Appendix C

Geo technical Engineering Report dated February 24, 2022

GEOTECHNICAL ENGINEERING REPORT

Proposed Wecoma Place - Multi-Unit Low Income Housing
Highway 101 & NE 29th Street
Lincoln City, Oregon

PREPARED FOR:

Stewardship Properties
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February 24, 2022

STRATA Project No. 22-0638

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1.0 INTRODUCTION

1.1 General

This report presents the results of STRATA Design LLC (STRATA) geotechnical engineering services for the proposed development of two contiguous tax lots (TL 100 and 102) with a 4-story, low income residential housing structure. The site is located off the corner of Highway 101 and NE 29th Street in Lincoln City, Oregon as shown in the Vicinity Map (Figure 1), and the tax lot configuration as shown in Figure 2.

1.2 Purpose and Scope

The purpose of STRATA's services was to develop geotechnical design and construction recommendations for the proposed Wecoma Place low income housing development. Our Geotechnical Report summarizes the results of our explorations, testing, and analyses, as per the following performed scope of services:

- Complete a City conforming geologic hazard evaluation, including reporting of drainage and groundwater, and calculated ground liquefaction scenarios. Complete a geologic reconnaissance of the sloping terrain. We will review available photos, mapping, and reports covering the property and the immediate surrounding area. We would review nearby wells and geotechnical hole data and from the developments surrounding your parcels.
- Soil Explorations – STRATA completed two borings (18 and 23 feet depths), and dynamic cone penetrometers, using hand tools. Select samples were analyzed by our soils laboratory for classification and other select testing. We also performed infiltration testing in one of the borings.
- Based on findings (soil character, index properties, drainage properties, and assumed strength properties), quantify ground settlement, bearing capacity, developed recommendations related to site development.
- Created a scaled, 11" x 17" site topographic map based on LIDAR point data in order to view the overall characteristics of the terrain on bare-earth resolution, 2-foot contour topographic plan.
- Report Preparation - Data and information collected during the above indicated work has been summarized in this geotechnical report, including logs of the borings, topographic map of the site with boring locations, and recommendations for site preparation, excavation, drainage, and construction based on the development proposed.

1.3 Field Exploration

Locations of STRATA's exploration in relation to the existing site topography is shown on the Site Plan, Figure 3. Two borings were advanced to depths of around 19 feet and 23 feet below the existing ground surface (bgs). The boring was logged, and representative soil samples were collected by a STRATA geotechnical engineering staff member. The interpreted boring log is presented in Appendix A (Field Explorations).

In addition, STRATA completed two Wildcat dynamic cone penetrometers (DCP) tests which were advanced within select intervals inside each of the two borings. A member of our geotechnical staff logged the DCPs. The DCP penetration resistance values are presented in Appendix A (Field Explorations).

1.4 Field Infiltration Testing

A falling-head field infiltration test was completed in boring HA-1 within the proposed development at a depth of 4 feet bgs. Infiltration testing was monitored by STRATA geotechnical engineering staff. Results of infiltration testing is presented in Section 2.5, below.

1.5 Geotechnical Engineering Analysis

Data collected during the subsurface exploration, literature research, and testing were used to develop site-specific geotechnical design parameters and construction recommendations.

2.0 SITE CONDITIONS

2.1 Project Understanding and Existing Conditions

Our current understanding is the site is proposed to be developed with a 4-story, wood-framed building and parking lot for the low income housing project. As shown in Figure 2, the proposed property area is irregulary shaped, comprised of tax lots 100 and 102.

Based on the private utility locate that was completed while we were present to complete augering, we confirmed that two publicly owned sewer lines are believed to cross the site, as shown in Figure 2. The west sewer line was understood to have been replaced by the east sewer line. However, the locator believes that the west sewer line was not backfilled (decommissioned). Therefore, further coordination with the City is recommended such that the pipe is video scoped to verify it's condition and that it is decommissioned prior to structure placement.

2.2 Surface Description

The site contains mixed vegetation brush and grasses, along with occasional mature trees on the western side of the site (Figure 4). Based on available aerial records (dating back to 1952), there is no indications that the site has ever been developed with structures. The site generally drains from west to east. Based on available topographic data, the site slopes to the ground surface elevations ranging from about 83 to 103 feet above mean sea level (NAD 88). The Property is located approximately one-half mile east of the Pacific Ocean and approximately one-half mile west of Devils Lake.

2.3 Geologic Setting

According to published geologic mapping (Snavely, P.D. et. al)[1], the site is underlain by the Yaquina formation which is characterized by sandstone, conglomerate, and tuffaceous siltstone. The sandstone unit is fine- to coarse-grained and displays cross-bedding, foreset bedding, and scour and fill texture. The conglomerate unit typically contains pumice and dacitic clasts.

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[1] Snavely, P.D., MacLeod, N.S., and Wagner, H.C., 1972, Preliminary bedrock geologic map of the Cape Foulweather and Euchre Mountain quadrangles, Oregon: U.S. Geological Survey, Open-File Report OF-72-350, scale 1:48,000.

Based on Quaternary Fault mapping published by the United States Geological Survey, a strand of the Siletz Bay faults exists approximately 1.1 miles south-southwest of the site[2]. The Siletz Bay faults consist of a 10-kilometer long normal faults that have an average strike of N73°W. The slip rate is less than 0.2 millimeters per year. Although no faults are mapped in the immediate vicinity of the site, the site is expected to experience severe ground shaking during a Cascadia Earthquake event. The Cascadia Subduction Zone (CSZ) is a 600-mile long fault that trends approximately north-south and is located between 70 and 100 miles off the coast of northern California, Oregon, and Washington. The CSZ is a convergent plate boundary whereby the Juan de Fuca plate subducts beneath the North American plate. During subduction processes, the Juan de Fuca plate bends and buckles as it is pushed downward until the stress builds up and finally releases. This release of energy results in earthquakes of magnitude 8.5 to 9.0+. The last recorded CSZ earthquake occurred in 1700, and the average recurrence interval of these megathrust earthquakes is 590±170 years[3].

2.4 Groundwater

Static groundwater was encountered during our explorations. Based on a review of regional groundwater logs provided by the Oregon Water Resources Department (OWRD), we anticipate that the static groundwater level is present at a depth greater/less than 8 feet bgs. Please note that groundwater levels can fluctuate during the year depending on climate, irrigation season, extended periods of precipitation, drought, and other factors. According to a search of the Oregon Water Resources Well Log Database, shallow groundwater has been encountered at approximately 9 to 23 feet below ground surface within 500 feet radius of the Property.

2.5 Infiltration Testing

STRATA completed a falling head infiltration test in boring HA-1 at a depth of 4-feet bgs. The infiltration test was conducted within the 3-inch inside diameter, hollow-stem PCV pipe. The pipe was filled with water to achieve a minimum 1-foot-high column of water. After a period of saturation, the height of the water column in the pipe was then measured initially and at regular, timed intervals. Results of our field infiltration testing are presented in Table 1.

Table 1. Infiltration Test Results

Test Location	Depth (feet bgs)	Field Measured Infiltration Rate (in/hr)	Soil Classification
HA-1	4	0	CL

Based on the above lack of infiltration below the restrictive layer found at 4 feet, and the knowledge of seasonal high groundwater table, we believe the site will not be conducive for onsite disposal (infiltration) of stormwater.

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[2] U.S. Quaternary Faults, United States Geological Survey, https://usgs.maps.arcgis.com/apps/webappviewer/index.html?id=5a6038b3a1684561a9b0aadf88412fcf, accessed 10/16/21

[3] Adams, J., Paleoseismicity of the Cascadia Subduction Zone: Evidence from turbidites off the Oregon-Washington Margin, AGU, 10.1029/TC009i004p00569, 9, 4, (569-583), (1990).

2.6 Subsurface Conditions

During our site reconnaissance visit on February 1, 2022, subsurface soils were profiled by drilling two hand auger, designated HA-1 through HA-2, to depths of up to 23.25 feet bgs. Sampling in the borings was carried out in conjunction with Wildcat dynamic cone penetrometers (DCPs) in the entire length of the boring. The soils obtained were described in the field then transported to our soils laboratory for further confirmation. Detailed summary logs for the test pits and boreholes are attached as Attachment A to this report.

STRATA has summarized the subsurface units as follows:

SURFACE: 18-inches root zone in all the borings.

CLAY (CL): CLAY was encountered just below the ground surface, with fractions of fine to medium-grained sand, extending to depths of 9 to 12 feet. The sand content varied throughout, but tended to increase with depth. This layer was generally red-brown, stiff, with low plasticity.

SAND(SC): Below the CLAY in all borings, clayey SAND was encountered to the borehole terminations. The sand was generally light brown thin-bedded clayey siltstone with minor interbeds of sandstone, generally increasing in relative density with depth, from medium dense to dense.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 General

We recommend that STRATA be retained to observe stripping, subgrades, and fill placement. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions vary from our assumptions. In general, STRATA should be consulted for further recommendations if previously unknown adverse conditions are encountered or if the design of the proposed development changes. The conclusions presented in this report are based on the information provided to us, our understanding of the project, and observed site conditions at the time of our site investigation.

3.2 Site Preparation and Mass Grading

Areas of proposed structural development should be stripped of organic rich topsoil. In these areas, stripping should extend into non-organic soils, particularly in areas where significant roots are present. Following the removal of organic soils and roots, the area should be evaluated by a qualified member of STRATA's geotechnical engineering staff for the presence of soft, yielding soils. Where encountered, these soils should be removed to expose competent, native soils. Over-excavations should be backfilled with structural fill. Grades should be developed and maintained to drain surface and roof runoff away from structures and other site improvements. Permanent cut and fill slopes should be planned no steeper than 2H:1V (Horizontal:Vertical).

Due to the existence of the two sanitary utility pipes that cross the central portion of the site, it is necessary that proper decommissioning of the older (abandoned?) City sewer line be performed. This should entail solid filling of the old pipe with cement grout.

3.3 Geotechnical Design Considerations

The subsurface conditions at the site consist of clay and fine- to coarse-grained sand. Based on our observations and analyses, conventional foundation support on shallow spread footings is feasible for the proposed new building. Excavation with conventional equipment is feasible at the site.

