



California Regional Water Quality Control Board San Diego Region



Arnold
Schwarzenegger
Governor

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

9174 Sky Park Court, Suite 100, San Diego, California 92123-4340
(858) 467-2952 • Fax (858) 571-6972
[http:// www.waterboards.ca.gov/sandiego](http://www.waterboards.ca.gov/sandiego)

March 6, 2008

In reply refer to: WPC:07C-086:bjames

Karen Mossberg
HCC Investors, LLC & Lennar Homes
1525 Farday Avenue, Suite 300
Carlsbad, CA 92008

WDID	9 000001697
CIWQS:	
Party No.	21066 & 26800
Person	64568
Place No.	211940
Reg. Mes. No.	330426

Dear Ms. Mossberg:

SUBJECT: Action on Request for Clean Water Act Section 401 Water Quality Certification for **The Bridges at Rancho Santa Fe Driving Range Reconfiguration Project** Water Quality Certification No. **07C-086**

Enclosed find Clean Water Act Section 401 Water Quality Certification and acknowledgment of enrollment under State Water Resources Control Board General Waste Discharge Requirements Order Number 2003-017 DWQ for discharge to Waters of the U.S. for The Bridges at Rancho Santa Fe Driving Range Reconfiguration Project. A description of the project and project location can be found in the project information sheet, project location map, and project site maps, by the Regional Board, which are included as Attachments 1 through 5.

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

Failure to comply with all conditions of this Certification may subject you to enforcement actions by the California Regional Water Quality Control Board, San Diego Region, including administrative enforcement orders requiring you to cease and desist from violations, or to clean up waste and abate existing or threatened conditions of pollution or nuisance; administrative civil liability in amounts of up to \$10,000 per day per violation; referral to the State Attorney General for injunctive relief; and, referral to the District Attorney for criminal prosecution.

The heading portion of this letter includes a Regional Board code number noted after "In reply refer to:" In order to assist us in the processing of your correspondence please include this code number in the heading or subject line portion of all correspondence and reports to the Regional Board pertaining to this matter.

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



Karen Mossberg
HCC Investors, LLC & Lennar Homes
401 Certification No. 07C-086

- 2 -

March 6, 2008

If you have any questions regarding this notification, please contact Mr. Benjamin James directly at (858) 467-2968 or by email via bjames@waterboards.ca.gov.

Respectfully,



JOHN H. ROBERTUS
Executive Officer

Enclosure:

Clean Water Act Section 401 Water Quality Certification No. 07C-086 for The Bridges at Rancho Santa Fe Driving Range Reconfiguration Project project, with 6 attachments

cc: Refer to Attachment 2 of Certification 07C-086 for Distribution List.



Linda S. Adams
Acting Secretary for
Environmental
Protection

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

**PROJECT: The Bridges at Rancho Santa Fe Driving Range Reconfiguration
Project**

**Certification No. 07C-086
WDID No. 9 000001697**

CIWQS	
Reg. Mes. ID:	330426
Place ID:	211940
Party ID:	21066
	& 26800

APPLICANT: HCC Investors, LLC
Attention: Karen Mossberg
1525 Faraday Avenue, Suite 300
Carlsbad, CA 92008

Lennar Homes
Attention: Karen Mossberg
1525 Faraday Avenue, Suite 300
Carlsbad, CA 92008

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

The project consists of the reconfiguration of an existing golf course driving range, the development of approximately nine acres into five estate lots (Unit 6), and the construction of emergency access over Bumann Road.

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

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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, HCC Investors, LLC and Lennar Homes must satisfy the following:

A. GENERAL CONDITIONS:

1. This Certification expires **five (5) years** from the date of issuance.
2. The HCC Investors, LLC and Lennar Homes 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 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.
3. During construction, the HCC Investors, LLC and Lennar Homes must maintain a copy of this certification at the project site so as to be available at all times to site personnel and agencies.
4. HCC Investors, LLC and Lennar Homes 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.
5. The HCC Investors, LLC and Lennar Homes 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.
6. The HCC Investors, LLC and Lennar Homes 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.
7. This Certification is not transferable to any person except after notice to the Executive Officer of the Regional Board. HCC Investors, LLC and Lennar Homes must notify the Regional Board of any change in ownership of the project area. Notification must include, but not be limited to, a statement that the property owner has provided the purchaser with a copy of the Section 401 Water Quality Certification and that the purchaser understands the permit requirements and must implement them; the seller and purchaser must sign and date the notification. The notification for transfer of mitigation responsibility shall include a signed statement from the new party demonstrating acceptance and understanding of the responsibility to meet the mitigation conditions and applicable requirements of the Certification. Notification must be provided within **10 days** of the sale of the property.
8. 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.
9. 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.

10. 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.
11. HCC Investors, LLC and Lennar Homes and successor owners must submit annual progressive reports to the Regional Board prior to **December 1** of each year following the issuance of this certification until the project has reached completion.

B. PROJECT CONDITIONS:

1. Prior to the start of the project, and annually thereafter, HCC Investors, LLC and Lennar Homes must educate all personnel on the requirements in this certification, pollution prevention measures, spill response, and BMP implementation and maintenance.
2. HCC Investors, LLC and Lennar Homes must comply with the requirements of State Water Resources Control Board Water Quality Order No. 2003-017-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/cwa401/docs/generalorders/go_wdr401regulated_projects.pdf.
3. HCC Investors, LLC and Lennar Homes must notify the Regional Board in writing at least **5 days** prior to the actual commencement of dredge, fill, and discharge activities.
4. HCC Investors, LLC and Lennar Homes must enroll in and comply with the requirements of State Water Resources Control Board Water Quality Order No. 99-08-DWQ, the NPDES General Permit for Storm Water Discharges Associated with Construction Activity.
5. The treatment, storage, and disposal of wastewater during the life of the project must be done in accordance with waste discharge requirements established by the Regional Board pursuant to CWC § 13260.
6. Discharges of concentrated flow during construction or after completion must not cause downstream erosion or damage to properties or stream habitat.
7. Water containing mud, silt, or other pollutants from equipment washing or other activities, must not be discharged to waters of the United States and/or the State or placed in locations that may be subjected to storm flows. Pollutants discharged to areas within a stream diversion area must be removed at the end of each work day or sooner if rain is predicted.

