1. 2:00 P.M. Agenda

   Documents:

   2024-06-11 Public Works And Streets Agenda.pdf

2. 2:00 P.M. Meeting Materials
   2024-04-Financial-Report-Public-Works

   Documents:

   2024 May Public Works Department Report.pdf
   Water Report May 2024.Pdf
   Geotech Report Yachats-2-01 GTESM 052224-1.Pdf
   CIP Master List April 2024.Pdf
   Water Rate Reveue .Pdf

CITY OF YACHATS

PUBLIC WORKS & STREETS COMMISSION MEETING

Tuesday June 11, 2024 at 2:00pm

To Be Held Via Zoom & In Person Located at:
Commons Bldg., Civic Meeting Room 1
441 Hwy 101 N., Yachats OR 97498

Join Zoom Meeting

https://us02web.zoom.us/j/87044929816

AGENDA

I. Call to Order

II. Announcements & Correspondence
- a.
- b.

III. Citizen's Concerns (Not regarding any topic on Agenda)

IV. Reports
- a. Public Works Report (McClung & Buckwald)
- b. Finance Review (Groth)
- c. Emergency Preparedness Report (West/Groth)
    - i. September 14 Emergency Preparedness Fair
- d. Meeting Summary

V. Current Business
- a. Report on Geotech of Property next to Water Plant (attachment)
- b. Stormwater Master Plan
- c. Utility Rate Study - discussion

VI. New Business
- a. Group: Water Level Policy
- b. Newsletter Articles

VII. Other Business
- a. From Commission
- b. From Staff

This meeting is open to the public and all interested persons are invited to attend. This meeting will be audio taped. All items to be considered by the Commission must be submitted to City Hall no later than one week prior to the meeting. Minutes of all public meetings are available for review on the City website at www.yachatsoregon.org . In accordance with ORS 192.630, City of Yachats will make a good faith effort to provide accommodations for any person desiring to attend a public meeting, if the request is made at least 48 hours in advance of the meeting time. The meeting room is physically accessible to persons with mobility devices; a sign language or foreign language interpreter may be available, with advance notice. Call City Hall at 541- 547-3565 or Oregon Relay 1- 800-735-2900 (TDD) two days in advance.
Posted 06/03/2024 By: Neal Morphis, City Clerk

Date: June 3, 2024

To: Bobbi Price, City Manager

From: Public Works Department

Re: May 2024 Public Works Report

Rainfall at Yachats Public Works:

	Inches			
	2024	**2023**	**2022**	**2021**
May	4.16	0.42	7.60	1.88
Rain year to date:	43.47	33.44	30.85	27.52

Total water produced: **3,387,700 gallons**

Total water accounted for: **3,195,479 gallons** Water loss efficiency: **94%**

Total wastewater treated**:** **5,634,000 gallons**

The following is a list of what was done by Public Works staff in May 2024.

Streets:

- Filled potholes at multiple locations.
- Cleaned rock off of 7th & Radar Rd.
- Back blade Crestview and Pacific.

Storm Drainage:

- Storm drain inspections.

Water Treatment Plant:

- Water systems operations.
- Water plant maintc.

Distribution Sys:

- Meter reading and rereads.
- Meter maintc.
- Repaired water leaks on Ocean View Drive and Shell St.
- Assisted with Over Leaf water leak.
- Re-roofed 200K reservoir access vault.

Wastewater Treatment Plant:

- Wastewater systems operations.
- Plant maintc. & clean-up.
- Biosolids operations. One load to Heard Farms.

Collection Sys:

- Lift station inspections.
- Degrease lift stations.
- Sewer main cleaning on Cedar Ave.
- Riverside lift station junction box failure. Battery replacement.
- Brush cut Lily Court manhole.
- Vac-truck training.

Public Works:

- Shop maintc. and clean up.
- Fleet maintc. & repair.
- Equipment maintc. and repair.
- Multiple locates.
- Brush box handling.
- PW administration.
- Piles picked up for Trails crew.
- Garbage removal at the Commons.
- Samples to Newport.
- Crew worked on Request Tracker list.
- Pavilion work.
- Cleaned garbage from brush box.
- City Hall and Commons work.
- U.S. flags put up and removed.
- Curb cleaning and prepping for paint.

	1.2024	2.2024	3.2024	4.2024	5.2024
Gallons of Water Produced					
Water Plant	3,261,300	2,901,000	2,838,100	3,314,600	3,387,700
Total	**3,261,300**	**2,901,000**	**2,838,100**	**3,314,600**	**3,387,700**
Gallons of Accounted for Water					
Reservoir Level Feet	28.5	28.5	28.6	26.2	27.5
Reservoir +/- Gallons 41,666 per Foot	0	0	0	99,998	54,165
Waterline Flushing Gallons	0	0	0		
Gallons Sold	3,140,312	3,258,736	2,574,929	3,643,350	3,141,314
Total Water Accounted for	**3,140,312**	**3,258,736**	**2,574,929**	**3,543,352**	**3,195,479**
Final Water Report					
Water Loss Efficiency	96%		90%		94%
Unaccounted Gallons per Month	120,988		263,171		192,221
Unaccounted Gallons per Minute	2.8		6.1		4.4

Memorandum

10240 SW Nimbus Avenue Suite L6, Portland, Oregon 97223 www.centralgeotech.com

To:	Chris Brugato, PE
From:	Blayne Sandau, PE Paul Crenna, CEG Julio Vela, PhD., PE, GE
CGS Project Number:	Yachats-2-01
Date:	May 21, 2024
Subject:	Preliminary Geotechnical Summary and Geologic Hazard Assessment Cit of Yachats Proposed Steel Water Reservoir Yachats River Road Yachats, Oregon

GEOLOGIC HAZARD ASSESSMENT

Central Geotechnical Services, LLC (CGS) is pleased to submit this report of geotechnical engineering services to Westech Engineering Inc. Inc., (Westech) for the proposed City of Yachats Steel Reservoir Project located on Yachats River Road approximately 750 feet (ft) east of its intersection with Combs Circle in Yachats, Oregon. The overall site is partially developed with some residential and outbuilding type structures. The location of the site is shown in Vicinity Map, Figure 1. Our scope of services was provided in general accordance with the signed contract dated February 27, 2024, as amended based on results of our analyses and per our discussions with Westech on May 6, 2024. The intent of our services was to evaluate geotechnical and geologic elements of site feasibility for proposed development.

Our understanding of the project was developed based on information provided to us by Westech, including a conceptual drawing titled "*Raw Water Storage Tanks"* dated June 28, 2024, and a review of Google Earth aerial imagery and geotechnical reports from our files in the vicinity of the site. Based on the information provided to us, we understand that project development would include construction of one or two 500,000-gallon steel water storage tanks.

At the time this report summary was prepared, tank dimensions were not finalized. Based on similar projects, we estimate that proposed water tanks will be 40 to 60 ft in diameter and 25 to 50 ft tall, respectively for the above noted capacity. In accordance with the proposal, this report was prepared to characterize the site generally for proposed use as a reservoir site and complete a geologic hazard assessment for the overall reservoir site.

SCOPE OF SERVICES

The purpose of our services was to evaluate soil and groundwater conditions as a basis for completing preliminary geotechnical and geological analyses to identify potential geologic hazards at the site and to inform project

feasibility. All geotechnical work completed was directly supervised by a geotechnical engineer licensed in the state of Oregon. Geologic services were completed by a Certified Engineering Geologist registered in the state of Oregon. Our scope of services included the following:

1. Reviewed information regarding subsurface soil and groundwater conditions at the site, including reports in our files, selected geologic maps, and other geotechnical engineering related information for the project area. This included reviewing historical aerial stereophotographs for indications of historic and recent or active mass movement.

2. Coordinated and managed a field investigation, including public utility notification and scheduling of subcontractors and CGS's field staff. Public locates were called in by our office as required by law.

3. Explored subsurface soil/rock and groundwater conditions at site by conducting one drilled boring to 93 feet below ground surface (bgs) in the vicinity of the proposed improvements.

4. Conducted a site walk to assess the surficial slope conditions upslope and downslope of the proposed tank location to perform a geologic visual reconnaissance of the site and immediate vicinity to document existing surface conditions, with particular attention to surficial indications of slope instability.

5. Obtained samples at representative intervals from the explorations, observed groundwater conditions and maintained detailed logs in general accordance with ASTM International (ASTM) Standard Practices Test Method D 2488. The field activities were observed by qualified staff from our office.

6. Performed laboratory tests on selected soil samples obtained from the explorations to evaluate pertinent engineering characteristics. Specific laboratory tests included fines content and moisture content determinations, sieve analyses, and unconfined compression with strain monitoring.

7. Provided a geotechnical evaluation of the site and provide design recommendations in a geotechnical report that addresses the following geotechnical components:

    a. A general description of site topography, geology and subsurface conditions.

    b. A summary of our geologic site reconnaissance.

    c. An opinion as to the adequacy of the proposed development from a geotechnical engineering standpoint.

    d. Comments on potential effects of seismic hazards including liquefaction, slope failure, and surface fault rupture. (IBC).

SITE CONDITIONS AND RECONNAISSANCE

Landslide Hazard Mapping

Landslide inventory and hazard mapping in Oregon has been compiled by DOGAMI in their SLIDO 4.4, database, which was last updated in November of 2021. The inventory shows no mapped landslides in the immediate vicinity

of the site. Regional mapping of landslide susceptibility shows slopes in the site vicinity to have a high susceptibility to landsliding.

Review of LiDAR Imagery

We reviewed Light Detection and Ranging (LiDAR) bare earth digital elevation imagery of the site complied by DOGAMI available in their Lidar Data Viewer. LiDAR is useful in that it provides digital imagery of the ground surface even in areas of dense vegetation. Landforms at the site include moderately-steep to steep slopes that have been modified by excavations into the hillside. We did not observe any obvious landforms associated with possible prior landsliding within the site boundaries.

Site Geology

The site is located on a slope that descends generally southward to the Yachats River in an area mapped as the Basalt of Yachats, a formation consisting primarily of terrestrial basalt and basaltic-andesite flows with flow breccia at the tops and base of individual flows.[1] The flows typically have irregular jointing with columnar jointing in some areas. The unit also includes interbedded subaqueous pillow basalts, breccia, lapilli tuff, boulder conglomerate, basaltic sandstone and siltstone. Volcanic rock near the ground surface is typically decomposed to residual silt and clay with relic rock fragments.

Five bedding attitudes within one mile of the site show stratigraphic bedding inclined at 8 to 15 degrees to the north-northwest. An inactive bedrock fault is mapped 1,800 feet southwest of the site.

Surface Conditions

The proposed water tank site is a terraced bench excavated into the hillside that appears to be associated with former use as a quarry or borrow pit area. The benched area is approximately 80 feet wide and 200 feet long with three terraces at approximate elevations of 158 feet, 165 feet, and 180 feet. The ground surface on the terraces is varied and irregular consistent with ground disturbed by heavy equipment, placement of fill spoils, and stockpiles.

