




**Date:** May 13, 2014

**To:** Mayor and Members of the City Council

**From:** f Patrick H. West, City Manager 

**Subject:** **Ocean Boulevard (Bluff) Erosion and Enhancement Phase 2 Project**

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**Overview**

On April 29, 2014, the City Council held a Special Meeting to discuss the Ocean Boulevard (Bluff) Erosion and Enhancement Phase 2 Project. This memo provides an update on efforts taken as a result of the City Council's direction, provides the requested information, and details the process for review of the project.

**Background**

The City of Long Beach approved a Bluff Master Plan in 2000, which identified a need to stabilize the bluff from everyday erosion and collapse in the event of an earthquake. The Bluff Master Plan identified three stabilization options that were further developed after a comprehensive geotechnical analysis was conducted in 2009. The initial options modified the slope of the bluff for stabilization, but were rejected by the community and the City, as they required either filling in beach area or reducing the size and configuration of Bluff Park.

The preferred stabilization option is the method currently being used for this project, which consists of soil nailing and shotcrete treatment to stabilize the bluff, followed by staining and landscape to the shotcrete to provide aesthetic qualities. This treatment is used on 44 percent of the bluff, and only on areas where it was identified in the geotechnical analysis as the best available option. The remaining areas of the bluff will be addressed without the need for this stabilization option. The City completed Phase 1 in December 2011, and began Phase 2 in October 2013.

**Action Taken in Response to City Council Direction**

At the April 29, 2014 City Council Special Meeting, the City Council voted to: delay the Bluff Park Stabilization Project for 45 days and directed staff to: (1) conduct an engineering analysis (peer review) of the Bluff; (2) consider other alternatives to Bluff stabilization, other than shotcrete; (3) advise the Council on community improvements to the Bluff that do not involve shotcrete; and (4) report the results of staff's analysis and stabilization alternatives to the City Council and online to the public.

With this direction, on April 30, the City halted work so that no additional soil nailing, concrete or staining would proceed. The City did allow work to continue in the grassy areas of Bluff Park not directly above any seismically vulnerable area that received soil nail treatment. This allowed work to continue on the

Ocean Blvd. front part of Bluff Park, while preserving future options for the areas originally planned for soil nailing treatments. Work in Bluff Park that is continuing (only in areas that are not directly above the seismically vulnerable areas) includes: irrigation improvements in the grass areas and sod installation where feasible; sidewalk construction; and installation of the historic rail.

Additionally, Cherry Park work (between Junipero and Cherry) will continue as we work to grade the bluff, create the walkway, and install landscaping. This area is not seismically vulnerable, and no shotcrete or soil nailing is planned for this area.

### **Demobilization of Equipment and Cost Estimate**

While work ceased immediately on the project, there were ongoing costs related to the contractor's equipment and overhead for the project, totaling approximately \$11,000 per day. Given that the City wishes to pause the work for 45 days for further analysis and a review of options, staff requested the contractor demobilize the equipment in order to avoid further charges. By Friday, May 2, the City had directed the contractor to demobilize any equipment related to soil nailing, staining and shotcrete. The demobilization will cost the City \$83,000, but has reduced the daily expense incurred from \$11,000 to \$2,000 during the delay. If the City wishes to proceed with the previously contracted work, the contractor will need to remobilize, at an estimated cost of \$104,000 and timing will depend on the availability of the equipment.

### **Estimates of Work**

As part of the direction on April 29, the City Council requested that City staff provide estimates of other work that could continue. The City will move ahead with the work listed above (work in the park not above a seismically-vulnerable area), as it does not impact the bluff project. However, following are items the City Council could consider moving forward with that involve the bluff itself. Keeping in mind that the Council could, at some point, decide that an alternative type of treatment is preferred and direct staff to have the shotcrete removed, City staff will not move forward on these items until further direction is given by the City Council:

1. New landscaping for Phase 1 (above and below the treated area):  
\$60,000
2. Staining the completed portion of Phase 2: \$60,000

### **Information on the Soil Nailing Technique**

As part of the City Council Special Meeting, there were questions about where else this treatment has been used in California. Soil-nailing and shotcrete treatment is a fairly common treatment for seismically-vulnerable bluffs. Over the past ten years, projects have been completed in numerous California cities, including Dana Point, San Clemente, Santa Cruz, San Pedro, and Agoura Hills. The specific contractor for the Long Beach project has completed over 106 projects throughout California since 2008. Attached are some photos of completed projects, including projects with mature landscaping.

**Contingency**

The City Council requested information on the amount of contingency available for this project. The project originally had an approved contingency of \$666,000. Of that amount, approximately \$450,000 was originally identified for the new irrigation system at Bluff Park and potential additional planting of Phase 1 landscaping. Another \$100,000 was originally intended for the additional rail and sidewalk work from Redondo to 36th Place. Approximately \$116,000 of the contingency is unallocated, and currently being used to fund the demobilization and other expenses as a result of the April 29, 2014 action.

**Peer Review**

The direction from the City Council on April 29, 2014 was to examine the available options to determine if the selected method was the preferred method. To accomplish this, the City has engaged in a peer review of the City's 2009 Geotechnical study. Three independent geotechnical firms have been selected to review the City's 2009 study and provide a report back to the City Council. City staff sought input on the selected firms from the community group who raised this issue to the City Council. The peer review effort is expected to cost approximately \$20,000 and staff expects to have the firms begin their work on May 14, 2014. The work is estimated to take two to three weeks, at which point the report will be finalized and brought back to the City Council for review and discussion.

**Website**

City staff have created a website to provide a central repository for information on this project. The website includes the Bluff Master Plan, the Geotechnical study, and other documents, and will continually be updated with materials. The website can be found at:

[www.longbeach.gov/citymanager/tidelands\\_capital\\_projects/bluff\\_erosion\\_phase\\_ii.asp](http://www.longbeach.gov/citymanager/tidelands_capital_projects/bluff_erosion_phase_ii.asp)

**Next Steps**

City staff are working quickly to perform the review and return to the City Council with information. Based on the estimates for completing the peer review, it is expected that this item will return to the City Council by June 17, 2014 for review and discussion.

For more information, please contact Eric Lopez, Tidelands CIP Officer, at (562) 570-5690.

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# Before & After—Dana Point



**Before (2002)**



**After (2014)**

# Before & After—Agoura Hills



**Before (2003)**



**After (2014)**

# Shotcrete With Mature Landscaping



**Dana Point**

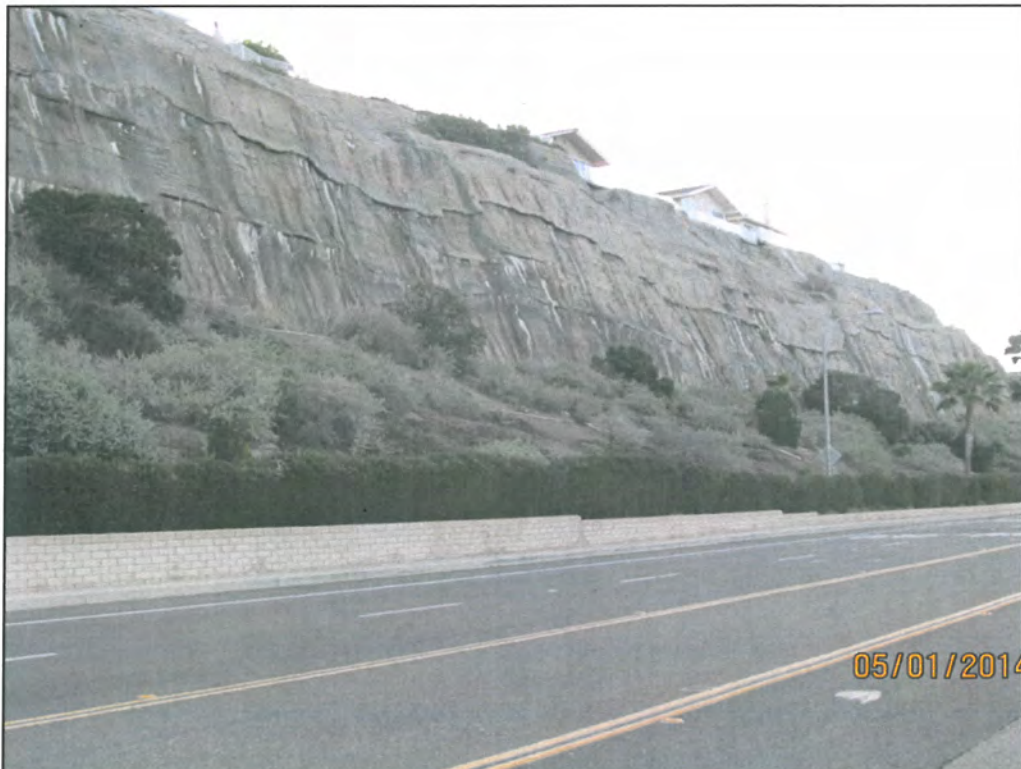


**Agoura Hills**

## Other Shotcrete Applications



**Santa Cruz**



**San Clemente**

## Other Shotcrete Applications



**San Pedro**



**San Ramon**