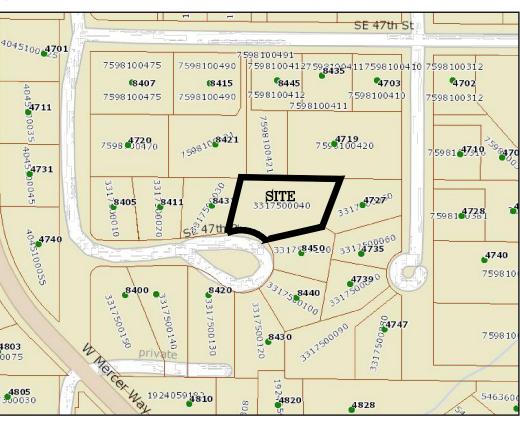
INSTRUMENT	NT LIST : cer Island Coversl
PROJECT ADDRESS:       ADJ Low State S	
Mexer Lind, WA 39800       ————————————————————————————————————	r Sheet / Project I
31:300000       ALL Sector Prion         LEGAL DESCRIPTION       ALL Sector PLATS, CLUCK PLATS, CL	urvey
PERMIT N MBER:       Project PE21-000       Project PE21-000       Project PE21-000         Project PE21-000       Project PE21-000       Project PE21-000       Project PE21-000       Project PE21-000         PROJECT PESCHPTICN:       Concerned gnade existing votant lot.       Project PE21-000       Project PE21-0000       Project PE21-000       Pr	
COVERNING AUTIORITY: City of Merrer Island, Development Services Group, ZUNING CODE INFORMATION: Control Actor Services 2009, 212,0141       C1: Gene C1: Gene C	Plan Elevations s Sections ils ils ng Sequence ifications
Chield Area Review - 2: See A1.2 and allabed report       CARL Treet         Lot Slower 2: 00% see sheet A1.2       All Treet         Allowed Legib 30 see Sink A1.2       Concentration         Sink Yand Calculation: see Sink A1.2       Concentration         Allowed Heigh 30 above ABE       Concentration         BUH INING CODE: INVORMATION:       Elements         Bud Code: Rev Colls, WiSBC Cherry 51:51 WAC       Concentration         Concentration: Concentration UP Above ABE       Concentration         Alloweid Heigh 20 above ABE       Concentration<	ral Notes C Plan and Details age Plan ntion Tank Details
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Side Yand Calculation: set Shi A12       11         Allowed height init: 3052 Nec A12 for ABF. Carevleulations & A3.1, A3.2, A3.3 A4.1 for representation       12         Allowed height init: 3052 Nec A12 for ABF. Carevleulations & A3.1, A3.2, A3.3 A4.1 for representation       12         Mines (A), 4055, 12, 302 dot 5, 72445       2400.6 dot         Proposed Hardsape: Work of the area's 26.0738 dot 2.400.6 dot       23         Bit Hind Not Core Normality of the area's 26.0738 dot area's 26.0748 dot area'	Removal, Replace
BUILDING CODE INFORMATION:       A.S.1 Walt         Building Code: IRC 2018; WSBC Chipt: S1-51 WAC       A.S.1 Walt         A       Fire Code Alternate: (Approved FCA on file) MPA 13R PLUS       Fire Code Alternate: (Approved FCA on file) MPA 13R PLUS         E       ENERGY CODE INFORMATION: 2018 WSEC & IRC VENTILATION       E1.0 Sine F         Energy Conservation: Compoard: PCFormance per WSEC Table R402,11:       A.20,02,1, A22, A31, A32, A33, A41, A51, A90, A91, H22, DE1, E2.2       Energy Credits - 6.0: Outlind below.         C (C 1.1 Sudding Envelope: Vertical Tensition (D=25 (Table R402,11:       A20,02,1, A22, A31, A32, A33, A41, A51, A90, B1, WA 182, Plus R-4ci;       File         Fibor R-38; Basenet wall R-21 in plus R-5 ci; S16 on grade R-10 perimeter and under entire stal. Bolding Envelope: Vertical Tensition (D=25 (At A090.91; Walt R-21 plus R-4ci;       File       Stal. 70, 70, 70, 70, 70, 70, 70, 70, 70, 70,	Floor Plan / Crav er Floor Plan Plan ations ations ations
