CALIFORNIA COASTAL COMMISSION
South Coast Area Office
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Long Beach, CA 90802-4302
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Th6d

Staff: Liliana Roman – LB
Date: November 21, 2013

ADMINISTRATIVE PERMIT

Application No. **5-13-0851**

Applicant: **Orange County Public Works**

Project Description: Five year Long-Term Maintenance Plan for routine, minimal impact maintenance of existing flood control facilities and bridges crossing waterways within the coastal zone.

Project Location: Multiple existing flood control facilities within 11 watersheds and four bridges crossing waterways within the coastal zone in Orange County (Refer to Exhibit #2).

EXECUTIVE DIRECTOR'S DETERMINATION

The findings for this determination, and for any special conditions, appear on subsequent pages.

NOTE: P.R.C. Section 30624 provides that this permit shall not become effective until it is reported to the Commission at its next meeting. If one-third or more of the appointed membership of the Commission so request, the application will be removed from the administrative calendar and set for public hearing at a subsequent Commission meeting. Our office will notify you if such removal occurs.

This permit will be reported to the Commission at the following time and place:

Thursday, December 12, 2013 8:30 am
Radisson Hotel Fisherman's Wharf
250 Beach Street
San Francisco, CA 94133

IMPORTANT - Before you may proceed with development, the following must occur:

Pursuant to 14 Cal. Admin. Code Sections 13150(b) and 13158, you must sign the enclosed duplicate copy acknowledging the permit's receipt and accepting its contents, including all conditions, and return it to our office. Following the Commission's meeting, and once we have

received the signed acknowledgement and evidence of compliance with all special conditions, we will send you a Notice of Administrative Permit Effectiveness.

BEFORE YOU CAN OBTAIN ANY LOCAL PERMITS AND PROCEED WITH DEVELOPMENT, YOU MUST HAVE RECEIVED BOTH YOUR ADMINISTRATIVE PERMIT AND THE NOTICE OF PERMIT EFFECTIVENESS FROM THIS OFFICE.

CHARLES LESTER
Executive Director

By: Liliana Roman
Title: Coastal Program Analyst

STANDARD CONDITIONS:

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. Expiration. If development has not commenced, the permit will expire two years from the date on which this permit is voted on by the Commission. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent or interpretation of any term or condition will be resolved by the Executive Director or the Commission.

4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

SPECIAL CONDITIONS: See pages six to seven.

EXECUTIVE DIRECTOR'S DETERMINATION (continued):

The Executive Director hereby determines that the proposed development is a category of development, which, pursuant to PRC Section 30624, qualifies for approval by the Executive Director through the issuance of an Administrative Permit. Subject to Standard and Special Conditions as attached, said development is in conformity with the provisions of Chapter 3 of the Coastal Act of 1976 and will not have any significant impacts on the environment within the meaning of the California Environmental Quality Act. If located between the nearest public road and the sea, this development is in conformity with the public access and public recreation policies of Chapter 3.

FINDINGS FOR EXECUTIVE DIRECTOR'S DETERMINATION:

A. PROJECT DESCRIPTION

The proposed project is a consolidated Long-Term Routine Maintenance Permitting Program to streamline the resource agencies permitting process for routine maintenance of multiple existing flood control facilities and beneath existing bridges crossing over waterways located in the coastal zone of Orange County. The permit shall be valid for a 5-year period and may be extended for subsequent 5-year periods by amendment to this coastal development permit, if approved. Exhibit #1 provides a vicinity map showing all of Orange County. Exhibit #2 provides charts of the coastal facilities (i.e., flood control facilities and bridges) included in this proposed maintenance program. Exhibit #3 provides a list of all proposed maintenance activities and Exhibit #4 includes the proposed Routine Maintenance Manual for facilities within the coastal zone in its entirety.

The proposed maintenance manual includes routine maintenance of flood control channels and basins/dams limited to: cleaning, silt removal, slope maintenance/repair, landscape maintenance and vegetation control/removal, insect/rodent control, rip-rap repair, structural inspection/cleaning, fence inspection/replacement, repair of storm drain pipes, underdrains, and headwalls, removal/replacement of concrete lining, and repair/backfill of washouts. Bridge maintenance activities would include maintenance of waterway side slope and invert cladding, repair of concrete bridge elements within the channel and cleaning and painting of steel bridge members. No new facilities or expansion of existing facilities is proposed under this Routine Maintenance Manual. Only facilities deemed not to have substantial vegetation/habitat and/or completely lack environmental resources are included in the Routine Maintenance Manual. Orange County flood facilities in watersheds within the coastal zone with documented habitat value such as the Santa Ana River, Santa Ana Delhi, San Juan Creek, and San Diego Creek are not included in this proposed routine maintenance manual.

Proposed maintenance activities would occur on an as-needed basis and are proposed to occur outside of the bird nesting season (maintenance to occur between September 15 and March 15). Routine maintenance activities proposed for the year will be identified during the spring and fall inspections and will be based on annual channel scour surveys. The maintenance criteria is generally based on the need to maintain a channel's designed flood carrying capacity and maintain bridges in good condition to maintain adequate access. As proposed, prior to the start of the maintenance season (July 1), OC Public Works will submit the proposed facilities and maintenance activities for that year to all of the resource regulatory agencies for concurrence that the proposed maintenance work meets the requirements of this coastal development permit if approved (i.e., would result in no or less than minimal environmental impact). Site reconnaissance will be conducted within each of the facilities that are proposed for maintenance and site specific information will be collected such as type of proposed maintenance, schedule of work, maintenance access and staging plans, equipment, acreage of jurisdictional impacts, habitat surveys (if any habitat/vegetation has developed at the site over time), etc.

Furthermore, after receiving Commission staff concurrence that the proposed maintenance activity falls within the parameters of this CDP approval, the applicant proposes to submit "as-built/maintenance drawings" within 60 days of completion of each maintenance activity. The

drawings would include color photographs that clearly show all components of the maintenance activity along with a site plan noting the location of each photographic viewpoint. If the submit "as-built/maintenance drawings" identify that the maintenance activity was in any way inconsistent with the project as originally propositioned and/or resulted in an unanticipated temporary or permanent adverse impact, the applicant agrees to apply for a separate coastal development permit to mitigate the unanticipated adverse impact (i.e. a restoration and monitoring plan).

Water Quality

To address water quality during maintenance activities, the applicant proposes and Special Condition #3 requires, implementation of BMPs for temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling and other non-storm water BMPs.

Visual Resources

As proposed, should maintenance activities require fence replacement, the applicant will submit fence plans and consider when feasible, a post and cable fence design, or other similar, visually open design, consistent with the provisions of public safety and minimizing adverse impacts to public views.

Biological Resources

As the project areas are over or within creek and river channels there is always the possibility for special status species and habitats of concern to be found in the project(s) vicinity. The type of routine maintenance activities proposed are not expected to cause substantial impacts to special-status species or ESHA. Areas known to be ESHA and areas known to be inhabited by special-status species are included in this proposed manual. Less than significant impacts to coastal resources are expected due to the brief construction period and the minimal amount of heavy work proposed for the project area(s). However, due to the potential for some sites to be in proximity to sensitive habitat, there is a potential for indirect impacts during construction such as activities of equipment or personnel outside designated construction areas, erosion, water runoff, soil disturbances that enhance germination and proliferation of nonnative and invasive plans species.

To avoid adverse impacts to biological resources during construction, the applicant proposes general avoidance and minimization BMP measures. As proposed, the applicant plans to conduct work outside of the bird nesting season, erect temporary fencing to keep personnel and equipment outside of any areas identified as sensitive; to have a biologist approve all parking and staging areas; to clean and inspect all construction equipment of mud or other debris that may contain invasive plants/seeds prior to arrival at the site and before leaving the site. Furthermore, parking and staging is proposed to take place along existing paved service roads (outside drainage channel).

Other Agency Approvals

The applicant has applied for and is in the process of receiving the following regulatory agency approvals:

- Regional General Permit (RGP) from the U.S. Army Corps of Engineers for coverage under Section 404 of the Clean Water Act

- Long Term Streambed Alteration Agreement for Routine Maintenance from the CA Department of Fish and Wildlife for coverage under Section 1602 of the CA Fish and Game Code

- Certification from the State Water Resources Control Board and Santa Ana/San Diego Regional Water Quality Control Boards for coverage under Section 401 of the Clean Water Act

B. WATER QUALITY

The proposed development has a potential for discharge of polluted runoff from the project site into nearby coastal waters. The storage or placement of construction material, debris, or waste in a location where it could be discharged into coastal waters would result in an adverse effect on the marine environment. To reduce the potential for construction related impacts on water quality, the Commission imposes special conditions requiring, but not limited to, the appropriate storage and handling of construction equipment and materials to minimize the potential of pollutants to enter coastal waters. Therefore, the Commission finds that the proposed development, as conditioned, conforms to Sections 30230 and 30231 of the Coastal Act regarding the protection of water quality to promote the biological productivity of coastal waters and to protect human health.

C. LOCAL COASTAL PROGRAM

The proposed development is occurring within areas that cross multiple jurisdictions with that of the Commission's original permit jurisdiction.

Section 30601.3 of the Coastal Act provides for the issuance of coastal development permits directly by the Commission with the agreement of the applicant, the local government and the Commission through its executive director consent to consolidate the permit action, provided that public participation is not substantially impaired by that review consolidation. As the project site crosses jurisdictional boundaries, and the applicant submitted the coastal development permit application directly to the Commission, the applicant and the Cities of Huntington Beach, Dana Point, and Laguna Beach agree to a consolidated permit action by the Commission. Consequently, the standard of review is the Coastal Act and not the local jurisdiction LCPs, which may be used as guidance. As conditioned, the proposed development is consistent with Chapter 3 of the Coastal Act and with the certified LCP for the areas under consideration.

D. CALIFORNIA ENVIRONMENTAL QUALITY ACT

As conditioned, there are no feasible alternatives or additional feasible mitigation measures available that would substantially lessen any significant adverse effect that the activity may have on the environment. Therefore, the Commission finds that the proposed project, as conditioned to mitigate the identified impacts, is the least environmentally damaging feasible alternative and can be found consistent with the requirements of the Coastal Act to conform to CEQA.

This permit is granted subject to the following special conditions:

SPECIAL CONDITIONS:

1. **Assumption of Risk, Waiver of Liability and Indemnity.** By acceptance of this permit, the applicant acknowledges and agrees (i) that the site(s) may be subject to hazards from slope instability, erosion, and flooding; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

2. **Future Improvements.** This permit is only for the development described in Coastal Development Permit No. 5-13-0851. Pursuant to Title 14 California Code of Regulations Section 13253(b)(6), the exemptions otherwise provided in Public Resources Code Section 30610(b) shall not apply to this development governed by the Coastal Development Permit No. 5-13-0851. Accordingly, any future improvements to the structures authorized by this permit, including but not limited to, repair and maintenance identified as requiring a permit in Public Resources Section 30610(d) and Title 14 California Code of Regulations Sections 13252(a)-(b), shall require an amendment to Permit No. 5-13-0851 from the Commission or shall require an additional coastal development permit from the Commission or from the applicable certified local government.

3. **Storage of Construction Materials, Mechanized Equipment and Removal of Construction Debris.** The permittee shall comply with the following construction-related requirements and shall do so in a manner that complies with all relevant local, state and federal laws applicable to each requirement:

   (a) No demolition or construction materials, debris, or waste shall be placed or stored where it may enter sensitive habitat, receiving waters or a storm drain, or be subject to wave, wind, rain, or tidal erosion and dispersion.
   (b) No demolition or construction equipment, materials, or activity shall be placed in or occur in any location that would result in impacts to environmentally sensitive habitat areas, streams, wetlands or their buffers.
   (c) Any and all debris resulting from demolition or construction activities shall be removed from the project site within 24 hours of completion of the project.
   (d) Demolition or construction debris and sediment shall be removed from work areas each day that demolition or construction occurs to prevent the accumulation of sediment and other debris that may be discharged into coastal waters.
   (e) All trash and debris shall be disposed in the proper trash and recycling receptacles at the end of every construction day.

(f) The applicant shall provide adequate disposal facilities for solid waste, including excess concrete, produced during demolition or construction.

