California Regional Water Quality Control Board
San Diego Region

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

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Linda S. Adams
Secretary for Environmental Protection

Arnold Schwarzenegger
Governor

May 13, 2008

In reply refer to: WPN:06C-118:mmills

WDID 9000001575
CIWQS:
Place No. 644006
Reg. Meas. No. 316891

E. Garth Erdossy
GLJ Corporation, Inc.
5780 Fleet Street, Suite 130
Carlsbad, CA 92008

Dear Mr. Erdossy:

SUBJECT: Action on Request for Clean Water Act Section 401 Water Quality Certification No. 06C-118 for the Oak Springs Ranch Residential Development.

Enclosed find the Clean Water Act Section 401 Water Quality Certification and acknowledgment of enrollment under State Water Resources Control Board Order No. 2003-017 DWQ, the Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that Have Received State Water Quality Certification, for the Oak Springs Ranch Residential project. A description and location of the project can be found in the project information sheet, project location map, and project site maps, which are included as Attachments 1 through 5.

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

If you have any questions regarding this notification, please contact Mariah Mills directly at (858) 627-3977 or mmills@waterboards.ca.gov.

Respectfully,

JOHN H. ROBERTUS
Executive Officer

Enclosure:

Clean Water Act Section 401 Water Quality Certification No. 06C-118 for the Oak Springs Ranch Residential Development, with 6 attachments

Cc (via email only): Refer to Attachment 2 of Certification 06C-118 for Distribution List.

Linda S. Adams
Acting Secretary for Environmental Protection

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Arnold Schwarzenegger
Governor

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

PROJECT: Oak Springs Ranch Residential Development (File No. 06C-118)
WDID No. 9000001575

CIWQS
Reg. Meas. ID: 316891
Place ID: 644006

APPLICANT: E. Garth Erdossy
GLJ Corporation, Inc.
5780 Fleet Street, Suite 130
Carlsbad, CA 92008

ACTION:

☐ Order for Low Impact Certification	☐ Order for Denial of Certification
☑ Order for Technically-conditioned Certification	☐ Waiver of Waste Discharge Requirements
☑ Enrollment in SWRCB GWDR Order No. 2003-017 DWQ	☐ Enrollment in Isolated Waters Order No. 2004-004 DWQ

The project is a mixed use development that consists of 20.91 acres of multi-family apartment buildings for a maximum of 312 units, 12.89 acres of single-family homes for a maximum of 103 units and 14.35 acres of open space. The project is proposed to be developed in two phases. Phase I consists of the multi-family buildings and open space, and Phase II consists of the single family portion of the project.

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, the GLJ Corporation, Inc. must satisfy the following:

A. GENERAL CONDITIONS:

1. GLJ Corporation, Inc. 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 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, GLJ Corporation, Inc. 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. GLJ Corporation, Inc. 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. GLJ Corporation, Inc. 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. GLJ Corporation, Inc. 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 to any person except after notice to the Executive Officer of the Regional Board. GLJ Corporation, Inc. 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.

7. In the event of any violation or threatened violation of the conditions of this certification, the violation or threatened violation is 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. GLJ Corporation, Inc. and successor owners must submit annual progressive reports to the Regional Board prior to **August 1** of each year following the issuance of this certification until the mitigation has been deemed successful by the Regional Board. At minimum, the annual reports must include the status of construction activities, best management practices implementation, and mitigation implementation. If no progress has been made on the project, the annual report must state this.

B. PROJECT CONDITIONS:

1. GLJ Corporation, Inc. 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 Requirement are accessible at: http://www.waterboards.ca.gov/cwa401/docs/generalorders/go_wdr401regulated_projects.pdf.

2. Prior to the start of the project, and annually there after, GLJ Corporation, Inc. must educate all personnel on the requirements in this certification, pollution prevention measures, spill response, and BMP implementation and maintenance.

3. GLJ Corporation, Inc. must notify the Regional Board in writing at least 5 **days** prior to the actual commencement of dredge, fill, and discharge activities.

4. GLJ Corporation, Inc. must 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 and after project completion, must not cause downstream erosion or damage to properties or stream habitat. All storm drain outlets (including drains that discharge onsite or offsite flows) on the Oak Springs Ranch Residential Project site must be designed to prevent downstream erosion (e.g. through the use of velocity dissipators). If it is found that any flows from the project site are causing downstream erosion or damage to properties or habitat, GLJ Corporation, Inc. must notify the Regional Board immediately and implement measures to eliminate the erosive flows.

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 areas that will be left in a rough graded state including, but not limited to, the single-family portion of the site, also referred to as Phase II and Planning Area 2, must be revegetated with native species no later than one week after completion of rough 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. GLJ Corporation, Inc., and subsequent owners, are responsible for implementing and maintaining BMPs to prevent erosion of Planning Area 2 and to prevent flows form this area from causing negative impacts to Beneficial Uses downstream.

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. Best management practices (BMPs) must be implemented to treat stormwater runoff from all roofs, roads, parking areas, and other impervious areas that can convey stormwater to the stormdrain system and/or waters of the State/U.S. All BMPs, including, but not limited to, bioswales, catch basin media filters and detention basins, must be sized to comply with the following numeric sizing criteria:

    a. 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-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. GLJ Corporation, Inc. must submit a copy of the Final Water Quality Management Plan for the Oak Springs Ranch Residential Development to the Regional Board prior to the initiation of clearing and grubbing.

4. Post-construction BMPs must be installed and functional prior to occupancy and/or planned use of development areas.

5. All rough graded desilting basins must be designed, constructed and maintained according to the most recent California Stormwater Quality Association guidance for sediment basins, until all development on the project site is completed and post-construction BMPs are installed and operational.