▲ Fire Code Alternate: (Approved FCA on file> NFPA 13R PLUS       E1.0 Since         ■ KERGY CODE INFORMATION: 2018 WSEC & IRC VEXTLATION       E2.0 Lowe         ■ Conservation: Component Performance per WSEC Table R402.11:       22.0 Main         A2.0.A21, A22, A31, A32, A43, A41, A51, A90, A91, E20, E21, E22       Eurogy Credits -66: Outlined below.         ■ Find Point Termination option 2: Heat pump air to water radiant system: (A10, A20) 10 credit       Sin.0 Struct         ■ (C12, A) Bioling Envelope Vertical Tenseration U-23 (dst. A90.901); Wull R-21 pins R-46;       Sin.0 Struct         ■ (C2, 2, A): I datage control 2.0 ach i HWN system with an efficiency of .65 (shts. A2.0, F2.0, E2.1, E2.2); 1.0 credit       Sin.0 Struct         ■ (C2, 2, A): I datage control 2.0 ach i HWN system with an efficiency of .65 (shts. A2.0, F2.0, E2.1, E2.2); 1.0 credit       Sin.0 Control EC3.5 - Efficient watch reditar; eliciterin termine theat: (sht. A2.0) 2.0 credits       Sin.0 Control EC3.5 - Efficient watch reditar; eliciterin termine theat: (sht. A2.0, 0.2.0 credits       Sin.0 Control EC3.5 - Efficient watch reditar; eliciterin termine theat: (sht. A2.0, 0.2.0 credits       Sin.0 Control E0.0 Cont	low Schedule
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A2.0,72.1, A2.2, A3.1, A3.2, A3.3, A4.1, A5.1, A9.0, A9.1, E2.0, E2.1, E2.2       Struct         Faregy Credits - 60; Condined below.       File at pump air to water radiant system. (A1.0, A2.0) 1.0 credit       Struct         M       (EC.1,4): Building Envelope: Vertical Fensoration U-25 (sht. A9.09.1); Wall R>21 plus R+4ci;       Store         Toor R38; Basement wall R>21 in plus R-5 ci; Slab on grade R-10 primeter and under entire       St.1       Main         slab.       1.0 credit (alis, A3.1-33, A4.1, A5.1)       Star (alis, A3.1-33, A4.1, A5.1)       Star (A1.0, A2.0, E2.0, E2.1, E2.2, 10)       Star (A1.0, A2.0, E2.0, E2.1, A2.2, A3.2, A3.1, A5.1)       Star (A1.0, A2.0, E2.0, E2.1, A2.2, A3.2, A3.3, A4.1, A5.1)       Star (A1.0, A2.0, E2.0, E2.1, A2.2, A3.2, A3.3, A4.1, A5.1)       Star (A1.0, A2.0, E2.0, E2.1, A2.2, A3.2, A3.3, A4.1, A5.1)       Star (A1.0, A2.0, E2.0, E2.1, A2.2, A3.2, A3.3, A4.1, A5.1)       Star (A1.0, A2.0)       Coredits       Star (A1.0, A3.0)       Star (A1.0, A3.0	er Floor Electrical Floor Electrical F
PROJECT DIRECTORY:S5.3WoodArchitect:Ectypos Architecture Contact: Lucia Pirzio-Biroli, Architect 4212 W. Mercer Way Mercer Island, WA 98040Phone: (206) 232-9147 Fax: (206) 275-0312S5.4WoodSurveyor:Terrane Contact: Dana Hall 10801 Main Street, Ste. 102 Bellevue, WA 98004Phone: (425) 458-4488 Bellevue, WA 98004Phone: (425) 458-4488 Bellevue, WA 98004Source Way Fax: (206) 275-0312Source Way Fax: (206) 275-0312Geotechnical Engineer:Geotech Consultants, Inc. Contact: Marc McGinnes 2401 10th Ave. E. Seattle, WA 98199Phone: (425) 747-5618 Fax: (206) 285-1593 Fax: (206) 264-7769Structural Engineer:Bykonen Carter Quinn Contact: Nick Carter 2033 6th Ave, Suite 995 Seattle, WA 98121Phone: (206) 264-7784Shoring Engineer:Ground Support PLLC Contact: Chris Wolschlag 16932 Woodinville-Redmond Rd NE, Ste. #210 Woodinville, WA 98072Phone: (425) 922-1501	erete Details erete Details erete Details Details cal Wood Details cal Wood Lateral
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Arborist: Arborist NWLLC	5 00045 
Arborist: Arborist NW LLC. Contact: Neil Baker 1710 SW 318 Pl. 44D Phone: (206) 779-2579 Federal Way, WA 98023	480 <sup>1</sup> 480 <sup>3</sup> 4045100075
General Contractor:Mercer Builders Contact: Jeff Wenzel 3860 76th Ave SEPhone: (206) 275-1234Mercer Island, WA 98040	2577 <b>4805</b>

