

ACU-24-045

**Reconnaissance-Level
Geologic Hazard Assessment Report**



Proposed Development
TNA Worldwide, LLC's Property
North of Sacchi Beach, Coos County, Oregon

Coos County Property ID:
T26S-R14W-S32-TL400

June 24, 2024

Prepared for:

TNA Worldwide, LLC

C/O Sheri McGrath
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PO Box 1548
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Prepared by:



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Project No. 959-23014-01

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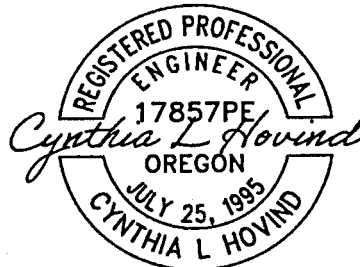
By:



EXP. 2/1/2025

102

Lynn D. Green, C.E.G., Principal Engineering Geologist



EXPIRES: 6/30/2024

Cynthia L Hovind, PE GE, Senior Geotechnical Engineer

Contents

1.0	INTRODUCTION.....	1
1.1	Purpose	1
1.2	Scope.....	1
1.3	Site Description.....	1
1.4	Project Description	2
2.0	SITE SETTING.....	2
2.1	Topography/Geomorphology.....	2
2.2	Hydrology	2
2.3	Geology	2
	2.3.1 Hydrogeology/Ground Water	3
2.4	Reconnaissance-Level Field Investigation	3
	2.4.1 Surface Conditions	3
	2.4.2 Subsurface Conditions	4
	2.4.3 Ground Water	4
3.0	REVIEW OF POTENTIAL NATURAL HAZARDS	4
3.1	Landslides Hazards	5
	3.1.1 Landslide Susceptibility.	5
3.2	Earthquake Hazards	5
	3.2.1 Seismic Induced Slope Failure.....	5
	3.2.2 Amplification of Ground Shaking.....	5
3.3	Tsunamis.....	6
3.4	Coastal Erosion.....	6
4.0	CONCLUSIONS AND RECOMMENDATIONS	6
4.1	Landslide Hazard	6
4.2	Amplification of Ground Shaking	7
4.3	Erosion Hazard.....	7
	4.3.1 Coastal Erosion.....	7
	4.3.2 Surface Erosion Control Measures	7
5.0	LIMITATIONS	8

Figures

- 1 Site Vicinity Map
- 2 Aerial Photo Map
- 3 Coos County Tax Lot Map
- 4 Proposed Existing Conditions
- 5 Proposed Development Plan
- 6 Site Geology Map
- 7 Landslide Hazard Map
- 8 Coastal Erosion Overlay Map

Appendices

- A Water Well Log
- B Hand Auger Logs
- C Site Photographs

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1.0 INTRODUCTION

EVREN Northwest, Inc. is pleased to present our Reconnaissance-level Geologic Hazard Assessment Report for the referenced property located southwest of Coos Bay, Oregon (see Figure 1). This report has been prepared consistent with Coos County Zoning and Land Development Ordinance (CCZLDO) - Natural Hazard Report 4.11.132 and standard engineering geology practices.¹ This report is valid for a period of five (5) years from the date of site reconnaissance.

The County parcel number for the 23.58-acre property is Tax Lot 400, T26S 14W 32 (see Figures 2 and 3). The assessment, along with the findings and recommendations, are limited to the subject property and the proposed development area. The Reconnaissance-level Geologic Hazard report was prepared and signed by a Certified Engineering Geologist and a Professional Geotechnical Engineer, both licensed in the State of Oregon.

1.1 Purpose

The purpose of the assessment was to identify the potential geologic hazards within the subject property and to evaluate the proposed development with respect to the Coos County Natural Hazard Report, as outlined in the CCZLDO Chapter 4.11.132.

1.2 Scope

ENW completed the following scope of work:

- Review of published geologic and geohazard online maps, along with historical aerial photographs of the vicinity of the property.
- Conduct a Reconnaissance-Level Geologic Hazard site investigation on October 31, 2023.
- Prepare this report.

1.3 Site Description

The referenced property is approximately 11 miles north of the City of Bandon, Coos County, Oregon (see Figures 1). The reference site is mapped in the center of Section 32, Township 26 south, Range 14 west of the Willamette Meridian in Coos County, Oregon (see Figure 1). The 23.58-acre property is roughly rectangular in shape with a mid-length of about 1070 feet, running northwest to southeast, and an approximate width of 800 feet, running southwest to northeast (see Figures 2 and 3). The subject property is currently undeveloped, except for a gravel road

¹ Oregon State Board of Geologist Examiners. May 30, 2014. Guidelines for Preparing Engineering Geologic Reports, 2nd Addition.

that splits from Sacchi Lane within the Sansaria gated community, runs continues along the eastern property line, and enters the site at the northeast corner (see Figure 4). The property was covered in dense forest vegetation with a roughly oval -shaped area cleared in early 2023 (see Figures 4 and 5). The area was cleared prior to the writing of this report.

1.4 Project Description

ENW understands the owners cleared a portion of the site for future development (see Figures 4 and 5). The proposed development area is on a north-south trending ridge line (see Figure 5). To the west of the cleared area is a steep slope that drops down to Sacchi Beach and to the south there is an ephemeral drainage that slopes downward towards the beach (see Figure 5). At the time of our site visit, the proposed building area was recently cleared of trees and vegetation and no site grading had been completed (see Figures 4 and 5).

2.0 SITE SETTING

2.1 Topography/Geomorphology

The referenced site is situated on the western edge of the coastal marine terraces south of Cape Arago. The marine terraces represent ancient shorelines that were uplifted by large seismic events over the last several million years (see Figure 6).

The property is primarily situated on a southwest facing slope that continues to Sacchi Beach below (see Figure 4). The northeastern portion of the property is moderately sloping into small seasonal ephemeral drainages. The western portion slopes steeply towards the beach and the southern portion slopes steeply into a deeply incised ephemeral drainage ravine that flows to the ocean when discharging (see Figures 4 and 5). Elevations at the site range from 440 feet NAVD 88 at the northeast corner property boundary to 150 feet NAVD88 at the southwest corner property boundary (see Figures 4). The elevations of the proposed development area ranges from about 370 feet NAVD 88 to 260 NAVD88.

2.2 Hydrology

No seeps or other indicator of shallow ground water was observed near the cleared area. A steeply sloping ephemeral drainage is present in the southern portion of the property, sloping downward towards the west to Sacchi Beach (see Figure 4). At the time of our site investigation, we could not confirm water flowing in the drainage basin due to the steep and densely vegetated terrain.

2.3 Geology

Regional Geology: The Wiley et al (2015)² mapped the area surrounding the referenced property as uplifted coastal marine terraces that cap the older marine sedimentary deposits (see Figure 5). The marine terraces include the Seven Devils Terrace Deposits, and the older marine sedimentary rocks include the Coaledo Formation (see Figure 6).

Site Geology: The Seven Devils marine terrace mantles most of the property and encompasses

² Wiley, T.J., J.D. McCloughry, L. Ma, K. A. Mickelson, C.A. Niewendorp, and H. H. Herinckx. 2015, Geologic Map of Cape Arago 7.5' Quadrangle, Coos County, Oregon: Oregon Department of Geology and Mineral Industries Open File Report O-15-04.

the cleared area for future development (see Figure 6). The remainder of the property is mapped as the Eocene Coaledo formation.

The Seven Devils terrace is relatively flat lying and is situated mostly on the higher elevated portion of the property. The deposits typically consist of unconsolidated to slightly cemented sand and gravel that were deposited in a shoreline-beach environment. The underlying Coaleda formation is typically well-bedded micaceous siltstone, mudstone, and fine sandstone deposited in an ancient delta environment.

2.3.1 Hydrogeology/Ground Water

In September 2023, a domestic water well was drilled on Tax Lot 101, the adjacent property to the northeast (see Figure 3 and Appendix A). The water well log for Tax Lot 101 suggests that ground water ranges from 45 to 65 feet below ground surface (bgs) (see Figure 3 and Appendix A). Shallow ground water provides a source of drinking water in the area and is recharged by the infiltration and downward percolation of incident precipitation, and discharges naturally to seeps and springs or as underflow to streams and other surface water features.

2.4 Reconnaissance-Level Field Investigation

On October 31, 2023, ENW completed a reconnaissance-level field investigation of the site to evaluate the surface conditions of the proposed building area. In addition to making general observations related to the geology and geomorphic features of the subject site and surrounding area, four (4) shallow hand auger borings were advanced across the cleared western ridge area (designated HA-1 through HA-4, see Figures 5 and Appendix B). The depths of the hand auger borings were up to 5 feet bgs. The shallow depths were due to auger refusal.