6. Prior to discharging to receiving waters, all runoff from the project must be treated by media filter units that contain a Zeolite, Perlite, Granular Activated Carbon media mix or better media to provide medium to high removal efficiency, per California Stormwater Quality Association, for the expected and potential pollutants for the project.

7. GLJ Corporation, Inc. or their designated party must inspect and maintain all catch basins and media filters per the manufacturer's specifications in perpetuity. Media filters must be inspected at a minimum once prior to the rainy season (just prior to October 1) and once after the rainy season (after April 30) and after every major storm event. Inspections must be conducted by a qualified individual familiar with the operation and configuration of the filters.

8. The extended detention basins must be designed and constructed in accordance with the most recent California Stormwater Quality Association guidance for extended detention basins. The basin outlets must be placed to

maximize the flowpath through the facility. The ratio of flowpath length to width from the inlet to the outlet must be at least 1.5:1. The flowpath length is defined as the mean width of the basin.

9. GLJ Corporation, Inc. must maintain the extended detention basin in perpetuity according to the most recent California Stormwater Quality Association guidance for extended detention basins. Typical activities include, but are not limited to:

    a. Semiannual inspection for the beginning and end of the wet season for standing water, slope stability, sediment accumulation, trash and debris, and presence of burrows;
    b. Removal of accumulated trash and debris in the basin as needed to ensure proper functioning of the basin; and
    c. Yearly inspection of accumulated sediment volume. Accumulated sediment should be removed and the basin re-graded when the accumulated sediment volume exceeds 10 percent of the basin volume.

10. GLJ Corporation, Inc. must design, construct and maintain in perpetuity all vegetated swales/bioswales according to the most recent California Stormwater Quality Association guidance for vegetated swales. Typical maintenance activities include, but are not limited to:

    a. Semiannual inspection at the beginning and end of the wet season for erosion, damage to vegetation and sediment and debris accumulation;
    b. Removal of accumulated trash and debris in the swale as needed to ensure proper functioning of the swale;
    c. Removal of accumulated sediment when it builds up beyond 3 inches at any spot or covers vegetation.

11. GLJ Corporation, Inc. must maintain the permeable pavement areas in perpetuity according to the most recent California Stormwater Quality Association guidance for pervious pavements and the manufacturers specifications. Typical activities include, but are not limited to:

    a. Preventing soil from being washed onto the pavement; and
    b. Vacuum cleaning the surface using commercially available sweeping machines at the following times: End of the rainy season (April 30), mid-summer (July/August) and prior to the beginning of the rainy season (October 1).

12. All velocity dissipation devices , such as riprap pads and impact basin energy dissipators, located at outlets from the project site into the open space area must be designed to avoid development of areas of ponding, sedimentation and/or downstream scour.

a. GLJ Corporation, Inc. must maintain the energy dissipators per California Stormwater Quality Association (CASQA) guidance for velocity dissipation devices (currently described in CASQA Factsheet EC-10) in perpetuity. Typical activities include, but are *not limited to:*

   i. Inspection prior to forecast rain, daily during rain events, weekly during the rainy season (October 1 – April 30) and at two-week intervals during the non-rainy season.
   ii. Daily inspection of dissipators subject to non-stormwater discharges while discharges occur.
   iii. Inspection of the apron for displacement of riprap and damage to underlying fabric. Repair fabric and replace riprap that has washed away.
   iv. Inspection for ponding, sedimentation and/or scour around riprap and around the outlet. Repair damage to slopes immediately.

b. GLJ Corporation, Inc. must record the results of the inspections in the BMP log required by Condtion C.13 of this Certification. Any problems such as ponding, sedimentation and/or scour must be photo-documented in accordance with the State Water Resources Control Board Standard Operating Procedure 4.2.1.4: Stream Photo Documentation Procedure, included as Attachment 6.

c. If at any time it is found that areas of ponding and/or scour have developed, GLJ Corporation, Inc. must notify the Regional Board immediately and retrofit or redesign the outlets to eliminate these problems.

13. The project's runoff peak flow rate and velocity for the post-construction condition must not exceed the pre-development condition for the 2-year, 5-year and 10-year 24-hour rainfall events. Flows from the Oak Springs Ranch Residential Development storm drain outlets must not cause erosion or degradation of beneficial uses of downstream waters of the State. If it is found that flows from the storm drain outlets are causing erosion in the downstream areas, the Regional Board must be notified and GLJ Corporation, Inc. must implement measures to reduce and eliminate the erosive flows.

14. GLJ Corporation, Inc. must implement the source control BMPs described in the application for 401 Certification and in the *Water Quality Management Plan Oak Springs Ranch, Wildomar, CA*, prepared by Fuscoe Engineering, including, but not limited to, the following:

a. Provide training and educational materials to homeowners, tenants and employees regarding good housekeeping and other practices that contribute to the protection of water quality.
b. Develop and enforce restrictions regarding onsite activity that may negatively impact water quality including, but not limited to:
    i. Prohibiting the discharges of fertilizer, pesticides or wastes to streets or storm drains;
    ii. Prohibiting the blowing or sweeping of debris into the storm drain;
    iii. Prohibiting hosing down paved surfaces and/or using water to clean up fertilizer or other pollutant spills;
c. Irrigation equipment must be inspected and maintained on a monthly basis, at a minimum. Inspections must include checking water sensors and adjusting irrigation heads and timing devices if necessary;
d. Implementation of an integrated pest management plan;
e. Common area litter control, including litter removal, emptying trash receptacles and picking up grass and plant clippings, must be conducted at least weekly;
f. Street sweeping of private streets and parking lots must be conducted at least two times per month;

15. Records must be kept regarding inspections and maintenance of all structural BMPs, including, but not limited to, bioswales, catch basin media filters (including the media filters located in catch basins along Clinton Keith Road, Inland Valley Drive and Oak Springs Road) and detention basins, and non-structural source control BMPs, in order to assess the performance of the systems and determine whether adaptations are necessary to protect receiving waters. Copies of the inspection and maintenance log must be provided to the Regional Board upon request.

    a. Before occupancy, GLJ Corporation, Inc., their designated party or the successor owners of Oak Springs Ranch Residential Development, must submit a letter to the Regional Board describing where the post-construction inspection and maintenance log will be kept. Failure to maintain a post-construction inspection and maintenance log will be a violation of this Certification.