(g) Debris shall be disposed of at a legal disposal site or recycled at a recycling facility. If the disposal site is located in the coastal zone, a coastal development permit or an amendment to this permit shall be required before disposal can take place unless the Executive Director determines that no amendment or new permit is legally required.

(h) All stock piles and construction materials shall be covered with a sheeting material that will prevent dispersal of the stock pile and construction materials, enclosed on all sides, and shall be located as far away as possible from drain inlets and any waterway, and shall not be stored in contact with the soil.

(i) Construction equipment or activity shall not occur outside the staging or storage area.

(j) Public parking areas shall not be used for staging or storage of equipment.

(k) Habitat areas shall not be used as staging or storage areas.

(l) Machinery and equipment shall be maintained and washed in confined areas. specifically designed to control runoff and contaminants. Thinners or solvents shall not be discharged into sanitary or storm sewer systems.

(m) The discharge of any hazardous materials into any receiving waters shall be prohibited.

(n) Spill prevention and control measures shall be implemented to ensure the proper handling and storage of petroleum products and other construction materials. Measures shall include a designated fueling and vehicle maintenance area with appropriate berms and protection to prevent any spillage of gasoline or related petroleum products or contact with runoff. The area shall be located as far away from the receiving waters and storm drain inlets as possible.

(o) Best Management Practices (BMPs) and Good Housekeeping Practices (GHPs) designed to prevent spillage and/or runoff of demolition or construction-related materials, and to contain sediment or contaminants associated with demolition or construction activity, shall be implemented prior to the on-set of such activity

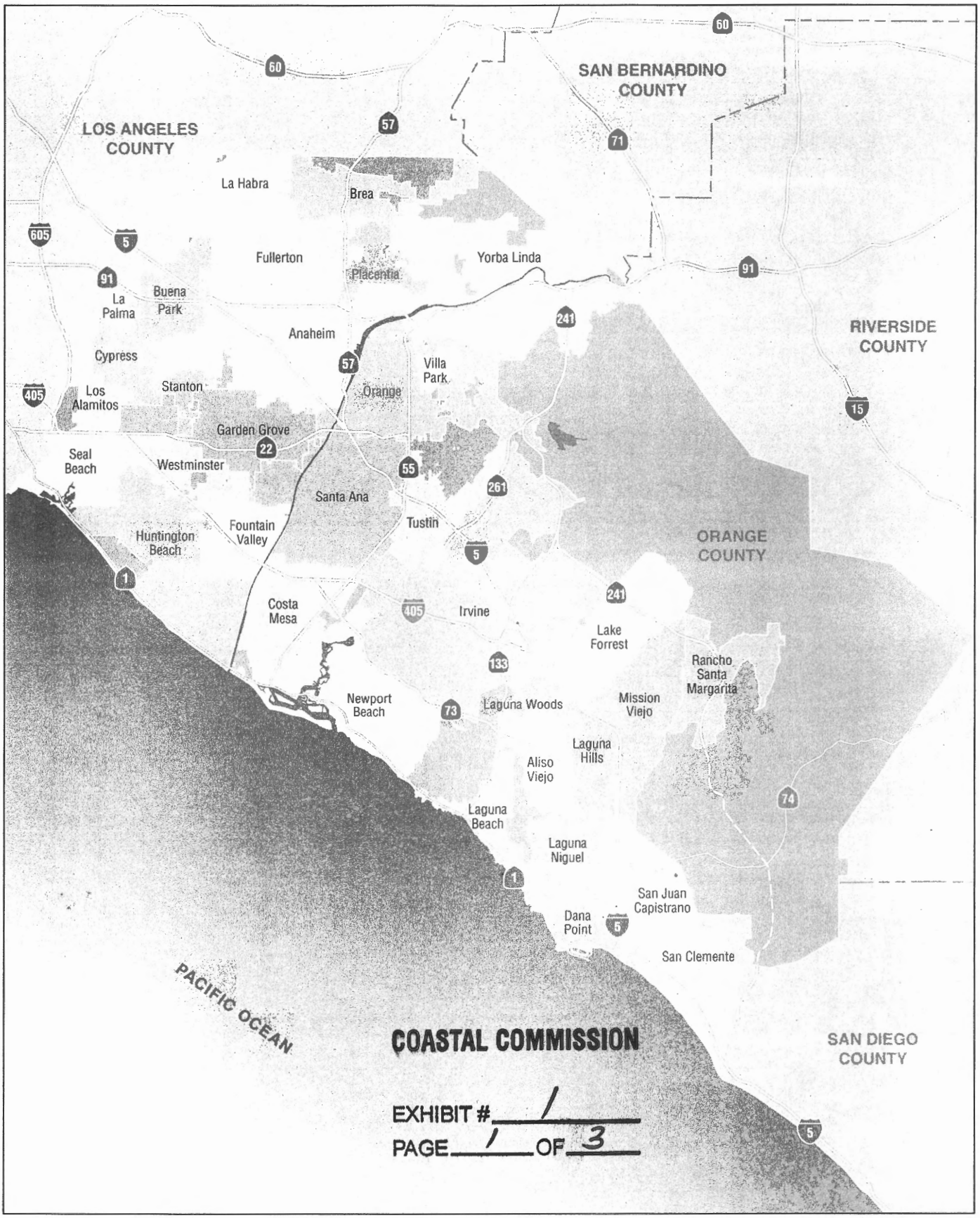
(p) All BMPs shall be maintained in a functional condition throughout the duration of construction activity.

ACKNOWLEDGMENT OF PERMIT RECEIPT/ACCEPTANCE OF CONTENTS:

I/We acknowledge that I/we have received a copy of this permit and have accepted its contents including all conditions.

_____ _____

Applicant's Signature Date of Signing



COASTAL COMMISSION

EXHIBIT # 1

PAGE 1 OF 3

RBF CONSULTING

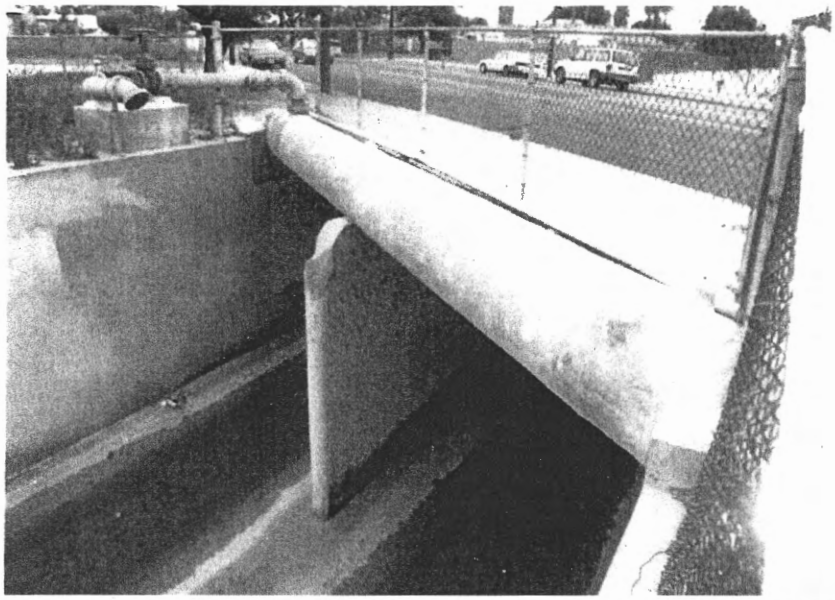
not to scale

6/23/10 JN 10-105607-16737 MAS

COUNTY OF ORANGE • LONG-TERM MAINTENANCE PERMITTING PROGRAM

Site Vicinity

Exhibit 3-2



View of CO3 Anaheim-Barber concrete channel (Bridge 55C0404).

View of natural channel and Bridge 55C0175.

View of F13 Redhill Channel and Bridge 55C0574.

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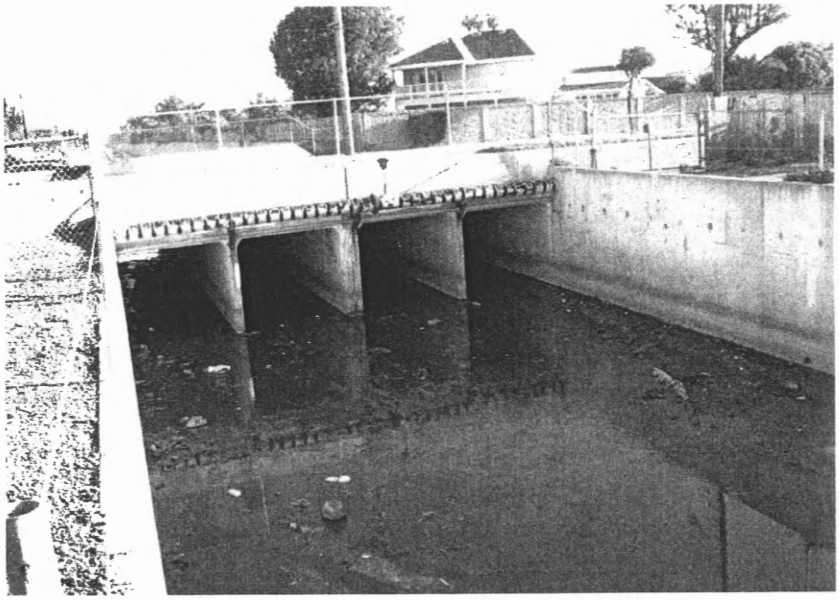
12/29/11 JN 10-105607-16737 MAS

COUNTY OF ORANGE • LONG-TERM MAINTENANCE PERMITTING PROGRAM

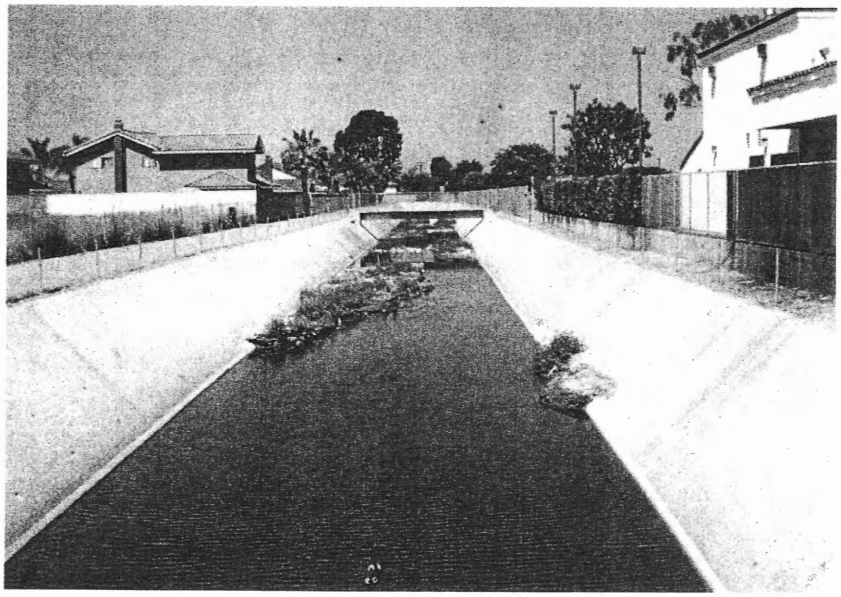
Representative Photographs

Exhibit 3-3d



Representative concrete box facility (Talbert Channel).

Representative metal sheet channel (Talbert Channel).



Representative trapezoidal channel with concrete sides and earthen bottom (Talbert Channel).

