

**CALIFORNIA COASTAL COMMISSION**

North Central Coast District Office  
45 Fremont Street, Suite 2000  
San Francisco, CA 94105  
VOICE/TDD (415) 904-5260  
FAX (415) 904-5400



# W25.5a

Filed: 2/12/2010  
180th Day: 8/11/2010  
Staff: Grace Ma - SF  
Staff Report: May 26, 2010  
Hearing Date: June 9, 2010  
Commission Action:

## STAFF REPORT: REGULAR CALENDAR

**APPLICATION NUMBER:** 2-09-015

**APPLICANT:** Sonoma County Regional Parks Department

**PROJECT LOCATION:**

1. Spud Point Marina: 1818 Westshore Road
2. Porto Bodega/Bodega Bay Sport Fishing Center Marina: 1410 B Bay Flat Road
3. Doran Beach: 201 Doran Beach Road, Bodega Bay

**PROJECT DESCRIPTION:** Repair and maintenance of rip-rap, embankments, breakwater timber and pilings damaged by winter storms in 2005-2006 at three separate Sonoma County Regional Park project locations in Sonoma County.

---

### 1.0 EXECUTIVE SUMMARY

This permit application is for the repair and maintenance of rip-rap, embankments, breakwater timbers and pilings damaged by winter storms in 2005-2006 at three separate Sonoma County Regional Park project locations in Bodega Bay: Spud Point Marina, Porto Bodega/Bodega Bay Sport Fishing Center Marina, and Doran Beach (Exhibits 1 and 2). In total, the proposed project would replace 57 vertical timbers, 27 crossbeams, 2 pilings, and repair and replace 1349 cubic yards of rip-rap and 195 cubic yards of backfill. The purpose of the proposed project is to protect public resources, provide safe public access, reduce the risk of future flood damage, and prevent further damage to the sidewalk, asphalt parking lot, and gangplank entrance at Spud Point Marina; the gravel parking lot at Porto Bodega/Bodega Bay Fishing Center; and parking lots and a boat launch entrance at Doran Beach.

The projects at the three sites are considered repair and maintenance since they would not expand the existing footprint of the respective developments, and less than 50% of the revetments are being replaced.

Staff recommends approval of the project with conditions. These include: the authorization of future minor repair and maintenance of the revetments; a shoreline protection monitoring plan,

which will ensure the structural integrity of the walls and prevent dislodged rocks or debris from impeding public access to the beach and shoreline; protection of water quality through the implementation of best management practices (BMPs); and the monitoring of eelgrass beds before and after construction and eelgrass mitigation, if necessary.

## **2.0 STAFF RECOMMENDATION**

The staff recommends that the Commission adopt the following resolution to approve Coastal Development Permit No. 2-09-015 subject to the conditions in Sections 2.1 and 2.2 below.

### ***Motion:***

I move that the Commission approve the Coastal Development Permit No. 2-09-015 subject to conditions pursuant to the staff recommendations.

### ***Staff Recommendation of Approval:***

Staff recommends a **YES** vote. Passage of this motion will result in approval of the permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

### ***Resolution to Approve the Permit:***

The Commission hereby approves a coastal development permit for the proposed development and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or (2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

## **2.1. Standard Conditions**

1. Notice of Receipt and Acknowledgment. The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. Expiration. If development has not commenced, the permit will expire two years from the date this permit is reported to the Commission. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. Interpretation. Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.
4. Assignment. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. Terms and Conditions Run with the Land. These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

## 2.2 Special Conditions

### 1. Approved Development; Conformance to Plans

The permittee shall undertake development in accordance with the approved final plans from Green Valley Consulting Engineers for FEMA Bodega Bay Projects<sup>1</sup> dated January 15, 2009. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

### 2. 'As-Built' Plans

WITHIN THIRTY DAYS OF COMPLETION OF CONSTRUCTION, the Permittee shall submit 'As-Built' Plans (in full-size and 11" x 17" formats with a graphic scale) to the Executive Director for review and approval. The 'As-Built' Plans shall clearly identify in site plan and cross-section all development completed pursuant to this coastal development permit. The 'As-Built' Plans shall be submitted with certification by a licensed civil engineer with experience in coastal structures and processes, acceptable to the Executive Director, verifying that the project has been constructed in conformance with the approved project plans described by Special Condition 1 above.

### 3. Revetment Repair and Maintenance

- A. The permittee shall maintain the rip-rap at Spud Point Marina, Porto Bodega/Bodega Bay Sport Fishing Center Marina, and Doran Beach for the life of the approved structures.
- B. This coastal development permit authorizes repair and maintenance activities for a period of 5 years from the date of this approval only if carried out in accordance with all of the following conditions:

---

<sup>1</sup> FEMA Bodega Bay Projects, OES# Spark 18, SPK 207, SPK 36A, SPK 36B, SPK 38, FEMA #2523, 2479, 2899, 3614, 2509, Sonoma County, California, Improvement Plans

1. Maintenance and repairs shall be limited to removal, repositioning, or replacement of rock and backfill within the footprint of the existing approved structures. The permittee shall remove or redeposit any debris, rock or material that becomes dislodged from the revetment as soon as possible after such detection of displacement occurs.
  2. No expansion or enlargement of the existing rip-rap is permitted.
  3. Repair and maintenance shall conform to requirements of Special Condition 5.
- C. The Executive Director may extend the 5-year authorization specified in Subsection B for the approved repair and maintenance activities for a period not to exceed 5 years, or 10 total years from the date of this approval. The permittee shall make a request for such extension no later than 30 days before the end of the initial period.
- D. Repair and maintenance activities identified in Subsection B shall be completed as soon as possible but no later than 30 days after the discovery of the need for the repair and maintenance activity.
- E. Repair and maintenance activities other than those identified in Subsection B shall require an amendment to this permit or a new coastal development permit.

#### **4. Revetment Monitoring Plan**

- A. Monitoring reports prepared by a licensed civil engineer with experience in coastal structures and processes shall be submitted to the Executive Director for review and approval at five year intervals by May 1st of each fifth year (with the first report due May 1, 2015, and subsequent reports due May 1, 2020, May 1, 2025, and so on) for as long as the revetments exist at these locations. Each monitoring report shall contain the following:
1. An evaluation of the condition and performance of the approved revetments, including an assessment of whether any weathering or damage has occurred that could adversely impact future performance of the devices;
  2. Plans and/or photographs showing any weak or potential failure areas;
  3. An analysis of erosion trends, annual retreat, and rate of retreat of the beach fronting the revetments which is the subject of this permit, including identification of exactly where repeatable measurements had been taken, e.g. by reference to benchmarks, survey positions, or points shown on engineering plans;
  4. A description and documentation of any migration or movement of rock that has occurred on the site; and

5. Recommendations for repair, maintenance, modifications or other work to the devices needed to correct any rock migration or structural damage, failures or weaknesses, including methods and materials to be used.

B. If a monitoring report contains recommendations for repair, maintenance or other work beyond that which is authorized by Condition 3, the permittee shall apply for a coastal development permit or coastal development permit amendment to complete such work, within 30 days of transmitting the report to the Commission.

### **5. Construction Responsibilities, Staging, and Water Quality Protection Measures**

The permittee shall comply with the following construction-related requirements and Best Management Practices (BMPs) shall be used to prevent the entry of polluted stormwater runoff into coastal waters or wetlands during construction work:

A. Construction staging shall be conducted as follows:

1. Staging of construction equipment and materials shall occur only from the public parking lots adjacent to the Spud Point Marina, Porto Bodega/Bodega Bay Fishing Center; and Doran Beach;
2. Equipment and materials utilized on the docks must be moved to the staging area by the end of each working day;
3. Equipment and materials may be stored on the barges if necessary. Equipment and materials shall be secured and covered and Best Management Practices shall be employed to prevent any equipment, materials, debris or pollutants from entering waters of Bodega Bay.
4. Spud Point Marina, Porto Bodega/Bodega Bay Fishing Center, Doran Beach, Bay Flat Road, and the adjacent public parking lots shall remain open for public access for the duration of the construction with the exception of closing 1) approximately 30 parking spaces for 30-40 days during construction at Spud Point Marina 2) the Doran Beach boat launch and redirecting boaters to use the Westside Park boat launch nearby;
5. Instructional signs shall be placed to minimize impacts to public access to the parking lot and the beach.

B. Heavy equipment shall not operate in the bay. All removal of storm-damaged debris and pilings shall be done either from the upland shore or from the floating barge;

C. All debris, including, but not limited to, timber deck planks, pilings, piling caps, and stockpiled material, shall be removed from the site and disposed of in an upland location at an approved disposal facility within 10 days of project completion;

- D. No construction materials, debris, or waste shall be placed or stored where it may be subject to entering waters of Bodega Bay;
- E. A floating boom shall be installed around the project area within the bay to contain any debris within the project area that may become inadvertently dislodged during construction work. Any debris discharged into coastal waters shall be recovered immediately and disposed of properly;
- F. Any barge used to support piling removal and pile driving equipment shall be floating at all times and shall only operate at tides high enough so that the barge does not rest against the intertidal mudflat bottom;
- G. Any pilings that break upon removal shall be cut off at least one foot below the mud line;
- H. During construction, all trash shall be properly contained, removed from the work site, and disposed of on a regular basis to avoid contamination of Bay waters during construction activities. Following construction, all trash and construction debris shall be removed from work areas and disposed of properly;
- I. Any fueling and maintenance of construction equipment shall occur within designated upland staging areas;
- J. Fuels, lubricants, and solvents shall not be allowed to enter Bay waters. Hazardous materials management equipment including oil containment booms and absorbent pads shall be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/ remediation service shall be locally available on call;
- K. Erosion controls shall be used to protect and stabilize on-site stockpiles of construction materials when not in use and debris and exposed soils to prevent movement of materials and polluted water runoff (e.g. hydroseeding, silt fences, berms of hay bales, plastic sheeting held down with rocks or sandbags over stockpiles, etc.);
- L. Non-buoyant debris discharged into coastal waters shall be recovered as soon as possible after discharge;
- M. Piling installation shall be performed in accordance with Department of Fish & Game recommendations. Generally, the new pilings shall be installed according to the method that results in the least disturbance of bottom sediments. Disturbed sediments shall be contained with a flexible skirt surrounding the driven pile(s).
- N. After project completion, all exposed soils present in and around the project site shall be stabilized with mulch, seeding, and/or placement of erosion control blankets. Erosion control seeding shall include only native, regionally appropriate species. No plant species listed as problematic and/or invasive by the California Native Plant Society, the

California Invasive Plant Council, or as may be identified from time to time by the State of California, shall be employed or allowed to naturalize or persist on the site. No plant species listed as a “noxious weed” by the governments of the State of California or the United States shall be utilized within the property.

**6. Eelgrass Monitoring, Mitigation and Protection**

**PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 2-09-015**, the applicant shall submit, for review and written approval of the Executive Director, an eelgrass mitigation and monitoring plan that includes the following provisions:

- (1) A pre-construction survey shall be completed during the months of May through September, the period of active growth of eelgrass. The pre-construction survey shall be completed prior to the beginning of construction and shall be valid for 60 days;
- (2) Two post-construction surveys shall be completed as follows:
  - a. The first post-construction survey shall be completed within 30 days following the completion of construction;
  - b. The second post-construction survey shall be completed in the same month as the pre-construction survey during the next growing season immediately following the completion of construction.
- (3) Adverse impacts to eelgrass shall be measured as the difference between the pre-construction and post-construction estimates of the size of the eelgrass area and the density of eelgrass. The area of vegetated cover is defined as that area where eelgrass is present and where gaps in coverage are less than one meter between individual turion clusters. Density is defined as the average number of turions per unit area.
- (4) If the results of the post-construction surveys demonstrate to the satisfaction of the Executive Director that there has been no loss in the extent of vegetated cover and that the eelgrass densities have not decreased, then no further monitoring or mitigation is required;
- (5) If post-construction surveys indicate any decrease in eelgrass density or cover, then the site shall be monitored and remediated consistent with the approved final mitigation and monitoring plan for three years or until the performance criteria in sections (6) and (9) have been met;

- (6) Within three years of completion of the project, the entire project site shall have an extent of vegetated cover equal to the pre-construction extent of vegetated cover and have an average density equal to the pre-construction average density. Relative to pre-construction conditions, specific success and monitoring criteria are as follows:
  - a. a minimum of 70 percent areal coverage and 30 percent density after the first year;
  - b. a minimum of 85 percent areal coverage and 70 percent density after the second year;
  - c. a sustained 100 percent areal coverage and at least 85 percent density for the third year.
- (7) Monitoring methods shall include photographs and random sampling of the project site with a sample size adequate to obtain representative quantitative data for the entire project site to determine percent cover and shoot density as defined in subsection (3) above;
- (8) A detailed monitoring schedule shall be provided that indicates when each of the required monitoring events will be completed. Monitoring reports shall be provided to the Coastal Commission within 30 days after the completion of each required monitoring period.
- (9) If the performance criteria have not been met at the end of three years following the completion of construction of the project, the applicant shall submit, within 90 days of a determination by the permittee or the Executive Director that monitoring results indicate that the site does not meet the performance standards identified in section (6) and in the approved final monitoring and mitigation program, an amendment to the coastal development permit shall be submitted proposing additional mitigation at a ratio of 4:1 to ensure all performance criteria are satisfied consistent with all terms and conditions of this permit.

B. The permittee shall undertake development in accordance with the approved eelgrass mitigation and monitoring plan.

## **7. Assumption of Risk, Waiver of Liability and Indemnity Agreement**

By acceptance of this permit, the permittees acknowledge and agree (i) that the site may be subject to hazards from waves, storm waves, bluff retreat, erosion, and earth movement; (ii) to assume the risks to the applicants and the properties that are the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers,



agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.

## **8. Timber and Piling Materials Plan**

**A. PRIOR TO ISSUANCE OF COASTAL DEVELOPMENT PERMIT NO. 2-09-015,** the applicant shall submit, for review and written approval of the Executive Director, a breakwater timber and piling materials and installation plan that ensures that water quality is protected, to the maximum extent feasible, from the leaching of copper from Alkaline Copper Quarternary (ACQ) treated wood. The Plan shall demonstrate that the development will avoid chemical leaching to the maximum extent feasible and shall incorporate the use of steel pilings, fiberglass pilings, or chemically treated wood pilings that have been coated in an impact-resistant, biologically inert substance.

B. The permittee shall undertake the development in conformance with the approved plan. Any proposed changes to the approved final plan shall be reported to the Executive Director. No changes to the approved final plan shall occur without a Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

## **9. Army Corps of Engineers Approval**

**PRIOR TO COMMENCEMENT OF CONSTRUCTION,** the permittee shall provide to the Executive Director a copy of a permit issued by U.S. Army Corps of Engineers, a letter of permission, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the U.S. Army Corps of Engineers. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

## **10. National Marine Fisheries Service Approval**

**PRIOR TO THE COMMENCEMENT OF CONSTRUCTION,** the permittee shall provide to the Executive Director a copy of any incidental take permit or other approval issued by the National Marine Fisheries Service, or evidence that no permit or permission is required. The applicant shall inform the Executive Director of any changes to the project required by the National Marine Fisheries Service. Such changes shall not be incorporated into the project until the applicant obtains a Commission amendment to this coastal

development permit, unless the Executive Director determines that no amendment is legally required.

### **3.0 Findings and Declarations**

The Commission hereby finds and declares:

#### **3.1 Project Description**

This permit application is for the repair and replacement of rip-rap, embankments, breakwater timbers and pilings damaged by winter storms in 2005-2006 at three separate Sonoma County Regional Park project locations: Spud Point Marina, Porto Bodega/Bodega Bay Sport Fishing Center Marina, and Doran Beach (Exhibit 2).

##### Spud Point Marina

The Spud Point Marina is protected by a large concrete jetty and a suspended metal gangplank is used to access the large concrete jetty. An existing rip rap revetment protecting the embankment, concrete sidewalk, and asphalt parking lot was damaged by winter storms in 2005-2006. West of the gangplank, 200 linear feet and 267 cubic yards of rip-rap would be replaced. East of the gangplank, 300 linear feet and 87 cubic yards of rip-rap and 45 cubic yards of backfill would be replaced. The backfill material consists of imported clean engineered fill. The applicant proposes to restack on-site rip-rap and import additional rip-rap if there are insufficient quantities at this location (Exhibit 3).

The type of construction equipment used would depend on the quantity and size of existing rock at Spud Point Marina. Backhoes and cranes are preferred for controlled placement of rip-rap. Front-end loaders and long-reach excavators can also be used. In addition, clamshells can achieve precise placement of relatively small quantities of rocks. The applicant may also use this equipment to stockpile rock on the beach or in the parking lot. Additional rock may need to be transported from off-site and replenished by dump truck in the stockpile. The equipment would operate from the parking lot. Construction activities would be scheduled at low tide. No construction work would occur within Bay waters.

##### Bodega Bay Sport Fishing Center

The permittee proposes timber breakwater and rip-rap replacement within three separate areas of the Bodega Bay Sport Fishing Center. Two timber-construction breakwaters protect the dock facility and the parking lot. Only one breakwater is proposed to be replaced—the South breakwater, which extends westward into the harbor approximately 240 linear feet from the northeast end of the parking lot (Exhibits 3 and 4). The proposed repair and maintenance work would be performed in approximately 30-40 working days.

##### Breakwater items to be replaced

17 vertical split timbers (12' x 1' x 2")

40 vertical timbers broken at the base (12' x 1' x 2")

- 2 crossbeams (4" x 8" x 20')
- 2 long pilings (1.5' x 30')
- 11 new cross beams (12' x 1' x 2")
- 14 new diagonal cross beams (12' x 1' x 2")

The breakwater construction would occur from the existing adjacent dock and a construction barge in the water. When the water depth is sufficient to position a barge close to the project site, a crane would perform controlled placement of replacement pilings. Construction activities would be scheduled around tidal fluctuations and the specific scope of work at the site.

The County also proposes to repair an existing rip-rap revetment protecting a gravel parking lot by replacing 231 cubic yards of rip-rap and 34 cubic yards of backfill (Exhibit 3). The type of equipment used would depend on the quantity and size of existing rock at Bodega Bay Sport Fishing Center. Backhoes and cranes are preferred for controlled placement of rip-rap and front-end loaders and long-reach excavators can also be used. In addition, clamshells can achieve precise placement of relatively small quantities of rocks. The County would also use this equipment to stockpile rock on the beach or in the parking lot. Additional rock may need to be transported from off-site and replenished by dump truck in the stockpile. The equipment would operate from the parking lot at the top of the embankment. Placement of the rocks would occur at low tide. The backfill material consists of imported clean engineered fill.

#### Doran Beach

The County also proposes to repair an existing rip-rap revetment that protects the parking lots and the boat launch entrance at Doran Beach. This includes replacement of a total of 564 cubic yards of rip-rap, 450 linear feet of rip-rap, and 116 cubic yards of backfill east and southwest of the boat ramp (Exhibit 3).

The proposed repair and maintenance work would be performed in approximately 30-40 working days and construction activities would be conducted from the adjacent dock, construction barge, and public parking lots. The remaining public access areas (fish-cleaning station, picnic areas, campsites, restrooms, sandy beach access) and some parking spaces in the multiple Doran Beach parking lots would remain open during construction while some parking spaces adjacent to the project site would be temporarily closed where the construction equipment would be staged and used. Signage would be placed to delineate areas of the beach that are temporarily closed, and equipment would be removed at the end of each working day.

### **3.3 Permit Authority, Extraordinary Methods of Repair and Maintenance, Shoreline Protection Structures**

Coastal Act Section 30610(d) generally exempts from Coastal Act permitting requirements the repair or maintenance of structures that does not result in an addition to, or enlargement or expansion of the structure being repaired or maintained. However, the Commission retains authority to review certain extraordinary methods of repair and maintenance of existing structures which involve a risk of substantial adverse environmental impact as enumerated in Section 13252 of the Commission regulations.

Section 30610 of the Coastal Act provides, in applicable part:

*Notwithstanding any other provision of this division, no coastal development permit shall be required pursuant to this chapter for the following types of development and in the following areas: . . .*

*(d) Repair or maintenance activities that do not result in an addition to, or enlargement or expansion of, the object of those repair or maintenance activities; provided, however, that if the commission determines that certain extraordinary methods of repair and maintenance involve a risk of substantial adverse environmental impact, it shall, by regulation, require that a permit be obtained pursuant to this chapter. [Emphasis added.]*

Section 13252 of the Commission regulations provides, in relevant part:

*(a) For purposes of Public Resources Code section 30610(d), the following extraordinary methods of repair and maintenance shall require a coastal development permit because they involve a risk of substantial adverse environmental impact:*

*(1) Any method of repair or maintenance of a seawall revetment, bluff retaining wall, breakwater, groin, culvert, outfall, or similar shoreline work that involves:*

*(A) Repair or maintenance involving substantial alteration of the foundation of the protective work including pilings and other surface or subsurface structures;*

*(B) The placement, whether temporary or permanent, of rip-rap, artificial berms of sand or other beach materials, or any other forms of solid materials, on a beach or in coastal waters, streams, wetlands, estuaries and lakes or on a shoreline protective work except for agricultural dikes within enclosed bays or estuaries;*

*. . .*

*(D) The presence, whether temporary or permanent, of mechanized construction equipment or construction materials on any sand area, bluff, or environmentally sensitive habitat area, or within 20 feet of coastal waters or streams.*

*(3) Any repair or maintenance to facilities or structures or work located in an environmentally sensitive habitat area, any sand area, within 50 feet of the edge of a coastal bluff or environmentally sensitive habitat area, or within 20 feet of coastal waters or streams that include:*

*(A) The placement or removal, whether temporary or permanent, of rip-rap, rocks, sand or other beach materials or any other forms of solid materials;*

*(B) The presence, whether temporary or permanent, of mechanized equipment or construction materials.*

*All repair and maintenance activities governed by the above provisions shall be subject to the permit regulations promulgated pursuant to the Coastal Act, including but not limited to the regulations governing administrative and emergency permits. The provisions of this section shall not be applicable to methods of repair and maintenance undertaken by the ports listed in Public Resources Code Section 30700 unless so provided elsewhere in these regulations. The provisions of this section shall not be applicable to those activities specifically described in the document entitled *Repair, Maintenance and Utility Hookups*, adopted by the Commission on September 5, 1978 unless a proposed activity will have a risk of substantial adverse impact on public access, environmentally sensitive habitat area, wetlands, or public views to the ocean.*

...

*(c) Notwithstanding the above provisions, the executive director of the commission shall have the discretion to exempt from this section ongoing routine repair and maintenance activities of local governments, state agencies, and public utilities (such as railroads) involving shoreline works protecting transportation road ways.*

[Emphasis added.]

The proposed projects at Spud Point Marina, Porto Bodega/Bodega Bay Fishing Center, and Doran Beach would not expand the existing footprint of the respective developments or involve replacement of 50% or more of a seawall and thus, may be considered a repair and maintenance project under Section 13252(b) of the Commission's regulations. Section 13252 of the Commission's regulations requires a coastal development permit for extraordinary methods of repair and maintenance enumerated in the regulation. The proposed development involves repair to existing revetments and breakwaters. The proposed repair and maintenance therefore requires a coastal development permit under Section 13252(a)(1)(b), 13252(a)(3), 13252(b), and 13252(c) of the Commission's regulations. In considering a permit application for a repair or maintenance project pursuant to the above-cited authority, the Commission reviews whether the proposed *method* of repair or maintenance is consistent with the Chapter 3 policies of the Coastal Act. The Commission's evaluation of such repair and maintenance projects does not extend to an evaluation of the conformity with the Coastal Act of the underlying existing development.

### **3.4 Public Access**

Section 30210 of the Coastal Act states:

*In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30211 of the Coastal Act states:

*Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

The repair and replacement of rip-rap, embankments, and breakwater timbers and pilings damaged during winter storms at three separate Sonoma County Regional Park project locations would protect public resources, provide safe public access, reduce the risk of future flood damage, and limit and mitigate the impact of erosion and further damage to public resources.

Approximately 30 parking spaces at Spud Point Marina would be closed for 30-40 days during construction due to construction staging, but 170 parking spaces would remain open to the public. At Doran Beach, the boat launch would be closed to the public for the duration of the project for approximately 30-40 days, but a nearby boat launch at Westside Regional Park would remain open. At Bodega Bay Sport Fishing Center, replacement of breakwater timbers and rip-rap would take place over 30-40 days. The proposed repair and maintenance projects would be a temporary inconvenience for public users, but the project would ultimately provide safer long-term public access opportunities at all three sites, consistent with Section 30210 of the Coastal Act. Likewise, the proposed repair and maintenance is consistent with Section 30211 of the Coastal Act particularly since currently there is negligible beach access at any of the project sites. Except during extremely low tides, little beach area is presently available at the proposed project sites at Spud Point Marina, Bodega Bay Sport Fishing Center, and Doran Beach, due to scattered rip-rap from the storms. The proposed repair activities would re-stack these beach obstructions and provide for unobstructed sandy beach access for the public at Doran Beach. The Doran Beach boat launch area beach at mean low tide could provide an additional 5,000 square feet of sandy beach access if the scattered rip-rap were restacked.

If rocks become dislodged from the revetments in the future, they could obstruct public access along the beach inconsistent with Coastal Act Sections 30210 and 30211. **Special Condition 4** provides for a Shoreline Protection Monitoring Plan, which requires the County to survey the rock revetment and report the conditions to the Executive Director every five years, including a description of any migration or movement of rock that has occurred on the site and recommendations for repair and maintenance to the revetment, thereby preventing future debris from impeding public access on the beach. In addition, **Special Condition 3** requires the County to remove or replace any debris, rock or material that becomes dislodged during construction or after completion of the revetment as soon as possible, but no later than 30 days after the discovery of the need for the maintenance, thereby limiting the amount of time future potential debris on the beach would impede lateral access. Together, these conditions ensure that the beach fronting the revetments will remain free from debris and any rock dislodged from the revetment, and that lateral access along the beach will not be impeded, consistent with Coastal Act Sections 30210 and 30211.

Therefore, the Commission finds that the project is consistent with Sections 30210 and 30211 of the Coastal Act.

### **3.5 Geologic Hazards and Shoreline Erosion**

Section 30253 of the Coastal Act states:

*New development shall:*

*(1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

*(2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.*

Section 30253 requires that new development will minimize risks to life and property and assure stability and structural integrity, and neither create nor contribute to erosion or geologic stability. The purpose of these projects is to protect public resources, provide safe public access, reduce the risk of future flood damage, and limit the impact of erosion and further damage to the sidewalk, asphalt parking lot, and gangplank entrance at Spud Point Marina; the gravel parking lot at Porto Bodega/Bodega Bay Fishing Center; and parking lots and a boat launch entrance at Doran Beach. The proposed repair and maintenance project has been designed and approved by Green Valley Consulting Engineers, a licensed engineering firm.

In order to assure stability and structural integrity of the revetments, **Special Condition 4** provides for a Shoreline Protection Monitoring Plan, designed to assess movement of the revetment and prevent future failure. The Shoreline Protection Monitoring Plan requires that revetment and beach profile measurements be taken every five years by a licensed professional engineer or surveyor, and that results of the survey be reported to the Executive Director, together with recommendations for any necessary maintenance work. Pursuant to **Special Condition 3**, the County is responsible for removing or replacing any rock or material that becomes dislodged from the revetment as soon as possible, consistent with Coastal Act permit requirements.

The proposed development is located in Bodega Bay, in an area subject to wave forces, as well as shoreline retreat and erosion. Although the project has been designed by a licensed engineer, the location of the revetments, parking lots, sidewalk, gangplank entrance, and boat launch entrance, expose these structures to shoreline processes. The construction of shoreline protection structures involving the use of heavy construction equipment and the placement of large boulders is inherently hazardous. Because the County voluntarily proposes to undertake an inherently hazardous activity, the Commission imposes **Special Condition 7**, requiring the permittee to assume the risks of any injury or damage from such hazards, waive any claim of liability against the Commission for such injury or damage, and indemnify the Commission against any resulting third party claims or liability.

The Commission finds that the project is conditioned to minimize risks to life and property, assure stability and structural integrity of the revetments, parking lots, sidewalk, gangplank entrance, and boat launch entrance, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area, and is therefore consistent with Section 30253.

### 3.6 Water Quality

The Coastal Act protects marine resources, including water quality, as cited below:

#### Section 30230

*Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

#### Section 30231

*The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The proposed project involves repair and maintenance of a revetments, gangplanks, a boat launch entrance, and a timber breakwater, all located either in or directly adjacent to waters of Bodega Bay. Potential adverse impacts to the surrounding water quality could occur during the construction process if hazardous materials, construction debris, or other pollutants were to enter coastal waters, inconsistent with Coastal Act Sections 30230 and 30231. To ensure that water quality is protected consistent with the Coastal Act, **Special Condition Number 5** imposes certain construction-related responsibilities and water quality protection measures. Most notably, these responsibilities require that (1) all construction materials and debris originating from the project shall be stored and/or contained in a manner to preclude their uncontrolled entry and dispersion to coastal waters; (2) any fueling of construction equipment shall occur in upland staging areas; (3) hazardous materials management equipment including oil containment booms and absorbent pads be available immediately on-hand at the project site, and a registered first-response, professional hazardous materials clean-up/remediation service be locally available on call; (4) stockpiles be covered and contained at all times to prevent polluted water runoff; and (5)



equipment and material storage on barges follows best management practices to prevent discharge into Bodega Bay.

In regards to the proposed repair and replacement of the wooden breakwater at Porto Bodega/Bodega Bay Sport Fishing Marina, the permittee proposes to use Alkaline Copper Quarternary (ACQ) treated wood for the breakwater timbers. ACQ is a water-based wood preservative that contains copper and a quaternary ammonium compound (quat) and prevents decay from fungi and insects. It is registered with the EPA for use on lumber, timbers, freshwater and marine pilings, sea walls and other wood structures. ACQ was introduced as an alternative to Chromate copper arsenate (CCA), but it still contains copper. Copper from ACQ treated wood could leach into the surrounding water immediately within the first few days of installation but it would leach significantly over time. Another concern is the known adverse impact of copper on juvenile salmonids although none have been identified at any of the project sites.

One method to minimize this environmental risk is coating pesticide-treated wood such as ACQ with impervious materials to minimize the loss of metals in the environment. Coating or wraps should be used in projects located in sensitive locations or areas with limited currents and/or high background concentrations of copper<sup>2</sup>. This is useful for piling replacement projects when a few pesticide-treated wood pilings need replacement but the entire facility does not require replacement. There are commercial coating materials available that encapsulate wood and prevent contaminant leaching. A project biologist or manager needs to select a coating to be inert, impervious and long-lasting for a specified amount of time. The wood can be purchased already encapsulated or the polymers may be applied by the construction contractor.

Alternatively, the permittee could use fiberglass or metal materials for the breakwater repair to avoid the aforementioned chemical leaching. There fore, **Special Condition 8** requires the Applicant to submit a breakwater timber and piling materials and installation plan that ensures that water quality is protected, to the maximum extent feasible and demonstrates that the development will avoid chemical leaching to the maximum extent feasible.

Together, the Special Conditions provide best management practices for water quality at multiple sites in Bodega Bay. Therefore, because the proposed project would protect water quality, the Commission finds that the project is consistent with Coastal Act sections 30230 and 30231.

### **3.7 Environmentally Sensitive Habitat Areas (ESHA)**

The Coastal Act protects environmentally sensitive habitat areas (ESHA) as cited below:

#### **Section 30240**

---

<sup>2</sup> NOAA Fisheries—Southwest Region, 2008. *The Use of Pesticide-Treated Wood Products in Aquatic Environments: Guidelines to NOAA Fisheries Staff for the Endangered Species Act and Essential Fish Habitat Consultations*,

*(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

*(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Eelgrass is present in the waters of Bodega Bay Fishing Center and Doran Beach. At Bodega Bay Fishing Center, eelgrass beds are present at the end of the timber breakwater nearest the beach. At Doran Beach, eelgrass beds are present in the shallow water near the beach and adjacent to the boat ramp (Exhibit 5). Eelgrass (*Zostera marina*) is considered to be an environmentally sensitive habitat area (ESHA) worthy of protection because it functions as important shelter and foraging habitat. For example, eelgrass provides cover for juvenile fish and in some locations, serves as a spawning ground for herring. Eelgrass is a flowering plant that extends long rhizomes (roots) an average of 1.5 – 8 inches below the substrate from which the turions (stems) sprout with long, green blades (leaves) and it thrives in protected coastal waters with sandy or muddy bottoms. Eelgrass can be adversely impacted by direct contact, or indirectly by shading from over-water structures. Sonoma County Regional Parks identified eelgrass as a biological resource of particular concern in the Mitigated Negative Declaration dated March 9, 2009.

There was a 2008 survey of eelgrass at the project sites conducted by Suzanne Olyarnik for EGS Environmental. Eelgrass is present at all three project sites, but it is outside of the proposed construction sites with one exception at Bodega Bay Sport Fishing Center.

At Spud Point Marina, there was no eelgrass present within the areas proposed for rip-rap repair and maintenance east and west of the gangplank.<sup>3</sup> At Doran Beach, there was no eelgrass present within the areas proposed for rip-rap repair and maintenance.<sup>4</sup> At Bodega Bay Sport Fishing Center, there was no eelgrass present within the areas identified for rip-rap repair or between the rip-rap and breakwater where repair and maintenance is proposed.<sup>5</sup> However, there is an eelgrass bed 3-6 feet outside the seaward side of the breakwater. The survey noted that eelgrass damage could occur through direct physical damage and/or removal, indirect effects of increased

---

<sup>3</sup> Areas without eelgrass: Segment 1 (200 ftL north of gangplank, 6 ft in width, 6 feet in height), Segment 2 (the next 300 ftL north of Segment 1, 3 feet in width, 6 feet in height), Segment 3 (40 ftL north of the gangplank to 10 ftL south of gangplank, 3 feet in width, 6 ft in height)

<sup>4</sup> Areas without eelgrass: In front of east end of parking lot (200 ftL, 6 ft in width, 6 ft in height), in front of west end of parking lot (50 ftL, 6 ft in width, 6.5 ft in height) from the edge of the paved parking lot, for 20 ft along both sides of boat ramp and floating dock (20 ft x 4 ft x 4 ft on each side) from the edge of the paved parking lot, for 20 ft southwest of parking lot (200 ftL, 6 ft in width, 4.5 ft in height) from the edge of the paved parking lot.

<sup>5</sup> Areas with no eelgrass: east side along entrance drive going southward (240 ftL x 6ft wide x3 ft high), east side where there is loss of embankment (50 ftL x 6 ft wide x 3 ft high), west side from SW corner of lot northward (120 ftL x 4 ft wide x 4 ft high), area with one fallen wooden post marking entrance drive

turbidity, resuspension of sediment, burial, altered hydrodynamics, and other mechanisms. The use of heavy machinery, albeit from an adjacent dock and construction barge, to replace portions of the breakwater at Bodega Bay Sport Fishing Center could result in eelgrass damage. Furthermore, eelgrass beds are dynamic and can change across seasons and years. Although the eelgrass beds are not likely to expand shoreward at Spud Point Marina or Doran Beach due to tidal height limitations, there may be expansion out towards the Bay at these two locations. Eelgrass expansion is possible at Bodega Bay Sport Fishing Center. If construction were to occur in the summer or fall, the survey recommended a short follow-up survey prior to construction.

Although the repair and maintenance activities at both sites are designed to avoid disturbing adjacent eelgrass habitat, a monitoring and mitigation plan would provide a specific response in the event of any construction related damage to eelgrass. Therefore, Special condition no. 6 requires the Applicant to submit an eelgrass monitoring and mitigation plan for the Executive Director's review and approval prior to issuance of the CDP. As conditioned, the Commission finds that the project is consistent with Coastal Act section 30240.

### **3.7 Army Corps of Engineers and National Marine Fisheries Service Approvals**

Portions of the project require review and approval by the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Federal Clean Water Act (PL 95-217). Pursuant to the Federal Coastal Zone Management Act, any permit issued by a federal agency for activities that affect the coastal zone must be consistent with the coastal zone management program for that state. Under agreements between the Coastal Commission and the USACE, the Corps will not issue a permit until the Coastal Commission approves a federal consistency certification for the project or approves a permit.

As part of the Corps' permit process, applicants often are required to undergo formal Federal Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS). Certain types of projects qualify for issuance of one of the Corps' established "nationwide permits" for minor classes of development determined to have minimal impacts to water quality and navigable waters. It is not clear what type of permit the Corps is issuing for the proposed project. Nevertheless, to ensure that the project ultimately approved by the Corps, in consultation with the NMFS is the same as the project authorized herein, the Commission attaches **Special Condition Numbers 9 and 10**. These special conditions require the applicant to submit to the Executive Director, prior to commencement of any development, evidence of the Corps' and National Marine Fisheries Service's approvals of the project. The conditions also require that any project changes resulting from agency approval(s) not be incorporated into the project until the applicant obtains any necessary amendments to this coastal development permit.

### **3.8 California Environmental Quality Act (CEQA)**

Section 13096 of the California Code of Regulations requires Commission approval of Coastal Development Permit applications to be supported by a finding showing that the application, as conditioned by any conditions of approval, to be consistent with any applicable

requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effects which the activity may have on the environment.

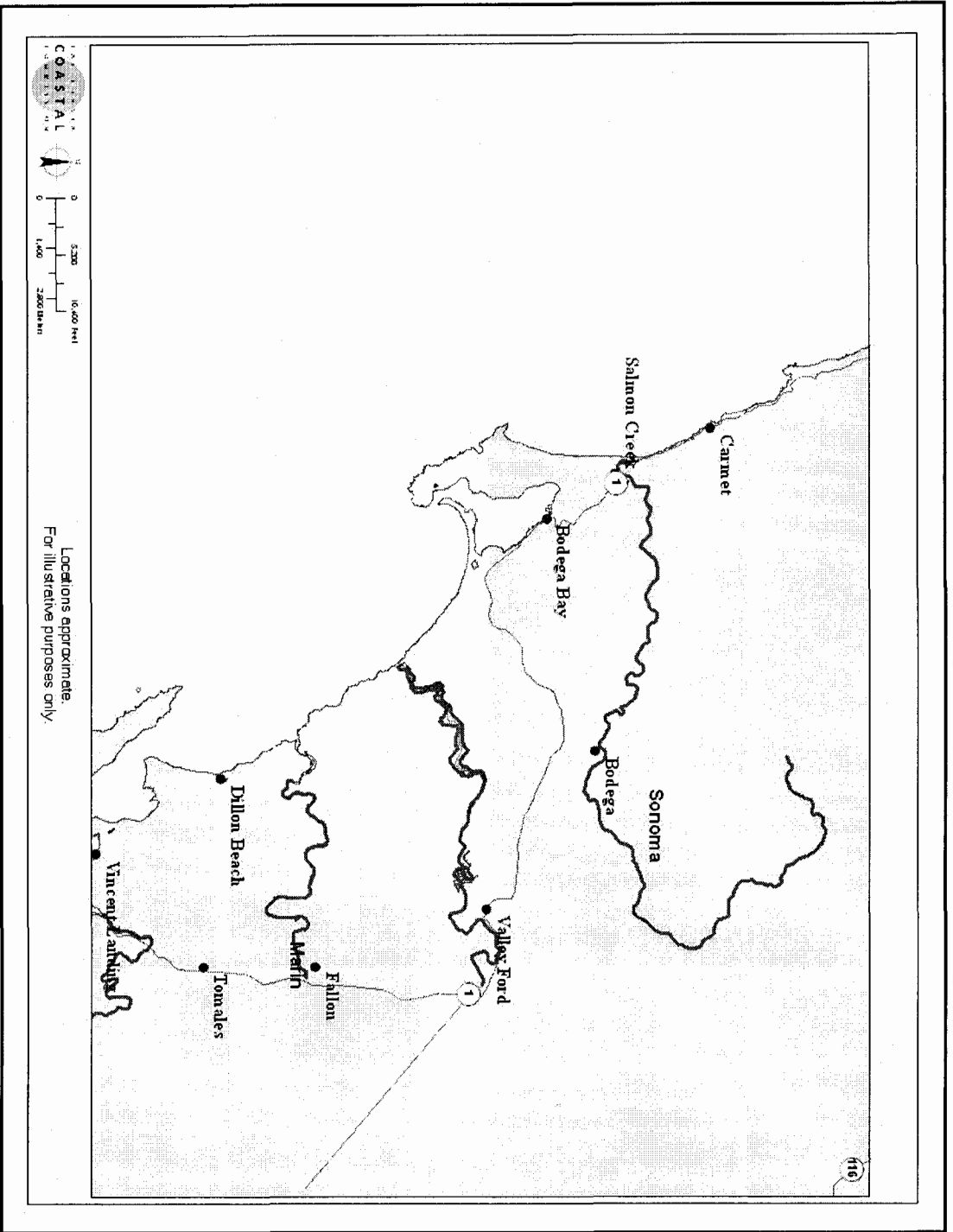
The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full. The proposed project has been conditioned to mitigate or eliminate any significant impacts to public access and geologic hazards. As discussed above, as conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impacts which the development may have on the environment. Therefore, the Commission finds that the proposed project has been conditioned to mitigate the identified impacts and can be found consistent with Coastal Act requirements to conform to CEQA.

---

**EXHIBITS:**

1. Regional map
2. Project location map
3. Site plans
4. Eelgrass bed location

### Bodega Bay Regional Map



Locations approximate.  
For illustrative purposes only.

Save Map Image

Save Legend Image

**Legend**


- Shoreline
- Geographic Place Names
- Lakes
- Streams

**Major Roads**

**TYPE**

- INTER
- ST-HWY
- US-HWY
- County Boundaries



<p>Purpose: Bodega Bay FEMA Projects</p> <p>In Bodega Bay County of Sonoma</p> <p>0 1000 2000 3000 scale 1" = 2000' feet</p> 	<p>Vicinity Map Sonoma County Regional Parks 2300 County Center Dr. #120A Santa Rosa, Ca. 95401</p>	<p>Figure 1 In: Bodega Bay</p> <p>County of: Sonoma, Ca. Application by: Michelle Julene Date:</p>
--	---	--

# FEMA BODEGA BAY PROJECTS

OES# SPARK 18, SPK 207, SPK, 36A, SPK 36B, SPK 38  
FEMA# 2523, 2479, 2899, 3614, 2509

SONOMA COUNTY, CALIFORNIA  
IMPROVEMENT PLANS

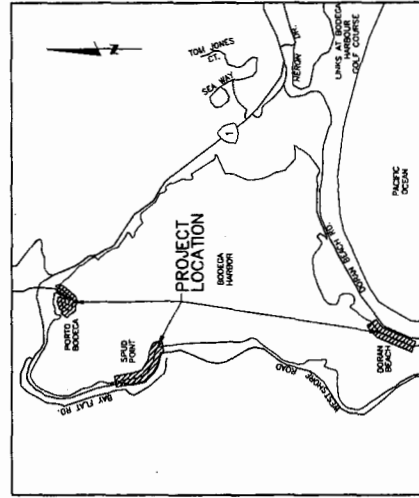
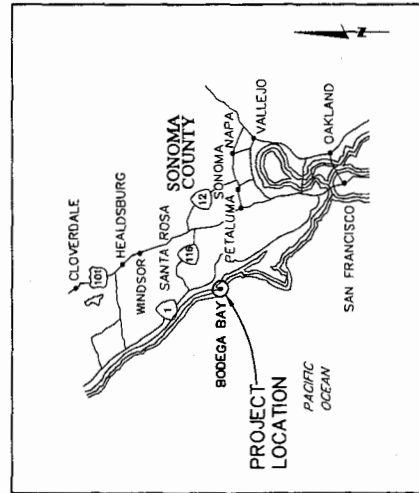
### INDEX TO DRAWINGS

1. COVER SHEET
2. GENERAL NOTES
3. GENERAL NOTES - DETAILS
4. GENERAL NOTES - DETAILS
5. GENERAL NOTES - DETAILS
6. GENERAL NOTES - DETAILS
7. GENERAL NOTES - DETAILS
8. GENERAL NOTES - DETAILS
9. CROSS SECTIONS

**SCOPE OF WORK:**  
BASE BID: PLACE 500-1000 LB. 1/2" ASP. METALL. GRADE, AND COMPACT SANDFILL ALONG SECURED PERIMETERS, FORM BREAKWATER AT PORTO BODEGA.

**ITEMS TO BE PROVIDED BY COUNTY:**

1. DRAWING PERMIT FROM THE SONOMA COUNTY PERMIT & RESOURCE MANAGEMENT DEPARTMENT (PRM)



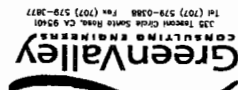
### ABBREVIATIONS

NO. #	NO. #
AS	AGGREGATE BASE
AP	APPROXIMATE
AR	ASPHALT CONCRETE
BA	BEGIN CURB RETURN
BB	BENCH MARK
BC	BENCH MARK
BD	BENCH MARK
BE	BENCH MARK
BF	BENCH MARK
BG	BENCH MARK
BH	BENCH MARK
BI	BENCH MARK
BJ	BENCH MARK
BK	BENCH MARK
BL	BENCH MARK
BM	BENCH MARK
BN	BENCH MARK
BO	BENCH MARK
BP	BENCH MARK
BQ	BENCH MARK
BR	BENCH MARK
BS	BENCH MARK
BT	BENCH MARK
BV	BENCH MARK
BW	BENCH MARK
BX	BENCH MARK
BY	BENCH MARK
BZ	BENCH MARK
CA	CATCH BASIN
CB	CATCH BASIN
CC	CATCH BASIN
CD	CATCH BASIN
CE	CATCH BASIN
CF	CATCH BASIN
CG	CATCH BASIN
CH	CATCH BASIN
CI	CATCH BASIN
CJ	CATCH BASIN
CK	CATCH BASIN
CL	CATCH BASIN
CM	CATCH BASIN
CN	CATCH BASIN
CO	CATCH BASIN
CP	CATCH BASIN
CQ	CATCH BASIN
CR	CATCH BASIN
CS	CATCH BASIN
CT	CATCH BASIN
CU	CATCH BASIN
CV	CATCH BASIN
CW	CATCH BASIN
CX	CATCH BASIN
CY	CATCH BASIN
CZ	CATCH BASIN
DA	DRAINAGE
DB	DRAINAGE
DC	DRAINAGE
DD	DRAINAGE
DE	DRAINAGE
DF	DRAINAGE
DG	DRAINAGE
DH	DRAINAGE
DI	DRAINAGE
DJ	DRAINAGE
DK	DRAINAGE
DL	DRAINAGE
DM	DRAINAGE
DN	DRAINAGE
DO	DRAINAGE
DP	DRAINAGE
DQ	DRAINAGE
DR	DRAINAGE
DS	DRAINAGE
DT	DRAINAGE
DU	DRAINAGE
DV	DRAINAGE
DW	DRAINAGE
DX	DRAINAGE
DY	DRAINAGE
DZ	DRAINAGE
EA	EDGE OF PAVEMENT
EB	EDGE OF PAVEMENT
EC	EDGE OF PAVEMENT
ED	EDGE OF PAVEMENT
EE	EDGE OF PAVEMENT
EF	EDGE OF PAVEMENT
EG	EDGE OF PAVEMENT
EH	EDGE OF PAVEMENT
EI	EDGE OF PAVEMENT
EJ	EDGE OF PAVEMENT
EK	EDGE OF PAVEMENT
EL	EDGE OF PAVEMENT
EM	EDGE OF PAVEMENT
EN	EDGE OF PAVEMENT
EO	EDGE OF PAVEMENT
EP	EDGE OF PAVEMENT
EQ	EDGE OF PAVEMENT
ER	EDGE OF PAVEMENT
ES	EDGE OF PAVEMENT
ET	EDGE OF PAVEMENT
EU	EDGE OF PAVEMENT
EV	EDGE OF PAVEMENT
EW	EDGE OF PAVEMENT
EX	EDGE OF PAVEMENT
EY	EDGE OF PAVEMENT
EZ	EDGE OF PAVEMENT
FA	FEET
FB	FEET
FC	FEET
FD	FEET
FE	FEET
FF	FEET
FG	FEET
FH	FEET
FI	FEET
FJ	FEET
FK	FEET
FL	FEET
FM	FEET
FN	FEET
FO	FEET
FP	FEET
FQ	FEET
FR	FEET
FS	FEET
FT	FEET
FU	FEET
FV	FEET
FW	FEET
FX	FEET
FY	FEET
FZ	FEET
GA	GRADE
GB	GRADE
GC	GRADE
GD	GRADE
GE	GRADE
GF	GRADE
GG	GRADE
GH	GRADE
GI	GRADE
GJ	GRADE
GK	GRADE
GL	GRADE
GM	GRADE
GN	GRADE
GO	GRADE
GP	GRADE
GQ	GRADE
GR	GRADE
GS	GRADE
GT	GRADE
GU	GRADE
GV	GRADE
GW	GRADE
GX	GRADE
GY	GRADE
GZ	GRADE
HA	HORIZONTAL
HB	HORIZONTAL
HC	HORIZONTAL
HD	HORIZONTAL
HE	HORIZONTAL
HF	HORIZONTAL
HG	HORIZONTAL
HH	HORIZONTAL
HI	HORIZONTAL
HJ	HORIZONTAL
HK	HORIZONTAL
HL	HORIZONTAL
HM	HORIZONTAL
HN	HORIZONTAL
HO	HORIZONTAL
HP	HORIZONTAL
HQ	HORIZONTAL
HR	HORIZONTAL
HS	HORIZONTAL
HT	HORIZONTAL
HU	HORIZONTAL
HV	HORIZONTAL
HW	HORIZONTAL
HX	HORIZONTAL
HY	HORIZONTAL
HZ	HORIZONTAL
IA	INTERSECTION
IB	INTERSECTION
IC	INTERSECTION
ID	INTERSECTION
IE	INTERSECTION
IF	INTERSECTION
IG	INTERSECTION
IH	INTERSECTION
II	INTERSECTION
IJ	INTERSECTION
IK	INTERSECTION
IL	INTERSECTION
IM	INTERSECTION
IN	INTERSECTION
IO	INTERSECTION
IP	INTERSECTION
IQ	INTERSECTION
IR	INTERSECTION
IS	INTERSECTION
IT	INTERSECTION
IU	INTERSECTION
IV	INTERSECTION
IW	INTERSECTION
IX	INTERSECTION
IY	INTERSECTION
IZ	INTERSECTION
JA	JUNCTION
JB	JUNCTION
JC	JUNCTION
JD	JUNCTION
JE	JUNCTION
JF	JUNCTION
JG	JUNCTION
JH	JUNCTION
JI	JUNCTION
JJ	JUNCTION
JK	JUNCTION
JL	JUNCTION
JM	JUNCTION
JN	JUNCTION
JO	JUNCTION
JP	JUNCTION
JQ	JUNCTION
JR	JUNCTION
JS	JUNCTION
JT	JUNCTION
JU	JUNCTION
JV	JUNCTION
JW	JUNCTION
JX	JUNCTION
JY	JUNCTION
JZ	JUNCTION
KA	KEY
KB	KEY
KC	KEY
KD	KEY
KE	KEY
KF	KEY
KG	KEY
KH	KEY
KI	KEY
KJ	KEY
KK	KEY
KL	KEY
KM	KEY
KN	KEY
KO	KEY
KP	KEY
KQ	KEY
KR	KEY
KS	KEY
KT	KEY
KU	KEY
KV	KEY
KW	KEY
KX	KEY
KY	KEY
KZ	KEY
LA	LANDSCAPE
LB	LANDSCAPE
LC	LANDSCAPE
LD	LANDSCAPE
LE	LANDSCAPE
LF	LANDSCAPE
LG	LANDSCAPE
LH	LANDSCAPE
LI	LANDSCAPE
LJ	LANDSCAPE
LK	LANDSCAPE
LI	LANDSCAPE
LM	LANDSCAPE
LN	LANDSCAPE
LO	LANDSCAPE
LP	LANDSCAPE
LQ	LANDSCAPE
LR	LANDSCAPE
LS	LANDSCAPE
LT	LANDSCAPE
LU	LANDSCAPE
LV	LANDSCAPE
LW	LANDSCAPE
LX	LANDSCAPE
LY	LANDSCAPE
LZ	LANDSCAPE
MA	MATERIAL
MB	MATERIAL
MC	MATERIAL
MD	MATERIAL
ME	MATERIAL
MF	MATERIAL
MG	MATERIAL
MH	MATERIAL
MI	MATERIAL
MJ	MATERIAL
MK	MATERIAL
ML	MATERIAL
MM	MATERIAL
MN	MATERIAL
MO	MATERIAL
MP	MATERIAL
MQ	MATERIAL
MR	MATERIAL
MS	MATERIAL
MT	MATERIAL
MU	MATERIAL
MV	MATERIAL
MW	MATERIAL
MX	MATERIAL
MY	MATERIAL
MZ	MATERIAL
NA	NORTH
NB	NORTH
NC	NORTH
ND	NORTH
NE	NORTH
NF	NORTH
NG	NORTH
NH	NORTH
NI	NORTH
NJ	NORTH
NK	NORTH
NL	NORTH
NM	NORTH
NO	NORTH
NP	NORTH
NQ	NORTH
NR	NORTH
NS	NORTH
NT	NORTH
NU	NORTH
NV	NORTH
NW	NORTH
NX	NORTH
NY	NORTH
NZ	NORTH
OA	ORIGIN
OB	ORIGIN
OC	ORIGIN
OD	ORIGIN
OE	ORIGIN
OF	ORIGIN
OG	ORIGIN
OH	ORIGIN
OI	ORIGIN
OJ	ORIGIN
OK	ORIGIN
OL	ORIGIN
OM	ORIGIN
ON	ORIGIN
OO	ORIGIN
OP	ORIGIN
OQ	ORIGIN
OR	ORIGIN
OS	ORIGIN
OT	ORIGIN
OU	ORIGIN
OV	ORIGIN
OW	ORIGIN
OX	ORIGIN
OY	ORIGIN
OZ	ORIGIN
PA	PARTIAL
PB	PARTIAL
PC	PARTIAL
PD	PARTIAL
PE	PARTIAL
PF	PARTIAL
PG	PARTIAL
PH	PARTIAL
PI	PARTIAL
PJ	PARTIAL
PK	PARTIAL
PL	PARTIAL
PM	PARTIAL
PN	PARTIAL
PO	PARTIAL
PP	PARTIAL
PQ	PARTIAL
PR	PARTIAL
PS	PARTIAL
PT	PARTIAL
PV	PARTIAL
PW	PARTIAL
PX	PARTIAL
PY	PARTIAL
PZ	PARTIAL
QA	QUALITY
QB	QUALITY
QC	QUALITY
QD	QUALITY
QE	QUALITY
QF	QUALITY
QG	QUALITY
QH	QUALITY
QI	QUALITY
QJ	QUALITY
QK	QUALITY
QL	QUALITY
QM	QUALITY
QN	QUALITY
QO	QUALITY
QP	QUALITY
QQ	QUALITY
QR	QUALITY
QS	QUALITY
QT	QUALITY
QU	QUALITY
QV	QUALITY
QW	QUALITY
QX	QUALITY
QY	QUALITY
QZ	QUALITY
RA	RANGE
RB	RANGE
RC	RANGE
RD	RANGE
RE	RANGE
RF	RANGE
RG	RANGE
RH	RANGE
RI	RANGE
RJ	RANGE
RK	RANGE
RL	RANGE
RM	RANGE
RO	RANGE
RP	RANGE
RQ	RANGE
RR	RANGE
RS	RANGE
RT	RANGE
RU	RANGE
RV	RANGE
RW	RANGE
RX	RANGE
RY	RANGE
RZ	RANGE
SA	SANITARY
SB	SANITARY
SC	SANITARY
SD	SANITARY
SE	SANITARY
SF	SANITARY
SG	SANITARY
SH	SANITARY
SI	SANITARY
SJ	SANITARY
SK	SANITARY
SL	SANITARY
SM	SANITARY
SN	SANITARY
SO	SANITARY
SP	SANITARY
SQ	SANITARY
SR	SANITARY
SS	SANITARY
ST	SANITARY
SV	SANITARY
SW	SANITARY
SX	SANITARY
SY	SANITARY
SZ	SANITARY
TA	TERRACE
TB	TERRACE
TC	TERRACE
TD	TERRACE
TE	TERRACE
TF	TERRACE
TG	TERRACE
TH	TERRACE
TI	TERRACE
TJ	TERRACE
TK	TERRACE
TL	TERRACE
TM	TERRACE
TN	TERRACE
TO	TERRACE
TP	TERRACE
TQ	TERRACE
TR	TERRACE
TS	TERRACE
TT	TERRACE
TU	TERRACE
TV	TERRACE
TW	TERRACE
TX	TERRACE
TY	TERRACE
TZ	TERRACE
UA	UTILITY
UB	UTILITY
UC	UTILITY
UD	UTILITY
UE	UTILITY
UF	UTILITY
UG	UTILITY
UH	UTILITY
UI	UTILITY
UJ	UTILITY
UK	UTILITY
UL	UTILITY
UM	UTILITY
UN	UTILITY
UO	UTILITY
UP	UTILITY
UQ	UTILITY
UR	UTILITY
US	UTILITY
UT	UTILITY
UU	UTILITY
UV	UTILITY
UW	UTILITY
UX	UTILITY
UY	UTILITY
UZ	UTILITY
VA	VARIABLE
VB	VARIABLE
VC	VARIABLE
VD	VARIABLE



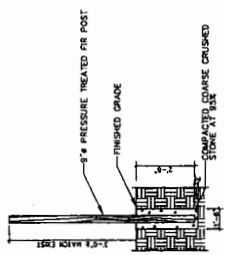
FEMA BODEGA BAY PROJECTS  
SONOMA COUNTY  
CALIFORNIA

MISCELLANEOUS DETAILS

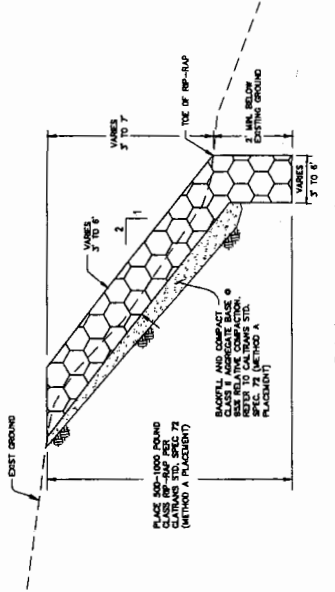


DATE: JANUARY 2009  
DRAWN BY: [blank]  
CHECKED BY: [blank]  
LE  
DRAWING NUMBER: 3 of 9

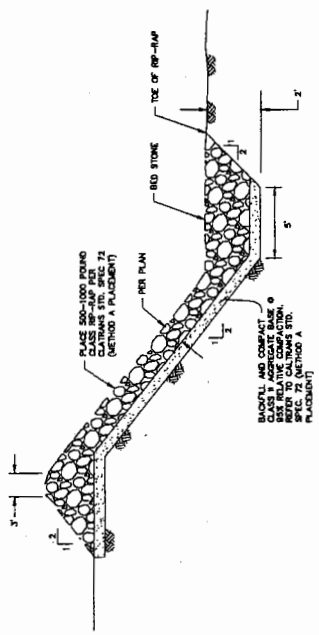
50% SUBMITTAL  
1/15/2009



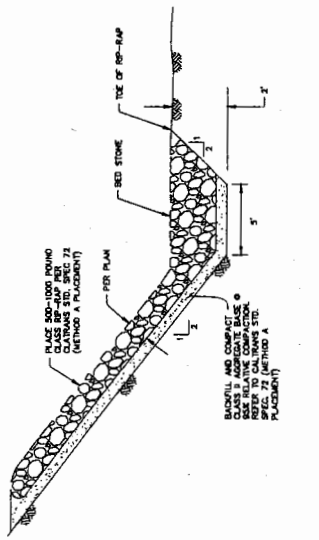
WOODEN POST DETAIL  
NOT TO SCALE



TYPICAL EMBANKMENT CROSS SECTION  
PORTO BODEGA & SPRUD POINT  
NOT TO SCALE



TYPICAL EMBANKMENT CROSS SECTION  
DORAN BEACH - STA 10+00 TO 13+50  
NOT TO SCALE



TYPICAL EMBANKMENT CROSS SECTION  
DORAN BEACH - STA 13+50 TO 15+75  
NOT TO SCALE







FEMA BODEGA BAY PROJECTS  
SONOMA COUNTY  
CALIFORNIA  
PORTO BODEGA BREAKWATERS  
(OES# SPK 36A) (FEMA# 2899)  
PORTO BODEGA RIP RAP  
(OES# SPK 36B) (FEMA# 3614)

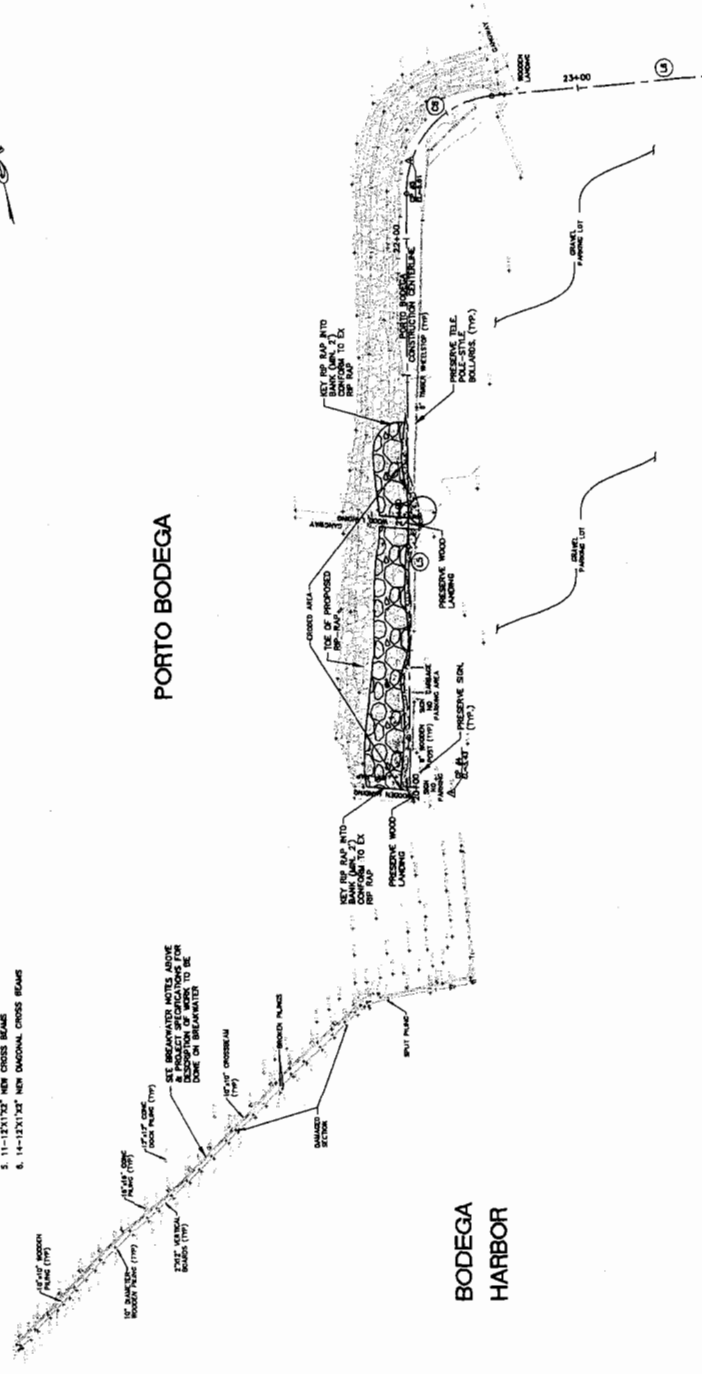


335 Tilden Circle Santa Rosa, CA 95401  
Tel (707) 573-0288 Fax (707) 578-1277

DATE	JANUARY 2009
DRAWN BY	LE
CHECKED	
DRAWING NUMBER	5 of 9

**BREAKWATER ITEMS TO BE REPLACED:**

1. 17'-12X17'x12" VERTICAL BUNDLES (SPILT TRUNKS)
2. 40'-12X17'x12" VERTICAL BUNDLES (BROUCH & BUSH)
3. 3'-4X3'x20' CROSSBEAMS
4. 3'-15X9' X20' LONG PLING
5. 11'-12X17'x12" NEW CROSS BEAMS
6. 14'-12X17'x12" NEW DIAGONAL CROSS BEAMS



**LEGEND**

	RIP RAP
	BACKFILL AND COMPACT CLASS I SANDSTONE SAND TO BE USED TO FILL RELATIVE TO THE BREAKWATER

**50% SUBMITTAL**  
1/15/2009

PLAN  
SCALE 1"=20'

MATCHLINE 23+50--SEE SHEET 6

LINE	LENGTH	BEARING
1	213.37'	S73°54'52" W
2	213.37'	S73°54'52" W
3	213.37'	S73°54'52" W
4	213.37'	S73°54'52" W
5	213.37'	S73°54'52" W
6	213.37'	S73°54'52" W
7	213.37'	S73°54'52" W
8	213.37'	S73°54'52" W
9	213.37'	S73°54'52" W
10	213.37'	S73°54'52" W
11	213.37'	S73°54'52" W
12	213.37'	S73°54'52" W
13	213.37'	S73°54'52" W
14	213.37'	S73°54'52" W
15	213.37'	S73°54'52" W
16	213.37'	S73°54'52" W
17	213.37'	S73°54'52" W
18	213.37'	S73°54'52" W
19	213.37'	S73°54'52" W
20	213.37'	S73°54'52" W
21	213.37'	S73°54'52" W
22	213.37'	S73°54'52" W
23	213.37'	S73°54'52" W
24	213.37'	S73°54'52" W
25	213.37'	S73°54'52" W
26	213.37'	S73°54'52" W
27	213.37'	S73°54'52" W
28	213.37'	S73°54'52" W
29	213.37'	S73°54'52" W
30	213.37'	S73°54'52" W
31	213.37'	S73°54'52" W
32	213.37'	S73°54'52" W
33	213.37'	S73°54'52" W
34	213.37'	S73°54'52" W
35	213.37'	S73°54'52" W
36	213.37'	S73°54'52" W
37	213.37'	S73°54'52" W
38	213.37'	S73°54'52" W
39	213.37'	S73°54'52" W
40	213.37'	S73°54'52" W
41	213.37'	S73°54'52" W
42	213.37'	S73°54'52" W
43	213.37'	S73°54'52" W
44	213.37'	S73°54'52" W
45	213.37'	S73°54'52" W
46	213.37'	S73°54'52" W
47	213.37'	S73°54'52" W
48	213.37'	S73°54'52" W
49	213.37'	S73°54'52" W
50	213.37'	S73°54'52" W
51	213.37'	S73°54'52" W
52	213.37'	S73°54'52" W
53	213.37'	S73°54'52" W
54	213.37'	S73°54'52" W
55	213.37'	S73°54'52" W
56	213.37'	S73°54'52" W
57	213.37'	S73°54'52" W
58	213.37'	S73°54'52" W
59	213.37'	S73°54'52" W
60	213.37'	S73°54'52" W
61	213.37'	S73°54'52" W
62	213.37'	S73°54'52" W
63	213.37'	S73°54'52" W
64	213.37'	S73°54'52" W
65	213.37'	S73°54'52" W
66	213.37'	S73°54'52" W
67	213.37'	S73°54'52" W
68	213.37'	S73°54'52" W
69	213.37'	S73°54'52" W
70	213.37'	S73°54'52" W
71	213.37'	S73°54'52" W
72	213.37'	S73°54'52" W
73	213.37'	S73°54'52" W
74	213.37'	S73°54'52" W
75	213.37'	S73°54'52" W
76	213.37'	S73°54'52" W
77	213.37'	S73°54'52" W
78	213.37'	S73°54'52" W
79	213.37'	S73°54'52" W
80	213.37'	S73°54'52" W
81	213.37'	S73°54'52" W
82	213.37'	S73°54'52" W
83	213.37'	S73°54'52" W
84	213.37'	S73°54'52" W
85	213.37'	S73°54'52" W
86	213.37'	S73°54'52" W
87	213.37'	S73°54'52" W
88	213.37'	S73°54'52" W
89	213.37'	S73°54'52" W
90	213.37'	S73°54'52" W
91	213.37'	S73°54'52" W
92	213.37'	S73°54'52" W
93	213.37'	S73°54'52" W
94	213.37'	S73°54'52" W
95	213.37'	S73°54'52" W
96	213.37'	S73°54'52" W
97	213.37'	S73°54'52" W
98	213.37'	S73°54'52" W
99	213.37'	S73°54'52" W
100	213.37'	S73°54'52" W



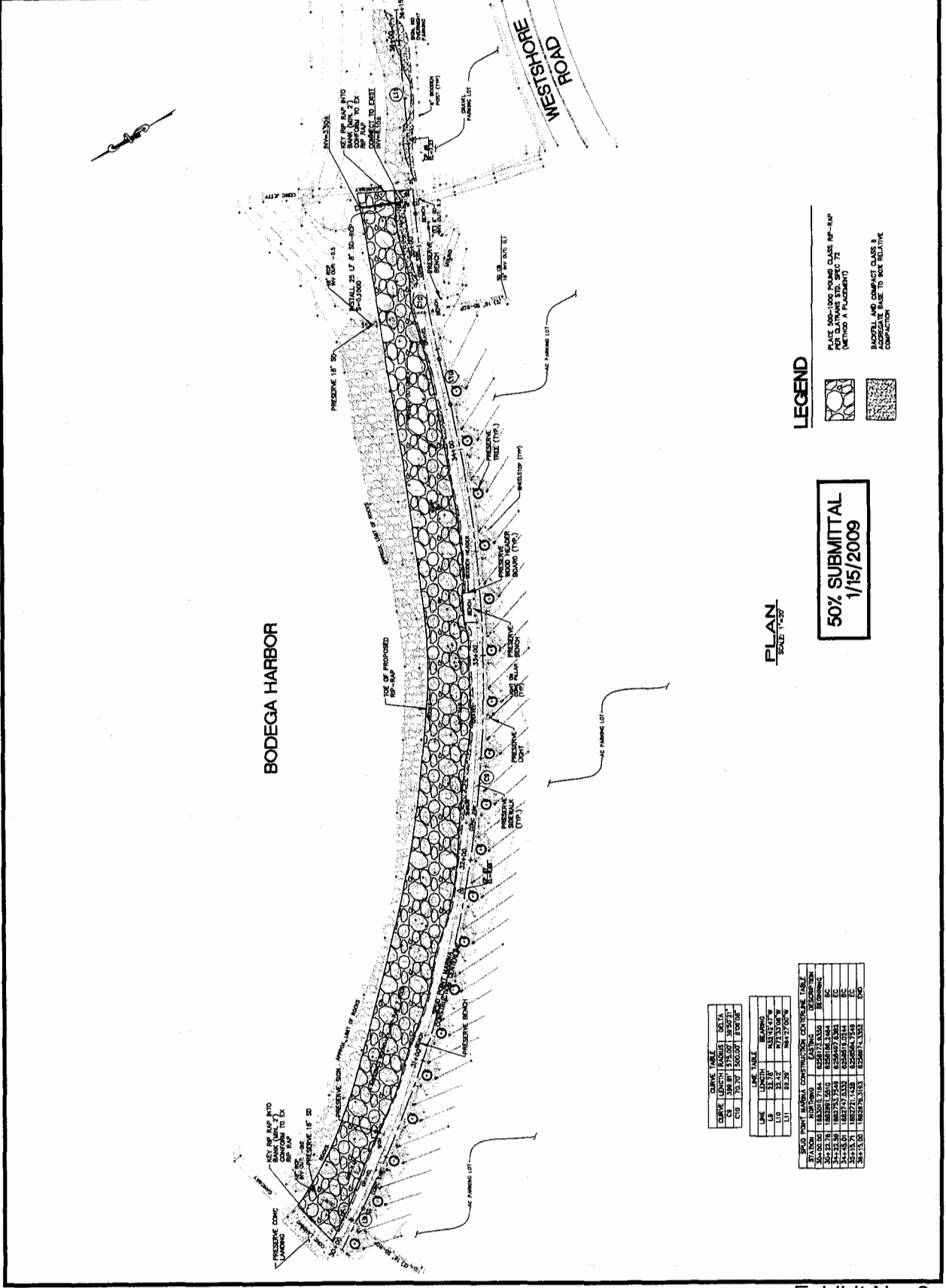


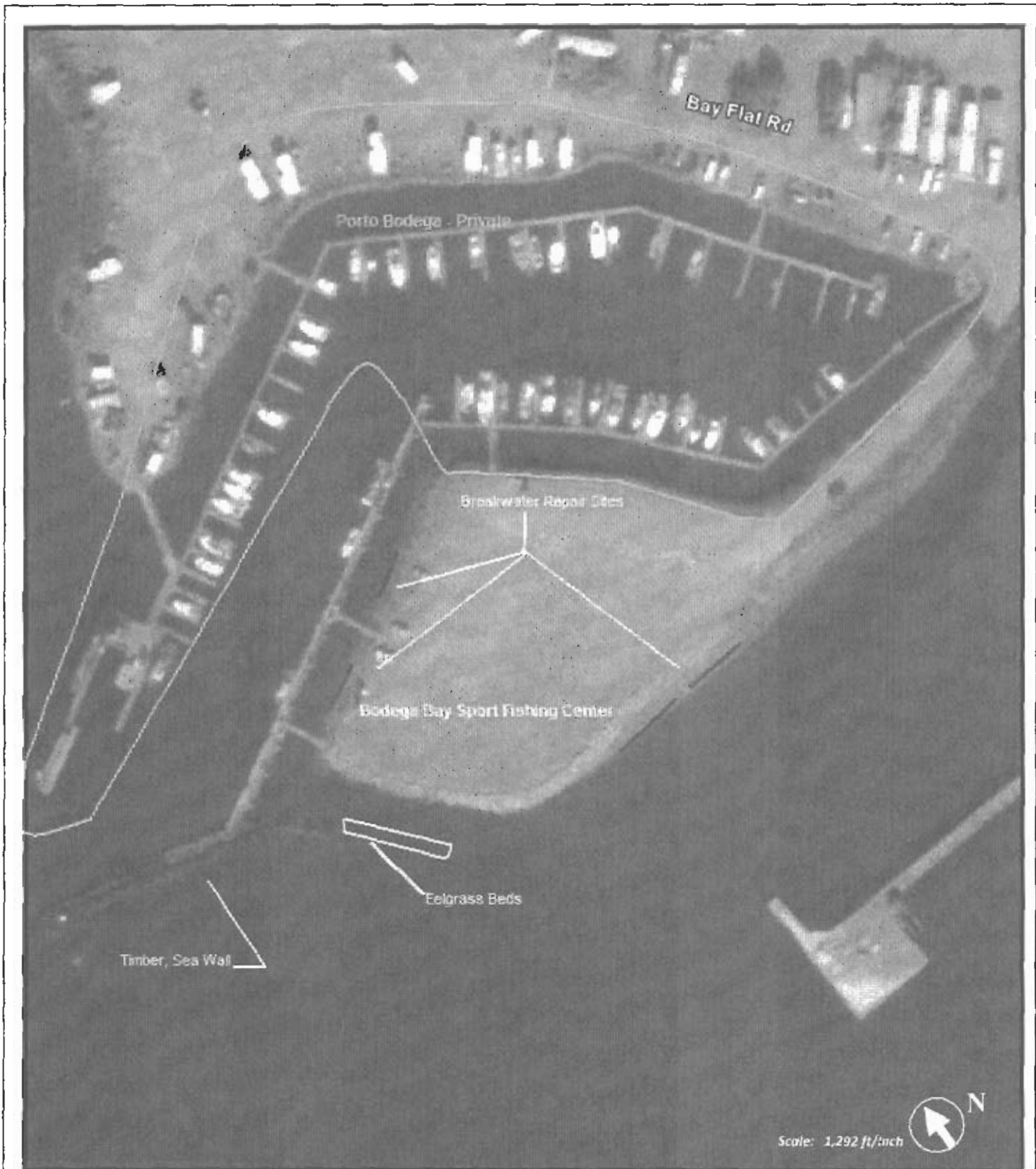
FEMA BODEGA BAY PROJECTS  
SONOMA COUNTY CALIFORNIA  
SPUD POINT MARINA (OES# SPK 38) (FEMA# 2509)

**GreenValley**  
CONSULTING ENGINEERS  
1317 FERRIS CENTER DRIVE, SUITE 100  
DUBLIN, CALIFORNIA 94568  
TEL: (925) 938-0288 FAX: (925) 938-1501

DATE: JANUARY 2009  
DRAWN BY: [blank]  
CHECKED BY: [blank]  
LE: [blank]  
DRAWING NUMBER: 7 of 9

GREEN VALLEY JOB NO. 2007-201-29





Source: NASA Imaging, 2008 Digital Globe Project

**Figure 2.2 Bodega Bay Sport Fishing Center Site**

January, 2009

**Bodega Bay Emergency Beach Protection Project**  
 Bodega Bay, California  
 A Sonoma County Regional Parks Project

**A Sonoma County Regional Parks Project**  
 Funded by the Federal Emergency Management  
 Agency (FEMA) Emergency

Sonoma Environmental  
 Group (SEG)

Exhibit No. 4

2-09-15 (Sonoma Co. Regional Parks Dept.)

Eelgrass Bed Location

Page 1 of 1