2.4.1 Surface Conditions

The subject property is situated on a southwest-facing slope except for the southern portion of the property which encompasses a relatively small drainage basin (see Figure 4). A gravel access road runs along the eastern property line, which enters the property near the northeast corner of the site. The gravel road continues southwest to the proposed development area (see Figure 4). From the cleared area, slopes descend steeply at about 40 percent to the west and about 35 percent to the south. While the proposed development area was cleared, the proposed building pads were not determined (see Figures 5).

Before our site investigation the proposed developable area was cleared of trees and brush (see Figures 4 and 5). After clearing, the top of the terrace feature was left ungraded and slopes with the natural gradient of the terrace to the northwest, west, and south. (see Figures 5). At the time of our site visit, the cleared area was abundant with slash piles, organic debris, and other deleterious material.

2.4.2 Subsurface Conditions

ENW encountered the following subsurface conditions in the hand auger borings:

Topsoil. Up to two (2) feet of Silty Topsoil was encountered in all hand auger borings which were throughout the recently cleared area (see Appendix B). The Topsoil was brown, moist, loose, and had varying amounts of organics.

Topsoil is not appropriate for foundation bearing subgrade, structural fill, or retaining wall backfill. These materials shall be overexcavated to the approved subgrade depth and either stockpiled onsite or removed from the property. Once the building is complete, the Topsoil can be reused as General Fill for areas of vegetation.

Seven Devils Terrace – Clayey Sand to Sandstone. Sediments of the Seven Devils Terrace were encountered below the Topsoil and to the extent of the borings. The sediments were light gray to reddish brown mottled orange-brown, with low to medium plastic clay and fine-grained sands.

The Terrace deposits are appropriate for foundation bearing subgrade.

2.4.3 Ground Water

No ground water was encountered in the shallow hand auger borings (see Appendix B). As noted in Section 2.3.1, ground water was encountered at a depth of approximately 45 feet on Tax Lot 101, just east of the subject site. However, the occurrence of ground water is site-specific and would need to be confirmed by drilling and hydrogeologic evaluation, if the underlying ground water resource was to be utilized as a drinking water source in the future.

3.0 REVIEW OF POTENTIAL NATURAL HAZARDS

ENW reviewed Coos County's All Hazards Viewer online tool to determine if the site was located within a Natural Hazard Zone, which would require a Geologic Assessment Review in accordance with Section 4.11.150. Coos County has inventoried the following geologic hazards:

- Flood Hazard
 - Riverine Flooding
 - Coastal Flooding
- Landslides and Earthquakes
 - Landslide Susceptibility
 - Liquefaction Potential
- Tsunamis
- Erosion
 - Riverine Streambank Erosion
 - Coastal
 - Shoreline and Headland
 - Wind

Of the geologic hazards listed above, only the Landslide and Coastal Erosion Hazard apply to the site. The flood and tsunamis hazards are considered non-critical for the site.

3.1 Landslides Hazards

3.1.1 Landslide Susceptibility.

Mass wasting includes all forms of down slope movement of soil and rock material under the influence of gravity. It includes everything from barely perceptible soil creep to catastrophic mud flows and landslides. Steep slopes, weak soil and rock strength, and the various effects of water on soil and rock are the primary controlling factors for mass wasting. The potential for mass wasting can be increased by adding weight to the top of a slope or excavating soil from the lower portion of a slope. The DOGAMI landslide susceptibility map indicates that the landslide hazard is low to high; however, no area on the site is mapped or designated very high (see Figure 7).

As noted above, the slopes adjacent to the proposed development area drop steeply west to the beach and southeast to a stream drainage (see Figure 5). While the landslide hazard ranged in the northern portion of the cleared area ranged from low to moderate, the hazard in the southern portion is high (see Figure 7).

At the time of our field investigation, we did not observe signs of active slope stability issues in the cleared proposed development area.

3.2 Earthquake Hazards

Beaulieu and Hughes (1975)³ state that geologic evidence for earthquake activity in western Coos and Douglas Counties is ambiguous and historical data are limited; however, the possibility of future faulting of undefined magnitude remains. In the past three decades, geologists have determined that the Northwest is subject to infrequent, but very powerful (magnitude 9+ on the Richter Scale) subduction zone earthquakes on the offshore Cascadia Subduction Zone (CSZ) fault system. The most recent subduction zone earthquake known to have occurred in the Northwest was in January of 1700.

Geologists have determined that very large subduction zone earthquakes occur on a 300- to 500-year recurring basis, and that smaller, but still significant, subduction related earthquakes occur on a much more frequent basis.

3.2.1 Seismic Induced Slope Failure

The effect of seismic events on slope stability in the project area is difficult to predict. The State has indicated that the landslide hazard is low to moderate in the northern portion of the proposed development area and high in the southern portion (see Figure 7). The occurrence of a major subduction zone earthquake may increase the likelihood of mass wasting on the steeply sloping areas of the site; however, it is difficult to predict what the overall impact will be.

3.2.2 Amplification of Ground Shaking

The subject site is within the area of the state where peak ground accelerations of 0.98 g can inflict considerable damage in specially designed structures and great damage in ordinary

³ Beaulieu, J.D. and Hughes, P.W., 1975, Land use geology of western Curry County, Oregon: Oregon Dept. of Geol. And Mineral Industries Bulletin 90, 148pp

structures during an earthquake occurring once in every 1,000 years⁴. Earthquake shaking potential at the site and surrounding area is expected to be severe. Amplification of ground shaking should be accounted for in the design of the proposed buildings.

3.3 Tsunamis

Tsunamis are seismically generated sea waves that typically cause catastrophic flooding when they strike coastal areas. Major earthquakes that occur anywhere in the Pacific Basin have the potential to generate a tsunami that could impact the project area. However, the greatest threat is from an earthquake occurring along the Cascadian Subduction Zone (CSZ), located just offshore of the Pacific Northwest coastline. The magnitude of the earthquake and its resultant tsunami are primarily driven by the amount and geometry of the slip that takes place when the North American Plate snaps westward over the Juan de Fuca Plate during a CSZ event.

DOGAMI's tsunami inundation map⁵ displays the output of its computer models representing five (5) selected tsunami scenarios (S, M, L, XL and XXL), all of which include the earthquake-produced subsidence and the tsunami-amplifying effects of the splay fault, which roughly parallels the CSZ. This model predicts that the subject site would not be inundated by a tsunami under all five (5) scenarios, which correspond to a range of approximate magnitude of 8.7 to 9.1 earthquakes. It has been just over 300 years since the last CSZ event. Based on modeling by the State, the maximum wave elevation for a XXL event is 80 feet, which is lower than the site. Based on the State's models, the site is outside of the inundation zone.

3.4 Coastal Erosion

Coos County has mapped the site within the coastal erosion zone (see Figure 8). ENW did not observe erosion associated with coastal shoreland, headland, or wind during our reconnaissance-level site evaluation. The subject property is of sufficient elevation and distance from the shoreline to be significantly affected from coastal erosion as described in CCZLDO Chapter 4.11.132.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our assessment and the findings discussed above, it is our opinion that there is an elevated risk posed to the subject property by the potential for slope stability issues due to the steep slopes to the west and south of the proposed development area. The shoreline erosion hazard is low, and therefore does not need mitigation. To develop the site, with respect to steep slopes, ENW recommends the following:

4.1 Landslide Hazard

During our reconnaissance-level site evaluation, we did not observe signs of landslide or slope installation in the cleared proposed development area (see Appendix C). The clear-cutting of the trees and brush increases the potential for isolated landslides and slumping along the steep slope, because the increase in saturation of the slope soils from rainfall without the canopy and the loss

⁴ Madin, I. P. and Mabey, M. A., 1996, Earthquake Hazard Maps for Oregon: Geological Map Series GMS-100, issued by the State of Oregon Department of Geology and Mineral Industries.

⁵ DOGAMI. 2012. Local Source (Cascadia Subduction Zone) Tsunami Inundation Map Coos-17.

of additional soil strength provided by the living root system. To reduce the potential for damage to the house or shop from landslide hazard, ENW recommends the following:

- The proposed building footprints be offset from the top of steep slope in the west and south by 40 feet or more. If the proposed building pad is closer than 40 feet, then a Geotechnical Engineering Report should be completed for the site to provide recommendations for alternative foundations.
- Stormwater runoff from the house and shop shall be directed away from the steep slopes surrounding the developed area. Vegetation within the drainage shall be maintained. If needed, additional native plants shall be planted.
- Cuts and Fills should be minimized on the site. If extensive cuts and fill are proposed for the site, then a Geotechnical Engineering Evaluation and Report should be completed for the site to further evaluate the stability of hillside.

4.2 Amplification of Ground Shaking

As noted above, severe amplification of ground shaking is anticipated for the site from a design earthquake. ENW recommends that a Structural Engineer be consulted so that the severe ground shaking is considered in the design of the proposed foundation and structures.

4.3 Erosion Hazard

4.3.1 Coastal Erosion.

It is our opinion that the site is not affected by coastal erosion. This is due to the site's proximity to the coastline and the elevation of subject property. While coastal erosion is not a hazard to the property, it is important to reduce the potential for surface erosion of the site during and after construction.

4.3.2 Surface Erosion Control Measures

ENW recommends the following surface erosion control measures shall be considered:

- Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize soil erosion, stabilize the soil as quickly as practicable, and expose the smallest practical area at any one-time during construction.
- Development plans shall minimize cut or fill operations to prevent off-site impacts.
- Temporary vegetation and/or mulching shall be used to protect exposed critical areas during construction.
- Permanent plantings and any required structural erosion control and drainage measures shall be installed as soon as practical.
- Provisions shall be made to effectively accommodate increased runoff caused by altered soil and surface conditions during and after development. The rate of surface water runoff shall be reduced where necessary.
- Provisions shall be made to prevent surface water from damaging the cut face of excavations or the sloping surface of fills by installing temporary or permanent drainage

across or above such areas, or by using other suitable stabilization measures such as mulching, seeding, planting, or armoring with rolled erosion control products, stone, or other similar methods.

- All site drainage shall be designed to adequately carry existing and potential surface runoff from the twenty-year frequency storm to suitable drainageways such as storm drains, natural watercourses, or drainage swales. In no case shall runoff be directed in such a way that it significantly decreases the stability of known landslides or areas identified as unstable slopes prone to earth movement, either by erosion or increase of groundwater pressure.
- Where drainage swales are used to divert surface waters, they shall be vegetated or protected as necessary to prevent offsite erosion and sediment transport.
- Erosion and sediment control measures may be required, and therefore, they should include, but are not limited to, the following:
 - Energy absorbing devices to reduce runoff water velocity.
 - Sedimentation controls such as sediment or debris basins. Any trapped materials shall be removed to an approved disposal site on an approved schedule.
 - Dispersal of water runoff from developed areas over large undisturbed areas.
- Onsite stockpiles of excavated spoils or topsoil shall be covered with mulch or by other means to reduce the potential of the stockpiles from eroding and flowing into streams or drainageways. Another action that could be considered is the location of the stockpiles with respect to the streams or drainages.
- Non-erosion pollution associated with construction such as pesticides, fertilizers, petrochemicals, solid wastes, construction chemicals, or wastewaters shall be prevented from leaving the construction site through proper handling, disposal, site monitoring and clean-up activities.

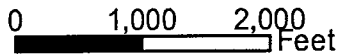
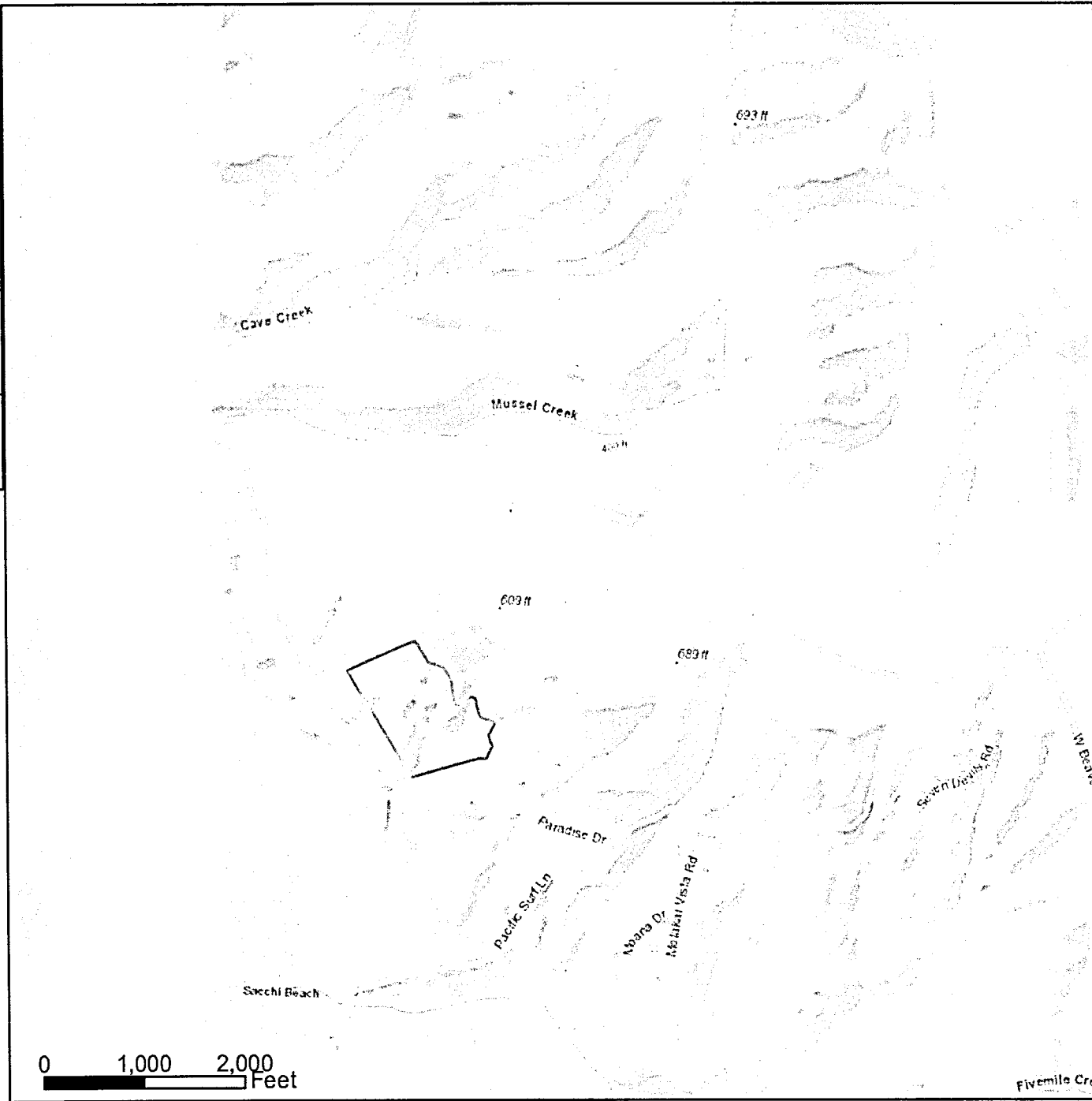
5.0 LIMITATIONS

The scope of this report is limited to observations made during on-site work; interviews with knowledgeable sources; and review of readily available published and unpublished reports and literature. As a result, the conclusions are based on information supplied by others as well as interpretations by qualified parties. Conclusions and recommendations presented in this assessment were prepared in accordance with generally accepted professional geologic engineering principles and practices. We make no warranty, either express or implied.

We have performed our services for this project in accordance with our agreement and understanding with the Client. This document and the information contained herein have been prepared solely for the use of the Client. We have performed this study under a limited scope of services per our agreement. It is possible, despite the use of reasonable care and interpretation that we may have failed to identify the presence of geological hazards other than those specifically mentioned in this assessment. We assume no responsibility for conditions that we did not

specifically evaluate, or conditions that were not generally recognized at the time this report was prepared. This report is subject to review and should not be relied upon after a period of 5 years.

DRAWN BY D. SCULLY, 1/28/2024	CHECKED BY C. HOVIND, 1/29/2024	APPROVED BY L. GREEN, 1/28/2024	DRAWING NUMBER 959-230104-01
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LEGEND:

 REFERENCED PROPERTY



NOTES:

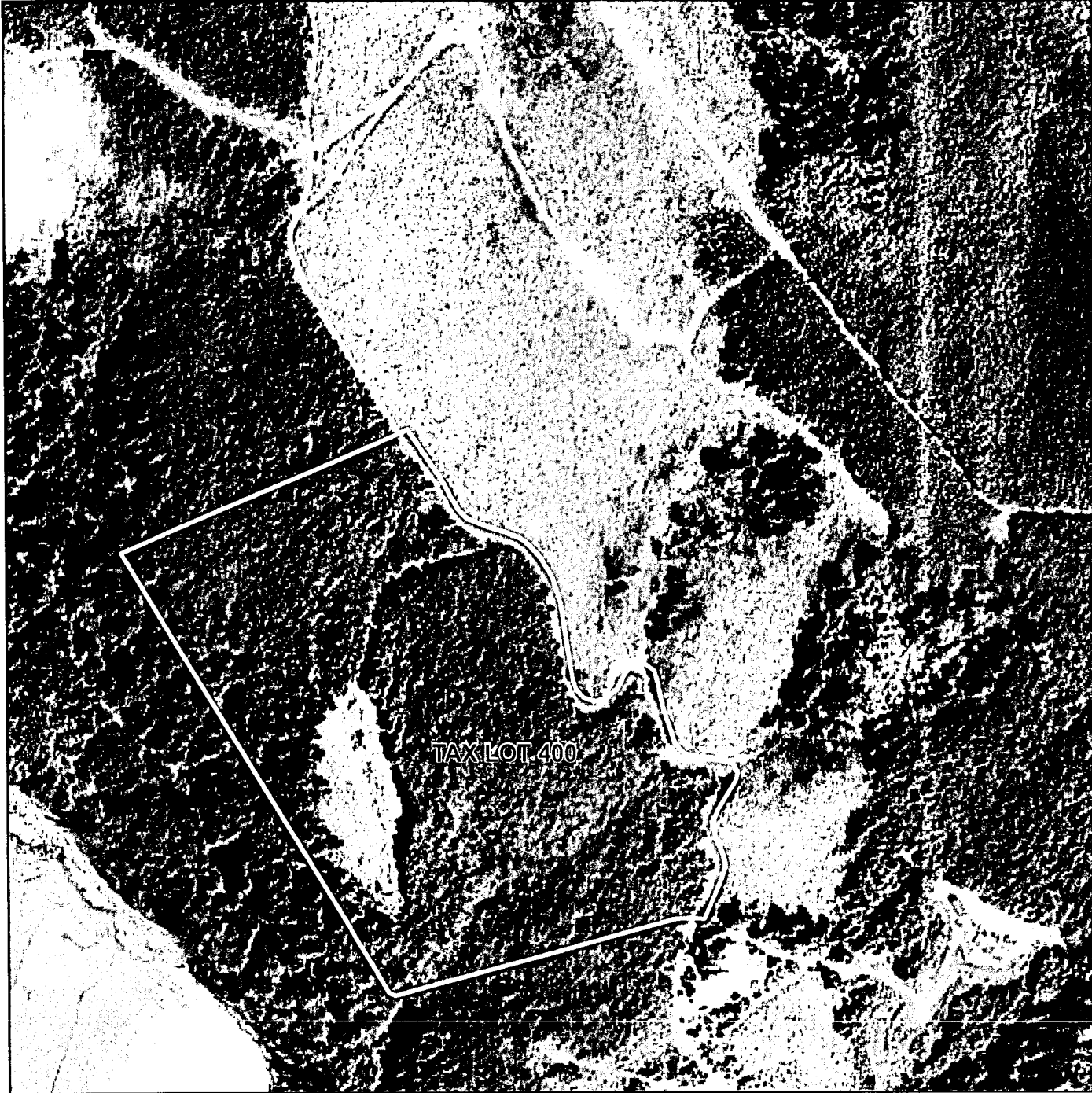
1. BASE MAP BY ESRI.
2. PROPERTY BOUNDARY PROVIDED BY COOS COUNTY.



FIGURE 1
SITE VICINITY MAP

TNA WORLDWIDE, LLC'S PROPERTY
NORTH OF SACCHI BEACH
BANDON, OREGON

DRAWN BY: D. SCULLY 2/7/2024
CHECKED BY: C. HOWARD 2/7/2024
APPROVED BY: E. GREEN 2/7/2024
DRAWING NUMBER: 959-23014-01



LEGEND:
REFERENCED PROPERTY

NOTES:

1. AERIAL IMAGERY BY GOOGLE EARTH, 7/2023.

0 125 250 500 Feet



FIGURE 2
AERIAL PHOTO MAP
TNA WORLDWIDE, LLC'S PROPERTY
NORTH OF SACCHI BEACH
BANDON, OREGON

DRAWN BY: D SCULLY 2/7/2024
 CHECKED BY: C HOWMS 2/7/2024
 APPROVED BY: L GREEN 2/7/2024
 DRAWING NUMBER: 859-23014-01



LEGEND:

— REFERENCED PROPERTY

— ADJUSTED TAX LOT BOUNDARY

○ TL 101 WATER WELL,
(9/14/2023)

NOTES:

1. PROPERTY LINE ADJUSTMENT SURVEY BY MULKINS & RAMBO, LLC 11/2022.
2. TAX LOT MAP PROVIDED BY COOS COUNTY. BOUNDARIES ARE APPROXIMATE.
3. AERIAL IMAGERY FROM OREGON STATEWIDE IMAGERY PROGRAM (OSIP), 2022.

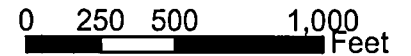
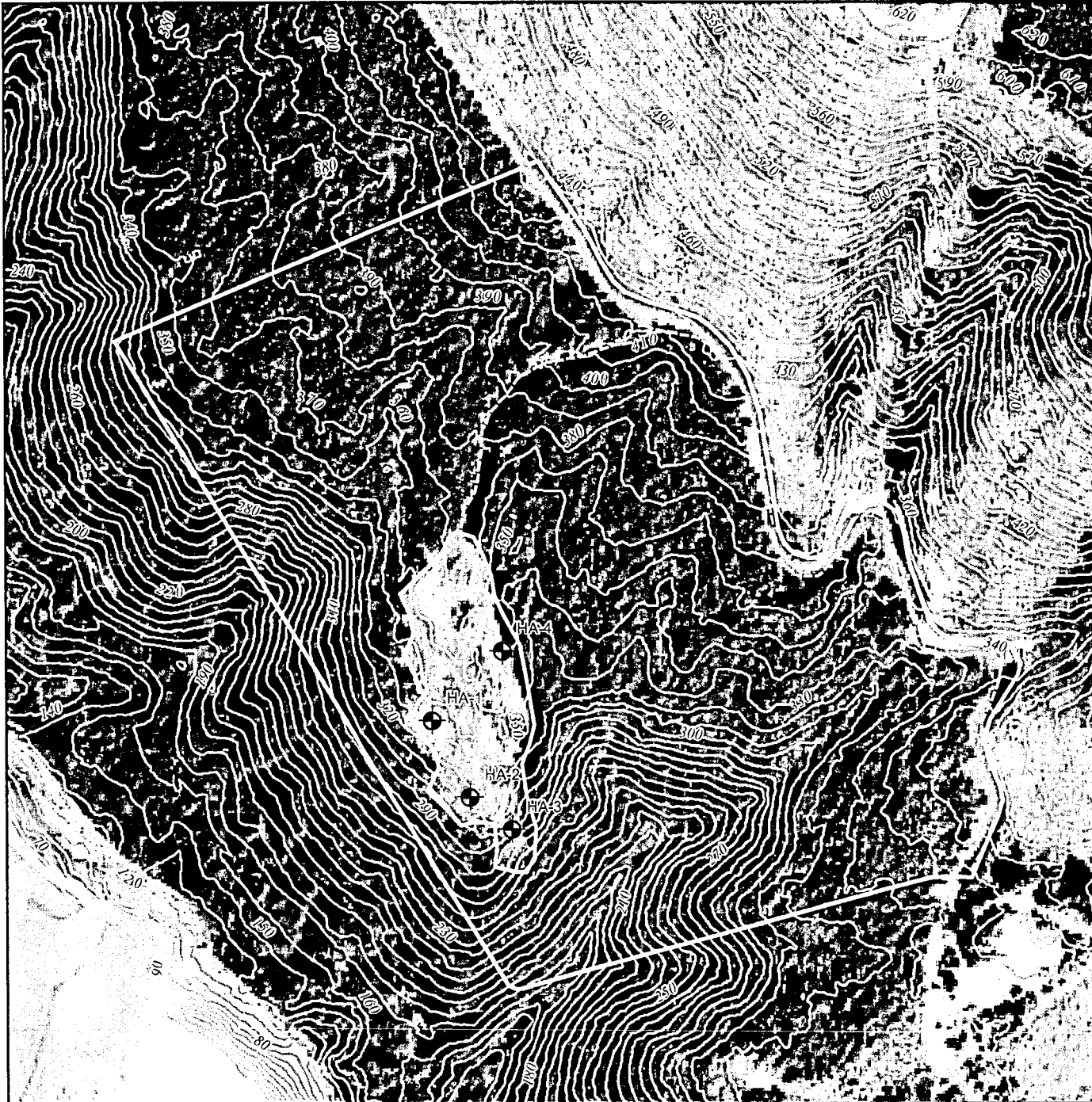






FIGURE 3
COOS COUNTY TAX LOT MAP

TNA WORLDWIDE, LLC'S PROPERTY
 NORTH OF SACCHI BEACH
 BANDON, OREGON

DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
D. SECULY 1/26/2024	E. HOWARD 1/29/2024	I. GREEN 1/29/2024	859-23014-01



