



# California Regional Water Quality Control Board San Diego Region



Linda S. Adams  
Secretary for  
Environmental Protection

Over 50 Years Serving San Diego, Orange, and Riverside Counties  
Recipient of the 2004 Environmental Award for Outstanding Achievement from USEPA

Arnold Schwarzenegger  
Governor

9174 Sky Park Court, Suite 100, San Diego, California 92123-4353  
(858) 467-2952 • Fax (858) 571-6972  
<http://www.waterboards.ca.gov/sandiego>

December 28, 2009

**Certified Mail – Return Receipt Requested**  
Article Number: 7008 1140 0002 4285 4053

**In reply refer to:**  
736851: LPardy

Ms. Megan Hamilton  
County of San Diego  
9150 Chesapeake Drive, Suite 200  
San Diego, CA 92123

**SUBJECT: Action on Request for Clean Water Act Section 401 Water Quality Certification for the Oak Country II Trails project, Water Quality Certification No. 09C-032**

Dear Ms. Hamilton:

Enclosed find Clean Water Act Section 401 Water Quality Certification for discharge to Waters of the U.S. for the Oak Country II Trails project. A description of the project and project location can be found in the project information sheet, location map, and site map by the California Regional Water Quality Control Board, San Diego Region (Regional Board), which are included as Attachments 1 through 7.

Any petition for reconsideration of this Certification must be filed with the State Water Resources Control Board within 30 days of certification action (23 CCR section 3867). If no petition is received, it will be assumed that you have accepted and will comply with all the conditions of this Certification.

Failure to comply with all conditions of this Certification may subject you to enforcement actions by the Regional Board including administrative enforcement orders requiring you to cease and desist from violations, or to clean up waste and abate existing or threatened conditions of pollution or nuisance; administrative civil liability in amounts of up to \$5,000 per day per violation; referral to the State Attorney General for injunctive relief; and, referral to the District Attorney for criminal prosecution.

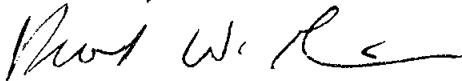
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**California Environmental Protection Agency**



In the subject line of any response, please include the requested "In reply refer to:" information located in the heading of this letter. For questions pertaining to the subject matter, please contact Linda Parady at (858) 627-3932 or by email via LPardy@waterboards.ca.gov.

Respectfully,



DAVID W. GIBSON  
Executive Officer

Enclosures:

Clean Water Act Section 401 Water Quality Certification No. 09C-032 for Oak Country II Trails project, with 7 attachments

cc: Refer to Attachment 2 of Certification 09C-032 for Distribution List.

Tech Staff Info & Use	
File No.	09C-032
WDID	9 000001921
Reg. Measure ID	354486
Place ID	736851
Party ID	39611
Person ID	505615



# California Regional Water Quality Control Board

## San Diego Region



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### Action on Request for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Discharge of Dredged and/or Fill Materials

**PROJECT:** Oak Country II Trails Project,  
Certification Number (09C-032)

Certified Mail –Return Receipt Requested:  
7009 1410 0002 2347 6941

**APPLICANT:** Ms. Megan Hamilton  
County of San Diego  
Department of Parks and Recreation  
9150 Chesapeake Drive, Suite 200  
San Diego, CA 92123

In reply refer to:  
736851: LPARDY

WDID: 9 000001921 CIWQS Reg. Meas. ID: 354486 Place ID: 736851 Party ID: 505615
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**ACTION:**

<input type="checkbox"/> Order for Low Impact Certification	<input type="checkbox"/> Order for Denial of Certification
<input checked="" type="checkbox"/> Order for Technically-conditioned Certification	<input type="checkbox"/> Waiver of Waste Discharge Requirements
<input checked="" type="checkbox"/> Enrollment in SWRCB GWDR Order No. 2003-017 DWQ	<input type="checkbox"/> Enrollment in Isolated Waters Order No. 2004-004 DWQ

**PROJECT DESCRIPTION:**

The proposed project will create an approximately four-mile, multi-use trail for recreational (hiking, non-motorized biking and equestrian) purposes located within the Ramona Grasslands Preserve. The trail will not be paved, and will not add any impervious surface area. The project will occur in two phases. In Phase I, an equestrian staging area and parking for four horse trailers and ten cars will be constructed adjacent to Highland Valley Road; trail fencing will be constructed, and a new culvert will be installed to replace a damaged culvert within an existing 8 to 9-foot wide dirt ranch road through which an unnamed tributary to Santa Maria Creek, San Diego County flows. The project includes placement of a 12-inch metal culvert pipe covered with 1-inch light class aggregate and geofilter fabric. This will be topped with native soil and riprap. In Phase II, vegetation clearing or tamping will be done to create two new 4-foot wide loop trails to the west of the existing ranch road.

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*California Environmental Protection Agency*

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov>.*

Recycled Paper



**STANDARD CONDITIONS:**

The following three standard conditions apply to all Certification actions, except as noted under Condition 3 for denials (Action 3).

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).
2. This Certification action is not intended and must not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
3. The validity of any non-denial Certification action (Actions 1 and 2) must be conditioned upon total payment of the full fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

**ADDITIONAL CONDITIONS:**

In addition to the three standard conditions, County of San Diego must satisfy the following:

**A. GENERAL CONDITIONS:**

1. The County of San Diego must, at all times, fully comply with the engineering plans, specifications and technical reports submitted to the California Regional Water Quality Control Board, San Diego Region (Regional Board), to support this 401 Water Quality Certification (Certification) and all subsequent submittals required as part of this Certification and as described in Attachment 1. The conditions within this Certification must supersede conflicting provisions within such plans submitted prior to the Certification action. Any modifications thereto, would require notification to the Regional Board and reevaluation for individual Waste Discharge Requirements and/or Certification amendment.
2. During construction, the County of San Diego must maintain a copy of this Certification at the project site so as to be available at all times to site personnel and agencies.
3. The County of San Diego must permit the Regional Board or its authorized representative at all times, upon presentation of credentials:

- a. Entry onto project premises, including all areas on which wetland fill or wetland mitigation is located or in which records are kept.
  - b. Access to copy any records required to be kept under the terms and conditions of this Certification.
  - c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Certification.
  - d. Sampling of any discharge or surface water covered by this Order.
4. The County of San Diego must notify the Regional Board **within 24 hours** of any unauthorized discharge, including hazardous or toxic materials, to waters of the U.S. and/or State; measures that were implemented to stop and contain the discharge; measures implemented to clean-up the discharge; the volume and type of materials discharged and recovered; and additional best management practice (BMPs) or other measures that will be implemented to prevent future discharges.
5. The County of San Diego must, at all times, maintain appropriate types and sufficient quantities of materials onsite to contain any spill or inadvertent release of materials that may cause a condition of pollution or nuisance if the materials reach waters of the U.S. and/or State.
6. This Certification is not transferable in its entirety or in part to any person except after notice to the Executive Officer of the Regional Board in accordance with the following terms.
- a. **Transfer of Property Ownership:** The County of San Diego must notify the Regional Board of any change in ownership of the project area. Notification of change in ownership must include, but not be limited to, a statement that the County of San Diego has provided the purchaser with a copy of the section 401 Water Quality Certification and that the purchaser understands and accepts the certification requirements and the obligation to implement them or be subject to liability for failure to do so; the seller and purchaser must sign and date the notification and provide such notification to the Executive officer of the Regional Board within **10 days** of the transfer of ownership.
  - b. **Transfer of Mitigation Responsibility:** Any notification of transfer of responsibilities to satisfy the mitigation requirements set forth in section D '*Compensatory Mitigation for Loss of Waters of the U.S./State*' of this certification shall include a signed statement from an authorized representative of the new party (transferee) demonstrating acceptance and understanding of the responsibility to comply with and fully satisfy the mitigation conditions and agreement that failure to comply with the mitigation conditions and associated requirements may subject the transferee to enforcement by the Regional Board under Water Code

section 13385, subdivision (a). Notification of transfer of responsibilities meeting the above conditions must be provided to the Regional Board within **10 days** of the transfer date.

7. In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation must be subject to any remedies, penalties, process or sanctions as provided for under State law. For purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.
8. In response to a suspected violation of any condition of this Certification, the Regional Board may require the holder of any permit or license subject to this Certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional Board deems appropriate, provided that the burden, including costs, of the reports must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.
9. In response to any violation of the conditions of this Certification, the Regional Board may add to or modify the conditions of this Certification as appropriate to ensure compliance.
10. The discharge (disposal or storage) of horse manure and stall/stable bedding (horse wastes) in creeks, creek banks, water bodies, riparian areas, mitigation areas, or bioswales is not permitted. Stockpiled horse wastes must be covered at all times, kept away from water bodies or storm drain inlets, and disposed of at an appropriate facility.
11. The County of San Diego must comply with the recommendations within the *Equestrian-Related Water Quality Best Management Practices* in Attachment 7.
12. The County of San Diego must submit annual progress reports discussing the status of compliance with all conditions of this certification to the Regional Board prior to **August 1** of each year following the issuance of this Certification until the project has reached completion. A Final Report is required following project completion.

**B. PROJECT CONDITIONS:**

1. Prior to the start of the project, and annually thereafter, the County of San Diego must educate all personnel on the requirements in this Certification, pollution prevention measures, spill response, and BMP implementation and

maintenance.

2. The County of San Diego must comply with the requirements of State Water Resources Control Board Water Quality Order No. 2003-0017-DWQ, Statewide General Waste Discharge Requirements for discharges of dredged or fill material that have received State Water Quality Certification. These General Waste Discharge Requirements are accessible at: [http://www.waterboards.ca.gov/water\\_issues/programs/cwa401/docs/general\\_orders/go\\_wdr401regulated\\_projects.pdf](http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/general_orders/go_wdr401regulated_projects.pdf).
3. The County of San Diego must notify the Regional Board in writing at least **5 days** prior to the actual commencement of dredge, fill, and discharge activities.
4. Discharges of concentrated flow during construction or after completion must not cause downstream erosion or damage to properties or stream habitat.
5. Water containing mud, silt, or other pollutants from equipment washing or other activities, must not be discharged to waters of the United States and/or the State or placed in locations that may be subjected to storm flows. Pollutants discharged to areas within a stream diversion area must be removed at the end of each work day or sooner if rain is predicted.
6. All surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.
7. All areas that will be left in a rough graded state must be revegetated with native species no later than one week after completion of grading. The revegetation palette must not contain any plants listed on the California Invasive Plant Council Invasive Plant inventory, which can be found online at <http://www.cal-ipc./ip/inventory/weedlist.php>.
8. Substances hazardous to aquatic life including, but not limited to, petroleum products, raw cement/concrete, asphalt, and coating materials, must be prevented from contaminating the soil and/or entering waters of the United States and/or State. BMPs must be implemented to prevent such discharges during each project activity involving hazardous materials.