16. GLJ Corporation, Inc., and its successors, are responsible for inspection and maintenance of all post-construction structural BMPs associated with Oak Springs Ranch Residential Development including, but not limited to, bioswales, catch basin media filters (including the media filters located in catch basins along Clinton Keith Road, Inland Valley Drive and Oak Springs Road) and detention basins, until such responsibility is legally transferred to another entity.

a. At the time maintenance responsibility for post-construction BMPs is legally transferred, GLJ Corporation, Inc., or successor owners, must submit to the Regional Board a copy of such documentation. Documentation must be submitted within 30 days of the transfer of responsibility.

b. At the time maintenance responsibility for post-construction BMPs is legally transferred, GLJ Corporation, Inc., or successor owners, must provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer specifications and/or California Stormwater Quality Association guidance.

c. When responsibility is legally transferred to another entity, the transferee will be responsible for the inspection and maintenance of all post-construction structural BMPs associated with Oak Springs Ranch Residential Development, in perpetuity.

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

1. Mitigation for permanent discharges to 0.098 acres (778 linear feet) of non-wetland waters of the United States must be achieved as follows and as described in the *Oak Springs Ranch – Wildomar, CA, Tentative Tract 31736, APNs 380-250-001 and 380-250-007 Final Habitat Mitigation and Monitoring Plan for Impacts to Corps/RWQCB Resources* dated March 25, 2008 by Vandermost Consulting Services, Inc. (Mitigation Plan).:

    a. On-site creation of an 810 linear foot open conveyance channel located at the edge of the multi-family portion of the project, adjacent to the northern end of the open space area that bisects the project. The channel will be approximately 8 feet wide, will be planted with native riparian vegetation and will receive treated flows from the project site.

    b. The enhancement of 0.50 acre of riparian habitat within the onsite open space area. Enhancement will consist of removal of non-native vegetation, including, but not limited to, tamarisk, pampas grass, giant reed and castor bean, and planting of native vegetation. 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 will be quantified to comply with mitigation requirements.

2. GLJ Corporation, Inc. 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. GLJ Corporation, Inc. must implement all necessary BMPs to control erosion and runoff from areas associated with this project.

3. GLJ Corporation, Inc. 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. Mitigation Site Preparation: GLJ Corporation, Inc. 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. GLJ Corporation, Inc. 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, GLJ Corporation, Inc. 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. At a minimum, the areas that must be included in the preservation mechanism are the approximately 14 acre onsite open space area, the 0.50 acre enhancement area and the open conveyance channel (from top of bank to top of bank). Within one year of the issuance of this certification, GLJ Corporation, Inc. 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.

7. GLJ Corporation, Inc. 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.

8. 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 additional mitigation of 0.1 acre for each month of delay.

9. Prior to initiation of mitigation activities, GLJ Corporation, Inc. must conduct a conditional assessment of the areas proposed for permanent impacts and the proposed 0.5 acre riparian enhancement area, as described in the Mitigation Plan.

    a. The results of the assessments must be submitted to the Regional Board no later than **30 days** after the initiation of mitigation activities.

    b. The same methodology used in the initial assessments will be utilized in measuring the progress of the mitigation through the monitoring period. At a minimum, GLJ Corporation, Inc. must conduct one additional assessment, evaluating the open conveyance channel and the 0.5 acre enhancement area prior to the end of the monitoring period. The results of the assessment must be submitted in the next annual mitigation report.

    c. The results of the assessments will be used to evaluate success of the mitigation areas in replacing the resources impacted by the proposed fill. To be considered successful, the mitigation areas must meet or exceed the baseline scores, established by the initial assessments.

10. 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. Whenever possible, removal of non-native and/or invasive species must be conducted by hand or hand-operated power tools rather than by chemical means.

11. 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.

12. 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, GLJ Corporation, Inc. is responsible for repair and replanting of the damaged area(s).

13. Mitigation monitoring reports must be submitted annually until mitigation has been deemed successful by the Regional Board. Annual monitoring reports must be submitted prior to **August 1** 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;
        i. Topographic complexity characteristics at each mitigation site;
        ii. Upstream and downstream habitat and hydrologic connectivity;
        iii. Source of hydrology;
        iv. Width of native vegetation buffer around the entire mitigation site;
    c. Qualitative and quantitative comparisons of current mitigation conditions with pre-construction conditions and previous mitigation monitoring results;
    d. Results of the conditional assessment, if one was conducted during that year;
    e. Photodocumentation from established reference points;
    f. A Survey report documenting boundaries of mitigation area; and
    g. Other items specified in the final *Oak Springs Ranch – Wildomar, CA, Tentative Tract 31736, APNs 380-250-001 and 380-250-007 Final Habitat Mitigation and Monitoring Plan for Impacts to Corps/RWQCB Resources* dated March 25, 2008 by Vandermost Consulting Services, Inc..

14. Responsible Party Updates: GLJ Corporation, Inc. 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.

15. 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. GLJ Corporation, Inc., 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. GLJ Corporation, Inc. 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. POST-CONSTRUCTION BEST MANAGEMENT PRACTICES PHOTO DOCUMENTATION PROCEDURE:

1. GLJ Corporation, Inc. 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. GLJ Corporation, Inc. 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).