8. All surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.
9. 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.org/ip/inventory/weedlist.php>.
10. 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.

C. POST CONSTRUCTION STORM WATER MANAGEMENT:

1. All storm drain inlet structures within the project boundaries must be stamped and/or stenciled (or equivalent) with appropriate language prohibiting non-storm water discharges.
2. In addition to the BMPs described in the Stormwater Management Plan and Stormwater Maintenance Plan for The Bridges at Rancho Santa Fe – Unit 6 Extension, dated July 27, 2007 and written by Rick Engineering, and the Stormwater Management Plan and Stormwater Maintenance Plan for Reconfiguration of Santa Fe Creek Golf Practice Facility (Proposed Driving Range), dated July 24, 2007 and written by Rick Engineering and referenced in Appendix I in support of the application, the structural BMPs must be sized to comply with the following numeric sizing criteria:
 - a. Volume
Volume-based BMPs must be designed to mitigate (infiltrate, filter, or treat) either:
 - i. The volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the local historical rainfall record (0.6 inch approximate average for the San Diego County area); or
 - ii. The volume of runoff produced by the 85th percentile 24-hour rainfall event, determined as the maximized capture storm

- water volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or
- iii. The volume of annual runoff based on unit basin storage volume, to achieve 90% or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/Commercial, (1993); or
 - iv. The volume of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile 24-hour runoff event; or

b. Flow

Flow-based BMPs must be designed to mitigate (infiltrate, filter, or treat) either:

- i. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour; or
- ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two; or
- iii. The maximum flow rate of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

3. Post-Construction BMPs for Unit 6 and the emergency access over Bumann Road include, but are not limited to:

Site Design BMPs:

- 1. Minimizing impervious areas.
- 2. Minimizing directly connected impervious areas.
- 3. Conserving natural areas.
- 4. Slope and channel stabilization.
- 5. Planting deep-rooted, drought tolerant plant species on all graded slopes and natural areas for erosion control.

Source Control BMPs:

- 1. Street sweeping.
- 2. Waste and green waste collection, covenants, conditions and restrictions.
- 3. Efficient irrigation design.
- 4. Restricting public access to Bumann Road by the use of gates.

Treatment BMPs:

- 1. Bioswales (3).

4. Post-Construction BMPs for the Driving Range Reconfiguration include, but are not limited to:

Site Design BMPs:

1. Minimizing impervious areas.
2. Conserving natural areas.
3. Slope and channel stabilization.
4. Planting deep-rooted, drought tolerant plant species on all graded slopes and natural areas for erosion control.
5. Draining impervious areas through the landscaping.

Source Control BMPs:

1. Waste and green waste collection, covenants, conditions and restrictions.
 2. Efficient irrigation design.
5. HCC Investors, LLC and Lennar Homes, assumes responsibility for the inspection and maintenance of all post-construction treatment BMPs until such responsibility is legally transferred to another entity.
 6. At the time maintenance responsibility for post-construction treatment BMPs is legally transferred, HCC Investors, LLC and Lennar Homes must submit to the Regional Board a copy of such documentation acknowledging that the transferee accepts full responsibility for the inspection and maintenance of all BMPs installed on the project.
 7. At the time maintenance responsibility for post-construction BMPs is legally transferred, HCC Investors, LLC and Lennar Homes must provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer specifications.
 8. Records regarding inspections and maintenance must be kept and made available to the Regional Board in order to assess the performance of the systems and determine whether adaptations are necessary to protect receiving waters.
 9. Preventive and corrective maintenance procedures will be performed as outlined in the Stormwater Management Plan and Stormwater Maintenance Plan for The Bridges at Rancho Santa Fe – Unit 6 Extension, dated July 27, 2007 and written by Rick Engineering, and the Stormwater Management Plan and Stormwater Maintenance Plan for Reconfiguration of Santa Fe Creek Golf Practice Facility (Proposed Driving Range), dated July 24, 2007 and written by Rick Engineering.

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

1. Mitigation for permanent discharges to 0.02 acre (641 - linear feet) of unvegetated Waters of the U.S./State (Streambed) must be achieved at a 2:1 ratio, by the Creation of 0.02 acre and the Enhancement of 0.02 acre of vegetated Waters of the U.S./State (Wetland) along Escondido Creek as proposed in The Bridges at Rancho Santa Fe Units 6 & 7 and Driving Range Expansion Wetland Revegetation Plan, dated February 22, 2008 and written by Helix Environmental Planning, Inc.
2. HCC Investors, LLC and Lennar Homes must restore all areas of temporary impacts to waters of the United States/State and all other areas of temporary disturbance which could result in a discharge or a threatened discharge to waters of the State. Restoration must include grading of disturbed areas to pre-project contours and revegetation with native species. HCC Investors, LLC and Lennar Homes must implement all necessary BMPs to control erosion and runoff from areas associated with this project.
3. HCC Investors, LLC and Lennar Homes must notify the Regional Board in writing at least **5 days** prior to the actual commencement of mitigation installation, and completion of mitigation installation.
4. HCC Investors, LLC and Lennar Homes must salvage leaf litter, coarse woody debris, and upper soil horizons from impacted jurisdictional water sites that are relatively free of invasive exotic species for use in on-site mitigation areas.
5. HCC Investors, LLC and Lennar Homes must also salvage large cuttings from appropriate tree species if they exist at the impact site and use them as pole plantings at the mitigation site.
6. Within **90 days** of the issuance of this certification, HCC Investors, LLC and Lennar Homes 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. Within one year of the issuance of this certification, HCC Investors, LLC and Lennar Homes must submit proof of a completed preservation mechanism that will protect all mitigation areas and their buffers in perpetuity. Construction of the site will not be permitted 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, paved maintenance roads, and areas of maintained landscaping for recreation.