The grading and final development plans for the project had not been completed when this report was prepared. Once completed, STRATA should be engaged to review the project plans and update our recommendations as necessary.

3.4 Shallow Foundations

Based on the moderate-strength native clays and sandy clay sand soils we encountered within the upper 23 feet of the subsurface profile may be suitable for support of the proposed shallow building foundations. The soils encountered tend to increase in relative density with depth, and as a result, the allowable bearing pressure of the subsurface soils will be dependent on the final depth of the building foundations. Shallow spread footings bearing on native silt, sandy silt, or silty sand may be used to support loads associated with the new structures provided the recommendations in this report are followed. Footings should not be supported on undocumented fill, unless tested on site to confirm they were structuraly placed and conducive for foundation support.

3.4.1 Minimum Footing Widths / Design Bearing Pressure

Continuous wall and isolated spread footings should be at least 18 and 24 inches wide, respectively. Footings should be sized using a maximum allowable bearing pressure of 3,000 pounds per square foot (psf). This is a net bearing pressure, and the weight of the footing and overlying backfill can be disregarded in calculating footing sizes. The recommended allowable bearing pressure applies to the total of dead plus long-term live loads. Allowable bearing pressures may be increased by one-third for seismic and wind loads.

Footings will settle in response to column and wall loads. Based on our evaluation of the subsurface conditions and our analysis, we estimate post-construction settlement will be less than 1 inch for the column and perimeter foundation loads. The differential settlement will be on the order of one-half of the total settlement.

3.4.2 Footing Embedment Depths

STRATA recommends that all footings be founded a minimum of 24 inches below the lowest adjacent grade. The footings should be founded below an imaginary line projecting upward at a 1H:1V (horizontal to vertical) slope from the base of any adjacent, parallel utility trenches or deeper excavations.

3.4.3 Footing Preparation

Excavations for footings should be carefully prepared to a neat and undisturbed state. A representative from STRATA should confirm suitable bearing conditions and evaluate all exposed footing subgrades. Observations should also confirm that loose or soft materials have been removed from new footing excavations and concrete slab-on-grade areas. Localized deepening of footing excavations may be required to penetrate loose, wet, or deleterious materials.

STRATA recommends a layer of compacted, crushed rock be placed over the footing subgrades to help protect them from disturbance due to foot traffic and the elements. Placement of this rock is the prerogative of the contractor; regardless, the footing subgrade should be in a dense or stiff condition prior to pouring concrete. Based on our experience, approximately 4 inches of compacted crushed rock will be suitable beneath the footings.

3.4.4 Lateral Resistance

Lateral loads can be resisted by passive earth pressure on the sides of footings and grade beams and by friction at the base of the footings. A passive earth pressure of 250 pounds per cubic foot (pcf) may be used for footings confined by native soils and new structural fills. The allowable passive pressure has been reduced by a factor of two to account for the large amount of deformation required to mobilize full passive resistance. Adjacent floor slabs, pavements, or the upper 12-inch depth of adjacent unpaved areas should not be considered when calculating passive resistance. For footings supported on native soils or new structural fills, use a coefficient of friction equal to 0.35 when calculating resistance to sliding. These values do not include a factor of safety (FS).

3.5 Ground Moisture

3.5.1 General

The perimeter ground surface and hard-scape should be sloped to drain away from all structures and away from adjacent slopes. Gutters should be tight-lined to a suitable discharge and maintained as free-flowing. All crawl spaces should be adequately ventilated and sloped to drain to a suitable exterior discharge.

A continuous, impervious barrier is recommended to be installed over the ground surface in the crawl space of the structure. Barriers should be installed per the manufacturer’s recommendations.

3.5.2 Perimeter Footing Drains

Due to the low permeability of site soils and the potential for perched groundwater at the site, we recommend perimeter foundation drains be installed around all proposed structures.

The foundation subdrainage system should include a minimum 4-inch diameter perforated pipe in a drain rock envelope. A non-woven geotextile filter fabric, such as Mirafi 140N or equivalent, should be used to completely wrap the drain rock envelope, separating it from the native soil and footing backfill materials. The invert of the perimeter drain lines should be placed approximately at the bottom of the footing elevation. Also, the subdrainage system should be sealed at the ground surface. The perforated subdrainage pipe should be laid to drain by gravity into a non-perforated solid pipe and finally connected to the site drainage stem at a suitable location. Water from downspouts and surface water should be independently collected and routed to a storm sewer or other positive outlet. This water must not be allowed to enter the bearing soils.

3.6 Floor Slabs

Satisfactory subgrade support for building floor slabs can be obtained from the native clayey sand or sand subgrade prepared in accordance with our recommendations presented in the Site Preparation, Wet/Freezing Weather and Wet Soil Conditions, and Select Granular Fill sections of this report. A minimum 6-inch-thick layer of imported granular material should be placed and compacted over the prepared subgrade. Thicker aggregate sections may be necessary where undocumented fill is present, soft/loose soils are present at subgrade elevation, and/or during wet conditions. Imported granular material should be composed of crushed rock or crushed gravel that is relatively well graded between coarse and fine, contains no deleterious materials, has a maximum particle size of 1 inch, and has less than 5 percent by dry weight passing the US Standard No. 200 Sieve.

Floor slabs supported on a subgrade and base course prepared in accordance with the preceding recommendations may be designed using a modulus of subgrade reaction (k) of 100 pounds per cubic inch (pci).

3.7 Retaining Walls

We estimate the proposed new development may include retaining walls up to 8 feet tall. The following recommendations are based on the assumption of flat conditions in front of and behind the wall and fully drained backfill. For unrestrained walls allowed to rotate at least 0.005H about the base, where H is the height of the wall, we recommend using an active earth pressure of 35 psf. Where walls are constrained against rotation, we recommend using an at-rest earth pressure equal to 55 psf. We recommend any retaining walls founded on native soil or compacted structural fill be provided with adequate drainage and backfilled with clean, angular, crushed rock fill, in accordance with the recommendations provided in section 4.3.

For seismic loading, we recommend using an inverted triangular distribution (seismic surcharge) equivalent to 9H psf. Walls should be designed by applying the active earth pressure plus the seismic loading or at-rest earth pressures, whichever is greater. If vertical surcharge loads, q, are present within 0.5H of the wall, a lateral surcharge of 0.3q (for walls allowed to rotate) and 0.5q (for restrained walls) should be applied as a uniform horizontal surcharge active over the full height of the wall. These values assume that the wall is vertical and the backfill behind the wall is horizontal. Seismic lateral earth pressures were computed using the Mononobe-Okabe equation. Recommended lateral earth pressure distributions are shown on Figure 5, Retaining Wall Earth Pressure Diagram. Additional lateral pressures due to surcharge loads can be estimated using the guidelines shown on Figure 6, Lateral Surcharge Detail.

Lateral loads can also be resisted by a passive resistance of 250 psf acting against retaining/embedded walls and foundations and by friction acting on the base of spread footings or mats using a friction coefficient of 0.35.

3.7.1 Wall Drainage

Recommended lateral earth pressures assume that walls are fully drained, and no hydrostatic pressures develop. For cantilevered concrete walls, a minimum 2-foot-wide zone of free-draining material should be installed immediately behind the wall. A 4-inch diameter perforated drain pipe should be installed at the base of the drain rock and routed to a suitable discharge point approved by the civil engineer.

3.8 Seismic Design Considerations

The contribution of potential earthquake-induced ground motion from all known sources are included in probabilistic ground motion maps developed by the USGS and adopted by ASCE 7-16 code. Based on site explorations and geologic mapping, the site falls into Site Class D for seismic design. Seismic design parameters for the Site are provided in the following table.

<table>
<tr><th colspan="4">ASCE 7-16 (2019 IBC CODE) BASED RESPONSE SPECTRUM
MCER GROUND MOTION - 5% DAMPING
1% IN 50 YEARS PROBABILITY OF COLLAPSE</th></tr>
<tr><td>LAT</td><td>44.98672963</td><td>LON</td><td>-124.00575566</td></tr>
<tr><td colspan="2">S_S</td><td colspan="2">1.32 g</td></tr>
<tr><td colspan="2">S_1</td><td colspan="2">0.68 g</td></tr>
<tr><th colspan="4">MAPPED MAXIMUM CONSIDERED EARTHQUAKE
SPECTRAL RESPONSE ACCELERATION PARAMETER
(SITE CLASS D)</th></tr>
<tr><td colspan="2">F_A</td><td colspan="2">1.00</td></tr>
<tr><td colspan="2">F_V</td><td colspan="2">SEE ASCE 7-16 SECTION 11.4.8*</td></tr>
<tr><td colspan="2">S_{MS}</td><td colspan="2">1.32 g</td></tr>
<tr><td colspan="2">S_{M1}</td><td colspan="2">SEE ASCE 7-16 SECTION 11.4.8*</td></tr>
<tr><th colspan="4">DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER</th></tr>
<tr><td colspan="2">S_{DS}</td><td colspan="2">0.88 g</td></tr>
<tr><td colspan="2">S_{D1}</td><td colspan="2">SEE ASCE 7-16 SECTION 11.4.8*</td></tr>
</table>

* Factors dependent on structural design.

3.8.1 Liquefaction Potential

Liquefaction is defined as a decrease in the shear resistance of loose, saturated, cohesionless soil (e.g., sand) or low plasticity silt soils due to the buildup of excess pore pressures generated during an earthquake. This results in a temporary transformation of the soil deposit into a viscous fluid. Liquefaction can result in ground settlement, foundation bearing capacity failure, and lateral spreading of the ground.

Based on a review of the Oregon Statewide Geohazard Viewer (HazVu)[4], the site is not located in a mapped liquefaction (soft soil) hazard area. From our identified soil lithology, STRATA believes the subsurface presents a moderate level liquefaction hazard.

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[4] Oregon HazVu: Statewide Geohazards Viewer https://gis.dogami.oregon.gov/maps/hazvu/

3.9 Pavement Design

The provided pavement recommendations were developed using the American Association of State Highway and Transportation Officials (AASHTO) design methods and references the associated Oregon Department of Transportation (ODOT) specifications for construction. Our evaluation considered a maximum of two trucks per day for a 20-year design life.