G. GEOGRAPHIC INFORMATION SYSTEM REPORTING:

1. GLJ Corporation, Inc. must submit Geographic Information System (GIS) shape files of the impact area within **30 days** of project impacts, the mitigation area within **30 days** of mitigation installation, and BMP locations within **30 days** of BMP 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. BMP locations may be submitted as 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. GLJ Corporation, Inc. 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 including post-construction BMPs.

4. 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."

5. GLJ Corporation, Inc. 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. 06C-118
   9174 Sky Park Court, Suite 100
   San Diego, California 92123

6. 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)
Pre-Discharge Notification	B.2	5 days prior to discharge of fill
Notification of downstream erosion (if needed)	B.6	Immediately

Final WQMP	C.3	Prior to initiation of clearing and grubbing
Ponding or Scour around velocity dissipators (if needed)	C.12.c	Immediately
Location of BMP inspection log	C.15.a	Prior to occupancy
Transfer of BMP maintenance responsibility (if needed)	C.16.a	Within 30 days of transfer
Initiation and Completion of Mitigation	D.3	5 days prior to initiation and completion
Draft Preservation Mechanism	D.6	Within 90 days of issuance of this Certification
Final Preservation Mechanism	D.6	Within 1 year of issuance of this Certification and prior to initiation of construction
Mitigation As-Builts	D.7	Within 90 days of completion of mitigation
Baseline Conditional Assesment	D.9.a	30 days after the initiation of mitigation
Annual Mitigation Reports	D.13	Annually until mitigation deemed successful
Stream Photo Documentation	E.1	Pre-impact with the first annual mitigation report; post-impact by the final mitigation report
BMP Photo Documentation	F.1	With the first annual mitigation report
GIS Shapefiles – Impact areas, mitigation areas and BMPs	G.1	Within 30 days of project impacts, within 30 days of mitigation installation and wthin 30 days of BMP installation

PUBLIC NOTIFICATION OF PROJECT APPLICATION:

On December 7, 2006 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:

Mariah Mills
California Regional Water Quality Control Board, San Diego Region
9174 Sky Park Court, Suite 100
San Diego, CA 92123
(858) 627-3977

mmills@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby certify that the proposed discharge from the Oak Springs Ranch Residential Development (Project No. 06C-118) 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 California Regional Water Quality Control Board, San Diego Region, Waiver of Waste Discharge Requirements (Waiver Policy) No. 17. Please note that this waiver 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. 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

5/9/2008
Date

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

ATTACHMENT 1
PROJECT INFORMATION

Applicant:	GLJ Corporation, Inc. Attention: E. Garth Erdossy 5780 Fleet Street, Suite 130 Carlsbad, CA 92008 Telephone: (760) 431-3366 Facsimile: (760) 431-3377 Email: garth@gljpartners.com
Applicant Representatives:	Vandermost Consulting Services, Inc. Attention: Amir Morales 27312 Calle Arroyo San Juan Capistrano, CA 92675 Telephone: (949) 489-2700 Facsimile: (949) 489-0309 Email: amorales@vandermostconsulting.com
Project Name:	Oak Springs Ranch Residential Development
Project Location:	The project is located in Riverside County, California, east of and adjacent to I-15 and Oak Springs Road, south of and adjacent to Clinton Keith Road, and west of and adjacent to Inland Valley Drive. APNs 380-250-001 and 007. Latitude 33°35'28"N, Longitude 117°14'8"W.
Type of Project:	Multi- and Single-Family Residential Development
Need for Project:	The project will provide housing for the growing population of southern Riverside County, CA. Specifically, Oak Springs Ranch Residential Development will provide the residential aspect of the Community Center area planned at I-15 and Clinton Keith Road. The Community Center will provide a range of land uses including retail, office, business park and residential.
Project Description:	The project is a mixed use development that consists of 20.91 acres of multi-family apartment buildings for a maximum of 312 units, 12.89 acres of single-family homes for a maximum of 103 units and 14.35 acres of open space. The project is proposed to be developed in two phases. Phase I consists of the multi-family buildings and open space, and Phase II consists of the single family portion of the project. It is anticipated that Phase I will be developed first and Phase II will be rough graded, stabilized for erosion control and developed at a later date. Note: The original application was filed by Nexus Residential Communities, Inc. A request was made to transfer the project to GLJ Corporation, Inc. in a letter dated 4/24/08.

Federal Agency/Permit:	U.S. Army Corps of Engineers §404, NWP 29 (with waiver for impacts in excess of 300 feet), Crystel Doyle
Other Required Regulatory Approvals:	California Department of Fish and Game Streambed Alteration Agreement (Operation of Law authorization letter), Jeff Brandt
California Environmental Quality Act (CEQA) Compliance:	EIR 478 – General Plan Amendment No. 754/Specific Plan No.340/Change of Zone No. 6922/Tentative Tract Map No. 31736/ Plot Plan No. 18966, December 18, 2007 , County of Riverside.
Receiving Water:	Santa Margarita Hydrologic Unit, Murrieta Hydrologic Area, Wildomar Hydrologic Subarea (902.31)
Affected Waters of the United States:	Size of impact: The project will permanently fill 0.098 acre (778 linear feet) of non-wetland waters of the United States. In the area of the proposed impact, the stream width varies from 20 to 1 foot wide. Location of impact: The area proposed to be filled is the northern most portion of the drainage (from Clinton Keith Road south 778 feet) that runs roughly north-south through the project site, bisecting the multi- and single- family areas. This drainage is labeled as Drainage A in the jurisdictional delineation prepared for the project site by Vandermost Consulting Services, Inc.
Dredge Volume:	None
Related Projects Implemented/to be Implemented by the Applicant(s):	The applicant has not disclosed any related projects.
Compensatory Mitigation:	Compensatory mitigation for the proposed impacts will consist of the following (Refer to Attachment 6 for map): ▪ On-site creation of an 810 linear foot open conveyance channel located at the edge of the multi-family portion of the project, adjacent to the northern end of the open space area that bisects the project. The channel will be approximately 8 feet wide, will be planted with native riparian vegetation and will receive treated flows from the project site. ▪ The enhancement of 0.50 acre of riparian habitat within the onsite open space area. Mitigation Ratios: ▪ Creation: Approximately 1:1 in terms of linear feet, 1.5:1 in terms of acreage. ▪ Enhancement: Approximately 5:1 in terms of acreage. Mitigation Plan: *Oak Springs Ranch – Wildomar, CA, Tentative*