Above the bench, there are steep backcut excavation slopes with an estimated total vertical height of 50 feet. The backcut slopes are steep to very-steep, inclined at about 0.5H:1 V. The face of the upper backcut exposes basalt rock that is fractured and jointed on approximate 1 to 4 foot spacing. The face of a separate cut near the middle to lower elevation of the overall backcut excavation exposes basaltic breccia with a structural grain that is inclined at about 10 degrees from horizontal towards the west.

Above the backcut is a natural slope that ascends upwards about 520 feet vertical to a ridgetop. The slope above the backcut is inclined at about 2.5H:1V. This slope is vegetated with mature spruce trees with trunk diameters of 2 to 4 feet. Landform topography on the natural slope is generally smooth and uniform consistent with stable slope conditions. There are two drainage swales that flow towards the bench area.

[1] Snavely, P.D. Jr., MacLeod, N.S., Wagner, H.C. and Rau, W.W., 1976 Geologic Map of the Waldport and Tidewater Quadrangles, United States Geologic Survey Miscellaneous Investigations Series Map I-866, scale 1:62,500.

Below the excavated bench is a steep to very-steep slope that is approximately 120 feet tall and densely vegetated with brush. The lower portion of the slope is an approximately 70-foot tall backcut resulting from a quarry excavation into the hillside. The quarried cut face exposes areas of basalt rock that is fractured and jointed on approximate 1- to 6-foot spacing. We observed groundwater seepage flowing from the basalt near the top of the excavated rock face. The upper portion of the slope above the rock face is inclined at about 1H:1V (horizontal to vertical). The ground surface on the upper slope appears to have been disturbed possibly by quarry activities but is visually obscured by dense vegetation.

Subsurface Conditions

Subsurface conditions at the site were explored by drilling one (1) geotechnical boring (B-1) completed on March 13 and 14, 2024, to a final depth of 93 feet (ft) bgs in the vicinity of the proposed structures. Approximate location of exploration at the site is presented in Figure 2. A log of the exploration is presented as an attachment to this memorandum.

Soil samples obtained during our explorations were taken to CGS's laboratory for further evaluation. Selected samples were tested for determination of moisture content, fines content, and grain size. Laboratory test results are presented as an attachment to this memorandum.

Soil Conditions

We encountered fill extending from the ground surface to a depth of 5 feet bgs. The fill consisted of gravelly SILT (ML) and sandy GRAVEL (GM-GW). Beneath the fill, we encountered extremely weak (R0) basaltic BRECCIA that extended to a depth of 65 feet. The BRECCIA was partially decomposed to silty, clayey SAND with gravel. The sand and gravel was angular to subangular. Laboratory test results yielded varying fines (silt and clay) contents of 15, 20, 37 and 40 percent. Beneath the BRECCIA, we encountered massive BASALT that was fractured. The estimated rock hardness of the BASALT is medium-strong (R3) to strong (R4) on the ISRM rock classification scale. The BASALT extended to the maximum depth of our exploration, 93 feet bgs.

Groundwater Conditions

Direct measurement of groundwater levels in our exploratory boring was not possible due to the use of mud-rotary drilling technique which utilizes drilling fluid to flush cuttings from the boring, and rock coring which injects water into the boring to cool the drill bit. We did observe groundwater seepage emanating from the fractured basalt rock face below the benched area at an estimated elevation of 90 feet msl.

We expect that shallow perched groundwater occurs near to the ground surface in response to infiltrating surface water. Groundwater conditions at the site are expected to vary seasonally due to rainfall events and other factors not observed in our exploration.

CONCLUSIONS

Based on our explorations, testing, and analyses, it is our opinion that the site is relatively stable under static conditions but presents a high likelihood of slope instability hazard for the design earthquake event. The site may be suitable for the proposed improvements if reinforcement of site slopes is completed but require significant geotechnical design and analyses to confirm as well as being a significantly expensive mitigation option. We offer

the following geotechnical and geologic conclusions relating to geotechnical engineering and geologic hazard assessment for the site:

- Conditions observed in our borings consist of an approximately 65-ft thick layer of extremely weak (R0, friable, decomposed breccia underlain by medium-strong to strong basalt (R3 to R4) observed to the maximum depth completed in our boring.
- It is our opinion that co-seismic slope stability hazards at the site are high. We have provided recommendations for future geotechnical explorations and analyses for site development if applicable and appropriate for the project. In our opinion it is unlikely that additional geotechnical work will reveal a reduced co-seismic slope stability hazard.
- Based on the results of our limit equilibrium slope stability analyses, failure surfaces with the potential to have direct impact on support of the proposed reservoir(s) determined to have an adequate factor of safety under static conditions (FOS = 1.2 to 1.4; Figure 3 & 4). In an unreinforced condition, our analyses indicate an inadequate FOS for failure surfaces extending through the extremely soft rock during the design level event (FOS < 1.0; Figure 5). Discussions relating to the methods of analysis and material parameters used in our analyses are presented in the slope stability section of this summary memo.
- For potential failure surfaces noted above, we estimate that a factor of safety near 1.1 under seismic conditions could potentially be achieved if rigid slope reinforcing inclusions are constructed into the existing slopes. Design of slope stabilization ground anchor systems is typically contractor designed. However, for preliminary planning purposes we estimate that 60 to 80 ft long ground anchors on a 4 ft by 4 ft spaced grid pattern along the exposed extremely soft rock would be technically feasible for this purpose (Figure 6).
- As described in the slope stability section of this memo, it is difficult to appropriately determine shear strength criterion of an extremely soft rock mass without the use of specialty in-situ testing methods. We recommend additional geotechnical explorations using in-situ methods appropriate for extremely soft rock for future development that could provide more accurate shear strength criterion for slope stability analyses and design of stabilization methods.
- We did not observe any surficial signs of slope instability immediately upslope or downslope of the proposed reservoir location.
- Based on the subsurface conditions observed in our exploration, the risk for seismically induced liquefaction and lateral spreading hazards at the site is very low.
- According the United State Geological Survey Quaternary Fold and Fault Database, the nearest mapped quaternary fault is the Waldport Fault group located approximately 2-miles to the north. Therefore, it is our opinion that the risk of earthquake induced surface rupture at the site is very low.

SEISMIC HAZARDS

Slope Stability

We conducted limit equilibrium slope stability analyses to estimate slope stability related hazards and assess global stability of the existing slopes at the site. Slope stability analyses were performed using Slide2 software, provided by RocScience. The program identifies the sliding surface with the lowest factor of safety (FS) for a given set of input parameters, including topography, subsurface conditions, soil and rock properties and appropriate shear strength

criterion, and water table elevation and/or pore water pressure. Graphical results of the slope stability analyses are included in the attached Figures 3 through 7.

Stability of a given failure surface is reported as a FS, which is the ratio of resisting forces to driving forces. Generally, a FS greater than 1.0 indicates that the resisting forces are greater than the driving forces and the slope should remain stable. FS less than 1.0 indicate that the driving forces are greater than resisting shear forces and a mass movement (landslide) is likely to occur based on completed analyses. A FS of between 1.3 and 1.5 is generally considered suitable for slopes under static (non-seismic) conditions. Based on our experience, a static FS of 1.3 is a suitable minimum FS for repair of unstable slopes, particularly where critical structures are not involved. Generally, slopes that are expected to remain stable under dynamic conditions (earthquake loads) should be designed to maintain a FS of at least 1.1 under seismic conditions. Slope stability analyses were conducted for static and seismic conditions using the ASCE7-16 2,475-year controlling event.

Based on the results of our analyses, the largest controlling factor of site slope stability is the shear strength of the extremely soft, friable breccia. It is difficult to collect high quality samples of extremely soft, friable rock without the use of specialty drilling and sampling techniques specifically designed for these materials. When a sample can be retrieved it is similarly difficult to perform conventional shear strength laboratory tests because equipment developed for strength testing of either rock or soil may not be appropriate for testing extremely soft rock, which can exhibit strength/stiffness characteristics somewhere between the two. As a result, selecting an appropriate shear strength criterion and associated parameters inherently carries considerable uncertainty. If beneficial to the project, we recommend conducting additional in-situ geotechnical testing to better inform shear strength criterion of site extremely weak rock for slope stability analyses and design of stabilization methods for future development.

Our slope stability analyses were completed using estimated mean parameters for the Mohr-Colomb and Modified Hoek-Brown shear strength criterion to model the extremely soft rock encountered on site as an equivalent soil and as a weak rock, respectively. Mean values were estimated based on conditions observed in our boring, our experience with similar materials, and back calculation of limit equilibrium analyses using existing conditions. Our observations of site topography combined with available USGS topographic data along the critical section were used to develop the profile for our analyses.

A summary of estimated factors of safety under static and seismic conditions is presented in Table 1. Because of the scale of existing site slopes, we observed that pre- and post-construction factors of safety were generally equivalent, indicating that static loads from the proposed tank had a minimal effect on FS for the evaluated failure surfaces. Therefore, pre- and post-construction factors of safety are not presented in Table 1 but can generally be assumed to be equivalent for the conditions analyzed. As previously discussed, specific information relating to tank dimensions and location were not available at the time this report was prepared. CGS should review that information when available to verify that slope stability analyses are valid for the proposed configuration(s). A summary of the shear strength criterion are included on the figures of the slope stability sections analyzed.

Table 1. Summary of Slope Stability Analysis

Condition	Estimated Factor of Safety of Equivalent Mohr Columb Shear Criterion[1]	Estimated Factor of Hoek-Brown Shear Criterion[2]
Static	1.45	1.22
Seismic	0.79	0.63
Excavated/Seismic	1.07	-

Based on the results of the slope stability analyses, the existing slope is generally stable under static conditions pre- and post-construction for the layout analyzed. However, they indicate FS less than one under seismic conditions for the ASCE7 design earthquake event.

In a limit equilibrium analysis, a FS less than one does not necessarily indicate unbounded, catastrophic slope displacements, (Duncan 2014). Limit equilibrium methods are not intended to directly estimate displacements. Instead, they are typically used as a measure of potential hazard and an initial tool to indicate whether more rigorous analytical methods would be beneficial to a project based on its complexity and potential consequences of slope failure. As this project would be assessed a high risk if compromised, it is our opinion that identifying the significant risk using this method is appropriate.

If future geotechnical work is conducted for the site, we recommend analytical processes that consider displacement or numerical based methods for slope stability analyses that are intended to more robustly model dynamic slope conditions and allow for more rigorous review of site stability hazards. These methods still include considerable uncertainty. In our opinion the more robust models in this case are unlikely to significantly change the conclusion that the site presents a high slope stability hazard during the design seismic event without stabilizing elements for the conditions observed.

With ground anchor reinforcing elements, we estimate that a factor of safety near 1.1 may be achieved in a limit equilibrium analysis under seismic conditions. Design of a slope stabilizing ground anchor systems is typically completed by a specialty contractor. For preliminary planning purposes we estimate based on iterative application that 60- to 80-ft long ground anchors on a 4 ft by 4 ft spaced grid pattern along the face of the extremely soft rock may be used to achieve a minimum factor of safety of 1.1 for the design earthquake event.

As an additional option toward a stable geometric configuration, we also analyzed slope stability with 30-ft of excavation of the existing pad to reduce the distance between the proposed tank bottoms and the underlying R2/R3 bedrock in order to increase the FS of potential failure surfaces with the extremely soft rock extending to the tank bottom. This did result in an increased factor of safety for failure surfaces within the extremely soft rock but reduced the factor of safety of global stability as a result of removing confining stresses near the toe of the failure surfaces analyzed (Figure 6). Additionally, excavation of the existing pad in this manner would likely be cost prohibitive and could require construction of a large retaining structure or benching between the tanks and the upslope portion of the site.

Surface Rupture

To evaluate the risk for surface rupture we reviewed the United States Geological Survey's Quaternary Fault Database. According to the USGS, there are no known Quaternary active faults in the immediate vicinity of the site; the nearest potentially active fault to the site is the Waldport Fault Group located approximately two miles to the north. Therefore, it is our opinion that the risk for seismically induced surface rupture at the site is low.

Liquefaction Potential

Liquefaction is a phenomenon caused by a rapid increase in pore water pressure that reduces the effective stress between soil particles to near zero. The excessive buildup of pore water pressure results in the sudden loss of shear strength in a soil. Granular soil, which relies on interparticle friction for strength, is susceptible to liquefaction until the excess pore pressures can dissipate. Sand boils and flows observed at the ground surface after an earthquake are the result of excess pore pressures dissipating upwards, carrying soil particles with the draining water. In general, loose, saturated sand soil with low silt and clay contents is the most susceptible to liquefaction. Low plasticity, silty sand may be moderately susceptible to liquefaction under relatively higher levels of ground shaking.

As discussed in the groundwater section of this report, groundwater was not directly observed during our explorations due to the method of drilling. However, based on the subsurface soil and rock conditions, it is our opinion that the risk for liquefaction and associated lateral spreading hazards at the site is very low.

INITIAL CONCLUSION

Based on our geologic hazard assessment as presented herein, we consider the site to have a low to moderate susceptibility to deep-seated landsliding under static conditions. The potential for shallow-seated landsliding on the steep slope below the site is considered to be moderate in static conditions. The shallow slope instability hazard is associated with the near surface fill and colluvial soils that mantle the underlying volcanic Brecia and basalt. The potential for damage arising from shallow shallow-seated slope instability can be reduced with appropriate setback of development from the top of the slope. For preliminary planning purposes, we recommend a minimum horizontal setback from the top of the slope of 25 feet. A reduced setback may be feasible if slope stabilization elements are utilized.

Results of quantitative slope stability analyses indicate that the deep-seated slope instability hazard to be a moderate to high risk (FS less than 1.0) during a design level seismic event per the IBC. The potential for slope instability during a design level seismic event may be reduced with slope stabilization inclusions such as a system of ground anchors. Additional explorations and analyses should be considered for future development if deemed to be potentially beneficial based on the complexity of the project and the potential consequences of failure.

Our initial site feasibility indicates that the site is at high risk of slope instability during a design seismic event without significant mitigative measures.

REFERENCES

Duncan, J. Michael, Wright, Stephen G., and Brandon, Thomas L. Soil Strength and Slope Stability (2). Somerset. US: Wiley, 2014. ProQuest Ebrary. Web. 19 Aprily 2016

Snavely, P.D. Jr., MacLeod, N.S., Wagner, H.C. and Rau, W.W., 1976 Geologic Map of the Waldport and Tidewater Quadrangles, United States Geologic Survey Miscellaneous Investigations Series Map I-866, scale 1:62,500.

Oregon Department of Geology and Mineral Industries (DOGAMI) 2023. Statewide Landslide Information Database for Oregon, Version 4.4, November 29, 2021. Accessed at https://www.oregongeology.org/slido/ on August 10, 2023.

LIMITATIONS

We have prepared this memorandum for the exclusive use of the City of Yachats, Westech Engineering Inc., and their authorized parties for the project specifically identified in this letter only. Within the limitations of scope, schedule and budget, this report was prepared in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology in this area at the time the report was prepared. No warranty, express or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

CERTIFIED OREGON PAUL A. CRENNA E1766 ENGINEERING GEOLOGIST

RENEWS 11-1-24

REGISTERED PROFESSIONAL ENGINEER 60333 OREGON FEBRUARY 08, 2000 JULIO C VELA

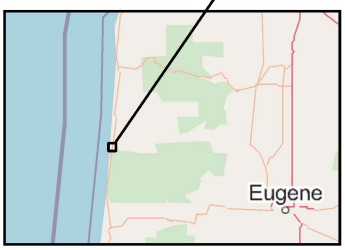
Digitally signed by Julio Vela 05/22/24

EXPIRES: 06/30/24

Julio Vela, PhD, PE, GE
Principal Engineer

Paul Crenna, CEG
Principal Engineering Geologist

Blayne Sandau, PE, GIT
Project Engineer



N

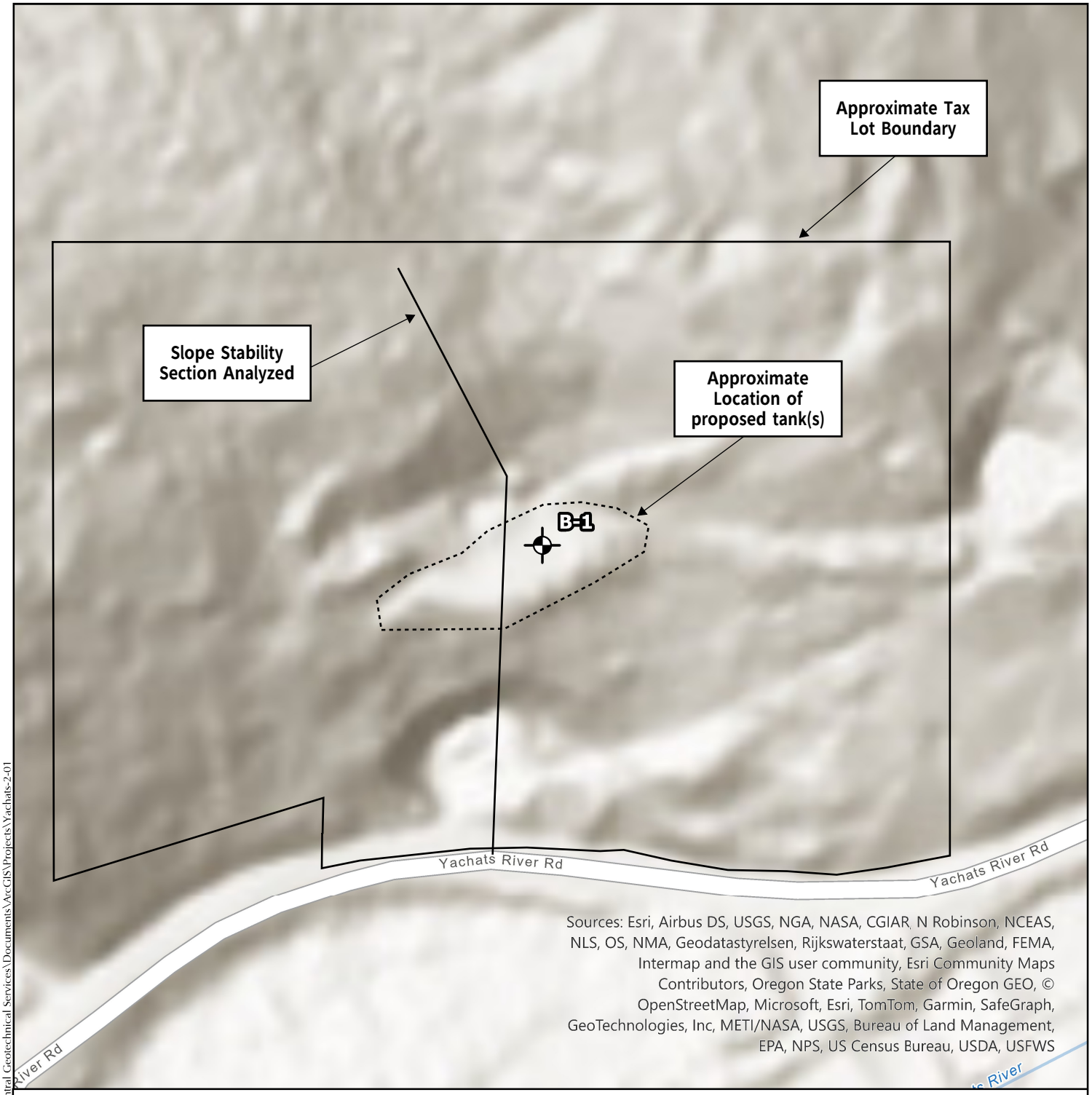
0 1,000 2,000 3,000 4,000 5,000
Feet

Yachats-2-01

Project Vicinity

CENTRAL Geotechnical Services, LLC

Figure-1



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Esri Community Maps Contributors, Oregon State Parks, State of Oregon GEO, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, US Census Bureau, USDA, USFWS

Legend

Exploration Designation and Approximate Location

N

0 100 200 300 400 Feet

Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sol risk and without liability to Central Geotechnical Services. Central Geotechnical Services makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by Central Geotechnical Services and is the official document of record.

Yachats-2-01

Site Plan

CENTRAL Geotechnical Services, LLC

Figure-2

Default Folder: C:\Users\cgsuser.GIS-WORKSTATION\OneDrive - Central Geotechnical Services\Documents\ArcGIS\Projects\Yachats-2-01

Central Geotechnical Services
10240 SW Nimbus Ave, Suite L6
Portland, OR 97223
Telephone: (503) 616-9419

Project No:
Yachats-2-01

BORING LOG B-1

Project: Proposed Steel Tank Reservoir
Location: Yachats River Road, Yachats, OR
Client: Westech Engineering

Date Started: 3/13/24
Date Completed: 3/14/24

Approximate Ground Elevation: 155ft
Groundwater first observed: ---
Groundwater at end of drilling: ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (in.)	MOISTURE (%)	N-Value	LAB RESULTS/ REMARKS
0							
1–2		Stiff, dark-brown to reddish-brown, gravelly SILT (ML) with sand, moist, sand and gravel are weathered basalt fragments, sand is fine to coarse, gravel is subangular, (4-inch-thick root zone) (FILL)	SS S-1	12	40	10	
2.5							
3–4		Medium-dense, dark-brown to reddish-brown, sandy GRAVEL (GM-GW), trace silt, moist, sand and gravel are weathered basalt fragments, tan streaks (FILL)	NR S-2	15	50	16	No recovery
5							
5.0							
6		Extremely-soft, dark brown with tan inclusions basaltic BRECCIA (R0), moist, predominantly decomposed to silty clayey SAND with gravel, friable (VOLCANIC BRECCIA)	SS S-3	16	41	34	Passing No. 200: 14.9%
7							
8–9			SS S-4	14		71	
10							
11			SS S-5	15	35	70	
12–15							
16			ST S-7	17		80	
17–20							
21			SS S-8	5	50	50 for 5"	Passing No. 200: 36.8%
22–25							

(Continued Next Page)

Operator: Western States Soil Conservation Inc.
Equipment: CME 55 HT Track Rig **Rig Number:** Track #2
Drilling Method: 4 7/8" Mud Rotary Tri-cone/4.5" Core

Logged By: Ruslan P.
Checked By: Paul C.

Approximate Location Coordinates:
Lat: NM Long: NM

Remarks:

Central Geotechnical Services
10240 SW Nimbus Ave, Suite L6
Portland, OR 97223
Telephone: (503) 616-9419

Project No:
Yachats-2-01

BORING LOG B-1

Project: Proposed Steel Tank Reservoir
Location: Yachats River Road, Yachats, OR
Client: Westech Engineering

Date Started: 3/13/24
Date Completed: 3/14/24

Approximate Ground Elevation: 155ft
Groundwater first observed: ---
Groundwater at end of drilling: ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (in.)	MOISTURE (%)	N-Value	LAB RESULTS/ REMARKS
25							
26		Extremely-soft, dark brown with tan inclusions basaltic BRECCIA (R0), moist, predominantly decomposed to silty clayey SAND with gravel, friable (VOLCANIC BRECCIA) *(continued)*	SS S-9	4	24	50 for 4"	
27							
28							
29							
30							
31			SS S-10	6		50 for 6"	
32							
33							
34							
35							
36			SS S-11	4		50 for 4"	
37							
38							
39							
40							
41			SS S-12	3		50 for 3"	
42							
43							
44							
45							
46			SS S-13	2		50 for 2"	
47							
48							
49							
50							

(Continued Next Page)

Operator: Western States Soil Conservation Inc.
Equipment: CME 55 HT Track Rig **Rig Number:** Track #2
Drilling Method: 4 7/8" Mud Rotary Tri-cone/4.5" Core

Logged By: Ruslan P.
Checked By: Paul C.

Approximate Location Coordinates:
Lat: NM Long: NM

Remarks:

Central Geotechnical Services
10240 SW Nimbus Ave, Suite L6
Portland, OR 97223
Telephone: (503) 616-9419

Project No: Yachats-2-01

BORING LOG B-1

Project: Proposed Steel Tank Reservoir
Location: Yachats River Road, Yachats, OR
Client: Westech Engineering

Date Started: 3/13/24
Date Completed: 3/14/24

Approximate Ground Elevation: 155ft
Groundwater first observed: ---
Groundwater at end of drilling: ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (in.)	MOISTURE (%)	N-Value	LAB RESULTS/ REMARKS
50							
51		Extremely-soft, dark brown with tan inclusions basaltic BRECCIA (R0), moist, predominantly decomposed to silty clayey SAND with gravel, friable (VOLCANIC BRECCIA) *(continued)*	SS S-14	3		50 for 3"	
52							
53							
54							
55							
56			SS S-15	3		50 for 3"	
57							
58							
59							
60							
61		Hardness increased below 60 feet bgs					
62							
63							
64							
65		Switched to coring below 65 feet bgs					
	65.0						
66		Hard, dark to light gray to red, BASALT (R3-R4), porphyritic, weathering along fractures, healed brecciated fractures, trace light colored veinlets consistant with secondary mineralization and alteration (MASSIVE YACHATS BASALT)	RC S-16	21.5			
67							
68							
69							
70			RC S-17	52.5			
71							
72							
73							
74							
75		*(Continued Next Page)*					

Operator: Western States Soil Conservation Inc.
Equipment: CME 55 HT Track Rig **Rig Number:** Track #2
Drilling Method: 4 7/8" Mud Rotary Tri-cone/4.5" Core

Logged By: Ruslan P.
Checked By: Paul C.

Approximate Location Coordinates:
Lat: NM Long: NM

Remarks:

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10240 SW Nimbus Ave, Suite L6
Portland, OR 97223
Telephone: (503) 616-9419

Project No:
Yachats-2-01

BORING LOG B-1

Project: Proposed Steel Tank Reservoir
Location: Yachats River Road, Yachats, OR
Client: Westech Engineering

Date Started: 3/13/24
Date Completed: 3/14/24

Approximate Ground Elevation: 155ft
Groundwater first observed: ---
Groundwater at end of drilling: ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY (in.)	MOISTURE (%)	N-Value	LAB RESULTS/ REMARKS
75		Hard, dark to light gray to red, BASALT (R3-R4), porphyritic, weathering along fractures, healed brecciated fractures, trace light colored veinlets consistant with secondary mineralization and alteration (MASSIVE YACHATS BASALT) *(continued)*	RC S-18	58.5			
80			RC S-19	60			
85			RC S-20	58.5			
90			RC S-21	55.5			
93		93.0					

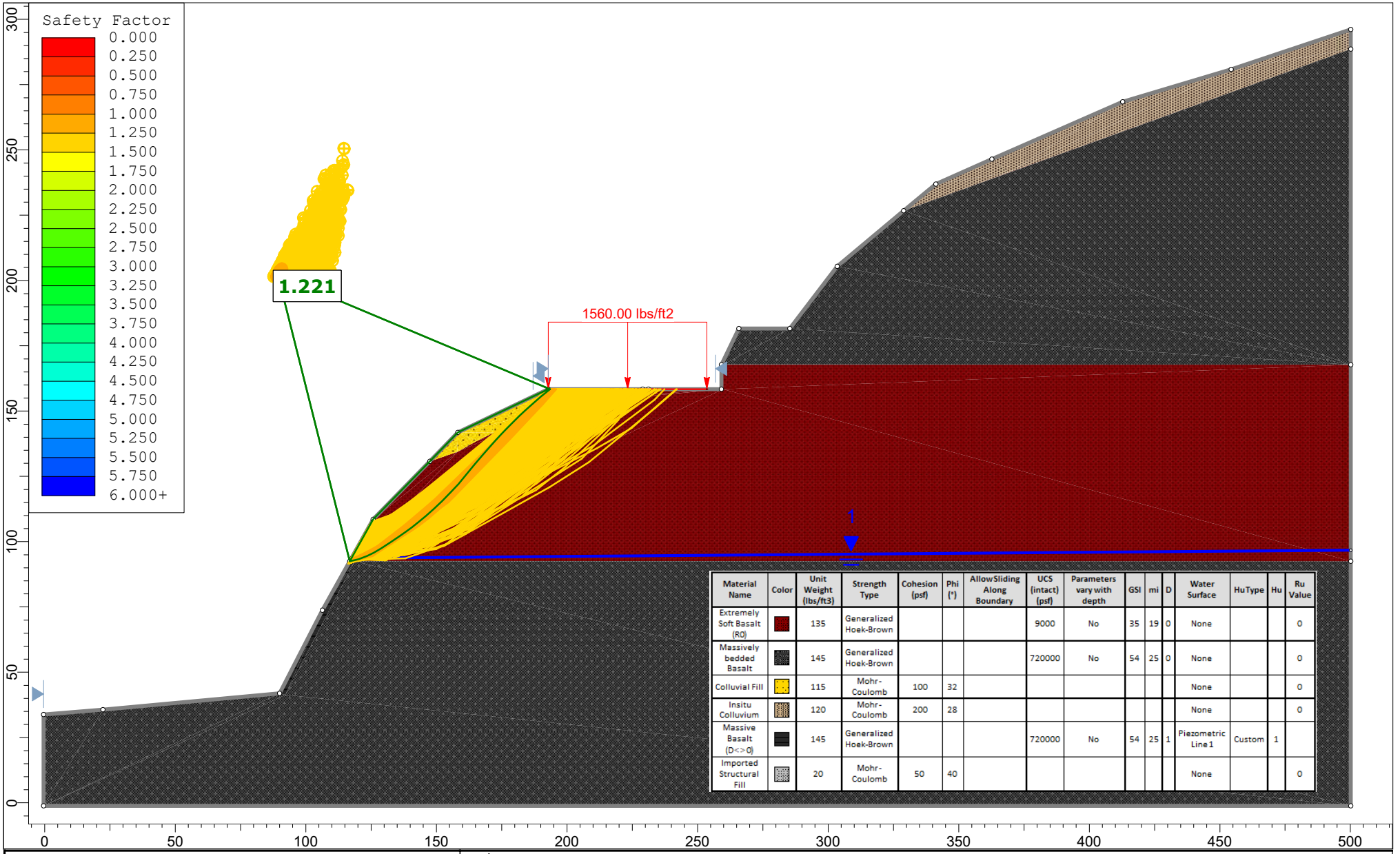
Boring completed at 93 feet bgs.
No groundwater measured due to the drilling method.
Hammer efficiency factor is 80.4%.

Operator: Western States Soil Conservation Inc.
Equipment: CME 55 HT Track Rig **Rig Number:** Track #2
Drilling Method: 4 7/8" Mud Rotary Tri-cone/4.5" Core

Logged By: Ruslan P.
Checked By: Paul C.