The minimum recommended pavement section thicknesses are provided in Table 2. Depending on weather conditions at the time of construction, a thicker aggregate base course section could be required to support construction traffic during the preparation and placement of the pavement section.

Table 2. Minimum AC Pavement Sections

Traffic Loading	AC (inches)	Base Course (inches)	Subgrade
Pull-in Car Parking Only	2.5	9	Subgrade as verified by Strata personnel*
Drive Lanes and Access Roads	3	9	

* Subgrade must pass proofroll

The asphalt cement binder should be selected following ODOT SS 00744.11 – Asphalt Cement and Additives. The AC should consist of ½-inch hot mix asphalt concrete (HMAC) with a maximum lift thickness of 3 inches. The AC should conform to ODOT SS 00744.13 and 00744.14 and be compacted to 91 percent of the maximum theoretical density (Rice value) of the mix, as determined in accordance with ASTM D2041.

Heavy construction traffic on new pavements or partial pavement sections (such as base course over the prepared subgrade) will likely exceed the design loads and could potentially damage or shorten the pavement life; therefore, we recommend construction traffic not be allowed on new pavements or that the contractor take appropriate precautions to protect the subgrade and pavement during construction.

If construction traffic is to be allowed on newly constructed road sections, an allowance for this additional traffic will need to be made in the design pavement section.

4.0 CONSTRUCTION RECOMMENDATIONS

4.1 Site Preparation

Construction of the proposed structure will involve clearing and grubbing of the existing vegetation or demolition of possible existing structures. Demolition should include removal of existing pavement, utilities, etc., throughout the proposed new development. Underground utility lines or other abandoned structural elements should also be removed. The voids resulting from the removal of foundations or loose soil in utility lines should be backfilled with compacted structural fill. The base of these excavations should be excavated to firm native subgrade before filling, with sides sloped at a minimum of 1H:1V to allow for uniform compaction. Materials generated during demolition should be transported off site or stockpiled in areas designated by the owner's representative.

4.1.1 Proofrolling/Subgrade Verification

Following site preparation and prior to placing aggregate base over shallow foundation, floor slab, and pavement subgrades, the exposed subgrade should be evaluated either by proofrolling or another method of subgrade verification. The subgrade should be proofrolled with a fully loaded dump truck or similar heavy, rubber-tire construction equipment to identify unsuitable areas. If the evaluation of the subgrades occurs during wet conditions, or if proofrolling the subgrades will result in disturbance, they should be evaluated by STRATA using a steel foundation probe. We recommend that STRATA be retained to observe the proofrolling and perform the subgrade verifications. Unsuitable areas identified during the field evaluation should be compacted to a firm condition or be excavated and replaced with structural fill.

4.1.2 Wet/Freezing Weather and Wet Soil Conditions

Due to the presence of fine-grained silt and sands in the near-surface materials at the site, construction equipment may have difficulty operating on the near-surface soils when the moisture content of the surface soil is more than a few percentage points above the optimum moisture required for compaction. Soils disturbed during site preparation activities, or unsuitable areas identified during proofrolling or probing, should be removed and replaced with compacted structural fill.

Site earthwork and subgrade preparation should not be completed during freezing conditions, except for mass excavation to the subgrade design elevations.

Protection of the subgrade is the responsibility of the contractor. Construction of granular haul roads to the project site entrance may help reduce further damage to the pavement and disturbance of site soils. The actual thickness of haul roads and staging areas should be based on the contractors' approach to site development and the amount and type of construction traffic. The imported granular material should be placed in one lift over the prepared undisturbed subgrade and compacted using a smooth-drum, non-vibratory roller. A geotextile fabric should be used to separate the subgrade from the imported granular material in areas of repeated construction traffic. The geotextile should meet the specifications of ODOT SS Section 02320.10 and SS 02320.20, Table 02320-1 for soil separation. The geotextile should be installed in conformance with ODOT SS 00350.00 – Geosynthetic Installation.

4.1.3 Dry Weather Conditions

Clay soils should be covered within 4 hours of exposure by a minimum of 4 inches of crushed rock or plastic sheeting during the dry season. Exposure of these materials should be coordinated with the geotechnical engineer so that the subgrade suitability can be evaluated prior to being covered.

4.2 Excavation

The near-surface soils at the site can be excavated with conventional earthwork equipment. Sloughing and caving should be anticipated. All excavations should be made in accordance with applicable Occupational Safety and Health Administration (OSHA) and state regulations. The contractor is solely responsible for adherence to the OSHA requirements. Trench cuts should stand relatively vertical to a depth of approximately 4 feet bgs, provided no groundwater seepage is present in the trench walls. Open excavation techniques may be used provided the excavation is configured in accordance with the OSHA requirements, groundwater seepage is not present, and with the understanding that some sloughing may occur. Trenches/excavations should be flattened if sloughing occurs or seepage is present. Use of a trench shield or other approved temporary shoring is recommended if vertical walls are desired for cuts deeper than 4 feet bgs. If dewatering is used, we recommend that the type and design of the dewatering system be the responsibility of the contractor, who is in the best position to choose systems that fit the overall plan of operation.

4.3 Structural Fill

The extent of site grading is currently unknown; however, STRATA estimates that cuts and fills will be on the order of up to 4 feet to raise the grades within the proposed site. Structural fill should be placed over subgrade that has been prepared in conformance with the Site Preparation and Wet/Freezing Weather and Wet Soil Conditions sections of this report. Structural fill material should consist of relatively well-graded soil or an approved rock product that is free of organic material and debris and contains particles not greater than 4 inches nominal dimension.

The suitability of soil for use as compacted structural fill will depend on the gradation and moisture content of the soil when it is placed. As the amount of fines (material finer than the US Standard No. 200 Sieve) increases, the soil becomes increasingly sensitive to small changes in moisture content, and compaction becomes more difficult to achieve. Soils containing more than about 5 percent fines cannot consistently be compacted to a dense, non-yielding condition when the water content is significantly greater (or significantly less) than optimum.

If fill and excavated material will be placed on slopes steeper than 5H:1V, these must be keyed/benched into the existing slopes and installed in horizontal lifts. Vertical steps between benches should be approximately 2 feet.

4.3.1 On-Site Soil

On-site soils encountered in our explorations are generally suitable for placement as structural fill during moderate, dry weather when moisture content can be maintained by air drying and/or addition of water. The fine-grained fraction of the site soils are moisture sensitive and, during wet weather, may become unworkable because of excess moisture content. In order to reduce moisture content, some aerating and drying of fine-grained soils may be required. The material should be placed in uniform lifts with a maximum uncompacted thickness of approximately 10 inches and compacted to at least 95 percent of the maximum dry density (MDD), as determined by ASTM D698 (standard proctor).

4.3.2 Borrow Material

Borrow material for general structural fill construction should meet the requirements set forth in ODOT SS 00330.12 – Borrow Material. When used as structural fill, borrow material should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches (variable with compaction means and methods and verified in the field by the engineer) and compacted to not less than 95 percent of MDD, as determined by ASTM D698.

4.3.3 Select Granular Fill

Selected granular backfill used during periods of wet weather for structural fill construction should meet the specifications provided in ODOT SS 00330.14 – Selected Granular Backfill. The imported granular material should be uniformly moisture conditioned to within about 2 percent of the optimum moisture content and compacted in relatively thin lifts using suitable mechanical compaction equipment. Selected granular backfill should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and be compacted to not less than 95 percent of MDD, as determined by ASTM D698.

4.3.4 Crushed Aggregate Base

The crushed aggregate base course below floor slabs, spread footings, and asphalt concrete pavements should be clean crushed rock or crushed gravel that contains no deleterious materials and meets the specifications provided in ODOT SS 02630.10 – Dense-Graded Aggregate, and has less than 5 percent by dry weight passing the US Standard No. 200 Sieve. The crushed aggregate base course should be placed in lifts with a maximum uncompacted thickness of 8 to 12 inches and be compacted to at least 95 percent MDD, as determined by ASTM D698.

4.3.5 Utility Trench Backfill

Pipe bedding placed to uniformly support the barrel of pipe should meet specifications provided in ODOT SS 00405.12 – Pipe Zone Bedding. The pipe zone that extends from the top of the bedding to at least 8 inches above utility lines should consist of material prescribed by ODOT SS 00405.13 – Pipe Zone Material. The pipe zone material should be compacted to at least 95 percent MDD (ASTM D698), or as required by the pipe manufacturer.

Under pavements, paths, slabs, or beneath building pads, the remainder of the trench backfill should consist of well-graded granular material with less than 10 percent by dry weight passing the US Standard No. 200 Sieve, and should meet standards prescribed by ODOT SS 00405.14 – Trench Backfill, Class B or D. This material should be compacted to at least 95 percent MDD, as determined by ASTM D698 or as required by the pipe manufacturer. The upper 2 feet of the trench backfill should be compacted to at least 95 percent of MDD (ASTM D698). Controlled low-strength material (CLSM), ODOT SS 00405.14 – Trench Backfill, Class E, can be used as an alternative.

Outside of structural improvement areas (e.g., pavements, sidewalks, or building pads), trench material placed above the pipe zone may consist of general structural fill materials that are free of organics and meet ODOT SS 00405.14 – Trench Backfill, Class A. This general trench backfill should be compacted to at least 92 percent of MDD (ASTM D698), or as required by the pipe manufacturer or local jurisdictions.

4.3.6 Stabilization Material

Stabilization rock should consist of pit or quarry run rock that is well-graded, angular, crushed rock consisting of 4- or 6-inch-minus material with less than 5 percent passing the US Standard No. 4 Sieve. The material should be free of organic matter and other deleterious material. ODOT SS 00330.16 – Stone Embankment Material can be used as a general specification for this material with the stipulation of limiting the maximum size to 6 inches.

5.0 ADDITIONAL SERVICES AND CONSTRUCTION OBSERVATIONS

In most cases, other services beyond completion of a final geotechnical engineering report are necessary or desirable to complete the project. Occasionally, conditions or circumstances arise that require additional work that was not anticipated when the geotechnical report was written. STRATA offers a range of environmental, geological, geotechnical, and construction services to suit the varying needs of our clients.

STRATA should be retained to review the plans and specifications for this project before they are finalized. Such a review allows us to verify that our recommendations and concerns have been adequately addressed in the design.

Satisfactory earthwork performance depends on the quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. We recommend that STRATA be retained to observe general excavation, stripping, fill placement, footing subgrades, and/or pile installation. Subsurface conditions observed during construction should be compared with those encountered during the subsurface explorations. Recognition of changed conditions requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect whether subsurface conditions change significantly from those anticipated.

6.0 LIMITATIONS

This report has been prepared for the exclusive use of the addressee, and their architects and engineers, for aiding in the design and construction of the proposed development and is not to be relied upon by other parties. It is not to be photographed, photocopied, or similarly reproduced, in total or in part, without the express written consent of the client and STRATA. It is the addressee's responsibility to provide this report to the appropriate design professionals, building officials, and contractors to ensure the correct implementation of the recommendations.

The opinions, comments, and conclusions presented in this report are based upon information derived from our literature review, field explorations, laboratory testing, and engineering analyses. It is possible that soil, rock, or groundwater conditions could vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the client is responsible for ensuring that STRATA is notified immediately so that we may reevaluate the recommendations of this report.

Unanticipated fill, soil and rock conditions, and seasonal soil moisture and groundwater variations are commonly encountered and cannot be fully determined by merely taking soil samples or completing explorations such as soil borings or test pits. Such variations may result in changes to our recommendations and may require additional funds for expenses to attain a properly constructed project; therefore, we recommend a contingency fund to accommodate such potential extra costs.

The scope of work for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

If there is a substantial lapse of time between the submission of this report and the start of work at the site, if conditions have changed due to natural causes or construction operations at or adjacent to the site, or if the basic project scheme is significantly modified from that assumed, this report should be reviewed to determine the applicability of the conclusions and recommendations presented herein. Land use, site conditions (both on and off-site), or other factors may change over time and could materially affect our findings; therefore, this report should not be relied upon after three years from its issue or in the event that the site conditions change.

FIGURES

STRATA DESIGN

Figure 1 - SITE VICINTY MAP

LINCOLN CITY, OR

FIGURE 2
PROPOSED DEVELOPMENT PLAN (PRELIMINARY)

Unit Mix and Areas

		Level 01		Level 02		Level 03		Level 04		Sub Total		**Total**	Percentage
		Units	Area	Units	Area	Units	Area	Units	Area	Units	Area	**Area**	
Units	1BR	5	2,695	12	6,468	9	4,930	8	4,470	34	18,563	**26,435**	76.5%
	2BR	3	2,361	3	2,361	2	1,574	2	1,576	10	7,872		
Circulation	Stairs		318		318		318		318		1,272	**4,833**	14.0%
	Elevator		100		100		100		100		400		
	Corridor		828		790		790		753		3,161		
Other	Laundry		539								539	**3,288**	9.5%
	Community Room		-				618				618		
	Lobby/MAIL		364								364		
	Offices		394								394		
	Restroom(s)		81								81		
	Maintenance		300		255		255		140		950		
	Central Water Heating Room		216								216		
	Electrical Room		126								126		
	Shafts		TBD								-		
	Trash		TBD								-		
	Total	**8**	**8,322**	**15**	**10,292**	**11**	**8,585**	**10**	**7,357**	**44**	**34,556**		

Common Area Provided

	Level	1	2	3	4	Subtotal	**Total**
		Area	Area	Area	Area	Area	**Area**
Interior	Community Room	-	-	618	-	618	**1,618**
	Potential Additional	1,000	-	-	-	1,000	
Exterior	Primary Outdoor Space	5,000	-	-	-	5,000	**9,500**
	Dog Run	3,500	-	-	-	3,500	
	Roof Deck	-	-	1,000	-	1,000	
	Total	**9,500**	**-**	**1,618**	**-**	**11,118**	**11,118**

Parking Required

Unit	Number of Units	Parking Required Per Unit	Total Required
1 BR	34	1	34
2 BR	10	1.5	15
Total	**44**		**49**

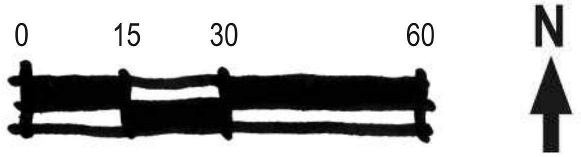
Reduction for Trees OR Bikes (10%) **44.1**

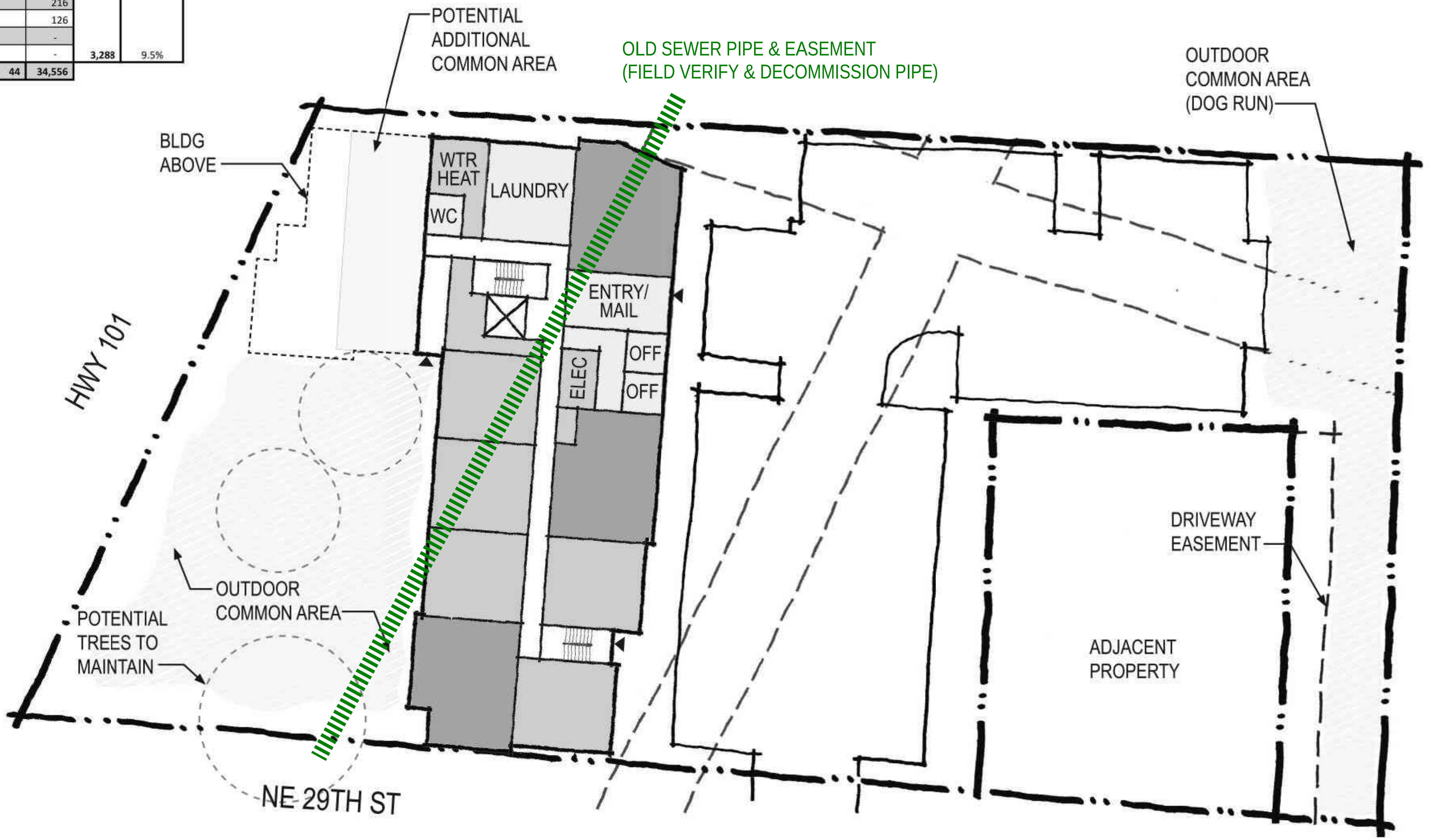
Parking Provided

Type	Number of Stalls	Percentage of Stalls	Included Acc Stalls
Standard	23	51%	3
Compact	22	49%	
Total	**45**		

LEGEND

▨	2BR
▨	1BR
▨	AMENITY
▨	BACK OF HOUSE

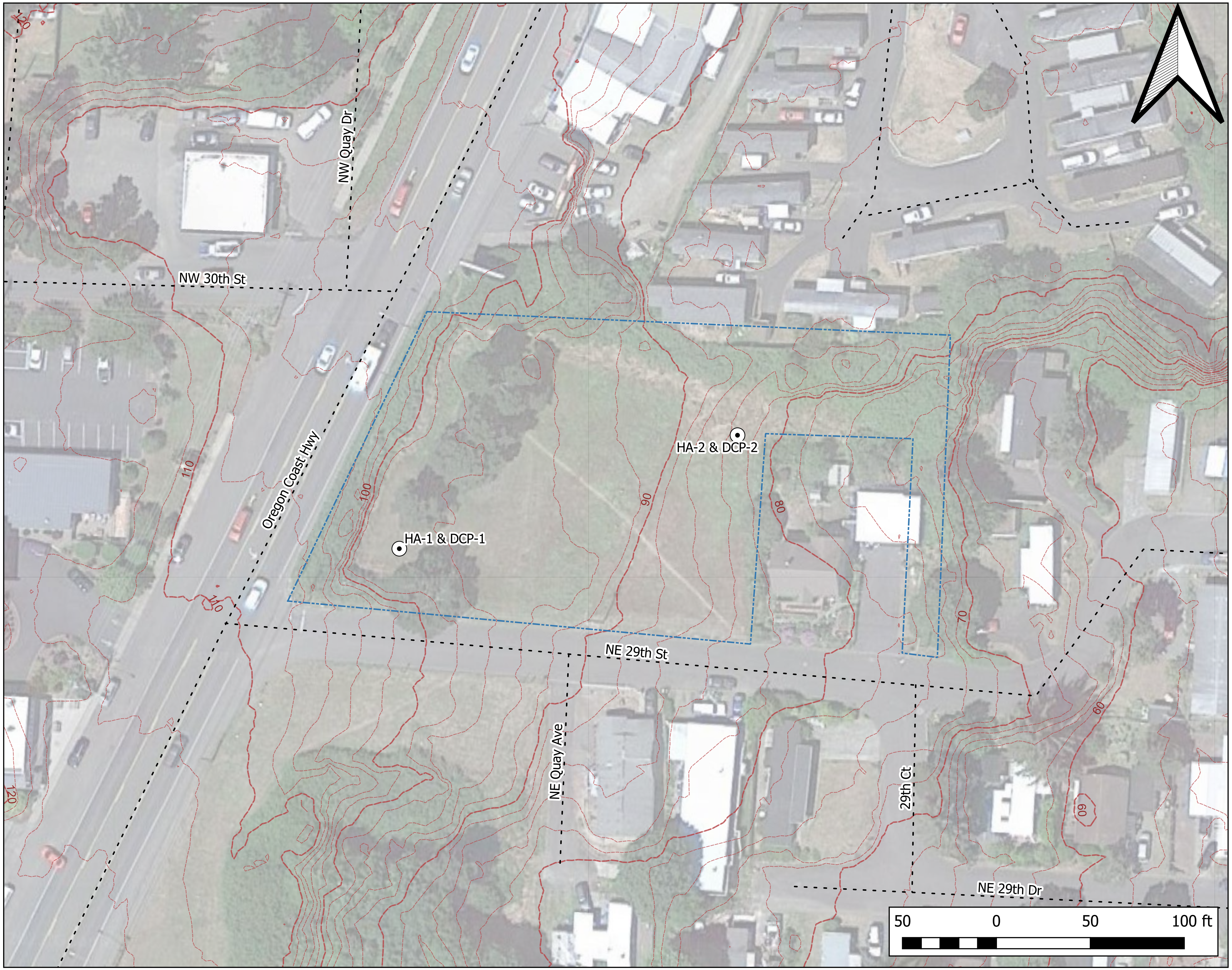




WECOMA PLACE | CONCEPT SITE PLAN | LEVEL 01

FEBRUARY 4, 2022 | PROJECT 20559

C.01



SITE PLAN / TOPOGRAPHIC MAP

2-foot Contour Intervals

NE 29TH ST & OREGON COAST HWY
LINCOLN CITY, OR

44.986798, -124.005575

Contours derived from 2009 LiDAR
(OR DOGAMI)

STRATA DESIGN

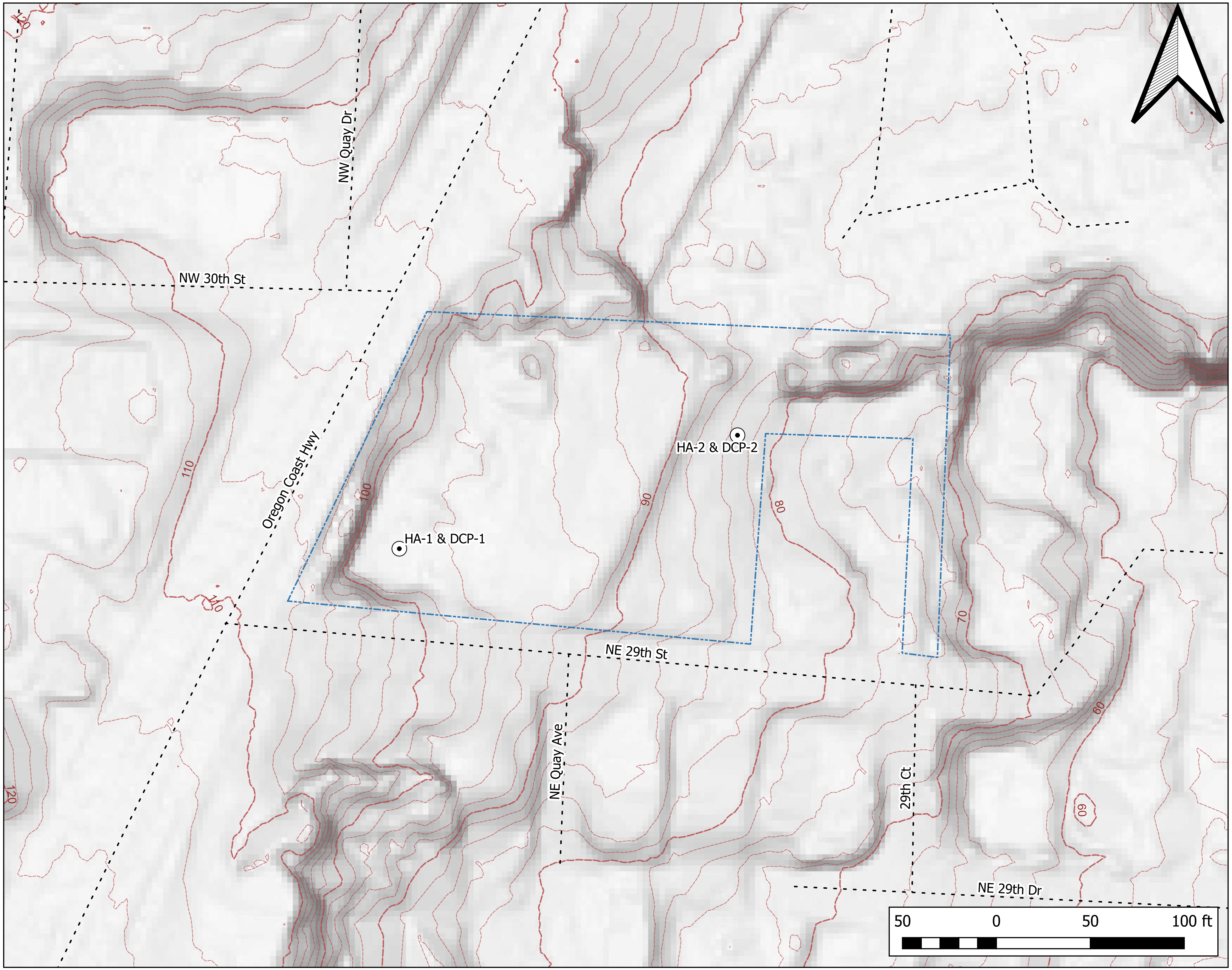
Legend

- ⬚ Site Boundary
- - - - Roads
- ⊙ HA & DCP Locations
- - - - 10-ft Contours
- - - - 2-ft Contours

Job #22-0638

Lot lines & roads are derived from
Lincoln County GIS

Figure 3



SITE PLAN / TOPOGRAPHIC MAP

2-foot Contour Intervals

NE 29TH ST & OREGON COAST HWY
LINCOLN CITY, OR

44.986798, -124.005575

Contours derived from 2009 LiDAR (OR DOGAMI)

STRATA DESIGN

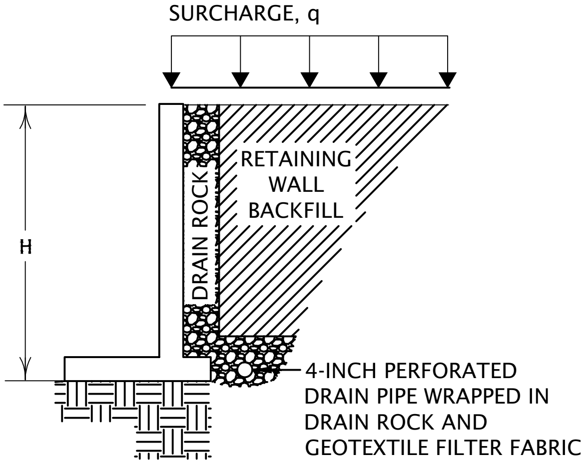
Legend

- Site Boundary
- Roads
- HA & DCP Locations
- 10-ft Contours
- 2-ft Contours

Job #22-0638

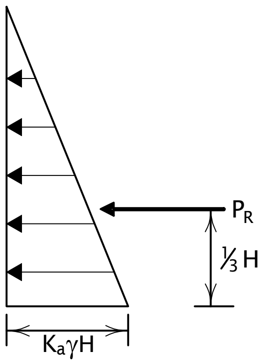
Lot lines & roads are derived from Lincoln County GIS

Figure 4



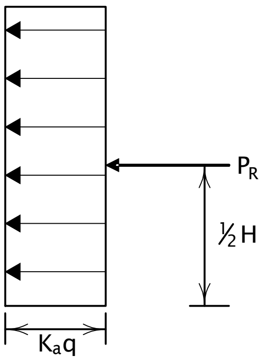
PARAMETER	VALUE
K_a	0.31
K_o	0.47
ΔK_{ae}	0.67
γ	115 pcf

ACTIVE EARTH PRESSURE



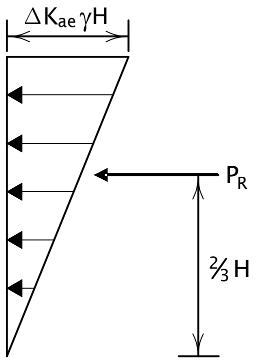
$$P_R = K_a \gamma \frac{H}{2}^2$$

SURCHARGE PRESSURE (ACTIVE)



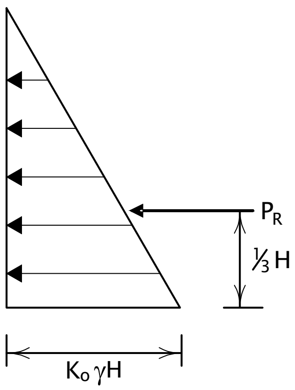
$$P_R = K_a \, q \, H$$

SEISMIC SURCHARGE PRESSURE



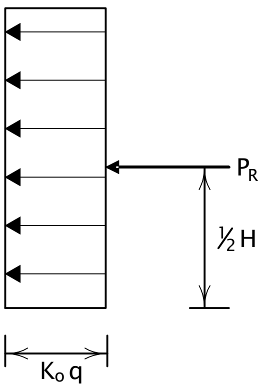
$$P_R = \Delta K_{ae} \gamma \frac{H}{2}^2$$

AT-REST EARTH PRESSURE



$$P_R = K_o \gamma \frac{H}{2}^2$$

SURCHARGE PRESSURE (AT-REST)



$$P_R = K_o \, q \, H$$

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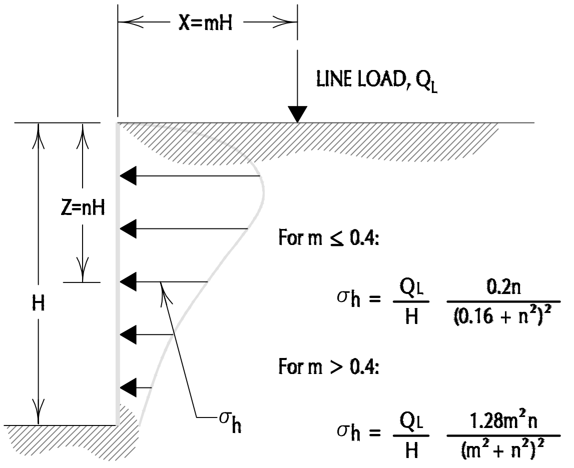
RETAINING WALL EARTH PRESSURE DIAGRAM

Wecoma Place
Lincoln City, Oregon

FEB 2022
22-0638
FIGURE
5

Filename: C:\Users\strat\Dropbox (STRATA)\# STRATA Team\Geo Projects\2022\22-0638 - Lincoln City - Wecoma Place housing\Report & Figures_earth pressure diagramsX.dwg Layout Tab: FIG 4 User: Strata Design CAD Plot Date/Time: 2/22/2022 9:55:17 PM



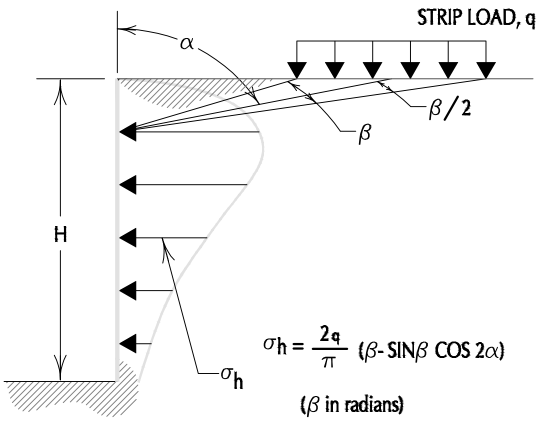
For m ≤ 0.4:

$$\sigma_h = \frac{Q_L}{H} \frac{0.2n}{(0.16 + n^2)^2}$$

For m > 0.4:

$$\sigma_h = \frac{Q_L}{H} \frac{1.28m^2 n}{(m^2 + n^2)^2}$$

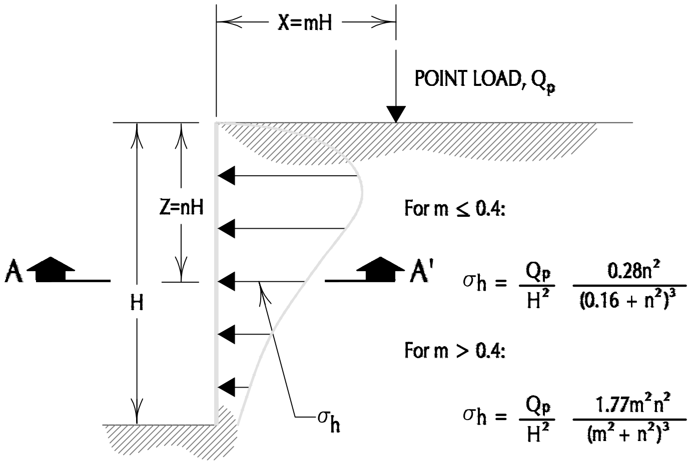
LINE LOAD PARALLEL TO WALL



$$\sigma_h = \frac{2q}{\pi} (\beta - \text{SIN}\beta \ \text{COS} \ 2\alpha)$$

(β in radians)

STRIP LOAD PARALLEL TO WALL

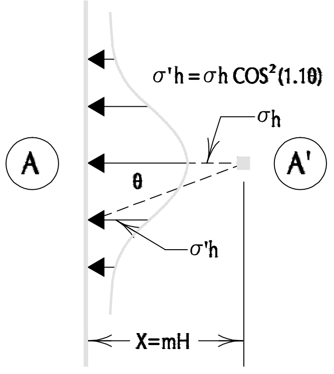


For m ≤ 0.4:

$$\sigma_h = \frac{Q_P}{H^2} \frac{0.28n^2}{(0.16 + n^2)^3}$$

For m > 0.4:

$$\sigma_h = \frac{Q_P}{H^2} \frac{1.77m^2 n^2}{(m^2 + n^2)^3}$$



DISTRIBUTION OF HORIZONTAL PRESSURES

VERTICAL POINT LOAD

NOTES:

1. THESE GUIDELINES APPLY TO RIGID WALLS WITH POISSON'S RATIO ASSUMED TO BE 0.5 FOR BACKFILL MATERIALS.
2. LATERAL PRESSURES FROM ANY COMBINATION OF ABOVE LOADS MAY BE DETERMINED BY THE PRINCIPLE OF SUPERPOSITION.

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LATERAL SURCHARGE DETAIL

Wecoma Place
Lincoln City, Oregon

FEB 2022
22-0638
FIGURE
6

APPENDIX A

Field Explorations

Table 1A

GUIDELINES FOR CLASSIFICATION OF SOIL

Description of Relative Density for Granular Soil

Relative Density	Standard Penetration Resistance (N-values), blows/ft
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	over 50

Description of Consistency for Fine-Grained (Cohesive) Soils

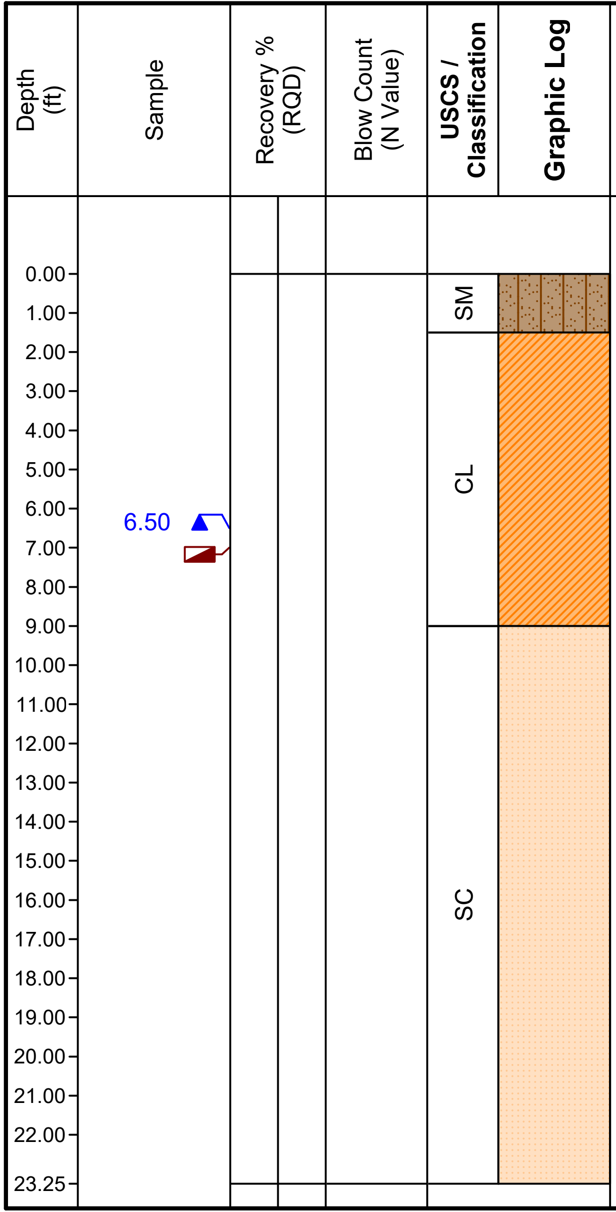
Consistency	Standard Penetration Resistance (N-values), blows/ft	Torvane or Undrained Shear Strength, tsf
Very Soft	0 - 2	less than 0.125
Soft	2 - 4	0.125 - 0.25
Medium Stiff	4 - 8	0.25 - 0.50
Stiff	8 - 15	0.50 - 1.0
Very Stiff	15 - 30	1.0 - 2.0
Hard	over 30	over 2.0

Grain-Size Classification
Boulders: >12 in.
Cobbles: 3-12 in.
Gravel: ¼ - ¾ in. (fine) ¾ - 3 in. (coarse)
Sand: No. 200 - No. 40 sieve (fine) No. 40 - No. 10 sieve (medium) No. 10 - No. 4 sieve (coarse)
Silt/Clay: Pass No. 200 sieve

	Modifier for Subclassification	
	Primary Constituent SAND or GRAVEL	Primary Constituent SILT or CLAY
Adjective	**Percentage of Other Material (By Weight)**	
trace:	5 - 15 (sand, gravel)	5 - 15 (sand, gravel)
some:	15 - 30 (sand, gravel)	15 - 30 (sand, gravel)
sandy, gravelly:	30 - 50 (sand, gravel)	30 - 50 (sand, gravel)
trace:	<5 (silt, clay)	*Relationship of clay and silt determined by plasticity index test*
some:	5 - 12 (silt, clay)	
silty, clayey:	12 - 50 (silt, clay)	

Borehole: HA-1

Project Name:	Wecoma Place	Date started:	2/1/2022
Project ID:	22-0638	Date completed:	2/1/2022
Location:	Lincoln City, Oregon		
Client:	Stewardship Properties	Easting:	45.86
Drilling Co:	STRATA	Northing:	-123.96
Drilling method:	Hand Auger (3")	Ground Elevation:	
Logged By:	CVF Checked By: RG	Coordinate system:	user
Notes:		Scale:	1:193.2



Material Description

Environ. Data Vapor

Dark Brown, SILTY SAND TOPSOIL (SM), Very Loose, Abundant Rootlets,

Red-Brown, Lean CLAY (CL), Significant black mottling, medium dense

Redish Brown with Orange mottling below 6.0 Feet, trace of gravels

Light Brown thin-bedded clayey siltstone with minor interbeds of sandstone, medium dense

:

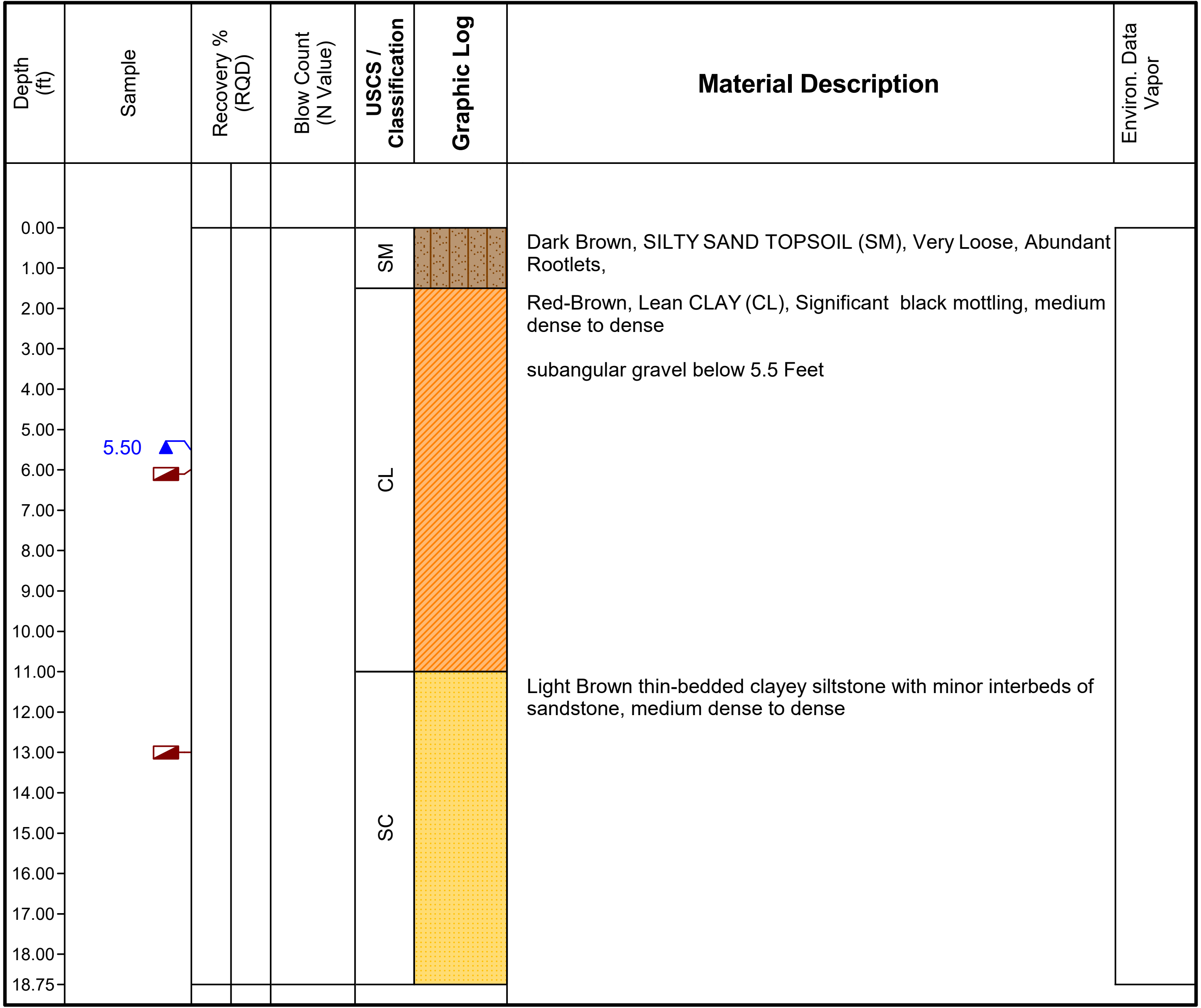
Key:

▲ GWT steady ◩ disturbed

Borehole: HA-2

Project Name: Wecoma Place
Project ID: 22-0638
Location: Lincoln City, Oregon
Client: Stewardship Properties
Drilling Co: STRATA
Drilling method: Hand Auger (3")
Logged By: CVF Checked By: RG
Notes:

Date started: 2/1/2022
Date completed: 2/1/2022
Easting: 45.87
Northing: -123.96
Ground Elevation:
Coordinate system: user
Scale: 1:155.8



Dark Brown, SILTY SAND TOPSOIL (SM), Very Loose, Abundant Rootlets,

Red-Brown, Lean CLAY (CL), Significant black mottling, medium dense to dense

subangular gravel below 5.5 Feet

Light Brown thin-bedded clayey siltstone with minor interbeds of sandstone, medium dense to dense

:

Key:

▲ GWT steady ▨ disturbed

WILDCAT DYNAMIC CONE LOG

STRATA DESIGN LLC
2117 NE OREGON STREET, SUITE 502
PORTLAND, OREGON 97232

PROJECT NUMBER: 22-0638
DATE STARTED: 02-01-2022
DATE COMPLETED: 02-01-2022

HOLE #: DCP-1
CREW: CVF
PROJECT: Wecoma Place
ADDRESS: Hwy 101/29th
LOCATION: Lincoln City, OR

SURFACE ELEVATION: 97-FEET
WATER ON COMPLETION: 6-FEET BGS
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY SAND & SILT	CLAY
-	1	4.4	•	1		VERY SOFT
-	1	4.4	•	1		VERY SOFT
- 1 ft	1	4.4	•	1		VERY SOFT
-	1	4.4	•	1		VERY SOFT
-	10	44.4	••••••••••••	12		STIFF
- 2 ft	12	53.3	•••••••••••••••	15		STIFF
-	10	44.4	••••••••••••	12		STIFF
-	10	44.4	••••••••••••	12		STIFF
- 3 ft	12	53.3	•••••••••••••••	15		STIFF
- 1 m	16	71.0	••••••••••••••••••••	20		VERY STIFF
-	17	65.6	•••••••••••••••••••	18		VERY STIFF
- 4 ft	16	61.8	•••••••••••••••••	17		VERY STIFF
-	20	77.2	••••••••••••••••••••••	22		VERY STIFF
-	21	81.1	•••••••••••••••••••••••	23		VERY STIFF
- 5 ft	23	88.8	•••••••••••••••••••••••••	25		VERY STIFF
-	20	77.2	••••••••••••••••••••••	22		VERY STIFF
-	19	73.3	•••••••••••••••••••••	20		VERY STIFF
- 6 ft	18	69.5	••••••••••••••••••••	19		VERY STIFF
-	20	77.2	••••••••••••••••••••••	22		VERY STIFF
- 2 m	21	81.1	•••••••••••••••••••••••	23		VERY STIFF
- 7 ft	20	68.4	•••••••••••••••••••	19		VERY STIFF
-	20	68.4	•••••••••••••••••••	19		VERY STIFF
-	20	68.4	•••••••••••••••••••	19		VERY STIFF
- 8 ft	21	71.8	••••••••••••••••••••	20		VERY STIFF
-	23	78.7	••••••••••••••••••••••	22		VERY STIFF
-	24	82.1	•••••••••••••••••••••••	23		VERY STIFF
- 9 ft	23	78.7	••••••••••••••••••••••	22		VERY STIFF
-	23	78.7	••••••••••••••••••••••	22		VERY STIFF
-	23	78.7	••••••••••••••••••••••	22	MEDIUM DENSE	
- 3 m 10 ft	24	82.1	•••••••••••••••••••••••	23	MEDIUM DENSE	
-	20	61.2	•••••••••••••••••	17	MEDIUM DENSE	
-	22	67.3	•••••••••••••••••••	19	MEDIUM DENSE	
-	23	70.4	••••••••••••••••••••	20	MEDIUM DENSE	
- 11 ft	23	70.4	••••••••••••••••••••	20	MEDIUM DENSE	
-	22	67.3	•••••••••••••••••••	19	MEDIUM DENSE	
-	20	61.2	•••••••••••••••••	17	MEDIUM DENSE	
- 12 ft	19	58.1	••••••••••••••••	16	MEDIUM DENSE	
-	23	70.4	••••••••••••••••••••	20	MEDIUM DENSE	
-	24	73.4	•••••••••••••••••••••	20	MEDIUM DENSE	
- 4 m 13 ft	26	79.6	•••••••••••••••••••••••	22	MEDIUM DENSE	

WILDCAT DYNAMIC CONE LOG

STRATA DESIGN LLC
2117 NE OREGON STREET, SUITE 502
PORTLAND, OREGON 97232

PROJECT NUMBER: 22-0638
DATE STARTED: 02-01-2022
DATE COMPLETED: 02-01-2022

HOLE #: DCP-2
CREW: CVF
PROJECT: Wecoma Place
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LOCATION: Lincoln City, OR

SURFACE ELEVATION: 84-FEET
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HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