#### versheet

ABBREVIATIONS: <u>SYMBOLS:</u> AB anchor bolt and Information ADJ AFF adjustable 0 at above finish floor ARCH architect/ural centerline BLDG BM building by beam B.O. B.O.F. bottom of diameter bottom of footing BT₩N pound/number between Plan ## degree CB CIP catch basin cast in place plus or minus CJ control joint Sheet CLG ceiling revisions / window designation CMU concrete masonry unit door designation CO/SD combined carbon monoxide/ COL CONC CONT column  $\bigotimes$ material designation concrete continuous EI.\_\_\_ finish floor elevation DIA DIM DN DR(S) DS DWG diameter dimension down door(s) downspou drawing EA each EL ELEC ELEV EQ EXIST elevation electrical elevations equal existing EXH exhaust EXT exterior  $\sim \sim \sim \sim$ FB flat bar cement and Protection FD floor drain  $\sim$ FDC FDN FE FIN Fire Department Connection Crawl Space Diagram foundatio fire extinguisher rawl Space Diagram finish FOC FOS FLR face of conc. face of stud FOIC furnished by owner installed FPHB frost proof hose bib FRT fire retardant treated FS full size FT foot FTNG footing GA gauge GALV galvanized **Reports, Memos and City Forms:** GL G₩B glass Permit Application gypsum wallboard  $\frac{1}{1}$  Site Development Information (revised) HB hose bib HC HM HOR hollow core  $\angle 1$  CAR 2 Report (revised) hollow metal al Plan WSEC Energy Code Compliance form horizontal Plan Fire Area Square Footage Calculation ΗP high point al Plan HR HT hour/handrail Fire Code Alternate Request memo height Transportation Concurrency Application ID inside diameter otes Residential Water Meter Sizing Worksheet inch/inches IN otes ADU Application form INSUL insulation INT interior ADU Affidavit Plan 1 Critical Area Disclosure - Notice on Title Plan 1 Large lot - Real Covenant Limiting further Subdivision (1) Geotechnical Engineering Study and Critical Area Study / Plan Review Letter 1 Nail Shoring Design Calculations Arborist Report and tree inventory/replacement form (revised) rboard 1 Civil Engineer Drainage Report (revised) rlay Structural Calculations / Supplemental Calculations /1 Memo: Project 2202-225 Sub2 Ancillary Comments al Details

#### ITY MAP



INT	interior
JNT	joint
KD	kiln dried
LNDSPG	landscaping
LP	low point
LT	light
MAX	maximum
MDF	medium density fiber
MDO	medium density over
MECH	mechanical
MFGR	manufacturer
MISC	miscellaneous
MIN	minimum
MTL	metal
NIC	not in contract
NO	number
NOM	nominal
NTS	not to scale
OA	overall
OC	on center
OD	outside diameter
OFD	overflow drain
OPNG	opening
OS	overflow scupper
OVR	over
PAV	pavers, paving
PLYWD	plywood
PR	pair
PT	paint/point
RAD	radius
RB	reinforcing bar
RD	roof drain
REQ'D	required
RES	resilient
RL	rain leader
RO	rough opening
SCHED	schedule(s)
SD	smoke detector
SF	square feet
SHT	sheet
SIM	similar
SPEC	specification
SQ	square
SS	stainless steel
ST	stone
STL	steel
SAF	self adhering flashing
TG	tempered glass
T&G	tongue and groove
THK	thick
T.O.	top of
TYP	typical
V	variable
VERT	vertical
VG	vertical grain
VIN	vinyl
VTR	vent through roof
W/	with
WP	waterproof
W/O	without
WWF	welded wire fabric