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9. The upstream, downstream and lateral limits of project disturbance and associated staging areas must be clearly defined and marked in the field and reviewed by a qualified Project biologist prior to the initiation of work. Construction employees must strictly limit their activities, vehicles, equipment, and construction materials to these designated areas. All construction markers must be removed upon completion of construction activities.
10. The County of San Diego must comply with the 'General Avoidance and Minimization Measures' and 'Species Specific Avoidance and Minimization Measures' described in the Department of Fish and Game, Notification of Lake or Streambed Alteration for the Oak Country II Trails project.

### **C. SOURCE CONTROL BMPs**

The proposed project will not add any impervious surface area. The surface of the trail must be composed of native soils, and must not alter the runoff coefficient as compared to existing conditions. No post construction BMPs are proposed, but an extensive source control BMP program must be implemented to ensure protection of water quality.

1. The following source control BMPs must be implemented:
  - i. The trail must be periodically re-graded as needed to prevent rill from forming, to promote sheet flow, and to reduce erosion. Regrading must occur at a minimum of once per year at the end of the rainy season.
  - ii. Daily inspections may be necessary before, during, and after storm events to ensure the integrity of the trail system. If necessary, trails will be closed during severe storm rain events. Signage must be posted in designated areas. During the dry season, the trail will be inspected at a minimum on a weekly basis. These inspections must include an overall site review, manure/trash/litter/debris removal, trail soil base assessment, and spill prevention.
  - iii. Trash containers with lids must be installed.
  - iv. Horse manure must be removed from the trail on a weekly basis.
  - v. Rules and Regulations for pet owners must be required. Signage must be posted in designated areas.
2. Records must be kept regarding inspections and maintenance in order to assess the performance of the source control BMPs and determine whether adaptations are necessary to protect receiving waters.

### **D. COMPENSATORY MITIGATION FOR LOSS OF WATERS OF THE U.S./STATE**

1. Mitigation for permanent impacts to 0.013 acre of disturbed wetland and freshwater seep must be achieved through the off-site enhancement of a 0.26



acre area along Santa Ysabel Creek, as detailed by the 'Oak Country II Trails Project Draft 401 Mitigation Plan,' County of San Diego, December 2009.

2. The County of San Diego must restore all areas of temporary impacts and all other areas of temporary disturbance which could result in a discharge or a threatened discharge to waters of the United States/State. Restoration must include grading of disturbed areas to pre-project contours and revegetation with native species. The County of San Diego must implement all necessary BMPs to control erosion and runoff from areas associated with this project.
3. The County of San Diego must notify the Regional Board in writing at least **5 days** prior to the actual commencement of mitigation installation.
4. Draft Preservation Mechanism: Within **90 days** of the issuance of this Certification, the County of San Diego must provide the Regional Board a draft preservation mechanism (e.g. deed restriction, conservation easement, etc.) that will protect all mitigation areas and their buffers in perpetuity.
5. Final Preservation Mechanism: Within **one year** of the issuance of this Certification, the County of San Diego must submit proof of a completed preservation mechanism that will protect all mitigation areas and their buffers in perpetuity. Construction of the site must not be initiated until a completed preservation mechanism is received. The conservation easement, deed restriction, or other legal limitation on the mitigation property must be adequate to demonstrate that the site will be maintained without future development or encroachment on the site which could otherwise reduce the functions and values of the site for the variety of beneficial uses of waters of the U.S. that it supports. The legal limitation must prohibit, without exception, all residential, commercial, industrial, institutional, and transportation development, and any other infrastructure development that would not maintain or enhance the wetland and streambed functions and values of the site. The preservation mechanism must clearly prohibit activities that would result in soil disturbance or vegetation removal, other than the removal of non-native vegetation. Other infrastructure development to be prohibited includes, but is not limited to, additional utility lines, maintenance roads, and areas of maintained landscaping for recreation.
6. Report on Mitigation Project: The County of San Diego must submit a report (including topography maps, location of non-native vegetation removal, cattle fencing, and signage) to the Regional Board within **90 days** of completion of mitigation site enhancement, describing as-built status of the mitigation project.
7. The construction of proposed mitigation must be concurrent with project grading and completed no later than **9 months** following the initial discharge of dredge or fill material into on-site waters. Delays in implementing

mitigation must be compensated for by an increased mitigation implementation of 10% of the cumulative compensatory mitigation for each month of delay.

8. Throughout the mitigation monitoring program mitigation areas must be maintained free of perennial and/or biennial exotic plant species including, but not limited to bull thistle, blackberry, pampas grass, giant reed, tamarisk, sweet fennel, tree tobacco, and castor bean. Annual exotic plant species must not occupy more than 5 percent of the onsite or offsite enhancement areas.
9. Regional Board acceptance of the final mitigation plan applies only to the site and plan that mitigates for the Oak Country II Trails project and must not be construed as approval of the mitigation site or plan for use by other current or future projects that are planning to use the Santa Ysabel Open Space Preserve site for mitigation.
10. Any maintenance activities that do not contribute to the success of the mitigation site and enhancement of beneficial uses and ecological functions and services are prohibited. Maintenance activities are limited to the removal of trash and debris, removal of exotic plant species, replacement of dead native plant species and remedial measures deemed necessary for the success of the restoration program.
11. If at any time during the implementation and establishment of the mitigation area(s), and prior to verification of meeting success criteria, a catastrophic natural event (e.g., fire, flood) occurs and impacts the mitigation area, the County of San Diego is responsible for repair and restoration of the damaged area(s).
12. Mitigation monitoring reports must be submitted annually until mitigation has been deemed successful. Annual monitoring reports must be submitted prior to **December 1** of each year. Monitoring reports must include, but not be limited to, the following:
  - i. Names, qualifications, and affiliations of the persons contributing to the report;
  - ii. Tables presenting the raw data collected in the field as well as analyses of the physical and biological data, including at a minimum;
  - iii. Topographic complexity characteristics at each mitigation site;
  - iv. Upstream and downstream habitat and hydrologic connectivity;
  - v. Source of hydrology;
  - vi. Width of native vegetation buffer around the entire mitigation site;
  - vii. Qualitative and quantitative comparisons of current mitigation conditions with pre-construction conditions and previous mitigation monitoring results;

- viii. Photo documentation from established reference points;
  - ix. A survey report documenting boundaries of mitigation area; and
  - x. Other items specified in the final 'Oak Country II Trails Project Draft 401 Mitigation Plan' County of San Diego, December 2009.
13. For the purpose of determining mitigation credit for the removal of exotic/invasive plant species, only the actual area occupied by exotic/invasive plant species must be quantified to comply with mitigation requirements.
14. For purposes of this Certification, establishment is defined as the creation of vegetated or unvegetated waters of the U.S./State where the resource has never previously existed (e.g. conversion of nonnative grassland to a freshwater marsh). Restoration is divided into two activities, re-establishment and rehabilitation. Re-establishment is defined as the return of natural/historic functions to a site where vegetated or unvegetated waters of the U.S./State previously existed (e.g., removal of fill material to restore a drainage). Rehabilitation is defined as the improvement of the general suite of functions of degraded vegetated or unvegetated waters of the U.S./State (e.g., removal of a heavy infestation or monoculture of exotic plant species from jurisdictional areas and replacing with native species). Enhancement is defined as the improvement to one or two functions of existing vegetated or unvegetated waters of the U.S./State (e.g., removal of small patches of exotic plant species from an area containing predominantly natural plant species). Preservation is defined as the acquisition and legal protection from future impacts in perpetuity of existing vegetated or unvegetated waters of the U.S./State (e.g., conservation easement).

#### E. STREAM PHOTO DOCUMENTATION PROCEDURE

1. The County of San Diego must conduct photo documentation of the project site, including all areas of permanent and temporary impact, prior to and after project construction, and mitigation areas, including all areas of permanent and temporary impact, prior to and after project construction. Photo documentation must be conducted in accordance with the State Water Resources Control Board Standard Operating Procedure 4.2.1.4: Stream Photo Documentation Procedure, included as Attachment Number 6. In addition, photo documentation must include Geographic Positioning System (GPS) coordinates for each of the photo points referenced. County of San Diego must submit this information in a photo documentation report to the Regional Board **with the Mitigation Maintenance and Monitoring reports**. The report must include a compact disc that contains digital files of all the photos (jpeg file type or similar).

#### F. GEOGRAPHIC INFORMATION SYSTEM REPORTING

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1. The County of San Diego must submit Geographic Information System (GIS) shape files of the impact area and mitigation areas **within 90 days of completion of mitigation site enhancement**. All impact and mitigation areas shapefiles must be polygons. Two GPS readings (points) must be taken on each line of the polygon and the polygon must have a minimum of 10 points. GIS metadata must also be submitted.

**G. REPORTING:**

1. All information requested in this Certification is pursuant to California Water Code (CWC) section 13267. Civil liability may be administratively imposed by the Regional Board for failure to furnish requested information pursuant to CWC section 13268.
2. All reports and information submitted to the Regional Board must be submitted in both hardcopy and electronic format. The preferred electronic format for each report submission is one file in PDF format that is also Optical Character Recognition (OCR) capable.
3. The County of San Diego must submit a report to the Regional Board within **30 days** of completion of the project. The report should include as-built drawings no bigger than 11" x 17" and photos of the completed project.
4. All applications, reports, or information submitted to the Regional Board must be signed and certified as follows:
  - a. For a corporation, by a responsible corporate officer of at least the level of vice president.
  - b. For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
  - c. For a municipality, or a state, federal, or other public agency, by either a principal executive officer or ranking elected official.
5. A duly authorized representative of a person designated in Items 4.a. through 4.c. above may sign documents if:
  - a. The authorization is made in writing by a person described in Items 4.a. through 4.c. above.
  - b. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
  - c. The written authorization is submitted to the Regional Board Executive Officer.
6. All applications, reports, or information submitted to the Regional Board must be signed and certified as follows:

*"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."*

7. The County of San Diego must submit reports required under this Certification, or other information required by the Regional Board, to:

Executive Officer  
California Regional Water Quality Control Board  
San Diego Region  
Attn: 401 Certification; Project No. 09C-032, Oak Country II Trails Project  
9174 Sky Park Court, Suite 100  
San Diego, California 92123

8. Required Reports: The following list summarizes the reports, excluding spill notifications and emergency situations, required per the conditions of this Certification to be submitted to the Regional Board.