LEGEND:

- REFERENCED PROPERTY
-  DEVELOPABLE AREA
-  HANDAUGER
-  DIRT ROAD
-  CONTOUR 10 FEET

NOTES:

1. CONTOUR MAP GENERATED FROM DOGAMI LIDAR (2009).
2. SITE MAP DEVELOPED FROM GOOGLE EARTH (2023)
3. ALL BUILDINGS, STREETS, AND FEATURES LOCATIONS ARE APPROXIMATE.
4. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

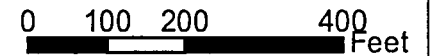
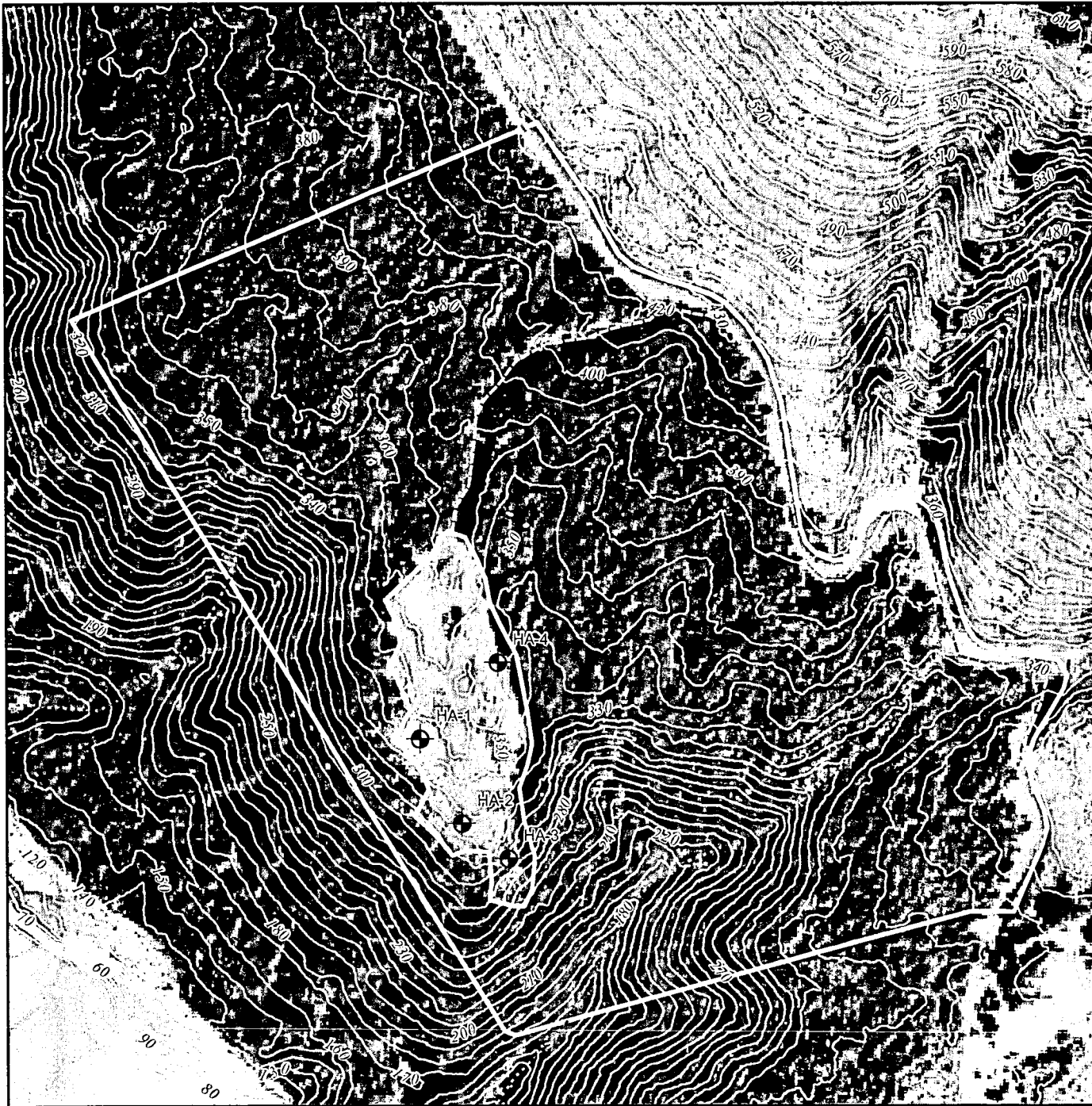


FIGURE 4
EXISTING SITE PLAN

TNA WORLDWIDE, LLC'S PROPERTY
NORTH OF SACCHI BEACH
BANDON, OREGON

DRAWN BY: E. SCULLY 8/2024
 CHECKED BY: E. HOVING 8/2024
 APPROVED BY: E. GREEN 8/2024
 DRAWING NUMBER: 253-23014-01



LEGEND:

- ☐ REFERENCED PROPERTY
- ☐ CLEARED SITE FOR HOME AND SHOP
- ⊕ HANDAUGER
- CONTOUR, 10 FEET
- - - DIRT ROAD
- ⋯⋯ EPHEMERAL DRAINAGE

NOTES:

1. CONTOUR MAP GENERATED FROM DOGAMI LIDAR (2009).
2. SITE MAP DEVELOPED FROM COOS CURRY CONSULTING 2024 AND GOOGLE EARTH 2023.
3. ALL BUILDINGS, STREETS, AND FEATURES LOCATIONS ARE APPROXIMATE.
4. SYMBOLS REPRESENT LOCATION AND DO NOT ALWAYS REPRESENT EXACT SHAPE, SIZE, OR ORIENTATION.

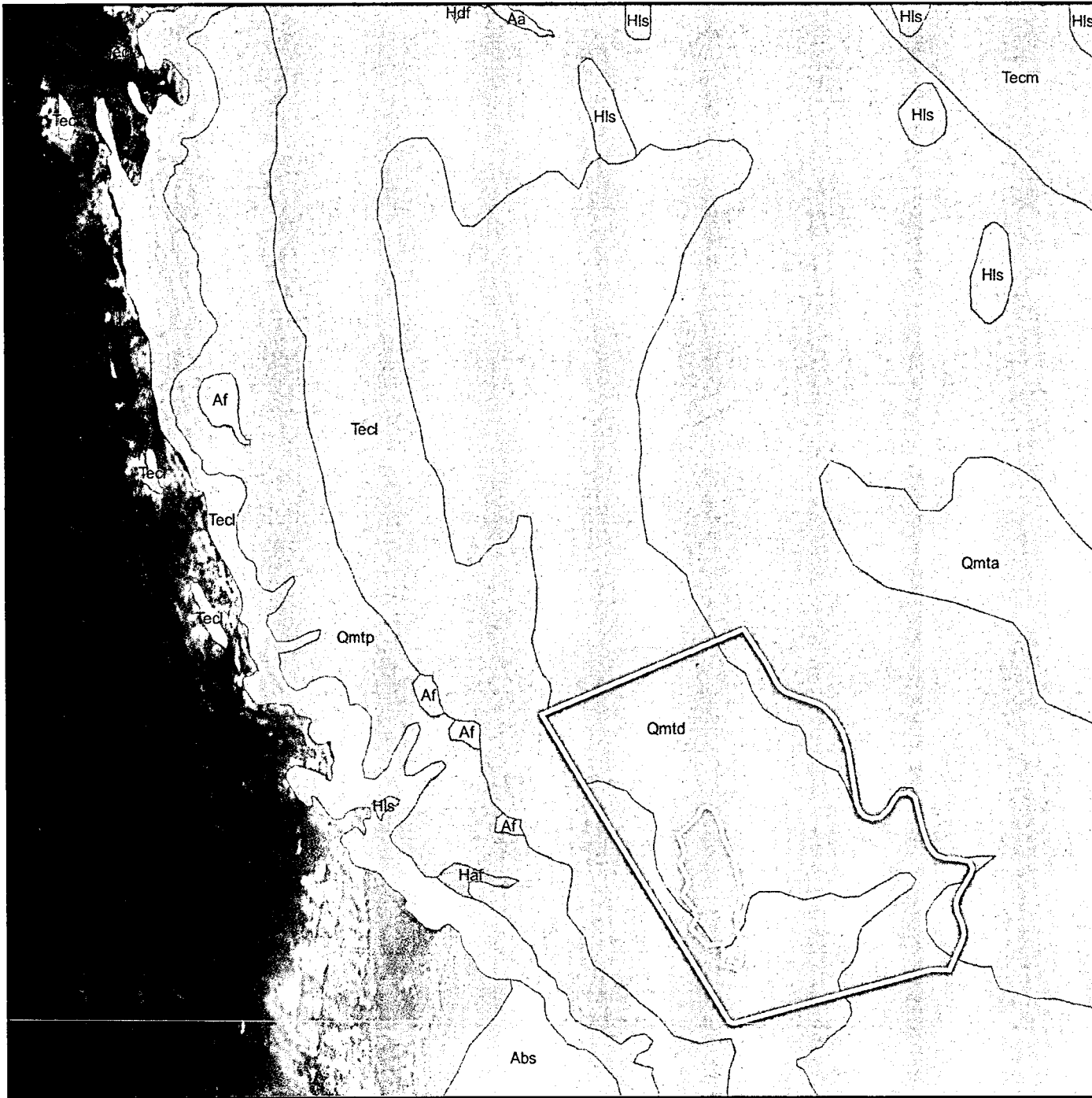


FIGURE 5
PROPOSED DEVELOPMENT PLAN













TNA WORLDWIDE, LLC'S PROPERTY
 NORTH OF SACCHI BEACH
 BANDON, OREGON

0 75 150 300 Feet

DRAWN BY: C. HOVIND 8/14/2024
 CHECKED BY: L. GREEN 8/14/2024
 APPROVED BY: L. GREEN 8/14/2024
 DRAWING NUMBER: 259-23014-01



Legend

- REFERENCED PROPERTY
-  CLEARED SITE FOR HOME AND SHOP
 -  Modern Fill and Construction Material
 -  Alluvium
 -  Beach and Berm Deposits
 -  Alluvial Fan Deposits
 -  Debris Fan Deposits
 -  Landslide Deposits
 -  Pioneer Terrace Sediments
 -  Seven Devils Terrace Sediments
 -  Arago Peak Terrace Sediments
 -  Coaledo Formation, Middle Member
 -  Coaledo Formation, Lower Member

NOTES:

1. GEOLOGIC MAP GENERATED FROM DOGAMI OPEN FILE REPORT 0-15-04
2. TOPOGRAPHIC MAP PROVIDED BY USGS.

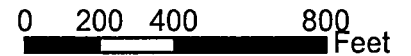
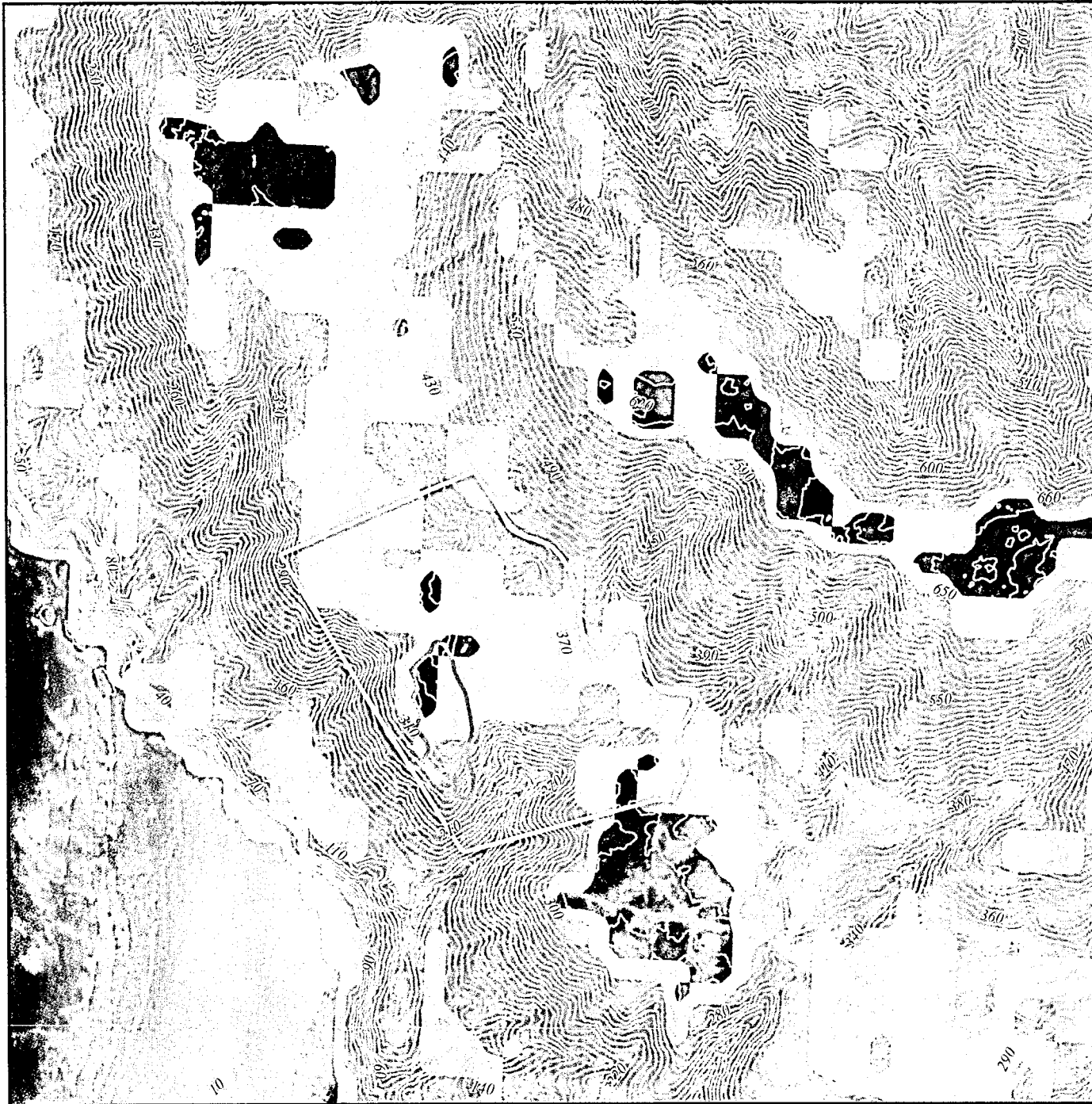






FIGURE 6
 GEOLOGY MAP

TNA WORLDWIDE, LLC'S PROPERTY
 NORTH OF SACCHI BEACH
 BANDON, OREGON

DRAWN BY: D SCULY 8/14/2024
CHECKED BY: C HOWARD 8/14/2024
APPROVED BY: L GREEN 8/14/2024
DRAWING NUMBER: 953-23014-01



LEGEND:

- REFERENCED PROPERTY
-  CLEARED SITE FOR HOME AND SHOP
-  CONTOUR, 10 FEET
- LANDSLIDE HAZARD
 -  HIGH
 -  MODERATE

NOTES:

1. CONTOUR MAP, 10-FOOT INTERVAL, GENERATED FROM DOGAMI LIDAR (2009).
2. LANDSLIDE HAZARD OVERLAY GENERATED FROM DOGAMI SLIDO (2016).

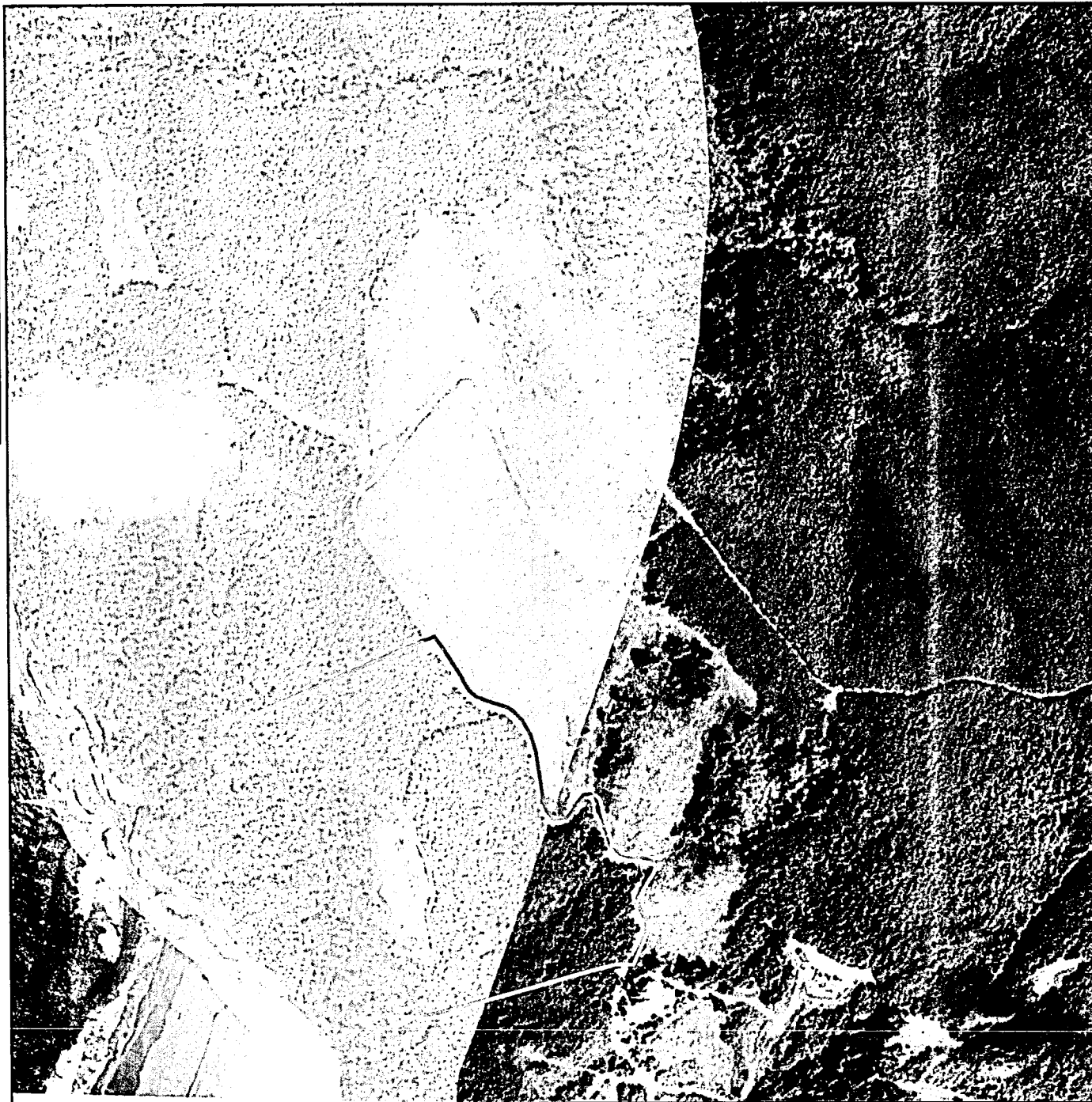
0 200 400 800 Feet





FIGURE 7
LANDSLIDE HAZARD MAP

TNA WORLDWIDE, LLC'S PROPERTY
NORTH OF SACCHI BEACH
BANDON, OREGON

DRAWN BY D. SCULLY #147204
CHECKED BY C. HOVIND #147204
APPROVED BY L. GREEN #142024
DRAWING NUMBER 959-23014-01



LEGEND:

-  REFERENCED PROPERTY
-  CLEARED SITE FOR HOME AND SHOP
- COASTAL EROSION OVERLAY (COOS COUNTY)

NOTES:

1. COASTAL EROSION OVERLAY PROVIDED BY COOS COUNTY.
2. AERIAL IMAGERY BY GOOGLE EARTH, 7/2023.

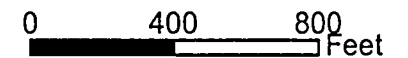


FIGURE 8
COASTAL EROSION OVERLAY MAP

TNA WORLDWIDE, LLC'S PROPERTY
NORTH OF SACCHI BEACH
BANDON, OREGON

Amended 10/18/2023
STATE OF OREGON
WATER SUPPLY WELL REPORT

COOS 58314

WELL I.D. LABEL# I 152102
START CARD # 1071347
ORIGINAL LOG #

(as required by ORS 537.545 & 537.765 and OAR 690-205-0210)

9/19/2023

(1) LAND OWNER

Owner Well I.D.
First Name
Last Name
Company IRELAND INVESTMENTS LLC
Address PO BOX 338
City DILLARD State OR Zip 97432

(2) TYPE OF WORK
New Well Deepening Conversion
Alteration (complete 2a & 10) Abandonment(complete 5a)

(2a) PRE-ALTERATION
Dia + From To Gauge Stl Plstc Wld Thr
Casting:
Material From To Amt sacks/lbs
Seal:

(3) DRILL METHOD
Rotary Air Rotary Mud Cable Auger Cable Mud
Reverse Rotary Other

(4) PROPOSED USE
Domestic Irrigation Community
Industrial/ Commercial Livestock Dewatering
Thermal Injection Other

(5) BORE HOLE CONSTRUCTION
Depth of Completed Well 100.00 ft.
Special Standard (Attach copy)

Table with columns: Dia, From, To, Material, SEAL, From, To, Amt, lbs. Row 1: 10, 0, 38, Bentonite, 0, 38, 18, S. Row 2: 6, 38, 100, Calculated, 17.48.

Seal placement method A B C D E Other:POURED
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: Type Amount
Seal Placement Begin Date 9/14/2023 Begin Time 11 30

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount Actual Amount

(6) CASING/LINER

Table with columns: Casing Liner, Dia, +, From, To, Gauge, Stl, Plstc, Wld, Thr. Row 1: 6, 2, 38, .250, 102. Row 2: 4, 5, 100, sch40.

Shoe Inside Outside Other Location of shoe(s) 38
Temp casing Yes Dia From + To

(7) PERFORATIONS/SCREENS
Perforations Method Saw Cut

Table with columns: Perf/ Screen Liner, Dia, From, To, Scrm/slot width, Slot length, # of slots, Tele/ pipe size. Row 1: 4, 40, 100, .1, 5, 102.

(8) WELL TESTS: Minimum testing time is 1 hour

Table with columns: Pump, Bailer, Air, Flowing Artesian, Yield gal/min, Drawdown, Drill stem/Pump depth, Duration (hr). Row 1: 45, 100, 1.

Temperature 56 °F Lab analysis Yes By
Water quality concerns? Yes (describe below) TDS amount 255 ppm
From To Description Amount Units

(9) LOCATION OF WELL (legal description)

County coos Twp 26.00 S N/S Range 14.00 W E/W WM
Sec 32 SE 1/4 of the NE 1/4 Tax Lot 101
Tax Map Number Lot
Lat " or 43.27608000 DMS or DD
Long " or -124.37627000 DMS or DD
Street address of well Nearest address
0 SACCHI LN BANDON, OR 97411

(10) STATIC WATER LEVEL

Table with columns: Date, SWL(psi), +, SWL(ft). Row 1: 9/14/2023, 45.

WATER BEARING ZONES Depth water was first found 63.00

Table with columns: SWL Date, From, To, Est Flow, SWL(psi), +, SWL(ft). Row 1: 9/14/2023, 63, 64, 45, 45.

(11) WELL LOG

Table with columns: Material, From, To. Row 1: sandy brown clay, 0, 19. Row 2: sandy grey clay, 19, 29. Row 3: sandstone/claystone siltstone, 29, 100.

Construction Begin Date 9/14/2023 Begin Time 09 30 End Date 9/14/2023

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief. License Number Date

Signed

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief. License Number 1878 Date 9/19/2023

Signed KERRY SCHATTENKERK (E-filed)
Contact Info (optional) Southern Oregon Water Wells 541-672-7834

**STATE OF OREGON
WELL LOCATION MAP**

This map is supplemental to the WATER SUPPLY WELL REPORT

Oregon Water Resources Department
725 Summer St NE, Salem OR 97301
(503)986-0900



LOCATION OF WELL

Latitude: 43.27608 Datum: WGS84
Longitude: -124.37627
Township/Range/Section/Quarter-Quarter Section:
WM 26S 14W 32 SENE
Address of Well:
0 SACCHI LN BANDON, OR 97411

