Geologic Hazard Report Review
Staff Review, Decision, Conditions of Approval
Case File GEO 2023-03 Merrell/Hiler

Date:	February 9, 2024
Case File:	GEO 2023-03
Property Owner:	Anne Merrell and Susan Hiler
Situs Address:	3730 SW Anchor Ct
Location:	East of Pacific Ocean and north of SW Anchor Ct
Tax Map and Lot:	07-11-27-BD-01901-00
Comprehensive Plan Designation:	Single-Family Residential District (R-5)
Zoning District:	Single-Unit Residential (R-1-5) Zone
Site Size:	7,490 square feet
Proposal:	Request to review geotechnical report for a deck
Surrounding Land Uses and Zones:	North: Single-unit dwellings; R-1-5 South: Single-unit dwellings; R-1-5 East: Undeveloped lot, single-unit dwellings; R-1-5 West: Pacific Ocean
Authority:	Table 17.76.020-1 of Lincoln City Municipal Code (LCMC) 17.76.020 lists a geologic hazard report review application as a Type II procedure with the Planning and Community Development Director (Director) listed as the review authority. LCMC 17.76.040.A states that Type II procedures apply to administrative permits and applications and that decisions on administrative applications are made by the Director, based on reasonably objective approval criteria that require only limited discretion.
Procedure:	The application was received on August 8, 2023. The application was deemed complete on December 1, 2023. On December 1, 2023, pursuant to LCMC 17.76.040.E, the Planning and Community Development Department mailed a notice of application to property owners within 250 feet of the subject property.
Applicable Substantive Criteria:	LCMC Chapter 17.16 Single-Unit Residential (R-1-5) Zone LCMC Chapter 17.47 Natural Hazards, Beaches and Dunes LCMC Section 17.76.040 Type II Procedure LCMC Section 17.77.090 Geologic Hazard Report Review

BACKGROUND

The subject property (site) is addressed as 3730 SW Anchor Ct and is in the R-1-5 zone. The tax lot number is 07-11-27-BD-01901-00 and the site area is 7,940 square feet. The property owner seeks to add a deck as an addition to an existing deck on an existing home.

Lincoln City's GIS mapping shows the site contains bluff erosion hazards. The site does not contain aesthetic resource, nor is it part of the floodway or natural resource overlay zone. Portions of the site are in the VE Significant Flood Hazard Area, close to the SW Anchor Ct right-of-way at the 30-foot elevation. The proposed project area, though, appears to be well outside of the VE Significant Flood Hazard Area. Conformance with regulations for development in the floodplain will be addressed during the structural permitting process.

The applicant has previously applied (Geo 2022-04) for Geologic Hazard Review, which was denied due to missing information. All site conditions and the project proposal are still the same, and a new application has been submitted for review.

COMMENTS

No comments were received.

ANALYSIS

Chapter 17.16 Single-Unit Residential, Roads End (R-1-5) Zone
17.16.020 Permitted uses

Finding: The property owners would like to construct a deck extension on the site that is already developed with a single-unit dwelling. The site is in the R-1-5 zone. LCMC Chapter 17.16 lists the permitted uses in the R-1-5 zone; specifically, single-unit dwellings are listed as a permitted use per LCMC 17.16.020.A.1.

17.16.050 Restrictions.

Finding: This application is not for development; rather, this application is for a geologic hazard report review. The site is already developed and utilizes city water and city sewer services.

17.16.060 Maximum building height
The maximum building height shall be 35 feet, except as provided in LCMC 17.52.190 and 17.52.200.

Finding: Compliance with maximum building height is reviewed during the application process for the building permit.

17.16.070 Lot requirements

Finding: At the time of a building or structural permit review, the accompanying site plan shall be reviewed for compliance with the minimum setbacks requirements and maximum coverage requirements. The lot is an existing legal lot, so the minimum lot area, minimum lot width, and minimum lot depth are not applicable.

17.16.075 Landscaping
17.16.080 Signs
17.16.090 Off-street parking and loading
17.16.100 Other required conditions

Finding: This request for a geologic hazard report review does not include any permit applications or requests to review any building plans. At the time a permit application is reviewed, the accompanying plans shall be reviewed for compliance with LCMC Chapter 17.16.

Chapter 17.47 Natural Hazards, Beaches and Dunes
17.47.020 Development in identified hazard areas

A. Hazards Identified and Applicability of Standards. Specific natural hazard areas have been identified in Environmental Geology of Lincoln County, Oregon, Bulletin 81 (State of Oregon Department of Geology and Mineral Industries, 1973) and Environmental Hazard Inventory (RNKR Associates, 1978), and other sources. They are depicted on the comprehensive plan natural hazards map, as supplemented by Priest, G.R., and Allan, J.C., 2004. For purposes of this chapter, in cases of conflict between a cited source and the map, as supplemented by the 2004 Priest and Allan report, the map, as so supplemented, will prevail.

Natural hazard areas identified in Environmental Geology of Lincoln County, Oregon, Bulletin 81 (State of Oregon Department of Geology and Mineral Industries, 1973) and Environmental Hazard Inventory (RNKR Associates, 1978) are advisory only. The city does not require analysis or mitigation for property identified as being in these hazard areas, but recommends that developers seek professional advice.

Finding: The site is in an identified natural hazard area. As stated in the code, the city does not require analysis or mitigation for property identified as being in hazard areas, but recommends that developers seek professional advice. The property owners have sought the professional advice of Mia Mahedy, with Rapid Soils Solutions Inc, a registered geotechnical engineer in the state of Oregon.

Development of property identified by Priest, G.R., and Allan, J.C., 2004, as subject to coastal erosion must meet the requirements of this chapter; however, the following activities are exempt:

1. *Maintenance, repair, or alterations to existing structures that do not alter the building footprint or foundation;*
2. *New construction or maintenance, repair, or alterations to existing structures on a portion of the lot that lies outside the coastal erosion zones;*
3. *Exploratory excavation under the direction of a registered engineering geologist or geotechnical engineer;*
4. *Construction for which a building permit is not required;*
5. *Maintenance and reconstruction of public and private roads, streets, parking lots, driveways, and utility lines, provided work does not extend outside the previously disturbed area;*
6. *Activities of emergency responders intended to reduce or eliminate an immediate danger to life or property.*

Finding: LCMC Chapter 17.08 defines development as the alteration of the natural environment through the construction or exterior alteration of any building or structure, whether above or below ground or water, and any grading, filling, dredging, draining, channelizing, cutting, topping, or excavation associated with such construction or modification; the placing of permanent or temporary obstructions that interfere with the normal public use of the waters and lands subject to this code; the division of land into two or more parcels, and the adjustment of property lines between parcels. The property owners are seeking to alter the natural environment through the extension of an existing deck; therefore, the proposed development activity is not exempt and must meet the requirements of LCMC Chapter 17.47.

B. Required Geotechnical Analysis. Development of all types, except beach front protective structures and natural means of beach protection, in coastal erosion hazard areas identified by Priest, G.R., and Allan, J.C., 2004, may not occur until an engineering geologist, certified to practice in Oregon, or geotechnical engineer registered and licensed to practice in Oregon, completes a review of the project site. To the extent the engineering geologist or geotechnical engineer deems necessary, the review shall incorporate analysis and recommendation of an Oregon-certified coastal engineer and of technical experts from other fields outside of engineering geology. The review shall be prepared at the applicant's expense. The geologist or geotechnical engineer must submit (electronically) the review to the city as a written report that, if written or last updated more than a year prior to the first building inspection, must be updated to reflect current conditions. In reviewing the submitted geotechnical report, the city may consult with, among others, the Oregon Department of Geology and Mineral Industries, the Department of Land Conservation and Development, and a certified engineering geologist or geotechnical engineer. The city assumes no responsibility for the quality or accuracy of a geotechnical report.

Finding: The site is in an identified coastal erosion hazard area. Per LCMC 17.47.020.B, development may not occur until an engineering geologist, certified to practice in Oregon, or geotechnical engineer registered and licensed to practice in Oregon, completes a review of the project site. This requirement has been met by the property owners retaining the services of Mia Mahedy, with Rapid Soils Solutions Inc., a registered engineering geologist in the state of Oregon, to review the site. Rapid Soils Solutions Inc. conducted a geologic hazards and geotechnical investigation of the site and prepared a written report. The written report submitted with this application is dated November 21, 2023. The Report has been prepared and submitted prior to construction of the proposed deck extension, as required by LCMC 17.47.020.B. **Lincoln City assumes no responsibility for the quality or accuracy of the report.**

Report Contents. Any geotechnical report must follow professional guidelines established by the Oregon State Board of Geologist Examiners, and include an explanation of the degree the hazard affects the property use in question, an explanation of the measures to be employed to minimize losses associated with the hazard, including, but necessarily limited to, erosion control, vegetation removal, and slope stabilization, and an explanation of the hazard-associated consequences the development and the loss-minimizing measures will have on the surrounding properties.

For development activities of all types on a property in the coast erosion hazard zones, defined by Priest and Allan, 2004, except for beach front protective structures and natural means of ocean beach protection, the geotechnical report must include, but is not limited, to the following items:

1. Site Description.

a. The history of the site and surrounding areas, such as previous riprap or dune grading permits, erosion events, exposed trees on the beach, or other relevant local knowledge of the site.

Finding: Page 3 of the Report states "*The reconnaissance focused on the proposed deck addition on the western end of the existing residence. The dwelling structure is bordered by a handful of scattered medium-to-tall trees. Thick overgrown vegetation was observed due north and west of the proposed deck. No standing or flowing water is present on the subject site. No standing or flowing water is mapped or was historically mapped at the subject site.* The requirement to provide a site description is met.

b. Topography, including elevations and slopes on the property.

Finding: Page 3 of the Report states "*The house is perched on a nearly leveled bench built roughly 8-10 ft higher than SW Anchor Ct. The observed slopes on site accommodates a moderate southern descend of about 10-25 percent towards the property line. The vegetated slopes due north of the existing residence ascends to about 20-30 percent towards the neighboring property. The riprap protection of the property is roughly 15-20 ft tall. The residence is positioned approx. 20-25 ft from the edge of the top of the slope to the riprap protection. On site observations indicate that the new deck is sufficiently setback from the western slope break as per the building code clearance for slope."* The requirement to provide the information on topography, including elevations and slopes on the property, is met.

c. Vegetation cover.

Finding: Page 3 of the Report notes "*The dwelling structure is bordered by a handful of scattered medium-to-tall trees. Thick overgrown vegetation was observed due north and west of the proposed deck."* The requirement to provide information on the site's vegetation cover is met.

d. Subsurface materials – the nature of the rocks and soils.

Finding: Page 5 of the Report provides the site's geology and includes the following "*The local terraces are underlain by the lower Eocene Nestucca Formation. The Nestucca Formation is a tertiary aged siltstone. The unit contains siltstone and sandstone horizons, and is typically thin bedded and tuffaceous. Some sandstone dikes and sills are present in the upper portion of the unit. Thick-bedded arkosic sandstone is observed in places near the base of the unit. Locally this unit appears to dip about 15-20 degrees to the west-northwest. We estimate that the is at least 80 to 100ft of sand below the property site to layers of siltstone. During our visit site we did not observe and exposed bedrock on the beach or within the vicinity of the site. The depth of the beach sand can be 8-10 feet depending the time of year*." The requirement to provide information on the site's subsurface materials is met.

e. Conditions of the seaward front of the property, particularly for sites having a sea cliff.

Finding: Page 4 of the Report states *"The bulk of the Lincoln County shoreline, including the shoreline west of the property, consists of prominent coastal bluffs, formed in Tertiary sediments, and fronted by wide, gently sloping, sand beaches composed of predominantly fine-grained beach sediments. The site is perched on top of a 15-20 ft tall ocean-facing bluff."* Page 5 of the report states *"The ocean frontage was devoid of any drift logs or flotsam. There are stairs on the site but they do not access the beach, they access the lower level of the house from the outside. This property does not have direct access to the beach as there is public access within 150ft of the site. The beach frontage of the lot has been protected with native vegetation."* Staff concludes this requirement has been met.

f. Presence of drift logs or other flotsam on or within the property.

Finding: Page 3 of the Report states that the ocean frontage was *"devoid of any drift logs or flotsam"*. The requirement to provide information on the presence of drift logs or other flotsam is met.

g. Description of streams or other drainage that might influence erosion or locally reduce the level of the beach.

Finding: Page 3 of the Report states *"No standing or flowing water is present on the subject site. No standing or flowing water is mapped or was historically mapped at the subject site."* Staff concludes that the requirement to provide information on the description of streams or other drainage is met.

h. Proximity of nearby headlands that might block the long shore movement of beach sediments, thereby affecting the level of the beach in front of the property.

Finding: The top of page 4 of the Report states *"There are no headlands present with any streams within section of the Lincoln City oceanfront. There is one embayment's 0.5 miles north of the outcrop of rocks along this section of the coast, limiting the ability of rip currents to scour deep channel to the back beach area. The sands within the Lincoln littoral cell are believed to have little or no transport beyond the Cascade Head to the north and Cape Foulweather to the south."* The requirement to provide information on the proximity of nearby headlands is met.

i. *Description of any shore protection structures that may exist on the property or on nearby properties.*

Finding: The bottom of page 4 of the Report states "*There is rip rap installed on the ocean side of the home and the entire length of the property, including neighboring homes.*" The requirement to provide a description of any shore protection structures that may exist on the property or on nearby properties is met.

j. Presence of pathways or stairs from the property to the beach.

Finding: The bottom of page 4 of the Report states *"This property does not have direct access to the beach as there is public access within 150ft of the site."* There is a beach access directly adjacent to the subject property. Staff notes that this is within 150 feet of the property so the requirement to provide information on the presence of pathways or stairs is met.

k. Existing human impacts on the site, particularly those that might alter the resistance to wave attack.

Finding: Page 4 of the Report states *"Because there are no manmade improvements, such as pathways or stairs from the house to the beach and along the beach there are no impacts that can alter or resistance wave attack. As the site has a large riprap bank that was placed at the bottom of the slope erosion from the sea is not likely."* The requirement to provide information on existing human impacts on the site is met.

2. Description of the Fronting Beach.

a. Average widths of the beach during the summer and winter.

Finding: Page 4 of the Report states "*The beach width is estimated to be 300ft to 100ft over the course of the summer to winter months. The average beach slope is 2% summer and 7% winter. The slope from the beach up to the lot is 20%. The average mean sea level of the beach and the property is 20ft.*" The requirement to provide width information has been met.

b. Median grain size of beach sediment.

Finding: Page 2 of the Report states "*The bulk of the Lincoln County shoreline, including the shoreline west of the property, consists of prominent coastal bluffs, formed in Tertiary sediments, and fronted by wide, gently sloping, sand beaches composed of predominantly fine-grained beach sediments. The site is perched on top of a 15-20 ft tall ocean-facing bluff.*" The requirement to provide information about the median grain size is met.

c. Average beach slopes during the summer and winter.

Finding: Page 4 of the Report states "*The beach width is estimated to be 300ft to 100ft over the course of the summer to winter months. The average beach slope is 2% summer and 7% winter. The slope from the beach up to the lot is 20%. The average mean sea level of the beach and the property is 20ft.*" The requirement to provide width information has been met.

d. Elevations above mean sea level of the beach at the seaward edge of the property during summer and winter.

Finding: Page 4 of the Report states *"The beach width is estimated to be 300ft to 100ft over the course of the summer to winter months. The average beach slope is 2% summer and 7% winter. The slope from the beach up to the lot is 20%. The average mean sea level of the beach and the property is 20ft."* The requirement to provide elevation information has been met.

e. Presence of rip currents and rip embayment that can locally reduce the elevation of the fronting beach.

Finding: Page 7 of the Report states *" There are rip currents or rip embayment's that can locally reduce the elevation of the front beach. There are no rock outcrops or sea stacks off shore or within the beach zone."* Although no context or background information is given regarding the absence of rip currents or rip embayments, this requirement has been satisfactorily met.

f. Presence of rock outcrops and sea stacks, both offshore and within the beach zone.

Finding: Page 6 of the Report states *"presence of rock outcrops and sea stacks, both offshore and with the beach zone: There is an outcrop of rocks south 700 ft along this section of the shoreline. This does not affect the site deck."* Page 7 of the report states "*There are rip currents or rip embayment's that can locally reduce the elevation of the front beach. There are no rock outcrops or sea stacks off shore or within the beach zon*e." The report provides conflicting statements on this criteria. Moreover, aerial photography shows that there are rocks directly offshore of the subject property but the report does not acknowledge or address possible effects of these rocks. For these reasons, this requirement has not been met.

g. Information regarding the depth of beach sand down to bedrock at the seaward edge of the property.

Finding: At the bottom of page 5 of the Report it states the following "*We estimate that the is at least 80 to 100ft of sand below the property site to layers of siltstone. During our visit site we did not observe and exposed bedrock on the beach or within the vicinity of the site. The depth of the beach sand can be 8-10 feet depending the time of year.* The requirement to provide this information has been met.

3. Analysis of Erosion and Flooding Potential.

a. Analysis of DOGAMI beach monitoring data available for the site.

Finding: At the bottom of page 5 of the Report it states the following: *"The open file report by DOGMI O-07-01 subject area took place about 1 mile north of the project area. That the beaches in this area have gained sand from the north and the gain has been a gradual build up of sand on the primary frontal due raising its crest elevation over time. Although the shore has accreted slightly during the past decade, accretion has not led to a change in the position of the mean shoreline."* This requirement has been met.

b. Analysis of human activities affecting shoreline erosion.

Finding: The top of page 7 of the Report states *"We found no human activities affecting the shoreline erosion, as the is no development on the beach or shoreline with this lot."* The requirement to provide information on human activities on the site is met.

c. Analysis of possible mass wasting, including weathering processes, land sliding or slumping.

Finding: Page 6 of the Report discusses land sliding stating *"Most of the marine terrace upon which Lincoln City is constructed, is free of the massive landslides that are pervasive along the Oregon Coast and in the Oregon Coast Range. Minor slides and slumps are extraordinarily commonly along the bluffs of bluff-backed beaches. The Oregon HazVu suggests that the bluff due west of the site consists of landslide deposits. The debris piles at the base of the bluff are the product of slope failures."* The requirement to provide an analysis of possible mass wasting is satisfactorily met.

d. Calculation of wave runup beyond mean water elevation that might result in erosion of the sea cliff or foredune.

Finding: Page 7 of the Report states *"see the attached calculations in the appendix. Wave runup elevation calculates to 11.5ft and the house is 34ft. Not a problem."* It is important to note that the front of the site lies within the FEMA VE Flood Zone, which is expected to receive the impacts of wave action. The 100 year Base Flood Elevation for the site is 30ft, based on the adopted FEMA flood maps. Page 8 of the references potential waves of up to 52' in the active erosion zone, in which this property is mapped. This appears to conflict with the elevations calculated in the report. This requirement has been partially met.

e. Evaluation of frequency that erosion-inducing processes could occur, considering the most extreme potential conditions of unusually high water levels together with severe storm wave energy.

Finding: Page 8 of the Report states "*Erosion is typically gradual, but produces a substantial amount of cumulative damage. Severe weather may dramatically increase the rate and impact of erosion as it produces high surf, heavy rainfall, and/or high winds. Climactic cycles (e.g. El Niño Southern Oscillation and longer-term climate cycles associated with the Pacific Decadal Oscillation) also impact rates or erosion. Erosion of coastal duns and bluffs cause them to retreat landwards, erosion rates impact retreat rates. The subject site is located near a mapped Active Erosion Hazard Zone (Allan & Priest, 2001: OFR O-01-03). The site is positioned adjacent to a dune-backed beach. It is noted that property erosion occurs when the total water level produced by the combined effect of extreme wave runup and tidal elevation, exceeds some critical elevation of the fronting beach, typically the elevation of the beach-dune junction. The site is not mapped within any of the three ranked erosion risk scenarios. The site is positioned roughly 350 feet beyond the upslope edge of risk scenario 3 (low-risk), this scenario is based on an extremely severe storm event (waves of 52.5' high), coupled with long-term sea level rise of 1.3 feet and a 3.3- foot vertical lowering of the coast in conjunction with a Cascadia subduction zone earthquake*." The analysis for this criteria uses the incorrect scenario for analysis, as the site is on a bluff-backed shoreline and not a dune-backed shoreline as stated. The following paragraph on page 8 states "The site lies in an area mapped as undergoing critical erosion of marine terraces and sediments (Schlicker et al 1973)" This is in conflict with the statement above, which claims the site is not mapped within any of erosion zones. This requirement has not been met.

f. For dune-backed shoreline, use an appropriate foredune erosion (Komar et al. 1999) or time-dependent erosion model (e.g., Kriebel and Dean, 1993) to assess the potential distance of property erosion, and compare the results with direct evidence obtained during site visit, aerial photo analysis, or analysis of DOGAMI beach monitoring data.

Finding: The site is not a dune-backed shoreline; therefore the requirement to provide information on the dune-backed shoreline is not applicable.

g. For bluff-backed shorelines, use a combination of published reports, such as DOGAMI bluff and dune hazard risk zone studies, aerial photo analysis, and field work, to assess the potential distance of property erosion.

Finding: The Report discusses various studies and reports, including results from an onsite investigation by the engineer. Page 8 of the report states "*The subject site is located near a mapped Active Erosion Hazard Zone (Allan & Priest, 2001: OFR O-01-03). The site is positioned adjacent to a dune-backed beach. It is noted that property erosion occurs when the total water level produced by the combined effect of extreme wave runup and tidal elevation, exceeds some critical elevation of the fronting beach, typically the elevation of the beach-dune junction. The site is not mapped within any of the three ranked erosion risk scenarios. The site is positioned roughly 350 feet beyond the upslope edge of risk scenario 3 (low-risk), this scenario is based on an extremely severe storm event (waves of 52.5' high), coupled with long-term sea level rise of 1.3 feet and a 3.3- foot vertical lowering of the coast in conjunction with a Cascadia subduction zone earthquake*.

The site lies in an area mapped as undergoing critical erosion of marine terraces and sediments (Schlicker et al 1973) Priest and others (1994) have determines the average annual erosion rate for this area is as 0.27 +/- feet per year. This erosion rate was calculated by measuring the distance between existing structures to the bluff and compacted to distances measured on a 1939 or 19767 vertical aerial photograph (Priest et al 1994). During our visits in 2022 we observed no major issues with recession of the bluff. The in place vegeation and lack of direct sea wave action other than the normal course of sea erosion have not impacted the house that lies greater than 330ft from the water edges and over 70ft elevation difference from the sea's edge." It is important to note, that based on the submitted topographical survey, the lowest portion of the western face of the dwelling lies at 35ft above MSL and the highest point lies at 46 feet above MSL. As demonstrated above, the report does provide some general analysis required by this code section, but the analysis focuses on a "dune backed" beach, which does not apply to the site. The analysis claims the house is both the project area is "not mapped within any of the three ranked erosion risk scenarios", and that "it is (in an) area mapped as undergoing critical erosion of marine terraces and sediments (Schlicker et al 1973)". The adopted Maps as referenced in LCMC 17.47 show the site is located within these mapped erosion areas. The analysis provides an estimated erosion rate but does not estimate the potential distance of property erosion. This requirement has not been met.

h. Description of potential for sea level rise, estimated for local area by combining local tectonic subsidence or uplift with global rates of predicted sea level rise.

Finding: Page 8 of the Report states *"The site is not mapped within any of the three ranked erosion risk scenarios. The site is positioned roughly 350 feet beyond the upslope edge of risk scenario 3 (low-risk), this scenario is based on an extremely severe storm event (waves of 52.5' high), coupled with long-term sea level rise of 1.3 feet and a 3.3- foot vertical lowering of the coast in conjunction with a Cascadia subduction zone earthquake."* This requirement has been met.

i. An estimation of the annual erosion rate at the site.

Finding: Page 8 of the Report notes *"The site lies in an area mapped as undergoing critical erosion of marine terraces and sediments (Schlicker et al 1973) Priest and others (1994) have determines the average annual erosion rate for this area is as 0.27 +/- feet per year. This erosion rate was calculated by measuring the distance between existing structures to the bluff and compacted to distances measured on a 1939 or 19767 vertical aerial photograph (Priest et al 1994)."* This requirement has been met.

4. *Assessment of Potential Reactions to Erosion Episodes.*
    a. *Determination of legal restrictions of shoreline protective structures (Goal 18 prohibition, local conditional use requirements, priority for nonstructural erosion control methods).*

Finding: The Report mentions the presence of rip rap at the site on two occasions, but does not provide any determination of legal restrictions of shoreline protective structures. The city's GIS information indicates that the site is Goal 18 eligible for oceanfront protection. This would need to be verified by the property owner. Additionally, the potential to receive a permit for oceanfront protection is dependent upon meeting certain regulatory requirements in addition to the Goal 18 eligibility requirement. The ability for the property owner to repair or replace the rip rap onsite, and therefore protect the proposed development from future erosion, may be limited by existing state law. The requirement to provide information regarding a determination of legal restrictions of shoreline protective structures is not met.

    b. *Assessment of potential reactions to erosion events, addressing the need for future erosion control measures, building relocation, or building foundation and utility repairs.*

Finding: The report does not directly address potential reactions to erosion events, future erosion control measures, building relocation, or building foundation setbacks. The report does provide a general discussion indicating that the site is subject to erosion events common along the Bluff, and that it is not of concern at the site. Page 6 of the report states "*Minor slides and slumps are extraordinarily commonly along the bluffs of bluff-backed beaches. The Oregon HazVu suggests that the bluff due west of the site consists of landslide deposits. The debris piles at the base of the bluff are the product of slope failures."* Page 7 of the Report states *"Erosion on the site has not been seen during the current duration of ownership. The existing bank of the property is 25ft tall and covered with trees so there has NOT had any erosion. The proposed deck will be built on footing that <u>are not affected by any erosion</u>. See the below deck footing embedment depths. The new deck will not affect any of the current vegetation on the site. No erosion has been noted during the course of the homeowner's duration at the site."* Page 8 of the report states *"Erosion is typically gradual, but produces a substantial amount of cumulative damage. Severe weather may dramatically increase the rate and impact of erosion as it produces high surf, heavy rainfall, and/or high winds. Climactic cycles (e.g. El Niño Southern Oscillation and longer-term climate cycles associated with the Pacific Decadal Oscillation) also impact rates or erosion. Erosion of coastal duns and bluffs cause them to retreat landwards, erosion rates impact retreat rates."* As indicated by the Report, erosion is a common issue along the Oregon Coast and has affected neighboring properties directly adjacent to the site. The effect of potential future erosion is the primary concern of this report requirement, and the Report provides conflicting statements on this issue. The Report does not provide any future erosion control measures such as building relocation, erosion control measures or recommended building foundation setbacks and this requirement has not been fully met.

    c. *An annual erosion rate for the property.*

Finding: Page 8 of the Report notes "The site lies in an area mapped as undergoing critical erosion of marine terraces and sediments (Schlicker et al 1973) Priest and others (1994) have determines the average annual erosion rate for this area is as 0.27 +/- feet per year. This erosion rate was calculated by measuring the distance between existing structures to the bluff and compacted to distances measured on a 1939 or 19767 vertical aerial photograph (Priest et al 1994)." The required information is provided.

5. *Recommendations.*

a. Based on results from the above analyses, recommended setbacks, building techniques, or other mitigation to ensure an acceptable level of safety and compliance with all local requirements.

Finding: Pages 9 of the Report provides some conclusions and recommendations. The Report states *"The new deck must be embedded into the slope following the building code. The planned setback means the deck post meet the desired slope setback. See figure below. RSS does suggest embedded the post 2ft into the ground for erosion protection."* On pages 9 and 10, the report states "*Satisfactory earthwork performance depends on the quality of construction. Sufficient monitoring of the activities of the contractor is a key part of determining that the work is completed in accordance with the construction drawings and specifications. I recommend that the geotechnical engineer or her representative should witness the installation of deck supports. Installation of deep deck foundation will ensure they will be straight and level for many years on the existing steep slope. RSS recommends continued removal of ivy and planting native plants and ground covers will assist with erosion protection as well as slope stability. As native plants and ground covers root systems grow in the slope assisting with stabilization and protection of the bluff."* The Report recommends setbacks and building techniques that are regulated by the building code but does not provide any setback recommendations that are in compliance with Local ordinances, specifically with LCMC 17.47, which is the subject of this review. The requirement to provide recommended setbacks, building techniques, and other mitigation is not met.

b. A plan for preservation of vegetation and existing grade within the setback area, if appropriate.

Finding: Page 10 of the Report states "RSS recommends continued removal of ivy and planting native plants and ground covers will assist with erosion protection as well as slope stability. As native plants and ground covers root systems grow in the slope assisting with stabilization and protection of the bluff." The required information is provided.

c. Consideration of a local variance process to reduce the building setback on the side of the property opposite the ocean, if this reduction helps to lessen the risk of erosion, bluff failure or other hazard.

Finding: The request does not include consideration of a local variance process, nor does it request a variance.

d. Methods to control and direct water drainage away from the ocean (e.g., to an approved storm water system), or, if not possible, to direct water in such a way so as to not cause erosion or visual impacts.

Finding: Page 7 of the Report states *" the project is a replacement of a deck, any storm water that sheds from the deck is being collected by the existing site vegetation. It is not possible for this amount of runoff to reach the ocean."* This requirement has been met.

C. Compliance. Permitted development shall comply with the recommendations in any required geotechnical report and any report required by the building code.

Finding: As a condition of approval and pursuant to LCMC 17.47.020.C, all permitted development shall comply with the recommendations in any required geotechnical report, as well as any report required by the building code.

At the time of footing inspection, or, if no footing inspection is required, at the time of the first building inspection, the author of the geotechnical report must certify that the development was constructed in accordance with the report's recommendations.

Finding: Pursuant to LCMC 17.47.020.C, permitted development shall comply with the recommendations in the Report and any report required by the building code. Additionally, at the time of any required footing inspections, Rapid Soils Solutions Inc. shall certify that the development was constructed in accordance with the Report's recommendations.

D. Bluff Setback. No bluff setback is required for public infrastructure, beach front protective structures, or natural means of beach protection. The footprint of any other new structure or any horizontal addition requiring at least one footing in ocean bluff areas must be set back from the bluff a distance of at least 60 times the average annual erosion rate (determined by the geotechnical analysis) plus five feet. The bluff, for this purpose, shall be determined by the city through inspection of aerial photos, the most recent LIDAR data, and the dividing line between the active and the high-risk erosion zones identified in the 2004 Priest maps referenced above. If the city cannot determine the location of a bluff, the geotechnical analysis, provided at the applicant's expense, shall determine an appropriate site for the structure, if one exists. The bluff setback must be measured from the unaltered bluff edge, as based upon a recent (conducted within the 12 months prior to the date of the geotechnical analysis) topographic survey performed by a land surveyor licensed in the state of Oregon. If damaged, an existing structure that does not conform to the setback may be rebuilt in conformance with Chapter 17.64 LCMC, Nonconforming Situations. Reconstruction shall comply with recommendations provided in a report from an engineering geologist licensed in the state of Oregon or a registered geotechnical engineer licensed in the state of Oregon, or both, as determined necessary by the building official.

Finding: Page 7 of the report states *"See the calculations that show this deck is well over the required distance for erosion or required setback for erosion."* Staff investigated the referenced appendix on page 12 of the report. The engineering calculation provided in the appendix provides no explicit setback, stating "house is located at 256 ft from waters edge" and "house elevation is 34 ft, not a problem." No bluff setback calculations were provided using the required formula in this code section, (60x annual erosion rate + 5ft) no bluff edge is shown or mentioned, and there is no mention of the annual erosion rate in the setback calculation. The report does not suggest setbacks, but only states "house elevation is 34ft not a problem." Using the erosion rate of .27 ft per year, from page 8 of the Report, the required setback from the bluff edge would be 21.2 ft. Based on the elevations provided on the topographical survey, the Bluff Edge is located at the slope break from the Southern to the Western slope. This criterion has not been met by the applicant.

E. Other Policies That Apply. If structures to protect shorelands, beaches and dunes, or flood areas are proposed, comprehensive plan "Shorelands, Beaches, Dunes, Estuaries, and Ocean Resources" Policies 7, 8, 9, 21 and 22 also apply.

Finding: The other policies do not apply to this request because no structures to protect shorelands, beaches and dunes, or flood areas are proposed.

Chapter 17.76 Procedures
17.76.040 Type II procedure

A. General Description. Type II procedures apply to administrative permits and applications. Decisions on administrative applications are made by the director, based on reasonably objective approval

criteria that require only limited discretion. Type II procedures require public notice and an opportunity for appeal, but do not require a public hearing or a public meeting.

B. When Applicable. Table 17.76.020-1 identifies Type II applications. Applications not listed in Table 17.76.020-1 may be identified as Type II by the director based on the general description in this section.

C. Pre-Application Conference. A pre-application conference is not required for Type II procedures.

Finding: A pre-application conference is not required, nor was one held.

D. Application Requirements. Type II applications shall:

1. Be submitted on application forms provided by the department and shall include all information, exhibits, plans, reports, and signatures requested on the application forms.

2. Be accompanied by the required fee as adopted by city council resolution.

3. Be subject to the completeness review procedure set forth in LCMC 17.76.110(D) and (E).

Finding: The required application forms and materials were submitted, along with the required fee. The application was deemed complete in accordance with LCMC 17.76.110.D and E.

E. Public Notice of Application and Comment Period. Type II applications require public notice of receipt of a complete application with an opportunity for area property owners and other interested parties to provide written comment prior to issuance of the decision.

1. After a Type II application has been accepted as completed under LCMC 17.76.110(E), the department shall mail a written public notice to the following:

a. The applicant and applicant's representative;

b. The owners of record of the subject property;

c. Property owners of record within 250 feet of the perimeter property line of the property or properties subject to the application, using the most recently provided property tax assessment roll of the Lincoln County assessor's office as provided to the city to determine property owners of record; and

d. Any neighborhood or community organization or association recognized by the governing body and whose boundaries include the site.

Finding: The Planning and Community Development Department mailed the public notice of a complete application to the parties noted in LCMC 17.76.040.E.1.a through d.

2. The written public notice shall include the following:

a. A brief description of the request;

b. The applicable criteria from the ordinance and the comprehensive plan that apply to the application at issue;

c. The street address or other easily understood geographical reference to the subject property;

d. Statement that failure of an issue to be raised in writing prior to the expiration of the public comment period, or failure to provide statements or evidence sufficient to afford the review authority an opportunity to respond to the issue precludes appeal to the Land Use Board of Appeals (LUBA);

e. The name of a department staff member to contact and the telephone number where additional information may be obtained; and

f. Statement that a copy of the application, all documents and evidence submitted by or on behalf of the applicant, and applicable criteria are available for inspection at no cost and will be provided at reasonable cost.

3. *The failure of a property owner to receive notice does not invalidate the land use action if the notice was sent.*
4. *Public notices for receipt of complete Type II applications shall include a written comment period of 14 days from the date the notice was mailed for the submission of written comments before the decision is issued.*

Finding: The written public notice contained all the information required in LCMC 17.76.040.E.2.a through f. The written public notice included the written comment period of 14 days.

F. Review Authority. The review authority for Type II applications shall be the director.

Finding: The Director reviewed the submitted Type II application.

G. Decision.

1. *Based on the criteria and facts contained within the record, the director shall approve, approve with conditions, or deny the request. The decision shall address all relevant approval criteria and consider written comments submitted before the close of the comment period.*

Finding: The relevant approval criteria are addressed in detail throughout this staff report. Consideration of the written comments received, if any, is given at the beginning of this report.

2. *The decision is considered final for purposes of appeal on the date the notice of the decision is mailed. Within seven days after the director has issued the decision, a notice of the decision shall be sent by mail to the following:*
   a. *The applicant and applicant's representative;*
   b. *The owners of record of the subject property;*
   c. *Any person, group, agency, association, or organization who submitted written comments during the comment period; and*
   d. *Any person, group, agency, association, or organization who submitted a written request to receive notice of the decision.*

Finding: Within seven days after the Director has issued the decision, the notice of that decision shall be mailed by the Planning and Community Development Department, pursuant to LCMC 17.76.040.G.2.

3. *The notice of the decision shall include the following:*
   a. *A brief description of the request;*
   b. *A statement of the decision and the applicable approval criteria used in making the decision;*
   c. *The street address or other easily understood geographical reference to the subject property;*
   d. *A statement that the decision is final, unless appealed as provided in LCMC 17.76.180;*
   e. *The requirements for filing an appeal of the decision, including a statement of the date and time by which an appeal must be filed;*
   f. *A statement that the complete file is available for review; and*
   g. *The name of a department staff member to contact and the telephone number where additional information may be obtained.*

Finding: The Planning and Community Development Department will issue the notice of decision that shall contain all the information noted in LCMC 17.76.040.G.3.a through g.

Chapter 17.77 Applications

17.77.090 Geologic hazard report and/or beach protective structure review – Natural resources development review

A. Procedure. Geologic hazard report, beach protective structure review, and natural resources development review are subject to the Type II procedure as described in LCMC 17.76.040.

Finding: A geologic hazard report was submitted for review. Pursuant to LCMC 17.76.040, the request is subject to the Type II procedure and has been processed accordingly.

B. Submittal Requirements. Type II application submittal requirements are set forth in LCMC 17.76.040 and more specific submittal requirements are provided on application forms and checklists as authorized in LCMC 17.76.100, as well as Chapters 17.46 and 17.47 LCMC.

Finding: The required documents were submitted.

C. Approval Criteria.
1. See Chapter 17.47 LCMC for approval criteria for geologic hazard report and beach protective structure review.

Finding: The submitted geologic hazard report has been analyzed against the applicable criteria in LCMC Chapter 17.47, as detailed earlier in this staff report.

2. See LCMC 17.46.050 for approval criteria for natural resources development review.

Finding: This standard is not applicable to this application for a geologic hazard report review.

D. Conditions of Approval. The review authority may impose conditions of approval to ensure compliance with the approval criteria.

Finding: Conditions of approval have been imposed to ensure compliance with applicable criteria.

OBSERVATION

Staff observes that the geologic hazard report contains numerous errors (e.g. the geologic map included in the report on page 6 is for a location well north of the subject property) and is internally contradictory. Several required contents are not expressly addressed, the most critical of them being the failure to calculate the required setback. If the report's author amends the report, it is essential that all required items are explicitly addressed.

DECISION

Based upon an analysis of the submitted application and accompanying materials against applicable criteria, the Director concludes that all criteria have not been met, and therefore **DISAPPROVES** the geologic hazard report.

Staff report prepared by: Weston Fritz, Associate Planner

Staff report approved by:

Richard Townsend Feb. 9, 2024

Richard Townsend, Director Date

Planning and Community Development