

MEMORANDUM

To: Sarah Mansergh, Clerk of the Board
Pajaro Dunes GHAD
2661 West Beach Road
Watsonville, California 95076

From: Dan Peluso, P.E., G.E.
Cal Engineering & Geology, Inc.
6455 Almaden Expressway, Suite 100
San Jose, California 95120

Date: September 12, 2019

RE: Seawall Document Review and Project Status
Pajaro Dunes Resort
Santa Cruz County, California
CE&G Document 190780.002

1.0 INTRODUCTION

This memorandum presents a summary of the project history since 2014, which was the timeframe of the last involvement on the project by Dan Peluso, a summary of a review of relevant documents, and a discussion of the anticipated next steps required to advance the project design and permitting. This memo was prepared at the request of the Pajaro Dunes Geologic Hazards Assessment District (PDGHAD). This memo does not present a discussion pertaining to an engineer's report or project funding.

2.0 DEVELOPEMENT DESCRIPTION & HISTORY OF REPAIR DESIGN

The Pajaro Dunes community includes private single-family residences, including detached residences as well as groups of townhouses and condominiums. These buildings were constructed along a narrow strip of land bounded by the Pacific Ocean on the southwest and by the Pajaro River on the northeast and southeast. The development is protected by an approximately 6,000-foot-long seawall constructed of large riprap along the ocean-side of the development and a steel sheet pile wall approximately 715 feet long along the inland Pajaro River side of the development.

The rock revetment has been repeatedly damaged by coastal erosion, occurring during relatively severe winter storms since its original construction at least two times: in 2002/2003 and in 2004. Following each damaging storm event, emergency repairs were implemented in the form of placing riprap in selected areas along the revetment. We are not aware of storm damage to the river wall.

The Pajaro Dunes development has in the past utilized the engineering services of Haro Kasunich & Associates (HKA) and Arup North America, Ltd. (Arup) for annual inspections as well as engineering design of repair alternatives. Key staff at HKA had worked on the original design and construction of the revetment since before the rock revetment was constructed in the late 1980s. HKA also prepared a number of seawall replacement concept designs, most of which required encroachment onto State Park lands and all of which were prohibitively expensive. More recently, Arup conducted a risk assessment of the seawall against coastal erosion and storm surge, followed by preparation of repair and maintenance recommendations and initial repair design for a segment of the seawall. This repair design has undergone initial reviews by stakeholder agencies, including the California Coastal Commission and the Santa Cruz County Planning Department.

Most of the communications with agency officials we are aware of has been with the California Coastal Commission (Ryan Moroney, Sharif Traylor) and Santa Cruz County Planning Department (Kathleen Molloy, Carolyn Burke, Jeff Nolan). Other agency stakeholders include the following agencies and individuals:

- Deidre Whalen, Monterey Bay National Marine Sanctuary
- Grace Kato, State Lands Commission
- Chris Spohrer and Todd Allen, California State Parks

We understand there are some new staff at the Santa Cruz County Planning Department, including Jeff Nolan, County Geologist, who replaced Joe Hanna upon his retirement. It is possible the new staff may have different and more favorable requirements for permit approval.

3.0 SELECTED RELEVANT DOCUMENTS

Below is a chronologic listing of the available documents provided and reviewed by CE&G that are relevant to permitting and repair of the seawall, with a brief description included:

May 2012 – A report by Arup dated May 14, 2012, presents a risk assessment of the seawall and a cost-benefit analysis of previous seawall repair/replacement design concepts prepared by HKA. This report concluded that a rigorous maintenance and repair approach was the most cost-effective means of repairing and maintaining the seawall.

August 2013 – A report and preliminary design plans dated August 30, 2013, were prepared by Arup. The submittal presents a repair scheme focused on the most vulnerable segments of the central portion of the seawall.

January 2014 – Letter by the California Coastal Commission (CCC) presenting their review of the Arup 2013 repair design, as well as provided comments and requests for additional information.

March 2014 – Letter by Santa Cruz County Planning Department (SCCPD) dated March 17, 2014, summarizing review comments by County staff. The review comment list is fairly extensive, including additional engineering analyses. This letter prompted the June 2014 meeting with County staff and Bill Lyons and Dan Peluso.

June 2014 – Notes by Arup dated June 11, 2014, summarizing key discussion points from meeting with Santa Cruz County Planning (SCCPD) Staff.

September 2014 – Status memo prepared by Arup dated September 9, 2014.

September 2014 – Letter by SCCPD dated September 17, 2014, presenting follow-up review comments by County staff. The letter reiterates requests for extensive additional engineering analysis.

November 2014 – Letter dated November 13, 2014, by Arup that provides a status of the project review by the CCC and SCCPD. The letter also summarizes items requested by SCCPD that had yet to be provided.

March 2015 – A report by Arup dated March 27, 2015, presents a revised repair design, initial phase.

April 2015 – Two letters by Arup, one to State Parks and one to State Lands Commission, requesting support for repair of portions of the seawall.

May 2015 – Letter by the CCC dated May 22, 2015, presenting their staff review of additional information submitted by Arup, and requests for additional information, including written correspondence from other agencies noted above stating approval of the repair approach.

November 2015 – Letter by State Parks Department dated November 5, 2015, stating support for temporary access across the beach to accomplish the seawall repair and recover buried riprap.

November 2015 – Report by Arup dated November 20, 2015, submitting requested additional information to the CCC.

December 2015 – Letter from CCC dated December 16, 2015, presents a summary a previously requested additional information that had not yet been provided. This letter is attached for reference.

January 2016 – A letter by Arup dated January 12, 2016, to Santa Cruz County Planning Department presents a summary of a change in the repair concept and a request to meet with County Planning staff. **The change presented was to permit a greater length of repair than previously submitted.** This letter is attached for reference.

January 2016 – Letter from California State Lands Commission dated January 29, 2016, that acknowledges the previous request for project support and provides a determination that no lease is required for the proposed repairs. **This letter essentially provides the requested project support.**

We are not aware of additional correspondence or design submittals prepared after January 2016 that pertains to seawall repairs. Thus, over three years have passed since that time and it is our understanding that the seawall repair and obtaining approval for repairs has not advanced.

4.0 RECOMMENDED NEXT STEPS

We recommend the following steps be taken next to work towards repair of selected portions of the seawall and recovery of buried riprap on the State Parks property (beach):

1. Because of some staff changes at the County Planning Department, an in-person meeting with PDGHAD Board Member(s) and Dan Peluso should plan to meet with

County Staff to discuss the most recent information request. One of the aims should be to convince them to rescind some of the more onerous requirements, including a wave run-up study, which doesn't seem appropriate for a facility repair. A listing of the missing items is presented in the attached November 13, 2014, letter by Arup.

2. Following the most recent document request from the California Coastal Commission, the additional requested information should be compiled and provided for their review. The requested additional information is listed in the attached December 16, 2015, letter by CCC.
3. Based on the review comments from the CCC and the SCCPD, I believe the CCC comments will be easier to generate/compile and the requirements of the County will require considerably more effort.

5.0 LIMITATIONS

CE&G has performed its services in a manner consistent with the level of care and skill ordinarily exercised by a member of the same profession currently practicing in the same location under similar circumstances. No warranty or representation, either expressed or implied, is included or intended hereunder.

6.0 CLOSURE

We trust this report provides you with the information necessary to proceed. If you have any questions, please contact us

Sincerely,

CAL ENGINEERING & GEOLOGY, INC.



Dan Peluso, G.E. 2367
Principal Engineer

Attachments:

- November 13, 2014, letter by Arup with highlights
- December 16, 2015, letter by CCC with highlights

Your ref
Our ref 217563
File ref 4-01

ARUP

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November 13, 2014

Dear Mr. Rodriquez

Pajaro Dunes GHAD Comments on County of Santa Cruz Planning Department September 17, 2014 Letter

As requested by Mr. Bill Lyons in his e-mail, dated October 20, 2014, we have completed a review of the subject letter on the Review of Geotechnical/Coastal Engineering Reports for Pajaro Dune (sic) GHAD Zone 1. The letter is presented in three sections of comments:

1. Review of the Haro, Kasunich and Associates (HKA) Report, dated February 2008
2. Risk Assessment of Seawall Mitigation alternatives
3. Un-answered comments for previous review of the Arup repair design, dated March 17, 2014

Based upon our review we have the following comments.

Comment 1. On page 2 of 7 of the letter there is an acknowledgment that the County has not been involved in discussions between the State Parks, the Pajaro Dunes GHAD (PDGHAD), and the Coastal Commission Staff over the proposed work. Thus they have not been party to discussions and the direction that the work has been moving in and restrictions to activities that have been imposed by these other agencies.

Comment 2. The letter notes that the HKA report was prepared to support enhancement of the sea wall with construction of a sheet pile wall. The letter makes no comment related to the adequacy of the modifications proposed by HKA, but notes that a number of analyses indicated in the report and that support its conclusions are not sufficient though HKA assumed “conservative” estimates of hazard properties. Included in the analyses deemed to be insufficient or commented on are:

1. Sand deficit analysis;
2. Sea level rise;
3. Beach scour episodes;
4. Wave run-up analyses; and
5. Size of quarry stone.

Comment 3. The County notes very different conclusions between the HKA report and the Arup risk assessment, but does not side with one report or the other. Instead in the 3rd paragraph of section 2.1.1 it is stated that both the Arup and HKA reports do not appear to have sufficient data, analysis, and conclusions to support the conclusions of their risk analysis.

Comment 4. The County indicates that appropriate analyses and selected mitigation of the seawall must be supported by more rigorous analyses that:

1. Follow design standards of the Local Coastal Plan, the County Grading and Geologic Hazards Codes, and the FEMA coastal development standards;
2. Account for sea level rise and climate change based on the “best Science” identified by the Coastal Commission;
3. Deals with existing fugitive rock on State Property and prevents further migration of rock; and
4. Provides a maintenance heuristic, including objective inspection and repair selection criteria.

Comment 5. There is also a listing of un-answered comments from a previous review letter, dated March 17, 2014. These include the following:

1. Providing a transfer of responsibility for the geotechnical engineer and engineering geologist for the work of HKA to Arup;
2. Submittal of an engineering geology report that addresses costal conditions as required by County Code Section 16.20.115 *Shoreline protection structures*;
3. Providing back-up material that has been requested for the slope stability analyses referenced in the Arup repair design;
4. Performing wave run-up analyses considering level rise and accurately defining the oceanographic conditions that affect the replacement sea walls;
5. Performing erosion analyses of dense beach sand;
6. Preparing design calculations for sizing of rock for the replaced riprap seawalls;
7. Providing further information related to factor of safety against sea wall stability and potential for collapse during extreme erosive storm conditions; and
8. Evaluating the proposed replacement with regard to stability against overtopping of the wall.

In summary, the County calls into question the conclusions of both HKA and Arup and requests a significant amount of additional work and design standard compliance to support the conclusions of both the risk assessment and details of the repair design. Arup notes that to date our discussions with other agencies have not questioned these items or requested submittal of significant additional information. It would have been much better if the County had provided input previously rather than at this time when the process toward mitigation through annual inspection and targeted repair had been selected. Completion of the supplemental analyses requested will add significant engineering cost to the project. The County seems to be attempting to reopen the issue of potential needed extensive modification of the seawall rather than just commenting on the proposed repair scheme presented in the Arup August 30, 2013 report.

It is our opinion that the PJGHAD should push for permitting and implementation of the planned emergency repairs in the design submittal with the current minor modifications. If further analyses and more extensive mitigation design should turn out to be appropriate and necessary that can be implemented at a later time.

One other item to note, based upon discussions with geotechnical colleagues at another firm who have done work for other GHADs, is that given the provisions of the enabling legislation that allows for the formation of GHADs, it may be that the County does not have jurisdiction over the subject seawall and protection facilities. We have not looked into this possibility, as it is something potentially better evaluated by legal counsel.

Should you have any questions or wish to discuss this matter further, please contact the undersigned at (415) 963-3860.

Yours sincerely



R. Jeffrey Dunn, PhD, PE, GE, DGE
Principal

cc Bill Lyons
Wendy Cumming
Bob Moore

CALIFORNIA COASTAL COMMISSION

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December 16, 2015

Mr. Jeffrey Dunn
ARUP
560 Mission Street, Suite 700
San Francisco CA 94105

Subject: *Coastal Development Permit Application Number 3-13-1361 (Seawall Repairs) in Pajaro Dunes development, Santa Cruz County*

Dear Mr. Peluso:

On November 24, 2015, we received additional information regarding the above-referenced coastal development permit (CDP) application that you submitted on behalf of the Pajaro Dunes Geologic Hazards Abatement District (PDGHAD). The originally proposed project included deepening and reconstructing the toe of the revetment adjacent to lots 97, 98, and 99, which are located in the southern end of the Pajaro Dunes development, and restacking the existing riprap in these locations to its original configuration. Information submitted on April 28, 2015 included an expansion of the project to include additional revetment work adjacent to lots 94, 95, 100, 101, 102, 103, 104, 107, 1, 3, 6, 8, and 9. The latest set of application materials request that the project now be limited to repairing the revetment only in the locations where riprap is buried and required to be removed (i.e. the 445 tons of rip rap located on State Parks property), and using that riprap to repair the revetment protecting lots 97 through 104.

Commission staff acknowledges and appreciates the steps the PDGHAD has taken to submit the necessary documentation and fulfill all of the CDP application requirements. We have reviewed the materials that you have submitted to date and are in need of additional information to adequately analyze the proposed project for Coastal Act conformance. Please note that the following additional information and materials are required to facilitate our analysis of the application and enable us to file the application as complete.

Please submit the following:

- 1. Project Description.** The revised project description separates the proposed project into two separate parts but the application appears to only be seeking approval for the development identified in Part 1 of the project. Please clarify whether the application is seeking approval for both parts, or just Part 1 identified in the project description. The application materials also note that the project proposes a "deepening of the wall toe" and the use of "Triton marine baskets." Please submit two sets of full sized plans depicting the proposed project, including these features.
- 2. Proof of Applicant's Legal Interest in the Property:** According to the application form submitted, the project Applicant is listed as Pajaro Dunes GHAD. Please provide evidence

that the Applicant has legal authority to apply for this proposed project, including, but not limited to legal evidence of the GHAD's formation in 1998.

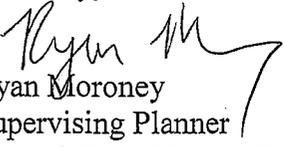
3. **Geologic and Geotechnical Reports:** The proposed project appears to rely on geologic reports from 2008, which are not specific to the proposed development activities. Our May 22, 2015 letter requested an updated geologic and geotechnical report specific to the proposed project, and identified specific information required to process your application. Your November 20, 2015 letter asserts that this information does not seem necessary or appropriate given the scope of the project. We respectfully disagree and reiterate our original request of May 22, 2015. Moreover, based on the project description, and specifically the fact that the project seeks a deepening of the wall toe and installation of Triton marine baskets, we would likely not view this project as repair and maintenance as those terms or defined in the Coastal Act in implementing regulations. The geologic and geotechnical reports should describe why these project elements are necessary, and what alternatives have been evaluated. Finally, we may have additional informational requirements once we receive the above reports and erosion rate and sand content information.
4. **State Lands Commission:** Your letter indicates that you are in contact with the State Lands Commission (SLC) regarding this project. Please provide written evidence from the SLC that no approval is needed.
5. **Appendix B (Local Agency Review Form):** Your letter indicates that you are in contact with the County regarding its review of the proposed project. Please submit a completed Appendix B form (enclosed), and return the completed form to our office.
6. **Updated Biotic Report.** We have received the updated biotic report dated October 14, 2015. Please provide a copy in electronic format for review by the Commission's staff ecologist. We may have additional informational requirements once the materials are reviewed by our technical staff.

When submitting items related to the requested material as outlined, please refer to the CDP application number listed above for the Pajaro Dunes seawall repairs project (3-13-1361). We will hold this application for six months from today's date (i.e., until June XX, 2016) pending receipt of these materials. After all of the above-listed materials have been received, the Pajaro Dunes GHAD application will again be reviewed and will be filed if it contains materials sufficient for a thorough and complete review (Government Code Section 65943(a)). Please note that there may be additional materials necessary for filing purposes depending upon the nature of the information provided pursuant to the above-listed materials, particularly the permit history, geotechnical and project plan information. Please submit all of the requested materials at the same time. If all of the above-listed materials are not received within six months, then CDP Application 3-13-1361 will be considered withdrawn and will be returned to you. This submittal deadline may be extended for good cause if such request is made prior to June XX, 2016.

Jeffrey Dunn
CDP 3-13-1361 (Pajaro Dunes Seawall Repair)
December 16, 2015
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I look forward to working with you on this project. Please do not hesitate to contact me at (831) 427-4863 if you have any questions regarding the application and the above information requests.

Sincerely,


Ryan Moroney
Supervising Planner
Central Coast District Office

cc: Sharif Traylor, Enforcement Officer, California Coastal Commission
Grace Kato, State Lands Commission (via email)
Chris Spohrer, California State Parks (via email)

Enclosure (Appendix B – Local Agency Review Form)