Report Topic	Certification Condition	Due Date(s)
Unauthorized Discharge Notification	A.4	Within 24 hours of the unauthorized discharge
Transfer of Property Ownership	A.6.a	Within 10 days of sale of the transfer of ownership
Transfer of Mitigation Responsibility	A.6.b	Within 10 days of the transfer date
Annual Progress Reports	A.12	Prior to August 1 of each year until project is complete
Notification of dredge, fill or discharge activity to Regional Board	B.3	At least 5 days prior to commencement of dredge, fill and discharge activities
Notification of commencement and completion of mitigation installation	D.3	At least 5 days prior to commencement
Draft preservation mechanism	D.4	Within 90 days of issuance of this Certification
Final preservation mechanism	D.5	Within 1 year of issuance of certification
Report on mitigation project	D.6	Within 90 days of completion of mitigation site
Mitigation Monitoring	D.12	Prior to December 1 of each

Report Topic	Certification Condition	Due Date(s)
Reports		year until project is complete
Stream Photo Documentation	E.1	With the Mitigation Monitoring reports
Geographic Information System (GIS) shape files	F.1	Within 90 days of completion of mitigation site
Final Report	G.3.	Within 30 days completion of project

**PUBLIC NOTIFICATION OF PROJECT APPLICATION:**

On April 27, 2009, receipt of the project application was posted on the Regional Board web site to serve as appropriate notification to the public.

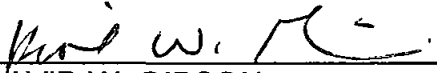
**REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:**

Linda Pardy  
 California Regional Water Quality Control Board, San Diego Region  
 9174 Sky Park Court, Suite 100  
 San Diego, CA 92123  
 858 627-3932  
[LPardy@waterboards.ca.gov](mailto:LPardy@waterboards.ca.gov)

**WATER QUALITY CERTIFICATION:**

I hereby certify that the proposed discharge from Oak Country II Trails (09C-032) will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that have Received State Water Quality Certification (General WDRs)," which requires compliance with all conditions of this Water Quality Certification. Please note that enrollment under Order No. 2003-017 DWQ is conditional and, should new information come to our attention that indicates a water quality problem, the Regional Board may issue waste discharge requirements at that time.

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicants' project description and/or on the attached Project Information Sheet, and (b) on compliance with all applicable requirements of the Regional Board's Water Quality Control Plan (Basin Plan).

  
\_\_\_\_\_  
DAVID W. GIBSON  
Executive Officer  
Regional Water Quality Control Board

12-28-2009  
Date

- Attachments:
1. Project Information
  2. Distribution List
  3. Location Map
  4. Site Map
  5. Mitigation Map
  6. Stream Photo Documentation Procedures
  7. Equestrian-Related Water Quality Best Management Practices

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**ATTACHMENT 1  
PROJECT INFORMATION**

- Applicant:** Ms. Megan Hamilton, Group Program Manager, Resource Management Division,  
County of San Diego, Department of Parks and Recreation  
9150 Chesapeake Drive, Suite 200  
San Diego, CA 92123  
Telephone: 858 966-1377  
Fax: 858 495-5841  
megan.hamilton@sdcounty.ca.gov
- Project Name:** Oak Country II Trails
- Project Location:** The project is located in the unincorporated community of Ramona in San Diego County, California within the County-owned and managed Ramona Grasslands Open Space Preserve. The approximately 380-acre project area is bounded by Highland Valley Road to the south. The main access point to the project occurs just east of the intersection of Highland Valley Road and Archie Moore Road. The project is located within the USGS San Pasqual quadrangle, Township 13 South, Range 1 West, sections 11, 14 and 23, and the Santa Maria Land Grant. The Assessor's Parcel Numbers (APNs) are 276-111-05, 277-050-30, and 277-111-52. The center reading of project is 33.0425° N latitude; -116.952778° W longitude.
- Type of Project:** The project is a County of San Diego public multi-use trail extension and enhancement project in the Ramona Grasslands Preserve, which includes: 2-miles of trail creation, 2-miles of trail enhancement along an existing ranch road with signage and fencing for cultural resources, culvert replacement along an existing ranch road, and creation of a new equestrian staging area with parking areas for four horse trailers and 10 cars.
- Need for Project:** The project enhances an equestrian staging area and enhances and extends a public multi-use trail for the Oak Country II area within the Ramona Grassland Preserve to provide public recreation opportunities for hiking, non-motorized biking, and equestrian users. The project replaces a damaged culvert under the existing ranch road with a new culvert so that emergency access, ranger patrol, management and monitoring activities can be provided to areas within the Preserve via the existing ranch road during all weather types.



**Project Description:** The proposed Oak Country II Trails project is an approximately four-mile, a non-motorized public multi-use figure-eight loop trail (for hiking, biking and equestrian users) which includes creation of a fenced 0.95-acre equestrian staging area and parking, creation of 2-miles of new trails, installation of permanent trail fencing and signage along both sides of the existing dirt ranch road where it is adjacent to significant cultural resources, and replacement of the existing culvert on the ranch road to allow emergency access, ranger patrol, management and monitoring activities during all weather types.

**Federal Agency/Permit:** U.S. Army Corps of Engineers, section 404 permit – NWP 42, Terrence Dean.

**Other Required Regulatory Approvals:** U.S. Fish and Wildlife Service, section 7 – informal consultation, Michelle Moreno; California Department of Fish and Game, 1600 – streambed alteration agreement, Marilyn Fluharty.

**California Environmental Quality Act Compliance:** Mitigated Negative Declaration/ Oak Country II Trails Project; Lead Agency is County of San Diego Department of Parks and Recreation (Contact: Megan Hamilton) State Clearinghouse Number: 2009041107

**Receiving Water:** The project lies within the San Dieguito River Watershed, San Dieguito Hydrologic Unit (HU 905), Santa Maria Valley Hydrologic Subarea (HSA 905.41). The mitigation area for the project lies within the Santa Ysabel Hydrologic Subarea (HSA 905.53).

**Affected Waters of the United States and State:** This project proposes permanent impacts to 0.013-acre (38 lineal feet) of disturbed wetland and freshwater seep in an unnamed tributary to Santa Maria Creek; and mitigates impacts through the enhancement of 0.26-acre of wetland at Santa Ysabel Creek. Both wetlands are tributary to the San Dieguito River.

**Dredge Volume:** Not Applicable

**Related Projects implemented/to be implemented by the Applicant:** Enhancement of a 0.26-acre mitigation area along Santa Ysabel Creek as specified in the *Oak Country II Trails Project, Draft 401 Mitigation Plan*, by the County of San Diego, Department of Parks and Recreation, December 2009.

Compensatory Mitigation: Mitigation for permanent impacts to 0.013-acre of disturbed wetland and freshwater seep will consist of the enhancement through removal of annual and perennial exotics from 0.26-acre of off-site (nearby) wetland at Santa Ysabel Creek, in the San Dieguito watershed.

Best Management Practices (BMPs):

#### CONSTRUCTION RELATED BMPs

1. The project footprint has been designed to avoid Santa Maria Creek by over 100 feet and the proposed trails and staging area will completely avoid the creek's 100-year floodplain.
2. The proposed trail system will incorporate use of the existing ranch road to avoid new impacts in the eastern portion of the project site.
3. Trail location and design will utilize natural topography to avoid erosion potential and maintain existing drainage flow onsite and there would be no increase in peak runoff from the site.
4. Silt fencing will be installed prior to land disturbance.
5. Native vegetation buffers surrounding the trail and staging area will be retained and will act as natural biofilters.
6. Soil-tracking BMPs will be implemented to limit off-site transport of sediment from construction areas by implementing tire-cleaning measures such as stabilized construction entrance/exit areas (e.g., gravel strips) at access points.
7. All erosion and sediment control measures will be inspected / maintained to ensure proper integrity and function during the entire construction period. All stabilization and structural controls will be inspected at least monthly or after any significant storm event for the duration of construction activities and will be repaired or maintained for optimum performance.
8. Land disturbance will be minimized / avoided during wet periods and during windy days to the extent practicable.

#### SOURCE CONTROL BMPs

9. The trail must be periodically re-graded as needed to prevent rill from forming, to promote sheet flow, and to reduce erosion. Regrading must occur at a minimum of once per year at the end of the rainy season.
10. Daily inspections may be necessary before, during, and after storm events to ensure the integrity of the trail system. If necessary, trails will be closed during severe

storm rain events. Signage must be posted in designated areas. During the dry season, the trail will be inspected at a minimum on a weekly basis. These inspections must include an overall site review, manure/trash/litter/debris removal, trail soil base assessment, and spill prevention.

11. Trash containers with lids must be installed.
12. Horse manure must be removed from the trail on a weekly basis.
13. Rules and Regulations for pet owners must be required. Signage must be posted in designated areas.

#### MITIGATION AREA BMPs

14. Cattle will be excluded from riparian habitat areas to allow for natural recruitment of wetland species along Santa Ysabel Creek.
15. Non-native plants will be removed from mitigation areas to restore beneficial uses along Santa Ysabel Creek.
16. Signage will be posted along mitigation area near the trail to educate people about and avoid damage to sensitive habitats.

Public Notice: April 27, 2009 on the Regional Board website.

Fees: Total Due: \$883.00  
Total Paid: \$883.00  
\$215.00 (Check No. 3110734)  
\$668.00 (Check No. 3060195)

CIWQS: Regulatory Measure ID: 354486  
Place ID: 736851  
Party ID: 505615

**ATTACHMENT 2  
DISTRIBUTION LIST**

cc via email:

U.S. Army Corps of Engineers, Regulatory Branch  
San Diego Field Office  
6010 Hidden Valley Rd, Suite 105  
San Diego, CA 92011-4213  
Terry Dean; 760 602-4833  
[Terry.Dean@usace.army.mil](mailto:Terry.Dean@usace.army.mil)

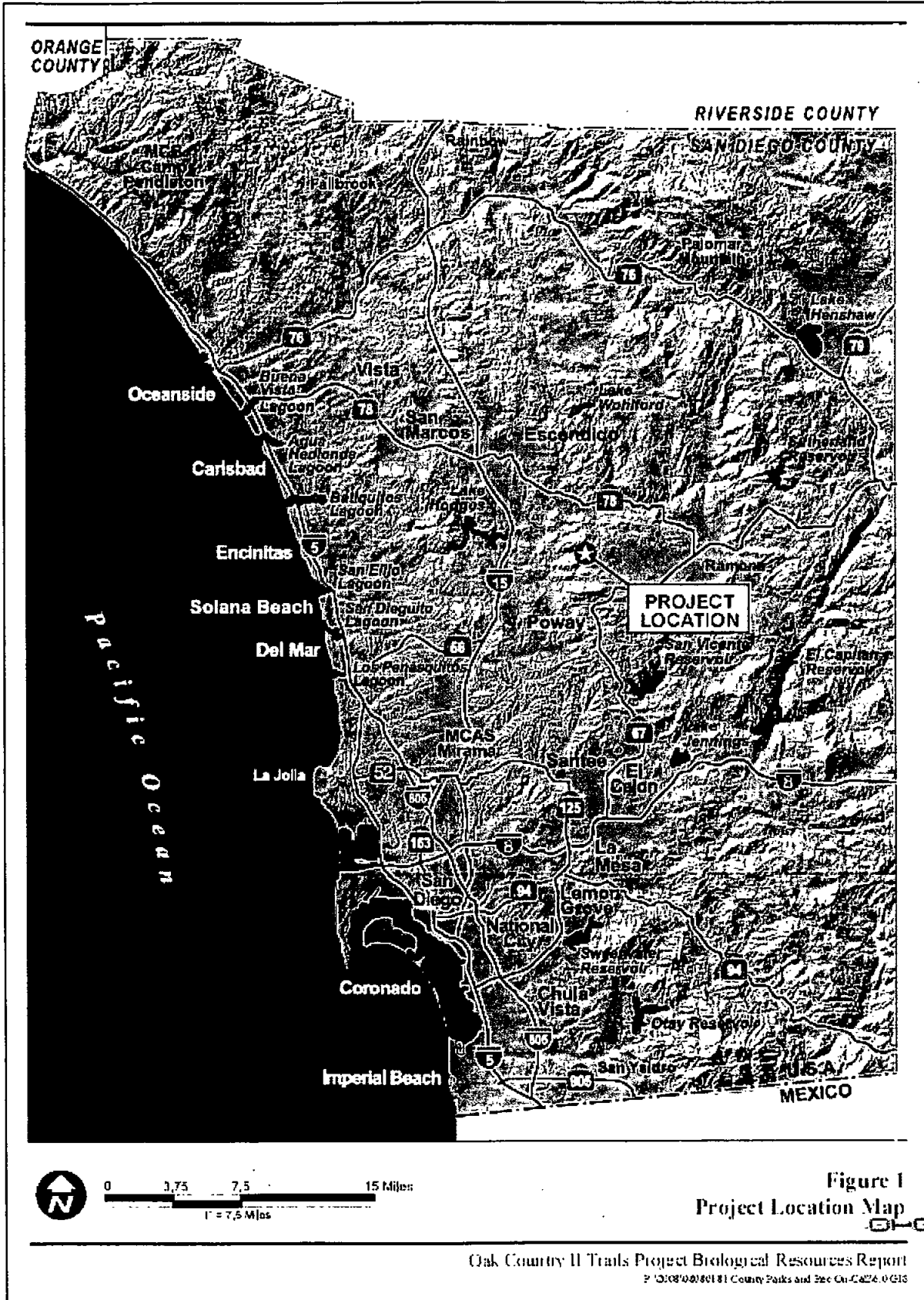
California Department of Fish and Game  
South Coast Region  
Habitat Conservation Planning – South  
4949 Viewridge Avenue  
San Diego, CA 92123-1662  
Marilyn Fluharty; 858 636-3160  
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Fish and Wildlife Service  
6010 Hidden Valley Road  
Carlsbad, CA 92011-4213  
Michelle Moreno; 760 430-9440 (x356)  
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Wetlands Regulatory Office  
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75 Hawthorne St.,  
San Francisco, CA 94105  
[R9-WTR8-Mailbox@epa.gov](mailto:R9-WTR8-Mailbox@epa.gov)

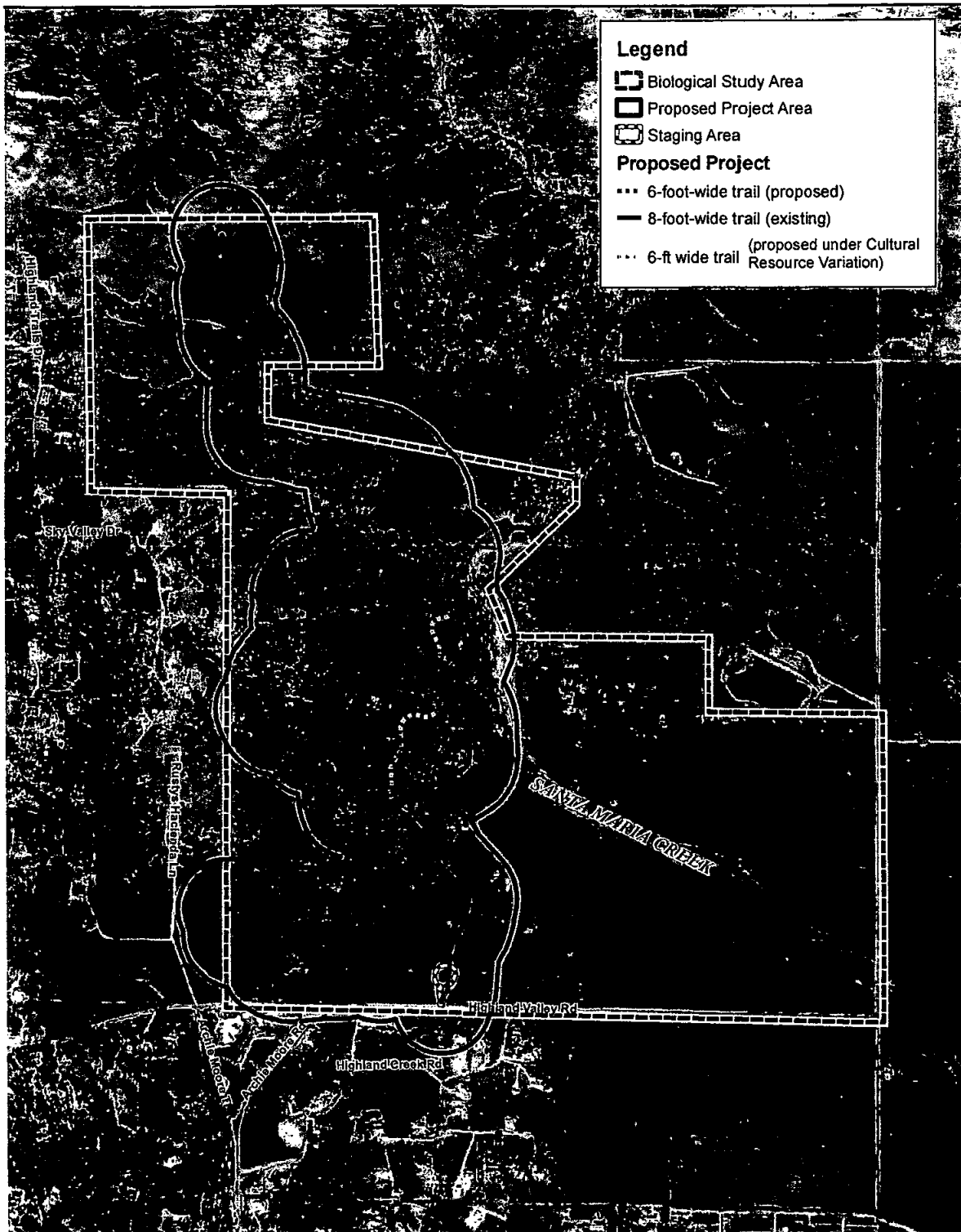
Bill Orme  
State Water Resources Control Board, Division of Water Quality  
401 Water Quality Certification and Wetlands Unit  
P.O. Box 100  
Sacramento, CA 95812-0100  
[Stateboard401@waterboards.ca.gov](mailto:Stateboard401@waterboards.ca.gov)

### ATTACHMENT 3 PROJECT LOCATION



ATTACHMENT 4

SITE MAP



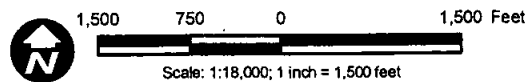
**Legend**

- Biological Study Area
- Proposed Project Area
- Staging Area

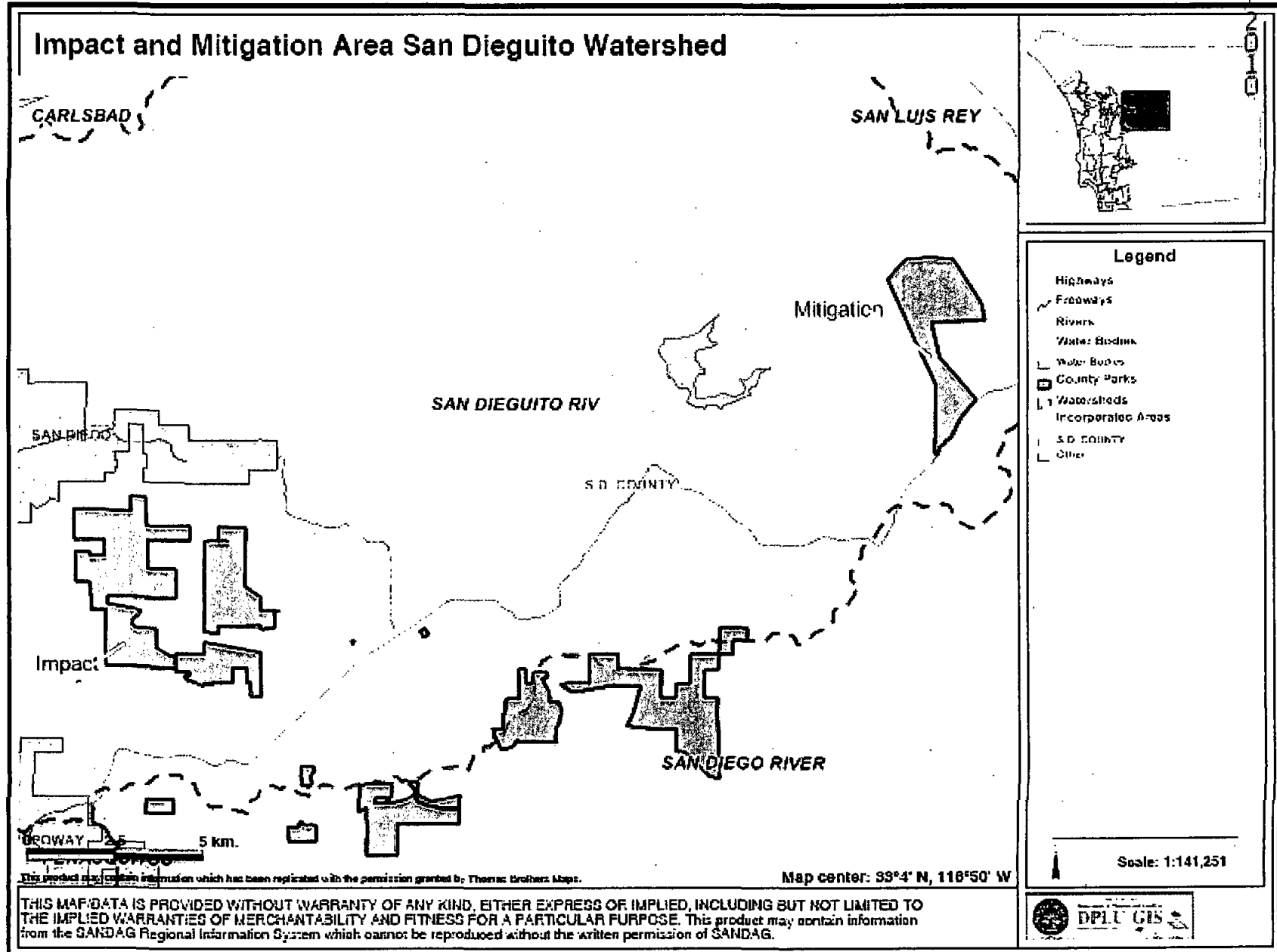
**Proposed Project**

- 6-foot-wide trail (proposed)
- 8-foot-wide trail (existing)
- 6-ft wide trail (proposed under Cultural Resource Variation)

Source: DigitalGlobe 2008; County of San Diego; EDAW 2008



**Figure 3**  
**Proposed Project Aerial**



**ATTACHMENT 6  
STREAM PHOTO DOCUMENTATION PROCEDURES**

**Standard Operating Procedure (SOP)****Stream Photo Documentation Procedure**

(CARCD 2001, Written by TAC Visual Assessments work group)

**Introduction:**

Photographs provide a qualitative, and potentially semi-quantitative, record of conditions in a watershed or on a water body. Photographs can be used to document general conditions on a reach of a stream during a stream walk, pollution events or other impacts, assess resource conditions over time, or can be used to document temporal progress for restoration efforts or other projects designed to benefit water quality. Photographic technology is available to anyone and it does not require a large degree of training or expensive equipment. Photos can be used in reports, presentations, or uploaded onto a computer website or GIS program. This approach is useful in providing a visual portrait of water resources to those who may never have the opportunity to actually visit a monitoring site.

**Equipment:**

Use the same camera to the extent possible for each photo throughout the duration of the project. Either 35 mm color or digital color cameras are recommended, accompanied by a telephoto lens. If you must change cameras during the program, replace the original camera with a similar one comparable in terms of media (digital vs. 35 mm) and other characteristics. A complete equipment list is suggested as follows:

Required:

- Camera and backup camera
- Folder with copies of previous photos (do not carry original photos in the field)
- Topographic and/or road map
- Aerial photos if available
- Compass
- Timepiece
- Extra film or digital disk capacity (whichever is applicable)
- Extra batteries for camera (if applicable)
- Photo-log data sheets or, alternatively, a bound notebook dedicated to the project
- Yellow photo sign form and black marker, or, alternatively, a small black board and chalk

Optional:



- GPS unit
- Stadia rod (for scale on landscape shots)
- Ruler (for scale on close up views of streams and vegetation)
- Steel fence posts for dedicating fixed photo points in the absence of available fixed landmarks

### **How to Access Aerial Photographs:**

Aerial Photos can be obtained from the following federal agencies:

USGS Earth Science Information Center  
 507 National Center  
 12201 Sunrise Valley Drive  
 Reston, VA 22092  
 800-USA-MAPS

USDA Consolidated Farm Service Agencies  
 Aerial Photography Field Office  
 222 West 2300 South  
 P.O. Box 30010  
 Salt Lake City, UT 84103-0010  
 801-524-5856

Cartographic and Architectural Branch  
 National Archives and Records Administration  
 8601 Adelphi Road  
 College park, MD 20740-6001  
 301-713-7040

### **Roles and Duties of Team:**

The team should be comprised of a minimum of two people, and preferably three people for restoration or other water quality improvement projects, as follows:

1. Primary Photographer
2. Subject, target for centering the photo and providing scale
3. Person responsible for determining geographic position and holding the photo sign forms or blackboard.

One of these people is also responsible for taking field notes to describe and record photos and photo points.

### **Safety Concerns:**

Persons involved in photo monitoring should **ALWAYS** put safety first. For safety reasons, always have at least two 2 volunteers for the survey. Make sure that the

area(s) you are surveying either are accessible to the public or that you have obtained permission from the landowner prior to the survey.

Some safety concerns that may be encountered during the survey include, but are not limited to:

- Inclement weather
- Flood conditions, fast flowing water, or very cold water
- Poisonous plants (e.g.: poison oak)
- Dangerous insects and animals (e.g.: bees, rattlesnakes, range animals such as cattle, etc.)
- Harmful or hazardous trash (e.g.: broken glass, hypodermic needles, human feces)

We recommend that the volunteer coordinator or leader discuss the potential hazards with all volunteers prior to any fieldwork.

### **General Instructions:**

From the inception of any photo documentation project until it is completed, always take each photo from the same position (photo point), and at the same bearing and vertical angle at that photo point. Photo point positions should be thoroughly documented, including photographs taken of the photo point. Refer to copies of previous photos when arriving at the photo point. Try to maintain a level (horizontal) camera view unless the terrain is sloped. (If the photo can not be horizontal due to the slope, then record the angle for that photo.) When photo points are first being selected, consider the type of project (meadow or stream restoration, vegetation management for fire control, ambient or event monitoring as part of a stream walk, etc.) and refer to the guidance listed on *Suggestions for Photo Points by Type of Project*.

When taking photographs, try to include landscape features that are unlikely to change over several years (buildings, other structures, and landscape features such as peaks, rock outcrops, large trees, etc.) so that repeat photos will be easy to position. Lighting is, of course, a key ingredient so give consideration to the angle of light, cloud cover, background, shadows, and contrasts. Close view photographs taken from the north (i.e., facing south) will minimize shadows. Medium and long view photos are best shot with the sun at the photographer's back. Some artistic expression is encouraged as some photos may be used on websites and in slide shows (early morning and late evening shots may be useful for this purpose). Seasonal changes can be used to advantage as foliage, stream flow, cloud cover, and site access fluctuate. It is often important to include a ruler, stadia rod, person, farm animal, or automobile in photos to convey the scale of the image. Of particular concern is the angle from which the photo is taken. Oftentimes an overhead or elevated shot from a bridge, cliff, peak, tree, etc. will be instrumental in conveying the full dimensions of the

project. Of most importance overall, however, is being aware of the goal(s) of the project and capturing images that clearly demonstrate progress towards achieving those goal(s). Again, reference to *Suggestions for Photo Points by Type of Project* may be helpful.

If possible, try to include a black board or yellow photo sign in the view, marked at a minimum with the location, subject, time and date of the photograph. A blank photo sign form is included in this document.

### **Recording Information:**

Use a systematic method of recording information about each project, photo point, and photo. The following information should be entered on the photo-log forms (blank form included in this document) or in a dedicated notebook:

- Project or group name, and contract number (if applicable, e.g., for funded restoration projects)
- General location (stream, beach, city, etc.), and short narrative description of project's habitat type, goals, etc.
- Photographer and other team members
- Photo number
- Date
- Time (for each photograph)
- Photo point information, including:
  - Name or other unique identifier (abbreviated name and/or ID number)
  - Narrative description of location including proximity to and direction from notable landscape features like roads, fence lines, creeks, rock outcrops, large trees, buildings, previous photo points, etc. – sufficient for future photographers who have never visited the project to locate the photo point
  - Latitude, longitude, and altitude from map or GPS unit
- Magnetic compass bearing from the photo point to the subject
- Specific information about the subject of the photo
- Optional additional information: a true compass bearing (corrected for declination) from photo point to subject, time of sunrise and sunset (check newspaper or almanac), and cloud cover.

For ambient monitoring, the stream and shore walk form should be attached or referenced in the photo-log.

When monitoring the implementation of restoration, fuel reduction, or Best Management Practices (BMP) projects, include or attach to the photo-log a narrative description of observable progress in achieving the goals of the project. Provide supplementary information along with the photo, such as ~~as~~ noticeable changes in habitat, wildlife, and water quality and quantity.

Archive all photos, along with the associated photo-log information, in a protected environment.

### **The Photo Point: Establishing Position of Photographer:**

1. Have available a variety of methods for establishing position: maps, aerial photos, GPS, permanent markers and landmarks, etc. If the primary method fails (e.g., a GPS or lost marker post) then have an alternate method (map, aerial photo, copy of an original photograph of the photo-point, etc).
2. Select an existing structure or landmark (mailbox, telephone pole, benchmark, large rock, etc.), identify its latitude and longitude, and choose (and record for future use) the permanent position of the photographer relative to that landmark. Alternatively, choose the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the photographer.
3. For restoration, fuel reduction, and BMP projects, photograph the photo-points and carry copies of those photographs on subsequent field visits.

### **Determining the Compass Bearing:**

1. Select and record the permanent magnetic bearing of the photo center view. You can also record the true compass bearing (corrected for declination) but do not substitute this for the magnetic bearing. Include a prominent landmark in a set position within the view. If possible, have an assistant stand at a fixed distance from both the photographer and the center of the view, holding a stadia rod if available, within the view of the camera; preferably position the stadia rod on one established, consistent side of the view for each photo (right or left side).
2. Alternatively, use the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the focal point (photo center).
3. When performing ambient or event photo monitoring, and when a compass is not available, then refer to a map and record the approximate bearing as north, south, east or west.

## **Suggestions for Photo Points by Type of Project:**

### **Ambient or Event Monitoring, Including Photography Associated with Narrative Visual Assessments:**

1. When first beginning an ambient monitoring program take representative long and/or medium view photos of stream reaches and segments of shoreline being monitored. Show the positions of these photos on a map, preferably on the stream/shore walk form. Subjects to be photographed include a representative view of the stream or shore condition at the beginning and ending positions of the segment being monitored, storm drain outfalls, confluence of tributaries, structures (e.g., bridges, dams, pipelines, etc.).
2. If possible, take a close view photograph of the substrate (streambed), algae, or submerged aquatic vegetation.
3. Time series: Photographs of these subjects at the same photo points should be repeated annually during the same season or month if possible.
4. Event monitoring refers to any unusual or sporadic conditions encountered during a stream or shore walk, such as trash dumps, turbidity events, oil spills, etc. Photograph and record information on your photo-log and on your Stream and Shore Walk Visual Assessment form. Report pollution events to the Regional Board. Report trash dumps to local authorities.