Tract 31736, APNs 380-250-001 and 380-250-007 Final Habitat Mitigation and Monitoring Plan for Impacts to Corps/RWQCB Resources dated March 25, 2008 by Vandermost Consulting Services, Inc.

Best Management Practices (BMPs):

During construction, GLJ Corporation, Inc. will 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.

Post-construction water quality for Oak Springs Ranch Residential Development will be managed through a combination of site design, source control and treatment control BMPs as described in the *Water Quality Management Plan Oak Springs Ranch, Wildomar, CA*, prepared by Fuscoe Engineering, dated March 31, 2006, revised July 18, 2006, final revision forthcoming. BMPs will include, but not be limited to, the following:

Site Design BMPs:

- Incorporating landscaped buffer areas between sidewalks and streets;
- Draining roof and sidewalk runoff to landscaped areas;
- Using permeable pavement in several areas throughout the project;
- Incorporation of bioswales throughout the project to provide treatment and promote infiltration;
- Landscaping with native and drought tolerant species; and
- Use of efficient irrigation systems.

Source Control BMPs:

- Education materials and training for homeowners and renters;
- Activity and use restrictions developed by GLJ Corporation, Inc. and the Homeowners Association to reduce pollutants reaching the storm drain system;
- Implementation of integrated pest management techniques;
- Minimum weekly routine litter control;
- Minimum bi-monthly street sweeping of streets and parking areas;
- Storm drain stenciling;
- Minimum monthly landscape and irrigation system inspection including checking water sensors, irrigation heads and timers;
- Planting the slopes along the perimeter of the riparian corridor with native vegetation to prevent erosion;
- Use of screened or walled trash storage areas to prevent pollutant transport and use of lids on all trash containers; and
- Routine, minimum weekly, inspection and housekeeping of trash storage areas.

Treatment Control BMPs:

- All runoff from the project site will be treated with a treatment train consisting of bioswales, catch basins with media filters containing a media mix (Zeolite, Perlite, Granular Activated Carbon media mix or better) that will provide medium to high removal efficiency per CASQA for all expected and potential pollutants from the project, and two extended detention basins.

Public Notice: December 7, 2006

Fees: Total Fees: $4,388.45
Total Paid: $500.00 (check No 003511)
$3,888.45 (check No. 003624)

CIWQS: Regulatory Measure ID: 316891
Place ID: 644006
Party ID: 466651

ATTACHMENT 2
DISTRIBUTION LIST

Crystel Doyle
U.S. Army Corps of Engineers
Regulatory Branch, San Diego Field Office
16885 West Bernardo Drive, Suite 300A
San Diego, CA. 92127
crystel.l.doyle@usace.army.mi

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
BOrme@waterboards.ca.gov

David W. Smith
Wetlands Regulatory Office
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street
San Francisco, CA 94105
smith.davidw@epa.gov

Amir Morales
Vandermost Consulting Services, Inc.
27312 Calle Arroyo
San Juan Capistrano, CA 92675
amorales@vandermostconsulting.com

Tony Ditteaux
GLJ Corporation, Inc.
5780 Fleet Street, Carlsbad, CA 92008
Tony@GLJPartners.com

