



California Regional Water Quality Control Board

San Diego Region



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(858) 467-2952 • Fax (858) 571-6972
[http:// www.waterboards.ca.gov/sandiego](http://www.waterboards.ca.gov/sandiego)

December 3, 2008

Certified Mail No. 7008 1140 0004 9971 8214

Ron Baldwin, Vice President
Pacific Coast Communities
Quail Meadows LLC
11943 El Camino Real
Suite 100
San Diego, CA 92130

In reply, refer to:

Certification: 07C-051
Reg. Measure: 326310
Place: 651196
Party: 381476
WDID: 9000001656

SUBJECT: Action on Request for Clean Water Act Section 401 Water Quality
Certification for the Quail Meadows Project
Water Quality Certification No. 07C-051

Dear Mr. Baldwin:

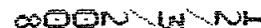
Enclosed is the Clean Water Act Section 401 Water Quality Certification for the Quail Meadows Project. A description of the project and project location can be found in the project information sheet, project location map, and project site maps which are included as Attachments 1 through 6. Any petition 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 Pacific Coast Communities Quail Meadows, LLC has accepted and will comply with all conditions of the Certification. Failure to comply with all conditions of this Certification may result in enforcement actions against Pacific Coast Communities Quail Meadows, LLC.

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 these codes 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



Mr. Baldwin
401 Certification 07C-051

December 3, 2008

If you have any questions regarding this notification, please call Mike Porter directly at (858) 467-2726 or via email at mporter@waterboards.ca.gov.

Respectfully,



JOHN H. ROBERTUS
Executive Officer

Enclosure:

Clean Water Act Section 401 Water Quality Certification No. 07C-051 for the Quail Meadows Project, with 5 attachments

CC: Refer to Attachment 2 of Certification 07C-051 for Distribution List.

- 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 Quail Meadow LLC 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 Quail Meadow LLC 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. Quail Meadow LLC 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. Quail Meadow LLC and successor owners must submit annual progress reports to the Regional Board prior to **August 1** of each year following the issuance of this certification until the project has reached completion.

B. PROJECT CONDITIONS:

1. Prior to the start of the project, and annually thereafter, the Quail Meadow LLC must educate all personnel on the requirements in this certification, pollution prevention measures, spill response, and BMP implementation and maintenance.
2. Quail Meadow LLC must comply with the requirements of State Water Resources Control Board Water Quality Order No. 2003-0017-DWQ, Statewide General Waste Discharge Requirements for discharges of dredged or fill material that have received State Water Quality Certification. These General Waste Discharge Requirement are accessible at:
http://www.waterboards.ca.gov/cwa401/docs/generalorders/go_wdr401regulated_projects.pdf.
3. The Quail Meadow LLC must notify the Regional Board in writing at least **5 days** prior to the actual commencement of dredge, fill, or discharge activities.
4. The Quail Meadow LLC 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. Discharges of concentrated flow during construction or after project completion must not cause downstream erosion or damage to properties or stream habitat.
6. 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.

7. 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.
8. All areas that will be left in a planned, rough or final 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>.
9. Substances hazardous to aquatic life including, but not limited to, petroleum products, raw cement/concrete, concrete waste water, 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. Quail Meadow LLC must acquire a performance bond to ensure implementation of structural Best Management Practices (BMPs) as proposed in Storm Water Management Plan (SWMP) for Quail Meadows, Encinitas, dated December 4, 2006. Evidence of the acquisition of a performance bond must be submitted to the Regional Board before construction commences.
3. In addition to the BMPs described in the Storm Water Management Plan (SWMP) for Quail Meadows, Encinitas, dated December 4, 2006 and referenced in Appendix I in support of the application, the structural BMPs must be sized to comply with the following numeric sizing criteria:

5. The Quail Meadow LLC or their designated party must inspect and maintain structural BMPs per the manufacturers' or design specifications.
6. Prior to project construction, Quail Meadow LLC must submit to the Regional Board a letter accepting full responsibility for the inspection and maintenance of all BMPs installed. Alternatively, Quail Meadow LLC may submit a letter documenting that the City of Encinitas accepts full responsibility for the inspection and maintenance of all BMPs installed.
7. All post-construction structural BMPs, including, but not limited to, FloGard - brand inlet filters (5), grassy swales (2), Grasscrete - brand swale (1), StormFilter Unit – brand (1), must be installed and regularly inspected and maintained for the life of the project per manufacturers' or design specifications and the Storm Water Management Plan prepared for the project.
8. Records must be kept regarding inspections and maintenance in order to assess the performance of the systems and determine whether adaptations are necessary to protect receiving waters. The records must be made available to the Regional Board and/or the City of Encinitas upon request.
9. The Pacific Coast Communities, Quail Meadow LLC, assumes responsibility for the inspection and maintenance of all post-construction structural BMPs until such responsibility is legally transferred to another entity.
10. At the time maintenance responsibility for post-construction BMPs is legally transferred, the Quail Meadow LLC must submit to the Regional Board a copy of such documentation.
11. At the time maintenance responsibility for post-construction BMPs is legally transferred, the Quail Meadow LLC must provide the transferee with a copy of a long-term BMP maintenance plan that complies with manufacturer and design specifications.

D. POST-CONSTRUCTION BEST MANAGEMENT PRACTICES PHOTO DOCUMENTATION PROCEDURE:

Quail Meadow LLC 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. Quail Meadow LLC must submit this information in a photo documentation report to the Regional Board

no later than **30 days** after project completion. The report must include a compact disc that contains digital files of all the photos (jpeg file type or similar).

E. GEOGRAPHIC INFORMATION SYSTEM REPORTING:

Quail Meadow LLC 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.

F. REPORTING:

1. All information requested in this Certification is pursuant to California Water Code (CWC) section 13267. Civil liability may be administratively imposed by the Regional Board for failure to furnish requested information pursuant to CWC section 13268.
2. All reports and information submitted to the Regional Board must be submitted in both hardcopy and electronic format. The preferred electronic format for each report submission is one file in PDF format that is also Optical Character Recognition (OCR) capable.
3. Quail Meadow LLC must submit an as-built 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:
 - a. For a corporation, by a responsible corporate officer of at least the level of vice president.
 - b. For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
 - c. For a municipality, or a state, federal, or other public agency, by either a principal executive officer or ranking elected official.
5. A duly authorized representative of a person designated in Items 4.a. through 4.c. above may sign documents if:

- a. The authorization is made in writing by a person described in Items 4.a. through 4.c. above.
 - b. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
 - c. The written authorization is submitted to the Regional Board Executive Officer.
6. All applications, reports, or information submitted to the Regional Board must be signed and certified as follows:

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

7. Quail Meadow LLC 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-051
 9174 Sky Park Court, Suite 100
 San Diego, California 92123

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

Report Topic	Certification Condition	Due Date(s)
Unauthorized Discharges	A.5. Report to Regional Board within 24 hours.	Within 24 hours.
Certification Transference	A.7. Notify Regional Board when property is sold.	Within 10 days.
Annual Progress Reporting	A.11. Submit annual progress reports to Regional Board until project is complete.	Annually before August 1 st .

Notification of Impacts to Waters	B.3. Notify Regional Board before impacting Waters of U.S. and State.	5 Days prior to impacts.
Stream Photodocumentation	D. Photo documentation of project site.	30 Days after project completion.
BMP Photodocumentation	E. Photo documentation of installed post-construction BMPs.	30 Days after project completion.
GIS shapefiles	F. Submit GIS shapefiles of impacts and mitigation areas.	30 Days after impacts and 30 days after mitigation installation.
Reporting	G.3. Submit as-built report to the Regional Board within	30 Days after completion of the project.

PUBLIC NOTIFICATION OF PROJECT APPLICATION:

On June 5, 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:

Mike Porter
 California Regional Water Quality Control Board, San Diego Region
 9174 Sky Park Court, Suite 100
 San Diego, CA 92123
 858-467-2726
mporter@waterboards.ca.gov

WATER QUALITY CERTIFICATION:

I hereby certify that the proposed discharge from the Quail Meadows (Certification No. 07C-051) will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that have Received State Water Quality Certification (General WDRs)," which requires compliance with all conditions of this Water Quality Certification. Please note that enrollment under Order No. 2003-017 DWQ is conditional and, should new information come to our attention that indicates a water quality problem, the Regional Board may issue individual waste discharge requirements at that time.

