

GENERAL NOTES AND SOIL NAIL PARAMETERS - TECCO STABILIZATION

- 1. The Tecco system was designed in accordance with Ruvolum Dimensioning methid using Ruvolum 6.0 software supplied by Geobrugg
- 2. Design Soil parameters: Friction Angle 36 deg, Cohesion 100psf, Soil Unit Weight 135 pcf
- 3. Nail locations, drilled nail lengths, and bar size shall be in accordance with the slope profile. Nail locations may be modified, upon approval by the geotechnical engineer.
- 4. The contractor is responsible for field locating all utilities. Nail locations shall be adjusted as necessary to avoid utilities. Nails shall maintain a minimum five foot distance from utilities, unless approved by the geotechnical engineer.
- 5. The soil nail alignment for each of the 6 rows of nails shall be located by t he contractor and approved by the engineer.

TYPICAL CONSTRUCTION SEQUENCE

- 1. The following wall construction sequence shall be followed for each lift of the soil nail anchor and Tecco mat installation:
 - A. Drill, install, and grout nails. Casing of soil nail holes may be recommended by the geotechnical engineer. Alternatively, Injection Bore drilling can be used instead of casing. 1 nail shall be appropriately sized to accomodate verification testing.
 - B. Perform verification testing and proof testing of nails after nail grout has attained the design strengths.
 - C. Continue top-down construction to complete slope stabilization using Tecco Mat secured to slope face at nail locations.

NAIL TESTING

Prior to nail testing, grout shall be allowed to cure at least 72 hours. Minimum 3-day compressive strength shall be 1,500 psi.

VERIFICATION TESTING

A minimum of one verification test nail shall be installed and tested. Verification test nail shall be incrementally loaded to a maximum test load of 200 percent of the Design Test Load (DTL) in accordance with the following loading schedule. The soil nail movements shall be recorded at each load increment. Additional verification tests shall be conducted if different drill / installation equipment or techniques are used to install the nails.

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Verification Loading Schedule:

Load	Hold Time
AL(0.05 DTL Max.)	1 minute
0.25 DTL	10 minutes
0.50 DTL	10 minutes
0.75 DTL	10 minutes
1.00 DTL	10 minutes
1.25 DTL	10 minutes
1.50 DTL(Creep Test)	60 minutes
1.75 DTL	10 minutes
2.00 DTL(Max Test Load)	10 minutes

PROOF TESTING

Perform proof testing on 5 percent of the production anchors. The locations shall be designated ty the geotechnical engineer. A verification test nail successfully completed during production work shall be considered equivalent to a proof test and shall be accounted towards that 5 percent.

AL(0.05 DTL Max.)	Until Stable
0.25 DTL	Until Stable
0.50 DTL	Until Stable
0.75 DTL	Until Stable
1.00 DTL	Until Stable
1.25 DTL	Until Stable
1.50 DTL(Max Test Load)	Until Stable

Nail Testing equipment shall be independent of the wall and soil nail. Soil nail contractor shall provide Engineer a description of test setup and jack, pressure gauge and load cell calibration curves prior to testing.

The Alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 5 percent of the Design Test Load (DTL). Dial gauges should be set to "zero" after the allignment load has been applied

All load increments shall be maintained with 5 percent of the intended load. Depending on performance, either 10 minute or 60 minute creep tests shall be performed at the maximum test load (1.50 DTL). The creep period shall start as soon as the maximum test load is applied and the nail movement shall be measured and recorded at 1 minute, 2,3,6, and 10 minutes. Where the nail movement between 1 minute and 10 minutes exceeds 0.04 in., the maximum test load shall be maintained an additional 50 minutes and movements shall be recorded at 20 minutes, 30, 50, and 60 minutes.

TEST NAIL ACCEPTANCE CRITERIA

A test nail shall be considered acceptable when:

- 1. For verification tests, a total creep movement of less than 0.08 in. per log cycle of time between the 6 and 60 minutes readings is measured during creep testing and the creep rate is linear or decreasing throughout the creep test load period.

- 2. For proof tests, a total creep movement of less than 0.04 in. is measured between the 1 and 10 minute readings or a total creep movement of less than 0.08 in. is measured between the 6 and 60 minute readings and the creep rate is linear or decreasing throughout the creep test load hold period.

GEOTECHNICAL INSPECTIONS

The Geotechnical Engineer or representative shall be onsite to observe and document the nainstallation and related Tecco Mat installation. Nail testing shall be observed and confirmed by the Engineer.

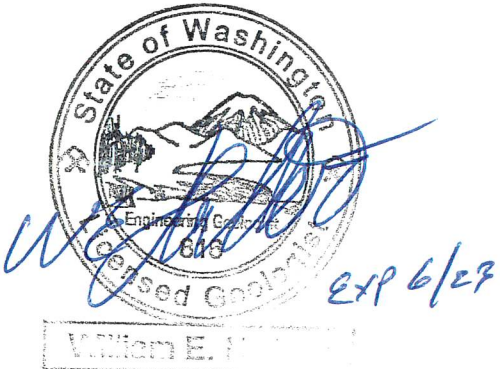
NAIL BARS AND GROUT

Soil Nail Bars shall conform to ASTM A615 / AASHTO M31. Grade 75 or ASTM A722 / AASHTO M275, Grade 150. Nails shall have a Min. Tensile Strength of 60 Kips.

Nail Grout shall have a minimum 28-day compressive strength of 3000 psi. Nail Grout shall be Neat-Cement Grout or Ready-Mix Sand-Cement Grout. Type I / II Portland Cement conforming to ASTM C150 / AASHTO M85.

EROSION CONTROL

Contractor shall install silt fencing below the nail and Tecco Mat work areas as needed to prevent downslope migration of work area soils. As needed, plastic sheeting shall also be used to protect exposed earth surfaces susceptible to erosion.



THURSTON COUNTY
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DEVELOPMENT SERVICES

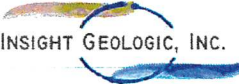
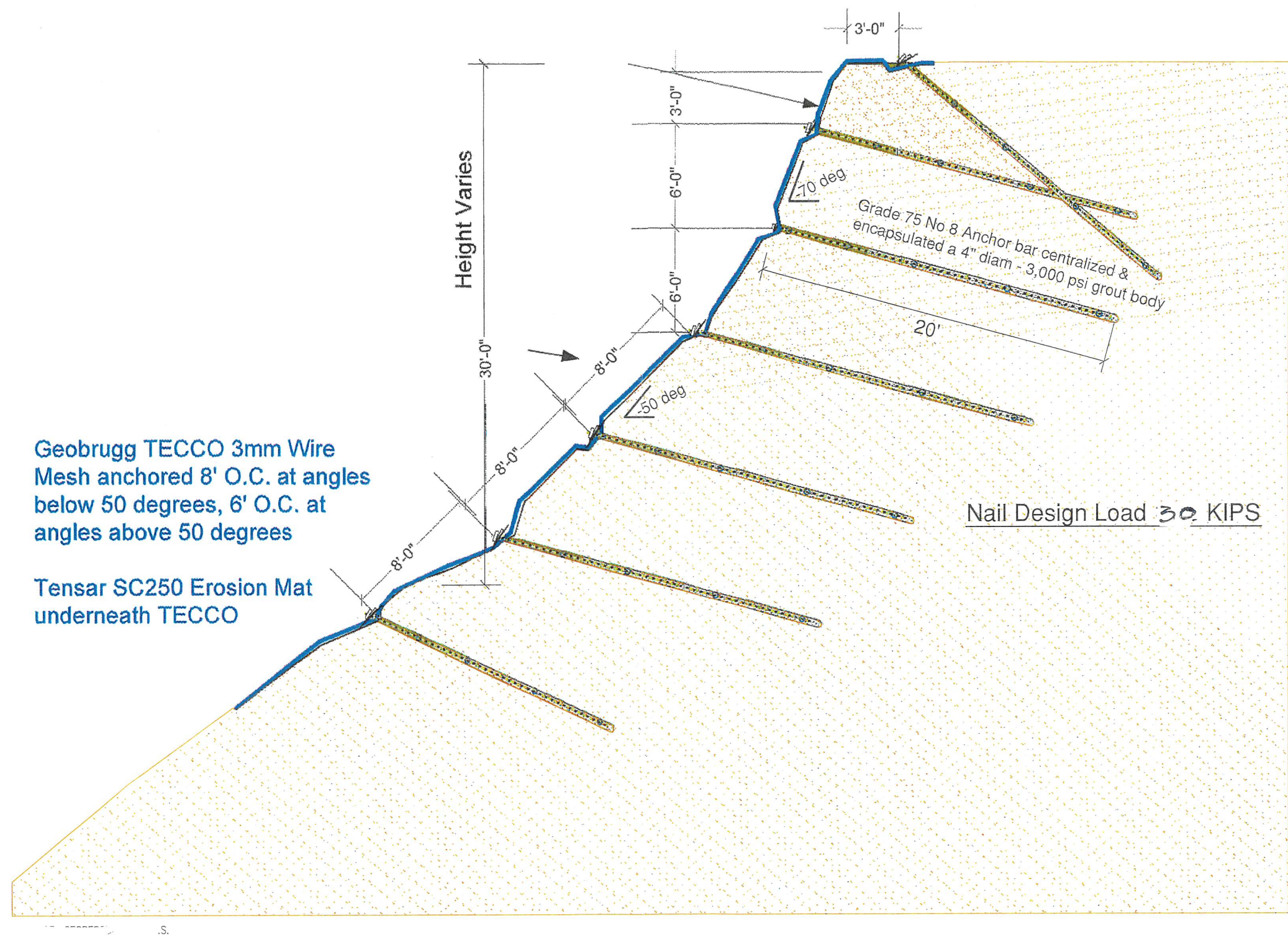


Figure
Notes

SCANNED

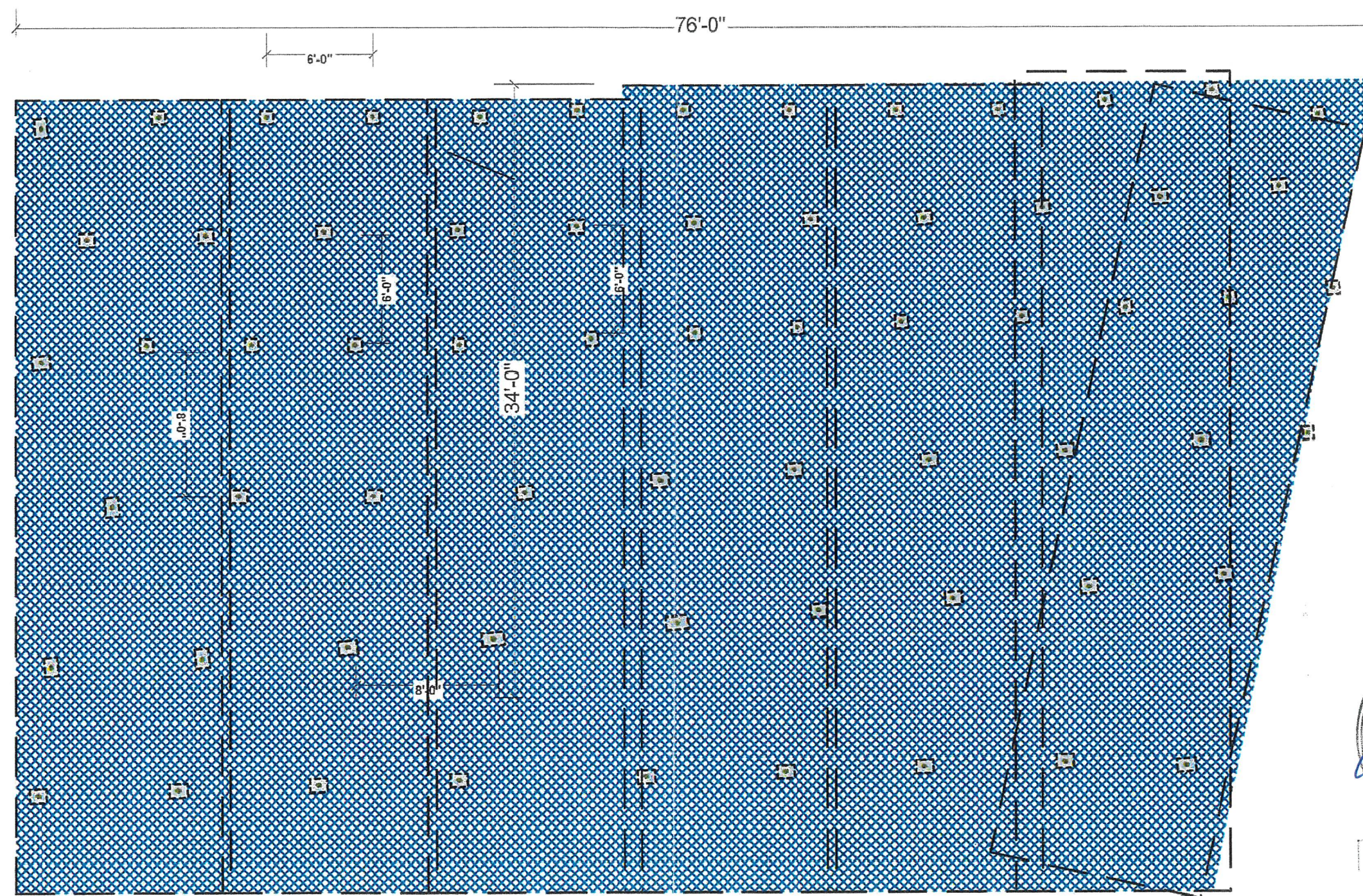


Geobrugg TECCO 3mm Wire Mesh anchored 8' O.C. at angles below 50 degrees, 6' O.C. at angles above 50 degrees

Tensar SC250 Erosion Mat underneath TECCO

Nail Design Load 30 KIPS

State of Washington
Professional Engineer
W. E. [Signature]
EXP 6/23



SOURCE:

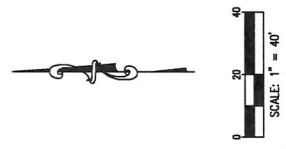
Approximate elevation looking east. Approximately 65 TECCO anchors 20' deep with 6' spacing at slope angles greater than 50 degrees and 8' spacing at slope angles below 50 degrees.

State of Washington
Engineering Geologist
819
EXH 6/29



LEGEND:

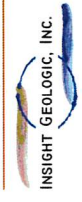
- APPROXIMATE PROPERTY BOUNDARY
- - - APPROXIMATE TOP OF SLOPE
- - - APPROXIMATE BASE OF SLOPE
- //// APPROXIMATE WORK AREA



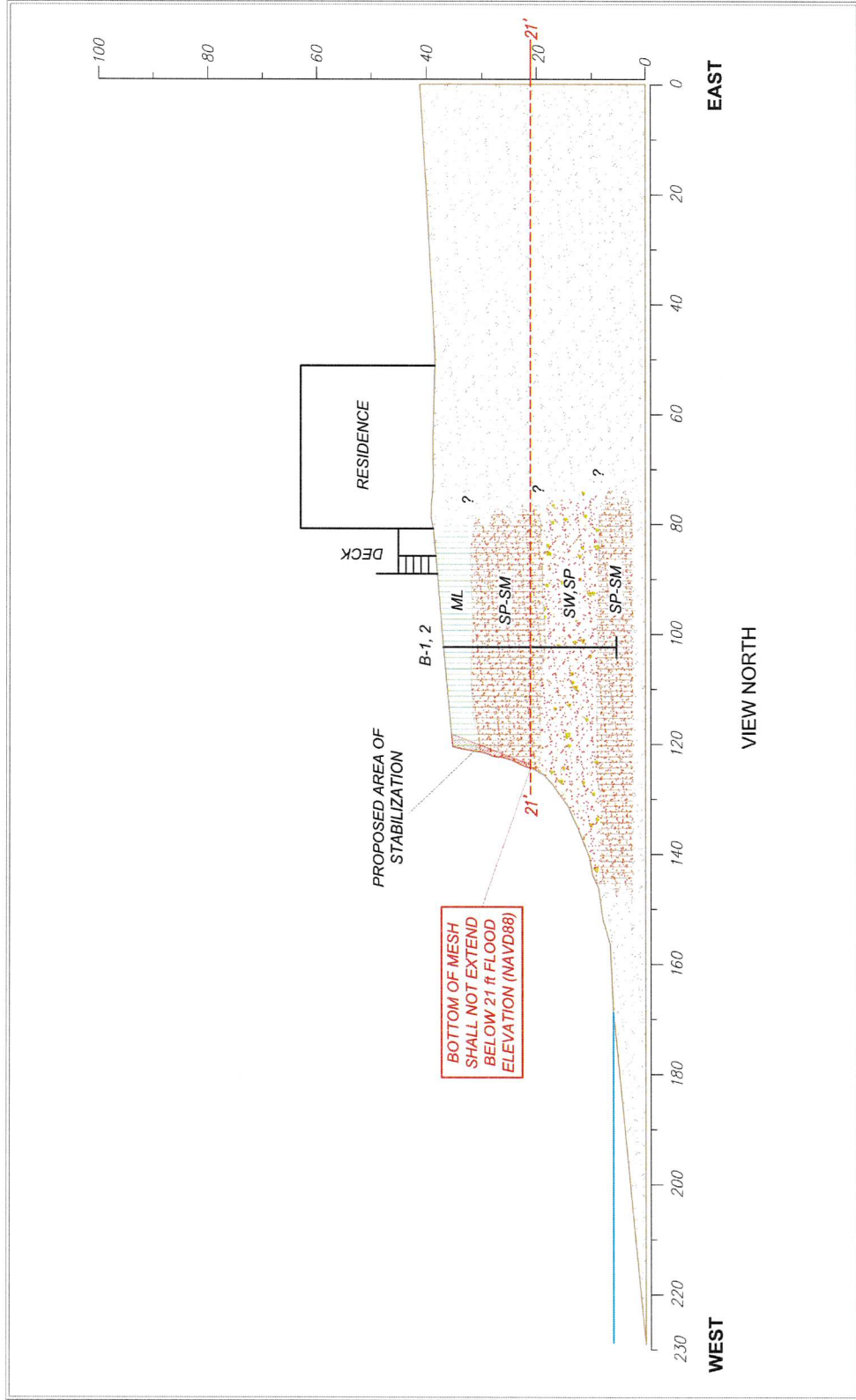
2725 SCHIRM LOOP RD NW
OLYMPIA, WASHINGTON
Parcel No. 9580201500

Figure 2
SITE PLAN

Source: Google Earth (6/19/2023)



LEGEND:



DANIELLS PROPERTY
OLYMPIA, WASHINGTON

Figure 3
Cross Section