Approximate Location Coordinates:
Lat: NM Long: NM

Remarks:



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	AllowSliding Along Boundary	UCS (intact) (psf)	Parameters vary with depth	GSI	mi	D	Water Surface	HuType	Hu	Ru Value
Extremely Soft Basalt (RO)		135	Generalized Hoek-Brown				9000	No	35	19	0	None			0
Massively bedded Basalt		145	Generalized Hoek-Brown				720000	No	54	25	0	None			0
Colluvial Fill		115	Mohr-Coulomb	100	32							None			0
Insitu Colluvium		120	Mohr-Coulomb	200	28							None			0
Massive Basalt (D<>0)		145	Generalized Hoek-Brown				720000	No	54	25	1	Piezometric Line 1	Custom	1	
Imported Structural Fill		20	Mohr-Coulomb	50	40							None			0

CENTRAL GEOTECHNICAL SERVICES

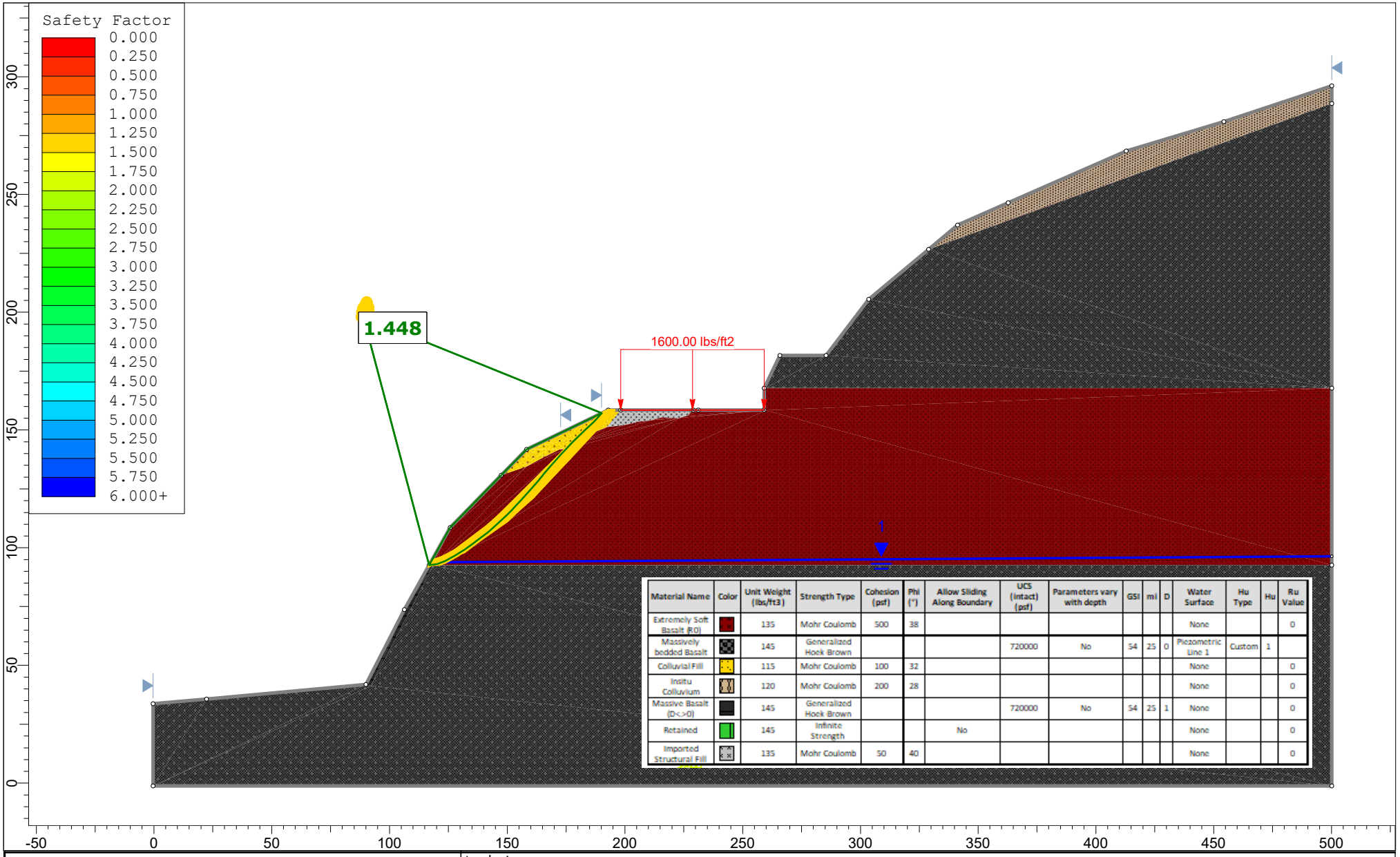
SLIDEINTERPRET 9.028

Analysis: Static Conditions: Generalized Hoek-Brown Criterion

Project: Yachats-2-01

Analysis Method: Spencer

Figure-3



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	UCS (intact) (psf)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu	Ru Value
Extremely Soft Basalt (R0)		135	Mohr Coulomb	500	38							None			0
Massively bedded Basalt		145	Generalized Hoek Brown				720000	No	54	25	0	Piezometric Line 1	Custom	1	
Colluvial Fill		115	Mohr Coulomb	100	32							None			0
Insitu Colluvium		120	Mohr Coulomb	200	28							None			0
Massive Basalt (D<>0)		145	Generalized Hoek Brown				720000	No	54	25	1	None			0
Retained		145	Infinite Strength			No						None			0
Imported Structural Fill		135	Mohr Coulomb	50	40							None			0

CENTRAL GEOTECHNICAL SERVICES

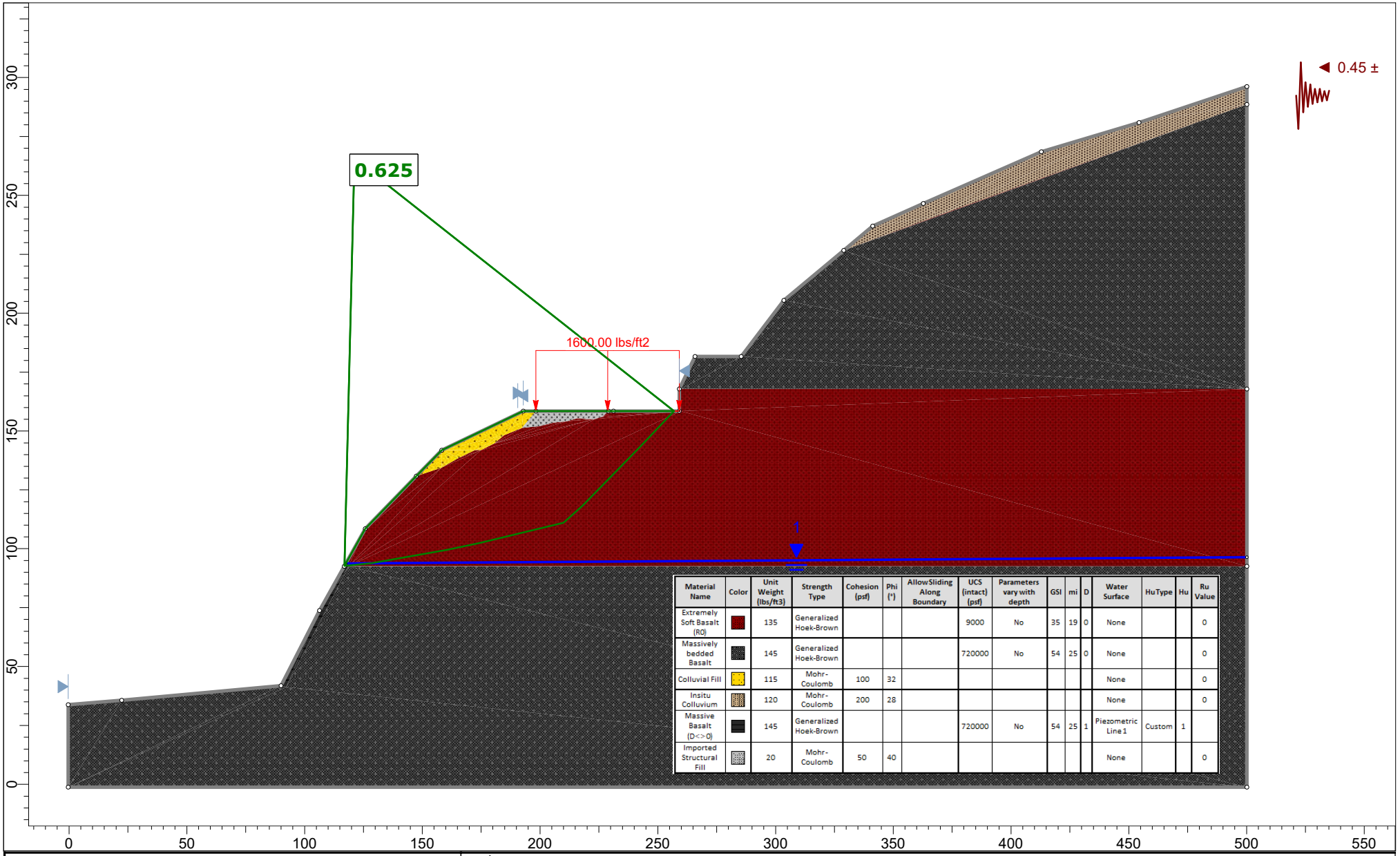
SLIDEINTERPRET 9.028

Analysis: Static Conditions: Mohr-Coulomb Criterion

Project: Yachats-2-01

Analysis Method: Spencer

Figure-4



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	UCS (intact) (psf)	Parameters vary with depth	GSI	mi	D	Water Surface	HuType	Hu	Ru Value
Extremely Soft Basalt (R0)		135	Generalized Hoek-Brown				9000	No	35	19	0	None			0
Massively bedded Basalt		145	Generalized Hoek-Brown				720000	No	54	25	0	None			0
Colluvial Fill		115	Mohr-Coulomb	100	32							None			0
Insitu Colluvium		120	Mohr-Coulomb	200	28							None			0
Massive Basalt (D<>0)		145	Generalized Hoek-Brown				720000	No	54	25	1	Piezometric Line 1	Custom	1	
Imported Structural Fill		20	Mohr-Coulomb	50	40							None			0

CENTRAL GEOTECHNICAL SERVICES

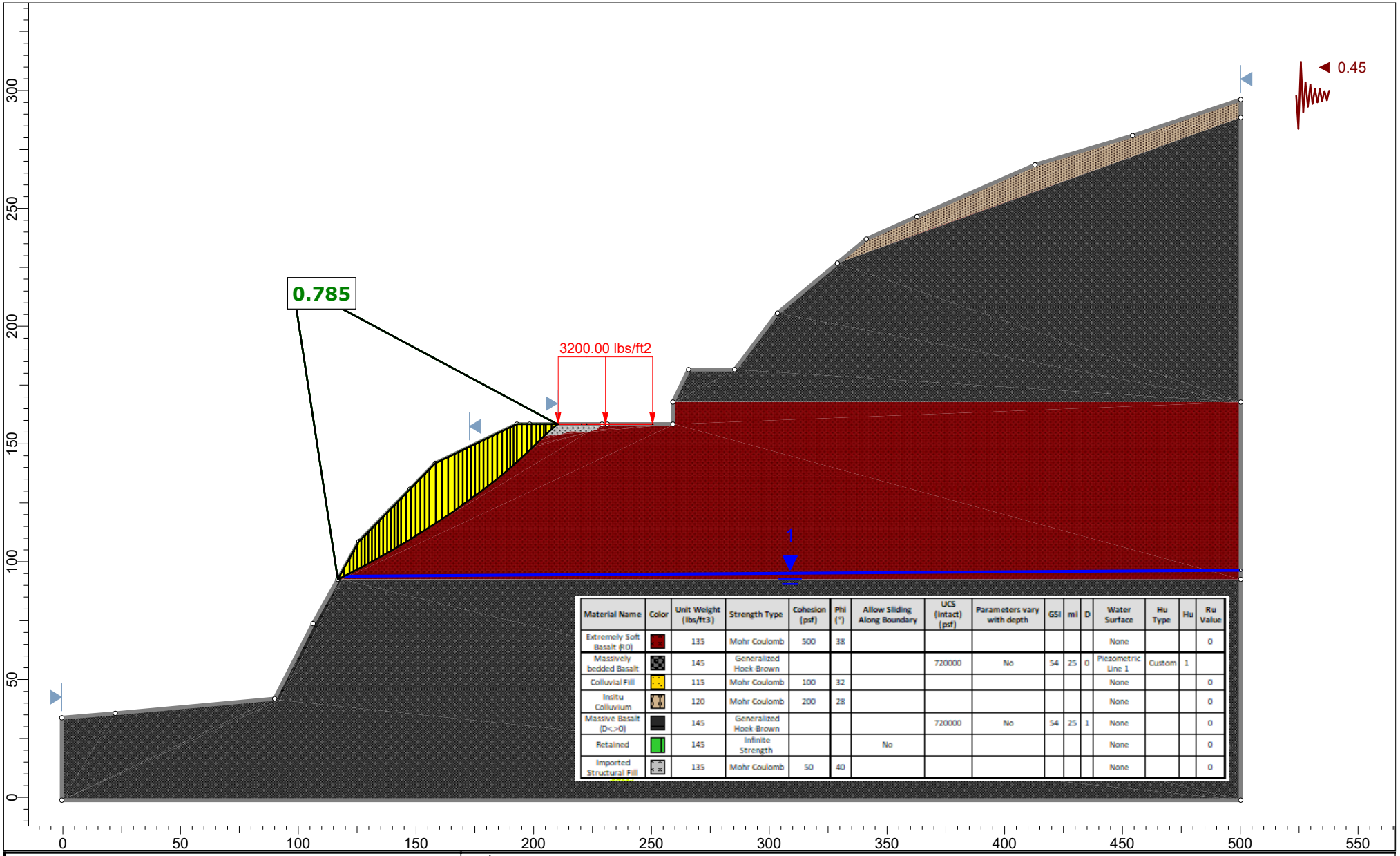
SLIDEINTERPRET 9.028

Analysis: Seismic Conditions: Generalized Hoek-Brown Criterion

Project: Yachats-2-01

Analysis Method: Spencer

Figure-5



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	UCS (intact) (psf)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu	Ru Value
Extremely Soft Basalt (RO)		135	Mohr Coulomb	500	38							None			0
Massively bedded Basalt		145	Generalized Hoek Brown				720000	No	54	25	0	Piezometric Line 1	Custom	1	
Colluvial Fill		115	Mohr Coulomb	100	32							None			0
Insitu Colluvium		120	Mohr Coulomb	200	28							None			0
Massive Basalt (D<>0)		145	Generalized Hoek Brown				720000	No	54	25	1	None			0
Retained		145	Infinite Strength			No						None			0
Imported Structural Fill		135	Mohr Coulomb	50	40							None			0

CENTRAL GEOTECHNICAL SERVICES

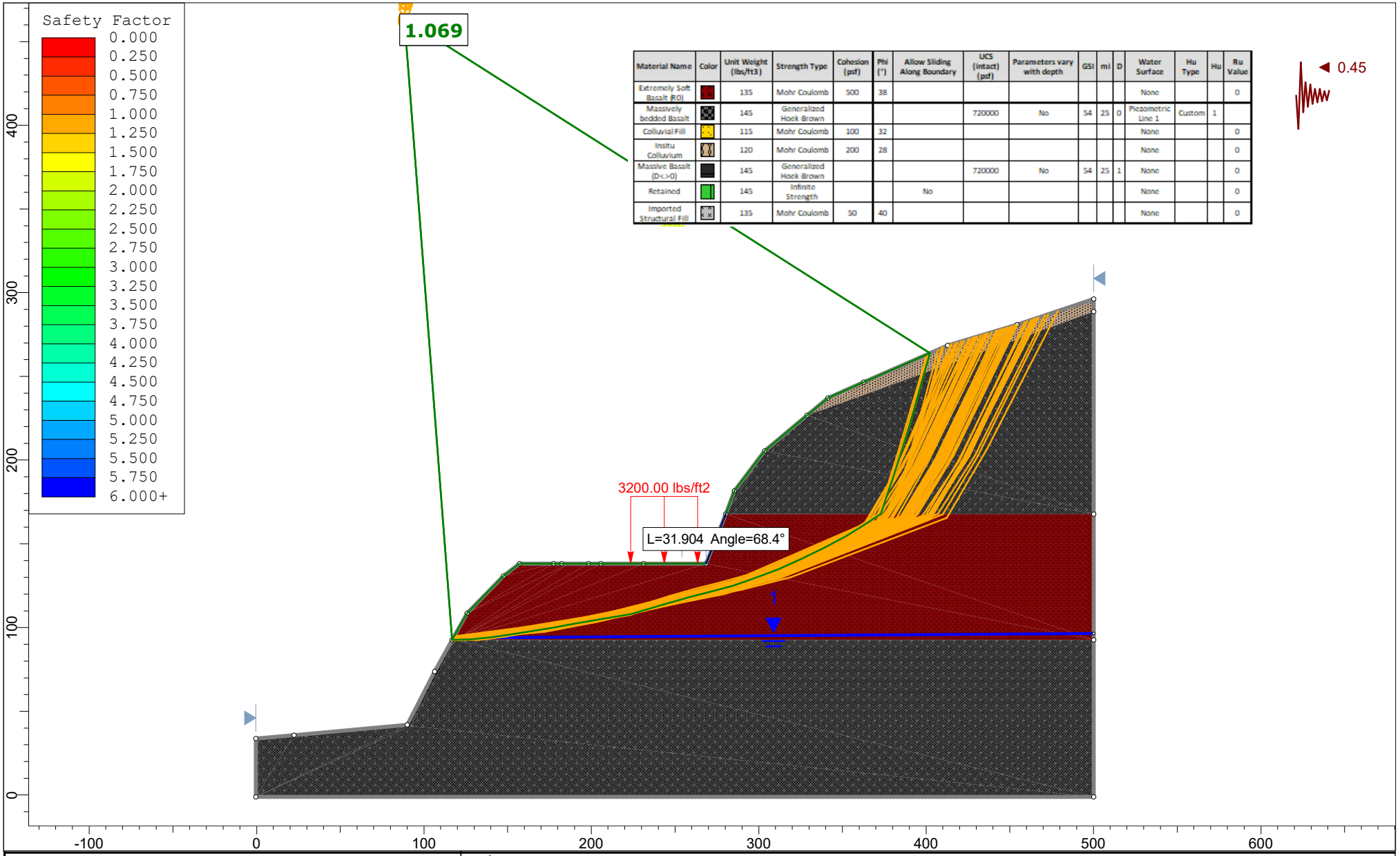
SLIDEINTERPRET 9.028

Analysis: Seismic Conditions: Mohr-Coulomb Criterion

Project: Yachats-2-01

Analysis Method: Spencer

Figure-6



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (°)	Allow Sliding Along Boundary	UCS (intact) (psf)	Parameters vary with depth	GSI	mi	D	Water Surface	Hu Type	Hu	Ru Value
Extremely Soft Basalt (R0)		135	Mohr Coulomb	500	38							None			0
Massively bedded Basalt		145	Generalized Hoek Brown				720000	No	54	25	0	Piezometric Line 1	Custom	1	
Colluvial Fill		115	Mohr Coulomb	100	32							None			0
Insitu Colluvium		120	Mohr Coulomb	200	28							None			0
Massive Basalt (D<>0)		145	Generalized Hoek Brown				720000	No	54	25	1	None			0
Retained		145	Infinite Strength			No						None			0
Imported Structural Fill		135	Mohr Coulomb	50	40							None			0

CENTRAL GEOTECHNICAL SERVICES

SLIDEINTERPRET 9.028

Analysis: Seismic Conditions: Excavated Condition (Mohr-Coulomb)

Project: Yachats-2-01

Analysis Method: Spencer

Figure-7

CENTRAL GEOTECHNICAL SERVICES LLC
10240 SW Nimbus Ave., Suite L6
Portland, Oregon 97223
(503) 616-9419

MOISTURE CONTENT and DRY DENSITY: ASTM D 2216 & D 2937

Project Name:	Yachats-Steel Tank Reservoir	Date:	4/19/2024
Project Number:	Yachats-2-01	Tech:	LMB

B/TP No.	S#	Sample Type	Depth (ft)	Pan	Tare (g)	Wet + PAN (g)	Dry + PAN (g)	Moisture (%)	Diameter (in)	Length (in)	DDensity (pcf)
B-1		SS	0.0		0.4	60.0	43.1	39.6			
B-1		SS	2.5		0.4	42.9	28.7	50.2			
B-1		SS	5.0		427.4	922.1	779.3	40.6			
B-1		SS	10.0		695.3	1940.3	1619.6	34.7			
B-1		SS	20.0		415.0	628.9	557.4	50.2			
B-1		SS	25.0		694.9	1174.2	1081.0	24.1			

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PARTICLE-SIZE ANALYSIS REPORT

PROJECT	CLIENT	PROJECT NO.	LAB ID
Yachats	Yachats-Steel Tank Reservoir	Yachats-2-01	B-1 at 25'&30'
		REPORT DATE: 22-Apr-24	FIELD ID: B-1 at 25'&30'
		DATE SAMPLED: 13-Mar-24	SAMPLED BY: RIP

MATERIAL DATA

MATERIAL SAMPLED	MATERIAL SOURCE	USCS SOIL TYPE
B-1 at 25 and 30 feet	B-1 at 25 and 30 feet	Silty, clayey SAND with gravel (SC-SM)
SPECIFICATIONS		AASHTO SOIL TYPE

LABORATORY TEST DATA

LABORATORY EQUIPMENT: Humboldt Standard Sieves - Auto Shaker - Wet Sieve

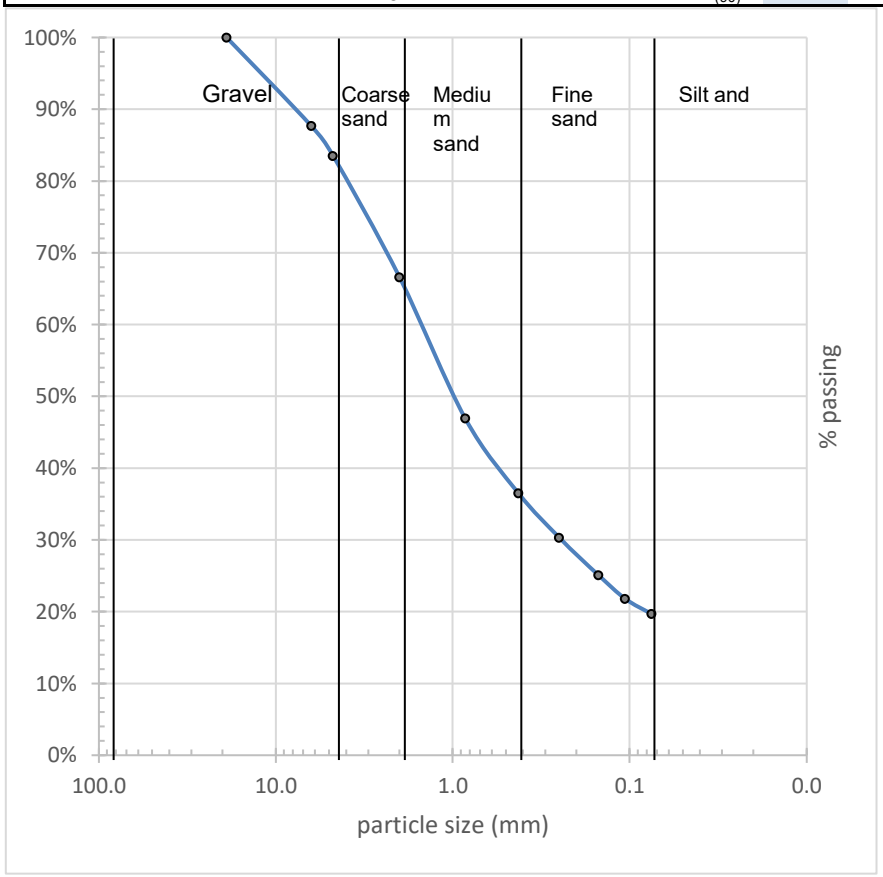
TEST PROCEDURE: ASTM C136 AND D1140

ADDITIONAL DATA

initial dry mass (g) =	386.1			
as-received moisture content =		coefficient of curvature	C_c =	
liquid limit =	0	coefficient of uniformity	C_u =	
plastic limit =	0	effective size (mm)	$D_{(10)}$ =	
plasticity index =	0		$D_{(30)}$ =	0.3
fineness modulus =			$D_{(60)}$ =	1.6
fines check =	19.7%		$D_{(90)}$ =	7

SIEVE DATA

% gravel = 16%
% sand = 64%
% silt and clay = 20%



	SIEVE SIZE US	SIEVE SIZE mm	PERCENT PASSING mass (g)	Indiv %	Cumul %	% Pass
GRAVEL	6.00"	150.0		0%	0%	100%
	4.00"	100.0		0%	0%	100%
	3.00"	75.0		0%	0%	100%
	2.50"	63.0		0%	0%	100%
	2.00"	50.0		0%	0%	100%
	1.75"	45.0		0%	0%	100%
	1.50"	37.5		0%	0%	100%
	1.25"	31.5		0%	0%	100%
	1.00"	25.0		0%	0%	100%
	7/8"	22.4		0%	0%	100%
	3/4"	19.0		0%	0%	100%
	5/8"	16.0				
	1/2"	12.5				
	3/8"	9.50				
	1/4"	6.30	47.60	12%	12%	88%
	#4	4.75	16.10	4%	16%	84%
SAND	#8	2.36				
	#10	2.00	65.30	16.91%	33%	67%
	#16	1.18				
	#20	0.850	75.90	19.66%	53%	47%
	#30	0.600				
	#40	0.425	40.2	10.41%	63%	37%
	#50	0.300				
	#60	0.250	23.90	6.19%	70%	30%
	#80	0.180				
	#100	0.150	20.20	5.23%	75%	25%
	#140	0.106	12.70	3.29%	78%	22%
	#170	0.090				
	#200	0.075	8.20	2.12%	80%	20%

DATE TESTED	TESTED BY
17-Apr-24	LMB

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PARTICLE-SIZE ANALYSIS REPORT

PROJECT	CLIENT	PROJECT NO.	LAB ID
Yachats	Yachats-Steel Tank Reservoir	Yachats-2-01	B-1 at 10' & 15'
		REPORT DATE: 19-Apr-24	FIELD ID: B-1 at 10' & 15'
		DATE SAMPLED: 13-Mar-24	SAMPLED BY: RIP

MATERIAL DATA

MATERIAL SAMPLED	MATERIAL SOURCE	USCS SOIL TYPE
B-1 at 10 and 15 feet	B-1 at 10 and 15'	Silty, clayey SAND with gravel(SC-SM)
SPECIFICATIONS		AASHTO SOIL TYPE

LABORATORY TEST DATA

LABORATORY EQUIPMENT: Humboldt Standard Sieves - Auto Shaker - Wet Sieve

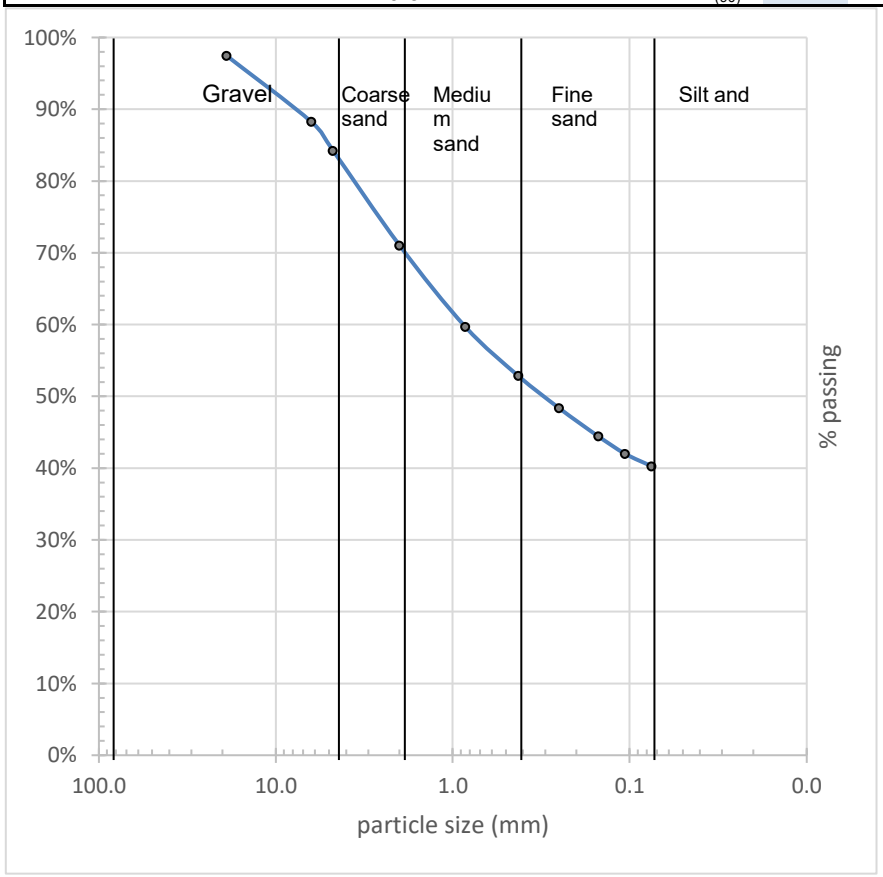
TEST PROCEDURE: ASTM C136 AND D1140

ADDITIONAL DATA

initial dry mass (g) =	1255.0			
as-received moisture content =		coefficient of curvature	C_c =	
liquid limit =	0	coefficient of uniformity	C_u =	
plastic limit =	0	effective size (mm)	$D_{(10)}$ =	
plasticity index =	0		$D_{(30)}$ =	
fineness modulus =			$D_{(60)}$ =	0.9
fines check =	40.3%		$D_{(90)}$ =	8

SIEVE DATA

% gravel = 16%
% sand = 44%
% silt and clay = 40%



	SIEVE SIZE US	SIEVE SIZE mm	PERCENT PASSING mass (g)	Indiv %	Cumul %	% Pass
GRAVEL	6.00"	150.0		0%	0%	100%
	4.00"	100.0		0%	0%	100%
	3.00"	75.0		0%	0%	100%
	2.50"	63.0		0%	0%	100%
	2.00"	50.0		0%	0%	100%
	1.75"	45.0		0%	0%	100%
	1.50"	37.5		0%	0%	100%
	1.25"	31.5		0%	0%	100%
	1.00"	25.0		0%	0%	100%
	7/8"	22.4		0%	0%	100%
	3/4"	19.0	31.70	3%	3%	97%
	5/8"	16.0				
	1/2"	12.5				
	3/8"	9.50				
	1/4"	6.30	115.70	9%	12%	88%
	#4	4.75	50.50	4%	16%	84%
SAND	#8	2.36				
	#10	2.00	165.70	13.20%	29%	71%
	#16	1.18				
	#20	0.850	142.10	11.32%	40%	60%
	#30	0.600				
	#40	0.425	86.0	6.85%	47%	53%
	#50	0.300				
	#60	0.250	56.50	4.50%	52%	48%
	#80	0.180				
	#100	0.150	49.10	3.91%	56%	44%
	#140	0.106	30.50	2.43%	58%	42%
	#170	0.090				
	#200	0.075	22.00	1.75%	60%	40%

DATE TESTED	TESTED BY
18-Apr-24	LMB

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Percent Passing No. 200 Seive: ASTM D 1140

Project Name:	Yachats-Steel Tank Reservoir	Date:	4/19/2024
Project Number:	Yachats-2-01	Tech:	LMB

B/TP No.	Sample #	Sample Type	Depth (ft)	Soak	Soak Time (hrs)	Sample Preparation Method	Mass Determination	Tare for Total (g)	Total Dry Mass + Pan (g)	Tare for Retained (g)	Retained Dry Mass + Pan (g)	Percent Passing No. 200 Sieve		
B-1		SS	5	YES	2	Method A	Direct	427.4	779.3	427.4	726.8	14.9		
B-1		SS	20	YES	2	Method A	Direct	415.0	557.4	415.0	505.0	36.8		

CIP MASTER LIST
for APRIL 2024

6/7/2024

Apr

General Fund

PM Code		Budgeted 23.24	Prior Balance	Currenty Activity	Actual to Date	% of Budget	Comment
PM Code	**CITY HALL**						
	Conex installation	20,000					Installed - Posted to Operations
	501 Gutters and Fascia, Building Repair	20,000	6,486	0	6,486	32%	Lincoln Glass
	Security Upgrade	10,000	5,064		5,064	51%	Iconipro Security
	TOTAL	**50,000**	**11,550**	**0**	**11,550**	**23%**	
PM Code	**PARKS & TRAILS**						
	Bayside Boardwalk Engineering	50,000	5,222	3,483	8,705	17%	Engineering Work Scope Civil West
	Pocket Parks & Wetlands Viewing Plat	0	7,654	0	7,654	#DIV/0!	Kindler Const $1500&other supplies
	Skate Park Improvements	10,000	118,400	0	118,400	1184%	Dreamland SkateparksLLC&signage
	TOTAL	**60,000**	**131,276**	**3,483**	**134,759**	**225%**	**Polly Plumb $89,110 receipt**
PM Code	**COMMONS**						
	Siding,Gutters,Fascia&Roof Repair	35,000	57,700	0	57,700	165%	Skriver Const
	M/E/P Updates	25,000	49,621	0	49,621	198%	
	Fire & Safety Updates; Egress, Hardware and Lighting	25,000	0	0	0	0%	Newport Signs
	Security Updates	10,000	5,987	0	5,987	60%	Glass Doors-Certified Sys-Pac Locks
	Sound / Lighting Updates	25,000	1,344	0	1,344	5%	Skriver Const
	Generator Rehousing and Relocation	15,000					High Priority
	Interior Remodel to Accommodate Childcare Facilities	80,000	19,490	0	19,490	24%	W/trash fence$20000 Act$14,530
	Park Plan / Civic Plan / Masterplan	30,000		2,200	2,200		ne Entrance Stairs
	TOTAL	**245,000**	**134,142**	**2,200**	**136,342**	**56%**	
PM Code	**LIBRARY**						
	Library Expandtion	236,000	24,500	1,688	26,188	11%	MD Arch$10719.15/Pelit doc$6226.25/Found$8433.00/Star$810
	TOTAL	**236,000**	**24,500**	**1,688**	**26,188**	**11%**	
PM Code	**LLCM**						
	LLCM Rehabilitation	154,000	9,731	298	10,029	**7%**	Storage/mnth rent&Engnr/Construct
	TOTAL	**154,000**	**9,731**	**298**	**10,029**	**7%**	
	GRAND TOTAL	**745,000**	**311,199**	**7,669**	**318,868**	**43%**	
	Governmental TOTAL	**1,024,652**	**649,940**	**7,669**	**657,609**	**64%**	

CIP MASTER LIST
for APRIL 2024

6/7/2024

Apr

Public Works Funds

PM Code		Budgeted 23.24	Prior Balance	Currenty Activity	Actual to Date	% of Budget	Comment
	STREETS						
	Loma to River Rd Engineering Phase 3	13,000	0	0	0	0%	Westech Phase 3
	E. 2nd Phase 2 Construct & Engineer	132,281	283,819	0	283,819	215%	Waterline installed Joe Rodriguez
	Hwy 101 Curve Delineators**	40,000	4,027	0	4,027	10%	Began Engineering Scope of Work
	Gimlet Gates	35,000			0		Gates relocated & locked
	TOTAL	**220,281**	**287,846**	**0**	**287,846**	**131%**	
PM Code	**STORM DRAINS**						
	Phase 2 E. 2nd Storm Drain Construction	30,349	12,395	0	12,395	41%	Complete
	Stormwater Master Plan	29,022	38,500	0	38,500	133%	Engineering and Raw data collection
	TOTAL	**59,371**	**50,895**	**0**	**50,895**	**86%**	
PM Code	**WASTEWATER**						
	Hanley Drive Sewer Manholes	20,000					Carried forward to 2025 FY.
	Collection Design Standards	5,000	15,580	0	15,580	312%	In review stage
	Annual Inflow and Infiltration Rehab	40,000					Carried forward to 2025 FY.
	Multi-VFD Upgrades	25,000	6,296	0	6,296	25%	Expected intall in April 2024
	Submersible Pump Plug Install & Engineering	265,000	72,107	0	72,107	27%	Awarded Elk Mountain, Westech Eng
	Main Pump Station Improve	50,000					In engineering stage
	UV Disinfection Control Upgrades	30,000	0	0	0	0%	Carried forward to 2025 FY.
	Man Doors PW Bldg. #2	15,000					Carried forward to 2025 FY.
	Public Works Slide Gate	20,000					Carried forward to 2025 FY.
	PW Rehab - Rollup Doors	140,000	69,912	0	69,912	50%	Jack's Overhead 50% paid, Inst May
	Shop Lighting Update	10,000	16,290	0	16,290	163%	Completed-RC&:H
	GIS Mapping Hardware	25,000					Carried forward to 2025 FY.
	Actuator Air Valve (Spare)	8,000	5,072	0	5,072	63%	Completed
	SBR Waste Pump	12,000	5,639	0	5,639	47%	Completed-Xylem Water Solutions
	Generator	0	44,122	0	44,122		Legacy-Equipment Installed
	Contingency	25,000	2,375	0	2,375	10%	Integrater-Civil West
	TOTAL	**690,000**	**237,393**	**0**	**237,393**	**34%**	Carryforward $150,000
PM Code	**WATER**						
	Water tank Design Development	10,000	0				Wait on property & SWLLCWPUD
	Water Tank Seismic Engineering	60,000	28,421	0	28,421	47%	Seismic Eval Westech
	Water Plant Clarifier - Rehabilitation	150,000	7,370	0	7,370	5%	Inspection-Began EngineeringScope
	Annual Hydrant Replacements	8,000	10,366	1,308	11,674	146%	Install getting new staff-Ferguson
	E.2nd Phase 2 Waterline Construct & Engineer	154,375	160,775	0	160,775	104%	Complete-JesseRodriguez&Westech
	Analysis / Engineering SWLCWPUD	75,000	0				Need to have a negotiation meeting
	Plant Backwash Recycle System-Westech charge	140,000	93,878	0	93,878	67%	Proceeding Elk Mountain & Westech
	WTP Upgrade CIP Annually	30,000	7,675	0	7,675	26%	Ordered NTU Meter-Hach$115.3
	SCADA Upgrade	49,044	7,527	7,407	14,934		Automation Group
	Service Truck w/Lift	80,000	79,045	0	79,045	99%	Complete
	Service Truck - Ranger	30,000	29,042	0	29,042	97%	Complete
	Public Works Slide Gate	20,000	0				
	Property Acquisition	250,000	37,084	0	37,084	15%	Asked Planner to take the lead
	Contingency	25,000	1,899	0	1,899	8%	Integrater-Civil West
1,771,419	**TOTAL**	**1,081,419**	**463,082**	**8,715**	**471,797**	44%	709,190
			354,995	8,715	363,710		Water Systems
			108,087	0	108,087		Water Equipment
		1,771,419	**700,475**	**8,715**	**709,190**	40%	**Total Water & Sewer**

City of Yachats

WATER DEPARTMENT
500 W. 7th St.
P.O. Box 345
Yachats, OR 97498

Date: June 10th, 2024

To: Public Works Commission

From: Rick McClung, Water Department

Re: Water Rate Review **Subject:** Revenue Suggestions

-Goal = $400,000 a year for capital reserves-

Projected Revenue includes 3% increase	$977,000
Operations & Maintenance	$771,947
Transfer to Reserves	$205,053
Total	$977,000
Additional Needed Revenue	$200,000
Grand Total	**$1,177,947**

The city will need to collect an additional $200,000 to meet its goal of putting $400,000 a year into capital reserves.

There are only 926 customers in the city, and it is my belief that collecting an additional $200,000 from just the increase of the cost of water is hard to do.

Beginning July 1st water rates will be going up 3%, bringing the cost of a unit of water from $6.91 to $7.12. Rates would have to be increased to over $12 a unit to meet the Goal.

I would like the commission to consider creative options that can be bolt-on additions to our current water revenue collection.

Below is a list of options that have been discussed with the commission. The next steps are to pass these concepts to the finance committee for analysis.

1. **Tiered Rates**

Tiers	Units	Increase	Units used	
1	2	$0.00	18,348	$0.00
2	3 to 5	$0.50	6,000	$3,000.00
3	6 to 10	$1.00	3,038	$3,038.00
4	11 to 20	$1.50	5,000	$7,500.00
5	20+	$2.00	29,229	$58,458.00
			61,615	**$71,996.00**

2- Elimination of industry standard free water $ 11,385
Really easy to implement – 8 meters.

3 – Prepaid SDC properties – 50% minimum $ 61,380
A new rate structure is needed, not too difficult.

4 – Individual Vacation homes $ 73,920
Like 2; not too difficult. A new rate structure.

5 – Handling fee for hotels/motels $ 76,000

6- Only 1 free unit instead of 2 for 5/8th meters $79,117

Total **$ 373,798**

Additional fees can be created during drought years for each of the water conservation phases.
Phase 1 = $1 more per unit
Phase 2 = $2 more per unit
Phase 3 = $3 more per unit

Definitions

2 - Industry Standard Free Water – implemented with AAWU rate study –
Yachats adopted a rate plan presented by the AAWU (Tim Tice) that was based on large city industry standards. We can debate the wisdom of applying industry standards, derived from large numbers of big meters to a population of 8 meters, at length, but that decision is in the past. What we can do is incrementally improve on that decision by tailoring the parameters to more closely align with our earlier goals of reducing the amount of subsidy that residents provide to large water users.
Each 2" meter is granted 5.8 units before billed consumption starts. The lone 4" meter is granted 28.0 no-charge units.
This first change that we propose would be to eliminate all no-charge water to all non-standard meters in the system.
This change is 68.6 units per month at $13.83 each for an annual amount of $11,385.00.

3 – Properties with prepaid SDC fees and no installed meter
The City of Yachats has approximately 93 lots with prepaid SDC fees, and no meter installed. These properties are locked in their connection costs but provide no on-going support to the system that services their property. Upon paying the SDC fees, these property owners became owners of the utility system. Many of these prepayments go back 30-40 years.
We propose that properties with pre-paid SDC fees and no meter pay a monthly standby fee equal to 50% of the monthly minimum fee with a meter.
93 meters at $55 per month is an annual revenue of $61,380.

4 – Individual Homes with Vacation Rental Licenses
Yachats has authorized 125 TRT licenses in the city. The most recent count a few months ago was 112. We propose that TRT-licensed homes pay a higher monthly minimum than owner-occupied homes. Raising the minimum for commercial activity in residential zones furthers our goal of reducing the subsidy that homeowners pay for the benefit of the lodging industry. Our initial estimate is that a 50% premium is a reasonable amount for a commercial activity.
112 homes at a $55 monthly premium is an annual revenue of $73,920. We should consider classifying all commercial activity as eligible for the surcharge. Our customer classifications in the city's UB system have become muddled and need scrubbing to get an accurate count.

5 – Raise Hotel/Motel/Restaurant Water rates; increase handling fee for administration
The city currently allows a 5% discount on the taxes collected as a handling fee. Said another way, the hotel/restaurant pays 95% of the tax generated by customers and keeps the 5% as a handling fee to do the calculations for the city. Raising the handling fee to 10% would allow the city to raise water rates by $55,000 for hotels and motels and $21,000 for restaurants.

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