions to be altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.

7. Groundwater extraction waste discharged to surface waters shall be discharged in such a manner as to provide maximum protection to aquatic environments.

8. Groundwater extraction waste that contains pathogenic organisms or viruses shall be discharged a sufficient distance from shellfishing and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard shall be used.

9. The Enrollee shall comply with all items of the " 40 CFR Standard Provisions References" that are part of this Order (Attachment B).

IV. Rationale for Receiving Water Limitations

A. Surface Water

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan. The discharge of groundwater extraction waste from any site shall not, separately or jointly with any other discharge, cause violations of the following water quality objectives in the surface waters of the San Diego Region.

1. Bacterial Characteristics

a. Water-Contact Standards

Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water-contact sports, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

(1) Samples of water from each sampling station shall have a density of total coliform organisms less than 1,000 per 100 ml (10 per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 per 100 ml (10 per ml), and provided further that no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 per 100 ml (100 per ml).

(2) The fecal coliform density based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200 per 100 ml nor shall more than 10 percent of the total samples during any 60-day period exceed 400 per 100 ml.

b. Shellfish Harvesting Standards

At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

1) The median total coliform density shall not exceed 70 per 100 ml; and

2) Not more than 10 percent of the samples shall exceed 230 per 100 ml.

2. Physical Characteristics

a. Floating particulates and grease and oil shall not be visible.

b. The discharge of waste shall not cause aesthetically undesirable discoloration of the surface waters.

c. Natural light shall not be significantly reduced.

d. The rate of deposition of solids and the characteristics of inert solids in the sediments shall not be changed such that benthic communities are degraded.

3. Chemical Characteristics

a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as a result of the discharge of oxygen demanding waste materials.

b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.

c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
d. The concentration of substances set forth in the Discharge Specifications in marine sediments shall not be increased to levels which would degrade indigenous biota.
e. The concentration of organic materials in the sediments shall not be increased to levels which would degrade marine life.
f. Nutrient materials shall not cause objectionable aquatic growth or degrade indigenous biota.

4. Biological characteristics

a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded.
b. The natural taste, odor, and color of fish, shellfish, or other aquatic resources used for human consumption shall not be altered.
c. The concentration of organic materials in fish, shellfish or other aquatic resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

5. Radioactivity

Discharge of radioactive waste shall not degrade marine life.

6. Toxic Materials Limitations

Since there is no dilution, toxic materials limits are the same as the effluent limits.

V. Rationale for Monitoring and Reporting Requirements

Section 122.48 of 40 CFR requires all NPDES permits to specify recording and reporting of monitoring results. Sections 13267 and 13383 of the CWC authorize the Regional Board to require technical and monitoring reports. The MRP, Attachment E of this WDR, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this permit.

A. Influent Monitoring (Not applicable)

B. Effluent Monitoring

In reviewing the monitoring reports, the State Board found that although Dischargers were reporting Total Petroleum Hydorcarbons (TPH), a distinction between diesel and gasoline was not always made. Results for TPH should be reported as total TPH, TPH diesel (TPH-d), and TPH gasoline (TPH-g). Also, for detections of TPH-g, the amount of benzene, ethylbenzene, toluene, and xylene

should be reported. Benzene, ethylbenzene, and toluene are priority pollutants. (40 CFR § 131).

C. Whole Effluent Toxicity (WET) Testing Requirements

A WET Limit is required if a discharge causes, has a reasonable potential to cause, or contributes to an exceedance of applicable water quality standards, including numeric and narrative. Since these types of discharges are prohibited under this WDR, WET limits are not applicable.

D. Receiving Water Monitoring

States are required to adopt numeric criteria where they are necessary to protect designated uses. (CWA §§ 303(a) – 303(c)). The Regional Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the State and Federal requirements for water quality control. (40 CFR 131.20). State Board Resolution 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that; "The numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses." This WDR contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for Biostimulatory Substances, Chemical Constituents, Color, Dissolved Oxygen, Floating Material, Oil and Grease, pH, Pesticides, Radioactivity, Salinity, Sediment, Settleable Material, Suspended Material, Tastes and Odors, Temperature, Toxicity and Turbidity.

Section 13267 of the California Water Code states, in part,

> (a) A regional board, in establishing … waste discharge requirements … may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation … the regional board may require that any person who … discharges … waste … that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

The attached Monitoring and Reporting Program is issued pursuant to CWC section 13267. The groundwater extraction waste discharge monitoring and reporting program required by this WDR and the attached Monitoring and Reporting Program are necessary to determine compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this WDR.

E. Other Monitoring Requirements (Not Applicable)

VI. Rationale for Provisions

A. Standard Provisions

Standard Provisions, which in accordance with 40 CFR sections 122.41and 122.42, apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachment D.

B. Special Provisions

1 Reopener Provisions (Not Applicable)

2. Special Studies and Additional Monitoring Requirements (Not Applicable)

3. Best Management Practices and Pollution Prevention Plan (Not Applicable)

4. Compliance Schedules (Not Applicable)

5. Construction, Operation, and Maintenance Specifications (Not Applicable)

6. Special Provisions for Municipal Facilities (POTWs Only) (Not Applicable)

7. Other Special Provisions

The Dischargers shall dispose of solids removed from liquid wastes in a manner that is consistent with Title 27 of the CCR and approved by the Regional Board.

VII. Public Participation

In considering the re-issuance and adoption of this WDR the Regional Board has developed a draft WDR. The Regional Board encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Board notified interested agencies and persons of its intent to prescribe waste discharge requirements in this WDR and provided them with an opportunity to submit their written comments and recommendations. Notification was posted on the Regional Board's webpage on February 5, 2008, and published in the San Diego Union Tribune, The Riverside Press-Enterprise, and The Orange County Register newspapers on February 8, 2008. On March 12, 2008, the Regional Board sent out notification through the Regional Board Agenda by an electronic mail list.

B. Written Comments

Interested persons were invited to submit written comments concerning the tentative WDR. Comments were to be submitted in person, by fax, email, or mail to the Executive Officer at the Regional Board at the address on the cover page of this Permit.

To be fully addressed and considered by the Regional Board, written comments must have been received at the Regional Board office by 5 p.m. on March 5, 2008.

C. Public Hearing

The Regional Board held a public hearing on the tentative WDR during its regular meeting on the following date and at the following location:

Date: **March 12,2008**
Location: **California Regional Water Quality Control Board**
San Diego Region
Regional Board Meeting Room
9174 Sky Park Court, Suite 100
San Diego, California 92123

Interested persons were invited to attend. At the public hearing, the Regional Board heard testimony pertinent to the discharge and WDR.

D. Information and Copying

WDR-related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. A partial list of these items are on the Regional Board's web site at: www.waterboards.ca.gov/sandiego

Copying of documents may be arranged through the Regional Board by calling (858) 467-2952.

E. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDR was invited to contact the Regional Board, reference this WDR, and provide a name, address, and telephone number.

F. Additional Information

Requests for additional information or questions regarding this WDR may be directed to Vicente Rodriguez at (858) 627-3940 or at: VRodriguez@waterboards.ca.gov

This WDR will expire on March 12, 2012. Enrollees covered under this WDR at the time of expiration will be required to re-enroll under the reissued permit.

California Regional Water Quality Control Board

San Diego Region

Over 50 Years Serving San Diego, Orange, and Riverside Counties
Recipient of the 2004 Environmental Award for Outstanding Achievement from USEPA

Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

9174 Sky Park Court, Suite 100, San Diego, California 921234340
(858) 467-2952 • Fax (858) 571-6972
http:// www.waterboards.ca.gov/sandiego

June 19,2009

To: Order No. R9-2008-0002 Enrollees/Interested Persons

In reply refer to:
CRU:14-0015.02: WGhoram

Dear Enrollees:

SUBJECT: MINOR MODIFICATION OF ORDER NO. R9-2008-0002; 'NPDES NO. CAG919002; GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM GROUNDWATER EXTRACTION AND SIMILAR 'DISCHARGESTO SURFACE WATERS WITHIN THE SAN DIEGO REGION EXCEPT FOR SAN DIEGO BAY (WDR)

On March 12, 2008, the Regional Board adopted Order No. R9-2008-0002 (NPDES Permit No. CAG919002). Order No. R9-2008-0002 superseded Order No. 2001-96, which included a group of footnotes in the effluent limitations section of Order No. 2001-96 that were inadvertently omitted. The following is what is being restored into Order No. R9-2008-0002, page 21, table titled: "Volatiles, Metals, Priority Pollutants":

Constituent	Unit	Municipal Instantaneous Maximum	Non Municipal Instantaneous Maximum
Iron*"	mg/L	0.3	0.3
Manganese*"	mg/L	0.05	0.05
MTBE*** ,38	ug/L	5.0	-----
126 Priority Pollutants (including metals)"	40 CFR 131.38-Water Quality Standards; Establishment of numeric criteria for Priority Toxic Pollutants for the State of California.		

* Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body: Values displayed in the matrix correspond to a total hardness of 100 mg.L.

** For the Mission San Diego (7.11) and Sycamore Canyon (7.12) Hydrographic Subareas, the effluent limitation for iron shall be 1.0 mg/L and the effluent limitation for manganese shall be 1.0 mg/L. Sycamore Canyon Subarea, a portion of the Santee Hydrologic Subarea; includes the watersheds of the following north-south trending canyons: Oak Creek, Spring Canyon, Little Sycamore Canyon, Quail Canyon, and Sycamore Canyon. The Sycamore Canyon Subarea extends eastward from the Mission San Diego HSA to the confluence of the San Diego River and Forester Creek, immediately south of the Santee Lakes.

*** The primary MCL of 13 ug/L is for the protection of human health, the secondary MCL of 5 ug/L is for aesthetic qualities of drinking water (taste and odor). The secondary MCL of 5 ug/L willl be used in this Order, and only applies to discharges to receiving waters designated as Municipal/Potable Supply.

38 U.S.EPA approved methodology for the analysis of MTBE in water include methods 8020 and 8260B. Method 8020 yields "false positives" at times and is less accurate than method 8260B. Method 8260B is more accurate, therefore it is recommended that 8260B is used. If the enrollee chooses to use method 8020, and the analytical results show that MTBE was detected, then the enrollee shall run a second analysis for MTBE using method 8260B, in order to confirm the presence or absence of MTBE in the groundwater. The level of accuracy of a particular methodology shall not exempt an enrollee from the potential of enforcement action being taken due to exceedences of permit limits.

This letter makes a minor modification to correct the inadvertent omissions.

The Regional Board hereby restores the footnotes to Order No. R9-2008-0002. The change is being made to page 21 in Order No. R9-2008-0002, table titled: "Volatiles, Metals, Priority Pollutants" as shown above.

In addition, this letter makes a minor corrective modification to page 6, Order No. R9-2008-0002, C. Eligibility Criteria, and page F.3, Fact Sheet to Order No. R9-2008-0002, C. General Criteria as follows (language in ~~strikeout~~ is deleted and language in **bold** is added):

HYDROSTATIC/POTABLE WATER- Discharges from **existing** and **established** drinking water wells ~~development~~. These discharges are covered in Order No. R9-2002-0020 (CAG679001).

It is the Regional Board's understanding that none of the dischargers enrolled under Order No. R9-2008-0002 object to these modifications. Enclosed are the corrected pages 6 and 21 of Order No. R9-2001-0002, and corrected page F.3 of the Fact Sheet to Order No. R9-2008-0002. A complete copy of corrected Order No. R9-2008-0002 is available on the Regional Board's Adopted Orders web page (see letterhead for Regional Board's website).

The heading portion of this letter includes a Regional Board code number noted after "In reply refer to:" In order to assist us in the processing of your correspondence please include this code number in the heading or subject line portion of all correspondence and reports to the Regional Board pertaining to this matter.

If you have any questions regarding this letter or the discharge requirements, please contact Ms. Whitney Ghoram by e-mail at *WGhoram@waterboards.ca.gov* or by phone at (858) 467-2967.

Respectfully,

JOHN H. ROBERTUS
Executive Officer

CIWQS Regulatory Measure: 344555

Cc: Mr. Mark Hosford, Public Works Superintendent, General Services Dept, Streets Division, Storm Drain Section, 2781 Camino Chollas, M.S. #44, San Diego, CA 92105

Mr. Michael Slaby, Pure Effect Incorporated, 611 West Palm Avenue, Orange, CA 92868

Mr. Kenneth Greenberg, U.S.EPA, Region IX, 75 Hawthorne Street, San Francisco, CA 94105

JHR: mpm:bdk:wjg

S\CoreRegulatoryUnit\Ghoram\MODIFICATION OF ORDER NO. R9-2008-0002-June 19-2009

ORDER NO. R9-20008-0002 ENROLLEES AND INTERESTED PARTIES LIST

Ms. Carmen Kasner, City Engineer
City of Del Mar
21st St Sanitary Sewer Pump Station Dewatering Project
1050 Camino Del Mar
Del Mar, CA 92014
WDID 9 000001919

Mr. Constantine Kontaxis, Branch Chief
NPDES/Storm Water Compliance
California Department of Transportation (CalTrans)
District 11- Various Construction Dewatering Projects
4050 Taylor Street
San Diego, CA 92110
WDID 9 000001886

Mr. Carlos Lugo, Director of Engineering
Helix Water District
Pipeline Replacement 1269Dewatering Project
7811 University Avenue
La Mesa, CA 91941
WDID 9 000001918

Mr. Richard Bell, Principal Engineer
Municipal Water District of Orange County
South Orange Coastal Ocean Desalination (Phase 3 Pumping & Pilot Plant Testing)
18700 Ward Street
Fountain Valley, CA 92708
WDID 9 000001805

Ms. Patti Boekamp, Director
City of San Diego
Engineering & Capital Projects
Hazard Center Dewatering Projects
202 C Street (MS9B)
San Diego, CA 92101
WDID 9 000000896
WDID 9 000000855

Ms. Jenna Lawrence
Exxon Mobil Oil Corporation
Mobil Station 18-F8W Remediation Dewatering
2220 Otay Lakes Road, Suite 502
Chula Vista, CA 91915
WDID 9 00000596

ORDER NO. R9-20008-0002 ENROLLEES AND INTERESTED PARTIES LIST

Mr. Scott Martin
Kinder Morgan Energy Partners
Mission Valley Terminals Remediation
1100 Town & Country
Orange, CA 92868
WDID 9 000000506

Mr. Michael Katz
Promenade Mall Development Corporation
Promenade At Pacific Beach Permanent Dewatering
4150 Mission Blvd.
San Diego, CA 92109
WDID 9 000000588

Mr. Jim Greenstein, City Engineer
City of Solana Beach
Eden gardens Sewer Pump Station Dewatering Project
635 South Hwy 101
Solana Beach, CA 92075
WDID 9 000001876

Mr. Robert Thomas
Longs Drugs Stores
Longs Drug Store at 5455 La'Jolla Blvd. Permanent Dewatering Project
141 North Civic Drive
Walnut Creek, CA 94596
WDID 9 000001799

Mr. Jason Dafforn
City of Oceanside, Water Utilities Dept.
Emergency Land Outfall Replacement Dewatering
300 North Coast Highway
Oceanside, CA 92054
WDID 9 00001806

Mr. Louis Mosconi, Area Manager
Conoco Phillips Company
Conoco Phillips 76 Service Station 5757 Remediation
3611 Harbor Blvd., Suite 200
Santa Ana, CA 92704
WDID 9 000001774

ORDER NO. R9-20008-0002 ENROLLEES AND INTERESTED PARTIES LIST

Mr. Leroy Davis
City of San Diego
Bayside Capistrano Accelerated Sewer Improvement Project
9150 Topaz Way
San Diego, CA 92123
WDID 9 000001778

Mr. John DeWald
Toy Factory 101 Encinitas, LP
Pacific Station Dewatering Project-687 South Coast Hwy 101
1855 Freda Lane
Cardiff by the Sea, CA 92108
WDID 9 000001777

Ms. Katherine Tanner, Executive Director
San Marcos Unified School District
Joli Ann Leichtag Elementary School #2 Construction Dewatering
255 Pico Avenue, Suite 250
San Marcos, CA 92069
WDID 9 000001759

U S Army Corps of Engineers
Sacramento District

Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide Permits – March 19, 2007 includes corrections of May 8, 2007 and addition of regional conditions December 2007

14. Linear Transportation Projects. Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 27.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4)

A. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP.

☐ **1. Navigation.**

☐ (a) No activity may cause more than a minimal adverse effect on navigation.

☐ (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

☐ (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ **2. Aquatic Life Movements**. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

☐ **3 Spawning Areas.** Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized**.**

☐ **4. Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ **5. Shellfish Beds**. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

☐ **6. Suitable Material**. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

☐ **7. Water Supply Intakes**. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☐ **8. Adverse Effects From Impoundments**. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or

restricting its flow must be minimized to the maximum extent practicable.

☐ **9. Management of Water Flows**. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ **10. Fills Within 100-Year Floodplains**. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

☐ **11. Equipment**. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ **12. Soil Erosion and Sediment Controls**. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

☐ **13. Removal of Temporary Fills**. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☐ **14. Proper Maintenance**. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

☐ **15. Wild and Scenic Rivers**. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

☐ **16. Tribal Rights**. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

☐ **17. Endangered Species**.

☐ (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

☐ (c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

☐ (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

☐ (e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide Web pages at http://www.fws.gov/ and http://www.noaa.gov/fisheries.html respectively.

☐ **18. Historic Properties**.

☐ (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

☐ (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

☐ (d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed.

☐ (e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

☐ **19. Designated Critical Resource Waters.** Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

☐ (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

☐ (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

☐ **20 Mitigation.** The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

☐ (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

☐ (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

☐ (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the

aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

☐ (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

☐ (e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

☐ (f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

☐ (g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

☐ (h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

☐ **21. Water Quality.** Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

☐ **22. Coastal Zone Management**. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

☐ **23. Regional and Case-By-Case Conditions**. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

☐ **24. Use of Multiple Nationwide Permits**. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

☐ **25. Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

> "When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."
>
> ---
> (Transferee)
>
> ---
> (Date)

☐ **26. Compliance Certification**. Each permittee who received an NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

☐ (a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions;

☐ (b) A statement that any required mitigation was completed in accordance with the permit conditions; and

☐ (c) The signature of the permittee certifying the completion of the work and mitigation.

☐ **27. Pre-Construction Notification.**

☐ (a) **Timing**.. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

☐ (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

☐ (2) Forty-five calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

☐ (b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

☐ (1) Name, address and telephone numbers of the prospective permittee;

☐ (2) Location of the proposed project;

☐ (3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.);

☐ (4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;

☐ (5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

☐ (6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

☐ (7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic

property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

☐ (c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

☐ (2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

☐ (3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

☐ (4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

☐ (5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

☐ (e) In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant

submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

☐ **(a) 28. Single and Complete Project.** The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

B. Regional Conditions:

I. Sacramento District (All States, except Colorado)

1. When pre-construction notification (PCN) is required, the prospective permittee shall notify the Sacramento District in accordance with General Condition 27 using either the South Pacific Division Preconstruction Notification (PCN) Checklist or a completed application form (ENG Form 4345). In addition, the PCN shall include:

a. A written statement explaining how the activity has been designed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States;

b. Drawings, including plan and cross-section views, clearly depicting the location, size and dimensions of the proposed activity. The drawings shall contain a title block, legend and scale, amount (in cubic yards) and size (in acreage) of fill in Corps jurisdiction, including both permanent and temporary fills/structures. The ordinary high water mark or, if tidal waters, the high tide line should be shown (in feet), based on National Geodetic Vertical Datum (NGVD) or other appropriate referenced elevation; and

c. Pre-project color photographs of the project site taken from designatedlocations documented on the plan drawing.

2. The permittee shall complete compensatory mitigation required by special conditions of the NWP verification before or concurrent with construction of the authorized activity, except when specifically determined to be impracticable by the Sacramento District. When project mitigation involves use of a mitigation bank or in-lieu fee program, payment shall be made before commencing construction.

3. The permittee shall record the NWP verification with the Registrar of Deeds or other appropriate official charged with the responsibility for maintaining records of title to or interest in real property against areas (1) designated to be preserved as part of mitigation for authorized impacts, including any associated covenants or restrictions, or (2) where structures such as boat ramps or docks, marinas, piers, and permanently moored vessels will be constructed in or adjacent to navigable waters (Section 10 and Section 404). The recordation shall also include a map showing the surveyed location of the authorized structure and any associated areas preserved to minimize or compensate for project impacts.

4. The permittee shall place wetlands, other aquatic areas, and any vegetative buffers preserved as part of mitigation for impacts into a separate “preserve” parcel prior to discharging dredged or fill material into waters of the United States, except where specifically determined to be impracticable by the Sacramento District. Permanent legal protection shall be established for all preserve parcels, following Sacramento District approval of the legal instrument.

5. The permittee shall allow Corps representatives to inspect the authorized activity and any mitigation areas at any time deemed necessary to determine compliance with the terms and conditions of the NWP verification. The permittee will be notified in advance of an inspection.

6. For NWPs 29, 39, 40, 42, 43, 44, and 46, requests to waive the 300 linear foot limitation for intermittent or ephemeral waters of the U.S. shall include an evaluation of functions and services provided by the waterbody taking into account the watershed, measures to be implemented to avoid and minimize impacts, other measures to avoid and minimize that were found to be impracticable, and a mitigation plan for offsetting impacts.

7. Road crossings shall be designed to ensure fish passage, especially for anadromous fisheries. Permittees shall employ bridge designs that span the stream or river, utilize pier or pile supported structures, or involve large bottomless culverts with a natural streambed, where the substrate and streamflow conditions approximate existing channel conditions. Approach fills in waters of the United States below the ordinary high water mark are not authorized under the NWPs, except where avoidance has specifically been determined to be impracticable by the Sacramento District.

8. For NWP 12, clay blocks, bentonite, or other suitable material shall be used to seal the trench to prevent the utility line from draining waters of the United States, including wetlands.

9. For NWP 13, bank stabilization shall include the use of vegetation or other biotechnical design to the maximum extent practicable. Activities involving hard-armoring of the bank toe or slope requires submission of a PCN per General Condition 27.

10. For NWP 23, the PCN shall include a copy of the signed Categorical Exclusion document and final agency determinations regarding compliance with Section 7 of the Endangered Species Act, Essential Fish Habitat under the Magnussen-Stevens Act, and Section 106 of the National Historic Preservation Act.

11. For NWP 44, the discharge shall not cause the loss of more than 300 linear feet of streambed. For intermittent and ephemeral streams, the 300 linear foot limit may be waived in writing by the Sacramento District. This NWP does not authorize discharges in waters of the United States supporting anadromous fisheries.

12. For NWPs 29 and 39, channelization or relocation of intermittent or perennial drainage, is not authorized, except when, as determined by the Sacramento District, the relocation would result in a net increase in functions of the aquatic ecosystem within the watershed.

13. For NWP 33, temporary fills for construction access in waters of the United States supporting fisheries shall be accomplished with clean, washed spawning quality gravels where practicable as determined by the Sacramento District, in consultation with appropriate federal and state wildlife agencies.

14. For NWP 46, the discharge shall not cause the loss of greater than 0.5 acres of waters of the United States or the loss of more than 300 linear feet of ditch, unless this 300 foot linear foot limit is waived in writing by the Sacramento District.

15. For NWPs 29, 39, 40, 42, and 43, upland vegetated buffers shall be established and maintained in perpetuity, to the maximum extent practicable, next to all preserved open waters, streams and wetlands including created, restored, enhanced or preserved waters of the U.S., consistent with General Condition 20. Except in unusual circumstances, vegetated buffers shall be at least 50 feet in width.

16. All NWPs except 3, 6, 20, 27, 32, 38, and 47, are revoked for activities in histosols and fens and in wetlands contiguous with fens. Fens are defined as slope wetlands with a histic epipedon that are hydrologically supported by groundwater. Fens are normally saturated throughout the growing season, although they may not be during drought conditions. For NWPs 3, 6, 20, 27, 32, and 38, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27.

17. For all NWPs, when activities are proposed within 100 feet of the point of groundwater discharge of a natural spring, prospective permittees shall submit a PCN to the Sacramento District in accordance with General Condition 27. A spring source is defined as any location where ground water emanates from a point in the ground. For purposes of this condition, springs do not include seeps or other discharges which lack a defined channel.

II. California Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.

2. In the Primary and Secondary Zones of the Legal Delta, NWPs 29 and 39 are revoked. New development activities in the Legal Delta will be reviewed through the Corps' standard permit process.

III. Nevada Only

1. In the Lake Tahoe Basin, all NWPs are revoked. Activities in this area shall be authorized under Regional General Permit 16 or through an individual permit.

IV. Utah Only

1. For all NWPs, except NWP 47, prospective permittees shall submit a PCN in accordance with General Condition 27 for any activity, in waters of the United States, below 4217 feet mean sea level (msl) adjacent to the Great Salt Lake and below 4500 feet msl adjacent to Utah Lake.

2. A PCN is required for all bank stabilization activities in a perennial stream that would affect more than 100 linear feet of stream

3. For NWP 27, facilities for controlling stormwater runoff, construction of water parks such as kayak courses, and use of grout or concrete to construct in-stream structures are not authorized. A PCN is required for all projects exceeding 1500 linear feet as measured on the stream thalweg, using in stream structures exceeding 50 cubic yards per structure and/or incorporating grade control structures exceeding 1 foot vertical drop. For any stream restoration project, the post project stream sinuosity shall be appropriate to the geomorphology of the surrounding area and shall be equal to, or greater than, pre project sinuosity. Sinuosity is defined as the ratio of stream length to project reach length. Structures shall allow the passage of aquatic organisms, recreational water craft or other navigational activities unless specifically waived in writing by the District Engineer.

V. Colorado Only

1. Final Regional Conditions Applicable to Specific Nationwide Permits within Colorado.

a. Nationwide Permit Nos. 12 and 14, Utility Line Activities and Linear Transportation Projects. In the Colorado River Basin, utility line and road activities crossing perennial water or special aquatic sites require notification to the District Engineer in accordance with General Condition 27 (Pre-Construction Notification).

b. Nationwide Permit No. 13 Bank Stabilization. In Colorado, bank stabilization activities necessary for erosion prevention in streams that average less than 20 feet in width (measured between the ordinary high water marks) are limited to the placement of no more than 1/4 cubic yard of suitable fill* material per running foot below the plane of the ordinary high water mark. Activities greater than 1/4 cubic yard may be authorized if the permittee notifies the District Engineer in accordance with General Condition 27 (Pre-Construction Notification) and the Corps determines the adverse environmental effects are minimal. [* See (g) for definition of Suitable Fill]

c. Nationwide Permit No. 27 Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

(1) For activities that include a fishery enhancement component, the Corps will send the Pre-Construction Notification to the Colorado Division of Wildlife (CDOW) for review. In accordance with General Condition 27 (Pre-Construction Notification), CDOW will have 10 days from the receipt of Corps notification to indicate that they will be commenting on the proposed project. CDOW will then have an additional 15 days after the initial 10-day period to provide those comments. If CDOW raises concerns, the applicant may either modify their plan, in coordination with CDOW, or apply for a standard individual permit.

(2) For activities involving the length of a stream, the post-project stream sinuosity will not be significantly reduced, unless it is demonstrated that the reduction in sinuosity is consistent with the natural morphological evolution of the stream (sinuosity is the ratio of stream length to project reach length).

(3) Structures will allow the upstream and downstream passage of aquatic organisms, including fish native to the reach, as well as recreational water craft or other navigational activities, unless specifically waived in writing by the District Engineer. The use of grout and/or concrete in

building structures is not authorized by this nationwide permit.

(4) The construction of water parks (i.e., kayak courses) and flood control projects are not authorized by this nationwide permit.

d. Nationwide Permits Nos. 29 and 39; Residential Developments and Commercial and Institutional Developments. A copy of the existing FEMA/locally-approved floodplain map must be submitted with the Pre-Construction Notification. When reviewing proposed developments, the Corps will utilize the most accurate and reliable FEMA/locally-approved pre-project floodplain mapping, not post-project floodplain mapping based on a CLOMR or LOMR. However, the Corps will accept revisions to existing floodplain mapping if the revisions resolve inaccuracies in the original floodplain mapping and if the revisions accurately reflect pre-project conditions.

2. Final Regional Conditions Applicable to All Nationwide Permits within Colorado

e. Removal of Temporary Fills. General Condition 13 (Removal of Temporary Fills) is amended by adding the following: When temporary fills are placed in wetlands in Colorado, a horizontal marker (i.e. fabric, certified weed-free straw, etc.) must be used to delineate the existing ground elevation of wetlands that will be temporarily filled during construction.

f. Spawning Areas. General Condition 3 (Spawning Areas) is amended by adding the following: In Colorado, all Designated Critical Resource Waters (see enclosure 1) are considered important spawning areas. Therefore, In accordance with General Condition 19 (Designated Critical Resource Waters), the discharge of dredged or fill material in not authorized by the following nationwide permits in these waters: NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50. In addition, in accordance with General Condition 27 (Pre-Construction Notification), notification to the District Engineer is required for use of the following nationwide permits in these waters: NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37 and 38".

g. Suitable Fill. In Colorado, use of broken concrete as fill material requires notification to the District Engineer in accordance with General Condition 27 (Pre-Construction Notification). Permittees must demonstrate that soft engineering methods utilizing native or non-manmade materials are not practicable (with respect to cost, existing technology, and logistics), before broken concrete is allowed as suitable fill. Use of broken concrete with exposed rebar is prohibited in perennial waters and special aquatic sites.

h. Invasive Aquatic Species. General Condition 11 is amended by adding the following condition for work in perennial or intermittent waters of the United States: If heavy equipment is used for the subject project that was previously working in another stream, river, lake, pond, or wetland within 10 days of initiating work, one the following procedures is necessary to prevent the spread of New Zealand Mud Snails and other aquatic hitchhikers:

(1) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and keep the equipment dry for 10 days. OR

(2) Remove all mud and debris from Equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with either a 1:1 solution of Formula 409 Household Cleaner and water, or a solution of Sparquat 256 (5 ounces Sparquat per gallon of water). Treated equipment must be kept moist for at least 10 minutes. OR

(3) Remove all mud and debris from equipment (tracks, turrets, buckets, drags, teeth, etc.) and spray/soak equipment with water greater than 120 degrees F for at least 10 minutes.

3. Final Regional Conditions for Revocation/Special Notification Specific to Certain Geographic Areas

i. Fens: All Nationwide permits, except permit Nos. 3, 6, 20, 27, 32, 38 and 47, are revoked in fens and wetlands adjacent to fens. Use of nationwide permit Nos. 3, 20, 27 and 38, requires notification to the District Engineer, in accordance with General Condition 27 (Pre-Construction Notification), and the permittee may not begin the activity until the Corps determines the adverse environmental effects are minimal. The following defines a fen:

Fen soils (histosols) are normally saturated throughout the growing season, although they may not be during drought conditions. The primary source of hydrology for fens is groundwater. Histosols are defined in accordance with the U.S. Department of Agriculture, Natural Resources Conservation Service publications on Keys to Soil Taxonomy and Field Indicators of Hydric Soils in the United States (http://soils.usda.gov/technical/classification/taxonomy).

j. Springs: Within the state of Colorado, all NWPs, except permit 47 (original 'C'), require preconstruction notification pursuant to General Condition 27 for discharges of dredged or fill material within 100 feet of the point of groundwater discharge of natural springs. A spring source is defined as any location where groundwater emanates from a point in the ground. For purposes of this regional condition, springs do not include seeps or other discharges which do not have a defined channel.

4. Additional Information

The following provides additional information regarding minimization of impacts and compliance with existing general Conditions:

a. Permittees are reminded of the existing General Condition No. 6 which prohibits the use of unsuitable material. Organic debris, building waste, asphalt, car bodies, and trash are not suitable material. Also, General Condition 12 requires appropriate erosion and sediment controls (i.e. all fills must be permanently stabilized to

prevent erosion and siltation into waters and wetlands at the earliest practicable date). Streambed material or other small aggregate material placed along a bank as stabilization will not meet General Condition 12. Also, use of erosion control mates that contain plastic netting may not meet General Condition 12 if deemed harmful to wildlife.

b. Designated Critical Resource Waters in Colorado. In Colorado, a list of designated Critical Resource Waters has been published in accordance with General Condition 19 (Designated Critical Resource Waters). This list will be published on the Albuquerque District Regulatory home page (http://www.spa.usace.army.mil/reg/)

c. Federally-Listed Threatened and Endangered Species. General condition 17 requires that nod-federal permittees notify the District Engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project. Information on such species, to include occurrence by county in Colorado, may be found at the following U.S. Fish and Wildlife Service website: http://www.fws.gov/mountain%2Dprairie/endspp/name_county_search.htm

C. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

D. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Discharge: The term “discharge” means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands

contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects waterbodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete project: The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a "single and complete project" is all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal

interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

2007 Nationwide Permits, Conditions, Further Information, and Definitions (with corrections)

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B. Nationwide Permits

1. Aids to Navigation. The placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the U.S. Coast Guard (see 33 CFR, chapter I, subchapter C, part 66). (Section 10)

2. Structures in Artificial Canals. Structures constructed in artificial canals within principally residential developments where the connection of the canal to a navigable water of the United States has been previously authorized (see 33 CFR 322.5(g)). (Section 10)

3. Maintenance. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of and within existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in the immediate vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend further than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an upland area unless otherwise specifically approved by the district engineer under separate authorization. The placement of riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer.

(c) This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation or beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 27). Where maintenance dredging is proposed, the pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Sections 10 and 404)

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

4. Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities. Fish and wildlife harvesting devices and activities such as pound nets, crab traps, crab dredging, eel pots, lobster traps, duck blinds, and clam and oyster digging, and small fish attraction devices such as open water fish concentrators (sea kites, etc.). This NWP does not authorize artificial reefs or impoundments and semi-impoundments of waters of the United States for the culture or holding of motile species such as lobster, or the use of covered oyster trays or clam racks. (Sections 10 and 404)

5. Scientific Measurement Devices. Devices, whose purpose is to measure and record scientific data, such as staff gages, tide gages, water recording devices, water quality testing and improvement devices, and similar structures. Small weirs and flumes constructed primarily to record water quantity and velocity are also authorized provided the discharge is limited to 25 cubic yards. (Sections 10 and 404)

6. Survey Activities. Survey activities, such as core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, and historic resources surveys. For the purposes of this NWP, the term “exploratory trenching” means mechanical land clearing of the upper soil profile to expose bedrock or substrate, for the purpose of mapping or sampling the exposed material. The area in which the exploratory trench is dug must be restored to its pre-construction elevation upon completion of the work. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. This NWP authorizes the construction of temporary pads, provided the discharge does not exceed 25 cubic yards. Discharges and structures associated with the recovery of historic resources are not authorized by this NWP. Drilling and the discharge of excavated material from test wells for oil and gas exploration are not authorized by this NWP; the plugging of such wells is authorized. Fill placed for roads and other similar activities is not authorized by this NWP. The NWP does not authorize any permanent structures. The discharge of drilling mud and cuttings may require a permit under Section 402 of the Clean Water Act. (Sections 10 and 404)

7. Outfall Structures and Associated Intake Structures. Activities related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted by, or that are otherwise in compliance with regulations issued under the National Pollutant Discharge

Elimination System Program (Section 402 of the Clean Water Act). The construction of intake structures is not authorized by this NWP, unless they are directly associated with an authorized outfall structure.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

8. Oil and Gas Structures on the Outer Continental Shelf. Structures for the exploration, production, and transportation of oil, gas, and minerals on the outer continental shelf within areas leased for such purposes by the Department of the Interior, Minerals Management Service. Such structures shall not be placed within the limits of any designated shipping safety fairway or traffic separation scheme, except temporary anchors that comply with the fairway regulations in 33 CFR 322.5(l). The district engineer will review such proposals to ensure compliance with the provisions of the fairway regulations in 33 CFR 322.5(l). Any Corps review under this NWP will be limited to the effects on navigation and national security in accordance with 33 CFR 322.5(f). Such structures will not be placed in established danger zones or restricted areas as designated in 33 CFR part 334, nor will such structures be permitted in EPA or Corps designated dredged material disposal areas.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Section 10)

9. Structures in Fleeting and Anchorage Areas. Structures, buoys, floats and other devices placed within anchorage or fleeting areas to facilitate moorage of vessels where the U.S. Coast Guard has established such areas for that purpose. (Section 10)

10. Mooring Buoys. Non-commercial, single-boat, mooring buoys. (Section 10)

11. Temporary Recreational Structures. Temporary buoys, markers, small floating docks, and similar structures placed for recreational use during specific events such as water skiing competitions and boat races or seasonal use, provided that such structures are removed within 30 days after use has been discontinued. At Corps of Engineers reservoirs, the reservoir manager must approve each buoy or marker individually. (Section 10)

12. Utility Line Activities. Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2 acre of waters of the United States.

Utility lines: This NWP authorizes the construction, maintenance, or repair of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the United States, provided there is no change in pre-construction contours. A “utility line” is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term “utility line” does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a

manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2 acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the United States, provided the total discharge from a single and complete project does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR Part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP also authorizes temporary structures, fills, and work necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: (1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; (2) a section 10 permit is required; (3) the utility line in waters of the United States, excluding

overhead lines, exceeds 500 feet; (4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to a stream bed that is within that jurisdictional area; (5) discharges that result in the loss of greater than 1/10-acre of waters of the United States; (6) permanent access roads are constructed above grade in waters of the United States for a distance of more than 500 feet; or (7) permanent access roads are constructed in waters of the United States with impervious materials. (See general condition 27.) (Sections 10 and 404)

Note 1: Where the proposed utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters), copies of the pre-construction notification and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, accordance with the requirements for temporary fills.

Note 3: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

13. Bank Stabilization. Bank stabilization activities necessary for erosion prevention, provided the activity meets all of the following criteria:

(a) No material is placed in excess of the minimum needed for erosion protection;

(b) The activity is no more than 500 feet in length along the bank, unless this criterion is waived in writing by the district engineer;

(c) The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line, unless this criterion is waived in writing by the district engineer;

(d) The activity does not involve discharges of dredged or fill material into special aquatic sites, unless this criterion is waived in writing by the district engineer;

(e) No material is of the type, or is placed in any location, or in any manner, to impair surface water flow into or out of any water of the United States;

(f) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and,

(g) The activity is not a stream channelization activity.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if the bank stabilization activity: (1) involves discharges into special aquatic sites; (2) is in excess of 500 feet in length; or (3) will involve the discharge of greater than an average of one cubic yard per running foot along the bank below the plane of the ordinary high water mark or the high tide line. (See general condition 27.) (Sections 10 and 404)

14. Linear Transportation Projects. Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters

of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10 acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 27.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

15. U.S. Coast Guard Approved Bridges. Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the United States, including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills, provided such discharges have been authorized by the U.S. Coast Guard as part of the bridge permit. Causeways and approach fills are not included in this NWP and will require a separate section 404 permit. (Section 404)

16. Return Water From Upland Contained Disposal Areas. Return water from an upland contained dredged material disposal area. The return water from a contained disposal area is administratively defined as a discharge of dredged material by 33 CFR 323.2(d), even though the disposal itself occurs on the upland and does not require a section 404 permit. This NWP satisfies the technical requirement for a section 404 permit for the return water where the quality of the return water is controlled by the state through the section 401 certification procedures. The dredging activity may require a section 404 permit (33 CFR 323.2(d)), and will require a section 10 permit if located in navigable waters of the United States. (Section 404)

17. Hydropower Projects. Discharges of dredged or fill material associated with hydropower projects having: (a) Less than 5000 kW of total generating capacity at existing reservoirs, where the project, including the fill, is licensed by the Federal Energy Regulatory Commission (FERC) under the Federal Power Act of 1920, as amended; or (b) a licensing exemption granted by the FERC pursuant to Section 408 of the Energy Security Act of 1980 (16 U.S.C. 2705 and 2708) and Section 30 of the Federal Power Act, as amended.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Section 404)

18. Minor Discharges. Minor discharges of dredged or fill material into all waters of the United States, provided the activity meets all of the following criteria:

(a) The quantity of discharged material and the volume of area excavated do not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line;

(b) The discharge will not cause the loss of more than 1/10 acre of waters of the United States; and

(c) The discharge is not placed for the purpose of a stream diversion.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The discharge or the volume of area excavated exceeds 10 cubic yards below the plane of the ordinary high water mark or the high tide line, or (2) the discharge is in a special aquatic site, including wetlands. (See general condition 27.) (Sections 10 and 404)

19. Minor Dredging. Dredging of no more than 25 cubic yards below the plane of the ordinary high water mark or the mean high water mark from navigable waters of the United States (i.e., section 10 waters). This NWP does not authorize the dredging or degradation through siltation of coral reefs, sites that support submerged aquatic vegetation (including sites where submerged aquatic vegetation is documented to exist but may not be present in a given year), anadromous fish spawning areas, or wetlands, or the connection of canals or other artificial waterways to navigable waters of the United States (see 33 CFR 322.5(g)). (Sections 10 and 404)

20. Oil Spill Cleanup. Activities required for the containment and cleanup of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR part 300) provided that the work is done in accordance with the Spill Control and Countermeasure Plan required by 40 CFR 112.3 and any existing state contingency plan and provided that the Regional Response Team (if one exists in the area) concurs with the proposed containment and cleanup action. This NWP also authorizes activities required for the cleanup of oil releases in waters of the United States from electrical equipment that are governed by EPA's polychlorinated biphenyl spill response regulations at 40 CFR Part 761. (Sections 10 and 404)

21. Surface Coal Mining Operations. Discharges of dredged or fill material into waters of the United States associated with surface coal mining and reclamation operations provided the activities are already authorized, or are currently being processed as part of an integrated permit processing procedure, by the Department of Interior (DOI), Office of Surface Mining (OSM), or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977.

Notification: The permittee must submit a pre-construction notification to the district engineer and receive written authorization prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

22. Removal of Vessels. Temporary structures or minor discharges of dredged or fill material required for the removal of wrecked, abandoned, or disabled vessels, or the removal of

man-made obstructions to navigation. This NWP does not authorize maintenance dredging, shoal removal, or riverbank snagging.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The vessel is listed or eligible for listing in the National Register of Historic Places; or (2) the activity is conducted in a special aquatic site, including coral reefs and wetlands. (See general condition 27.) If condition 1 above is triggered, the permittee cannot commence the activity until informed by the district engineer that compliance with the "Historic Properties" general condition is completed. (Sections 10 and 404)

Note 1: If a removed vessel is disposed of in waters of the United States, a permit from the U.S. EPA may be required (see 40 CFR 229.3). If a Department of the Army permit is required for vessel disposal in waters of the United States, separate authorization will be required.

Note 2: Compliance with general condition 17, Endangered Species, and general condition 18, Historic Properties, is required for all NWPs. The concern with historic properties is emphasized in the notification requirements for this NWP because of the likelihood that submerged vessels may be historic properties.

23. Approved Categorical Exclusions. Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:

(a) That agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from environmental documentation, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and

(b) The Office of the Chief of Engineers (Attn: CECW-CO) has concurred with that agency's or department's determination that the activity is categorically excluded and approved the activity for authorization under NWP 23.

The Office of the Chief of Engineers may require additional conditions, including pre-construction notification, for authorization of an agency's categorical exclusions under this NWP.

Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 27). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letters. (Sections 10 and 404)

Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn: CECW-CO). Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are the: Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07, which is available at: http://www.usace.army.mil/inet/functions/cw/cecwo/reg/rglsindx.htm . Any future approved categorical exclusions will be announced in Regulatory Guidance Letters and posted on this same web site.

24. Indian Tribe or State Administered Section 404 Programs. Any activity permitted by a state or Indian Tribe administering its own section 404 permit program pursuant to 33 U.S.C. 1344(g)-(l) is permitted pursuant to Section 10 of the Rivers and Harbors Act of 1899. (Section 10)

Note 1: As of the date of the promulgation of this NWP, only New Jersey and Michigan administer their own section 404 permit programs.

Note 2: Those activities that do not involve an Indian Tribe or State section 404 permit are not included in this NWP, but certain structures will be exempted by Section 154 of Pub. L. 94-587, 90 Stat. 2917 (33 U.S.C. 591) (see 33 CFR 322.4(b)).

25. Structural Discharges. Discharges of material such as concrete, sand, rock, etc., into tightly sealed forms or cells where the material will be used as a structural member for standard pile supported structures, such as bridges, transmission line footings, and walkways, or for general navigation, such as mooring cells, including the excavation of bottom material from within the form prior to the discharge of concrete, sand, rock, etc. This NWP does not authorize filled structural members that would support buildings, building pads, homes, house pads, parking areas, storage areas and other such structures. The structure itself may require a section 10 permit if located in navigable waters of the United States. (Section 404)

26. [Reserved]

27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas and the restoration and enhancement of non-tidal streams and other non-tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels and drainage ditches; the removal of existing drainage structures; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa) or uplands. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters,

including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the OSM or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland that has not been abandoned or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity result in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting: For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) The binding wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSM or the applicable state agency. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification. The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 27), except for the following activities:

(1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. FWS, NRCS, FSA, NMFS, NOS, or their designated state cooperating agencies;

(2) Voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(3) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSM or the applicable state agency.

However, the permittee must submit a copy of the appropriate documentation. (Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee programs. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

28. Modifications of Existing Marinas. Reconfiguration of existing docking facilities within an authorized marina area. No dredging, additional slips, dock spaces, or expansion of any kind within waters of the United States is authorized by this NWP. (Section 10)

29. Residential Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of a single residence, a multiple unit residential development, or a residential subdivision. This NWP authorizes the construction of building foundations and building pads and attendant features that are necessary for the use of the residence or residential development. Attendant features may include but are not limited to roads, parking lots, garages, yards, utility lines, storm water management facilities, septic fields, and recreation facilities such as playgrounds, playing fields, and golf courses (provided the golf course is an integral part of the residential development).

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the district engineer. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this NWP cannot exceed 1/2 acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

30. Moist Soil Management for Wildlife. Discharges of dredged or fill material into non-tidal waters of the United States and maintenance activities that are associated with moist soil management for wildlife for the purpose of continuing ongoing, site-specific, wildlife management activities where soil manipulation is used to manage habitat and feeding areas for wildlife. Such activities include, but are not limited to, plowing or discing to impede succession, preparing seed beds, or establishing fire breaks. Sufficient riparian areas must be maintained adjacent to all open water bodies, including streams to preclude water quality degradation due to

erosion and sedimentation. This NWP does not authorize the construction of new dikes, roads, water control structures, or similar features associated with the management areas. The activity must not result in a net loss of aquatic resource functions and services. This NWP does not authorize the conversion of wetlands to uplands, impoundments, or other open water bodies. (Section 404)

Note: The repair, maintenance, or replacement of existing water control structures or the repair or maintenance of dikes may be authorized by NWP 3. Some such activities may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

31. Maintenance of Existing Flood Control Facilities. Discharges of dredged or fill material resulting from activities associated with the maintenance of existing flood control facilities, including debris basins, retention/detention basins, levees, and channels that: (i) were previously authorized by the Corps by individual permit, general permit, by 33 CFR 330.3, or did not require a permit at the time they were constructed, or (ii) were constructed by the Corps and transferred to a non-Federal sponsor for operation and maintenance. Activities authorized by this NWP are limited to those resulting from maintenance activities that are conducted within the "maintenance baseline," as described in the definition below. Discharges of dredged or fill materials associated with maintenance activities in flood control facilities in any watercourse that have previously been determined to be within the maintenance baseline are authorized under this NWP. This NWP does not authorize the removal of sediment and associated vegetation from natural water courses except when these activities have been included in the maintenance baseline. All dredged material must be placed in an upland site or an authorized disposal site in waters of the United States, and proper siltation controls must be used.

Maintenance Baseline: The maintenance baseline is a description of the physical characteristics (e.g., depth, width, length, location, configuration, or design flood capacity, etc.) of a flood control project within which maintenance activities are normally authorized by NWP 31, subject to any case-specific conditions required by the district engineer. The district engineer will approve the maintenance baseline based on the approved or constructed capacity of the flood control facility, whichever is smaller, including any areas where there are no constructed channels, but which are part of the facility. The prospective permittee will provide documentation of the physical characteristics of the flood control facility (which will normally consist of as-built or approved drawings) and documentation of the approved and constructed design capacities of the flood control facility. If no evidence of the constructed capacity exists, the approved capacity will be used. The documentation will also include best management practices to ensure that the impacts to the aquatic environment are minimal, especially in maintenance areas where there are no constructed channels. (The Corps may request maintenance records in areas where there has not been recent maintenance.) Revocation or modification of the final determination of the maintenance baseline can only be done in accordance with 33 CFR 330.5. Except in emergencies as described below, this NWP cannot be used until the district engineer approves the maintenance baseline and determines the need for mitigation and any regional or activity-specific conditions. Once determined, the maintenance baseline will remain valid for any subsequent reissuance of this NWP. This NWP does not authorize maintenance of a flood control facility that has been abandoned. A flood control facility will be considered abandoned if it has operated at a significantly reduced capacity without needed maintenance being accomplished in a timely manner.

Mitigation: The district engineer will determine any required mitigation one-time only for impacts associated with maintenance work at the same time that the maintenance baseline is approved. Such one-time mitigation will be required when necessary to ensure that adverse environmental impacts are no more than minimal, both individually and cumulatively. Such mitigation will only be required once for any specific reach of a flood control project. However, if one-time mitigation is required for impacts associated with maintenance activities, the district engineer will not delay needed maintenance, provided the district engineer and the permittee establish a schedule for identification, approval, development, construction and completion of any such required mitigation. Once the one-time mitigation described above has been completed, or a determination made that mitigation is not required, no further mitigation will be required for maintenance activities within the maintenance baseline. In determining appropriate mitigation, the district engineer will give special consideration to natural water courses that have been included in the maintenance baseline and require compensatory mitigation and/or best management practices as appropriate.

Emergency Situations: In emergency situations, this NWP may be used to authorize maintenance activities in flood control facilities for which no maintenance baseline has been approved. Emergency situations are those which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if action is not taken before a maintenance baseline can be approved. In such situations, the determination of mitigation requirements, if any, may be deferred until the emergency has been resolved. Once the emergency has ended, a maintenance baseline must be established expeditiously, and mitigation, including mitigation for maintenance conducted during the emergency, must be required as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer before any maintenance work is conducted (see general condition 27). The pre-construction notification may be for activity-specific maintenance or for maintenance of the entire flood control facility by submitting a five-year (or less) maintenance plan. The pre-construction notification must include a description of the maintenance baseline and the dredged material disposal site. (Sections 10 and 404)

32. Completed Enforcement Actions. Any structure, work, or discharge of dredged or fill material remaining in place or undertaken for mitigation, restoration, or environmental benefit in compliance with either:

(i) The terms of a final written Corps non-judicial settlement agreement resolving a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899; or the terms of an EPA 309(a) order on consent resolving a violation of Section 404 of the Clean Water Act, provided that:

(a) The unauthorized activity affected no more than 5 acres of non-tidal waters or 1 acre of tidal waters;

(b) The settlement agreement provides for environmental benefits, to an equal or greater degree, than the environmental detriments caused by the unauthorized activity that is authorized by this NWP; and

(c) The district engineer issues a verification letter authorizing the activity subject to the terms and conditions of this NWP and the settlement agreement, including a specified completion date; or

(ii) The terms of a final Federal court decision, consent decree, or settlement agreement resulting from an enforcement action brought by the United States under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899; or

(iii) The terms of a final court decision, consent decree, settlement agreement, or non-judicial settlement agreement resulting from a natural resource damage claim brought by a trustee or trustees for natural resources (as defined by the National Contingency Plan at 40 CFR subpart G) under Section 311 of the Clean Water Act, Section 107 of the Comprehensive Environmental Response, Compensation and Liability Act, Section 312 of the National Marine Sanctuaries Act, Section 1002 of the Oil Pollution Act of 1990, or the Park System Resource Protection Act at 16 U.S.C. 19jj, to the extent that a Corps permit is required.

Compliance is a condition of the NWP itself. Any authorization under this NWP is automatically revoked if the permittee does not comply with the terms of this NWP or the terms of the court decision, consent decree, or judicial/non-judicial settlement agreement. This NWP does not apply to any activities occurring after the date of the decision, decree, or agreement that are not for the purpose of mitigation, restoration, or environmental benefit. Before reaching any settlement agreement, the Corps will ensure compliance with the provisions of 33 CFR part 326 and 33 CFR 330.6(d)(2) and (e). (Sections 10 and 404)

33. Temporary Construction, Access, and Dewatering. Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites, provided that the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard. This NWP also authorizes temporary structures, work, and discharges, including cofferdams, necessary for construction activities not otherwise subject to the Corps or U.S. Coast Guard permit requirements. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if the district engineer determines that it will not cause more than minimal adverse effects on aquatic resources. Following completion of construction, temporary fill must be entirely removed to upland areas, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be revegetated, as appropriate. This permit does not authorize the use of cofferdams to dewater wetlands or other aquatic areas to change their use. Structures left in place after construction is completed require a section 10 permit if located in navigable waters of the United States. (See 33 CFR part 322.)

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 27). The pre-construction notification must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions. (Sections 10 and 404)

34. Cranberry Production Activities. Discharges of dredged or fill material for dikes, berms, pumps, water control structures or leveling of cranberry beds associated with expansion, enhancement, or modification activities at existing cranberry production operations. The cumulative total acreage of disturbance per cranberry production operation, including but not limited to, filling, flooding, ditching, or clearing, must not exceed 10 acres of waters of the United States, including wetlands. The activity must not result in a net loss of wetland acreage. This NWP does not authorize any discharge of dredged or fill material related to other cranberry

production activities such as warehouses, processing facilities, or parking areas. For the purposes of this NWP, the cumulative total of 10 acres will be measured over the period that this NWP is valid.

Notification: The permittee must submit a pre-construction notification to the district engineer once during the period that this NWP is valid, and the NWP will then authorize discharges of dredge or fill material at an existing operation for the permit term, provided the 10-acre limit is not exceeded. (See general condition 27.) (Section 404)

35. Maintenance Dredging of Existing Basins. Excavation and removal of accumulated sediment for maintenance of existing marina basins, access channels to marinas or boat slips, and boat slips to previously authorized depths or controlling depths for ingress/egress, whichever is less, provided the dredged material is deposited at an upland site and proper siltation controls are used. (Section 10)

36. Boat Ramps. Activities required for the construction of boat ramps, provided the activity meets all of the following criteria:

(a) The discharge into waters of the United States does not exceed 50 cubic yards of concrete, rock, crushed stone or gravel into forms, or in the form of pre-cast concrete planks or slabs, unless the 50 cubic yard limit is waived in writing by the district engineer;

(b) The boat ramp does not exceed 20 feet in width, unless this criterion is waived in writing by the district engineer;

(c) The base material is crushed stone, gravel or other suitable material;

(d) The excavation is limited to the area necessary for site preparation and all excavated material is removed to the upland; and,

(e) No material is placed in special aquatic sites, including wetlands.

The use of unsuitable material that is structurally unstable is not authorized. If dredging in navigable waters of the United States is necessary to provide access to the boat ramp, the dredging may be authorized by another NWP, a regional general permit, or an individual permit.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The discharge into waters of the United States exceeds 50 cubic yards, or (2) the boat ramp exceeds 20 feet in width. (See general condition 27.) (Sections 10 and 404)

37. Emergency Watershed Protection and Rehabilitation. Work done by or funded by:

(a) The Natural Resources Conservation Service for a situation requiring immediate action under its emergency Watershed Protection Program (7 CFR part 624);

(b) The U.S. Forest Service under its Burned-Area Emergency Rehabilitation Handbook (FSH 509.13);

(c) The Department of the Interior for wildland fire management burned area emergency stabilization and rehabilitation (DOI Manual part 620, Ch. 3);

(d) The Office of Surface Mining, or states with approved programs, for abandoned mine land reclamation activities under Title IV of the Surface Mining Control and Reclamation Act (30 CFR Subchapter R), where the activity does not involve coal extraction; or

(e) The Farm Service Agency under its Emergency Conservation Program (7 CFR part 701).

In general, the prospective permittee should wait until the district engineer issues an NWP verification before proceeding with the watershed protection and rehabilitation activity. However, in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur, the emergency watershed protection and rehabilitation activity may proceed immediately and the district engineer will consider the information in the pre-construction notification any comments received as a result of agency coordination to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 27). (Sections 10 and 404)

38. Cleanup of Hazardous and Toxic Waste. Specific activities required to effect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Court ordered remedial action plans or related settlements are also authorized by this NWP. This NWP does not authorize the establishment of new disposal sites or the expansion of existing sites used for the disposal of hazardous or toxic waste.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

Note: Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA as approved or required by EPA, are not required to obtain permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

39. Commercial and Institutional Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures. Attendant features may include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, and recreation facilities such as playgrounds and playing fields. Examples of commercial developments include retail stores, industrial facilities, restaurants, business parks, and shopping centers. Examples of institutional developments include schools, fire stations, government office buildings, judicial buildings, public works buildings, libraries, hospitals, and places of worship. The construction of new golf courses, new ski areas, or oil and gas wells is not authorized by this NWP.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the district engineer. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

40. Agricultural Activities. Discharges of dredged or fill material into non-tidal waters of the United States for agricultural activities, including the construction of building pads for farm buildings. Authorized activities include the installation, placement, or construction of drainage

tiles, ditches, or levees; mechanized land clearing; land leveling; the relocation of existing serviceable drainage ditches constructed in waters of the United States; and similar activities.

This NWP also authorizes the construction of farm ponds in non-tidal waters of the United States, excluding perennial streams, provided the farm pond is used solely for agricultural purposes. This NWP does not authorize the construction of aquaculture ponds.

This NWP also authorizes discharges of dredged or fill material into non-tidal waters of the United States to relocate existing serviceable drainage ditches constructed in non-tidal streams.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize the relocation of greater than 300 linear feet of existing serviceable drainage ditches constructed in non-tidal streams, unless for drainage ditches constructed in intermittent and ephemeral streams, this 300 linear foot limit is waived in writing by the district engineer.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Section 404)

Note: Some discharges for agricultural activities may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4). This NWP authorizes the construction of farm ponds that do not qualify for the Clean Water Act Section 404(f)(1)(C) exemption because of the recapture provision at Section 404(f)(2).

41. Reshaping Existing Drainage Ditches. Discharges of dredged or fill material into non-tidal waters of the United States, excluding non-tidal wetlands adjacent to tidal waters, to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in waters of the United States, for the purpose of improving water quality by regrading the drainage ditch with gentler slopes, which can reduce erosion, increase growth of vegetation, and increase uptake of nutrients and other substances by vegetation. The reshaping of the ditch cannot increase drainage capacity beyond the original as-built capacity nor can it expand the area drained by the ditch as originally constructed (i.e., the capacity of the ditch must be the same as originally constructed and it cannot drain additional wetlands or other waters of the United States). Compensatory mitigation is not required because the work is designed to improve water quality.

This NWP does not authorize the relocation of drainage ditches constructed in waters of the United States; the location of the centerline of the reshaped drainage ditch must be approximately the same as the location of the centerline of the original drainage ditch. This NWP does not authorize stream channelization or stream relocation projects.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity, if more than 500 linear feet of drainage ditch will be reshaped. (See general condition 27.) (Section 404)

42. Recreational Facilities. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of recreational facilities. Examples of recreational facilities that may be authorized by this NWP include playing fields (e.g., football fields, baseball fields), basketball courts, tennis courts, hiking trails, bike paths, golf courses, ski areas, horse paths, nature centers, and campgrounds (excluding recreational vehicle parks). This NWP also authorizes the construction or expansion of small support facilities, such as maintenance and storage buildings and stables that are directly related to the recreational activity,

but it does not authorize the construction of hotels, restaurants, racetracks, stadiums, arenas, or similar facilities.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the district engineer. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Section 404)

43. Stormwater Management Facilities. Discharges of dredged or fill material into non-tidal waters of the United States for the construction and maintenance of stormwater management facilities, including the excavation of stormwater ponds/facilities, detention basins, and retention basins; the installation and maintenance of water control structures, outfall structures and emergency spillways; and the maintenance dredging of existing stormwater management ponds/facilities and detention and retention basins.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds this 300 linear foot limit is waived in writing by the district engineer. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize discharges of dredged or fill material for the construction of new stormwater management facilities in perennial streams.

Notification: For the construction of new stormwater management facilities, or the expansion of existing stormwater management facilities, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) Maintenance activities do not require pre-construction notification if they are limited to restoring the original design capacities of the stormwater management facility. (Section 404)

44. Mining Activities. Discharges of dredged or fill material into non-tidal waters of the United States for mining activities, except for coal mining activities. The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) If reclamation is required by other statutes, then a copy of the reclamation plan must be submitted with the pre-construction notification. (Sections 10 and 404)

45. Repair of Uplands Damaged by Discrete Events. This NWP authorizes discharges of dredged or fill material, including dredging or excavation, into all waters of the United States for activities associated with the restoration of upland areas damaged by storms, floods, or other discrete events. This NWP authorizes bank stabilization to protect the restored uplands. The restoration of the damaged areas, including any bank stabilization, must not exceed the contours, or ordinary high water mark, that existed before the damage occurred. The district engineer retains the right to determine the extent of the pre-existing conditions and the extent of any restoration work authorized by this NWP. The work must commence, or be under contract to

commence, within two years of the date of damage, unless this condition is waived in writing by the district engineer. This NWP cannot be used to reclaim lands lost to normal erosion processes over an extended period.

Minor dredging is limited to the amount necessary to restore the damaged upland area and should not significantly alter the pre-existing bottom contours of the waterbody.

Notification: The permittee must submit a pre-construction notification to the district engineer (see general condition 27) within 12-months of the date of the damage. The pre-construction notification should include documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration. (Sections 10 and 404)

Note: Uplands lost as a result of a storm, flood, or other discrete event can be replaced without a section 404 permit, if the uplands are restored to the ordinary high water mark (in non-tidal waters) or high tide line (in tidal waters). (See also 33 CFR 328.5.)

46. Discharges in Ditches. Discharges of dredged or fill material into non-tidal ditches that are: (1) constructed in uplands, (2) receive water from an area determined to be a water of the United States prior to the construction of the ditch, (3) divert water to an area determined to be a water of the United States prior to the construction of the ditch, and (4) are determined to be waters of the United States. The discharge must not cause the loss of greater than one acre of waters of the United States.

This NWP does not authorize discharges of dredged or fill material into ditches constructed in streams or other waters of the United States, or in streams that have been relocated in uplands. This NWP does not authorize discharges of dredged or fill material that increase the capacity of the ditch and drain those areas determined to be waters of the United States prior to construction of the ditch.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 27.) (Section 404)

47. Pipeline Safety Program Designated Time Sensitive Inspections and Repairs. Activities required for the inspection, repair, rehabilitation, or replacement of any currently serviceable structure or fill for pipelines that have been identified by the Pipeline and Hazardous Materials Safety Administration's Pipeline Safety Program (PHP) within the U.S. Department of Transportation as time-sensitive (see 49 CFR parts 192 and 195) and additional maintenance activities done in conjunction with the time-sensitive inspection and repair activities. All activities must meet the following criteria:

(a) Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable when temporary structures, work and discharges, including cofferdams, are necessary for construction activities or access fills or dewatering of construction sites;

(b) Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided that the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect);

(c) Temporary fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the

affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate;

(d) In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench so that there is no change in preconstruction contours;

(e) To the maximum extent practicable, the restoration of open waters must be to the pre-construction course, condition, capacity, and location of the waterbody;

(f) Any exposed slopes and stream banks must be stabilized immediately upon completion of the project;

(g) Additional maintenance activities done in conjunction with the time-sensitive inspection or repair must not result in additional losses of waters of the United States; and,

(h) The permittee is a participant in the Pipeline Repair and Environmental Guidance System (PREGS).

Reporting: The permittee must submit a post construction report to the PHP within seven days after completing the work. The report must be submitted electronically to PHP via PREGS. The report must contain the following information: project sites located in waters of the United States, temporary access routes, stream dewatering sites, temporary fills and temporary structures identified on a map of the pipeline corridor; photographs of the pre- and post-construction work areas located in waters of the United States; and a list of best management practices employed for each pipeline segment shown on the map. (Section 10 and 404)

Note: Division engineers may modify this NWP by adding regional conditions to protect the aquatic environment, as long as those regional conditions do not require pre-construction notification or other actions that would delay time sensitive inspections and repairs. Examples of appropriate regional conditions include best management practices.

48. Existing Commercial Shellfish Aquaculture Activities. This NWP authorizes the installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures necessary for the continued operation of the existing commercial aquaculture activity. This NWP also authorizes discharges of dredged or fill material necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities. Rafts and other floating structures must be securely anchored and clearly marked.

This NWP does not authorize new operations or the expansion of the project area for an existing commercial shellfish aquaculture activity. This NWP does not authorize the cultivation of new species (i.e., species not previously cultivated in the waterbody). This NWP does not authorize attendant features such as docks, piers, boat ramps, stockpiles, staging areas, or the deposition of shell material back into waters of the United States as waste.

Reporting: For those activities that do not require pre-construction notification, the permittee must submit a report to the district engineer that includes the following information: (1) the size of the project area for the commercial shellfish aquaculture activity (in acres); (2) the location of the activity; (3) a brief description of the culture method and harvesting method(s); (4) the name(s) of the cultivated species; and (5) whether canopy predator nets are being used. This is a subset of the information that would be required for pre-construction notification. This report may be provided by letter or using an optional reporting form provided by the Corps. Only one report needs to be submitted during the period this NWP is valid, as long as there are no changes to the operation that require pre-construction notification. The report must be submitted to the district engineer within 90 days of the effective date of this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer if: (1) the project area is greater than 100 acres; or (2) there is any reconfiguration of the aquaculture activity, such as relocating existing operations into portions of the project area not previously used for aquaculture activities; or (3) there is a change in species being cultivated; or (4) there is a change in culture methods (e.g., from bottom culture to off-bottom culture); or (5) dredge harvesting, tilling, or harrowing is conducted in areas inhabited by submerged aquatic vegetation. (See general condition 27.) (Sections 10 and 404)

Note: The permittee should notify the applicable U.S. Coast Guard office regarding the project.

49. Coal Remining Activities. Discharges of dredged or fill material into non-tidal waters of the United States associated with the remining and reclamation of lands that were previously mined for coal, provided the activities are already authorized, or are currently being processed as part of an integrated permit processing procedure, by the Department of Interior (DOI) Office of Surface Mining (OSM), or by states with approved programs under Title IV or Title V of the Surface Mining Control and Reclamation Act of 1977. Areas previously mined include reclaimed mine sites, abandoned mine land areas, or lands under bond forfeiture contracts. The permittee must clearly demonstrate to the district engineer that the reclamation plan will result in a net increase in aquatic resource functions. As part of the project, the permittee may conduct coal mining activities in an adjacent area, provided the newly mined area is less than 40 percent of the area being remined plus any unmined area necessary for the reclamation of the remined area.

Notification: The permittee must submit a pre-construction notification to the district engineer and receive written authorization prior to commencing the activity. (See general condition 27.) (Sections 10 and 404)

50. Underground Coal Mining Activities. Discharges of dredged or fill material into non-tidal waters of the United States associated with underground coal mining and reclamation operations provided the activities are authorized, or are currently being processed as part of an integrated permit processing procedure, by the Department of Interior (DOI), Office of Surface Mining (OSM), or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977.

This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize coal preparation and processing activities outside of the mine site.

Notification: The permittee must submit a pre-construction notification to the district engineer and receive written authorization prior to commencing the activity. (See general condition 27.) If reclamation is required by other statutes, then a copy of the reclamation plan must be submitted with the pre-construction notification. (Sections 10 and 404)

Note: Coal preparation and processing activities outside of the mine site may be authorized by NWP 21.

C. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as appropriate, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should

contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety.

15. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

16. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

17. Endangered Species. (a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will destroy or adversely modify the critical habitat of such species. No activity is authorized

under any NWP which "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity "may affect" or will have "no effect" to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have "no effect" on listed species or critical habitat, or until Section 7 consultation has been completed.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the U.S. FWS or the NMFS, both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide Web pages at http://www.fws.gov/ and http://www.noaa.gov/fisheries.html respectively.

18. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State

Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). If NHPA section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

19. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment. The district engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, and 50 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 27, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

20. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10 acre and require pre-construction notification, unless the district engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. For wetland losses of 1/10 acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream restoration, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2 acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2 acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWPs.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

21. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

22. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

23. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

24. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

25. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:
"When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate

the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below."

_____

(Transferee)

_____

(Date)

26. Compliance Certification. Each permittee who received an NWP verification from the Corps must submit a signed certification regarding the completed work and any required mitigation. The certification form must be forwarded by the Corps with the NWP verification letter and will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general or specific conditions;

(b) A statement that any required mitigation was completed in accordance with the permit conditions; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

27. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, as a general rule, will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) Forty-five calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 17 that listed species or critical habitat might affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 18 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) is completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee cannot begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained.

Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided result in a quicker decision.);

(4) The PCN must include a delineation of special aquatic sites and other waters of the United States on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters of the United States, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, where appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10 acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP 48 activities requiring pre-construction notification and for other NWP activities requiring pre-construction notification to the district engineer that result in the loss of greater than 1/2-acre of waters of the United States, the district engineer will immediately provide (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy of the PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps multiple copies of pre-construction notifications to expedite agency coordination.

(5) For NWP 48 activities that require reporting, the district engineer will provide a copy of each report within 10 calendar days of receipt to the appropriate regional office of the NMFS.

(e) District Engineer's Decision: In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If the proposed activity requires a PCN and will result in a loss of greater than 1/10 acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any conditions the district engineer deems necessary. The district engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment

(after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP.

If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (3) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan.

28. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

D. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project.

E. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration, establishment (creation), enhancement, or preservation of aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Discharge: The term "discharge" means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a

decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or

flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of "open waters" include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through

which surface and subsurface hydrology connects waterbodies with their adjacent uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 20.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete project: The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete project must have independent utility (see definition). For linear projects, a "single and complete project" is all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an ordinary high water mark (OHWM) or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.

CALIFORNIA DEPARTMENT **OF FISH AND GAME**
South Coast Region
4949 Viewridge Avenue
San Diego, California 92123

Notification No. 1600-2009-0227-R5

AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and the State of California, Department of Transportation (Point of Contact: Ms. Mili Lim), District 12, 3337 Michelson Drive, Irvine, CA 92612, hereinafter called the Applicant, is as follows:

RECITALS

WHEREAS, pursuant to Section 1602 of California Fish and Game Code, the Applicant, on the 13th day of July, 2009, notified the Department that they intend to divert or obstruct the natural flow of, or change the bed, channel, or bank of, or use material from the streambed(s) of, the following water(s): San Juan Creek, tributary to the Pacific Ocean in the City of San Juan Capistrano, Orange County, California, (Section 12/Township 8S/Range 8W, Dana Point Quadrangle).

WHEREAS, the Department (represented by Pam Beare through various site visits) has determined that such operations may substantially adversely affect those existing fish and wildlife resources within San Juan Creek within the project limits, specifically identified as follows: Fish: steelhead (Oncorhynchus *mykiss*); **Amphibians:** Pacific tree frog (*Pseudacris regilla*), arroyo toad (Bufo *californicus*); **Reptiles**: western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), common kingsnake (*Lampropeltis getula*), gopher snake (*Pituophis catenifer*), garter snake (*Thamnophis sirtalis*); Birds: great egret (*Ardea alba*), snowy egret (*Egretta thula*), green heron (*Butorides virescens*), mallard (*Anas platyrhynchos*), black-necked stilt (Himantopus mexicanus), killdeer (*Charadrius* vociferous), mourning dove (Zenaida *macroura*), Anna's hummingbird (*Calypte* anna), white-throated swift (*Aeronautes saxatalis saxatalis*), black phoebe (*Sayornis nigricans*), American crow (*Corvus brachyrhynchos*), bush tit (*Psaltriparus minimus*), wrentit (Chamaea fasciata), lesser goldfinch (*Carduelis psaltria hesperophilus*); **Mammals:** desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), raccoon (Procyon *lotor*); fish and wildlife resources known from the vicinity or with potential to be in or adjacent to the project limits during construction: arroyo toad (Bufo *californicus*), southwestern pond turtle (Emys *[=Clemmys] marmorata pallida*), two-striped garter snake (Thamnophis *hammondii*), least Bell's vireo (Vireo *bellii* pusillus), cliff swallow (*Petrochelidon pyrrhonota*), various bat species, and all other aquatic and wildlife resources, including the riparian vegetation which provides habitat for those species.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife resources during the Applicant's work. The Applicant hereby agrees to accept the following measures/conditions as part of the proposed work.

If the Applicant's work changes from that stated in the notification specified above, this Agreement is no longer valid and a new notification shall be submitted to the Department of Fish and **Game.** Failure to comply with the provisions of this Agreement and with other pertinent code sections, including but not limited to Fish and Game Code Sections 5650, 5652, 5901, 5931, 5937, and 5948, may result in prosecution.

Nothing in this Agreement authorizes the Applicant to trespass on any land or property, nor does it relieve the Applicant of responsibility for compliance with applicable federal, state, or local laws or ordinances. A consummated Agreement does not constitute Department of Fish and Game endorsement of the proposed operation, or assure the Department's concurrence with permits required from other agencies.

Term and Effective Date

This Agreement becomes effective the date of Department's signature and terminates November 30,2014 for project construction only. This Agreement shall remain in effect for that time necessary to satisfy the terms/conditions of this Agreement.

Extensions

Pursuant to Section 1600 et seq., the Applicant may request one extension of this Agreement; the Applicant shall request extension of the Agreement prior to its termination. The one extension may be granted for up to five years from the date of termination of the Agreement and s subject to Department approval. The extension request and fees shall be submitted to the Department's South Coast Region at the above address. If the Applicant fails to request the extension prior to the Agreement's termination, then the Applicant shall submit a new notification with fees and required information to the Department. Any construction/impacts that occur under an expired Agreement are a violation of Fish and Game Code 1600 et seq.

Suspension and Revocation

The Department reserves the right to cancel this Agreement, after giving notice to the Applicant, if the Department determines that the Applicant has breached any of the terms or conditions of the Agreement.

The Department reserves the right to suspend or cancel this Agreement for other reasons. including but not limited to the following:

a) The Department determines that the information provided by the Applicant in support of the Notification/Agreement is incomplete or inaccurate;
b) The Department obtains new information that was not known to it in preparing the terms and conditions of the Agreement;
c) The project or project activities as described in the Notification/Agreement have changed;
d) The conditions affecting fish and wildlife resources change or the Department determines that project activities will result in a substantial adverse effect on the environment.

Before any suspension or cancellation of the Agreement, the Department will notify the Applicant in writing of the circumstances which the Department believes warrant suspension or cancellation. The Applicant will have seven (7) working days from the date of receipt of this notification to respond in writing to the circumstances described in the Department's notification. During the seven (7) day response period, the Applicant shall immediately cease any project activities which the Department specified in its notification. The Applicant shall not continue the specified activities until that time when the Department notifies the Applicant in writing that adequate methods and/or measures have been identified and agreed upon to mitigate or eliminate the significant adverse effect.

Amendment

This Agreement may be amended at any time by mutual agreement of the parties. Any amendments to this Agreement shall be made in a separate writing, signed by the parties, and attached to this Agreement. Any approved amendments shall become part of this Agreement.

Liability

The Applicant agrees that it shall be responsible for any violations of this Agreement, whether committed by the Applicant or any person acting on behalf of the Applicant, including its agents, officers,

and employees, representatives, or contractors and subcontractors. This Agreement does not constitute the Department's endorsement of the authorized Project Activity.

It is understood the Department has entered into this Agreement for purposes of establishing protective features for fish and wildlife. The decision to proceed with the project is the sole responsibility of the Applicant, and is not required by this Agreement. It is further agreed that all liability and/or incurred cost related to or arising from the Applicant's project and the implementation of the fish and wildlife protective conditions of this Agreement remain the sole responsibility of the Applicant. The Applicant agrees to hold harmless the State of California and the Department against any related claim made by any party or parties for personal injury or any other damages.

Enforcement

The Department reserves the right to enter the project site at any time to ensure compliance with the terms/conditions of this Agreement.

Project Location and Description

The project is located in San Juan Creek at the Interstate 5 bridge, City of San Juan Capistrano, Orange County. The Applicant proposes to alter the stream to widen the 1-5 bridge to accommodate a new auxiliary lane for vehicles exiting the southbound I-5 freeway at Camino Capistrano. The widening requires extending the three pier-walk and their foundations on the downstream side of the bridge, will include the temporary construction of falsework. The south side of pier wall #3 currently includes riprap on the top of and directly adjacent to the footing; riprap will also be placed on the new section of foundation for that pier wall only. The project may also include temporary placement of a cofferdam at pier wall #3, if needed. Riprap and rock slope protection that is temporarily displaced during construction will be replaced. All areas of temporary impact will be restored to ,ore-construction conditions. Access will be from the road and ramp on the north levee. All soil disturbances within the creek are proposed to occur during the dry season to avoid any detrimental impacts to water quality downstream of the project. The active creek channel will be avoided at all times, or an appropriate crossing will be provided.

CONDITIONS

The following provisions constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that the Applicant is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement shall be subject to separate notification pursuant to Fish and Game Code Sections 1600 *et seq.*

General

1. The agreed work includes activities associated with the Project Location and Description that is provided above. Specific work areas and mitigation measures are described on/in the plans and documents submitted by the Applicant, including the *Auxiliary* Lane and *Interchange Improvements Natural Envimnment Study: Camino Capistrano Interchange at I-5,* (State of California, Department of Transportation District 12, September 2004), *Auxiliary* Lane *and Interchange Improvements, Camino Capistrano Interchange at I-5: Supplemental Natural Environment Study (State of* California, Department of Transportation District 12, August 2005), and *I-5/Camino Capistrano Interchange Improvement* Project, *Initial Study* with *Mitigated Negative Declaration (State of* California, Department of Transportation, and Orange County Transportation Authority, March 2006); the project shall be implemented as proposed unless directed differently by this agreement.

2. The Applicant shall provide a copy of this Agreement to all contractors, subcontractors, and project supervisors. The Applicant shall ensure that all project personnel abide by all terms and conditions of this agreement. Copies of the Agreement shall be readily available at work sites at all times during periods of active work and must be presented to any Department personnel, or personnel from another agency, upon demand.

3. The Applicant shall notify the Department, in writing, at least five (5) days prior to initiation of construction/project activities and at least five (5) days prior to completion of construction/project activities. Notification shall be sent to the Department's South Coast Office at the above address, ATTN: Streambed Alteration Program – SAA # 1600-20040227-R5.

Impacts

4. The Applicant shall not impact more than 1.294 acre of streambed. This total Includes 0.153 acre of permanent impact (0.031 acre of new footing/pier wall and 0.122 of shading from the widened bridge) and 1.141 acres of temporary impact for access and work areas. Excavation for the new footings will result in the removal of approximately 380 cubic yards of sediment from the streambed. The impact area does not include native riparian or wetland vegetation; this part of the channel is actively managed by the Orange County Flood Control District and only supports very limited herbaceous vegetation. Impacts to vegetation ate limited to non-native species at the downstream end of the pier walls. Impacts on the upstream side of the bridge, which supports riparian habitats, are not authorized and no work or activities shall occur in this area. Potential impacts to sensitive species that may be in or adjacent to the project sits during construction will be avoided with project features as addressed in the project documents and the conditions herein.

Compensatory Mitination

5. The Applicant shall compensate for the permanent reduction in habitat value and loss of 0.153 acre of stream habitats by providing funding for 0.306 acre of habitat restoration under the South Orange County Team Arundo Program (Program). Proof of payment into the Program will need to be provided to the Department before project construction can begin. Work under this Program involves the removal of invasive exotic plant species and restoration with appropriate native plants within the San Juan Hydrologic Unit. The Program has Department authorization pursuant to SAA #1600-2008-0247-R5.

6. Disturbance or removal of vegetation shall not exceed the limits approved by the Department. The Applicant shall mitigate at a minimum 5:1 ratio for impacts beyond those authorized in this Agreement. In the event that additional mitigation is required, the type and location of mitigation must be approved by the Department.

7. If any sensitive species are observed in the project vicinity, the Applicant shall submit a California Native Species Field Survey Form and survey map to the Natural Diversity Database (NDDB) within ten working days of the sightings. The form and instructions for completing the form are available on-line at http://www.dfg.ca.gov/biogeodata/cnddb/. The form and survey map shall be sent to the Department of Fish and Game, California Natural Diversity Database, 1807 13th Street, Suite 202, Sacramento, CA 95814, with copies sent to the Department's South Coast Office at the address above, ATTN: Streambed Alteration Program – SAA #1600-2009-0227-R5.

Resource Protection

8. The Applicant shall have a qualified biologist onsite as needed to ensure that no unauthorized impacts occur either within or adjacent to the project limits.

9. All stream and riparian habitats outside of the project footprint shall be designated as an Environmentally Sensitive Area (ESA) and depicted as such on project plans. Prior to any vegetation clearing, grading or construction activities within the project limits, the Applicant shall install temporary construction fencing to identify the agreed limits of disturbance and prevent damage to adjacent habitat. The biological monitor shall be onsite during installation of the temporary construction fencing. Except for the biological monitor, no personnel, vehicles, equipment or any project related activities or disturbance shall be allowed within the ESA at any time. All temporary fences, barriers, and/or flagging shall be completely removed from the project site and properly disposed of upon completion of project activities.

10. The Applicant shall not remove vegetation within or adjacent to the stream or riparian habitats, work within the stream channel, or work on structures within the stream channel from February 15 to August 31 to avoid impacts to nesting birds. However, the Applicant may remove vegetation and work within the stream channel during this time if a qualified biologist conducts a survey for nesting birds within one week prior to beginning any of these activities. The survey shall include all areas within the project footprint, all adjacent habitats that may be impacted by project activities, and all habitats that will be subject to project-related noise in excess of 60 dBA, or an increase in noise level for those habitats where ambient noise is already greater than 60 dBA. If an active nest is found the nest and an appropriate buffer shall be designated as an ESA, and no work shall occur within this area until the young have fledged and will no longer be impacted by the project, The buffer area shall be determined in consultation with the Department. At least 30 days prior to the survey date, the applicant shall provide to the Department for review and approval, a graphic showing the area to be surveyed. Project activities within the stream channel may not begin until the qualified biologist has reported to the Department that no nesting birds will be impacted.

11. This Agreement does not authorize take, incidental or otherwise, of any protected species. For the purpose of this Agreement, "protected species" means the following: a species fully protected under state law, a species listed under the California Endangered Species Act (Fish & Game Code § 2050 *et seq.*) and/or Federal Endangered Species Act (16 U.S.C. § 1531 et *seq.*), or any other species for which take is prohibited under state or federal law.

12. Prior to initiating any work within the stream channel, a qualified biologist(s) shall conduct appropriate surveys for sensitive and protected species with potential to be present on or in the bridge, or in any stream/riparian/wetland habitats within the area of direct or indirect project impacts; this includes all bat species. If any bats, or any other sensitive, or protected species are detected in pre-construction surveys, no work shall occur until the Department has been notified and, if necessary, Department-approved measures to avoid or mitigate impacts have been incorporated into the project.

13. Within one week prior to initiation of vegetation removal or construction activities within the stream channel, a small animal exclusion fence will be installed around the impact area. A qualified biologist, or biologists, will complete a pre-construction survey for amphibians, reptiles, and mammals within the exclusion fence within 24 hours of fence installation.

14. During any nighttime construction adjacent to stream and riparian habitats, all project lighting shall be directed away from sensitive habitats, at the work area only, and be the minimum needed to ensure safety. During the nesting season, light glare shields shall also be used to reduce the extent of illumination into adjoining stream and riparian habitat areas.

15. The Applicant shall ensure that wildlife cannot become trapped in construction areas. All debris piles shall be removed before they become inhabited. Steep-walled trenches shall not be left open when not being worked on and shall be checked for trapped wildlife before work resumes. The Applicant shall take appropriate measures to prevent wildlife from inhabiting stockpiled materials, such

as pipe, and these shall be checked before being moved. The biological monitor shall be called to remove any wildlife that cannot escape safely on its own.

16. Any materials used for erosion control measures during or after construction, within or adjacent to the stream or riparian habitats, shall consist only of materials that are free from toxic chemicals, are biodegradable, and cannot ensnare fish or wildlife.

17. All project and project related activities shall be conducted in a manner that will not adversely affect water quality within any stream, or stream or riparian habitats.

18. The Department recommends the use of native plants to the greatest extent feasible in the landscape areas adjacent and/or near wetland/riparian areas. The Applicant shall not plant, seed or otherwise introduce invasive exotic plant species to the landscaped areas adjacent and/or near wetland/riparian areas. Exotic plant species not to be used include those species listed on the California Invasive Plant Council's *Invasive* Plant Inventory, available through their web site at http://www.cal-ipc.org/ip/inventory/index.php. This list includes such species as: pepper trees, pampas grass, fountain grass, ice plant, myoporum, tree of heaven, black locust, capeweed, periwinkle, sweet alyssum, English ivy, French broom, Scotch broom, and Spanish broom.

Equipment and Access

19. Access to the work site shall be via existing roads and access ramps. Except for the riprap described in the project description, no type of fill material may be imported into the channel to create access roads, work pads, or for any other purpose.

20. Staging and storage areas for equipment and materials shall be located outside of the stream channel and as far as possible from stream and riparian habitats, except as follows. Equipment and materials may be stored within the stream channel, but outside of the wetted portion of the stream, as long as no pollutants from the equipment or materials are allowed to enter the stream channel, and all such equipment and materials can, and will, be removed before it can be inundated by a storm event.

21. No equipment maintenance shall occur within or near any stream channel or riparian areas, or where petroleum products or other pollutants could enter these areas under any flow.

22. Vehicles and equipment shall not be driven, operated or parked in water covered portions of a stream or lake, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed.

23. Any vehicles or equipment driven, operated or parked within the dry portions of the channel shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be harmful to aquatic life.

24. Stationary equipment such as cranes, motors, pumps, generators, and welders, etc. which are located within or adjacent to the stream or riparian/wetland habitats shall be positioned over drip pans, or other appropriate means, to contain any toxic materials that may drip or spill from such equipment.

Structures

25. Except for falsework and the cofferdam as described in the Applicant's Notification, this Agreement does not authorize the construction of any temporary or permanent dam, structure, flow restriction or fill. Plans for any structure or fill not specifically described in the Applicant's Notification must be submitted to the Department for review and appmval at least 30 days prior to initiating that activity. All such activities shall be the least environmentally damaging.

26. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.

27. All temporary structures shall be removed as soon as they are no longer needed.

Pollution, Sedimentation. and Litter

28. Water containing mud, silt or other materials or pollutants from the project or project related activities shall not be allowed to enter a lake, stream, or riparian/wetland habitats, be placed in locations where they may be washed into a lake, stream, or riparian/wetland habitats, or be placed in locations that may be subjected to high storm flows.

29. Silty/turbid water shall not be discharged into the stream. Erosion/silt control measures shall be utilized throughout all phases of operation where silt laden water from exposed slopes or disturbed areas could enter waters of the state. Any silt settling basins shall be located away from the stream to prevent discolored, silt-bearing water from reaching the stream during any flow level. Erosion control measures shall be monitored during and after each storm event. Modification, repairs, and improvement to erosion control measures shall be made as needed to maintain function. Upon Department determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective Department-approved control devices are installed and any abatement procedures have been completed.

30. Spoil sites shall not be located within a stream/lake, where spoil may be washed back into a stream/lake, or where it will cover aquatic or riparian vegetation.

31. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or petroleum products or other materials from any construction, or project related activity of any nature, shall be allowed to contaminate the soil or enter into or be placed where it may be washed by rainfall or runoff into a stream, lake or riparian habitat. When project activities are completed, any excess materials or debris shall be removed.

32. The Applicant shall keep the project site free of litter and waste that could attract predators, and shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws and it shall be the responsibility of the Applicant to ensure compliance.

33. If the stream's bed or banks have been altered, these shall be returned as nearly as possible to their original configuration and width, without creating additional or future erosion problems.

CONCURRENCE

CALIFORNIA DEPARTMENT Of TRANSPORTATION

Mii Lim St

Name (signature)

Date: 12/7/09

Mii Lim Stamation

Name (printed)

Sr. Transportation Engr

Title

CALIFORNIA DEPARTMENT OF FISH AND GAME

Stephen M. Juarez
Environmental Program Manager
South Coast Region

Date: 8 Dec. 09

Prepared by Pam Beare, Staff Environmental Scientist

COUNTY PROPERTY PERMIT

3/16/2010

2009-00689
Verma, Amit 9:55:47 AM
INSPECTION PHONE
714-567-7804

Inspection office shall be notified at least TWO (2) WORK DAYS PRIOR to commencing permitted use. FAILURE TO OBTAIN INSPECTION SHALL VOID THIS PERMIT

ENCROACHMENT PERMIT

COUNTY OF ORANGE
OC Public Works
County Property Permits
Main Office: 300 North Flower Street,
Santa Ana, California 92703-5001
or P.O. Box 4048, Santa Ana, California 92702-4048
(714) 834-3474 or (714) 834-5529
Fax: (714) 835-7425

Permit No: **2009-00689**
Effective Date: 3/16/2010 12:00 AM
Expiration Date: 3/15/2011 12:00 AM

PERMITTEE

Department of Transportation, District 12
3337 Michelson Drive # 380

Irvine, CA 92612-1692
949-724-2020

Contact Person Roger Kao
Telephone No. 949-724-2020

FACILITY

Type	Facility Name	Number
	SAN JUAN CREEK CHANNEL	L01

Permittee Ref No.: CPP No. 2008-01517

PERMITTED USE: User of County property is hereby authorized as follows, subject to provisions attached hereto:

To construct and maintain an approximate 16 foot extension of bridge and to reconstruct and maintain the soundwall over the San Juan Creek Channel for the Inter-State Route 5 (I-5) Widening Project over a portion of the Orange County Flood Control District's San Juan Creek Channel (L01) right-of-way, per attached plans, provisions, and to the satisfaction of the assigned County Inspector.

PERMITTED USE NOT EFFECTIVE UNTIL APPROVED BY THE ASSIGNED COUNTY INSPECTOR.

NO WORK (INCLUDING MOBILIZATION) SHALL BEGIN UNTIL THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) HAS BEEN REVIEWED AND ACCEPTED BY THE COUNTY OF ORANGE.

THIS PERMIT IS NOT VALID UNTIL THE PERMITTEE FIRST OBTAINS A RIDER TO THIS PERMIT TO ADD THE SELECTED CONTRACTOR, SUBMIT THE CONTRACTOR'S VALID INSURANCE THAT MEETS COUNTY INSURANCE REQUIREMENTS TO COUNTY PROPERTY PERMITS. PERMIT CANNOT BE SIGNED OFF UNTIL THE PERMITTEE PAYS THE INSPECTION FEE TO COUNTY PROPERTY PERMITS.

THIS ENCROACHMENT PERMIT IS FOR ACCESS ONLY. IF THE PERMITTEE/CONTRACTOR INTENDS TO STAGE MATERIALS OR EQUIPMENT WITHIN THE COUNTY R/W, A SEPARATE ENCROACHMENT PERMIT MUST BE OBTAINED AND EXECUTED PRIOR TO START OF CONSTRUCTION.

CEQA Code 1 SWPPP: Yes

LOCATION OF WORK:

San Juan Creek Channel (L01) at Inter State 5 (I-5)

PERMITTEE'S ACCEPTANCE:

SIGNATURE ON FILE

COUNTY APPROVAL:

Uribe, Carolyn 3/16/2010

PERMIT AND APPROVED PLANS SHALL BE MAINTAINED ON JOB SITE. PERMITTEE SHALL COMPLY WITH REGULATIONS PRINTED ON REVERSE SIDE OF PERMIT AND ATTACHMENTS. ALL UNDERGROUND WORK REQUIRES PRIOR 'UNDERGROUND SERVICE ALERT' COMPLIANCE. THIS PERMIT IS NON-TRANSFERABLE.

Note: Surety will not be refunded until Final Inspection is performed and submitted to County Property Permits.

ENCROACHMENT PERMIT

Dimension/Type: 16-foot bridge widening, Soundwall Thomas Brother: 972; C3 Area: San Juan Capistrano

CONSIDERATION:

Types	PWO#	Permit Fees	Surety	Penalty	Total	Total Fees: 0.00
FE	EF68120	0.00 (2071)	0.00 (2091)	0.00	0.00	

Surety Paid By: TUF Invoice Paid By:

Contractor: TBD

Engineer:

Inspection: Subdivision & Permits Inspection CC: Operations & Maintenance

PERMIT INSPECTORS REPORT:

DATE WORK COMPLETED:_____

The permitted work was completed in satisfactory manner per instructions and/or the as-built plans and inspectors report submitted herewith for county files

Remarks:

Inspector:

Date

Permit Superintendent:

Date

Refund Recommended By:

Date

Refund Approved By:

Date:

Orange County Flood Control District
Right-of-Way Encroachment Permit
Special Provision Attachment
2009-00689

1. All Orange County Flood Control District (hereinafter "District") improvements disturbed, damaged, vandalized or removed as a result of Permittee's activities within, upon, under or over District Right-of-Way (ROW) shall be repaired, restored or replaced at Permittee's expense in conformance with Orange County Public Works (hereinafter "OC Public Works") Standard Plans and to the satisfaction of the Director of OC Public Works or his designee (hereinafter "Director") within sixty (60) calendar days of the issuance of written notice by Director. If Permittee fails to repair, restore or replace District's improvements within 60 calendar days, Director may, in his sole and absolute discretion, cause the repair, restoration or replacement of District's improvements to be completed by District personnel or outside contractors and Permittee shall be solely responsible for these cost and expenses. Permittee agrees that in an emergency situation which threatens the public's health, safety or welfare as determined by Director in his sole absolute discretion, Director shall be permitted to cause the repair, replacement or restoration of District's improvements without prior notice to and Permittee shall be solely responsible for the cost of such repair, restoration or replacement in accordance with the procedures described above.

2. Permittee agrees that if any of Permittee's improvements are disturbed, damaged or removed by District during the course of District's operating, maintaining, repairing, improving, restoring, or enlarging District's improvements within, upon, over or under District's ROW Permittee shall be responsible for replacing, repairing , restoring or removing Permittee's improvements to the satisfaction of Director solely at Permittee's expense within sixty (60) calendar days of receiving written notice from Director.

3. Permittee's activities within District ROW allowed by this permit shall be performed during the NON-STORM-SEASON (May 1st through September 30th). No work shall be performed between October 1st and April 30th without prior authorization and approval obtained from the assigned County inspector.

4. Permittee, its assigns or successors shall be solely responsible for the operation, maintenance, repair and/or replacement of Permittee's improvements within District ROW.

5. Permittee agrees that it shall indemnify, defend with counsel approved in writing by District, and hold District, the County of Orange, their elected and appointed officials, officers employees agents and contractors (hereinafter "District/County Indemnities") harmless from any and all liability for injury or damage to third persons or property arising from Permittee's activities and/or improvements placed within, upon, under or over District's ROW unless such injury or damage is caused by the gross negligence or willful misconduct of District, County or the District/County Indemnities.

6. If any approved permit activity within a bikeway or trail area is anticipated to have an impact or disruption upon normal recreation use, prior to Permittee's activities within, upon, under or over District's ROW, Permittee shall submit in writing a detailed Traffic Control Plan for the written approval of Director. Upon receipt of Director's written approval, Permittee shall implement the approved Traffic Control Plan. Permittee shall not conduct any activity within, upon, under or over District's ROW until it has implemented the approved Traffic Control Plan.

7. All RCP bedding installed within District ROW shall comply with OC Public Works Standard Plan 1319.

8. Permittee shall maintain 90% relative compaction within District ROW.

9. RCP storm drain channel entry shall comply with OC Public Works Standard Plan 1314-modified or 1326.

10. Permittee shall ensure that all laws and regulations are enforced and obeyed during event by Permittee and all participants.

11. Any chain link fencing including gates that are damaged during the approved permit activities are to be restored, repaired or replaced by Permittee to satisfaction of Director and in compliance with OC Public Works Standard Plan 600-1-OC.

12. Permittee acknowledges that the improvement installed within District ROW approved under the provisions of the permit is non-transferable. Therefore, the Permittee agrees that upon sale or transfer of the subject property the Permittee shall be required to remove improvements installed within the District's ROW and restore the District's ROW to an acceptable pre-existing condition meeting the satisfaction of the assigned District inspector. If the Permittee's assign and/or successor desires to continue to operate and maintain the approved permit improvements, the assign and/or successor will be required to obtain a new encroachment permit from OC Public Works/OC Engineering/County Property Permits.

13. If at anytime, District intends to modify, enlarge, reconstruct, repair and/or replace District facilities, Permittee agrees to remove and/or relocate interfering portions of Permittee's improvements within sixty (60) calendar days of the date of District's written notification to Permittee. Upon receipt of written notification from District, Permittee shall obtain an encroachment permit from District covering Permittee's plans to remove and relocate Permittee's interfering improvements. District agrees to expedite review of Permittee's encroachment permit application. Permittee shall be responsible for all financial charges associated with satisfying this permit special provision. If Permittee fails to remove its interfering improvements within the time period required, Director, in his sole and absolute discretion, may cause the removal of Permittee's interfering improvement to be completed by District staff or by outside contractor. Permittee agrees that it shall be solely responsible for the cost of such removal and shall reimburse District

for all of its cost and expenses within sixty (60) calendar days of the mailing of an invoice by Director.

14. Nothing in this Permit is intended nor shall anything in this permit be construed to transfer to District or its successors and assigns or to relieve Permittee or their successors and assigns or predecessors in title of any responsibility or liability Permittee now has, has had, or comes to have with respect to human health or the environment, including, but not limited to responsibility or liability related to hazardous or toxic substances or materials (as such terms as those used in this sentence are defined by statute , ordinance, case law, governmental regulation other provision of the law). Furthermore, District may exercise its right under law to bring action, if necessary, to recover clean up costs and penalties paid, if any, from Permittee or any others who are ultimately determined to have responsibility for said toxic or hazardous materials.

15. Permittee's use of District ROW which includes material deliveries shall be coordinated with the assigned inspector. NO VEHICULAR ACCESS WITHIN DISTRICT ROW IS APPROVED EXCEPT FOR MAKING CONSTRUCTION MATERIAL DELIVERIES. ANY VIOLATION OF THIS PROVISION SHALL VOID PERMIT.

16. No construction materials are to be stored in a way that impedes and/or interferes with bikeway use, channel inspection or maintenance operations.

17. **PERMITTEE ACKNOWLEDGES THAT IT SHALL BE RESPONSIBE FOR OBTAINING ALL APPLICABLE REGULATORY PERMIT AGREEMENTS AND SATIFYING ALL RESOURCE AGENCY REQUIREMENTS. FUTHERMORE PERMITTEE ACKNOWLEDGES THAT NEITHER THE COUNTY OF ORANGE NOR THE DISTRICT SHALL BE CO-NAMED IN ANY REGULATORY PERMIT AGREEMENTS OR OBLIGATED TO SATISFY ANY OF THE TERMS, CONDITIONS, PROVISIONS MITIGATION, OR MONITORING REQUIRED BY THE RESOURCE AGENCIES VIA THE REGULATORY PERMIT AGREEMENTS. PERMITTEE SHALL PROVIDE OC PUBLIC WORKS/OC ENGINEERING/COUNTY PROPERTY PERMITS WITH COPIES OF ALL REGULATORY PERMIT AGREEMENTS AND CONDITIONS AND MAINTAIN COPIES AT THE JOB SITE FOR INSPECTION PURPOSES.**

18. In the event of an emergency, the Permittee acknowledges that the District retains the right at the District's sole and absolute discretion to remove sediment and debris, perform channel repairs or conduct other maintenance activities within the approved permit area. In such cases, Permittee acknowledges that the District will not be required to restore the Permittee's approved improvements within the District's ROW, nor will the District be obligated to satisfy any of the Permittee's regulatory permit agreement terms, conditions or mitigation requirements.

19. Permittee shall provide emergency access to Police, Fire and District personnel during permit period.

20. District access gates are to be immediately locked upon entering or exiting District channel ROW.

21. Vehicular speeds on District access roads shall not exceed a maximum of 10 MPH.

22. Permittee shall be required to yield the right-of-way to recreational users in cases where the District access road is also designated as a bikeway or riding/hiking trail. In such cases, the Permittee shall drive vehicles off to the right side of the access road/bikeway/trail improvement, stop, and allow the recreational users to pass by prior to commencing to the Permittee's desired location.

23. Permittee acknowledges that the use of earthen District access roads is prohibited during rainstorm conditions or when the District's earthen access roads are wet. When Districts earthen access roads are wet the Permittee's access will be limited to pedestrian access only. **IN CASES WHEN THE EARTHEN ACCESS ROAD BECOMES WET AUTHORIZED VEHICULAR ACCESS SHALL NOT BE COMMENCED PRIOR TO THE EARTHEN ACCESS ROAD DRYING SUFFICIENTLY TO THE SATISFACTION OF THE ASSIGNED DISTRICT INSPECTOR. ANY DAMAGE TO DISTRICT EARTHEN ACCESS ROADS CAUSED BY PERMITTEE'S MISUSE OF SUCH ROADS SHALL BE REPAIRED PROMPTLY BY PERMITTEE AT ITS SOLE EXPENSE. IF PERMITTEE FAILS TO PROMPTLY REPAIR DISTRICTS EARTHEN ACCESS ROADS, DIRECTOR, IN HIS SOLE AND ABSOLUTE DISCRETION, MAY CAUSE THE REPAIR OF THE DISTRICT'S EARTHEN ACCESS ROAD TO BE COMPLETED BY DISTRICT STAFF OR BY OUTSIDE CONTRACTOR. PERMITTEE AGREES THAT IT SHALL BE SOLEY RESPONSIBLE FOR THE COST OF SUCH REPAIR AND SHALL REIMBURSE DISTRICT FOR ALL OF ITS COSTS AND EXPENSES WITHIN SIXTY (60) CALENDAR DAYS OF THE MAILING OF AN INVOICE BY DIRECTOR.**

24. Any violation of the permit provision by Permittee and/or assigned contractor shall be adequate cause for immediate revocation of the permit by District.

25. Permittee shall comply with the requirements of State, County, and City Water Quality Ordinances and shall implement Best Management Practices (BMP's) to prevent all materials, including debris associated with the proposed project, from entering into the channel and/or District maintained areas.

26. The permit applicant shall submit copies of the construction project's Stormwater Pollution Prevention Plan (SWPPP) for the area to be drained to OC Public Works/Environmental Resources. The plan shall be consistent with NPDES requirements.

27. To ensure that the post-construction contribution of polluted runoff to OCFCD right-of-way is minimized and prevented to the maximum extent practicable through the implementation of Best Management Practices (BMPs), the permit applicant shall

provide a copy of an approved Water Quality Management Plan (WQMP) for the project, detailing post-construction BMP implementation.

28. Any spillage of fuel, oil or hazardous materials from construction equipment or vehicles or significant releases of sediment due to construction activities or BMP failures impacting downstream areas must be immediately and properly cleaned up and removed from the County's right-of-way. For spills of significant volume, notifications must be immediately made to OC Public Works/Environmental Resources for assessment of best corrective action. Contaminated water, soil, sand or material and hazardous wastes generated from the cleanup must be disposed by approved methods. Permittee assumes full responsibility for costs to investigate extent of contamination, cleanup, waste removal and implementation of an approved remedial action plan for the release of any wastes or hazardous materials that result in soil and groundwater contamination. Notifications of spills and significant releases of sediment due to construction activities or BMP failures impacting downstream areas or stormdrains must be immediately made to OC Public Works/Environmental Resources, Attention: Duc Nguyen (714) 955-0676 or (877) 89-SPILL. For emergency or after-hours spill notification, call (877) 89-SPILL, or contact Orange County Sheriff's Communications Control 1 by dialing 911.

29. Sediment from areas disturbed by construction shall be retained on site using structural controls to the maximum extent practicable.

30. Stockpiles of soil shall be properly contained to eliminate or reduce sediment transport from the site to the streets, drainage of facilities or adjacent properties via runoff, vehicle tracking, or wind.

31. Appropriate BMPs for construction-related materials, wastes, spills or residues shall be implemented to minimize transport from the site to streets, drainage facilities, or adjoining properties by wind or runoff.

32. Runoff from equipment and vehicle washing shall be contained at construction sites unless treated to reduce or remove sediment and other pollutants.

33. All construction contractor and subcontractor personnel are to be made aware of the required best management practices and good housekeeping measures for the project site and any associated construction staging areas.

34. At the end of each day of construction activity all construction debris and waste materials shall be collected and properly disposed in trash or recycle bins.

35. Construction sites shall be maintained in such a condition that a storm does not carry wastes or pollutants off the site. Dischargers other than stormwater (non-stormwater discharges) are authorized under California's General Permit for Storm Water Discharges Associated with Construction Activity only where they do not cause or contribute to a violation of any water quality standard and are controlled through implementation of

appropriate BMPs for elimination or reduction of pollutants. Non-stormwater discharges must be eliminated or reduced to the extent feasible.

36. Potential pollutants include but are not limited to: solid or liquid chemical spills; wastes from paints, stains, sealants, solvents, detergents, glues, lime, pesticides, herbicides, fertilizers, wood, preservatives, and asbestos fibers, paint flakes or stucco fragments; fuels, oils, lubricants and hydraulic, radiator or battery fluids; concrete and related cutting or curing residues; floatable wastes, wastes from any engine/equipment steam cleaning or chemical degreasing; wastes from street cleaning; and superchlorinated potable water line flushing and testing.

37. During construction, disposal of such materials should occur in a specified and controlled temporary area on-site physically separated from potential stormwater runoff, with ultimate disposal in accordance with local, state and federal requirements.

38. Discharging contaminated groundwater produced by dewatering groundwater that has infiltrated into construction site is prohibited. Discharging of contaminated soils via surface erosion is also prohibited. Discharging of non-contaminated groundwater produced by dewatering activities requires a National Pollutant Discharge Elimination System (NPDES) permit from the San Diego Regional Water Quality Control Board.

STANDARD PROVISIONS

TO BE ATTACHED TO AND MADE A PART OF PERMIT NO. 2009-00689

1. Permits issued by this Department are pursuant to the authority vested by the Board of Supervisors for the County of Orange, Orange County Flood Control District, any one or all of which are hereinafter referred to as County.

2. Permittee agrees to save County, its agencies, districts, etc., including its officers, agents or employees, harmless from any and all penalties, liabilities or loss resulting from claims or court actions, arising directly out of any damage or injury to persons or property by reason of the acts or omissions of Permittee, its agents, employees or independent contractors in exercising any of the privileges herein granted or in consequence thereof.

   The Permittee shall file a written accident report with the County of Orange for any property damage, death or injuries on project site within 48 hours after such incident occurs. The accident report shall include, but is not limited to, the following information, if available: time and date, location, nature of accident, names of people injured, description of property damage, police report number, and description of job site condition at the time of accident.

   Failure to file an accident report shall be considered a violation of the permit provisions and may cause revocation of this permit.

   Accident report shall be filed with the Inspection section assigned to the project. Contact can be made at the following telephone numbers:

   Permits Inspection (714) 567-7804
   1152 E. Fruit Street
   Santa Ana, CA 92702

   Operations Inspection (714) 955-0213
   2301 Glassell
   Orange, Ca 92865

3. Should any damage or injury to County works occur during initial use and/or as a result of this permitted use, either through the acts of agents, servants, or employees of Permittee or by any independent contractor of Permittee in the exercise of the rights herein granted, Permittee shall immediately, upon the written demand of County, restore such works to the condition of same on the date of the occurrence of said damage or injury at Permittee's cost or expense. The question as to whether or not any such damage or injury has been caused to the works shall be determined by the Director of OC Public Works (OCPW) and his determination shall be final. In the event repair by County is necessary, Permittee shall pay County the cost of such repairs.

4. County reserves the right unto itself to perform any work, upon any portion or all of the area covered by this permit, or to do any other work necessary at any time. Such work may be performed without incurring any liability of any nature whatsoever to the Permittee. It is further understood and agreed that County reserves unto itself the rights of ingress over all or any portion of the subject area.

5. Neither this permit nor any of the rights herein granted shall be assigned without the prior written approval of the County.

6. By acceptance of this permit, Permittee acknowledges and assumes all responsibility for compliance with requirements of other regulatory governing agencies including, but not limited to, zoning regulations, applicable ordinances and laws, etc., of the County of Orange, the State of California, or others having regulatory control over the use granted herein.

7. A copy of this permit and approved plans, if applicable, shall be maintained at the site of work and be shown to any authorized representative of the County or other regulatory governing agency upon request.

8. No access or work shall be performed within County rights of way without the full knowledge of County's inspector, who shall be given not less than two work days' advance notice of the initiation of permitted use. Failure of Permittee to obtain inspection shall void this permit and necessitate reapplication by Permittee.

9. This permit may be immediately revoked for reasons in the best interest of the County, including violation of permit provisions or other applicable rules and regulations or for the creation of a nuisance upon notice given by the Director of OC Public Works or authorized representative. In the event of such revocation, Permittee shall immediately cease all operations and restore County right of way as directed by County's inspector.

10. Any construction performed within County properties shall be in accordance with OC Public Works (OCPW) Standard Plans and established criteria. Any deviation must be specifically detailed and highlighted on plans in a manner meeting the approval of County Property Permits. No uses other than that as stated on this permit shall be exercised. Public right of way shall not be used for administrative operations or storage of equipment, materials, supplies, etc.

ADDITIONAL STANDARD PROVISIONS

(Codified Ordinances, Title 6, Section 6-1-1, et seq., of the County of Orange)

TO BE ATTACHED TO AND MADE A PART OF PERMIT NO. 2009-00689

11. RIGHT OF WAY RESERVATIONS: The permission granted hereby extends only to those which the County of Orange has in the real property and no warranty of any kind is made hereby that the said County possessed any or all of the rights of title necessary for Permittee to accomplish work under this permit, and Permittee is cautioned to satisfy itself that it has obtained all necessary rights or permits prior to commencement of work. This permit shall not constitute a grant of any interest in or to real property belonging to the County of Orange or any other person or entity. References to Director signify the Director, OC Public Works (OCPW), or his assignees.

12. WORKING HOURS: All work shall be performed within working hours of Orange County Public Works (OCPW) permit inspection group, unless prior arrangements have been made with the inspection group.

13. SURVEY MONUMENTS: It is imperative that Permittees NOTIFY THE SURVEY OFFICE, telephone 714-834-3102, of OC Public Works at least 48 hours prior to removing or replacing any Survey monuments. All monuments shall be replaced at Permittee's expense and MUST be replaced in kind within 0.01 feet of their original horizontal and vertical location, unless otherwise specified in writing.

CONSTRUCTION REQUIREMENTS

14. RESURFACING BY PERMITTEE OR COUNTY SPECIFICATIONS: Temporary patching of trench is required on lateral cuts in surfaced streets immediately after backfilling. Permanent pavement shall be placed within thirty (30) working days after completion of backfilling operations. All excavations shall be backfilled or covered or otherwise protected, in a manner meeting the approval of the inspector, at the end of each work day. The inspector may require any pavement removal to be patched with temporary AC immediately after backfilling.

    Where pavement or surfacing has been removed by acceptable method, as determined by inspector, and trench edges sawed, Permittee shall replace it with a structural section the same as that removed plus an additional one inch (1") of AC. In no case shall the replacement structural section be less than 5" AC/NS or 3" AC/6" PMB per Standard Plans. The inspector shall approve all structural sections prior to placement. Where Portland Cement Concrete pavement is removed or damaged, it shall first be sawed at excavation limits, providing distance to the next joint is more than five (5) feet away; if not, then it shall be removed to next joint without damaging adjacent pavement and subsequently replaced with Portland Cement Concrete.

15. LOCATION OF PIPES AND CONDUITS: All pipes and conduits laid parallel to the roadway at least five (5) feet from edge of the pavement or graded traveled roadway, unless otherwise authorized in writing by the Director.

16. MINIMUM COVER: The uppermost portion of any pipeline or other facility shall be installed NOT LESS THAN thirty (30) inches below the lowest portion of the roadway surface or ditch, unless otherwise authorized in writing by the Director.

17. STANDARD SPECIFICATIONS: Unless otherwise indicated on permit, all work shall be done in accordance with OC Public Works (OCPW) Department Standard Plans and the Standard Specifications for Public Works Construction latest issues.

18. COUNTY PROJECTS: This permit DOES NOT give Permittee permission to delay or interfere with the construction of County projects. Installation shall be subject to the approval of and at the convenience of County's contractor. Prior to any excavation, written permission must be obtained from said contractor and presented to resident engineer, stating that installation will NOT DELAY or interfere with said contractor's operation. If permission is DENIED, then work shall be delayed until completion of said contract.

19. TUNNELING OR BORING: All improved streets, as shown on Master Plan of Arterial Highways, MUST be bored or tunneled. All boring, tunneling and placing conduits, casing and pipelines shall be done in such a manner that the existing driving lanes will NOT be disturbed. If a casing is installed to receive conduit or pipeline, all voids between casing and conduit shall be filled with grout or sand. Bore pit shall not encroach within five (5) feet from edge of pavement.

20. OPEN CUT METHOD: Open cutting of local streets may be permitted. NOT more than one-half (1/2) of the width of a traveled way shall be disturbed at one time and the remaining width shall be kept open to traffic. Two-way traffic shall be maintained on pavement at all times.

    A. Minimum clearance of two (2) feet adjacent to any surface obstruction and a five (5) foot clearance between excavation and traveled way shall be maintained.

    B. Backfill material shall be subject to OCPW inspector's approval prior to placement. OCPW inspector may require 2-sack cement slurry backfill. PERMANENT A.C. PATCH shall be placed within thirty (30) working days after completion of backfilling operations.

21. COMPACTION: All backfill replaced in excavation within road right of way shall be compacted until relative compaction is NOT LESS than ninety percent (90%), as determined by the Relative Compaction Test as specified in the OC Public Works (OCPW) Department Standard Plans. PMB (aggregate base) shall be compacted to a relative compaction of NOT LESS than ninety-five percent (95%).

    After completion of backfill and compaction operations and before permanent paving is replaced, contractor shall call for compaction tests to be performed and shall provide for test holes at locations and as directed by the inspector. In lieu of test holes as specified above, contractor may elect to call for compaction tests in successive lifts of backfill not to exceed two (2) feet vertically in time each lift of backfill is placed and compacted.

22. REPLACING ENTIRE DRIVING AND/OR BIKE LANE: If surfacing or pavement within driving lanes of a highway, as shown on the Master Plan of Arterial Highways or within a bikeway, is removed or damaged by Permittee's operation, existing surfacing or pavement for width of the driving or bike lane and for the length of the damaged surfacing shall be removed and replaced to a distance of not less than one hundred (100) feet. Such removal and replacement shall be to the satisfaction of the Director.

23. OIL-MIXED SHOULDERS: Improved oil-mixed shoulders are to be remixed to minimum depth of four (4) inches with an approved oil-mixing machine using approximately ½ gallon to 2½ gallons of SC 800 per square yard as determined by the Director. In lieu of the former, the entire width of the shoulder may be removed to a minimum depth of two (2) inches and replaced with a minimum of two (2) inches of AC.

24. CONCRETE SIDEWALK OR CURB: All concrete sidewalks or curbs shall be saw-cut to the nearest control joint and replaced in conformance with applicable provisions of the OC Public Works (OCPW) Department Standard Plans and Standard Specifications for Public Works Construction. Sidewalk removal and replacement shall be to the satisfaction of the Inspector.

25. CARE OF DRAINAGE: If the work herein contemplated shall interfere with established drainage, ample provision shall be made by the Permittee to provide for it, as may be required by the Director.

    All roadside drainage ditches shall be restored to original grades, and inlet and outlet ends of all culverts shall be left free and clear.

26. COMPLIANCE WITH TERMS OF PERMIT: Permittee shall not make or cause to be made any excavation, or construct, place upon, maintain, or leave any obstruction or impediment to travel, or pile or place any material in or upon any highway, under the surface of any highway, at any location or in any manner other than that described in application as approved by the Director, or contrary to terms of permit or of any provision of the Ordinance hereinbefore referenced.

    Permittee agrees that if installation of any nature or kind placed in the excavation, fill or obstruction, for which permit is issued, which shall at any time in the future interfere with use, repair, improvements, widening or change of grade of highway, Permittee or his successors or assigns, with ten (10) days after receipt of written notice from the Director to do so, at his own expense, either remove such installation or relocate to a site which may be designated by the Director.

    Permittee hereby agrees to do all work and otherwise comply with provisions of Orange County Codified Ordinances Title 6, Section 6-1-1, et seq., as amended, terms and conditions of this permit, and all applicable rules and regulations of the County of Orange. All work shall be performed in accordance with provisions of this Ordinance and of all applicable laws, rules and regulations of Orange County and to the satisfaction of the Director.

    After work has been completed, all debris and excess material from excavation and backfill operations shall be removed from right of way and the roadway left in a neat and orderly condition. All approaches to private driveways and intersecting highways and streets shall be kept open to traffic at all times. Excess materials which adhere to roadway surfacing, as a result of construction operations, shall be removed by approved methods to the satisfaction of the Director.

TRAFFIC

27. ARTERIAL HIGHWAY TRAFFIC LANES: Two-way traffic shall be maintained at all times. At no time between the hours of 7:00 a.m. and 8:30 a.m. and between the hours of 4:00 p.m. and 6:00 p.m., Monday through Friday (excluding legal holidays), shall there be any obstruction of an arterial highway traffic lane. Said restriction shall apply to vehicles, equipment, material, traffic control devices, excavation, stockpile or any other form of obstruction. Any exceptions must be approved specifically by a traffic control plan and by County-designated Supervising Construction Inspector.

28. PROTECTION OF TRAVELING PUBLIC: Permittee shall take adequate precautions for protection of the traveling public. Barricades, flashing amber lights and warning signs, together with flagmen, where necessary, shall be placed and maintained in accordance with the State of California Manual of Traffic Controls, For Construction and Maintenance Work Zones until the excavation is refilled, the obstruction removed, and roadway is safe for use of traveling public. The Director may specify, as a condition of the issuance of the permit, safety devices or measures to be used by Permittee, but failure of Director to so specify the devices or measures to be used shall not relieve Permittee of his obligation hereunder.

Trenching for installation across any intersecting roadway open to traffic shall be progressive. NOT more than one-half (1/2) of the width of a traveled way shall be disturbed at one time, and the remaining width shall be kept open to traffic by bridging or backfilling.

29. SIGNALIZED INTERSECTION: Permittee shall notify OC Public Works/Traffic Section at 714-834-5961, at least 72 hours in advance of any excavation within one hundred (100) feet of a signalized intersection. Permittee and/or his contractor shall assume cost and responsibility for maintaining existing and temporary electrical systems or any other item or portion of work, as may be deemed necessary or advisable for protection of highway and traveling public and payment of all costs incurred by the County of Orange in repairing facilities damaged during construction. Applicant shall immediately repair or replace any damaged traffic control devices and/or striping facilities.

PERMITTEE'S OBLIGATION

30. RESTORATION: APPLICANT SHALL RESTORE THE ROADWAY TO ITS ORIGINAL OR BETTER CONDITION AND CAUSE ANY PERMANENT PAVING TO BE COMPLETED AS SOON AS POSSIBLE. Immediately upon completion of the work necessitating the excavation or obstruction authorized by any permit issued pursuant to the aforementioned Ordinance, Permittee shall promptly, and in a workmanlike manner, refill the excavation or remove the obstruction to the satisfaction of the Director.

    If Permittee fails or refuses to refill any excavation which he has made or remove any obstruction which he has placed on any highway, the Director may do so and Permittee shall promptly reimburse County the cost thereof. If any anytime subsequent to first repair of a surface of a highway damaged or destroyed by any excavation or obstruction in such highway, it becomes necessary again to repair such surface due to settlement or any other cause directly attributable to such excavation or obstruction, Permittee shall pay to County the cost of such additional repairs made by the Director. Cost shall be computed by the Director as provided in Section 6-3-47 or Section 6-3-49 of the aforementioned Ordinance, whichever, in the judgment of the Director, will most fairly compensate County for expenses incurred by it.

31. PERMITTEE TO PAY DEFICIENCY. If any deposit is insufficient to pay all fees and costs herein provided, Permittee shall, upon demand, pay to the Director an amount equal to the deficiency.

32. EFFECT OF FAILURE TO PAY COSTS OF DEFICIENCY: If Permittee, upon demand, fails to pay any deficiency as provided in Section 6-3-77 of the aforementioned Ordinance, or shall fail to pay any other costs due County hereunder for which no deposit has been made, County may recover same by an action in any court or competent jurisdiction. Until such deficiency or costs are paid in full, a permit hereunder shall not thereafter be issued to Permittee.

33. TAXABLE POSSESSORY INTEREST: Permittee acknowledges that a taxable possessory interest may have been created by this permit and that Permittee may be subject to payment of property taxes levied on such interest. (Reference is made to California Revenue and Taxation Code, Sections 107, 107.4 and 107.6.)

34. ADDITIONAL COST: Any additional cost incurred by Permittee incidental to this work NOT shown on the face of the permit, shall be borne by Permittee.

35. COMPLIANCE: Any CONDITIONS shown in regulations, attachments, and/or provisions of Codified Ordinance and all applicable laws, rules and/or regulations of Orange County or any other regulatory governing agency pertinent to work on the face of this permit MUST be complied with.

    Section 6424 of the California Labor Code requires contractors planning excavation or trench work to obtain a permit for such work from the State of California, Department of Industrial Relations, DIVISION OF INDUSTRIAL SAFETY.

    CONDITION: OC PUBLIC WORKS DOES NOT PERFORM ANY INSPECTION UNDER THIS PERMIT PERTAINING TO THE PROTECTION AND SAFETY OF PERSONNEL OR EQUIPMENT. THIS IS THE RESPONSIBILITY OF PERMITTEE.

    The Director may, either at the time of the issuance of the permit or at any time thereafter until completion of the work, prescribe such additional conditions as he may deem reasonably necessary for the protection of the highway or for the prevention of undue interference with traffic or to assure the safety of persons using the highway.

    The Permittee shall make proper arrangements satisfactory to the Director for and bear the cost of relocating any structure, public utility, tree or shrub where such relocation is made necessary by the proposed work for which a permit is issued. Permittee is aware of Ordinance No. 2717 concerning the registration and disclosure of lobbyists

State of California | Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. MIKE POPE
Structures Design
Chief, Bridge Design Branch 18
Office of Bridge Design South 1

Attention: Richard Schendel

Date: January 30,2009
(Revised April 2,2009)

File: 12-ORA-5 PM 8.80
12-0E5701
San Juan Creek Road Undercrossing (Widen)
Bridge No. 55-0298

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design - South 1, Branch D

Subject: Revised Foundation Recommendations for San Juan Creek Road Undercrossing Left Side Widening, Bridge No. 55-0298

This report was revised on April 2, 2009 based on the Structure Design revised loading information communicated to us via E-mail dated March 31,2009 by Mr. Richard Schendel.

1.0 INTRODUCTION

In response to your request, dated September 12,2007, the Office of Geotechnical Design South 1 (OGDS1) has prepared Foundation Recommendations (FR) for the proposed widening of San Juan Creek Road Undercrossing, Bridge No. 55-0298, which is planned as a part of highway widening from PM 8.58 to PM 9.35 of Interstate 5 (I-5) southbound, in the City of San Juan Capistrano, Orange County.

The geotechnical recommendations presented herein are based on results of field reconnaissance, literature study, subsurface exploration, laboratory testing of subsurface soil samples, and geotechnical analyses for the proposed improvement. The bridge information is presented in Table 1 below.

Table 1 – Existing Foundation Information for San Juan Creek Road UC

Bridge Name	Bridge No.	Post Mile	Number of Spans	Existing Foundation Types	Proposed Improvement
San Juan Creek Road (UC)	55-0298	8.80	3	1) Original 1958 Bridges - Raymond Step Taper Driven Concrete Piles, 45 ton Design Load; 2) 1965 Outside Widenings – 16 in.	Left Side Widening

				diameter CIDH Piles, 45 ton Design Load; 3) 1996 Median Widening/Retrofit - Driven Class 70C Piles, 70 ton Design Load	

2.0 REGIONAL GEOLOGY

The Interstate 5 – San Juan Capistrano project is located in the Peninsular Ranges Province (on the western flank of the Peninsular Ranges of southern California). The site is bounded to the northwest by the San Joaquin Hills, to the northeast by the Santa Ana Mountains, and on the southwest by the Newport-Inglewood Fault Zone. A thick Cenozoic sedimentary section underlies the site.

2.1 Site Geology

At the bridge site, embankment fill is underlain by Holocene alluvium, slope wash, or possible landslide material (mapped nearby). Underlying Holocene alluvium (Qal unit of Edgington, 1974) may be underlain by older undifferentiated Quaternary alluvium and/or Quaternary slopewash deposits (Qsw) at the bridge site. The alluvial and slopewash deposits may be sporadically underlain by Quaternary landslide deposits (Qls) and the Pliocene/Miocene Capistrano Formation (Tc) composed of interbedded marine siltstone, mudstone, silty shale, and thin sandstone beds. The landslide deposits are mapped as containing overlying slope wash, alluvial fan and pond deposits and are also composed of locally derived Capistrano Formation material which outcrops on the hillside and cutslope on the eastside of I-5 near the southeast side of the subject bridge. The Capistrano Formation at the site is predominantly a cohesive intermediate geomaterial that exhibits soil-like properties (unconfined compression measured by pocket penetrometer ranged from 2.75 to $\geq$4.5 TSF, corrected N60 blow counts ranged from 24 to >50) and consisted of sandy to silty clay (very soft mudstone) with a rare gravel/cobble lense (uncemented conglomerate). Landslide material combined with overlying slope wash and alluvium (generally represented by fairly localized coherent rotational slumps and possible translational slide blocks derived from the Capistrano Formation) can be difficult to distinguish from in place Capistrano Formation mudstones in the subsurface. The slope east of I-5 has been graded and has improved drainage and probable horizontal drains installed (the geologic map shows a county landfill site). Metrolink (on the west side of I-5) has also completed some slope stabilization in the area from the San Juan Creek channel to below the railroad (tiebacks placed from behind the eastside of the San Juan Creek lined channel and micropiles placed beneath a section of the railroad tracks). The exact

boundaries of the railroad stabilization project is not known at this time, but is considered south of the project site. The San Juan Creek Road UC site appears to be stable with no known bridge maintenance problems due to deformation at the site.

Embankment fill ranges from approximately 15.5 to 24 ft thick at Abutment 1 (south) and 32 to 38 ft thick at Abutment 4 (north). Fill ranges from approximately 10 to 11.5 ft thick on San Juan Creek Road between Bents 2 and 3 beneath the proposed widening footprint. Embankment fill is present from approximate elevations ranging from +107 to +105 ft (assumed NAVD88 datum is current) and +84 ft at San Juan Creek Road level, down to elevations ranging from +81 to +72 to +75 ft (Abutment 1, Bents 2 and 3, and Abutment 4, respectively). Fill material is composed of very stiff/medium dense, sandy clay, clayey silt, silt, and minor silty sand with sporadic gravel. Underlying Holocene or older undifferentiated Quaternary alluvium and/or Quaternary slopewash deposits range from 0 to 7 ft thick at Abutment 1 (centerline I-5 to SB I-5 widen, respectively), approximately 17 ft thick between Bents 2 and 3 (SB I-5 widen) and 18 to 25 ft thick at Abutment 4 (centerline I-5 to SB I-5 widen, respectively). The Holocene and Quaternary undifferentiated alluvial/slopewash unit ranges between approximate elevations +81 to +72 to +74 ft down to approximate elevations +74 to +55 to +49 ft (Abutment 1, between Bents 2 and 3, and Abutment 4 for SB I-5 widen, respectively). The alluvial/slopewash unit consists of very stiff/medium dense, sandy clay and clayey silt to silt interbedded with silty sand, well graded sand with gravel, and a minor clayey coarse gravel lense. The undifferentiated sporadically distributed Quaternary alluvium/slopewash/and landslide deposits range from an estimated 28 to 9 ft thick (Abutment 1 SB I-5 widen to between Bents 2 and 3 SB I-5 widen, respectively) and don't appear to be present at Abutment 4 for the SB I-5 widen. (Note: The 1996 As Built Plan LOTB shows possible landslide debris may be somewhat deeper and thicker in this area than interpreted above). The alluvium/slopewash/ and possible landslide deposits range from elevations +74 to +55 ft down to estimated + 46 ft elevation (Abutment 1 and Bents 2 and 3) and consist of very stiff to rare hard, sandy to silty clay. Below elevations ranging from +46 to +49 ft down to -17.6 ft, the Capistrano Formation is present and consists of very stiff to hard/very dense, sandy clay to clay (very soft mudstone) with a minor (3.5 ft thick) lense of well graded gravel with cobbles ($\leq$4 in diameter). Rock fragments were composed of fresh and hard diorite, possible gabbro, chert, and schist. Unconfined compression (measured with the pocket penetrometer) for this dominantly cohesive formational material ranged from 2.75 to $\geq$ 4.5 TSF (very stiff to hard). The Capistrano Formation contained some very fine fossil debris (gastropods, bivalve, and possible algal debris), minor silica and calcite cement, and minor popcorn chalcedony and gypsum nodules. Faint bedding and laminations showed dips ranging from 15 to 30 degrees. This lowest unit (Capistrano Formation) could either be intact bedrock as described above within this report or may represent possible landslide debris as shown on the 1996 As Built Plan LOTB (performed by CH2M-Hill). The two deepest rotary wash borings for the bridge, Borings R-08-014 and R-08-008 (drilled at the end of

February 2008, for Abutments 1 and 4, respectively) were drilled to 122.5 and 124 ft depth below the surface to approximate elevations -17.6 to -16.7 ft.

2.2 Groundwater and Surface Water

OGDS1's recent groundwater measurements (measured from May 12 through November 11, 2008, slotted pipe installed February 28, 2008) within Boring R08-014 showed the water table to range from elevations +74.1 to +72.4 ft. Table 2 summarizes groundwater measurements taken within Boring R-08-014.

Table 2 – Recent Groundwater Monitoring

BORING NO.	WATER DEPTH BELOW SURFACE (FT)	GROUNDWATER SURFACE ELEVATION (FT)	DATE MEASURED
R-08-014	30.8	74.1	5/12/2008
R-08-014	32.2	72.7	9/1512008
R-08-014	32.2	72.7	10/02/2008
R-08-014	32.5	72.4	11/06/2008

Static water level is quite variable in this area possibly due to Capistrano Formation topography, bedding dips, and varying lithologic interbeds. Approximately 415 ft to the north near the middle of San Juan Creek (Boring R-08-010) static water level was measured at elevation +63.6 ft (September 17,2008). Approximately 850 to 1400 ft south of the bridge site on the east side (NB lane) of Camino Capistrano (Borings A-08-002, -003, and -004), water levels measured within hollow stem auger borings varied between +48.1 to +37.6 ft (measured September 30 through October 2,2008).

Based on the 1958 As-Built LOTB Plans, groundwater was measured within the borings at elevation ranging from +66.7 ft (Boring B-5, drilled and groundwater measured August 22, 1956), +65.5 ft (Boring B-4, boring drilled August 22, 1956, groundwater measured August 23, 1956), and +36.1 ft (CPT B-1, penetrated and measured July 24, 1956). Borings B-5 and B-4 above show that after drilling the borings very little time elapsed before measuring groundwater (trying to get several static water level measurements). Marek (1965) mentions that the high water level measurements recorded within Borings B-5 and B-4 may have been water used in the drilling operations which failed to dissipate into the impermeable soil encountered. CPT B-1 was a cone penetrometer test and probably resulted in a reliable groundwater measurement.

The 1968 As-Built LOTB for the bridge outside widenings show no groundwater wad encountered during November 1965 within a rotary sample boring and cone penetrometer tests placed down to approximate +41 ft elevation.

For the 1996 median widening, the As-Built LOTB shows no groundwater encountered within hollow stem auger (HSA) Boring SB-3 (drilled down to approximately +21 ft elevation), however, HSA Boring SB-4 shows groundwater was measured at elevations +63 ft (measured January 30, 1992) and +61.2 ft (measured January 29,1992).

The above information shows that groundwater levels fluctuate between different locations, years, and seasons. Formational material (Capistrano mudstone, siltstone, and minor sandstone), found within the nearby graded slope east of the bridge and also found at depth below the bridge, may also influence groundwater level at the bridge site as noted above. Perched water, where water collects above impermeable layers in the subsurface strata is also considered present in the area.

2.3 Scour Evaluation

Scour is not an issue at this site which is located some distance away to the south of the San Juan Creek channel. The creek channel is lined and/or is protected by rip-rap in this area. The bridge site is also elevated on fill at San Juan Creek Road level, which is approximately 18 to 20 ft higher than the bottom of the creek channel.

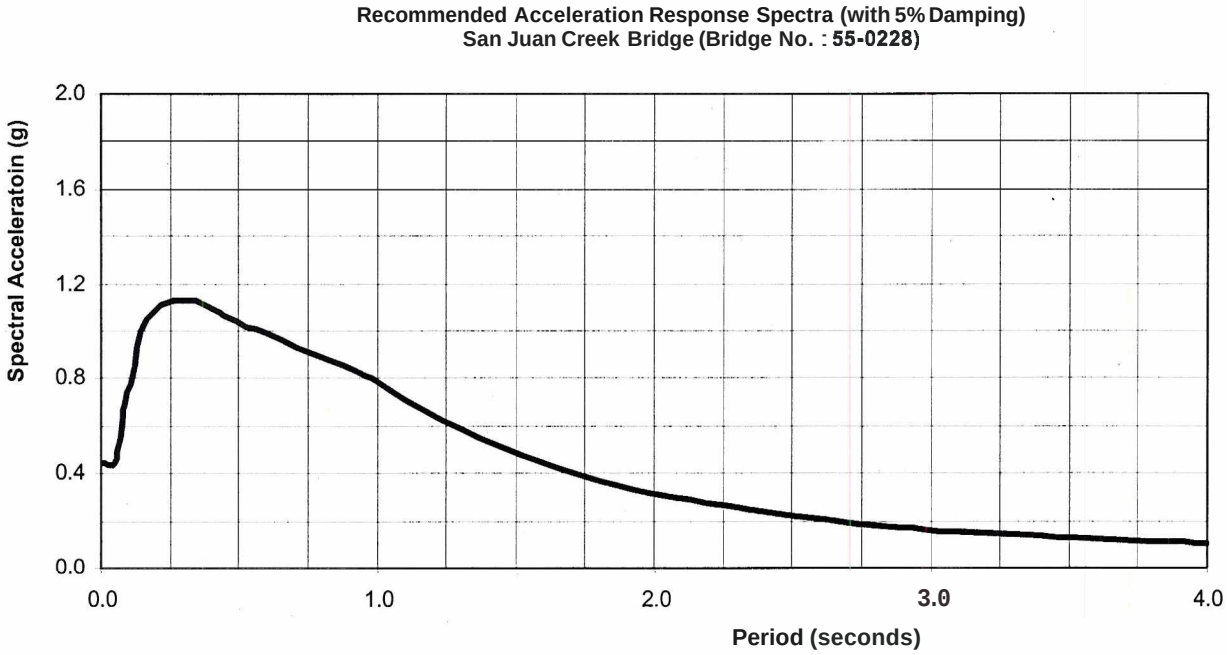
3.0 SEISMICITY

The Newport-Inglewood-Rose Canyon/E (NIE) fault is located about 5.2 mi (8.4 krn) west of the bridge site. The NIE is a strike slip fault and, based on the 1996 Caltrans California Seismic Hazard Map (CSHM), capable of generating a Maximum Credible Earthquake (MCE) of moment magnitude, M=7.0. Based on the Sadigh et al (1997) attenuation relationships, the median Peak Bedrock Acceleration (PBA) at the site due to the MCE associated with the NIE fault is estimated to be about 0.42g. The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.35g.

The site-to-fault rupture distance for the San Joaquin Hills (SJH) fault is about 6.3 mi (10.2 km). The SJH is a blind thrust fault and located north of the site. Caltrans categorized this fault as active for bridge design after the publication of the California Geological Survey's (CGS) 2002 fault database and assigned an MCE of moment magnitude 7.0. Based on the Sadigh et al (1997) attenuation relationships, the median Peak Bedrock Acceleration (PBA) at the site due to the MCE associated with the SJH fault is estimated to be about 0.44g. The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.4g.

Based on the above information, the San Joaquin Hills (SJH) fault with a MCE of moment magnitude M=7.0 is the controlling fault for the subject bridge site. For the purpose of design ARS, the PBA can be rounded to 0.4g. The design PGA should be taken as 0.4g.

Standard Caltrans ARS corresponding to a PBA of 0.4g and a moment magnitude M=7.0 were modified to account for the fault rupture directivity effect. The ARS Curve and ARS coordinates table are presented below.



Period (s)	Spectra Acceleration (g)
0.010	0.440
0.050	0.440
0.089	0.689
0.122	0.854
0.148	0.999
0.196	1.083
0.241	1.121
0.271	1.129
0.300	1.129
0.338	1.125
0.338	1.125
0.358	1.119
0.422	1.088
0.456	1.063
0.524	1.017
0.596	0.988
0.706	0.935
0.825	0.880
0.930	0.828
1.007	0.787
1.236	0.621
1.516	0.478
1.802	0.371
2.075	0.297

2.629	0.207
2.982	0.166
3.529	0.125
4.000	0.101

3.1 Surface Fault Rupture Hazard Evaluation

There are no active faults nearby pursuant to the Alquist-Priolo Earthquake Fault Zoning Act (APEFZA). The bridge site is not located within the confines of an Earthquake Fault Zone (EFZ) as defined by the California Department of Conservation (Special Publication 42, 1997) and no well-defined fault traces have been mapped within the project limits. Therefore, the possibility of surface fault rupture hazard at the bridge site is considered low.

4.0 GEOTECHNICAL INVESTIGATION

4.1 Field Exploration

The site-specific field investigation was performed between February 26, 2008 and March 18, 2008. The field investigation included three – 4 inch diameter rotary sample borings. Standard Penetration Tests (SPT's) and undisturbed sampling were taken at the borings. SPT N values were recorded at 5 feet intervals during drilling. The SPT's were performed in accordance with ASTM Test Method D1586-84 using a standard 1.4 inch I.D. sampler with a 140-pound hammer, free-falling 30 inches. Undisturbed tube soil samples were also obtained using a 2 inch I.D. modified California Split Spoon Sampler with 4 inch long brass liners. The liner samples were all sealed in the field. Caltrans drill rig model CS 2000 and CME 85 were used. A summary of the rotary sample borings location is listed in Table 3, below. The location and elevations of three borings are provided by OGDS-1 office.

Table 3 – Summary of Soil Borings

SOIL BORING NO.	RTE 5 CENTERLINE ("B"LINE) STATION (FT)	TOP OF BORING ELEVATION (FT)	SAMPLE BORING DEPTH (FT)	DATE DRILLED
R-08-008	477+31.0	107.30	124.0	2/25 & 2712008
R-08-014	475+05.0	104.90	122.5	2/26 & 2/28/08
R-08-023	476+21.7	84.10	98.0	3/03 & 3/05/08

Note: 1. The station and elevations of borings are based on the survey results provided by OGDS-1.
2. The Bench Mark (SUHV34) provided by Caltrans District 12 Surveys (elevations based on NAVD88 datum).

4.2 Laboratory Testing

Selected soil samples were sent to the District 7 Materials Laboratory and Sacramento Laboratory for testing. Soil samples were tested for corrosivity, mechanical analysis, Plasticity Index and moisture content, unconsolidated undrained triaxial testing, and consolidation testing. A laboratory

test summary is shown in Table 4, below. Laboratory tests were performed in accordance with ASTM standard procedures and California Test Methods.

Table 4 – Summary of Laboratory Testing

Test	Standard
Mechanical Analysis	CTM 201, 202, 203
Moisture Content	CTM 212, 226
Corrosion	CTM 643
Plasticity Index	CTM 204
Unconsolidated Undrained Triaxial	ASTM D2850
Consolidation	CTM 219

5.0 CORROSIVITY

The soil samples were tested for potential to corrode corrugated metal pipe per CTM 643 and reinforced concrete. These samples were sent to the District 7 Material laboratory and Sacramento laboratory for corrosion testing and the testing results are presented in Table 5, below. According to the test results presented in Table 5 show that proposed bridge widening subsurface soils are corrosive environment for metal and reinforced concrete. The controlling corrosion parameters are as follows:

4.81 pH
1500 ppm Chloride
7400 ppm Sulfate

Table 5: Corrosion Test Summary

BORING	SAMPLE DEPTH (FT)	PH	MINIMUM RESISTIVITY (OHM-CM)	SULFATE CONTENT (PPM)	CHLORIDE CONTENT (PPM)
R-08-008	10.0 – 11.5	6.83	600	3000	20
R-08-008	15.0 – 16.5	6.04	890	720	13
R-08-008	20.0 – 21.5	6.43	930	6700	110
R-08-008	25.0 – 26.5	6.27	910	3100	1300
R-08-008	30.0 – 31.5	6.60	550	3800	1200
R-08-008	40.0 – 41.5	7.00	690	5400	380
R-08-008	50.0 – 51.5	6.98	2100	NA	NA
R-08-008	60.0 – 61.5	8.19	810	2900	170
R-08-008	75.0 – 76.5	8.67	710	6800	220

R-08-008	85.0 – 86.5	7.71	690	5300	260
R-08-008	90.0 – 91.5	7.82	740	6100	230
R-08-008	100.0 – 101.5	7.74	530	3500	250
R-08-014	0.0 – 16.0	7.34	430	4400	1500
R-08-014	22.5 – 31.0	5.18	890	6700	960
R-08-014	37.5 – 47.5	4.81	420	6600	450
R-08-014	62.5 – 71.0	6.75	590	4800	390
R-08-014	71.0 – 77.5	7.12	960	4600	410
R-08-014	86.0 – 92.5	7.40	630	950	400
R-08-014	92.5 – 100.0	7.35	780	4300	430
R-08-014	111.0 – 122.5	6.95	540	6900	430
R-08-023	7.5 – 12.5	6.39	630	7000	750
R-08-023	12.5 – 17.5	6.64	870	1400	130
R-08-023	17.5 – 22.5	6.85	1100	NA	NA
R-08-023	22.5 – 32.5	5.27	890	6000	270
R-08-023	42.5 – 47.5	6.74	970	6100	270
R-08-023	52.4 – 57.5	6.66	540	7400	290
R-08-023	83.5 – 87.5	6.91	610	4800	180
R-08-023	92.5 – 94.5	6.43	650	6700	68

Note: According to Caltrans criteria given in Corrosion Guidelines, January 1996, an site is corrosive when the soil and/or water contains more than 500 ppm of chlorides, more than 2000 ppm of sulfates, has a minimum resistivity of less than 1000 ohm-cm or has a pH of 5.5 or less.

6.0 LIQUEFACTION POTENTIAL

Liquefaction is a phenomenon in which loose, saturated, fine-grained, granular soils behave like a fluid when subjected to a high-intensity ground shaking. Liquefaction occurs when three general conditions exist (1) Shallow groundwater; (2) Low-density, fine, sandy soils; and (3) High-intensity ground motion. Saturated, loose and medium dense, near-surface, cohesionless soils exhibit the highest liquefaction potential. Liquefaction analyses were performed in general accordance with the methods outlined in the National Center for Earthquake Engineering Research Workshop (NCEER, 1997).

The area is mapped as being within a potentially liquefiable zone by the California Geological Survey (Davis, J.F., 2001). Based on the field investigation, laboratory testing and LOTB (Log of Test Borings) data, the liquefaction potential has been evaluated and is considered to be low. The potential for other secondary seismic hazards including significant seismically induced settlement and lateral spreading are also considered to be low. Beneath Abutment 4, from approximate elevation +59.3 to +49.3 ft (10 ft thick) are silty sands with sporadic gravel that have low

liquefaction potential. The liquefiable layer is considered in the Foundation Recommendations section below and has been mitigated in the abutment foundation design below.

7.0 FOUNDATION RECOMMENDATIONS

The following recommendations are based on 1) recent borings test results, 2) dated structure plans including bridge design load, piles cut off elevations, finish grade elevation and piles size (square concrete), **3)** bridge layout (revised 2008).

7.1 Axial Geological Capacity

Computer program Driven 1.2 was used for Driven Pile Analysis (axial resistance). Pile details and elevations are shown in Table 6, below.

Table 6 - Pile Data Table

Location	Design Loading (kips)	Pile Type (Inch)	Nominal Resistance		Bottom of Footing Elevation (Ft)	Design Tip Elevations (Ft)	Specified Tip Elevation [3] (Ft)
			Compression (kips)	Tension[4] (kips)			
Abutment 1	90	14 Class 200 Alt. "X"	180	N/A	97.50	53.5[1] 64.2[2a] 65.8[2b]	53.5
Bent 2	140	14 Class 200 Alt. "X"	280	140	78.00	27.0[1] 44.0[4] 43.0[2a] 44.7[2b]	27.0
Bent 3	140	14 Class 200 Alt. "X"	280	140	78.00	27.0[1] 44.0[4] 43.0[2a] 44.7[2b]	27.0
Abutment 4	90	14 Class 200 Alt. "X"	180	N/A	98.50	38.5[1] 63.5[2a] 68.5[2b]	38.5
Abut 4 Ret Wall H=8' Sta 2+72.52 to Sta 2+88.52	90	14 Class 200 Alt. "X"	180	90	98.50	59.5[1] 65.5 [4]	59.5[5]
Abut 4 Ret Wall H=12' Sta 2+88.52 to Sta 3+04.52	90	14 Class 200 Alt. "X"	180	90	94.50	55.5[1] 61.5[4]	55.5[5]

Notes: Design Tip is controlled by the following demands:
(1) Nominal Resistance in Compression (Driven 1.2)
(2a) Nominal Lateral Resistance – Fixed Head Condition (specified 0.25 and 1.0 inch lateral deflection at top of pile, derived lateral resistance shown in Table 7)
(2b) Nominal Lateral Resistance – Free Head Condition (specified 0.25 and 1.0 inch lateral deflection at top of pile, derived lateral resistance shown in Table7)
(3) Specified Pile Tip Elevation is controlled by the maximum pile length necessary to satisfy resistance demands from cases (1), (2a), and (2b).
(4) Nominal Resistance in Tension.
(5) Specified Pile Tips for the Retaining Wall will be above the 10 ft thick liquefiable layer. All piles with Specified Pile Tips above the liquefiable layer depend on skin friction resistance exclusively.

Except for the abutment retaining walls, axial nominal resistance in compression (Rnc), noted in the Table No. 6 above, is based on skin friction and end bearing within the alluvial soils.

7.2 Lateral Geotechnical Capacity

Lateral load capacities for the proposed piles were evaluated based on the critical length concept using the computer program LPILE plus 5.0. The evaluation was done based on the pin condition at the top of the piles, for different pile head deflection. A summary of the analyses is shown in Table 7, below.

Table 7- Lateral Load Per Pile

Lateral deflection of pile head (Inch)	Lateral load per pile (kips)							
	Proposed Driven Pile (Fixed Head)				Proposed Driven Pile (Free Head)			
	Abutment 1	Bent 2	Bent 3	Abutment 4	Abutment 1	Bent 2	Bent 3	Abutment 4
0.25	17.94	33.38	33.38	35.43	7.63	17.29	17.29	17.86
1.0	39.44	62.05	62.05	67.80	16.56	31.45	31.45	33.30

8.0 CONSTRUCTION CONSIDERATIONS

1. Due to the proximity of an existing structure, vibration monitoring during pile driving is recommended.

2. Hard driving is anticipated near specified pile tip elevation at this site. The Office of Geotechnical Design South 1 should be contacted before employing any pile assistance installation techniques or cutting off of piles above specified pile tip elevation.

3. Shoring may be necessary to facilitate safe pile cap construction.

4. All earthwork is expected to be carried out by conventional equipment. Fill is to be placed as specified in Section 19-6 of the Caltrans Standard Specifications (May 2006). If imported materials are used to construct the new fill embankment, the material should be tested during

grading to assess expansion potential. Only non-expansive soils or soils having a low expansion potential (EI <50) should be used in the Soil Expansion Exclusion Zone in bridge approach embankment and within 3 meter (10 ft) of the roadbed sub-grade elevation.

The recommendations contained in this report are based on specific project information regarding bridge location, type, height and bottom of the footing elevations that has been provided to our office. If any conceptual changes are made during final project design, this office should review those changes to determine if those foundation recommendations are still applicable.

If you have any questions or comments, please call Kevin Lai at (213) 620-2344 or Joe Pratt at (213) 620-2313 or Shiva Karimi at (213) 620-2146.

Prepared by: Date: 4/02/2009

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Branch D

Supervised by: Date: 4/2/09

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Mohammed Islam – OGDS1 Seismic Specialist (MS-5)
OGDS1 File - Sacramento (MS-5)
OGDS1 LA File

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State of California

Business, Transportation and Housing Agency

Memorandum

Flex yourpower!
Be energy efficient!

MR. MIKE POPE, CHIEF
Structures Design, Design Branch 18

Date: January 29,2009

File: 07-LA-5-PM 8.58/9.35
(KP 13.81/15.04)
12-0E5701
Retaining Wall No. 477

Attention: Mr. Prem Rimal

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 1
Branch D

Subject: Foundation Recommendations

1. INTRODUCTION

The Office of Geotechnical Design – South 1 (OGDS1) was requested by Mr. Mike Pope on September 12, 2007, to provide Foundation Recommendations for proposed Retaining Wall No. 477. The proposed wall will retain southbound Rte. 5 embankment soil above San Juan Creek Rd Undercrossing (UC) Bridge No. 55-0298L. Updated Wall Layouts and Wall Profile were provided to OGDSl by Mr. Prem Rimal on November 17, 2008 and revisions were transmitted to OGDS1via email on 1/15/09, 1/16/09, and 1/23/09.

1.1 Project Description

The proposed Retaining Wall No. 477 is a roadway wall included as part of the improvements for widening of San Juan Creek Road Undercrossing Bridge No. 55-0298L, which is planned as a part of highway widening form PM 8.58 to PM 9.35 of Interstate 5 (I-5) southbound, in the City of San Juan Capistrano, Orange County.

2.0 REGIONAL GEOLOGY

The Interstate 5 – San Juan Capistrano project is located in the Peninsular Ranges Province (on the western flank of the Peninsular Ranges of southern California). The site is bounded to the northwest by the San Joaquin Hills, to the northeast by the Santa Ana Mountains, and on the southwest by the Newport-Inglewood Fault Zone. A thick Cenozoic sedimentary section underlies the site.

2.1 Site Geology

The Capistrano Formation at the site is predominantly a cohesive intermediate geomaterial that exhibits soil-like properties and consisted of sandy to silty clay (very soft mudstone) with rare gravel/cobble lenses (uncemented conglomerate). Landslide material combined with overlying slope wash and alluvium can be difficult to distinguish from in place Capistrano Formation mudstones in the subsurface.

The subsurface soil profile (Boring R-08-008) at the proposed wall location consists of interbeded silt and lean to highly plastic clay fill material to the approximate elevation of 67 f t underlain by alluvium consisting of medium dense to dense silty sand to approximate elevation of 49 ft. Below the silty sand layer consists of clayey soils of probable Capistrano Formation to the approximate elevation of -13 ft. underlain by sand and gravel to elevation -16.7 ft. (maximum depth drilled).

3.0 GEOTECHNICAL INVESTIGATION

3.1 Field Exploration

The site-specific field investigation was performed on February 25 and 27, 2008 (Boring R-08-008). The field investigation included one rotary 4 inch diameter boring. Standard Penetration Tests (SPT's) and undisturbed sampling were taken at the boring. SPT, N values were recorded at 5 feet intervals during drilling. The SPT's were performed in accordance with ASTM Test Method D1586-84 using a standard 1.4 inch I.D. sampler with a 140-pound hammer, free-falling 30 inches. Undisturbed tube soil samples were also obtained using a 2 inch I.D. modified California Split Spoon Sampler with 4 inch long brass liners. The liners were all sealed in the field. Caltrans drill rig model CS 2000 and CME 85 were used. A summary of the rotary sample boring location is listed in Table 1, below. The location and elevations of the boring is provided by OGDS-1 office.

Table 1 – Summary of Soil Borings

Soil Boring No.	Rte 5 Centerline ("B" Line) Station (Ft)	Top of Boring Elev. (Ft)	Boring Depth (Ft)	GWT Elev. (Ft)	Date Drilled
R-08-008	477+31.0	107.30	124.0	N/A	2/25 & 27/2008

Note: 1. The station and elevations of borings are based on the survey results provided by OGDS-1.
2. The Bench Mark (SUHV34) provided by Caltrans District 12 Surveys.

3.2 Groundwater and Surface Water

Groundwater information from the San Juan Creek Road UC As-Built files show groundwater was encountered at approximate elevation +66.7 feet on August 22, 1956 and subsequently at elevation +63 feet on January 30, 1992.

Boring R-08-014 (Sta.475+05 Rte. 5 "B" Line) near south of the wall and Boring R-08-010 (Sta. 480+95 Rte. 5 "B" Line) near north of the subject wall were converted to a piezometer during our field investigation for San Juan Creek Rd. UC and groundwater was periodically measured as shown in Table 2. Based on the piezometer reading at borings R-08-010 and R-08-014 the average groundwater depth below surface at the subject wall location is estimated to be at 41.3 feet (Elev. 66.0 ft).

Table 2 – Recent Groundwater Monitoring

Boring No.	Water Depth Below Surface (Ft)	Groundwater Surface Elevation (Ft)	Date Measured
R-08-010	1.3	63.60	911712008
R-08-014	30.80	74.10	5/1212008
R-08-014	32.20	72.70	911512008
R-08-014	32.20	72.70	10/02/2008
R-08-014	32.50	72.40	11/06/2008

Groundwater is subject to seasonal fluctuations and can also occur as perched water, where water collects above impermeable layers in the subsurface strata. These perched water conditions vary seasonally, depending on rainfall and local recharge conditions.

3.3 Scour Evaluation

Scour is not expected to be a major issue at this site which is located some distance away to the north of the San Juan Creek channel. The creek channel is lined and/or is protected by rip-rap in this area. The bridge site is also elevated on fill at San Juan Creek Road level, which is approximately 18 to 20 ft higher than the bottom of the creek channel.

4.0 SEISMICITY

The Newport-Inglewood-Rose Canyon/E (NIE) fault is located about 5.2 mi (8.4 km) west of the site. The NIE is a strike slip fault and, based on the 1996 Caltrans California

Seismic Hazard Map (CSHM), capable of generating a Maximum Credible Earthquake (MCE) of moment magnitude, M=7.0. Based on the Sadigh et al (1997) attenuation relationships, the median Peak Bedrock Acceleration (PBA) at the site due to the MCE associated with the NIE fault is estimated to be about 0.42g. The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.35g.

The site-to-fault rupture distance for the San Joaquin Hills (SJH) fault is about 6.3 mi (10.2 km). The SJH is a blind thrust fault and located north of the site. Caltrans categorized this fault as active for bridge design after the publication of the California Geological Survey's (CGS) 2002 fault database and assigned a MCE of moment magnitude 7.0. Based on the Sadigh et al (1997) attenuation relationships, the median Peak Bedrock Acceleration (PBA) at the site due to the MCE associated with the SJH fault is estimated to be about 0.44g. The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.4g.

4.1 Surface Fault Rupture Hazard Evaluation

There are no active faults nearby pursuant to the Alquist-Priolo Earthquake Fault Zoning Act (APEFZA). The bridge site is not located within the confines of an Earthquake Fault Zone (EFZ) as defined by the California Department of Conservation (Special Publication 42, 1997) and no well-defined fault traces have been mapped within the project limits. Therefore, the possibility of surface fault rupture hazard at the site is considered low.

5. LABORATORY TESTING

Selected soil samples were sent to the District 7 Material laboratory and Sacramento laboratory for laboratory testing. Soil samples were tested for corrosivity, mechanical analysis, Plasticity Index and moisture content. A laboratory test summary is shown in Table 3, below. Laboratory tests were performed in accordance with ASTM standard procedures and California Test Methods.

Table **3 –** Summary of Laboratory Testing

Test	Standard
Mechanical Analysis	CTM 201,202,203
Moisture Content	CTM 212,226
Plasticity Index	CTM 204

6.0 CORROSIVITY

The soil samples were tested for potential to corrode corrugated metal pipe per CTM 643. These samples were sent to the District 7 Material laboratory and Sacramento laboratory for corrosion testing and the testing results are presented in Table5, below. According to the test results presented in Table 4 the proposed bridge widening subsurface soils are corrosive to metal and reinforced concrete.

Table 4 - Corrosion Test Summary

Boring	Sample Depth (Ft)	PH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (PPM)	Chloride Content (PPM)
R-08-008	10.0 – 11.5	6.83	600	300	20
R-08-008	15.0 – 16.5	6.04	890	720	13
R-08-008	20.0 – 21.5	6.43	930	6700	110
R-08-008	25.0 – 26.5	6.27	910	3100	1300
R-08-008	30.0 – 31.5	6.60	550	3800	1200
R-08-008	40.0 – 41.5	7.00	690	5400	380
R-08-008	60.0 – 61.5	8.19	810	2900	170
R-08-008	75.0 – 76.5	8.67	710	6800	220
R-08-008	85.0 – 86.5	7.71	690	5300	260
R-08-008	90.0 – 91.5	7.82	740	6100	230
R-08-008	100.0 – 101.5	7.74	530	3500	250

Note: According to Caltrans Corrosion Guidelines, January 1996, a site is considered corrosive when the soil and/or water contains more than 500 ppm of chlorides, more than 2000 ppm of sulfates, has a minimum resistivity of less than 1000 ohm-cm or has a pH of 5.5 or less.

7.0 LIQUEFACTION POTENTIAL

Liquefaction is a phenomenon in which loose, saturated, fine-grained, granular soils behave like a fluid when subjected to a high-intensity ground shaking. Liquefaction occurs when three general conditions exist (1) Shallow groundwater; (2) Low-density, fine, sandy soils; and (3) High-intensity ground motion. Saturated, loose and medium dense, near-surface, cohesionless soils exhibit the highest liquefaction potential. Liquefaction analyses were performed in general accordance with the methods outlined in the National Center for Earthquake Engineering Research Workshop (NCEER, 1997).

The area is mapped as being within a potentially liquefiable zone by the California Geological Survey (Davis, J.F., 2001). Based on the field investigation, laboratory testing and LOTB (Log of Test Borings) data, the liquefaction potential has been evaluated and is

considered to be low. The potential for other secondary seismic hazards including significant seismically induced settlement and lateral spreading are also considered low.

8.0 FOUNDATION RECOMMENDATIONS

The following recommendations are based on 1) recent borings test results, 2) Structure Plan including Wall Layout Plan and Mirror Elevation (wall height, bottom of footing elevations, and approximate original ground elevations), plotted 11/17/08 and revisions transmitted to OGDS1 via email dated 1/15/09, 1/16/09, and 1/23/09 by your office.

The proposed Retaining Wall 477 is a Type 1SWBP Wall supported on Class 200 concrete piles and will be located between Station 477+07.82 and Station 477+54.57 of Rte. 5 "B" Line (Sta. 3+04.52 and 3+51.25 LOL). OGDS1 understands that approximately 5 ft of fill will be placed below bottom of footing elevation at the subject wall location.

Computer program Driven 1.2 was used for driven pile analysis (axial resistance). The results of geotechnical analysis are tabulated in Table No. 5 below. Settlement of the wall is estimated to be on the order of one inch.

Table 5 – Pile Data Table

Location (Station)	Pile Type/Size	Design Loading (ton)	Nominal Resistance Compression (ton)	Nominal Resistance Tension (ton)	Cut-off Elev. (ft)	Design Pile Tip Elevation (ft)	Specified Pile Tip Elevation (ft)
Sta. 3+04.52 to Sta. 3+51.25	Class 2001 14"x14"	45	90	45	90.50	62.00 (1) 62.00(2)	62.00

Note: Design pile tip elevation is controlled by (1) compression (2) tension.

9. CONSTRUCTION CONSIDERATION

1) The nominal resistance of the driven piles (Ru) shall be determined per the equation presented in the Standard Specifications May 2006 edition, Section 49-1.08.

2) Drilling to assist driving according to Standard Specifications, Section 49-1.05 may be considered.

3) Erratic and difficult driving may be encountered due to intermitted materials with different strengths. Pile Heads must be protected from direct impact of the hammer by a cushion -driving block.

4) All Earth work shall be implemented in accordance to the recommendation outlined in Section 19 in the Caltrans Standard Specifications.

5) All Structure Work associated with piling installation shall be implemented in accordance to the recommendations outlined in Section 49 in the Caltrans Standard Specifications.

The recommendations contained in this report are based on specific project information regarding wall location, type, height and bottom of the footing elevations that has been provided to our office. If any conceptual changes are made during final project design, this office should review those changes to determine if the foundation recommendations are still applicable.

If you have any questions or comments, please call Kevin Lai at (213) 620-2344 or Shiva Karirni at (213) 620-2146.

Prepared by: Date: 01/30/09

Kevin Y, Lai
Transportation Engineer
Office of Geotechnical Design South 1
Branch D

Supervised by: Date: 01/30/09

Shiva Karimi, Ph.D., P.E., G.E., Chief
Office of Geotechnical Design South 1
Branch D

cc: Ahmed Abou-Abdou – Dist 12 Proj. Mnmgt.
Mili Lim – Dist 12 Design Branch **A** Senior
Rick Ngo – Dist 12 Design Branch **A**
OGDS1 File - Sacramento (MS-5)
OGDS1 LA File

State of California | Business, Transportation and Housing Agency

Memorandum

Flex yourpower!
Be energy efficient!

To: MR. MIKE POPE, CHIEF
Structures Design, Design Branch 18

Date: January 29,2009
(Revised April 2,2009)

File: 12-ORA-5-PM 8.58/9.35
(KP 13.81115.04)
12-0E5701
Retaining Wall No. 485

Attention: Mr. Richard Schendel

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 1
Branch D

Subject: Foundation Recommendations

This report was revised on April 2, 2009 based on the Structure Design revised loading information communicated to us via E-mail dated April 2,2009 by Mr. Richard Schendel.,

1. INTRODUCTION

The Office of Geotechnical Design – South 1 (OGDS1) was requested by Mr. Mike Pope on September 12, 2007, to provide Foundation Recommendations for proposed Retaining Wall No. 485. The proposed wall is a soundwall on retaining wall and will retain southbound Rte. 5 embankment soil north of San Juan Creek Bridge No. 55-0228. Updated Wall Layouts and Wall Profile (plotted November 19,2000) were provided by your office.

1.1 Project Description

The proposed Retaining Wall No. 485, Sta. 484+37.60 to Sta. 495+08.48 Rte. 55 "B" Line (Sta. 10+29.14 to Sta. 20+82.94 LOL), is a roadway wall included as part of the improvements for widening of San Juan Creek Bridge No. 55-0228, which is planned as a part of highway widening form PM 8.58 to PM 9.35 of Interstate 5 (I-5) southbound, in the City of San Juan Capistrano, Orange County.

2.0 REGIONAL GEOLOGY

The Interstate 5 – San Juan Capistrano project is located in the Peninsular Ranges Province (on the western flank of the Peninsular Ranges of southern California). The site is bounded to the northwest by the San Joaquin Hills, to the northeast by the Santa Ana Mountains, and on the southwest by the Newport-Inglewood Fault Zone. A thick Cenozoic sedimentary section underlies the site.

2.1 Site Geology

The Capistrano Formation at the site is predominantly a cohesive intermediate geomaterial that exhibits soil-like properties and consisted of sandy to silty clay (very soft mudstone) with rare gravel/cobble lenses (uncemented conglomerate). Landslide material combined with overlying slope wash and alluvium can be difficult to distinguish from in place Capistrano Formation mudstones in the subsurface.

The subsurface soil profile at the proposed wall location generally consists of interbeded layers of silt and lean to highly plastic clay fill material to the approximate elevation of 70 to 90 ft underlain by alluvium consisting of interbeded layers of medium dense to very dense silty sand and silt, and clayey soils probably eroded from Capistrano Formation to the maximum depth of 132 ft. drilled.

3.0 GEOTECHNICAL INVESTIGATION

3.1 Field Exploration

The field investigation included four rotary 4 inch diameter borings, Boring R-08-013, R-08-007, R-08-006, and R-08-005. Standard Penetration Tests (SPT's) and undisturbed sampling were taken at the boring. SPT, N values were recorded at 5 feet intervals during drilling. The SPT's were performed in accordance with ASTM Test Method D1586-84 using a standard 1.4 inch I.D. sampler with a 140-pound hammer, free-falling 30 inches. Undisturbed tube soil samples were also obtained using a 2 inch I.D. modified California Split Spoon Sampler with 4 inch long brass liners. The liners were all sealed in the field. Caltrans drill rig model CS 2000 and CME 85 were used. A summary of the rotary sample boring location is listed in Table 1, below.

Table 1 – Summary of Soil Borings

Soil Boring No.	Rte 5 Centerline ("B" Line) Station (Ft)	Top Of Boring Elev. (Ft)	Boring Depth (Ft)	GWT Elev. (Ft)	Date Drilled
R-08-005	76 ft Lt 494+71.9	99.7	67.5	65	2/28 to 3/1/2008
R-08-006	75 ft Lt 491+82.5	99.5	59.0	68	2/28 & 29/2008
R-08-007	70 ft Lt 488+18.0	101.3	71.5	65.4	2/20 & 21/ 2008
R-08-013	66 ft Lt 484+86.0	104.3	132.3	64.0	2/20 to 26/2008

Note: 1. The station and elevations of borings are based on the survey results provided by OGDS-I.
2. The Bench Mark (SUHV34) provided by Caltrans District 12 Surveys.

3.2 Groundwater and Surface Water

Groundwater information from the San Juan Creek Bridge As-Built files show groundwater was encountered at approximate elevations ranging from +65.7 to +67.5 feet on August 1956 measurements.

Boring R-08-007 was converted to a piezometer during our field investigation for San Juan Creek Bridge and groundwater was periodically measured as shown in Table 2, below. Based on the piezometer reading at borings R-08-007 the average groundwater depth below surface at the subject wall location is estimated to be at 36 feet (Elev. 65 ft).

Table 2 – Recent Groundwater Monitoring

BORING / PENETRATION NO.	WATER DEPTH BELOW SURFACE (FT)	GROUNDWATER SURFACE ELEVATION (FT)	DATE MEASURED
R-08-007	35.9	65.4	05/01/08
R-08-007	39.4	61.9	05/12/08
R-08-007	36.5	64.8	09/15/08
R-08-007	36.8	64.5	10/02/08
R-08-007	36.9	64.4	11/06/08

Groundwater is subject to seasonal fluctuations and can also occur as perched water, where water collects above impermeable layers in the subsurface strata. These perched water conditions vary seasonally, depending on rainfall and local recharge conditions.

3.3 Scour Evaluation

Scour is not expected to be a major issue at this site. The creek channel is lined and/or is protected by rip-rap in this area.

4.0 SEISMICITY

The Newport-Inglewood-Rose Canyon/E (NIE) fault is located about 5.3 mi (8.6 km) west of the site. The NIE is a strike slip fault and, based on the 1996 Caltrans California Seismic Hazard Map (CSHM), capable of generating a Maximum Credible Earthquake (MCE) of moment magnitude, M=7.0. Based on the Sadigh et al (1997) attenuation relationships, the median Peak Bedrock Acceleration (PBA) at the site due to the MCE associated with the NIE fault is estimated to be about 0.41g. The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.35g.

The site-to-fault rupture distance for the San Joaquin Hills (SJH) fault is about 6.3 mi (10.2 km). The SJH is a blind thrust fault and located north of the site. Caltrans categorized this fault as active for bridge design after the publication of the California Geological Survey's (CGS) 2002 fault database and assigned a MCE of moment magnitude 7.0. Based on the Sadigh et al (1997) attenuation relationships, the median Peak Bedrock Acceleration (PBA) at the site due to the MCE associated with the SJH fault is estimated to be about 0.44g. The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.4g.

4.1 Surface Fault Rupture Hazard Evaluation

There are no active faults nearby pursuant to the Alquist-Priolo Earthquake Fault Zoning Act (APEFZA). The bridge site is not located within the confines of an Earthquake Fault Zone (EFZ) as defined by the California Department of Conservation (Special Publication 42, 1997) and no well-defined fault traces have been mapped within the project limits. Therefore, the possibility of surface fault rupture hazard at the site is considered low.

5. LABORATORY TESTING

Selected soil samples were sent to the District 7 Material laboratory and Sacramento laboratory for laboratory testing. Soil samples were tested for corrosivity, mechanical analysis, Plasticity Index and moisture content. A laboratory test summary is shown in Table **3,** below. Laboratory tests were performed in accordance with ASTM standard procedures and California Test Methods.

Table 3 – Summary of Laboratory Testing

Test	Standard
Mechanical Analysis	CTM 201,202,203
Moisture Content	CTM 212,226
Plasticity Index	CTM 204

6.0 CORROSIVITY

The soil samples were tested for potential to corrode corrugated metal pipe per CTM 643. These samples were sent to the District 7 Material laboratory and Sacramento laboratory for corrosion testing and the testing results are presented in Table5, below. According to the test results presented in Table 4 the proposed bridge widening subsurface soils are corrosive to metal and reinforced concrete.

Table 4 - Corrosion Test Summary

Boring	Sample Depth (Ft)	PH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (PPM)	Chloride Content (PPM)
R-08-005	7.5-17.5	9.31	850	430	450
R-08-005	17.5-22.5	9.54	900	170	190
R-08-005	22.5-37.5	9.18	1400	NA	NA
R-08-005	37.5-51.0	9.38	1300	NA	NA
R-08-005	52.5-67.5	9.74	2600	NA	NA
R-08-006	25.5-26.5	7.54	1300	NA	NA
R-08-006	39.0-44.0	7.44	3000	NA	NA
R-08-013	1.3-26.0	8.81	580	4100	300
R-08-013	26.0-29.0	8.60	560	2200	530
R-08-013	31.0-52.5	8.51	2200	NA	NA
R-08-013	52.5-67.5	9.39	1900	NA	NA
R-08-013	71.O-82.5	7.56	2100	NA	NA
R-08-013	82.5-97.5	7.03	1300	NA	NA
R-08-013	97.5-117.5	7.53	860	520	88
R-08-013	121.0	7.39	1000	NA	NA

Note: According to Caltrans Corrosion Guidelines, January 1996, a site is considered corrosive when the soil and/or water contains more than 500 ppm of chlorides, more than 2000 ppm of sulfates, has a minimum resistivity of less than 1000 ohm-cm or has a pH of 5.5 or less.

7.0 LIQUEFACTION POTENTIAL

Liquefaction is a phenomenon in which loose, saturated, fine-grained, granular soils behave like a fluid when subjected to a high-intensity ground shaking. Liquefaction occurs when three general conditions exist (1) Shallow groundwater; (2) Low-density, fine, sandy soils; and (3) High-intensity ground motion. Saturated, loose and medium dense, near-surface, cohesionless soils exhibit the highest liquefaction potential. Liquefaction analyses were performed in general accordance with the methods outlined in the National Center for Earthquake Engineering Research Workshop (NCEER, 1997).

The area is mapped as being within a potentially liquefiable zone by the California Geological Survey (Davis, J.F., 2001). Based on the field investigation, laboratory testing and LOTB (Log of Test Borings) data, the liquefaction potential has been evaluated and is considered to be low. The potential for other secondary seismic hazards including significant seismically induced settlement and lateral spreading are also considered low.

8.0 FOUNDATION RECOMMENDATIONS

The following recommendations are based on 1) recent borings test results, 2) Structure Plan including Wall Layout Plan and Developed Mirror Elevation (wall height, bottom of footing elevations, and approximate original ground elevations), plotted 11/19/08 provided by your office.

The proposed Retaining Wall 485 is a Type 1SWBP Wall supported on Class 200 concrete piles and will be located between Station 484+37.60 and Station 495+08.48 of Rte. 5 "B" Line (Sta. 10+29.14 and 20+82.94 LOL).

Computer program Driven 1.2 was used for driven pile analysis (axial resistance). The results of geotechnical analysis are tabulated in Table No. 5 below. Settlement of the wall is estimated to be on the order of one inch.

Table 5 – Pile Data Table

Location (Station)	Pile Type/Size	Design Load (kips)	Nominal Resistance		Cut-off Elev. (ft)	Design Pile Tip Elev. (ft)	Specified Pile Tip Elev. (ft)
			Compression (kips)	Tension (kips)			
Sta. 10+29.14 to Sta. 10+61.14 H=12 ft	Class 200 Driven Con./ 14"x14"	90	180	90	90.5	63.00(1) 63.00(2)	63.00
Sta. 10161.14 to Sta. 11+17.14 H=10 ft	Class 200 Driven Con./ 14"x14"	90	180	90	92.5	65.00(1) 65.00(2)	65.00
Sta. 11+17.14 to Sta. 12+5.14 H=8 ft	Class 200 Driven Con./ 14"x14"	90	180	90	94.0	66.5(1) 66.5(2)	66.5
Sta. 12+5.14 to Sta. 12+93.14 H=8 ft	Class 200 Driven Con./ 14"x14"	90	180	90	92.5	65.0(1) 65.0(2)	65.0
Sta. 12+93.14 to Sta.14193.14 H=10 ft	Class 200 Driven Con./ 14"x14"	90	180	90	91.0	71.0(1) 70.0(2)	70.0
Sta. 14+93.14 to Sta. 17+1.14	Class 200 Driven Con./ 14"x14"	90	180	90	89.5	69.5(1) 69.5(2)	69.5

H=10 ft							
Sta. 17+1.14 to Sta. 18+85.14 H=10 ft	Class 200 Driven Con./ 14”x14”	90	180	90	88.0	68.0(1) 68.0(2)	68.0
Sta. 18+85.14 to Sta. 20+21.14 H=8 ft	Class 200 Driven Con./ 14”x14”	90	180	90	89.5	63.0(1) 63.0(2)	63.0
Sta. 20+21.14 to Sta. 20+82.94 H=6 ft	Class 200 Driven Con./ 14”x14”	90	180	90	92.5	66.0(1) 66.0(2)	66.0

Note: Design pile tip elevation is controlled by (1) compression (2) tension.

8. CONSTRUCTION CONSIDERATION

1) The nominal resistance of the driven piles (Ru) shall be determined per the equation presented in the Standard Specifications May 2006 edition, Section 49-1.08.

2) Drilling to assist driving according to Standard Specifications, Section 49-1.05 may be considered. Particularly, at approximate Station 491+82 near elevation 66 ft hard drilling may be experienced.

3) Erratic and difficult driving may be encountered due to intermitted materials with different strengths. Pile Heads must be protected from direct impact of the hammer by a cushion -driving block.

4) All Earth work shall be implemented in accordance to the recommendation outlined in Section 19 in the Caltrans Standard Specifications.

5) All Structure Work associated with piling installation shall be implemented in accordance to the recommendations outlined in Section 49 in the Caltrans Standard Specifications.

The recommendations contained in this report are based on specific project information regarding wall location, type, height and bottom of the footing elevations that has been provided to our office. If any conceptual changes are made during final project design, this office should review those changes to determine if the foundation recommendations are still applicable.

If you have any questions or comments, please call Kevin Lai at (213) 620-2344 or Shiva Karimi at (213) 620-2146.

Prepared by: Date: 4/02/09

Supervised by: Date: 4/2/09

REGISTERED PROFESSIONAL ENGINEER
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December 07, 2009

Certified Mail – Return Receipt Requested
Article Number: 7009-1410-0002-2347-5111

In reply refer to:
736859: cloflen

Mili Lim-Stamation
Caltrans, District 12
3337 Michelson Drive
Irvine, CA 92612

Dear Mili Lim-Stamation:

Subject: Action on Request for Clean Water Act Section 401 Water Quality Certification for the **I-5/Camino Capistrano Interchange Improvements Project** Water Quality Certification No. **09C-034**

Enclosed find Clean Water Act Section 401 Water Quality Certification for discharge to Waters of the U.S. and acknowledgment of enrollment under State Water Resources Control Board Order No. 2003-017 DWQ for the **I-5/Camino Capistrano Interchange Improvements Project** (project). A description of the project and project location can be found in the project information sheet, location map, and site maps, which are included as Attachments 1 through 5.

Any petition for reconsideration of this Certification must be filed with the State Water Resources Control Board within 30 days of certification action (23 CCR § 3867). If no petition is received, it will be assumed that you have accepted and will comply with all the conditions of this Certification.

Failure to comply with all conditions of this Certification may subject you to enforcement actions by the California Regional Water Quality Control Board, San Diego Region, including administrative enforcement orders requiring you to cease and desist from violations, or to clean up waste and abate existing or threatened conditions of pollution or nuisance; administrative civil liability in amounts of up to $10,000 per day per violation; referral to the State Attorney General for injunctive relief; and, referral to the District Attorney for criminal prosecution.

In the subject line of any response, please include the requested "**In reply refer to:**" information located in the heading of this letter. For questions pertaining to the subject matter, please contact Chad Loflen at (858) 467-2727 or cloflen@waterboards.ca.gov.

Respectfully,

DAVID W. GIBSON
Executive Officer

Enclosures:

Clean Water Act Section 401 Water Quality Certification No. 09C-034 for the I-5/ Camino Capistrano Interchange Improvements Project, with 5 attachments

cc: Refer to Attachment 2 of Certification 09C-034 for Distribution List.

Tech Staff Info & Use	
File No.	09C-034
WDID	9000001923
Reg. Measure ID	364494
Place ID	736859
Party ID	7578
Person ID	472288

California Regional Water Quality Control Board
San Diego Region

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Action on Request for
Clean Water Act Section 401 Water Quality Certification
and Waste Discharge Requirements
for Discharge of Dredged and/or Fill Materials

PROJECT: **I-5/Camino Capistrano Interchange Improvements Project, Certification Number (09C-034), WDID: 9 000001923**

CIWQS
Reg. Meas. ID: 364494
Place ID: 736859
Party ID: 7578

APPLICANT: **Mili Lim-Stamation**
Caltrans, District 12
3337 Michelson Drive
Irvine, CA 92612

ACTION:

☐ Order for Low Impact Certification	☐ Order for Denial of Certification
☑ Order for Technically-conditioned Certification	☐ Waiver of Waste Discharge Requirements
☑ Enrollment in SWRCB GWDR Order No. 2003-017 DWQ	☐ Enrollment in Isolated Waters Order No. 2004-004 DWQ

PROJECT DESCRIPTION:
The project will construct an auxiliary lane, add a lane to the off-ramp entrance, widen the off-ramp to three lanes, widen the on-ramp shoulder, and widen Camino Capistrano. The interchange improvements require the widening of the Camino Capistrano Bridge over San Juan Creek. The bridge will requires the placement of fill for expansion of the 3 existing pier foundations within San Juan Creek.

STANDARD CONDITIONS:

The following three standard conditions apply to <u>all</u> Certification actions, except as noted under Condition 3 for denials (Action 3).

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to

section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).

2. This Certification action is not intended and must not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

3. The validity of any non-denial Certification action (Actions 1 and 2) must be conditioned upon total payment of the full fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

ADDITIONAL CONDITIONS:

In addition to the three standard conditions, Caltrans, District 12 must satisfy the following:

A. GENERAL CONDITIONS:

1. Caltrans, District 12 must, at all times, fully comply with the engineering plans, specifications and technical reports submitted to the California Regional Water Quality Control Board, San Diego Region (Regional Board), to support this 401 Water Quality Certification (Certification) and all subsequent submittals required as part of this Certification and as described in Attachments 1 and 4. The conditions within this Certification must supersede conflicting provisions within such plans submitted prior to the Certification action. Any modifications thereto, would require notification to the Regional Board and reevaluation for individual Waste Discharge Requirements and/or Certification amendment.

2. During construction, Caltrans, District 12 must maintain a copy of this Certification at the project site so as to be available at all times to site personnel and agencies.

3. Caltrans, District 12 must permit the Regional Board or its authorized representative at all times, upon presentation of credentials:

    a. Entry onto project premises, including all areas on which wetland fill or wetland mitigation is located or in which records are kept.
    b. Access to copy any records required to be kept under the terms and conditions of this Certification.
    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Certification.

d. Sampling of any discharge or surface water covered by this Order.

4. Caltrans, District 12 must notify the Regional Board within **24 hours** of any unauthorized discharge, including hazardous or toxic materials, to waters of the U.S. and/or State; measures that were implemented to stop and contain the discharge; measures implemented to clean-up the discharge; the volume and type of materials discharged and recovered; and additional best management practice (BMPs) or other measures that will be implemented to prevent future discharges.

5. Caltrans, District 12 must, at all times, maintain appropriate types and sufficient quantities of materials onsite to contain any spill or inadvertent release of materials that may cause a condition of pollution or nuisance if the materials reach waters of the U.S. and/or State.

6. This Certification is not transferable in its entirety or in part to any person except after notice to the Executive Officer of the Regional Board in accordance with the following terms.

   a. Transfer of Property Ownership: Caltrans, District 12 must notify the Regional Board of any change in ownership of the project area Notification of change in ownership must include, but not be limited to, a statement that Caltrans, District 12 has provided the purchaser with a copy of the Section 401 Water Quality Certification and that the purchaser understands and accepts the certification requirements and the obligation to implement them or be subject to liability for failure to do so; the seller and purchaser must sign and date the notification and provide such notification to the Executive officer of the Regional Board within **10 days** of the transfer of ownership.

   b. Transfer of Mitigation Responsibility: Any notification of transfer of responsibilities to satisfy the mitigation requirements set forth in Section D shall include a signed statement from an authorized representative of the new party (transferee) demonstrating acceptance and understanding of the responsibility to comply with and fully satisfy the mitigation conditions and agreement that failure to comply with the mitigation conditions and associated requirements may subject the transferee to enforcement by the Regional Board under Water Code section 13385, subdivision (a). Notification of transfer of responsibilities meeting the above conditions must be provided to the Regional Board within **10 days** of the transfer date.

7. In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation must be subject to any remedies, penalties, process or sanctions as provided for under State law. For purposes of section 401(d) of the Clean Water Act, the applicability of any

State law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.

8. In response to a suspected violation of any condition of this Certification, the Regional Board may require the holder of any permit or license subject to this Certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional Board deems appropriate, provided that the burden, including costs, of the reports must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

9. In response to any violation of the conditions of this Certification, the Regional Board may add to or modify the conditions of this Certification as appropriate to ensure compliance.

10. Caltrans, District 12 and successor owners must submit annual progress reports to the Regional Board prior to **August 1** of each year following the issuance of this Certification until the project has reached completion.

B. PROJECT CONDITIONS:

1. Prior to the start of the project, and annually thereafter, Caltrans, District 12 must educate all personnel on the requirements in this Certification, pollution prevention measures, spill response, and BMP implementation and maintenance.

2. Caltrans, District 12 must comply with the requirements of State Water Resources Control Board Water Quality Order No. 2003-0017-DWQ, Statewide General Waste Discharge Requirements for discharges of dredged or fill material that have received State Water Quality Certification. These General Waste Discharge Requirement are accessible at: http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/general orders/go_wdr401regulated_projects.pdf.

3. Caltrans, District 12 must notify the Regional Board in writing at least **5 days** prior to the actual commencement of dredge, fill, and discharge activities.

4. Caltrans, District 12 must comply with the requirements of State Water Resources Control Board Water Quality Order No. 99-08-DWQ, and any subsequent re-issuance, the NPDES General Permit for Storm Water Discharges Associated with Construction Activity.

5. The treatment, storage, and disposal of wastewater during the life of the project must be done in accordance with waste discharge requirements established by the Regional Board pursuant to CWC § 13260.

6. Discharges of concentrated flow during construction or after completion must not cause downstream erosion or damage to properties or stream habitat.

7. Water containing mud, silt, or other pollutants from equipment washing or other activities, must not be discharged to waters of the United States and/or the State or placed in locations that may be subjected to storm flows. Pollutants discharged to areas within a stream diversion area must be removed at the end of each work day or sooner if rain is predicted.

8. All surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.

9. Substances hazardous to aquatic life including, but not limited to, petroleum products, raw cement/concrete, asphalt, and coating materials, must be prevented from contaminating the soil and/or entering waters of the United States and/or State. BMPs must be implemented to prevent such discharges during each project activity involving hazardous materials.

10. All construction activity within waters of the U.S. and/or State must occur during the dry season (May 1 - September 30).

11. Removal of vegetation must occur by hand, mechanically, or using EPA approved herbicides deployed using applicable BMPs to prevent impacts to Beneficial Uses of waters of the State. Removal of vegetation must occur outside of the avian nesting season (March 15- August 31).

C. POST CONSTRUCTION STORM WATER MANAGEMENT

1. All storm drain inlet structures within the project boundaries must be stamped and/or stenciled (or equivalent) with appropriate language prohibiting non-storm water discharges.

2. Structural BMPs must be sized to comply with the following numeric sizing criteria:

   a. <u>Volume</u>
   Volume-based BMPs must be designed to mitigate (infiltrate, filter, or treat) either:

i. The volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the local historical rainfall record (0.75 inch approximate average for the Orange County area); or
ii. The volume of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile 24-hour runoff event; or

b. Flow

Flow-based BMPs must be designed to mitigate (infiltrate, filter, or treat) either:

i. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour; or
ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two; or
iii. The maximum flow rate of runoff, as determined from the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

3. Post-construction BMPs must be installed and functional prior to occupancy and/or planned use of development areas.

4. Caltrans, District 12 or their designated party must inspect and maintain structural BMPs per the manufacturer's specifications.

5. **Prior to project construction**, Caltrans, District 12 must submit to the Regional Board a letter accepting full responsibility for the inspection and maintenance of all post-construction BMPs installed on all roads that are required to be improved as part of the project. Caltrans, District 12 must submit a letter documenting that the City of San Juan Capistrano accepts full responsibility for the inspection and maintenance of BMPs installed on roads that are required to be improved as part of the project.

6. Caltrans, District 12, assumes responsibility for the inspection and maintenance of all post-construction structural BMPs until such responsibility is legally transferred to another entity.

7. Caltrans, District 12 must install biostrips, bioswales and Filterra catch basin systems (or equivalent) as described in Attachment 4.

8. At the time maintenance responsibility for post-construction BMPs is legally transferred, Caltrans, District 12 must submit to the Regional Board a copy of such documentation.

9. At the time maintenance responsibility for post-construction BMPs is legally transferred, Caltrans, District 12 must provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer specifications.

10. The Regional Board may be requested to review planned BMP implementation that clearly demonstrates to meet or exceed the performance standards herein. Such requests must be made 30 days prior to the planned BMP implementation.

11. All post-construction structural BMPs, including, but not limited to, bio-swales, biostrips, and Filterra (or equivilant) units, must be regularly inspected and maintained for the life of the project per manufacturers' specifications.

12. Treatment BMPs must be inspected prior to the commencement of the rainy season (October 1) and after every storm event exceeding 0.5 inches of precipitation.

13. Records must be kept regarding inspections and maintenance in order to assess the performance of the systems and determine whether adaptations are necessary to protect receiving waters.

D. COMPENSATORY MITIGATION FOR LOSS OF WATERS OF THE U.S./STATE

1. Mitigation for permanent discharges to 0.031 acres and temporary discharges to 0.832 acres (including 0.122 acres of permanent shading) of un-vegetated waters of the United States associated with bridge construction must be achieved by the following:

   a. Through the in-lieu fee purchase of 1.264 acres of restoration credits through the South Orange County Team Arundo Program. **Prior to start of construction**, Caltrans, District 12 must provide the Regional Board with verification that the in-lieu fee for the above acreage has been paid to the South Orange County Team Arundo Program.

2. Caltrans, District 12 must restore all areas of temporary impacts and all other areas of temporary disturbance which could result in a discharge or a threatened discharge to waters of the United States/State. Restoration must include grading of disturbed areas to pre-project contours and revegetation with native species. Caltrans, District 12 must implement all necessary BMPs to control erosion and runoff from areas associated with this project.

3. The construction of proposed mitigation must be concurrent with project grading and completed no later than 9 months following the initial discharge of dredge or fill material into on-site waters. Delays in implementing mitigation must be compensated for by an increased mitigation

implementation of 10 percent of the cumulative compensatory mitigation for each month of delay.

4. Throughout the mitigation monitoring program mitigation areas must be maintained free of perennial exotic plant species including, but not limited to, pampas grass, giant reed, tamarisk, sweet fennel, tree tobacco, castor bean, and pepper tree. Annual exotic plant species must not occupy more than 5 percent of the onsite or offsite mitigation areas.

5. Regional Board acceptance of the final mitigation plan applies only to the site and plan that mitigates for the I-5/Camino Capistrano Interchange Project and must not be construed as approval of the mitigation site or plan for use by other current or future projects that are planning to use the Project site or in-lieu fee program for mitigation.

6. If at any time during the implementation and establishment of the mitigation area(s), and prior to verification of meeting success criteria, a catastrophic natural event (e.g., fire, flood) occurs and impacts the mitigation area, Caltrans, District 12 is responsible for repair and replanting of the damaged area(s).

7. For the purpose of determining mitigation credit for the removal of exotic/invasive plant species, only the actual area occupied by exotic/invasive plant species must be quantified to comply with mitigation requirements.

8. For purposes of this Certification, establishment is defined as the creation of vegetated or unvegetated waters of the U.S./State where the resource has never previously existed (e.g. conversion of nonnative grassland to a freshwater marsh). Restoration is divided into two activities, re-establishment and rehabilitation. Re-establishment is defined as the return of natural/historic functions to a site where vegetated or unvegetated waters of the U.S./State previously existed (e.g., removal of fill material to restore a drainage). Rehabilitation is defined as the improvement of the general suite of functions of degraded vegetated or unvegetated waters of the U.S./State (e.g., removal of a heavy infestation or monoculture of exotic plant species from jurisdictional areas and replacing with native species). Enhancement is defined as the improvement to one or two functions of existing vegetated or unvegetated waters of the U.S./State (e.g., removal of small patches of exotic plant species from an area containing predominantly natural plant species). Preservation is defined as the acquisition and legal protection from future impacts in perpetuity of existing vegetated or unvegetated waters of the U.S./State (e.g., conservation easement).

E. STREAM PHOTO DOCUMENTATION PROCEDURE

1. Caltrans, District 12, and its successors, must conduct photo documentation of the project site, including all areas of permanent and temporary impact, prior to and after project construction. Photo documentation must be conducted in accordance with the State Water Resources Control Board Standard Operating Procedure 4.2.1.4: Stream Photo Documentation Procedure, included as Attachment Number (5). In addition, photo documentation must include Geographic Positioning System (GPS) coordinates for each of the photo points referenced. Caltrans, District 12 must submit this information in a photo documentation report to the Regional Board with the **Project Annual Reports**. The report must include a compact disc that contains digital files of all the photos (jpeg file type or similar).

F. POST-CONSTRUCTION BEST MANAGEMENT PRACTICES PHOTO DOCUMENTATION PROCEDURE

1. Caltrans, District 12 must conduct photo documentation of implemented post-construction BMPs. Photo-documentation must be modeled after the State Water Resources Control Board Standard Operating Procedure 4.2.1.4: Stream Photo Documentation Procedure, included as Attachment 6. In addition, photo documentation must include Global Positioning System (GPS) coordinates for each of the photo points referenced. Caltrans, District 12 must submit this information in a photo documentation report to the Regional Board with the **Project Annual Reports**. The report must include a compact disc that contains digital files of all the photos (jpeg file type or similar).

G. GEOGRAPHIC INFORMATION SYSTEM REPORTING

1. Caltrans, District 12 must submit Geographic Information System (GIS) shape files of the impact areas within **the 1st Annual Report**. All impact and mitigation areas shapefiles must be polygons. Two GPS readings (points) must be taken on each line of the polygon and the polygon must have a minimum of 10 points. GIS metadata must also be submitted.

H. REPORTING:

1. All information requested in this Certification is pursuant to California Water Code (CWC) section 13267. Civil liability may be administratively imposed by the Regional Board for failure to furnish requested information pursuant to CWC section 13268.

2. All reports and information submitted to the Regional Board must be submitted in both hardcopy and electronic format. The preferred electronic format for each report submission is one file in PDF format that is also Optical Character Recognition (OCR) capable.

3. Caltrans, District 12 must submit a report to the Regional Board with the **Final Project Annual Report**. The report should include as-built drawings no bigger than 11" x 17" and photos of the completed project.

4. All applications, reports, or information submitted to the Regional Board must be signed and certified as follows:

    a. For a corporation, by a responsible corporate officer of at least the level of vice president.
    b. For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
    c. For a municipality, or a state, federal, or other public agency, by either a principal executive officer or ranking elected official.

5. A duly authorized representative of a person designated in Items 4.a. through 4.c. above may sign documents if:

    a. The authorization is made in writing by a person described in Items 4.a. through 4.c. above.
    b. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
    c. The written authorization is submitted to the Regional Board Executive Officer.

6. All applications, reports, or information submitted to the Regional Board must be signed and certified as follows:

    "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

7. Caltrans, District 12 must submit reports required under this Certification, or other information required by the Regional Board, to:

    Executive Officer
    California Regional Water Quality Control Board
    San Diego Region
    Attn: 401 Certification; Project No. 09C-034
    9174 Sky Park Court, Suite 100
    San Diego, California 92123

8. Required Reports: The following list summarizes the reports required per the conditions of this Certification to be submitted to the Regional Board.

Report Topic	Certification Condition	Due Date(s)
Project Annual Reports	A.10	August 01, Annually
Notification of dredge/fill	B.3	5 days prior
BMP Responsibility	C.5	Prior to Project Construction
Mitigation In-lieu Fee	D.1.a	Prior to Project Construction
Streambed Photo-Documentation	E.1	With Annual Reports
BMP Photo-Documentation	F.1	With Annual Reports
GIS	G.1	1st Annual Report
As-Built Drawings	H.3	Final Annual Report

PUBLIC NOTIFICATION OF PROJECT APPLICATION:

On April 27, 2009 receipt of the project application was posted on the Regional Board web site to serve as appropriate notification to the public.

REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:

Chad Loflen
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123
858-467-2727
cloflen@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby certify that the proposed discharge from I-5/Camino Capistrano Interchange Improvements (Project No. 09C-034) will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that have Received State Water Quality Certification (General WDRs)," which requires compliance with all conditions of this Water Quality Certification. Please note that enrollment under Order No. 2003-017 DWQ is conditional and, should new information come to our attention that indicates a water quality problem, the Regional Board may issue waste discharge requirements at that time.

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicants' project description and/or on the attached Project Information Sheet, and (b) on compliance with all applicable requirements of the Regional Board's Water Quality Control Plan (Basin Plan).

David W. R

DAVID W. GIBSON
Executive Officer
Regional Water Quality Control Board

7 Dec. 2009
Date

Attachments:

1. Project Information
2. Distribution List
3. Project and Site Maps
4. Post-Construction BMP Map
5. Stream Photodocumentation Procedure

ATTACHMENT 1
PROJECT INFORMATION

Applicant:	CalTrans, District 12 Attention: Mili Lim-Stamation 3337 Michelson Drive, Irvine, CA 92612 Telephone: (949) 724-2167 Facsimile: (949) 724-2591 Email: Mili_Lim@dot.ca.gov
Project Name:	I-5/Camino Capistrano Interchange Improvements
Project Location:	San Juan Capistrano, CA Latitude: 33°29'39.41"N, Longitude: 117°39'33.85"W
Type of Project:	Road Improvement Project
Need for Project:	To address traffic delays at the Camino Capistrano interchange.
Project Description:	The project will construct an auxiliary lane, add a lane to the off-ramp entrance, widen the off-ramp to three lanes, widen the on-ramp shoulder, and widen Camino Capistrano. The interchange improvements require the widening of the Camino Capistrano Bridge over San Juan Creek. The bridge requires the placement of fill for expansion of the 3 existing pier foundations within San Juan Creek. Construction is scheduled from May 2010 to May 2012.
Federal Agency/Permit:	U.S. Army Corps of Engineers §404, Stephanie Hall
Other Required Regulatory Approvals:	California Department of Fish and Game Streambed Alteration Agreement, Randy Rodriguez Orange County Flood Control District, Andy Ngo
California Environmental Quality Act (CEQA) Compliance:	Mitigated Negative Declaration, March 7, 2006, SCH No. 2004081180, Lead Agency: CalTrans
Receiving Water:	San Juan Creek, San Juan Hydrologic Unit

Affected Waters of the United States:	Temporary: Streambed: 0.71 Permanent: Streambed: 0.031 Streambed Shading: 0.122
Related Projects Implemented/to be Implemented by the Applicant(s):	None.
Compensatory Mitigation:	Riparian: 1.264 acres of in-lieu fee for restoration
Mitigation Location:	South Orange County Team Arundo Program
Best Management Practices (BMPs):	All flow from 100 percent of new impervious surfaces will be treated by biostrips, bioswales or Filterra catch basin systems (or equivalent).
Public Notice:	April 27, 2009
Fees:	Total Due: $1,389 Total Paid: $1,389 (Check Nos. 313824 and 324564)
CIWQS:	Regulatory Measure ID: 364494 Place ID: 736859 Party ID: 7578

ATTACHMENT 2
E-MAIL DISTRIBUTION LIST

Mili Lim-Stamantion, Caltrans District 12
Mili_Lim@dot.ca.gov

Charles Baker, Caltrans, District 12
charles_baker@dot.ca.gov

Lesley Hill, Caltrans District 12
lesley_hill@dot.ca.gov

Stephanie Hall, U.S. Army Corps of Engineers, Regulatory Branch
Stephanie.J.Hall@spl01.usace.army.mil

Sophia Huynh, U.S. Army Corps of Engineers
sophia.c.huynh@usace.army.mil

Pam Beare, California Department of Fish and Game
pbeare@dfg.ca.gov

U.S. EPA, OWOW, Region 9
R9-WTR8-Mailbox@epa.gov

State Water Resources Control Board, Division of Water Quality
401 Water Quality Certification and Wetlands Unit
Stateboard401@waterboards.ca.gov

ATTACHMENT 3
PROJECT AND SITE MAPS

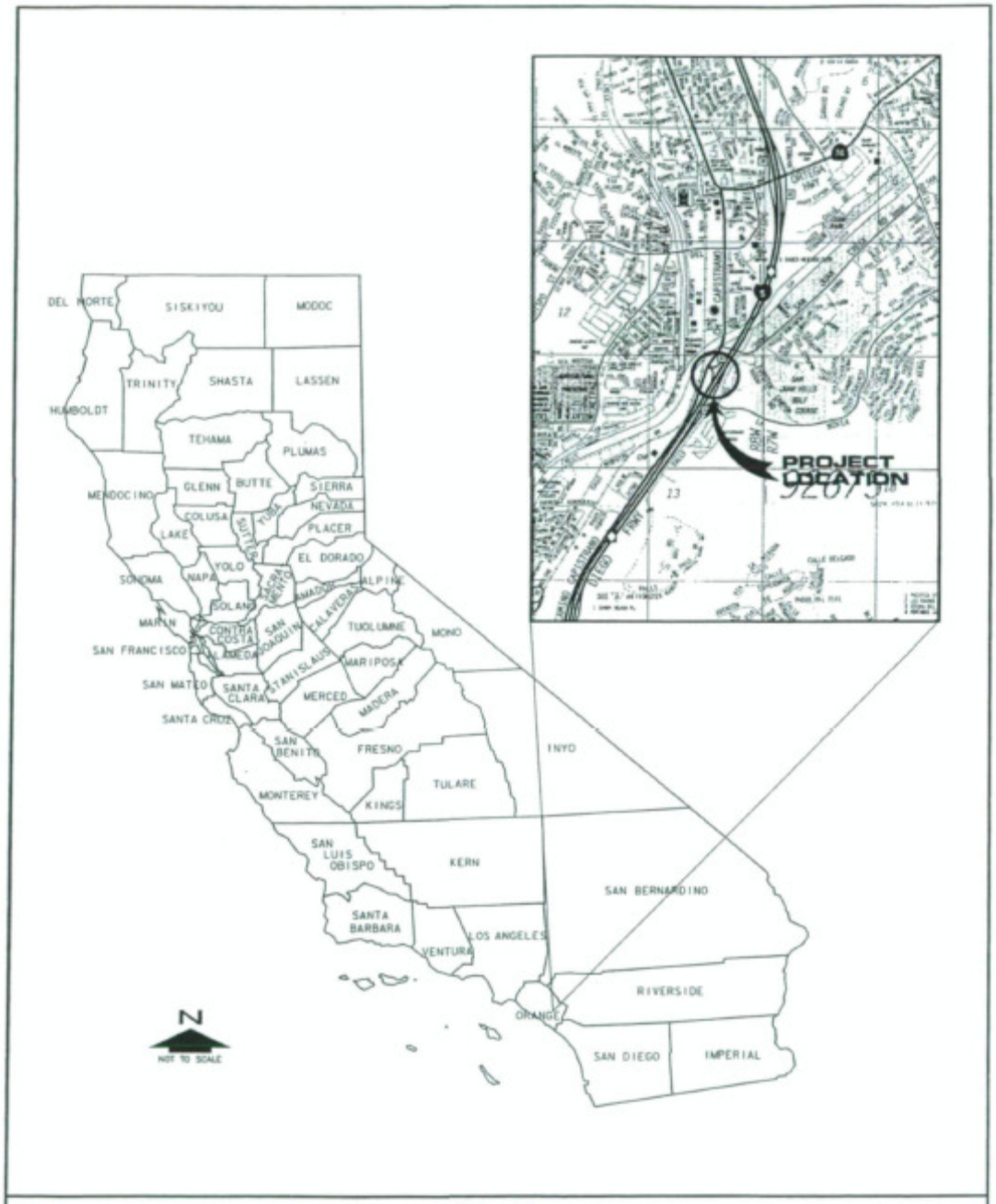
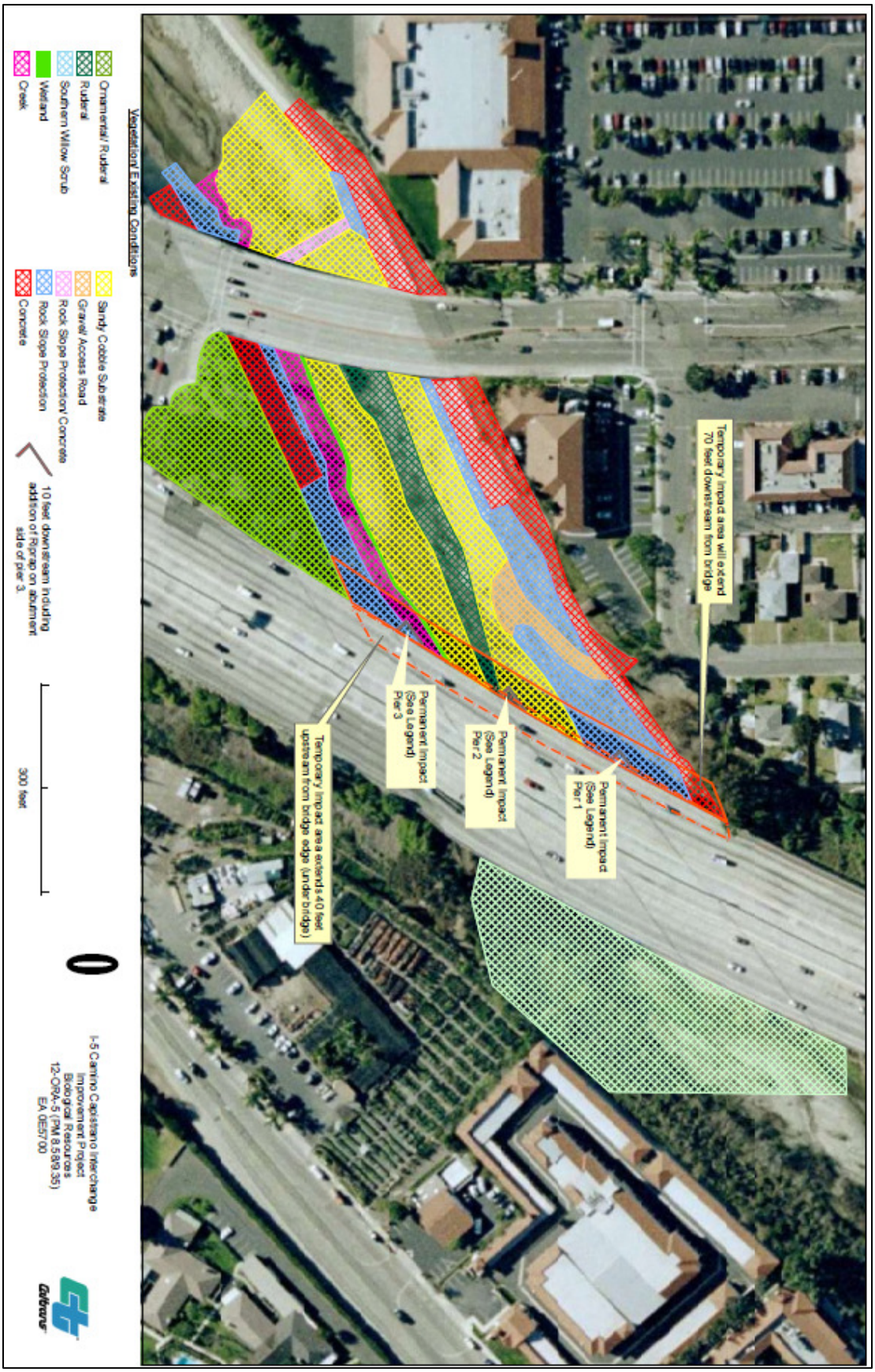
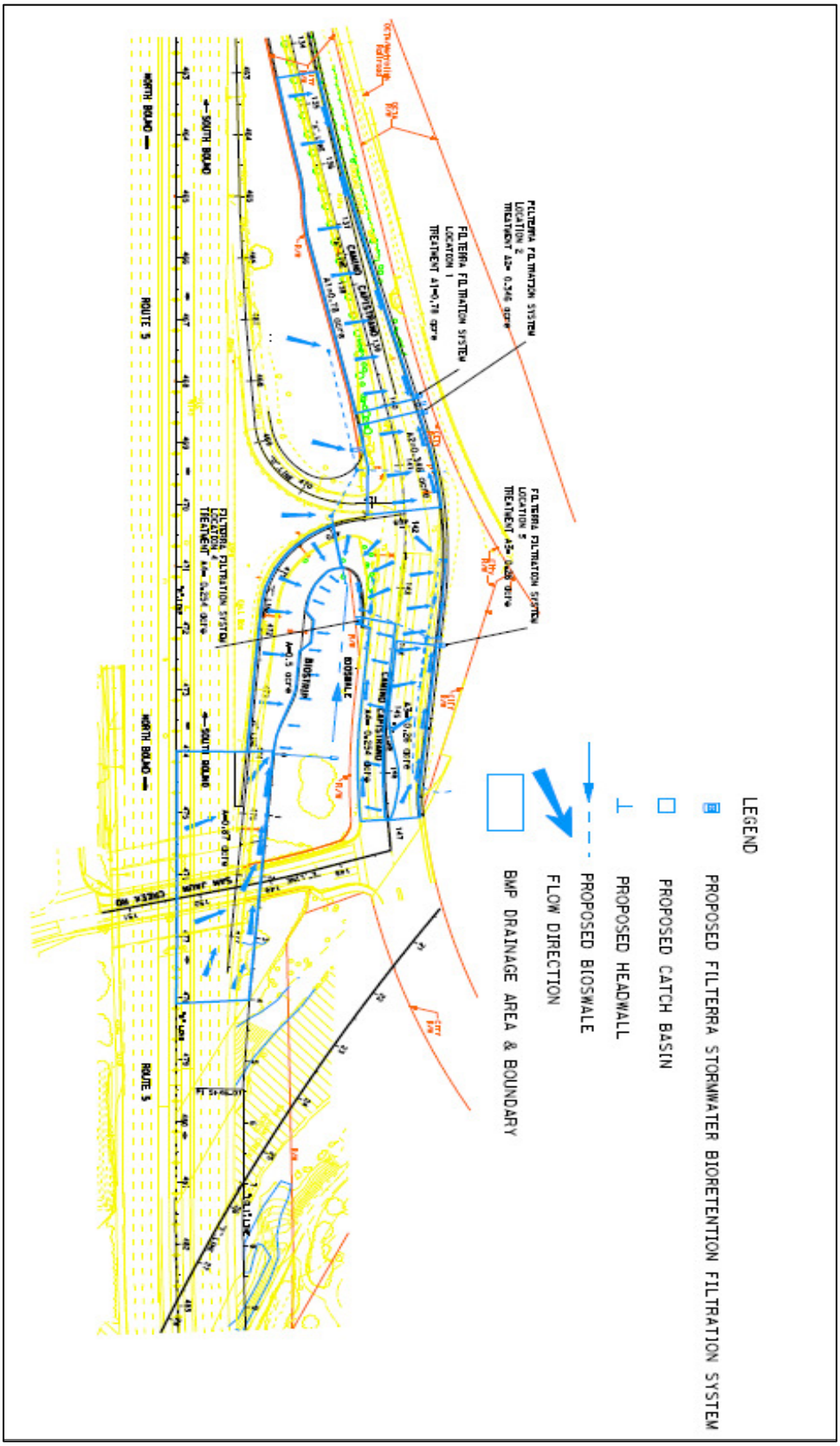


Figure 1-1
PROJECT LOCATION MAP
I-5 / CAMINO CAPISTRANO
INTERCHANGE IMPROVEMENT PROJECT


Temporary impact area will extend 70 feet downstream from bridge
Permanent Impact (See Legend) Pier 1
Permanent Impact (See Legend) Pier 2
Permanent Impact (See Legend) Pier 3
Temporary impact area extends 40 feet upstream from bridge edge (under bridge)
Vegetation/ Existing Conditions
Ornamental/ Ruderal
Ruderal
Southern Willow Scrub
Wetland
Creek
Sandy Cobble Substrate
Gravel/ Access Road
Rock Slope Protection/ Concrete
Rock Slope Protection
Concrete
10 feet downstream including addition of Riprap on abutment side of pier 3.
300 feet
0
I-5 Camino Capistrano Interchange Improvement Project
Biological Resources
12-ORA-5 (PM 8.5/9.35)
EA 0E570
Caltrans

ATTACHMENT 4
SITE POST-CONSTRUCTION BMP MAP



ATTACHMENT 5
STREAM PHOTO DOCUMENTATION PROCEDURES

Standard Operating Procedure (SOP)

Stream Photo Documentation Procedure
(CARCD 2001, Written by TAC Visual Assessments work group)

Introduction:

Photographs provide a qualitative, and potentially semi-quantitative, record of conditions in a watershed or on a water body. Photographs can be used to document general conditions on a reach of a stream during a stream walk, pollution events or other impacts, assess resource conditions over time, or can be used to document temporal progress for restoration efforts or other projects designed to benefit water quality. Photographic technology is available to anyone and it does not require a large degree of training or expensive equipment. Photos can be used in reports, presentations, or uploaded onto a computer website or GIS program. This approach is useful in providing a visual portrait of water resources to those who may never have the opportunity to actually visit a monitoring site.

Equipment:

Use the same camera to the extent possible for each photo throughout the duration of the project. Either 35 mm color or digital color cameras are recommended, accompanied by a telephoto lens. If you must change cameras during the program, replace the original camera with a similar one comparable in terms of media (digital vs. 35 mm) and other characteristics. A complete equipment list is suggested as follows:

<u>Required:</u>
- Camera and backup camera
- Folder with copies of previous photos (do not carry original photos in the field)
- Topographic and/or road map
- Aerial photos if available
- Compass
- Timepiece
- Extra film or digital disk capacity (whichever is applicable)
- Extra batteries for camera (if applicable)
- Photo-log data sheets or, alternatively, a bound notebook dedicated to the project
- Yellow photo sign form and black marker, or, alternatively, a small black board and chalk

<u>Optional:</u>

- GPS unit
- Stadia rod (for scale on landscape shots)
- Ruler (for scale on close up views of streams and vegetation)
- Steel fence posts for dedicating fixed photo points in the absence of available fixed landmarks

How to Access Aerial Photographs:

Aerial Photos can be obtained from the following federal agencies:

USGS Earth Science Information Center
507 National Center
12201 Sunrise Valley Drive
Reston, VA 22092
800-USA-MAPS

USDA Consolidated Farm Service Agencies
Aerial Photography Field Office
222 West 2300 South
P.O. Box 30010
Salt Lake City, UT 84103-0010
801-524-5856

Cartographic and Architectural Branch
National Archives and Records Administration
8601 Adelphi Road
College park, MD 20740-6001
301-713-7040

Roles and Duties of Team:

The team should be comprised of a minimum of two people, and preferably three people for restoration or other water quality improvement projects, as follows:

1. Primary Photographer
2. Subject, target for centering the photo and providing scale
3. Person responsible for determining geographic position and holding the photo sign forms or blackboard.

One of these people is also responsible for taking field notes to describe and record photos and photo points.

Safety Concerns:

Persons involved in photo monitoring should **ALWAYS** put safety first. For safety reasons, always have at least two 2 volunteers for the survey. Make sure that the

area(s) you are surveying either are accessible to the public or that you have obtained permission from the landowner prior to the survey.

Some safety concerns that may be encountered during the survey include, but are not limited to:

- Inclement weather
- Flood conditions, fast flowing water, or very cold water
- Poisonous plants (e.g.: poison oak)
- Dangerous insects and animals (e.g.: bees, rattlesnakes, range animals such as cattle, etc.)
- Harmful or hazardous trash (e.g.: broken glass, hypodermic needles, human feces)

We recommend that the volunteer coordinator or leader discuss the potential hazards with all volunteers prior to any fieldwork.

General Instructions:

From the inception of any photo documentation project until it is completed, always take each photo from the same position (photo point), and at the same bearing and vertical angle at that photo point. Photo point positions should be thoroughly documented, including photographs taken of the photo point. Refer to copies of previous photos when arriving at the photo point. Try to maintain a level (horizontal) camera view unless the terrain is sloped. (If the photo can not be horizontal due to the slope, then record the angle for that photo.) When photo points are first being selected, consider the type of project (meadow or stream restoration, vegetation management for fire control, ambient or event monitoring as part of a stream walk, etc.) and refer to the guidance listed on *Suggestions for Photo Points by Type of Project*.

When taking photographs, try to include landscape features that are unlikely to change over several years (buildings, other structures, and landscape features such as peaks, rock outcrops, large trees, etc.) so that repeat photos will be easy to position. Lighting is, of course, a key ingredient so give consideration to the angle of light, cloud cover, background, shadows, and contrasts. Close view photographs taken from the north (i.e., facing south) will minimize shadows. Medium and long view photos are best shot with the sun at the photographer's back. Some artistic expression is encouraged as some photos may be used on websites and in slide shows (early morning and late evening shots may be useful for this purpose). Seasonal changes can be used to advantage as foliage, stream flow, cloud cover, and site access fluctuate. It is often important to include a ruler, stadia rod, person, farm animal, or automobile in photos to convey the scale of the image. Of particular concern is the angle from which the photo is taken. Oftentimes an overhead or elevated shot from a bridge, cliff, peak, tree, etc. will be instrumental in conveying the full dimensions of the

project. Of most importance overall, however, is being aware of the goal(s) of the project and capturing images that clearly demonstrate progress towards achieving those goal(s). Again, reference to *Suggestions for Photo Points by Type of Project* may be helpful.

If possible, try to include a black board or yellow photo sign in the view, marked at a minimum with the location, subject, time and date of the photograph. A blank photo sign form is included in this document.

Recording Information:

Use a systematic method of recording information about each project, photo point, and photo. The following information should be entered on the photo-log forms (blank form included in this document) or in a dedicated notebook:

- Project or group name, and contract number (if applicable, e.g., for funded restoration projects)
- General location (stream, beach, city, etc.), and short narrative description of project's habitat type, goals, etc.
- Photographer and other team members
- Photo number
- Date
- Time (for each photograph)
- Photo point information, including:
    - Name or other unique identifier (abbreviated name and/or ID number)
    - Narrative description of location including proximity to and direction from notable landscape features like roads, fence lines, creeks, rock outcrops, large trees, buildings, previous photo points, etc. – sufficient for future photographers who have never visited the project to locate the photo point
    - Latitude, longitude, and altitude from map or GPS unit
- Magnetic compass bearing from the photo point to the subject
- Specific information about the subject of the photo
- Optional additional information: a true compass bearing (corrected for declination) from photo point to subject, time of sunrise and sunset (check newspaper or almanac), and cloud cover.

For ambient monitoring, the stream and shore walk form should be attached or referenced in the photo-log.

When monitoring the implementation of restoration, fuel reduction, or Best Management Practices (BMP) projects, include or attach to the photo-log a narrative description of observable progress in achieving the goals of the project. Provide supplementary information along with the photo, such as noticeable changes in habitat, wildlife, and water quality and quantity.

Archive all photos, along with the associated photo-log information, in a protected environment.

The Photo Point: Establishing Position of Photographer:

1. Have available a variety of methods for establishing position: maps, aerial photos, GPS, permanent markers and landmarks, etc. If the primary method fails (e.g., a GPS or lost marker post) then have an alternate method (map, aerial photo, copy of an original photograph of the photo-point, etc).

2. Select an existing structure or landmark (mailbox, telephone pole, benchmark, large rock, etc.), identify its latitude and longitude, and choose (and record for future use) the permanent position of the photographer relative to that landmark. Alternatively, choose the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the photographer.

3. For restoration, fuel reduction, and BMP projects, photograph the photo-points and carry copies of those photographs on subsequent field visits.

Determining the Compass Bearing:

1. Select and record the permanent magnetic bearing of the photo center view. You can also record the true compass bearing (corrected for declination) but do not substitute this for the magnetic bearing. Include a prominent landmark in a set position within the view. If possible, have an assistant stand at a fixed distance from both the photographer and the center of the view, holding a stadia rod if available, within the view of the camera; preferably position the stadia rod on one established, consistent side of the view for each photo (right or left side).
2. Alternatively, use the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the focal point (photo center).
3. When performing ambient or event photo monitoring, and when a compass is not available, then refer to a map and record the approximate bearing as north, south, east or west.

Suggestions for Photo Points by Type of Project:

Ambient or Event Monitoring, Including Photography Associated with Narrative Visual Assessments:

1. When first beginning an ambient monitoring program take representative long and/or medium view photos of stream reaches and segments of shoreline being monitored. Show the positions of these photos on a map, preferably on the stream/shore walk form. Subjects to be photographed include a representative view of the stream or shore condition at the beginning and ending positions of the segment being monitored, storm drain outfalls, confluence of tributaries, structures (e.g., bridges, dams, pipelines, etc.).

2. If possible, take a close view photograph of the substrate (streambed), algae, or submerged aquatic vegetation.

3. Time series: Photographs of these subjects at the same photo points should be repeated annually during the same season or month if possible.

4. Event monitoring refers to any unusual or sporadic conditions encountered during a stream or shore walk, such as trash dumps, turbidity events, oil spills, etc. Photograph and record information on your photo-log and on your Stream and Shore Walk Visual Assessment form. Report pollution events to the Regional Board. Report trash dumps to local authorities.

All Restoration and Fuel Reduction Projects – Time Series:

Take photos immediately before and after construction, planting, or vegetation removal. Long term monitoring should allow for at least annual photography for a minimum of three years after the project, and thereafter at 5 years and ten years.

Meadow Restoration:

1. Aerial view (satellite or airplane photography) if available.

2. In the absence of an aerial view, a landscape, long view showing an overlapping sequence of photos illustrating a long reach of stream and meadow (satellite photos, or hill close by, fly-over, etc.)

3. Long view up or down the longitudinal dimension of the creek showing riparian vegetation growth bounded on each side by grasses, sedges, or whatever that is lower in height

4. Long view of conversion of sage and other upland species back to meadow vegetation

5. Long view and medium view of streambed changes (straightened back to meandering, sediment back to gravel, etc.)

6. Medium and close views of structures, plantings, etc. intended to induce these changes

Stream Restoration/stabilization:

1. Aerial view (satellite or airplane photography) if available.

2. In the absence of an aerial view, a landscape, long-view showing all or representative sections of the project (bluff, bridge, etc.)

3. Long view up or down the stream (from stream level) showing changes in the stream bank, vegetation, etc.

4. Long view and medium view of streambed changes (thalweg, gravel, meanders, etc.)

5. Medium and close views of structures, plantings, etc. intended to induce these changes.

6. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 3 and 4 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

Vegetation Management for Fire Prevention ("fuel reduction"):

1. Aerial view (satellite or airplane photography) if available.

2. In the absence of an aerial view, a landscape, long view showing all or representative sections of the project (bluff, bridge, etc.)

3. Long view (wide angle if possible) showing the project area or areas. Preferably these long views should be from an elevated vantage point.

4. Medium view photos showing examples of vegetation changes, and plantings if included in the project. It is recommended that a person (preferably holding a stadia rod) be included in the view for scale

5. To the extent possible include medium and long view photos that include adjacent stream channels.

Stream Sediment Load or Erosion Monitoring:

1. Long views from bridge or other elevated position.

2. Medium views of bars and banks, with a person (preferably holding a stadia rod) in view for scale.

3. Close views of streambed with ruler or other common object in the view for scale.

4. Time series: Photograph during the dry season (low flow) once per year or after a significant flood event when streambed is visible. The flood events may be episodic in the south and seasonal in the north.

5. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 1 and 2 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

PHOTO- LOG FORM

Project:
Location:
Date:
Photographer:
Team members:

Photo #	Time	Photo Point ID	Photo Pt. Description & Location	Bearing to Subject	Subject Description

General Notes or Comments (weather, cloud cover, time of sunrise and sunset, other pertinent information):

PHOTO SIGN FORM: Print this form on yellow paper. Complete the following information for each photograph. Include in the photographic view so that it will be legible in the finished photo.

Location:

Subject Description:

Date:

Time:

State of California **Business, Transportation and Housing Agency**

M e m o r a n d u m

Flex your power!
Be energy efficient!

To: MR. MICHAEL POPE
Structures Design
Chief, Bridge Design Branch 18
Office of Bridge Design South 1

Attention: Richard Schendel

Date: April 2, 2009

File: 12-ORA-5 PM 8.87
12-0E5701
San Juan Creek Bridge (Widen)
Bridge No. 55-0228

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design - South 1, Branch D

Subject: Foundation Recommendations for San Juan Creek Bridge Left Side Widening, Br. No. 55-0228

1.0 INTRODUCTION

In a memorandum dated September 12, 2007, Mr. Mike Pope of Structures Design requested a Foundation Report for the proposed widening of San Juan Creek Bridge as part of the Interstate Route 5 widening Project from PM 8.58 to 9.35.

The San Juan Creek Left and Right Bridges (Bridge Number 55-0228) were constructed in 1958 and outside widened in 1969 with minor inside widening. It is located at post mile 8.87 on Interstate Route 5 (I-5) in the City of San Juan Capistrano in Orange County. San Juan Creek Bridge is a simply supported four-span composite welded steel girder bridge with reinforced concrete open-end cantilever abutments and solid pier walls. The reinforced concrete open-end abutments and solid pier walls are supported on concrete driven piles. Some of the concrete driven piles are battered at the abutments.

In 1996, the San Juan Creek Bridge was retrofitted and median widened (joining the separate structures into one bridge), however, it appears that the improvements were limited to the bridge superstructure.

The proposed improvements include a variable 12 to 21.5 feet bridge widening on the southbound side (left side).

The geotechnical recommendations within this report are based on field reconnaissance, review of available literature, bridge plans, and maps, the February through September 2008 subsurface exploration study conducted by Caltrans, laboratory test results of soil/minor formational samples obtained from the recent study, and geotechnical analyses

with respect to the proposed improvements. The Office of Geotechnical Design South 1 (OGDS1) also reviewed the following sources:

1. The "As-Built" Log of Test Borings (LOTB) for original construction of the subject bridge dated September 1958.
2. The “As-Built” Plans for original construction of the subject bridge dated September 1958.
3. The “As-Built” Plans for widening of the subject bridge corrected April 1969.
4. The “As-Built” Plans for widening and retrofit of the subject bridge corrected October 1996.
5. A limited map and literature search involving the area's topography and general geology.
6. The Final Hydraulic Report for San Juan Creek Bridge, Br. No. 55-0228, 12-ORA-5-PM 8.87 (Vargas, 2008).
7. Rock Slope Protection (RSP, 0.5 ton rock) and RSP fabric was placed (Contract No. 12-0F5104) over and alongside part of Piers 2 and 3 pile footings and at the toe of the Abutment 1 slope for scour mitigation (placed September 2007). The upstream half of the Abutment 1 slope and Pier 2 pile footing was protected with RSP and the south half of the Pier 3 pile footings was protected for the entire length of the Pier. The current active stream lies between Piers 2 and 3.

Note: All English unit elevations shown on the As Built plans and LOTB are based on assumed NGVD 1929 datum. <u>As Built plan elevations require a shift to the proposed plan elevations (which are based on NAVD88 datum) and OGDS1 will need the necessary shift amount from District 12 Surveys.</u> This allows correlation of the As Built elevations and information with the current NAVD88 elevations and information for the proposed bridge left side widening.

2.0 REGIONAL GEOLOGY

The Interstate 5 – San Juan Capistrano project is located in the Peninsular Ranges Province (on the western flank of the Peninsular Ranges of southern California). The site is bounded to the northwest by the San Joaquin Hills, to the northeast by the Santa Ana Mountains, and on the southwest by the Newport-Inglewood Fault Zone. A thick Cenozoic sedimentary section underlies the site.

2.1 Site Geology

At the bridge site, embankment fill is underlain by Holocene alluvium (Qal unit of Edgington, 1974) which is underlain by probable older undifferentiated Quaternary alluvium. The alluvial deposits may possibly be underlain by Quaternary landslide deposits (Qls) or more likely the Pliocene/Miocene Capistrano Formation (Tc) composed of interbedded marine siltstone, mudstone, silty shale, and thin sandstone beds at depth. The closest landslide deposits are mapped to the southeast of the bridge site outcropping on the hillside southeast of San Juan Creek Road UC and are composed of locally derived Capistrano Formation material with overlying alluvial and slope wash deposits. The Capistrano Formation at the site is predominantly a cohesive intermediate geomaterial that exhibits soil-like properties (unconfined compression measured by pocket penetrometer ranged from 2.75 to 4.0 TSF, corrected N60 blow counts ranged from 21 to >50) and consisted of very stiff to hard, clay to silty clay (very soft mudstone) with a rare gravel/cobble lense (uncemented conglomerate). Landslide material (generally represented by fairly localized coherent rotational slumps and possible translational slide blocks derived from the Capistrano Formation) can be difficult to distinguish from in place Capistrano Formation mudstones in the subsurface. The closest mapped landslide at the surface on the hillside appears to be approximately 700 to 800 feet southeast of the subject bridge. The hill slope to the south of the bridge site and east of I-5 has been graded and has improved drainage and probable horizontal drains installed (the geologic map shows a county landfill site). Metrolink (on the west side of I-5) has also completed some slope stabilization to the south of this bridge site in the area from the San Juan Creek channel to below the railroad (tiebacks placed from behind the eastside of the San Juan Creek lined channel and micropiles placed beneath a section of the railroad tracks) but the exact boundaries of the railroad stabilization project is not known at this time. The San Juan Creek Bridge site appears to be stable with no known bridge maintenance problems due to deformation at the site. OGDS1 also doesn't have any irrefutable evidence for landslides at the San Juan Creek Bridge site from the recent drilling/sampling/testing program.

Embankment fill ranges from approximately 40 ft thick at Abutment 1 (south) to 29 ft thick at Abutment 5 (north) beneath the proposed widening footprint. Embankment fill is present from approximate elevations ranging from +107 to +104 ft (based on NAVD88 datum) down to elevations ranging from +69 to +75 ft (Abutment 1 and Abutment 5, respectively). Fill material consists of very stiff to minor estimated medium stiff/loose to medium dense, sandy clay, interlayered with silt, and minor silty sand with sporadic gravel. Underlying Holocene or older undifferentiated Quaternary alluvium ranges from approximately 18 ft thick beneath Abutment 1 to approximately 90, 99, and 102 ft thick beneath Piers 3, 4, and Abutment 5, respectively. The Holocene and undifferentiated Quaternary alluvial unit can be subdivided into two units. The upper alluvial unit ranges between approximate

elevations +69 (beneath Abutment 1) to +64 (approximate bottom of channel) to + 75 ft (beneath Abutment 5) down to approximate elevations +49 to +40 to +43 ft (Abutment 1, Piers 2-4, and Abutment 5 for SB I-5 widen, respectively). The upper alluvial unit (thickness ranges from 18 to 25 to 32 ft, beneath Abutment 1, Piers 2-4, and Abutment 5, respectively) consists of loose to medium dense (minor dense and very loose)/estimated medium stiff to stiff (minor soft), sand with gravel, silty sand with gravel, minor sandy clay, thin elastic silt and silt interbeds, and gravel with cobbles lenses. Trace to few sporadic cobbles (<6 in. diameter) and a boulder (estimated to be 1.5 ft. maximum length) were found in the upper alluvial unit. The lower alluvial unit is not present beneath Abutment 1 but ranges between approximate elevations +40 ft (beneath Piers 2-4) to +43 (beneath Abutment 5) down to elevations ranging from -25 to -35 ft (Piers 2-4) to approximately -27 ft (Abutment 5). The lower alluvial unit ranges in thickness from 0, 65, 75, and 70 ft beneath Abutment 1, Piers 2-3, Pier 4, and Abutment 5, respectively) and consists of predominantly medium dense to very dense/medium stiff to stiff (rare soft), silty sand, interlensed with sand with sporadic gravel, silt, sandy clay, and clayey silt. Some scattered gravel/cobble lenses (ranging from 0.5 to 3 ft thick) were present beneath Pier 3 (below +15 and -23 ft elevations), Pier 4 (below +25 and -25 ft elevations) and beneath Abutment 5 (below +12 ft elevation). The possible coherent landslide deposit or more likely intact Capistrano Formation mudstone with minor sporadic conglomerate lies beneath all the bridge supports and ranges from at least 66 ft (Abutment 1), 32 ft (Pier 3), 18 ft (Pier 4), and 0.8 ft thick (Abutment 5). The possible landslide deposit or Capistrano mudstone with minor sporadic conglomerate ranges from elevations +49, -25, -35, and -27 ft (beneath Abutments 1, Pier 3, Pier 4, and Abutment 5) down to at least elevations ranging from -16.9 to-57.4 ft elevation. The Capistrano Formation consists of very stiff to hard clay to silty clay (very soft mudstone) with unconfined compression from pocket penetrometer measured at 2.75 to 4.0 TSF. The clay (mudstone) is interlensed with and underlain by sporadic lenses of gravel with cobbles (estimated $\leq$12 in length) and sporadic boulders (estimated 2 ft maximum length) with sand and sand/silt matrix (conglomerate). Rock fragments were composed of dominantly slightly weathered and hard (minor intensely weathered and soft) granite, schist, meta-andesite, mudstone, and sandstone. Sand and silt matrix displayed intense weathering within beds. The Capistrano Formation contained some very fine fossil debris (gastropods, bivalves, and possible algal debris), minor silica and calcite cement, and minor popcorn chalcedony and gypsum nodules. Faint bedding and laminations showed dips ranging from 15 to 30 degrees. Four deep rotary wash borings have recently been completed for the bridge foundation investigation. Borings R-08-008 (Abutment 1), R-08-010 (Pier 3), R-08-011 (Pier 4), and R-08-013 (Abutment 5) were drilled at the end of February and the end of September, 2008. Borings ranged from 117.2 to 132.3 ft depth below the surface to approximate elevations -16.9 to -57.4 ft. The LOTB should be reviewed for more specific details.

2.2 Groundwater and Surface Water

OGDS1's recent groundwater measurements (measured over a 6 month period extending from approximately May 1 through November 6, 2008) within piezometer borings installed on February 21 and 28, 2008, showed the water table ranges between elevations +65.4 to 64.4 ft (Boring R-08-007, located approximately 400 ft north of San Juan Creek Bridge – widen) to +74.1 to +72.4 ft (Boring R-08-014, located at south end of San Juan Creek Road Undercrossing, approximately 335 ft south of the San Juan Creek Bridge), respectively. Groundwater was also measured in the channel bottom at elevations +63.6 ft (Boring R-08-010, near Pier 3, measured September 17, 2008) and +62.8 ft (Boring R-08-011, near Pier 4, measured September 25, 2008) with depths ranging from 1.3 to 1.4 ft below the channel grade. The high groundwater elevation south of San Juan Creek Undercrossing (south of the subject bridge) appears to be controlled by the Capistrano Formation stratigraphic variability and bedding dips at the south end of the project.

Based on the 1958 As-Built LOTB Plans, groundwater was measured within the borings at elevations ranging from +65.7 to +67.5 ft (probably based on NGVD29 datum). Water measurements were taken during August 1956.

OGDS1 estimates from the D12 Layouts with partial topographic contours that the bottom of the San Juan Creek channel, beneath the proposed SB I-5 widening, is approximately +65 to +63 ft elevation and that currently, surface water flows close to that elevation (est. +64 to +63 ft for the top of the stream flow). This estimate is fairly close to what has been previously measured for groundwater in the channel although the channel granular surface soils have been removed somewhat due to past degradation of the channel caused by upstream mining. Comparing the 1958 As-Built LOTB elevations for borings in the stream channel (adding an estimated and assumed 2 ft adjustment to the LOTB elevations to compare with the current datum) with the Layouts with current topography, gives an estimated channel degradation of about 5 ft (LOTB elevations completed in 1956 versus the current estimated channel elevations). Channel degradation has improved as noted within the Caltrans Structures Maintenance and Investigations Hydraulics – State Scour Evaluations Report (Avila, updated December, 18, 2007, completed April 19, 2006). The drop in surface channel elevation would account for the drop in surface water elevation and probable minor drop in groundwater elevation within the stream channel.

Groundwater levels fluctuate between different locations, years, and seasons as shown above.

2.3 Scour Evaluation

The scour potential of the bridge site is addressed in the Final Hydraulic Report for San Juan Creek Bridge, Br. No. 55-0228, by Structures Hydraulics and Hydrology Branch (Vargas, 2008) and in the earlier Bridge Scour Evaluation – Plan of Action (Avila, April 2006 completed) for the San Juan Creek Bridge prepared by SM&I Hydraulics-State Scour Evaluations. Based on the Bridge Scour Evaluation – Plan of Action, mining upstream of this site had caused significant degradation problems at this bridge location, and all along the channel on both upstream and downstream of the structure. This structure was coded as a scour critical bridge due to the problem it was experiencing from degradation.

However, the updated Final Hydraulic Report for the Proposed Bridge Widening (this project) on Southbound/Downstream Side (Vargas, 2008) concluded that presently the downstream side of the bridge site is in a stable condition, and no further degradation is taking place as the mining operation upstream has now ceased. D12 Construction has also completed Contract No. 12-0F5104 for San Juan Creek Bridge which improved the south abutment scour protection by excavating and covering the toe of slope for Abutment 1 with 0.5 ton rock slope protection (RSP) wrapped in RSP fabric. Pier 2 was protected by covering the upstream half of the pier pile footing with 0.5 ton RSP wrapped with RSP fabric. Pier 3 was protected by covering the south half of the pier pile footing along the full length of the pier with 0.5 ton RSP wrapped with RSP fabric. RSP scour protection extends to a maximum depth of the bottom of pier footing at Piers 2 and 3 which is estimated currently at elevation +58 ft (+56 ft bottom of pier footings shown on As-Built Plans adjusted +2 ft to give estimated current bottom of pier footing elevation). The RSP scour protection is temporary and will need periodic inspection, maintenance, and replacement of the rocks. Vargas (2008) also mentions the grouted rock checkdam (built in 1987 just downstream of the local agency bridge, San Juan Creek Channel, Br. No. 55C-0034) is approximately 530 ft downstream of the subject State bridge widening. The report mentions the checkdam is in good condition and is considered to stabilize the channelbed and limit/minimize further degradation at the local agency bridge and also the subject bridge. For the planned left side (downstream) widening of the bridge, drift potential, local pier scour, and long-term channel degradation are considered negligible or would have minimal effect.

Stream flow was observed by OGDS1 to flow between Piers 2 and 3 (the currently active channel) and Piers 3 and 4 during rains in Spring 2008. Minor removal of soils (approximately 2 ft depth) in the temporary channel created between Piers 3 and 4 and minor very localized pockets of scour (approximately 2 ft along Pier 2 length at the upstream and downstream halves and ends) were observed.

OGDS1 estimates, from the recent drilling/sampling program and the 1958 As-Built LOTB Plans, that scourable granular soils extend down approximately 20 ft (to elevation +44 ft) at Piers 2 through 4 proposed widening area. For the proposed widening, in-place soils/or formational material has been discovered beneath Abutment 1 [below elevation +49 ft, probable Capistrano Formation clay (mudstones)] and Abutment 5 (below elevation +45.5 ft, paleosol - interbedded silty sands and silts with soil development and filamentous calcite). A similar paleosol exists below Piers 3 and 4 widening below approximate +44 ft elevation as noted above. At the supports, the material has been in place 1000's of years to develop layer B soil differentiation and filamentous calcite formation.

The As-Built LOTB for the existing bridge shows clayey silt interlayers are present in the channel below elevation +41 ft. This is a crude scour evaluation just looking at the loose to medium dense (rare dense) granular soils in the stream channel. The 1958 As-Built LOTB lacks critical soil descriptions to be more accurate with this crude scour evaluation. Scour potential noted here represents **maximum scour** based on the thickness of granular easily removeable soils which does not appear to be applicable to the current stream flow regime (i.e., degradation has been reduced substantially from the past as noted in the Hydraulics Report). As noted in the Final Hydraulic Report for the planned downstream widening, the local scour at the pier noses at the upstream side of the existing bridge is deemed to be of much larger magnitude. OGDS1 observed the scour holes at the upstream pier noses and agrees with the Final Hydraulic Report assessment.

OGDS1 considers that given the current improved conditions at the <u>proposed downstream bridge</u> widening and including on-site observations taken during the recent field investigation, that scour potential should be minimum at this time as long as the checkdam and RSP is maintained and mining is absent. OGDS1 considered minimal degradation scour to be 2 ft and local scour to be 2 ft for pier pile support/calculations of the bridge widening downstream. OGDS1 agrees with the Final Hydraulics Report (Vargas, 2008) as scour appears to be much higher potential upstream especially at the existing bridge pier noses.

3.0 SEISMICITY

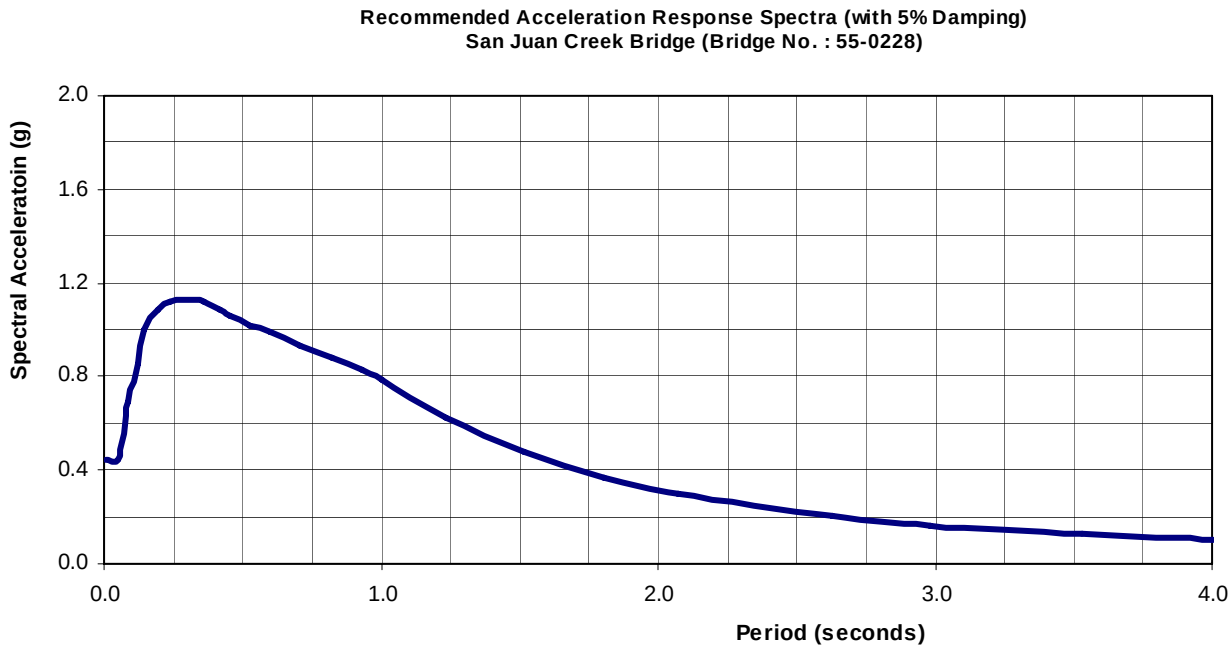
The Newport-Inglewood-Rose Canyon/E (NIE) fault is located about 8.6 km west of the bridge site. The NIE is a strike slip fault and, based on the 1996 Caltrans California Seismic Hazard Map (CSHM), capable of generating a Maximum Credible Earthquake (MCE) of moment magnitude, M=7.0. Based on the Sadigh et al (1997) attenuation relationships and Dr. Mohammed Islam (2008), the median Peak Bedrock Acceleration (PBA) at the site due the MCE associated with the NIE fault is estimated to be about 0.41g.

The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.35g.

The site-to-fault rupture distance for the San Joaquin Hills (SJH) fault is about 10.2 km. The SJH is a blind thrust fault and located north of the site. Caltrans categorized this fault as active for bridge design after the publication of the California Geological Survey's (CGS) 2002 fault database and assigned a MCE of moment magnitude 7.0. Based on the Sadigh et al (1997) attenuation relationships, the median Peak Bedrock Acceleration (PBA) at the site due to the MCE associated with the SJH fault is estimated to be about 0.44g. The corresponding median Peak Ground Acceleration (PGA) at the site is estimated to be about 0.40g.

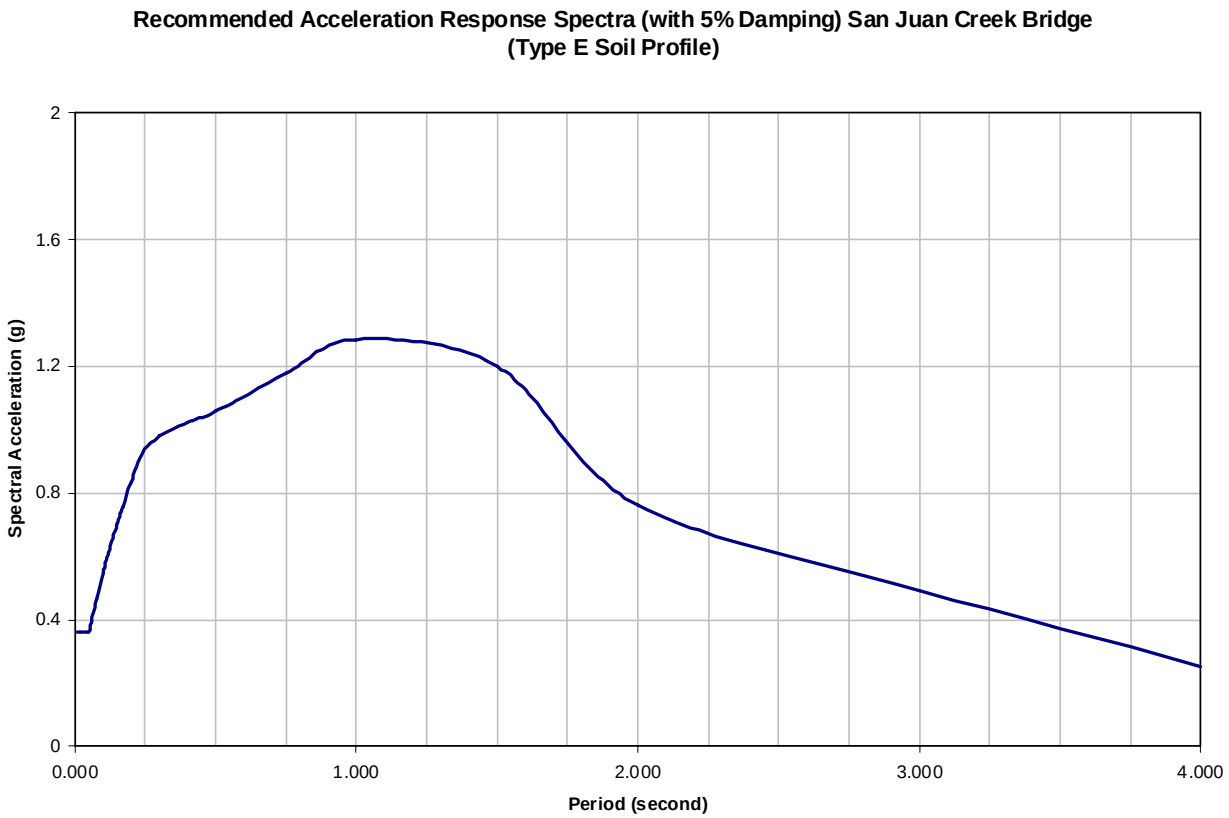
Based on the above information, the San Joaquin Hills (SJH) fault with a MCE of moment magnitude M=7.0 is the controlling fault for the subject bridge site. For the purpose of design ARS, the PBA can be rounded to 0.4g. The design PGA should be taken as 0.4g.

Standard Caltrans ARS corresponding to a PBA of 0.4g and a moment magnitude M=7.0 were modified to account for near fault effects. The ARS Curve and ARS coordinates table are presented below for Type D Soil Profile from Standard SDC Curve (to be used for the analysis of the non-liquefaction case).



Period (s)	**Spectra Acceleration (g)**
0.010	0.440
0.050	0.440
0.089	0.689
0.122	0.854
0.148	0.999
0.196	1.083
0.241	1.121
0.271	1.129
0.300	1.129
0.338	1.125
0.338	1.125
0.358	1.119
0.422	1.088
0.456	1.063
0.524	1.017
0.596	0.988
0.706	0.935
0.825	0.880
0.930	0.828
1.007	0.787
1.236	0.621
1.516	0.478
1.802	0.371
2.075	0.297
2.629	0.207
2.982	0.166
3.529	0.125
4.000	0.101

Standard Caltrans ARS corresponding to a PBA of 0.4g and a moment magnitude M=7.0 were modified to account for near fault effects. The ARS Curve and ARS coordinates table are presented below for Type E Soil Profile from the Standard SDC Curve (to be used for the analysis of the liquefaction case).



Period (s)	Spectral Acceleration (g)
0.010	0.364
0.020	0.364
0.030	0.364
0.050	0.364
0.075	0.464
0.100	0.551
0.120	0.614
0.150	0.702
0.170	0.756
0.200	0.833
0.240	0.929
0.300	0.979
0.400	1.023
0.500	1.059
0.750	1.178
1.000	1.285
1.500	1.200
2.000	0.762
3.000	0.494
4.000	0.254

3.1 Surface Fault Rupture Hazard Evaluation

There are no active faults nearby pursuant to the Alquist-Priolo Earthquake Fault Zoning Act (APEFZA). The bridge site is not located within the confines of an Earthquake Fault Zone (EFZ) as defined by the California Department of Conservation (Special Publication 42, 1997) and no well-defined fault traces have been mapped within the project limits. Therefore, the possibility of surface fault rupture hazard at the bridge site is considered low.

3.2 Liquefaction Potential

The area is mapped as being within a potentially liquefiable zone by the California Geological Survey (Davis, J.F., 2001). Based on OGDS1's recent geotechnical investigation/sampling/testing program, the as-built data (loose to medium dense sandy soils with low fines content at the project site), recently acquired groundwater information combined with As-Built groundwater data, the site is considered liquefiable. A site-specific liquefaction and seismically-induced settlement analysis was performed during the Foundation Report phase of the project based on the field investigation data, laboratory testing, and current/historic groundwater information. Dr. Mohammed Islam (November 26, 2008) provided the following site specific summary and Table No. 1 below with comments. OGDS1, Branch D, also calculated liquefaction potential and post-liquefaction ground settlement with values very close to those provided below. OGDS1 added the Elevation Ranges within the table below.

Table No. 1 - Liquefaction Hazard:

Boring No.	Support Location	Depth of Liquefied Soils (FS≤1.0)[1]/ Elevation Range (ft)	Thickness of Liquefied Soils (ft)	Estimated Range of Post-Liquefaction Ground Settlement (inches)[2]
B-08-008	Abutment 1	48.0 to 58.0 (+59.3 to +48.3)	10.0	1.4 – 1.8
B-08-010	Pier 3	0.0 to 25.0 (+64.9 to +39.9)	25.0	3.0 to 4.0
B-08-011	Pier 4	0.0 to 23.0 (+64.2 to +41.2)	23.0	3.5 to 4.5
B-08-013	Abutment 5	40.0 to 47.0 (+64.3 to +57.3)	7.0	1.0 to 1.2

Notes: (1) Factor of Safety (FS) against liquefaction estimated using Youd et al (2001) and Boulanger and Seed (2006)
(2) Estimated using Tokimatsu and Seed (1987)

Lateral spreading potential appears to be low at the abutments. According to Dr. Mohammed Islam (personal commun., December 12, 2008) a series of pseudo-static slope stability analyses were performed resulting in abutments not considered susceptible to lateral spreading. However, results showed the estimated factor of safety against lateral spreading of the abutments is about 1.0. Due to this relatively low factor of safety, it was suggested that considerations be given to improve the potentially liquefiable soil beneath the bridge abutments. Soil improvement (such as pressure grouting) beneath the abutments might also be considered in additional future projects regarding this bridge.

OGDS1 has considered the loss of axial resistance and downdrag effect on pile foundations due to liquefaction. Structures Design in collaboration with OGDS1, has also considered the loss of lateral resistance for pile foundations.

4.0 GEOTECHNICAL INVESTIGATION

4.1 Field Exploration

The field investigation was performed from February 20, 2008 to September 25, 2008. The field investigation included four – 4.5 inch diameter rotary sample borings. Standard Penetration Tests (SPT's) and undisturbed sampling were taken at the borings. SPT N values were recorded at 5 foot intervals during drilling. The SPT's were performed in accordance with ASTM Test Method D1586-84 using a standard 1.4 inch I.D. sampler with a 140-pound hammer, free-falling 30 inches. Undisturbed tube soil samples were also obtained using a 2 inch I.D. modified California Split Spoon Sampler with 4 inch long brass liners. The liners were all capped and sealed in the field. Caltrans drill rig models CS 2000, CME 85, and CME 750 all with automatic hammers were used. A summary of the rotary sample borings is listed in Table No. 2. The location (measured from culture/existing bridge supports) and elevations of the four exploratory borings (surveyed by OGDS1 with benchmarks provided by District 12 Design and Surveys) are provided below.

Table No. 2 – Summary of Soil Borings

Soil Boring No.	Rte 5 Offset and Centerline Rte. 5 ("B"Line) Stationing (ft)	Top of Boring Elevation (ft)	Boring Depth (ft)	Date Drilled
R-08-008	81 ft Lt. Sta. 477+31.0	+107.3	124.2	02-25/27-2008
R-08-010	98 ft Lt. Sta. 480+95	+64.9	122.3	09-16/17-2008
R-08-011	76.4 ft Lt. Sta. 482+28	+64.2	117.2	09-23/25-2008
R-08-013	66 ft Lt. Sta. 484+86.0	+104.3	132.3	02-20/26-2008

Note: 1. The boring elevations are based on the survey results provided by OGDS1.
2. The Temporary Bench Marks (SUHV-61 and SUHV-32) were provided by Caltrans District 12 Surveys.

4.2 Laboratory Testing

Selected soil samples were sent to the District 7 Materials Laboratory in Los Angeles and the HQ Transportation Laboratory in Sacramento for laboratory testing. Soil samples were tested for sieve/mechanical analysis, moisture content, Atterberg Limits, direct shear, unconfined compression, and corrosion tests. A laboratory test summary is shown in Table No. 3, below. Laboratory tests were performed in accordance with ASTM standard procedures and California Test Methods.

Table No. 3 – Summary of Laboratory Testing

Test	Standard Tests
Sieve Analysis	CTM 202/ASTM D422 (#200 by ASTM D1140)
Mechanical Analysis (Hydrometer)	CTM 203/ASTM D4318
Moisture Content	CTM 226/ASTM D2937 or D2216
Atterberg Limits (Plasticity Index)	CTM 204/ASTM D4318
Direct Shear	ASTM D3080
Unconfined Compression	ASTM D2166
Corrosion – pH	CTM 643
Corrosion – Resistivity	CTM 532
Corrosion – Chloride Content	CTM 422
Corrosion – Sulfate Content	CTM 417

5.0 CORROSIVITY

Corrosion tests have been performed on 12 specific soil samples, 19 composite soil samples, and 2 specific stream water samples collected during the recent field investigation for the subject bridge. Corrosion test results are summarized in Table No. 4 below. Tests show that fill, alluvial deposits, possible landslide material (Abutment 1 only), and Capistrano siltstone/mudstone material (Pier 3 and Abutment 1 at depth) at and beneath the bridge are generally **corrosive**. Surface water samples (within the stream channel) were considered slightly corrosive by the Caltrans Corrosion Technology Branch. No drilling/sampling/testing was done at Pier 2 due to difficulties with access/permits, however, Pier 2 soils are also considered corrosive. The controlling corrosion parameters are as follows:

6.04 pH
6800 ppm Sulfate
1300 ppm Chloride

Table No. 4 - Corrosion Test Summary for Southbound I-5 Widening, PM 8.83/8.94, San Juan Creek Bridge Left Side Widen, Br. No. 55-0228

Boring No./ Sample No./ LA Lab No. or SIC No.	Depth Interval (ft)	Elevation Range (ft)	USCS Symbol/ Unit	pH *	Minimum Resistivity (ohm-cm) *	Sulfate Content (PPM)	Chloride Content (PPM)
Abutment 1:							
R-08-008 S# 2 C100997	10.0 to 11.5	+97.3 to +95.8	ML/MH (fill)	6.83	600	3000	20
R-08-008 S# 3 C100998	15.0 to 16.5	+92.3 to +90.8	CL/ML (fill)	6.04	890	720	13
R-08-008 S# 4 C100999	20.0 to 21.5	+87.3 to +85.8	CH,ML (fill)	6.43	930	6700	110
R-08-008 S# 5 C101000	25.0 to 26.5	+82.3 to +80.8	CH (fill)	6.27	910	3100	1300
R-08-008 S# 6 C101001	30.0 to 31.5	+77.3 to +75.8	ML/CL (fill)	6.60	550	3800	1200
R-08-008 S# 8 C101002	40.0 to 41.5	+67.3 to +65.8	SM,CH (fill/alluvium)	7.00	690	5400	380
R-08-008 S# 10 0421	50.0 to 51.5	+57.3 to +55.8	SM (alluvium)	6.98	2100	NA	NA
R-08-008 S# 12 C101003	60.0 to 61.5	+47.3 to +45.8	CH (alluvium/ possible Qls)	8.19	810	2900	170
R-08-008 S# 15 C101004	75.0 to 76.5	+32.3 to +30.8	CH (alluvium/ possible Qls)	8.67	710	6800	220
R-08-008 S# 17 C101005	85.0 to 86.5	+22.3 to +20.8	CH (alluvium/ possible Qls)	7.71	690	5300	260
R-08-008 S# 19 C101006	90.0 to 91.5	+17.3 to +15.8	CH (alluvium/ possible Qls)	7.82	740	6100	230
R-08-008 S# 20 C101007	100.0 to 101.5	+7.3 to +5.8	CH (alluvium/ possible Qls)	7.74	530	3500	250

Table No. 4 (cont'd) - Corrosion Test Summary for Southbound I-5 Widening, PM 8.83/8.94, San Juan Creek Bridge Left Side Widen, Br. No. 55-0228

Boring No./ Sample No./ LA Lab No. or SIC No.	Depth Interval (ft)	Elevation Range (ft)	USCS Symbol/ Unit	pH *	Minimum Resistivity (ohm-cm) *	Sulfate Content (PPM)	Chloride Content (PPM)
San Juan Creek (active channel) between Piers 2 and 3:							
San Juan Creek (upstream, beneath east side Br. No. 55-0228) C4693778A	0 (stream surface water)		stream water sample	7.15	337	1366	465
San Juan Creek (downstream ,beneath west side Br. No. 55-0228) C4693778B	0 (stream surface water)		stream water sample	7.18	325	1369	466
Pier 3:							
R-08-010 S#3,5-7,10, 12 C4693776A	7.3 to 30.8	+57.6 to +34.1	SW,SM,ML, CL (alluvium)	7.01	1404	NA	NA
R-08-010 S#14-16,18, 20,21 C4693776B	32.3 to 52.3	+32.6 to +12.6	SM,SP (alluvium)	7.35	1642	NA	NA
R-08-010 S#22-24,26, 27 C4693776C	52.3 to 67.3	+12.6 to –2.4	SM,SC,CH (alluvium)	6.95	963	610	66
R-08-010 S#31-36 C4693776D	74.3 to 88.0	–9.4 to –23.1	ML,SP,SM, CH (alluvium)	7.70	2360	NA	NA
R-08-010 S#38-43 C4693776E	92.3 to 107.3	–27.4 to –42.4	CH (probable Capistrano Mudstone)	6.78	447	1400	158
R-08-010 S#44-48 C4693776F	107.3 to 122.3	–42.4 to –57.4	CH (probable Capistrano Mudstone)	7.09	301	2400	290
Pier 4:							
R-08-011 S#2,4-6,8-10 C4693777A	5.9 to 27.4	+58.3 to +36.8	SM,ML,SP, SW (alluvium)	7.16	1649	NA	NA

Table No. 4 (cont'd) - Corrosion Test Summary for Southbound I-5 Widening, PM 8.83/8.94, San Juan Creek Bridge Left Side Widen, Br. No. 55-0228

Boring No./ Sample No./ LA Lab No. or SIC No.	Depth Interval (ft)	Elevation Range (ft)	USCS Symbol/ Unit	pH *	Minimum Resistivity (ohm-cm) *	Sulfate Content (PPM)	Chloride Content (PPM)
R-08-011 S#13-18 C4693777B	32.4 to 47.4	+31.8 to +16.8	SW,SM,ML (alluvium)	8.13	2065	NA	NA
R-08-011 S#19-23,25 C4693777C	47.4 to 65.9	+16.8 to –1.7	SW,SM,GP (alluvium)	8.03	2048	NA	NA
R-08-011 S#31-35 C4693777D	77.4 to 90.9	–13.2 to –26.7	SW,SM,ML, CH (alluvium)	8.03	1900	NA	NA
R-08-011 S#36,37,39, 40 C4693777E	90.9 to 102.4	–26.7 to –38.2	CH,SM, GW-GM (alluvium)	7.51	660	1090	109
Abutment 5:							
R-08-013 S# 1-3,5,6, 8,9 C100979	1.3 to 26.0	+103.0 to +78.3	SM,CH/CL (fill)	8.81	580	4100	300
R-08-013 S# 10,11a C100980	26.0 to 29.0	+78.3 to +75.3	CH/CL (fill)	8.60	560	2200	530
R-08-013 S# 12-20 0373	31.0 to 52.5	+73.3 to +51.8	SW,SM (alluvium)	8.51	2200	NA	NA
R-08-013 S# 21-26 0374	52.5 to 67.5	+51.8 to +36.8	SW,SM,SP (alluvium)	9.39	1900	NA	NA
R-08-013 S# 28-32 0375	71.0 to 82.5	+33.3 to +21.8	SW,SP,CH, ML (alluvium)	7.56	2100	NA	NA
R-08-013 S# 33-38 0376	82.5 to 97.5	+21.8 to +6.8	SM,SW,ML (alluvium)	7.03	1300	NA	NA
R-08-013 S# 39-46 C100981	97.5 to 117.5	+6.8 to –13.2	SW,SP,CH, ML (alluvium)	7.53	860	520	88
R-08-013 S# 48-52 0378	121.0 to 132.3	-16.7 to –28.0	SW,SP,CH, ML (alluvium)	7.39	1000	NA	NA
Corrosive Guidelines				**≤5.5**	<1000	**≥2000**	**≥500**

NA = not applicable

*It is the practice of Caltrans Corrosion Technology Section (with the exception of MSE Walls) if the minimum resistivity of the sample is greater than 1000 ohm-cm and the pH is greater than 5.5, the sample is considered to be noncorrosive. For structural elements, the California Department of Transportation considers a site to be corrosive if one or more of the following conditions exist for representative soil and/or water

samples taken at the site: Chloride concentration ≥500 ppm, sulfate concentration ≥2000 ppm, or the pH is ≤5.5. Corrosion mitigation is required if one or more of the 3 conditions noted above exists where structural elements are involved (Caltrans Corrosion Guidelines, September 2003). Since resistivity serves only as an indicator parameter for the possible presence of soluble salts, it isn't included to define a corrosive area (distinguished by light face print above).

6.0 AS BUILT BRIDGE FOUNDATIONS

The San Juan Creek Bridge (Bridge Number 55-0228) was constructed in 1958 and outside widened (with minor inside widening) in 1969. It is a simply supported four-span composite welded steel girder bridge with reinforced concrete open-end cantilever abutments and solid pier walls. The reinforced concrete open-end abutments and solid pier walls are supported on concrete driven piles. The As-Built foundation data are shown in Table Nos. 5 and 6 below. Abutment driven concrete piles are both plumb and battered and Pier driven concrete piles are vertical only.

As-Built pile/soil axial and lateral resistances were not calculated due to uncertainties in: 1) soil types underlying the bridge (percentage of fines, susceptibility to liquefaction and scour, soil strengths and apparent density), 2) soil unit geometry, distribution, and thickness beneath the bridge (lack of detailed boring information with accompanying laboratory testing of soils), and 3) liquefaction and scour potential on the middle and upstream side of the existing bridge.

Note: All English unit elevations shown on the As-Built Plans and LOTB and provided within this report are based on assumed NGVD29 datum. The As-Built datum will require a corresponding shift amount (add) from D12 Surveys for correlation with current updated plan elevations (based on NAVD88 datum) for the planned bridge widening.

Table No. 5 – "As Built" Pile Data for 1958 Original Construction of San Juan Creek Left and Right Bridges, Br. No. 55-0228

		Elevation (ft)		
Support Location	**Pile Type**	**Bottom of the Pile Footing**	**Specified Pile Tip**	**Average As-Built Pile Tip**
Abutment 1	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Taper), Tip – 9½" Butt – 16"	+78.0	+20.0	+19.0
Pier 2	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Taper), Tip – 9½" Butt – 16"	+56.0	+15.0	+14.0
Pier 3	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Taper), Tip – 9½" Butt – 16"	+56.0	+15.0	+15.0
Pier 4	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Taper), Tip – 9½" Butt – 16"	+56.0	+15.0	+14.0
Abutment 5	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Taper), Tip – 9½" Butt – 16"	+78.0	+20.0	+20.0

***Note – Tapered steel shell infilled with Class A concrete.**

Table No. 6 – "As Built" Pile Data for 1969 Widening of San Juan Creek Left and Right Bridges, Br. No. 55-0228

		Elevation (ft)		
Support Location	**Pile Type**	**Bottom of the Pile Footing**	**Specified Pile Tip**	**Average As-Built Pile Tip**
Abutment 1	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Step Taper), Tip – 10" and 12" Butt – 15"	+78.0	+20.0*	Lt. Bridge - +14.0 Rt. Bridge - +12.0
Pier 2	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Step Taper), Tip – 10" and 12" Butt – 15"	+56.0	+15.0*	+15.0
Pier 3	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Step Taper), Tip – 10" and 12" Butt – 15"	+56.0	+15.0*	+14.8
Pier 4	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Step Taper), Tip – 10" and 12" Butt – 15"	+56.0	+15.0*	+15.0
Abutment 5	45-ton, Cast-in-Place Concrete Pile, Alt. "Z" (Raymond Step Taper), Tip – 10" and 12" Butt – 15"	+78.0	+20.0*	+14.6

* Specified pile tip elevations were assumed to be similar to the original construction. Piles are Class I driven concrete piles.

7.0 FOUNDATION RECOMMENDATIONS

The following recommendations are based on the recently completed field investigation (drilling/sampling completed September 2008), the San Juan Creek Bridge (Widen) General Plan, Foundation Plans, Abutment and Pier Layouts and Details, and Retaining Wall Details (P & Q Plans plotted February 17, 2009). Mr. Richard Schendel (Structures Design) provided final pile type, pile diameters/perimeters and required loading for various Load Resistance Factor Design (LRFD, piers), Working Stress Design (WSD, abutments), and Load Factor Design (LFD, retaining walls) cases for the foundations on February 1,

2009. Various personal communications with Messrs. Richard Schendel (December 2008 through March 2009) and Prem Rimal (May 2008 through January 2009) helped clarify design concerns. Also, Dr. Mohammed Islam provided pertinent summaries and communications (from November 2008 through March 2009) on seismicity, liquefaction, seismically induced ground settlement, and lateral spreading issues which were considered then mitigated within the foundation design. Scour was also considered specifically for the left side widening at the Piers but potential liquefaction (Compression, Extreme Event) controlled the pile lengths/specified pile tips. At the Piers, sacrificial steel thickness was considered to be 0.075 in. for the life of the bridge widening by Caltrans Corrosion Technology Branch (0.001 in./yr corrosion allowance). Structures Design considered 0.425 in. steel pipe thickness (after subtracting out the sacrificial steel thickness) for the CISS piles was structurally adequate. CISS piles will be reinforced and infilled with concrete to at least the level where bending resistance is considered adequate by Structures Design. Concrete infill and reinforcement can be completed in the dry after a minimum 2 ft thick seal course is placed towards the anticipated bottom of the pile.

Fills can be placed in accordance with Section 19-6 of the 2006 Standard Specifications. End dumping is not permitted. At the Abutments 1 and 5 areas, additional approach fill is estimated to be 22 ft maximum height. Calculated maximum settlement from static loads (Hough's Method) is 2 inches at Abutments 1 and 5. OGDS1 recommends a fill settlement period of 60 days. The actual settlement period may be shortened by the project engineer on the basis of monitoring the settlement in the field.

Structure Approach Type R(30S) slabs will be incorporated with the proposed widening as shown on the General Plan.

The bridge left side widening can be supported on vertical and battered Driven Class 200 Concrete piles (Alternative "X" precast prestressed concrete piles) at the Abutments and vertical Cast-in-steel-shell (CISS) piles (PP24 X 0.500 in. thickness) at the Piers as shown in Table No. 7 below. Driven concrete and CISS axial pile capacities and static settlement were calculated using the 2007 A-Pile Plus 5.0 Program (FHWA Method for driven concrete piles and API Method for CISS piles) and the Driven Pile Program (Version 1.2) and spreadsheets.

Table No. 7 - Pile Data Table for San Juan Creek (Left Side Widen), Br. No. 55-0228

Location	Pile Type (in)	Nominal Resistance (kips)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		Compression	Tension			
Abut. 1	Class 200 Concrete	280	140	+35.0 (a) +43.0 (b) +51.0 (c) + 38.0 (e)	+35.0	281
Pier 2	CISS PP 24 x 0.500	550	210	-19.0 (a-I) -31.0 (a-II) -11.0 (b-II) -18.0 (c)	-31.0	625
Pier 3	CISS PP 24 x 0.500	550	210	-17.0 (a-I) -30.0 (a-II) - 7.0 (b-II) -17.0 (c)	-30.0	675
Pier 4	CISS PP 24 x 0.500	550	210	-17.0 (a-I) -37.0 (a-II) -5.0 (b-II) -17.0 (c)	-37.0	680
Abut. 5	Class 200 Concrete	280	140	+41.5 (a) +47.0 (b) +53.0 (c) + 41.5 (e)	+41.5	350
Abut 1 Ret Wall (H=22 ft)	Class 200 Concrete	180	90	+46.3 (a) (c)	+46.3	180
Abut 1 Ret Wall (H=18 ft)	Class 200 Concrete	180	90	+46.3 (a) (c)	+46.3	180
Abut 5 Ret Wall (H=20 ft)	Class 200 Concrete	180	90	+54.0 (a) (c)	+54.0	180
Abut 5 Ret Wall (H=16 ft)	Class 200 Concrete	180	90	+54.0 (a) (c)	+54.0	180

Notes:

1) Design tip elevations for Abutments are controlled by: (a) Compression,(b) Tension (c) Settlement, (e) Extreme Event – Liquefaction Load, respectively.

2) Design tip elevations for Piers are controlled by: (a-I) Compression (Strength Limit), (a-II) Compression (Extreme Event), (b-II) Tension (Extreme Event) Load, (c) and Settlement, respectively.

3) The specified tip elevation shall not be raised above the design tip elevations for Tension, Settlement, and Lateral Load.

4) The nominal driving resistance required is equal to the nominal resistance needed to support the factored load plus driving resistance from the unsuitable penetrated soil layers (very soft, liquefiable, scourable, etc.), which do not contribute to the design resistance. Unsuitable soil layers at Piers 2 and 3 extend down to elevation +39.9 ft Also unsuitable soil layers at Pier 4 extends down to elevation +41.2 ft .
5) Design tip elevation for Lateral Load is typically provided by SD.

At the Abutments (for the liquefiable case), required axial resistance was gained in skin friction only with pile settlement ranging from 2.3 to 1.7 in. maximum following a seismic event with liquefaction. For the static case (no liquefaction), nominal axial resistance was gained using both skin friction and end bearing with pile settlement under 1 in.

For Piers 2 and 3 CISS piles, skin friction resistance was paramount with no plug assumed at the pile tip for axial nominal resistance (only the end area of the pipe with no plug was used for end bearing). For Pier 4 CISS piles, skin friction resistance was again paramount but a soil plug was assumed at the pile tip for axial nominal resistance under the controlling extreme event (liquefiable case).

8.0 GENERAL NOTES

Support locations are to be plotted on the Log of Test Borings, in plan view, as stated in "Memos to Designers" 4-2. The plotting of support locations should be made prior to the foundation review.

9.0 CONSTRUCTION CONSIDERATIONS

1. OGDS1 anticipates shallow groundwater and possibly surface water will be encountered during foundation construction in the San Juan Creek channel. Groundwater depth ranged from 1.3 to 1.4 ft beneath the channel surface (elevations +63.6 to +62.8 ft) during the recent exploratory drilling program. Seal courses are recommended at the Pier widenings as the bottom of the Pier pile cap (elevation +57.45± ft) is approximately 5 to 6 ft below the encountered groundwater. Groundwater may fluctuate with the seasons, especially within the channel area, however seal courses at the Piers are recommended by OGDS1 as shallow water was observed during earlier contractor excavations and during exploratory drilling. Seal courses (a minimum of 2 ft

thick) are also recommended within the CISS piles to seal out water before pile reinforcement and concrete are placed within the piles. There is uncertainty whether a plug will form within the 24 in. diameter pipe piles so seal courses within the pile are recommended.

2. Driven open-ended steel pipe piles (CISS piles at the Piers), may require center relief drilling if hard/dense layers are encountered. If center relief drilling is necessary, the CISS piles should be driven past center relief drilling depth. No center relief drilling is allowed within 4 pile diameters of specified pile tip elevation.
3. Open-ended steel pipe piles (CISS piles at the Piers) can generally be driven through sporadic hard/dense layers to reach specified pile tip elevation. The pile section for the PP24X0.500 in. CISS piles is generally thick enough to penetrate hard driving conditions in dense to very dense sand and some gravel layers. Sporadic hard driving is anticipated above pile tip elevation for Piers 2 and 3 at approximate elevations +56 to +54 ft and –15 ft to specified pile tip elevation. For Pier 4, sporadic hard driving is anticipated from elevations +60 to +44 ft, +24 to –7 ft, and –20 ft to specified pile tip elevation. Hard driving is generally anticipated within gravel layers with sporadic cobbles and a trace of boulders. Hard driving may also be encountered near specified pile tip elevation as the Capistrano Formation may be encountered.
   Driven concrete piles at Abutment 5 may encounter hard driving conditions between approximate elevations +67 to +58.
4. Due to the proximity of an existing structure, vibration monitoring during pile driving is recommended.
5. Temporary shoring may be necessary to facilitate safe pile cap construction or excavations steeper than 1V:1H.
6. All earthwork is expected to be carried out by conventional equipment. Fill placed on sloping ground shall be properly keyed and benched into existing ground and placed as specified in Section 19-6 of the Caltrans Standard Specifications (July 2002). If imported materials are used to construct the new fill embankment, the material should be tested during grading to assess expansion potential. Only non-expansive or soils having low expansion potential (EI less than 50) should be used in the Soil Expansion Exclusion Zone in bridge approach embankment and within 3 m of the roadbed subgrade elevation.
7. Free water shall not be allowed to stand in any excavations. If excavations become flooded, at least the bottom 0.15 m of soils shall be removed and replaced or recompacted per Caltrans specifications.

If significant future design changes are made from that shown on referenced plans/information within this report, OGDS1 should be notified. OGDSl should review the changes to verify that the foundation recommendations provided within this report remain applicable.

If you have any questions or comments, please call Joe Pratt at (213) 620-2313 or Shiva Karimi at (213) 620-2146.

Prepared by: Date: 4/2/09

Joseph S. Pratt

Joe Pratt, C.E.G. No. 2141
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Supervised by: Date: 04/02/09

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cc: Ahmed Abou-Abdou – Dist 12 Proj. Mnmgt.
Mili Lim – Dist 12 Design Branch A Senior
Rick Ngo – Dist 12 Design Branch A
Mohammed Islam – OGDS1 Seismic Specialist (MS-5)
OGDSl File - Sacramento (MS-5)
OGDSl LA File

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State of California

Business, Transportation and Housing Agency

Memorandum

To: Milli Lim, Chief
Design Branch A

Date: January 15, 2009

File: 12-ORA-5
PM 8.58-9.38
EA-0E5701

From: **DEPARTMENT OF TRANSPORTATION**
District 12
Materials and Research Branch

Cat: 441.01

Subject: **Transmittal of Final Materials Letter Report for Improvements to Southbound I-5 at Camino Capistrano in Orange County, California.**

Attached please fine the Final Materials Letter Report for the above referenced project. If you need additional information, please contact Mehrdad Mahdavian at X-4927

Prepared by:

Mehrdad Mahdavian, P.E.
Materials & Research Branch
Division of Project Delivery
RCE No. 47566

Concurred by:

Behdad Baseghi, Ph.D., P.E., G.E.
Chief, Materials & Research Branch
Division of Project Delivery
RCE No. 47051, GE No. 2310

Cc: Frank Lin, Rick Ng, File

"Caltrans Improve Mobility Across California"

State of California

Business, Transportation and Housing Agency

Memorandum

To: Milli Lim, Chief
Design Branch A

Date: January 15, 2009

File: 12-ORA-5
PM 8.58-9.38
EA-0E5701

From: **DEPARTMENT OF TRANSPORTATION**
District 12
Materials and Research Branch

Cat: 441.01

Subject: **Final Materials Letter Report for Improvements to Southbound I-5 at Camino Capistrano in Orange County, California.**

In accordance with your request, Materials and Research (M&R) Branch has reviewed the Project Study Report submitted for the above-referenced project and conducted Field investigation, sampling and laboratory testing in order to provide you with recommendations for pavement structural sections for the proposed rehabilitation.

Purpose and Scope of Study

The purpose of this Materials Letter Report is to provide pavement and materials related recommendations and to assist the Design Branch in preparing Project Plans, Specifications, and Estimates (PS&E). This Materials Letter Report presents the findings, conclusions and recommendations for widening of Southbound I-5 from south of Ortega Highway to Camino Capistrano Off-ramp and On-ramp, including portions of Camino Capistrano in City of San Juan Capistrano, California by adding an Auxiliary lane and a shoulder in accordance with Topic 114 of Highway Design Manual (2006)

The scope of work provided for this project included the following tasks:

- Collection and review of available reports and subsurface information;
- Field exploration consisting of drilling exploratory borings and sampling,
- Laboratory testing of selected bulk soil samples;
- Engineering analysis to develop design and recommendations; and
- Preparation of this report presenting our findings, conclusions and recommendations.

Existing Facility

I-5 is a major North-South Interstate freeway that is heavily used for interstate and interregional transportation. In Orange County, I-5 spans a distance of 44.3 miles from San Diego County line to Los Angeles County Line. During peak hours, I-5 operates under recurrent traffic congestion within the project limits in Orange County. The proposed project is an operational improvement

"Caltrans Improve Mobility Across California"

to improve the Level of Service (LOS), improve storage capacity of the single auxiliary lane southbound I-5 Off-ramp at Camino De Estrella, thus preventing traffic from queuing onto the freeway.

Proposed Project Improvement

The proposed project improvements include the following:

1. Adding an Auxiliary Lane on Southbound I-5 between Ortega Highway and Camino Capistrano in the City of San Juan Capistrano.
2. Adding an Auxiliary Lane on Southbound I-5 Off-ramp and On-ramp at Camino Capistrano.
3. Widening of Camino Capistrano in both directions at the interchange with I-5.
4. Widening of San Juan Creek Bridge No. 55-228L including the approach slab area.

Terrain and Surface Drainage

The project site is located in an industrial/residential area. The topography of the roadway alignment slopes down gently from north to south. Drainage is generally toward the outer shoulders in the traveled way, and toward south along the centerline and median shoulder.

Summary of Field Investigation

Our field investigation was conducted on September 26, 2007 and consisted of coring I-5 at two (2) locations (See Coring MB-1 and MB-2 shown on Boring Location Layout Plans) We also cored SB Off-ramp and On-ramp to and from Camino Capistrano, as well as two locations near NB edge of Camino Capistrano, within Caltrans R/W (See Coring MB-3 through MB-6 shown on Boring Location Layout Plans). Coring of AC pavement section was conducted at each location, followed by auguring of subgrade soils. Borings MB-4 and MB-6 were conducted in the soil due to presence of various utilities within the Camino Capistrano roadway limits. The purpose of this investigation was to measure the thickness of various pavement sections and to evaluate presence of any base or subbase, as well as sampling of subsurface soils beneath the pavement for laboratory testing and evaluation. Table 1 presents summary of Coring data as compared to As-built plans.

Each boring was drilled to a depth of about 5 Feet, using a small powered auger and soil samples collected from the subsurface soils were sent to District 7 laboratory for testing. Table 3 presents summary of Laboratory Test Results for these samples.

Subsurface and Groundwater Conditions

Corings MB-1, and MB-2 which were drilled in the right shoulder of SB I-5 near Stations 493+00, and 487+50 respectively, encountered about 4 inches of AC over 6 inches of broken-up CTB over silty sandy soils. Coring MB-3, which was drilled in the right shoulder of Camino Capistrano Off-ramp near Station 472+00 encountered about one inch of OGAC over about 4

inches of AC over 6 inches of CTB followed by native silty sandy. Soil sample from native soils were taken from outside the shoulder due to mixing of native and CTB by the auger. Corings MB-4 and MB-6 were drilled in the dirt adjacent to the right shoulder of NB Camino Capistrano near Stations 144+00, and 136+10 due to presence of utilities within the roadway. Both corings encountered dry clayey sand with no sample recovery. Hand auger was used to collect samples from upper 3 feet for laboratory testing. Coring MB-5, which was drilled in the right shoulder of SB Camino Capistrano On-ramp MVP near Station 467+00 encountered about 4 inches of AC over 6 inches of CTB followed by native silty sandy soil. Soil sample from native soils were taken from outside the shoulder due to mixing of native and CTB by the auger. We did not encounter any groundwater during our coring and have no information regarding the groundwater elevations in this area. Roadway Geotechnical Design-South shall address the groundwater issues. All the pavement thicknesses are estimated and need to be verified during construction. **It is required that groundwater levels be kept a minimum of 5 feet below the pavement structural section.**

Cut and Fill Construction

Construction of the roadway subgrade requires minor cut and fill operation within the roadway R/W. All import fill material that is going to be placed within 4 feet of finished grade shall have an R-value of at least 40 and an Expansion Index of less than 50 and it shall be non-corrosive to metals and concrete specially if any underground utilities or structures are planned to be constructed within the embankment.

Estimate of Settlement

Settlements of the roadway fill and subsurface are expected to be negligible.

Seismic Considerations

Roadway Geotechnical Design-South shall provide recommendations for seismic design including liquefaction/seismic settlement and lateral spreading as applicable.

Earthwork Factors

All earthworks shall conform to requirements of Section 19 of Caltrans May 2006 edition of Standard Specifications, and project Special Provisions. Imported borrow will be the major supply of materials needed for construction of roadway subgrade. Source of imported borrow is unknown at this time therefore, earthwork factors cannot yet be determined.

Corrosion Testing

Soil samples obtained from Borings MB-1, through MB-6 were sent to District 7 Materials Laboratory for pH and resistivity testing. Soil samples MB-3 and MB-6 had resistivity of less than 1000 ohm-cm and therefore were sent to Headquarters for chloride and sulfate content testing in accordance with CTM 422 and CTM 417 respectively. Results of laboratory corrosion

testing are presented in Table 2. Chloride content of both samples were below the 500ppm limit, however sulfate contents of soil sample MB-6 was 2629ppm, which is above the 2000ppm, limit that is considered by Caltrans to be corrosive.

Site Corrosion Recommendations

The source for sub-grade fill for the roadway and depth of any proposed metal pipe within the project limit is not known at this time. Imported borrow used for sub-grade fill shall be non-corrosive and free of properties that adversely affect all concrete and steel structures. It is therefore recommended that for metal pipes and concrete structures, site-specific corrosion tests of the soils surrounding the pipe or structure are performed during construction to verify the corrosivity of the soils along the pipe alignment or the structure. The results of these tests shall be submitted to M&R Branch for review. We will provide you with our recommendation for corrosion mitigation after review of the test results. If concrete structures or pipes are planned to be constructed within the native soils, standard reinforced concrete should be suitable for the level of Chlorides. However Type IP (MS) modified Cement or Type II Modified Cement is recommended for Sulfate resistant concrete. For Corrugated Steel Pipe (CSP) with 50-year minimum service life, it is recommended that a 10 gage (0.14 inch) thick galvanized pipe with bituminous coating on the soil side shall be used. A Corrugated Aluminum Pipe (CAP) or Corrugated Aluminized Steel Pipe (CASP) shall not be used due to corrosive soil conditions. Plastic pipe is also approved for 50-year service life condition, however abrasion must be evaluated.

Traffic Index

A 20-year Traffic Index (TI) value of 15 has been recommended for the Auxiliary Lane by District 12 Traffic Studies Branch in their Memo on October 1, 2007 and has been used in designing the pavement structural sections for the Auxiliary Lane and its shoulder since the Design Branch plans to use PCCP for the Auxiliary Lane. A TI of 12 has been used in the design of the widening areas of both On-ramp and Off-ramp at Camino Capistrano. In an E-mail submitted on January 15, 2008 by Alan Oswald of City of San Juan Capistrano, a TI of 9 has been recommended for use in the design of the pavement for the widening of Camino Capistrano within Caltrans R/W for this section.

Findings, Conclusions and Recommendations

Our field investigation revealed that the existing pavement is somewhat different than what is shown on the As-Built plans provided to us. Attached Table 3 presents a summary of existing pavement as depicted in our coring operation versus the As-built data presented on the April 22, 1997 plans. The main area of difference exists in the pavement section for the SB I-5 Off-Ramp to Camino Capistrano, which has a 0.1 ft layer of OGAC over the As-Built section. The existing San Juan Creek Road Bridge is near the off-ramp followed by the off-ramp lane and PCC Off-Ramp Termini, therefore the Design Branch has recommended using Jointed Portland Cement Pavement for the design of pavement section for the new Auxiliary Lane and the entire off-ramp

in order to avoid multiple transitioning between HMA and PCC Pavement. The following summarizes our recommendations which are also presented in Table 1:

I-5 Auxiliary Lane and Shoulder *(TI_{20}=15, R=19)*

0.9 ft JPCP over 0.5 ft LCB over 0.7 ft Class 2 AS

Camino Capistrano Off-Ramp, and Shoulder *(TI_{20}=12, R=12)*

0.8 ft JPCP over 0.4 ft LCB over 0.6 ft Class 2 AS

Camino Capistrano Off-Ramp MVP *(TI_{20}=12, R=12)*

1.5 ft Type A HMA over 0.5 ft Class 2 AS

Camino Capistrano On-Ramp, Shoulder, and MVP *(TI_{20}=12, R=19)*

1.4 ft Type A HMA over 0.5 ft Class 2 AS

Camino Capistrano Road and Shoulder *(TI_{20}=9, R=10)*

1.1 ft Type A HMA over 0.5 ft Class 2 AS

Materials Available

Imported borrow will be required for replacement of unsuitable soils within the project limits. Materials are available from several commercial suppliers throughout Orange, Los Angeles, Riverside and San Bernardino Counties. Furthermore, the Web-Site of Department of Conservation on the Internet contains a current listing of mining operations eligible to sell materials to the State of California. The page can be accessed at: http://www.consrv.ca.gov/omr/index.htm

Limitations

This report is intended for the use of Caltrans for the proposed I-5 Widening in City of San Juan Capistrano, California. This report is based on the project as described and the information obtained from the exploratory borings at the approximate locations indicated on the attached plans. The findings and recommendations contained in this report are based on the results of the field investigation, laboratory tests, and engineering analyses. In addition, soils and subsurface conditions encountered in the exploratory borings are presumed to be representative of the

project site. However, subsurface conditions and characteristics of soils between exploratory borings can vary. The findings reflect an interpretation of the direct evidence obtained. The recommendations presented in this report are based on the assumption that an appropriate level of quality control and quality assurance (inspections and tests) will be provided during construction. District Materials and Research Branch should be notified of any pertinent changes in the project plans or if subsurface conditions are found to vary from those described herein. Such changes or variations may require a re-evaluation of the recommendations contained in this report.

The data, opinions, and recommendations contained in this report are applicable to the specific design element(s) and location(s) which is (are) the subject of this report. They have no applicability to any other design elements or to any other locations and any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of the District Materials and Research Branch.

Recommended Materials Specifications

1. The Standard Special Provisions shall include a section which states "Portions of imported borrow placed within 4 feet of the finished grade shall have an R-value of not less than 40, a Plasticity Index of less than 12 and an Expansion Index of less than 50.

2. Imported borrow used for embankment shall be non-corrosive and free of properties that adversely affect all concrete and steel structures. It is recommended that for metal pipes and concrete structures, site-specific corrosion tests of the soils surrounding the pipe or structure are performed during construction to verify the corrosivity of the soils along the pipe alignment or the structure. It is recommended that Type II modified cement shall be used for all concrete structures.

3. The materials used in the pavement section shall comply with Section 26 and 39 of Caltrans Standard Specifications (2006).

4. The following is recommended for the pavement structural section widening: Saw cut to full depth and remove the existing AC pavement and shoulder. Excavate to the proposed subgrade elevation for the full width of the proposed widened section in accordance with Section 19-2 of Caltrans Standard Specifications (2006). Compact the in-situ soils at the subgrade elevation to 95% relative compaction in accordance with Section 19-5.03 of Caltrans Standard Specifications (2006). Place the proposed structural sections, to the design thickness provided above, in accordance with the applicable sections of Caltrans Standard Specifications (2006).

5. It is imperative that special attention is given to the mix design, compaction and temperature requirements for Flexible Pavements as stated in Caltrans Standard Specifications and Project Special Provisions.

6. Hot Mixed Asphalt Concrete shall be Type A and aggregate base and subbase shall be Class 2.

7. Extreme care must be taken to ensure moisture sensitive aggregates are not used for AC mix design.

8. Specifications are required for application of prime coat on AS (unbounded layer) as well as application of Tack Coat between various AC lifts and on all vertical cut faces between new and existing pavement. Prior to application of Tack Coat, the roadway surface shall be dry and free from dust particles.

9. The Prime Coat and Tack Coat shall follow requirements in Section 39-4.02 of Caltrans Standard Specifications (2006).

10. Special attention shall be given to the following sections of May 2006 Standard Specifications:

- Section 25: Aggregate Subbases
- Section 26: Aggregate Bases
- Section 28: Lean Concrete Base
- Section 39: Asphalt Concrete
- Section 40: Portland Cement Concrete Pavement
- Section 61: Culvert and Drainage Pipe Joints
- Section 63: CIP Concrete Pipe
- Section 64: Plastic Pipe
- Section 65: RCP
- Section 66: Corrugated Metal Plate Pipe
- Section 68: Subsurface Drains
- Section 73: Concrete Curbs and Sidewalk
- Section 90: Portland Cement Concrete
- Section 92: Asphalts
- Section 93: Liquid Asphalts

- Section 94: Asphaltic Emulsions

11. All Standard Special Provisions (SSPs) to be included in the project shall be submitted for Materials and Research review and approval.

If you have any questions, please call Mehrdad Mahdavian at x-4927.

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Concurred by:

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RCE No. 47051, GE No. 2310

Attachments: Figure 1: Site Location Map
Boring Location Layout Plans
Tables 1 through 3
Laboratory Results

Cc: Frank Lin, Rick Ngo, File

REGISTERED PROFESSIONAL ENGINEER
MEHRDAD MAHDAVIAN
No. C 47566
Exp. 12/31/09
CIVIL
STATE OF CALIFORNIA

"Caltrans Improve Mobility Across California"

FIGURES

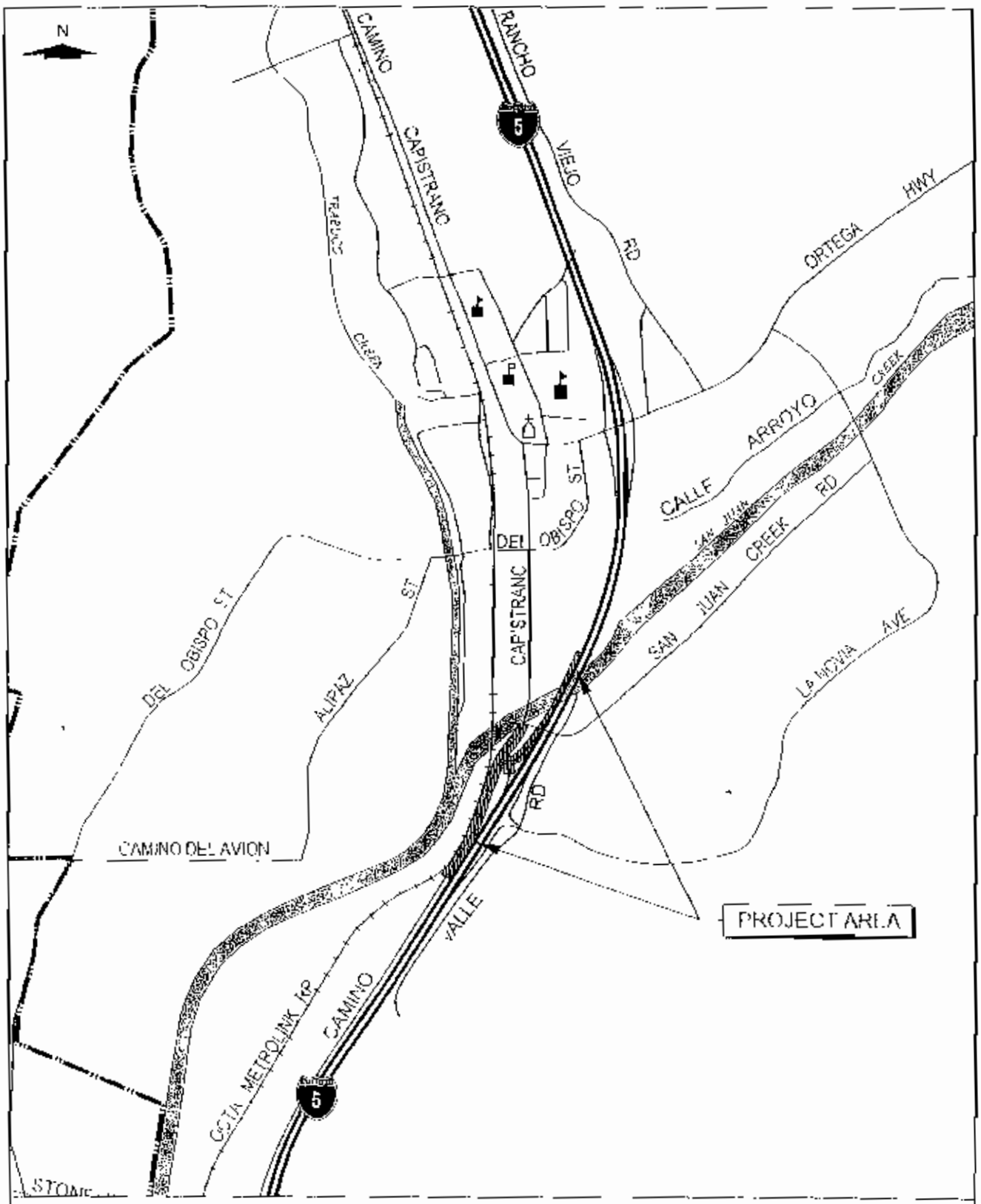

Figure 1: Site Location Map

TABLES

TABLE 1- SUMMARY OF BORING AND SAMPLING DATA

Route No.	Boring No.	Boring Location	PM	Station	Offset (ft.)	Sample No.	Sample Depth (ft)	Sample Type	USCS Soil Type	EXISTING AC/AB or /CTB	Sampled by	Sampling Date	Date Sent to Lab	Date Received Results
5	MB-1	Right Shoulder of SB I-5	9.25	493+00	80L	MB-1	0-5	Bulk	ML	4/6	MM	09/26/2007	09/26/2007	10/30/2007
	MB-2	Right Shoulder of SB I-5	9.14	487+50	80L	MB-2	0-5	Bulk	ML	4/6	MM	09/26/2007	09/26/2007	10/30/2007
	MB-3	SB I-5 Off Ramp to Camino Capistrano	8.85	472+00	130L	MB-3	0-5	Bulk	ML	4/6	MM	09/26/2007	09/26/2007	10/30/2007
	MB-4	NB Camino Capistrano	8.87	473+00	230L	MB-4	0-5	Bulk	ML	Fill	MM	09/26/2007	09/26/2007	10/30/2007
	MB-5	SB I-5 On Ramp from Camino Capistrano	8.75	467+00	100L	MB-5	0-5	Bulk	ML	4/6	MM	09/26/2007	09/26/2007	10/30/2007
	MB-6	NB Camino Capistrano	8.71	465+00	200L	MB-6	0-5	Bulk	ML	Fill	MM	09/26/2007	09/26/2007	10/30/2007

TABLE 2-SUMMARY OF CORING VS AS-BUILT DATA

Route No	Direction	Location	Coring No.	Station	Offset (ft)	Lane No.	Existing Pavement (in)			Ramp As-Built Pavement (in)			Recommended Pavement Section for Ramp Widening (ft.)		
							AC	RMCTB	AB/AS	AC	RMCTB	AB/AS	JPCP	LCB	AS
5	South	Right Shoulder of SB I-5	MB-1	493+00	80L	Shoulder	4	6	50	4	6	50	0.9	0.5	0.7
		Right Shoulder of SB I-5	MB-2	487+50	80L	Shoulder	4	6	50	4	6	50	0.9	0.5	0.7
		SB I-5 Off Ramp to Camino Capistrano	MB-3	472+00	130L	Shoulder	5	6	50	4	6	50	0.8	0.4	0.6
		NB Camino Capistrano	MB-4	473+00	230L	Dirt near Shoulder	N/A	N/A	N/A	N/A	N/A	N/A	HMA 1.1		AS 0
		SB I-5 On Ramp from Camino Capistrano	MB-5	467+00	100L	Shoulder MVP	4	7	50	4	6	50	1.4		0.5
		NB Camino Capistrano	MB-6	465+00	200L	Dirt near Shoulder	N/A	N/A	N/A	N/A	N/A	N/A	1.1		0

Notes:

1 Coring Data was obtained from core samples taken on September 26, 2007

2 Auxiliary Lane and its Shoulder Structural Section will be the same.

3 Structural Section for the Off-Ramp and its Shoulder will be the same.

4 Acronyms:

HMA Hot Mixed Asphalt Concrete-Type A, 19mm Coarse (See Std. Spec. Section 39-2.02)
AC Dense Graded Asphalt Concrete (Same as Type A HMA)
AB Class 2 Aggregate Base (See Std. Spec. Section 26-1 02A)
RMCTB Road Mix Cement Treated Base (See Std. Spec. Section 27)
LCB Lean Concrete Base (See Std Spec. Section 28)
ACB Asphalt Concrete Base shall be Type A (See Std. Spec. Section 39)
AS Class 2 Aggregate Subbase (See Std. Spec. Section 25)
R R-Value (Caltrans Test Method 301)
TI Traffic Index (by Traffic Studies Branch)
AB/AS Combined Thickness of Base and Subbase (Measured)
N/A Not Available or Not Applicable

5 PCC Off-Ramp Termini has the same Structural Section as the Off-Ramp.

TABLE 3-SUMMARY OF LABORATORY TEST RESULTS

Route No.	Boring No	Sample No.	Sample Depth (ft.)	Percent Passing No. 200 Sieve	SE (%)	USCS	Expansion Index	Atterberg Limits (%)			R-Value	Corrosivity			
								LL	PL	PI		pH	Sulfate Content (ppm)	Chloride Content (ppm)	Resistivity (Ohm-cm)
5	MB-1	MB-1	0-5	34	15	ML	23	26	16	10	26	9.64	NA [1]	NA [1]	1500
	MB-2	MB-2	0-5	30	18	ML	17	27	18	9	19	7.86	NA [1]	NA [1]	1900
	MB-3	MB-3	0-5	57	8	ML	76	42	20	22	12	7.44	570	21	910
	MB-4	MB-4	0-5	56	7	ML	85	43	23	20	18	9.01	NA [1]	NA [1]	1100
	MB-5	MB-5	0-5	38	12	ML	43	38	23	15	19	9.36	NA [1]	NA [1]	1400
	MB-6	MB-6	0-5	87	3	ML	70	39	24	15	10	9.13	2629	38	730

Notes: 1) NA Not Applicable since Resistivity was <1000 ohm-cm

ORIGINAL
LAB RESULTS

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
FACSIMILE COVER

TO:	FROM:
MEHRDAD MAHDAVIAN	Office of Construction District 07 Materials Lab Materials Testing Section 1616 S. Maple Avenue Los Angeles, CA 90015 - 3703 (213) 620-5692 CALNET 8-640-5692 (213) 620-3487 <FAX> CALNET 8-640-3487
UNIT / COMPANY Construction	
DISTRICT / CITY District 12	SENT BY: ***PRISCILA QUEJARRO***
(AREA CODE) PHONE NO. / CALNET 949-756-4927	
FAX > (AREA CODE) PHONE NO. / CALNET 949-724-2591	(AREA CODE) PHONE NO / CALNET (213) 620-4032 / 8-640-4032 (Material Testing)
DATE 18-October-07	TOTAL PAGES (INCLUDING COVER SHEET) 7

MESSAGE / REMARKS:

Contract No. : 12-0E5701 **Lab. No. : 1081-1085**

The material described herein was tested based on accepted testing procedures as prescribed in the California Test Methods and testing is now complete.

DISTRICT 7 SOIL & AGGREGATE TESTS

Sample of: SOIL

Sampled from: I-5 SB SHOULDER @ CAMINO CAPISTRANO, 0'-5' BELOW SURFAC

Material Source: JOBSITE

Owner / Mfr.: STATE

Date Sampled: 9/2/07

R.E.: MEHRDAD MAHDAVIAN

Address: DISTRICT 12 M & R, 3337 MICHELSON DRIVE, IRVINE, CA 92621

Phone No.: 949-756-4927

Fax. No.: 949-724-2591

Materials Lab. Stamp

By PSA for

G. ANYANWU

District Materials Engineer

DISTRICT MATERIALS LABORATORY
1616 S. Maple Street
Los Angeles, CA 90015

Phone: (213) 620-5692
Calnet: 8-640-5692
Fax: (213) 620-5540
Calnet: 8-640-5540

1	2	0	E	5	7	0	1	M	B	-	1	1081
CONTRACT NO.								SAMPLE NO.				LAB. NO.

DATE RCVD: 09/26/07

DATE OUT: 10-18

NUMBER OF CONTAINERS: 1 BAG

NORMAL / PRIORITY / DATE NEEDED ✓

By: FAX ✓ MAIL / PHONE / OTHER

GRADING ANALYSIS

Total Wt 13927 g By: HC Date: 9/28/07

Wt. Ret.	Size (mm)	Acc Wt Ret	% Ret	% Pass	Comb % Pass	SPEC.
	87.5					
	75					
	62.5					
	50					
	37.5					
0	25	0	0		100	
75	19	75	1		99	
336	12.5	411	3		97	
236	9.5	647	5		95	
798	4.75	1446	10		90	
12482		13927				

R-VALUE BATCH

% Ret	Size	Wt
	25 mm	
100	19 mm	1200
98	12.5 mm	1176
96	9.5 mm	1152
91	4.75 mm	1092

% CRUSHED PARTICLES

%Ret.x(Wt.Cr./Tot Wt.)= Prod.

Wtd. Avg % CP Ret. No.4 =

% CP = P/R

SPEC.

FINE GRADE / MECHANICAL ANALYSIS

Dry Wt. (g)						
			0	100	90	
493.0 g	2.36 mm	36	7	93	84	
	1.18 mm	82	17	83	75	
	600 µm	145	29	71	64	
	300 µm	215	44	56	50	
	150 µm	271	56	46	41	
	75 µm	307	62	38	34	

MECH. / HYDRO.		R	Corr.	C.R.	Min in Sus.	Comb % Pass
1hr.	5M					
24hr.	1M					

R-VALUE

RESULT 26 SPEC.

SP. G. FINE (SSD)

(B) S.S Dry
(A) Ov Dry
ABS. %
Wt. S+C+H2O
Wt. S+C
W=Wt. H2O
Bulk = 500 / (500 - W) =

MOISTURE CONTENT

Gr. Wet
Gr. Dry
H2O
Tare
Net Dry
% H2O

SPEC.

PLASTICITY INDEX

L.L. 28
P.L. 18
P.I. 10

SAND EQUIVALENT

				Avg.	MIN. SPEC.
Sand R2	1.7	1.8			
Clay R1	12.1	12.1			
S.E. Value	15	16		15	

SP. GR. COARSE

(B) S.S Dry
(A) Ov. Dry
ABS %
(C) Wt S in H2O
Asp = A / (A - C) =
SSD = B / (B - C) =
OD = A / (B - C) =

pH / RESISTIVITY

	Field	Lab	MIN. SPEC.
Soil pH		9.64	5.5-10.0
H2O			
Min. Resistivity		1500	NL/ 1000

Based on 18 gauge CMP

Estimated life: 29 yrs.

L.A.R.T.

	Rev	Wt.	Wt Ret.	% Ret.	% Loss	% SPEC
A B	100	5000g				
C D	500	5000g				

No. of spheres = Wt of spheres =

CLEANNESS VALUE

NL	SED 11T	RESULT

DURABILITY INDEX

Dura-Coarse Sed.Ht. =
Dura-Fine R2/R1 =

SPEC.

FILM STRIPPING

NL

ORGANIC IMPURITIES

Satisfactory
Unsatisfactory

TEST(S) REQUESTED

			✓
■	Fine Grade	202	✓
■	Coarse Grade	202	✓
	Filler Material	202	
	Mech. Analysis	203	
■	Plasticity Index	204	✓
	% Crushed Particles	205	
	SpG. Coarse	206	
	SpG. Fine (SSD)	207	
	SpG. of Soils	209	
	L.A.R.T.	211	
	Unit Wt.	212	
	Organic Impurities	213	
	Soundness	214	
	Relative Compaction	216	
■	Sand Equivalent	217	✓
	Moisture Content	226	
	Cleaness Value	227	
	Durability Fine	229	
	Durability Coarse	229	
	Resistivity	ASTM C-289	
■	R-Value	301	✓
	Film Strip	302	
	Mortar Strength	515	
	pH (RC)	532	
	Resistivity (RC)	532	
■	pH (CMP)	643	✓
■	Resistivity (CMP)	643	✓
■	Expansion Index	UBC-29-2	✓
	Max. Dry Density/	ASTM-D1557	
	Opt. Moist Content		

SAMPLE TYPE

			✓
A.B.		PCC	
A.S.		Bk.Fill	
EMB.		MISC.	
O.G.		Sub-Grade	
A.C. Agg.		SOIL	✓

TL-101 S.I.C. NO.

Expansion Index: 23.0

Initial Dry Density (pcf): 122.3

Molded Moisture, (%): 6.9

0 - 20 Very Low
21 - 50 Low
51 - 90 Medium
91 - 130 High
≥ 131 Very High/Critical

Laboratory Remarks:

SPECIFIC GRAVITY OF SOILS

Wt Oven Dry Soil (Wo)
Wt Pycnometer + H_2O (Wa)
Wt Pycnometer + H2O + Soil (Wb)
Wo / (Wo + Wa - Wb)

Wo
Wa
Wb
Spec. Grav.

CONTRACT NO. 1 2 - 0 E 5 7 0 1

LAB. NO. 1 0 8 1

OCT. 18. 2007 9:34AM DIST 7 MATL LAB NO. 702 P. 2

07-A(08-95) (REVISED 2/99, Rev. DH 03/17/01)

DISTRICT 7 SOIL & AGGREGATE TESTS

Sample of: SOIL

Sampled from: I-5 SB SHOULDER @ CAMINO CAPISTRANO, 0'-5' BELOW SURFAC

Material Source: JOBSITE

Owner / Mfr.: STATE

Date Sampled: 9/2/07

Materials Lab. Stamp

By: PSQ for

G. ANYANWU

District Materials Engineer

CONTRACT NO.	12 0E 57 01
SAMPLE NO.	MB - 2
LAB. NO.	1082
DATE RCV'D:	09/26/07
DATE OUT:	10-18
NUMBER OF CONTAINERS:	1 BAG
NORMAL / PRIORITY / DATE NEEDED	✓
By: FAX / MAIL / PHONE / OTHER	✓

R.E.: MEHRDAD MAHDAVIAN

Address:
DISTRICT 12 M & R
3337 MICHELSON DRIVE
IRVINE, CA 92621

Phone No.: 949-756-4027

Fax No.: 949-724-2561

DISTRICT MATERIALS LABORATORY
1616 S Maple Street
Los Angeles, CA 90015

Phone: (213) 620-5692
Cellnet: 8-640-5692
Fax: (213) 620-5540
Cellnet: 8-640-5540

GRADING ANALYSIS

Total Wt 14248 g | By: HC | Date 09/28/07

Wt. Ret.	Size (mm)	Acc. Wt Ret	% Ret.	% Pass	Comb. % Pass	SPEC.
	87.5					
	75					
	62.5					
	50					
	37.5					
0	25	0				
70	19	70	0		100	
372	12.5	442	3		97	
315	9.5	757	5		95	
751	4.75	1508	11		89	
12740		14248				

R-VALUE BATCH

% Run	Size	Wt.
	25 mm	
100	19 mm	1200
97	12.5 mm	1164
95	9.5 mm	1140
89	4.75 mm	1068

% CRUSHED PARTICLES

%Ret.x(Wt.Cr./Tot.Wt.) = Prod

Wtd. Avg. % CP

Ret. No 4 =

% CP = P/R

SPEC.

FINE GRADE / MECHANICAL ANALYSIS

Dry Wt. (g) 498.0 g

			0	100	89
	2.36 mm	28	6	94	84
	1.18 mm	76	15	85	76
	600 µm	152	31	69	61
	300 µm	234	47	53	47
	150 µm	291	59	41	36
	75 µm	327	66	34	30

R-VALUE

RESULT 19 | SPEC.

SP. G. FINE (SSD)

(B) S.S Dry
(A) Ov. Dry
ABS. %
Wt. S+C+H2O
Wt S+C
W-Wt. H2O
Bulk = 500 / (500 - W) =

MOISTURE CONTENT

		SPEC.
Gr. Wet		
Gr. Dry		
H2O		
Tare		
Net Dry		
% H2O		

PLASTICITY INDEX

L.L.	27
P.L.	18
P.I.	9

MECH. / HYDRO.

		R	Corr.	C.R.	Mid in Sec	Comb % Pass
1hr.	5M					
24hr.	1M					

SAND EQUIVALENT

				MIN. SPEC.
Sand R2	2.1	2.2	Avg.	
Clay R1	12.4	12.6		
S.E. Value	17	18	18	

SP. GR. COARSE (CT206/CT207, +4)

(B) S.S Dry
(A) Ov. Dry
ABS. %
(C) Wt. S. in H2O

App = A / (A - C) =

SSD = B / (B - C) =

OD = A / (B - C) =

pH / RESISTIVITY

	Field	Lab.	MIN. SPEC.
Soil pH		7.86	5.5~10.0
H2O			
Min. Resistivity		1900	NL / 1000

Based on 18 gauge CMP

Estimated life: 32 yrs.

L.A.R.T.

	Rev.	Wt.	Wt. Ret	% Ret.	% Loss	% SPEC
A B	100	5000g				
C D	500	5000g				

No. of spheres = | Wt. of spheres =

CLEANNESS VALUE

NL	SED. HT.	RESULT

DURABILITY INDEX

			SPEC.
Dura-Coarse	Sed.Ht =		
Dura-Fine	R2/R1 =		

FILM STRIPPING

NL

ORGANIC IMPURITIES

Satisfactory
Unsatisfactory

TEST(S) REQUESTED

			✓
■	Fine Grade	202	✓
■	Coarse Grade	202	✓
	Filler Material	202	
	Mech. Analysis	203	
■	Plasticity Index	204	✓
	% Crushed Particles	205	
	SpG. Coarse	206	
	SpG. Fine (SSD)	207	
	SpG. of Soils	209	
	L.A.R.T	211	
	Unit Wt.	212	
	Organic Impurities	213	
	Soundness	214	
	Relative Compaction	216	
■	Sand Equivalent	217	✓
	Moisture Content	226	
	Cleanness Value	227	
	Durability Fine	229	
	Durability Coarse	229	
	Reactivity	ASTM C-289	
■	R-Value	301	✓
	Film Strip	302	
	Mortar Strength	515	
	pH (RC)	532	
	Resistivity (RC)	532	
■	pH (CMP)	643	✓
■	Resistivity (CMP)	643	✓
■	Expansion Index	UBC-29-2	✓
	Max. Dry Density/	ASTM-D1557	
	Opt. Moist Content		

SAMPLE TYPE

			✓
A.B.		PCC	
A.S.		Bk.Fill	
EMB.		MISC.	
O.G		Sub-Grade	
A.C. Agg		SOIL	✓

TL-101 S.I.C. NO.

Expansion Index: 17.0

Initial Dry Density (pcf)	120.4
Moldal Moisture, (%)	7.3

0 - 20 Very Low
21 - 50 Low
51 - 90 Medium
91 - 130 High
≥ 131 Very High/Critical

Laboratory Remarks:

SPECIFIC GRAVITY OF SOILS

Wt Oven Dry Soil (Wo)
Wt Pycnometer + H_2O (Wa)
Wt Pycnometer + H2O + Soil (Wb)
Wo / (Wo + Wa - Wb)

Wo | Spec.
Wa | Grav.
Wb

CONTRACT NO. 12-0E57 01 | LAB. NO. 1082

07-AGG-SSD (ROSD 250, Rev. DH4/17 '11)

OCT. 18. 2007 9:34AM DIST 7 MATL LAB NO. 702 P. 3

DISTRICT 7 SOIL & AGGREGATE TESTS

Sample of: SOIL

Sampled from: I-5 SB SHOULDER @ CAMINO CAPISTRANO, 0'-5' BELOW SURFACE

Material Source: JOBSITE

Owner / Mfr.: STATE

Date Sampled: 9/26/07

Materials Lab. Stamp

By PSD for

G. ANYANWU

District Materials Engineer

DISTRICT MATERIALS LABORATORY
1616 S. Maple Street
Los Angeles, CA 90015

Phone: (213) 620-5692
Cellnet: 8-640-5692
Fax: (213) 620-5540
Cellnet: 8-640-5540

R.E.: MEHRDAD MAHDAVIAN
Address
DISTRICT 12 M & R
3337 MICHELSON DRIVE
IRVINE, CA 92621

Phone No.: 949-756-4927
Fax. No.: 949-724-2591

1	2	0	E	6	7	0	1		M	B	-	3		1083
CONTRACT NO.									SAMPLE NO.					LAB. NO.

DATE RCVD: 09/26/07
DATE OUT: 10-18
By: FAX ✓ MAIL PHONE OTHER
NUMBER OF CONTAINERS: 1 BAG
NORMAL ☐ PRIORITY ✓ DATE NEEDED

GRADING ANALYSIS

Total Wt 10119 g By: HC Date: 09/28/54

Wt. Ret.	Size (mm)	Acc Wt. Ret.	% Ret.	% Pass	Comb. % Pass	SPEC.
	87.5					
	75					
	62.5					
	50					
	37.5					
0	25	0				
46	19	46	0		100	
466	12.5	512	5		95	
135	9.5	647	6		94	
334	4.75	981	10		90	
9138		10119				

FINE GRADE / MECHANICAL ANALYSIS

Dry Wt (g) 485.0 g

			0	100	90
	2.36 mm	14	3	97	87
	1.18 mm	44	9	91	82
	600 µm	80	16	84	78
	300 µm	119	25	75	68
	150 µm	151	31	69	62
	75 µm	181	37	63	57

MECH. / HYDRO.		R	Corr.	C.R.	Ret'd Sus.	Comb % Pass
1hr.	5M					
24hr	1M					

SAND EQUIVALENT

				MIN.
Sand R2	0.9	1.0	Avg.	SPEC.
Clay R1	13.5	13.2		
S.E. Value	7	8	8	

L.A.R.T.	Rev	Wt.	Wt. Ret.	% Ret.	% Loss	% SPEC
A B	100	5000g				
C D	500	5000g				

No. of spheres = Wt. of spheres =

DURABILITY INDEX

			SPEC.
Dura-Coarse	Sed.Ht.=		
Dura-Fine	R2/R1 =		

R-VALUE BATCH

% Run	Size	Wt.
	25 mm	
100	19 mm	1200
95	12.5 mm	1140
94	9.5 mm	1128
90	4.75 mm	1080

% CRUSHED PARTICLES

%Ret.=(Wt.Cr./Tot Wt.) = Prod

Wtd. Avg. % CP Ret. No.4 =

% CP = P/R

SPEC.

R-VALUE

RESULT 12 SPEC.

SP. G. FINE (SSD)

(B) S.S. Dry	
(A) Ov. Dry	
ABS. %	
Wt. S+C+H2O	
Wt. S+C	
W=Wt. H2O	

Bulk = 500 / (500 - W) =

SP. GR. COARSE C127&C128, +4

(B) S.S. Dry	
(A) Ov. Dry	
ABS. %	
(C) Wt. S. in H2O	

App = A / (A - C) =

SSD = B / (B - C) =

OD = A / (B - C) =

MOISTURE CONTENT

Gr. Wet	
Gr. Dry	
H2O	
Tare	
Net Dry	
% H2O	

SPEC.

PLASTICITY INDEX

L.L.	42
P.L.	20
P.I.	22

pH / RESISTIVITY

	Field	Lab.	MIN. SPEC.
Soil pH		7.44	5.6-10.0
H2O			
Min. Resistivity		910	NL/ 1000

Based on 18 gauge CMP.
Estimated life: ☆

CLEANNESS VALUE

NL	SED HT.	RESULT

FILM STRIPPING	ORGANIC IMPURITIES	
NL	Satisfactory	
	Unsatisfactory	

TEST(S) REQUESTED			✓
■ Fine Grade	202		✓
■ Course Grade	202		✓
Filler Material	202		
Mech. Analysis	203		
■ Plasticity Index	204		✓
% Crushed Particles	205		
SpG. Course	206		
SpG. Fine (SSD)	207		
SpG. of Soils	209		
L.A.R.T.	211		
Unit Wt.	212		
Organic Impurities	213		
Soundness	214		
Relative Compaction	216		
■ Sand Equivalent	217		✓
Moisture Content	226		
Cleaness Value	227		
Durability Fine	229		
Durability Course	229		
Reactivity		ASTM C-289	
■ R-Value	301		✓
Film Strip	302		
Mortar Strength	515		
pH (RC)	532		
Resistivity (RC)	532		
■ pH (CMP)	643		✓
■ Resistivity (CMP)	643		✓
Expansion Index		UBC-29-2	✓
Max. Dry Density/		ASTM-D1557	
Opt. Moist Content			

SAMPLE TYPE		✓		
A.B.			PCC	
A.S.			Bk.Fill	
B/B.			MISC.	
G.G			Sub-Grade	
A.C. Agg.			SOIL	✓

TL-101 S.I.C. NO.
C 100929

Expansion Index
76.0

Initial Dry Density (pcf)	109.1
Molded Moisture, (%)	10.2

0 - 20 Very Low
21 - 50 Low
51 - 90 Medium
91 - 130 High
≥ 131 Very High/Critical

Laboratory Remarks:
* Send sample to Sacramento for CT 417 & CT 422, resistivity is < 1000 ohm / cc.

SPECIFIC GRAVITY OF SOILS

Wt Oven Dry Soil (Wo)
Wt Pycnometer + H_2O (Wa)
Wt Pycnometer + H2O + Soil (Wb)
Wo / (Wo + Wa - Wb)

Wo		Spec. Grav.	
Wa			
Wb			

CONTRACT NO. 1 2 0 E 6 7 0 1

LAB. NO. 1 0 8 3

47-ABG-990 (REV.90 /99), Rev. DH 0017(C1)

DISTRICT 7 SOIL & AGGREGATE TESTS

Sample of: SOIL

Sampled from: I-5 SB SHOULDER @ CAMINO CAPISTRANO, 0'-5' BELOW SURFAC

Material Source: JOBSITE

Owner / Mfr.: STATE

Date Sampled: 9/2/07

Materials Lab. Stamp

By PSA for

G. ANYANWU

District Materials Engineer

1	2	0	E	6	7	0	1		M	B	-	4		1084
CONTRACT NO.									SAMPLE NO.					LAB. NO.

DATE RCVD: 09/28/07

DATE OUT: 10-18

By: FAX ✓ MAIL PHONE OTHER

NUMBER OF CONTAINERS: 1 BAG

NORMAL ☐ PRIORITY ✓ DATE NEEDED

R.E.: MEHRDAD MAHDAVIAN

Address: DISTRICT 12 M & R, 3337 MICHELSON DRIVE, IRVINE, CA 92621

Phone No.: 949-756-4927

Fax. No.: 949-724-2501

DISTRICT MATERIALS LABORATORY
1616 S. Maple Street
Los Angeles, CA 90015

Phone: (213) 620-5692
Calnet: 8-640-5692
Fax: (213) 620-5540
Calnet: 8-640-5540

GRADING ANALYSIS

Total Wt 15813 g By: HC Date: 10/2/07

Wt Ret.	Size (mm)	Acc Wt Ret.	% Ret.	% Pass	Comb % Pass	SPEC.
	87.5					
	75					
	62.5					
	50					
0	37.5	0	0		100	
254	25	254	2		98	
208	19	462	3		97	
218	12.5	668	4		96	
159	9.5	847	5		95	
332	4.75	1179	7		93	
14634		15813				

R-VALUE BATCH

% Ret	Size	Wt.
	25 mm	
100	19 mm	1200
99	12.5 mm	1188
98	9.5 mm	1176
98	4.75 mm	1162

% CRUSHED PARTICLES

%Ret.x(Wt.Cr./Tot.Wt.) = Prod.

Wtd. Avg. % CP

Rel. No.4 =

% CP = P/R

SPEC.

FINE GRADE / MECHANICAL ANALYSIS

Dry Wt. (g) 482.0 g

		0	100	93
2.36 mm	19	4	96	89
1.18 mm	53	11	89	83
600 µm	87	18	82	75
300 µm	125	26	74	69
150 µm	161	33	67	62
75 µm	195	40	60	56

R-VALUE

RESULT 18

SPEC.

SP. G. FINE (SSD)

(B) S.S. Dry

(A) Ov. Dry

ABS. %

Wt. S+C+H2O

Wt. S+C

W=Wt. H2O

Bulk = 500 / (500 - W) =

MOISTURE CONTENT

Gr. Wet

Gr. Dry

H2O

Tare

Net Dry

% H2O

SPEC.

PLASTICITY INDEX

L.L. 43

P.L. 23

P.I. 20

MECH. / HYDRO.

	R	Corr.	C.R.	Mt/In Sec	Comb % Pass
1hr	5M				
24hr	1M				

SAND EQUIVALENT

			Avg	MIN. SPEC.
Sand R2	0.9	0.9		
Clay R1	13.4	13.8		
S.E. Value	7	7	7	

SP. GR. COARSE

CT206/CT209, #4

(B) S.S. Dry

(A) Ov. Dry

ABS. %

(C) Wt. S in H2O

App = A / (A - C) =

SSD = B / (B - C) =

OD = A / (B - C) =

pH / RESISTIVITY

	Field	Lab.	MIN. SPEC.
Soil pH		9.01	5.5-10.0
H2O			
Min. Resistivity		1100	NL/1000

Based on 18 gauge CMP.

Estimated life: 26 yrs.

L.A.R.T.

	Rev.	Wt.	Wt. Ret.	% Ret	% Loss	% SPEC
A B	100	5000g				
C D	500	5000g				

No. of Spheres = Wt. of Spheres =

DURABILITY INDEX

		SPEC.
Dura-Coarse	Sed.Ht =	
Dura-Fine	R2/R1 =	

CLEANNESS VALUE

NL	SED. HT.	RESULT

FILM STRIPPING

NL

ORGANIC IMPURITIES

Satisfactory

Unsatisfactory

SPECIFIC GRAVITY OF SOILS

Wt Oven Dry Soil (Wo)

Wt Pycnometer + H_2O (Wa)

Wt Pycnometer + H2O + Soil (Wb)

Wo / (Wo + Wa - Wb)

Wo

Wa

Wb

Spec. Grav.

TEST(S) REQUESTED		✓	SAMPLE TYPE		✓
■ Fine Grade	202	✓	A.B.	PCC	
■ Coarse Grade	202	✓	A.S.	BKFIL	
Filler Material	202		B.M.	MISC	
Mech. Analysis	203		O.G.	Sub-Grade	
■ Plasticity Index	204	✓	A.C. Agg.	SOIL	✓
% Crushed Particles	205				
SpG. Coarse	206				
SpG. Fine (SSD)	207				
SpG. of Soils	209				
L.A.R.T.	211				
Unit Wt.	212				
Organic Impurities	213				
Soundness	214				
Relative Compaction	216				
■ Sand Equivalent	217	✓			
Moisture Content	226				
Cleanness Value	227				
Durability Fine	229				
Durability Coarse	229				
Resistivity	ASTM C-289				
■ R-Value	301	✓			
Film Strip	302				
Mortar Strength	515				
pH (RC)	532				
Resistivity (RC)	532				
■ pH (CMP)	643	✓			
■ Resistivity (CMP)	643	✓			
■ Expansion Index	UBC-29-2	✓			
Max. Dry Density/ Opt. Moist Content	ASTM-D1557				

TL-101 S.I.C. NO.

Expansion Index

85.0

Initial Dry Density (pcf) 107.6

Molded Moisture, (%) 10.3

0 - 20 Very Low
21 - 50 Low
51 - 90 Medium
91 - 130 High
≥ 131 Very High/Critical

Laboratory Remarks:

CONTRACT NO. 1 2 0 E 6 7 0 1

LAB. NO. 1 0 8 4

4F-A00-SSD (R10/00-7/00), Rev. OH (03/17/01)

OCT. 18. 2007 9:35AM DIST 7 MATL LAB NO. 702 P. 5

DISTRICT 7 SOIL & AGGREGATE TESTS

Sample of: SOIL

Sampled from: I-5 SB SHOULDER @ CAMINO CAPISTRANO, 0'-5' BELOW SURFACE

Material Source: JOBSITE

Owner / Mfr.: STATE

Date Sampled: 9/2/07

Materials Lab Stamp

By PSQ for

G. ANYANWU

District Materials Engineer

1	2	0	E	5	7	0	1		M	B	-	5	1085
CONTRACT NO.									SAMPLE NO.				LAB. NO.

DATE RCV'D: 09/26/07 DATE OUT: 10-18

NUMBER OF CONTAINERS: 1 BAG

NORMAL ☐ PRIORITY ✓ DATE NEEDED

By: FAX ✓ MAIL ☐ PHONE ☐ OTHER ☐

R.E.: MEHRDAD MAHDAVIAN

Address: DISTRICT 12 M & R, 3337 MICHELSON DRIVE, IRVINE, CA 92621

Phone No.: 949-756-4927

Fax. No.: 949-724-2591

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1616 S. Maple Street
Los Angeles, CA 90015

Phone: (213) 620-5692
Cellnet: 8-640-5692
Fax: (213) 620-5540
Cellnet: 8-640-5540

GRADING ANALYSIS

Total Wt 14322 g By: HC Date: 10/3/07

Wt. Ret.	Size (mm)	Acc. Wt. Ret.	% Ret	% Pass	Comb. % Pass	SPEC.
	87.5					
	75					
	62.5					
	50					
0	37.5	0	0		100	
116	25	116	1		99	
194	19	310	2		98	
844	12.5	1154	8		92	
539	9.5	1693	12		88	
1187	4.75	2880	20		80	
11442		14322				

R-VALUE BATCH

% Ret	Size	Wt.
	25 mm	
100	19 mm	1200
94	12.5 mm	1128
90	9.5 mm	1080
82	4.75 mm	984

% CRUSHED PARTICLES

%Ret.x(Wt.Cr./Tot.Wt.) = Prod.

Wtd. Avg. % CP Ret. No.4 =

% CP = P/R

SPEC.

FINE GRADE / MECHANICAL ANALYSIS

Dry Wt. (g) 485.0 g

			0	100	80
	2.36 mm	44	9	91	73
	1.18 mm	66	13	82	66
	600 µm	135	28	72	58
	300 µm	182	38	62	50
	150 µm	222	46	54	43
	75 µm	253	52	48	38

MECH. / HYDRO.		R	Corr	C.R	Mod. Sieve	Comb % Pass
Hr	5M					
24hr.	1M					

R-VALUE

RESULT 19

SPEC.

SP. G. FINE (SSD)

(B) S.S. Dry
(A) Ov. Dry
ABS. %
Wt. S+C+H2O
Wt. S+C

W=Wt. H2O

Bulk = 500 / (500 - W) =

MOISTURE CONTENT

Gr. Wet
Gr. Dry
H2O
Tare
Net Dry
% H2O

SPEC.

PLASTICITY INDEX

L.L. 38

P.L. 23

P.I. 15

SAND EQUIVALENT

				Avg.
Sand R2	1.5	1.5		
Clay R1	12.7	12.7		
S.E Value	12	12		12

MIN. SPEC.

SP. GR. COARSE (ASTM C127 or C128)

(B) S.S. Dry
(A) Ov. Dry
ABS. %
(C) Wt. S. in H2O

App = A / (A - C)

SSD = B / (B - C) =

OD = A / (B - C) =

pH / RESISTIVITY

	Field	Lab	MIN. SPEC.
Soil pH		9.36	5.5~10.0
H2O			
Min. Resistivity		1400	NL/1000

Based on 18 gauge CMP.

Estimated life: 29 yrs.

L.A.R.T.

	Rev.	Wt.	Wt. Ret.	% Ret	% Loss	% SPEC
A B	100	5000g				
C D	500	5000g				

No. of spheres = Wt. of spheres =

DURABILITY INDEX

Dura-Coarse Sed.Ht. =

Dura-Fine R2/R1 =

SPEC.

CLEANNESS VALUE

NL	SBD. HT	RESULT

FILM STRIPPING

NL

ORGANIC IMPURITIES

Satisfactory

Unsatisfactory

SPECIFIC GRAVITY OF SOILS

Wt Oven Dry Soil (Wo)
Wt Pycnometer + H_2O (Wa)
Wt Pycnometer + H2O + Soil (Wb)
Wo / (Wo + Wa - Wb)

Wo
Wa
Wb

Spec. Grav.

TEST(S) REQUESTED

			✓
■	Fine Grade	202	✓
■	Coarse Grade	202	✓
	Filler Material	202	
	Mech. Analysis	203	
■	Plasticity Index	204	✓
	% Crushed Particles	205	
	Sp.G. Coarse	206	
	Sp.G. Fine (SSD)	207	
	Sp.G. of Soils	209	
	L.A.R.T.	211	
	Unit Wt.	212	
	Organic Impurities	213	
	Soundness	214	
	Relative Compaction	216	
■	Sand Equivalent	217	✓
	Moisture Content	226	
	Cleanness Value	227	
	Durability Fine	229	
	Durability Coarse	229	
	Reactivity	ASTM C-289	
■	R-Value	301	✓
	Film Strip	302	
	Mortar Strength	515	
	pH (RC)	532	
	Resistivity (RC)	532	
■	pH (CMP)	643	✓
■	Resistivity (CMP)	643	✓
■	Expansion Index	UBC-29-2	✓
	Max. Dry Density/ Opt. Moist Content	ASTM-D1557	

SAMPLE TYPE

			✓
A.B.		PCC	
A.S.		Bk.Fill	
EMB.		MISC.	
O.G.		Sub-Grade	
A.C. Agg.		SOIL	✓

TL-101 S.I.C. NO.

Expansion Index

43.0

Initial Dry Density (pcf) 111.3

Molded Moisture, (%) 9.7

0 - 20 Very Low
21 - 50 Low
51 - 90 Medium
91 - 130 High
≥131 Very High/Critical

Laboratory Remarks:

CONTRACT NO. 12-0E5701

LAB. NO. 1085

DISTRICT 7 SOIL & AGGREGATE TESTS

Sample of: SOIL

Sampled from: I-5 SB SHOULDER @ CAMINO CAPISTRANO, 0'-5' BELOW SURFAC

Material Source: JOBSITE

Owner / Mfr.: STATE

Date Sampled: 9/2/07

Materials Lab. Stamp

By PSQ for

G. ANYANWU

District Materials Engineer

1	2	0	E	5	7	0	1		M	B	-	6		1086
CONTRACT NO.									SAMPLE NO.					LAB. NO.

DATE RCVD: 09/26/07

DATE OUT: 10-18

NUMBER OF CONTAINERS: 1 BAG

NORMAL | PRIORITY ✓ | DATE NEEDED:

By: FAX ✓ MAIL PHONE OTHER

R.E.: MEHRDAD MAHDAVIAN

Address: DISTRICT 12 M & R, 3337 MICHELSON DRIVE, IRVINE, CA 92621

Phone No.: 949-756-4927

Fax. No.: 949-724-2591

DISTRICT MATERIALS LABORATORY
1616 S. Maple Street
Los Angeles, CA 90015

Phone: (213) 620-3692
Cellnet: 8-640-5692
Fax: (213) 620-5540
Cellnet: 8-640-5540

GRADING ANALYSIS

Total Wt 13698 g | By: HC | Date: 10/4/07

Wt. Ret.	Size (mm)	Acc. Wt. Ret	% Ret.	% Pass	Comb. % Pass	SPEC.
	87.5					
	75					
	62.5					
	50					
0	37.5	0				
40	25	40				
0	19	40				
18	12.5	58	0		100	
11	9.5	69	1		99	
29	4.75	98	1		99	
13600		13698				

R-VALUE BATCH

% Ret	Size	Wt.
	25 mm	
100	19 mm	1200
100	12.5 mm	1200
99	9.5 mm	1188
99	4.75 mm	1188

% CRUSHED PARTICLES

%Ret.x(Wt.Cr./Tot Wt.) = Prod.

% CP = P/R

SPEC.

Wtd. Avg. % CP Ret No.4 =

FINE GRADE / MECHANICAL ANALYSIS

Dry Wt. (g)						
			0	100	99	
484.0 g	2.36 mm	2	0	100	99	
	1.18 mm	6	1	99	98	
	600 µm	12	2	98	97	
	300 µm	22	5	95	94	
	150 µm	30	6	94	93	
	75 µm	59	12	88	87	

R-VALUE

RESULT 10 | SPEC.

MOISTURE CONTENT

Gr. Wet	
Gr. Dry	
H2O	
Tare	
Net Dry	
% H2O	

SPEC.

PLASTICITY INDEX

L.L.	39
P.L.	24
P.I.	15

MECH. / HYDRO.	R	Corr.	C.R	Mat'l in Sys.	Comb % Pass
Dr.	5M				
24hr.	1M				

SP. G. FINE (SSD)

(B) S.S. Dry	
(A) Ov. Dry	
ABS. %	
Wt. S+C+H2O	
Wt. S+C	
W=Wt. H2O	

Bulk = 500 / (500 - W) =

pH / RESISTIVITY

	Field	Lab.	MIN. SPEC.
Soil pH		9.13	5.5-10.0
H2O			
Min. Resistivity		730	NL/1000

Based on 18 gauge CMP.

Estimated life: ☆

SAND EQUIVALENT

				MIN. SPEC.
Sand R2	0.3	0.3	Avg.	
Clay R1	12.9	12.9		
S.E. Value	3	3	3	

SP. GR. COARSE CT206/CT207, +4

(B) S.S. Dry	
(A) Ov. Dry	
ABS. %	
(C) Wt. S. in H2O	

App = A / (A - C) =

SSD = B / (B - C) =

OD = A / (B - C) =

L.A.R.T.	Rev.	Wt.	Wt. Ret.	% Ret.	% Loss	% SPEC
A B	100	5000g				
C D	500	5000g				

No. of spheres = Wt. of spheres =

DURABILITY INDEX

		SPEC.
Dura-Coarse	Sed.Ht.=	
Dura-Fine	R2/R1 =	

CLEANNESS VALUE

NL	SED. HT.	RESULT

FILM STRIPPING

NL

ORGANIC IMPURITIES

Satisfactory
Unsatisfactory

SPECIFIC GRAVITY OF SOILS

Wt Oven Dry Soil (Wo)
Wt Pycnometer + H_2O (Wa)
Wt Pycnometer + H2O + Soil (Wb)
Wo / (Wo + Wa - Wb)

Wo		Spec. Grav	
Wa			
Wb			

TEST(S) REQUESTED

			✓
■	Fine Grade	202	✓
■	Coarse Grade	202	✓
	Filler Material	202	
	Mech. Analysis	203	
■	Plasticity Index	204	✓
	% Crushed Particles	205	
	SpG. Coarse	206	
	SpG. Fine (SSD)	207	
	SpG. of Soils	209	
	L.A.R.T.	211	
	Unit Wt.	212	
	Organic Impurities	213	
	Soundness	214	
	Relative Compaction	216	
■	Sand Equivalent	217	✓
	Moisture Content	226	
	Cleaness Value	227	
	Durability Fine	229	
	Durability Coarse	229	
	Reactivity	ASTM C-289	
■	R-Value	301	✓
	Film Strip	302	
	Mortar Strength	515	
	pH (RC)	532	
	Resistivity (RC)	532	
■	pH (CMP)	643	✓
■	Resistivity (CMP)	643	✓
■	Expansion Index	UBC-29-2	✓
	Max. Dry Density/	ASTM-D1557	
	Opt. Moist Content		

SAMPLE TYPE

			✓
A.B.		PCC	
A.S.		Backfill	
BMB.		MISC	
O.G.		Sub-Grade	
A.C. Agg.		SOIL	✓

TL-101 S.I.C. NO.

C 100930

Expansion Index

70.0

Initial Dry Density (pcf)	105.4
Molded Moisture, (%)	11.0

0 - 20 Very Low
21 - 50 Low
51 - 90 Medium
91 - 130 High
≥ 131 Very High/Critical

Laboratory Remarks:

* Send sample to Sacramento for CT 417 & CT 422, resistivity is < 1000 ohm / cc.

CONTRACT NO. 1 2 - 0 E 5 7 0 1

LAB. NO. 1 0 8 6

07-AGG-660 (revised 7/01, Rev. 08/05/17)

OCT. 18. 2007 9:36AM DIST 7 MATL LAB NO. 702 P. 7

"Lopez, Rudy"
<Rudy_C_Lopez@dot.ca.gov
>

10/30/2007 01:26 PM

To "Mahdavian, Mehrdad" <mehrdad_mahdavian@dot.ca gov>

cc

bcc

Subject Corrosion Test Summary Report - Soil, EA: 12-0E5701 (Corr. #s CR070499 & CR070500)

Division of Engineering Services
Materials Engineering and Testing Services
Corrosion Technology Branch
Report Date: 10/30/2007
Reported By: Lopez, Rudy

CORROSION TEST SUMMARY REPORT - Soil/Water

Bridge Name:

Bridge Number:

EA No.: **12-0E570**
1

Dist/Co/Rte/PM **12 / ORA**
or KP: **/ 5 /**

SIC Number (TL101)	Sample Location	Sample Type	Sample Depth	Minimum Resistivity[1] (ohm-cm)	pH[2]	Chloride Content[3] (ppm)	Sulfate Content[4] (ppm)
C100929	I-5 SB SHOULDER @ CAMINO CAPISTRANO	SOIL	0-5 FT	910	7.44	21	570
C100930	I-5 SB SHOULDER @ CAMINO CAPISTRANO	SOIL	0-5 FT	730	9.13	38	2629

☐ This site is not corrosive to foundation elements (see note below for MSE wall backfill)

☒ This site is corrosive (if checked). Controlling corrosion parameters are as follows:

- 7.44 pH
- 38 ppm Chloride
- 2629 ppm Sulfate

Note: For MSE wall structure backfill material, minimum resisitivity must be 1500 ohm-cm or greater, pH must be between 5.5 and 10.0, chloride content must not be greater than 500 ppm, and

sulfate content must not be greater than 2000 ppm.

[1,2]CTM 643, [3]CTM 422, [4]CTM 417

COPY OF TRAFFIC INDEX (TI) LETTER

State of California **Business, Housing, and Transportation Agency**

Memorandum

To : Behdad Baseghi, Chief.
Materials Branch
Attn: Mehrdad Mahdavian

Date: 10/1/2007

File: 12-ORA-5
PM 8.58 to 9.35
EA 12-0E5701

From : DEPARTMENT OF TRANSPORTATION
Traffic Census

Subject: Traffic Index

Per your request, the calculated Traffic Index (T.I.) along SB Route 5, PM 8.58 to 9.35 is as follows:

Rte.	P.M..	20 Yr. T.I. 100 %	20 Yr. T.I. 80 %	10 Yr. T.I. 100%	10 Yr. T.I. 80%
5	8.58/9.35	[redacted]	**14.5**	**13.5**	**13.5**
5	RAMPS	[redacted]			

This is based on the 2006 Traffic Volumes, 2005 Truck Volumes and the Highway Design Manual. If you have any questions please call Andrew Wong at (949) 756-7658.

For

Jason Osman, Chief
Traffic Studies Branch

c: file

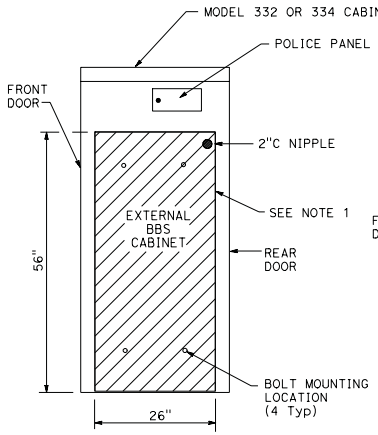
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel 12-20-07
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

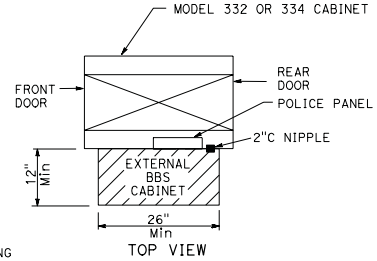
REGISTERED PROFESSIONAL ENGINEER Theresa A. Gabriel No. E15129 Exp. 6-30-10 ELECT STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



SIDE VIEW

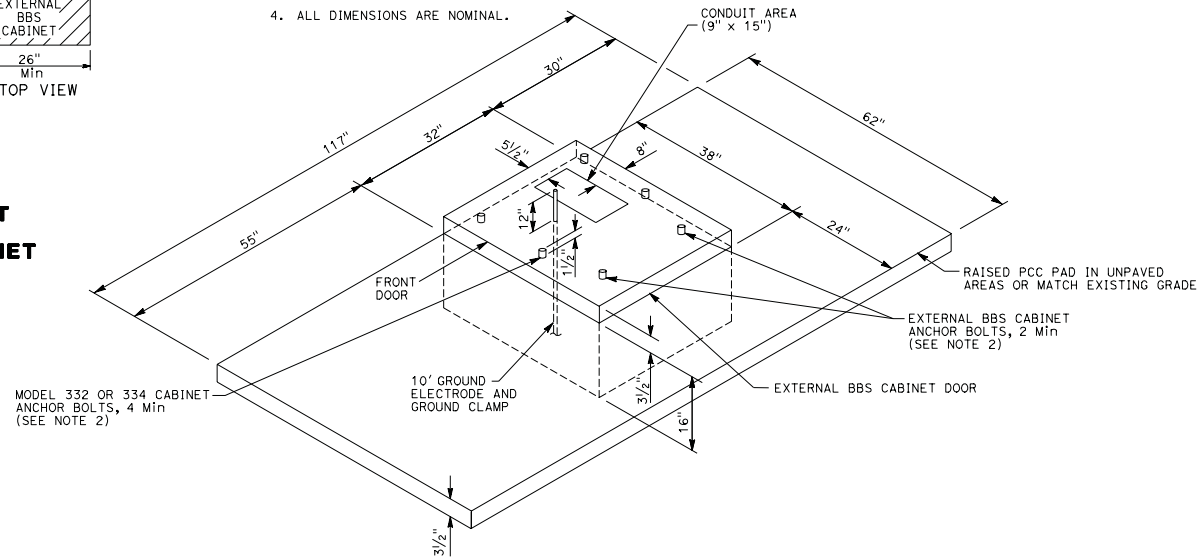
EXTERNAL BBS CABINET MOUNTED TO THE MODEL 332 OR 334 CABINET



TOP VIEW

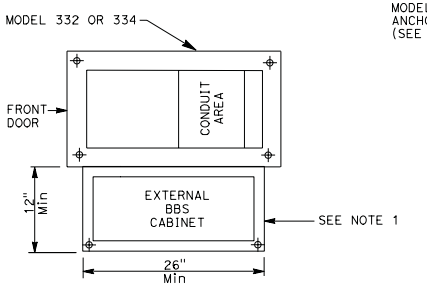
NOTE: (THIS SHEET ONLY)

1. THE EXTERNAL BBS CABINET SHALL BE MOUNTED TO THE MODEL 332 OR 334 CABINET WITH FOUR 18-8 STAINLESS STEEL HEX HEAD, FULLY-THREADED, ⅜"-16 X 1" BOLTS; TWO WASHERS PER BOLT, DESIGNED FOR ⅜" BOLTS AND ARE 18-8 STAINLESS STEEL, 1" OUTSIDE DIAMETER, ROUND, AND FLAT; AND ONE K-LOCK NUT PER BOLT THAT IS 18-8 STAINLESS STEEL AND A HEX-NUT. THE ENGINEER WILL HAVE TO APPROVE THE BOLT MOUNTING LOCATION PRIOR TO INSTALLATION.
2. THE ANCHOR BOLTS SHALL BE ¾" Dia X 15" WITH A 2"-90° BEND. THE CABINET MANUFACTURER'S SPECIFICATION SHALL DETERMINE THE LOCATION OF THE ANCHOR BOLTS IN THE FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE THE ANCHOR BOLTS AND ITS LOCATION IN THE FOUNDATION PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF THE BBS CABINET PRIOR TO CONSTRUCTING THE FOUNDATION OF THE MODIFIED PORTION OF THE Std MODEL 332 AND 334 CABINET FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE ANY NECESSARY DEVIATIONS PRIOR TO CONSTRUCTION.
4. ALL DIMENSIONS ARE NOMINAL.



MODIFIED MODEL 332 AND 334 CABINET FOUNDATION DETAIL FOR BATTERY BACKUP SYSTEM (BBS)

(FOR DIMENSIONS AND DETAILS NOT SHOWN AND ADDITIONAL NOTES, SEE SHEET ES-3C OF THE STANDARD PLANS FOR MODEL 332 AND 334 CABINETS)



BASE PLAN FOR BBS MOUNTED TO THE MODEL 332 OR 334 CABINET

(FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE SHEET A6-1 TO A6-4, CABINET HOUSING DETAILS OF THE TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATION (TEES))

ELECTRICAL SYSTEMS
(BBS FOUNDATION DETAILS)

NO SCALE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION Caltrans

LAST REVISION 2-2-09 | DATE PLOTTED => 13-MAR-2009 | TIME PLOTTED => 09:11

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trcarol | DGN FILE => BBS Foundation.dgn | CU 00000 | EA 000000

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel 12-20-07
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa A. Gabriel No. E15129 Exp. 6-30-10 ELECT STATE OF CALIFORNIA

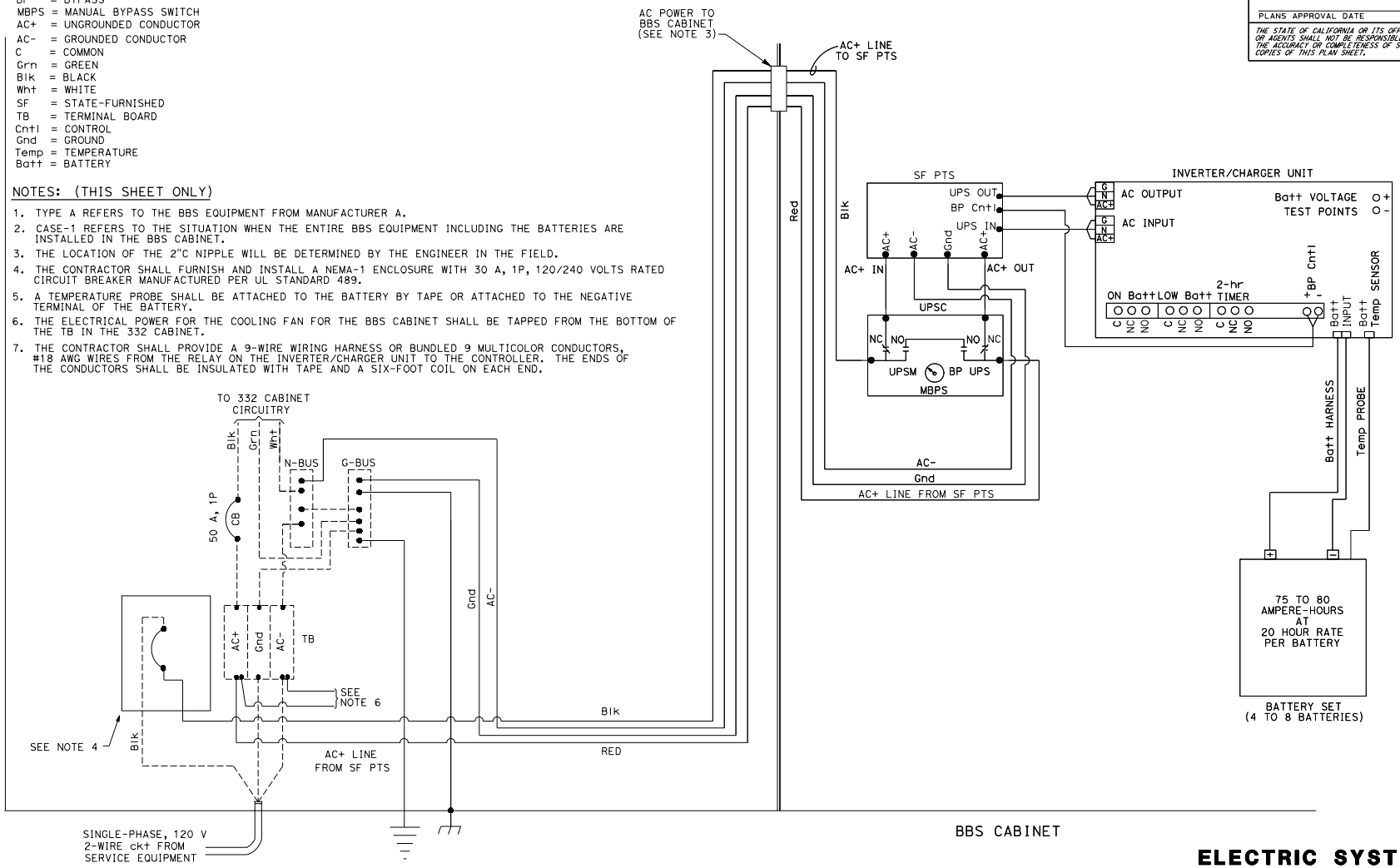
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND: (THIS SHEET ONLY)

PTS = POWER TRANSFER SWITCH
UPS = UNINTERRUPTIBLE POWER SUPPLY
UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
UPSM = UPS MODE
BP = BYPASS
MBPS = MANUAL BYPASS SWITCH
AC+ = UNGROUNDED CONDUCTOR
AC- = GROUNDED CONDUCTOR
C = COMMON
Grn = GREEN
Blk = BLACK
Wht = WHITE
SF = STATE-FURNISHED
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND
Temp = TEMPERATURE
Batt = BATTERY

NOTES: (THIS SHEET ONLY)

1. TYPE A REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER A.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.



ELECTRIC SYSTEM
(BBS POWER CONNECTION DIAGRAM, TYPE A, CASE-1)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans

FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

LAST REVISION 3-11-09 | DATE PLOTTED => 13-MAR-2009 | TIME PLOTTED => 09:06

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trcarol | DGN FILE => BBS 1250FSM.dgn | CU 00000 | EA 000000

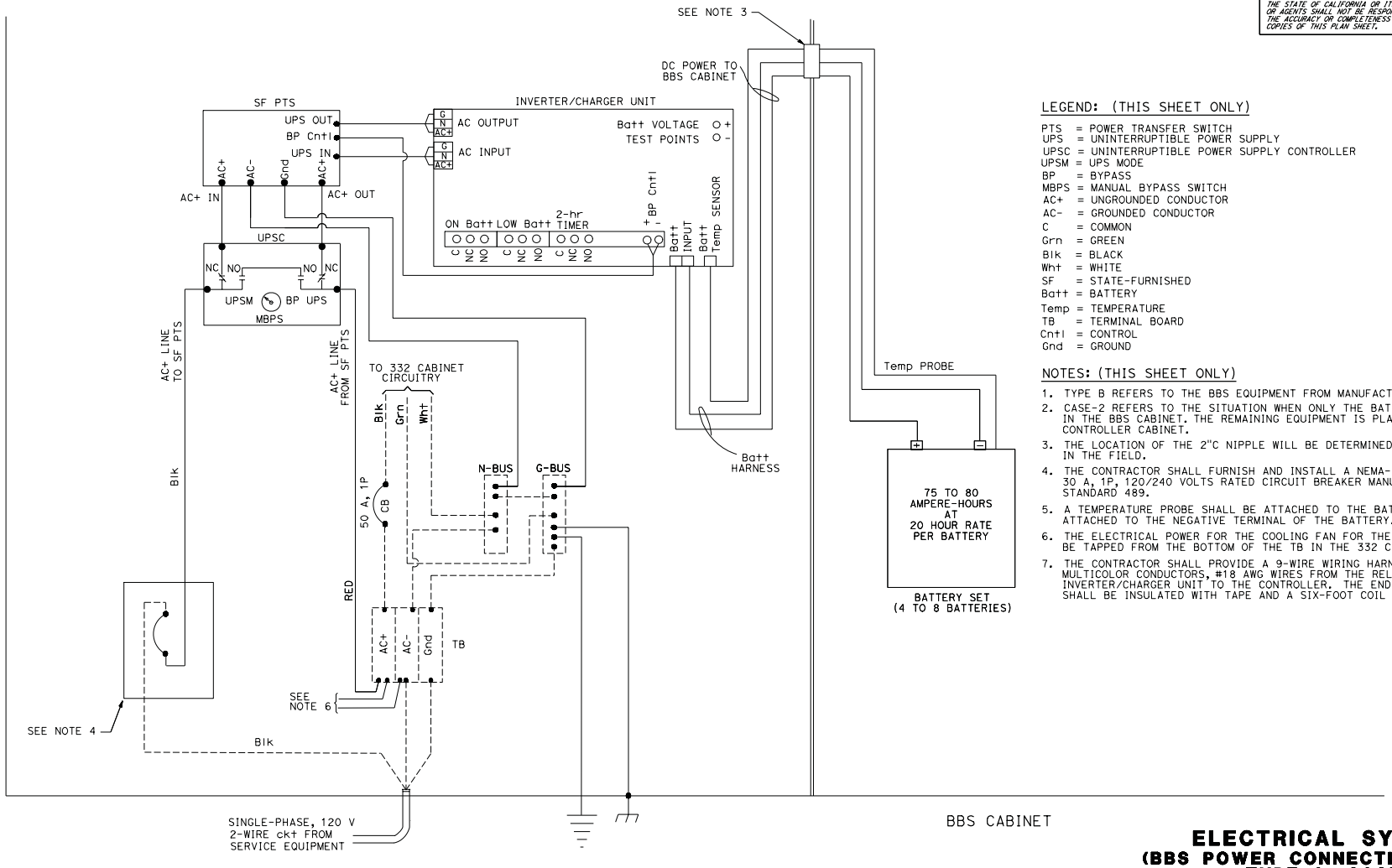
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER — DATE 12-20-07

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER — Theresa A. Gabriel — No. E15129 — Exp. 6-30-10 — ELECT — STATE OF CALIFORNIA



LEGEND: (THIS SHEET ONLY)

PTS = POWER TRANSFER SWITCH
UPS = UNINTERRUPTIBLE POWER SUPPLY
UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
UPSM = UPS MODE
BP = BYPASS
MBPS = MANUAL BYPASS SWITCH
AC+ = UNGROUNDED CONDUCTOR
AC- = GROUNDED CONDUCTOR
C = COMMON
Grn = GREEN
Blk = BLACK
Wht = WHITE
SF = STATE-FURNISHED
Batt = BATTERY
Temp = TEMPERATURE
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND

NOTES: (THIS SHEET ONLY)

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-2 REFERS TO THE SITUATION WHEN ONLY THE BATTERIES ARE INSTALLED IN THE BBS CABINET. THE REMAINING EQUIPMENT IS PLACED IN THE 332 CONTROLLER CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OFTHE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.

ELECTRICAL SYSTEMS
(BBS POWER CONNECTION DIAGRAM, TYPE A, CASE-2)

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION — Caltrans

FUNCTIONAL SUPERVISOR | CALCULATED-DESIGNED BY | CHECKED BY | REVISED BY | DATE REVISED

LAST REVISION 2-2-09 | DATE PLOTTED => 13-MAR-2009 | TIME PLOTTED => 09:07

BORDER LAST REVISED 4/11/2008 | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | USERNAME => trcarol | DGN FILE => BBS 1250FSP.dgn | CU 00000 | EA 000000

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel 12-20-07
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

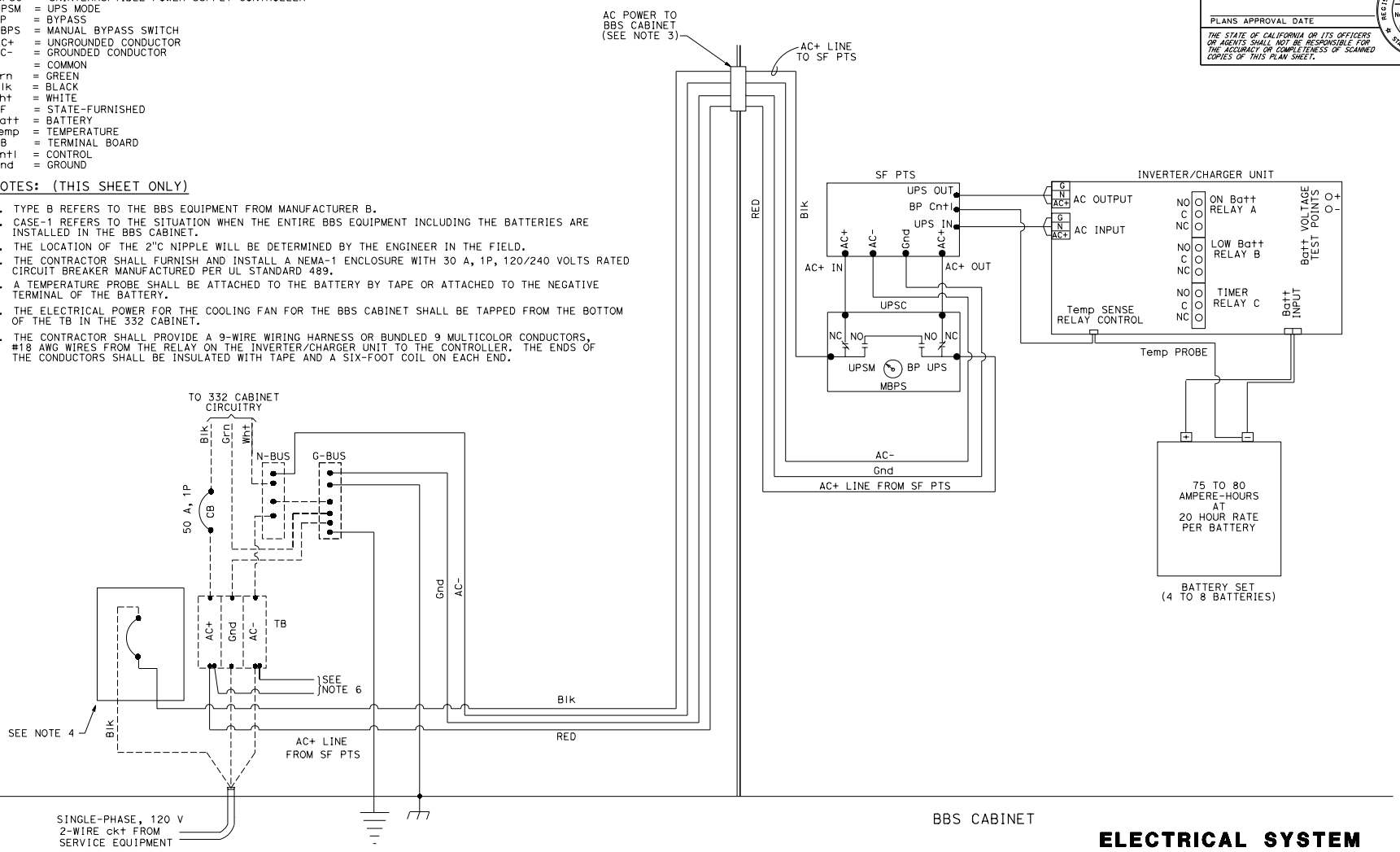
REGISTERED PROFESSIONAL ENGINEER Theresa A. Gabriel No. E15129 Exp. 6-30-10 ELECT STATE OF CALIFORNIA

LEGEND: (THIS SHEET ONLY)

PTS = POWER TRANSFER SWITCH
UPS = UNINTERRUPTIBLE POWER SUPPLY
UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
UPSM = UPS MODE
BP = BYPASS
MBPS = MANUAL BYPASS SWITCH
AC+ = UNGROUNDED CONDUCTOR
AC- = GROUNDED CONDUCTOR
C = COMMON
Grn = GREEN
Blk = BLACK
Wht = WHITE
SF = STATE-FURNISHED
Batt = BATTERY
Temp = TEMPERATURE
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND

NOTES: (THIS SHEET ONLY)

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-1 REFERS TO THE SITUATION WHEN THE ENTIRE BBS EQUIPMENT INCLUDING THE BATTERIES ARE INSTALLED IN THE BBS CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OF THE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.



ELECTRICAL SYSTEM

(BBS POWER CONNECTION DIAGRAM, TYPE B, CASE-1)

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DATE REVISED

LAST REVISION 3-11-09
DATE PLOTTED => 21-SEP-2009
TIME PLOTTED => 13:33

BORDER LAST REVISED 4/11/2008
RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3
USERNAME => trcarol
DGN FILE => BBS DUIFSM.dgn
CU 00000
EA 000000

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Theresa Gabriel 12-20-07
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Theresa A. Gabriel No. E15129 Exp. 6-30-10 ELECT STATE OF CALIFORNIA

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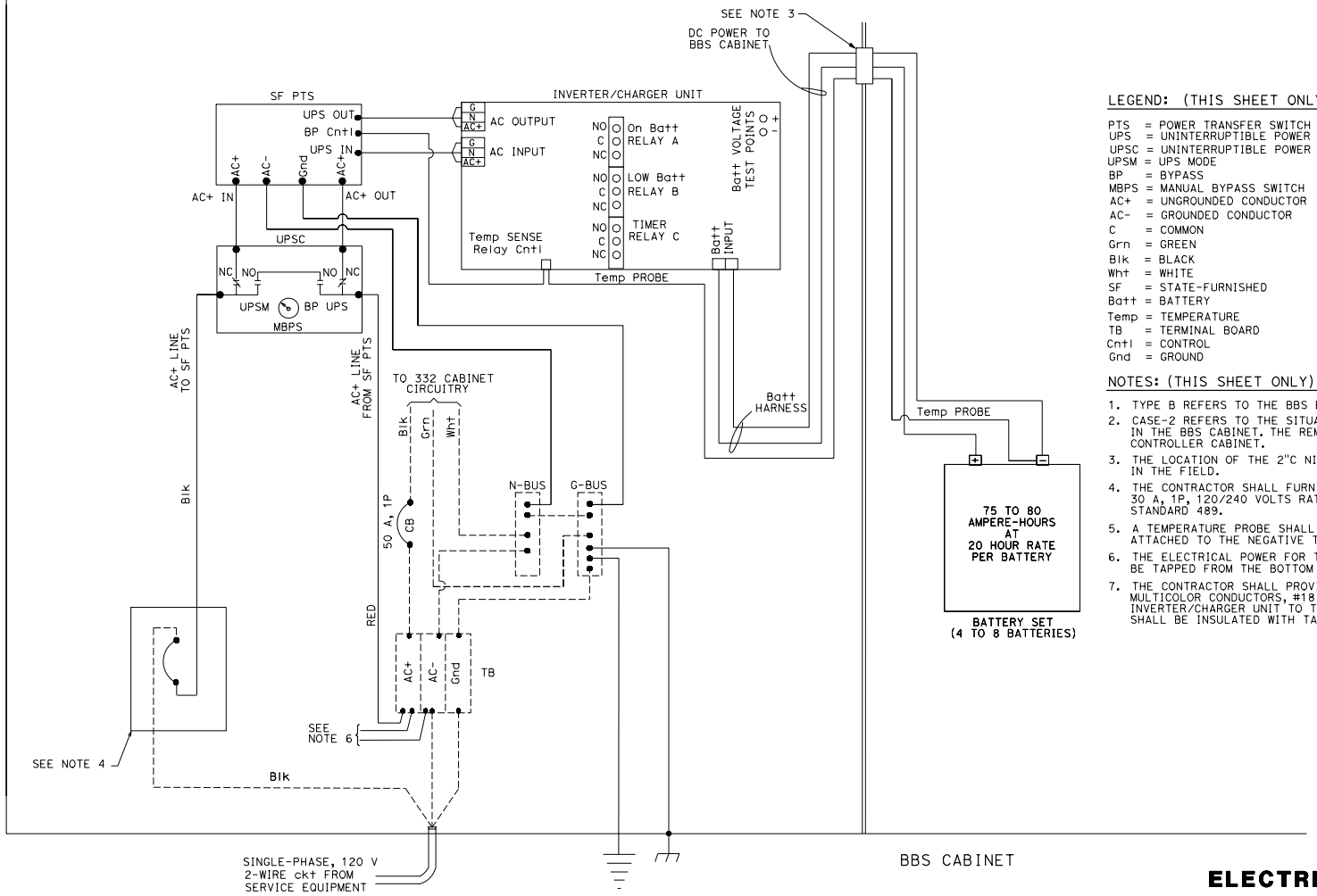

LEGEND: (THIS SHEET ONLY)

PTS = POWER TRANSFER SWITCH
UPS = UNINTERRUPTIBLE POWER SUPPLY
UPSC = UNINTERRUPTIBLE POWER SUPPLY CONTROLLER
UPSM = UPS MODE
BP = BYPASS
MBPS = MANUAL BYPASS SWITCH
AC+ = UNGROUNDED CONDUCTOR
AC- = GROUNDED CONDUCTOR
C = COMMON
Grn = GREEN
Blk = BLACK
Wht = WHITE
SF = STATE-FURNISHED
Batt = BATTERY
Temp = TEMPERATURE
TB = TERMINAL BOARD
Cntl = CONTROL
Gnd = GROUND

NOTES: (THIS SHEET ONLY)

1. TYPE B REFERS TO THE BBS EQUIPMENT FROM MANUFACTURER B.
2. CASE-2 REFERS TO THE SITUATION WHEN ONLY THE BATTERIES ARE INSTALLED IN THE BBS CABINET. THE REMAINING EQUIPMENT IS PLACED IN THE 332 CONTROLLER CABINET.
3. THE LOCATION OF THE 2"C NIPPLE WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL A NEMA-1 ENCLOSURE WITH 30 A, 1P, 120/240 VOLTS RATED CIRCUIT BREAKER MANUFACTURED PER UL STANDARD 489.
5. A TEMPERATURE PROBE SHALL BE ATTACHED TO THE BATTERY BY TAPE OR ATTACHED TO THE NEGATIVE TERMINAL OF THE BATTERY.
6. THE ELECTRICAL POWER FOR THE COOLING FAN FOR THE BBS CABINET SHALL BE TAPPED FROM THE BOTTOM OF THE TB IN THE 332 CABINET.
7. THE CONTRACTOR SHALL PROVIDE A 9-WIRE WIRING HARNESS OR BUNDLED 9 MULTICOLOR CONDUCTORS, #18 AWG WIRES FROM THE RELAY ON THE INVERTER/CHARGER UNIT TO THE CONTROLLER. THE ENDS OFTHE CONDUCTORS SHALL BE INSULATED WITH TAPE AND A SIX-FOOT COIL ON EACH END.

ELECTRICAL SYSTEM

(BBS POWER CONNECTION DIAGRAM, TYPE B, CASE-2)

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