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6/24/10 JN 10-105607-16737 MAS

COUNTY OF ORANGE • LONG-TERM MAINTENANCE PERMITTING PROGRAM

Representative Photographs

Exhibit 3-3b

Table 1. Orange County Watersheds

Watershed	Main Tributaries Within The Watershed	Total Watershed Acreage*	Watershed Acreage in Coastal Zone*
A	San Gabriel River/Coyote Creek	31,952	0
B	Carbon Creek	16,534	0
C	Los Alamitos/East Garden/Bolsa Chica	57,421	8,431
D	Tablert/Greenville Banning Channel	16,575	1,744
E	Lower Santa Ana River	118,611	136
F	San Diego Creek	86,881	487
G	East Costa Mesa/Newport Beach	10,258	4,569
H	Los Trancos/Muddy Creek	8,639	8,270
I	Laguna Canyon Channel	8,136	4,826
J	Aliso Creek	23,517	5,457
K	Salt Creek	4,741	971
L	San Juan Creek	103,684	997
M	Prima Deshecha/Segunda Deshecha	24,602	1,873

*Acreages are approximate/Source is digitized mapping

Table 2. List of County-Owned Bridges within the Coastal Zone

Caltrans Bridge No.	Structure (Street or Railroad) Name	Intersected Waterway	Drainage Facility No.	Facility Description
55C-0400	Edinger Ave	Bolsa-Chica Chan	C02	Trap. Channel. Natural bottom. Riprap sides
55C-0561	Island Way	Dana Pt. Harbor	--	Trap.-channel. Conc. Sides. Soft-bottom
55C-0103	Hamilton Ave-Victoria St	Santa Ana River	E01	Trap-channel. Riprap sides. Soft-bottom
55C-0283	Broadway	Sunset Chan	C07	Sheet pile walls. Soft bottom

Notes:
1. Each bridge is defined by a Caltrans Bridge Number for the sole purpose of Caltrans inspections. These bridge structures are not located within Caltrans right-of-way. Encroachment permits and/or other approvals from Caltrans are not required for OCFCD maintenance and operations.

Table 5. Flood Control Facilites

County Facility Name	Drainage Name	Watershed	Channel Type	Channel Slope Type	Channel Bottom Type	Within Coastal Zone?	Regional Board	Location (from)	Location (to)	Channel Width (feet)	Channel Height (feet)	Percent Undeveloped within 50 Ft.	Percent Undeveloped within 100 Ft.	Percent Undeveloped within 500 Ft.	303(d) List Water?
C00P02	Not Available	C - Westminster	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	W	Bolsa Ave	54	Not Available	61	57	45	No
C00P02	Not Available	C - Westminster	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	W	Bolsa Ave	66	Not Available	0	3	20	No
C00P02	Not Available	C - Westminster	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	W	Bolsa Ave	78	Not Available	0	0	2	No
C00P02	Not Available	C - Westminster	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	W	Bolsa Ave	54	Not Available	0	0	2	No
C00PS1	Seal Beach Pump Station	C - Westminster	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	W	Bolsa Ave	42	Not Available	55	64	58	No
C01	Los Alamitos Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Westminster Ave	Not Applicable	32	13	16	27	28	No
C01	Los Alamitos Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Westminster Ave	22	20	13	0	0	5	No
C02	Bolsa Chica Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Countess Dr	Bolsa Chica St	94	13	11	16	54	No
C02	Bolsa Chica Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Edinger Ave	Bolsa Chica St	94	12	0	1	30	No
C02	Bolsa Chica Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Edinger Ave	Bolsa Chica St	94	11	0	0	1	No
C02	Bolsa Chica Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Bolsa Chica	Bolsa Chica St	94	11.5	0	0	0	No
C02	Bolsa Chica Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Bolsa Chica St	Westminster Ave	120	Not Available	0	0	2	No
C02	Bolsa Chica Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Bolsa Chica St	Westminster Ave	120	Not Available	0	0	2	No
C02	Bolsa Chica Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Bolsa Chica St	Westminster Ave	54	13	0	0	3	No
C03	Anaheim-Barber City Channel	C - Westminster	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Bolsa Chica St	405	16	10	27	29	24	No
C04	Westminister Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Perimeter Rd	Bolsa Chica St	48	10	0	0	0	No
C05	East Garden Grove-Wintersburg Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Pacific Coast Hwy	Warner Ave	120	14	45	59	93	No
C05	East Garden Grove-Wintersburg Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Pacific Coast Hwy	Warner Ave	70	13.5	13	51	89	No
C05	East Garden Grove-Wintersburg Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Pacific Coast Hwy	Warner Ave	70	13.5	1	48	85	No
C05	East Garden Grove-Wintersburg Channel	C - Westminster	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Pacific Coast Hwy	Warner Ave	70	13	0	22	47	No
D01	Huntington Beach Channel	D - Talbert	Metal Sheet Channel	Concrete	Concrete	Yes	Santa Ana Region	Christine Dr	Magnolia St	50	12	12	35	52	No
D01	Huntington Beach Channel	D - Talbert	Metal Sheet Channel	Concrete	Concrete	Yes	Santa Ana Region	Magnolia St	Newland St	80	13	14	20	36	No
D01	Huntington Beach Channel	D - Talbert	Metal Sheet Channel	Concrete	Concrete	Yes	Santa Ana Region	Newland St	Not Applicable	80	13	35	49	55	No
D01	Huntington Beach Channel	D - Talbert	Metal Sheet Channel	Concrete	Concrete	Yes	Santa Ana Region	Newland to Atlanta	Not Applicable	75	13	100	100	92	No
D02	Talbert Channel	D - Talbert	Metal Sheet Channel	Concrete	Concrete	Yes	Santa Ana Region	Brookhurst St	Pacific Coast Hwy	150	5	62	69	67	No
D02	Talbert Channel	D - Talbert	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Brookhurst St	Pacific Coast Hwy	60	11	0	7	40	No
D02	Talbert Channel	D - Talbert	Trapezoidal	Concrete	Earthen	Yes	Santa Ana Region	Brookhurst St	Not Applicable	60	11	0	19	43	No
D02	Talbert Channel	D - Talbert	Trapezoidal	Concrete	Earthen	Yes	Santa Ana Region	Banning Ave	Brookhurst St	60	11	7	24	43	No
D02	Talbert Channel	D - Talbert	Metal Sheet Channel	Concrete	Concrete	Yes	Santa Ana Region	Banning Ave	Brookhurst St	120	11	0	0	15	No
D02	Talbert Channel	D - Talbert	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Banning Ave	Not Applicable	9	8	0	0	7	No
D02	Talbert Channel	D - Talbert	Metal Sheet Channel	Concrete	Concrete	Yes	Santa Ana Region	Banning Ave	Hamilton Ave	120	11	2	5	4	No
D03	Greenville-Banning Channel	D - Talbert	Rectangle	Concrete	Concrete	Yes	Santa Ana Region	Brookhurst St	Swan Dr	60	20.5	0	0	29	No
D03	Greenville-Banning Channel	D - Talbert	Rectangle	Concrete	Concrete	Yes	Santa Ana Region	Brookhurst St	Swan Dr	60	20.5	0	0	46	No
D03	Greenville-Banning Channel	D - Talbert	Rectangle	Concrete	Concrete	Yes	Santa Ana Region	Brookhurst St	Swan Dr	60	20	0	0	47	No
E01	Santa Ana River Channel	E - Santa Ana River	Trapezoidal	Concrete	Concrete	Yes	Santa Ana Region	Pacific Coast Hwy	Victoria St	410	19	1	4	18	No
E01	Santa Ana River Channel	E - Santa Ana River	Trapezoidal	Concrete	Concrete	Yes	Santa Ana Region	Pacific Coast Hwy	Victoria St	375	20	0	0	19	No
F01	Santa Ana-Delhi Channel	F - San Diego Creek	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	University Dr	Costa Mesa Fwy	16	15	94	91	73	No
F01	Santa Ana-Delhi Channel	F - San Diego Creek	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	University Dr	Costa Mesa Fwy	16	15	63	62	50	No
F01	Santa Ana-Delhi Channel	F - San Diego Creek	Trapezoidal	Riprap	Earthen	Yes	Santa Ana Region	University Dr	Costa Mesa Fwy	16	15	52	49	42	No
F01	Santa Ana-Delhi Channel	F - San Diego Creek	Trapezoidal	Concrete	Concrete	Yes	Santa Ana Region	University Dr	Costa Mesa Fwy	16	Not Available	58	52	41	No
F01	Santa Ana-Delhi Channel	F - San Diego Creek	Rectangle	Concrete	Concrete	Yes	Santa Ana Region	University Dr	Costa Mesa Fwy	55	15	47	49	40	No
G00P01	Not Available	G - Newport Bay	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Coast Hwy	Dover Dr	60	Not Available	47	50	46	No
G00P01	Not Available	G - Newport Bay	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Dover Dr	Saint James Rd	54	Not Available	37	39	33	No
G02	East Coast Mesa Channel	G - Newport Bay	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Westcliff Dr	Not Applicable	72	Not Available	36	36	40	No
G02	East Coast Mesa Channel	G - Newport Bay	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Westcliff Dr	Not Applicable	12	6	0	0	0	No
G02	East Coast Mesa Channel	G - Newport Bay	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Westcliff Dr	Not Applicable	15	7	0	0	0	No
G02	East Coast Mesa Channel	G - Newport Bay	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Westcliff Dr	Not Applicable	12	6	0	0	0	No
G02	East Coast Mesa Channel	G - Newport Bay	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Westcliff Dr	Not Applicable	15	7	0	0	0	No
G02	East Coast Mesa Channel	G - Newport Bay	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Westcliff Dr	Not Applicable	12	6	0	0	0	No
G03	Santa Isabel Channel	G - Newport Bay	Trapezoidal	Earthen	Earthen	Yes	Santa Ana Region	Irvine Ave	Not Applicable	8	5	100	100	76	No
G03	Santa Isabel Channel	G - Newport Bay	Concrete Box/Pipe	Concrete	Concrete	Yes	Santa Ana Region	Irvine Ave	Not Applicable	84	Not Available	84	75	57	No
H05	Not Available	H - Newport Coast	Rectangle	Concrete	Concrete	Yes	Santa Ana Region	Not Applicable	Crest Dr	18	3	78	75	64	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Ocean Front	Coast Hwy	66	Not Available	22	27	41	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Coast Hwy	Glenneyre St	66	Not Available	0	0	11	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Glenneyre St	Wilson St	66	Not Available	0	0	0	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Wilson St	Saint Anns Dr	42	Not Available	0	0	0	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Wilson St	Saint Anns Dr	60	Not Available	0	0	0	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Saint Anns Dr	Griffith Way	54	Not Available	0	0	0	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Griffith Way	Saint Anns Dr	60	Not Available	0	0	0	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Griffith Way	Not Applicable	54	Not Available	0	0	0	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Griffith Way	Park Ave	5	4.5	0	0	0	No
I00P02	Not Available	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Park Ave	Wendt Ter	54	Not Available	0	0	13	No
I00P03	Bluebird Storm Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Catalina	84	Not Available	19	20	30	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Beach St	Ocean Ave	14.5	7.5	0	0	0	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Ocean Ave	Acacia Dr	14.5	8	0	0	1	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Acacia Dr	Forest Ave	14.5	10	0	0	9	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Forest Ave	Not Applicable	14.5	8	0	0	18	No