7. Within **90 days** of the issuance of this certification, HCC Investors, LLC and Lennar Homes must provide the Regional Board a draft preservation mechanism (e.g. deed restriction, conservation easement, etc.) that will protect the remainder of 'Parcel A' open space and its buffers in perpetuity. Within one year of the issuance of this certification, HCC Investors, LLC and Lennar Homes must submit proof of a completed preservation mechanism that will protect the remainder of 'Parcel A' open space and its buffers in perpetuity. Construction of the site will not be permitted until a completed preservation mechanism is received. The conservation easement, deed restriction, or other legal limitation on the remainder of 'Parcel A' open space 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, paved maintenance roads, and areas of maintained landscaping for recreation.
8. Monitoring and maintenance of the proposed mitigation must continue until success criteria are achieved as defined in The Bridges at Rancho Santa Fe Units 6 & 7 and Driving Range Expansion Wetland Revegetation Plan, dated February 22, 2008 and written by Helix Environmental Planning, Inc.
9. HCC Investors, LLC and Lennar Homes must submit a report (including topography maps and planting locations) to the Regional Board within **90 days** of completion of mitigation site preparation and planting, describing as-built status of the mitigation project.
10. 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 0.01 acre for each month of delay.

11. The mitigation site shall be designed and constructed to meet the following conditions:
 - a. Most of the channel through the mitigation site is characterized by equilibrium conditions, with no evidence of severe aggradation or degradation;
 - b. As viewed along cross-sections, the channel and buffer have a variety of slopes, or elevations, that are characterized by different moisture gradients. Each sub-slope contains physical patch types or features that contribute to irregularity in height, edges, or surface and to complex topography overall; and
 - c. The mitigation site has a well-developed plant community characterized by a high degree of horizontal and vertical interspersions among plant zones and layers.
12. Prior to initiation of mitigation activities, HCC Investors, LLC and Lennar Homes must conduct a quantitative function-based assessment to evaluate the condition of the mitigation site. The results of the functional assessment must be submitted to the Regional Board in a report no later than **30 days** after the initiation of mitigation activities.
13. Throughout the mitigation monitoring program mitigation areas must be maintained free of perennial exotic plant species including, but not limited to, pampas grass, giant reed, tamarisk, sweet fennel, tree tobacco, castor bean, and pepper tree. Annual exotic plant species must not occupy more than 5 percent of the onsite or offsite mitigation areas.
14. Regional Board acceptance of the final mitigation plan applies only to the site and plan that mitigates for **The Bridges at Rancho Santa Fe Driving Range Reconfiguration 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 selected portions of Escondido Creek for mitigation.
15. 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.
16. 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, HCC Investors, LLC and Lennar Homes are responsible for repair and replanting of the damaged area(s).

17. Mitigation monitoring reports must be submitted annually until mitigation has been deemed successful. Annual monitoring reports must be submitted prior to **December 31** of each year. Monitoring reports must include, but not be limited to, the following:
- a. Names, qualifications, and affiliations of the persons contributing to the report;
 - b. Tables presenting the raw data collected in the field as well as analyses of the physical and biological data, including at a minimum;
 - c. Topographic complexity characteristics at each mitigation site;
 - d. Upstream and downstream habitat and hydrologic connectivity;
 - e. Source of hydrology;
 - f. Width of native vegetation buffer around the entire mitigation site;
 - g. Qualitative and quantitative comparisons of current mitigation conditions with pre-construction conditions and previous mitigation monitoring results;
 - h. Photo documentation from established reference points;
 - i. A Survey report documenting boundaries of mitigation area; and
 - j. Other items specified in the final The Bridges at Rancho Santa Fe units 6 & 7 and Driving Range Expansion Wetland Revegetation Plan, dated February 22, 2008 and written by Helix Environmental Planning, Inc.
18. HCC Investors, LLC and Lennar Homes must provide the name and contact information of any third party accepting responsibility for implementing the mitigation requirements of this Certification. The notification must be submitted to the Regional Board within 30 days of the transfer of responsibility. The notification must include a signed statement from the new party demonstrating acceptance and understanding of the responsibility to meet the mitigation conditions and applicable requirements of the Certification.
19. 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.
20. For purposes of this certification, creation is defined as the creation of vegetated or unvegetated waters of the U.S./State where they have never been documented or known to occur (e.g., conversion of nonnative grassland to freshwater marsh). Restoration is defined as the creation of waters of the U.S./State where they previously occurred (e.g., removal of fill material to restore a drainage). Enhancement is defined as modifying existing waters of the U.S./State to enhance functions and values (e.g., removal of exotic plant species from jurisdictional areas and replacing with native species).

E. STREAM PHOTO DOCUMENTATION PROCEDURE:

1. HCC Investors, LLC and Lennar Homes, and its successors, must conduct photo documentation of the project site, including all areas of permanent and temporary impact, prior to and after project construction, 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. HCC Investors, LLC and Lennar Homes must submit this information in a photo documentation report to the Regional Board within **30 days** after construction ceases, along with the subsequent 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. POST-CONSTRUCTION BEST MANAGEMENT PRACTICES PHOTO DOCUMENTATION PROCEDURE:

1. HCC Investors, LLC and Lennar Homes must conduct photo documentation of implemented post-construction BMPs. Photo-documentation must be modeled after the State Water Resources Control Board Standard Operating Procedure 4.2.1.4: Stream Photo Documentation Procedure, included as Attachment 6. In addition, photo documentation must include Global Positioning System (GPS) coordinates for each of the photo points referenced. HCC Investors, LLC and Lennar Homes must submit this information in a photo documentation report to the Regional Board within **30 days** after construction ceases, along with the subsequent 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).

G. GEOGRAPHIC INFORMATION SYSTEM REPORTING:

1. HCC Investors, LLC and Lennar Homes must submit Geographic Information System (GIS) shape files of the impact and mitigation areas within **30 days** of project impacts and the mitigation area within **30 days** of mitigation installation. All impact and mitigation areas shapefiles must be polygons. Two GPS readings (points) must be taken on each line of the polygon and the polygon must have a minimum of 10 points. GIS metadata must also be submitted.

H. REPORTING:

1. All information requested in this Certification is pursuant to California Water Code (CWC) section 13267. Civil liability may be administratively imposed by

the Regional Board for failure to furnish requested information pursuant to CWC section 13268.

2. All reports and information submitted to the Regional Board must be submitted in both hardcopy and electronic format.
3. All applications, reports, or information submitted to the Regional Board must be signed by HCC Investors, LLC and Lennar Homes 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.
4. A duly authorized representative of a person designated in Items 3.a. through 3.c. above may sign documents if:
 - a. The authorization is made in writing by a person described in Items 3.a. through 3.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.
5. 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."

6. HCC Investors, LLC and Lennar Homes 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. 07C-086
9174 Sky Park Court, Suite 100
San Diego, California 92123

7. 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)
Annual Progress Reports	A.11	Prior to December 1 of each year until the project is complete
Notification	B.3	Within 5 days prior to commencement of construction
Mitigation Notification	D.3	Within 5 days prior to commencement of mitigation
Mitigation Site Functional Assessment	D.12	Within 30 days after the initiation of mitigation activities
Mitigation Site As-Builts	D.9	Within 90 days after the completion of site preparation and planting
Mitigation Monitoring	D.17	Prior to December 31 of each year until mitigation is deemed complete
Stream Photo Documentation	E.1	Within 30 days after construction ceases, along Mitigation and Monitoring Reports
Post-Construction Photo Documentation	F.1	Within 30 days after construction ceases and subsequent Mitigation and Monitoring Reports
GIS	G.1	Within 30 days of project impacts and 30 days of mitigation installation

PUBLIC NOTIFICATION OF PROJECT APPLICATION:

On August 16, 2007 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:

Benjamin James
 California Regional Water Quality Control Board, San Diego Region
 9174 Sky Park Court, Suite 100
 San Diego, CA 92123
 (858) 467-2968
 bjames@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby certify that the proposed discharge from **The Bridges at Rancho Santa Fe Driving Range Reconfiguration Project** (Project No. 07C-086) 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, "General Waste Discharge Requirements for Dredged or Fill Discharges that have Received State Water Quality Certification," which requires compliance with all conditions of this Water Quality Certification.

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 Water Quality Control Board's Water Quality Control Plan (Basin Plan).



 JOHN H. ROBERTUS
 Executive Officer
 Regional Water Quality Control Board

3/6/2008
 Date

- Attachments:
1. Project Information
 2. Distribution List
 3. Location Map
 4. Site Map
 5. Mitigation Map
 6. Stream Photo documentation Procedure

**ATTACHMENT 1
PROJECT INFORMATION**

Applicant: HCC Investors, LLC
 Attention: Karen Mossberg
 1525 Faraday Avenue, Suite 300
 Carlsbad, CA 92008
 Telephone: 760-431-6050
 Facsimile: 760-918-8868
 Email: Karen.mossberg@lennar.com

Lennar Homes
 Attention: Karen Mossberg
 1525 Faraday Avenue, Suite 300
 Carlsbad, CA 92008
 Telephone: 760-431-6050
 Facsimile: 760-918-8868
 Email: Karen.mossberg@lennar.com

Applicant Representatives: HELIX Environmental Planning, Inc
 Attention: Barry Jones
 7578 El Cajon Boulevard, Suite 200
 Telephone: 619-462-1515
 Facsimile: 619-462-0552
 Email: barryj@helixepi.com

Project Name: The Bridges at Rancho Santa Fe Driving Range Reconfiguration Project

Project Location: The project site is located in unincorporated San Diego County in the San Dieguito Community Planning Area (Rancho Santa Fe Specific Plan) south of State Route 76, north of Avenida del Duque, between Bumann Road and Via De Las Flores. The center of the project is approximately located at latitude 33° 3' 30" north, longitude 117° 12' 30" west.
 Assessor Parcel Numbers: 264-104-1700,-0500,-1400,-1300,-1200,-1600; 264-102-2300

Type of Project: Residential Development and Golf Course Driving Range

Project Description: The project consists of the reconfiguration of an existing golf course driving range, the development of approximately nine acres into five estate lots (Unit 6), and the construction of emergency access over Bumann Road. The project will dedicate the remainder of 'Parcel A' as an open space, to be protected in perpetuity.

Federal Agency/Permit: U.S. Army Corps of Engineers §404, NWP 39, Laurie Monarres

Other Required Regulatory Approvals: California Department of Fish and Game Streambed Alteration Agreement, Tamara Spear

California Environmental Quality Act (CEQA) Compliance:	<p>Final <u>Environmental Impact Report for The Bridges at Rancho Santa Fe Units 6 & 7</u> dated December 14, 2007, State Clearing House Number 2002051127, Lead Agency: County of San Diego, DPLU. (* Although the title of the CEQA document includes Unit 7, the Final EIR includes the proposed project as Alternative C, which eliminates the development of Unit 7. As titled in the Notice of Determination, filed February 5, 2008, <u>The Bridges Unit 6 and Driving Range Expansion.</u>)</p>
Receiving Water:	<p>Two unnamed drainages to Escondido Creek. Carlsbad hydrologic unit, Escondido Creek hydrologic area, San Elijo hydrologic subarea (904.61).</p>
Impacted Waters of the United States:	<p>The proposed project will permanently impact (fill) 0.02 acre (641 linear feet) of unvegetated Waters of the U.S. (Streambed).</p>
Dredge Volume:	<p>N/A</p>
Related Projects Implemented/to be Implemented by the Applicant(s):	<p>None</p>
Compensatory Mitigation:	<p>As proposed in <u>The Bridges at Rancho Santa Fe Units 6 & 7 and Driving Range Expansion Wetland Revegetation Plan</u>, dated February 22, 2008 and written by Helix Environmental Planning, Inc, mitigation will be achieved by the offsite:</p> <p>Creation of 0.02 acre of vegetated Waters of the U.S. (Wetland)</p> <p>Enhancement of 0.02 acre of vegetated Waters of the U.S. (Wetland)</p>
Best Management Practices (BMPs):	<p>As proposed in the <u>Stormwater Management Plan and Stormwater Maintenance Plan for The Bridges at Rancho Santa Fe – Unit 6 Extension</u>, dated July 27, 2007 and written by Rick Engineering, Post-Construction BMPs for Unit 6 and Bumann Road must include, but not be limited to:</p> <p>Site Design BMPs:</p> <ul style="list-style-type: none"> ▪ Minimizing impervious areas. ▪ Minimizing directly connected impervious areas. ▪ Conserving natural areas. ▪ Slope and channel stabilization. ▪ Planting deep-rooted, drought tolerant plant species on all graded slopes and natural areas for erosion control.

Source Control BMPs:

- Street sweeping.
- Waste and green waste collection, covenants, conditions and restrictions.
- Efficient irrigation design.
- Restricting public access to Bumann Road by the use of gates.

Treatment BMPs:

- Bioswales (3).

As proposed in the Stormwater Management Plan and Stormwater Maintenance Plan for Reconfiguration of Santa Fe Creek Golf Practice Facility (Proposed Driving Range), dated July 24, 2007 and written by Rick Engineering Post-Construction BMPs for the reconfigured driving range must include, but not be limited to:

Site Design BMPs:

- Minimizing impervious areas.
- Conserving natural areas.
- Slope and channel stabilization.
- Planting deep-rooted, drought tolerant plant species on all graded slopes and natural areas for erosion control.
- Draining impervious areas through the landscaping.

Source Control BMPs:

- Waste and green waste collection, covenants, conditions and restrictions.
- Efficient irrigation design, including minimal use techniques.

Public Notice:

August 16, 2007.

Fees:

Total Due: \$3,705.00
Total Paid: \$3,205.00 (Check No. 5653)
\$500.00 (Check No. 100033)

CIWQS:

WDID Number: 9 000001697
Regulatory Measure ID: 330426
Place ID: 211940
Party ID: 21066 & 26800
Person ID: 64568

**ATTACHMENT 2
DISTRIBUTION LIST**

Laurie Monarres
U.S. Army Corps of Engineers, Regulatory Branch
San Diego Field Office
16885 W. Bernardo Dr., Suite 300 A
San Diego, CA 92127

Tamara Spear
California Department of Fish and Game
South Coast Region
Habitat Conservation Planning – South
4949 Viewridge Avenue
San Diego, CA 92123

David Smith
Wetlands Regulatory Office, U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105

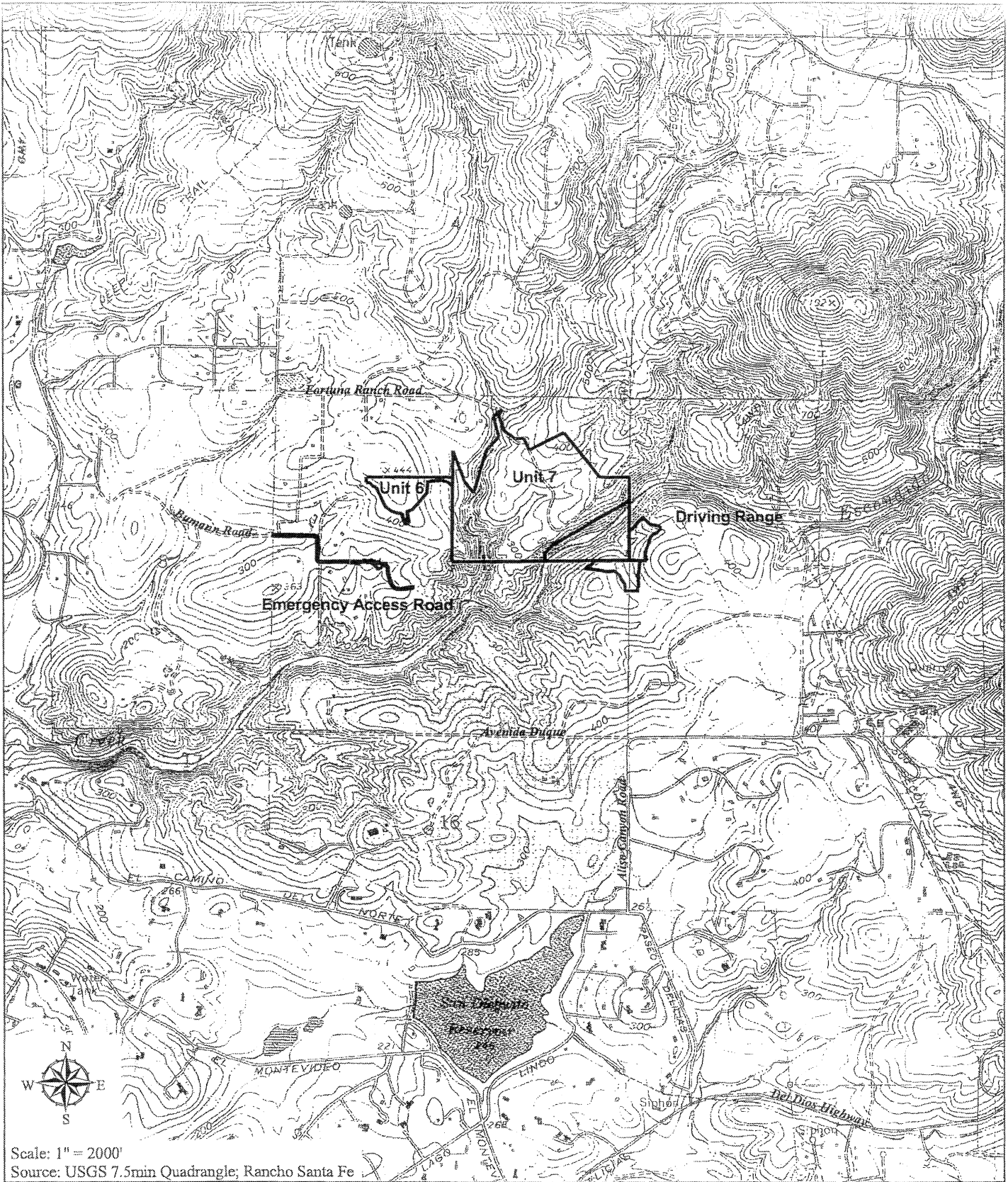
State Water Resources Control Board
Division of Water Quality
401 Water Quality Certification and Wetlands Unit
P.O. Box 100
Sacramento, CA 95812-0100

Barry Jones
HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard, Suite 200
La Mesa, CA 91941

State Water Resources Control Board, Division of Water Quality
401 Water Quality Certification and Wetlands Unit
Attn: Bill Orme
P.O. Box 100
Sacramento, CA 95812-0100

07C-086

**ATTACHMENT 3
PROJECT LOCATION**



Scale: 1" = 2000'
 Source: USGS 7.5min Quadrangle; Rancho Santa Fe



\\GIS\SL\EN-13 Unit7\Data\EN-13.apr\Current (Fig 2) Vicinity Map

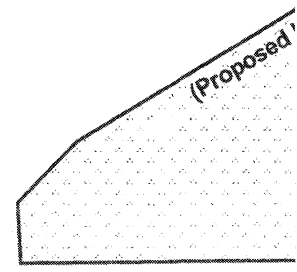
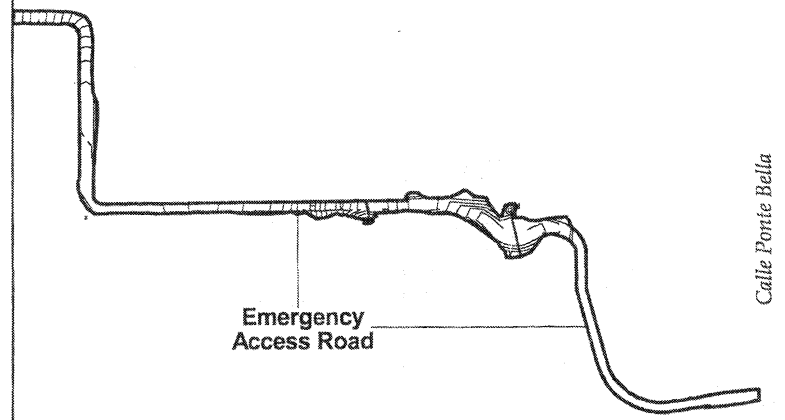
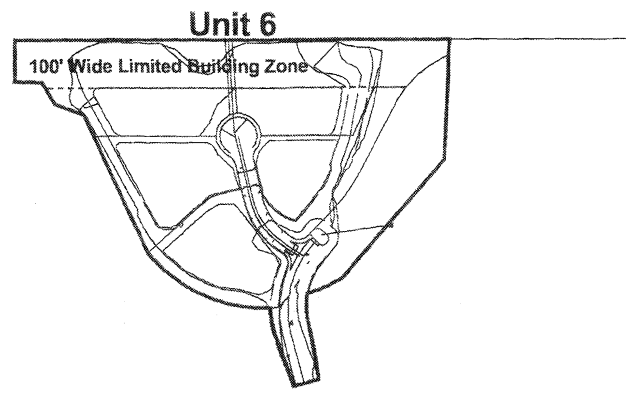
Project Vicinity Map