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



JOHN H. ROBERTUS
Executive Officer
Regional Water Quality Control Board

2 December, 2008
Date

- Attachments:
1. Project Information
 2. Distribution List
 3. Location Map
 4. Site Map
 5. Stream Photodocumentation Procedure

**ATTACHMENT 1
PROJECT INFORMATION**

Applicant: ✓ Ron Baldwin, Vice President
Pacific Coast Communities
Quail Meadows LLC
11943 El Camino Real
Suite 100
San Diego, CA 92130
Telephone: 858-259-2960 x105
Facsimile: 858-259-2933
Email: dnorton@paccoastcommunities.com

Applicant Representatives: ✓ Kamarul Muri, Project Manager
Dudek & Associates
605 3rd Street
Encinitas, CA 92024
Telephone: 760-479-4292
Facsimile: 760-479-4198
Email: kmuri@dudek.com

Project Name: ✓ Quail Meadows

Project Location: ✓ Quail Gardens Drive, north of Encinitas Blvd, City of Encinitas,
north-coastal San Diego County.

Type of Project: ✓ Residential housing development.

Project Description: ✓ The proposed project is the development of 12.49-acres into
34 single-family detached residential units, the replacement of
an underground, 900-foot long, 48-inch diameter storm drain
line with an underground, 900-foot long, 84-inch diameter
storm drain line, roads, and related infrastructure. The
existing storm drain line is considered Waters of the U.S. by
the U.S. Army Corps of Engineers.

Federal Agency/Permit: ✓ U.S. Army Corps of Engineers §404, NWP 29, Ms. Kari Coler.

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

California Environmental Quality Act (CEQA) Compliance: Mitigated Negative Declaration, Quail Meadows Subdivision Project, March 12, 2008, SCH # 2007031083, City of Encinitas.

Receiving Water: Unnamed tributary to Cottonwood Creek. Carlsbad hydrologic unit, San Marcos hydrologic area, Batiquitos hydrologic subarea (904.51).

Affected Waters of the United States: Temporary:

Wetland	None
Riparian	None
Streambed	0.08-acre, 900-linear feet *
Lake	None
Ocean	None

Permanent:

Wetland	None
Riparian	None
Streambed	None
Lake	None
Ocean	None

* Underground storm drain line connecting two reaches of an unnamed stream.

Affected Waters of the State: Temporary:

Wetland	None
Riparian	None
Streambed	0.08-acre, 900-linear feet *
Lake	None
Ocean	None

Permanent:

Wetland	None
---------	------

Riparian	None
Streambed	None
Lake	None
Ocean	None

* Underground storm drain line connecting two reaches of an unnamed stream.

Dredge Volume: None

Related Projects Implemented/to be Implemented by the Applicant(s): None disclosed.

Compensatory Mitigation: Replacement of the underground storm drain line connecting the two reaches of the unnamed stream.

Best Management Practices (BMPs):

Construction –

Construction BMPs are described in the General Construction Activity Storm Water Pollution Prevention Plan (SWPPP) for Quail Meadows, Encinitas, dated July 11, 2007, and prepared by Hunsaker & Associates.

BMPs will include, but not be limited to:

- Erosion control
- Sediment control
- Construction exit control
- Straw waddles
- Silt fencing
- Material and waste control
- Spray-on erosion control
- Equipment and refueling and maintenance practices.

Post-construction –

Post-construction BMPs are described in the Storm Water Management Plan (SWMP) for Quail Meadows, Encinitas, dated December 4, 2006, and prepared by Hunsaker & Associates.

Structural BMPs will include, but not be limited to:

- FloGard-brand inlet filters (5)
- Grassy swales (2)
- Grasscrete-brand swale (1)
- Storm Filter Unit-brand (1)

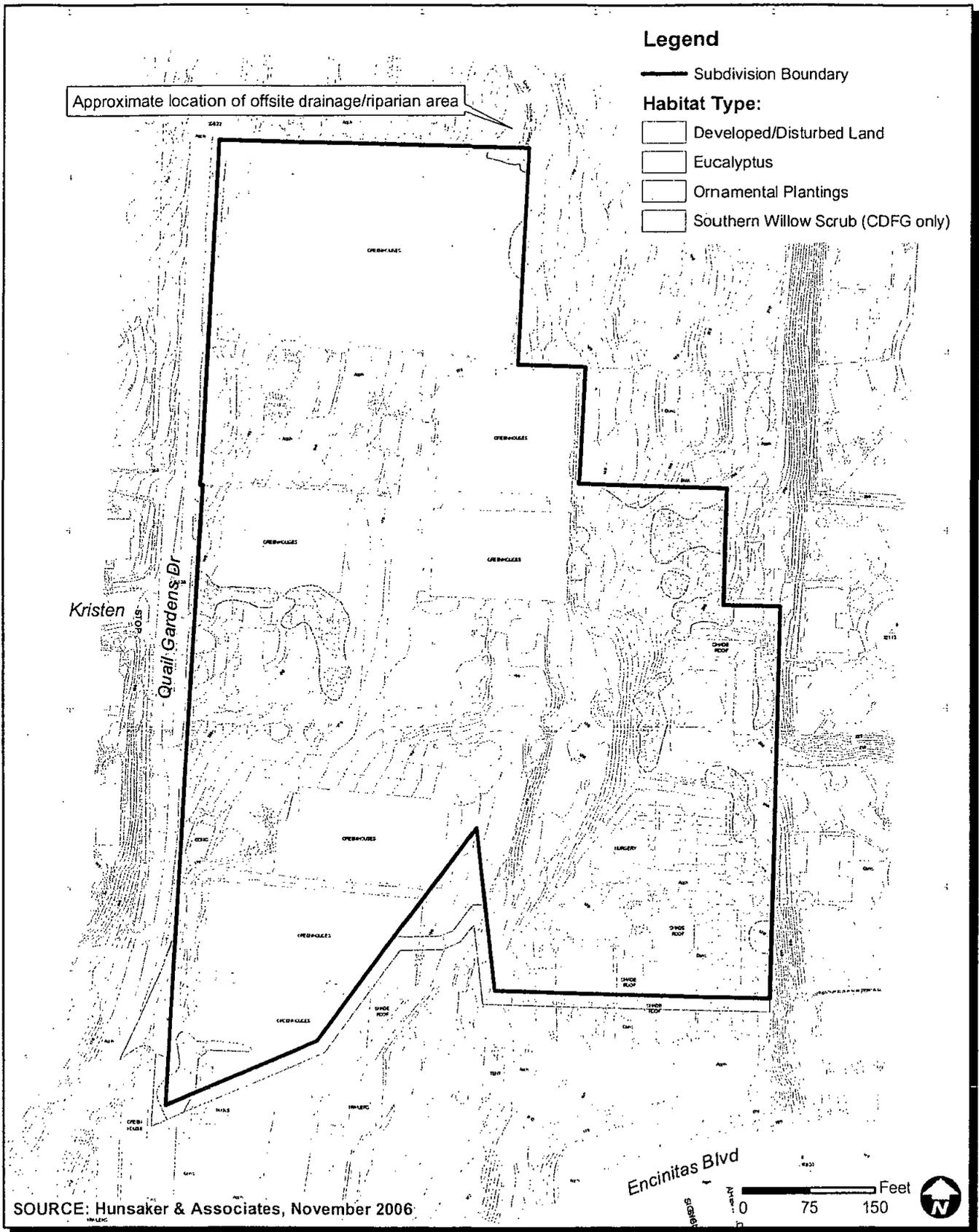
Non-structural BMPs will include, but not be limited to:

- Homeowner education for storm water runoff.
- Integrated Pest Management.
- Storm drain inlets stenciled with warning language.
- Home Owner Association areas irrigated controlled by rain-sensing shutoff and pressure drop controls.
- Minimized impervious footprint.
- Minimized directly connected impervious areas.
- Slope and channel protection.

Public Notice: June 5, 2007 – Regional Board website

Fees: Total Due: \$5000.00
Total Paid: \$500.00 (Check No.1126)
Total Paid: \$4500.00 (Check No. 1273)

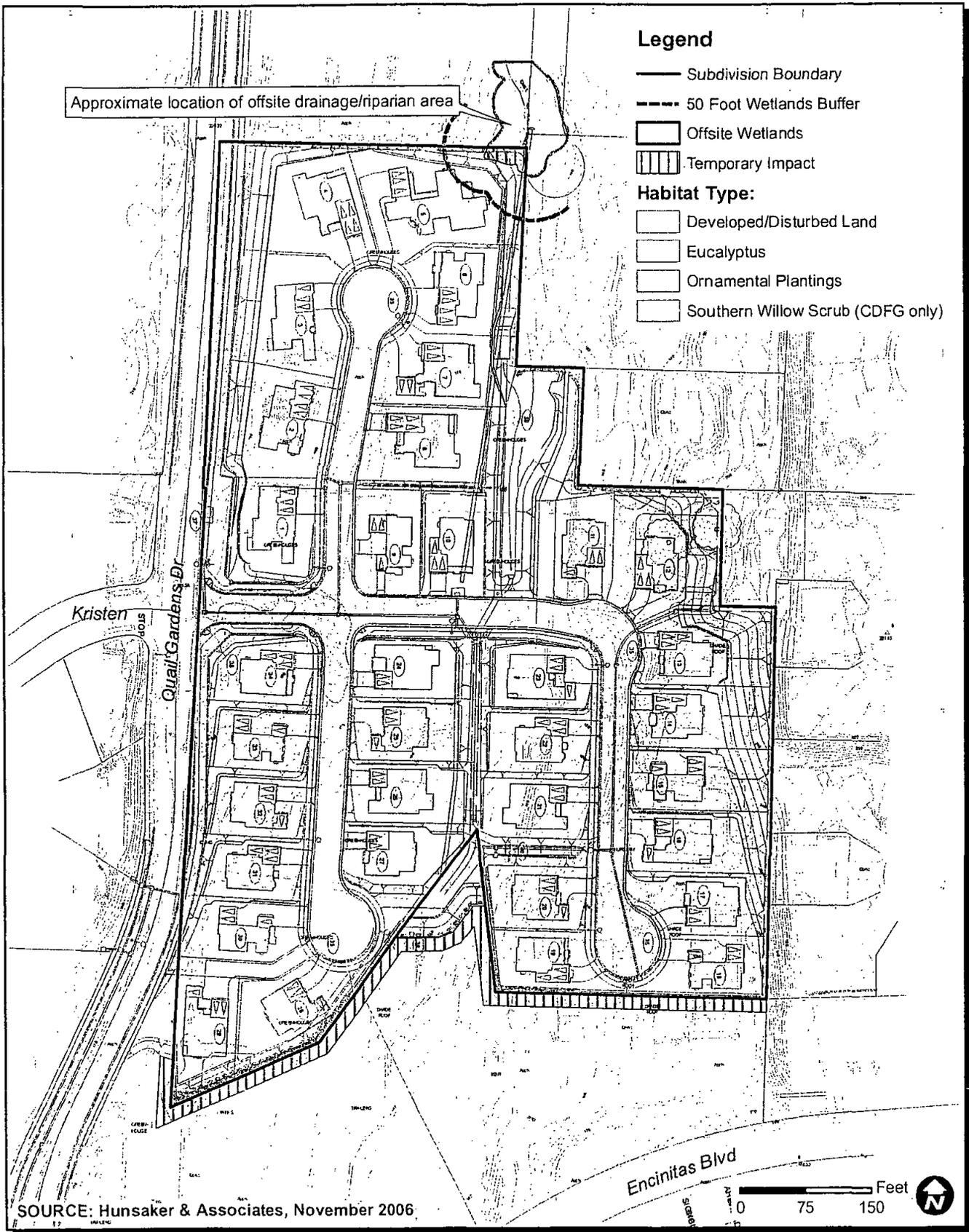
CIWQS: Regulatory Measure: 326310
Place: 651196
Party: 381476



Quail Meadows Subdivision - Joint Permit Application
Biological Resources Map

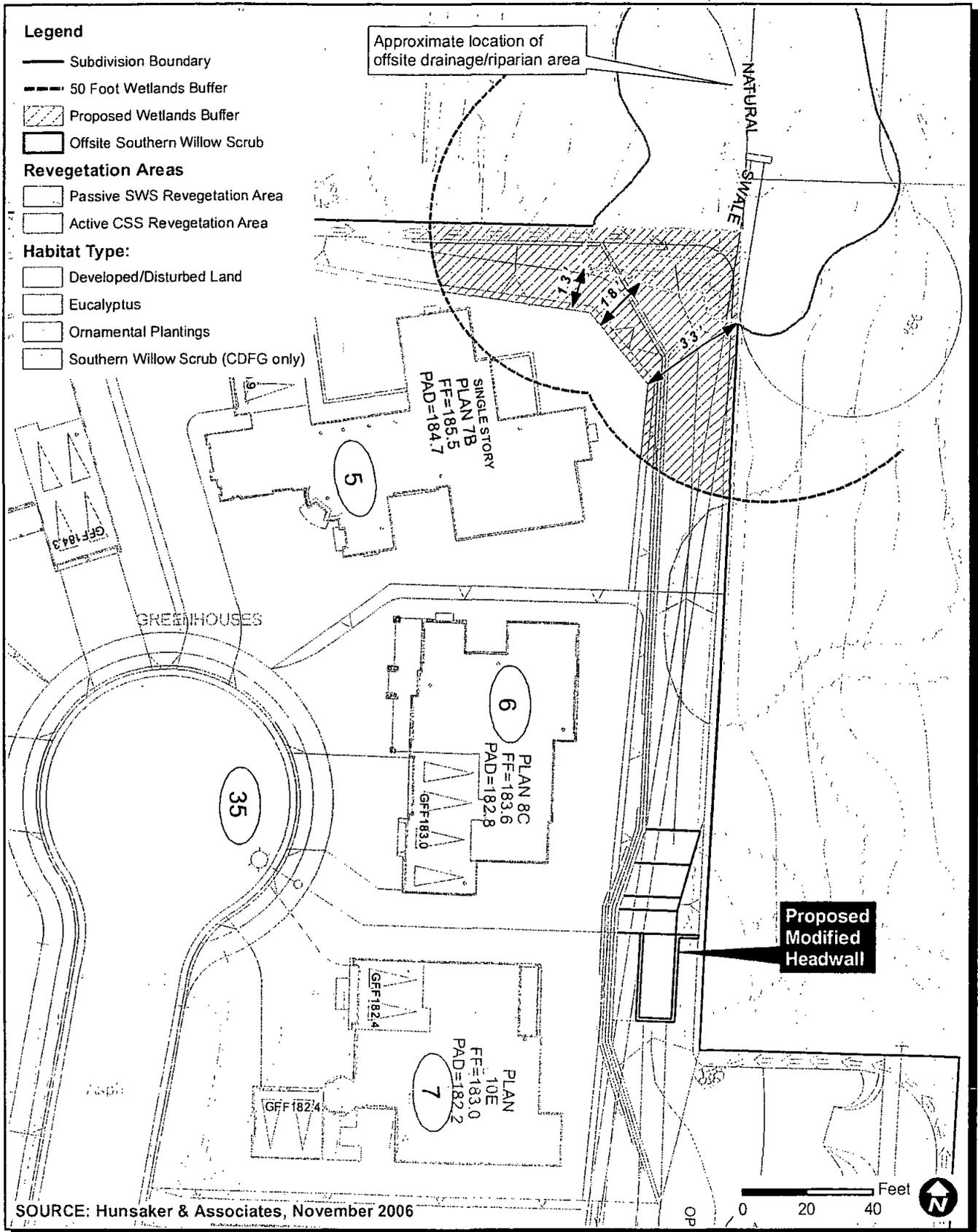
FIGURE
3

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Quail Meadows Subdivision - Joint Permit Application
Biological Resources Map with Site Development Plan

FIGURE
4

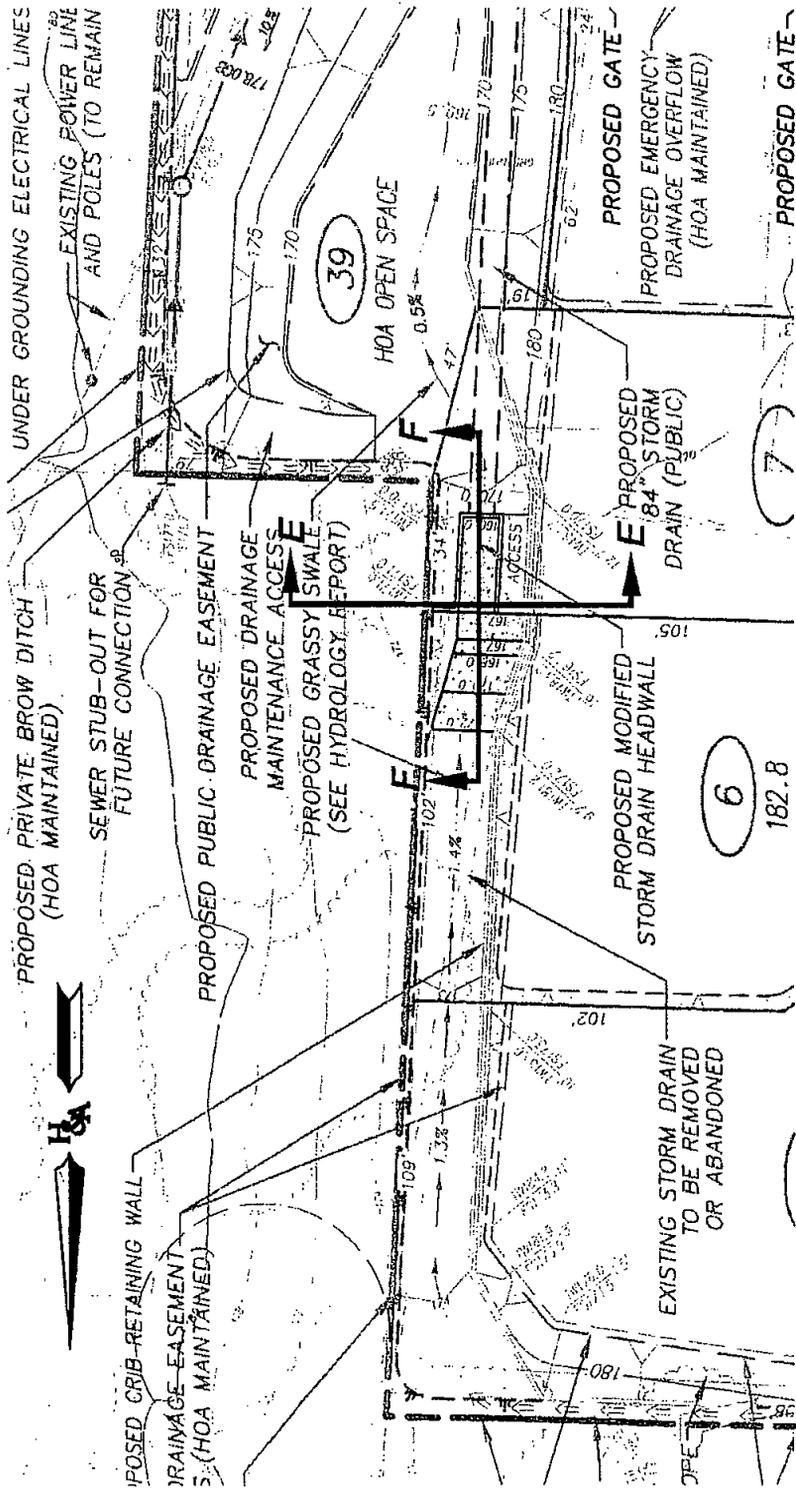


Quail Meadows Subdivision - Joint Permit Application
Proposed Wetlands Buffer & Revegetation Areas

FIGURE
5

CROSS SECTION INDEX QUAIL MEADOWS

SCALE: 1"=40'



HUNSAKER & ASSOCIATES
P.A. ENGINEERS, INC.

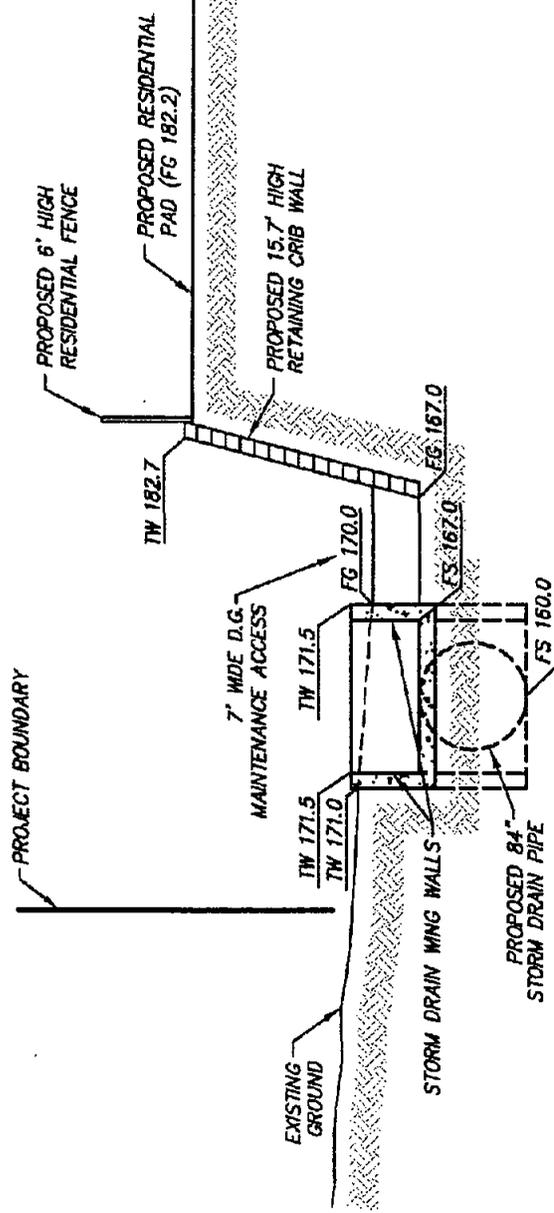
PLANNING 2700 University Drive
MEMPHIS TN 38120
SURVEYING PHONE: 901-521-1144

FIGURE
6

Quail Meadows Subdivision - Joint Permit Application
Cross Section Index

SECTION E-E QUAIL MEADOWS

SCALE: 1"=10'



HUNSAKER & ASSOCIATES
P.A. PLCS, P.C.
PLANNING ENGINEERING SURVEYING
1077 HARTLEY STREET
COLUMBUS, OH 43215
PH: 614-444-7400 FAX: 614-444-7401

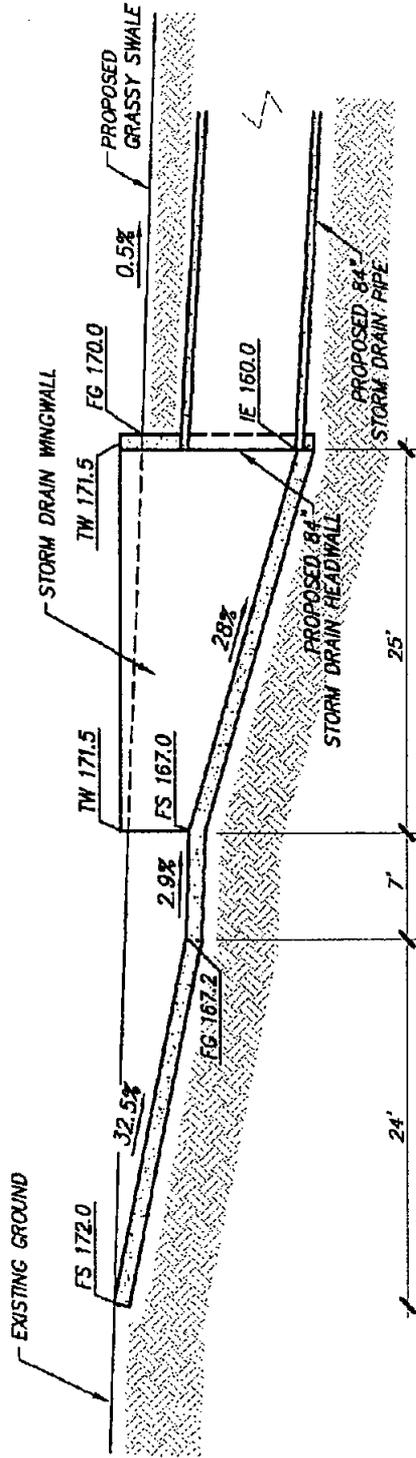
FIGURE
7

Quail Meadows Subdivision - Joint Permit Application
Section E-E

11/17/2008

SECTION F-F QUAIL MEADOWS

SCALE: 1"=10'



HUNSAKER & ASSOCIATES
PLANNING ENGINEERS
1100 HARTWELL DRIVE
DUNEDIN, FL 33515
SUBV. NO. 148000-000-148000-000

FIGURE
8

Quail Meadows Subdivision - Joint Permit Application
Section F-F

Certification No. 07C-051

ATTACHMENT 5

STREAM PHOTO DOCUMENTATION PROCEDURE

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 focal length 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:

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- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
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11943 El Camino Real
San Diego, CA 92150*

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PS Form 3811, February 2004

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PS Form 3800, August 2, 2005

See Reverse for Instructions

11/11/2005