ATTACHMENT 3
LOCATION MAP

OAK SPRINGS RANCH

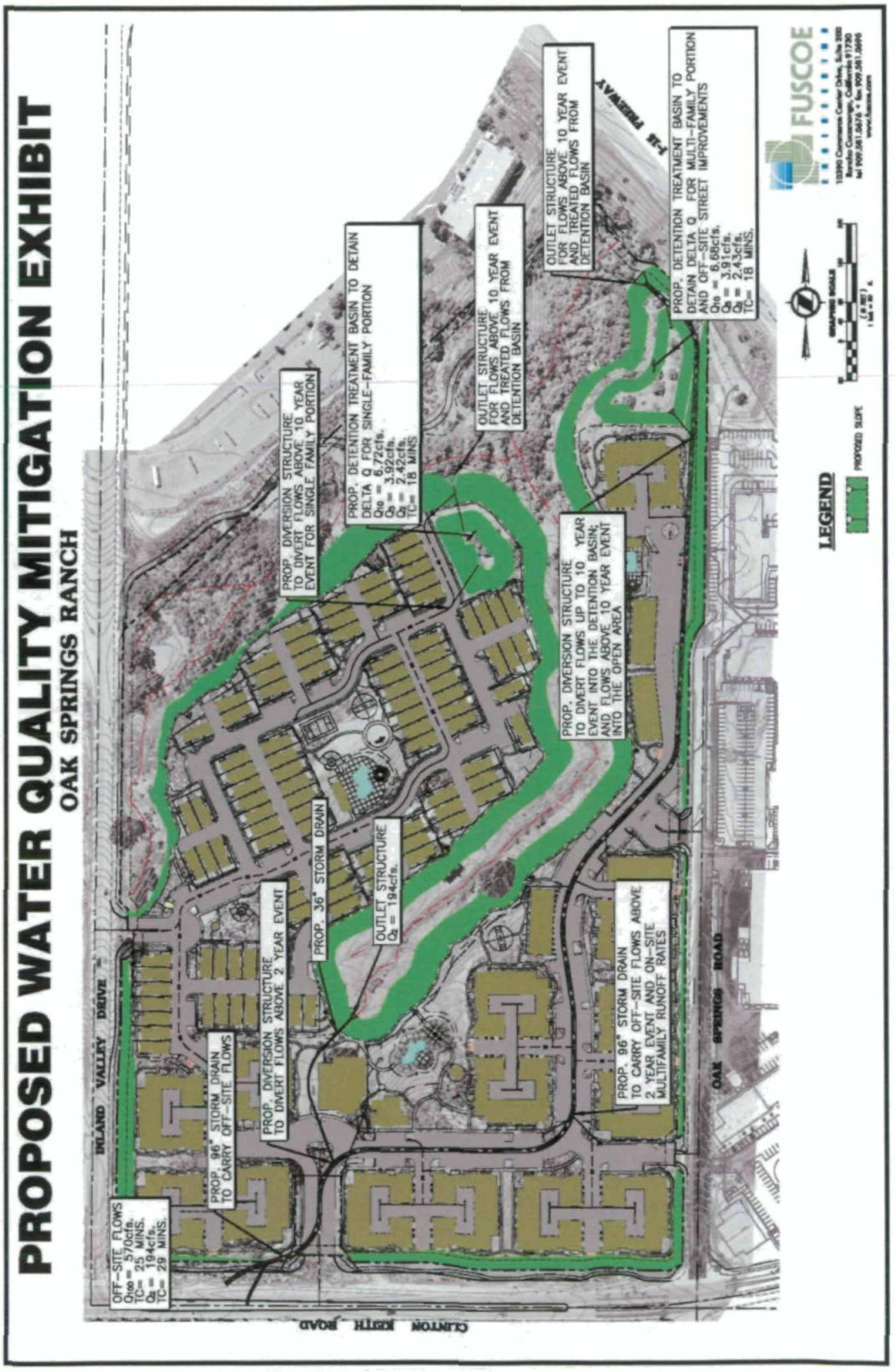
SITE VICINITY MAP

approximate project boundary

VANDERMOST CONSULTING SERVICES, INC.
27312 Calle Arroyo
San Juan Capistrano, CA 92675
(949) 489-2700
fax (949) 489-0309

N

ATTACHMENT 4
SITE MAPS



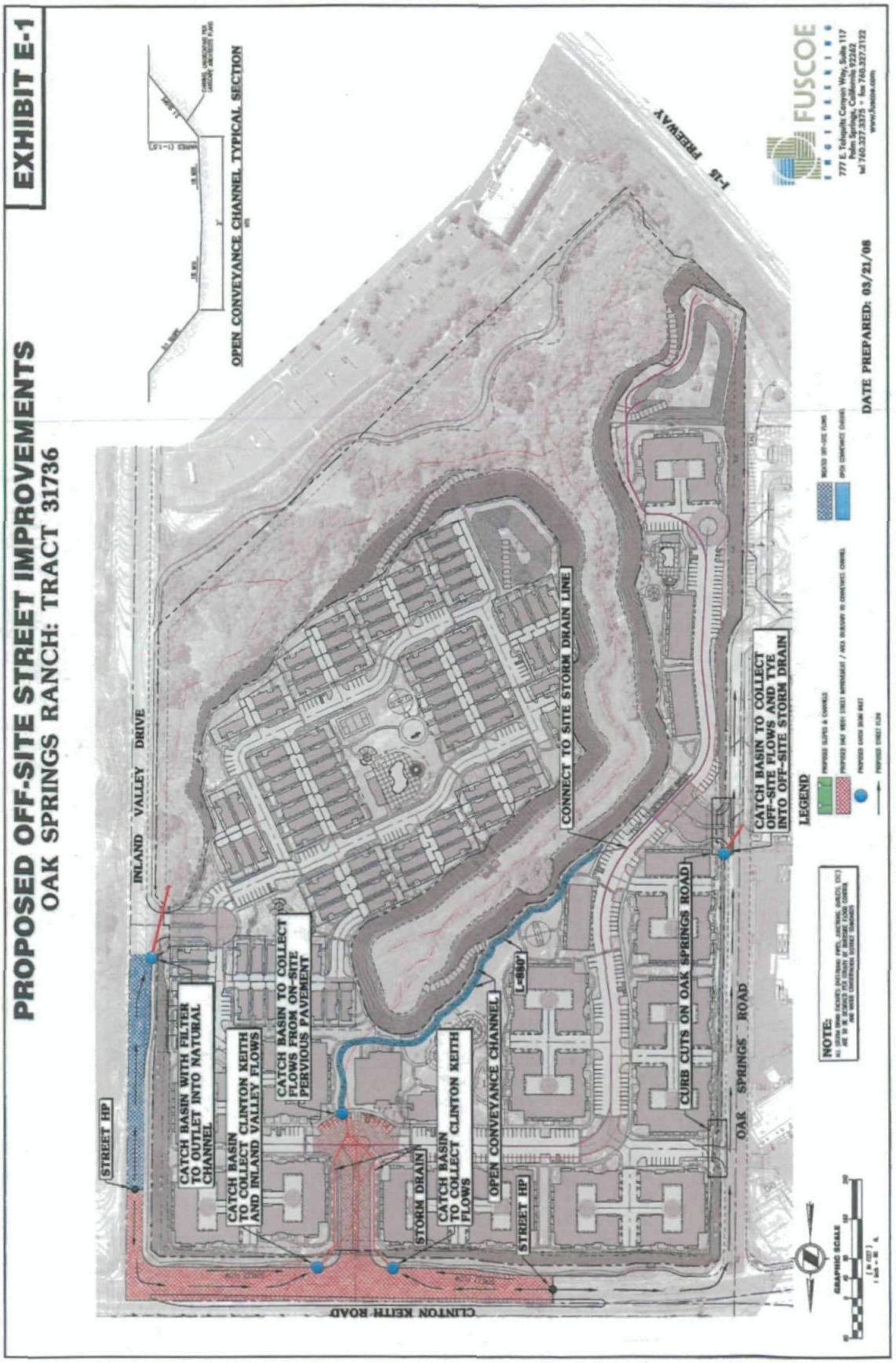


EXHIBIT E-1
PROPOSED OFF-SITE STREET IMPROVEMENTS
OAK SPRINGS RANCH: TRACT 31736
OPEN CONVEYANCE CHANNEL TYPICAL SECTION
FUSCOE ENGINEERING
777 E. Tahquitz Canyon Way, Suite 117
Palm Springs, California 92262
tel 760.327.3375 • fax 760.327.2122
www.fuscoe.com
DATE PREPARED: 03/21/08
INLAND VALLEY DRIVE
STREET HP
CATCH BASIN WITH FILTER TO OUTLET INTO NATURAL CHANNEL
CATCH BASIN TO COLLECT CLINTON KEITH AND INLAND VALLEY FLOWS
CATCH BASIN TO COLLECT FLOWS FROM ON-SITE PERVIOUS PAVEMENT
STORM DRAIN
CATCH BASIN TO COLLECT CLINTON KEITH FLOWS
OPEN CONVEYANCE CHANNEL
L=880'
STREET HP
CONNECT TO SITE STORM DRAIN LINE
CURB CUTS ON OAK SPRINGS ROAD
CATCH BASIN TO COLLECT OFF-SITE FLOWS AND TYE INTO OFF-SITE STORM DRAIN
OAK SPRINGS ROAD
CLINTON KEITH ROAD
I-10 FREEWAY
LEGEND
NOTE:
GRAPHIC SCALE

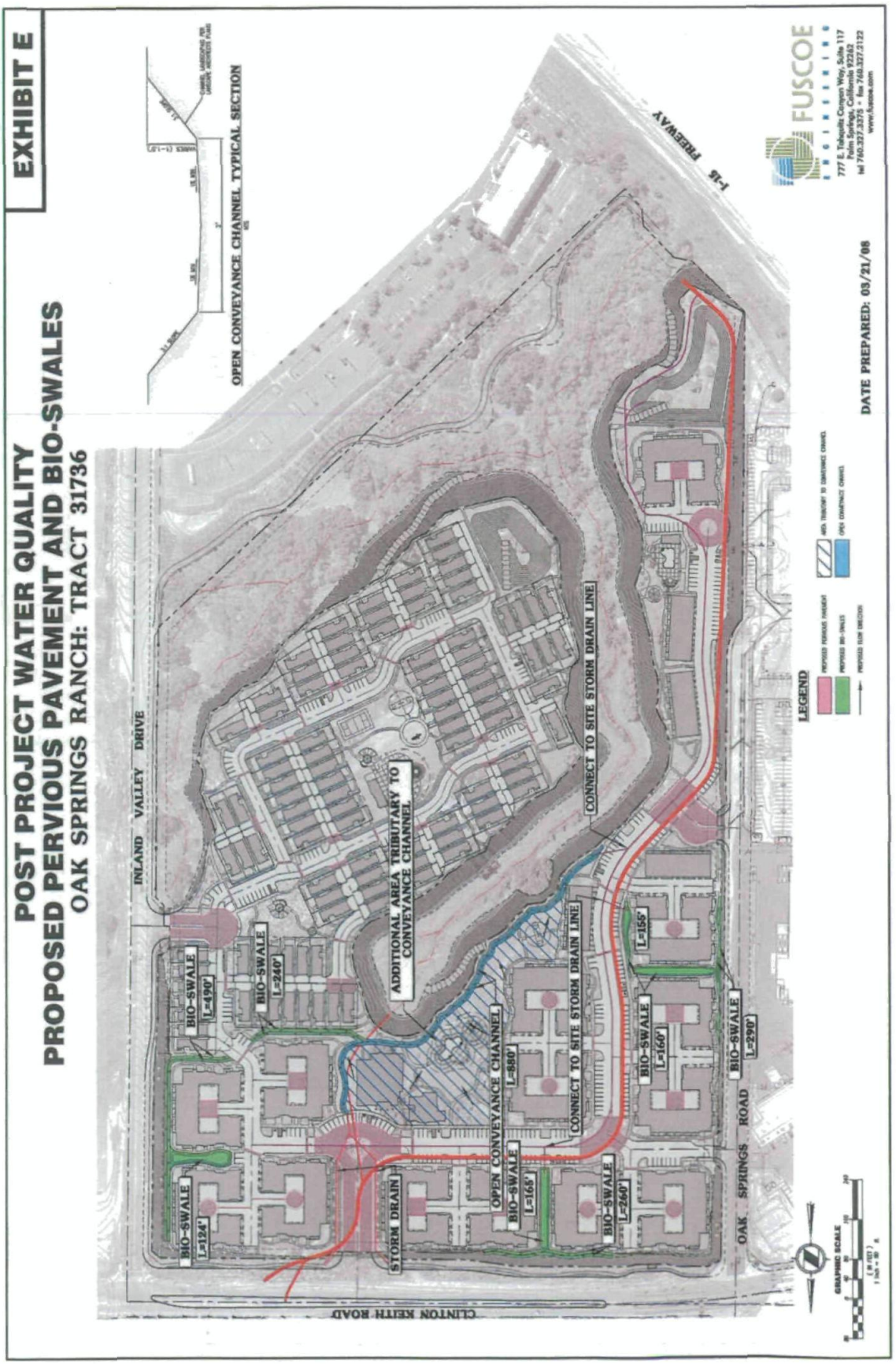
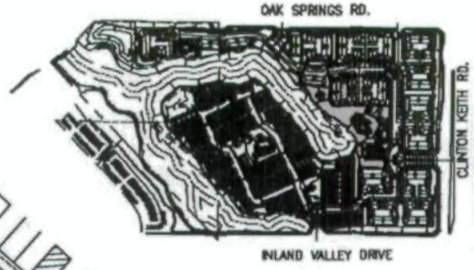


EXHIBIT E
POST PROJECT WATER QUALITY
PROPOSED PERVIOUS PAVEMENT AND BIO-SWALES
OAK SPRINGS RANCH: TRACT 31736
OPEN CONVEYANCE CHANNEL TYPICAL SECTION
I-15 FREEWAY
INLAND VALLEY DRIVE
CLINTON KEITH ROAD
OAK SPRINGS ROAD
ADDITIONAL AREA TRIBUTARY TO CONVEYANCE CHANNEL
CONNECT TO SITE STORM DRAIN LINE
OPEN CONVEYANCE CHANNEL
STORM DRAIN
BIO-SWALE L=124'
BIO-SWALE L=490'
BIO-SWALE L=240'
BIO-SWALE L=166'
BIO-SWALE L=260'
BIO-SWALE L=880'
BIO-SWALE L=155'
BIO-SWALE L=166'
BIO-SWALE L=290'
LEGEND
DATE PREPARED: 03/21/08
FUSCOE
ENGINEERING

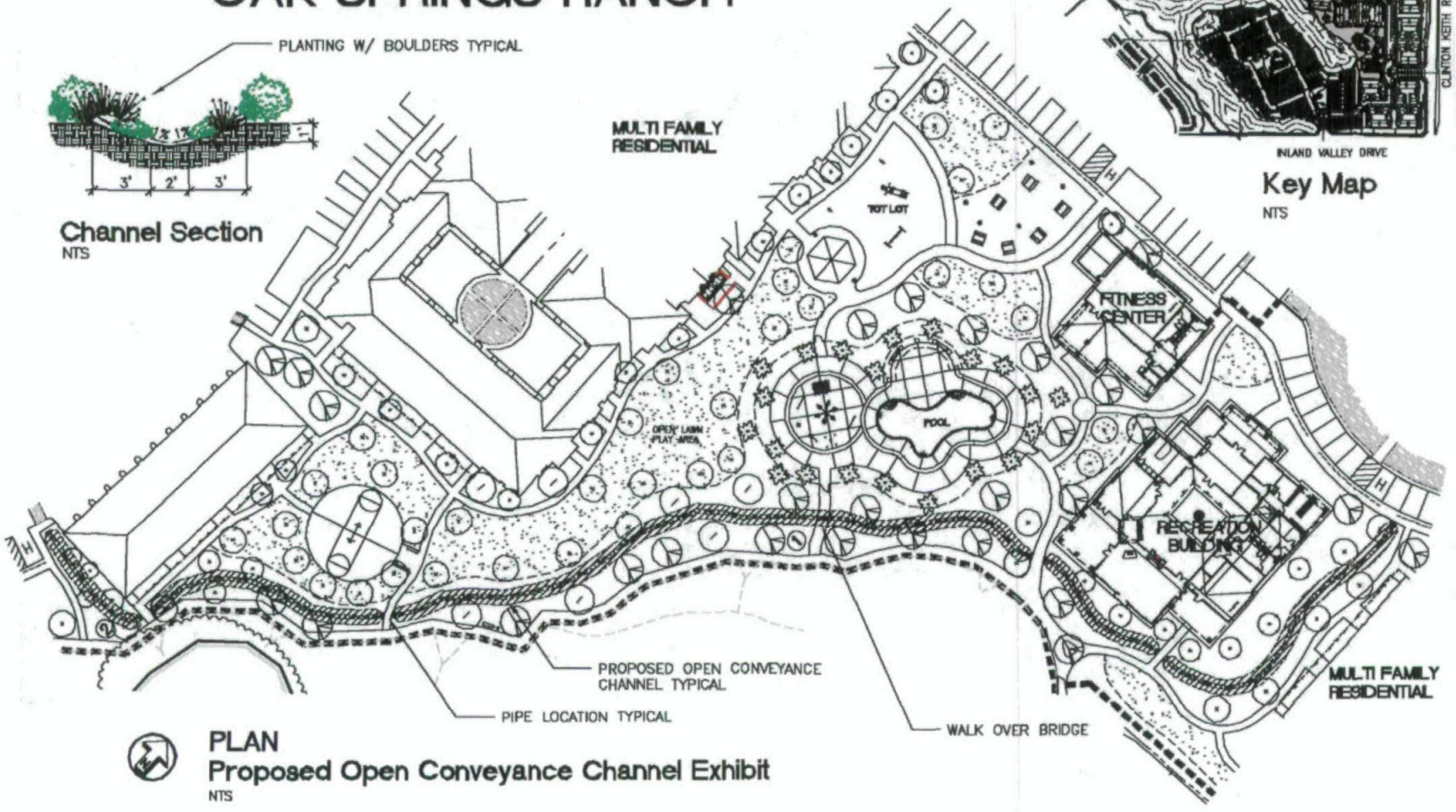
ATTACHMENT 5
MITIGATION MAPS

NEXUS RESIDENTIAL COMMUNITIES
OAK SPRINGS RANCH

Channel Section
NTS



Key Map
NTS



PLAN
Proposed Open Conveyance Channel Exhibit
NTS

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- 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: