



## FINDINGS OF FACT STAFF REPORT

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Date: November 13, 2015 OPRD Ocean Shores Coordinator: Jay Sennewald  
OPRD File Number: BA-700-15 County: Lincoln Applicant: Richard Figenshu  
Project Location: 13650 S. Coast Highway  
Newport, OR  
Lincoln County Assessor's Map #12S-11W-07 CB, tax lot 600.

### Brief Project Description:

The proposed project will control bluff erosion and landsliding activity by converting an existing emergency riprap into a permanent long-term erosion control structure. The riprap revetment is approximately 105 feet long and 18 feet in height above beach level, and includes a 4-inch perforated pipe drain system. The riprap consists of basalt armor rock, 3.0 to 5.0 feet in diameter, keyed into the mudstone at the toe of the slope and placed in an interlocking state with a slope varying between 2H:1V and 1.5H:1V, and backed with pit-run fill and geotextile fabric. The project includes an additional granular fill buttress and two feet of sand cover to an elevation of approximately 25 feet above beach level. The sand cover has been planted with beach grass to provide a more natural appearance than exposed riprap boulders.

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## ADMINISTRATIVE RULE STANDARDS AND RELEVANT FACTS

### I. GENERAL STANDARDS, OAR 736-020-0010

**Project Need – There shall be adequate justification for a project to occur on and alter the ocean shore area.**

According to the geologic report by Richard Larrett, Engineering Geologist (September 4, 2015), the bluff at the subject property consists of Marine Terrace Deposits underlain by Nye Mudstone. Last winter an area of mass slope movement (a landslide) occurred west of the south portion of the home, leaving a head scarp with a near-vertical face of 10 feet, approximately 12 feet from the home's foundation. In addition to the head scarp, tension cracks were formed as a result of the slide including cracks within 8 feet of the home's foundation. Vertical displacement of tension cracks range from 6 inches to more than 2 feet, and horizontal displacement ranged from 6 inches to more than 1 foot.

In February and March of 2015, OGD Consulting conducted a geotechnical investigation and determined that more than 15 feet of bluff recession occurred during this event, which also affected the adjacent tax lot 400 to the north with additional tension cracks. Based on its investigation, OGD Consulting designed the structure to reduce potential erosion of the bluff toe and stabilize the area of movement west of the home. An emergency permit request to stabilize the bluff was submitted by the property owner, and approved by OPRD on March

23, 2015 (see Permit #BA-695-15). Prior to installation of the emergency riprap, it was necessary to underpin the west side of the home's foundation to compensate for its lack of structural support resulting from the slide.

A separate geologic site investigation was prepared by Richard Larrett, Engineering Geologist, on September 4, 2015, which addressed the conditions at the site. According to Larrett, the primary cause of bluff recession is by ground water seeping along the contact between the Nye Mudstone and the Marine Terrace Deposit, and erosion by high ocean waves. DOGAMI has calculated the average rate of erosion along this portion of the beach at 0.4 feet, or 5 inches per year. The Larrett report adds that toe erosion and bluff top recession is episodic and several years may pass with little or no visible changes in conditions, and then during a single storm or over the winter several feet of recession may occur. Historical aerial photographs illustrate that as recently as May of 1994, the top of the bluff was located approximately 30 feet from the home, meaning that there has been approximately 18 feet of bluff retreat in 21 years.

The Larrett report concludes that a riprap structure is the only feasible solution to protect the site from shoreline erosion and buttress the upper bluff for stability.

***Protection of Public Rights – Public ownership of or use easement rights on the ocean shore shall be adequately protected.***

The proposed riprap will occupy an average width of 12 feet of ocean shore along the base of the bluff. This encroachment onto the ocean shore is similar to other riprap revetments found along this stretch of shoreline, including riprap 175 feet south and approximately 200 feet south of the site. In evaluating similar riprap projects, OPRD has found this amount of encroachment to be acceptable when the need for the project was considered justified. The project will occupy an estimated 1,260 square feet of beach area which was previously available for public use. The beach is approximately 200 feet wide at this location, so the presence of the riprap will not significantly affect public ownership or easement rights on the ocean shore.

***Public Laws – The applicant shall comply with federal, state, and local laws and regulations affecting the project.***

The Lincoln County Planning Department has signed the County Planning Department Affidavit form in Section 9 of the permit application, and has determined that the project has been reviewed and is consistent with the local comprehensive plan and zoning ordinances. State laws and regulations are being addressed through this permit review.

Federal regulations could potentially involve a U.S. Army Corps of Engineers permit; however a Corps permit is usually not required for this type of project. A condition of the permit will require that the applicant obtain any required permits from the Corps, if applicable.

***Alterations and Project Modifications – There are no reasonable alternatives to the proposed activity or project modifications that would better protect the public rights, reduce or eliminate the detrimental affects on the ocean shore, or avoid long-term cost to the public.***

The application states that moving the house away from the top of the bluff and to the east is not feasible due to setback requirements. In addition, moving the home eastward and toward the highway would likely be cost prohibitive and not result in a significant reduction of threat from further landslides and erosion.

The site plan and a review of aerial photographs indicate that the home is located within 40 feet of the Highway 101 right-of-way. The Lincoln County Land Use Code requires a minimum setback of 30 feet from this property line abutting the highway, leaving an opportunity to move the home only 10 feet from its present location near the unstable bluff top, head scarp, and tension cracks from the recent landslide. Comments from one non-profit organization suggest that the owner should be required to apply for a setback variance from Lincoln County to demonstrate that moving the home is not feasible. Requiring the property owner to provide proof that a

variance to Lincoln County's setback requirements would be denied is unprecedented not and is required by this administrative rule.

The home was constructed in 1970 and relies on an old "seepage pit" type of septic system with a high potential for failure. Failure of a septic system typically results in the discharge of raw sewage onto the ground and constitutes a threat to public health. According to the Lincoln County Senior Environmental Health Specialist, the most suitable location available on the property for future septic system repair is in the area between the home and the Highway 101 right-of way. Requiring the relocation of the home to the most suitable potential septic repair area on the property is not reasonable, would likely be very expensive, and would only offer a short-term solution to the identified problem of chronic erosion. In addition, the loss of this identified septic repair area would compromise the owner's ability to adequately repair the septic system on the property and could eventually result in a situation where raw sewage is discharged onto the beach.

Lastly, The Lincoln County Land Use Code requires a standard setback of 2.15 feet of setback for each foot of bank height (measured from the toe of the slope) for new oceanfront development at this location. Using this formula with a bank height of approximately 28 feet, current development standards would require a setback of 60 feet from the base of the bluff. Requiring the home to be moved back 10 feet concurrent with removal of the emergency riprap would result in a setback of only 35 feet from the base of the bluff. This distance falls well short of the oceanfront setback requirement adopted by Lincoln County to mitigate the threat of erosion.

Based on these considerations, relocation of the home on the subject property is not a reasonable alternative to the riprap and buttress already in place.

***Public Costs – There are no reasonable special measures which might reduce or eliminate significant public costs. Prior to submission of the application, the applicant shall consider alternatives such as nonstructural solutions, provision for ultimate removal responsibility for structures when no longer needed, reclamation of excavation pits, mitigation of project damages to public interests, or a time limit on project life to allow for changes in public interest.***

Vegetative stabilization and other alternative shore protection methods other than riprap have been addressed in the Larrett report, which states, "Non-structural solutions were not considered for this site. The upper portion of the bluff had a well-established growth of vegetation and the vegetation was inadequate to maintain bluff stability. The beach is relatively flat and more than 200 feet wide, there are no sand dunes, little or no driftwood, and no excess of sand to construct the alternative solutions. During the winter, ocean waves can reach the back shore several times a month, sand is eroded from the beach by wind and waves exposing bedrock for the width of the beach. This would destroy non-structural shoreline protection solutions. Based on these considerations, the only feasible solution was a rip rap structure to protect this site from erosion and buttress the bluff for stability".

Public costs of the riprap include the loss of some upper beach area and the visual presence of additional riprap on the ocean shore. These costs have been reduced through careful and efficient construction practices which minimize the encroachment of the structure onto the ocean shore, and the provision of a vegetated cover of sand over the structure. There will be no public costs to maintain the structure, as maintenance and needed repairs are the responsibility of the upland property owner.

***Compliance with LCDC Goals – The proposed project shall be evaluated against the applicable criteria included within Statewide Planning Goals administered by the Department of Land Conservation and Development.***

Lincoln County has certified that the project is in compliance with the Lincoln County Comprehensive Plan and Land Use Code, which are acknowledged by LCDC as meeting the Statewide Planning Goal requirements.

The subject property has been determined to be developed prior to January 1<sup>st</sup>, 1977, and meets the eligibility requirements for shoreline protection under Statewide Planning Goal 18.

The northern-most portion of the lower riprap structure encroaches across onto the adjacent property to the north by approximately 10 feet, to provide a transition to the existing bluff face and minimize the potential scour. The adjacent property to the north (TL 400) has not been evaluated for riprap eligibility under Goal 18; however this minor encroachment is necessary for the overall performance and effectiveness of the riprap to protect the Figenshu home on the subject property.

## **II. SCENIC STANDARDS, OAR 736-020-0015**

*Projects on the ocean shore shall be designed to minimize damage to the scenic attraction of the ocean shore area.*

***Natural Features – The project shall retain the scenic attraction of key natural features, for example, beaches, headlands cliffs, sea stacks, streams, tide pools, bedrock formations, fossil beds and ancient forest remains.***

The proposed project will not significantly change the visual appearance of the existing shoreline as riprap exists on nearby properties to the north and south of the site. There is one property located approximately 200 feet to the south that is fronted with a riprap shoreline protection structure and a beach access stairway. Another riprap structure is located 175 feet to the south. The proposed riprap and buttress have been covered with a 2-foot cap of sand and has been replanted with European beach grass, providing a more natural appearance than if the riprap and buttress were left exposed. The riprap placement is designed to minimize the alteration of the ocean shore area, and in evaluating other projects; this type of change has been accepted when the need for the project has been justified. No key natural features such as beaches, sea stacks, bedrock formations, fossil beds or other features will be significantly affected.

***Shoreline Vegetation – The project shall retain or restore existing vegetation on the ocean shore when vital to scenic values.***

The landslide that occurred last winter resulted in the loss of natural vegetation and deposited it at beach level. There is no proposal to remove existing vegetation that was not affected by the landslide or erosion at the site. Except for the area affected by the mass slope movement and loss of upper bluff face in early 2015, vegetation exists on the mid and upper bluff face along the length of the property, including various grasses, salal, and blackberry. Small spruce and shorepine trees are found along the top edge of the bluff, which will remain undisturbed.

As indicated above, the riprap and buttress structure has been covered with native beach sand and replanted with European beach grass, to provide a more natural appearance along the ocean shore and bluff face.

***View Obstruction – The project shall avoid or minimize obstruction of existing views of the ocean and beaches from adjacent properties.***

The proposed riprap structure is located well below the top of the bluff and will not affect existing views from adjacent properties.

***Compatibility with Surroundings – The project shall blend in with the existing shoreline scenery (type of construction, color, etc.).***

The applicant has covered the structure with native beach sand and planted European beach grass commonly found along the Oregon coast. This treatment helps it to blend in with the existing terrain and vegetation, reducing visual impacts to scenery along the ocean shore.

### **III. RECREATION USE STANDARDS, OAR 736-020-0020**

***Recreation Use – The project shall not be a detriment to public recreation use opportunities within the ocean shore area except in those cases where it is determined necessary to protect sensitive biological resources such as state or federally listed species.***

The beach at this location is fairly wide at this location, typical of the beach between Ona Beach and South Beach. Using aerial photographs, it appears that the beach is approximately 200 feet wide at mid-tide. During normal conditions, the existence of the riprap will not be a detriment to typical recreational use. During high tides in the winter, however, wave run-up often reaches the upper areas of the beach, and may cover the entire beach at times. The loss of additional, but limited beach area will only slightly increase the chance of this occurring.

There is no state or federally listed species within this ocean shore area. In addition, there are no Oregon State sensitive species found utilizing this area of shoreline.

***Recreation Access – The project shall avoid blocking off or obstructing public access routes within the ocean shore area except in those cases where it is determined necessary to protect sensitive biological resources such as state or federally listed species.***

The project will not extend out onto the ocean shore far enough to cause an obstruction to public access along the shoreline during normal ocean conditions.

### **IV. SAFETY STANDARDS, OAR 736-020-0030**

The project shall be designed to avoid or minimize safety hazards to the public and shoreline properties. The following safety standards shall be applied, where applicable, to each application for an ocean shore permit.

***Structural Safety – The project shall not be a safety hazard to the public due to inadequate structural foundations, lack of bank stability, or the use of weak materials subject to rapid ocean damage.***

The riprap and buttress was designed by a Professional Engineering Geologist to be structurally stable and safe, while providing adequate support and long-term protection of bluff and the existing home. Basalt rock was used for the armor stone, with 4-6 foot diameter rock used for the keystone and smaller rock in the upper portions, underlain by geotextile fabric and granular pit-run fill consistent with accepted riprap construction practices and methodology. The rock is placed at a slope varying between 2H:1V and 1.5H:1V placed in an interlocking state. The structure includes a drain to collect and dispose of excessive water perched at the contact between the Nye Mudstone and Marine Terrace Deposit. This drainpipe diverts excess water beneath the riprap to the small, natural drainage channel south of the structure and reduces the potential for future slope movement.

The structure was designed and constructed for long-term stability, and ability to withstand wave attack during severe conditions of high waves during winter storms. A post-construction inspection report from the Engineering Geologist indicates that the structure was completed in general conformance with his recommendations. As a result, the riprap and buttress will not present a safety hazard to the public while on the ocean shore, and will not be susceptible to rapid ocean-cause damage.

***Obstructional Hazards – the project shall minimize obstructions to pedestrians or vehicles going onto or along the ocean shore area.***

At its widest point, the proposed riprap revetment will project out from the existing bluff toe approximately 20 feet, or 10% of the beach width at mid tide. This normally will not affect lateral beach access, except during times of extreme high water. During these periods, however, wave run-up is likely to be reaching the upper beach area and steep bluffs on nearby properties, therefore the proposed riprap will not create a new obstruction to beach access.

***Neighboring Properties – The project shall be designed to avoid or minimize ocean erosion or safety problems for neighboring properties.***

The geologic report states that the toe of the riprap on the north and south ends was designed to minimize increased shoreline erosion. The riprap return on the north end was tapered down to beach level, and turned slightly to the northeast in order to minimize the potential for scour of the bluff face on the adjacent property at its north end. The Larrett report states that the riprap will benefit the closest portion of the adjoining property to the north (tax lot 400) by adding stability, although the remainder of tax lot 400 will be unaffected by the riprap and there will be continued movement associated with the erosion and landsliding activity. The south end of the riprap was also tapered down to beach level, ending just north of a small natural drainage channel on the Figenshu property. At this location, the south end of the riprap is approximately 50 feet from the adjoining property which is an undeveloped public street right of way.

***Property Protection – Beachfront property protection projects shall be designed to accomplish a reasonable degree of increased safety for the on-shore property to be protected.***

The purpose of the revetment is to provide protection to the upland property and the improvements located between the bluff top and Highway 101. As indicated above, the design of the riprap and buttress was provided by a Professional Geologic Engineer, intended to provide long-term protection from further erosion and to provide bluff stability. The Geologic Engineer for the project has indicated that the structure was built in general conformance with the planned design, therefore providing a reasonable degree of increased safety for the home and property which it protects.

**V. NATURAL AND CULTURAL RESOURCE STANDARDS, OAR 736-020-0030**

*Projects on the ocean shore shall avoid or minimize damage to the following natural resources, habitat, or ocean shore conditions, and where applicable, shall not violate state standards:*

***Fish and wildlife resources including rare, threatened or endangered species and fish and wildlife habitats.***

The Oregon Department of Fish and Wildlife has provided comments on the proposed permanent riprap and buttress structure. The comments are focused on riprap's impacts to fish, wildlife, and habitats on the beach. The comments do not specifically identify the presence of any threatened or endangered species at the site, but are directed primarily toward the presence of shorebirds and their habitat. ODFW recommends that construction impacts of the project be avoided or minimized to protect habitat, and offers recommendations including non-structural solutions other than rock, incorporation of root wad logs into the structure, planting of native grasses, shrubs, and trees to assist with bank support, maintenance of existing vegetation, and the development of a compensatory mitigation plan for the loss of beach and bluff habitats.

The Larrett report addresses non-structural methods of bank stabilization and why they are not feasible to adequately protect the site. Incorporating logs and woody debris into the toe of the riprap as recommended by ODFW would likely compromise the ability of the riprap to withstand wave attack under extreme high surf conditions due to the effects of buoyancy and hydraulic leverage of wood features on the armor stone. Newly

planted trees and shrubs would not likely not survive in the beach sand that was placed over the riprap, or over an alternative thin layer of soil underlain by riprap boulders. Existing vegetation along the bluff top is proposed to remain in place as recommended, thus preserving existing habitat value. Lastly, the development of a compensatory mitigation plan is beyond the scope and authority of OPRD in this permit decision.

The existing riprap and buttress structure was designed and built to minimize encroachment onto the ocean shore, and affects only a very small area of a miles-long bluff-backed beach where other similar riprap structures exist. Limiting the structure's encroachment on the ocean shore, the preservation of existing vegetation, and the provision of a native sand cover with beach grass all serve to minimize damage to wildlife habitat consistent with this standard.

***Estuarine values and navigation interests.***

The project is not adjacent to an estuary, and does not affect navigable water on the ocean.

***Historic, cultural and archeological sites.***

Notice of the application was provided to the State Historic Preservation Office, and to the Confederated Tribes of Siletz and the Confederated Tribes of Grand Ronde. There were no reports of historic, cultural, or archeological sites at this location.

***Natural areas (vegetation or aquatic features).***

There is no existing significant vegetation or aquatic features that will be impacted by the proposed riprap.

***Air and water quality of the ocean shore area.***

The project will take place above the ordinary high tide line, and will not cause foreign materials or pollutants to enter the water. Riprap placed at the site is free of debris and foreign materials. The proposed project does not adversely affect water quality on the ocean shore. Air quality was not affected as a result of its placement, except for a negligible amount of exhaust from the use of heavy equipment during the construction period.

***Areas of geologic interest, fossil beds, ancient forest remnants.***

None of these features have been identified at the site.

***When necessary to protect native plant communities or fish and wildlife habitat on the subject or adjacent properties, only native, non-invasive, plant species shall be used for revegetation.***

The site is within a developed residential area, and there are no known protected native plant communities or fish and wildlife habitat on or adjacent to the subject property.

## **VI. PUBLIC COMMENT**

Notice of the proposed project was posted at the site for 30 days in accordance with ORS 390.650. Individual notification and a copy of the application were mailed to government agencies and individuals on OPRD's ocean shore mailing list. OPRD received a total of five requests for a public hearing. One letter was received from the executive director of a non-profit organization, who asserted that the property is ineligible for riprap protection and who also suggested that the home could be moved as an alternative to riprap. A letter from Oregon Department of Fish and Wildlife was also received, which offered recommendations for consideration. These comments have been addressed in the above findings, to support a decision on this permit request.

## VII. FINDINGS SUMMARY

**Project Need** – The proposed riprap is necessary to provide protection from ocean-caused erosion and landsliding activity that occurred during the winter of 2015. This activity resulted in the sudden mass slope movement of a large block of marine terrace deposit that left a vertical head scarp within 12 feet of the existing home’s foundation, and left tension cracks on top of the bluff that extend under the home’s deck and onto the adjoining property to the north.

The slide has affected the stability of the bluff top and required underpinning of the home's foundation to compensate for the loss of stability. In addition, the existing deck needed repair and shoring from vertical displacement of the ground along tension cracks. There is evidence of steady and/or episodic erosion events impacting the bluff along this section of shoreline and failure to stabilize the bluff will result in continued erosion and bluff top retreat.

OPRD staff has monitored this area for a number of years, and has observed that the shoreline in the vicinity of the property has sustained ocean caused bank erosion and bank sloughing during large ocean storm and rain events. The riprap boulders serve to buttress and stabilize the existing bluff face and minimize further slope movement and bluff top recession. The property owner has no other reasonable options to help reduce erosion of the bluff and provide long-term protection to the property.

**Alterations and Project Modifications:** Other, non-structural methods for bank stabilization would not provide the protection necessary to prevent or minimize further loss of the upper bluff slope which threatens the existing home on the property, and the riprap project has been recommended by both a Certified Engineering Geologist and a Professional Geologic Engineer. Based on the above findings, the need for the riprap is justified, and the proposed method of erosion and landslide control is appropriate.

The following checklist summarizes whether the application satisfies the general, scenic, recreation, safety and natural and cultural resource standards as defined in OAR 736-020-0010 through 736-020-0030:

Standard	Yes	No	Standard	Yes	No
Project Need	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Structural Safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Protection of Public Rights	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Obstructional Hazards	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Laws	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Neighboring Properties	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Alteration and Project Modifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Property Protection	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Costs	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Fish and Wildlife Resources	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Compliance with LCDC Goals	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Estuarine Values and Navigation Interests	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Features	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Historic, Cultural and Archeological Sites	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Shoreline Vegetation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Natural Areas	<input checked="" type="checkbox"/>	<input type="checkbox"/>
View Obstruction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Air and Water Quality of the ocean shore	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Compatibility with Surroundings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Areas of Geologic Interest	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Recreation Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Use of Native Plant Species when Necessary	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Recreation Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

**VIII. STAFF RECOMMENDATION:**

Based on an analysis of the facts and in consideration of the standards evaluated under OAR-736-020-0005 through OAR 736-020-0030, I recommend the following action:

- Approval
- Approval with conditions
- Denial

Jay Sennewald  
Ocean Shores Coordinator