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-	1	4.4	•	1		VERY SOFT
- 1 ft	1	4.4	•	1		VERY SOFT
-	1	4.4	•	1		VERY SOFT
-	1	4.4	•	1		VERY SOFT
- 2 ft	10	44.4	••••••••••••	12		STIFF
-	11	48.8	••••••••••••••	13		STIFF
-	11	48.8	••••••••••••••	13		STIFF
- 3 ft	11	48.8	••••••••••••••	13		STIFF
- 1 m	15	66.6	•••••••••••••••••••	19		VERY STIFF
-	30	115.8	•••••••••••••••••••••••••••••••••	-		HARD
- 4 ft	30	115.8	•••••••••••••••••••••••••••••••••	-		HARD
-	29	111.9	••••••••••••••••••••••••••••••••	-		HARD
-	21	81.1	•••••••••••••••••••••••	23		VERY STIFF
- 5 ft	22	84.9	••••••••••••••••••••••••	24		VERY STIFF
-	19	73.3	•••••••••••••••••••••	20		VERY STIFF
-	40	154.4	•••	-		HARD
- 6 ft	20	77.2	••••••••••••••••••••••	22		VERY STIFF
-	21	81.1	•••••••••••••••••••••••	23		VERY STIFF
- 2 m	19	73.3	•••••••••••••••••••••	20		VERY STIFF
- 7 ft	19	65.0	••••••••••••••••••	18		VERY STIFF
-	19	65.0	••••••••••••••••••	18		VERY STIFF
-	20	68.4	•••••••••••••••••••	19		VERY STIFF
- 8 ft	21	71.8	••••••••••••••••••••	20		VERY STIFF
-	22	75.2	•••••••••••••••••••••	21		VERY STIFF
-	24	82.1	•••••••••••••••••••••••	23		VERY STIFF
- 9 ft	23	78.7	••••••••••••••••••••••	22		VERY STIFF
-	23	78.7	••••••••••••••••••••••	22		VERY STIFF
-	22	75.2	•••••••••••••••••••••	21		VERY STIFF
- 3 m 10 ft	22	75.2	•••••••••••••••••••••	21		VERY STIFF
-	21	64.3	••••••••••••••••••	18		VERY STIFF
-	25	76.5	••••••••••••••••••••••	21		VERY STIFF
-	30	91.8	••••••••••••••••••••••••••	-	MEDIUM DENSE	
- 11 ft	35	107.1	•••••••••••••••••••••••••••••••	-	MEDIUM DENSE	
-	40	122.4	•••••••••••••••••••••••••••••••••••	-	DENSE	
-	40	122.4	•••••••••••••••••••••••••••••••••••	-	DENSE	
- 12 ft	25	76.5	••••••••••••••••••••••	21	MEDIUM DENSE	
-	30	91.8	••••••••••••••••••••••••••	-	MEDIUM DENSE	
-	20	61.2	•••••••••••••••••	17	MEDIUM DENSE	
- 4 m 13 ft	20	61.2	•••••••••••••••••	17	MEDIUM DENSE	

HOLE #: DCP-1

WILDCAT DYNAMIC CONE LOG

Page 2 of 2

PROJECT: Wecoma Place

PROJECT NUMBER: 22-0638

	BLOWS	RESISTANCE	GRAPH OF CONE RESISTANCE		TESTED CONSISTENCY	
DEPTH	PER 10 cm	Kg/cm²	0 50 100 150	N'	SAND & SILT	CLAY
-	23	63.7	••••••••••••••••••	18	MEDIUM DENSE	
-	24	66.5	•••••••••••••••••••	18	MEDIUM DENSE	
- 14 ft	20	55.4	••••••••••••••••	15	MEDIUM DENSE	
-	22	60.9	•••••••••••••••••	17	MEDIUM DENSE	
-	23	63.7	••••••••••••••••••	18	MEDIUM DENSE	
- 15 ft	26	72.0	••••••••••••••••••••	20	MEDIUM DENSE	
-	22	60.9	•••••••••••••••••	17	MEDIUM DENSE	
-	23	63.7	••••••••••••••••••	18	MEDIUM DENSE	
- 16 ft	25	69.3	••••••••••••••••••••	19	MEDIUM DENSE	
- 5 m	23	63.7	••••••••••••••••••	18	MEDIUM DENSE	
-	30	76.2	••••••••••••••••••••••	21	MEDIUM DENSE	
- 17 ft	23	58.4	••••••••••••••••	16	MEDIUM DENSE	
-	40	101.6	•••••••••••••••••••••••••••••	-	MEDIUM DENSE	
-	26	66.0	•••••••••••••••••••	18	MEDIUM DENSE	
- 18 ft	26	66.0	•••••••••••••••••••	18	MEDIUM DENSE	
-	25	63.5	••••••••••••••••••	18	MEDIUM DENSE	
-	26	66.0	•••••••••••••••••••	18	MEDIUM DENSE	
- 19 ft	23	58.4	••••••••••••••••	16	MEDIUM DENSE	
-	26	66.0	•••••••••••••••••••	18	MEDIUM DENSE	
- 6 m	27	68.6	•••••••••••••••••••	19	MEDIUM DENSE	
- 20 ft	30	69.9	••••••••••••••••••••	19	MEDIUM DENSE	
-	31	72.2	••••••••••••••••••••	20	MEDIUM DENSE	
-	32	74.6	•••••••••••••••••••••	21	MEDIUM DENSE	
- 21 ft	33	76.9	••••••••••••••••••••••	21	MEDIUM DENSE	
-	26	60.6	•••••••••••••••••	17	MEDIUM DENSE	
-	25	58.3	••••••••••••••••	16	MEDIUM DENSE	
- 22 ft	21	48.9	••••••••••••••	13	MEDIUM DENSE	
-	22	51.3	••••••••••••••	14	MEDIUM DENSE	
-	27	62.9	••••••••••••••••••	17	MEDIUM DENSE	
- 7 m 23 ft	30	69.9	••••••••••••••••••••	19	MEDIUM DENSE	
-	35	75.6	•••••••••••••••••••••	21	MEDIUM DENSE	
-						
- 24 ft						
-						
-						
- 25 ft						
-						
-						
- 26 ft						
- 8 m						
-						
- 27 ft						
-						
-						
- 28 ft						
-						
-						
- 29 ft						
-						
- 9 m						

HOLE #: DCP-2

WILDCAT DYNAMIC CONE LOG

PROJECT: Wecoma Place

PROJECT NUMBER: 22-0638

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm²	GRAPH OF CONE RESISTANCE 0 50 100 150	N'	TESTED CONSISTENCY SAND & SILT	TESTED CONSISTENCY CLAY
-	25	69.3	••••••••••••••••••••	19	MEDIUM DENSE	
-	21	58.2	••••••••••••••••	16	MEDIUM DENSE	
- 14 ft	23	63.7	••••••••••••••••••	18	MEDIUM DENSE	
-	30	83.1	••••••••••••••••••••••••	23	MEDIUM DENSE	
-	20	55.4	••••••••••••••••	15	MEDIUM DENSE	
- 15 ft	26	72.0	••••••••••••••••••••	20	MEDIUM DENSE	
-	23	63.7	••••••••••••••••••	18	MEDIUM DENSE	
-	20	55.4	••••••••••••••••	15	MEDIUM DENSE	
- 16 ft	26	72.0	••••••••••••••••••••	20	MEDIUM DENSE	
- 5 m	23	63.7	••••••••••••••••••	18	MEDIUM DENSE	
-	24	61.0	•••••••••••••••••	17	MEDIUM DENSE	
- 17 ft	24	61.0	•••••••••••••••••	17	MEDIUM DENSE	
-	24	61.0	•••••••••••••••••	17	MEDIUM DENSE	
-	24	61.0	•••••••••••••••••	17	MEDIUM DENSE	
- 18 ft	26	66.0	•••••••••••••••••••	18	MEDIUM DENSE	
-	30	76.2	••••••••••••••••••••••	21	MEDIUM DENSE	
-	30	76.2	••••••••••••••••••••••	21	MEDIUM DENSE	
- 19 ft						
-						
- 6 m						
- 20 ft						
-						
-						
- 21 ft						
-						
-						
- 22 ft						
-						
-						
- 7 m 23 ft						
-						
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- 24 ft						
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- 25 ft						
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- 8 m						
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- 29 ft						
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- 9 m						

OFFICE USE ONLY Date Filed: ________ Amount/Fee: ________ Receipt No: ________ Received By: ________ 30 Days: ________ Deemed Incomplete: ________ Deemed Complete: ________ 120 Day Deadline: ________	City of Lincoln City **LAND USE APPLICATION**	**OFFICE USE ONLY** Stamp Date Received **File No:**

APPLICATION TYPE

☐ **ANNEXATION**	☐ **LOT LINE ADJUSTMENT**	☑ **SITE PLAN REVIEW**
☐ **APPEAL OF PLANNING COMMISSION DECISION**	☐ **MINOR PARTITION**	☐ **SUBDIVISION**
☐ **APPEAL OF PLANNING DEPARTMENT DECISION**	☐ **NATURAL RESOURCE DEVELOPMENT REVIEW**	☐ **URBAN GROWTH BOUNDARY AMENDMENT**
☐ **COMPREHENSIVE PLAN & ZONING MAP AMENDMENT**	☐ **NATURAL RESOURCE DEVELOPMENT VARIANCE**	☐ **VACATION**
☐ **COMPREHENSIVE PLAN &/OR ZONING ORDINANCE TEXT AMENDMENT**	☐ **PLANNED UNIT DEVELOPMENT PRELIMINARY MASTER PLAN**	☐ **VARIANCE**
☐ **CONDITIONAL USE PERMIT**	☐ **PLANNED UNIT DEVELOPMENT FINAL MASTER PLAN**	☐ **OTHER**________

NAME OF APPLICANT: Li Alligood, AICP
MAILING ADDRESS: 808 SW Third Ave, Suite 800
CITY: Portland STATE: OR ZIP: 97204
DAYTIME PHONE: 503.415.2384 Signature:
EMAIL (OPTIONAL): li.alligood@otak.com

OWNER OF RECORD (if other than applicant)
NAME: Housing Authority of Lincoln County
MAILING ADDRESS: 1039 NW Nye St
CITY: Newport STATE: OR ZIP: 97365
DAYTIME PHONE: 541-512-4509 Signature: Kathy Kowtko, ED for Housing Authority of Lincoln County
EMAIL (OPTIONAL): kkowtko@halc.info

APPLICANT AND/OR OWNER'S INTEREST IN PROPERTY SUBJECT TO REQUEST:
☐ AGENT, ☑ FEE OWNER, ☐ CONTRACT PURCHASER, ☐ OPTION HOLDER, ☐ LESSEE, ☑ OTHER
PROJECT LOCATION: East of Hwy 101, north of NE 29th Street
PROJECT ADDRESS: No situs
ASSESSOR'S MAP NO.: 07-11-11-BB **TAX LOT(S):** 100 & 102
AREA: 0.98 **(acres)** **SQ. FT.:** 42,688.8 **ZONING:** GC