THE BRIDGES AT RANCHO SANTA FE, UNITS 6 & 7

Figure 2

**ATTACHMENT 4
SITE MAP**

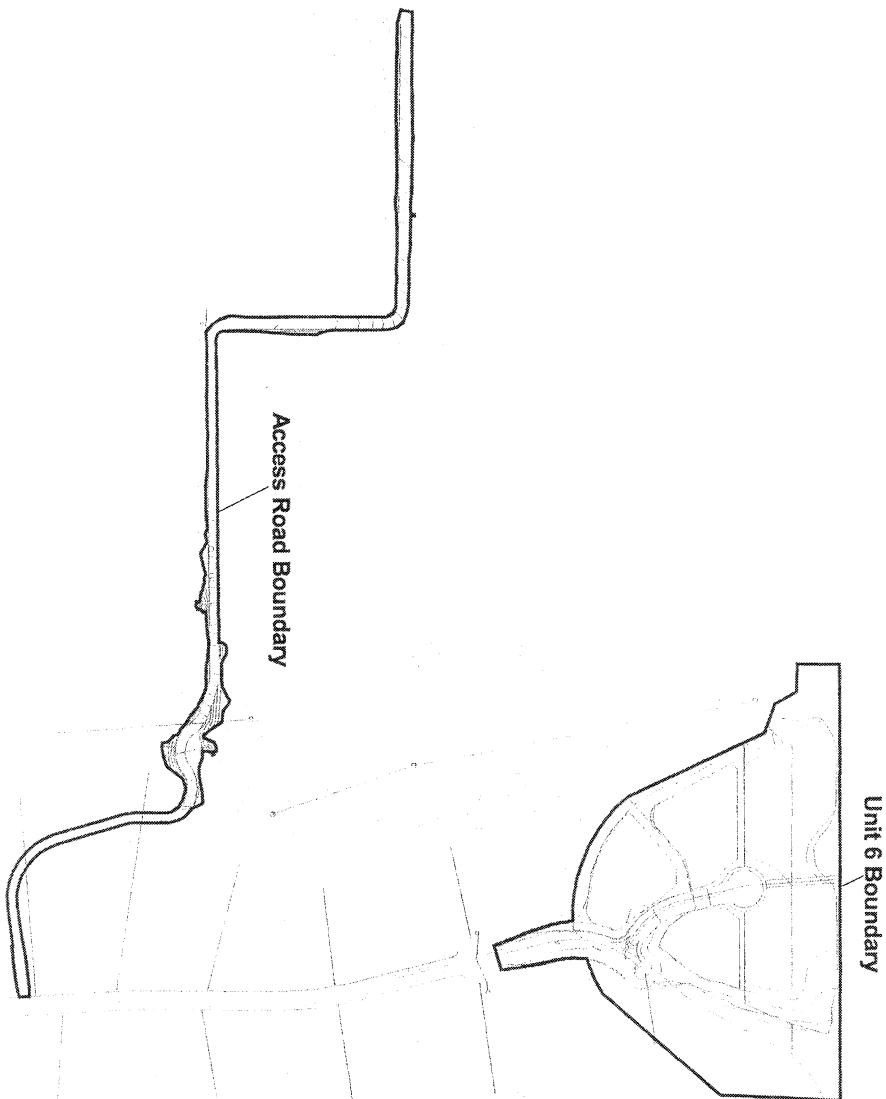
-  Open Space
-  Project Boundary



**Bridges at Rancho Santa Fe
Specific Plan Area (Units 1-6)
(Already Developed)**

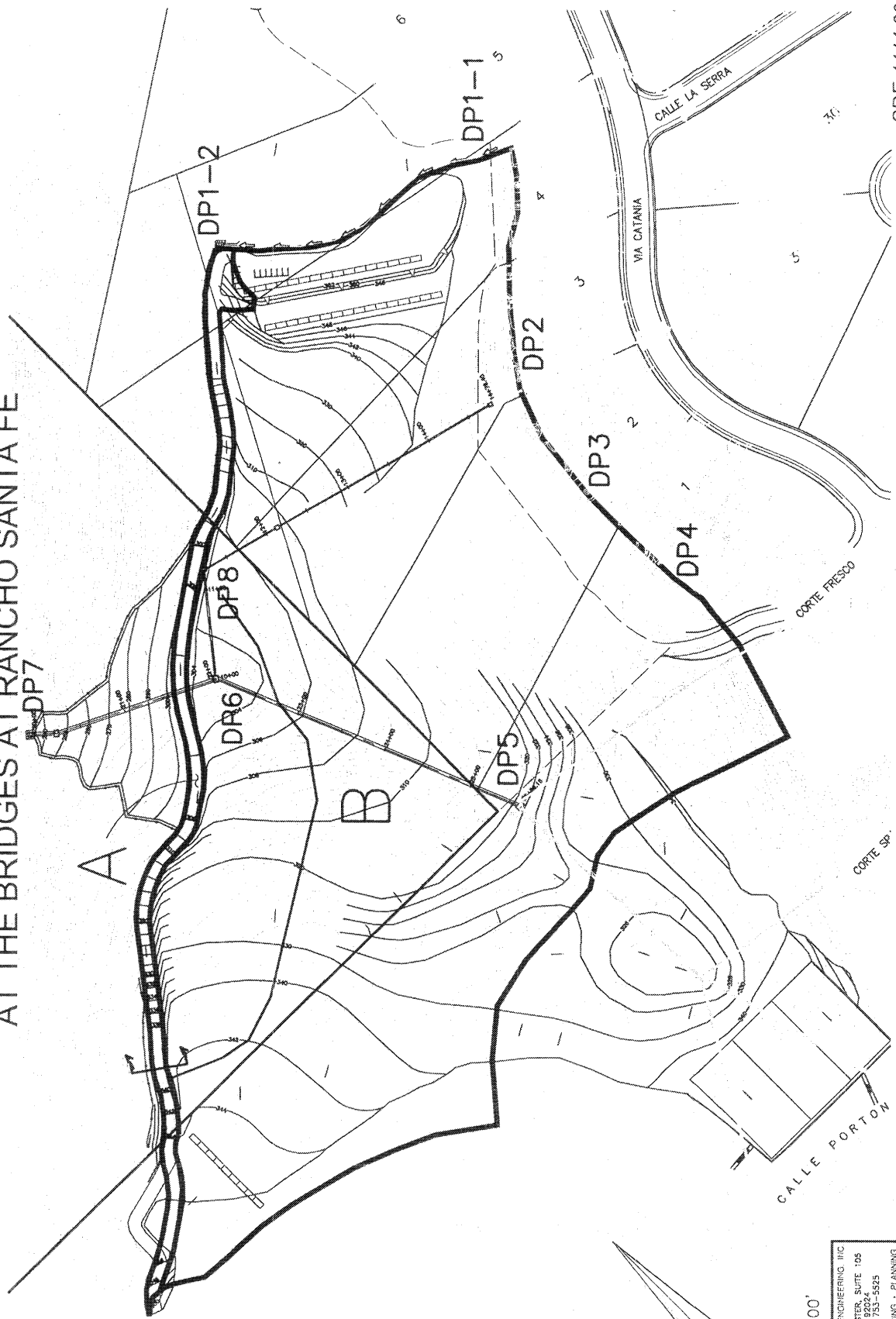


Not formally delineated
Project Boundary



400 0 400 Feet

HYDRO MAP FOR PROPOSED DRIVING RANGE AT THE BRIDGES AT RANCHO SANTA FE



SCALE 1" = 100'