### **All Restoration and Fuel Reduction Projects – Time Series:**

Take photos immediately before and after construction, planting, or vegetation removal. Long term monitoring should allow for at least annual photography for a minimum of three years after the project, and thereafter at 5 years and ten years.

### **Meadow Restoration:**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long view showing an overlapping sequence of photos illustrating a long reach of stream and meadow (satellite photos, or hill close by, fly-over, etc.)
3. Long view up or down the longitudinal dimension of the creek showing riparian vegetation growth bounded on each side by grasses, sedges, or whatever that is lower in height
4. Long view of conversion of sage and other upland species back to meadow vegetation

5. Long view and medium view of streambed changes (straightened back to meandering, sediment back to gravel, etc.)
6. Medium and close views of structures, plantings, etc. intended to induce these changes

**Stream Restoration/stabilization:**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long-view showing all or representative sections of the project (bluff, bridge, etc.)
3. Long view up or down the stream (from stream level) showing changes in the stream bank, vegetation, etc.
4. Long view and medium view of streambed changes (thalweg, gravel, meanders, etc.)
5. Medium and close views of structures, plantings, etc. intended to induce these changes.
6. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 3 and 4 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

**Vegetation Management for Fire Prevention ("fuel reduction"):**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long view showing all or representative sections of the project (bluff, bridge, etc.)
3. Long view (wide angle if possible) showing the project area or areas. Preferably these long views should be from an elevated vantage point.
4. Medium view photos showing examples of vegetation changes, and plantings if included in the project. It is recommended that a person (preferably holding a stadia rod) be included in the view for scale

5. To the extent possible include medium and long view photos that include adjacent stream channels.

**Stream Sediment Load or Erosion Monitoring:**

1. Long views from bridge or other elevated position.
2. Medium views of bars and banks, with a person (preferably holding a stadia rod) in view for scale.
3. Close views of streambed with ruler or other common object in the view for scale.
4. Time series: Photograph during the dry season (low flow) once per year or after a significant flood event when streambed is visible. The flood events may be episodic in the south and seasonal in the north.
5. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 1 and 2 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

PHOTO- LOG FORM

Project:

Location:

Date:

Photographer:

Team members:

Photo #	Time	Photo Point ID	Photo Pt. Description & Location	Bearing to Subject	Subject Description

General Notes or Comments (weather, cloud cover, time of sunrise and sunset, other pertinent information):



PHOTO SIGN FORM: Print this form on yellow paper. Complete the following information for each photograph. Include in the photographic view so that it will be legible in the finished photo.

Location:

Subject Description:

Date:

Time:

Attachment 7.  
**Equestrian-Related  
Water Quality Best Management Practices**



**A Cooperative Effort among Private and Public Entities  
in  
Orange and San Diego Counties, California  
in response to NPDES permits issued by the  
Santa Ana and San Diego  
Regional Water Quality Control Boards**

It is the hope of the Task Force that the equestrian community will embrace and implement the BMPs contained within this document as reasonable requests to help curtail pollution into local water bodies including San Diego and Orange County creeks, bays, and the Pacific Ocean.

**June 2004**

## Acknowledgments

The following persons and organizations participated in the development of this document and their time and effort is greatly appreciated.

### Task Force Chair:

Ziad Mazboudi, City of San Juan Capistrano

### Task Force Attendees & Contributors:

Joe Ames, City of Laguna Hills

Matt Rayl, Serrano Creek Ranch

Julie Ammel, USDA Natural Resource Conservation Service, San Diego County

Tom Anderson, Equestrian Coalition of Orange County

Robin Borders, Cinnabar Ranch

Ilse Byrnes, Parks & Recreation Commissioner, City of San Juan Capistrano

John Carroll, Rancho Sierra Vista Equestrian Center

Dean Daggett, Camp Cookie

Vincent Fortuna, Leisure World Stables, Laguna Woods

John Frank, Camp Cookie

Whitney Ghoram, San Diego Regional Water Quality Control Board

Kim Gould, Las Vaqueras

Patty Harris, Rancho Sierra Vista Equestrian Center

Karen Hauptly, County of Orange

Leigh Ann Howard, San Luis Rey Downs Thoroughbred Training Center

Cookie Hubbs, Camp Cookie

Jason Jackson, USDA Natural Resource Conservation Service

John Loertscher, City of Orange

Steve Mayville, Santa Ana Regional Water Quality Control Board

Andrea Richard, County of Orange

Erica Ryan, City of Rancho Santa Margarita / City of Los Alamitos

Dr. Julie Ryan-Johnson, President of the San Juan Capistrano Equestrian Coalition

Mike Settipane, Leisure World Stables, Laguna Woods

Sandra Verrall, City of Laguna Woods

Kathy Weldon, City of Encinitas

Questions regarding this document should be directed to Mr. Ziad Mazboudi at the City of San Juan Capistrano, California. See the "Information Contacts" section on page 15.

Portions of the glossary located at the back of this document were reprinted from *Horse Keeping: A Guide to Land Management for Clean Water* with permission from the Council of Bay Area Resource Conservation Districts.

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## Regulatory Background

The 1972 Federal Water Pollution Control Act, subsequently known as the Clean Water Act (CWA), established the National Pollutant Discharge Elimination System (NPDES) Program. Throughout the State of California, the State Water Resources Control Board (SWRCB) is the designated agency responsible for the implementation of the Federal Clean Water Act requirements. Implementation is done locally, through permits issued to California counties by the nine (9) Regional Water Quality Control Boards working for the SWRCB. In certain circumstances, the Regional Boards issue special permits to individual facilities. Orange and San Diego Counties are governed by the Santa Ana and San Diego Regional Boards, which have issued NPDES Permits to the County of Orange and the County of San Diego as the "Principle Permittees" in charge of implementing the provisions of the Clean Water Act and the NPDES Permits ("Permits"). The Permits are reviewed annually and updated every five years. For Orange County, the Permits were extensively revised in early 2002, directing the County of Orange, the incorporated cities, and the Orange County Flood Control District (collectively known as the "Permittees") to examine how pollution from runoff is handled, mitigate the sources of pollution and require substantial fines and legal action for non-compliance.

The Permittees, in their commitment to maintain a clean environment, developed Storm Water Local Implementation Plans (LIPs) (also known as Jurisdictional Urban Runoff Management Plans (JURMPs) in the San Diego Region), which were then submitted to the Regional Boards in 2003. The Local Implementation Plans regulate runoff from all properties in the Permittees respective jurisdictions. The LIPs also contain a list of actions that may be implemented to help reduce or eliminate pollution from specific activities. These activities are referred to as Best Management Practices or BMPs.

The Regional Boards, as part of their duties under the Federal Clean Water Act, are also responsible for identifying "pollutants of concern," which are those pollutants that cause water bodies to be impaired for identified beneficial uses ("impaired water bodies"). For example, the Santa Ana Regional Board has determined the pollutants of concern for the Newport Bay Watershed in Orange County, California, are fecal coliform (a type of bacteria), sediment, toxics, and nutrients because these pollutants have impaired the use of Newport Bay for identified beneficial uses such as water contact recreation (REC-1), shellfish harvesting (SHELL), and others. For San Diego and Orange Counties, many beaches and lower reaches of creeks have been identified as impaired water bodies with fecal coliform and sediment most commonly listed as the pollutants of concern. The Regional Boards have listed fecal coliform as a pollutant of concern because it is an indicator of potential viruses and pathogens that cause swimmer-associated sickness in water bodies. Therefore, the Permittees have been charged with finding and reducing the amount of fecal coliform and sediment coming from land uses within their jurisdictions in an effort to curtail the impact of human activities on beaches, creeks, and the Pacific Ocean. (For more information on equestrian-related pollutants, please see the next section, "How Can Horse Waste and Equestrian Activities Impair Water Quality?")

OPON 11

During the process of writing the LIPs, the Permittees worked together to identify water quality related BMPs for activities that might take place within each Permittee's jurisdiction. Among the pollutants of concern the Permittees worked to address were bacteria and sediments as well as other pollutants such as petroleum hydrocarbons, chemicals, nutrients, and other materials that might affect the quality of water bodies. As a result, the Permittees came up with categories of activities and identified the specific BMPs that could be used within each of those categories to curtail the quantity of the pollutants in the impaired water bodies. During the process, the Permittees identified a lack of applicable BMPs that could apply to the equestrian community. Unfortunately, Orange County does not have its own Resource Conservation District, so in an effort to identify appropriate equestrian BMPs for Orange County, some South Orange County cities decided to start the process of researching BMPs by referencing already available documents from other Resource Conservation Districts such as *Stable and Horse Management in the Santa Monica Mountains*, prepared by the Resource Conservation District of the Santa Monica Mountains, *Backyard Ranches: A Horse Management Program for San Diego County*, prepared by the San Diego County Association of Resource Conservation Districts, and *Horse Keeping: A Guide to Land Management for Clean Water*, prepared by the Council of Bay Area Resource Conservation Districts.

In July 2003, the San Diego Regional Water Quality Control Board required the South Orange County Permittees to identify minimum required BMPs when they issued a directive to: "clearly identify which Best Management Practices (BMPs) are the minimum that will be required and how the City will require the specific BMPs for...existing development in accordance with Permit Sections F.2 and F.3." In response to this directive, the same South Orange County cities who had been researching appropriate BMPs for the equestrian community decided to form a Horses and Water Quality Task Force to gain input from the public and formulate a series of minimum BMPs that were agreeable to all parties involved. It was decided early on to recruit members from neighboring counties including San Diego County cities and agencies in the hope of expanding the base of knowledge of the Task Force and to share in the fruits of the labors of the Task Force. The first meeting of the Task Force was held in August 2003 at the San Juan Capistrano Community Center with Ziad Mazboudi from the City of San Juan Capistrano serving as the Chair of the Task Force. The Task Force finished their work in April 2004, and this document is the fruition of the efforts of those people listed in the Acknowledgments section of this document.

It is the hope of the Task Force that the equestrian community will embrace and implement the BMPs contained within this document as reasonable requests to help curtail pollution into local water bodies including San Diego and Orange County creeks, bays, and the Pacific Ocean.

## How Do Horse Waste and Equestrian Activities Impair Water Quality?

Although horse wastes (manure, urine and soiled bedding) are organic, biodegradable materials, many of their physical, biological and chemical properties (such as sediment, phosphorous, nutrients, and bacteria) can be detrimental to water quality and can adversely affect human health and aquatic life in water bodies. Many of the nutrients ingested by horses return to the environment in feces and urine. When carried by runoff to streams and lakes, excessive amounts of these same nutrients can stimulate unwanted algae blooms in creeks and streams, causing a decrease in dissolved oxygen in water, which stifles aquatic life.<sup>1</sup>

Some activities, such as heavy grazing or pasture use, remove the soil's vegetative cover and can expose the soil surface. Exposed soil is easily transported by runoff to streams and creeks, and excessive sediment can fill pools, smother aquatic habitats, and cover food supplies.<sup>1</sup>

Bacteria, such as fecal coliform, are present in horse manure. As previously discussed, the Regional Boards have listed fecal coliform as a pollutant of concern because it is an indicator of potential viruses and pathogens that cause swimmer-associated sickness in water bodies.

Chemicals used during horse grooming and shelter/living area maintenance may cause adverse health effects to humans and are toxic to aquatic life.

<sup>1</sup>Paraphrased from *Horse Owners Guide to Water Quality Protection* published by the Council of Bay Area Resource Conservation Districts

## **Expectations from the Equestrian Community**

The Permittees have been charged with the challenging task by the Regional Boards of preventing pollutants to the maximum extent practicable from reaching local water bodies. In response to this challenge, the Permittees worked with equestrian community representatives, the environmental community and the public to develop BMPs that may be implemented while not inhibiting the public's ability to conduct business, curtail recreational use of horses or the enjoyment of land uses. Therefore, the Permittees expect that the equestrian community will implement the suggested minimum BMPs to the maximum extent practicable taking into consideration time, monetary, and other direct and indirect costs associated with improving water quality. Many of the suggested BMPs require little or no monetary expenditures, such as following the directions on horse grooming products to prevent chemicals from reaching waterways, while others will require monetary expenditures, such as drainage control improvements. The Permittees recognize that existing facilities, which have been operating for many years, will require a longer period of time to implement some of the suggested BMPs that require monetary expenditures, compared to newly proposed equestrian facilities that are expected to incorporate necessary and appropriate BMPs into the designs of their facilities.

Therefore, in recognition of the fundamental difference between existing and proposed equestrian facilities in their abilities to implement BMPs to the maximum extent practicable, the Permittees suggest two different paths for evaluating BMPs to be implemented at existing versus newly proposed facilities.

For existing facilities, such as commercial stables, residential properties with a stable, or individuals owning horses on residential properties, owners should perform the following tasks in order to analyze what BMPs should be implemented.

*Task 1: Inventory and map your resources.* Draw a map of the site and note natural water features (including drainage flow characteristics), property improvements (e.g. corral fences, wash areas, buildings associated with care and stabling, access roads, etc.), vegetation, slopes, bare areas, and other characteristics that affect water drainage and water quality.

*Task 2: Identify, assess, and prioritize potential problem areas.* Take a walk around the facility, preferably during or immediately after a heavy rainfall. Use the site map developed and take notes. For example, draw arrows on the site map to show runoff and drainage patterns. Assess situations and prioritize areas in need of attention like manure storage problems such as rain water coming into contact with stockpiled manure and washing downhill into streams or creeks. Prioritize the areas needing attention. Those areas or activities that are directly contributing to pollution must receive the highest priority. As a guidance, the BMPs within this document highlight situations of concern to the Permittees.



*Task 3: Develop solutions.* Use the BMPs within this document to address problem areas and activities.

*Task 4: Schedule and properly install BMPs.* Write down a work plan and stick to it. Document current and past practices that help to curtail pollution into creeks and streams.

*Task 5: Maintain BMPs.* A mismanaged or unmaintained BMP will not work.

Existing facility owners are encouraged to develop a Water Quality Management Plan as a mechanism by which to document to the local jurisdiction that the facility is progressing toward compliance with the applicable local NPDES Program.

For proposed facilities, owners must develop a Water Quality Management Plan (WQMP) for review and approval by the governing Permittee. A WQMP should describe commitments to installation and maintenance of site design, source control and treatment control BMPs listed below that can be readily incorporated for use on the project or other BMPs, which have been demonstrated to work equally well. The WQMP should also reflect language that the above tasks were completed and information from the tasks was taken into account in the WQMP.

For additional information or assistance, contact your City or County NPDES Coordinator.

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## **Runoff Best Management Practices**

The goal of runoff management is to prevent the transport of pollutants into receiving waters to the maximum extent practicable by separating "clean water" from "contaminated water" and reducing erosion caused by runoff. Below is a list of examples that could be used to reach these objectives, whenever practical or feasible. Some of these BMPs are more applicable to existing facilities, while others are applicable to new facilities. If a stable operator (commercial or residential) chooses to use other techniques or methods, he/she is required to demonstrate the efficacy of the alternative technique or method to the local jurisdiction in charge of the storm water program.

### **A. Roof Runoff Related BMPs**

Direct roof runoff away from high-use, bare, un-vegetated and manure storage areas. This could include the use of gutters and downspouts, subsurface drains to collect water and divert from buildings, or any other available technology.

### **B. Facility Runoff Related BMPs**

Runoff from areas containing manure, bedding, or feed debris represents the most significant source of pollutants from equestrian facilities. Preventative measures could include some of the below listed examples. Generally these serve to prevent and minimize the runoff that comes into contact with manure, bedding, or feed debris being carried off the facility and into a storm drain.

1. Separate barnyards, paddocks, and manure storage areas from any waterways with buffer strips of vegetation to filter sediments and absorb nutrients in runoff.
2. Divert surface runoff around areas with pollutants by constructing berms, ditches, underground pipelines or other methods.
3. Locate NEW buildings and confinement areas away from creeks, steep slopes, and floodplains. Check with the local jurisdiction regarding zoning or flood plain issues.
4. Maintain vegetation and replant bare areas to reduce erosion.
5. Control potential runoff from water troughs with automatic waterers or other means.
6. Improve infiltration and drainage, in and around arenas, paddocks, turnouts and service roads by using base rock and sand or other appropriate measures.
7. If water basins and waste ponds are used, water should not remain for more than 72 hours because of the likelihood of attracting mosquitoes that may carry the West Nile Virus or other diseases.

The additional benefits of runoff management for water quality include a drier barnyard, a healthier horse environment, and better working conditions.

## Erosion Control-Related Best Management Practices

When considering drainage or slope stabilization BMPs, facility operator should seek professional assistance.

- A. Horse-Specific Related BMPs
  1. Restrict horse access and human activities at horse facilities in wetlands, creeks, creek banks, meadows, and steep hillsides.
  2. Keep areas well vegetated and restore bare areas with vegetation.
  3. Manage pastures to prevent heavy grazing such as rotating the use of pastures to allow grasses to regrow.
  4. Maintain a strip of vegetation downslope of bare areas such as paddocks and turnouts to help trap sediment.
  
- B. Site Drainage Related BMPs
  1. Maintain culverts and ditches. Control upslope erosion sources to prevent sediment from filling culverts. Use measures such as fiber rolls to capture sediments upstream of culverts and maintain regularly. Vegetate whenever possible.
  2. Keep ditches vegetated with grass to help maintain stability and capture sediments. Longitudinal slopes should not exceed 2.5%. Regularly maintain ditches by clearing sediments and debris. For chronic sediment problems, address the erosion source.
  3. Keep inlets clear. Remove debris before the rainy season (October 15 to April 14 each year) and check during and after storms.
  4. Properly construct and maintain roads, trails, and parking lots in accordance with local construction requirements. Maintain road and trail surfaces.
  5. Regrade roads to smooth the surface and prevent rills from expanding.
  6. During construction install and maintain silt fences or straw bale sediment barriers to trap sediment.
  
- C. Slope Stabilization Related BMPs
  1. Watch for accelerated erosion on steep slopes, pastures, gullies, and intensively used horse areas.
  2. Stabilize slopes with vegetation or other applicable erosion control measures, such as erosion control blankets. Do not plant any invasive species. You may be able to obtain a list of invasive plant species from your local fire department, or your City or County Hazard Reduction Program coordinator.

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## **Bacteria / Nutrient Transportation Prevention Best Management Practices**

### **A. Manure Management**

1. Remove manure regularly, daily is best, or keep manure under cover such that runoff does not come into contact with manure stockpiles.
  - a. Stalls, corrals and wash areas should be cleaned and manure removed on a daily basis.
  - b. Paddocks shall be cleaned according to the following schedules:
    - i. During the summer dry season (April 15 to October 14 each year): paddocks shall be cleaned at least once every week.
    - ii. During the winter rainy season (October 15 to April 14 each year): paddocks shall be cleaned at least twice every week.
2. Provide temporary storage for manure that cannot be disposed of daily – about 15 cubic feet of storage per horse per week. Manure shall not be stored for more than a week on site. See #7 below for composting information.
3. Grade the area surrounding the manure storage area to prevent surface water from reaching the storage area.
4. Store horse waste on an impervious surface (a concrete pad or plastic tarp) and under cover (a roof or tarp) during rains to prevent leaching or runoff of pollutants.
5. Locate manure storage areas away from waterways so that floods or runoff will not wash away waste.
6. Do not dump horse waste on the edge of, or directly into waterways.
7. Consider composting if conditions are suitable. Composting might require permits from various agencies, so ensure to check for local requirements. One of the best manure management practices is to compost manure, although the practice requires space, good setup and operation to have good results. For more information, visit the US Composting Council website <http://compostingcouncil.org> or other available resources to determine if composting is a good solution for your stable.

### **B. Building & Site Design**

1. Site layout should ensure that structures are placed where adverse effects are minimized and the natural topography, drainage patterns and vegetation remain undisturbed.
2. If no pastures are on site, filter strips should be used to separate riding rings and manure collection from waterways.
3. Set buildings, covered areas, high-use arenas, horse wash racks, manure storage areas, roads, and trails back away from waterways.
4. It is recommended to place gravel below the sand in corrals to percolate wastes and extra water. If bedding is used in corrals, cleaning it up regularly will help prevent it from being collected in rainwater or surface runoff.
5. It is recommended that paddocks have gravel or sand bottom for percolation of water and pollutants, and not be built in areas with a greater than 10% slope.

6. Keep paddocks and corrals as dry as possible during the winter rainy season.

Prior to building and site design, contact your local agency for setback requirements from property lines and other restrictions.

C. Wash Rack-Design

1. Do not allow water from horse wash areas to flow into storm drains, creeks, ponds or seasonal drainages.
2. Connect wash racks to the sanitary sewer system, if permitted and possible. Infiltration of wash rack water, if possible, is an acceptable means of disposal. Verify that soil conditions do allow percolation prior to construction.
3. Elevate the wash area from the surrounding ground.
4. Wash water should drain away from the area to a filter strip or other vegetated area. Check to make sure wash water does not cause drainage problems on neighboring properties.
5. Use a shut-off nozzle or low-flow nozzle at the end of the hose.
6. Use horse grooming and health products properly. Follow instructions and use recommended amounts, and clean up spills. Even biodegradable horse grooming and health care products can have a negative effect on water quality.
7. Use plain water to rinse horses - avoid using soap as much as possible.

## General Housekeeping Best Management Practices

### A. Integrated Pest Management (IPM) BMPs for Horse Facilities and Surrounding Landscape

Integrated Pest Management is an ecologically based pest control strategy that focuses on long-term prevention and control of pests and their damage. A combination of techniques are used such as inspecting and identifying the pest, learning the pest and host life cycles and biology, removing or reducing the pest habitat when possible, using natural enemies, using resistant plant varieties, using mechanical control for weed removal, monitoring frequently, establishing a threshold for damage, choosing the control tactic and then evaluating the results. Pesticides can be used in an IPM system, but should only be used when all other factors in an IPM strategy are met. Some pesticides are designed to be toxic only to the target pest and will not harm desirable insects.

1. Stabilize bare slopes, use native vegetation whenever possible because native vegetation doesn't require fertilizer.
2. Use IPM techniques to reduce the amount of chemicals, pesticides, fertilizers and herbicides placed on landscaping that may wash away.

Additional information can be found on the University of California, Davis web site at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu)

### B. Trash / Debris

1. Collect and dispose of trash and debris.
2. Do not allow trash or debris to enter creeks, seasonal streams, storm drains, or ponds.

### C. Chemicals

1. Follow directions for all chemical applications.
2. Dispose of unused chemicals at a household hazardous waste (HHW) facility. Call your local jurisdiction for the location of your nearest HHW facility.

## Trails and Access to Waterbodies Best Management Practices

### A. Access to Waterbodies

1. Restrict horse access and human activities in wetlands, creeks, creek banks, meadows, and steep hillsides, if possible.
2. Provide bridges over waterbodies, if practical.
3. Designate access points to creeks by using a designated creek crossing point to reduce and control contaminants from entering the creek and to prevent bank erosion.
4. Select a crossing location that will least impact stream banks and riparian vegetation.

### B. Trail Signage and Design

1. Use designated trails for horse riding.
2. The grade on any new trail should not exceed 10 percent and trails should be avoided at all costs on slopes steeper than 20 percent.
3. If a trail must be built on a steep slope, the trail should switch back and forth down the slope. On steep grades, there is a greater chance that erosion will occur.
4. Consider drainage patterns when building new trails. To reduce the potential erosion of the trail from rainwater and runoff, trails should be built so that water sheet flows across the trail. Trails parallel to the flow increases erosion of the trail, and the water will create deep treads in the trail that may render it unusable.
5. Berms should be constructed as appropriate to direct storm water away from the trail.
6. Whenever possible, provide a buffer area between trails and waterways.

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## **Other Permits Issued by the Environmental Protection Agency and State Water Resources Control Board**

In December 2002, the Environmental Protection Agency revised the Clean Water Act regulation for Concentrated Animal Feeding Operations, or CAFOs changing the thresholds at which a horse stable operation becomes a CAFO. CAFO designations are assigned ONLY by the Regional Boards and not by the Permittees. Consequently, the Regional Boards enforce CAFO regulations. The information presented herein is for information only to stable owners. The EPA updates its rules frequently; therefore, contact your Regional Board for the latest CAFO rules and for answers to any questions regarding CAFO regulations.

A horse stable operation can be classified a "Large CAFO," a "Medium CAFO," or a "Designated CAFO" if the following requirements are met:

- "Large CAFO"
  - It is an animal feeding operation; and
  - Has at least 500 horses.
- "Medium CAFO"
  - It is an animal feeding operation; and
  - Has at least 150 horses; and
  - Has a manmade ditch or pipe that carries manure or wastewater from your operation, or the horses come into contact with surface water running through the area where they're confined.

Additionally, any size operation can be a "Designated CAFO" if the Regional Board inspects the operation and determines that it's adding pollutants to surface waters.

The requirements for all horse CAFO Permits may include:

- Implementing a nutrient management plan;
- Submitting annual reports to the Regional Board;
- Keeping the permit current until the operation is closed and all manure is removed; and
- Keeping records of the nutrient management practices for at least five years.

Nutrient management plans for all horse CAFOs may include provisions for:

- Assuring adequate manure storage capacity;
- Proper handling of dead animals and chemicals;
- Diverting clean water from the production area;
- Keeping animals out of surface water;
- Using site specific conservation practices;
- Developing ways to test manure and soil;
- Assuring appropriate use of nutrients when spreading manure; and
- Keeping records of nutrient management practices.

Additional information can be found by accessing the EPA web site at [www.epa.gov/npdes/caforule](http://www.epa.gov/npdes/caforule) or the USDA web site at [www.usda.gov](http://www.usda.gov)



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County of Orange Watershed and Coastal Resources Division  
[www.ocwatersheds.com](http://www.ocwatersheds.com)

California State Water Resources Control Board  
P.O. Box 100  
Sacramento, Ca 95812  
(916) 341-5250  
[www.swrcb.ca.gov](http://www.swrcb.ca.gov)

California Regional Water Quality Control Board, San Diego Region  
9174 Sky Park Court, Suite 100  
San Diego, Ca 92123-4340  
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[www.swrcb.ca.gov/rwqcb9](http://www.swrcb.ca.gov/rwqcb9)

California Regional Water Quality Control Board, Santa Ana Region  
3737 Main Street, Suite 500  
Riverside, Ca 92501-3348  
(909) 702-4130  
[www.swrcb.ca.gov/rwqcb8](http://www.swrcb.ca.gov/rwqcb8)

United States Department of Agriculture  
Natural Resource Conservation Service, San Diego County  
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## Glossary

**Best Management Practices or BMPs.** Actions that may be implemented to help reduce or eliminate pollution for specific activities such as horse grooming.

**Clean water.** Rainfall that has not come into contact with a pollutant such as horse manure, or picked up pollutants.

**Concentrated water.** Water flow that has increased in volume and velocity due to either natural drainage or human-made diversion of drainage.

**Contaminant.** The impairment of water quality by waste to a degree that creates a hazard to public health through the spread of disease.

**Corral.** A fenced area that holds one horse.

**Creek.** A watercourse smaller than a river. Used in this guide to cover all sizes and types of fresh water bodies such as rivers and streams. May or may not have a year-round surface flow.

**Erosion.** The wearing away of land surface by wind or water. Occurs naturally from weather or runoff, but can be intensified or accelerated by human activity.

**Facility.** In this document, the areas used in caring for horses (i.e. barns, paddocks, turnouts, arenas, etc.) whether for a single residential backyard horse or a larger boarding operation.

**Horse waste.** Manure, urine, bedding material, and feed debris.

**Impervious / impermeable surface.** Any surface that cannot be easily penetrated by water, such as roofs, compacted soils, and paved areas.

**Integrated Pest Management or IPM.** An ecologically based pest control strategy that focuses on long-term prevention and control of pests and their damage.

**Local Implementation Plan (LIP) or Jurisdictional Urban Runoff Management Plan (JURMP).** A document written by an individual Permittee that specifies how the Permittee will comply with Regional Board Permits for water quality.

**Manure.** In this document, manure includes both the feces and urine from horses.

**Non-point source pollution.** The diffuse discharge of pollutants that can occur over an extensive area, such as a pasture, as opposed to point source pollution that can be pinpointed to a specific location, such as an outlet at a sewage treatment plant.

**Nutrient.** The portion of any element or compound that can be readily absorbed and assimilated to nourish plants; examples include nitrogen and phosphorus. Even in small amounts, these same nutrients can have a harmful effect on water quality. Horse manure can degrade water quality because it is rich in nutrients.

**Paddock.** A fenced area that holds multiple horses. These areas are typically bare because the area is heavily used.

**Pasture.** A large fenced area that is used for grazing. Usually this area has some grass cover because the number of horses contained within the area does not cause the grass to be trampled from heavy use.

**Permittee.** The local jurisdiction or district responsible for the implementation of Regional Board Permits or Orders. In Orange and San Diego Counties, these are the County of Orange, the County of San Diego, the Cities of Orange and San Diego Counties, and the flood control districts. In addition, individual facilities could be considered Permittees, based upon meeting a prescribed animal count threshold at a facility (e.g. CAFO permit).

**Pollutant.** The presence of a substance in such quantities that when it reaches a body of water, soil, or air, it is degrading in effect that it impairs their usefulness or renders them offensive.

**Polluted water.** Water that has become adversely affected physically, chemically, or biologically by chemicals and other additives, such as manure, sediment, bedding material, and feed debris.

**Runoff.** Water from rain or other sources (for example, from a hose or horse wash rack not connected to the sewer system) that do not infiltrate into the ground but runs over land surface and into creeks or the MS4.

**Sediment.** The soil material, both mineral and organic, that is suspended, is being transported, or has been moved from its site of origin by erosion and has come to rest on the land surface or at the bottom of creeks, ditches, or other areas.

**Sanitary Sewer (or Sewer system):** Carries water from indoor drains to wastewater treatment plants, typically carries sewage.

**Storm Drain also known as Municipal Separate Storm Sewer System or MS4:** The system that contains catch basins usually located at the edge of a street, which carries and releases untreated water from rain or other runoff sources into channels, rivers and ultimately the ocean.

**Turnout.** A high-use area where horses are "turned out" for exercise after being confined in stalls. Turnouts can be exercise lots, small paddocks, pens, or corrals. These areas are typically bare and not managed as pastures.

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**Water quality.** Describes the chemical, biological, and physical characteristics of water. The quality of water can limit its specific use or ability to support various beneficial uses such as water supplies for municipalities, recreation, and fish and wildlife habitat.

**Watershed.** Total land area that drains into a particular creek, river system, or bay. It includes major and minor creeks, seasonal drainages, hillsides, and floodplains. The ridges that separate drainage between watersheds define watershed boundaries.

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