CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
PHONE: 206.275.7605 | www.mercerisland.gov

DECISION

CRITICAL AREA REVIEW 2 CAO22-023

Project No:	CAO22-023
Description:	A request to construct a new single-family residence within geologically hazardous areas on a vacant lot.
Applicant / Owner:	Clayton Herbst (Shed Architecture & Design) / John Sullivan
Site Address:	3024 69th Ave SE, Mercer Island WA 98040
Zoning District	R-8.4
Staff Contact:	Andrew Leon, Planner andrew.leon@mercerisland.gov 206-275-7720
Exhibits:	1. Development Application, dated December 2, 2022 2. Geotechnical Report and Critical Area Study prepared by Cobalt Geosciences, LLC, dated June 27, 2023 3. Site Plan, received by the City of Mercer Island on July 27, 2023 4. Project Narrative, dated December 2, 2022 5. Review Response letter, dated May 9, 2023 6. Arborist Report prepared by Olympic Nursery, Inc., dated December 6, 2022 7. Critical Areas Mitigation Bond Quantity Worksheet, dated May 7, 2023 8. Notice of Complete Application, issued by the City of Mercer Island on December 23, 2022 9. Public Notice of Application, issued by the City of Mercer Island on January 3, 2023 10. Public comment from Azaria Rousso, received by the City of Mercer Island on January 24, 2023

INTRODUCTION

I. Project Description

The Applicant is proposing to construct a new single-family residence on a vacant lot. The proposed development will have a gross floor area of approximately 2,958 square feet and associated site development will include a driveway, a walkway, a flagstone patio, retaining walls, and mitigation planting.

II. Site Description and Context

The subject property is a vacant lot within the R-8.4 single-family residential zone and is bordered by 69th Ave SE to the west. Neighboring properties are also within the R-8.4 zone and contain residential uses. The subject property contains mapped landslide, erosion, and seismic hazard areas.

Findings of Fact & Conclusions of Law

III. Application Procedure

1. The application for a Critical Area Review 2 was received by the City of Mercer Island on December 8, 2022. The application was determined to be complete on December 23, 2022 (Exhibit 8).

2. According to MICC 19.15.030, Table A, applications for Critical Area Review 2 must undergo Type III review. Type III reviews require notice of application (discussed below). A notice of decision is issued once the project review is complete.

3. A public notice of application was issued on January 3, 2023 (Exhibit 9), and the public comment period ran from January 3, 2023 to February 2, 2023. Public notice was issued via a mailing to neighboring property owners within 300 feet of the subject site, a sign posted on the subject property, and a posting in the City's weekly permit bulletin.

4. The city received one comment letter (Exhibit 10) during the public notice period requesting that the Applicant take care not to block the street during construction. This issue will be reviewed under the project's building permit.

IV. SEPA findings of fact and conclusions

5. This project is exempt from SEPA under Washington Administrative Code (WAC) 197-11-800(1)(b)(i).

V. Consistently with the Critical Areas Code

6. MICC 19.07.160(A) state that when an alteration within a landslide hazard area, seismic hazard area or buffer associated with those hazards is proposed, the applicant must submit a critical area study concluding that the proposal can effectively mitigate risks of the hazard. The study shall recommend appropriate design and development measures to mitigate such hazards. The code official may waive the requirement for a critical area study and the requirements of subsections (B)(2) and (B)(3) of this section when he or she determines that the proposed development is minor in nature and will not increase the risk of landslide, erosion, or harm from seismic activity, or that the development site does not meet the definition of a geologically hazardous area. MICC 19.07.160(E) requires that development proposals comply with storm water management requirements in Chapter 15.09 MICC and will not create a net increase in geological instability on or off the site.

   Staff Analysis: The provided geotechnical report by Cobalt Geosciences, LLC (Exhibit 2) reviewed the proposal and has confirmed the plans include relevant recommendations from the Geotechnical report to effectively mitigate risks of the hazard. The findings of the geotechnical

report underwent peer review with the city's geotechnical consultant, who found that it is consistent with the standards of MICC 19.07.160.

CONDITIONS OF APPROVAL

1. The proposed development shall be in substantial conformance with Exhibit 3 and all applicable development standards contained within Mercer Island City Code (MICC) Chapter 19.07.

2. Prior to final approval of a building permit for the proposed work, the Applicant shall provide a financial guarantee for the proposed mitigation planting.

3. The Applicant is responsible for documenting any required changes in the project proposal due to conditions imposed by any applicable local, state and federal government agencies.

4. Construction or substantial progress toward construction of a development for which a permit has been granted must be undertaken within three years after the approval of the permit or the permit shall terminate. The code official shall determine if substantial progress has been made.

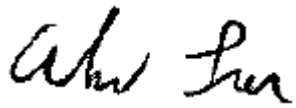
DEVELOPMENT REGULATION COMPLIANCE – DISCLOSURE

1. Compliance with all applicable codes, including but not limited to zoning, critical areas (including Fish & Wildlife Habitat Conservation Areas), and building code, will be required as part of building permit review.

DECISION / RECOMMENDATION

Based upon the above noted Findings of Fact and Conclusions of Law, Critical Area Review 2 application CAO22-023, as depicted in Exhibit 4, is hereby **APPROVED**. This decision is final, unless appealed in writing consistent with adopted appeal procedures, MICC 19.15.020(J), and all other applicable appeal regulations.

Approved this 7th day of August, 2023.



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Andrew Leon
Planner
Community Planning & Development
City of Mercer Island

If you desire to file an appeal, you must submit the appropriate form, available from the department of Community Planning and Development, and file it with the City Clerk within fourteen (14) days from the date after the notice of decision is made available to the public and applicant pursuant to MICC 19.15.130. Upon receipt of a timely complete appeal application and appeal fee, an appeal hearing will be scheduled. To reverse, modify or remand this decision, the appeal hearing body must find that there has been substantial error, the proceedings were materially affected by

irregularities in procedure, the decision was unsupported by material and substantial evidence in view of the entire record, or the decision is in conflict with the city's applicable decision criteria.

Please note that the City will provide notice of this decision to the King County Department of Assessment, as required by State Law (RCW 36.70B.130). Pursuant to RCW 84.41.030(1), affected property owners may request a change in valuation for property tax purposes notwithstanding any program of revaluation by contacting the King County Department of Assessment at (206) 296-7300.

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CITY USE ONLY		
PROJECT#	RECEIPT #	**FEE**
Date Received:		
Received By:		

DEVELOPMENT APPLICATION

STREET ADDRESS/LOCATION	ZONE
3024 69TH AVE SE	R-8.4
COUNTY ASSESSOR PARCEL #'S	**PARCEL SIZE (SQ. FT.)**
217510-0315	8,652 SQFT

PROPERTY OWNER *(required)*	ADDRESS *(required)*	CELL/OFFICE *(required)*
JOHN SULLIVAN	8240 SE 26th Street Mercer Island, WA, 98040	847.420.1434 E-MAIL *(required)* jwsulli2013@gmail.com
PROJECT CONTACT NAME	ADDRESS	CELL/OFFICE
CLAYTON HERBST	1401 S Jackson Seattle, WA, 98144	708.567.9476 E-MAIL clayton@shedbuilt.com
TENANT NAME	ADDRESS	CELL PHONE E-MAIL

DECLARATION: I HEREBY STATE THAT I AM THE OWNER OF THE SUBJECT PROPERTY OR I HAVE BEEN AUTHORIZED BY THE OWNER(S) OF THE SUBJECT PROPERTY TO REPRESENT THIS APPLICATION, AND THAT THE INFORMATION FURNISHED BY ME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

SIGNATURE

2022.12.02
DATE

PROPOSED APPLICATION(S) AND CLEAR DESCRIPTION OF PROPOSAL (PLEASE USE ADDITIONAL PAPER IF NEEDED)**:**

see attached project narrative

ATTACH RESPONSE TO DECISION CRITERIA IF APPLICABLE

CHECK TYPE OF LAND USE APPROVAL REQUESTED:

CRITICAL AREAS	ENVIRONMENTAL REVIEW (SEPA)	SUBDIVISION
☐ Critical Area Review 1	☐ SEPA Review	☐ Short Plat- Preliminary
☑ Critical Area Review 2	☐ Environmental Impact Statement	☐ Short Plat- Alteration
		☐ Short Plat- Final Plat
DESIGN REVIEW		☐ Long Plat- Preliminary
☐ Design Review – Signs	**LEGISLATIVE**	☐ Long Plat- Alteration
☐ Design Review – Code Official	☐ Code Amendment	☐ Long Plat- Final Plat
☐ Design Commission Study Session	☐ Comprehensive Plan Docket Application	☐ Lot Line Revision
☐ Design Commission Review – Exterior Alteration	☐ Comprehensive Plan Application (If Docketed) ☐ Rezone	
☐ Design Commission Review – Major New Construction		
	OTHER LAND USE	
	☐ Accessory Dwelling Unit	
DEVIATIONS	☐ Code Interpretation Request	
☐ Deviations to Antenna Standards – Code Official	☐ Conditional Use (CUP) ☐ Noise Exception Type I - IV	**WIRELESS COMMUNICATION FACILITIES** ☐ New Wireless Communication Facility
☐ Deviations to Antenna Standards – Design Commission	☐ Other Permit/Services Not Listed	☐ Wireless Communications Facilities- 6409 Exemption
☐ Public Agency Exception	**SHORELINE MANAGEMENT**	☐ Small Cell Deployment
☐ Reasonable Use Exception	☐ Shoreline Exemption	☐ Height Variance
☐ Variance	☐ Shoreline Substantial Development Permit	
☐ Seasonal Development Limitation Waiver – Wet Season Construction Approval	☐ Shoreline Variance ☐ Shoreline Conditional Use Permit ☐ Shoreline Permit Revision	

Cobalt Geosciences, LLC
P.O. Box 82243
Kenmore, Washington 98028

April 7, 2022
Updated June 27, 2023

John Sullivan
Jwsulli2013@gmail.com

RE: Geotechnical Evaluation
Proposed Residence
3024 69th Avenue SE
Mercer Island, Washington

In accordance with your authorization, Cobalt Geosciences, LLC has prepared this letter to discuss the results of our geotechnical evaluation at the referenced site.

The purpose of our evaluation was to provide recommendations for foundation design, grading, and earthwork. Note that this is an updated version. Altered, new, or updated sections have been underlined (either section name or individual sentences/paragraphs) for ease of review.

Site Description

The site is located at 3024 69th Avenue SE in Mercer Island, Washington. The site consists of one rectangular parcel (No. 2175100315) with a total area of 9,000 square feet.

The site is mostly undeveloped except for local short walls in the eastern third. This area has local lawn and patio areas associated with the residence to the east. The remainder of the site is undeveloped and vegetated with grasses, blackberry vines, understory, and sparse small diameter trees.

The site slopes downward from east to west at magnitudes of 5 to 100 percent and total relief of about 30 feet. The steepest slope is near the west property line along 69th Avenue SE. This slope is about 20 feet tall with magnitudes of 80 to 100 percent. There is a local short slope near the walls and lawn areas that is about 6 to 8 feet tall and was likely created through prior grading.

The site contains seismic, erosion, and potential landslide hazard areas per City mapping.

The site is bordered to the north by undeveloped land, to the south and east by residences, and to the west by 69th Avenue SE.

The proposed development includes a new residence with basement areas and driveway in the west-central portion of the property.

Stormwater will be routed to City infrastructure since the site is within an infiltration infeasibility area. Site grading may include cuts and fills of about 12 feet or less for driveway and basement construction and foundation loads are expected to be light. We should be provided with the final plans to verify that our recommendations remain valid and do not require updating.

We note that we have reviewed provided plans from late 2022 and early 2023 which show shoring locations, grading, and finish floor elevations.

Area Geology

The Geologic Map of Mercer Island, indicates that the site is near the contacts between Vashon Advance Outwash and Lawton Clay.

Vashon Advance Outwash includes fine to medium grained sand with gravel. These deposits are typically permeable and become denser with depth.

These deposits are locally underlain by Lawton Clay. These materials are a subfacies of the outwash sands and include silt and clay deposited in lake environments. These materials are typically stiff to hard below a weathered zone. Many Puget Sound landslides occur at or near this contact when coupled with groundwater and steep topography.

Soil & Groundwater Conditions

As part of our evaluation, we drilled a hollow stem auger boring where accessible. We returned in 2023 to drill an additional boring and conduct several hand boring explorations. We also reviewed numerous boring, hand auger, and test pit logs from geotechnical investigations conducted on nearby properties. Some of these logs are attached.

Disturbed soil samples were obtained during drilling by using the Standard Penetration Test (SPT) as described in ASTM D-1586. The Standard Penetration Test and sampling method consists of driving a standard 2-inch outside-diameter, split barrel sampler into the subsoil with a 140-pound hammer free falling a vertical distance of 30 inches. The summation of hammer-blows required to drive the sampler the final 12-inches of an 18-inch sample interval is defined as the Standard Penetration Resistance, or N-value. The blow count is presented graphically on the boring logs in this appendix. The resistance, or "N" value, provides a measure of the relative density of granular soils or of the relative consistency of cohesive soils.

The soils encountered were logged in the field and are described in accordance with the Unified Soil Classification System (USCS).

The borings encountered approximately 6 inches of grass and topsoil underlain by approximately 6.5 to 10 feet of very loose to loose, silty-fine to medium grained sand with gravel (Colluvium). These materials were underlain by very stiff to hard, silt with fine grained sand (Lawton Clay), which continued to the termination depth of the explorations. The hand borings encountered approximately 6 inches of topsoil and vegetation underlain by about 2.5 to 4 feet of loose to medium dense, silty-fine to medium grained sand (Fill and/or Colluvium). These soils were underlain by stiff to very stiff, sandy silt trace gravel (Lawton Clay?), which continued to the termination depths of the hand borings.

Groundwater was not observed or encountered in the explorations. Light volumes of groundwater could be present on or within the Lawton Clay at variable depths below grade.

Water table elevations often fluctuate over time. The groundwater level will depend on a variety of factors that may include seasonal precipitation, irrigation, land use, climatic conditions and soil permeability. Water levels at the time of the field investigation may be different from those encountered during the construction phase of the project. It would be necessary to install a piezometer to determine groundwater depths over a typical year.

City of Mercer Island GIS Mapped Hazards

The City of Mercer Island GIS maps indicate that the site is within a potential slide, seismic, and erosion hazard area. These designations are likely present due to a combination of historic mass wastage/landslide activity in steeper slope areas west of the site, close proximity of the property to the contact between outwash and underlying silts, and presence of outwash soils (erosion hazards).

The site slopes downward from east to west at magnitudes of 5 to 100 percent and total relief of about 30 feet. The steepest slope is near the west property line along 69th Avenue SE. This slope is about 20 feet tall with magnitudes of 80 to 100 percent. This slope may have been in part created through prior excavation work related to construction of 69th Avenue SE. There is a local short slope near the walls and lawn areas that is about 6 to 8 feet tall and was likely created through prior grading.

Available geologic mapping for the area indicates the presence of older landslide scarps and features west and north of the site area. Some of these features are noted in Figure 2. We note that the upper loose soils at the site could consist of colluvium associated with historic mass wasting. It appears likely that the soil movements that created the current landforms likely occurred shortly after deglaciation about 11,000 years ago. Local reactivation of landslide areas may have occurred on downslope properties. We did not observe evidence of landslide activity or severe erosion on the subject parcel.

Overall, the site areas appear stable at this time with no evidence of recent or ongoing erosion or landslide activity. It is our opinion that the risk of landslide activity and erosion can be decreased through proper development, including excavation of loose soils, retaining walls, drainage systems, and grading to decrease slope magnitudes near the west property line. We can provide additional input once a site plan has been prepared. It is our opinion that the seismic hazard risks are low.

Mitigation of Impact to Geologic Hazard Areas

We have reviewed the proposed project with respect to the mitigation sequencing approach described in MICC 19.07.110. The project incorporates the following measures which mitigate the potential impact to the geologic hazards at the site and adjacent areas (landslide and erosion):

- The proposed residence is located in the 'least' critical area of the site (more level areas and areas away from former landslide features) and utilizes temporary shoring to limit disturbance and improve local stability.
- Ground disturbance required to construct the development will be minimized by using soldier piles east of the residence and temporary excavations where grading is not as extensive (deep).
- Temporary erosion control systems will be in place during construction and permanent landscaping will be implemented following grading.
- Work should take place during the dry season (April 1 through October 1) only to further minimize erosion risks.

A minimum 25 foot buffer from the known landslide features is suitable. This should be measured from the approximated scarp locations in Figure 2. The proposed building location is well away from these areas (at least 40 feet).

Statement of Risk

Per Section 19.07.160B3 of the Mercer Island City Code, development within geologic hazard areas require that a Geotechnical Engineer licensed within the State of Washington provide a statement of risk with supporting documentation indicating that one of the following conditions can be met:

a. The geologic hazard area will be modified, or the development has been designed so that the risk to the lot and adjacent property is eliminated or mitigated such that the site is determined to be safe; or

b. An evaluation of site specific subsurface conditions demonstrates that the proposed development is not located in a geologic hazard area; or

c. Development practices are proposed for the alteration that would render the development as safe as if it were not located in a geologic hazard area; or

d. The alteration is so minor as not to pose a threat to the public health, safety and welfare.

The project meets the criteria of c from above. Evidence and discussion of this item can be provided once we have a site plan with building elevations. Development practices that would help render the development safe as if it were not within a hazard area could include drainage improvements, retaining walls, loose soil removal, soldier pile walls, soil compaction, and overall landscaping as part of a new home.

Areas with higher risk of soil movements are situated west and north of the site, in areas where historic landslides appear to have occurred. This proposed development can be completed without adversely affecting geologic hazards near or within the site.

Comment Responses

We have updated this report to include geologic sections, additional exploration data, and slope stability analyses. The planned shoring installation and deeper cuts will allow removal of the loose upper fill and possible colluvial soils. The new building will likely be fully supported by stiff to hard native soils. If overexcavation of loose soils is required, it will likely be very minor and only in the western portion of the structure, not affecting the shoring design. Deformation analyses and/or other considerations for loose/soft soil conditions below foundations are not warranted. All of the loose soils will be removed as part of shoring placement.

Permanent slopes near the western portion of the structure should be created through cuts in medium dense soils or structural fill compacted onto benches exposing suitable soils. Benches should be 4 or more feet wide and 2 to 4 feet tall. All fill to create slopes must be compacted to at least 95 percent of the modified proctor (ASTM D1557 Test Method) in maximum 12 inch thick lifts. Permanent slopes should be 2H:1V or flatter. Walls could be utilized as required to achieve final grades.

Permanent slopes and other graded areas must be vegetated as part of the development. For slopes 3H:1V or flatter, typical landscaping plantings with mulch/compost and bark surfacing is suitable. For slopes steeper than 3H:1V, we typically recommend placing mulch and compost, then covering the areas with jute until plants are well established. We can provide additional input once specific details are provided.

We understand that there is a section of short slope southwest of the structure that will have a maximum 42 inch tall concrete wall at the toe with a 1-1.5H:1V permanent slope above. The slope will be 2 to 3 feet tall. For this slope, we recommend creating a series of short benches (2 foot cuts and 2-3 feet benches) starting about 2 feet north of the sewer line, extending down to the top of the concrete wall. The benches should be verified by the geotechnical engineer for stability. Once created, we recommend placement of 2-4 inch angular quarry rock to create the permanent slope. The rock should have a minimum thickness of 12 inches at any given location.

The planned rockery east of the building can be utilized since the height is very limited (42 inches). Since the soil is locally loose, we recommend using somewhat larger boulders than would be typical of a wall with that height. We have included a rockery section in this report along with a diagram for construction, including benching through the loose soils.

The active pressure for the soldier pile wall is suitable provided any backslope surcharges are included. We have included tieback design and testing information in the shoring section of this report. We have included examples of the active and at-rest pressure increases in the soldier pile wall section (top of page 10).

We have discussed tieback placement and design with Kulchin (shoring contractor). They have told us that they have ways to increase the friction in fine grained soils. The structural engineer requires an adhesion of 4.4 kips per lineal foot of anchor for tiebacks to keep the anchors within the subject property. This value may be used for design provided we verify suitability with a load test upon initial tieback placement. Post grouting will likely be necessary. Remedial measures could be required if loads cannot be achieved.

We understand that a sewer line (concrete pipe) is located approximately 3 feet south of the south soldier pile wall alignment and about 6 feet below grade. This is acceptable provided soldier piles are installed either in an alternating method (every other pile placed and backfilled instead of sequentially) or each pile is placed and backfilled with concrete/lean mix immediately before the next consecutive pile is augered. In other words, if piles are placed consecutively, concrete will need to be placed immediately instead of leaving several piles open until concrete arrives. Or, holes are augered every other pile and then backfilled with concrete all at once. If sloughing occurs, the contractor would likely need to install a section of casing within the upper 8 feet of the pile hole.

Slope Stability Analyses

We performed slope stability analyses through a representational cross section through the steep slope area and proposed building. Analyses were performed using data from the explorations, location and anticipated elevations of the proposed structure, and topography from the provided topographic survey.

We also analyzed stability of a proposed 1H:1V fill slope along a portion of the driveway. We understand that a maximum 42 inch tall wall is allowed in this area; however, due to the location and elevation of a utility easement, a variable height permanent 1H:1V slope is required between the wall and easement. We estimate that the fill slope will have geogrid reinforcement and will be 3 to 8 feet tall. We provide additional information in subsequent sections.

The commercially available slope stability computer program Slope/W was used to evaluate the global stability of the slope within the property. The slope stability was analyzed under static and seismic (pseudo-static method) conditions for the existing and proposed topography.

The computer program calculates factors of safety for potential slope failures and generates the potential failure planes. This software calculates the slope stability under seismic conditions using pseudo-static methods. The stability of the described configuration was analyzed by comparing observed factors of safety to minimum values as set by standard geotechnical practice.

A factor of safety of 1.0 is considered equilibrium and less than 1.0 is considered failure. The required factor of safety for global stability is 1.5 for static conditions and 1.1 for seismic conditions. In accordance with typical engineering standards, we used a seismic acceleration equal to one half of the horizontal peak ground acceleration. At this location, the site modified PGA is 0.606 with one half equal to 0.3.

The following estimated soil parameters were used in our analyses:

Soil Description	Unit Weight (pcf)	Cohesion (psf)	Friction (degrees)
Fill and Colluvium	115	0	24
Structural Fill	125	0	38
Stiff to hard sandy silts/silty-sands	125	250	28

Slope Stability Results

Cross Section	Static Factor of Safety	0.30g Seismic Factor of Safety
Current Topography	1.415	0.668
Proposed Conditions with Pile Wall	2.539	1.525

Tallest Section at Driveway Fill Slope	Static Factor of Safety	0.30g Seismic Factor of Safety
Proposed Conditions with Geogrid Fill Slope	4.586	1.751

The analyses indicate suitable factors of safety are present for the proposed development with a soldier pile wall to support temporary excavations. The analyses also indicate that a fill slope with geogrid reinforcement is suitable in the driveway areas, where required.

These analyses do not determine safety during construction. Typically, construction activities are temporary and provided excavation recommendations from the geotechnical engineer are followed, the risk of failure can be managed through daily observation of stability. Please see the temporary excavation section of this report for more information.

Erosion Hazard

The Natural Resources Conservation Services (NRCS) maps for King County indicate that the site is underlain by Arents, Alderwood material (6 to 15 percent slopes). These soils would have a slight to moderate erosion potential in a disturbed state depending on the slope magnitude.

It is our opinion that soil erosion potential at this project site can be reduced through landscaping and surface water runoff control. Typically, erosion of exposed soils will be most noticeable during periods of rainfall and may be controlled by the use of normal temporary erosion control measures, such as silt fences, hay bales, mulching, control ditches and diversion trenches. The typical wet weather season, with regard to site grading, is from October 31st to April 1st. Erosion control measures should be in place before the onset of wet weather.

Seismic Parameters

The overall subsurface profile corresponds to a Site Class *D* as defined by Table 1613.5.2 of the International Building Code (IBC). A Site Class *D* applies to an overall profile consisting of stiff/medium dense soils within the upper 100 feet.

We referenced the U.S. Geological Survey (USGS) Earthquake Hazards Program Website to obtain values for S_S, S_1, F_a, and F_v. The USGS website includes the most updated published data on seismic conditions. The following tables provide seismic parameters from the USGS web site with referenced parameters from ASCE 7-16.

Seismic Design Parameters (ASCE 7-16)

Site Class	Spectral Acceleration at 0.2 sec. (g)	Spectral Acceleration at 1.0 sec. (g)	Site Coefficients		Design Spectral Response Parameters		Design PGA
			F_a	F_v	S_{DS}	S_{D1}	
D	1.415	0.492	1.0	Null	0.943	Null	0.606

Additional seismic considerations include liquefaction potential and amplification of ground motions by soft/loose soil deposits. The liquefaction potential is highest for loose sand with a high groundwater table. The site has a low likelihood of liquefaction. Based on the planned grading, the looser soils will be fully removed from below foundation elements. For items listed as "Null" see Section 11.4.8 of the ASCE.

Conclusions and Recommendations

General

The site is underlain by a zone of loose soils (fill and possible older colluvium) underlain by relatively dense silts and sandy silts. The property is feasible for development with a new residence and driveway. This construction will require significant grading, retaining walls, and other systems to increase stability and decrease the risk of soil erosion and landslide activity.

The construction includes shoring walls along the north, south, and east margins of the structure. Foundation elements should bear on medium dense/stiff or firmer native soils. We anticipate that most if not all of the looser soils will be removed as part of mass grading, exposing suitable bearing soils. Overexcavation of loose soils is required if present. We note that loose soils would most likely to remain present near the western margin of the building. These would be removed during foundation preparation work.

Based on the grading plans and our explorations, pin piles are not warranted for building support. Additionally, the underlying stiff to hard silts and sandy silts have a low risk of liquefaction. Mitigation is not warranted.

Site Preparation

Trees, shrubs and other vegetation should be removed prior to stripping of surficial organic-rich soil and fill. Based on observations from the site investigation program, it is anticipated that the stripping depth will be 6 to 18 inches. Deeper excavations will be necessary in areas of loose soils, if they remain once building and grading elevations are achieved.

The native soils consist of silty-sand with gravel and sandy silt. Some of the native soils may be used as structural fill provided they achieve compaction requirements and are within 3 percent of the optimum moisture. Some of these soils may only be suitable for use as fill during the summer months, as they will be above the optimum moisture levels in their current state. These soils are variably moisture sensitive and may degrade during periods of wet weather and under equipment traffic.

Imported structural fill should consist of a sand and gravel mixture with a maximum grain size of 3 inches and less than 5 percent fines (material passing the U.S. Standard No. 200 Sieve). Structural fill should be placed in maximum lift thicknesses of 12 inches and should be compacted to a minimum of 95 percent of the modified proctor maximum dry density, as determined by the ASTM D 1557 test method.

Temporary Excavations

Based on our understanding of the project, we anticipate that the grading could include local cuts on the order of approximately 12 feet or less for foundation and most of the utility placement. Temporary excavations should be sloped no steeper than 1.5H:1V (Horizontal:Vertical) in loose native soils and fill and 1H:1V in medium dense native soils. If an excavation is subject to heavy vibration or surcharge loads, we recommend that the excavations be sloped no steeper than 2H:1V, where room permits.

Temporary shoring will be utilized as part of basement foundation placement. Permanent slopes should be constructed with structural fill placed on benches or through cuts in medium dense soils. Any permanent graded slopes should have magnitudes of 2H:1V or flatter.

Temporary cuts should be in accordance with the Washington Administrative Code (WAC) Part N, Excavation, Trenching, and Shoring. Temporary slopes should be visually inspected daily by a qualified person during construction activities and the inspections should be documented in daily reports. The contractor is responsible for maintaining the stability of the temporary cut slopes and reducing slope erosion during construction.

Temporary cut slopes should be covered with visqueen to help reduce erosion during wet weather, and the slopes should be closely monitored until the permanent retaining systems or slope configurations are complete. Materials should not be stored or equipment operated within 10 feet of the top of any temporary cut slope.

Soil conditions may not be completely known from the geotechnical investigation. In the case of temporary cuts, the existing soil conditions may not be completely revealed until the excavation work exposes the soil. Typically, as excavation work progresses the maximum inclination of temporary slopes will need to be re-evaluated by the geotechnical engineer so that supplemental recommendations can be made. Soil and groundwater conditions can be highly variable. Scheduling for soil work will need to be adjustable, to deal with unanticipated conditions, so that the project can proceed and required deadlines can be met.

If any variations or undesirable conditions are encountered during construction, we should be notified so that supplemental recommendations can be made. If room constraints or groundwater conditions do not permit temporary slopes to be cut to the maximum angles allowed by the WAC, temporary shoring systems may be required. The contractor should be responsible for developing temporary shoring systems, if needed. We recommend that Cobalt Geosciences and the project structural engineer review temporary shoring designs prior to installation, to verify the suitability of the proposed systems.

Soldier Pile Walls

One or more temporary or permanent soldier pile walls with pressure treated timber (wood) or concrete lagging would be suitable to support the proposed excavations where and if required.

Soldier piles typically consist of steel W or H-beams inserted into oversized drilled shafts, which are backfilled with structural concrete, lean mix {Controlled Density Fill (CDF)}, or a combination of lean mix to the base of the excavation and structural concrete below the excavation to anchor the soldier piles.

Due to the potential for local caving during drilling operations for the soldier pile holes due to soft soil conditions and shallow groundwater, consideration should be given to using slurry or drilling fluid to reduce the risk of caving of the pile holes during installation. If water is present within the pile hole at the time of soldier pile concrete placement, the concrete should be placed starting at the bottom of the hole with a tremie pipe and the column of concrete should be raised slowly to displace the water. Note that groundwater may be present near the toe of the pile along with fine grained soils at depth. Groundwater could cause local sloughing.

We recommend that soldier piles have a maximum spacing of eight feet on center. To account for arching effects, lateral loading on the lagging can be reduced by 50 percent. Unlagged excavation heights should not exceed three feet. No portion of the excavation should remain unsupported overnight. Lagging sections may be up to 6 feet in height depending on stability. Note that the soils are sandy and shorter vertical cuts may be required for lagging placement.

Cantilever soldier pile walls for this site may be designed based on an active lateral earth pressure of 35 pcf for level backslope conditions, provided the wall is unrestrained (not fixed; permitted to move at least 0.2 percent of the wall height). If the wall is restrained, we recommend a lateral earth pressure of 55 pcf. The pressure will act on the soldier pile width below the base of the excavation as well. All applicable surcharge pressures should be included, where anticipated or shown (buildings, construction traffic). An increase in the above pressures is necessary if sloping

backslope conditions will be present. This increase can be calculated using an increase of 0.75 pcf per degree of slope. This would result in active and at-rest pressures of 52 and 72 pcf for a 2H:1V slope and pressures of 45 and 65 pcf for a 30 percent slope.

A lateral uniform seismic pressure of 7H is recommended for seismic conditions (active). An at-rest pressure of 14H may be used if the wall is restrained. Note that seismic conditions may not be required for a temporary system.

In front of the soldier piles, resistive pressure can be estimated using an allowable passive earth pressure of 150 pcf acting over 2 times the soldier pile diameter, neglecting the upper 2 feet below the base of the excavation (upper 10 feet), and a pressure of 250 pcf below 10 feet. A factor of safety of 1.5 has been incorporated into the passive pressure value. We can provide updated pressures once a site plan with elevations has been prepared.

A lateral pressure reduction of 50 percent may be used for design of the lagging for a pile spacing of three diameters. Lagging should be backfilled with 5/8 inch clean angular rock to minimize void spaces.

The shoring system and any nearby existing structures, including roadways, should be monitored for movement during construction (if present). A system of survey points should be established prior to commencing with the excavation activities. Readings should be taken periodically (weekly) until the permanent wall is in place and these readings should be compared to the original baseline measurements.

Permanent pile walls will also require special and specific modifications to increase their design life. This can include pile upsizing, various coatings, and use of concrete lagging in lieu of pressure treated timbers.

Tieback Anchors

If tieback anchors are used, the following recommendations may apply:

The tieback anchors along bond length can be designed for an allowable unit shaft resistance of 4.4 kips per lineal foot of anchor bond length assuming a minimum 6 inch pressure-grouted tieback with post grouting. We note that this value is higher than our initially recommended value of 1.5 kips per foot. The shoring contractor believe they can achieve this value with specific boring techniques used to 'roughen' the silt deposits to increase friction. Additional post grouting and larger diameter holes with dywidag bars instead of tendons are intended to increase the soil to concrete/anchor adhesion value.

The bonded length is that portion of the anchor that extends beyond the no load zone. Within the no load zone, anchors should be sleeved and left ungrouted to prevent load pickup in this region. The bonded length should be at least 12 feet. To improve the performance of the tieback wall, it may be necessary to install the uppermost row of tiebacks no greater than 9 feet below the top of the piles unless beams of sufficient size are used to limit the deflections.

The manner in which the tieback anchors carry load will depend on the type of anchor selected, the method of installation, and the soil conditions surrounding the anchor. Accordingly, we recommend use of a performance specification requiring the shoring contractor to install anchors capable of satisfactorily achieving the design structural loads, with a pullout resistance factor of safety of at least 2. Permanent anchors require additional consideration. We can provide additional final design information if this option is selected.

Anchor Testing

The anchor testing should be conducted in accordance with the latest edition of the Post Tensioning Institute (PTI) "Recommendations for Prestressed Rock and Soil Anchors." Essentially elements of verification tests are as follows:

Perform a minimum of two verifications tests on each anchor type, installation method and soil type with the tested anchors constructed to the same dimensions as production anchors. The contractor should consider performing the verification tests prior to installing production anchors;

Test locations to be determined in conjunction and approved by the geotechnical engineer;

Test anchors, which will be loaded to 200% of the design load, may require additional prestressing steel (steel load not to exceed 80% of the ultimate tensile strength) or reinforcing of the soldier pile;

Load test anchors to 150% load in 25% load increments, holding each incremental load for at least 5 minutes and recording deflection of the anchor head at various times within each hold to the nearest 0.01 inch;

At the 150% load, the holding period shall be at least 60 minutes;

After completion of the 150% hold, load the anchor in 25% load increments to the 200% load, which shall be held for 10 minute, and;

A successful test shall provide a measured creep rate of 0.04 inches or less at the 150% load between 1 and 10 minutes, and 0.08 inches between 6 and 60 minutes, and both shall have a creep rate that is linear or decreasing with time. The applied load must remain constant during all holding periods (i.e. no more than 5% variation from the specified load).

Verification tested anchors or extended creep proof tested anchors not meeting the acceptance criteria will require a redesign by the contractor to achieve the acceptance criteria.

All production anchors should be proof tested to 130% of the design load. The anchor testing should be conducted in accordance with the latest edition of the Post Tensioning Institute (PTI) "Recommendations for Prestressed Rock and Soil Anchors." Essential elements of proof tests are summarized below:

Load test all production anchors to 130% of the design load in 25% load increments, holding each incremental load until a stable deflection is achieved (record deflection of the anchor head at various times within each hold to the nearest 0.01inch);

At the 130% load, the holding period shall be at least 10 minutes;

A successful test shall provide a measured creep rate of 0.04 inches or less at the 150% load between 1 and 10 minutes with a creep rate that is linear or decreasing with time. The applied load must remain constant during the holding period (i.e. no more than 5% variation from the 130% load). Anchors failing this proof testing creep acceptance criteria may be held an additional 50 minutes for creep measurement. Acceptable performance would equate to a creep of 0.08 inches or less between 5 and 50 minutes with a linear or decreasing creep rate.

Ground movements will occur as a result of excavation activities. As such, ground surface elevations of the adjacent properties and city streets should be documented prior to commencing earthwork to provide baseline data. As a minimum, optical survey points should be established at the top of every other soldier pile. These monitoring points should be monitored twice a week during excavation.

The monitoring program should include changes in both the horizontal (x and y directions) and vertical deformations. The monitoring should be performed by the contractor or the project surveyor, and the results promptly submitted to Cobalt for review. The results of the monitoring will allow the design team to confirm design parameters, and for the contractor to make adjustments if necessary.

Foundation Design

The proposed structure may be supported on a shallow spread footing foundation system bearing on undisturbed medium dense or firmer native soils or on properly compacted structural fill placed on the suitable native soils. Any undocumented fill and/or loose native soils should be removed and replaced with structural fill below foundation elements. Structural fill below footings should consist of clean angular rock 5/8 to 4 inches in size. We should verify soil conditions during foundation excavation work.

Note that all loose soils will require removal. Based on our review of the grading plans and planned finish floor elevations, most if not all of the looser soils will be removed during mass grading following shoring placement. We would only anticipate minor loose soils to remain (if any) and these would most likely be located in the western portion of the new residence, where cuts will be less significant.

For shallow foundation support, we recommend widths of at least 16 and 24 inches, respectively, for continuous wall and isolated column footings supporting the proposed structure. Provided that the footings are supported as recommended above, a net allowable bearing pressure of 2,500 pounds per square foot (psf) may be used for design.

A 1/3 increase in the above value may be used for short duration loads, such as those imposed by wind and seismic events. Structural fill placed on bearing, native subgrade should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. Footing excavations should be inspected to verify that the foundations will bear on suitable material.

Exterior footings should have a minimum depth of 18 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower. Interior footings should have a minimum depth of 12 inches below pad subgrade (soil grade) or adjacent exterior grade, whichever is lower.

If constructed as recommended, the total foundation settlement is not expected to exceed 1 inch. Differential settlement, along a 25-foot exterior wall footing, or between adjoining column footings, should be less than ½ inch. This translates to an angular distortion of 0.002. Most settlement is expected to occur during construction, as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated. All footing excavations should be observed by a qualified geotechnical consultant.

Resistance to lateral footing displacement can be determined using an allowable friction factor of 0.30 acting between the base of foundations and the supporting subgrades. Lateral resistance for footings can also be developed using an allowable equivalent fluid passive pressure of 250 pounds per cubic foot (pcf) acting against the appropriate vertical footing faces (neglect the upper 12

inches below grade in exterior areas). The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance.

Care should be taken to prevent wetting or drying of the bearing materials during construction. Any extremely wet or dry materials, or any loose or disturbed materials at the bottom of the footing excavations, should be removed prior to placing concrete. The potential for wetting or drying of the bearing materials can be reduced by pouring concrete as soon as possible after completing the footing excavation and evaluating the bearing surface by the geotechnical engineer or his representative.

Concrete Retaining Walls

The following table, titled **Wall Design Criteria**, presents the recommended soil related design parameters for retaining walls with a level backslope. Contact Cobalt if an alternate retaining wall system is used. This has been included for new cast in place walls, if any are proposed.

Wall Design Criteria	
"At-rest" Conditions (Lateral Earth Pressure – EFD[+])	55 pcf (Equivalent Fluid Density)
"Active" Conditions (Lateral Earth Pressure – EFD[+])	35 pcf (Equivalent Fluid Density)
Seismic Increase for "At-rest" Conditions (Lateral Earth Pressure)	14H* (Uniform Distribution)
Seismic Increase for "Active" Conditions (Lateral Earth Pressure)	7H* (Uniform Distribution)
Passive Earth Pressure on Low Side of Wall (Allowable, includes F.S. = 1.5)	Neglect upper 2 feet, then 250 pcf EFD[+]
Soil-Footing Coefficient of Sliding Friction (Allowable; includes F.S. = 1.5)	0.30

[*]H is the height of the wall; Increase based on one in 500 year seismic event (10 percent probability of being exceeded in 50 years),
[+]EFD – Equivalent Fluid Density. Assumes excavation into stiff to hard soils for passive pressures.

The stated lateral earth pressures do not include the effects of hydrostatic pressure generated by water accumulation behind the retaining walls. Uniform horizontal lateral active and at-rest pressures on the retaining walls from vertical surcharges behind the wall may be calculated using active and at-rest lateral earth pressure coefficients of 0.3 and 0.5, respectively. A soil unit weight of 125 pcf may be used to calculate vertical earth surcharges.

To reduce the potential for the buildup of water pressure against the walls, continuous footing drains (with cleanouts) should be provided at the bases of the walls. The footing drains should consist of a minimum 4-inch diameter perforated pipe, sloped to drain, with perforations placed down and enveloped by a minimum 6 inches of pea gravel in all directions.

The backfill adjacent to and extending a lateral distance behind the walls at least 2 feet should consist of free-draining granular material. All free draining backfill should contain less than 3 percent fines (passing the U.S. Standard No. 200 Sieve) based upon the fraction passing the U.S.

Standard No. 4 Sieve with at least 30 percent of the material being retained on the U.S. Standard No. 4 Sieve. The primary purpose of the free-draining material is the reduction of hydrostatic pressure. Some potential for the moisture to contact the back face of the wall may exist, even with treatment, which may require that more extensive waterproofing be specified for walls, which require interior moisture sensitive finishes.

We recommend that the backfill be compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. In place density tests should be performed to verify adequate compaction. Soil compactors place transient surcharges on the backfill. Consequently, only light hand operated equipment is recommended within 3 feet of walls so that excessive stress is not imposed on the walls.

Rockery Walls

At this site, replacement rockery walls will be up to 3.5 feet in exposed height and will be located just east of the residence.

Some excavation may be required to facilitate boulder and backfill placement. This should consist of fill and loose soil removal with proper benching into suitable weathered or unweathered soils.

We recommend a minimum of 6 inches of embedment and a minimum batter of 6V:1H (vertical to horizontal) for all wall heights. All rockery walls should be backfilled with a 1 to 1.5 foot width of 2 to 4 inch sized angular quarry rock between the rocks and native cut.

All rockeries should be constructed per the Associated Rockery Contractors (ARC) guidelines (http://www.ceogeo.org/schedule/09244404pm_Current%202013%20ARC%20Rockery%20Construction%20Guidelines.pdf) with periodic monitoring of the keyway excavation, drainage, rock placement, backfill, and excavation work by the geotechnical engineer.

Our rockery design recommendations refer to various rock sizes. The Washington State Department of Transportation (WSDOT) uses the following table when referring to larger size rocks and boulders:

Rock Size	Rock Weight	Ave. Dimensions
Half Man	25 - 50lbs	6” - 12"
One Man	50 - 200lbs	12" - 18"
Two Man	200 - 700lbs	18" - 28"
Three Man	700 - 2,000lbs	28" - 36"
Four Man	2,000 - 4,000lbs	36" - 48"
Five Man	4,000 - 6,000lbs	48" - 54"
Six Man	6,000 - 8,000lbs	54" - 60"

Design Parameters

The following soil parameters were used in rockery design calculations:

Soil Type	Friction Angle	Cohesion	Unit Weight
Retained Soils	24 degrees	0 psf	130 pcf
Foundation Soils	34 degrees	0 psf	130 pcf

psf = pounds per square foot pcf = pounds per cubic foot

A unit weight of 155 pcf was used for large rocks. The designs are based on a maximum 4H:1V backslope conditions and minimum 6-inch embedment.

Below are recommended rock sizes for the new rockery wall:

Rock Sizes Based on Wall Height		
Rockery Height	**Base Rock Size (Min. in Feet)**	**Top Rock Size (Min. in Feet)**
4 Feet (3.5 feet exposed)	2.5	2.0

To prepare the wall areas for construction, all vegetation, organic surface soils, and other deleterious materials should be stripped and removed from the keyway areas. Once existing boulders are removed the keyways should be evaluated by the geotechnical engineer to confirm suitable density.

Rockery keyways should be excavated to the level of medium dense or firmer native soils or suitable fill soils. If excessively soft or yielding areas are present, and cannot be stabilized in place by compaction, they should be cut to firm bearing soil and filled to grade with structural fill. If the depth to remove the unsuitable soil is excessive, we should be contacted to provide recommendations as necessary for the successful completion of the walls, or to re-evaluate the wall designs based on actual site conditions.

To guard against hydrostatic pressure development, drainage must be installed behind the walls. Typically, rockery walls are backfilled with clean angular rock (2-4 quarry rock) which extends from the base to the top of the wall and 12 to 18 inches in width. Typically, there is minimal water build up behind rockeries provided there is adequate quarry rock between the boulders and cut. No additional drainage appears warranted at this time as there is no groundwater present at this time and any loose fill will be replaced with additional 2 to 4 rock.

Fill Slope Construction

We understand that several soldier piles will be utilized along the south side of the driveway where a 1H:1V fill slope up to 7-8 feet tall is required. The piles will be installed to support the sewer line easement in the vicinity.

Some permanent fill slope areas will have lower relief and magnitudes; however, our recommendations apply for all permanent slope magnitudes in this area. These piles will be part of a continuation of the south shoring wall. A 42 inch concrete wall will be constructed near the driveway with all wall backfill between the wall and soldier pile wall consisting of structural fill described below.

We anticipate that once the soldier piles and lagging are installed, the driveway area will be cut to a continuous grade. Following this, the cast in place wall would be constructed and allowed to cure. The wall backfill between the piles and back of concrete should consist of Type 17 sand and gravel with less than 5 percent fines or another structural fill with less than 5 percent fines by weight and approved by the geotechnical engineer. This fill should be compacted to at least 90 percent of the modified proctor and terminate about 6 inches below the top of the concrete wall.

From that point, we recommend placement of the lowest layer of geogrid. Geogrid should consist of Tensar UX1800HS placed every 12 inches vertically from approximately 6 inches below the top of the concrete wall up to the top of the fill slope. The geogrid should wrap over the slope face and onto the next geogrid layer above. The overlap onto each of the upper geogrids should be at least 5 feet where geogrid is at least 5 feet long and equal to the space possible for the uppermost several layers. This will likely decrease to 2 or 3 feet in length.

We recommend placement of 1-1/4 to 1-1/2 inch crushed rock between geogrid layers compacted to at least 95 percent of the modified proctor (ASTM D1557 Test Method) in 6 inch lifts.

While no face support is required, it may be desired to utilize additional Tensar products to allow vegetation placement along the slope face. If this is utilized, some imported structural fill may be required near the face of the slope along with TensarTech NaturalGreen or Greenslope technologies. We can provide input once a system has been selected.

See this link for more information. https://www.tensar.co.uk/getattachment/95088d14-6944-4bdb-9f1a-cc9e26379194/TensarTech_Earth_Retaining_Systems.pdf

Stormwater Management Feasibility

All stormwater should be collected and routed via tightline into City infrastructure. We can provide additional input if other systems are under consideration.

Slab-on-Grade

We recommend that the upper 18 inches of the existing native soils within slab areas be re-compacted to at least 95 percent of the modified proctor (ASTM D1557 Test Method).

Often, a vapor barrier is considered below concrete slab areas. However, the usage of a vapor barrier could result in curling of the concrete slab at joints. Floor covers sensitive to moisture typically requires the usage of a vapor barrier. A materials or structural engineer should be consulted regarding the detailing of the vapor barrier below concrete slabs. Exterior slabs typically do not utilize vapor barriers.

The American Concrete Institutes ACI 360R-06 Design of Slabs on Grade and ACI 302.1R-04 Guide for Concrete Floor and Slab Construction are recommended references for vapor barrier selection and floor slab detailing.

Slabs on grade may be designed using a coefficient of subgrade reaction of 210 pounds per cubic inch (pci) assuming the slab-on-grade base course is underlain by structural fill placed and compacted as outlined above. A 4- to 6-inch-thick capillary break layer should be placed over the prepared subgrade. This material should consist of pea gravel or 5/8 inch clean angular rock.

A perimeter drainage system is recommended unless interior slab areas are elevated a minimum of 12 inches above adjacent exterior grades. If installed, a perimeter drainage system should consist of a 4-inch diameter perforated drain pipe surrounded by a minimum 6 inches of drain

rock wrapped in a non-woven geosynthetic filter fabric to reduce migration of soil particles into the drainage system. The perimeter drainage system should discharge by gravity flow to a suitable stormwater system.

Exterior grades surrounding buildings should be sloped at a minimum of one percent to facilitate surface water flow away from the building and preferably with a relatively impermeable surface cover immediately adjacent to the building.

Erosion and Sediment Control

Erosion and sediment control (ESC) is used to reduce the transportation of eroded sediment to wetlands, streams, lakes, drainage systems, and adjacent properties. Erosion and sediment control measures should be implemented, and these measures should be in general accordance with local regulations. At a minimum, the following basic recommendations should be incorporated into the design of the erosion and sediment control features for the site:

- Schedule the soil, foundation, utility, and other work requiring excavation or the disturbance of the site soils, to take place during the dry season (generally May through September). However, provided precautions are taken using Best Management Practices (BMP's), grading activities can be completed during the wet season (generally October through April).
- All site work should be completed and stabilized as quickly as possible.
- Additional perimeter erosion and sediment control features may be required to reduce the possibility of sediment entering the surface water. This may include additional silt fences, silt fences with a higher Apparent Opening Size (AOS), construction of a berm, or other filtration systems.
- Any runoff generated by dewatering discharge should be treated through construction of a sediment trap if there is sufficient space. If space is limited other filtration methods will need to be incorporated.

Utilities

Utility trenches should be excavated according to accepted engineering practices following OSHA (Occupational Safety and Health Administration) standards, by a contractor experienced in such work. The contractor is responsible for the safety of open trenches. Traffic and vibration adjacent to trench walls should be reduced; cyclic wetting and drying of excavation side slopes should be avoided. Depending upon the location and depth of some utility trenches, groundwater flow into open excavations could be experienced, especially during or shortly following periods of precipitation.

In general, silty and sandy soils were encountered at shallow depths in the explorations at this site. These soils have low cohesion and density and will have a tendency to cave or slough in excavations. Shoring or sloping back trench sidewalls is required within these soils in excavations greater than 4 feet deep.

All utility trench backfill should consist of imported structural fill or suitable on site soils. Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 95 percent of the maximum dry density based on ASTM Test Method D1557. The upper 5 feet of utility trench backfill placed in pavement areas should be compacted to at least 95 percent

of the maximum dry density based on ASTM Test Method D1557. Below 5 feet, utility trench backfill in pavement areas should be compacted to at least 90 percent of the maximum dry density based on ASTM Test Method D1557. Pipe bedding should be in accordance with the pipe manufacturer's recommendations.

The contractor is responsible for removing all water-sensitive soils from the trenches regardless of the backfill location and compaction requirements. Depending on the depth and location of the proposed utilities, we anticipate the need to re-compact existing fill soils below the utility structures and pipes. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction procedures.

CONSTRUCTION FIELD REVIEWS

Cobalt Geosciences should be retained to provide part time field review during construction in order to verify that the soil conditions encountered are consistent with our design assumptions and that the intent of our recommendations is being met. This will require field and engineering review to:

- Monitor and test structural fill placement and soil compaction
- Observe bearing capacity at foundation locations
- Observe slab-on-grade preparation
- Verify shoring installation
- Monitor foundation drainage placement
- Observe excavation stability

Geotechnical design services should also be anticipated during the subsequent final design phase to support the structural design and address specific issues arising during this phase. Field and engineering review services will also be required during the construction phase in order to provide a Final Letter for the project.

CLOSURE

This report was prepared for the exclusive use of John Sullivan and his appointed consultants. Any use of this report or the material contained herein by third parties, or for other than the intended purpose, should first be approved in writing by Cobalt Geosciences, LLC.

The recommendations contained in this report are based on assumed continuity of soils with those of our test holes and assumed structural loads. Cobalt Geosciences should be provided with final architectural and civil drawings when they become available in order that we may review our design recommendations and advise of any revisions, if necessary.

Use of this report is subject to the Statement of General Conditions provided in Appendix A. It is the responsibility of John Sullivan who is identified as “the Client” within the Statement of General Conditions, and its agents to review the conditions and to notify Cobalt Geosciences should any of these not be satisfied.

Sincerely,

Cobalt Geosciences, LLC

6/27/2023
Phil Haberman, PE, LG, LEG
Principal

Statement of General Conditions

USE OF THIS REPORT: This report has been prepared for the sole benefit of the Client or its agent and may not be used by any third party without the express written consent of Cobalt Geosciences and the Client. Any use which a third party makes of this report is the responsibility of such third party.

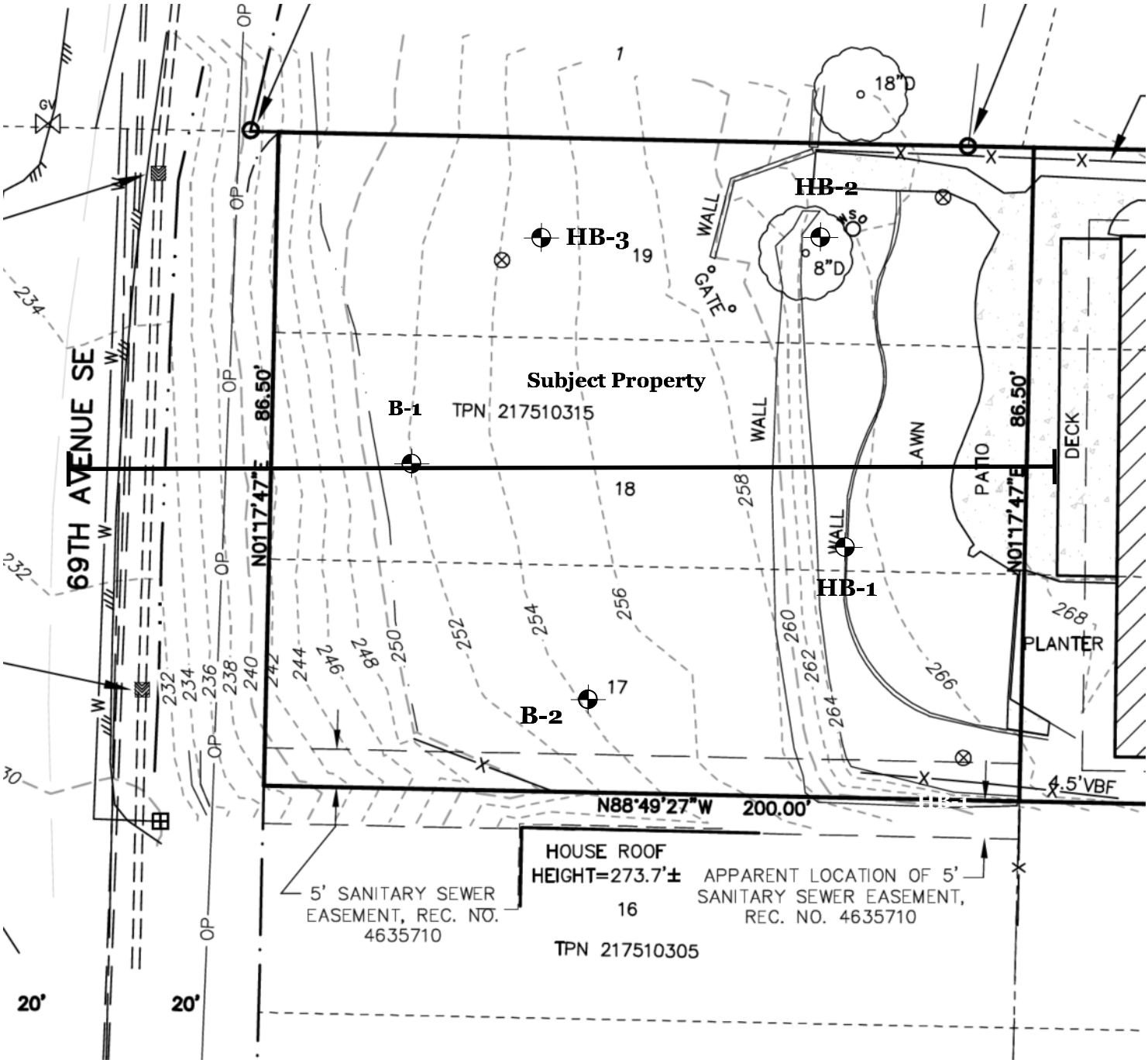
BASIS OF THE REPORT: The information, opinions, and/or recommendations made in this report are in accordance with Cobalt Geosciences present understanding of the site specific project as described by the Client. The applicability of these is restricted to the site conditions encountered at the time of the investigation or study. If the proposed site specific project differs or is modified from what is described in this report or if the site conditions are altered, this report is no longer valid unless Cobalt Geosciences is requested by the Client to review and revise the report to reflect the differing or modified project specifics and/or the altered site conditions.

STANDARD OF CARE: Preparation of this report, and all associated work, was carried out in accordance with the normally accepted standard of care in the state of execution for the specific professional service provided to the Client. No other warranty is made.

INTERPRETATION OF SITE CONDITIONS: Soil, rock, or other material descriptions, and statements regarding their condition, made in this report are based on site conditions encountered by Cobalt Geosciences at the time of the work and at the specific testing and/or sampling locations. Classifications and statements of condition have been made in accordance with normally accepted practices which are judgmental in nature; no specific description should be considered exact, but rather reflective of the anticipated material behavior. Extrapolation of in situ conditions can only be made to some limited extent beyond the sampling or test points. The extent depends on variability of the soil, rock and groundwater conditions as influenced by geological processes, construction activity, and site use.

VARYING OR UNEXPECTED CONDITIONS: Should any site or subsurface conditions be encountered that are different from those described in this report or encountered at the test locations, Cobalt Geosciences must be notified immediately to assess if the varying or unexpected conditions are substantial and if reassessments of the report conclusions or recommendations are required. Cobalt Geosciences will not be responsible to any party for damages incurred as a result of failing to notify Cobalt Geosciences that differing site or sub-surface conditions are present upon becoming aware of such conditions.

PLANNING, DESIGN, OR CONSTRUCTION: Development or design plans and specifications should be reviewed by Cobalt Geosciences, sufficiently ahead of initiating the next project stage (property acquisition, tender, construction, etc), to confirm that this report completely addresses the elaborated project specifics and that the contents of this report have been properly interpreted. Specialty quality assurance services (field observations and testing) during construction are a necessary part of the evaluation of sub-subsurface conditions and site preparation works. Site work relating to the recommendations included in this report should only be carried out in the presence of a qualified geotechnical engineer; Cobalt Geosciences cannot be responsible for site work carried out without being present.



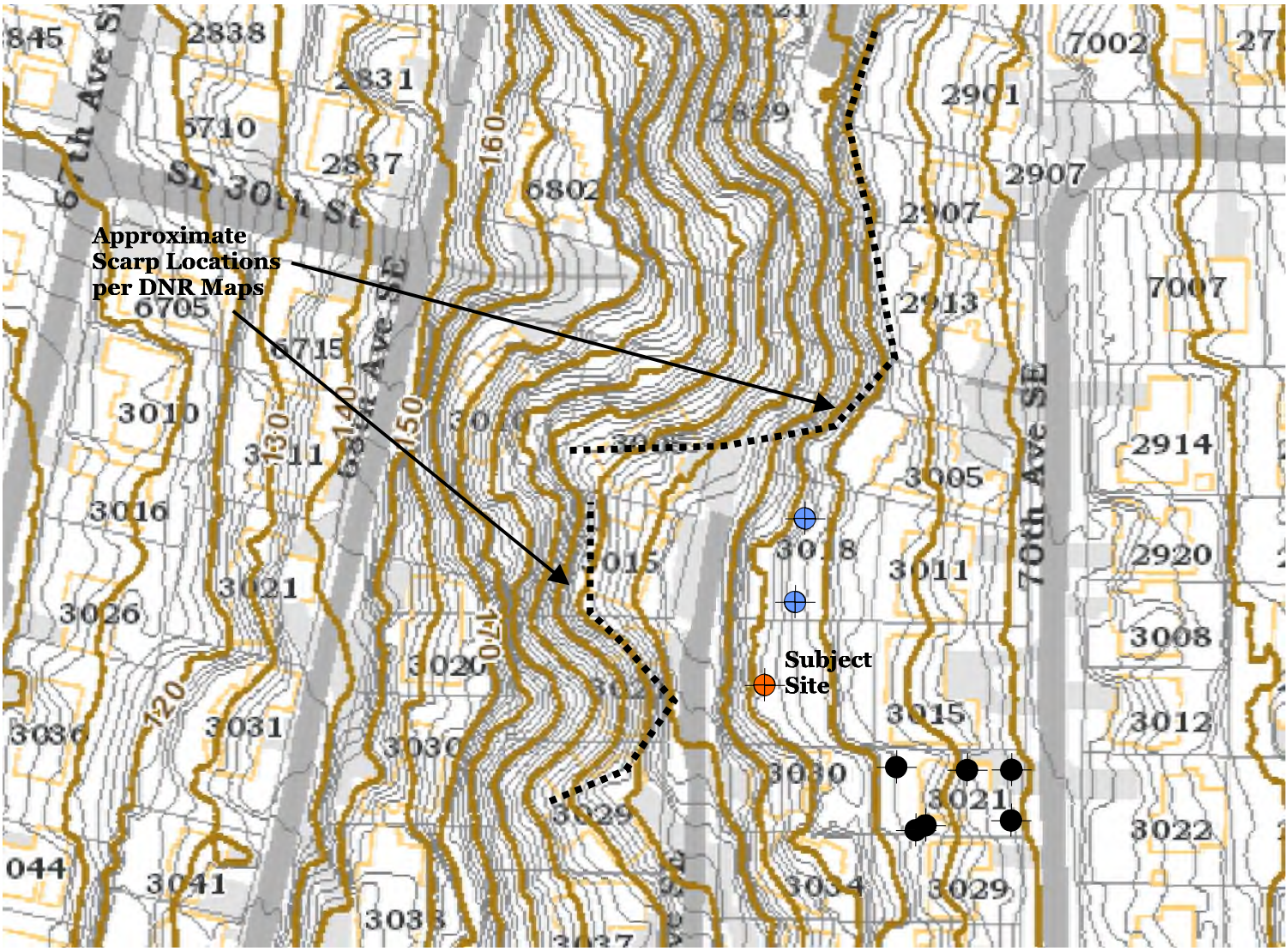
Provided topo survey

B-1 **Approximate Boring Location**

N

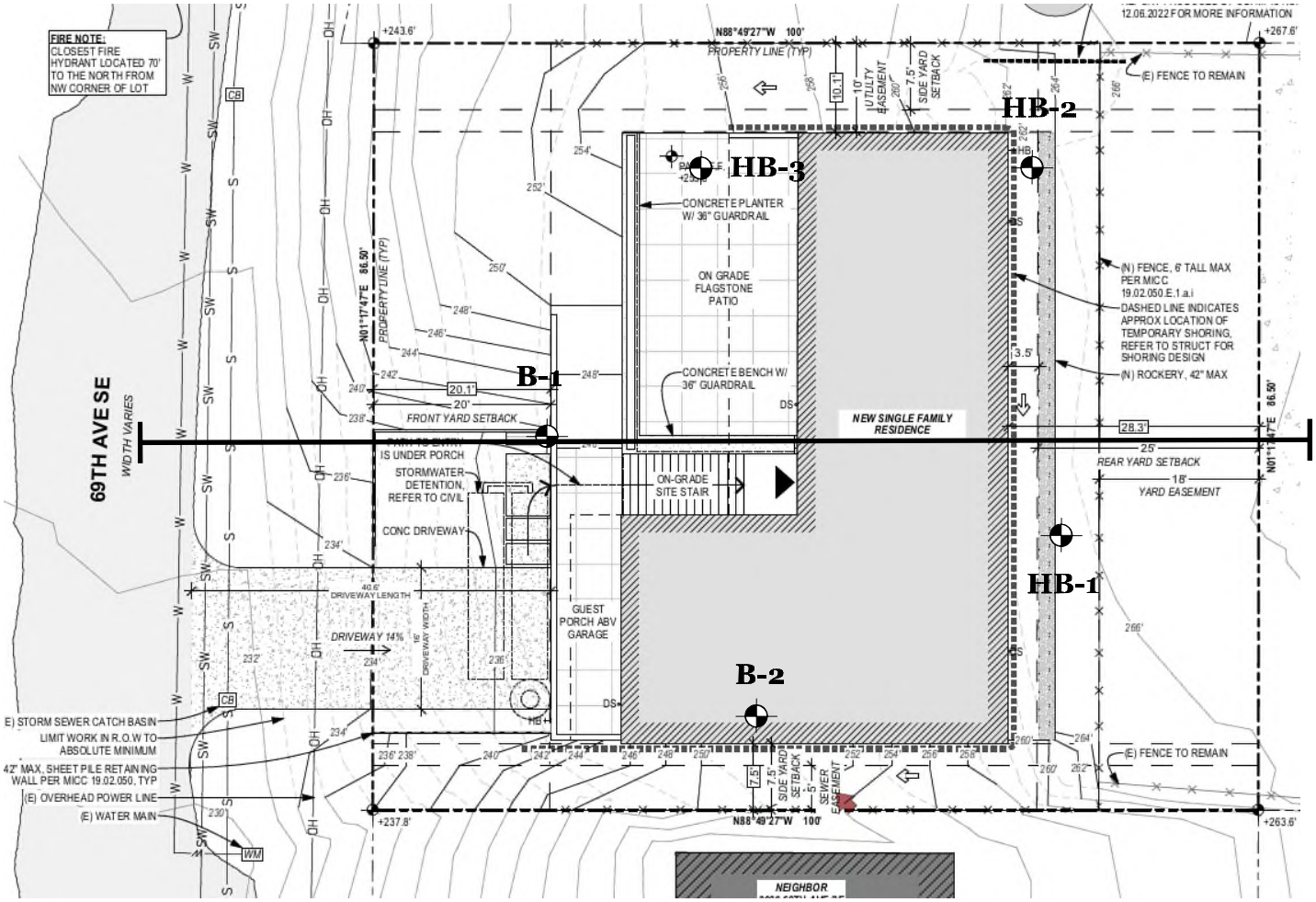
Not to Scale

COBALT GEOSCIENCES	Proposed Residence 3024 69th Avenue SE Mercer Island, Washington	**SITE MAP** **FIGURE 1**	Cobalt Geosciences, LLC P.O. Box 82243 Kenmore, WA 98028 (206) 331-1097 www.cobaltgeo.com cobaltgeo@gmail.com



- **Cobalt Boring 2022**
- **Nelson Geotechnical Boring 2020**
- **Adapt Hand Borings 2003**

COBALT GEOSCIENCES	Proposed Residence 3024 69th Avenue SE Mercer Island, Washington	**GIS MAP FIGURE 2**	Cobalt Geosciences, LLC P.O. Box 82243 Kenmore, WA 98028 (206) 331-1097 www.cobaltgeo.com cobaltgeo@gmail.com



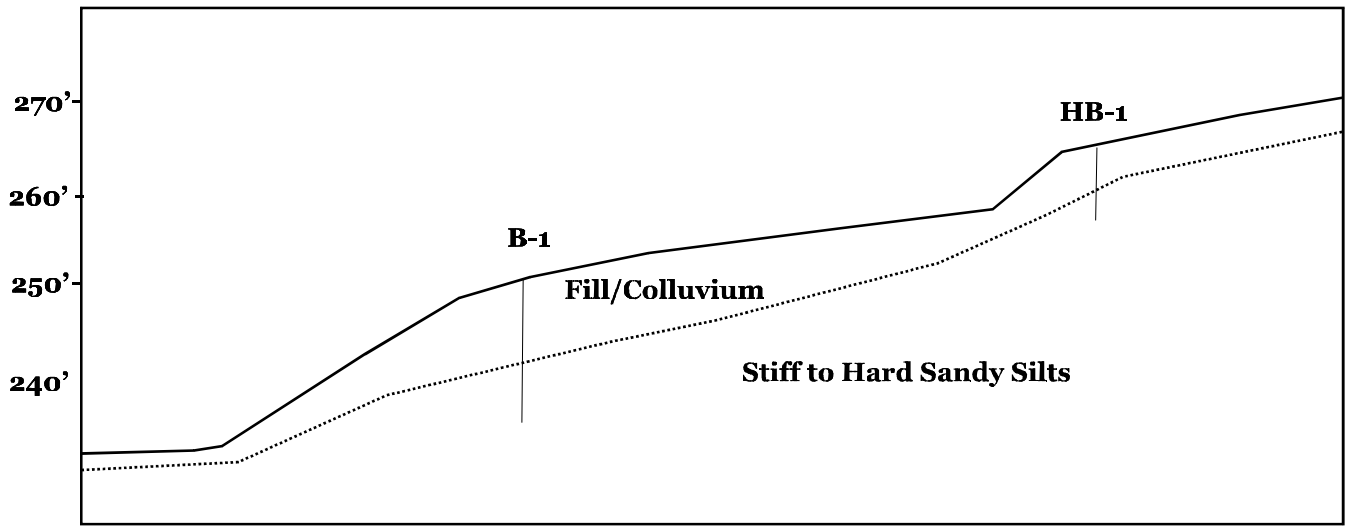
Provided site plan excerpt

Approximate Scale 1=20'

N

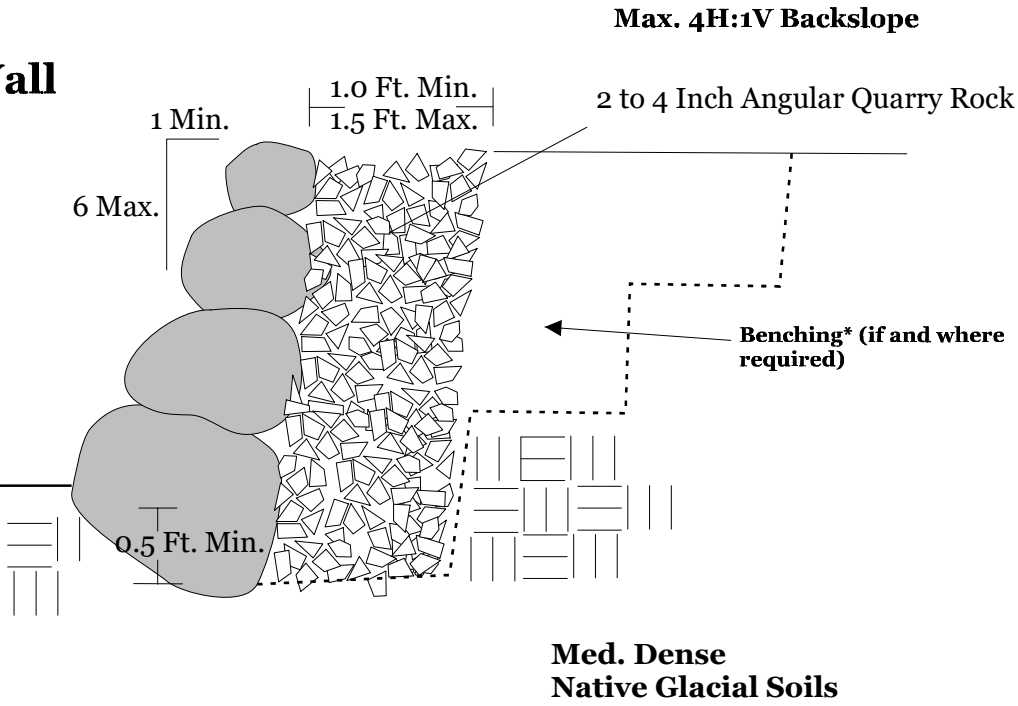
B-1
HB-1 **Approximate Boring Location**

CROSS SECTION



COBALT GEOSCIENCES	Proposed Residence 3024 69th Avenue SE Mercer Island, Washington	**SITE PLAN** **FIGURE 3**	Cobalt Geosciences, LLC P.O. Box 82243 Kenmore, WA 98028 (206) 331-1097 www.cobaltgeo.com cobaltgeo@gmail.com

Max. 3.5’ Tall Wall



NOTES:

See report for rock sizes based on location, backslope, and surcharge loading.

Cobalt to verify keyway, drainage, backfill, soil conditions, and rock placement during construction

*For Benching: Benching will be necessary if and where any loose native soils or fill is present. This should consist of 2 to 4 feet near vertical temporary cuts and 2 to 4 foot wide benches created to remove the unsuitable soils, exposing medium dense or firmer native soils. These areas may be filled with additional 2 to 4 inch angular quarry rock.

COBALT GEOSCIENCES

Proposed Residence
3024 69th Avenue SE
Mercer Island, Washington

Rockery Diagram

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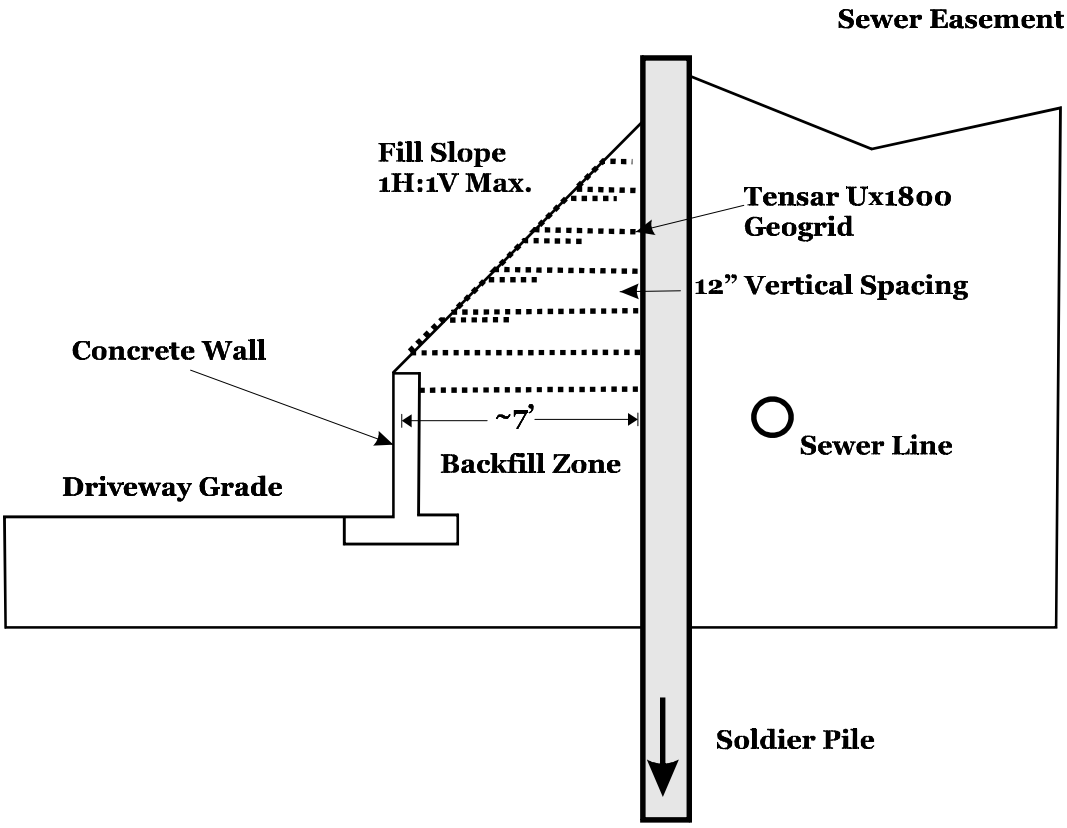

Notes:

Geogrid should be placed 12 inches vertically onto compacted gravels per the geotechnical report.

Geogrid should overlap at least 12 inches onto adjacent grids and extend over the slope face and below the next geogrid placed on top. The overlap should be 5 feet where space is present and decrease to the length of the space allowed, continuing to the top of the slope.

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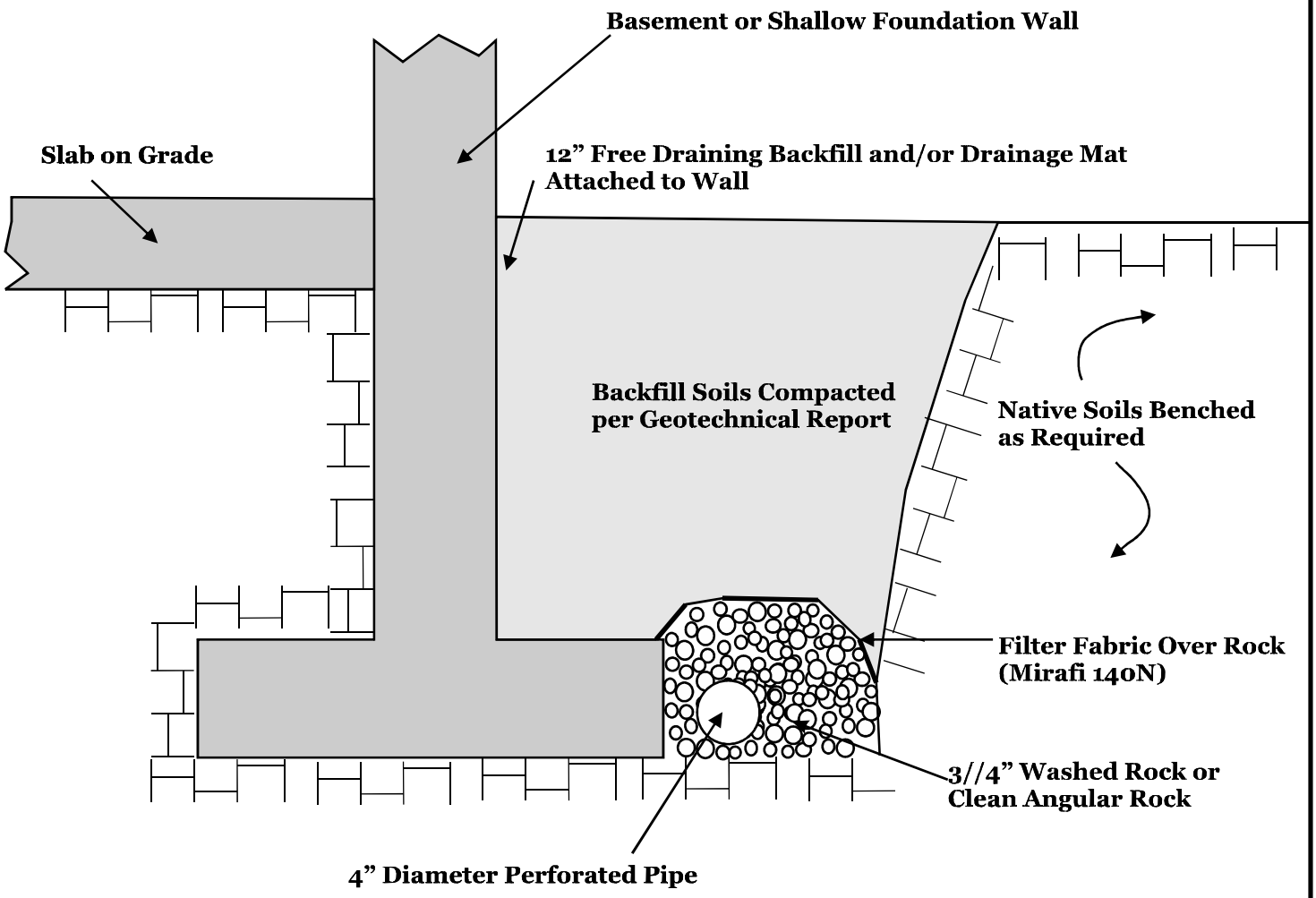
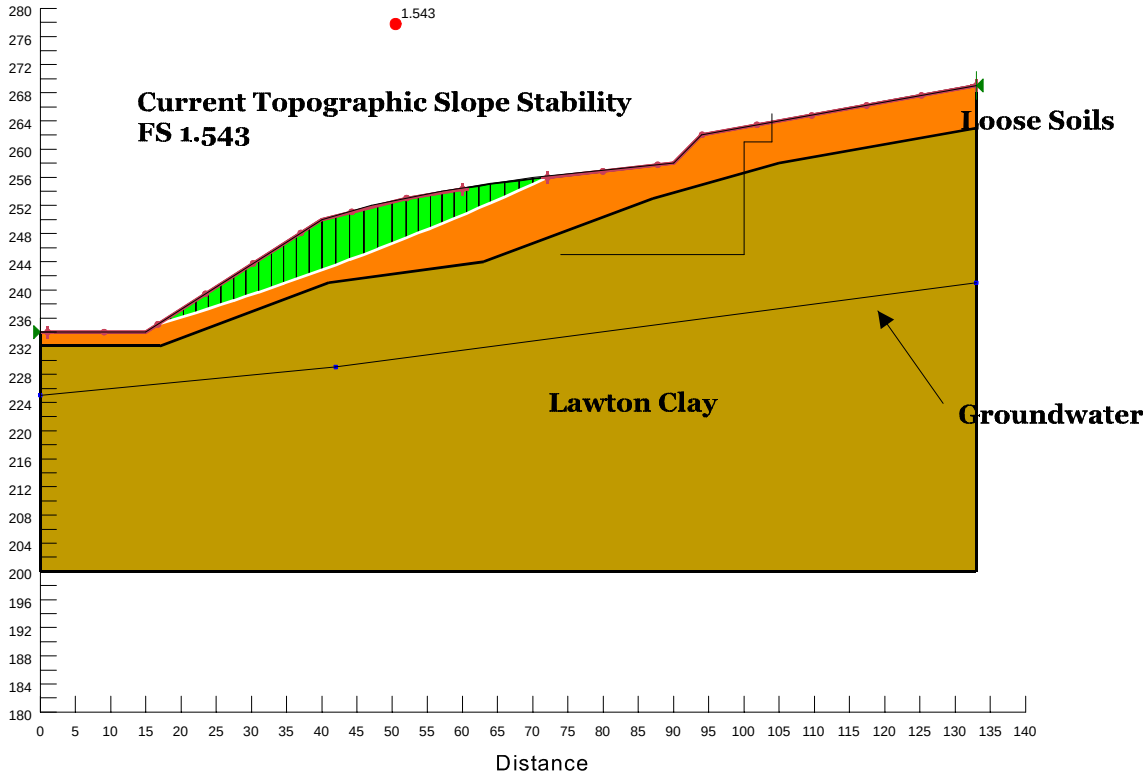
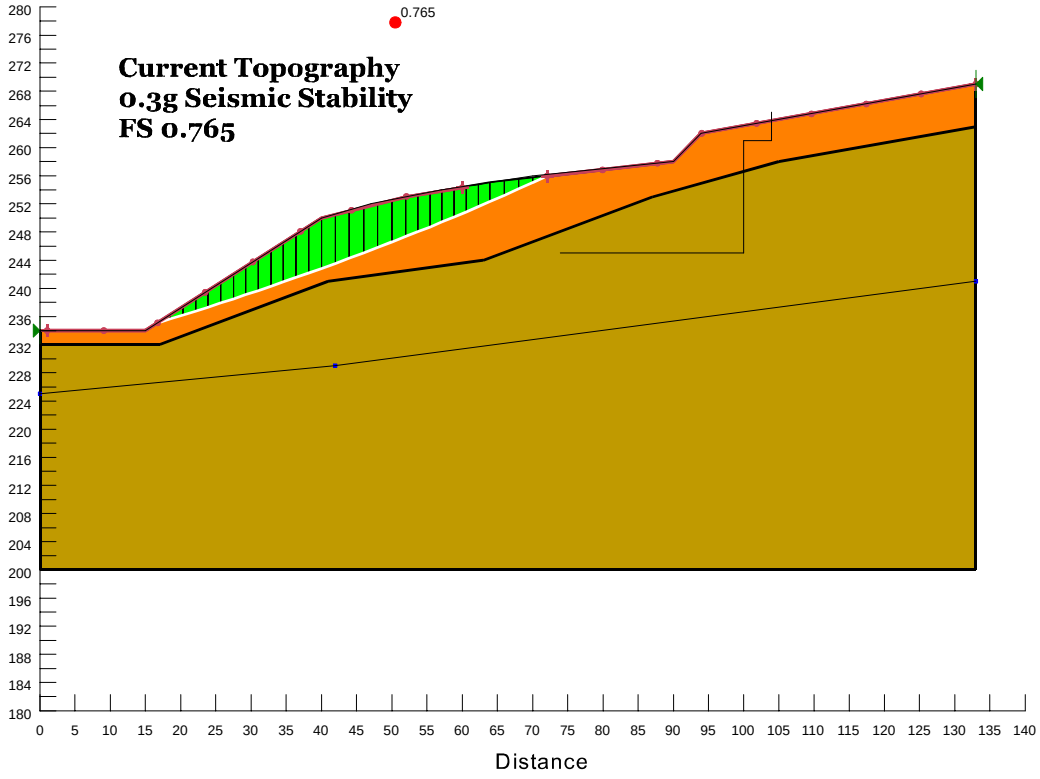


Not to Scale

COBALT GEOSCIENCES	**Typical Foundation Drain Detail**	**Attachment**	Cobalt Geosciences, LLC PO Box 1792 North Bend, WA 98045 (206) 331-1097 www.cobaltgeo.com phil@cobaltgeo.com





COBALT GEOSCIENCES

Proposed Residence
3024 69th Avenue SE
Mercer Island, Washington

SLOPE STABILITY

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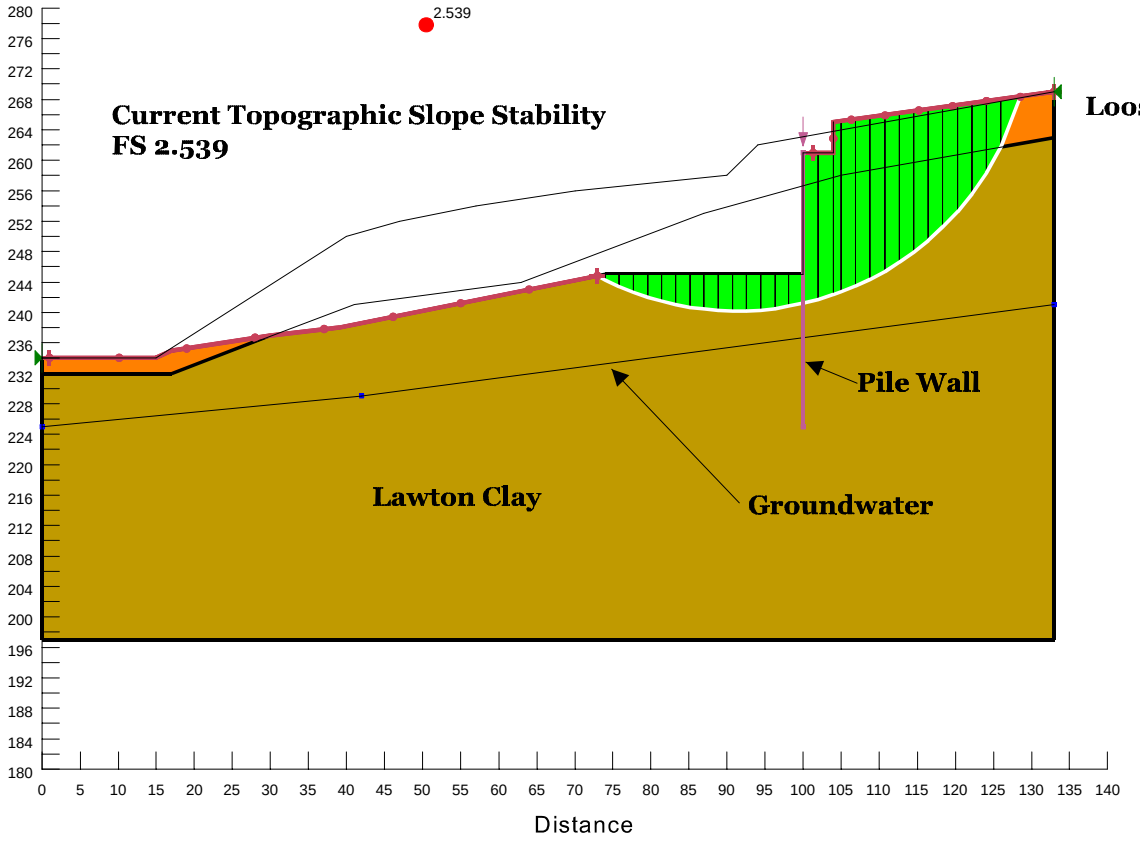

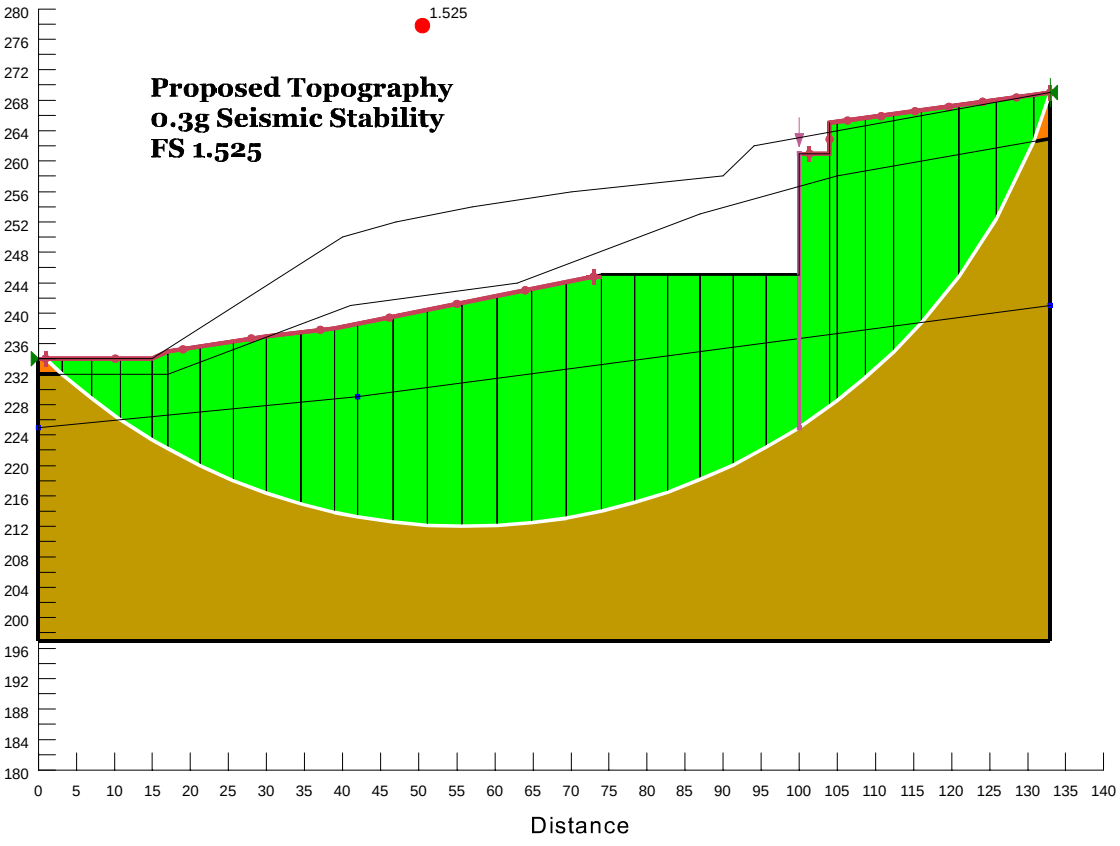

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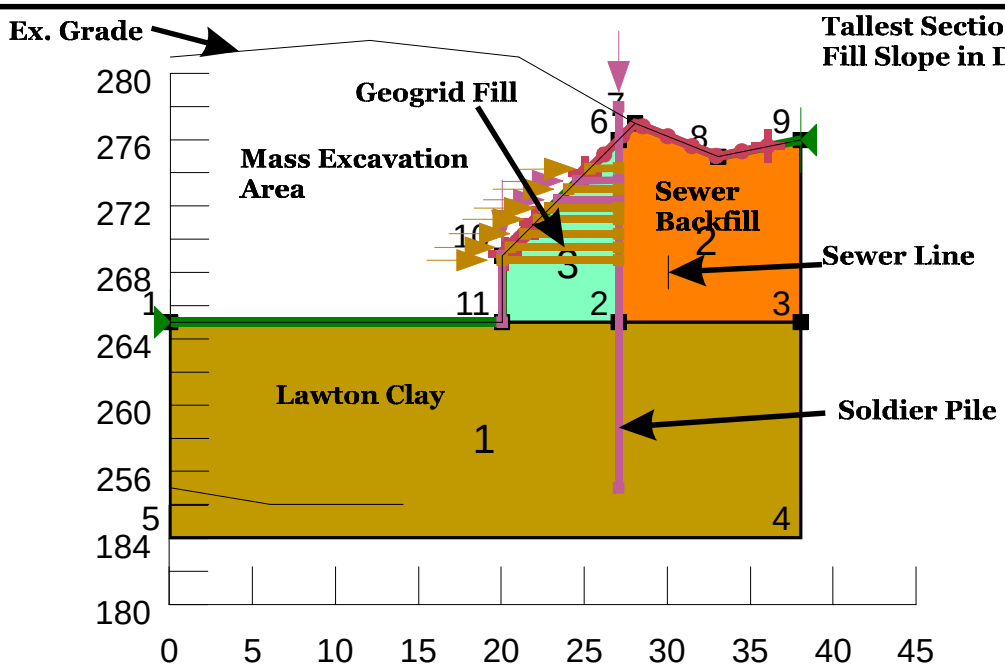

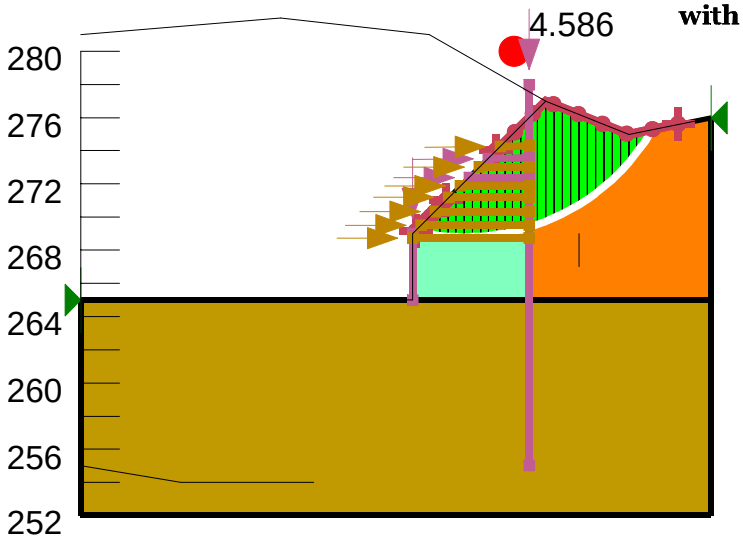

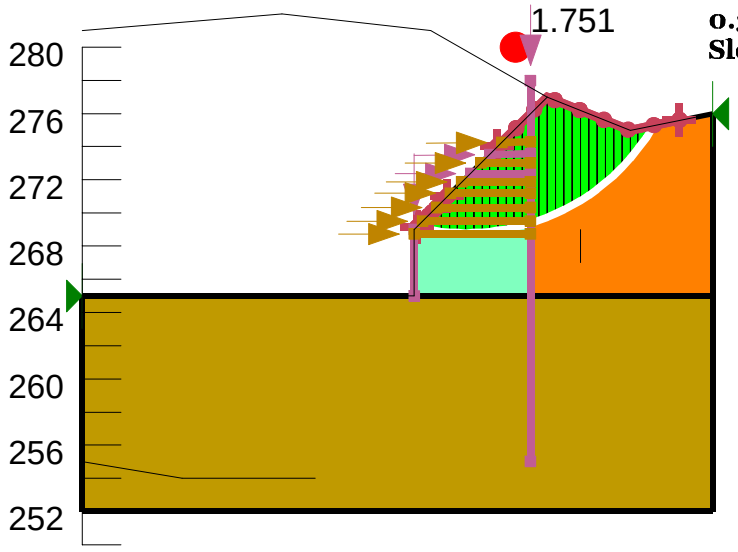

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Unified Soil Classification System (USCS)

MAJOR DIVISIONS			SYMBOL	TYPICAL DESCRIPTION
COARSE GRAINED SOILS (more than 50% retained on No. 200 sieve)	Gravels (more than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (less than 5% fines)	GW	Well-graded gravels, gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines
		Gravels with Fines (more than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands (50% or more of coarse fraction passes the No. 4 sieve)	Clean Sands (less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
			SP	Poorly graded sand, gravelly sands, little or no fines
		Sands with Fines (more than 12% fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (50% or more passes the No. 200 sieve)	Silts and Clays (liquid limit less than 50)	Inorganic	ML	Inorganic silts of low to medium plasticity, sandy silts, gravelly silts, or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays silty clays, lean clays
		Organic	OL	Organic silts and organic silty clays of low plasticity
	Silts and Clays (liquid limit 50 or more)	Inorganic	MH	Inorganic silts, micaceous or diatomaceous fine sands or silty soils, elastic silt
			CH	Inorganic clays of medium to high plasticity, sandy fat clay, or gravelly fat clay
		Organic	OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT	Peat, humus, swamp soils with high organic content (ASTM D4427)

Classification of Soil Constituents

MAJOR constituents compose more than 50 percent, by weight, of the soil. Major constituents are capitalized (i.e., SAND).

Minor constituents compose 12 to 50 percent of the soil and precede the major constituents (i.e., silty SAND). Minor constituents preceded by "slightly" compose 5 to 12 percent of the soil (i.e., slightly silty SAND).

Trace constituents compose 0 to 5 percent of the soil (i.e., slightly silty SAND, trace gravel).

Grain Size Definitions

Description	Sieve Number and/or Size
Fines	<#200 (0.08 mm)
Sand	
-Fine	#200 to #40 (0.08 to 0.4 mm)
-Medium	#40 to #10 (0.4 to 2 mm)
-Coarse	#10 to #4 (2 to 5 mm)
Gravel	
-Fine	#4 to 3/4 inch (5 to 19 mm)
-Coarse	3/4 to 3 inches (19 to 76 mm)
Cobbles	3 to 12 inches (75 to 305 mm)
Boulders	>12 inches (305 mm)

Relative Density (Coarse Grained Soils)

N, SPT, Blows/FT	Relative Density
0 - 4	Very loose
4 - 10	Loose
10 - 30	Medium dense
30 - 50	Dense
Over 50	Very dense

Consistency (Fine Grained Soils)

N, SPT, Blows/FT	Relative Consistency
Under 2	Very soft
2 - 4	Soft
4 - 8	Medium stiff
8 - 15	Stiff
15 - 30	Very stiff
Over 30	Hard

Moisture Content Definitions

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

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Soil Classification Chart

Figure C1

Log of Boring B-1

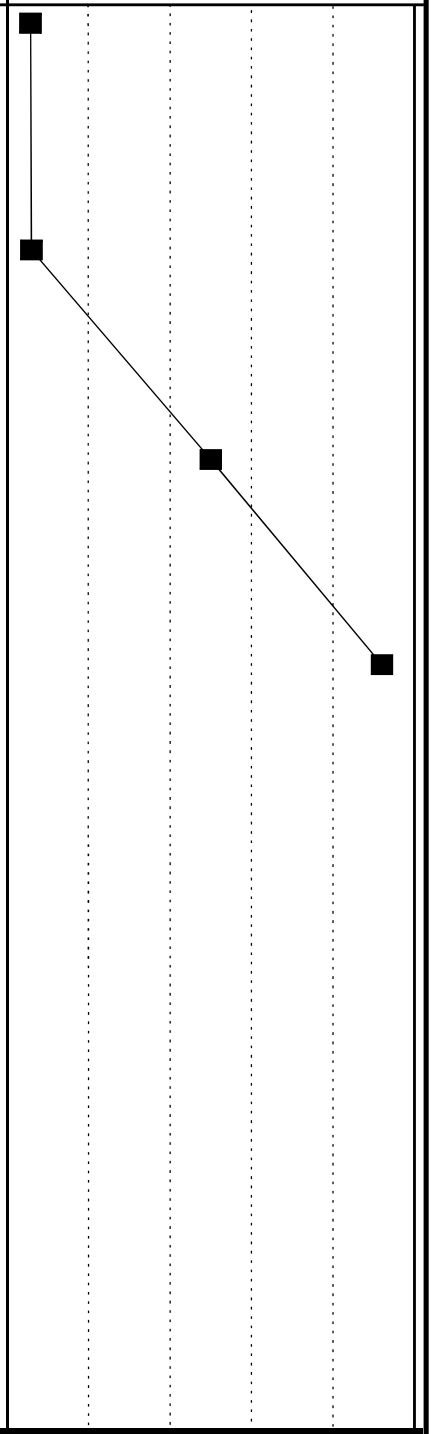
Date: April 5, 2022	Depth: 16.5'	Initial Groundwater: None
Contractor: CN	Elevation: ~252'	Sample Type: Split Spoon
Method: Hollow Stem Auger	Logged By: PH Checked By: SC	Final Groundwater: N/A

Depth (Feet)	Interval	% Recovery	Blows/6"	Graphic Log	USCS Symbol	Material Description
0			1			Vegetation/Topsoil
2			1 1		SM	Very loose to loose, silty-fine to medium grained sand, mottled yellowish brown to grayish brown, moist. (Fill over possible Colluvium)
4						
6			1 1 1			
8						
10			3			
12			9 16		ML	Very stiff to hard, silt with fine grained sand, mottled olive gray, moist. (Lawton Clay)
14						
16			10 16 19			
18						End of Boring 16.5'
20						
22						
24						
26						
28						
30						
32						
34						

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

SPT N-Value
0 10 20 30 40 50



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Boring Log

Log of Boring B-2

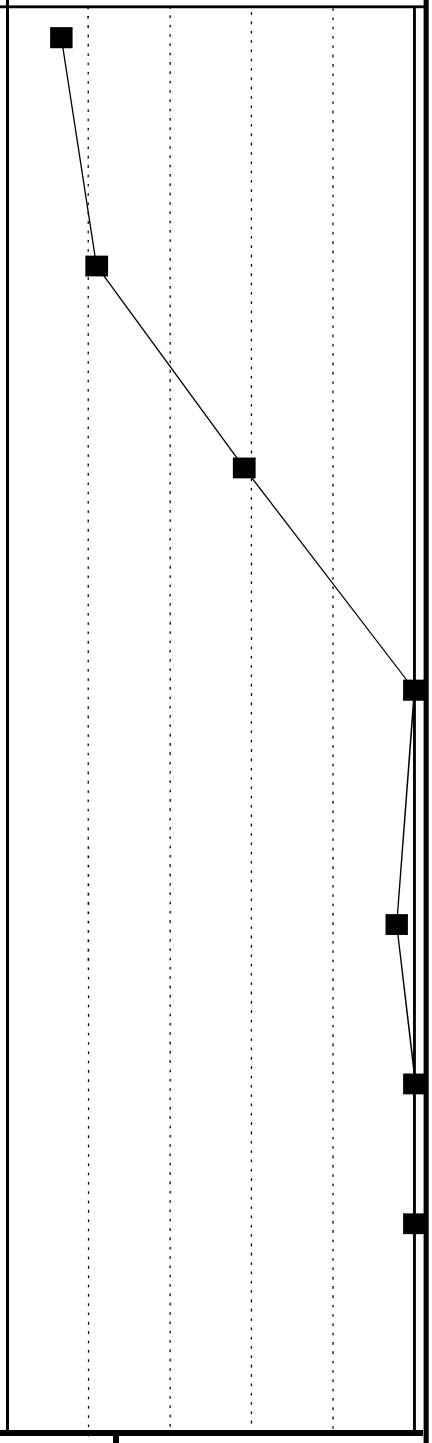
Date: March 2023	Depth: 30.5'	Initial Groundwater: None
Contractor: Geo	Elevation: ~254'	Sample Type: Split Spoon
Method: Hollow Stem Auger	Logged By: PH Checked By: SC	Final Groundwater: N/A

Depth (Feet)	Interval	% Recovery	Blows/6"	Graphic Log	USCS Symbol	Material Description
			2			Vegetation/Topsoil
2			3 3		SM	Loose to medium dense, silty-fine to medium grained sand, mottled yellowish brown to grayish brown, moist. (Fill over possible Colluvium)
4						
6			4 4 7			
8					ML	Very stiff to hard/very dense, silt with fine grained sand locally interbedded with silty-sand, olive brown to olive gray, moist. (Lawton Clay)
10			8 12 17			
12						Locally interbedded with silty-sand trace gravel
14						
16			15 25 30			Locally very moist to wet at 20 feet
18						
20			20 20 28			
22						
24						
26			15 25 31			
28						
30			50/4			
32						End of Boring 30.5' Refusal in very dense soils
34						

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

SPT N-Value
0 10 20 30 40 50



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Proposed Residence
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Mercer Island, Washington

Boring Log

Log of Hand Boring HB-1

Date: February 2023	Depth: 6'	Initial Groundwater: None
Contractor:	Elevation: ~265'	Sample Type: Grab
Method: Hand Auger	Logged By: PH Checked By: SC	Final Groundwater: N/A

Depth (Feet)	Interval	% Recovery	Blows/6"	Graphic Log	USCS Symbol	Material Description
						Vegetation/Topsoil
1					SM	Loose to medium dense, silty-fine to medium grained sand, mottled yellowish brown to grayish brown, moist. (Fill over possible Colluvium)
2	■					
3					ML	Very stiff/dense, silty-fine to fine grained sand trace gravel, yellowish brown to grayish brown, moist. (Lawton Clay?)
4						
5						
6	■					End of Hand Boring 6'
7						
8						
9						
10						

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

SPT N-Value
0 10 20 30 40 50

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Proposed Residence
30xx 69th Avenue SE
Mercer Island, Washington

Hand Boring Log

Log of Hand Boring HB-2

Date: February 2023	Depth: 6'	Initial Groundwater: None
Contractor:	Elevation: ~262'	Sample Type: Grab
Method: Hand Auger	Logged By: PH Checked By: SC	Final Groundwater: N/A

Depth (Feet)	Interval	% Recovery	Blows/6"	Graphic Log	USCS Symbol	Material Description
						Vegetation/Topsoil
1					SM	Loose to medium dense, silty-fine to medium grained sand, mottled yellowish brown to grayish brown, moist. (Fill over possible Colluvium)
2	■					
3						
4						
5					ML	Very stiff/dense, silty-fine to fine grained sand trace gravel, yellowish brown to grayish brown, moist. (Lawton Clay?)
6	■					
						End of Hand Boring 6'
7						
8						
9						
10						

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

SPT N-Value
0 10 20 30 40 50

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Proposed Residence
30xx 69th Avenue SE
Mercer Island, Washington

Hand Boring Log

Log of Hand Boring HB-3

Date: February 2023	Depth: 4'	Initial Groundwater: None
Contractor:	Elevation: ~255'	Sample Type: Grab
Method: Hand Auger	Logged By: PH Checked By: SC	Final Groundwater: N/A

Depth (Feet)	Interval	% Recovery	Blows/6"	Graphic Log	USCS Symbol	Material Description
						Vegetation/Topsoil
1					SM	Loose to medium dense, silty-fine to medium grained sand, yellowish brown to grayish brown, moist. (Fill)
2						
3					ML/SM	Very stiff/dense, silty-fine to fine grained sand trace gravel, yellowish brown to grayish brown, moist. (Lawton Clay?)
4						End of Hand Boring 4'
5						
6						
7						
8						
9						
10						

Groundwater

Moisture Content (%)
Plastic Limit — Liquid Limit

SPT N-Value
0 10 20 30 40 50

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Proposed Residence
30xx 69th Avenue SE
Mercer Island, Washington

Hand Boring Log

1 **LOCATION PLAN**
NOT TO SCALE

SULLIVAN
PERMIT SET

© SHED ARCHITECTURE & DESIGN SEATTLE, WA 98144

PROJECT CONTACTS:

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ARBORIST:
OLYMPIC NURSERY, INC
CONTACT: TOM QUIGLEY
tlquigley@msn.com
206.850.2643

CONTRACTOR:
TBD
CONTACT: TBD

PROJECT INFO:

PROJECT DESCRIPTION:
NEW CONSTRUCTION, SINGLE-FAMILY RESIDENCE

PROJECT ADDRESS:
3024 69TH AVE SE
MERCER ISLAND, WA, 98040

LEGAL DESCRIPTION:
EAST SEATTLE BLKS 39-40
PLAT BLOCK: 40
PLAT LOT: 17-18-19
QUARTER, SECTION, TOWNSHIP, RANGE: NW-12-24-4

PARCEL NUMBER:
217510-0315

EASEMENTS:
No. 4635710 SEWER EASEMENT (5' SOUTH SIDE YARD)

COVENANTS W/ NEIGHBORING PROP. @ 3015 70TH AVE SE
>VIEW EASEMENT (HEIGHT RESTRICTION 272' ABV SEA LEVEL)
>UTILITY EASEMENT (10' NORTH SIDE YARD)
>YARD EASEMENT (18' REAR YARD)

BUILDING NOTES:

CONSTRUCTION TYPE:
VB, SPRINKLERED

DWELLINGS: 1 HOUSE

#BEDROOMS: 4

#BATHROOMS: 3

LAND USE NOTES:

ZONING:
R-8.4

LOT AREA:
8,652 SQFT

LOT COVERAGE:
34.2%, REFER TO DIAGRAM ON **3/A-001**

LOT SLOPE:
28.8%, REFER TO DIAGRAM ON **3/A-001**

GROSS FLOOR AREA:
2,958.3 SQFT, REFER TO DIAGRAM ON **5/A-002**

PROPOSED BUILDING HEIGHT:
>19.3' ABV AVERAGE GRADE (PER MICC 19.02.020E 30' MAX ALLOWED)
>VIEW EASEMENT WITH NEIGHBOR LIMITS HEIGHT TO 272' ABV SEA LEVEL (MAX PER MICC IS 283')
>REFER TO 4/A-001 FOR AVERAGE GRADE CALC
>PER MICC 19.02.020.E.2: MAX BUILDING FACADE HEIGHT ON A DOWNHILL SIDE OF A SLOPING LOT SHALL NOT EXCEED 30' IN HEIGHT, PROPOSED = 29'-2 1/2" REFER TO **1/A-301**

SETBACKS:
>PER MICC 19.02.020.C
>FRONT YARD: 20'
>REAR YARD: 25'
>VARIABLE SIDE YARD WIDTH PER 19.02.020.C.1.c:
>>LOT LARGER THAN 6,000SQFT
>>HOUSE IS TALLER THAN 15' BUT LESS THAN 25', SO SIDE YARD: 7.5'

PARKING:
>PER MICC 19.02.020.G.2.b: 2 PARKING SPACES ARE REQUIRED IF GFA<3,000SQFT
>GFA = 2,975.4 SQFT PER CALC ON A-002, LESS THAN 3,000 SQFT, SO 2 PARKING SPACES REQUIRED
>2 COVERED SPACES ARE PROVIDED IN GARAGE
TOTAL: 2 PROVIDED

VENTILATION NOTES:

ROOF VENTILATION: UNVENTED ROOF ASSEMBLY PER IRC 2018 R806.5

CRAWL SPACE:
>UNVENTED CRAWL SPACE PERIMETER WALLS TO BE INSULATED PER REQ'M LISTED IN IRC 2018 N1102.2.11
>UNVENTED CRAWL SPACE TO BE SUPPLIED WITH CONTINUOUS EXHAUST FROM ERV AT A RATE OF 1 CUBIC FOOT PER MINUTE FOR EACH 50SQT PER REQ'M LISTED IN IRC 2018 R408.3.2.1. REFER TO MECH & ELEC NOTES FOR CFM RATES.

ENERGY CODE NOTES:

2018 WASHINGTON STATE ENERGY CODE - RESIDENTIAL PRESCRIPTIVE ENERGY CODE COMPLIANCE

WSEC TABLE R402.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT FOR CLIMATE ZONE 5 AND MARINE 4:

COMPONENT	REQ'D	PROPOSED
FENESTRATION U:	0.30	**0.28**
SKYLIGHT U:	0.50	**0.42**
CEILING R:	49/38	**52**
WD FRAME WALL R:	21 INT	**25 OR 36**
MASS WALL R:	21/21	**26**
FLOOR R:	30	**N/A**
BLW-GRADE WALL R:	10/15/21 INT + TB	**21 + TB**
SLAB R & DEPTH:	10, 2 ft	**10, ALL**

CONDITIONED FLOOR AREA: 2,861 SF
FENESTRATION AREA: 630 SF

WSEC TABLE R406.2 FUEL NORMALIZATION CREDITS
OPTION 2 - HEAT PUMP
FOR AN INITIAL HEATING SYSTEM USING A HEAT PUMP THAT MEETS FEDERAL STANDARDS FOR THE EQUIPMENT LISTED IN TABLE C403.3.2(1)C OR C403.3.2(2) **(1.0 PT)**

WSEC TABLE R406.2 ENERGY CREDITS
1.3 EFFICIENT BUILDING ENVELOPE
PRESCRIPTIVE COMPLIANCE IS BASED ON TABLE R402.1.1 WITH THE FOLLOWING MODIFICATIONS: VERTICAL FENESTRATION U = 0.28, FLOOR R-38, SLAB ON GRADE R-10 BELOW SLAB & PERIMETER. **(0.5 PT)**

2.2 AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION
COMPLIANCE BASED ON SECTION R402.4.1.2: REDUCE THE TESTED AIR LEAKAGE TO 2.0 AIR CHANGES PER HOUR MAXIMUM AT 50 PASCALS. **(1.0 PT)**

3.5 HIGH EFFICIENCY HVAC EQUIPMENT
AIR-SOURCE CENTRALLY DUCTED HEAT PUMP WITH MINIMUM HSPF OF 11. TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND THE MINIMUM EQUIPMENT EFFICIENCY. **(1.5 PT)**

4.1 HIGH-EFFICIENCY HVAC DISTRIBUTION SYSTEM
MECH EQPM LOCATED OUTSIDE OF CONDITIONED SPACE. A MAX 10 LINEAL FEET OF RETURN DUCT AND 5 LINEAR FEET OF SUPPLY DUCT CONNECTIONS TO THE EQPM MAY BE OUTSIDE THE DEEPLY BURIED INSULATION. ALL METALIC DUCTS LOCATED OUTSIDE THE CONDITIONED SPACE MUST HAVE BOTH TRANSVERSE AND LONGITUDINAL JOINTS WITH MASTIC. IF FLEX DUCTS ARE USED THEY CANNOT CONTAIN SPLICES. DUCT LEAKAGE SHALL BE LIMITED TO 3 CFM PER 100 SQFT OG CONDITIONED FLOOR AREA. AIR HANDLERS SHALL BE LOCATED WITH THE CONDITIONED SPACE **(0.5 PT)**

5.5 EFFICIENT WATER HEATING
WATER HEATING SYSTEM SHALL INCLUDE ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION. **(2.0 PT)**

SUMMARY:
REQ'D POINTS: 6
PROPOSED POINTS: 6.5

AIR SEALING TESTING:
THE DWELLING UNIT SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF NOT EXCEEDING 2.0 AIR CHANGES PER HOUR. TESTING SHALL BE CONDUCTED WITH A BLOWER DOOR PER IRC N1102.4.1.2 (R402.4.1.2)

MECH. & ELEC. NOTES:

HEATING SYSTEM: AIR-TO-REFRIGERANT ELECTRIC HEAT PUMP. SINGLE OUTDOOR HEAT PUMP UNIT **(MHP-1)** AND TWO INDOOR AIR HANDLING UNITS **(MFC-1, MFC-2)** LOCATED IN SOUTH CRAWLSPACE. DUCTED UNITS WILL HAVE 4" DEEP FILTERS ON RETURN AIR DUCTS TO ACCOMMODATE MERV 13 FILTERS

MECHANICAL VENTILATION:
OUTDOOR AIR VENTILATION WITH HEAT RECOVERY VENTILATOR (HRV). HRV UNIT WILL CONTINUOUSLY EXHAUST FROM EACH BATHROOM AND SUPPLY OUTSIDE AIR TO THE LIVING, BEDROOMS, CRAWLSPACE, AND ATTIC
VENTILATION RATE PER IRC 2018 M1505.4.3
$Q_{FAN} = .03A_{FLOOR} + 7.5 (N_{BR + 1})$
$Q_{FAN} = .03(2,861) + 7.5 (4 + 1)$
$Q_{FAN} = 123.1$ CFM (MIN)

PER IRC 408.3(2.1) CRAWL SPACE VENITLATION WILL BE PROVIDED WITH A SUPPLY CONNECTION FROM **HRV-1** AND A TRANSFER GRILLE WITH AN INSECT SCREEN TRANSFERRING AIR TO LIVING SPACE OPPOSITE CRAWL SPACE. 1 CFM PER 50 SQFT CRAWLSPACE. NORTH CRAWLSPACE INCLUDING BLW STAIRS RATE: 933/50=**19 CFM.** SOUTH CRAWLSPACE RATE: 371/50=**8 CFM.**

ATTIC VENTILATION (15 CFM) WILL BE PROVIDED BY **HRV-1** WITH A SUPPLY TO THE ATTIC AND A TRANSFER GRILLE AT OPPOSITE END TO LVL 2 SPACE.

PER M1503.6 KITCHEN HOOD IS 400CFM AND DUCTED TO EXTERIOR. MAKEUP AIR SYSTEM WILL BE PROVIDED VIA MAKEUP AIR SYSTEM **(MAS-1)** LOCATED IN NORTH CRAWLSPACE TO LIMIT NEGATIVE PRESSURE WITHIN HOME. ROUTE DUCTS AS LOW AND CLOSE TO RANGE AS POSSIBLE.

PER M1504.4 MINIMUM LOCAL MECH EXHAUST RATES AT KITCHEN = 100 CFM INTERMITTENT AND BATHROOM/TOILET ROOMS = 50 CFM INTERMITTENT (PROVIDE HRV BOOST WITH "RTS3 20/40/60 PUSH BUTTON TIMER" AT EACH BATHROOM)

WATER HEATER: NIA TIER III STAND-ALONE HYBRID HEAT PUMP WATER HEATER **(HPWH-1)** LOCATED IN SOUTH CRAWLSPACE.

ELECTRICAL:
320 AMP SERVICE LOCATED IN GARAGE

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL PERMITTING

LIGHTING EQUIPMENT: NOT LESS THAN 90 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICIENCY LAMPS PER IRC N1104.1 (R404.1)

PROGRAMMABLE THERMOSTAT:
THE THERMOSTAT CONTROLLING THE PRIMARY HEATING OR COOLING SYSTEM OF THE DWELLING UNIT SHALL BE CAPABLE OF CONTROLLING THE HEATING AND COOLING SYSTEM ON A DAILY SCHEDULE TO MAINTAIN DIFFERENT TEMPERATURE SET POINTS AT DIFFERENT TIMES OF DAY. THIS THERMOSTAT SHALL INCLUDE CAPABILITY TO OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES OF NOT LESS THAN 55°F TO NOT GREATER THAN 85°F PER IRC N1103.1.1 (R403.1.1).

SOLAR:
PROVIDE CONDUIT STUB OUT AT ROOF FOR FUTURE PV, COORDINATE LOCATION WITH ARCHITECT PRIOR TO INSTALLATION

TREE NOTES:

1 EXISTING NON-EXCEPTIONAL TREE TO BE REMOVED PER REQ'M LISTED IN MICC 19.10.060. REFER TO REPORT PRODUCED BY QUALIFIED ARBORIST THOMAS QUIGLEY AT OLYMPIC NURSERY DATED 12.06.2022

CRITICAL AREAS:

CRITICAL AREA REVIEW:
>CRITICAL AREAS ON SITE:
LANDSLIDE, EROSION, SEISMIC
>REFER TO GEOTECHNICAL REPORT PRODUCED BY COBALT GEOSCIENCES
>CRITICAL AREA REVIEW TYPE 2 WAS SUBMITTED ON 2022.12.08 UNDER PERMIT NUMBER CAO22-023 AND IS STILL IN REVIEW AS OF TIME OF BUILDING PERMIT SUBMITTAL

GENERAL PROVISIONS:
>PER MICC 19.07.160.F.2: LAND CLEARING, GRADING, FILLING AND FOUNDATION WORK ARE NOR PERMITTED BETWEEN OCTOBER 1 AND APRIL 1 (UNLESS A WAIVER IS APPLIED FOR AND APPROVED)

>EXCAVATION SHOWN ON STRUCTURAL TEMPORARY SHORING PLAN

FIRE:

SPRINKLERS:
PER AMENDMENT TO IRC 17.02.020.B, IRC AV107.2 AN APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM SHALL BE INSTALLED THROUGHOUT THE RESIDENCE IN NEW SINGLE-FAMILY HOMES IN ACCORDANCE WITH NFPA STANDARDS

NFPA 13R FIRE SPRINKLER TO BE INSTALLED PER CoMI AND STAND NFPA 13R STANDARDS. A SEPRATE FIRE PERMIT IS REQUIRED.

FIRE ALARM:
>NFPA 72 MONITORED CHAPTER 29 FIRE ALARM SYSTEM TO BE INSTALLED PER CoMI AND NFPA 72 CHP. 29 STANDARDS. A SEPERATE FIRE PERMIT IS REQUIRED.

FIREBLOCKING:
>INSTALL FIRESTOPPING PER IRC 2018 R302.11

DRAINAGE NOTES:

STORMWATER MANAGEMENT:
ON-SITE DETENTION SYSTEM: IMPERVIOUS SURFACE RUNOFF AND FOOTING DRAINS TO BE TIGHTLINED TO A DETENTION TANK UNDER THE DRIVEWAY BEFORE DISCHARGING TO EXISTING MERCER ISLAND STORM DRAIN. REFER TO CIVIL DRAWINGS FOR MORE INFORMATION.

ELEVATOR NOTES:

ELEV INFO:
MANUFACTURER: SYMMETRY ELEVATOR
MODEL: HYDRAULIC DRIVE 40X54
DRIVE SYSTEM: HYDRAULIC DRIVE SYSTEM

CODE INFO:
ELEVATOR AND ALL ASSOCIATED COMPONENTS SHALL BE MANUFACTURED AND INSTALLED TO MEET ASME A17.1 REQUIREMENTS

GENERAL NOTES:

1. THE DRAWINGS ARE INTENDED TO ONLY PARTIALLY DESCRIBE THE SCOPE OF WORK FOR THE PROJECT. ANY WORK NOT SHOWN HERE, BUT REQUIRED BY CODE, OR THE SPECIFICATIONS, OR TO MAKE THE WORK COMPLETE, SHALL BE PROVIDED AS PART OF THE WORK.
2. IT IS THE INTENT OF THE DOCUMENTS THAT ALL WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE & NATIONAL CODES / ORDINANCES IN EFFECT AT THE DATE OF PERMIT SUBMITTAL. NOTHING IN THESE DRAWINGS SHALL BE CONSTRUED TO GRANT APPROVAL FOR ANY CODE VIOLATION. ANY ERRORS, INCONSISTENCIES OR OMISSIONS SHALL BE REPORTED PROMPTLY TO THE ARCHITECT.
3. DO NOT SCALE THE DRAWINGS. THE CONTRACTOR SHALL USE DIMENSIONS SHOWN ON THE DRAWINGS AND ACTUAL FIELD MEASUREMENTS. IF DISCREPANCIES ARE FOUND, THE ARCHITECT SHALL BE NOTIFIED AT ONCE.
4. CONTRACTOR SHALL VERIFY THE DIMENSIONS REQUIRED FOR ALL EQUIPMENT, APPLIANCES, FIXTURES, CABINETS, DUCTWORK, AND OPENINGS BEFORE FRAMING BEGINS. THE CONTRACTOR SHALL COORDINATE WITH THE SUBCONTRACTORS OF ALL TRADES TO VERIFY THE SIZES AND LOCATIONS OF OPENINGS THROUGH FLOORS, WALLS, CEILINGS, AND ROOFS FOR DUCTS, PIPES, CONDUITS, AND EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF WOOD BACKING, BLOCKING, FURRING, AND STRIPPING AS REQUIRED FOR THE INSTALLATION AND ATTACHMENT OF WORK OF ALL TRADES.
5. PROVIDE FIRE RESISTANCE CLOSURE MEETING THE REQUIREMENTS OF THE GOVERNING FIRE AUTHORITIES AT ALL GAPS AROUND PENETRATING DUCTS, PIPES, CONDUITS, ETC.. AT ALL FIRE RATED BUILDING WALLS, PARTITIONS, CEILINGS, FLOORS AND ROOFS.
6. COORDINATE WITH MECHANICAL AND ELECTRICAL CONTRACTORS FOR EXACT LOCATIONS, TYPES AND SIZE OF ACCESS DOORS REQUIRED BY THEIR WORK. PROVIDE ACCESS FOR ALL CONCEALED VALVES, DAMPER CONTROLS, FIRE DAMPER LINKAGE, ELECTRICAL JUNCTION BOXES, ETC.. DRAWINGS MAY NOT SHOW ALL REQUIRED ACCESS PANELS. INDICATE REQUIRED ACCESS DOORS ON THE COORDINATION DRAWINGS. OBTAIN ARCHITECT'S APPROVAL FOR LOCATIONS OF ACCESS DOORS PRIOR TO INSTALLATION.
7. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND GOVERNMENTAL FEES, LICENSES AND INSPECTIONS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK, WITH THE EXCEPTION OF THE MATER USE PERMIT AND THE BUILDING PERMIT.
8. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OR SITE DEVELOPMENT ACTIVITY, THE CONTRACTOR SHALL SCHEDULE PRE-CONSTRUCTION MEETINGS WITH THE APPROPRIATE REGULATORY ENTITIES.
9. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION OR SITE DEVELOPMENT ACTIVITY, THE CONTRACTOR AND/OR ARCHITECT SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE PROJECT TEAM MEMBERS FOR THE PURPOSE OF ANSWERING INITIAL QUESTIONS, CLARIFYING AREAS OF CONCERN, AND FORMALIZING A CONSTRUCTION ADMINISTRATION PROCESS. THE MEETING SHALL INCLUDE THE ARCHITECT, GENERAL CONTRACTOR, OWNER, STRUCTURAL ENGINEER AND CIVIL ENGINEER.

CODES:

THIS PROJECT SHALL COMPLY WITH THE FOLLOWING CODES:

MERCER ISLAND CITY CODE
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL MECHANICAL CODE
NATIONAL FUEL GAS CODE (ANSI Z223.1/NFPA 54)
LIQUEFIED PATROLEUM (NFPA 58)
INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL FIRE CODE
2018 UNIFORM PLUMBING CODE
WASHINGTON STATE ENERGY CODE

SHEET INDEX:

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C3	DETENTION DETAIL
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A-002	GFA+BASEMENT CALC
A-003	LANDSCAPE PLAN
A-100	FOUNDATION FLOOR PLAN
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T2.0	TEMPORARY SHORING PLAN
T3.0	TEMPORARY SHORING ELEVATIONS
T3.1	TEMPORARY SHORING ELEVATIONS
T3.2	TEMPORARY SHORING ELEVATIONS
T3.3	TEMPORARY SHORING DETAILS
T3.4	TEMPORARY SHORING DETAILS

SHED

9686 REGISTERED ARCHITECT
GREGORY C SHIFFLER
STATE OF WASHINGTON

CONTACT
SHED ARCHITECTURE & DESIGN
1401 S JACKSON ST
SEATTLE, WA 98144
206.320.8700

PROJECT
SULLIVAN
3024 69th Ave SE
MERCER ISLAND, WA 98040

ISSUE	DATE
PRE APP #1 (PRE22-0433)	2022.08.16
CAR 2 (CAO22-023)	2022.12.08
PERMIT SET	2023.01.20
REVISION #1 ⚠	2023.05.26
REVISION #2 ⚠	2023.07.07
REVISION #3 ⚠	2023.07.27

DRAWING TITLE
COVER SHEET

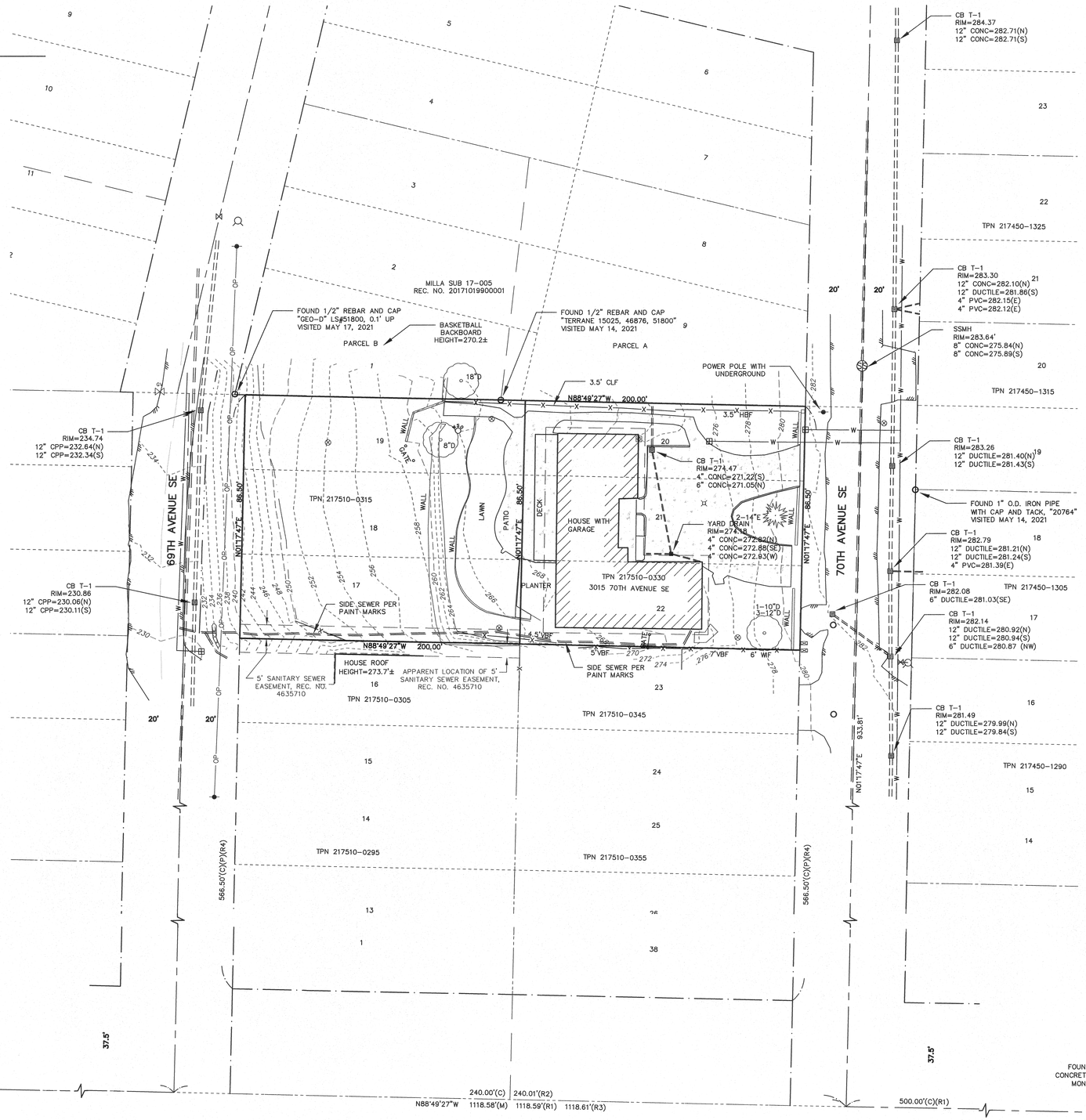
G-000

BOUNDARY AND TOPOGRAPHIC SURVEY

A PORTION OF THE SOUTHWEST QUARTER OF THE NORTHWEST QUARTER
SECTION 12, TOWNSHIP 24 NORTH, RANGE 04 EAST, W.M.,
CITY OF MERCER ISLAND, KING COUNTY, WASHINGTON

LEGEND:

- FOUND SECTION CORNER AS NOTED
- FOUND QUARTER CORNER AS NOTED
- FOUND MONUMENT AS NOTED
- FOUND CORNER MONUMENT AS NOTED
- FOUND PK NAIL AND WASHER AS NOTED
- MAIL BOX
- POWER METER
- POWER POLE
- WATER METER
- WATER VALVE
- WATER SPIGOT
- FIRE HYDRANT
- STORM DRAIN CATCH BASIN
- SANITARY SEWER MANHOLE
- GAS VALVE
- VBF VERTICAL BOARD FENCE
- HBF HORIZONTAL BOARD FENCE
- CLF CHAINLINK FENCE
- WIF WROUGHT IRON FENCE
- ROCKERY
- DECIDUOUS TREE
- EVERGREEN TREE
- SANITARY SEWER LINE
- STORM LINE
- OP OVERHEAD POWER
- W UNDERGROUND WATER
- EDGE OF PAVEMENT
- X X FENCE
- CONCRETE



NORTH

GRAPHIC SCALE
0 10' 20' 40'
1 INCH = 20 FT.

BASIS OF BEARINGS:

NORTH 88°49'27" WEST BETWEEN THE MONUMENTS FOUND IN PLACE ALONG SE 32ND STREET, PER GPS OBSERVATIONS

LEGAL DESCRIPTION:

TAX PARCEL NUMBER 217510-0330-04:

LOTS 20, 21 AND 22, BLOCK 40, EAST SEATTLE BLOCKS 39 & 40, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 21, RECORDS OF KING COUNTY, WASHINGTON.

TAX PARCEL NUMBER 271510-0315-03:

LOTS 17, 18 AND 19, BLOCK 40, EAST SEATTLE BLOCKS 39 & 40, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 4 OF PLATS, PAGE 21, RECORDS OF KING COUNTY, WASHINGTON.

ALL SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

TITLE RESTRICTIONS:

TAX PARCEL NUMBER 217510-0330-04:

1. THIS SITE IS SUBJECT TO COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE LAW, AS SET FORTH ON THE PLAT OF EAST SEATTLE BLOCKS 39 & 40, RECORDING NUMBER 40295.

2. THIS SITE IS SUBJECT TO A 5' SIDE SEWER EASEMENT, AS DISCLOSED BY DOCUMENT RECORDED UNDER RECORDING NUMBER 8811301386. THIS EASEMENT CONTAINS A PROVISION FOR BEARING A PROPORTIONATE OR EQUAL COST OF MAINTENANCE, REPAIR OR RECONSTRUCTION OF SAID SIDE SEWER BY THE COMMON USERS. EASEMENT OVER PIPE AS CONSTRUCTED; NOT SHOWN HEREON.

3. THIS SITE IS SUBJECT TO RESERVATIONS AND EXCEPTIONS IN UNITED STATES PATENTS OR IN ACTS AUTHORIZING THE ISSUANCE THEREOF; INDIAN TREATY OR ABORIGINAL RIGHTS.

4. THIS SITE IS SUBJECT TO CITY, COUNTY OR LOCAL IMPROVEMENT DISTRICT ASSESSMENTS, IF ANY.

5. THIS SITE IS SUBJECT TO ANY UNRECORDED LEASEHOLDS, RIGHT OF VENDORS AND HOLDERS OF SECURITY INTERESTS ON PERSONAL PROPERTY INSTALLED UPON THE LAND AND RIGHTS OF TENANTS TO REMOVE TRADE FIXTURES AT THE EXPIRATION OF THE TERMS.

TAX PARCEL NUMBER 217510-0315-03:

1. THIS SITE IS SUBJECT TO COVENANTS, CONDITIONS, RESTRICTIONS, RECITALS, RESERVATIONS, EASEMENTS, EASEMENT PROVISIONS, DEDICATIONS, BUILDING SETBACK LINES, NOTES, STATEMENTS, AND OTHER MATTERS, IF ANY, BUT OMITTING ANY COVENANTS OR RESTRICTIONS, IF ANY, INCLUDING BUT NOT LIMITED TO THOSE BASED UPON RACE, COLOR, RELIGION, SEX, SEXUAL ORIENTATION, FAMILIAL STATUS, MARITAL STATUS, DISABILITY, HANDICAP, NATIONAL ORIGIN, ANCESTRY, OR SOURCE OF INCOME, AS SET FORTH IN APPLICABLE LAW, AS SET FORTH ON THE PLAT OF EAST SEATTLE BLOCKS 39 & 40, RECORDING NUMBER 40295.

2. THIS SITE IS SUBJECT TO AN EASEMENT GRANTED TO MERCER ISLAND SEWER DISTRICT FOR SEWER, RECORDED UNDER RECORDING NUMBER 4635710. THIS EASEMENT IS SHOWN HEREON.

3. THIS SITE IS SUBJECT TO CITY, COUNTY OR LOCAL IMPROVEMENT DISTRICT ASSESSMENTS, IF ANY.

SURVEYOR'S NOTES

1. ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM FIDELITY NATIONAL TITLE COMPANY OF WASHINGTON, COMMITMENTS NO. 611287325, DATED MAY 10, 2021AND NO. 611287326, DATED MAY 12, 2021. IN PREPARING THIS MAP, D.R. STRONG CONSULTING ENGINEERS INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS D.R. STRONG CONSULTING ENGINEERS INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY REFERENCED FIDELITY NATIONAL TITLE COMPANY COMMITMENTS. D.R. STRONG CONSULTING ENGINEERS INC. HAS RELIED WHOLLY ON FIDELITY NATIONAL TITLE COMPANY REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND THEREFORE D.R. STRONG CONSULTING ENGINEERS INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.

2. THIS SURVEY REPRESENTS VISIBLE PHYSICAL IMPROVEMENT CONDITIONS EXISTING ON MAY 14 AND 17, 2021. ALL SURVEY CONTROL INDICATED AS "FOUND" WAS RECOVERED FOR THIS PROJECT ON MAY 14 AND 17, 2021.

3. PROPERTY AREA = 17,300± SQUARE FEET (0.397± ACRES).

4. ALL DISTANCES ARE IN U.S. SURVEY FEET.

5. THIS IS A COMBINED FIELD TRAVERSE AND GLOBAL POSITIONING SYSTEM SURVEY. A TRIMBLE ONE-SECOND COMBINED ELECTRONIC TOTAL STATION AND A TRIMBLE R12I GLOBAL POSITIONING SYSTEM WERE USED TO MEASURE THE ANGULAR AND DISTANCE RELATIONSHIPS BETWEEN THE CONTROLLING MONUMENTATION AS SHOWN, UTILIZING RTK OBSERVATIONS USING THE WSRN. CLOSURE RATIOS OF THE TRAVERSE MET OR EXCEEDED THOSE SPECIFIED IN WAC 332-130-090. ALL MEASURING INSTRUMENTS AND EQUIPMENT ARE MAINTAINED IN ADJUSTMENT ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

6. UTILITIES OTHER THAN THOSE SHOWN MAY EXIST ON THIS SITE. ONLY THOSE UTILITIES WITH EVIDENCE OF THEIR INSTALLATION VISIBLE AT GROUND SURFACE ARE SHOWN HEREON. UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. UNDERGROUND CONNECTIONS ARE SHOWN AS STRAIGHT LINES BETWEEN SURFACE UTILITY LOCATIONS BUT MAY CONTAIN BENDS OR CURVES NOT SHOWN. SOME UNDERGROUND LOCATIONS SHOWN HEREON MAY HAVE BEEN TAKEN FROM PUBLIC RECORDS. D.R. STRONG CONSULTING ENGINEERS INC. ASSUMES NO LIABILITY FOR THE ACCURACY OF PUBLIC RECORDS.

7. CONTOUR INTERVAL = 2 FOOT. CONTOURS SHOWN ARE PRODUCED FROM A DIGITAL TERRAIN MODEL DERIVED FROM DIRECT FIELD OBSERVATIONS OBTAINED DURING THE COURSE OF THE FIELD TRAVERSE SURVEY. CONTOUR ACCURACY COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS (AT LEAST 90 PERCENT OF THE ELEVATIONS ACCURATE WITHIN ONE-HALF THE CONTOUR INTERVAL).

8. THE PURPOSE OF THIS SURVEY REVISION WAS TO DEPICT THE LOCATION OF THE SIDE SEWER, RECENTLY PAINTED BY A LOCATE COMPANY, FOR THE NEW OWNER OF TAX PARCEL 217510-0315. PAINT MARKS WERE PLACED NEAR THE SOUTH LINES OF TAX PARCELS 217510-0315 & 217510-0330. THE UNDERLYING SURVEY REPRESENTS THE SAME BOUNDARY AND TOPOGRAPHIC SURVEY BY D.R. STRONG CONSULTING ENGINEERS, PROJECT NUMBER 21065, REVISION DATE 7/7/2022 FOR JANET CASAL. FIELD MAPPING OF THE UTILITY PAINT MARKS TOOK PLACE ON 4/19/2023.

REFERENCES:

(P) PLAT OF EAST SEATTLE BLOCKS 39 & 40, VOLUME 4, PAGE 21

(R1) RECORD OF SURVEY, RECORDING NO. 20091020900014

(R2) RECORD OF SURVEY, RECORDING NO. 20191115900004

(R3) RECORD OF SURVEY, RECORDING NO. 20080415900004

(R4) RECORD OF SURVEY, RECORDING NO. 20171015900001

HORIZONTAL DATUM:

NAD83-2011 EPOCH 2010.00 WASHINGTON PLANE COORDINATE SYSTEM – NORTH ZONE

VERTICAL DATUM:

NAVD88 PER GPS OBSERVATIONS

BENCHMARK:

REBAR AND CAP SET 2.00' EAST OF THE EAST EDGE OF PAVEMENT ON 70TH AVENUE SE ACROSS THE STREET FROM THE NORTHEAST CORNER OF HOUSE 3015; 22.00' EAST OF POWER POLE 221604-165197 ELEVATION DETERMINED BY GPS OBSERVATION = 283.43'

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D.R. STRONG
CONSULTING ENGINEERS
ENGINEERS PLANNERS SURVEYORS
620 - 7th AVENUE KIRKLAND, WA 98033
O 425.827.3063 F 425.827.2423

BOUNDARY AND TOPOGRAPHIC SURVEY
3015 70TH AVENUE SE
AND 30XX 69TH AVENUE SE
TAX PARCEL NUMBERS
217510-0315-03AND 217510-0330-04
CITY OF MERCER ISLAND, WASHINGTON

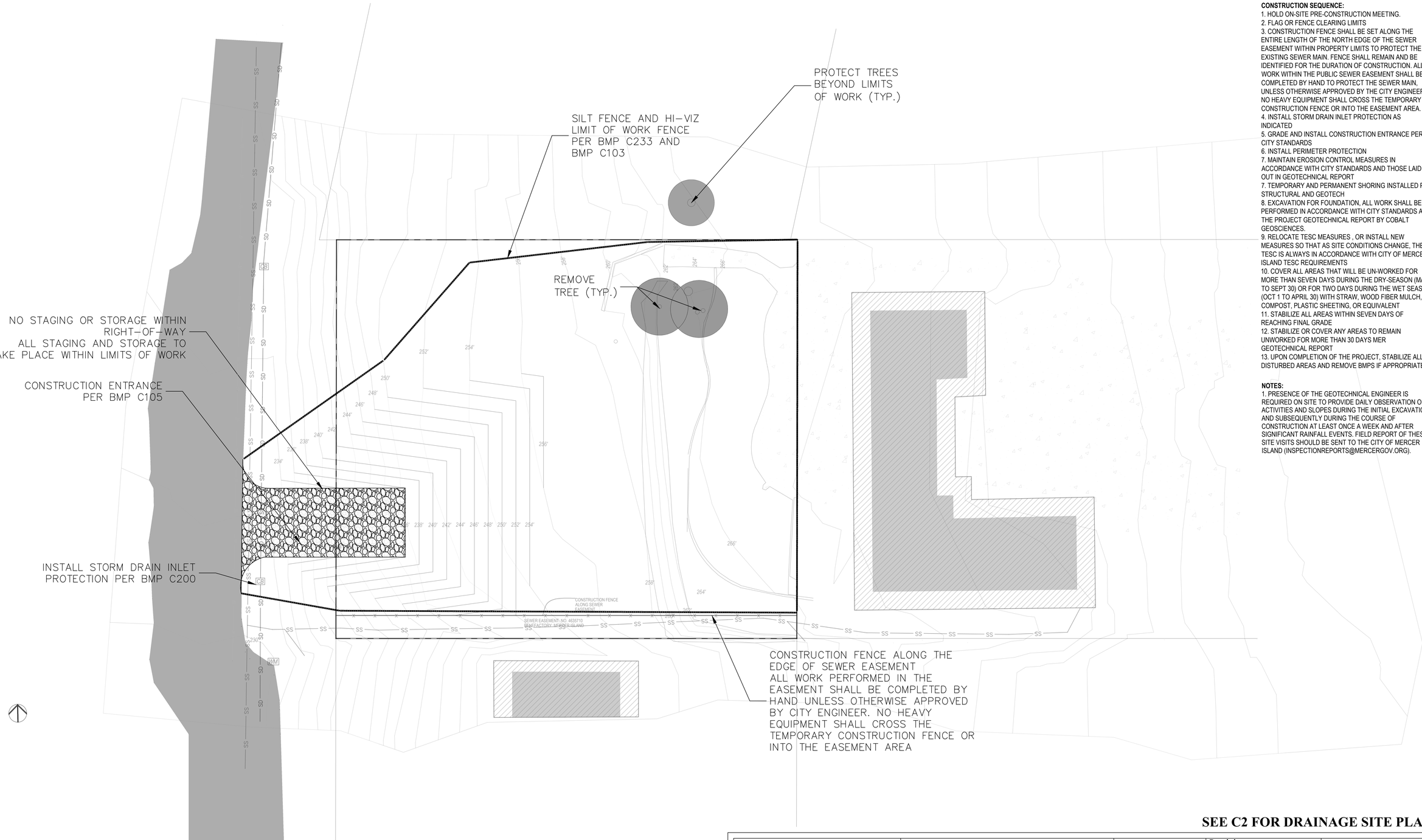
JOHN SULLIVAN
C/O SHED ARCHITECTURE
1401 S. JACKSON ST.
SEATTLE, WA 98144

DOUGLAS J. COMBS
STATE OF WASHINGTON
20974
REGISTERED
PROFESSIONAL LAND SURVEYOR
04/27/23

DATE	REVISION	APR
4/27/2023	ADDED SIDE SEWER	DJC

PROJECT SURVEYOR: JMS
DRAFTED BY: JMS/DLC
FIELD BOOK: 199 B & D
DATE: 04/27/2023
PROJECT NO.: 23031

SHEET: 1 OF 1



CONSTRUCTION SEQUENCE:

1. HOLD ON-SITE PRE-CONSTRUCTION MEETING.
2. FLAG OR FENCE CLEARING LIMITS
3. CONSTRUCTION FENCE SHALL BE SET ALONG THE ENTIRE LENGTH OF THE NORTH EDGE OF THE SEWER EASEMENT WITHIN PROPERTY LIMITS TO PROTECT THE EXISTING SEWER MAIN. FENCE SHALL REMAIN AND BE IDENTIFIED FOR THE DURATION OF CONSTRUCTION. ALL WORK WITHIN THE PUBLIC SEWER EASEMENT SHALL BE COMPLETED BY HAND TO PROTECT THE SEWER MAIN, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER. NO HEAVY EQUIPMENT SHALL CROSS THE TEMPORARY CONSTRUCTION FENCE OR INTO THE EASEMENT AREA.
4. INSTALL STORM DRAIN INLET PROTECTION AS INDICATED
5. GRADE AND INSTALL CONSTRUCTION ENTRANCE PER CITY STANDARDS
6. INSTALL PERIMETER PROTECTION
7. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CITY STANDARDS AND THOSE LAID OUT IN GEOTECHNICAL REPORT
7. TEMPORARY AND PERMANENT SHORING INSTALLED PER STRUCTURAL AND GEOTECH
8. EXCAVATION FOR FOUNDATION, ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH CITY STANDARDS AND THE PROJECT GEOTECHNICAL REPORT BY COBALT GEOSCIENCES.
9. RELOCATE TESC MEASURES , OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE TESC IS ALWAYS IN ACCORDANCE WITH CITY OF MERCER ISLAND TESC REQUIREMENTS
10. COVER ALL AREAS THAT WILL BE UN-WORKED FOR MORE THAN SEVEN DAYS DURING THE DRY-SEASON (MAY1 TO SEPT 30) OR FOR TWO DAYS DURING THE WET SEASON (OCT 1 TO APRIL 30) WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, OR EQUIVALENT
11. STABILIZE ALL AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADE
12. STABILIZE OR COVER ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS MER GEOTECHNICAL REPORT
13. UPON COMPLETION OF THE PROJECT, STABILIZE ALL DISTURBED AREAS AND REMOVE BMPS IF APPROPRIATE

NOTES:

1. PRESENCE OF THE GEOTECHNICAL ENGINEER IS REQUIRED ON SITE TO PROVIDE DAILY OBSERVATION OF ACTIVITIES AND SLOPES DURING THE INITIAL EXCAVATION AND SUBSEQUENTLY DURING THE COURSE OF CONSTRUCTION AT LEAST ONCE A WEEK AND AFTER SIGNIFICANT RAINFALL EVENTS. FIELD REPORT OF THESE SITE VISITS SHOULD BE SENT TO THE CITY OF MERCER ISLAND (INSPECTIONREPORTS@MERCERGOV.ORG).

SEE C2 FOR DRAINAGE SITE PLAN

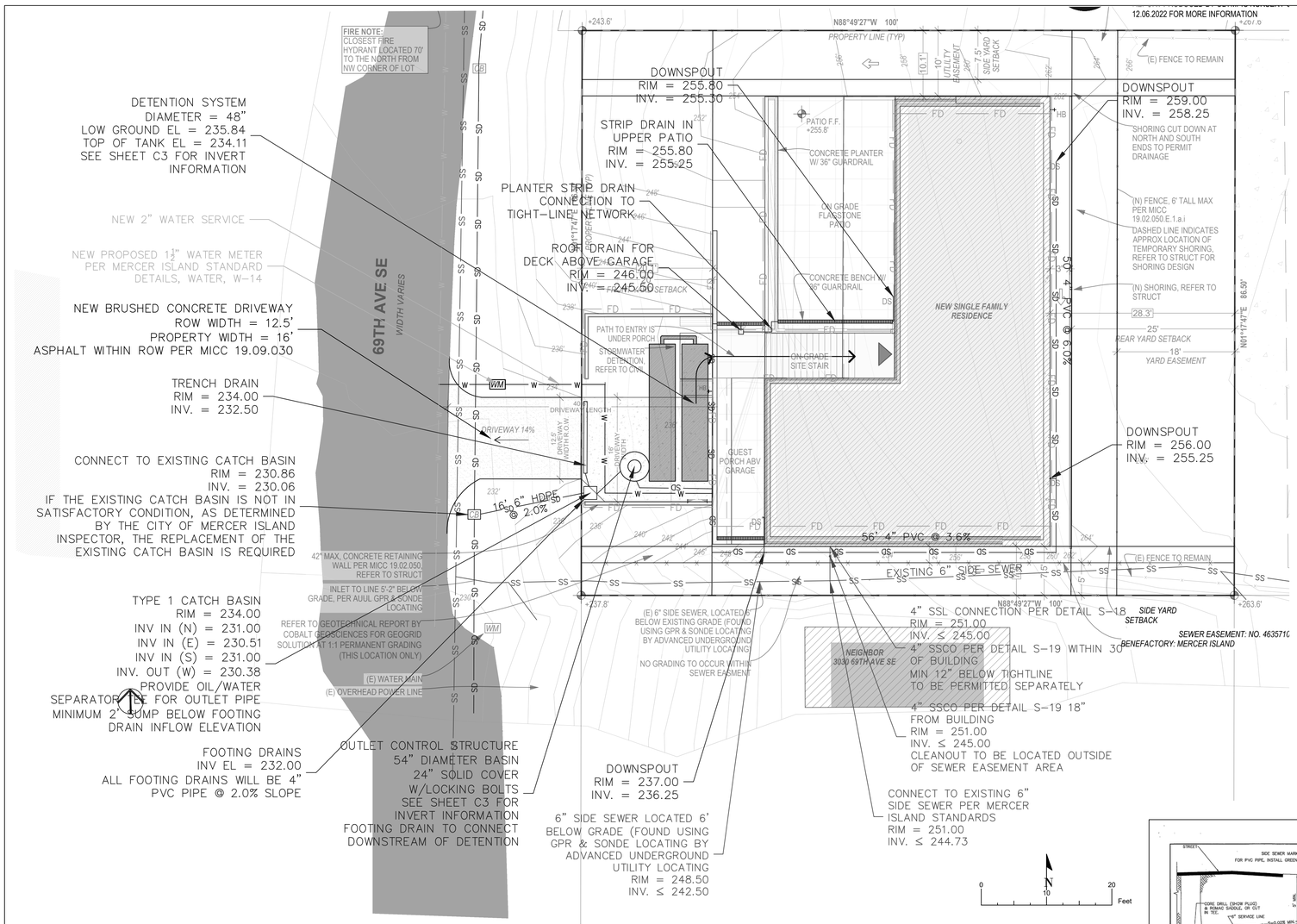
Sullivan Residence
Site Address: 3024 69th Ave SE
Jurisdiction: Mercer Island
Parcel No.: 217510-0315
Applicant: SHED
Permit No.: 2301-185
Interlaken Project No.: SEA-22-137

Interlaken Engineering and Design, PLLC
Seattle, WA | (206) 470-9572
www.interlakenengineering.com

MATTHEW JACOB HARINGA — STATE OF WASHINGTON — 55763 — REGISTERED PROFESSIONAL ENGINEER

Revisions:
2023-07-07: Updated for City of Mercer Island comments
2023-05-26: Updated for City of Mercer Island comments

C1
TESC/ Demo/ CSWPPP
Scale: 1" = 10'



THE LAWN AND LANDSCAPE AREAS ARE REQUIRED TO PROVIDE POST-CONSTRUCTION SOIL QUALITY AND DEPTH IN ACCORDANCE WITH BMP T5.13. THE PROJECT CIVIL ENGINEER MUST PROVIDE A LETTER OF CERTIFICATION TO ENSURE THAT THE LAWN AND LANDSCAPE AREAS ARE MEETING THE POST-CONSTRUCTION SOIL QUALITY AND DEPTH REQUIREMENTS SPECIFIED ON THE APPROVED PLAN SET PRIOR TO FINAL INSPECTION ON THE PROJECT.

ALL AREAS SUBJECT TO CLEARING AND GRADING THAT HAVE NOT BEEN COVERED BY IMPERVIOUS SURFACE, INCORPORATED INTO A DRAINAGE FACILITY OR ENGINEERED AS STRUCTURAL FILL OR SLOPE SHALL, AT PROJECT COMPLETION, DEMONSTRATE THE FOLLOWING:
1. A TOPSOIL LAYER WITH A MINIMUM ORGANIC MATTER CONTENT OF 10% DRY WEIGHT IN PLANTING BEDS, AND 5% ORGANIC MATTER CONTENT IN TURF AREAS, AND A PH FROM 6.0 TO 8.0 OR MATCHING THE PH OF THE UNDISTURBED SOIL. THE TOPSOIL LAYER SHALL HAVE A MINIMUM DEPTH OF EIGHT INCHES EXCEPT WHERE TREE ROOTS LIMIT THE DEPTH OF INCORPORATION OF AMENDMENTS NEEDED TO MEET THE CRITERIA. SUBSOILS BELOW THE TOPSOIL LAYER SHOULD BE SCARIFIED AT LEAST 4 INCHES WITH SOME INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.
2. MULCH PLANTING BEDS WITH 2 INCHES OF ORGANIC MATERIAL
3. USE COMPOST AND OTHER MATERIALS THAT MEET THESE ORGANIC CONTENT REQUIREMENTS:
A. THE ORGANIC CONTENT FOR "PRE-APPROVED" AMENDMENT RATES CAN BE MET ONLY USING COMPOST MEETING THE COMPOST SPECIFICATION FOR BIORETENTION (BMP T7.30), WITH THE EXCEPTION THAT THE COMPOST MAY HAVE UP TO 35% BIOSOLIDS OR MANURE. THE COMPOST MUST ALSO HAVE AN ORGANIC MATTER CONTENT OF 40% TO 65%, AND A CARBON TO NITROGEN RATIO BELOW 25:1. THE CARBON TO NITROGEN RATIO MAY BE AS HIGH AS 35:1 FOR PLANTINGS COMPOSED ENTIRELY OF PLANTS NATIVE TO THE PUGET SOUND LOWLANDS REGION.
B. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIAL MEETING (A.) ABOVE; OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND NOT EXCEEDING THE CONTAMINANT LIMITS IDENTIFIED IN TABLE 220-B, TESTING PARAMETERS, IN WAC 173-350-220.
THE RESULTING SOIL SHOULD BE CONDUCIVE TO THE TYPE OF VEGETATION TO BE ESTABLISHED.
IMPLEMENTATION OPTIONS: THE SOIL QUALITY DESIGN GUIDELINES LISTED ABOVE CAN BE MET BY USING ONE OF THE METHODS LISTED BELOW:
1. LEAVE UNDISTURBED NATIVE VEGETATION AND SOIL, AND PROTECT FROM COMPACTION DURING CONSTRUCTION.
2. AMEND EXISTING SITE TOPSOIL OR SUBSOIL EITHER AT DEFAULT "PREAPPROVED" RATES, OR AT CUSTOM CALCULATED RATES BASED ON TESTS OF THE SOIL AND AMENDMENT.
3. STOCKPILE EXISTING TOPSOIL DURING GRADING, AND REPLACE IT PRIOR TO PLANTING. STOCKPILED TOPSOIL MUST ALSO BE AMENDED IF NEEDED TO MEET THE ORGANIC MATTER OR DEPTH REQUIREMENTS, EITHER AT A DEFAULT "PRE-APPROVED" RATE OR AT A CUSTOM CALCULATED RATE.
4. IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET THE REQUIREMENTS.
MORE THAN ONE METHOD MAY BE USED ON DIFFERENT PORTIONS OF THE SAME SITE. SOIL THAT ALREADY MEETS THE DEPTH AND ORGANIC MATTER QUALITY STANDARDS, AND IS NOT COMPACTED, DOES NOT NEED TO BE AMENDED.

PRE-APPROVED AMENDMENT METHOD:
TURF: 5246 SF x 5.4 CY / 1,000 SF = 28.3 CY
TOTAL QUANTITY = 28.3 CY

EASEMENT RECORDING NUMBER:4635710
BENEFICIARY: MERCER ISLAND

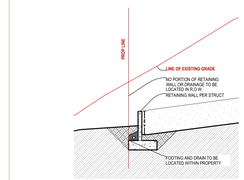
A CONSTRUCTION FENCE ALONG THE ENTIRE LENGTH OF THE NORTH EDGE OF THE PUBLIC SEWER MAIN EASEMENT (OR 5' OFFSET FROM THE LOCATED MAIN, WHICHEVER IS FURTHER FROM THE MAIN) WITHIN THE PROPERTY LIMITS IS REQUIRED TO PROTECT THE EXISTING SEWER MAIN. FENCE SHALL REMAIN AND BE MAINTAINED FOR THE DURATION OF THE CONSTRUCTION.

ALL WORK WITHIN THE PUBLIC SEWER EASEMENT SHALL BE COMPLETED BY HAND TO PROTECT THE EXISTING SEWER MAIN, UNLESS OTHERWISE APPROVED OF THE CITY ENGINEER. NO HEAVY EQUIPMENT SHALL CROSS THE TEMPORARY CONSTRUCTION FENCE OR INTO THE EASEMENT AREA.

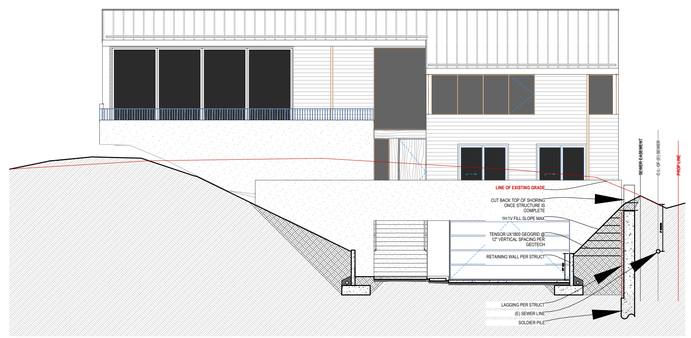
THE CONTRACTOR IS REQUIRED TO TV THE EXISTING CITY SEWER MAIN WITHIN THE PROPERTY LIMITS PRIOR TO ANY CONSTRUCTION ACTIVITIES AND PRIOR TO REQUEST THE FINAL INSPECTION. THE CONTRACTOR IS REQUIRED TO SUBMIT INSPECTION RESULTS (DVD AND REPORT) TO THE CITY. IF THERE ARE ANY DAMAGES TO THE CITY SEWER MAIN DUE TO THE RESULT OF THE PROJECT. THE OWNER IS REQUIRED TO REPAIR THE DAMAGES TO THE SATISFACTION OF THE CITY ENGINEER.

IN TOTAL THERE WILL BE 3 INSPECTIONS (PRE-CONSTRUCTION, AFTER SOLDIER PILE WALL CONSTRUCTION, AND PRIOR TO FINAL INSPECTION)

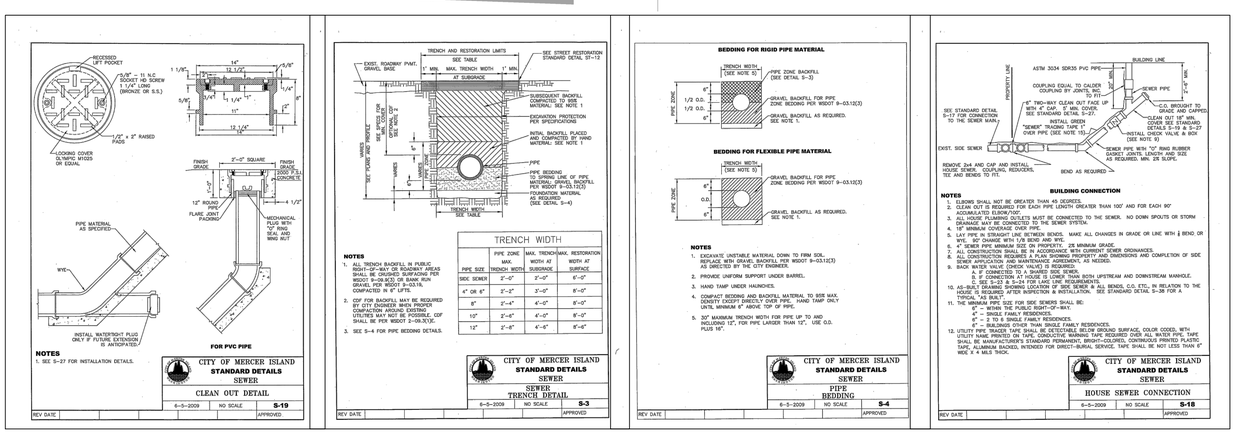
WESTERN LANDSCAPE WALL SECTION

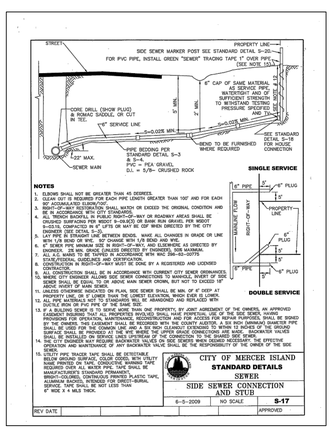


DRIVEWAY SECTION



SEE C1 FOR TESC/ DEMO CSWPPP





Sullivan Residence
Site Address: 3024 69th Ave SE
Jurisdiction: Mercer Island
Parcel No.: 217510-0315
Applicant: SHED
Permit No.: 2301-185
Interlaken Project No.: SEA-22-137

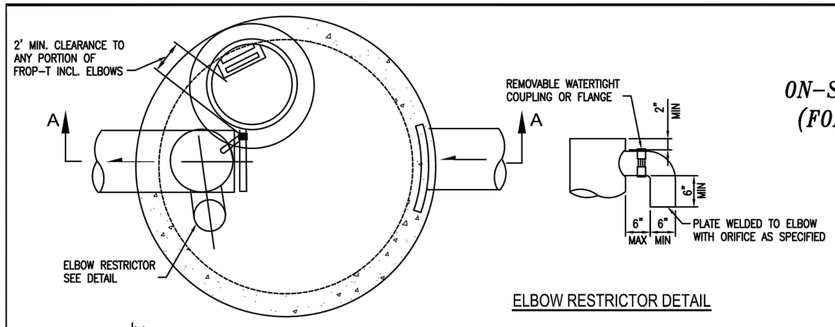
Interlaken Engineering and Design, PLLC
Seattle, WA | (206) 470-9572
www.interlakenengineering.com

MATTHEW JACOB HANINGER STATE OF WASHINGTON 55763 REGISTERED PROFESSIONAL ENGINEER

Revisions:
2023-07-07: Updated for City of Mercer Island comments
2023-05-26: Updated for City of Mercer Island comments

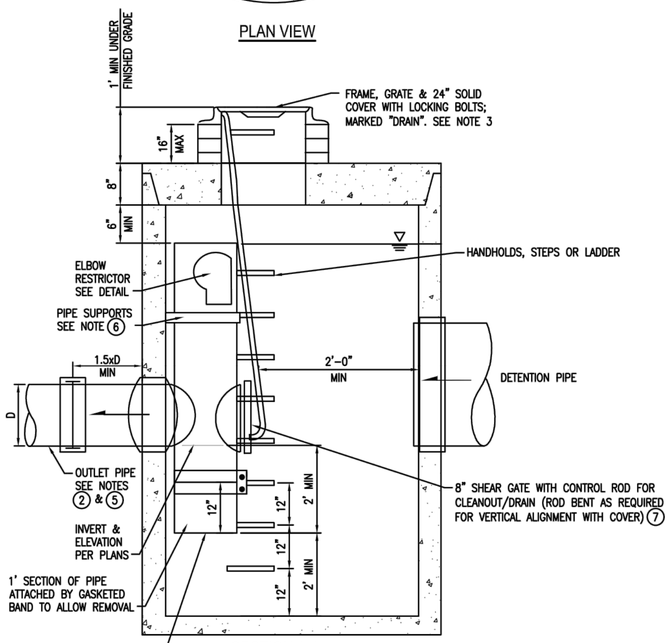
C2
Drainage Site Plan
Scale: 1" = 10'

ATTACHMENT 1
CITY OF MERCER ISLAND
ON-SITE DETENTION SYSTEM WORKSHEET
(FOR NEW PLUS REPLACED IMPERVIOUS AREA OF 9,500 SF OR LESS)



PLAN VIEW

ELBOW RESTRICTOR DETAIL

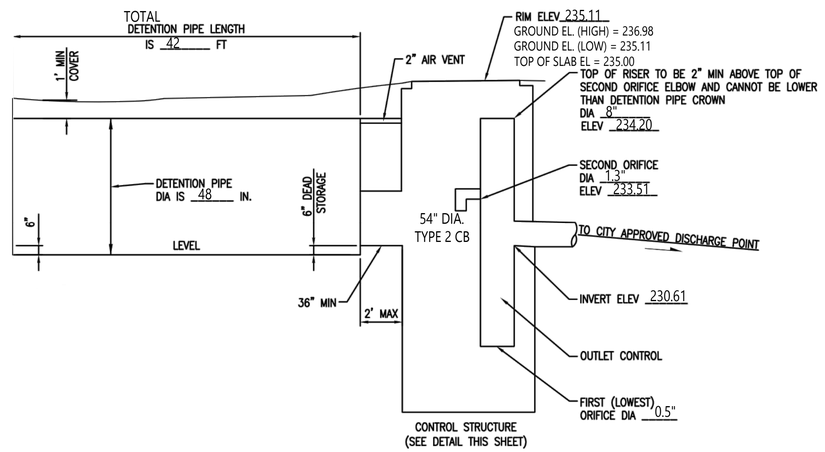


SECTION A-A

CONTROL STRUCTURE DETAIL
NOT TO SCALE

OWNER: John Sullivan	ADDRESS: 3024 69th Ave SE	PREPARED BY: Interlaken Engineering and Design, PLLC	
PERMIT #:		PHONE: (206) 470 - 9572	
		DATE: January 18, 2023	
NEW PLUS REPLACED IMPERVIOUS SURFACE AREA (SF): 3255 sf (roof) to be detained	DETENTION PIPE DIA (INCH): 48	DETENTION PIPE LENGTH (FT): 42	ORIFICE #1 DIA 0.5 INCH, ELEV 228.61
SOIL TYPE: C	PIPE MATERIAL: ADS		ORIFICE #2 DIA 1.3 INCH, ELEV 233.86

NO UPPER CATCH BASIN REQUIRED - DETENTION PIPE LENGTH IS LESS THAN 50 FT.



ON-SITE DETENTION SYSTEM
NOT TO SCALE (ENGINEER TO FILL IN BLANKS)

CONTROL STRUCTURE NOTES:

1. USE A MINIMUM OF A 54 IN. DIAM. TYPE 2 CATCH BASIN. THE ACTUAL SIZE IS DEPENDENT ON CONNECTING PIPE MATERIAL AND DIAMETER.
2. OUTLET PIPE: MIN. 6 INCH.
3. METAL PARTS: CORROSION RESISTANT. NON-GALVANIZED PARTS PREFERRED. GALVANIZED PIPE PARTS TO HAVE ASPHALT TREATMENT 1.
4. FRAME AND LADDER OR STEPS OFFSET SO:
   - A. CLEANOUT GATE IS VISIBLE FROM TOP;
   - B. CLIMB-DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE;
   - C. FRAME IS CLEAR OF CURB.
5. IF METAL OUTLET PIPE CONNECTS TO CEMENT CONCRETE PIPE, OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4 IN.
6. PROVIDE AT LEAST ONE 3 X 0.090 GAUGE SUPPORT BRACKET ANCHORED TO CONCRETE WALL WITH 5/8 IN. STANLESS STEEL EXPANSION BOLTS OR EMBEDDED SUPPORTS 2 IN. INTO CATCH BASIN WALL (MAXIMUM 3'-0" VERTICAL SPACING).
7. THE SHEAR GATE SHALL BE MADE OF ALUMINUM ALLOY IN ACCORDANCE WITH ASTM B 26M AND ASTM B 275, DESIGNATION ZG32A; OR CAST IRON IN ACCORDANCE WITH ASTM A 48, CLASS 30B.
   THE LIFT HANDLE SHALL BE MADE OF A SIMILAR METAL TO THE GATE (TO PREVENT GALVANIC CORROSION), IT MAY BE OF SOLID ROD OR HOLLOW TUBING, WITH ADJUSTABLE HOOK AS REQUIRED.
   A NEOPRENE RUBBER GASKET IS REQUIRED BETWEEN THE RISER MOUNTING FLANGE AND THE GATE FLANGE. INSTALL THE GATE SO THAT THE LEVEL-LINE MARK IS LEVEL WHEN THE GATE IS CLOSED.
   THE MATING SURFACES OF THE LID AND THE BODY SHALL BE MACHINED FOR PROPER FIT.
   ALL SHEAR GATE BOLTS SHALL BE STAINLESS STEEL.
8. THE UPPER CATCH BASIN IS REQUIRED IF THE LENGTH OF THE DETENTION PIPE IS GREATER THAN 50 FT.

ON-SITE DETENTION SYSTEM NOTES:

1. CALL DEVELOPMENT SERVICES (206-275-7605) 24 HOURS IN ADVANCE FOR A DETENTION SYSTEM INSPECTION BEFORE BACKFILLING AND FOR FINAL INSPECTIONS.
2. RESPONSIBILITY FOR OPERATION AND MAINTANANCE OF DRAINAGE SYSTEMS ON PRIVATE PROPERTY IS RESPONSIBILITY OF THE PROPERTY OWNER. MATERIAL ACCUMULATED IN THE STORAGE PIPE MUST BE REMOVED FROM CATCH BASINS TO ALLOW PROPER OPERATION. THE OUTLET CONTROL ORIFICE MUST BE KEPT OPEN AT ALL TIMES.
3. PIPE MATERIAL, JOINT, AND PROTECTIVE TREATMENT SHALL BE IN ACCORDANCE WITH SECTION 7.04 AND 9.05 OF THE WSDOT STANDARD SPECIFICATION FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, LATEST VERSION. SUCH MATERIALS INCLUDE THE FOLLOWING, LINED CORRUGATED POLYETHYLENE PIPE (LCPE), ALUMINIZED TYPE 2 CORRUGATED STEEL PIPE AND PIPE ARCH (MEETS AASHTO DESIGNATIONS M274 AND M36), CORRUGATED OR SPIRAL RIB ALUMINUM PIPE, OR REINFORCED CONCRETE PIPE. CORRUGATED STEEL PIPE IS NOT ALLOWED.
4. FOOTING DRAINS SHALL NOT BE CONNECTED TO THE DETENTION SYSTEM.

SEE C2 FOR DRAINAGE SITE PLAN

Sullivan Residence
Site Address: 3024 69th Ave SE
Jurisdiction: Mercer Island
Parcel No.: 217510-0315
Applicant: SHED
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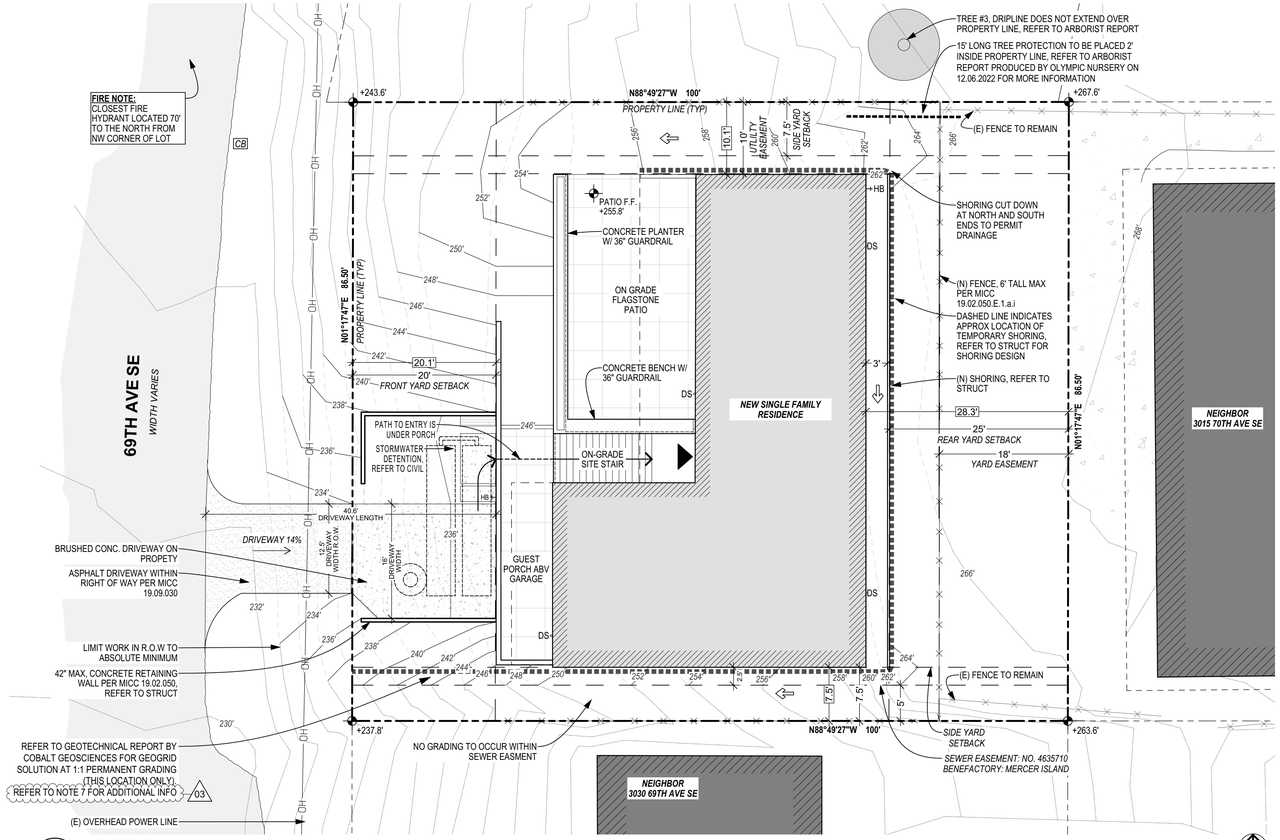
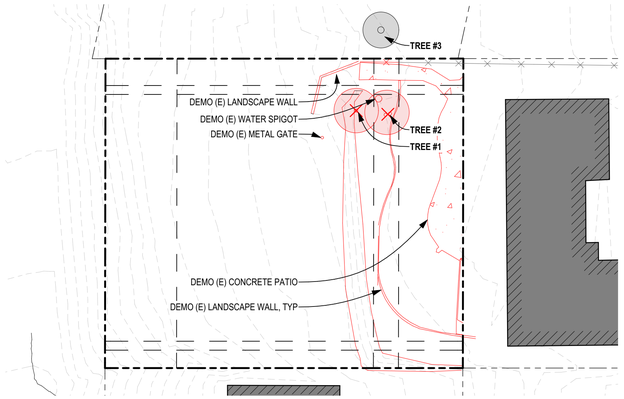
Revisions:
2023-07-07: Updated for City of Mercer Island comments
2023-05-26: Updated for City of Mercer Island comments

C3
Detention Detail
Scale: As Noted



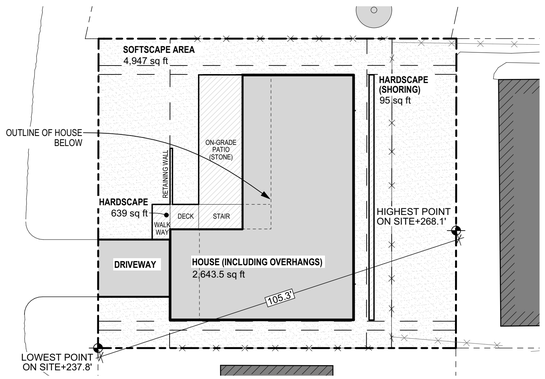
1 SITE PLAN
SCALE: 1" = 10'



2 DEMO AND TREE REMOVAL PLAN
SCALE: 1" = 20'

TREE NOTES:
>TREE DATA BELOW WAS PRODUCED BY OLYMPIC NURSERY, INC, REFER TO ARBORIST REPORT FOR MORE INFORMATION
>ARBORIST SHALL BE ON SITE DURING CLEARING TO CONFIRM TREE REMOVAL

TREE #	SPECIES	DBH	DRIP	CNDTN	CNDTN	CNDTN	RMV	RTN
1	COTONEASTER DAMERII	8.5"	6'	FAIR	SHRUB GROWN AND PRUNED TO HAVE TREE-LIKE FORM. TWO 6" STEMS AT 36"	NOT SIGNIFICANT	YES	
2	FIG, FRUITING	3.7"	4'	GOOD	FIVE STEM: 1.0, 1.5, 1.5, 2.0, 2.0 SQ ROOT OF SUM OF EASH STEM SQUARED	NOT SIGNIFICANT	YES	
3	ACER RUBRUM, RED MAPLE	EST 20"	8'	GOOD	OFF-SITE, TO BE PROTECTED AT DRIPLINE	OFF-SITE		YES



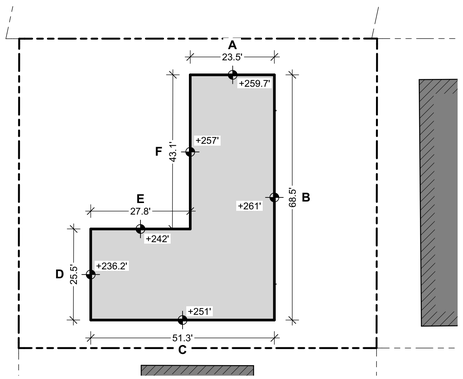
3 LOT COVERAGE + LANDSCAPE AREA DIAGRAM
SCALE: 1" = 20'

LAND COVERAGE
>LOT AREA = 8,652
>LOT SLOPE:
LOWEST POINT = 237.8', HIGHEST POINT = 268.1', DISTANCE BETWEEN THEM IS 105.3'
SLOPE = (268.1-237.8)/105.3 X 100 = 28.8%
>PER MICC 19.02.020.F.3.a ALLOWABLE LOT COVERAGE FOR SITE WITH 28.8% SLOPE IS 35%
>ALLOWABLE LOT COVERAGE =8,650X0.35= 3,027SQFT
>INCLUDES ALL BUILDINGS MEASURED TO THE EAVES AND DRIVING SURFAES
>DRIVEWAY = 321.5SQFT
>HOUSE AREA INCLUDING OVERHANGS = 2,643.5
TOTAL = 2,965 SQFT (34.2%) PROPOSED < 3,027 SQFT (35%) ALLOWED

HARDSCAPE:
>LOT AREA = 8,652
>PER MICC 19.02.020.F.3.a ALLOWABLE HARDSCAPE FOR LOT LARGER THAN 8,400 SQFT IS 9%
>INCLUDES WALKWAYS, DECKS, PATIOS; DOES NOT INCLUDE DRIVEWAY SURFACES OR BUILDINGS
>ALLOWABLE HARDSCAPE AREA =8,650X0.09= 778.5SQFT
TOTAL = 749 SQFT (8.6%) PROPOSED < 778.5 SQFT (9%) ALLOWED

REQUIRED LANDSCAPE AREA:
>LOT AREA = 8,652
>PER MICC 19.02.020.F.3.a REQUIRED LANDSCAPING AREA FOR SITE WITH 29.4% SLOPE IS 65%
>REQUIRED LANDSCAPE AREA = 8,652X0.65= 5,623.8SQFT
>4,929.5 SQFT SOFTSCAPE + 749 SQFT HARDSCAPE = 5,678.5 SQFT LANDSCAPE
TOTAL = 5,678.5 SQFT PROPOSED > 5,623.8 SQFT REQ'D

KEY:
- LOT COVERAGE (ROOF+OVERHANGS AND DRIVEWAY)
- HARDSCAPE
- SOFTSCAPE

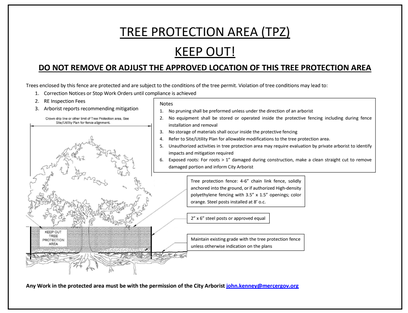


4 AVERAGE BUILDING HEIGHT
SCALE: 1" = 20'

AVERAGE BUILDING HEIGHT CALC:
>PER MICC 19.02.020.E.4
>WEIGHTED SUM OF MID-POINT ELEVATIONS / TOTAL LENGTH OF WALL SEGMENTS
>**A**(23.5)(259.7)+**B**(68.5)(261)+**C**(51.3)(251)+**D**(25.5)(236.2)+**E**(27.8)(242)+**F**(43.1)(257) / (**A**23.5+**B**68.5+**C**51.3+**D**25.5+**E**27.8+**F**43.1)
>60,685.2/239.7 =
AVERAGE HEIGHT = 253.1' (+7.1' ABV PROJ. ZERO)

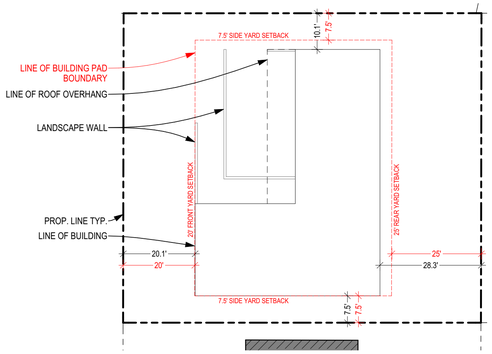
ALLOWABLE BUILDING HEIGHT
>PER MICC 19.02.020.E.1
>ALLOWABLE = AVERAGE HEIGHT + 30'
>ALLOWABLE = 253.1' + 30'
>ALLOWABE PER MICC = 283.1'
>VIEW EASEMENT WITH NEIGHBORING PROPERTY @ 3015 70TH AVE SE LIMITS HIEGHT TO 272'
>ALLOWABLE BUILDING HEIGHT = 272'

TREE PROTECTION FENCING DETAIL



5 BUILDING PAD DIAGRAM
SCALE: 1" = 20'

BUILDING PAD:
>NEW BUILDING PAD PER MICC 19.09.090
>REFER TO GEOTECHNICAL REPORT PRODUCED BY COBALT GEOSCIENCES FOR MITIGATION METHODS FOR PORTIONS OF BUILDING PAD WITHIN CRITICAL AREA



SITE PLAN NOTES:

A. RE: SURVEY FOR ADDITIONAL EXISTING SITE INFORMATION. ALL ELEVATIONS ARE BASED ON SURVEY DATED MAY 21, 2021 BY D.R. STRONG CONSULTING ENGINEERS.

B. ALL DIMENSIONS ARE TO FACE OF CONC / FINISH, U.N.O.

C. ALL DIMENSIONS TO PROPERTY/SETBACK LINES ARE MEASURED AT ANGLES PERPENDICULAR TO PROPERTY/SETBACK LINES.

D. **PER MICC 19.02.020(F)(3)(d):** DEVELOPMENT PROPOSALS FOR A NEW SINGLE-FAMILY HOME SHALL REMOVE JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM) AND REGULATED CLASS A, REGULATED CLASS B, AND REGULATED CLASS C WEEDS IDENTIFIED ON THE KING COUNTY NOXIOUS WEED LIST, AS AMENDED, FROM REQUIRED LANDSCAPING AREAS ESTABLISHED PURSUANT TO SUBSECTION (F)(3)(A) OF THIS SECTION. NEW LANDSCAPING ASSOCIATED WITH NEW SINGLE-FAMILY HOME SHALL NOT INCORPORATE ANY WEEDS IDENTIFIED ON THE KING COUNTY NOXIOUS WEED LIST, AS AMENDED. PROVIDED, THAT REMOVAL SHALL NOT BE REQUIRED IF THE REMOVAL WILL RESULT IN INCREASED SLOPE INSTABILITY OR RISK OF LANDSLIDE OR EROSION.

E. SEWER LINE WAS LOCATED ON 2023.04.04 BY ADVANCED UNDERGROUND UTILITY LOCATING, LOCATION AND DEPTH OF LINE WAS FOUND USING GROUND PENETRATING RADAR AND SONDE LOCATING. VIDEO OF LINE ALONGSIDE MERCER ISLAND SIDE SEWER VIDEO INSPECTION REPORT HAS BEEN SUBMITTED AS PART OF THIS PERMIT SUBMITTAL

F. GEOTECHNICAL ENGINEER IS REQUIRED TO BE PRESENT DURING INSTALLATION OF THE REINFORCED FILL TO VERIFY GEOGRID PROPERTIES, LENGTHS AND INSTALLATION ARE IN ACCORDANCE WITH THEIR RECOMMENDATIONS PRESENTED IN THEIR REPORT DATED JUNE 27, 2023 (03)

LANDSCAPE PLAN LEGEND:

- PRIMARY ENTRANCE
- NATURAL DRAINAGE FLOW DIRECTION
- ELEV. SPOT ELEVATION
- (E) TOPO CONTOUR TO REMAIN
- NEW TOPO CONTOUR
- RESHAPED (E) TOPO CONTOUR
- PROPERTY LINE
- PROPERTY SETBACK LINE
- OH POWER LINE (OVERHEAD)
- S SEWER LINE
- SW STORMWATER PIPE
- W WATER LINE
- CB STORMWATER CATCH BASIN
- EXISTING OVERHEAD POWER POLE
- NEW STRUCTURE FOOTPRINT
- NEW OUTDOOR PATIO FOOTPRINT
- NEIGHBORING STRUCTURES
- CONCRETE (SLAB-ON GRADE)

SHED

9686 REGISTERED ARCHITECT
GREGORY C SHIFFLER
STATE OF WASHINGTON

CONTACT
SHED ARCHITECTURE & DESIGN
1401 S JACKSON ST
SEATTLE, WA 98144
206.320.8700

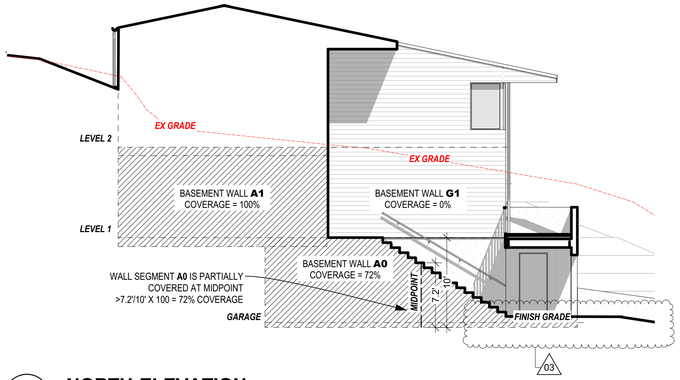
PROJECT
SULLIVAN
3024 69th Ave SE
MERCER ISLAND, WA 98040

ISSUE	DATE
PRE APP #1 (PRE22-0433)	2022.08.16
CAR 2 (CAO22-023)	2022.12.08
PERMIT SET	2023.01.20
REVISION #1 1	2023.05.26
REVISION #2 2	2023.07.07
REVISION #3 3	2023.07.27

DRAWING TITLE
SITE PLAN & DIAGRAMS

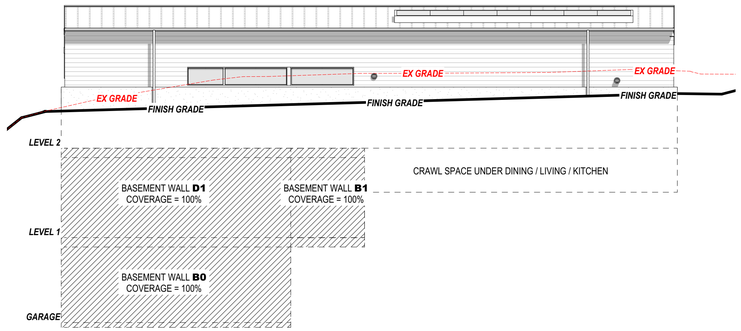
A-001

© SHED ARCHITECTURE & DESIGN SEATTLE, WA 98144



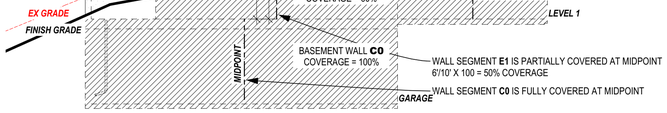
1 NORTH ELEVATION

SCALE: 1/8" = 1'-0"



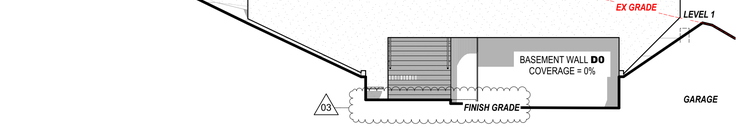
2 EAST ELEVATION

SCALE: 1/8" = 1'-0"



3 SOUTH ELEVATION

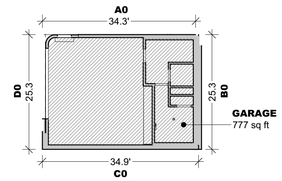
SCALE: 1/8" = 1'-0"



4 WEST ELEVATION

SCALE: 1/8" = 1'-0"

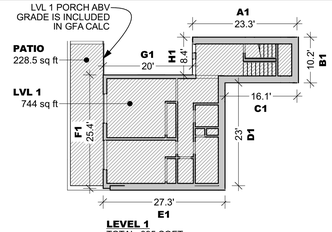
GARAGE: 232.3 SQFT



WALL SEGMENT	LENGTH X	COVERAGE	RESULT
A0	34.9	72%	25.1%
B0	25.3	100%	25.3%
C0	34.9	100%	34.9%
D0	25.3	0%	0%
TOTALS	120.4'	NA	85.3%

BASEMENT FLOOR CALCULATION
>PORTION OF EXLUDED BSMT FLR AREA = TOTAL BSMT FLR AREA X (SUM OF WALL SEGMENT COVERAGE X WALL SEGMENT LENGTH) / TOTAL OF ALL WALL SEGMENT LENGTHS
>EXCLUDED AREA
= 777SQFT X (**WALL A0:** 34.9' X 72% + **WALL B0:** 25.3' X 100% + **WALL C0:** 34.9' X 100% + **WALL D0:** 25.3' X 0%) / 120.4'
= 777 SQFT X (85.3'/120.4')
= 777 SQFT X 70.1%
= 544.7 SQFT
777 SQFT - 544.7 SQFT = TOTAL BSMT AREA
TOTAL BSMT AREA = 232.3 SQFT

LEVEL 1: 408.5 SQFT

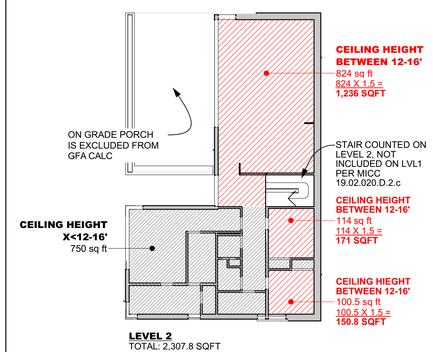


LEVEL 1
TOTAL: 895 SQFT

WALL SEGMENT	LENGTH X	COVERAGE	RESULT
A1	23.3	100%	23.3%
B1	10.2	100%	10.2%
C1	16.1	100%	16.1%
D1	23	100%	23%
E1	27.3	60%	16.4%
F1	25.4	0%	0%
G1	20	0%	0%
H1	8.4	0%	0%
TOTALS	153.7'	NA	89.0%

BASEMENT FLOOR CALCULATION
>PORTION OF EXLUDED BSMT FLR AREA = TOTAL BSMT FLR AREA X (SUM OF WALL SEGMENT COVERAGE X WALL SEGMENT LENGTH) / TOTAL OF ALL WALL SEGMENT LENGTHS
>EXCLUDED AREA
= 972.5 SQFT X (**WALL A1:** 23.3' X 100% + **WALL B1:** 10.2' X 100% + **WALL C1:** 16.1' X 100% + **WALL D1:** 23' X 100% + **WALL E1:** 27.3' X 55% + **WALL F1:** 25.4' X 0% + **WALL G1:** 20' X 0% + **WALL H1:** 8.4' X 0%) / 153.7"
= 972.5 SQFT X (89.0" / 153.7")
= 972.5 SQFT X 58%
= 564 SQFT
972.5 SQFT - 564 SQFT = TOTAL BSMT AREA
TOTAL BSMT AREA = 408.5 SQFT

LEVEL 2: 2,307.8 SQFT



LEVEL 2
TOTAL: 2,307.8 SQFT

TOTAL: 2,958.3 SQFT

GROSS FLOOR AREA:
ALLOWED:
LOT AREA: 8,650 SQFT
GFA PER MICC 19.02.020.D.1: 40%
ALLOWED: 8,650*0.40 = 3,460 SQFT

PROPOSED:
LEVEL 0: 232.3 SQFT
LEVEL 1: 408.5 SQFT
LEVEL 2: 2,307.8 SQFT
TOTAL GFA: 2,948.3 SQFT (34.2%) PROPOSED < 3,460 SQFT (40%)ALLOWED

NOTE:
>PER EMAIL WITH ANDREW LEON @ MERCER ISLAND "GROSS FLOOR AREA IS A LAND USE METRIC AND DOES NOT TAKE IRC DEFINITIONS INTO ACCOUNT. AS A RESULT, THE BASEMENT EXCLUSION PROVISION SET FORTH IN TITLE 19 MICC, APPENDIX B CAN BE APPLIED TO THE BOTTOM TWO FLOORS OF THE PROPOSED HOUSE"

5 GFA + BASEMENT CALCULATION

SCALE: 1" = 20'

SHED

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DRAWING TITLE
GFA+BASEMENT CALC

A-002

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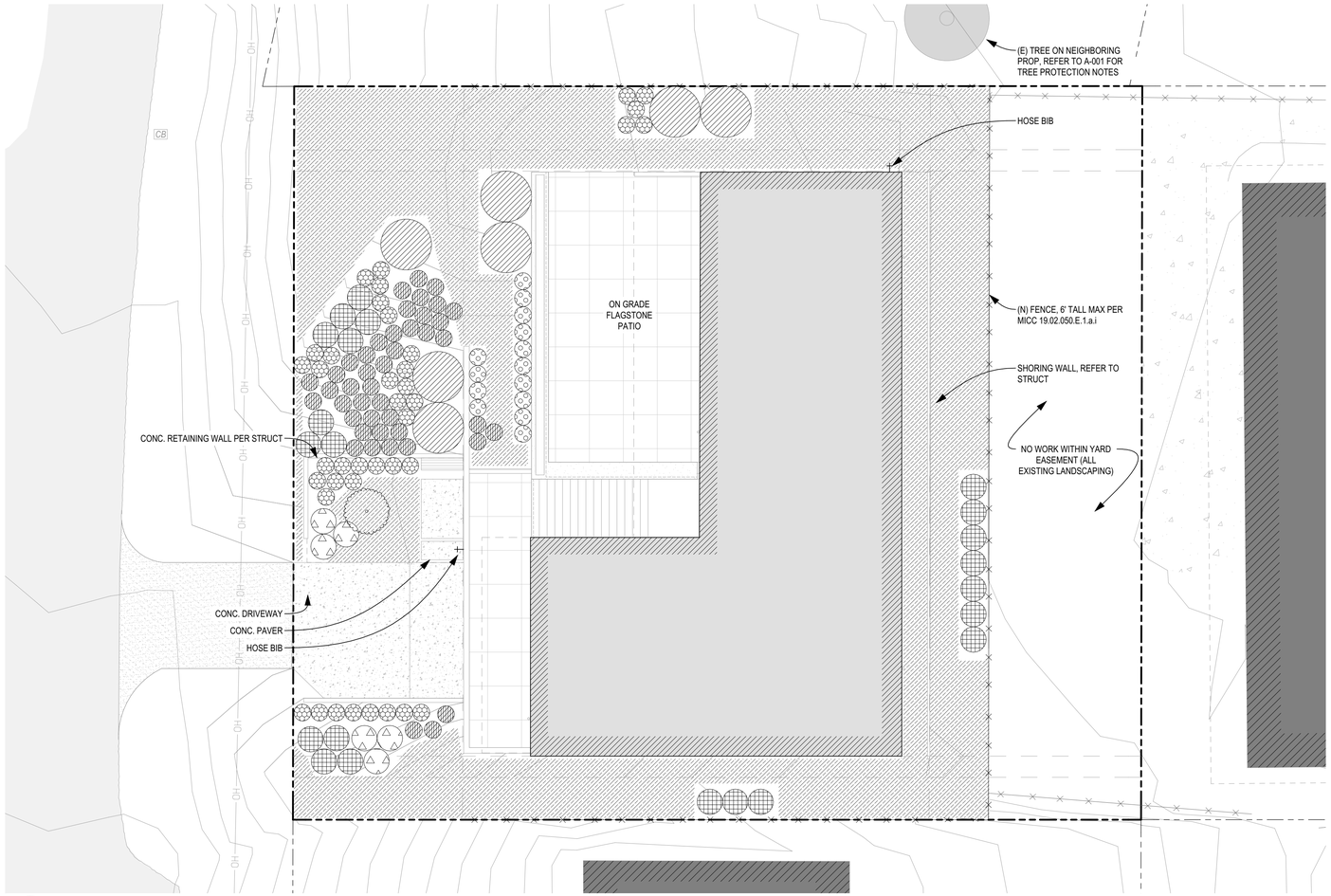

1 **LANDSCAPE PLAN**
SCALE: 1/8" = 1'-0"

LANDSCAPE PLAN NOTES:

A. **PER MICC 19.02.020(F)(3)(d):** DEVELOPMENT PROPOSALS FOR A NEW SINGLE-FAMILY HOME SHALL REMOVE JAPANESE KNOTWEED (POLYGONUM CUSPIDATUM) AND REGULATED CLASS A, REGULATED CLASS B, AND REGULATED CLASS C WEEDS IDENTIFIED ON THE KING COUNTY NOXIOUS WEED LIST, AS AMENDED, FROM REQUIRED LANDSCAPING AREAS ESTABLISHED PURSUANT TO SUBSECTION (F)(3)(A) OF THIS SECTION. NEW LANDSCAPING ASSOCIATED WITH NEW SINGLE-FAMILY HOME SHALL NOT INCORPORATE ANY WEEDS IDENTIFIED ON THE KING COUNTY NOXIOUS WEED LIST, AS AMENDED. PROVIDED, THAT REMOVAL SHALL NOT BE REQUIRED IF THE REMOVAL WILL RESULT IN INCREASED SLOPE INSTABILITY OR RISK OF LANDSLIDE OR EROSION.

B. REFER TO A-001 FOR LANDSCAPE / HARDSCAPE CALCULATIONS

C. REFER TO A-001 FOR EXISTING TREE AND VEGETATION REMOVAL / DEMO PLAN

D. ALL PLANTS ARE NATIVE AND SELECTED FROM THE KING COUNTY NATIVE PLANT LIST. PLANTS LOCATED ON STEEP SLOPE WERE SELECTED FROM "SLOPE STABILIZATION AND EROSION CONTROL USING VEGETATION" PRODUCED BY THE WASHINGTON STATE DEPARTMENT OF ECOLOGY

E. PER GEOTECHNICAL REPORT PRODUCED BY COBALT GEOSCIENCES: FOR SLOPES 3H:1V OR FLATTER, TYPICAL LANDSCAPE PLANTINGS WITH MULCH/COMPOST AND BARK SURFACING IS SUITABLE. FOR SLOPES STEEPER THAN 3H:1V, MULCH AND COMPOST SHOULD BE PLACED, THEN COVERED WITH JUTE UNTIL PLANTINGS ARE WELL ESTABLISHED

PLANT SCHEDULE:

TREE SCHEDULE:

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
	1	CORNUS NUTTALLII	PACIFIC DOGWOOD	1.5" CAL; 6'+ HT MIN	AS SHOWN

SHRUB SCHEDULE:

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
	7	PHILADELPHUS LEWISII	MOCK ORANGE	3 GAL.	72"
	22	VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	1 GAL.	36"
	6	ROSA NUTKANA	NOOTKA ROSE	1 GAL.	36"
	43	SYMPHORICARPOS ALBUS	SNOWBERRY	1 GAL.	24"
	42	ARCTOSAPHYLOS UVA-URSI	BEARBERRY	1 GAL.	24"
	14	LONICERA CILIOSA	ORANGE HONEYCUKLE	1 GAL.	24"

GROUNDCOVER SCHEDULE:

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING
	N/A	N/A	NATIVE PLANT SEED MIXES (ANNUAL AND PERENNIAL GRASS AND FORB MIXES)		APPLY AS RECOMMENDED

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DRAWING TITLE
LANDSCAPE PLAN

A-003

FOUNDATION PLAN NOTES:

A. ALL ELEVATIONS RELATIVE TO FUTURE LEVEL 01 SUBFLOOR: 0' (*246' ABV SEA LEVEL*).
B. ALL DIMS ARE TO F.O. CONC, U.N.O.
C. ALL INDICATED ALIGNMENTS ARE TO F.O. FINISH, U.N.O.
D. RE: STRUCTURAL FOR ADDITIONAL INFO.
E. COORD. ALL CONC. SLAB CONTROL JOINTS W/ ARCH.
F. AXONOMETRIC DRAWINGS SHOW ONLY FOUNDATION WALLS & FOOTINGS; RE: PLANS FOR SLAB ON GRADE LOCATIONS. RE: STRUCT. FOR SOLDIER PILE AND SHORING LOCATIONS
G. TO PROTECT (E) SEWER LINE IN SEWER EASEMENT, SHORING TO BE INSTALLED IN ALTERNATING METHOD OR EACH PILE IS TO BE PLACED AND BACKFILLED WITH CONCRETE/LEAN MIX IMMEDIATELY, PER GEOTECHNICAL REPORT PRODUCED BY COBALT GEOSCIENCES

FOUNDATION PLAN LEGEND:

- ELEVATION CHANGE/STEP
- ELEV. — TOP OF CONC. SLAB (TOS) / TOP OF WALL (TOW) / TOP OF FOOTING (TOF)
- ELEV — FINISHED GRADE ELEVATION
- CONCRETE (SLAB-ON GRADE)

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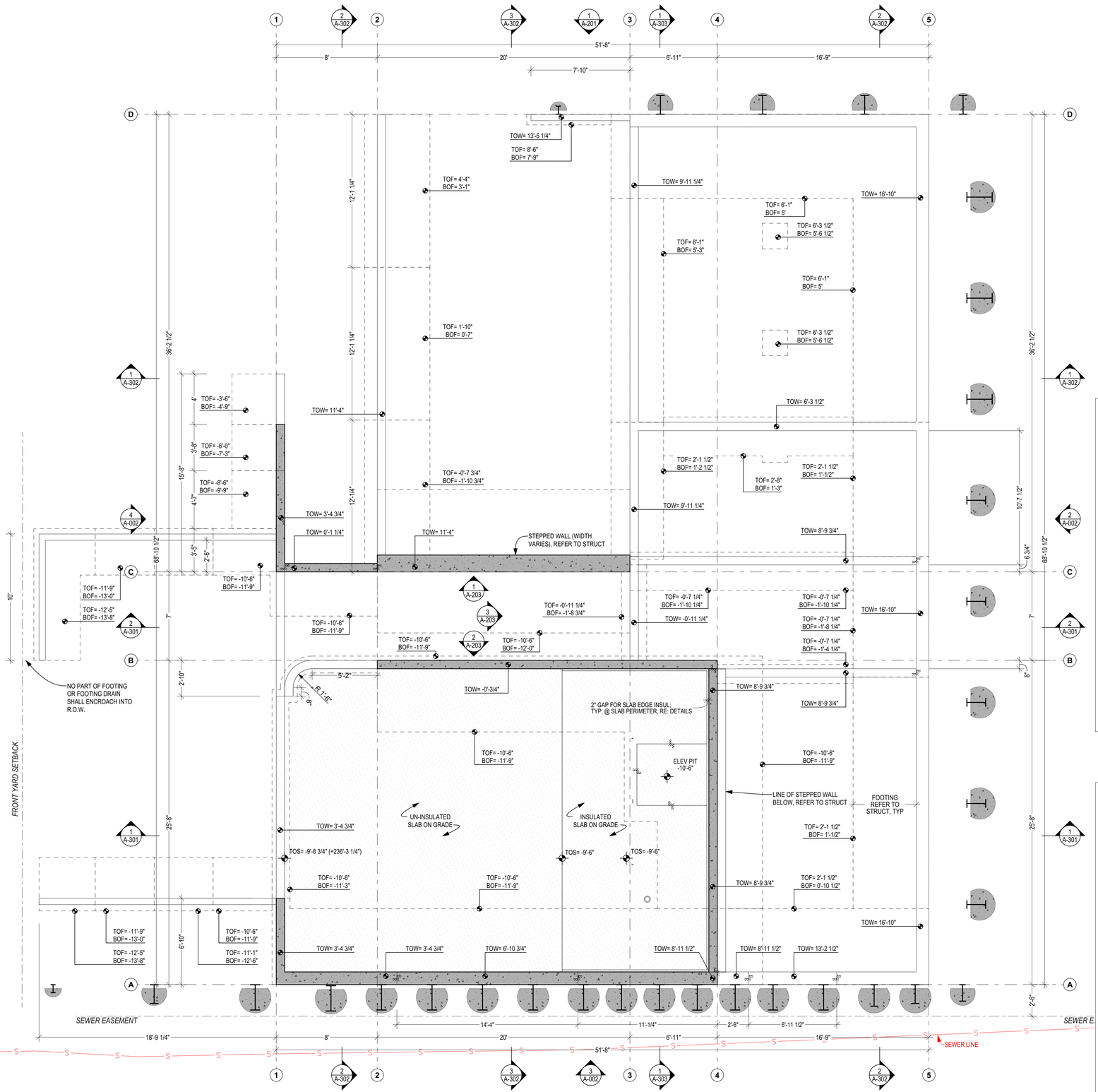
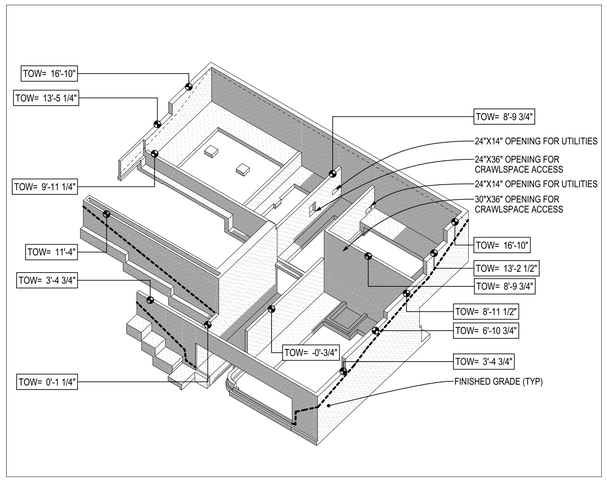
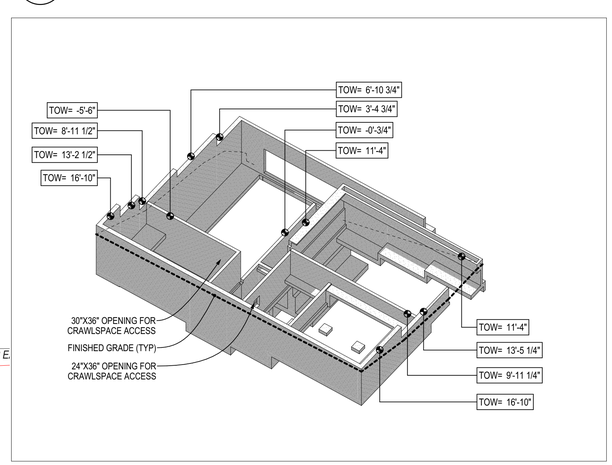


1 **FOUNDATION FLOOR PLAN**
SCALE: 1/4" = 1'-0"



2 **FOUNDATION AXO FROM SE**
SCALE: 1/16" = 1'-0"



3 **FOUNDATION AXO FROM NW**
SCALE: 1/16" = 1'-0"

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DRAWING TITLE
FOUNDATION FLOOR PLAN

A-100

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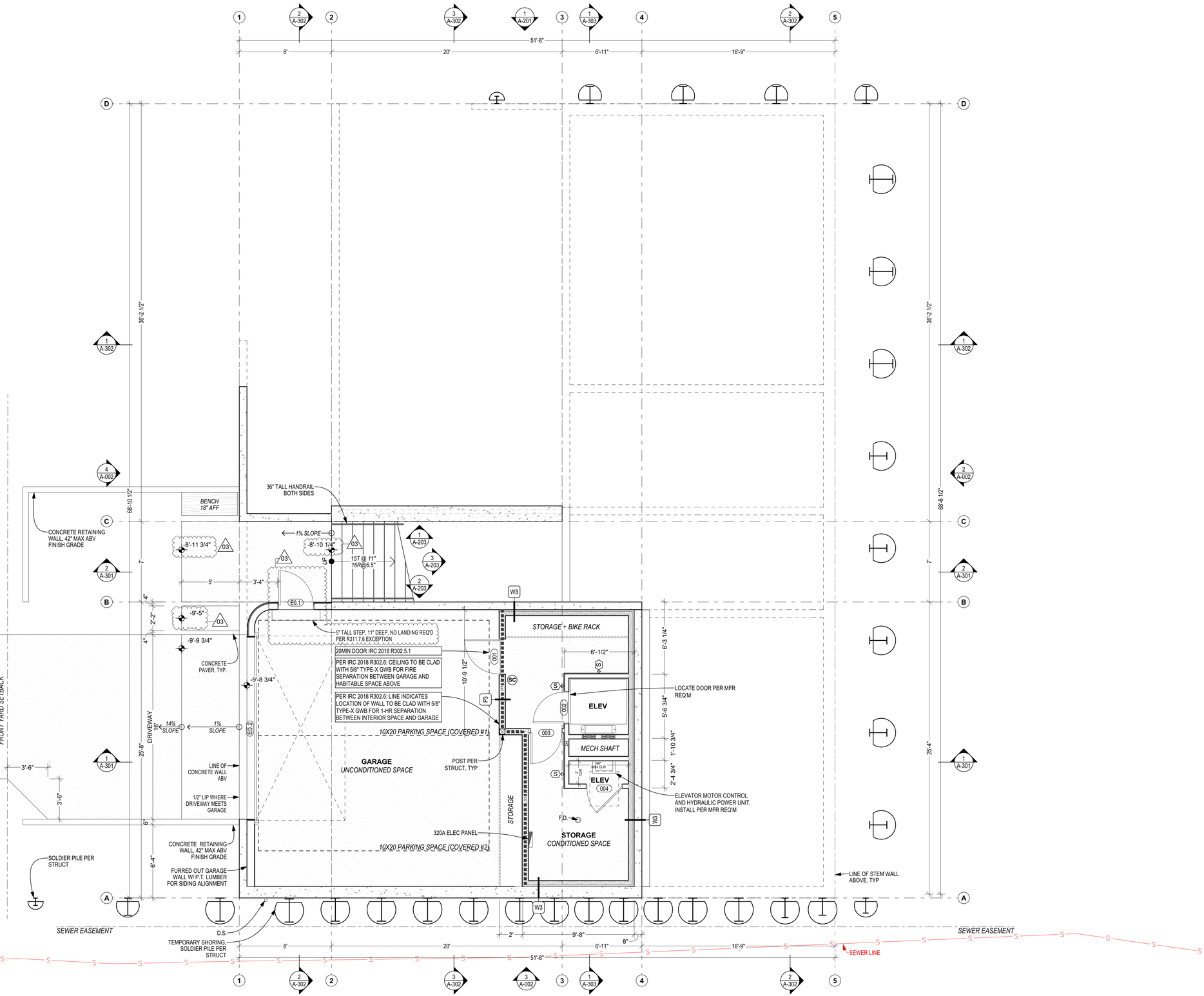

1 GARAGE FLOOR PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

A. ALL DIMS ARE TO F.O. FRAMING OR F.O. CONC, U.N.O.
B. ALL INDICATED ALIGNMENTS ARE TO F.O. FINISH, U.N.O.
C. WINDOW OPENING DIMENSIONS ARE MEASURED FROM THE ROUGH OPENING U.N.O. -- RE: SCHEDULES & ELEVATIONS FOR ADDITIONAL INFO.
D. RE: STRUCTURAL FOR FRAMING INFO.
E. ALL FLOOR TRANSITIONS SHALL BE AT CENTER OF DOOR LEAF, U.N.O.
F. ALL INTERIOR PARTITIONS ARE **P2** U.N.O.

SYMBOL LEGEND:

- MAIN ENTRY DOOR
- SC — COMBINATION SMOKE & CARBON MONOXIDE ALARM
- 50 CFM (U.N.O.) EXHAUST FAN
- S — INDICATES SIDE OF SHEAR WALL TO RECEIVE SHEATHING (RE: STRUCT FOR MORE INFO)
- # — ASSEMBLY TAG, REFER TO **A-601** FOR MORE INFO

SHED

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DRAWING TITLE

GARAGE FLOOR PLAN

A-110

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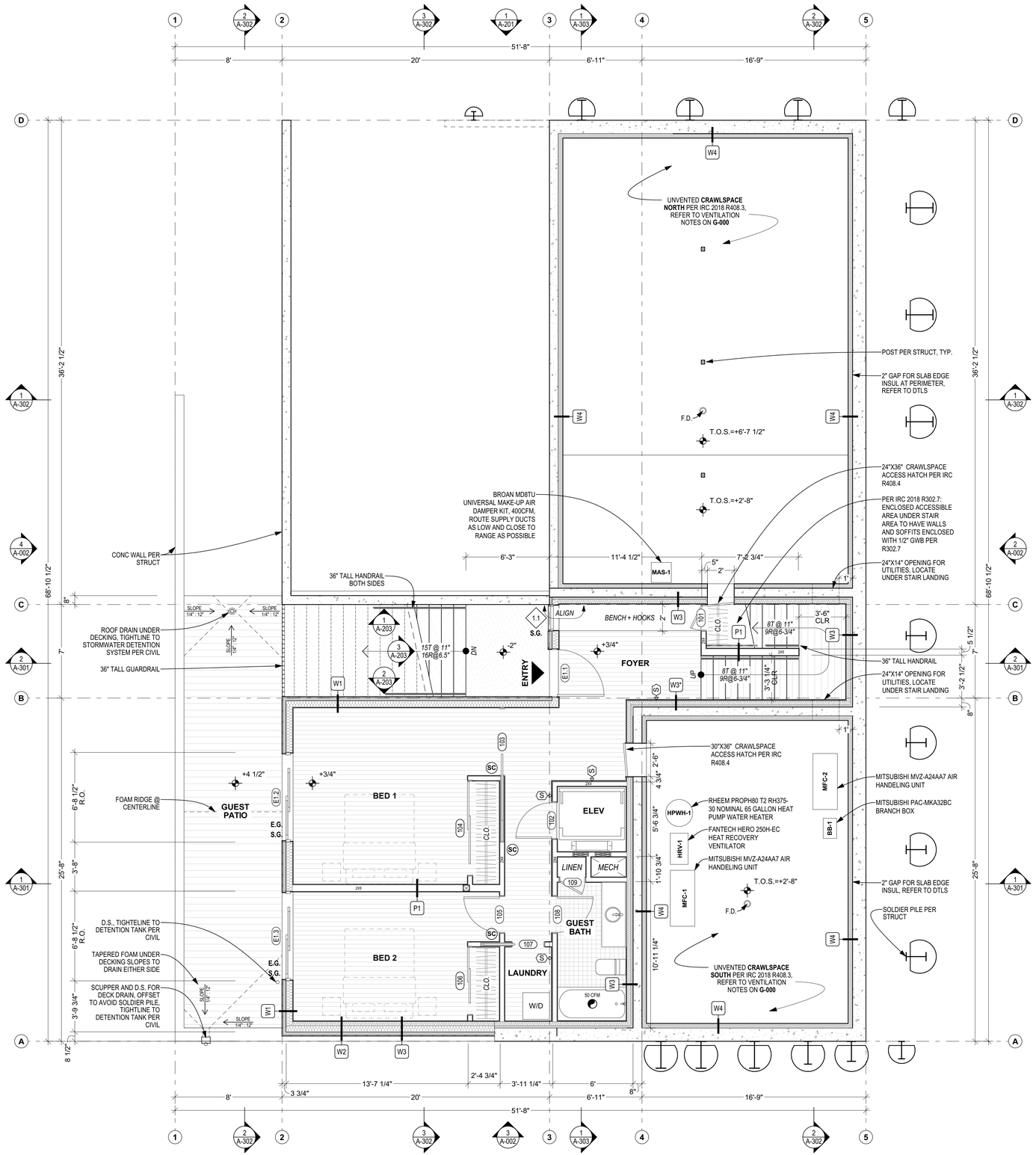

1 LEVEL 1 FLOOR PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

A. ALL DIMS ARE TO F.O. FRAMING OR F.O. CONC, U.N.O.
B. ALL INDICATED ALIGNMENTS ARE TO F.O. FINISH, U.N.O.
C. WINDOW OPENING DIMENSIONS ARE MEASURED FROM THE ROUGH OPENING U.N.O. -- RE: SCHEDULES & ELEVATIONS FOR ADDITIONAL INFO.
D. RE: STRUCTURAL FOR FRAMING INFO.
E. ALL FLOOR TRANSITIONS SHALL BE AT CENTER OF DOOR LEAF, U.N.O.
F. ALL INTERIOR PARTITIONS ARE P2 U.N.O.

SYMBOL LEGEND:

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- 50 CFM (U.N.O.) EXHAUST FAN
- S — INDICATES SIDE OF SHEAR WALL TO RECEIVE SHEATHING (RE: STRUCT FOR MORE INFO)
- # — ASSEMBLY TAG, REFER TO **A-601** FOR MORE INFO

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DRAWING TITLE

LEVEL 1 FLOOR PLAN

A-111

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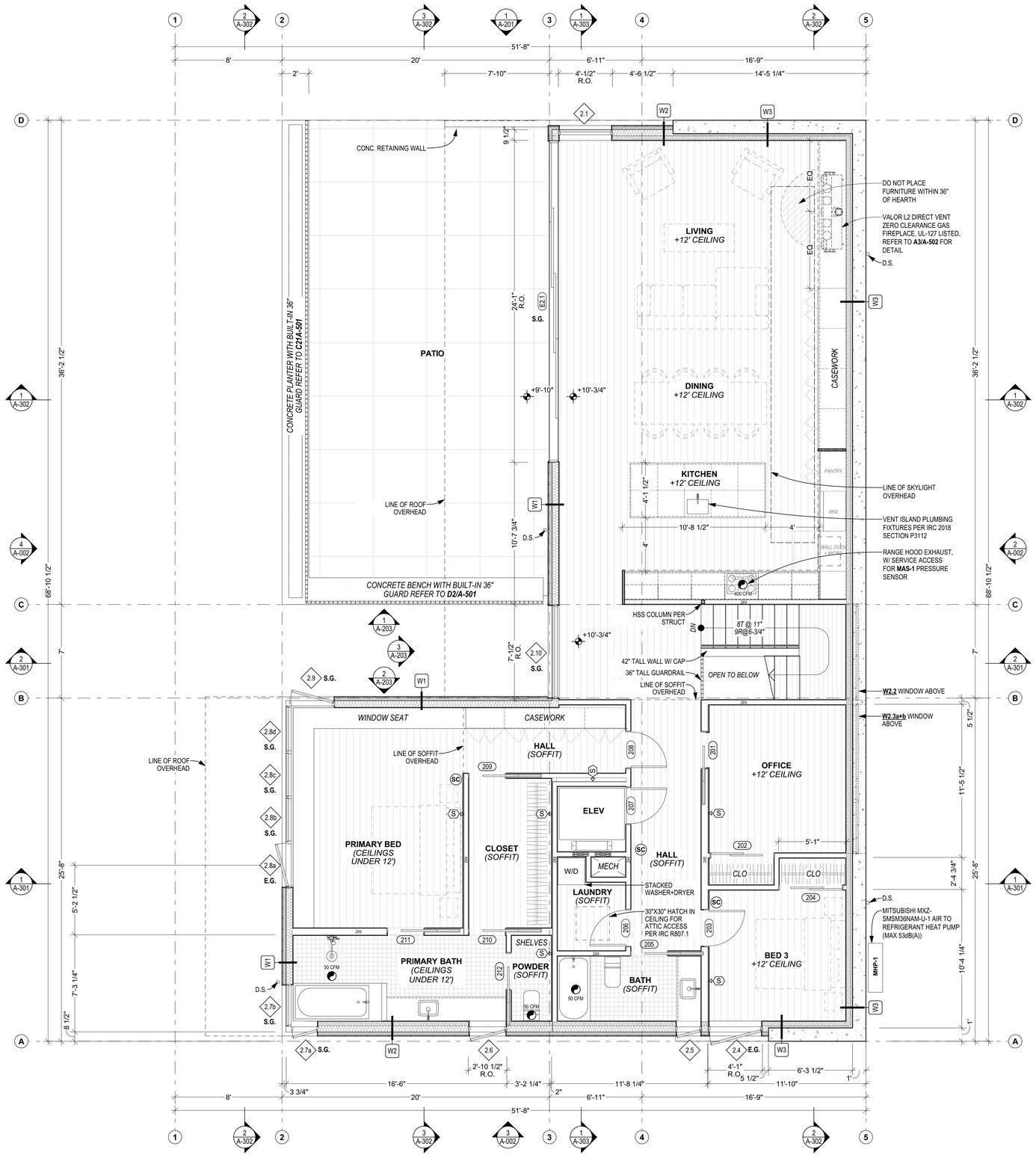

1 LEVEL 2 FLOOR PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

A. ALL DIMS ARE TO F.O. FRAMING OR F.O. CONC, U.N.O.
B. ALL INDICATED ALIGNMENTS ARE TO F.O. FINISH, U.N.O.
C. WINDOW OPENING DIMENSIONS ARE MEASURED FROM THE ROUGH OPENING U.N.O. -- RE: SCHEDULES & ELEVATIONS FOR ADDITIONAL INFO.
D. RE: STRUCTURAL FOR FRAMING INFO.
E. ALL FLOOR TRANSITIONS SHALL BE AT CENTER OF DOOR LEAF, U.N.O.
F. ALL INTERIOR PARTITIONS ARE **P2** U.N.O.

SYMBOL LEGEND:

- MAIN ENTRY DOOR
- (SC) COMBINATION SMOKE & CARBON MONOXIDE ALARM
- 50 CFM (U.N.O.) EXHAUST FAN
- (S) INDICATES SIDE OF SHEAR WALL TO RECEIVE SHEATHING (RE: STRUCT FOR MORE INFO)
- (#) ASSEMBLY TAG, REFER TO **A-601** FOR MORE INFO

SHED

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DRAWING TITLE

LEVEL 2 FLOOR PLAN

A-112

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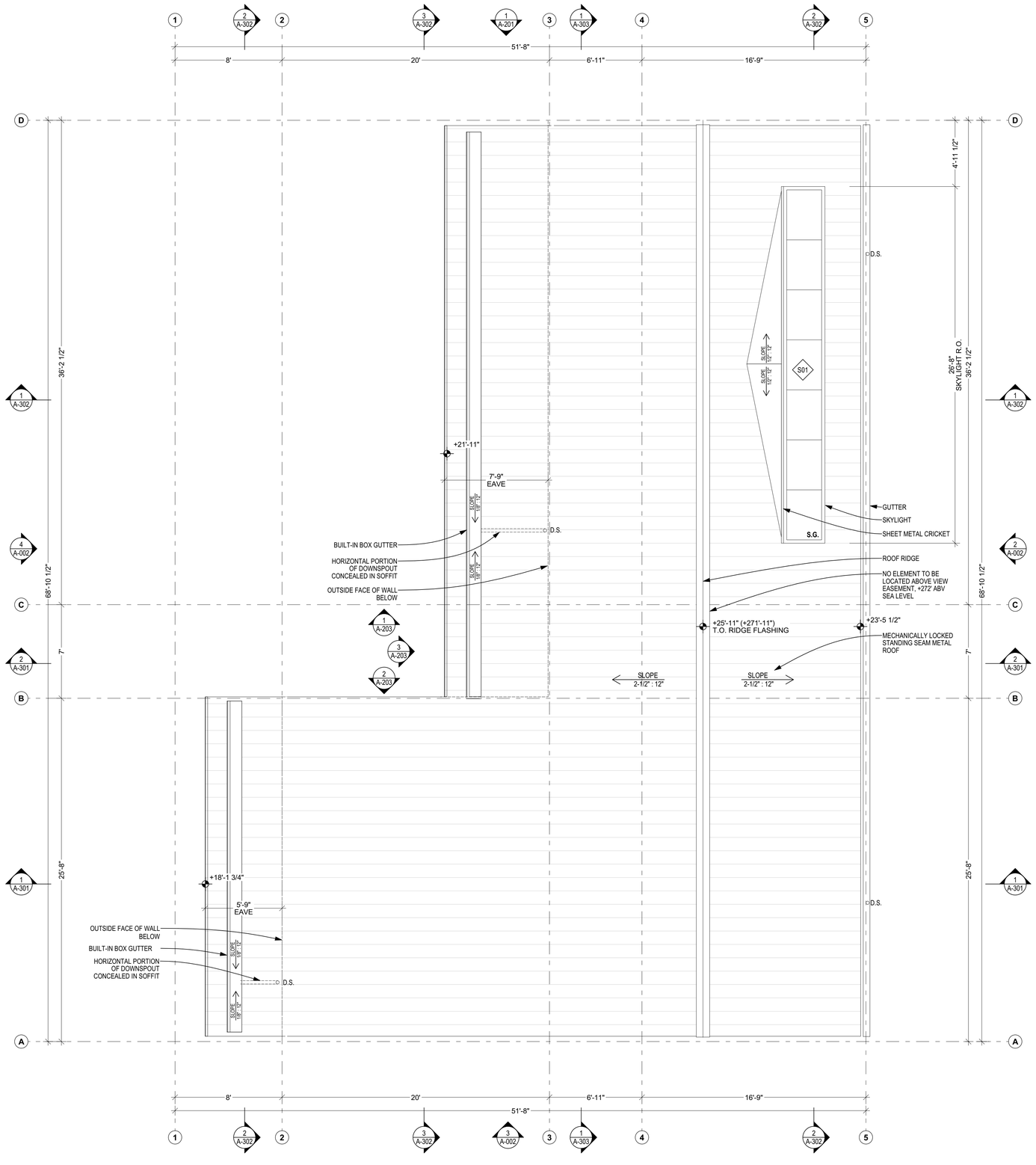

1 ROOF PLAN

SCALE: 1/4" = 1'-0"

PLAN NOTES:

A. ALL DIMS ARE TO F.O. FRAMING OR F.O. CONC, U.N.O.
B. ALL INDICATED ALIGNMENTS ARE TO F.O. FINISH, U.N.O.
C. WINDOW OPENING DIMENSIONS ARE MEASURED FROM THE ROUGH OPENING U.N.O. -- RE: SCHEDULES & ELEVATIONS FOR ADDITIONAL INFO.
D. RE: STRUCTURAL FOR FRAMING INFO.
E. ALL FLOOR TRANSITIONS SHALL BE AT CENTER OF DOOR LEAF, U.N.O.
F. ALL INTERIOR PARTITIONS ARE **P2** U.N.O.

SYMBOL LEGEND:

- MAIN ENTRY DOOR
- (SC) COMBINATION SMOKE & CARBON MONOXIDE ALARM
- 50 CFM (U.N.O.) EXHAUST FAN
- (S) INDICATES SIDE OF SHEAR WALL TO RECEIVE SHEATHING (RE: STRUCT FOR MORE INFO)
- (#) ASSEMBLY TAG, REFER TO **A-601** FOR MORE INFO

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DRAWING TITLE

ROOF PLAN

A-113

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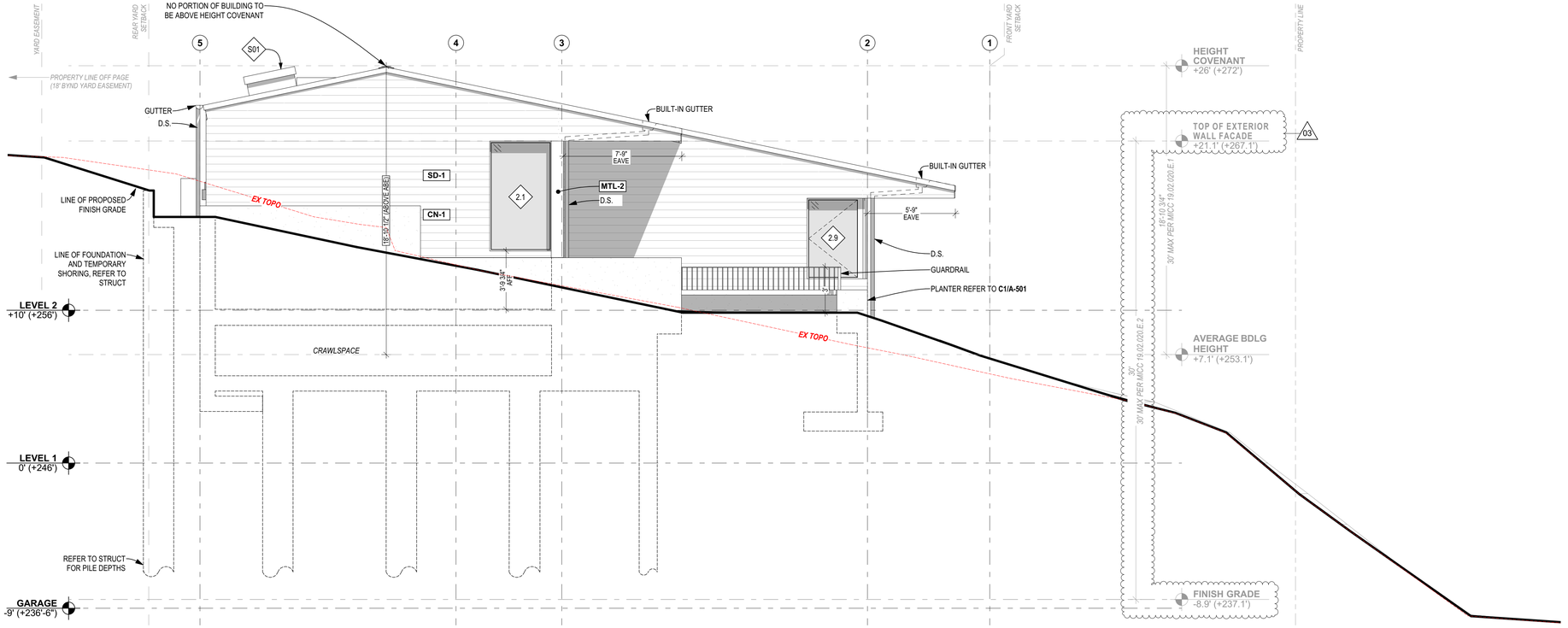
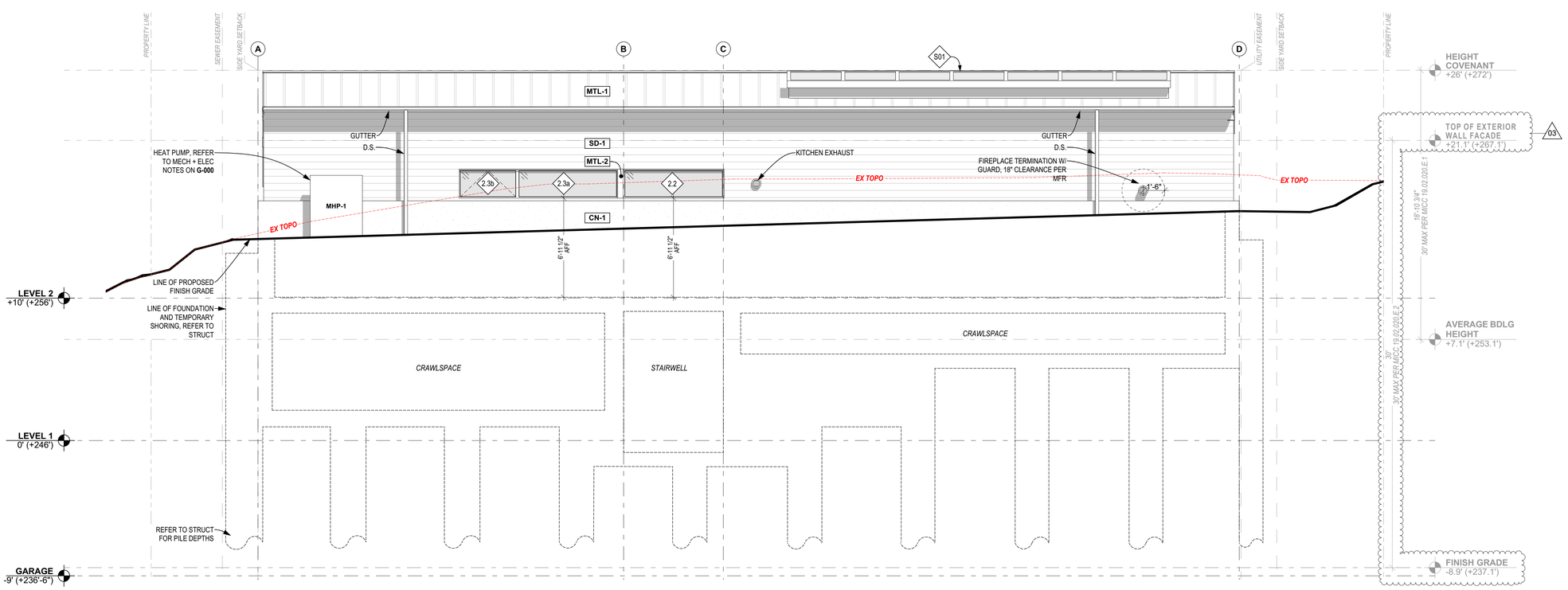


1 NORTH ELEVATION

SCALE: 1/4" = 1'-0"



2 EAST ELEVATION

SCALE: 1/4" = 1'-0"

ELEVATION NOTES:

A. ALL DIMS ARE TO FACE OF FINISH U.N.O.

B. FLOOR ELEVATIONS REFERENCE TOP OF STRUCTURAL FLOOR DIAPHRAM; RE: ASEEMBLIES ON **A-601**

FINISH LEGEND:

SD-1	HORIZONTAL CEDAR SIDING
MTL-1	STANDING SEAM METAL ROOF
MTL-2	INFILL METAL PANEL
CN-1	ARCHITECTURAL CONCRETE WALL

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REVISION #3 ⚠	2023.07.27

DRAWING TITLE

EXTERIOR ELEVATIONS

A-201

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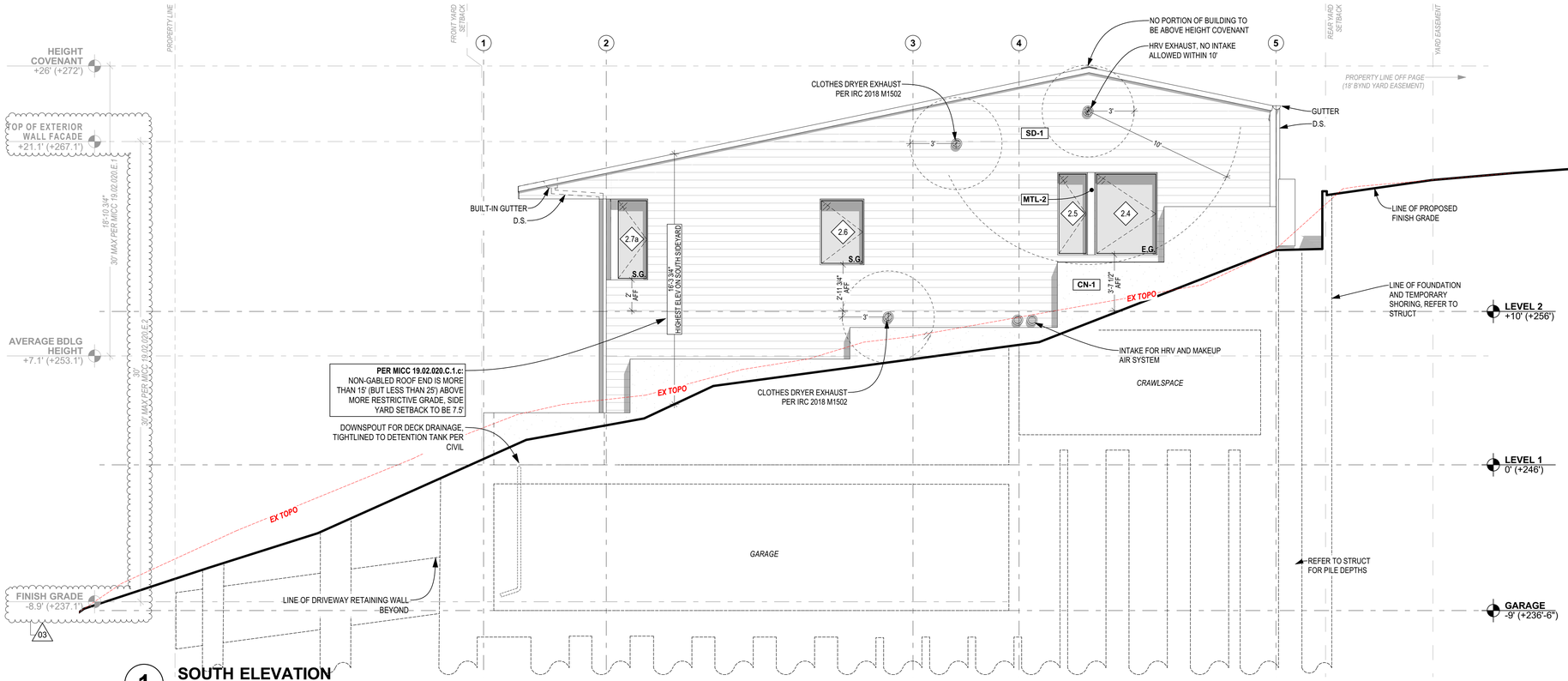
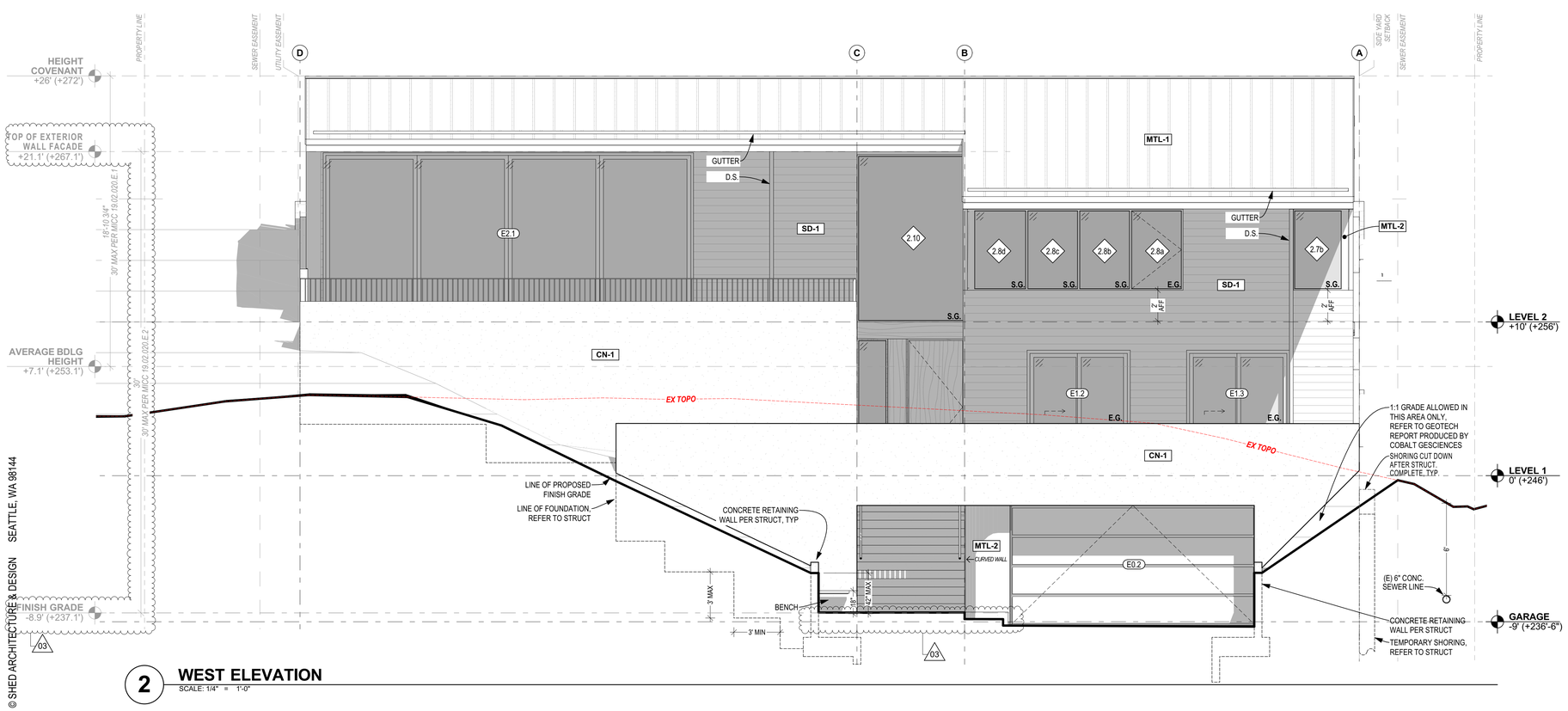


1 SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



2 WEST ELEVATION

SCALE: 1/4" = 1'-0"

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ELEVATION NOTES:

A. ALL DIMS ARE TO FACE OF FINISH U.N.O.

B. FLOOR ELEVATIONS REFERENCE TOP OF STRUCTURAL FLOOR DIAPHRAM; RE: ASEEMBLIES ON **A-601**

FINISH LEGEND:

SD-1	HORIZONTAL CEDAR SIDING
MTL-1	STANDING SEAM METAL ROOF
MTL-2	INFILL METAL PANEL
CN-1	ARCHITECTURAL CONCRETE WALL

SHED

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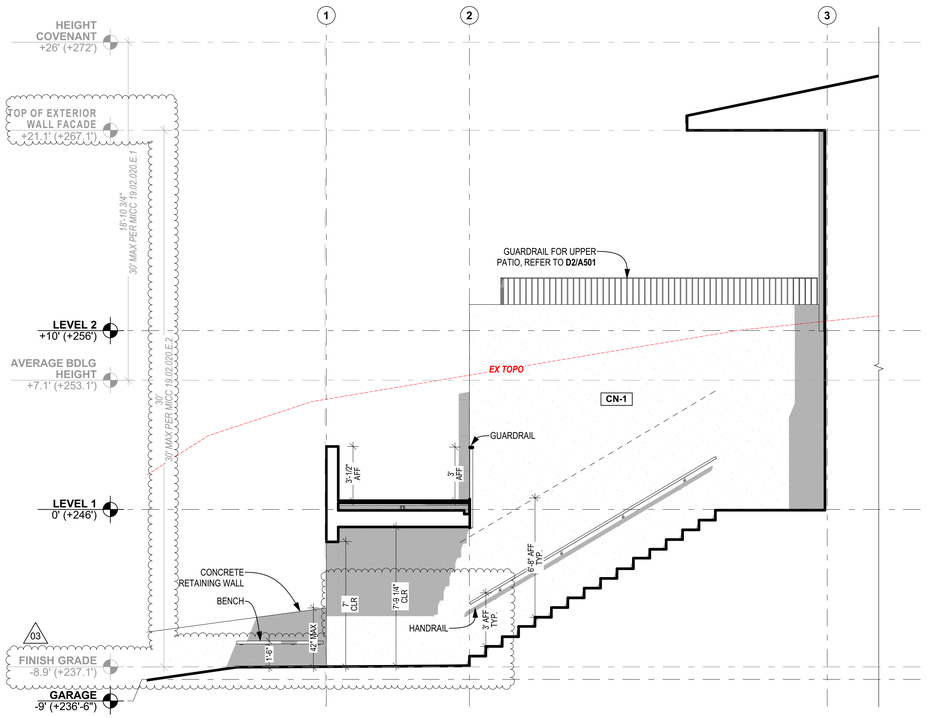
DRAWING TITLE

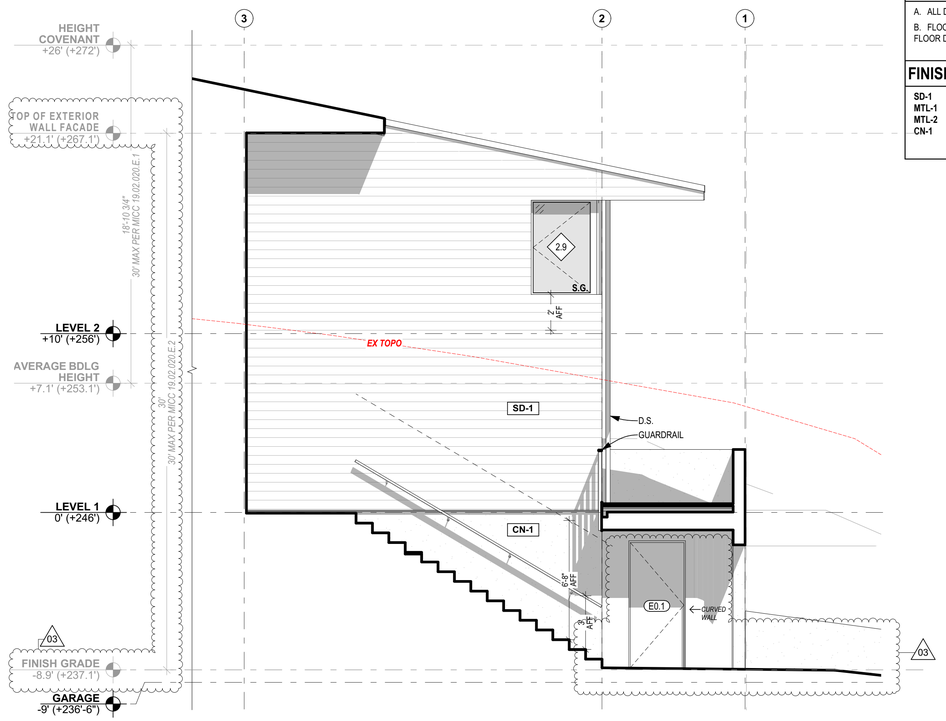
EXTERIOR ELEVATIONS

A-202



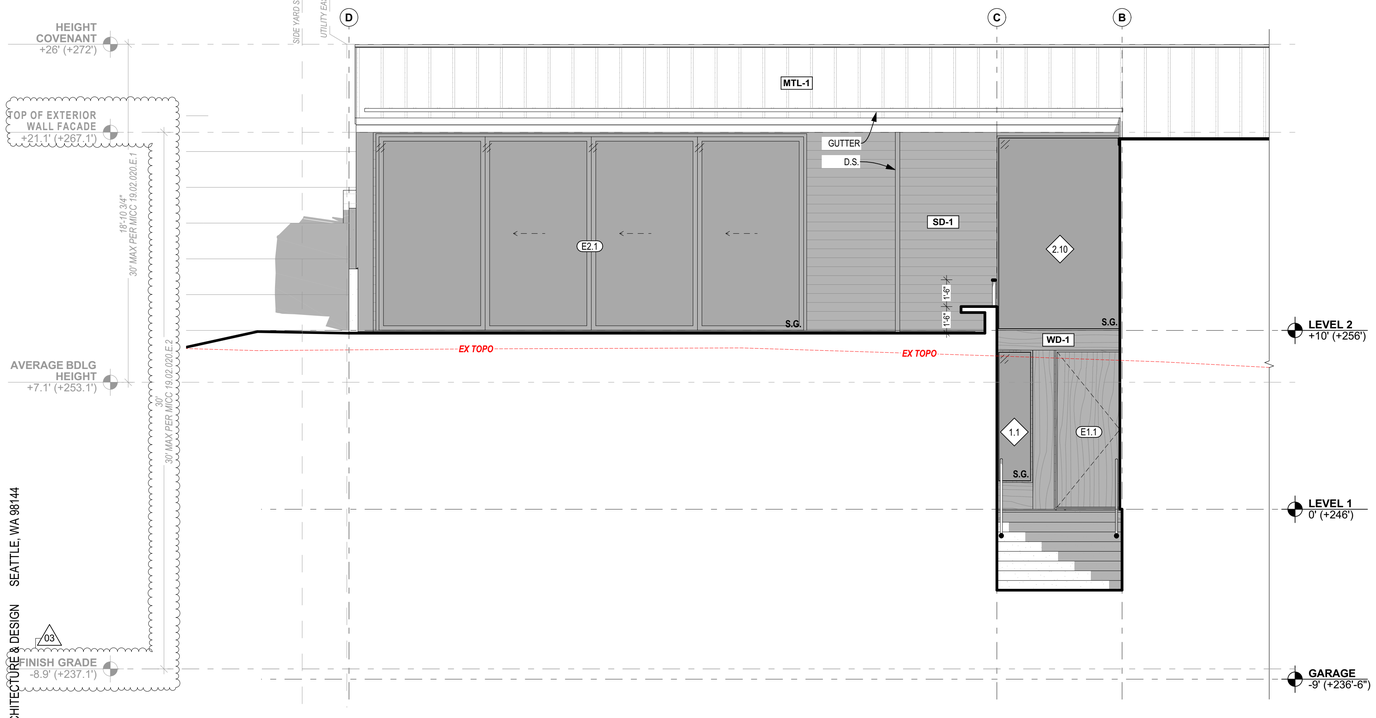
1 ENTRY - NORTH ELEVATION

SCALE: 1/4" = 1'-0"



2 ENTRY - SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



3 ENTRY - WEST ELEVATION

SCALE: 1/4" = 1'-0"

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ELEVATION NOTES:

A. ALL DIMS ARE TO FACE OF FINISH U.N.O.

B. FLOOR ELEVATIONS REFERENCE TOP OF STRUCTURAL FLOOR DIAPHRAM; RE: ASEEMBLIES ON **A-601**

FINISH LEGEND:

SD-1	HORIZONTAL CEDAR SIDING
MTL-1	STANDING SEAM METAL ROOF
MTL-2	INFILL METAL PANEL
CN-1	ARCHITECTURAL CONCRETE WALL

SHED

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PROJECT

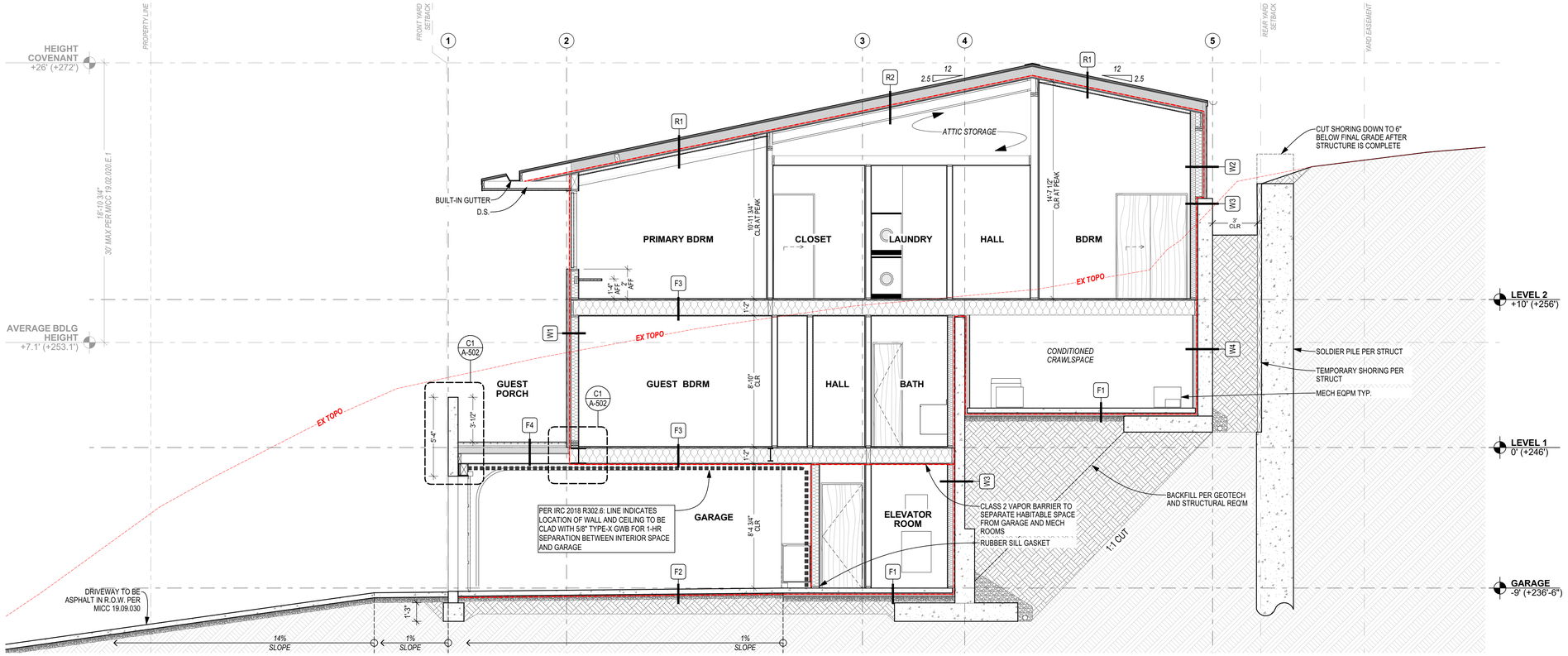
SULLIVAN
3024 69th Ave SE
MERCER ISLAND, WA 98040

ISSUE	DATE
PRE APP #1 (PRE22-0433)	2022.08.16
CAR 2 (CAO22-023)	2022.12.08
PERMIT SET	2023.01.20
REVISION #1 ⚠	2023.05.26
REVISION #2 ⚠	2023.07.07
REVISION #3 ⚠	2023.07.27

DRAWING TITLE

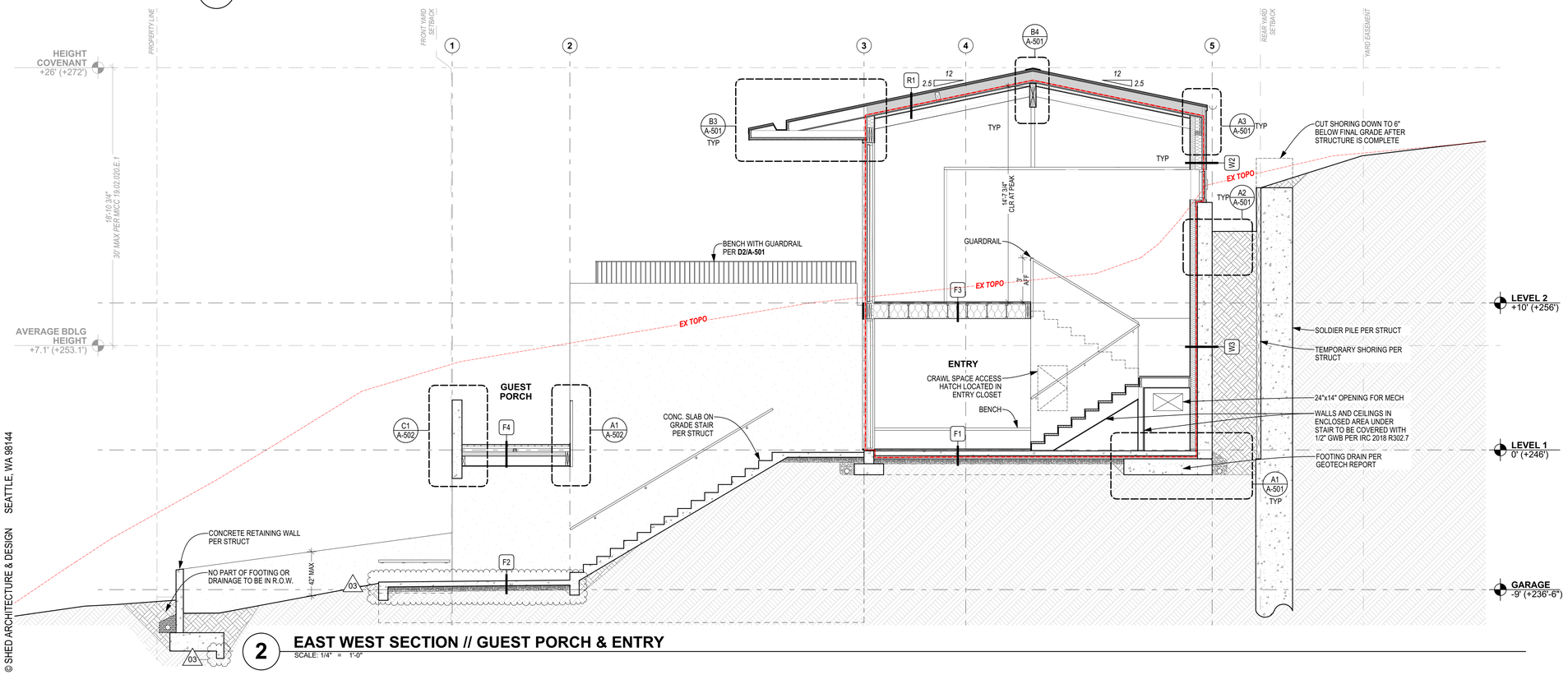
EXTERIOR ELEVATIONS

A-203



1 EAST WEST SECTION // GARAGE & BEDROOMS

SCALE: 1/4" = 1'-0"



2 EAST WEST SECTION // GUEST PORCH & ENTRY

SCALE: 1/4" = 1'-0"

SECTION NOTES:

A. FLOOR ELEVATIONS REFERENCE TOP OF STRUCTURAL FLOOR DIAPHRAM; RE: ASSEMBLIES.

B. RE: SHEET A-601 FOR TYP. ASSEMBLIES.

SECTION LEGEND:

- LINE OF CONTINUOUS AIR BARRIER
- EX TOPO — LINE OF EXISTING GRADE
- LINE OF PROPOSED FINISH GRADE
- NATIVE SOIL
- BACKFILL, REFER TO GEOTECH REPORT

SHED

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REVISION #3	2023.07.27

DRAWING TITLE

BLDG SECTIONS

A-301

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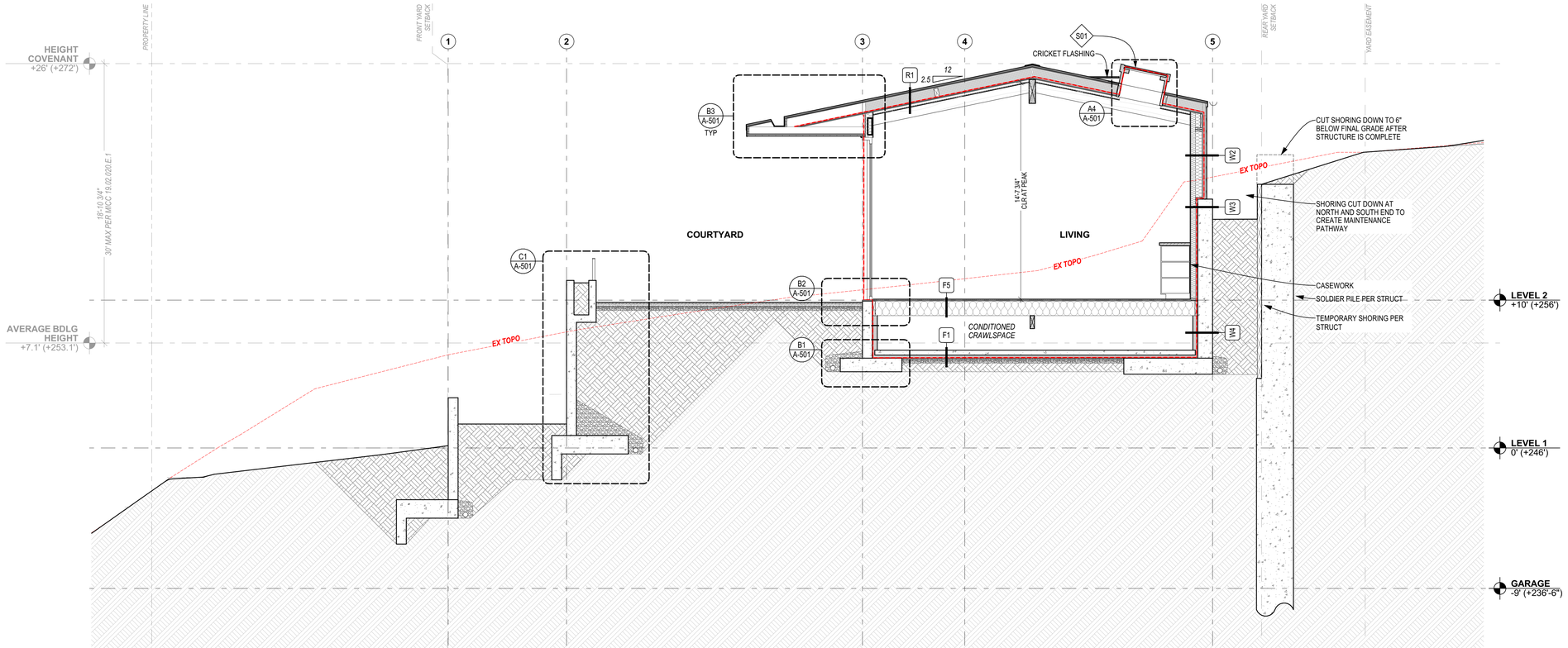


1 EAST WEST SECTION // UPPER PATIO & LIVING

SCALE: 1/4" = 1'-0"

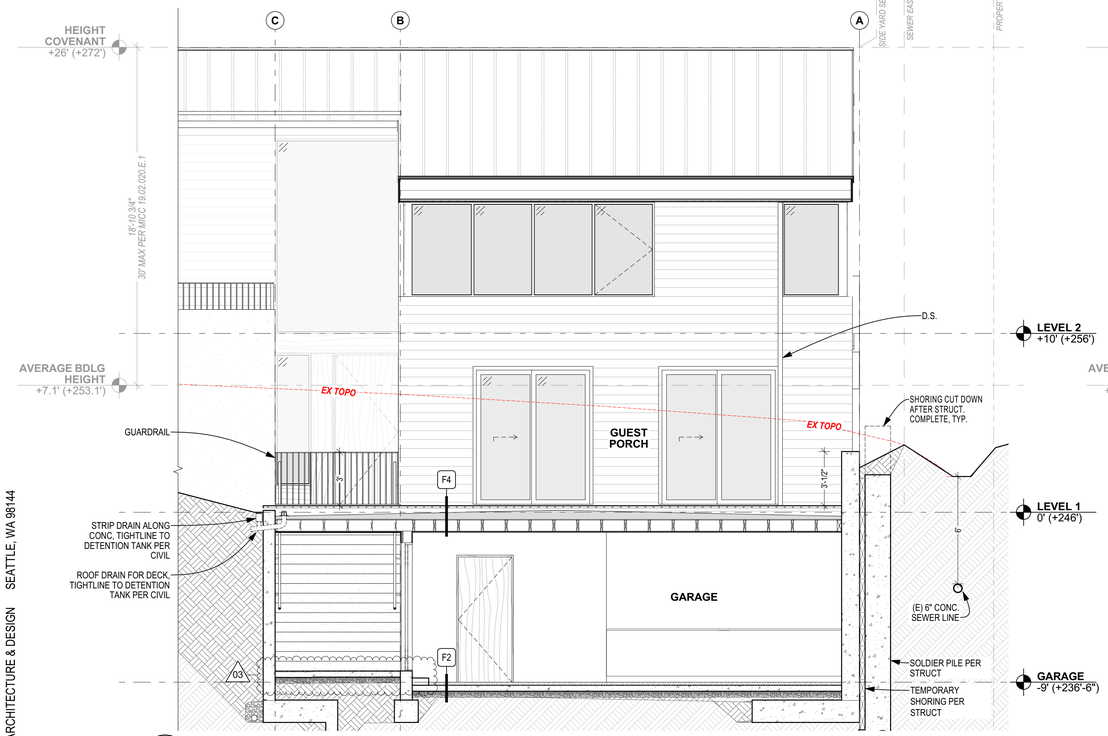
SECTION NOTES:

A. FLOOR ELEVATIONS REFERENCE TOP OF STRUCTURAL FLOOR DIAPHRAM; RE: ASSEMBLIES.

B. RE: SHEET A-601 FOR TYP. ASSEMBLIES.

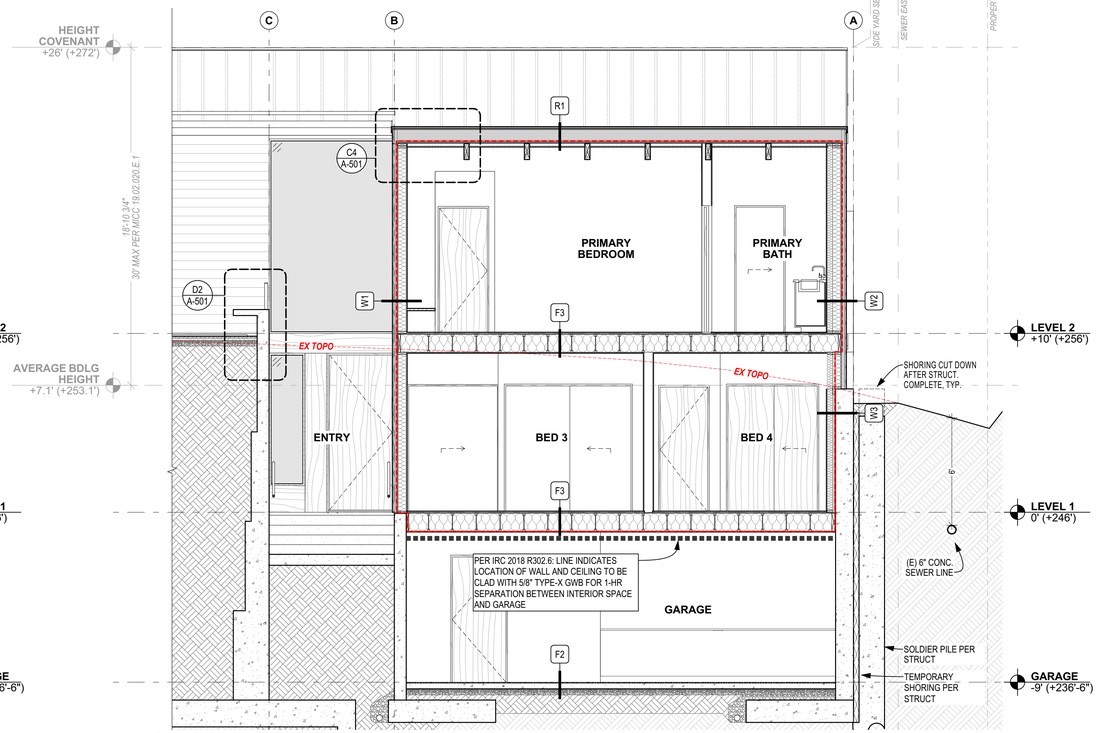
SECTION LEGEND:

- LINE OF CONTINUOUS AIR BARRIER
- EX TOPO — LINE OF EXISTING GRADE
- LINE OF PROPOSED FINISH GRADE
- NATIVE SOIL
- BACKFILL, REFER TO GEOTECH REPORT



2 NORTH SOUTH SECTION // GARAGE + GUEST PORCH

SCALE: 1/4" = 1'-0"



3 NORTH SOUTH SECTION // ENTRY STAIR + BEDROOMS

SCALE: 1/4" = 1'-0"

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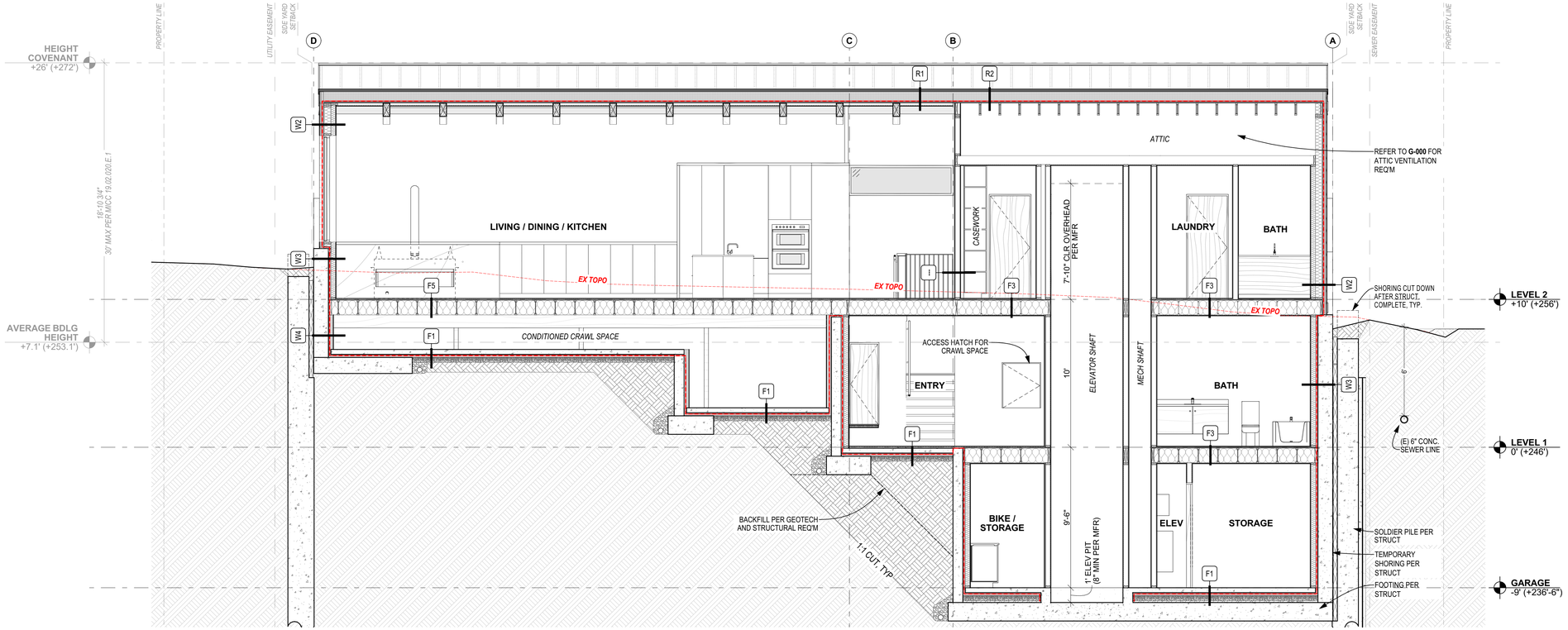
REVISION #3	2023.07.27

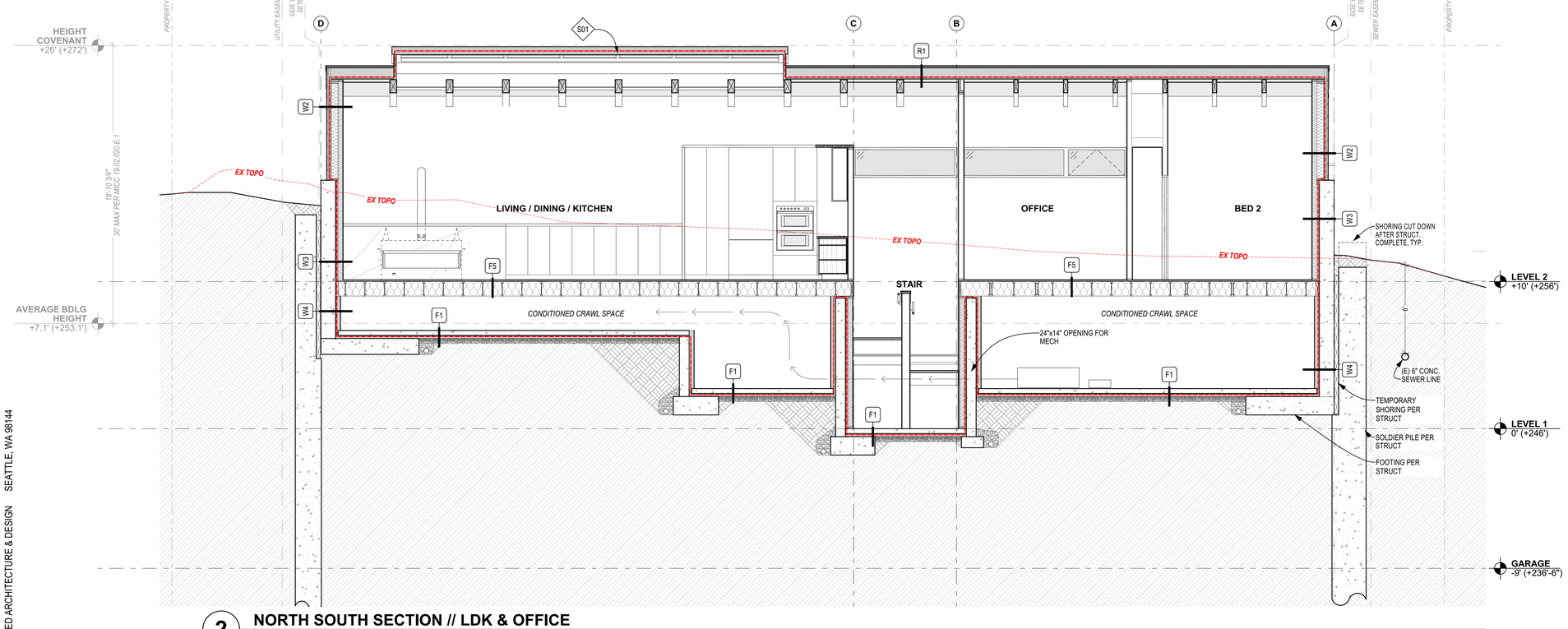
DRAWING TITLE

BLDG SECTIONS

A-302



1 **NORTH SOUTH SECTION // LDK & ELEVATOR**
SCALE: 1/4" = 1'-0"



2 **NORTH SOUTH SECTION // LDK & OFFICE**
SCALE: 1/4" = 1'-0"

SECTION NOTES:

A. FLOOR ELEVATIONS REFERENCE TOP OF STRUCTURAL FLOOR DIAPHRAM; RE: ASSEMBLIES.

B. RE: SHEET A-601 FOR TYP. ASSEMBLIES.

SECTION LEGEND:

- LINE OF CONTINUOUS AIR BARRIER
- EX TOPO — LINE OF EXISTING GRADE
- LINE OF PROPOSED FINISH GRADE
- NATIVE SOIL
- BACKFILL, REFER TO GEOTECH REPORT

SHED

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DRAWING TITLE

BLDG SECTIONS

A-303

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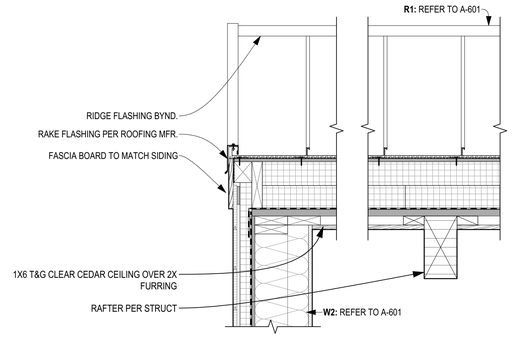
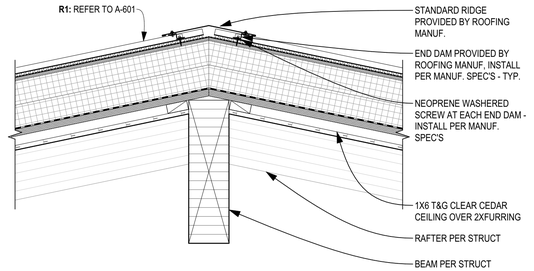
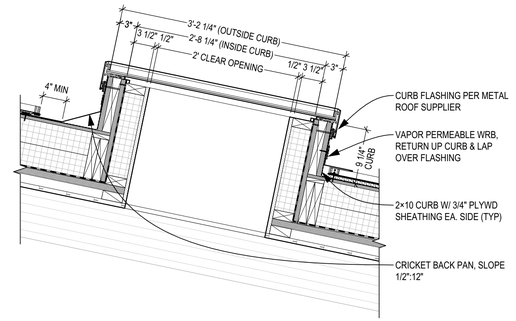


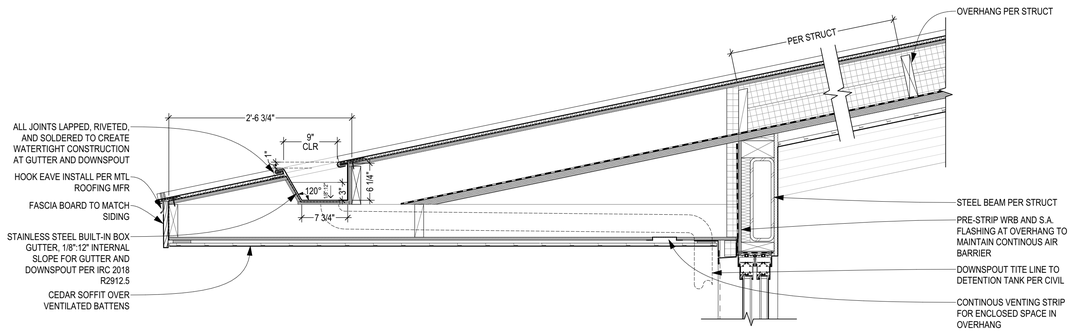
C4 TYP. RAKE
SCALE: 1" = 1'-0"



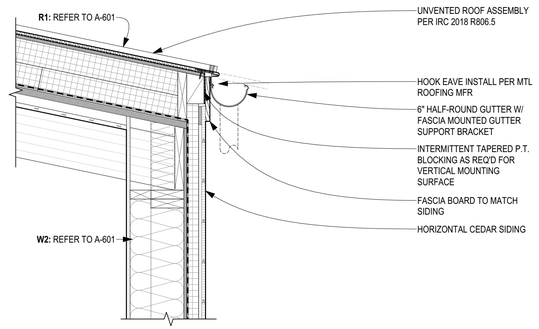
B4 TYP. RIDGE
SCALE: 1" = 1'-0"



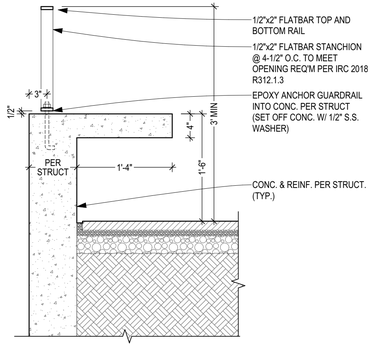
A4 SKYLIGHT
SCALE: 1" = 1'-0"



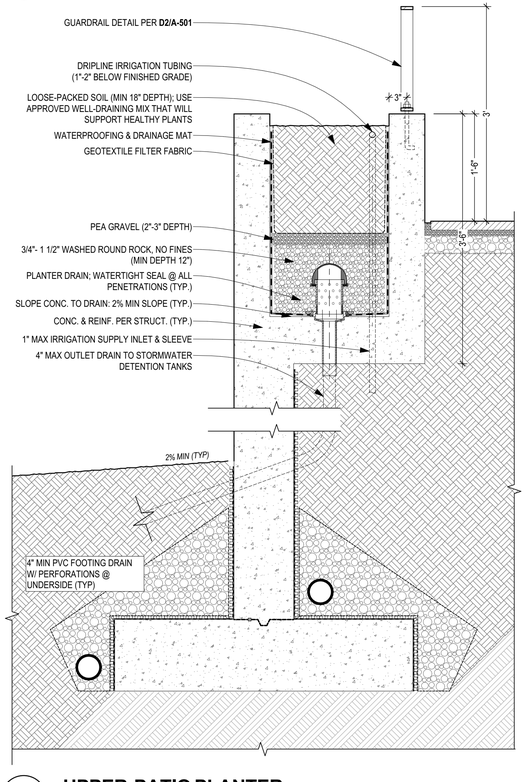
B3 TYP. OVERHANG
SCALE: 1" = 1'-0"



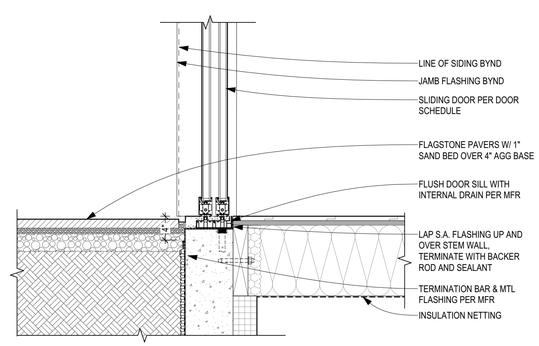
A3 TYP. GUTTER
SCALE: 1" = 1'-0"



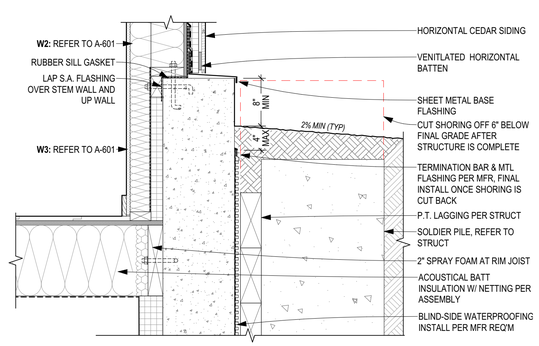
D2 UPPER PATIO CONC WALL & BENCH
SCALE: 1" = 1'-0"



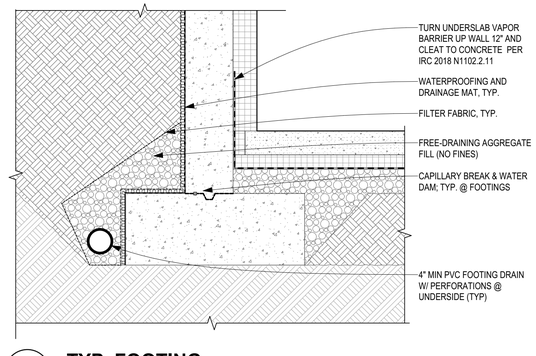
C1 UPPER PATIO PLANTER
SCALE: 1" = 1'-0"



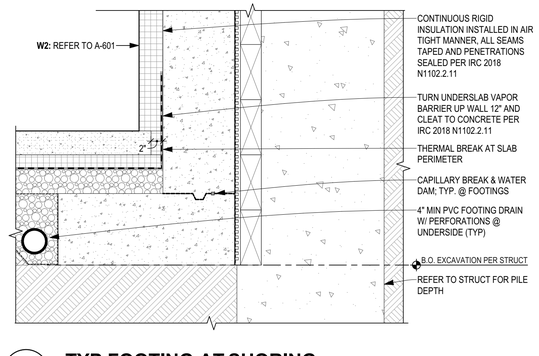
B2 SLIDING DOOR SILL AT PATIO
SCALE: 1" = 1'-0"



A2 TYP. WALL BASE AT SHORING
SCALE: 1" = 1'-0"



B1 TYP. FOOTING
SCALE: 1" = 1'-0"



A1 TYP FOOTING AT SHORING
SCALE: 1" = 1'-0"

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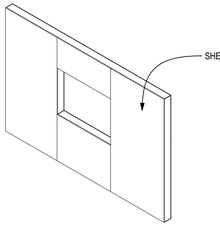
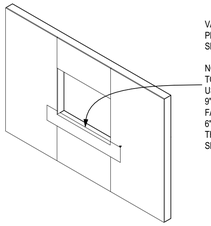
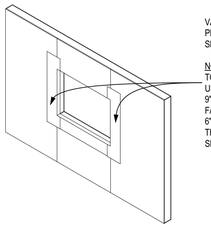
REVISION #2 ⚠	2023.07.07
REVISION #3 ⚠	2023.07.27

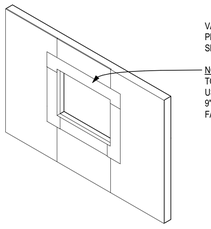
DRAWING TITLE
EXTERIOR DETAILS

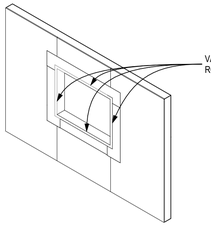
A-501





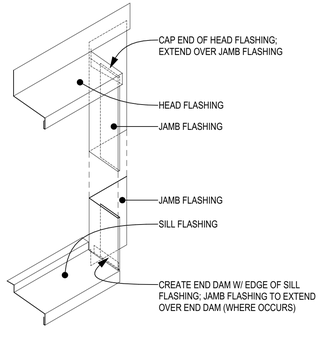






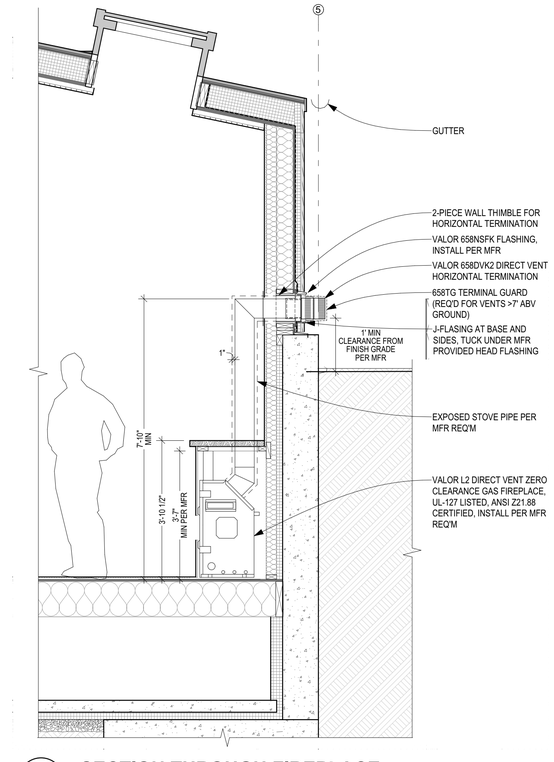
D2 TYP. ROUGH OPENING PREP

NOT TO SCALE



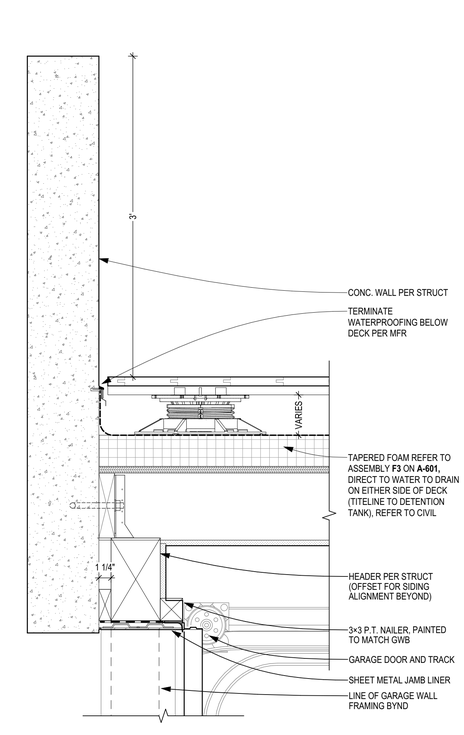
D1 TYP. MTL FLASHING ASSEMBLY

NOT TO SCALE



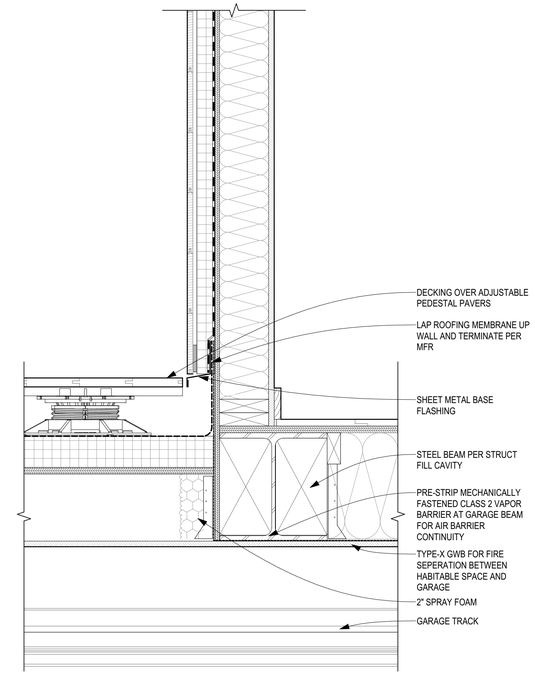
A3 SECTION THROUGH FIREPLACE

SCALE: 1/2" = 1'-0"



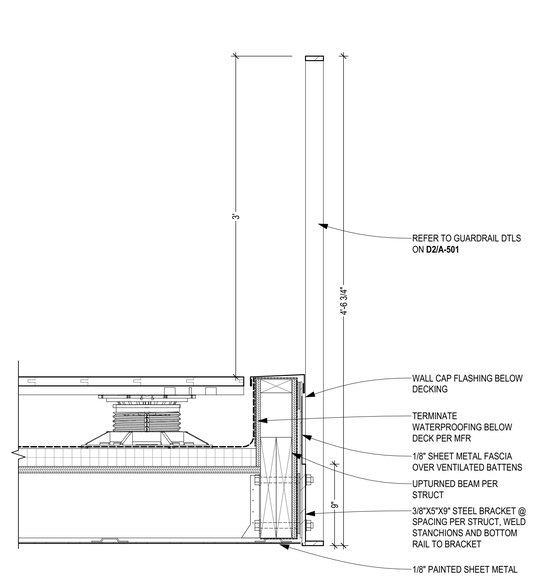
C1 GUEST PORCH AT CONC WALL

SCALE: 1 1/2"= 1'-0"



B1 GUEST PORCH AT FRAMED WALL

SCALE: 1 1/2"= 1'-0"



A1 GUEST PORCH GUARD RAIL

SCALE: 1 1/2"= 1'-0"

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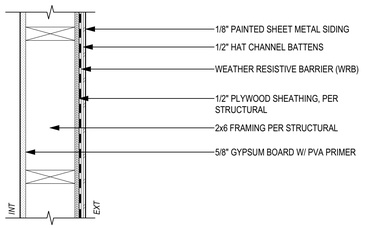
DRAWING TITLE

EXTERIOR DETAILS

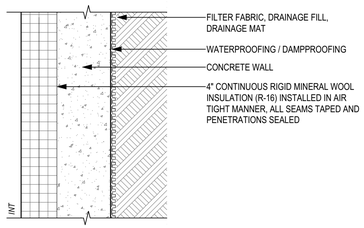
A-502

WALL ASSEMBLIES



PLAN

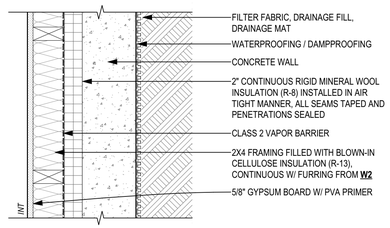
W5 **EXTERIOR WALL - GARAGE WALL**
N/A (CODE: N/A)



PLAN

W4 **EXTERIOR WALL - CRAWL SPACE**
R-16 + TB* (CODE: R-10/15/21INT + TB)

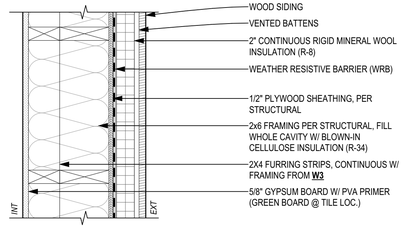
*PROVIDE CONTINOUS 2" MINERAL WOOL (R-8) THERMAL BREAK BETWEEN FLOOR SLAB AND STEM WALL



PLAN

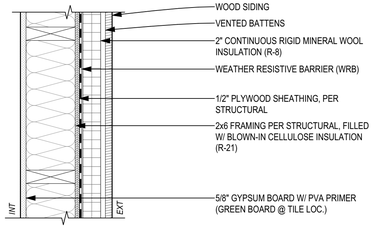
W3 **EXTERIOR WALL - BELOW GRADE CODE MIN.**
R-21 + TB (CODE: R-10/15/21INT + TB)

*PROVIDE CONTINOUS 2" MINERAL WOOL (R-8) THERMAL BREAK BETWEEN FLOOR SLAB AND STEM WALL



PLAN

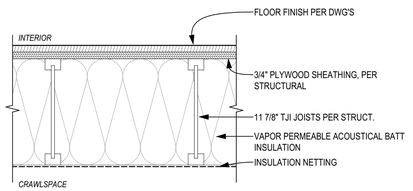
W2 **EXTERIOR WALL - 2" CONTINUOUS INSULATION**
R-36 (CODE: R-21)



PLAN

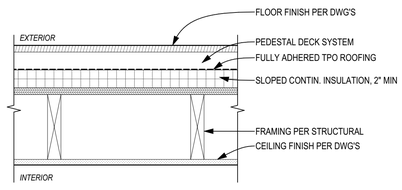
W1 **EXTERIOR WALL - 2" CONTINUOUS INSULATION**
R-25 (CODE: R-21)

FLOOR ASSEMBLIES



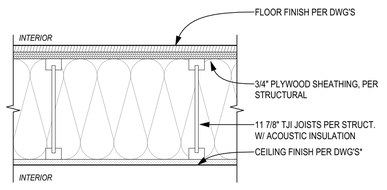
SECTION

F5 **CONDITIONED CRAWL SPACE**



SECTION

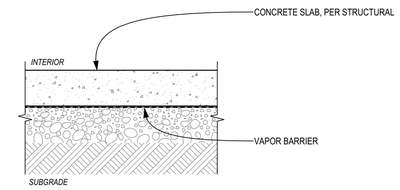
F4 **GUEST PORCH**



SECTION

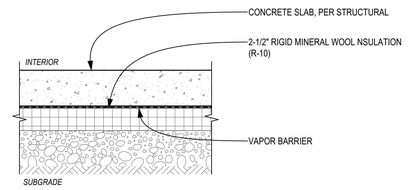
F3 **TYPICAL FLOOR**

*PROVIDE 5/8" TYPE-X GWB FOR 1-HR FIRE SEPARATION BETWEEN GARAGE AND INTERIOR SPACE



SECTION

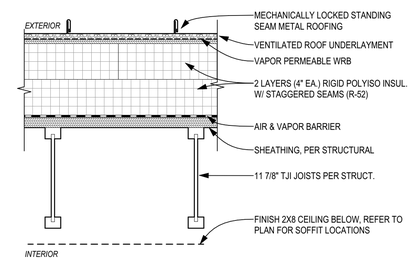
F2 **SLAB ON GRADE**
N/A (UNCONDITIONED SPACE



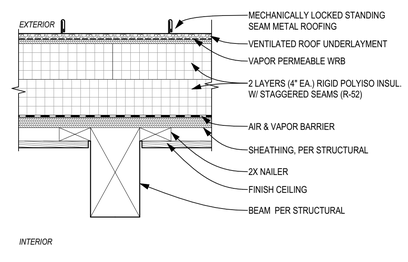
SECTION

F1 **INSULATED SLAB ON GRADE**
R-10 (CODE: R-10)

ROOF ASSEMBLIES

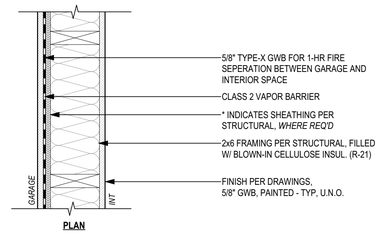


R2 **ROOF, CONCEALED, UNVENTED - CONT. INSULATION**
R-52 (CODE: R-38)



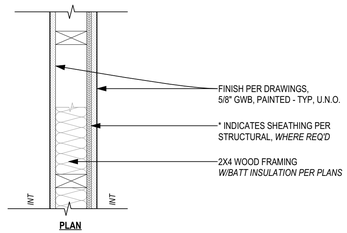
R1 **ROOF, EXPOSED, UNVENTED - CONT. INSULATION**
R-52 (CODE: R-38)

PARTITION ASSEMBLIES



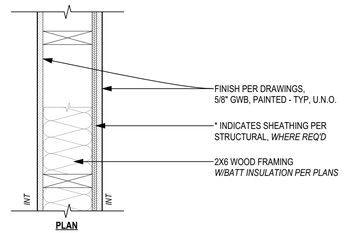
PLAN

P3 **GARAGE PARTITION**



PLAN

P2 **TYP. 2X4 INTERIOR PARTITION**



PLAN

P1 **TYP. 2X6 INTERIOR PARTITION**

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ISSUE	DATE
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REVISION #2	2023.07.07
REVISION #3	2023.07.27

DRAWING TITLE
TYPICAL ASSEMBLIES

A-601

WINDOW & SKYLIGHT SCHEDULE

	TAG	MANUF.	MODEL	OPERATION	UNIT SIZE		SILL HEIGHT	ENERGY DATA			SCREEN	SAFETY GLAZING	EGRESS	NOTES
					WIDTH	HEIGHT		U-VALUE	SHGC	NFRC #				
LEVEL 1														
	1.1	CUSTOM		FIXED	1'-11"	7'-4 1/4"	1'-6"				☐	S.G.		EXEMPTION PER WSEC R402.3.3 TAKEN FOR U-VALUE AND SHGC REQ'M, LESS THAN 15SQFT
LEVEL 2														
	2.1	FLEETWOOD	450-T	FIXED	4'-0"	7'-2"	3'-10 1/2"	0.28	0.23	FLE-M-113-00079-00001	☐			
	2.2	FLEETWOOD	450-T	FIXED	7'-0"	2'-0"	7'-1/4"	0.28	0.23	FLE-M-113-00079-00001	☐			
	2.3a	FLEETWOOD	450-T	FIXED	7'-0"	2'-0"	7'-1/4"	0.28	0.23	FLE-M-113-00079-00001	☐			
	2.3b	FLEETWOOD	450-T	AWNING	4'-1/2"	2'-0"	7'-1/4"	0.28	0.23	FLE-M-112-00113-00001	☐			
	2.4	FLEETWOOD	450-T	CSMT. OUT	4'-0"	5'-4"	3'-8 1/4"	0.28	0.24	FLE-M-111-00113-00001	☐		E.G.	
	2.5	FLEETWOOD	450-T	CSMT. OUT	1'-11"	5'-4"	3'-8 1/4"	0.28	0.24	FLE-M-111-00113-00001	☐			
	2.6	FLEETWOOD	450-T	CSMT. OUT	2'-10"	4'-3"	3'-1/2"	0.28	0.24	FLE-M-111-00113-00001	☐	S.G.		
	2.7a	FLEETWOOD	450-T	CSMT. OUT	2'-0"	5'-2 3/4"	2'-3/4"	0.28	0.24	FLE-M-111-00113-00001	☐	S.G.		
	2.7b	FLEETWOOD	450-T	FIXED	3'-2"	5'-2 3/4"	2'-3/4"	0.28	0.23	FLE-M-113-00079-00001	☐	S.G.		
	2.8a	FLEETWOOD	450-T	CSMT. OUT	3'-4 1/2"	5'-2 3/4"	2'-3/4"	0.28	0.24	FLE-M-111-00113-00001	☐	S.G.	E.G.	
	2.8b	FLEETWOOD	450-T	FIXED	3'-4 1/2"	5'-2 3/4"	2'-3/4"	0.28	0.23	FLE-M-113-00079-00001	☐	S.G.		
	2.8c	FLEETWOOD	450-T	FIXED	3'-4 1/2"	5'-2 3/4"	2'-3/4"	0.28	0.23	FLE-M-113-00079-00001	☐	S.G.		
	2.8d	FLEETWOOD	450-T	FIXED	3'-5 1/2"	5'-2 3/4"	2'-3/4"	0.28	0.23	FLE-M-113-00079-00001	☐	S.G.		
	2.9	FLEETWOOD	450-T	CSMT. OUT	3'-4"	5'-2 3/4"	2'-3/4"	0.28	0.24	FLE-M-111-00113-00001	☐	S.G.		
	2.10	FLEETWOOD	450-T	FIXED	7'-0"	10'-10"	0"	0.28	0.23	FLE-M-113-00079-00001	☐	S.G.		
SKYLIGHT														
	S01	CRYSTALITE	3962	FIXED	26'-8"	3'-2"	---	0.44	0.23	CRY-M-6-00520-00001	☐	S.G.		

DOOR SCHEDULE - EXTERIOR

	TAG	MAUNF.	TYPE/MODEL	OPERATION	UNIT SIZE		ENERGY DATA			SCREEN	SAFETY GLAZING	EGRESS	HARDWARE		ACCESSORY	NOTES
					WIDTH	HEIGHT	U-VALUE	SHGC	NFRC #				GROUP/SET	TYPE		
GARAGE																
	E0.1	TBD	FLUSH, SC	SWING	3'-0"	7'-0"				☐						
	E0.2	TBD	GARAGE	SECTIONAL	16'-0"	7'-10"				☐						
LEVEL 1																
	E1.1	CUSTOM	SITE-BUILT	SWING	3'-6"	8'-8"				☐						
	E1.2	FLEETWOOD	4070-T	SLIDER	6'-4"	7'-6"	0.28	0.23	FLE-M-109-00142-00001	☐	S.G.	E.G.				
	E1.3	FLEETWOOD	4070-T	SLIDER	6'-4"	7'-6"	0.28	0.23	FLE-M-109-00142-00001	☐	S.G.	E.G.				
LEVEL 2																
	E2.1	FLEETWOOD	4070-T	SLIDER	24'-1"	11'-0"	0.28	0.24	FLE-M-109-00142-00001	☐	S.G.					

DOOR SCHEDULE - INTERIOR

INTERIOR DOOR SCHEDULE														
	TAG	OPERATION	UNIT SIZE			DOOR			FRAME		HARDWARE		ACCESSORY	NOTES
			WIDTH	HEIGHT	THICK	PANEL	MATERIAL	FINISH	MATERIAL	FINISH	GROUP/SET	TYPE		
GARAGE														
	001	SWING	3'-0"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				20MIN SOLID CORE DOOR TO COMPLY WITH R302.5.1
	002	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	003	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	004	SWING	3'-0"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
LEVEL 1														
	101	SWING	1'-10"	5'-5"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	102	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	103	POCKET	4'-11 1/2"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	104	BYPASS	7'-0"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	105	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	106	BYPASS	5'-0"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	107	POCKET	2'-4"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	108	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	109	SWING	1'-10"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
LEVEL 2														
	201	POCKET	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	202	BYPASS	4'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	203	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	204	BYPASS	4'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	205	POCKET	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	206	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	207	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	208	SWING	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	209	POCKET	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				
	210	POCKET	2'-8"	7'-0"	1 3/8"	FLUSH, SC	PT GRADE	PT-1	PT GRADE	PT-1				

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REVISION #3 ⚠	2023.07.27

DRAWING TITLE
SCHEDULES

A-602

GENERAL STRUCTURAL NOTES
(THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE PLANS)

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, THE INTERNATIONAL BUILDING CODE (2018 EDITION), & CITY OF MERCER ISLAND MODIFICATIONS TO THE INTERNATIONAL BUILDING CODE.

2. DESIGN LOADING CRITERIA:

FLOOR LIVE LOAD (RESIDENTIAL). . . . . .40 PSF
FLOOR LIVE LOAD (BALCONIES AND DECKS). . . . . .60 PSF
FLOOR LIVE LOAD (UNINHABITABLE ATTICS W/O STORAGE) . . .10 PSF
FLOOR LIVE LOAD (UNINHABITABLE ATTICS WITH STORAGE). . .20 PSF
ROOF SNOW LOAD (Pf). . . . . .25 PSF

WIND:
BASIC WIND SPEED (3-SECOND GUST) . . . . . 100 MPH
WIND IMPORTANCE FACTOR (Iw). 1.0
WIND EXPOSURE . . . . . B
TOPOGRAPHICAL FACTOR (Kzt) 1.25

EARTHQUAKE:
LAT. / LONG. . . . . 47.583 / -122.246
SEISMIC IMPORTANCE FACTOR (Ie) 1.0
SEISMIC USE GROUP. I
MAPPED SPECTRAL RESPONSE (Ss/S1) 1.56g/0.64g
SPECTRAL RESPONSE COEF. (SDS/SD1). 1.04g/0.77g
SEISMIC FORCE RESISTING SYSTEM:. . . . . PLYWOOD SHEAR WALLS
DESIGN BASE SHEAR. 25.2k
SEISMIC RESPONSE COEFICIENT (Cs) 0.160
SEISMIC DESIGN CATEGORY. . . . . D
RESPONSE MODIFICATION FACTOR (R) 6.5
ANALYSIS PROCEDURE . . . . . .EQUIVALENT LATERAL FORCE

REFERENCE: USGS NATIONAL SEISMIC HAZARD MAPPING PROJECT, 2008 DATA

3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

4. CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO COMMENCING EXCAVATION. THE CONTRACTOR SHALL BRING ALL CONFLICTS AND DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER.

5. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS BEFORE COMMENCING ANY DEMOLITION. SHORING SHALL BE INSTALLED TO SUPPORT EXISTING CONSTRUCTION AS REQUIRED AND IN A MANNER SUITABLE TO THE WORK SEQUENCES. EXISTING REINFORCING SHALL BE RETAINED UNDAMAGED WHERE NOTED ON THE PLANS. DEMOLITION DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE EXISTING STRUCTURE. LIMIT CONSTRUCTION LOADING (INCLUDING DEMOLITION DEBRIS) ON EXISTING FLOOR SYSTEMS TO 40 PSF. ALL NEW OPENINGS THROUGH EXISTING CONCRETE OR MASONRY WALLS, SLABS AND BEAMS SHALL BE ACCOMPLISHED BY SAW CUTTING WHEREVER POSSIBLE.

6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES OF THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

8. SPECIAL INSPECTION OF THE FOLLOWING TYPES OF CONSTRUCTION SHALL BE PROVIDED IN ACCORDANCE WITH SECTIONS 109 AND 1704 OF THE INTERNATIONAL BUILDING CODE AND THE PROJECT SPECIFICATIONS BY A QUALIFIED TESTING AGENCY DESIGNATED BY THE ARCHITECT, AND RETAINED BY THE BUILDING OWNER. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL INSPECTION AND TEST RESULTS.

A. CONCRETE RETAINING WALL CONSTRUCTION
B. STRUCTURAL STEEL FABRICATION AND ERECTION (INCLUDING FIELD WELDING AND HIGH-STRENGTH FIELD BOLTING)
C. AUGERCAST PILE, CAISSON, OR DRIVEN PILE INSTALLATION

9. STRUCTURAL OBSERVATION SHALL BE PERFORMED IN ACCORDANCE WITH SECTIONS 1702 AND 1709 OF THE LOCAL OR INTERNATIONAL BUILDING CODE FOR THOSE STRUCTURAL ELEMENTS THAT FORM THE LATERAL-FORCE-RESISTING SYSTEM, AS FOLLOWS:

A. PLYWOOD ROOF AND FLOOR DIAPHRAGMS, INCLUDING COLLECTORS
B. PLYWOOD SHEARWALLS, INCLUDING STRAPS AND HOLDOWNS

THE CONTRACTOR SHALL PROVIDE THE ENGINEER OF RECORD ADEQUATE NOTICE TO SCHEDULE APPROPRIATE SITE VISITS FOR STRUCTURAL OBSERVATION, AS FOLLOWS:

A. DURING FOUNDATION AND CONCRETE CONSTRUCTION -AFTER REBAR, HOLDOWN AND ANCHOR BOLT PLACEMENT, BUT PRIOR TO CONCRETE PLACEMENT.
B. DURING FRAMING -AFTER HOLDOWN AND STRAP INSTALLATION, AND AFTER SHEARWALL AND DIAPHRAGM NAILING, BUT PRIOR TO COVER WITH INTERIOR OR EXTERIOR FINISHES, INCLUDING ROOFING AND BUILDING PAPER.
C. DURING STEEL CONSTRUCTION -AFTER STEEL ERECTION AND WELDING, BUT PRIOR TO COVER WITH FINISHES OR OTHER STRUCTURE SUCH AS NAILERS.

STRUCTURAL OBSERVATION MEANS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM BY THE REGISTERED DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED BY SECTION 110, 1704 OR OTHER SECTIONS OF THE CODE. THE OWNER SHALL EMPLOY THE ENGINEER RESPONSIBLE FOR THE STRUCTURAL DESIGN TO PERFORM STRUCTURAL OBSERVATION.

OBSERVED DEFICIENCIES WILL BE REPORTED IN WRITING TO THE ARCHITECT AND CONTRACTOR. RECOMMENDATIONS FOR MITIGATION OF DEFICIENCIES WILL BE INCLUDED IN THESE REPORTS. THE CONTRACTOR SHALL MITIGATE ANY DEFICIENCIES FOUND AND PROVIDE THE ENGINEER OF RECORD ADEQUATE NOTICE TO SCHEDULE APPROPRIATE SITE VISITS TO OBSERVE THE MITIGATION OF THE DEFICIENCIES.

AT THE CONCLUSION OF THE WORK INCLUDED IN THE PERMIT, THE STRUCTURAL OBSERVER WILL SUBMIT TO THE BUILDING OFFICIAL A WRITTEN STATEMENT THAT THE SITE VISITS NOTED ABOVE HAVE BEEN MADE AND WILL IDENTIFY ANY REPORTED DEFICIENCIES WHICH TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE HAVE NOT BEEN MADE.

10. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS.

A. STRUCTURAL STEEL
B. GLUED LAMINATED MEMBERS
C. PLYWOOD WEB JOISTS

APPROVED SETS OF ALL SHOP DRAWINGS SHALL ALSO BE SUBMITTED TO THE BUILDING DEPARTMENT.

GEOTECHNICAL

11. FOUNDATION NOTES: SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION, AND FILLING REQUIREMENTS, SHALL CONFORM STRICTLY WITH RECOMMENDATIONS GIVEN IN THE SOILS REPORT OR AS DIRECTED BY THE SOILS ENGINEER. FOOTINGS SHALL BEAR ON SOLID UNDISTURBED EARTH (CONTROLLED, COMPACTED STRUCTURAL FILL OR BOTH) AT LEAST 18" BELOW LOWEST ADJACENT FINISHED GRADE. FOOTING DEPTHS/ELEVATIONS SHOWN ON PLANS (OR IN DETAILS) ARE MINIMUM AND FOR GUIDANCE ONLY; THE ACTUAL ELEVATIONS OF FOOTINGS MUST BE ESTABLISHED BY THE CONTRACTOR IN THE FIELD WORKING WITH THE TESTING LAB AND SOILS ENGINEER. BACKFILL BEHIND ALL RETAINING WALLS WITH FREE DRAINING GRANULAR FILL AND PROVIDE FOR SUBSURFACE DRAINAGE AS NOTED IN THE SOILS REPORT.

ALLOWABLE SOIL PRESSURE. . . . . 2500 PSF
LATERAL EARTH PRESSURE . . . . . 55 PCF

SOILS REPORT REFERENCE: COBALT GEOSCIENCES 3024 69TH AVE SE REPORT UPDATED JUNE 27, 2023

CONCRETE

12. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED AND PLACED IN ACCORDANCE WITH IBC SECTION 1905 AND ACI 301. CONCRETE SHALL ATTAIN A 28DAY STRENGTH OF F'C = 2,500 PSI. THE CONCRETE MIX SHALL CONTAIN A MAXIMUM OF 330 POUNDS OF CEMENT PER CUBIC YARD AND SHALL HAVE A HIGH (30 PERCENT OR MORE) SCM (SUPPLEMENTARY CEMENTITIOUS MATERIALS, SUCH AS FLYASH OR SLAG) CONTENT. CEMENT SHALL BE A BLENDED HYDRAULIC CEMENT CONFORMING TO ASTM C595.

A CONCRETE PERFORMANCE MIX SHALL BE SUBMITTED TO THE ARCHITECT, STRUCTURAL ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE CONCRETE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, SUPPLEMENTARY CEMENTITIOUS MATERALS, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES AS WELL AS THE WATER CEMENT RATIO, SLUMP, CONCRETE YIELD & SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH ARTICLE 4.2.3 OF ACI 301. REVIEW OF MIX SUBMITTALS BY THE ENGINEER OF RECORD INDICATES ONLY THAT INFORMATION PRESENTED CONFORMS GENERALLY WITH CONTRACT DOCUMENTS. CONTRACTOR OR SUPPLIER MAINTAINS FULL RESPONSIBILITY FOR SPECIFIED PERFORMANCE.

ALL CONCRETE WITH SURFACES EXPOSED TO STANDING WATER SHALL BE AIR - ENTRAINED WITH AN AIR ENTRAINING AGENT CONFORMING TO ASTM C260, C494, AND C618. TOTAL AIR CONTENT SHALL BE IN ACCORDANCE WITH TABLE 19.3.2.1 OF THE ACI 318.

13. REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENT S1), GRADE 60, FY = 60,000 PSI. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.

14. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 318. LAP ALL CONTINUOUS REINFORCEMENT 40 BAR DIAMETERS OR 2'0" MINIMUM. PROVIDE CORNER BARS AT ALL WALL AND FOOTING INTERSECTIONS. LAP CORNER BARS 40 BAR DIAMETERS OR 2'0" MINIMUM. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

15. CONCRETE PROTECTION (COVER) FOR REINFORCING STEEL SHALL BE AS FOLLOWS:
A. FOOTINGS AND OTHER UNFORMED SURFACES, EARTH FACE . . . .3"
B. ALL OTHER SURFACES . . . . . .1 1/2"

16. NON-SHRINK GROUT SHALL BE FURNISHED BY AN APPROVED MANUFACTURER AND SHALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED RECOMMENDATIONS. GROUT STRENGTH SHALL BE AT LEAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (3000 PSI MINIMUM).

ANCHORAGE

17. EXPANSION BOLTS INTO CONCRETE AND GROUTED MASONRY UNITS SHALL BE "STRONG-BOLT" ANCHORS AS MANUFACTURED BY THE SIMPSON COMPANY AND INSTALLED IN STRICT ACCORDANCE WITH ICC ESR 1771, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS.

18. EPOXY-GROUTED ITEMS SPECIFIED ON THE DRAWINGS SHALL BE GROUTED WITH "SET-XP" HIGH STRENGTH EPOXY AS MANUFACTURED BY THE SIMPSON COMPANY AND INSTALLED IN STRICT ACCORDANCE WITH ICC ESR 2508.

19. TITEN HD ANCHORS SPECIFIED ON THE DRAWINGS SHALL CONSIST OF "TITEN HD" HEAVY DUTY SCREW ANCHORS AS MANUFACTURED BY THE SIMPSON COMPANY AND INSTALLED IN STRICT ACCORDANCE WITH ICC ESR 2713.

STEEL

20. STRUCTURAL STEEL DESIGN, FABRICATION, AND ERECTION SHALL BE BASED ON THE LATEST EDITIONS OF THE AISC SPECIFICATIONS AND CODES:

A. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360)

B. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES (AISC 303)

C. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS. BOLTS IN SHEAR OR BEARING TYPE CONNECTIONS NEED ONLY BE TIGHTENED TO THE SNUG TIGHT CONDITION PER SECTION 8(C).

21. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MINIMUM STANDARDS. PLATES, ANGLES, AND CHANNELS SHALL CONFORM TO ASTM A36, FY = 36 KSI. WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992, FY = 50 KSI. STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE E OR S, GRADE B, FY = 35 KSI. SQUARE OR RECTANGULAR STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B, FY = 46 KSI. ANCHOR BOLTS AND CONNECTION BOLTS SHALL CONFORM TO ASTM A307. THREADED ROD AND STUDS SHALL CONFORM TO ASTM A36.

22. ALL WELDING SHALL BE IN CONFORMANCE WITH AISC AND AWS STANDARDS AND SHALL BE PERFORMED BY WABO CERTIFIED WELDERS USING E70XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY AWS) SHALL BE USED.

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Drawing Number
S1.0

SULLIVAN RESIDENCE

WOOD

23. FRAMING LUMBER SHALL BE KILN DRIED OR MC-15, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 17, LATEST EDITION. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

JOISTS: (2X MEMBERS)	HEM-FIR NO. 2 MINIMUM BASE VALUE, FB = 850 PSI
(3X & 4X MEMBERS)	DOUGLAS FIR NO. 1 MINIMUM BASE VALUE, FB = 1000 PSI
STRUCTURAL LIGHT FRAMING: (INCL. 3X AND 4X POSTS)	DOUGLAS FIR NO. 2 MINIMUM BASE VALUE, FB = 900 PSI
BEAMS AND STRINGERS: (INCL. 6X AND LARGER)	DOUGLAS FIR NO. 1 MINIMUM BASE VALUE, FB = 1350 PSI
POSTS AND TIMBERS: (6X6 AND LARGER)	DOUGLAS FIR NO. 1 MINIMUM BASE VALUE, FC = 1000 PSI
STUDS, PLATES & MISC. FRAMING:	DOUGLAS FIR OR HEM-FIR STANDARD GRADE
2X6 STUDS AND PLATES:	HEM-FIR NO.3/ STUD GRADE
2X AND 3X T & G DECKING	HEM-FIR COMMERICAL DEX, MINIMUM BASE VALUE, FB = 1350 PSI

24. GLUED LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ASTM AND AITC STANDARDS. EACH MEMBER SHALL BEAR AN AITC IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC CERTIFICATE OF CONFORMANCE. ALL SIMPLE SPAN BEAMS SHALL BE DOUGLAS FIR COMBINATION 24FV4, FB = 2,400 PSI, FV = 165 PSI. ALL CANTILEVERED BEAMS SHALL BE DOUGLAS FIR COMBINATION 24FV8, FB = 2400 PSI, FV = 165 PSI. CAMBER ALL SIMPLE SPAN GLULAM BEAMS TO 2,000' RADIUS, UNLESS SHOWN OTHERWISE ON THE PLANS. ALL COLUMNS SHALL BE DOUGLAS FIR COMBINATION NO. 5, FC = 2400 PSI, E = 2.0 X 10E6 PSI.

25. ENGINEERED LUMBER MEMBERS SHALL BE MANUFACTURED UNDER A PROCESS BY THE NATIONAL RESEARCH BOARD. EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, THE NATIONAL RESEARCH BOARD NUMBER, AND THE QUALITY CONTROL AGENCY. ALL LUMBER SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPROPRIATE NER REPORT AND GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER.

PSL	FB = 2900 PSI	E = 2000 KSI	FV = 290 PSI	NER-292
LSL	FB = 2250 PSI	E = 1500 KSI	FV = 285 PSI	NER-481
LVL	FB = 2600 PSI	E = 1800 KSI	FV = 285 PSI	NER-126

DESIGN SHOWN ON PLANS IS BASED ON LUMBER MANUFACTURED BY THE WEYERHAUSER CORPORATION. ALTERNATE MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER. ALTERNATE JOIST HANGERS AND OTHER HARDWARE MAY BE SUBSTITUTED FOR ITEMS SHOWN PROVIDED THEY HAVE ICC APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH MEMBERS PROVIDED.

ALL PROPOSED HOLE SIZES AND LOCATIONS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL TWO WORKING DAYS PRIOR TO DRILLING HOLES.

26. PREFABRICATED PLYWOOD WEB JOIST DESIGN SHOWN ON PLANS IS BASED ON JOISTS MANUFACTURED BY THE WEYERHAUSER CORPORATION AND SHALL BE FURNISHED AND INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S PUBLISHED SPECIFICATIONS. ALL NECESSARY BRIDGING, BLOCKING, BLOCKING PANELS, STIFFENERS, ETC., SHALL BE DETAILED AND FURNISHED BY THE MANUFACTURER. SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION. ALTERNATE PLYWOOD WEB JOIST MANUFACTURERS MAY BE USED SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND STRUCTURAL ENGINEER. ALTERNATE JOIST HANGERS AND OTHER HARDWARE MAY BE SUBSTITUTED FOR ITEMS SHOWN PROVIDED THEY HAVE ICC APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH PLYWOOD WEB JOIST PROVIDED.

ALL HOLES SHALL CONFORM TO THE MANUFACTURERS SPECIFICATIONS. IF THREE OR FEWER HOLES ARE PROPOSED FOR A SINGLE JOIST, HOLES SHALL CONFORM TO THE WEYERHAUSER ILEVEL TJI ALLOWABLE HOLE CHART. IF MORE THEN THREE HOLES ARE PROPOSED FOR ONE SINGLE JOIST, ALL HOLE SIZES AND LOCATIONS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL TWO WORKING DAYS PRIOR TO DRILLING HOLES.

27. PLYWOOD SHEATHING SHALL BE GRADE C-D, EXTERIOR GLUE OR STRUCTURAL II, EXTERIOR GLUE IN CONFORMANCE WITH APA STANDARDS. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING AND SPAN RATING MAY BE USED IN LIEU OF PLYWOOD.

A. ROOF SHEATHING SHALL BE 1-1/8" (NOM.) WITH SPAN RATING 48/24.
B. FLOOR SHEATHING SHALL BE 3/4" (NOM.) WITH SPAN RATING 40/20.
C. WALL SHEATHING SHALL BE 1/2" (NOM.) WITH SPAN RATING 24/0.

REFER TO WOOD FRAMING NOTES BELOW FOR TYPICAL NAILING.

28. ALL WOOD IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE OR (2) LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER SHALL BE PROVIDED BETWEEN UNTREATED WOOD AND CONCRETE OR MASONRY. ALL WOOD EXPOSED TO WEATHER WITHOUT THE ADEQUATE PROTECTION OF A ROOF OR EAVE SHALL BE AN APPROVED WOOD OF NATURAL RESISTANCE TO DECAY OR PRESSURE TREATED. SUCH MEMBERS INCLUDE HORIZONTAL MEMBERS SUCH AS GIRDERS, JOISTS, AND DECKING; OR VERTICAL MEMBERS SUCH AS POSTS, POLES, AND COLUMNS.

29. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR MOST RECENT CATALOG. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS OR BOLTS IN EACH MEMBER. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. UNLESS NOTED OTHERWISE, ALL NAILS SHALL BE COMMON. ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MIN.) AS MEMBERS CONNECTED.

CONNECTORS OUTSIDE OF THE BUILDING ENVELOPE (E.G. EAVES) SHALL BE EITHER STAINLESS STEEL (SST300), POST HOT-DIP GALVANIZED(HDG) OR GALVANIZED WITH A MINIMUM OF 1.85OZ ZINC PER SQUARE INCH (ZMAX).

CONNECTORS IN DIRECT CONTACT WITH PRESERVATIVE-TREATED WOOD THAT IS EXPOSED TO WEATHER (E.G. DECKS) SHALL BE STAINLESS STEEL (SST300).

CONNECTORS IN DIRECT CONTACT WITH PRESERVATIVE-TREATED WOOD THAT IS WITHIN THE BUILDING ENVELOPE (E.G. LEDGERS AND SILLS) SHALL BE EITHER STAINLESS STEEL SST300), POST HOT-DIP GALVANIZED(HDG) OR GALVANIZED WITH A MINIMUM OF 1.85OZ ZINC PER SQUARE INCH (ZMAX).

FASTENERS USED WITH STAINLESS STEEL CONNECTORS SHALL BE STAINLESS STEEL (TYPE 303, 304, 305, OR 316). FASTENERS FOR HOT-DIP GALVANIZED OR ZMAX CONNECTORS SHALL BE HOT-DIP GALVANIZED.

30. NAILS - NAIL SIZES SPECIFIED ON DRAWINGS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

SIZE	LENGTH	DIAMETER
6D	2"	0.113"
8D	2-1/2"	0.131"
10D	3"	0.148"
12D	3-1/4"	0.148"
16D	3-1/2"	0.162"

IF CONTRACTOR PROPOSES THE USE OF ALTERNATE NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL. NAILS SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED.

31. STAPLES - THE FOLLOWING STAPLES MAY BE SUBSTITUTED FOR NAILING OF PLYWOOD (APA RATED SHEATHING):

NAIL SIZE	EQUIV. STAPLE	MINIMUM LENGTH
6D	16 GA.	1-3/4"
8D	15 GA.	1-3/4"
10D	13 GA.	1-3/4"

IF CONTRACTOR PROPOSES THE USE OF ALTERNATE STAPLES, THEY SHALL SUBMIT STAPLE SPECIFICATIONS TO THE STRUCTURAL ENGINEER (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL. STAPLES SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED.

32. WOOD FRAMING NOTESTHE FOLLOWING APPLY UNLESS OTHERWISE SHOWN:

A. ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MINIMUM STANDARDS OF THE INTERNATIONAL BUILDING CODE. MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO TABLE 2304.10.1 OF THE INTERNATIONAL BUILDING CODE. UNLESS NOTED OTHERWISE, ALL NAILS SHALL BE COMMON. COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH MECHANICAL AND ARCHITECTURAL DRAWINGS. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.

B. WALL FRAMING: ALL STUD WALLS SHOWN AND NOT OTHERWISE NOTED SHALL BE 2X4 STUDS @ 16" O.C. AT INTERIOR WALLS AND 2X6 @ 16" O.C. AT EXTERIOR WALLS. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL WALLS AND AT EACH SIDE OF ALL OPENINGS. TWO 2X8 HEADERS SHALL BE PROVIDED OVER ALL OPENINGS NOT OTHERWISE NOTED. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW. WALLS SHALL HAVE A SINGLE BOTTOM PLATE AND A DOUBLE TOP PLATE. END NAIL TOP PLATE TO EACH STUD WITH TWO 16D NAILS, AND TOENAIL OR END NAIL EACH STUD TO BOTTOM PLATE WITH TWO 16D NAILS. FACE NAIL DOUBLE TOP PLATE WITH 16D AT 12" O.C. AND LAP MINIMUM 4'-0" AT JOINTS AND PROVIDE SIX 16D NAILS AT 4" O.C. EACH SIDE OF JOINT. ALL STUD WALLS SHALL HAVE THEIR LOWER WOOD PLATES ATTACHED TO WOOD FRAMING BELOW WITH 16D NAILS AT 12" O.C. STAGGERED OR BOLTED TO CONCRETE WITH 5/8" DIAMETER ANCHOR BOLTS (WITH 7" MINIMUM EMBEDMENT)@ 4'0" O.C. UNLESS INDICATED OTHERWISE. INDIVIDUAL MEMBERS OF BUILTUP POSTS SHALL BE NAILED TO EACH OTHER WITH 16D @ 12" O.C. STAGGERED. REFER TO THE PLANS AND SHEAR WALL SCHEDULE FOR REQUIRED SHEATHING AND NAILING. WHEN NOT OTHERWISE NOTED, PROVIDE GYPSUM WALLBOARD ON INTERIOR SURFACES NAILED TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING WITH NAILS AT 7" O.C. USE 5D COOLER NAILS FOR 1/2" GWB AND 6D COOLER NAILS FOR 5/8" GWB. WHEN NOT OTHERWISE NOTED, PROVIDE 1/2" (NOM.) APA RATED SHEATHING (SPAN RATING 24/0) ON EXTERIOR SURFACES NAILED AT ALL PANEL EDGES (BLOCK UNSUPPORTED EDGES), TOP AND BOTTOM PLATES WITH 8D @ 6" O.C. AND TO ALL INTERMEDIATE STUDS AND BLOCKING WITH 8D @ 12" O.C. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS.

C. FLOOR AND ROOF FRAMING: PROVIDE DOUBLE JOISTS AROUND ALL OPENINGS IN FLOORS OR ROOFS UNLESS OTHERWISE NOTED. PROVIDE SOLID BLOCKING AT ALL BEARING POINTS. TOENAIL JOISTS TO SUPPORTS WITH TWO 16D NAILS. ATTACH TIMBER JOISTS TO FLUSH HEADERS OR BEAMS WITH METAL JOIST HANGERS IN ACCORDANCE WITH TIMBER CONNECTOR NOTE. NAIL ALL MULTIJOIST BEAMS TOGETHER WITH 16D @ 12" O.C. STAGGERED. UNLESS OTHERWISE NOTED ON THE PLANS, ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS AND NAILED WITH 8D NAILS @ 6" O.C. TO FRAMED PANEL EDGES AND OVER STUD WALLS AS SHOWN ON PLANS AND @ 12" O.C. TO INTERMEDIATE SUPPORTS. PROVIDE APPROVED PLYWOOD EDGE CLIPS CENTERED BETWEEN JOISTS/TRUSSES AT UNBLOCKED ROOF SHEATHING EDGES. ALL FLOOR SHEATHING EDGES SHALL HAVE APPROVED TONGUEANDGROOVE JOINTS OR SHALL BE SUPPORTED WITH SOLID BLOCKING. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF ALL ROOF AND FLOOR SHEATHING. TOENAIL BLOCKING TO SUPPORTS WITH 16D @ 12" O.C. UNLESS OTHERWISE NOTED. AT BLOCKED FLOOR AND ROOF DIAPHRAGMS PROVIDE FLAT 2X BLOCKING AT ALL UNFRAMED PLYWOOD PANEL EDGES AND NAIL WITH EDGE NAILING SPECIFIED.

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S1.1

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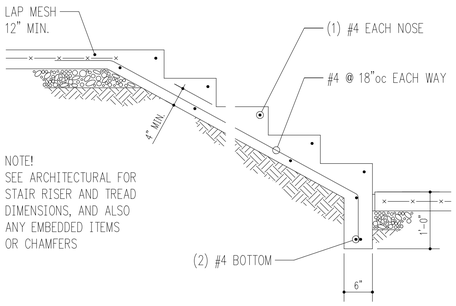
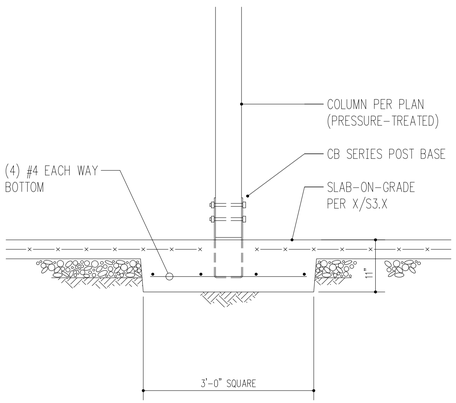
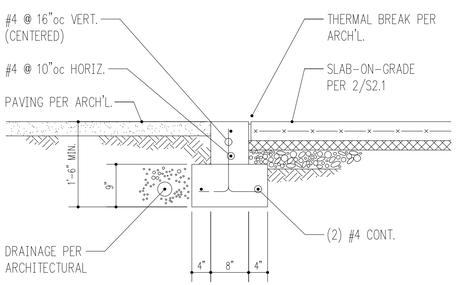


TYPICAL STAIR-ON-GRADE

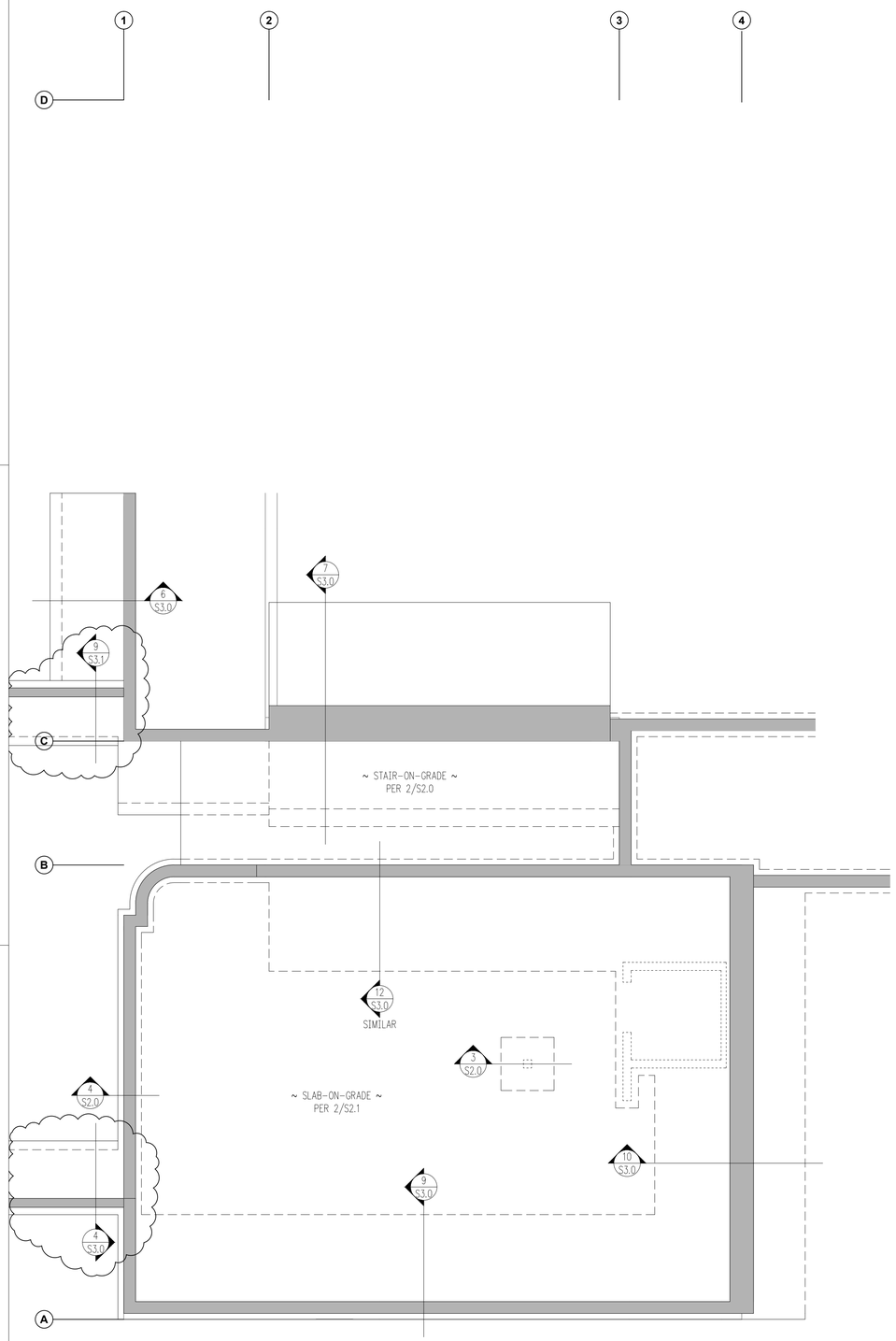
3/4" = 1'-0" 2



3/4" = 1'-0" 3



3/4" = 1'-0" 4



1 S2.0 FOUNDATION PLAN

scale: 1/4" = 1'-0"

LEGEND

- SPAN
- EXTENT
- X S.X.X — SECTION DETAIL
- (FB) FLUSH BEAM
- (PT) PRESSURE-TREATED
- COLUMN ABOVE
- COLUMN BELOW
- NEW STRUCTURAL WALL
- NEW SHEARWALL
- NEW CONCRETE WALL
- HDX — ALL-THREAD HOLDOWN AT END OF SHEARWALL ABOVE
- CSX — STRAP HOLDOWN AT END OF SHEARWALL ABOVE

PLAN NOTES

1. SEE 10/S4.0 FOR TYPICAL HOLDOWN REQUIREMENTS AT CONCRETE WALLS AND FOOTINGS.
2. SLAB-ON-GRADE SHALL BE PLACED AND CURED FOR A MINIMUM OF SEVEN DAYS BEFORE RETAINING WALLS ARE BACKFILLED. SEE RETAINING WALL DETAILS FOR SPECIFIC CONFIGURATION.

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FOUNDATION PLAN

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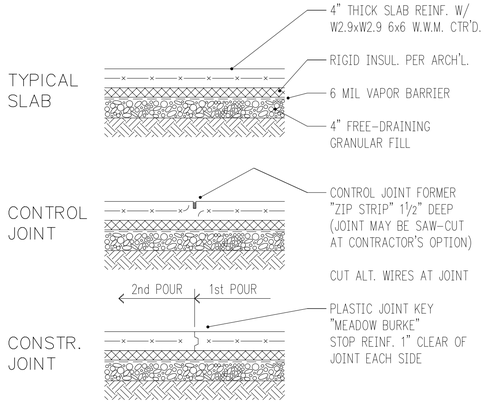
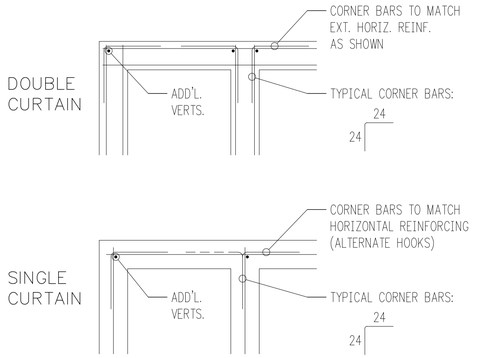


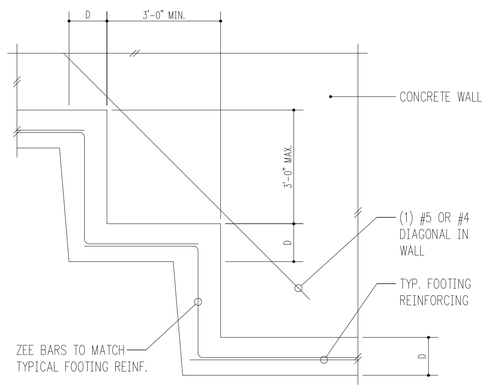
SLAB-ON-GRADE (INSULATED)

3/4" = 1'-0" 2



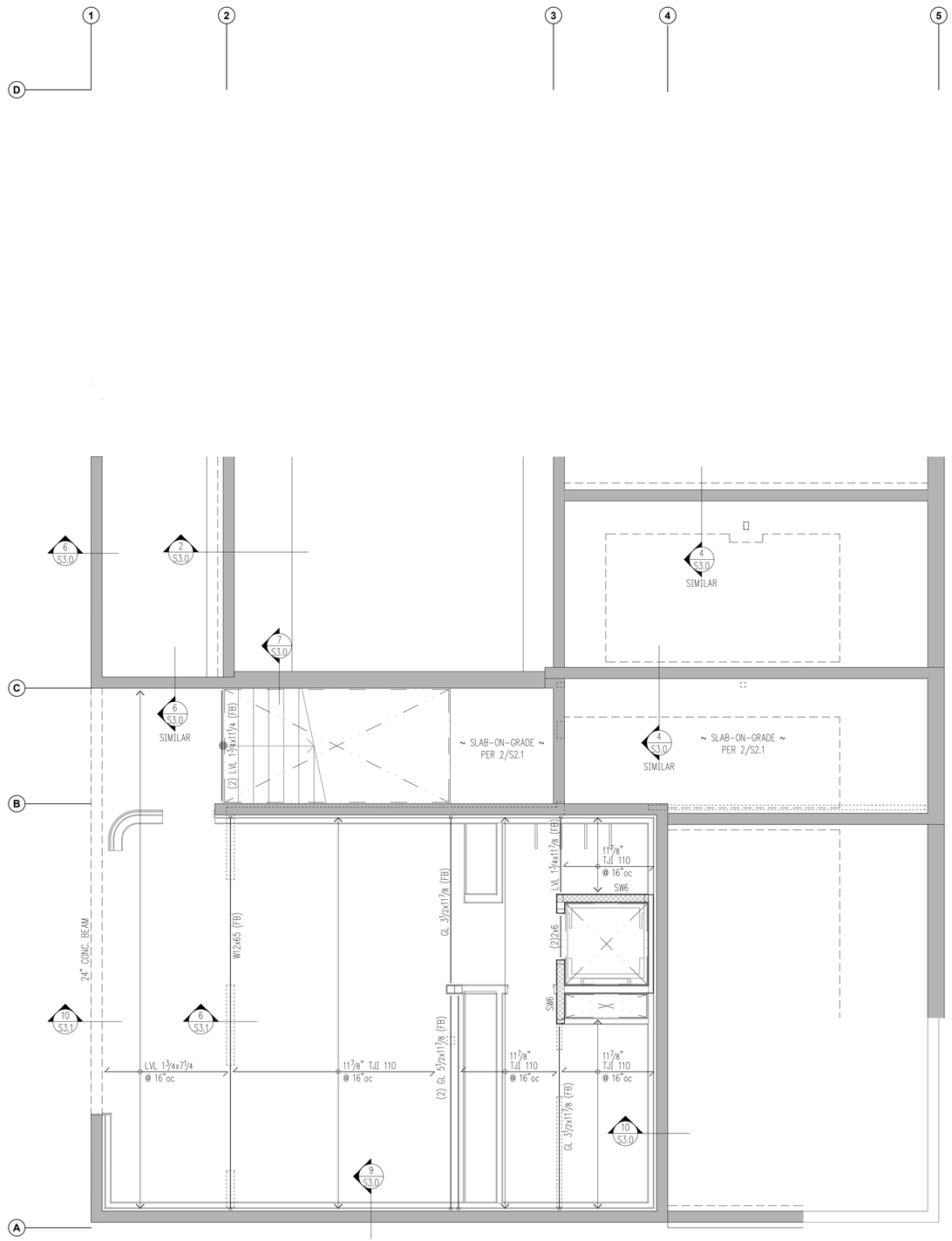
TYPICAL CORNER BARS AT CONCRETE WALLS

3/4" = 1'-0" 3



TYPICAL STEPPED FOOTING

3/4" = 1'-0" 4



1 S2.1 FIRST FLOOR FRAMING & LOWER FOUNDATION PLAN (BASEMENT WALLS)

scale: 1/4" = 1'-0"

LEGEND

- SPAN
- EXTENT
- X S.X.X — SECTION DETAIL
- (FB) — FLUSH BEAM
- (PT) — PRESSURE-TREATED
- COLUMN ABOVE
- COLUMN BELOW
- NEW STRUCTURAL WALL
- NEW SHEARWALL
- NEW CONCRETE WALL
- HDX — ALL-THREAD HOLDOWN AT END OF SHEARWALL ABOVE
- CSX — STRAP HOLDOWN AT END OF SHEARWALL ABOVE

PLAN NOTES

1. SW__ INDICATES SHEARWALL TYPE PER SCHEDULE 8/S4.0. REFER TO DETAILS FOR TYPICAL SHEARWALL CONSTRUCTION. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL WALL INFORMATION.
2. REFER TO GENERAL STRUCTURAL NOTES FOR FLOOR OR ROOF SHEATHING TYPE, THICKNESS, AND NAILING.
3. COLUMNS SHALL BE DOUBLE STUD MINIMUM, UNLESS NOTED OTHERWISE. SEE 11/S4.0.
4. AT ALL SHEARWALLS PROVIDE DOUBLE TOP PLATES AND SPLICE PER 12/S4.0.
5. CS__ INDICATES COILED STRAP TYPE PER SCHEDULE 6/S4.0. REFER TO DETAILS FOR TYPICAL STRAP ASSEMBLY.
6. POSTS □, INCLUDING ENDS OF WALL OPENINGS, SHALL BE (2)2x6 UNLESS NOTED OTHERWISE.
7. SEE 10/S4.0 FOR TYPICAL HOLDOWN REQUIREMENTS AT CONCRETE WALLS AND FOOTINGS.
8. SLAB-ON-GRADE SHALL BE PLACED AND CURED FOR A MINIMUM OF SEVEN DAYS BEFORE RETAINING WALLS ARE BACKFILLED. SEE RETAINING WALL DETAILS FOR SPECIFIC CONFIGURATION.

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MAIN FLOOR FRAMING PLAN

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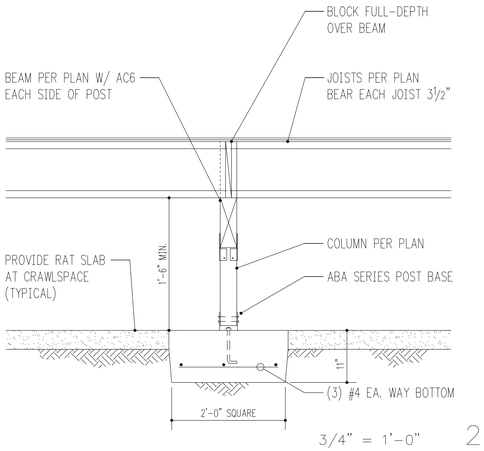
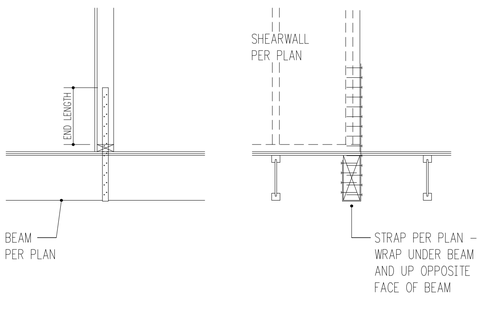
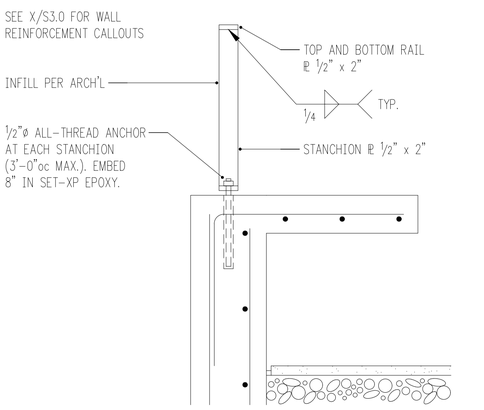
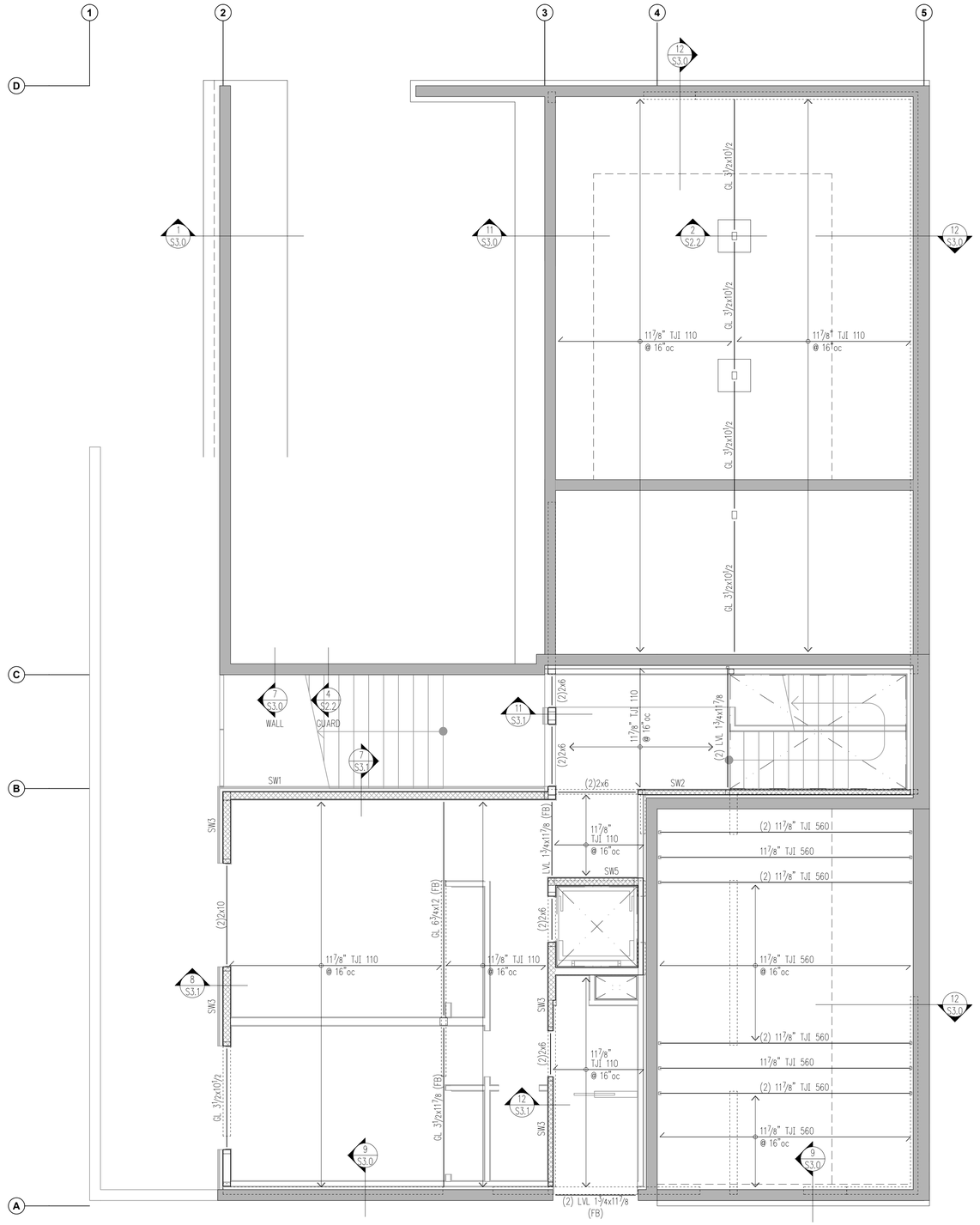
S2.1

SULLIVAN RESIDENCE









1 S2.2 SECOND FLOOR FRAMING & UPPER FOUNDATION PLAN (FIRST FLOOR WALLS)
scale: 1/4" = 1'-0"

LEGEND

- SPAN
- EXTENT
- X S.X.X — SECTION DETAIL
- (FB) — FLUSH BEAM
- (PT) — PRESSURE-TREATED
- COLUMN ABOVE
- COLUMN BELOW
- NEW STRUCTURAL WALL
- NEW SHEARWALL
- NEW CONCRETE WALL
- HDX — ALL-THREAD HOLDOWN AT END OF SHEARWALL ABOVE
- CSX — STRAP HOLDOWN AT END OF SHEARWALL ABOVE

PLAN NOTES

1. SW__ INDICATES SHEARWALL TYPE PER SCHEDULE 8/S4.0. REFER TO DETAILS FOR TYPICAL SHEARWALL CONSTRUCTION. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL WALL INFORMATION.
2. REFER TO GENERAL STRUCTURAL NOTES FOR FLOOR OR ROOF SHEATHING TYPE, THICKNESS, AND NAILING.
3. COLUMNS SHALL BE DOUBLE STUD MINIMUM, UNLESS NOTED OTHERWISE. SEE 11/S4.0.
4. AT ALL SHEARWALLS PROVIDE DOUBLE TOP PLATES AND SPLICE PER 12/S4.0.
5. CS__ INDICATES COILED STRAP TYPE PER SCHEDULE 6/S4.0. REFER TO DETAILS FOR TYPICAL STRAP ASSEMBLY.
6. POSTS □, INCLUDING ENDS OF WALL OPENINGS, SHALL BE (2)2x6 UNLESS NOTED OTHERWISE.
7. SEE 10/S4.0 FOR TYPICAL HOLDOWN REQUIREMENTS AT CONCRETE WALLS AND FOOTINGS.
8. SLAB-ON-GRADE SHALL BE PLACED AND CURED FOR A MINIMUM OF SEVEN DAYS BEFORE RETAINING WALLS ARE BACKFILLED. SEE RETAINING WALL DETAILS FOR SPECIFIC CONFIGURATION.

HANGER SCHEDULE

MEMBER (FLAT ONLY)	HANGER	FACE NAILING	CAPACITY (Cd = 1.0)
2x8	LUS28	10d COMMON	1055 lb
117/8" TJI 110	IUS1.81/11.88	10d COMMON	1020 lb
(2)2x6	LUS210	10d COMMON	1275 lb

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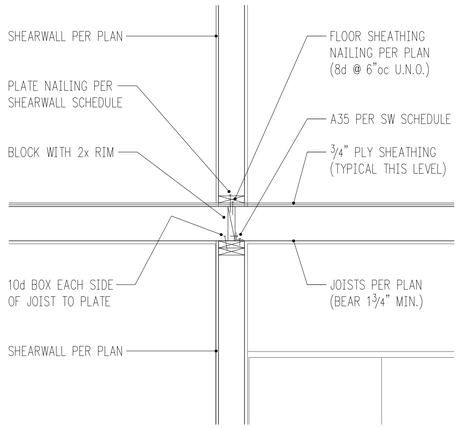
Issue Date	Issue Description
01/20/2023	Permit
05/18/2023	Corrections
07/04/2023	Corrections
07/20/2023	Corrections

Building Department Approval

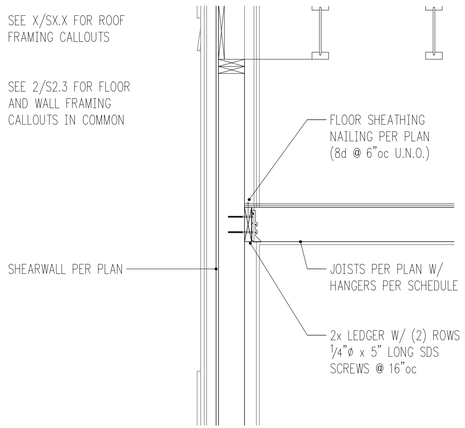
Drawing Title
LOFT FRAMING PLAN

Drawing Number
S2.2

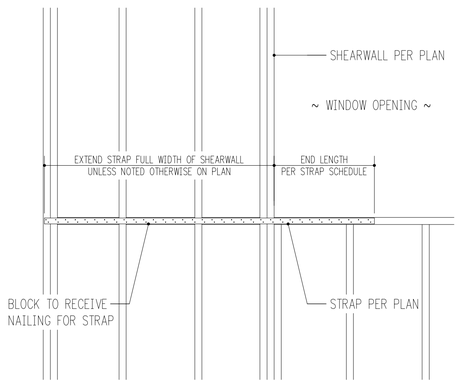
SULLIVAN RESIDENCE



3/4" = 1'-0" 2

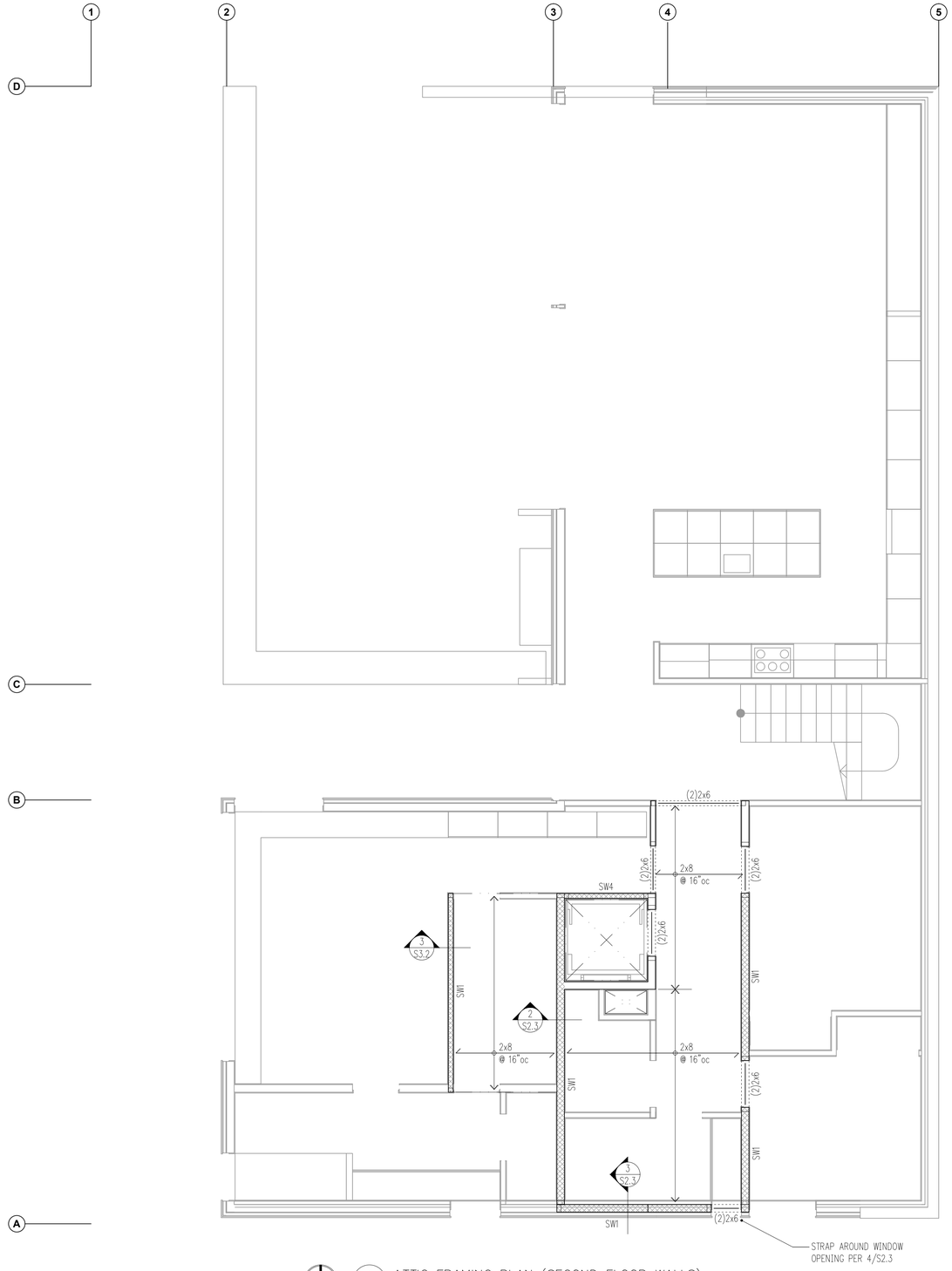


3/4" = 1'-0" 3



TYPICAL STRAPPED WINDOW OPENING

3/4" = 1'-0" 4



1 S2.3 ATTIC FRAMING PLAN (SECOND FLOOR WALLS)
scale: 1/4" = 1'-0"

LEGEND

	SPAN
	EXTENT
X SX.X	SECTION DETAIL
(FB)	FLUSH BEAM
(PT)	PRESSURE-TREATED
	COLUMN ABOVE
	COLUMN BELOW
	NEW STRUCTURAL WALL
	NEW SHEARWALL
	NEW CONCRETE WALL
HDX	ALL-THREAD HOLDOWN AT END OF SHEARWALL ABOVE
CSX	STRAP HOLDOWN AT END OF SHEARWALL ABOVE

PLAN NOTES

1. SW__ INDICATES SHEARWALL TYPE PER SCHEDULE 8/S4.0. REFER TO DETAILS FOR TYPICAL SHEARWALL CONSTRUCTION. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL WALL INFORMATION.
2. REFER TO GENERAL STRUCTURAL NOTES FOR FLOOR OR ROOF SHEATHING TYPE, THICKNESS, AND NAILING.
3. COLUMNS SHALL BE DOUBLE STUD MINIMUM, UNLESS NOTED OTHERWISE. SEE 11/S4.0.
4. AT ALL SHEARWALLS PROVIDE DOUBLE TOP PLATES AND SPLICE PER 12/S4.0.
5. CS__ INDICATES COILED STRAP TYPE PER SCHEDULE 6/S4.0. REFER TO DETAILS FOR TYPICAL STRAP ASSEMBLY.
6. POSTS □, INCLUDING ENDS OF WALL OPENINGS, SHALL BE (2)2x6 UNLESS NOTED OTHERWISE.

HANGER SCHEDULE

MEMBER (FLAT ONLY)	HANGER	FACE NAILING	CAPACITY (Cd = 1.0)
2x8	LUS28	10d COMMON	1055 lb
(2)2x6	LUS210	10d COMMON	1275 lb

HV

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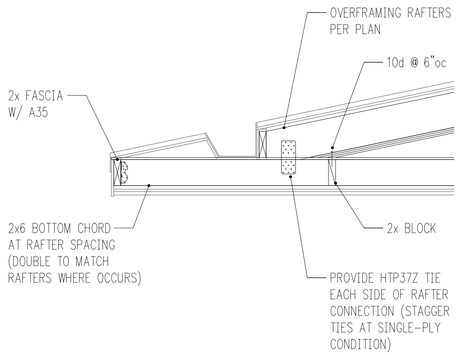
07/20/2023	Corrections

Building Department Approval

Drawing Title
ROOF FRAMING PLAN

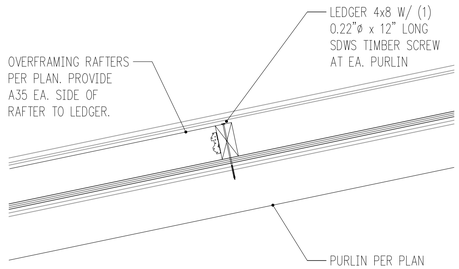
Drawing Number
S2.3

SULLIVAN RESIDENCE



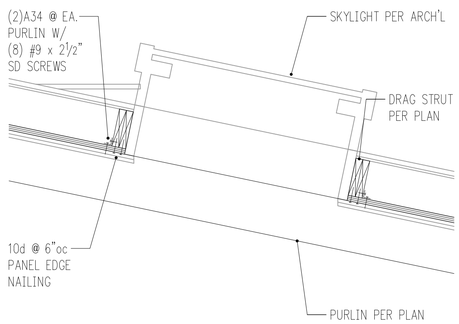
TYPICAL EAVE FRAMING

3/4" = 1'-0" 2

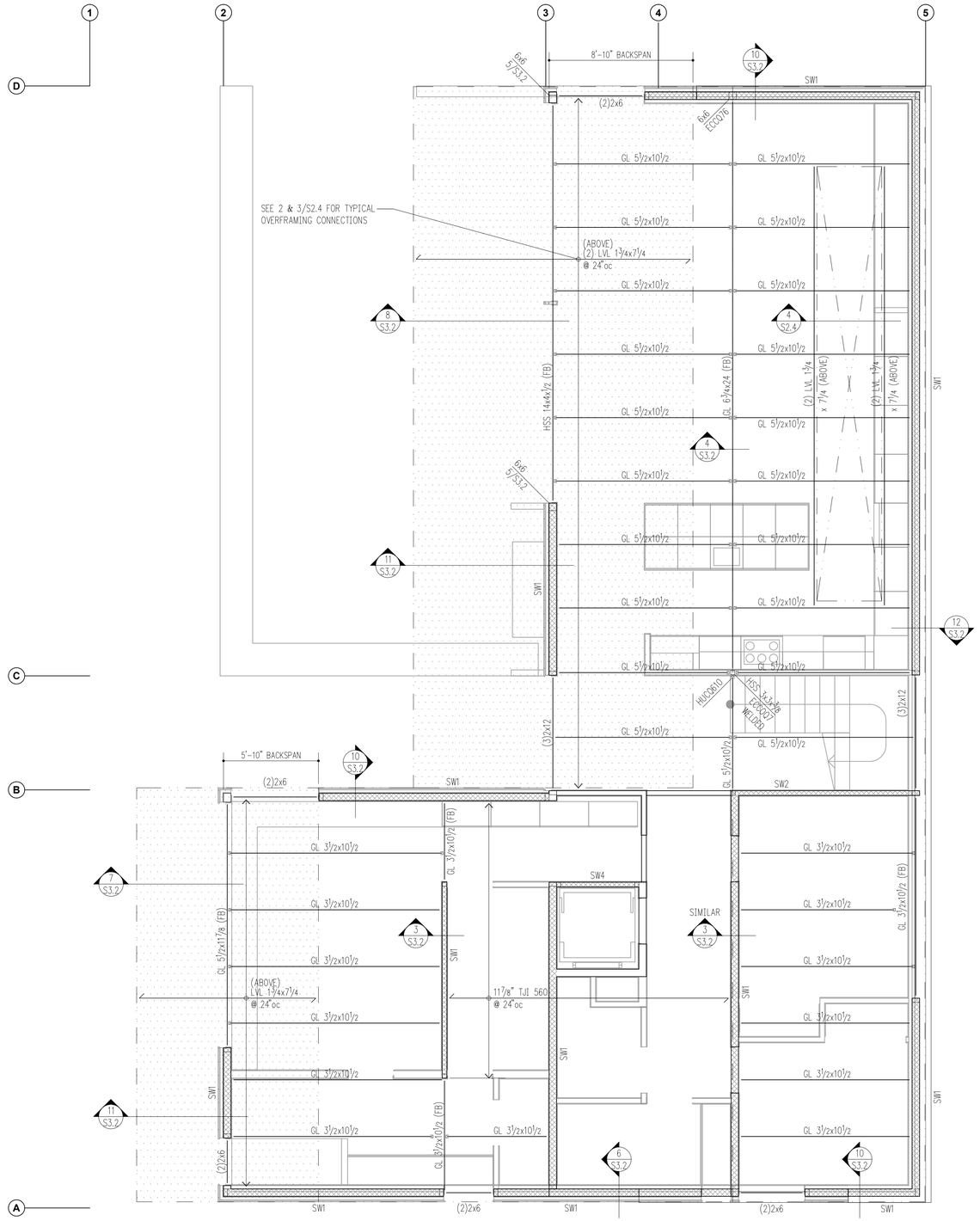


TYPICAL OVERFRAMING CONNECTION

3/4" = 1'-0" 3



3/4" = 1'-0" 4



1 S2.4 ROOF FRAMING PLAN (ATTIC & SECOND FLOOR WALLS)
scale: 1/4" = 1'-0"

LEGEND

- SPAN
- EXTENT
- X S.X.X — SECTION DETAIL
- (FB) — FLUSH BEAM
- (PT) — PRESSURE-TREATED
- COLUMN ABOVE
- COLUMN BELOW
- NEW STRUCTURAL WALL
- NEW SHEARWALL
- NEW CONCRETE WALL
- HDX — ALL-THREAD HOLDOWN AT END OF SHEARWALL ABOVE
- CSX — STRAP HOLDOWN AT END OF SHEARWALL ABOVE

PLAN NOTES

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4. AT ALL SHEARWALLS PROVIDE DOUBLE TOP PLATES AND SPLICE PER 12/S4.0.
5. CS__ INDICATES COILED STRAP TYPE PER SCHEDULE 6/S4.0. REFER TO DETAILS FOR TYPICAL STRAP ASSEMBLY.
6. POSTS □, INCLUDING ENDS OF WALL OPENINGS, SHALL BE (2)2x6 UNLESS NOTED OTHERWISE.

HANGER SCHEDULE

MEMBER (SLOPED ONLY)	HANGER	FACE NAILING	CAPACITY (Cd = 1.15)
GL 3½x10½	HWP3.56/10.5	16d COMMON	3955 lb
GL 5½x10½	HWPH5.62/10.5	16d COMMON	5920 lb

HV

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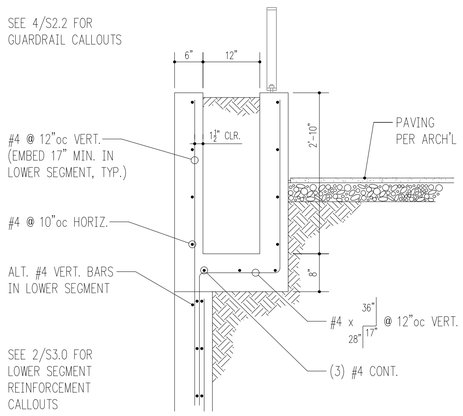
07/20/2023	Corrections

Building Department Approval

Drawing Title
ROOF FRAMING PLAN

Drawing Number
S2.4

SULLIVAN RESIDENCE



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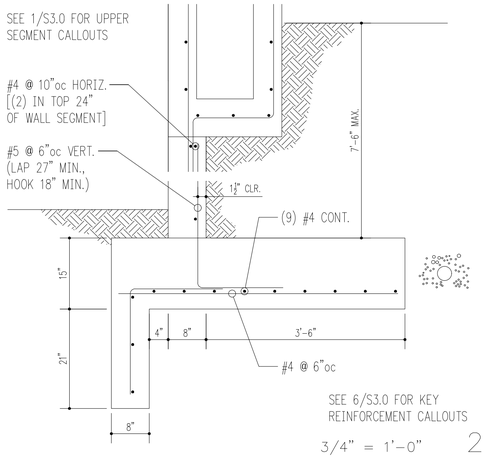

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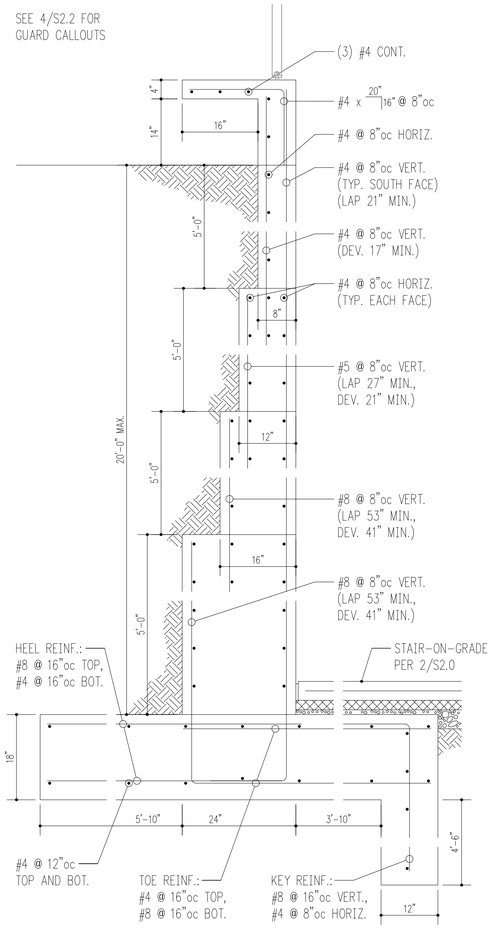
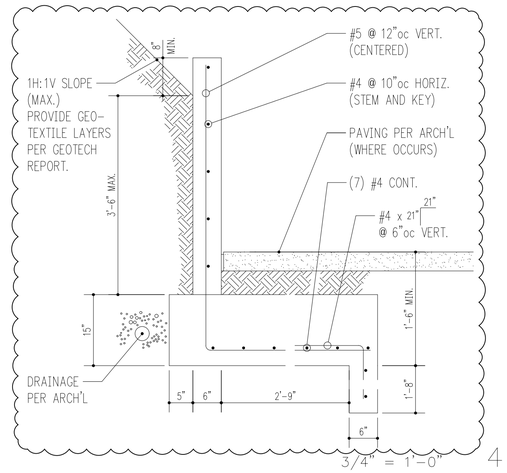


3/4" = 1'-0" 7



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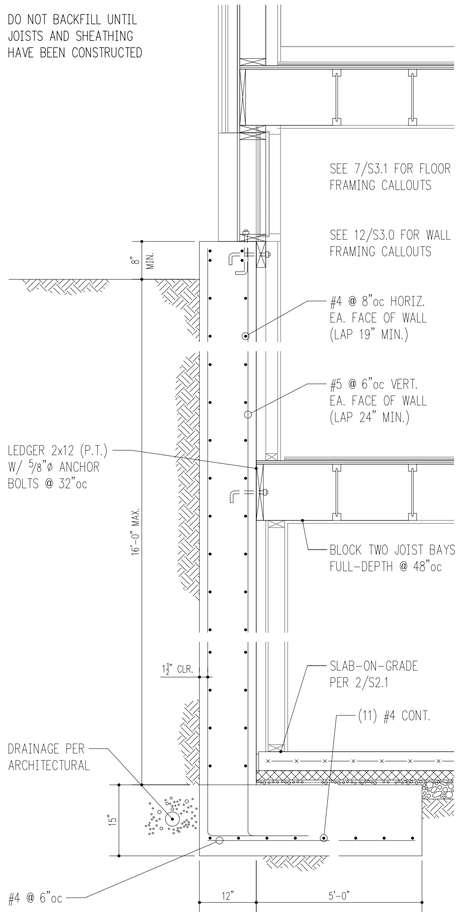
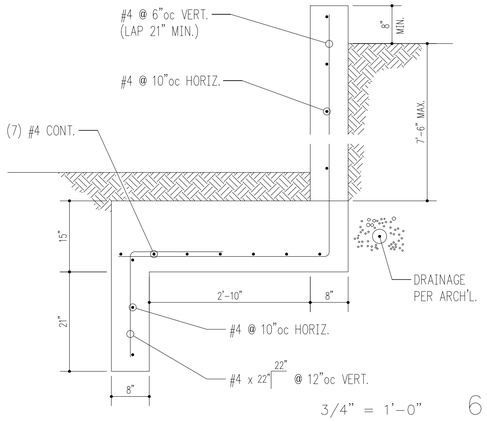


3/4" = 1'-0" 9



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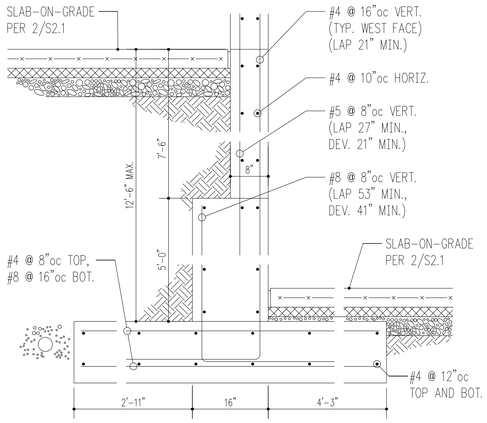
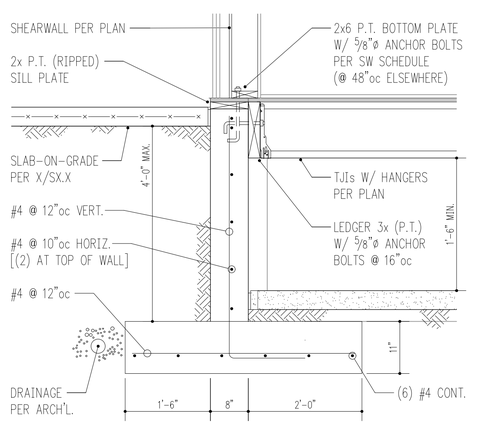


3/4" = 1'-0" 10



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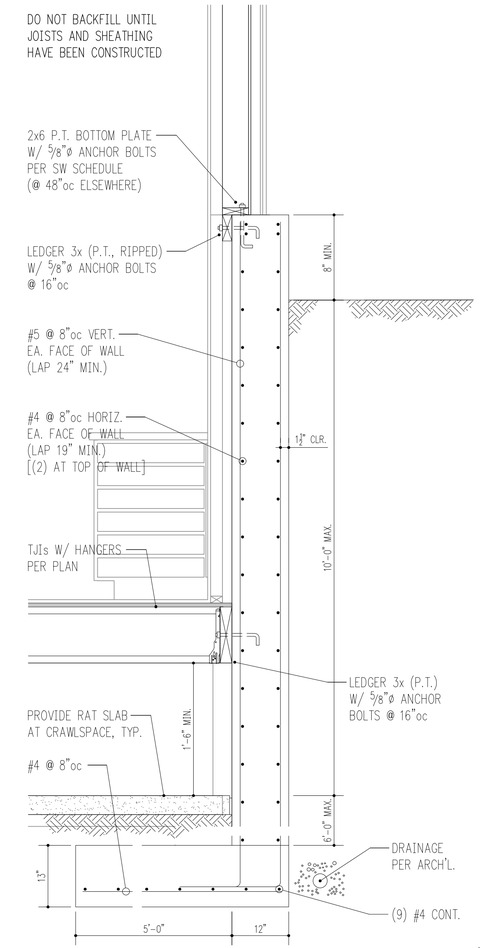

3/4" = 1'-0" 12

HV

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07/20/2023	Corrections

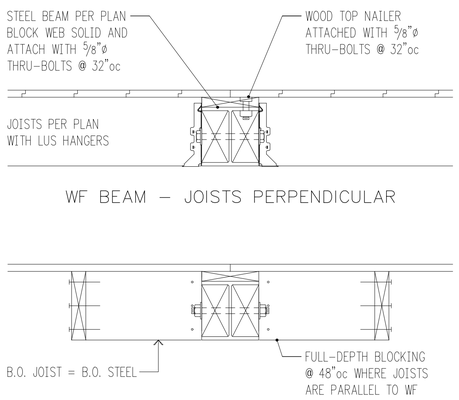
Building Department Approval

Drawing Title
STRUCTURAL DETAILS

Drawing Number
S3.0

SULLIVAN RESIDENCE

3/4" = 1'-0" 1



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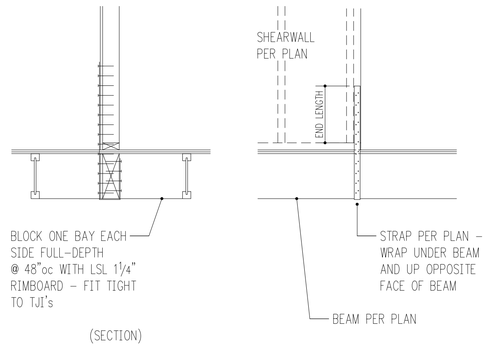

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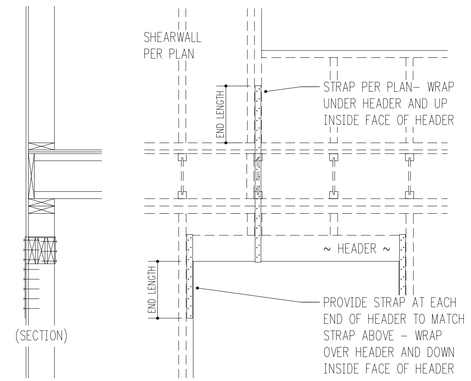
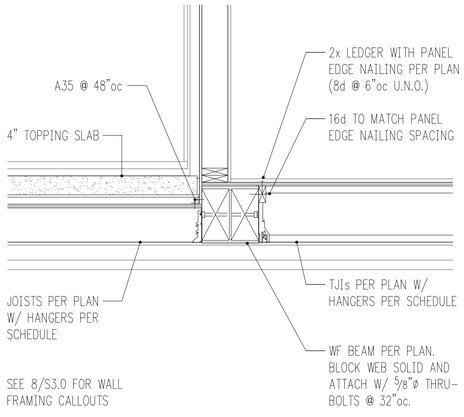


3/4" = 1'-0" 4

3/4" = 1'-0" 5



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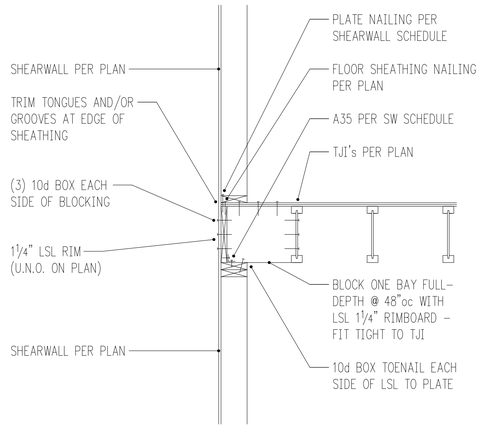

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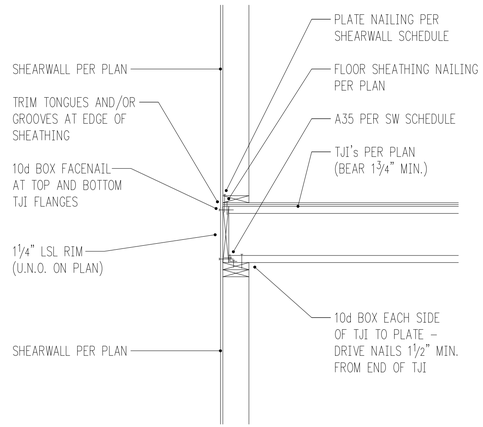

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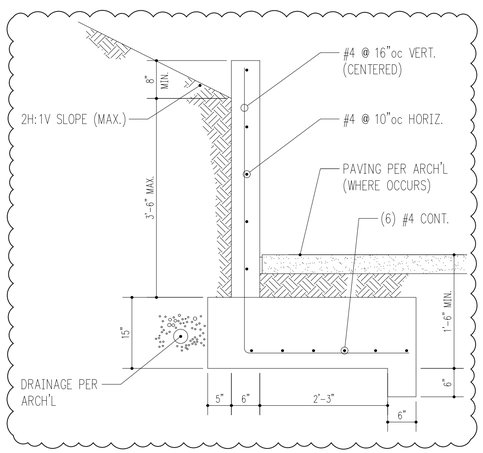
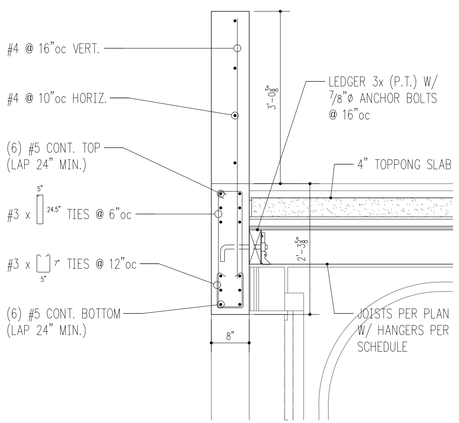
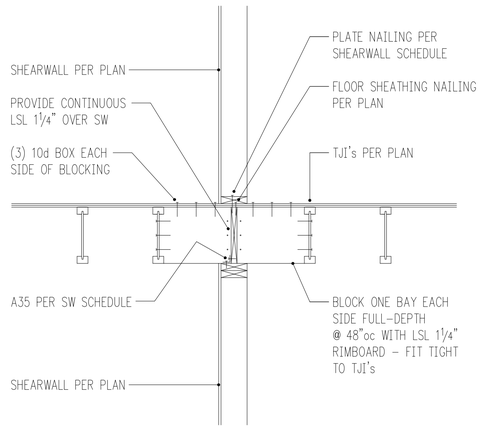


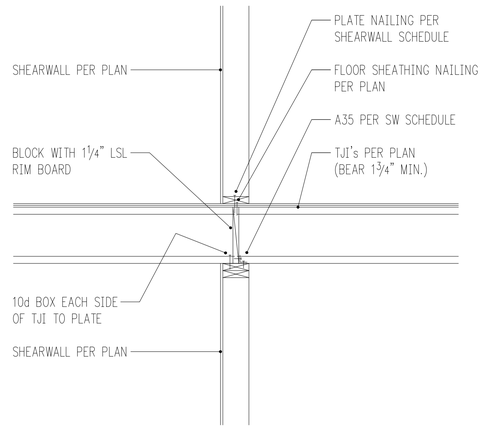
3/4" = 1'-0" 9



3/4" = 1'-0" 10



3/4" = 1'-0" 11



3/4" = 1'-0" 12

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Building Department Approval

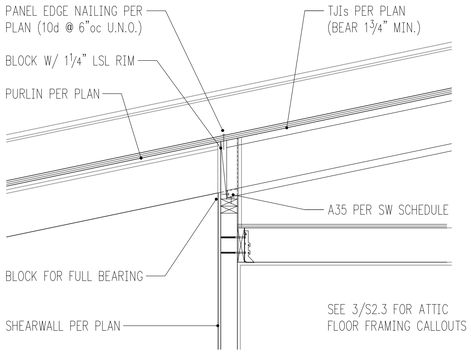
Drawing Title
STRUCTURAL DETAILS

Drawing Number
S3.1

SULLIVAN RESIDENCE

3/4" = 1'-0" 1

3/4" = 1'-0" 2



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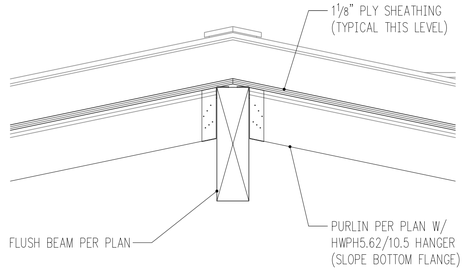
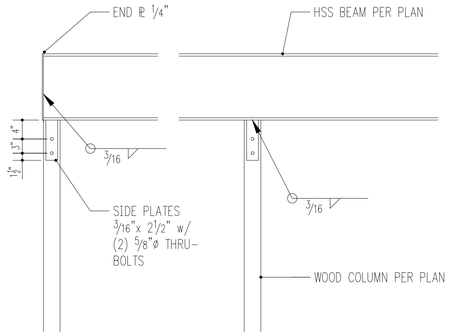
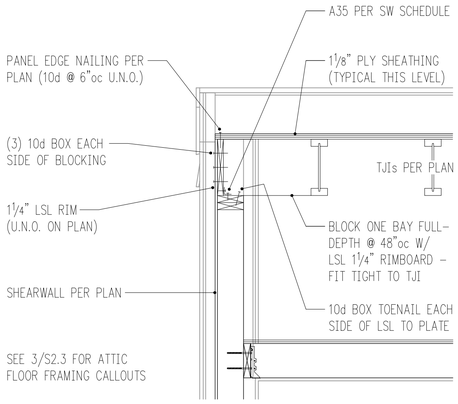


3/4" = 1'-0" 4



WF BEAM BEARING ON WOOD COLUMN

3/4" = 1'-0" 5



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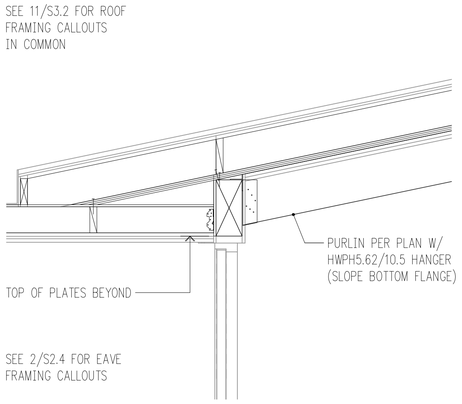

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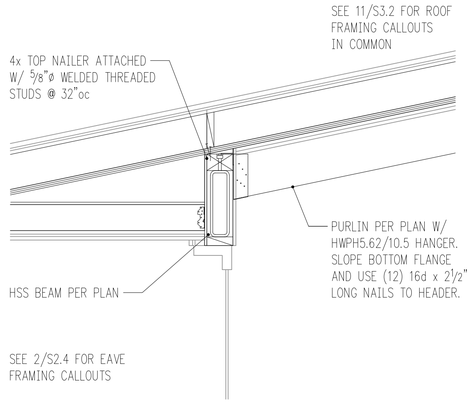
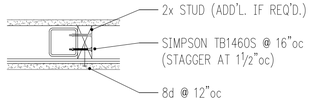


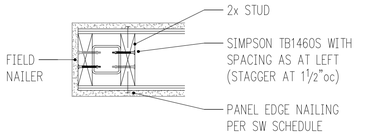
3/4" = 1'-0" 8

NAILER TYPE:

STUD WALL OR SHEARWALL FIELD NAILER



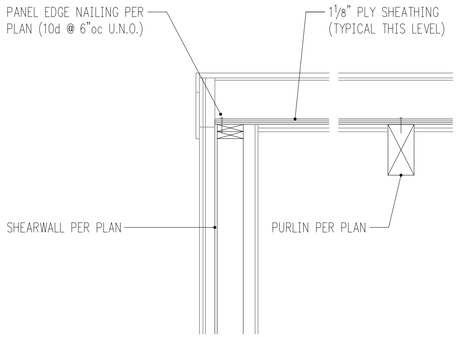
SHEARWALL BOUNDARY NAILER



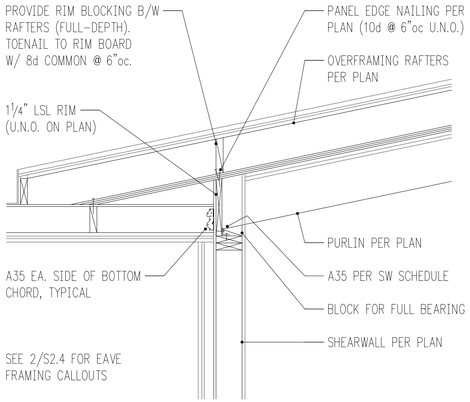
SW1	16"oc
SW2	12"oc
SW3	9"oc
SW4	7"oc
SW5	4½"oc
SW6	3½"oc

HSS COLUMN NAILERS

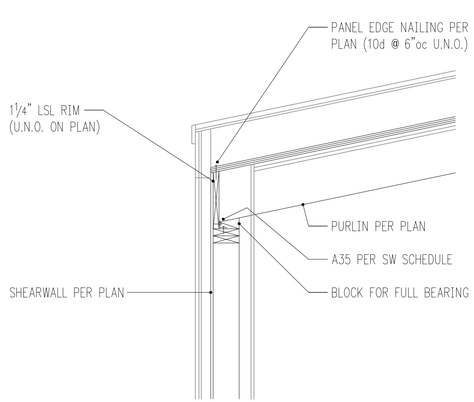
1-1/2" = 1'-0" 9



3/4" = 1'-0" 10



3/4" = 1'-0" 11



3/4" = 1'-0" 12

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7/20/23

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Mercer Island, WA 98040

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07/04/2023	Corrections
07/20/2023	Corrections

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Drawing Title

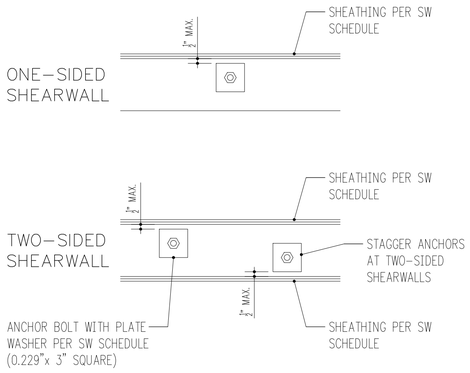
STRUCTURAL DETAILS

Drawing Number

S3.2

SULLIVAN RESIDENCE

3/4" = 1'-0" 1



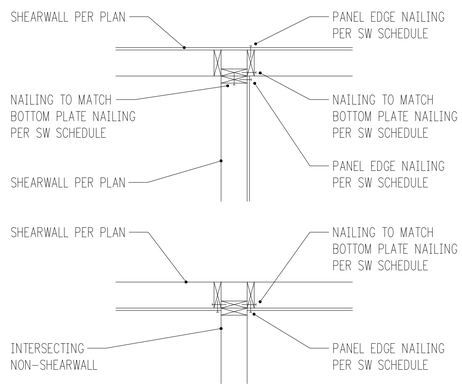
TYPICAL SHEARWALL ANCHOR BOLT PLACEMENT

1-1/2" = 1'-0" 2

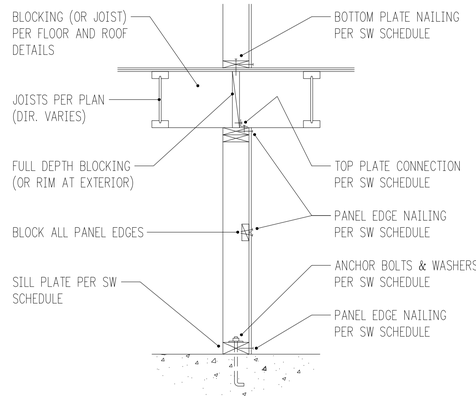
SHEARWALL SCHEDULE (NOT ALL USED ON PLANS)

MARK	SHEATHING[1]	STUDS AT ABUTTING PANEL EDGES[2]	PANEL EDGE NAILING[3,4]	RIM JOIST OR BLOCKING TO TOP PLATE		BOTTOM PLATE ATTACHMENT		
				SOLID RIM	TJI RIM	BOTTOM PLATE TO RIM JOIST BELOW[4]	ANCHOR BOLT TO CONCRETE[5]	SILL PLATE AT FOUND.
SW1	15/32" CDX PLYWOOD	2x	8d @ 6"oc	A35 @ 24"oc	16d @ 6"oc	16d @ 6"oc	5/8"ø @ 48"oc	2x
SW2	15/32" CDX PLYWOOD	2x	8d @ 4"oc	A35 @ 15"oc	16d @ 4"oc	16d @ 4"oc	5/8"ø @ 32"oc	2x
SW3	15/32" CDX PLYWOOD	3x	8d @ 3"oc	A35 @ 12"oc	N/A - USE SOLID RIM	16d @ 3"oc	5/8"ø @ 16"oc	2x
SW4	15/32" CDX PLYWOOD	3x	8d @ 2"oc	A35 @ 9"oc	N/A - USE SOLID RIM	16d @ 2"oc	5/8"ø @ 12"oc	2x
SW5	15/32" CDX PLYWOOD BOTH SIDES	3x	8d @ 3"oc	A35 @ 6"oc	N/A - USE SOLID RIM	(2) ROWS 16d @ 3"oc	5/8"ø @ 12"oc	3x
SW6	15/32" CDX PLYWOOD BOTH SIDES	3x	8d @ 2"oc	A35 @ 4½"oc	N/A - USE SOLID RIM	(2) ROWS 16d @ 2"oc	5/8"ø @ 12"oc	3x

1. WALL SHEATHING SHALL CONSIST OF APA RATED PLYWOOD WITH SPAN RATING 24/0. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS OF PANELS. 7/16" APA RATED SHEATHING (OSB) MAY BE USED IN PLACE OF 15/32" CDX.
2. STUDS AT ABUTTING PANEL EDGES MAY CONSIST OF (2)2x STUDS IN PLACE OF 3x STUDS - NAIL (2)2x STUDS TOGETHER WITH BOTTOM PLATE ATTACHMENT NAILING.
3. BLOCK ALL PANEL EDGES W/ 2x4 FLAT, ATTACH W/ PANEL EDGE NAILING. TWO STUDS MINIMUM ARE REQUIRED AT EACH END OF ALL SHEARWALLS. END STUDS SHALL RECEIVE PANEL EDGE NAILING. INTERMEDIATE STUDS SHALL BE 2x STUDS. NAIL SHEATHING TO INTERMEDIATE FRAMING MEMBERS WITH 8d @ 12"oc.
4. 8d NAILS SHALL BE 0.131" DIAMETER x 2½" (COMMON). 16d NAILS SHALL BE 0.135" DIAMETER x 3½" (BOX).
5. ANCHORS TO CONCRETE SHALL CONSIST OF CAST-IN-PLACE ANCHOR BOLTS, EXPANSION BOLTS, EPOXY GROUTED ALL-THREADS, OR TITEN HD HEAVY DUTY SCREW ANCHORS. CAST-IN-PLACE ANCHOR BOLTS HAVE A 7" EMBED AND SHALL BE J-BOLTS OR SHALL HAVE A HEX NUT AT THE BOTTOM END. EXPANSION BOLTS SHALL HAVE 5" EMBED AND SHALL NOT BE USED AT STEM WALL LOCATIONS WITH EDGE DISTANCE LESS THAN 5" (INSTEAD, USE EPOXY GROUTED ALL-THREADS OR TITEN HD ANCHORS). EPOXY GROUTED ANCHORS SHALL HAVE 5" EMBED AND 2½" MIN. EDGE DISTANCE. TITEN HD ANCHORS SHALL HAVE 3½" EMBED AND 1¾" MIN. EDGE DISTANCE. AT ALL ANCHOR BOLTS, PROVIDE STEEL PLATE WASHERS THAT ARE A MINIMUM OF 0.229" (3 GAUGE) x 3"x 3" (SIMPSON BP5/8-3 OR SIMILAR). PLACE BOLTS PER ANCHOR BOLT PLACEMENT DETAIL.



TYPICAL SHEARWALL INTERSECTIONS



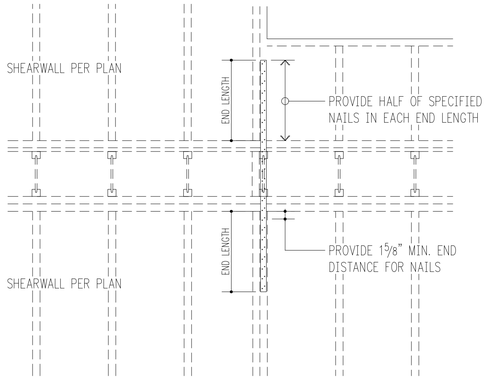
TYPICAL SHEARWALL SECTION

3/4" = 1'-0" 8

STRAP SCHEDULE (NOT ALL USED)

MARK	END LENGTH	NAILS	NAIL SPACING
CMST12	44"	(98) 10d x 3"	1¾"
CMST14	34"	(76) 10d x 3"	1¾"
CMSTC16	25"	(58) 12d x 3¼"	1½"
CS14	19"	(36) 8d x 2½"	2 1/16"
CS16	14"	(26) 8d x 2½"	2 1/16"
CS18	12"	(22) 8d x 2½"	2 1/16"
CS20	9"	(16) 8d x 2½"	2 1/16"
CS22	8"	(14) 8d x 2½"	2 1/16"

1. 10d AND 12d DIAMETER = 0.148"; 8d DIAMETER = 0.131".
2. USE HALF OF THE REQUIRED NAILS IN EACH MEMBER BEING CONNECTED (i.e. IN EACH END LENGTH).



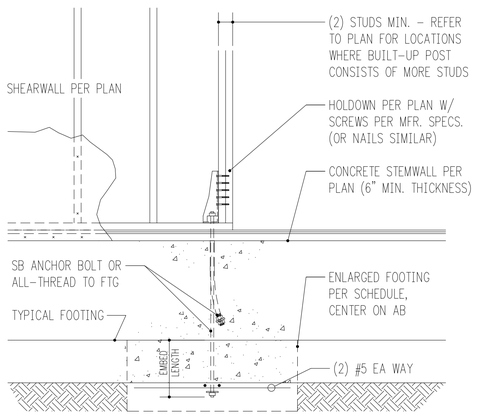
TYPICAL STRAP HOLDOWN AT FLOOR

3/4" = 1'-0" 6

HOLDOWN SCHEDULE

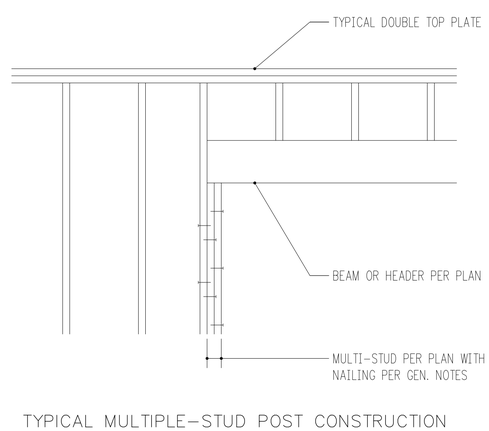
MARK	FASTENERS TO STUDS[1]	STEMWALL		FOOTING[2]		
		AB[4]	EMBED	AB[3]	EMBED	MIN FTG SIZE
HDU4	(10) ¼"ø x 2½" SCREWS	SB5/8x24	18"	5/8"ø	6"	1'-4"SQ x 9"DP
HDU5	(14) ¼"ø x 2½" SCREWS	SB5/8x24	18"	5/8"ø	6"	1'-4"SQ x 9"DP
HDU8	(20) ¼"ø x 2½" SCREWS	SB7/8x24	18"	7/8"ø	6"	1'-4"SQ x 9"DP
HD19	(5) 1"ø STUD BOLTS	-	-	1¼"ø	15"	3'-0"SQ x 18"DP

1. SCREWS SHALL BE SIMPSON "SDS" TYPE SCREWS, INSTALL PER SIMPSON RECOMMENDATIONS.
2. AS AN ALTERNATIVE TO SB ANCHORS INTO STEM WALL, OR WHERE REQUIRED PER PLAN, EMBED ALL-THREAD INTO FOOTING, PROVIDE THREADED COUPLER AS REQUIRED TO EMBED THROUGH STEM/SLAB. WHERE REQUIRED, ENLARGE FOOTING TO MINIMUM SIZE PER SCHEDULE CENTERED ON ANCHOR BOLT.
3. PROVIDE A36 OR A307 ALL-THREAD W/HEAVY HEX NUT AND ¼"x3"SQ PLATE WASHER AT BOTTOM, OR EQUIVALENT SIMPSON PAB.
4. PROVIDE 5" END AND 1¾" EDGE DISTANCE FOR ANCHORS IN STEMWALL



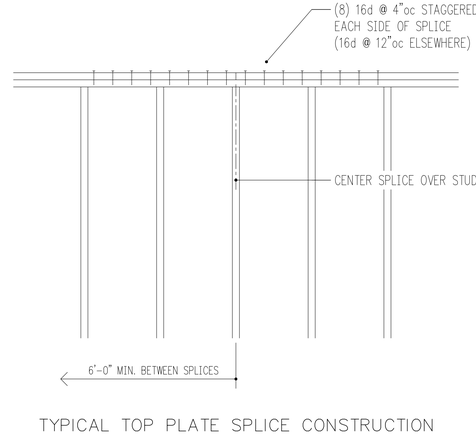
TYPICAL HOLDOWN AT CONCRETE

3/4" = 1'-0" 10



TYPICAL MULTIPLE-STUD POST CONSTRUCTION

3/4" = 1'-0" 11



TYPICAL TOP PLATE SPLICE CONSTRUCTION

3/4" = 1'-0" 12

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Building Department Approval

Drawing Title
STRUCTURAL DETAILS

Drawing Number
S4.0

SULLIVAN RESIDENCE

TEMPORARY SHORING GENERAL NOTES

(THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE PLANS)

CRITERIA

1. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, THE INTERNATIONAL BUILDING CODE (2018 EDITION), & BUILDING DEPARTMENT MODIFICATIONS TO THE INTERNATIONAL BUILDING CODE.

2. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK. THE STRUCTURAL ENGINEER HAS NO OVERALL SUPERVISORY AUTHORITY OR ACTUAL AND/OR DIRECT RESPONSIBILITY FOR THE SPECIFIC WORKING CONDITIONS AT THE SITE AND/OR FOR ANY HAZARDS RESULTING FROM THE ACTIONS OF ANY TRADE CONTRACTOR. THE STRUCTURAL ENGINEER HAS NO DUTY TO INSPECT, SUPERVISE, NOTE, CORRECT, OR REPORT ANY HEALTH OR SAFETY DEFICIENCIES OF THE OWNER, CONTRACTORS, OR OTHER ENTITIES OR PERSONS AT THE PROJECT SITE.

4. SHOP DRAWINGS AND PRODUCT DATA SHALL BE SUBMITTED TO THE ENGINEER PRIOR ANY FABRICATION OR CONSTRUCTION FOR ALL STRUCTURAL ITEMS INCLUDING THE FOLLOWING: STRUCTURAL STEEL, MISCELLANEOUS METAL, TENDONS, ANCHORS, REINFORCING STEEL, GROUTS, AND CONCRETES. THE PROPOSED DEMOLITION AND SHORING SEQUENCE SHALL ALSO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

5. REFER TO THE FOLLOWING DOCUMENTS FOR ADDITIONAL INFORMATION:

   A. TOPOGRAPHIC AND BOUNDARY SURVEY: D.R. STRONG CONSULTING ENGINEERS, DATED 5/21/21.

   B. SOILS REPORT REFERENCE: COBALT GEOSCIENCES, ORIGINAL DATE 4/7/22, UPDATED APRIL 8, 2023.

   THE CITY OF MERCER ISLAND SHALL BE A RECIPIENT OF THE REPORTS AND REVIEWED SURVEY DATA BY THE GEOTECHNICAL ENGINEER. (2)

6. DESIGN LOADS: THE SOIL PRESSURE INDICATED ON THE SOIL PRESSURE DIAGRAM WAS USED FOR DESIGN, IN ADDITION TO THE DEAD AND LIVE LOADS.

7. SPECIAL INSPECTION BY THE SOILS ENGINEER SHALL BE PERFORMED FOR PILE PLACEMENT (AND TIEBACK PLACING AND STRESSING, WHERE APPLICABLE). ALL PREPARED SOIL BEARING SURFACES SHALL BE INSPECTED BY THE SOILS ENGINEER PRIOR TO PLACEMENT OF PILE. SOIL COMPACTION SHALL BE SUPERVISED BY AN APPROVED TESTING LAB.

8. THE SHORING CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO DRILLING PILE HOLES, TIEBACK ANCHORS, OR CUTTING OR DIGGING IN STREETS OR ALLEYS. THE UTILITIES INFORMATION SHOWN ON THE PLANS MAY BE NOT COMPLETE.

9. REFER TO THE SOILS REPORT FOR ADDITIONAL REQUIREMENTS, INCLUDING RECOMMENDATIONS FOR SHORING IN GENERAL, SHORING MONITORING, EXCAVATION, LAGGING, AND DRAINAGE.

SOLDIER PILE AND LAGGING CONSTRUCTION

10. PILE LEAN MIX SHALL CONTAIN 1-1/2 SACKS OF CEMENT PER CUBIC YARD. THERE IS NO STRENGTH REQUIREMENT FOR THIS MIX.

11. LAGGING SHALL CONSIST OF SAWN LUMBER AND SHALL CONFORM TO "GRADING AND DRESSING RULES," WEST COAST LUMBER INSPECTION BUREAU (WCLIB), LATEST EDITION. LAGGING SHALL BE 4X12 DOUGLAS FIR-LARCH NO. 2 OR HEM-FIR NO. 1. TIMBER LAGGING SHALL BE PRESSURE TREATED WITH WATERBORNE PRESERVATIVES IN ACCORDANCE WITH AWPB LP-22 TO A MINIMUM RETENTION OF 0.4 LBS/CU.FT. LAGGING SHALL BE 4X12 UNLESS OTHERWISE NOTED ON DRAWINGS.

12. DEMOLITION: SHORING AND SOIL EXCAVATION SHALL BE DONE SIMULTANEOUSLY.

13. VERIFICATION: DIMENSIONS AND LOCATION OF EXISTING STRUCTURES SHALL BE VERIFIED PRIOR TO FABRICATION AND INSTALLATION OF ANY STRUCTURAL MEMBER. NOTIFY ENGINEER ABOUT ANY DISCREPANCIES PRIOR TO FABRICATION.

14. HOLE DIGGING: PILE AND ANCHOR HOLES SHALL BE DRILLED WITHOUT LOSS OF GROUND AND WITHOUT ENDANGERING PREVIOUSLY INSTALLED PILES AND ANCHORS. THIS MAY INVOLVE CASING THE HOLES OR OTHER METHODS OF PROTECTION FROM CAVING. REFER TO REPORT OF GEOTECHNICAL INVESTIGATION FOR RECOMMENDED HOLE DIGGING PROCEDURE.

15. PILE PLACEMENT: ALTERNATE PILES SHALL BE PLACED AND COMPLETED SO THAT AT LEAST 24 HOURS IS ALLOWED FOR THE CONCRETE TO SET PRIOR TO DRILLING ADJACENT PILES.

16. STEEL PILE PLACEMENT TOLERANCES:

    1" INSIDE PERPENDICULAR TO SHORING WALL.
    1" OUTSIDE PERPENDICULAR TO SHORING WALL.
    3" LATERALLY.

17. LAGGING: TIMBER LAGGING SHALL BE INSTALLED IN ALL AREAS. VOIDS BETWEEN LAGGING AND SOIL SHALL BE BACKFILLED. DRAINAGE BEHIND THE WALL MUST BE MAINTAINED. IT IS CONTRACTOR'S RESPONSIBILITY TO LIMIT THE AMOUNT OF EXPOSED SOIL WITHOUT LAGGING TO AVOID LOSS OF SOIL. MAXIMUM HEIGHT OF 4 FEET IS RECOMMENDED. SPECIAL CARE SHOULD BE TAKEN TO AVOID GROUND LOSS DURING EXCAVATION.

SHORING MOVEMENT MONITORING

18. SHORING MONITORING: A SYSTEMATIC PROGRAM OF OBSERVATION SHALL BE CONDUCTED DURING THE PROJECT EXECUTION TO DETERMINE THE EFFECT OF CONSTRUCTION ON ADJACENT FACILITIES AND STRUCTURES IN ORDER TO PROTECT THEM FROM DAMAGE. REFER TO REPORT OF GEOTECHNICAL INVESTIGATION FOR RECOMMENDATIONS.

    GROUND SURFACE ELEVATIONS OF THE ADJACENT PROPERTIES AND CITY STREETS SHALL BE DOCUMENTED PRIOR TO DE-WATERING, EXCAVATION, AND INSTALLATION OF THE SHORING SYSTEMS, TO PROVIDE BASELINE DATA.

    LOCATIONS: AS A MINIMUM, OPTICAL SURVEY POINTS SHALL BE ESTABLISHED AT THE FOLLOWING LOCATIONS.

    A. THE TOP OF EVERY OTHER SOLDIER PILE.

    B. THE ADJACENT BUILDINGS ALONG THE PROPERTY BOUNDARIES. THERE SHALL BE AT LEAST 2 MONITORING POINTS PER STRUCTURE.

    C. THE CURBS AND THE CENTERLINES OF ADJACENT STREETS. THESE MONITORING POINTS SHALL BE SPACED NO MORE THAN 20 FEET APART.

    FREQUENCY: THE MONITORING POINTS AT THE TOP OF EVERY OTHER PILE SHALL BE SURVEYED A MINIMUM OF TWICE A WEEK DURING SHORING INSTALLATION AND EXCAVATION, WITH ONCE A WEEK BEING DONE BE A LICENSED LAND SURVEYOR. THE MONITORING POINTS AT THE ADJACENT BUILDINGS, CURBS, AND STREETS SHALL BE REGULARLY SURVEYED WITH THE SOLDIER PILES.

    SURVEY FREQUENCY MAY BE DECREASED AFTER THE SHORING SYSTEM HAS BEEN INSTALLED AND EXCAVATION IS COMPLETE IF THE DATA INDICATES LITTLE OR NO ADDITIONAL MOVEMENT. SURVEYING MUST CONTINUE UNTIL THE PERMANENT STRUCTURE (INCLUDING FLOOR SLABS AS BRACES) IS COMPLETE UP TO FINAL AND STREET GRADES. ANY SURVEY FREQUENCY CHANGES WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AFTER REVIEW AND APPROVAL BY SDCI (AND SDOT, IF APPLICABLE).

    THE MONITORING PROGRAM SHALL INCLUDE CHANGES IN BOTH THE HORIZONTAL (NORTH-SOUTH AND EAST-WEST) DIRECTIONS AND VERTICAL DIRECTIONS. THE MONITORING SHALL BE PERFORMED BY THE CONTRACTOR OR THE PROJECT SURVEYOR, AND THE RESULTS SHALL BE PROMPTLY SUBMITTED TO THE STRUCTURAL AND GEOTECHNICAL ENGINEERS FOR REVIEW.

    THE GEOTECHNICAL ENGINEER SHALL REVIEW SURVEY DATA AND PROVIDE AN EVALUATION OF WALL PERFORMANCE ALONG WITH SURVEY DATA TO SDCI (AND SDOT, IF APPLICABLE) ON AT LEAST A WEEKLY BASIS. IMMEDIATELY AND DIRECTLY, NOTIFY SDCI (AND SDOT , IF APPLICABLE) IF ANY UNUSAL OR SIGNIFICANTLY INCREASED MOVEMENT OCCURS.

    IMMEDIATELY AND DIRECTLY NOTIFY THE GEOTECHNICAL AND STRUCTURAL ENGINEERS, WALL DESIGNER, SDCI, (AND SDOT, IF APPLICABLE) IF 0.5 INCHES OF MOVEMENT OCCURS BETWEEN TWO CONSECUTIVE READINGS AND WHEN TOTAL MOVEMENTS REACH 0.5 INCH. AT THAT AMOUNT OF MOVEMENT, THE ENGINEERS AND DESIGNERS SHALL DETERMINE THE CAUSE OF DISPLACEMENT AND DEVELOP REMEDIAL MEASURES SUFFICIENT TO LIMIT TOTAL WALL MOVEMENTS TO 1 INCH. ALL EARTHWORK AND CONSTRUCTION ACTIVITIES MUST BE DIRECTED TOWARDS IMMEDIATE IMPLEMENTATION OF REMEDIAL MEASURES NECESSARY TO LIMIT TOTAL WALL MOVEMENTS TO WHAT HAS BEEN DEFINED AS ACCEPTABLE BY THE DESIGN TEAM AND SDOT (IF APPLICABLE).

    SDOT ALLOWS AS A MAXIMUM ONE INCH HORIZONTAL DISPLACEMENT ANYWHERE ON SHORING WALL SURFACES THROUGHOUT THE SHORING WALL SERVICE LIFE TIME. CONSTRUCTION SHALL BE SUSPENDED IMMEDIATELY AND REMEDIAL PROCEDURES APPLIED AS LONG AS A DISPLACEMENT READING EXCEEDS ONE INCH.

TIEBACK CONSTRUCTION

19. TIEBACK LEAN MIX SHALL CONTAIN 1-1/2 SACKS OF CEMENT PER CUBIC YARD. THERE IS NO STRENGTH REQUIREMENT FOR THIS MIX.

20. PRESTRESSING STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

    A. DYWIDAG THREAD BAR SHALL CONFORM TO ASTM SPECIFICATION A-722 FOR HOT ROLLED, PROOF STRESSED ALLOY STEEL, pfu = 150 KSI.

    B. UNCOATED SEVEN WIRE STRESS RELIEVED STRAND SHALL CONFORM TO ASTM A416, GRADE 270.

21. TIEBACK INSTALLATION AND PRESTRESSING SHALL BE COMPLETED PRIOR TO EXCAVATING MORE THAN TWO FEET BELOW TIEBACK LEVEL.

22. TIEBACKS SHALL REMAIN STRESSED UNTIL ALL PERMANENT STRUCTURE IS IN PLACE.

23. ALL TIEBACKS SHALL BE DESTRESSED UPON THE COMPLETION OF THE PROJECT.

24. VERIFICATION TESTS SHALL BE PROVIDED AS FOLLOWS:

    A. TWO HUNDRED PERCENT VERIFICATION TESTS SHALL BE CONDUCTED ON AT LEAST TWO ANCHORS IN EACH PARTICULAR SOIL TYPE. A MINIMUM OF FOUR ANCHORS SHALL BE SELECTED BY THE GEOTECHNICAL ENGINEER FOR TESTING DURING THE COURSE OF CONSTRUCTION.

    B. THE MAXIMUM STRESS IN PRESTRESSING STEEL SHALL NOT EXCEED 80% OF THE ULTIMATE TENSILE STRENGTH DURING PERFORMANCE TESTING. PILES AND TIEBACKS MAY REQUIRE EXTRA REINFORCEMENT TO PERMIT STRESSING TO 200% OF DESIGN LOAD AS REQUIRED BY THE VERIFICATION TEST.

    C. THE VERIFICATION TESTS SHALL MEASURE ANCHOR STRESS AND DISPLACEMENT INCREMENTALLY TO VALUES OF UNIT SKIN FRICTION EQUAL TO 200% OF THE DESIGN STRESS. THE ANCHOR SHALL BE LOADED IN 10% INCREMENTS WITH EACH INCREMENT HELD FOR AT LEAST FIVE MINUTES. THE FINAL MAXIMUM TEST LOAD SHALL BE MAINTAINED FOR A PERIOD OF AT LEAST THIRTY MINUTES. MEASUREMENTS OF MOVEMENT SHALL BE OBTAINED WITH A TRANSIT AND A SCALE ACCURATE TO 0.01 INCH ATTACHED TO THE ROD. TEST ANCHORS SHALL HOLD THE MAXIMUM TEST UNIT STRESS WITHOUT NOTICEABLE CREEP AND EXHIBITED A LINEAR OR NEAR-LINEAR RELATIONSHIP BETWEEN UNIT ANCHOR STRESS AND MOVEMENT OVER THE ENTIRE 200% STRESS RANGE. NOTICEABLE CREEP SHALL BE DEFINED AS A RATE OF MOVEMENT OF APPROXIMATELY 0.08 INCHES/LOG CYCLE OF TIME. TESTS SHALL BE PERFORMED WITHOUT THE BACKFILL AHEAD OF THE ANCHOR TO AVOID ANY CONTRIBUTORY RESISTANCE BY THE BACKFILL, UNLESS APPROVAL TO THE CONTRARY IS GRANTED BY THE GEOTECHNICAL ENGINEER.

25. PRODUCTION ANCHORS:

    A. EACH PRODUCTION ANCHOR SHALL BE PROOF-LOADED TO 130% OF THE DESIGN LOAD AND SHALL SUSTAIN THE PROOF LOAD WITHOUT NOTICEABLE CREEP OR EXCESSIVE ANCHOR MOVEMENT FOR FIVE MINUTES. THE ANCHOR SHALL BE LOADED IN INCREMENTS OF 25% OF THE DESIGN LOAD, WITH EACH LOAD HELD FOR AT LEAST FIVE MINUTES, IN ORDER TO OBTAIN A STABLE DISPLACEMENT MEASUREMENT.

    B. MOVEMENT OF THE ANCHOR IN EXCESS OF 3 INCHES SHALL BE CONSIDERED INDICATIVE OF DEFICIENCIES IN THE INSTALLATION. TOTAL MOVEMENT OF AN ANCHOR IN EXCESS OF 6 INCHES SHALL BE CONSIDERED A FAILURE REQUIRING A REPLACEMENT ANCHOR. TOTAL MOVEMENT OF AN ANCHOR BETWEEN 3 INCHES AND 6 INCHES SHALL BE REVIEWED BY THE GEOTECHNICAL AND STRUCTURAL ENGINEER TO DETERMINE IF A REPLACEMENT ANCHOR IS REQUIRED.

    C. FOLLOWING PROOF LOADING, EACH ANCHOR SHALL BE LOCKED OFF AT 100% OF DESIGN LOADING.

26. THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE RESULTS OF THE VERIFICATION AND PROOF LOAD TESTS TO THE CITY OF MERCER ISLAND IN THEIR FIELD REPORTS, WHICH SHALL ALSO BE FILED WITH THE CITY. RESULTS OF THE VERIFICATION TESTING OBSERVED AND ANALYZED BY THE GEOTECHNICAL ENGINEER OF RECORD SHALL BE SUBMITTED TO THE CITY OF MERCER ISLAND [GEOTECHNICAL PEER REVIEWER] PRIOR TO APPLYING DESIGN LOADING TO THE REMAINDER OF THE ANCHORS.

    ANY FAILED TESTS SHALL BE REPORTED TO THE BUILDING OFFICIAL ALONG WITH THE PROPOSED DESIGN REVISIONS FOR APPROVAL.

27. THE ABILITY TO ACHIEVE THE REQUIRED TIEBACK STRENGTH (4.71 KIP/FT) WILL LIKELY REQUIRE POST OR SECONDARY GROUTING.

28. THE CONTRACTOR SHALL DETERMINE THE ANCHOR DIAMETER, INSTALLATION METHOD, AND GROUTING PROCEDURES NECESSARY TO OBTAIN THE REQUIRED ANCHOR LOADS WITHOUT ENCROACHING ON THE ADJACENT PROPERTY TO THE EAST. ANY STRUCTURAL MODIFICATIONS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

HV

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6/29/23

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Mercer Island, WA 98040

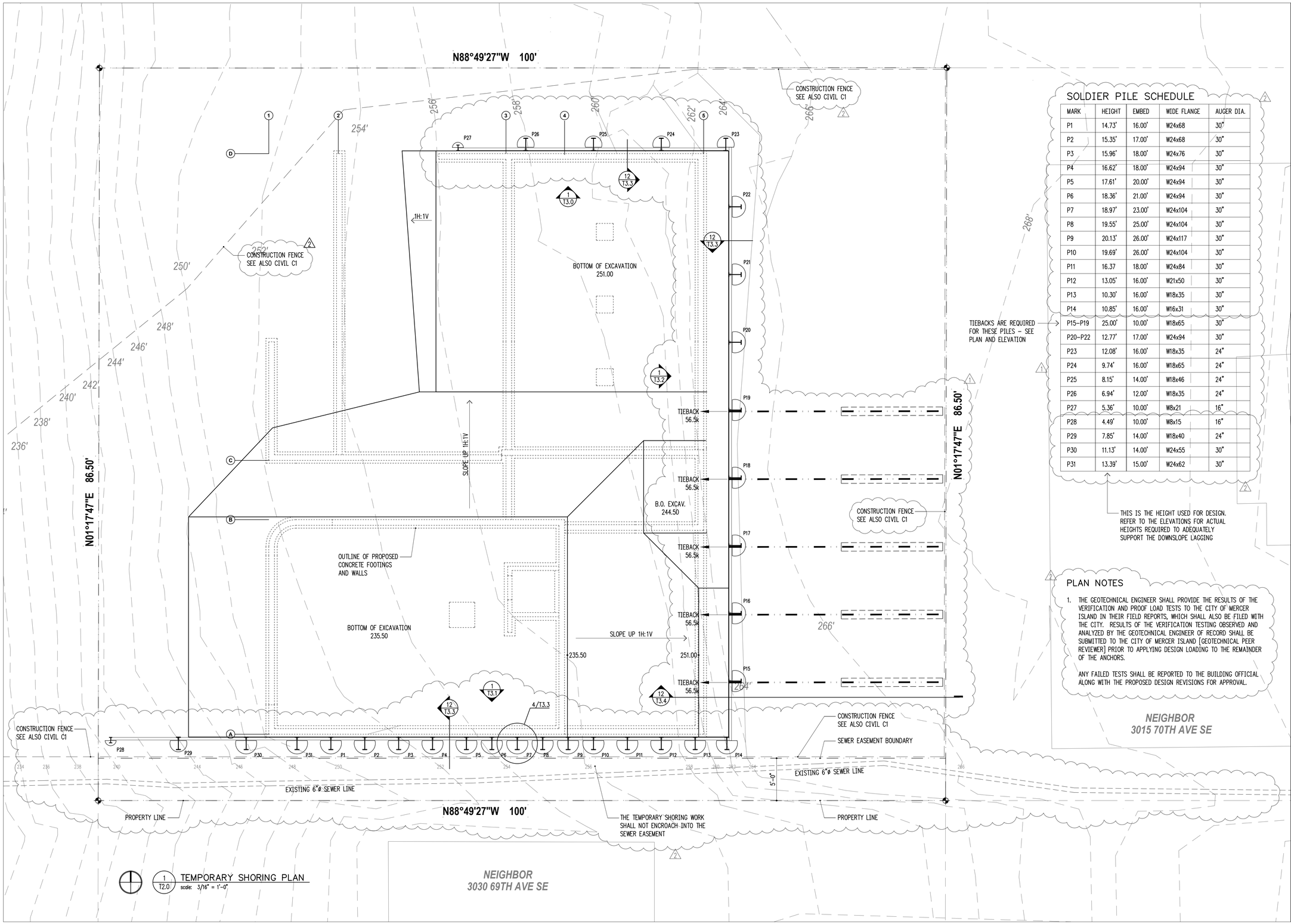
Issue Date	Issue Description
1/20/2023	Permit
5/5/2023	Corrections 1 (1)
6/29/2023	Corrections 2 (2)

Building Department Approval

Drawing Title
TEMPORARY SHORING GENERAL NOTES

Drawing Number
T1.0

SULLIVAN RESIDENCE



SOLDIER PILE SCHEDULE

MARK	HEIGHT	EMBED	WIDE FLANGE	AUGER DIA.
P1	14.73'	16.00'	W24x68	30"
P2	15.35'	17.00'	W24x68	30"
P3	15.96'	18.00'	W24x76	30"
P4	16.62'	18.00'	W24x94	30"
P5	17.61'	20.00'	W24x94	30"
P6	18.36'	21.00'	W24x94	30"
P7	18.97'	23.00'	W24x104	30"
P8	19.55'	25.00'	W24x104	30"
P9	20.13'	26.00'	W24x117	30"
P10	19.69'	26.00'	W24x104	30"
P11	16.37	18.00'	W24x84	30"
P12	13.05'	16.00'	W21x50	30"
P13	10.30'	16.00'	W18x35	30"
P14	10.85'	16.00'	W16x31	30"
P15–P19	25.00'	10.00'	W18x65	30"
P20–P22	12.77'	17.00'	W24x94	30"
P23	12.08'	16.00'	W18x35	24"
P24	9.74'	16.00'	W18x65	24"
P25	8.15'	14.00'	W18x46	24"
P26	6.94'	12.00'	W18x35	24"
P27	5.36'	10.00'	W8x21	16"
P28	4.49'	10.00'	W8x15	16"
P29	7.85'	14.00'	W18x40	24"
P30	11.13'	14.00'	W24x55	30"
P31	13.39'	15.00'	W24x62	30"

PLAN NOTES

1. THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE RESULTS OF THE VERIFICATION AND PROOF LOAD TESTS TO THE CITY OF MERCER ISLAND IN THEIR FIELD REPORTS, WHICH SHALL ALSO BE FILED WITH THE CITY. RESULTS OF THE VERIFICATION TESTING OBSERVED AND ANALYZED BY THE GEOTECHNICAL ENGINEER OF RECORD SHALL BE SUBMITTED TO THE CITY OF MERCER ISLAND [GEOTECHNICAL PEER REVIEWER] PRIOR TO APPLYING DESIGN LOADING TO THE REMAINDER OF THE ANCHORS.

   ANY FAILED TESTS SHALL BE REPORTED TO THE BUILDING OFFICIAL ALONG WITH THE PROPOSED DESIGN REVISIONS FOR APPROVAL.

1 T2.0 TEMPORARY SHORING PLAN
scale: 3/16" = 1'-0"

HV

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1/20/2023	Permit
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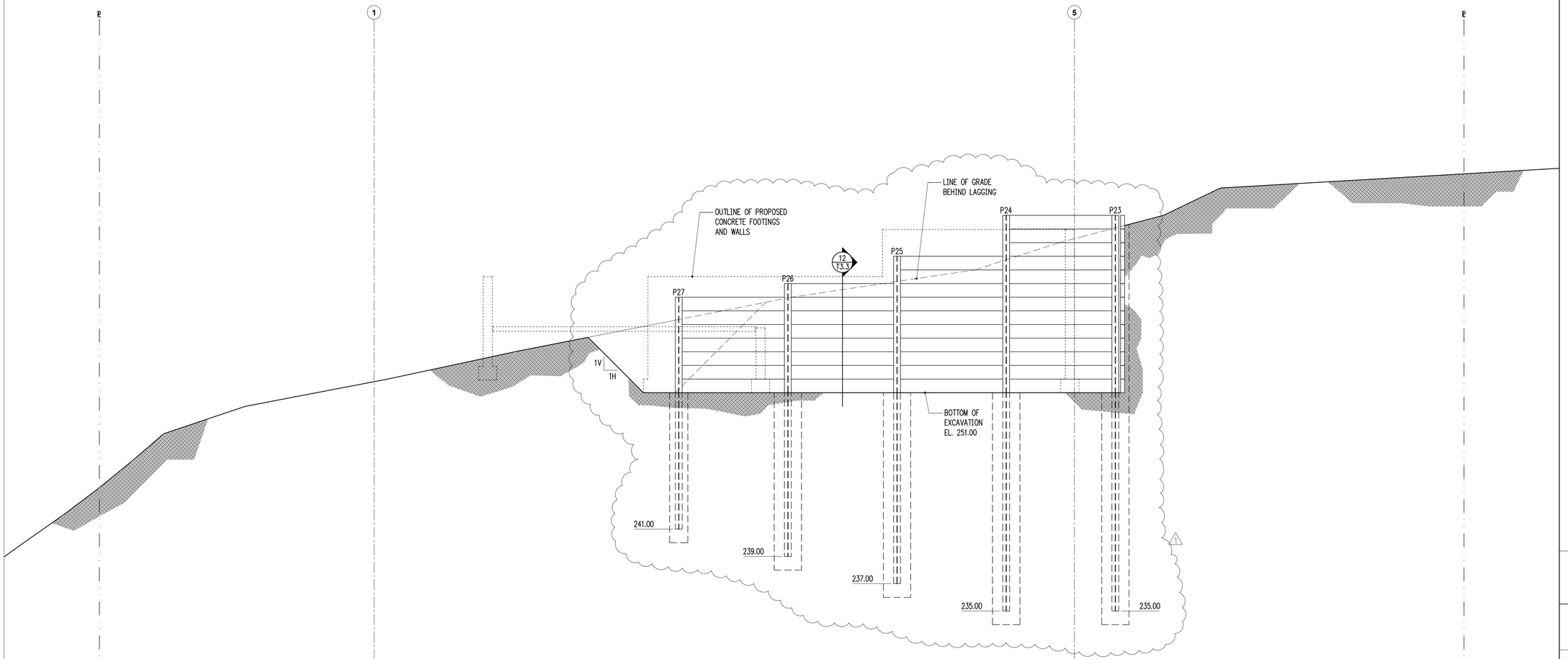
6/29/2023	Corrections 2 (2)

Building Department Approval

Drawing Title
TEMPORARY SHORING PLAN

Drawing Number
T2.0

SULLIVAN RESIDENCE



1 / T3.0 SHORING ELEVATION (LOOKING NORTH)
scale: 1/4" = 1'-0"

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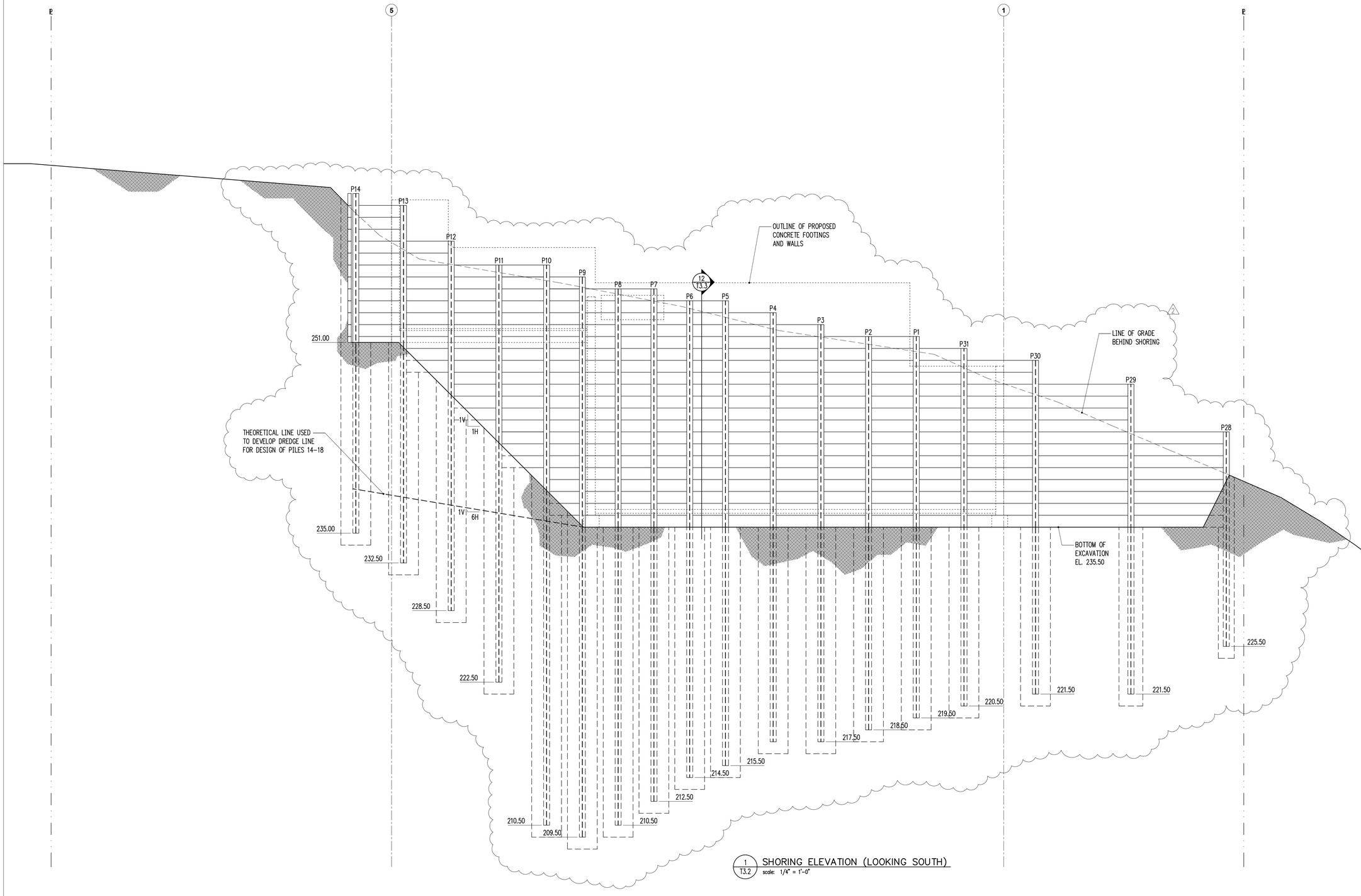
1/20/2023	Permit
5/5/2023	Corrections 1 ⚠1
6/29/2023	Corrections 2 ⚠2

Building Department Approval

Drawing Title
TEMPORARY SHORING ELEVATIONS

Drawing Number
T3.0

SULLIVAN RESIDENCE



1 / T3.2 SHORING ELEVATION (LOOKING SOUTH)
scale: 1/4" = 1'-0"

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1/20/2023	Permit
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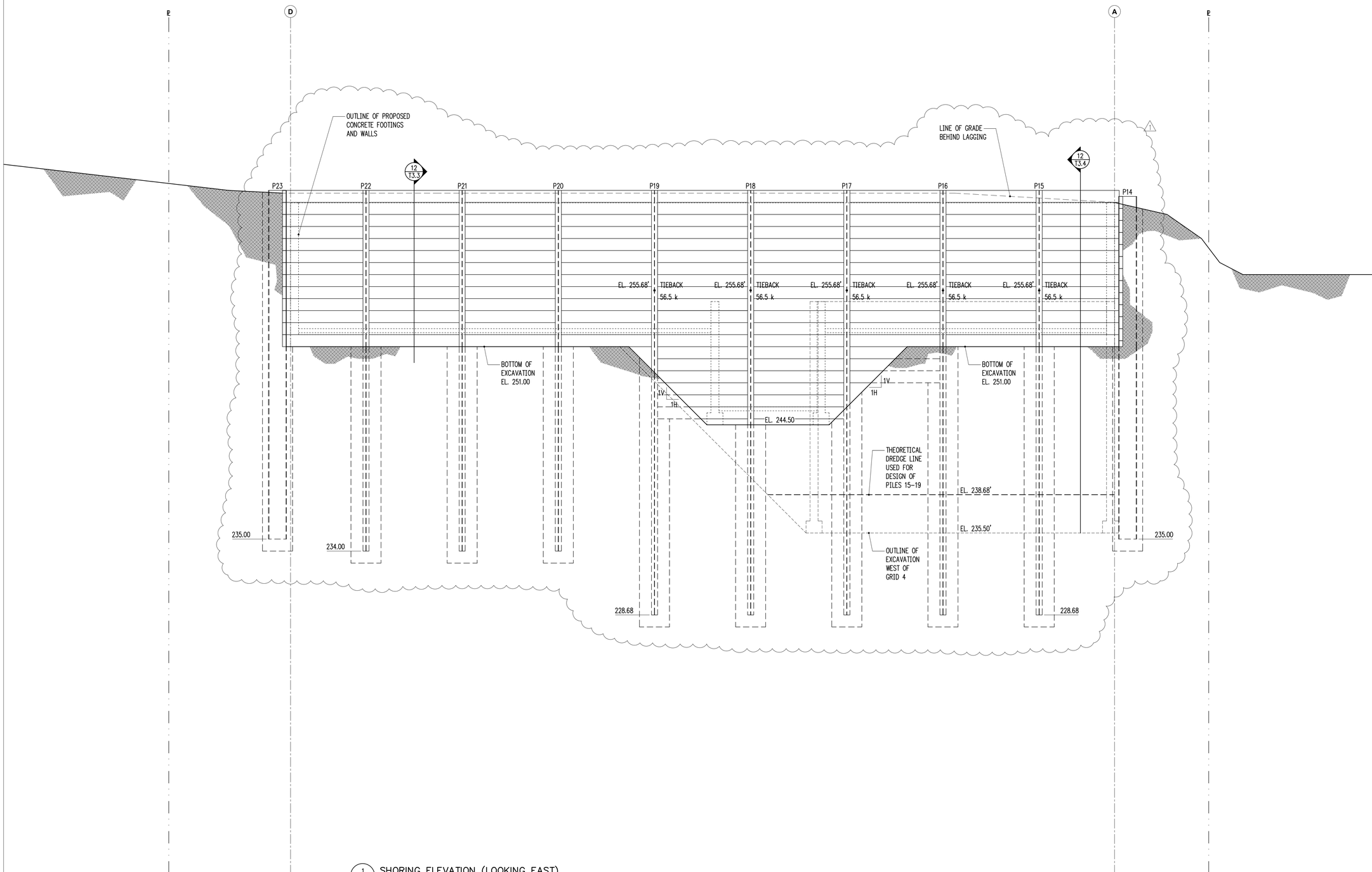
6/29/2023	Corrections 2 (2)

Building Department Approval

Drawing Title
TEMPORARY SHORING ELEVATIONS

Drawing Number
T3.1

SULLIVAN RESIDENCE



1 T3.1 SHORING ELEVATION (LOOKING EAST)
scale: 1/4" = 1'-0"

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1/20/2023	Permit
5/5/2023	Corrections 1 ⚠1
6/29/2023	Corrections 2 ⚠2

Building Department Approval

Drawing Title

TEMPORARY SHORING ELEVATIONS

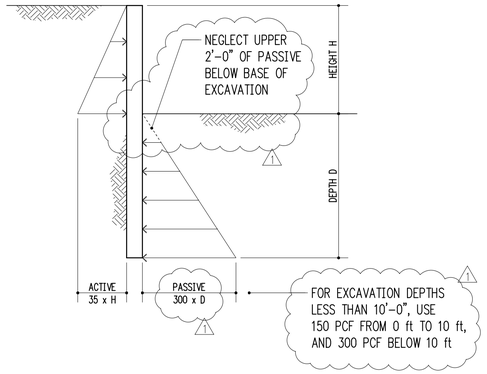
Drawing Number

T3.2

SULLIVAN RESIDENCE

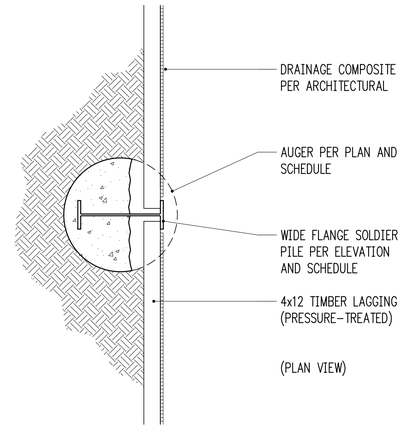
3/4" = 1'-0" 1

3/4" = 1'-0" 2



SOIL PRESSURE DIAGRAM

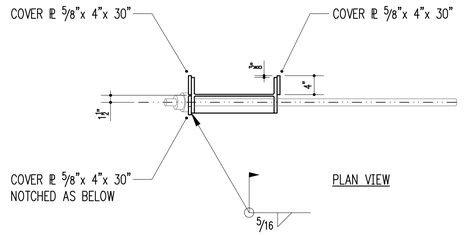
3/4"=1'-0" 3

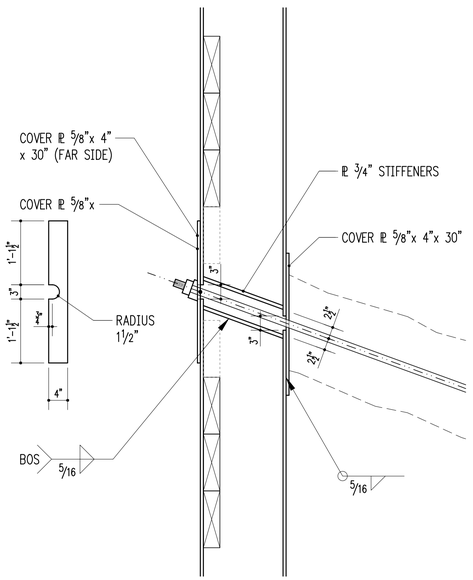


3/4" = 1'-0" 4

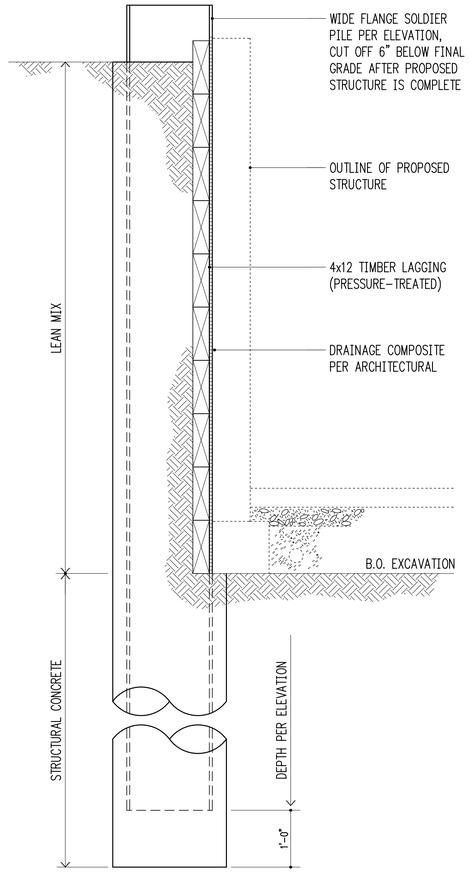
3/4" = 1'-0" 5

3/4" = 1'-0" 6





3/4" = 1'-0" 11



3/4" = 1'-0" 12

3/4" = 1'-0" 9

3/4" = 1'-0" 10

HV

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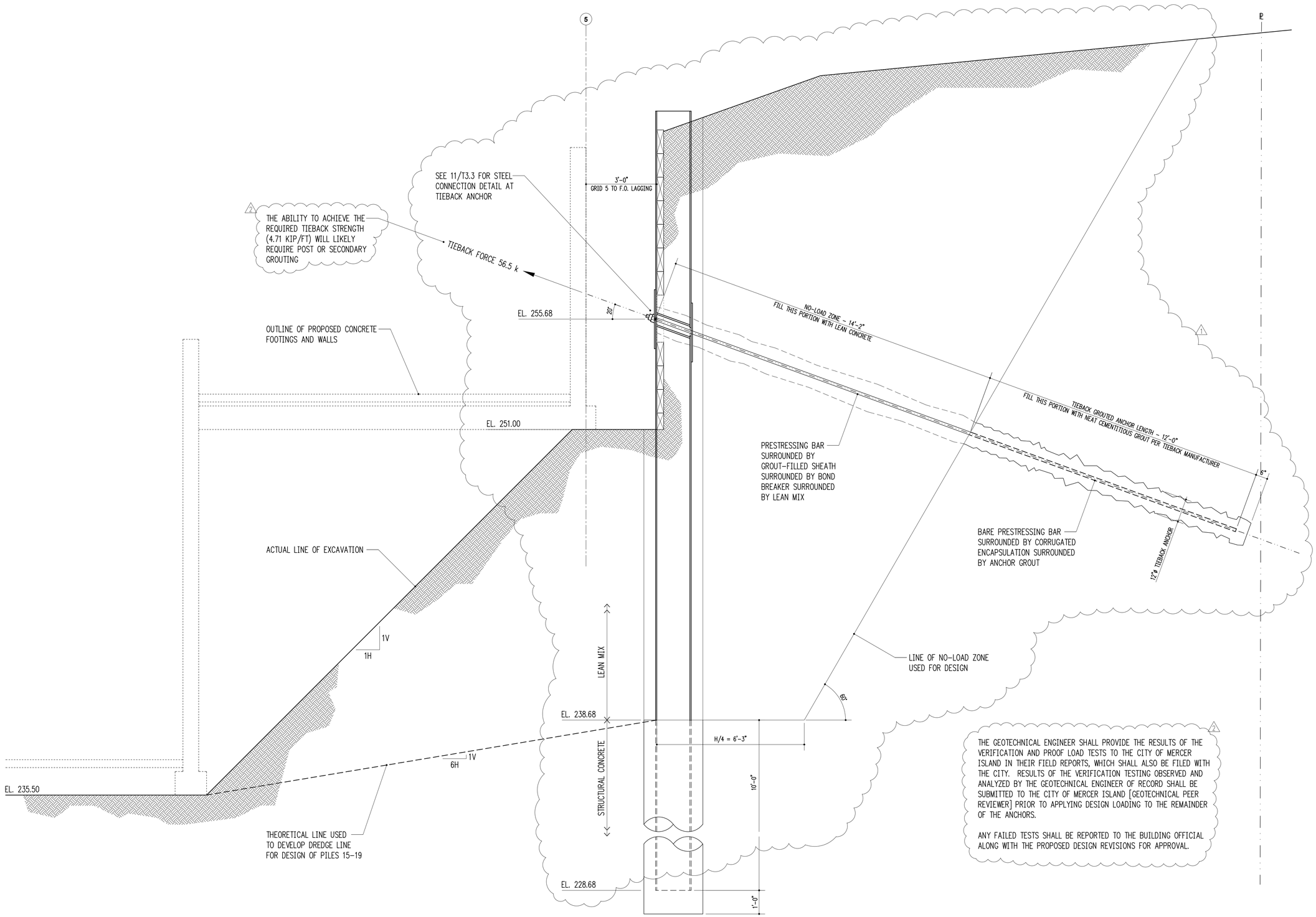
Issue Date	Issue Description
1/20/2023	Permit
5/5/2023	Corrections 1
6/29/2023	Corrections 2

Building Department Approval

Drawing Title
TEMPORARY SHORING DETAILS

Drawing Number
T3.3

SULLIVAN RESIDENCE



1/2" = 1'-0"

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Issue Date	Issue Description
1/20/2023	Permit
5/5/2023	Corrections 1
6/29/2023	Corrections 2

Building Department Approval

Drawing Title
TEMPORARY SHORING DETAILS

Drawing Number
T3.4

SULLIVAN RESIDENCE

PROJECT NARRATIVE

PROJECT: 3024 69TH AVE SE
DATE: 2022.12.02
PERMIT NO#: TO BE ASSIGNED
OWNER: JOHN SULLIVAN

PROJECT INFO:

>PARCEL NUMBER: 217510-0315
>ZONING: R-8.4
>LOT AREA: 8,652 SQFT
>EXISTING: N/A lot is vacant
>SITE ACCESS: no existing site access exists, new 16' wide driveway proposed via 69th ave SE
>SITE DESCRIPTION: Lot is vacant with overgrown shrubs and grasses. Property slopes from east to west with steepest slope occurring along western property line at 69th ave SE, per geotech report this slope was likely created through prior excavation work related to the construction of 69th ave SE. The site has multiple geologically hazardous areas overlaid: landslide, erosion, and seismic. Mitigation methods as well as proposed buffers are included in geotechnical report produced by Cobalt Geosciences.

PROPOSED DEVELOPMENT:

The proposed development consists of a new driveway and 3-story single family residence on a vacant lot.

Driveway and required garage are proposed to be located at the south west corner of the lot where the lowest portion of the site is, limiting work in right of way and reducing the overall amount of disturbance and excavation work in the hazardous areas. The primary living spaces and majority of the habitable space are located on the 3rd floor at the west portion of the site where the lot is flattest. Given the steep slope of the lot, placing the primary footprint of the building at the flattest and highest portion of the site will greatly limit excavation and reduce the impact on hazardous areas.

The floor plans and elevations included in this submission are preliminary, however overall site strategies and layout will stay the same pending any changes required by this permit round. The full drawing set with engineering is estimated to be submitted January 14th. The final design will incorporate the mitigation methods as laid out in the geotechnical report as well as all applicable codes and city regulations.

SITE IMAGES:

3d view from google earth

view of site from 69th ave SE

steep slope at western edge of site

view looking north at middle of site

view looking east at middle of site

view looking west at middle of site

view of rear property line looking north

SHED

RESPONSE TO REQUEST FOR INFORMATION#1

PROJECT: 3024 69TH AVE SE
DATE: 2023.05.09
PERMIT NO#: CAO22-023 (SULLIVAN CRITICAL AREA REVIEW)
OWNER: JOHN SULLIVAN

COMMENTS:

PLANNING

1: Please provide a completed code compliance matrix for Chapter 19.07 MICC (attached to the email accompanying this letter). All tabs in the code compliance matrix must be filled out.

RESPONSE: Compliance matrix has been completed and has been submitted as part of this revision cycle.

2: MICC 19.07.160(B)(2)(d) requires all disturbed areas of the geologically hazardous areas outside of building footprints to be landscaped. Please provide a landscaping plan showing how the disturbed areas of the geologically hazardous areas outside of building footprints will be landscaped.

RESPONSE: Landscape plan has been submitted as part of this revision cycle. Refer to sheet A-003 for landscape plan.

3: Please provide a completed Critical Areas Mitigation Bond Quantity Worksheet (attached to the email accompanying this letter and found at this link) that accounts for the required landscaping outside of the building footprints.

RESPONSE: Bond quantity worksheet has been filled out and submitted as part of this revision cycle.

GEOTECHNICAL ENGINEERING

4: The site is undergoing concurrent review with building permit application 2301-185. More detailed geotechnical engineering peer review comments were provided for that application. For the critical area study, general comments are provided below. Once the geotechnical engineer of record responds to the building permit comments and they are peer review and approved, the geotechnical design would fulfill the requirements of MICC 19.07.160, Geologically Hazardous Areas. An updated statement of risk in accordance with MICC 19.07.160(B)(3) will be required from the geotechnical engineer of record once the final plan set is approved.

RESPONSE: Geotechnical Engineer of record has respond to more detailed comments at time of building permit submission rev#1 (permit number 2301-185), an updated statement of risk will be included in that response.

5: The Cobalt GeoSciences report, updated December 1, 2022, refers to excavation depths that do not correspond to those shown in the current plan set (dated January 20, 2023). The one boring completed for the site development is too shallow for the proposed design elements and is insufficient to provide subsurface characterization across the site. The geotechnical report should be revised to provide final design recommendations for the project components shown on the plan set (refer to building permit geotechnical peer review comments). In addition to the geotechnical report modifications, the geotechnical engineer of record should be involved in recommending appropriate wall types and temporary and permanent grading layouts for the proposed site development.

RESPONSE: Geotechnical Engineer of record has completed another boring at a depth that corresponds to foundation design that was submitted as part of building permit 2301-185. Geotechnical report has been revised to include final design recommendations for wall types and grading. Revised report has been submitted within this revision cycle and during Building Permit 2301-185 Revisions.

NOTE:

DRAWING SET AND CRITICAL AREA STUDY THAT WERE UPLOADED AS PART OF THIS REPONSES TO REQUEST FOR INFORMATION WERE UPLAODED CONCURRENTLY FOR BUILDING PERMIT 2301-185 CORRECTION CYCLE

ARBORIST REPORT

Date:
December 6, 2022

Prepared for:
Clayton Herbst

Site Address:
3024 69th Ave SE
Mercer Island, WA 98040

Prepared by:
Tom Quigley
ISA Certified Arborist, PN-655A
Tree Risk Assessment Qualified (TRAQ)

Olympic Nursery, Inc.
P.O. Box 2013
Woodinville, WA 98072
tom@olympicnursery.com
www.olympicnursery.com

OLYMPIC NURSERY, INC.

NARRATIVE

Scope of Work
You have asked me to assess a tree located at the above referenced address. You provided a Boundary and Topographic Survey for this location, dated 5/21/2021.

Methodology
The methods and techniques used for this assessment are as outlined in *Tree Risk Assessment* by Julian Dunster and as adopted by the International Society of Arboriculture (ISA). Additional standards, practices and specifications are as detailed in *ANSI Standard A300 (Part 9)-2017 Tree Risk Assessment a. Tree Failure*. The end goal of most assessments is to provide the owner or manager of the tree(s) with factual information, enabling them to make decisions about the management of the tree(s). For this particular assessment, I used a Level II Assessment that includes inspection of the root collar, lower trunk, and canopy of the tree as can be seen from the ground. Basic assessment does not include climbing the tree or excavation of soils to inspect root structure or condition. While this assessment was not specifically to identify risk in the trees on the subject property, the techniques for general assessment are the same.

Reference is made to *Best Management Practices, Second Edition,* a companion publication to the *ANSA Standard A300 Part 5: Standard Practices During Site Planning, Site Development, and Site Planning.*

I measured each tree for its Diameter at Breast Height (DBH), an industry standard of measuring trees at 4.5' above grade. I completed a Tree Inventory and Assessment spreadsheet that details each tree by Reference Number, Species, Common Name, Size (DBH), Dripline, Condition, with Comments. Condition is rated on a scale of Poor, Fair, Good, Excellent and considers overall vigor and structure.

Findings and Observations
I visited the site November 12, 2022. The above referenced Survey indicates the location of a single tree on the subject site, as well as an offsite tree located near the NE corner of the subject property.

The on-site tree is actually not a tree at all, but rather a *Cotoneaster Parneyi,* commonly considered a large shrub. This Cotoneaster appears to have ben pruned in its early development to form a more tree like structure. I did calculate the diameter of the two main stems, measuring the trunk width at about 36" above grade, just below where the two main stems bifurcate into many limbs. The diameter was calculated at 8.5" DBH. This large shrub is labeled #1 on the revised site plan labeled A-001.

The tree labeled as #2 was not on the original survey. It is a multiple stemmed fruiting Fig tree. I calculated the DBH of this tree by using a commonly accepted formula for multi-stemmed trees. The diameter of the fig tree is 3.7" DBH.

The off-site maple tree has been pruned to prohibit the limbs from extending over the property line of the subject property. I estimated the DBH of the off-site maple tree at approximately 20" DBH. The tree is located approximately 8' north of the NE corner of the subject property.

Considerations

A new site plan labeled A-001 was created that accurately shows the location of the two (2) trees and one Cotoneaster shrub. Mercer Island provides for protection of trees with a threshold of 10.0" DBH. The Fig tree is smaller than this threshold and the Cotoneaster is not a tree. Protection for the roots of Tree #3, the off-site maple can be provided by not allowing any excavation within 2' of the existing chain link fence. This will provide protection at the dripline of this tree. The following mitigation measures should be adopted and should be included on any Plan Sheets that include clearing, grading or utility details.

- Tree Protection fencing shall be erected per Mercer Island specifications and shall be located 2' south and parallel to the existing chain lin k fence located at the NE corner of the subject parcel.
- If excavation of soils near the Tree Protection Zone reveals roots larger than ½" in diameter, any exposed roots that need to be severed should be done in accordance with *ANSI Standard A300(Part 8)-2013 Root Management.*
- Exposed roots that need to be severed should be covered with moist soil of compost as soon as is reasonable following excavation.

Conclusions

Only one tree will be removed, a Fig tree that is 3.7" DBH. It is my understanding that there is no requirement to replant trees as mitigation for this single tree removal.

This report was prepared by Thomas Quigley, ISA certified arborist PN0655A. Tree Risk Assessment Qualified (TRAQ) by the International Society of Arboriculture (ISA).

King County

Department of Permitting and
Environmental Review
35030 SE Douglas Str, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

Critical Areas Mitigation
Bond Quantity Worksheet

C24 09/09/2015
ls-wks-sensareaBQ.xls
ls-wks-sensareaBQ.pdf

Project Name: SULLIVAN HOUSE **Date:** 05.07.2023 **Prepared by:** CLAYTON HERBST

Project Number: **Project Description:** NEW SINGLE FAMILY HOME

Location:
3024 69TH AVE SE, MERCER ISLAND, WA, 98040 **Applicant:** CLAYTON HERBST **Phone:** 708-567-9476

PLANT MATERIALS (includes labor cost for plant installation)

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	$5.00	Each			$ -
PLANTS: Container, 1 gallon, medium soil	$11.50	Each	127.00	erosion resistent, native plants	$ 1,460.50
PLANTS: Container, 2 gallon, medium soil	$20.00	Each			$ -
PLANTS: Container, 5 gallon, medium soil	$36.00	Each	7.00	3 gallon mock orange	$ 252.00
PLANTS: Seeding, by hand	$0.50	SY	248.00	native plant seet (perrential mix)	$ 124.00
PLANTS: Slips (willow, red-osier)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Flats/plugs	$2.00	Each			$ -
				TOTAL	**$ 1,836.50**

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	$37.88	CY	45.00		$ 1,704.60
Decompacting till/hardpan, medium, to 6" depth	$1.57	CY	45.00		$ 70.65
Decompacting till/hardpan, medium, to 12" depth	$1.57	CY			$ -
Hydroseeding	$0.51	SY			$ -
Labor, general (landscaping other than plant installation)	$40.00	HR			$ -
Labor, general (construction)	$40.00	HR			$ -
Labor: Consultant, supervising	$55.00	HR			$ -
Labor: Consultant, on-site re-design	$95.00	HR			$ -
Rental of decompacting machinery & operator	$70.00	HR			$ -
Sand, coarse builder's, delivered and spread	$42.00	CY			$ -
Staking material (set per tree)	$7.00	Each			$ -
Surveying, line & grade	$250.00	HR			$ -
Surveying, topographical	$250.00	HR			$ -
Watering, 1" of water, 50' soaker hose	$3.62	MSF			$ -
Irrigation - temporary	$3,000.00	Acre			$ -
Irrigation - buried	$4,500.00	Acre			$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	$1.02	SY			$ -
				TOTAL	**$ 1,775.25**

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit			Cost
Fascines (willow)	$ 2.00	Each			$ -
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	$1,000.00	Each			$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	$400.00	Each			$ -
Logs, w/o root wads, 16"-24" diam., 30' long	$245.00	Each			$ -
Logs w/ root wads, 16"-24" diam., 30' long	$460.00	Each			$ -
Rocks, one-man	$60.00	Each			$ -
Rocks, two-man	$120.00	Each			$ -
Root wads	$163.00	Each			$ -
Spawning gravel, type A	$22.00	CY			$ -
Weir - log	$1,500.00	Each			$ -
Weir - adjustable	$2,000.00	Each			$ -
Woody debris, large	$163.00	Each			$ -
Snags - anchored	$400.00	Each			$ -
Snags - on site	$50.00	Each			$ -
Snags - imported	$800.00	Each			$ -
* All costs include delivery and installation				*TOTAL*	**$ -**

EROSION CONTROL

ITEMS	Unit Cost	Unit			Cost
Backfill and Compaction-embankment	$ 4.89	CY	750.00		$ 3,667.50
Crushed surfacing, 1 1/4" minus	$30.00	CY			$ -
Ditching	$7.03	CY			$ -
Excavation, bulk	$4.00	CY	3000.00		$ 12,000.00
Fence, silt	$1.60	LF	270.00		$ 432.00
Jute Mesh	$1.26	SY	100.00		$ 126.00
Mulch, by hand, straw, 2" deep	$1.27	SY	120.00		$ 152.40
Mulch, by hand, wood chips, 2" deep	$3.25	SY			$ -
Mulch, by machine, straw, 1" deep	$0.32	SY			$ -
Piping, temporary, CPP, 6"	$9.30	LF			$ -
Piping, temporary, CPP, 8"	$14.00	LF			$ -

Piping, temporary, CPP, 12"	$18.00	LF			$ -
Plastic covering, 6mm thick, sandbagged	$2.00	SY			$ -
Rip Rap, machine placed, slopes	$33.98	CY			$ -
Rock Constr. Entrance 100'x15'x1'	$3,000.00	Each			$ -
Rock Constr. Entrance 50'x15'x1'	$1,500.00	Each			$ -
Sediment pond riser assembly	$1,695.11	Each			$ -
Sediment trap, 5' high berm	$15.57	LF			$ -
Sediment trap, 5' high berm w/spillway incl. riprap	$59.60	LF			$ -
Sodding, 1" deep, level ground	$5.24	SY			$ -
Sodding, 1" deep, sloped ground	$6.48	SY			$ -
Straw bales, place and remove	$600.00	TON			$ -
Hauling and disposal	$20.00	CY			$ -
Topsoil, delivered and spread	$35.73	CY			$ -
				TOTAL	**$ 16,377.90**

GENERAL ITEMS

ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	$18.89	LF	15.00	TREE PROTECTION	$ 283.35
Fencing, chain link, corner posts	$111.17	Each	2.00	TREE PROTECTION	$ 222.34
Fencing, chain link, gate	$277.63	Each			$ -
Fencing, split rail, 3' high (2-rail)	$10.54	LF			$ -
Fencing, temporary (NGPE)	$1.20	LF			$ -
Signs, sensitive area boundary (inc. backing, post, install)	$28.50	Each			$ -
				TOTAL	**$ 505.69**

OTHER

				(Construction Cost Subtotal)	**$ 20,495.34**

ITEMS	Percentage of Construction	Unit			Cost
Mobilization	10%	1			$ 2,049.53
Contingency	30%	1			$ 6,148.60
				TOTAL	**$ 8,198.14**

MAINTENANCE AND MONITORING

NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintance ranges may be assessed anywhere from 5 to 10 years.

Maintenance, annual (by owner or consultant)					
Less than 1,000 sq.ft. and buffer mitigation only	$ 1.08	SF		(3 X SF total for 3 annual events; Includes monitoring)	$ -
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	$ 180.00	EACH		(4hr @$45/hr)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	$ 270.00	EACH		(6hr @$45/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	$ 360.00	EACH	1.00	(8 hrs @ 45/hr)	$ 360.00
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	$ 450.00	EACH		(10 hrs @ $45/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	$ 1,600.00	DAY		(WEC crew)	$ -
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	$ 2,000.00	DAY		(1.25 X WEC crew)	$ -
Monitoring, annual (by owner or consultant)					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	$ 720.00	EACH		(8 hrs @ 90/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	$ 900.00	EACH	1.00	(10 hrs @ $90/hr)	$ 900.00
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	$ 1,440.00	DAY		(16 hrs @ $90/hr)	$ -
Larger than5 acres - buffer and / or wetland or aquatic area impacts	$ 2,160.00	DAY		(24 hrs @ $90/hr)	$ -
				TOTAL	**$ 1,260.00**

Total	**$29,953.48**

COMMUNITY PLANNING & DEVELOPMENT
206.275.7605
www.mercerisland.gov/cpd

December 23, 2022

Clayton Herbst
1401 S Jackson St
Seattle, WA 98144

RE: CAO22-023 (Sullivan Critical Area Review 2)
Notice of Complete Application
3024 69th Ave SE, Mercer Island, WA 98040; King County Tax Parcel 217510-0315

Dear Clayton Herbst:

The City of Mercer Island received the above referenced application for a Critical Area Review 2 on December 8, 2022. The City has assigned file number CAO22-023 to the Critical Area Review 2. Following review of the application, City staff has determined that this application was **complete** on December 23, 2022:

Formal review of the application will now begin in compliance with the City of Mercer Island's critical area regulations as set forth in Chapter 19.07 MICC. As review progresses, additional documentation will most likely be requested. Pursuant to Mercer Island City Code 19.15.020(C)(4), if the applicant fails to provide the required information within 60 days from the date of any request for information, the application shall lapse, and become null and void.

Sincerely,

Andrew Leon, Planner
City of Mercer Island Community Planning and Development
andrew.leon@mercergov.org
(206) 275-7720

CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
PHONE: 206.275.7605 | http://www.mercerisland.gov/

PUBLIC NOTICE OF APPLICATION

NOTICE IS HEREBY GIVEN for the application described below:

File No.:	CAO22-023
Permit Type:	Type III
Description of Request:	A request for a Critical Area Review 2 to construct a new single-family residence on a vacant lot within geologically hazardous areas.
Applicant / Owner:	Clayton Herbst / John Sullivan
Location of Property:	3024 69th Ave SE, Mercer Island WA 98040 Identified by King County Assessor tax parcel number: 217510-0315
SEPA Compliance:	This project is exempt from SEPA pursuant to WAC 197-11-800(1)(b)(i).
Project Documents:	Please follow this file path to access the associated documents for this project: https://mieplan.mercergov.org/public/CAO22-023
Written Comments:	**This may be the only opportunity to comment on the environmental impacts of the proposal.** Written comments on this proposal may be submitted to the City of Mercer Island either by email, in person, or by mail to the City of Mercer Island, 9611 SE 36th Street, Mercer Island, WA 98040-3732. Anyone may comment on the application, receive notice, and request a copy of the decision once made. Only those persons who submit written comments or participate at the public hearing (if a hearing is required) will be parties of record; and only parties of record will have the right to appeal.
Public Hearing and Public Meeting:	Pursuant to MICC 19.15.030 Table A and B a public hearing is not required for Type I-III permits.
Applicable Development Regulations	Applications for Critical Area Review 2 are required to be processed as Type III land use reviews pursuant to Mercer Island City Code (MICC) 19.15.030. Processing requirements for Type III land use reviews are further detailed in MICC 19.15.030. The city's critical area requirements are contained in Chapter 19.07 MICC.
Other Associated Permits:	A future building permit is anticipated.
Environmental Documents:	Copies of all studies and / or environmental documents are available through the above project documents link.

Application Process Information:	Date of Application: December 8, 2022 Determined to Be Complete: December 23, 2022 Bulletin Notice: January 3, 2023 Date Mailed: January 3, 2023 Date Posted on Site: January 3, 2023 Comment Period Ends: 5:00PM on February 2, 2023

Project Contact:
Andrew Leon / Planner
Community Planning & Development
City of Mercer Island
9611 SE 36th Street
Mercer Island, WA 98040
(206) 275-7720
andrew.leon@mercerisland.gov

FROM: AZARIA ROSSO
3024-69TH AVE, S.E.
MERCER ISLAND, WA. 98040

Exhibit 10

CITY OF MERCER ISLAND

COMMUNITY PLANNING & DEVELOPMENT
9611 SE 36TH STREET | MERCER ISLAND, WA 98040
PHONE: 206.275.7605 | http://www.mercerisland.gov/

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- DO NOT BLOCK STREET!
- WATCH FOR SIDES--
- POSSIBLE MUD FLOW FROM THE PAST?

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