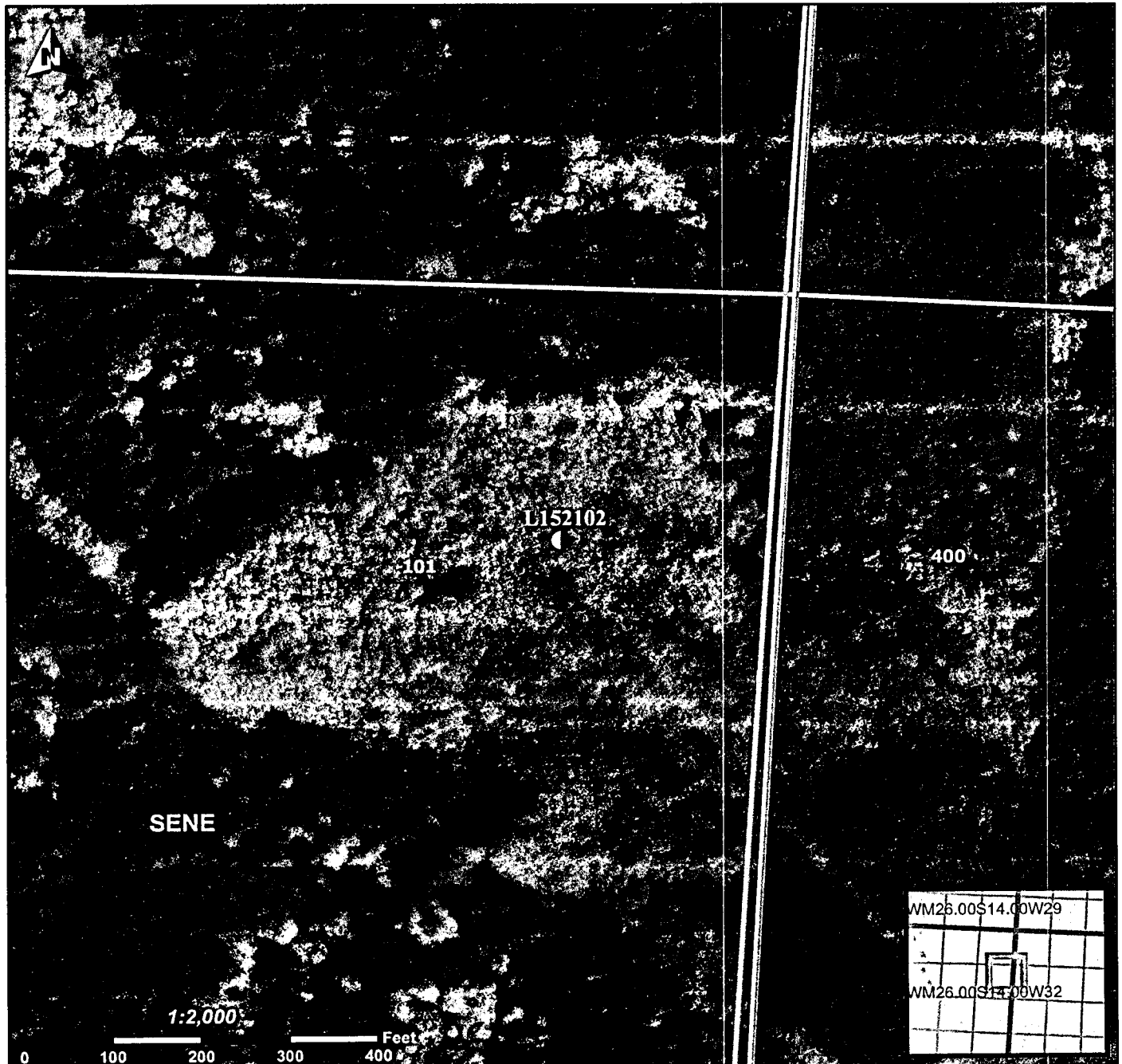
Well Label: L152102

Well Log: COOS 58314

Printed: October 19, 2023

DISCLAIMER: This map is intended to represent the approximate location of the exempt use well provided by the land owner. It is not intended to be construed as survey accurate in any manner.

Generated by OWRD



APPENDIX B
HAND AUGER BORING LOGS

Date: 8/17/2024

File: T:\ENWP\Projects\959\Sheri_McGrath_Consulting\2023\23014 (26-14-32 TL 400 TNA Worldwide Property (Formerly Ireland Property) Bandon)\Hand Auger Logs\959-23014-01_IrelandTL400.log

EVREN Northwest, Inc.

Boring Log No. B-1

Proj Name: TNA Worldwide, LLC TL 400

Location: North of Sacchi Beach, Bandon, Oregon

Proj No. 959-23014-01

Method: Hand Auger

Ground EL:

Hammer:

Hammer weight (lb):

Hole depth (ft): 2

Sampler:

Drop (in):

G.W.T. @ Drilling (ft):

Sampled by: DMS

Driller:

Drill Date: 10-31-2023

Logged by: DMS

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	SPT. blow/ft				Moisture %	Notes	
								0	20	40	60			
0	GWT not encountered					CL	Sandy Clay Topsoil							0
1						CL	Sandy Clay (CL) Reddish brown, soft, moist, low plasticity, sand is fine-grained, little silt, trace organics (Terrace Deposits).				○			1
2							Boring completed at depth of 2 feet bgs. Hand auger refusal.				○		Color change to orange brown	2
3														3
4														4
5														5
6														6
7														7

Remarks:

File: T:\ENWP\Projects\959\Sheri_McGrath_Consulting\202323014 (26-14-32 TL 400 TNA Worldwide Property (Formerly Ireland Property) Bandon)\Hand Auger Logs\959-23014-01_IrelandTL400.log
 Date: 6/17/2024

EVREN Northwest, Inc.

Boring Log No. B-2

Proj Name: TNA Worldwide, LLC TL 400

Location: North of Sacchi Beach, Bandon, Oregon

Proj No. 959-23014-01

Method: Hand Auger

Ground EL:

Hammer:

Hammer weight (lb):

Hole depth (ft): 2.5

Sampler:

Drop (in):

G.W.T. @ Drilling (ft):

Sampled by: DMS

Driller:

Drill Date: 10-31-2023

Logged by: DMS

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	SPT. blow/ft				Notes
								0	20	40	60	
0						ML	Sandy Clay Topsoil					
1						CL	Sandy Clay (CL) Reddish brown, soft, moist, low plasticity, sand is fine-grained, little silt, trace organics (Terrace Deposits).					
2						CL	Sandy Clay (CL) Light gray mottled to orange brown, moist, soft, medium plasticity, sand is fine-grained, few silt, trace 2-5mm diameter dark grey weathered to clay grains. Boring completed at depth of 2.5 feet bgs. Hand auger refusal.					
3												
4												
5												
6												
7												

Remarks:

EVREN Northwest, Inc.

Boring Log No. B-3

Proj Name: TNA Worldwide, LLC TL 400

Location: North of Sacchi Beach, Bandon, Oregon

Proj No. 959-23014-01

Method: Hand Auger

Ground EL:

Hammer:

Hammer weight (lb):

Hole depth (ft): 5

Sampler:

Drop (in):

G.W.T. @ Drilling (ft):

Sampled by: DMS

Driller:

Drill Date: 10-31-2023

Logged by: DMS

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	SPT blow/ft <input checked="" type="checkbox"/> Moisture % <input type="checkbox"/> Moisture %	Notes
0						CL	Sandy Clay Topsoil		
0.5		GWT not encountered				CL	Sandy Clay (CL) Reddish Tan, moist, soft, low plasticity, sand is fine-grained, few silt (Terrace Deposits).	0	
5									Boring completed at depth of 5 feet bgs.
6									Color change to orange brown
7									

Remarks:

EVREN Northwest, Inc.

Boring Log No. B-4

Proj Name: TNA Worldwide, LLC TL 400

Location: North of Sacchi Beach, Bandon, Oregon

Proj No. 959-23014-01

Method: Hand Auger

Ground EL:

Hammer:

Hammer weight (lb):

Hole depth (ft): 2

Sampler:

Drop (in):

G.W.T. @ Drilling (ft):

Sampled by: DMS

Driller:

Drill Date: 10-31-2023

Logged by: DMS

Depth	Strata	GWT	No.	Type	Blows Per 6"	USCS	Soil Description	SPT. blow/ft				Notes	
								0	20	40	60		
0													
0.5		GWT not encountered											
1.5													
2.0						ML	Sandy Clay Topsoil						
2.0						CL	Sandy Clay (CL) Dark brown and tan mottled to orange brown, moist, soft, low plasticity, sand is fine-grained, few silt, trace organics (Terrace Deposits). Boring completed at depth of 2 feet bgs. Hand auger refusal.						
3													
4													
5													
6													
7													

Remarks:



Looking north downslope of access road.



Looking north at top of slope at western extent of cleared proposed buildable area.



Looking northwest at northwest extent of cleared proposed buildable area.



Looking south from the center of the property.



TNA Worldwide LLC
 Tax Lot 400
 North of Sacchi Beach
 Bandon, Oregon

Site Photographs

Project No.
 959-23014-01

Appendix
 C



Looking south from eastern extent of cleared proposed buildable area.



Look southwest at top of slope at southern extent of cleared proposed buildable area.



Hand auger boring 1 HB-1 located at center of western extent of cleared proposed buildable area.



Hand auger boring 2 HB-2 located at southwestern extent of cleared proposed buildable area.



TNA Worldwide LLC
Tax Lot 400
North of Sacchi Beach
Bandon, Oregon

Site Photographs

Project No.
959-23014-01

Appendix
C



Hand auger boring 3 HB-3 located at southern extent of cleared proposed buildable area.



Looking northwest from center of property.



Hand auger boring 4 HB-4 located at center of eastern extent of cleared proposed buildable area.



Looking north from center of property.



TNA Worldwide LLC
 Tax Lot 400
 North of Sacchi Beach
 Bandon, Oregon

Site Photographs

Project No.
 959-23014-01

Appendix
 C