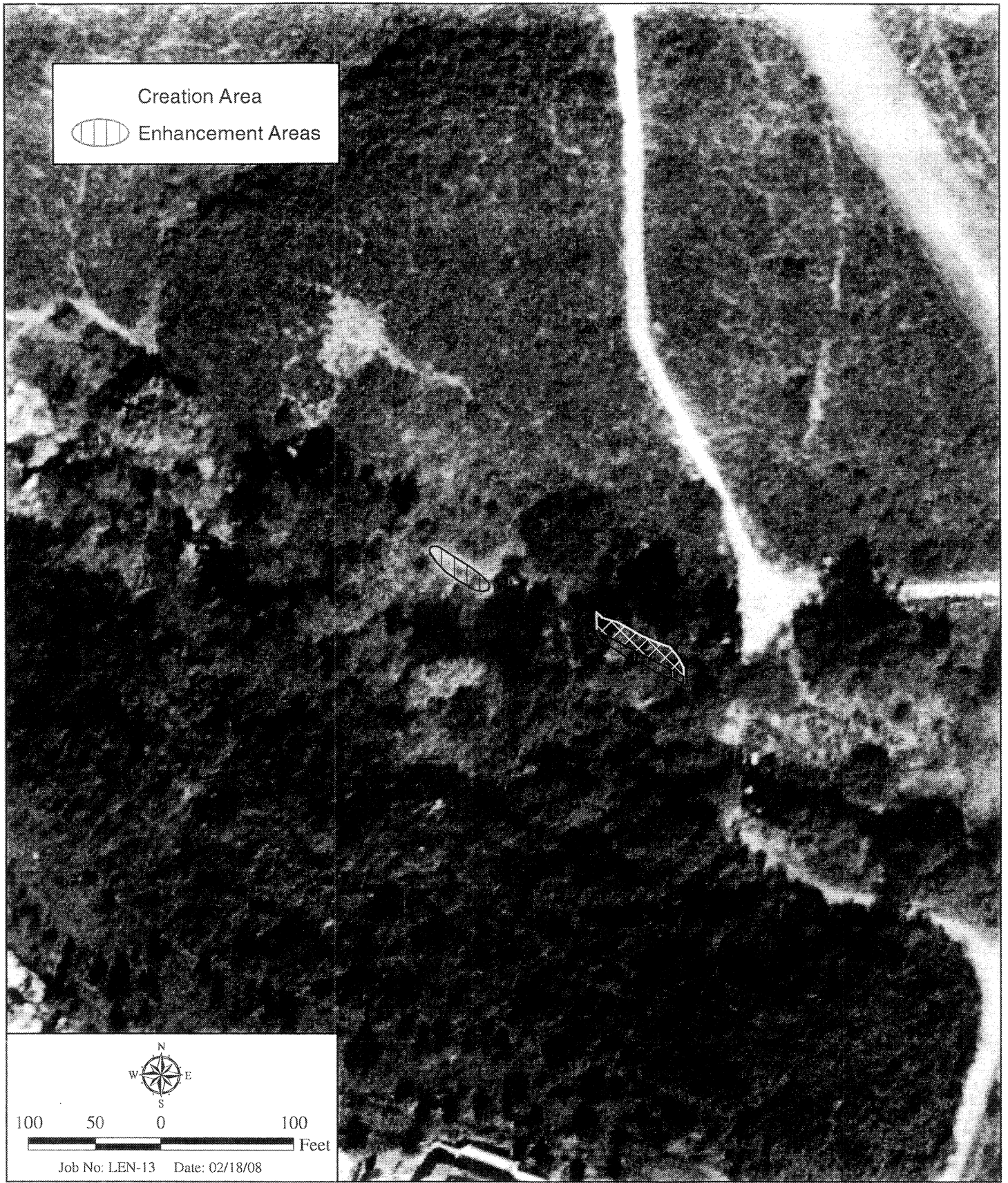
SAN DIEGO ENGINEERING, INC
 4407 MANCHESTER, SUITE 105
 SAN DIEGO, CA 92108
 PHONE: (760) 733-5523
 CIVIL ENGINEERING, PLANNING
 AND SURVEYING



SDE 4444.00

U:\data\engineering\4444\HYDRO\DRIVING-RANGE\HYDROMAP-DRIVING-RANGE.dwg 1/17/2006 10:50:06 PM PST

**ATTACHMENT 5
MITIGATION MAP**



I:\GIS\ALLEN-13\Info\Map\Misc\Aerial_WetlandCreation\enhancement_021808.mxd -NJ

Wetland Creation/Enhancement Areas

SANTA FE CREEK AND BRIDGES DRIVING RANGE RECONFIGURATION
 - WETLAND REVEGETATION PLAN

HELIX

Figure 4

ATTACHMENT 6 STREAM PHOTO DOCUMENTATION PROCEDURES

Standard Operating Procedure (SOP) 4.2.1.4

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 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 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: