

MEMORANDUM OF UNDERSTANDING

between

COUNTY OF MONTEREY,

U.S. ARMY CORPS OF ENGINEERS, and

NATIONAL MARINE FISHERIES SERVICE,

regarding

FLOOD PREVENTION AND HABITAT PROTECTION AT THE CARMEL LAGOON

This Memorandum of Understanding (MOU) is between the County of Monterey (“County”), and “Permitting Agencies” consisting of the United States Army Corps of Engineers (“Corps”) in consultation with the National Marine Fisheries Services (“NMFS”), Service, all hereafter collectively referred to as “Parties”. This MOU concerns the mutual planning for a long-term solution designed to avoid mechanically managing the Carmel Lagoon (“Lagoon Project”), and implementation of an interim plan (“Interim Plan”) while developing the Project, building upon technical data and historical experiences to balance protection of private property with protection of federally listed species.

WHEREAS, the Lagoon Project is to be located at the lowest 1.5 miles of the Carmel Bay Sub-Watershed within the Carmel River Watershed (“Watershed”), the Watershed being approximately 250 square miles, located on California’s Central Coast, and draining into Carmel Bay at Stewart’s Cove; and

WHEREAS, the Watershed provides essential habitat for many important species listed as threatened under the Federal Endangered Species Act, including South-Central California Coast (S-CCC) steelhead, California red-legged frog, Western snowy plover, and Smith’s blue butterfly. In September 2005, South-Central California Coast rivers (from the Pajaro River to the Santa Maria River) were designated as critical habitat for S-CCC steelhead, and in January 2006 steelhead were listed as a threatened species; and

WHEREAS, the Watershed has very large variations in seasonal and yearly discharge rates. Developed commercial, residential and agricultural areas within the 100 year floodplain suffer from periodic flooding from high river flows and ocean storms, in some areas nearly annually and in some cases multiple times in one year. The westerly facing portion of the coastline is also exposed to high surf conditions. Scenic Road (a County maintained road) as well as the parking lot and bathroom at Carmel River State Beach (a State Parks maintained facility) are susceptible to wave run up and/or Carmel River/Lagoon outflow undermining the infrastructure. Scenic

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Road provides the only access for about six private homes and has a limited right of way width; and

WHEREAS, flooding events have caused expensive and severe damage to the lower reaches of the Carmel River Basin. The most noted flood events in recent history include the January 1995, March 1995, February 1998, and January 2008. The 1995 flood, considered a 20- to 30-year flood event, destroyed the State Route (SR) 1 Bridge and flooded development on both sides of SR 1 within the north overbank levees, including the Crossroads Shopping Center. Bridge repairs and the implementation of a variety of flood protection measures reduced the flooding impacts of the 1998 flood event; however, waters still overtook SR 1. In January 2008, the Lagoon reached its highest recorded elevation of 12.8 (NVGD); and

WHEREAS, for many years, State Parks requested the County to monitor flood conditions and use County resources to channel through the sandbar on its property in order to reduce flood potential in the Carmel River/Lagoon. The County, with authorization from State Parks, has historically performed interim County declared emergency sandbar management to provide flood protection of private property (homes) and public facilities (parking lot, restroom, Scenic Road) when the River/Lagoon reaches flood levels. Prior to 2011, emergency work was performed under an emergency declaration without permits from Permitting Agencies. Recurring County declared emergency actions to avoid flood damage are costly, are considered detrimental to threatened steelhead and their habitat, and do not contribute to a long-term management solution; and

WHEREAS, several local, state and federal agencies, together with several non-governmental organizations have been working together since about 2000 to develop a sustainable, long-term management plan for the Lower Carmel River and Carmel Lagoon. A technical advisory committee of public agencies developed a 2005 “Study Plan for Long-Term Adaptive Management of the Carmel River State Beach and Lagoon.” This Plan outlines multiple additional studies necessary to seek permits for a long-term solution. The Lower Carmel River “Project” (distinct from the Lagoon Project that is the subject of this MOU) is a multi-objective, multi-year, multi-organizational effort to reduce flood risk, protect public infrastructure, improve natural floodplain function and improve habitat for threatened and endangered species in the lower Carmel River; and

WHEREAS, several agencies and organizations have sought funding for those studies, and for individual parts of the Project. It is the goal of the County Resource Management Agency to help coordinate the various projects and agencies in the most economically and operationally efficient manner. The County’s long-range goal is to work collaboratively with interested parties to develop a comprehensive strategy - rather than individual projects –that allows the Carmel River Watershed to operate naturally without the need for mechanical flood protection actions; and

WHEREAS, access to the beach (by the public and for equipment) has historically been taken from the State Park parking lot located at the south end of Carmello Street where it intersects with Scenic Road in unincorporated Carmel. In October 2011, the County obtained permits to use local sand to create temporary access to the Carmel River State Beach. The location and

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design provide access to the beach with minimum alteration of natural conditions (standing water, cultural resources, native vegetation); and

WHEREAS, beginning in November 2011, the County submitted permit applications to Corps (in consultation with NMFS and USFWS pursuant to Section 7 of the ESA), Regional Water Quality Control Board (RWQCB), California Coastal Commission (CCC), and the California Department of Fish and Game (CDFG) to install a sand ramp and manage water levels in the Carmel Lagoon with emergency permits with an understanding that the long-term goal is to develop plans for the Lagoon Project, a flood protection system, including but not limited to an Ecological Protection Barrier (EPB) and armoring bluffs along Scenic Road, that would protect properties while allowing the Lagoon to breach naturally; and

WHEREAS, Permitting Agencies indicate that use of emergency permits (*e.g.*, Corps RGP 5) is limited and alternative methods of authorization of mechanically conducted sandbar management at the Lagoon must be pursued; and

WHEREAS, the County's long-range goal is to work collaboratively with interested parties to develop a comprehensive strategy - rather than individual projects - that allows the Carmel River Watershed to operate naturally without the need for mechanical flood protection actions. The County estimates that it will take up to five years to obtain necessary funding and complete technical studies, design, environmental review. It may take additional time to acquire funding and complete construction of the Lagoon Project; and

WHEREAS, prior to the rain season beginning October 2012, the County and the Corps desire to permit, for mutually beneficial purposes, an Interim Plan for flood protection and management of the lagoon sandbar while continuing coordinated effort on the long-term Lagoon Project. Work under said permit would only occur in County determined emergency conditions when flood damage is imminent or for the purpose of restoring the lagoon prior to the summer months;

NOW, THEREFORE, the Parties hereby set forth their mutual understandings and actions required for a mutual planning and implementation strategy, as follows:

1. The Carmel River Lagoon area is located between SR 1 and the Pacific Ocean. Monterey County Resource Management Agency has historically conducted sandbar management activities at the Carmel River State Beach to mitigate flooding impacts to low lying residential structures along the northern edges of the Lagoon. Scenic Road, which provides recreational access to the coast and access to local properties, is also subject to damage from erosion if the Carmel River outlet moves too far north and flows in close proximity to the sandy bluff. Wave action alone (independent of the river outlet channel) is occasionally severe enough to potentially undermine Scenic Road, and action may become necessary to prevent losses. Additionally, State Parks parking lot and bathroom facilities are subject to damages as a result of high river flows, as evidenced in March and April 2011.

Sandbar management activities are intended to mitigate flood impacts to low lying residential structures and infrastructure. When water is artificially released from the Lagoon, there is a reduction of aquatic habitat area, which has potential to result in undesirable consequence to

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fish and wildlife, including threatened species S-CCC steelhead. Therefore, water levels are managed to maintain sustainable water levels in the Lagoon for steelhead. When flows in the Carmel River increase, the sandbar breaches “naturally” without mechanical aide. At the conclusion of the rain season (*e.g.*, April or May), sandbar management may include closure activity (if needed) to maintain adequate water levels in the Lagoon over the summer months.

Provided the low-lying residential structures are not flooded, natural breaching is viewed as preferable by environmental groups and key governmental agencies with an interest in the Carmel River Lagoon. Two long-term solutions/projects have been identified as alternatives to performing sandbar management for flood control: 1) Ecosystem Protective Barrier (EPB) Project, and 2) Scenic Road Protection and Preservation Project.

A primary goal of the EPB and Scenic Road Protection and Preservation Projects is to protect and improve habitat for fish and wildlife by eliminating sandbar management activities at the barrier beach. Additional benefits of these projects could also result in protection of property (*e.g.*, low-lying residential structures) and public facilities (*e.g.*, State Parks parking lot and bathroom, Scenic Road).

Monterey County is seeking permits for a long-term solution that would avoid performing sandbar management for flood control purposes. The process to complete technical feasibility studies, design, environmental review, permitting and construction is estimated to take up to eight years depending on resource availability; however, Monterey County is making every effort to reduce this timeframe to five years or less. In the interim, Monterey County has developed a Plan for managing the Lagoon including winter openings and summer closure in the best possible manner that reduces potential impacts to both wildlife and property.

2. The Parties agree to implement the attached Interim Sandbar Management Plan (**Exhibit A**) for flood management of the Carmel Lagoon while County develops the Lagoon Project, prepares designs/plans, completes and processes environmental documents, secures funding, and constructs the Lagoon Project. The Interim Plan includes generally the following:
 - a) Sand Bags. As a first course of action ahead of the rain season, generally identified as October 15, and before mechanically managing the sandbar, the County will stockpile sand and place sand bags around homes along the north end of Carmel Lagoon (Camino Real, River Park Place, Monte Verde Street, 16th Avenue). This action is subject to receiving permission from property owners. The County will make it clear to homeowners that management of the sandbar is a last resort and that sandbag placement is a crucial component of flood control.
 - b) Public Outreach. The County will initiate public outreach to warn homeowners so they take appropriate precautions to protect their property during the rain season (October 15-April 15). Public outreach will include education on the effect of manual breaches completed by members of the community. This is a carefully managed system and unpermitted manual breaches are extremely harmful and illegal. The County will also make best efforts to keep interested parties informed of actions taken through the rain season; however, the County's first priority is communication with the Parties.

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- c) Sandbar Management. The County, after receiving appropriate approvals from permitting agencies, will manage the sandbar for flood protection (e.g., channeling). Any such work would be performed only when necessary - based on pre-determined River and/or tide conditions - to prevent flooding of homes and would be implemented in a manner that would minimize impacts to steelhead and their habitat.
 - d) Re-establishment/Summer Management. The County would assure any outlet channel work performed during the winter is closed off and the sandbar restored at the conclusion of the rain season, which is generally identified as April 15. The intent of the summer sandbar channel closure is to promote habitat for listed species throughout the summer months. When or if the level of water subsides in the Carmel Lagoon so the area around State Park's parking lot is dewatered, and there are adequate quantities of sand located on the beach, the County will harvest sand from the beach to restore beach access from Carmel River Beach State Park parking lot.
3. The County agrees to complete necessary permits for each stage of the process (technical study, construction) and comply with conditions of said permits. To the extent feasible, the County intends to serve as primary agency with responsibilities for coordinating other activities within the Carmel River Watershed (e.g., Highway 1 causeway) that relate to the Lagoon Project. All work performed by the County within the Lagoon shall conform to Federal laws including Section 404 of the Clean Water Act of 1972, as amended, 33 U.S.C. § 1344 *et seq*, Section 10 of the Rivers and Harbors Act of 1899, as amended, 33 U.S.C. § 403 *et seq*, and the Endangered Species Act (ESA) of 1973 as amended, 16 U.S.C. §§ 1531-1544. Prior to October 1, 2012 the County shall apply for Department of the Army authorization of "The Interim Plan" (**Exhibit A**).
 4. The Parties agree that a final configuration or design for the Lagoon Project has not been determined. The County will submit applications to Permitting Agencies that include requests for permits to investigate, plan, design, and construct the Lagoon Project. Said applications include multiple components:
 - a) Ecosystem Protection Barrier/Bluff Armoring (Scenic Road). The objective of this component is creation of a set of projects with the coequal objectives of protecting developed properties from flood impacts while also improving environmental conditions in the Lower Carmel River and Lagoon. Such projects would be designed to help restore natural floodplain function, improve water quality and supply, and provide improved habitat for special status species. Work is underway to complete technical studies that would help develop specifications for a solution to the flooding impacts, including how a barrier and/or armoring would meet the objective. Technical work is scheduled to be completed by December 2012.
 - b) Interim Sandbar Management Plan. The County proposes a temporary (5 years) Interim Plan for management of the Carmel Lagoon while the Lagoon Project is developed, design/plans are prepared, environmental documents are completed, funding is secured, and the Lagoon Project constructed (**Exhibit A**). This would be performed in collaboration with responsible agencies.
 - c) Sand Harvest/Relocation. Work is proposed to utilize local sand from the Carmel River sandbar. If there is not enough sand to perform the work necessary (e.g. access, closure, etc), the County permit will include using up to 5,000 cy of sand from the sand plant

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located in the City of Marina (Cemex USA). For example, County received permits to use about 1,000 cubic yards of local sand from the local sand plant to create a temporary access from Scenic Road near Carmel River State Beach in order to gain access to the beach in 2011. When or if access can be returned to the Carmel River Beach State Park parking lot, the temporary access from Scenic Road would be re-contoured so that it does not encourage public access.

5. The Parties agree that the Interim Plan (artificial sandbar management) will be implemented in the winter months only as needed when there is an immediate threat of flooding impacts and all other means of flood protection have been attempted. County will apply for a 5-year permit from Corps to perform interim sandbar management activities, including summer closures. While Corps will not be issuing an emergency permit, County actions during winter events would be in response to a local emergency need.
6. The Permitting Agencies agree to work with the County toward a mutually beneficial ultimate goal that would avoid mechanical sandbar management of the Lagoon. This includes committing staff resources to collaborate on developing the Interim Plan as well as long-term design solutions. A tentative schedule for accomplishing this goal is attached as **Exhibit B**.

General Provisions

7. This MOU is effective as of the date last signed by all the Parties, and shall remain in force until September 30, 2020, unless extended or earlier terminated by mutual consent of the Parties. The period of performance may be extended or shortened by written agreement of the Parties. Any Party hereto may terminate this MOU at any time by giving 90 days written notice to the other Parties.
8. This MOU constitutes the entire agreement and understanding between the Parties, and supersedes any prior or contemporaneous agreement, or understandings, if any, with regard to the purposes of this MOU. Any changes or modifications shall be accomplished by a written amendment to this MOU executed by the duly authorized representatives of the Parties.
9. In the event of a dispute arising out of the performance of this MOU, each of the Parties may send a written notice of dispute to the other Parties. Within fifteen (15) working days of receipt of such notice, the notified Party shall respond and agree to a meeting for the purpose of negotiating a settlement or procedure for settlement of the dispute.
10. This MOU does not obligate agencies to provide funding for involvement in this MOU, nor does it require the signatory agencies to obligate or expend funds in excess of available appropriations.
12. Any notice to be given to the parties hereunder shall be addressed as follows (until notice of a different address is given to the parties):

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COUNTY OF MONTEREY

Resource Management Agency
168 W. Alisal St., 2nd Floor
Salinas, CA 93901
Attn: Carl Holm, Acting Deputy Director

UNITED STATES ARMY CORPS OF ENGINEERS

San Francisco District
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398
Attn: Paula Gill, SPN

NATIONAL MARINE FISHERIES SERVICE

Protected Resources Division, North Central Coast Office
777 Sonoma Ave
Room 325
Santa Rosa, CA 95404
Attn: Jacqueline Pearson Meyer

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Understanding as set forth below:

County of Monterey

Dave Potter
Chairman of the Board of Supervisors

Date

Leslie J. Girard
Chief Assistant County Counsel

Date

United States Army Corps of Engineers

John K. Baker, P. E.
Lieutenant Colonel, U.S. Army
Commander and District Engineer

Date

National Marine Fisheries Service

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Christopher A. Keifer
Attorney Advisor General

Date

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EXHIBIT A INTERIM PLAN AND CRITERIA FOR FLOOD CONTROL AND SUMMER MANAGEMENT OF THE CARMEL RIVER LAGOON

This Interim Plan is being prepared in collaboration between Army Corps of Engineers (in consultation with the NMFS), the USFWS, California Coastal Commission, California Department of Fish and Game, California Department of Parks and Recreation, and County of Monterey (herein after collectively referred to as “Parties”) to establish specific criteria to be used for sandbar management of the Carmel River Lagoon. This Interim Plan is proposed to be in effect for a 5-year period or until the Lagoon Project is complete, whichever is less, while Monterey County pursues a long-term solution designed to avoid mechanically managing the Carmel Lagoon. While this Interim Plan is in place, Monterey County will work with the California Department of Parks and Recreation and other resource agencies to develop long range management strategies to provide for flood protection on the Carmel River which take into consideration and preferably benefit, the natural resource of the Carmel River Lagoon.

ISSUES

1. *Flood Damage to Roads, Private Property, and Homes:*

Monterey County has mechanically managed the sandbar between the Pacific Ocean and the Carmel River Lagoon whenever necessary to prevent flooding to the surrounding area. On March 18, 1992, an elevation study was prepared by Monterey County Public Works. Horizontal control is based on the California Coordinate System Zone 4 and vertical control is based on National Geodetic Vertical Datum (NGVD). This survey/study resulted in a contour map in and around the Carmel River Lagoon for the area which could be subject to inundation, should the Lagoon be allowed to breach naturally at an elevation of 15.87 (NGVD88). Potential flooding impacts of natural breaching without protections include: damage to private property, damage to public infrastructure, and reduced response capabilities for emergency service providers to residents in the area.

On December 10, 1982, Monterey County installed a warning marker in the Carmel River Lagoon as a reference point. The top portion of the marker is painted red. The bottom of the red-painted portion is elevation 11.55 NGVD88. Natural breaching was estimated, based on the lowest beach contour of the March 1992 Survey, to be at approximate elevation 15.87 feet (NGVD88). Water levels in the Lagoon at this elevation would result in the flooding of 2,300 lineal feet of residential street, would place 25 single-family residential units within the limits of inundation, the flooding of one sewer pump station and its collection system, and the flooding of various overhead electrical facilities. Other estimates of natural breaching indicated water levels could reach 14.57 feet (NGVD88) which would also flood about 1,000 lineal feet of streets and utilities and would place approximately 13 single family residential units within the limits of inundation. In January 2008, the Lagoon reached its highest recorded elevation of 12.8 (NVD29), which equates to 15.57 NGVD88.

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Since development occurred north of the Lagoon, flooding has historically occurred in the identified limits of inundation. During April 1958 and February 1962, flooding covered the blocks southwest of Sixteenth Avenue and Carmelo streets. In November 1982, three homes were flooded; two on River Park Place and one on Carmelo Street. Records indicate that artificial management of the Lagoon has been performed by one of a number of agencies for quite some time. Monterey County Public Works' involvement began in 1973.

NOTE: Horizontal control is based on the California Coordinate System Zone 4 and vertical control is based on National Geodetic Vertical Datum (NGVD). Past surveys and existing water level markers utilize the 1929 (NGVD29) datum, so much river flow/flood data exists on this datum. However, FEMA FIRMs have now been updated to a 1988 (NGVD88) datum. As such, the elevation data for this application begins to use the NGVD88 datum for current and future surveys of the Carmel River mouth and lagoon. As a result, there will be a differential of about 2.77 feet between NGVD29 and NGVD88. For example, an elevation for historical data showing 10.0 feet using NGVD29 would now be stated as 12.77 feet using NGVD88. Datum references in this document have been adjusted for the NGVD88.

2. *Lagoon Habitat:*

A detailed description of the Carmel River Lagoon habitat is contained in the "Carmel River Lagoon Enhancement Plan," prepared by John Williams, Ph.D. for the Carmel Steelhead Association, Monterey Peninsula Water Management District ("MPWMD), California State Coastal Conservancy, the Monterey County Water Resources Agency, and in cooperation with the California Department of Parks and Recreation. The timing of artificial sandbar management and the Lagoon water level affects the quality of the Carmel River Lagoon habitat. Nesting habitat at the Lagoon for shorebirds may be adversely impacted by high water levels in the Lagoon. Conversely, aquatic habitat and surrounding wetlands are adversely impacted by low water levels caused by poorly designed artificial sandbar management or reduced flow into the Lagoon.

3. *Coastal Dune Habitat:*

Sandbar management activity requires heavy equipment to be driven onto the beach/sandbar through lands owned and administered by the California Department of Parks and Recreation. This agency is contacted prior to any management actions (*see the list of individuals/agencies to contact when opening the river mouth*). There is no vegetation in the work area; precautions are taken to minimize damage to the habitat.

A long range plan for the Carmel River Lagoon should define and propose solutions to maintain the optimum water level(s) of the Lagoon. The amount of inflow into the Lagoon during dry months may determine the minimum water level that can be maintained in the Lagoon.

DISCUSSION

The Carmel River drains approximately 250 square miles of the Santa Lucia and Sierra de Salinas Mountains; most of the runoff comes from the Santa Lucia Mountains on the southwest side of the watershed. The upper 21 miles of the river flows through steep canyons with little

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alluvium; but the lower 15 miles of the river flows through the Carmel Valley, with alluvial fill. At Highway 1, the alluvium is 0.6 miles wide and over 150 feet deep. Two small dams on the upper river have little affect on winter flows, but water diversions and wells in the river watershed cause the lower river to go dry in the summer. Flow is measured 3.5 miles upstream from the Lagoon at the "Near Carmel" gauge. No significant tributaries enter the river below this gauge which gives a good approximation of flow into the Lagoon. The annual flow has varied from zero to over 350,000 acre feet, with a mean around 73,170 acre feet since the gauge was installed in 1962. There was no flow to the Lagoon in 1976, 1977, 1988, 1989, or 1990. The "one hundred year flood", which has a one percent (1%) chance of occurring in any future year, is about 29,000 cubic feet per second (cfs).

Without upstream diversions for municipal use and irrigation, the average annual discharge would be over 90,000 acre feet, and there would be continuous inflow to the Lagoon in all but the driest years. Aquifer recharge, also, affects flows into the Lagoon. During the dry season, the Monterey Peninsula gets most of its water from the alluvial aquifer of the Carmel River, drawing down the water table in the lower Carmel Valley and drying up the surface channel. When flows increase in the fall or early winter, recharge to the aquifer is initially very rapid, so that runoff from early storms is strongly attenuated or does not reach the Lagoon at all. Once the aquifer has been recharged, flow to the Lagoon accelerates and response times for action to eliminate potential flooding are greatly reduced.

The level and duration of potential flooding will vary from year-to-year, and sandbar management by County forces during the winter rainy season depends on multiple factors including: beach elevations, high tides, river flows. Flow in the river fluctuates reflecting the seasonal rainfall and diversions, and is highly variable from year to year. Flow into the Lagoon normally ceases between June and August and resumes between November and January. Artificial sandbar management by County forces is designed to reduce potential for flooding as well as deposition of heavy silt loads within the Carmel River Lagoon.

Four gauges exist that provide flow estimations in the Carmel River:

- 1) Los Padres Dam
- 2) Esquiline Road Bridge in Robles del Rio
- 3) Carmel River near Carmel Station upstream of Via Mallorca (U.S. Geological Survey)
- 4) MPWMD installed a telemetered water level gauge at the Highway One Bridge site that is accessible by telephone modem.

MPWMD has developed a discharge rating table for the Highway One site for flows up to 3,150 cubic feet per second (CFS), based on measurements collected during Winter 1992. Response times for action dictate the need to use the Robles del Rio gauge to establish criteria for mobilization and sandbar management. This gauge provides approximately four to six hours of response time.

PRE-MOBILIZATION

Sand Bags. Monterey County would continue to stockpile sand and place sand bags around homes along north end of Carmel Lagoon (Camino Real, River Park Place, Monte Verde Street, 16th Avenue). This action is limited to approval by private homeowners closest to the Carmel

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Lagoon to install sand bags on their property. Monterey County would also place pallets of sand bags at the end of the streets and will place bags within the right of way at the end of streets draining to the Lagoon. With sand bags in place, urban water runoff from the Carmel area above must be pumped over the barrier into the Lagoon.

Public Outreach. Annually in September/October, ahead of the rain season, Monterey County would initiate public outreach to warn homeowners so they take appropriate precautions to protect their property during the winter months. Homeowners will also be informed of the adverse affects associated with sandbar management. Also, homeowners will be informed of the state and federal laws governing activities such as breaches/management within the lagoon and penalties associated with activities if conducted without appropriate approvals.

MOBILIZATION AND MANAGEMENT CRITERIA

Criteria for this Interim Plan have been developed to manage the sandbar for flood protection (e.g. channeling). Trigger points include water level within the Lagoon, actual and anticipated river flow rates (in consultation with Monterey Peninsula Water Management District), weather forecasts and tidal forecasts. Any such work would be performed only when necessary - based on pre-determined triggers and upon consultation with NMFS - to prevent flooding of homes and would be implemented in a manner that would minimize impact listed species (e.g. steelhead trout). County will use the following criteria to decide when and how to manage the sandbar:

1. *Early season planning:*

County prefers to manage the Lagoon on the southern end of the beach due to accessibility and historical experience with river flows. Parties agree to discuss options as part of early season planning each year that the Interim Plan is in effect. If it is determined that flows will be managed to the north, during this early season planning meeting triggers (e.g. flow velocities, channel proximity to Scenic Road) will be established for redirecting flow. By October 1 of each year the County, NMFS, and the Corps shall have met and agreed upon sandbar management techniques to be implemented during the upcoming winter months. To inform the discussion the County shall provide a brief description of the lagoon's configuration include a complete sandbar map at least ten days prior to the meeting. In the meeting, Parties will agree on preferred actions for the upcoming season, including but not limited to:

- A) management location;
- B) channel configuration;
- C) target lagoon water elevations; and
- D) access (e.g. parking lot protection).

2. *Mobilization:*

County may begin to mobilize for a river mouth sandbar management when any one or more of the following occurs:

- A) The water level in the Lagoon has reached Elevation 12.77feet (NGVD88)
- B) Evidence is available that water levels in the Lagoon are rising and that the projected rate of Lagoon water level increase indicates the level will reach 12.77 (NGVD88) within hours. The increase in elevation could be caused by flow the river or by waves over-topping the sandbar. A staff gauge will be installed near the existing warning marker that the rate of water level increase can be estimated.

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- C) Carmel River flows reach or exceed approximately 200 cfs, as provided by Water Resources Agency or MPWMD to Public Works via the stream gauges at Las Padres Dam and at Esquiline Road Bridge.

Before management of the sandbar occurs, County shall implement all measures of flood protection (e.g. sand bags) to reduce the flood potential to the surrounding homes and infrastructure to the greatest extent feasible.

3. *Sandbar Management:*

Sandbar Management may be triggered by any one or more of the following conditions:

- A) Lagoon Water Elevation. Actual excavation of the sand will begin when the water level in the Lagoon reaches elevation 13.27 feet (NGVD88). The warning marker will continue to be utilized and checked periodically when there is water in the Lagoon. This monitoring will be completed by County and MPWMD. Generally the marker is recognized by local residents and they can also provide a warning when the water level is approaching the bottom of the painted red area. Annually, prior to the winter rains and intermittently throughout the winter months, County will confirm the base elevation of the warning marker and new staff gauge.
- B) River Flows. When river flows or rate of increase in water level in the Lagoon, as estimated on the staff gauge, indicates less than six hours until the water level in the Lagoon reaches 12.77 (NGVD88). When inflow exceeds initial opening outflows, the Lagoon continues to rise long after the actual opening.
- C) High Tides. Due to the exposed nature of the sandbar's location, large waves can sweep completely over the bar, especially at high tide. Wave over-topping can rapidly increase the water level of the Lagoon as well as increase the sandbar elevation. Wave over-topping also can fill in an existing channel.

Subsequent to the opening action and after high inflows from the river have receded, the Lagoon shall either be allowed to naturally close or remain with an open outlet channel flowing over the beach in a meandering channel that is designed to mute tidal influence and rapid draining of the Lagoon. The Lagoon shall be maintained at a minimum 6-foot water surface elevation. If excessive scour is observed in the constructed outlet channel, the Lagoon shall immediately be closed by the placement of sand that is free of contaminants.

County will monitor the river mouth and Lagoon for water levels, both during and after the channel has been opened, as often as necessary as conditions warrant. A qualified (minimum three years experience with anadromous salmonids) biological fish monitor will be present during the initial opening or closure of the channel and while an outlet channel remains open, the biologist shall monitor the channel twice daily (a.m. and p.m.) to document and fish entrainment, strandings or other occurrences that pose risk to steelhead. If stranded steelhead are observed, the County shall contact NMFS and CDFG to coordinate any necessary fish rescues. Regular updates (bi-weekly) via email or phone call shall be provided to address any action that may be necessary if 'take' of steelhead occurs. A report produced by the monitor documenting construction activities and any observation of fish mortalities and/or harm or harassment will be submitted to the Corps and NMFS within two weeks post-construction. Said report shall also

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outline all implemented measures of flood protection to protect surrounding homes and infrastructures and estimate volume of sand moved.

Prior to work occurring during the nesting season of the snowy plover (e.g. summer closure), a qualified biological monitor will identify any areas that pose risk to the snowy plover. A report produced by the monitor documenting any observation of snowy plover will be submitted to the Corps and USFWS pre-construction. In the event that a snowy plover nest is found, the USFWS shall be contacted before work that may impact the species commences.

County requires approximately 24 to 48 hours, depending on weather conditions and the size of the sandbar, to mobilize and clear a channel through the sandbar with 1-2 bulldozers (D6 Caterpillar). County equipment is driven on the beach for sand management only. Loading and fueling takes place from paved areas to clean sand and contain hazardous materials.

County will usually work during daylight hours when large waves can be seen. In addition, work would occur outside of active rain storms to the greatest extent feasible while maintaining primary goals to prevent flooding impact and/or maintain minimum water levels in the Lagoon. Heavy equipment shall not be operated in open waters of the Lagoon. Loading and fueling will take place from paved areas to clean sand and contain hazardous materials.

LAGOON SUMMER MANAGMENT

Water levels will be managed in the Carmel River Lagoon at the beginning of the summer dry season by using heavy equipment to modify the beach that separates the lagoon from the ocean. The objective of this management will be to maintain and enhance habitat for fish and wildlife including steelhead trout and California red-legged frogs by maximizing the volume of fresh water in the lagoon. The enhancement will be accomplished by management of the Carmel River Lagoon's water level to maximize the volume of freshwater in the lagoon at the beginning of the summer dry season. The goal will be to maximize the lagoon water level up to a maximum elevation of 12.77 feet (National Geodetic Vertical Datum 1988, which is equivalent to 10.00 feet on the NGVD of 1929). A larger, deeper lagoon during the summer/fall period increases the quality and quantity of fish and wildlife habitat. A larger and deeper lagoon at the end of the annual river flow period also increases the chances that the lagoon will maintain adequate volume and quality to sustain healthy conditions for fish and wildlife until river flows resume during the following fall/winter period. Project implementation will include placement of sand to close the opening between the lagoon and the ocean.

Dimensions (sandbarrier width at base and top and elevation) of the sandbarrier to be constructed each summer season will be determined in early May of each year in consultation with the agencies. The County shall implement the closure shortly after sandbarrier dimensions are determined.

BEACH/SAND DUNE RESTORATION

The sand dune beach area goes through an annual cycle of change that is driven by seasonal wave action. In the winter, steep, high frequency waves tend to move sand from the beach offshore to a bar, or down the coast. In the summer, the waves are smaller and farther apart, and

EXHIBIT 1

move the sand from the sandbar back to the beach. If sandbar management is completed early during the winter, this cyclic wave action tends to remove the excavation spoils from the beach.

The County will review the beach area prior to May 15 with State Parks personnel. If spoils have not been removed by normal wave action, the spoils area will be re-contoured to a natural state prior to May 15. The County would assure any channel work performed during the winter is closed off and the sandbar restored at the conclusion of the rain season. This area is traditionally part of the beach and water in this area is expected to subside during the summer months.

As opportunities are provided (e.g. water levels in the Lagoon subside), County may harvest sand from non-wet areas along the beach and stockpile the sand for future use under the Interim Plan. County would consult with appropriate agencies to coordinate appropriate timing for harvesting sand from the beach and moving it to approved areas in order to restore beach access. If an adequate quantity of sand is not available from the subject beach, County may obtain approximately 5,000 cubic yards of sand from a local sand plant in Marina.

In order to gain access to the beach, County received permits to use about 1,000 cubic yards of local sand from a sand plant to create a temporary access from Scenic Road near Carmel River State Beach. When or if access can be returned to the Carmel River Beach State Park parking lot, the temporary access from Scenic Road would be re-contoured so that it does not encourage public access. The slope would be restored using sand already in place – no new sand would be imported.

GENERAL CONDITIONS

All work involved with sandbar management will be completed in accordance with the Interim Plan and any conditions placed on this Plan.

County will avoid using heavy equipment within all known areas of cultural resources. If County discovers any previously unknown historic or archaeological remains while accomplishing activity described in the Plan, County shall immediately notify Corps of said findings.

During mobilization and when opening the river mouth, County will provide warning signs, fence, flags, barricades, and flagger, in accordance with the attached Pedestrian Control Plan.

County will issue a news release when sandbar management activity has been completed to warn the public of potential hazards. An area outside the limits of work will be designated for the news media and the public to observe the activity.

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The following permits are needed:

AGENCY	ACTION
State Parks and Recreation	Memorandum of Understanding or Temporary Right to Enter
California Coastal Commission	Coastal Development Permit
US Army Corps of Engineers	Department of the Army Permit
US Fish and Wildlife Service	Section 7 consultation
National Marine Fisheries Service	Section 7 consultation (Biological Opinion)
California Department of Fish & Game	Lake and Streambed Alteration Agreement (1600 Permit)
Regional Water Quality Control Board	401 Certification
County of Monterey	Emergency Proclamation

CARMEL VALLEY RIVER MOUTH MANAGEMENT NOTIFICATION

In order to ensure that timely and accurate information is available to all concerned agencies and the public, Monterey County staff will contact the Notification List at the following times.

1. Upon commencement of mobilization. (An estimate of commencement of actual management operations should be included in this notification)
2. Upon commencement of actual river mouth management operations. (An estimate of completion of river management operations should be included in this notification)
3. Upon completion of river mouth management operations.

Management activities will be followed with a report within two weeks of management activity indicating the extent of the activities and any effect to listed species. All agencies on the Notification List will receive a copy of the report. The following contact list is to be used by the County staff when activities are being governed by this Interim Plan. Failure to make contact during off work hours will be followed with a call at 8:00 a.m. the following morning.

AGENCY	CONTACT
U. S. Army Corps of Engineers	Paula Gill (Cameron Johnson)
National Marine Fisheries Services	Jacqueline Pearson Meyer (Joyce Ambrose)
California Department of Fish & Wildlife	Rob Tibstra (Linda Connolly)
California Coastal Commission	Michael Watson (Dan Carl)
California Department of Parks & Recreation	24-Hour Dispatch (Steve Bachman)
Monterey Peninsula Water Management District	Larry Hampson
Monterey County Supervisor District 5	Kathleen Lee
Monterey County Resource Management Agency	Carl Holm (Dawn Mathes)

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Monterey County RMA-Public Works	Shawn Atkins (James “Hop” Essik)
Monterey County RMA-Planning	Laura Lawrence (Joe Sidor)
Monterey County RMA-Building Services	Michael Rodriguez (Mark Setterland)
Monterey County Water Resources Agency	Tom Moss (Rob Johnson)
Monterey County Office of Emergency Services	Sherrie Collins (Sydney Reade)
Monterey Communications Center Call Dispatch	
U.S. Fish and Wildlife Service	Chad Mitcham
Regional Water Quality Control Board	Jennifer Epp

LONG TERM SOLUTION

A long term solution to the problems addressed by this Interim Plan have not yet been determined so Monterey County has applied for permits that include investigations, planning, design, and construction of a coordinated solution. Meanwhile, Monterey County has proposed this Interim (5 years) Plan for flood management of the Carmel Lagoon while a long term solution is prepared, design/plans are prepared, environmental documents are completed and processed, and the projecting term project is constructed. The long term solution for the Lower Carmel River and Carmel Lagoon intends to balance protection of the natural environment with the built environment, including:

- Enhance ecological conditions along the Carmel River and within the Carmel Lagoon, including habitat for certain threatened or endangered species (California red-legged frog, Central coast steelhead trout, Western snowy plover, Smith’s blue butterfly)
- Protection from flooding; existing homes, commercial businesses, school.
- Maintain public infrastructure with anticipated sea-level rise; Highway 1, Scenic Road, State Parks facilities (parking lot, restroom).
- Retain beach area for public enjoyment
- Create trails for public access

EXHIBIT 1

**EXHIBIT B
TENTATIVE SCHEDULE**

MILESTONE	LEAD AGENCIES (Responsible Agencies)	TARGET DATE FOR COMPLETION
Submit Corps application (Concept EPB + Interim Plan)	County	September 2012
Adopt MOU	County, Corps, and NMFS	February 2013
Technical Report/Studies (long-term solution)	County	April 2013
Concept Design Preferred Alternative (long- term solution)	County	June 2013
Submit Biological Assessment and preferred EPB/Scenic project	County	July 15, 2013
Initiate Section 7 Consultation w/ USFWS and NMFS	Corps	July 22, 2013
Issue Public Notice	Corps	August 1, 2013
Respond to Public Notice Comments	County	September 15, 2013
Environmental Review	County	October 2013
Conclude Section 7 Consultations	USFWS, NMFS	October 1, 2013
Permit Approvals for Planning, Design and Interim Sandbar Management Plan - Note BOs will include both long-term and interim plan	Corps* (County)	October 15, 2013
Complete Construction of Preferred Alternative (long- term solution)	County (Parks)	September 2020**

* Also requires a 401 certification from the Regional Water Quality Control Board, 1600 Permit from Department of Fish and Game and Coastal Development Permit from the Coastal Commission.

** Depending on funding