Table 5. Flood Control Facilites

County Facility Name	Drainage Name	Watershed	Channel Type	Channel Slope Type	Channel Bottom Type	Within Coastal Zone?	Regional Board	Location (from)	Location (to)	Channel Width (feet)	Channel Height (feet)	Percent Undeveloped within 50 Ft.	Percent Undeveloped within 100 Ft.	Percent Undeveloped within 500 Ft.	303(d) List Water?
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Forest Ave	Laguna Canyon Rd	15	6	25	23	37	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	15	6.5	62	64	58	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	8	87	75	63	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	7.7	86	71	65	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	8	42	45	65	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	7.7	1	16	66	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	8.5	0	2	64	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Frontage Rd	12	7.7	0	2	61	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Frontage Rd	12	8.5	0	4	61	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Frontage Rd	12	7.7	0	4	52	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Frontage Rd	12	9	0	6	48	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Frontage Rd	12	7.7	0	1	40	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Frontage Rd	12	9	0	4	39	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Woodland Dr	Not Applicable	12	7.7	0	3	36	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9.5	0	2	40	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	7.7	0	0	42	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	8.5	0	0	42	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Canyon Acres Dr	12	9	0	0	43	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Trapezoidal	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Arroyo Dr	5	9	0	4	55	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Trapezoidal	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Arroyo Dr	4	9.5	46	42	57	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	0	2	48	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	0	0	45	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	0	0	46	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	0	0	41	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	0	2	49	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	54	48	58	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	100	82	69	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	98	78	70	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	91	72	71	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	62	54	72	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	26	34	72	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Rectangle	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	7	19	72	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	12	9	3	12	75	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	14	10	50	51	75	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	14	10	82	67	73	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	14	10	70	60	70	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	14	10	74	61	70	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	14	10	89	80	69	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	14	10	76	65	73	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	14	10	61	63	67	No
I02	Laguna Canyon Channel	I - Laguna Canyon	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Laguna Canyon Rd	Not Applicable	10	8	15	41	83	No
J01	Aliso Creek Channel	J - Aliso Creek	Trapezoidal	Earthen	Earthen	Yes	San Diego Region	Not Applicable	Coast Hwy	50	10	87	88	82	No
J04	Narco Channel	J - Aliso Creek	Trapezoidal	Earthen	Earthen	Yes	San Diego Region	Alicia Pky	La Paz Rd	20	7	100	100	86	No
J04	Narco Channel	J - Aliso Creek	Trapezoidal	Earthen	Earthen	Yes	San Diego Region	Alicia Pky	La Paz Rd	20	8	100	100	95	No
K01	Salt Creek Channel	K - Salt Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Pacific Coast Hwy	12	14	100	98	78	No
K01	Salt Creek Channel	K - Salt Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Pacific Coast Hwy	Not Applicable	12	13	100	100	69	No
K01	Salt Creek Channel	K - Salt Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Pacific Coast Hwy	Not Applicable	10	13	100	100	81	No
K01PS1	Not Available	K - Salt Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Tirremia Dr	Caracas St	10	Not Available	100	100	63	No
L01	San Juan Creek Channel	L - San Juan Creek	Trapezoidal	Concrete	Concrete	Yes	San Diego Region	Pacific Coast Hwy	Las Vegas Ave	229	Not Available	0	0	20	Yes
L01	San Juan Creek Channel	L - San Juan Creek	Trapezoidal	Concrete	Concrete	Yes	San Diego Region	Las Vegas Ave	Domingo Ave	229	Not Available	2	4	13	Yes
L01	San Juan Creek Channel	L - San Juan Creek	Trapezoidal	Concrete	Concrete	Yes	San Diego Region	Domingo Ave	Victoria Blvd	176	Not Available	8	25	24	Yes
L01	San Juan Creek Channel	L - San Juan Creek	Trapezoidal	Concrete	Concrete	Yes	San Diego Region	Victoria Blvd	Fishermans Dr	172	Not Available	3	8	31	Yes
L01S02	Capistrano Beach Storm Channel	L - San Juan Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Las Vegas Ave	Quail Run	11.5	Not Available	0	0	9	No
L01S02	Capistrano Beach Storm Channel	L - San Juan Creek	Rectangle	Concrete	Concrete	Yes	San Diego Region	Capistrano Beach Storm Drain	Not Applicable	18	8	0	0	0	No
L01S02	Capistrano Beach Storm Channel	L - San Juan Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Capistrano Beach Storm Drain	Not Applicable	12	7.5	0	0	0	No
L01S02	Capistrano Beach Storm Channel	L - San Juan Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Capistrano Beach Storm Drain	Doheny Park Rd	8	8	0	0	1	No
L01S02	Capistrano Beach Storm Channel	L - San Juan Creek	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Doheny Park Rd	Not Applicable	96	Not Available	0	0	18	No
M00P01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Pacific Coast Hwy	Doheny Pl	60	Not Available	78	65	48	No
M00P01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Doheny Pl	Not Applicable	66	Not Available	91	80	31	No
M00P01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Doheny Pl	Not Applicable	72	Not Available	70	44	26	No
M00P01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	48	Not Available	26	24	21	No
M00P02	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Trafalgar Ln	72	Not Available	69	54	31	No
M00S01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	8	3	65	61	63	No
M00S01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Beach Rd	8	2.2	0	11	52	No
M00S01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Beach Rd	Not Applicable	8	3	0	0	48	No
M00S01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Beach Rd	Pacific Coast Hwy	6	3	0	11	42	No
M00S01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Pacific Coast Hwy	Not Applicable	5	3	17	32	36	No

Table 5. Flood Control Facilites

County Facility Name	Drainage Name	Watershed	Channel Type	Channel Slope Type	Channel Bottom Type	Within Coastal Zone?	Regional Board	Location (from)	Location (to)	Channel Width (feet)	Channel Height (feet)	Percent Undeveloped within 50 Ft.	Percent Undeveloped within 100 Ft.	Percent Undeveloped within 500 Ft.	303(d) List Water?
M00S01	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Pacific Coast Hwy	Not Applicable	54	Not Available	31	30	28	No
M00S04	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Between Ave La Costa & Los Alamos	Not Applicable	72	Not Available	37	23	26	No
M00S05	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	72	Not Available	0	0	3	No
M00S07	Marquita Storm Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	8	7	93	82	72	No
M00S07	Marquita Storm Channel	M -San Clemente	Trapezoidal	Concrete	Concrete	Yes	San Diego Region	Railroad	Linda Ln	8	2	38	49	65	No
M00S07	Marquita Storm Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Linda Ln	El Camino Real	48	Not Available	5	8	9	No
M00S08	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	66	Not Available	43	26	8	No
M00S08	Not Available	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	60	Not Available	4	4	10	No
M01	Debris Barrier near Grande Vista	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Pacific Coast Hwy	Bay Dr	11	11	6	8	34	Yes
M01	Debris Barrier near Grande Vista	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Bay Dr	Vaquero	10	10	0	0	17	Yes
M01	Debris Barrier near Grande Vista	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Vaquero	Not Applicable	10	9	0	0	18	Yes
M01S01	Casadita Storm Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Bay Dr	Not Applicable	7	7	0	0	14	No
M01S01	Casadita Storm Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Bay Dr	Not Applicable	7	8	0	0	13	No
M01S01	Casadita Storm Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Palm Dr	Cascadita	7	8	13	15	16	No
M02	Segunda Deshecha Canada Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	25	11	88	68	75	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	25	10	59	48	71	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Not Applicable	Not Applicable	25	9	34	38	67	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	El Camino Real	Pico	20.7	10	56	55	53	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Pico	Not Applicable	20.7	11.5	50	50	50	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Pico	Not Applicable	10	10	34	32	43	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Pico	Not Applicable	18	14	3	9	31	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Pico	Los Molinos Dr	18	15	8	9	20	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Los Molinos Dr	Rincon Ct	18	13	0	0	0	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Rincon Ct	Los Molinos Dr	18	12.5	0	0	1	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Los Molinos Dr	Not Applicable	20.7	10	0	0	1	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Los Molinos Dr	Not Applicable	10	8	0	0	0	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Concrete Box/Pipe	Concrete	Concrete	Yes	San Diego Region	Los Molinos Dr	Pico	20.7	10	0	0	1	Yes
M02	Segunda Deshecha Canada Channel	M -San Clemente	Rectangle	Concrete	Concrete	Yes	San Diego Region	Los Molinos Dr	Pico	20.7	10	0	0	1	Yes

Table 4. Proposed Flood Control Maintenance Activities

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Pre-Emergent Weed Control	Application of herbicides to control growth of unwanted vegetation on flood control property.	Spray Truck, Spray Tank, All-Terrain Vehicle (ATV) and Trailer	Performed annually from early Fall to late Spring following a predetermined plan from the scheduling section. Spraying is conducted from right-of-way to right-of-way.
Weed Control	Application of herbicides to control unwanted vegetation on flood control properties.	Spray Truck, Spray Tank, and trailer	Spray from Spring to Fall to eliminate or control weeds not killed by pre-emergent spraying. Spray all channels two or three times per year. Would be performed following a predetermined plan from scheduling.
Manual Removal of Arundo	Cutting, chipping and removal of Arundo. This activity is performed to remove unwanted vegetation from County right-of-way and flood control channels.	Chipper Truck, Chipper, Trash Compactor, Crew Truck with Toilet, and Hand tools	Remove as directed.
Arundo Treatment	Application of herbicides to control unwanted vegetation on flood control properties.	Spray Truck, Spray Tank, ATV and Trailer	Spray two to five times per year to eliminate or control weeds not killed by pre-emergent spraying. Will be performed following a predetermined plan from scheduling. During the months of March through August a biologist may be required to monitor bird nesting activity.
Rodent Control	Control of rodents in flood right-of-way by the use of toxicants or fumigation to prevent erosion problems, public and safety hazards.	Pickup Truck, ATV, and Trailer	All channels would follow a predetermined plan from scheduling. Rodent activity level increases during Spring and Summer.
Insect Control	Application of Insecticides to control insects on flood control properties, roadway right-of-way, contract cities and county parks.	Spray Truck (with 50 gallon spray unit or backpack sprayer) and a Bee Suit	Spray as needed for public safety or to protect landscape plants.
General Fence Maintenance	Inspection and general repair of fences to ensure control of access to flood channels.	Fence Truck Stakebed and Welder	Performed on a routine basis.
Channel Cleaning	The flood control channel general maintenance cleaning consists of those items of work necessary to maintain channel flow and permit access of maintenance vehicles and personnel. Work includes the removal of trash, debris, obstructions, and silt from the channel; trimming and clearing of vegetation along the vehicular and pedestrian access roads; and the removal of vegetation from channel slopes, inverts, expansion joints,	Inmate Crew Truck, Dump Truck, Trash Compactor Truck, Chipper, and Chipper Truck	Completed whenever location prohibits use of equipment and work needed to restore facility to operating capacity and/or acceptable appearance.

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
	weep holes and side inlets.		
Graffiti Pressure Wash	Removal of vandalized markings on fences, flood control channel walls and traffic signs with a steam cleaner	Utility Truck and Steam Cleaner	Performed per request from Graffiti Hotline and County Inspection Staff (signs, controller boxes, light posts, etc.= 5 SF each).
Graffiti Paint/Spray	Removal of vandalized markings on fences, flood control channel walls and signs on County flood control facilities.	Utility Truck and Steam Cleaner	Performed per request from Graffiti Hotline and County Inspection Staff (signs= 5 SF each).
Graffiti Hand Roll	Painting over of vandalized markings on fences, flood control channel walls and signs on County flood control facilities using a hand roller	Utility Truck and Van with Toilet	Performed per request from Graffiti Hotline and County Inspection staff (signs, controller boxes, light posts, etc.= 5 SF each).
Flap Gate Inspection/ Maintenance	The inspection and maintenance of flap gates, which includes identifying needed repairs on flap gates and the performance of repairs or complete gate replacement.	Utility Truck	Flap gates would be inspected and serviced annually. The work should be started in Spring and completed in time to allow for necessary repairs prior to the next rain season.
Maintain Pump Stations	The maintenance of mechanical, electrical, and other aspects of pumps and/or pump station facilities to insure proper functioning of these drainage systems.	Utility Truck	Periodic cleaning and debris removal is required to eliminate odor and health hazards. Pumps are serviced and overhauled, as required, to provide peak operating efficiency. Improvements, such as electronic controls, would be installed in order to improve operation and reliability.
Operate Pump Stations	The operation and inspection of pump stations during the storm season would be conducted in order to ensure the operation and control of these facilities. Includes work during storm situations.	Utility Truck	Operation would be initialized after moderate to heavy rainfall. Manual control of the system would be required to completely empty the basin.
Pump Station Cleaning	The manual cleaning of pump station wet wells and grates would be conducted in order to ensure that the pumps are functioning at full capacity.	Utility, Crew Truck, Dump Truck and Trash Compactor	Pump stations are checked and cleaned annually. Recurring problem pump stations are checked and would be cleaned (as required) after storm events. The coordination with a vacuum truck crew may be necessary.
Pump Station Cleaning Sump (via Vacuum Truck)	The pump stations would be cleaned in order to ensure that the pumps are functioning at full capacity.	Vacuum Truck	Pump stations are checked and cleaned annually. Recurring problem pump stations are checked and would be cleaned (as required) after storm events. The use of vacuum trucks would be coordinated with the manual crew.
Pump Station Inspection	Inspection of pump stations would be conducted in order to ensure the proper working condition and a safe environment.	Utility Truck	Work would be performed weekly.
Inspect/Maintain Diversions	Routine inspections and the maintenance of diversions in on-site channels.	Utility Truck	Inspections are performed routinely and the maintenance would be performed, on an as-needed basis.
Dam Operations and Maintenance	Proper operations and maintenance of the County's dams, which would include gate	Pickup and Utility Truck	Operations and Maintenance would be performed routinely and on an as-needed basis.

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
	operation, service and cleaning of equipment, instrumentation checks, and periodic inspections.		
Clean Drains (via Vacuum Truck)	The cleaning of drainage inlets, pipes, down drains and storm drainage lines with a vacuum truck to ensure the drainage system is functioning at full capacity. This activity excludes maintenance yard drains.	Vacuum Truck, Oxygen Meter, and Pickup with Arrowboard	Drains are checked and would be cleaned in accordance with an annual plan from scheduling. Recurring problem drains are checked and cleaned, as needed after storm events.
Install Storm Drain Pipe for Flood Alleviation	The ~~installation or~~ repair of pipe would be conducted in order to provide drainage for flood control purposes.	Back hoe, Dump truck with Trailer, Construction Crew Truck, Air Compressor, Flatbed Truck, Mixer, and Excavator	~~Installation of piping in order to provide adequate drainage.~~ Replace (or repair) pipe where flow is restricted and/or the pipe is damaged and is not functioning as designed, creating a drainage problem.
Install Underdrain	The installation of an underground drainage system to provide effective subsurface ground water control.	Back hoe, Haul Truck with Trailer, Haul Truck, Construction Crew Truck, Air Compressor, Flatbed Truck, Mixer, and Concrete Saw	Installation of underdrain when persistent surface and subsurface ground water is damaging County facilities or creating a hazard.
Fabricate and Install Headwalls	The ~~installation or~~ repair of pipe headwalls in order to provide drainage for park, flood and roadway right-of-way.	Back hoe, Dump truck with Trailer, Construction Crew Truck, Air Compressor, Flatbed Truck, Mixer, and Concrete Saw	~~Fabrication and installation of headwalls in order to provide adequate drainage.~~ Replace (or repair) pipe headwalls where flow is restricted and/or is damaged and is not functioning as designed, creating a drainage problem.
Remove/ Replace Concrete Lining	Repair of concrete channel lining would be conducted in order to restore damaged channel lining per County standards.	Crew Cab Truck, Dump Truck, Bobcat, Backhoe and Trailer, Compressor, Excavator, and Concrete Saw	This work would be performed as needed. Repair or replacement lining and reinforcement of steel would be conducted, as directed by the County Engineer.
Install Roadway Storm Drain Pipe	The installation or repair of pipe to provide drainage for park and road right-of-way.	Back hoe, Dump Truck with Trailer, Construction Crew, Truck, Air Compressor, Flatbed Truck,	Installation of roadway storm drain pipe in order to provide adequate drainage. Replace (or repair) pipe where flow is restricted and/or the pipe is damaged and is not functioning as designed, creating a drainage problem.

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
		Mixer, and Tender	
Vault Cleaning	The cleaning of sub drain vaults in order to allow the system to fully operate. The intent of the system is to assist in the removal of the hydrostatic pressure on concrete slopes, walls, toeline, and the bottom of the channels. This task includes both an annual inspection and routine maintenance.	Vacuum Truck, Pick up with Wench, and Oxygen Meter Underground Crew - Safety Harness, Life line, Detector (oxygen gas), and hydrogen sulfide	Inspect annually and clean 1/3 of all vaults located on-site each year.
Concrete Channel Silt Removal - Loader	Mechanical removal of silt and debris from channel bottom to provide for normal flow of water. This activity applies to silt and debris removal from the bottom of a concrete channel with a large loader and may include stockpiling debris removed until dry.	Tender Truck, Dump Truck, and Large Loader	Normally conducted from April to October but can be performed throughout the year. Performed when the capacity of a channel is impaired or adjacent drainage structures are restricted.
Concrete Channel Silt Removal - Bobcat	Mechanical removal of silt and debris from channel bottom to provide for normal flow of water. This activity applies to silt and debris removal from the bottom of a concrete channel with a Bobcat or skip loader and may include stockpiling debris removed until dry.	Tender Truck, Dump Truck, Bobcat/Skip Loader, Mobile Crane, and Trailer	Normally conducted from April to October but can be performed throughout the year. Performed when the capacity of a channel is impaired or adjacent drainage structures are restricted.
Dirt Channel Silt Removal	Mechanical removal of silt, vegetation and/or debris that has been removed and stockpiled to restore dirt channels and roadways, and to provide proper flow of water.	Tender Truck, Dump Trucks, Crane, Excavator, and Dozer	Stockpiled materials have drained sufficiently to allow loading and hauling.
Compact Channel Slope	Provide soil or rock compaction (into slope) in order to inhibit subsequent erosion.	Crane, Excavator, Tender Truck, and Badger	Slopes should be compacted whenever major repairs occur and earth is imported to provide a base for the final invert surface. Rip-rap 24 inches in diameter or smaller should be compacted.
Slope Repair/Rip-Rap Preparation	Mechanical removal of dirt from channel slopes and channel bottom in preparation for rip-rap lining installation in order to restore design cross section. Repair and replace damaged concrete lining, compact channel slope (provide soil or rock compaction into slope in order to inhibit subsequent erosion. Slopes should be compacted to provide a base for the final invert surface)	Tender Truck, Crane, Excavator and Dump Trucks	Performed when erosion is (a) undermining adjacent property, (b) creating a turbulence problem, and/or (c) undercutting drainage structures or access roads. Reoccurring problems are candidates for rock installation.
Install Rip-Rap	The ~~installation~~ replacement of	Tender Truck,	The ~~installation~~ replacement of rip-rap would be

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
	rock rip-rap on channel slopes would be conducted in order to stabilize channel slopes and prevent erosion. Preparation of slopes prior to riprap installation, ~~new Rip Rap placement 0.10 acre or less~~.	Dump Trucks, Crane//Excavator and Dozer	performed in order to protect slopes that have experienced past slope erosion (as identified by inspectors and approved by the County's Operations and Maintenance Manager).
Back Fill/Repair Washout	The in-kind repair and/or back fill of washouts would be conducted in order to stabilize slopes or hinder water flow.	Back hoe, Dump Truck, Crane, Equipment Trailer, and Tender	This work would be performed as needed. High priority would be given to concrete or asphalt structures that require backfill for stabilization.
Aggregate-Base (AB) Maintain Levee	Prepare roadway and plate AB and compact with rubber tire roller to increase the channel roadways to all weather facilities. This activity also includes placement of AB to maintenance of channel levees.	Tender Truck, Dump Trucks, Rubber T Roller, and Motor Grader	Performed under direction of engineer to provide flood control capacity.
Tractor Removal of Arundo	Removal of Arundo would be conducted using excavators. A large loader with a clam bucket would be utilized to stockpile material at a processing area and a water truck would be utilized for dust and fire control.	Excavator, Large Loader, Water Truck, Tender Truck, Off Road Truck, and Off Road Water Truck	Arundo would be removed if required per the CEQA.
Manual Cleaning/ Inspection of Drains	The inspection and manual cleaning of drainage inlets, pipes, down drains, and storm drainage lines would be conducted in order to ensure that the drainage system is functioning at full capacity. This activity excludes maintenance yard drains.	Stakebed/Crew cab, Oxygen Meter, and Mini Vac	Drains are manually checked and cleaned. Recurring problem drains are checked and cleaned. Drains requiring a vac truck are noted in the inventory and referred to scheduling.
Landscape Maintenance	Maintenance of County-landscaped areas including ground cover, trees, and shrubs often in undeveloped areas. This work effort includes the removal of trash, elimination of right of-way encroachment, and provides security clearance in flood channels and right-of-ways.	Road Truck, Inmate and Contract Crews	This work would be performed as needed, generally outside of the bird nesting season.
Right-of-Way Pruning	Trim and prune trees and shrubs to provide equipment access, and provide right-of-way clearance.	Road Truck, Inmate and Contract Crews.	This work would be performed as needed, generally outside of the bird nesting season.
Annual DSOD Inspection/ Repairs	Inspection and maintenance of dams	Excavator, Large Loader, Water Truck, Tender Truck, Off Road Truck, and Off Road Water Truck	Annual DSOD Inspection

OC PUBLIC WORKS

OC ENGINEERING

COUNTY-WIDE ROUTINE MAINTENANCE MANUAL FOR FACILITIES WITHIN THE COASTAL ZONE

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APPENDICES

1.0 INTRODUCTION

This maintenance manual has been prepared to support a new regulatory permitting approach for routine, minimal impact maintenance throughout the Coastal Zone in the County of Orange. A County-Wide Maintenance Manual (which included inland and coastal facilities) and Adopted Mitigated Negative Declaration was approved by the County Board of Supervisors on May 21, 2013. This manual is a smaller subset of the approved manual and focuses on maintenance of facilities solely within the Coastal Zone in support of the Project's Coastal Development Permit (CDP). The approach seeks to limit the piecemeal of state and federal regulatory permit applications for routine maintenance activities. The proposed County-Wide Long-Term Routine Maintenance Permitting Program would allow routine maintenance to occur within multiple existing flood control facilities and beneath existing bridges crossing over waterways located throughout the County of Orange.

Flood control maintenance activities would include channel and basin/dam maintenance (i.e., cleaning, silt removal, slope maintenance/repair), landscape maintenance and vegetation control/removal, insect/rodent control, rip-rap installation and repair, structural inspection/cleaning, installation of storm drain pipes and underdrains, fabrication and installation of headwalls, removal/replacement of concrete lining, and the repair and backfill of washouts.

Bridge maintenance activities would include maintenance of waterway side slope and invert cladding in the immediate vicinity of the bridge (repair/restoration of cladding immediately upstream, downstream and under the bridge, whose purpose is to prevent stream flow from undermining the bridge structure, including riprap, grouted riprap, and concrete), repair of concrete bridge elements within the channel (spalled and cracked wingwalls, abutments, piers, girders and underside of deck), and cleaning and painting of steel bridge members.

1.1 PROJECT LOCATION

Maintenance would occur within multiple existing flood control facilities and beneath existing bridges crossing over waterways located throughout the County of Orange. Refer to Appendix A for Exhibits 3-1 through 3-5d, which illustrate the coastal facilities included in this maintenance program.

1.2 COUNTY WATERSHEDS

The maintenance activities occur within the 13 watersheds located within the County, covering approximately 799.3 square miles; however, only portions of 11 watersheds are located in the Coastal Zone within the County. The watersheds are defined in Table 1, *Orange County Watersheds*.

Table 1. Orange County Watersheds

Watershed	Main Tributaries Within The Watershed	Total Watershed Acreage*	Watershed Acreage in Coastal Zone
A	San Gabriel River/Coyote Creek	31,952	0
B	Carbon Creek	16,534	0
C	Los Alamitos/East Garden/Bolsa Chica	57,421	8,431
D	Tablert/Greenville Banning Channel	16,575	1,744
E	Lower Santa Ana River	118,611	136
F	San Diego Creek	86,881	487
G	East Costa Mesa/Newport Beach	10,258	4,569
H	Los Trancos/Muddy Creek	8,639	8,270
I	Laguna Canyon Channel	8,136	4,826
J	Aliso Creek	23,517	5,457
K	Salt Creek	4,741	971
L	San Juan Creek	103,684	997
M	Prima Deshecha/Segunda Deshecha	24,602	1,873

*Acreages are approximate/Source is digitized mapping

2.0 PURPOSE OF MANUAL

The mission of the Orange County Flood Control District (OCFCD) is to protect the County of Orange (County) from the threat and damage of flooding. The OCFCD currently owns over 309 miles of flood channels, dams, pump stations, flood control basins, and other infrastructure. Such assets require regular maintenance which is subject to environmental regulations on a project-by-project basis. Periodic maintenance and repair of the County's existing flood control facilities are required in order to meet the following goals:

- Maintain functional capacity of the facility;
- Minimize the risk of damage;
- Optimize flood-control capacity;
- Prevent flooding and erosion of adjacent roadways and properties during storm events;
- Meet the flood control requirements and conditions of the U.S. Army Corps of Engineers' (ACOE) PL84-99 Program; and,
- Meet maintenance requirements set forth by the Division of Safety of Dams (DSOD)

The mission of Orange County Bridge Maintenance unit is to implement repairs recommended by the California Department of Transportation (Caltrans) in its federally-mandated biennial bridge inspections and special inspections. Timely repairs keep the bridges structurally and

functionally safe for public use, and preserve the County's bridge infrastructure investment. The County owns and maintains 54 bridges carrying or crossing over unincorporated County roadways. Forty-nine (49) of these bridges cross over County waterways and one crosses over a wildlife corridor. The remaining four are pedestrian bridges over County highways. Of these bridges, only four (4) are located within the Coastal Zone.

OC Public Works, on behalf of the OCFCD and Bridge Maintenance, is responsible for securing local, state and federal environmental and regulatory approvals for maintenance activities. Generally approvals have included Clean Water Act (Section 404 and 401) permits from the ACOE and California Regional Water Quality Control Boards; Streambed Alteration Agreements (California Fish and Game Code 1600) from the California Department of Fish and Game; and, Coastal Development Permits from the California Coastal Commission. Historically, OC Public Works has obtained environmental and regulatory approvals for maintenance activities on a project-by-project basis, even for activities that have minimal impact due to maintenance type, size, or location. OC Public Works is currently seeking long-term approvals for future routine maintenance activities throughout the County that would accomplish the following objectives:

- Decrease, or in many cases eliminate, drainage-by-drainage applications and associated studies;
- Establish a consistent approach for avoiding and minimizing impacts to regulated environmental resources;
- Provide a comprehensive or "watershed" approach to regulatory approvals; and
- Limit the piecemeal of state and federal regulatory permit applications for routine, minimal impact maintenance activities.

3.0 FACILITIES

3.1 FLOOD CONTROL FACILITIES

Flood control facility types include, but are not limited to the following:

- Concrete Box/Pipe;
- Metal/Steel Pipe;
- Metal Sheet Channel;
- Rectangular Channel with Concrete Sides and Concrete Bottom;
- Rectangular Channel with Concrete Sides and Earthen Bottom;
- Trapezoidal Channel with Concrete Sides and Concrete Bottom;
- Trapezoidal Channel with Concrete Sides and Earthen Bottom;
- Trapezoidal Channel with Earthen Sides and Earthen Bottom; and,
- Trapezoidal Channel with Riprap Sides and Earthen/ Riprap Bottom.
- Flood Control/Sediment Basins

The facilities are illustrated on **Exhibits 3-1 through 3-5d in Appendix A. Additionally,** the breakdown of facilities within the Coastal Zone is included in the facility database contained in Appendix B.

3.2 BRIDGE FACILITIES

The County has four bridge facilities over waterways located within the Coastal Zone, which are listed in Table 2, *List of County-Owned Bridges within the Coastal Zone*. Each line item includes the watershed drainage facility identifier and a description of the waterway environment at the bridge.

Table 2. List of County-Owned Bridges within the Coastal Zone

Caltrans Bridge No.	Structure (Street or Railroad) Name	Intersected Waterway	Drainage Facility No.	Facility Description
55C-0400	Edinger Ave	Bolsa-Chica Chan	C02	Trap. Channel. Natural bottom. Riprap sides
55C-0561	Island Way	Dana Pt. Harbor	--	Trap.-channel. Conc. Sides. Soft-bottom
55C-0103	Hamilton Ave-Victoria St	Santa Ana River	E01	Trap-channel. Riprap sides. Soft-bottom
55C-0283	Broadway	Sunset Chan	C07	Sheet pile walls. Soft bottom

Notes:
1. Each bridge is defined by a Caltrans Bridge Number for the sole purpose of Caltrans inspections. These bridge structures are not located within Caltrans right-of-way. Encroachment permits and/or other approvals from Caltrans are not required for OCFCD maintenance and operations.

4.0 PROPOSED FLOOD CONTROL MAINTENANCE ACTIVITIES

The OCFCD proposes routine maintenance activities within OCFCD right-of-way situated throughout the Coastal Zone in the 11 on-site watersheds. Maintenance activities would be performed on an as needed basis unless otherwise specified and would include channel and basin/dam maintenance (i.e., cleaning, silt removal, slope maintenance/repair), landscape maintenance and vegetation control/removal, insect/rodent control, rip-rap installation and repair, structural inspection/cleaning, installation of storm drain pipes and underdrains, fabrication and installation of headwalls, removal/replacement of concrete lining, and the repair and backfill of washouts and slope failures. Refer to Table 3, *Proposed Flood Control Maintenance Activities*, for a detailed description of all proposed maintenance activities and required equipment. Table C1, located in Appendix C, presents each coastal facility, excluded maintenance activities and best management practices to be employed during each maintenance episode.

The OC Public Works Operations and Maintenance Division have the responsibility for the maintenance of the County's flood control facilities. The *OC Public Works Field Operations Manual*, dated July 2011, is used by County staff to conduct routine maintenance within the flood control facilities. The *2011 Field Operations Manual* is intended to provide, operate, and

maintain the County's facilities and regional resources. The *2011 Field Operations Manual* provides guidance in scheduling annual updates and provides performance methods and activity guidelines. Important management tools provided include:

- Guidelines for work activity;
- Performance-based budgeting;
- Distribution of work;
- Leveling manpower;
- Work control methods; and
- Use of equipment.

Table 3. Proposed Flood Control Maintenance Activities

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Pre-Emergent Weed Control	Application of herbicides to control growth of unwanted vegetation on flood control property.	Spray Truck, Spray Tank, All-Terrain Vehicle (ATV) and Trailer	Performed annually from early Fall to late Spring following a predetermined plan from the scheduling section. Spraying is conducted from right-of-way to right-of-way.
Weed Control	Application of herbicides to control unwanted vegetation on flood control properties.	Spray Truck, Spray Tank, ATV and Trailer	Spray from Spring to Fall to eliminate or control weeds not killed by pre-emergent spraying. Spray all channels two or three times per year. Would be performed following a predetermined plan from scheduling.
Manual Removal of Arundo	Cutting, chipping and removal of Arundo. This activity is performed to remove unwanted vegetation from County right-of-ways and flood control channels.	Chipper Truck, Chipper, Trash Compactor, Crew Truck with Toilet, and Hand tools	Remove as directed.
Arundo Treatment	Application of herbicides to control unwanted vegetation on flood control properties.	Spray Truck, Spray Tank, ATV and Trailer	Spray two to five times per year to eliminate or control weeds not killed by pre-emergent spraying. Will be performed following a predetermined plan from scheduling. During the months of March through August a biologist may be required to monitor bird nesting activity.
Rodent Control	Control of rodents in flood right-of-way by the use of toxicants or fumigation to prevent erosion problems, public and safety hazards.	Pickup Truck, ATV and Trailer	All channels would follow a predetermined plan from scheduling. Rodent activity level increases during Spring and Summer.
Insect Control	Application of Insecticides to control insects on flood control properties, roadway right-of-way, contract cities and county parks.	Spray Truck (with 50 gallon spray unit or backpack sprayer) and a Bee Suit	Spray as needed for public safety or to protect landscape plants.
General Fence Maintenance	Inspection and general repair of fences to ensure control of access to flood channels.	Fence Truck Stakebed and Welder	Performed on a routine basis.

Table 3. Proposed Flood Control Maintenance Activities (continued)

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Channel Cleaning	The flood control channel general maintenance cleaning consists of those items of work necessary to maintain channel flow and permit access of maintenance vehicles and personnel. Work includes the removal of trash, debris, obstructions, and silt from the channel; trimming and clearing of vegetation along the vehicular and pedestrian access roads; and the removal of vegetation from channel slopes, inverts, expansion joints, weep holes and side inlets.	Inmate Crew Truck, Dump Truck, Trash Compactor Truck, Chipper and Chipper Truck	Completed whenever location prohibits use of equipment and work needed to restore facility to operating capacity and/or acceptable appearance.
Graffiti Pressure Wash	Removal of vandalized markings on fences, flood control channel walls and traffic signs with a steam cleaner	Utility Truck, and Steam Cleaner	Performed per request from Graffiti Hotline and County Inspection Staff (signs, controller boxes, light posts, etc. = 5 SF each).
Graffiti Paint/Spray	Removal of vandalized markings on fences, flood control channel walls and signs on County flood control facilities.	Utility Truck and Steam Cleaner	Performed per request from Graffiti Hotline and County Inspection Staff (signs = 5 SF each).
Graffiti Hand Roll	Painting over of vandalized markings on fences, flood control channel walls and signs on County flood control facilities using a hand roller	Utility Truck and Van with Toilet	Performed per request from Graffiti Hotline and County Inspection staff (signs, controller boxes, light posts, etc. = 5 SF each).
Flap Gate Inspection/ Maintenance	The inspection and maintenance of flap gates, which includes identifying needed repairs on flap gates and the performance of repairs or complete gate replacement.	Utility Truck	Flap gates would be inspected and serviced annually. The work should be started in Spring and completed in time to allow for necessary repairs prior to the next rain season.
Maintain Pump Stations	The maintenance of mechanical, electrical, and other aspects of pumps and/or pump station facilities to insure proper functioning of these drainage systems.	Utility Truck	Periodic cleaning and debris removal is required to eliminate odor and health hazards. Pumps are serviced and overhauled, as required, to provide peak operating efficiency. Improvements, such as electronic controls, would be installed in order to improve operation and reliability.
Operate Pump Stations	The operation and inspection of pump stations during the storm season would be conducted in order to ensure the operation and control of these facilities. Includes work during storm situations.	Utility Truck	Operation would be initialized after moderate to heavy rainfall. Manual control of the system would be required to completely empty the basin.

Table 3. Proposed Flood Control Maintenance Activities (continued)

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Pump Station Cleaning	The manual cleaning of pump station wet wells and grates would be conducted in order to ensure that the pumps are functioning at full capacity.	Utility, Crew Truck, Dump Truck and Trash Compactor	Pump stations are checked and cleaned annually. Recurring problem pump stations are checked and would be cleaned (as required) after storm events. The coordination with a vacuum truck crew may be necessary.
Pump Station Cleaning Sump (via Vacuum Truck)	The pump stations would be cleaned in order to ensure that the pumps are functioning at full capacity.	Vacuum Truck	Pump stations are checked and cleaned annually. Recurring problem pump stations are checked and would be cleaned (as required) after storm events. The use of vacuum trucks would be coordinated with the manual crew.
Pump Station Inspection	Inspection of pump stations would be conducted in order to ensure the proper working condition and a safe environment.	Utility Truck	Work would be performed weekly.
Inspect/Maintain Diversions	Routine inspections and the maintenance of diversions in on-site channels.	Utility Truck	Inspections are performed routinely and the maintenance would be performed, on an as-needed basis.
Dam Operations and Maintenance	Proper operations and maintenance of the County's dams, which would include gate operation, service and cleaning of equipment, instrumentation checks, and periodic inspections.	Pickup and Utility Truck	Operations and Maintenance would be performed routinely and on an as-needed basis.
Clean Drains (via Vacuum Truck)	The cleaning of drainage inlets, pipes, down drains and storm drainage lines with a vacuum truck to ensure the drainage system is functioning at full capacity. This activity excludes maintenance yard drains.	Vacuum Truck, Oxygen Meter, and Pickup with Arrowboard	Drains are checked and would be cleaned in accordance with an annual plan from scheduling. Recurring problem drains are checked and cleaned, as needed after storm events.
Install Storm Drain Pipe for Flood Alleviation	The installation or repair of pipe would be conducted in order to provide drainage for flood control purposes.	Back hoe, Dump truck with Trailer, Construction Crew Truck, Air Compressor, Flatbed Truck, Mixer, and Excavator	Installation of piping in order to provide adequate drainage. Replace (or repair) pipe where flow is restricted and/or the pipe is damaged and is not functioning as designed, creating a drainage problem.
Install Underdrain	The installation of an underground drainage system to provide effective subsurface ground water control.	Back hoe, Haul Truck with Trailer, Haul Truck, Construction Crew Truck, Air Compressor, Flatbed Truck, Mixer and Concrete Saw	Installation of underdrain when persistent surface and subsurface ground water is damaging County facilities or creating a hazard.

Table 3. Proposed Flood Control Maintenance Activities (continued)

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Fabricate and Install Headwalls	The installation or repair of pipe headwalls in order to provide drainage for park, flood and roadway right-of-way.	Back hoe, Dump truck with Trailer, Construction Crew Truck, Air Compressor, Flatbed Truck, Mixer and Concrete Saw	Fabrication and installation of headwalls in order to provide adequate drainage. Replace (or repair) pipe headwalls where flow is restricted and/or is damaged and is not functioning as designed, creating a drainage problem.
Remove/Replace Concrete Lining	Repair of concrete channel lining would be conducted in order to restore damaged channel lining per County standards.	Crew Cab Truck, Dump Truck, Bobcat, Backhoe and Trailer, Compressor, Excavator and Concrete Saw	This work would be performed as needed. Repair or replacement lining and reinforcement of steel would be conducted, as directed by the County Engineer.
Install Roadway Storm Drain Pipe	The installation or repair of pipe to provide drainage for park and road right-of-way.	Back hoe, Dump Truck with Trailer, Construction Crew, Truck, Air Compressor, Flatbed Truck, Mixer and Tender	Installation of roadway storm drain pipe in order to provide adequate drainage. Replace (or repair) pipe where flow is restricted and/or the pipe is damaged and is not functioning as designed, creating a drainage problem.
Vault Cleaning	The cleaning of sub drain vaults in order to allow the system to fully operate. The intent of the system is to assist in the removal of the hydrostatic pressure on concrete slopes, walls, toeline, and the bottom of the channels. This task includes both an annual inspection and routine maintenance.	Vacuum Truck, Pick up with Wench, and Oxygen Meter Underground Crew - Safety Harness, Life line, Detector (oxygen gas), and hydrogen sulfide	Inspect annually and clean 1/3 of all vaults located on-site each year.
Concrete Channel Silt Removal - Loader	Mechanical removal of silt and debris from channel bottom to provide for normal flow of water. This activity applies to silt and debris removal from the bottom of a concrete channel with a large loader and may include stockpiling debris removed until dry.	Tender Truck, Dump Truck, and Large Loader	Normally conducted from April to October but can be performed throughout the year. Performed when the capacity of a channel is impaired or adjacent drainage structures are restricted.
Concrete Channel Silt Removal - Bobcat	Mechanical removal of silt and debris from channel bottom to provide for normal flow of water. This activity applies to silt and debris removal from the bottom of a concrete channel with a Bobcat or skip loader and may include stockpiling debris removed until dry.	Tender Truck, Dump Truck, Bobcat/Skip Loader, Mobile Crane and Trailer	Normally conducted from April to October but can be performed throughout the year. Performed when the capacity of a channel is impaired or adjacent drainage structures are restricted.

Table 3. Proposed Flood Control Maintenance Activities (continued)

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Dirt Channel Silt Removal	Mechanical removal of silt, vegetation and/or debris that has been removed and stockpiled to restore dirt channels and roadways, and to provide proper flow of water.	Tender Truck, Dump Trucks, Crane, Excavator and Dozer	Stockpiled materials have drained sufficiently to allow loading and hauling.
Compact Channel Slope	Provide soil or rock compaction (into slope) in order to inhibit subsequent erosion.	Crane, Excavator, Tender Truck, and Badger	Slopes should be compacted whenever major repairs occur and earth is imported to provide a base for the final invert surface. Rip-rap 24 inches in diameter or smaller should be compacted.
Slope Repair/Rip-Rap Preparation	Mechanical removal of dirt from channel slopes and channel bottom in preparation for rip-rap lining installation in order to restore design cross sections. Repair and replace damaged concrete lining, compact channel slope (provide soil or rock compaction into slope in order to inhibit subsequent erosion. Slopes should be compacted to provide a base for the final invert surface).	Tender Truck, Crane, Excavator and Dump Trucks	Performed when erosion is (a) undermining adjacent property, (b) creating a turbulence problem, and/or (c) undercutting drainage structures or access roads. Reoccurring problems are candidates for rock installation.
Install Rip-Rap	The installation of rock rip-rap on channel slopes would be conducted in order to stabilize channel slopes and prevent erosion. Preparation of slopes prior to riprap installation, new rip-rap placement 0.10 acre or less.	Tender Truck, Dump Trucks, Crane//Excavator and Dozer	The installation of rip-rap would be performed in order to protect slopes that have experienced past slope erosion (as identified by inspectors and approved by the County's Operations and Maintenance Manager).
Back Fill/Repair Washout	The in-kind repair and/or back fill of washouts would be conducted in order to stabilize slopes or hinder water flow.	Back hoe, Dump Truck, Crane, Equipment Trailer and Tender	This work would be performed as needed. High priority would be given to concrete or asphalt structures that require backfill for stabilization.
Aggregate-Base (AB) Maintain Levee	Prepare roadway and plate AB and compact with rubber tire roller to increase the channel roadways to all weather facilities. This activity also includes placement of AB to maintenance of channel levees.	Tender Truck, Dump Trucks, Rubber T Roller and Motor Grader	Performed under direction of engineer to provide flood control capacity.
Tractor Removal of Arundo	Removal of Arundo would be conducted using excavators. A large loader with a clam bucket would be utilized to stockpile material at a processing area and a water truck would be utilized for dust and fire control.	Excavator, Large Loader, Water Truck, Tender Truck, Off Road Truck, and Off Road Water Truck, Inmate and Contract Crews	Arundo would be removed if required as mitigation.

Table 3. Proposed Flood Control Maintenance Activities (continued)

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Manual Cleaning/ Inspection of Drains	The inspection and manual cleaning of drainage inlets, pipes, down drains, and storm drainage lines would be conducted in order to ensure that the drainage system is functioning at full capacity. This activity excludes maintenance yard drains.	Stakebed/Crew cab, Oxygen Meter and Mini Vac	Drains are manually checked and cleaned. Drains requiring a vac truck are noted in the inventory and referred to scheduling. Recurring problem drains are checked and cleaned (as necessary) after storm events.
Landscape Maintenance	Maintenance of County-landscaped areas including ground cover, trees, and shrubs often in undeveloped areas. This work effort includes the removal of trash, elimination of right of way encroachment, and provide security clearance in flood channels and right-of-ways.	Road Truck, Inmate and Contract Crews	This work would be performed as needed, generally outside of the bird nesting season.
Right-of-Way Pruning	Trim and prune trees and shrubs to provide equipment access, and provide right-of-way clearance.	Road Truck, Inmate and Contract Crews.	This work would be performed as needed, generally outside of the bird nesting season.
Annual DSOD Inspection/Repairs	Inspection and maintenance of dams	Excavator, Large Loader, Water Truck, Tender Truck, Off Road Truck, and Off Road Water Truck	Annual DSOD Inspection

5.0 PROPOSED BRIDGE MAINTENANCE ACTIVITIES

OC Public Works Bridge Maintenance proposes routine maintenance activities for existing County bridge facilities. Maintenance activities would include bridge concrete repair, cleaning and painting of bridge steel, and restoration of bridge scour protection measures. Refer to the following Table 4, *Proposed Bridge Maintenance Activities*, for a detailed description of each maintenance activity.

Table 4. Proposed Bridge Maintenance Activities

Maintenance Type	Maintenance Description	Equipment Needed	Performance Criteria
Graffiti Paint/Spray	Removal of vandalized markings on fences, walls and traffic signals in the road right of way	Utility Truck	Performed per request from Graffiti Hotline and County Inspection staff (signs, controllers boxes, lights posts, etc. = 5 SF each).
Graffiti Hand Roll	Painting over vandalized markings on fences, walls and traffic signals in County right of way using a hand roller	Utility Truck	Performed per request from Graffiti Hotline and County Inspection staff (signs, controller boxes, light posts, etc. = 5 SF each).
Repair concrete structure damage below deck level	Pressure-Epoxy-Inject Cracks – below deck or on side of bridge	Air compressor, air & high-pressure water spray guns, Epoxy pressure-grout gun	Performed as recommended by Caltrans Bridge Inspection Reports or OC Public Works Bridge Maintenance staff
Repair concrete structure damage below deck level	Remove & replace unsound or spalled concrete – below deck level	Air compressor, air, sandblast & high-pressure water spray guns, generator, man-lift (access-permitting), concrete saw, chipping gun, towable concrete pump, ready-mix truck or drum mixer	
Repair concrete structure damage below deck level	Remove & replace unsound or spalled concrete – below deck level (temp. support required)	Air compressor, air, sandblast & high-pressure water spray guns, generator, man-lift (access-permitting), concrete saw, chipping gun, towable concrete pump, ready-mix truck or drum mixer, and temporary support system consisting of heavy timber or steel posts on timber cribbing and steel or wood cross-members	
Clean & paint bridge steel (above and/or below deck level)	Clean and paint steel girders – above or below deck	Air compressor, air & sandblast guns, man-lift (access-permitting), light scaffold, paint gun, tarps	
Restore scour protection measures at bridge	Slurry-fill scour recesses and restore eroded invert with grouted riprap	Bobcat or loader, dump truck, ready-mix truck, towable concrete pump	
Restore scour protection measures at bridge	Slurry-fill scour recesses and restore eroded invert with ungrouted riprap	Bobcat or loader, dump truck, ready-mix truck, towable concrete pump	
Restore scour protection measures at bridge	Slurry-fill scour recesses and restore eroded invert with concrete invert (including cutoff walls) extending to limits of bridge wingwalls, and grouted or ungrouted riprap aprons upstream and downstream	Bobcat or loader, dump truck, ready-mix truck, towable concrete pump	

6.0 REGULATORY APPROVALS REQUIRED

Rather than continue to obtain individual maintenance coverage on a project-by-project basis from the regulatory agencies, the project proposes to obtain the above mentioned approvals, which would allow for County-wide reoccurring maintenance activities on an as-needed basis. In order to implement the proposed maintenance activities, OCFCD, with the assistance of OC Public Works proposes to obtain the following regulatory agency approvals:

- Regional General Permit(s) (RGP) from the U.S. Army Corps of Engineers (ACOE) for coverage under Section 404 of the a Clean Water Act (CWA);
- Long-Term Streambed Alteration Agreement for Routine Maintenance from the California Department of Fish and Wildlife (CDFW) for coverage under Section 1602 of the California Fish and Game Code;
- Water Quality Standards Certification from the State Water Resources Control Board (SWRCB), along with coordination with the Santa Ana and San Diego Regional Water Quality Control Boards (RWQCB), for coverage under Section 401 of the CWA; and
- Coastal Development Permit (CDP) from the California Coastal Commission (CCC) for coverage under the California Coastal Act.

7.0 MAINTENANCE ACTIVITIES AND PHASING

7.1 MAINTENANCE AND CONSTRUCTION

All haul/service routes would be designated along each of the channel's existing paved service roads (situated outside of the drainage channel). All sediment/debris created during maintenance would be hauled to an approved County facility (i.e. stockyard or landfill). Wet sediment would be left in an approved stockpile site or an OCFCD parcel to dry out (outside of jurisdictional areas and prior to transport) using the appropriate Best Management Practices (BMPs). When possible, and if conditions allow (determined on a project by project basis), sand use for beach replenishment may occur when approved by the regulatory agencies.

All activities and staging would be done within the existing OCFCD/OC Public Works right-of-way (or within the limits of prescriptive rights road right-of-way, using a temporary construction easement, where the County lacks an official right-of-way easement) using appropriate BMPs per the State General Construction Permit and Santa Ana/San Diego Regional Water Quality Control Board MS4 Permits. For some bridge maintenance, such as scour repairs, the work area may extend into temporary construction easements immediately adjacent to the roadway right-of-way. Per the County's *Operations Manual*, each area of staging would be sited as close as possible to the maintenance activity in order to maximize efficiency.

7.2 PHASING

Proposed maintenance activities would occur on an as-needed basis throughout the on-site facilities similar to present day. New facilities, nor the expansion of facilities, are proposed.

7.3 SCHEDULE OF INSPECTION AND MAINTENANCE ACTIVITIES

The proposed maintenance includes activities that will result in a minimal impact to the environment based on existing conditions of the facility and/or lack of environmental resources. Scheduling generally varies by maintenance type and facility type. It should be noted that this schedule is a guide and schedule times may vary. Although the proposed routine maintenance would not impact special status species, maintenance (other than surveys and inspection) in vegetated facilities should be completed outside of the nesting season (maintenance to occur between September 15 and March 15). Inspection activities shall be performed in compliance with the Endangered Species Act and Migratory Bird Treaty Act.

7.4 ROUTINE MAINTENANCE ACTIVITIES

Required routine maintenance activities will be identified during the spring and fall inspections and based on the annual channel scour surveys. The criteria for the necessary maintenance activities will vary across all facilities, and will be generally based on the need to provide the required flood carrying capacity, access and facility maintenance (e.g., inlets/outlets).

Prior to the start of the maintenance season (July 1), OC Public works will submit the proposed facilities and maintenance activities for that year to the regulatory agencies. At that time, a site reconnaissance will be conducted within each of the facilities that are proposed for maintenance. Information to be provided to the agencies prior to maintenance includes maintenance type, schedule of work, acreage of jurisdictional impacts, habitat present (if any), etc.

8.0 MITIGATION MEASURES

The following mitigation measures will be implemented.

MM-1, Nesting Birds. Prior to commencement of any maintenance activities between February 15 through August 31, a qualified biologist shall conduct a breeding behavior and nesting survey for birds protected by the Unites States Fish and Wildlife Service, California Department of Fish and Wildlife, the Migratory Bird Treaty Act, and California species of special concern within 300 feet of the project site (500 feet for raptors and owls). If any occupied nests of any sensitive species are discovered, construction activities within 300 feet of the nest (500 feet for raptors and owls) shall be monitored to ensure that construction noise levels do not exceed 65 dB peak within 100 feet of the nest until the nest is vacated and juveniles have fledged and there is no longer evidence of a second attempt at nesting. OC Public Works shall implement a larger buffer if the biologist recommends a larger buffer from the nest area.

MM-2, Maintenance Responsibilities and Debris Removal. OC Public Works shall comply with the following construction related requirements:

A. No maintenance materials, equipment, debris, or waste shall be placed or stored where it may enter sensitive habitat, receiving waters or storm drain, or be subject to wave, wind, rain, or tidal erosion and dispersion.

B. Any and all debris resulting from maintenance activities, and any remaining maintenance materials, shall be removed from the project site within 24 hours of completion of the project.
C. Maintenance debris and sediment shall be removed from work areas each day that demolition or construction occurs to prevent the accumulation of sediment and other debris that may be discharged into the coastal waters.
D. Machinery or material not essential for project maintenance will not be allowed at any time in the intertidal zone.
E. If turbid conditions are generated during maintenance a silt curtain will be utilized to control turbidity.
F. Floating booms will be used to contain debris discharged into coastal waters and any debris will be removed as soon as possible but no later than the end of the each day.
G. Non buoyant debris discharged into coastal waters will be recovered by divers as soon as possible after loss.
H. All trash and debris shall be disposed in the proper trash and recycling receptacles at the end of every construction day.
I. The applicant shall provide adequate disposal facilities for solid waste, including excess concrete, produced during demolition or construction.
J. Debris shall be disposed of at a legal disposal site or recycled at a recycling facility. If the disposal site is located it the coastal zone, a coastal development permit or an amendment to this permit shall be required before disposal can take place unless the Executive Director determines that no amendment or new permit is legally required.
K. All stock piles and maintenance materials shall be covered, enclosed on all sides, shall be located as far away as possible from drain inlets and any waterway, and shall not be stored in contact with the soil
L. Machinery and equipment shall be maintained and washed in confined areas specifically designed to control runoff. Thinners or solvents shall not be discharged into sanitary or storm sewer systems.
M. The discharge of any hazardous materials into any receiving waters shall be prohibited.
N. Spill prevention and control measures shall be implemented to ensure the proper handling and storage of petroleum products and other construction materials. Measures shall include a designated fueling and vehicle maintenance area with appropriate berms and protection to prevent any spillage of gasoline or related petroleum products or contact with runoff. The area shall be located as far away from the receiving waters and storm drain inlets as possible.
O. Best Management Practices (BMPs) and Good Housekeeping Practices (GHPs) designed to prevent spillage and/or runoff of demolition or maintenance-related materials, and to contain sediment or contaminants associated with any maintenance activity, shall be implemented prior to the on-set of such activity.
P. All BMPs shall be maintained in a functional condition throughout the duration of the construction activity.

MM-3, Maintenance Drawings. Within 60 days of completion of the project, the applicant shall submit two copies of As-Built Plans or maintenance drawings showing maintenance activities pursuant to this coastal development permit with all relevant property lines depicted. The drawings shall be consistent with the approved maintenance plan. The drawings shall include color photographs (in hard copy and jpg format) that clearly show all components of the maintenance activity, and that are accompanied by a site plan that notes the location of each photographic viewpoint and the date and time of each photograph.

If the as-built plans identify that the maintenance activity has been implemented inconsistent with the approved drawings, the applicant shall submit an application for an amendment to this coastal development permit, or a new coastal development permit, if legally required, within 30 days of receiving the Executive Director's notice that the as-built plans are inconsistent with the final approved plans for restoration of any impacts to coastal resources resulting from the identified unpermitted maintenance activity.

MM-4, Fence Design Alternatives (for fence repairs).

A. Prior to commencement of the maintenance activity, the applicant shall submit, for the review and approval of the Executive Director, two (2) sets of final revised project plans. The revised final project plans and project description shall reflect the following:

1. When feasible and proposed for replacement, the fence shall be a post and cable fence, or other similar, visually open design, consistent with the provisions of public safety, subject to the review and approval of the Executive Director, when applicable and determined on a project by project basis. Alternative designs may be allowed if the Executive Director determines that such designs are consistent with the intent of this condition and serve to minimize adverse effects to public views.

2. The proposed fence shall be designed to be the minimum possible height that would be consistent with the requirements of the resource agencies and the provisions of public safety, but in no event shall be higher than 6 foot 1 inch.

B. OC Public Works will undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to the coastal development permit unless the Executive Director determines that no amendment is legally required.

MM-5, Final Habitat Mitigation and Monitoring Program.

A. When habitat is permanently impacted (e.g., vegetation clearing), OC Public Works will develop and submit for review and written approval of the Executive Director, a final detailed habitat mitigation and monitoring program to mitigate proposed temporary and permanent impacts, when applicable and determined on a project by project basis. A qualified biologist shall design the mitigation and monitoring program. The mitigation and monitoring program shall at a minimum include the following:

1. Plans for the site preparation and preservation of native seed bank;

2. Restoration plan including planting design, plant palette, source of plant material, plant installation, watering, erosion control, soil fertilization and weed abatement;

3. Description of the monitoring program (quantitative sampling methods such as quadrats, transects, etc. and statistical analysis) that will be employed to determine the progress and ultimate success of the mitigation/restoration.

4. Final Success Criteria.

5. Provisions assessing the initial biological and ecological status of the "as built" restoration site within 30 days of establishment of the restoration site in accordance with the approved restoration program.

6. Provisions for monitoring and remediation of the restoration site in accordance with the approved final restoration program for a period of three years or until it has been determined that success criteria have been met or have failed to be met, whichever comes first.

7. Provisions for submission of annual reports of monitoring results to the Executive Director for the duration of the required monitoring period, beginning the first year after submission of the "as-built" assessment. Each report shall be a cumulative report that summarizes all previous reports. Each report shall document the condition of the restoration with photographs taken from the same fixed points in the same directions. Each report shall also include a "Performance Evaluation" section where information and results from the monitoring program are used to evaluate the status of the restoration project in relation to the performance standards.

8. Provisions for submission of a final monitoring report to the Executive Director at the end of the reporting period. The final report must be prepared in conjunction with a qualified biologist. The report must evaluate whether the restoration site conforms to the goals, objectives, and performance standards set forth in the approved final restoration program.

B. If the final report indicates that the restoration project has been unsuccessful, in part, or in whole, based on the approved performance standards, OC Public Works shall submit within 90 days a revised or supplemental restoration program to compensate for those portions of the original program that were necessary to offset project impacts which did not meet the approved performance standards. The revised restoration program, if necessary, shall be processed as an amendment to this coastal development permit.

C. OC Public Works shall monitor and remediate the restoration site in accordance with the approved monitoring program, including any revised restoration program approved by the Commission or its staff. Any proposed changes to the approved monitoring program shall be reported to the Executive Director. No changes to the approved monitoring program shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

MM-6, Maintenance Access and Staging Plans. Prior to commencement of maintenance, OC Public Works shall submit a plan for the review and approval of the Executive Director which indicates that the construction staging area(s) and construction corridor(s)/access will avoid impacts to public access or sensitive habitat areas, except as specifically authorized in this coastal development permit. The plan shall demonstrate that maintenance and staging would occur within the OC Public Work's right-of-way (ROW). Should the activity not occur within the ROW, a follow-up plan shall be submitted that demonstrates:

1. Construction equipment or activity shall not occur outside the staging area and construction corridor identified on the site plan required by this condition.
2. Staging or storage areas shall not be located in or result in impacts to habitat areas.
3. The construction staging/storage area shall not be located in public beach parking areas during the peak summer period (Memorial Day to Labor Day).
4. The size of the construction staging/storage area will be minimized and will be gradually reduced as less materials and equipment are necessary.
5. The construction access corridor is the minimum width necessary, boundaries of the corridor have been flagged for avoidance of sensitive habitat and public access ways, and measures to protect the soil from disturbance such as temporary driving surfaces are utilized.

A. The plan shall include, at a minimum, the following components:
   1. A site plan that depicts:
      a) limits of the staging area(s)
      b) construction corridor(s)
      c) construction site
      d) location of construction fencing and temporary job trailers
   2. Written documentation from the owner of the staging area site that the permittee is authorized to use the site, as conditioned by the Coastal Commission, for the period the project is under construction or needed to complete post construction restoration work.

OC Public Works shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

MM-7, Cultural Resources. OC Public Works shall comply with the following cultural resources related requirements:

A. If evidence of archeological resources is found during maintenance activities, activities in that area shall cease and the Contractor shall immediately contact the OC Public Works Director. The OC Public Works Director, or his/her designee, shall ensure that a County-approved Archeologist has been retained to explore, salvage, and catalogue archeological resources, as necessary. If the archeological resources are found to be significant, the Archeologist shall determine appropriate actions in cooperation with the Contractor in order to ensure proper exploration and/or salvage.

   Within 30 days of the completion of maintenance activities, the OC Public Works Director, or his/her designee, shall confirm that the Archeologist's follow up report has been approved. The report shall include the inspection period, an analysis of any artifacts found, and the present repository of the artifacts. The Contractor shall prepare excavated materials to the point of identification and offer excavated finds for curatorial purposes to the OC Public Works Director, or his/her designee, on a first-refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to approval by the OC Public Works Director, or his/her designee.

B. If evidence of subsurface paleontological resources is found during maintenance activities, activities in that area shall cease and the Contractor shall immediately contact the OC Public Works Director. The OC Public Works Director, or his/her designee, shall ensure that a County-certified Paleontologist has been retained to explore, salvage, and catalogue fossils, as necessary. If the paleontological resources are found to be significant, the Paleontologist shall determine appropriate actions in cooperation with the Contractor in order to ensure proper exploration and/or salvage.

   Within 30 days of the completion of maintenance activities, the Contractor shall submit the Paleontologist's follow up report for approval by the County Construction Engineer. The report shall include the period of inspection, a catalogue and analysis of the fossils found, and the present repository of the fossils. The Contractor shall prepare excavated materials to the point of identification and offer excavated finds for curatorial purposes to the OC Public Works Director, or his/her designee, on a first-refusal basis. These actions, as well as final mitigation and disposition of the resources, shall be subject to approval by the OC Public Works Director, or his/her designee.

C. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found during maintenance activities, no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined the appropriate treatment and disposition of the human remains.

   The County Coroner shall make such a determination within two working days of notification of the discovery. The County Coroner shall be notified within 24 hours of the discovery. If the County Coroner determines that the remains are, or are believed to be, Native American, the County Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours. In accordance with Section 5097.98 of the Public Resources Code, the NAHC must immediately notify those persons it believes to be the most likely descended from the deceased Native American. The descendants shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the County Construction Engineer, the treatment and disposition of the human remains.