

Project No. SC11778
7 January 2021

MR. DAVID MEWES
HOA Board President
4800 Opal Cliff Drive
Capitola, CA 95010

Subject: Geotechnical Plan Review

Reference: Blufftop Retaining Wall and Seawall
4800 Opal Cliff Drive
APN 34-251-05
Capitola, California

Dear Mr. Mewes:

At your request, Haro, Kasunich and Associates, Inc. (HKA) has prepared this letter to summarize our review of the plan set provided to us. We understand the project involves various maintenance work which include: two shotcrete and rock dowel repair areas along the base of the blufftop wall (locations #1 and #2), removal of shotcrete overspray at the upcoast property boundary, repair of various areas of spalled concrete along the blufftoe seawall, repair of plugged weep holes along the blufftoe seawall, and vegetation removal along the base of the blufftop wall.

HKA has reviewed only the geotechnical aspects of these plans. We are not the Civil or Structural Engineers of Record for this project. We provide no warranties, either express or implied, concerning the dimensions or accuracy of the plans and analysis.

We reviewed the geotechnical-related aspects of plan sheets to see if they are in conformance with our geotechnical recommendations for this project. We reviewed the Blufftop Retaining Wall and Seawall Maintenance plans prepared by Soil Engineering Construction, sheets 1 to 4, latest revision dated 12-28-2020. Our geotechnical recommendations are summarized in an Inspection Monitoring & Maintenance Report, dated 23 June 2020.

The shotcrete rock dowel repair areas are shown in plan on sheet 2 and in section on sheet 3. Photos of the repair areas are shown on sheet 4. The soil nails are to have a minimum bond length of 8' into the Purisima Sandstone and a 1.5' unbonded zone for a total minimum length of 9.5'. It is anticipated that 19 soil nails will be needed for the two repairs. The nails will consist of 1" diameter Dywidag rods set in 3" diameter bore holes and bonded to the soil with grout. Miradrain panels will be connected to the existing Miradrain panels and will be installed along the bluff face with weep holes before placement of shotcrete.

Mr. David Mewes
Project No. SC11778
4800 Opal Cliff Drive
7 January 2021
Page 2

The new shotcrete will also be connected to the existing shotcrete with 18" long #4 dowels and grout. The new shotcrete should match the existing shotcrete texture and color. At the upcoast location #1 repair, a large mass of shotcrete, bedrock, and rebar dislodged and fell to the beach as shown in Photos 2 and 3 in our Report. The plans show this concrete, bedrock, rebar debris to be removed on Photo 1, sheet 4. The location and extent of the repair conforms with our June 2020 Report.

Existing outflanked shotcrete from the blufftop wall along the upcoast property line is shown to be sawcut and removed so the shotcrete is flush with the terrace deposits. The work will be done in a manner that minimizes disturbance of adjacent unprotected terrace deposits during maintenance operations.

The maintenance work also shows repair of various spalled areas along the blufftoe gravity seawall. The materials used to patch the spalled sections of the seawall should be of marine environment quality. If a concrete mixture is used it should have a maximum water to cementitious materials ratio of 0.40. The spalled area will be properly prepared by cleaning and roughing surface prior to placement of concrete patch. The patched will be made with similar colored and textured concrete as the existing blufftoe seawall. The existing pvc weeps holes along the base of the blufftoe seawall are also shown to be drilled out / cleaned out to removed debris and shotcrete that was observed during our inspection.

The unprotected area between the blufftop seawall and the blufftoe seawall has pampas grass and various shrubs growing on the slope. This vegetation is planned to be removed to minimize future damage to the bluff slope. Removal of the vegetation will be limited to cutting off the plant to the top of the root ball and painting the root ball with undiluted herbicide. The exposed root ball will be left in place to minimize disturbance of the fractured rock.

The geotechnical aspects of the plan sheets we reviewed are in conformance with our recommendations for this project. HKA should observe the maintenance operations during the scheduled work. This will allow us to see that our recommendations have been met and the soil and site conditions are consistent with those inferred in our recommendations for this project.

Mr. David Mewes
Project No. SC11778
4800 Opal Cliff Drive
7 January 2021
Page 3

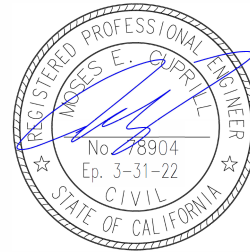
If you have any questions, please call our office.



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Respectfully Submitted,

HARO, KASUNICH AND ASSOCIATES, INC.



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