#### <u>GENERAL NOTES:</u>

- 1. Contractor shall verify all dimensions and conditions shown on drawings at the job site and shall notify the Architect of any omissions, discrepancies and/or conflicts before proceeding with the work.
- General Contractor to coordinate pre-construction site meeting w/ Owner, Architect, Structural Engineer, Civil Engineer, Geotechnical Engineer and City of Mercer Island Building Inspector
- 3. Plumbing, mechanical and electrical work shall be under separate permits according to prevailing codes. Contractor shall obtain such permits.
- 4. Special Inspections that are required by the City of Mercer Island Development Services shall be coordinated by Contractor.
- 5. Contractor shall verify existing grade conditions and height limits with Architect and surveyor on site prior to beginning work and shall notify Architect of any discrepancy in the site survey.
- 6. Do not scale drawings, <u>dimensions govern</u>. Large scale dimensions govern over small scale dimensions. Notify Architect of discrepancies in dimensions prior to proceeding with work.
- 7. Construction dimensions shown are to face of stud (F.O.S.) on exterior walls, top of (t.o.) slab or sub-floor at floor levels.
- 8. Per approved Fire Code Alternate an NFPA "Chapter 29" Fire Alarm System shall be installed per City of Mercer Island standards. UL Listings: Devices – UL 268; Control Panel – UL 985; CO Detectors: UL 2075. FIRE DEPARTMENT REQUIREMENTS outlined below in notes 9–11. A separate permit is required and may be deferred and obtained by Contractor.
- 9. DWELLING/GARAGE SEPARATION shall meet the requirements of IRC R302.6. All habitable rooms shall be separated on the garage side by not less than <sup>5</sup>/<sub>8</sub>" Type "X" gwb or equivalent.
   DWELLING/GARAGE OPENING/PENETRATION PROTECTION shall meet the requirements of IRC R302.5. Doors shall be minimum 20 minute fire rated doors equipped with a self-closing device.
- 10. FIREBLOCKING shall meet the requirements of IRC R302.11. DRAFTSTOPPING shall meet the requirements of IRC R302.12 UNDER STAIR PROTECTION Enclosed under-stair space accessible by a door or panel shall be protected by a minimum of ½" type "x" gypsum wall board per IRC R302.7 and as indicated in approved Fire Code Alternate. SOLID CORE DOORS Throughout interior spaces except at closets.
   1 HOUR TYPE "X" GWB throughout interior spaces as indicated in approved Fire Code Alternate
- 11. SMOKE ALARMS & HEAT DETECTION See note 8 above, shall comply with IRC R314/WBC R314. Smoke alarms shall be listed and labeled in accordance with UL268. Combined smoke and carbon monoxide detectors shall be listed in accordance with UL268 AND UL 2075. Smoke alarms shall be located as follows: each sleeping room; outside each separate sleeping area in the immediate vicinity of the bedrooms; on each floor of the dwelling; stairs leading from the basement near the entry to the stair. Combination smoke alarms and carbon monoxide alarms shall be permitted in lieu of smoke alarms where carbon monoxide alarms are also required. CARBON MONOXIDE ALARMS shall meet the requirements of IRC R315. Carbon monoxide alarms shall be installed outside each separate sleeping area in the immediate vicinity of the bedrooms, on each floor level of the dwelling. HEAT ALARM/DETECTION shall be installed in garage per WAC R314.2.1
- 12. EMERGENCY EGRESS WINDOWS shall meet the requirements of IRC R310. Each sleeping room shall have an operable rescue opening. Emergency Escape minimum dimension shall meet IRC R310.2 The sill height shall not be more than 44" from the finished floor to the bottom of the opening. Minimum net clear opening shall be 5.7 square feet; minimum clear width 20"; minimum clear height 24".
- 13. STAIRWAYS' shall meet the requirements of IRC R311.7. Stairways shall have a minimum clear width of 36" above handrail, and be not less than  $31\frac{1}{2}$ " in width below handrail. Minimum headroom shall not be less than 6'-8". Maximum riser  $7\frac{3}{4}$ " / minimum tread 10". Handrails shall be not less than 34" or more than 38" above the slope of the plane of the stairs and shall be continuous for the full run of the flight and shall have a minimum space of  $1\frac{1}{2}$ " between wall and railing.
- 14. See specifications for required shop drawings. Contractor shall prepare and submit shop drawings to governing authority and Architect in a timely manner.
- 15. Provide mounting blocks at exterior walls behind <u>all</u> light fixtures, hose-bibs, structural steel connectors, guardrails and any other exterior mounted accessories. Verify type of mounting block with Architect prior to installation.
- 16. Provide damp-proofing on all below grade foundation walls per IRC R406. Provide all accessories required for a completely watertight installation, including but not necessarily limited to: flashing, counter-flashing, sealant, and caulking at all roof and wall penetrations; interlocking weather-stripping at all doors and windows; water-stops and other concrete inserts at below grade cold joints.
- 17. When a ventilated roof is required: Provide notching/ drilled holes according to Structural Engineer's recommendations or run roof furring strips perpendicular to roof joists to allow cross-ventilation of roof joist spaces. Maintain 1" minimum clear from top of insulation to bottom of decking where occurs.
- 18. Pressure treated lumber typical at all exterior applications and concrete surfaces.
- 19. Pursuant to MICC 19.02.020(F)(3)(d) all Japanese Knotweed and regulated Class A, B & C weeds identified on the King County Noxious Weed List as amended, shall be removed from the property. New landscaping associated with New Single Family Home shall not included any weeds identified on the KC Noxious Weed List.
- 20. Any excavation or foundation work performed between October 1st and April 1st shall be subject to wet season moratorium requirements per MICC 19.07.060(D)(4)
- 21. Per IRC R312 guards shall be installed on all open sided walking surfaces including stairs, ramps, landings, that are located more than 30 inches measured vertically to the floor or grade below. Guards shall have openings small enough that a 4"ø ball cannot pass. All guards shall have a minimum overturn resistance 200 lb. per IRC Table 301.5. See R311.7.8 for stair railing requirements.
- 22. At moist locations provide water resistant gypsum wall board (green board) on walls and ceiling. Rating and thickness shall match gwb throughout rest of structure.

ECTYPOS ARCHITECTURE

4212 W. Mercer Way Mercer Island, WA 98040 t. (206) 232-9147 f. (206) 275-0312



# INBORN RESIDEN New Residence

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Mercer Island, WA 98040

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Date: **3/15/2021 Pre-App** 2/14/2022 Permit Submitta 8/25/2022 Sub2-2202-225

8/25/2022 Sub2-2202-225
 11/22/2022 Sub3-2202-225

Scale:

Sheet: Project Information A0,1

LOT 4, HILL HIGH ESTATES AS RECORDED IN VOLUME 68 OF PLATS, PAGE 28, RECORDS OF KING COUNTY, WASHINGTON. SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

#### BASIS OF BEARINGS

A BEARING OF N 74°41'28" W CALCULATED PER R1 BETWEEN MONUMENTS SHOWN HEREON

#### REFERENCES

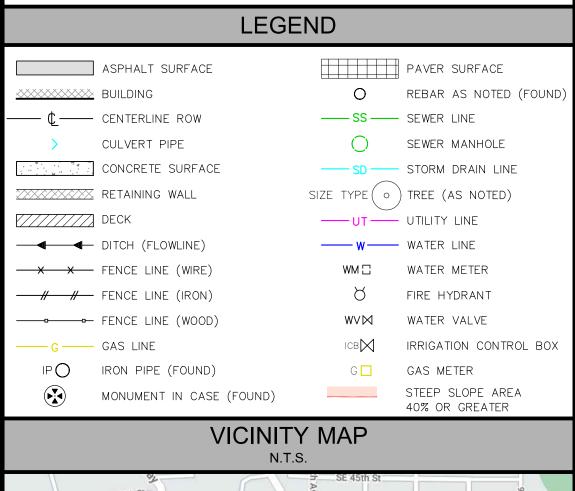
R1. HILL HIGH ESTATES, VOL. 68, PG. 28, RECORDS OF KING COUNTY, WASHINGTON.

#### VERTICAL DATUM

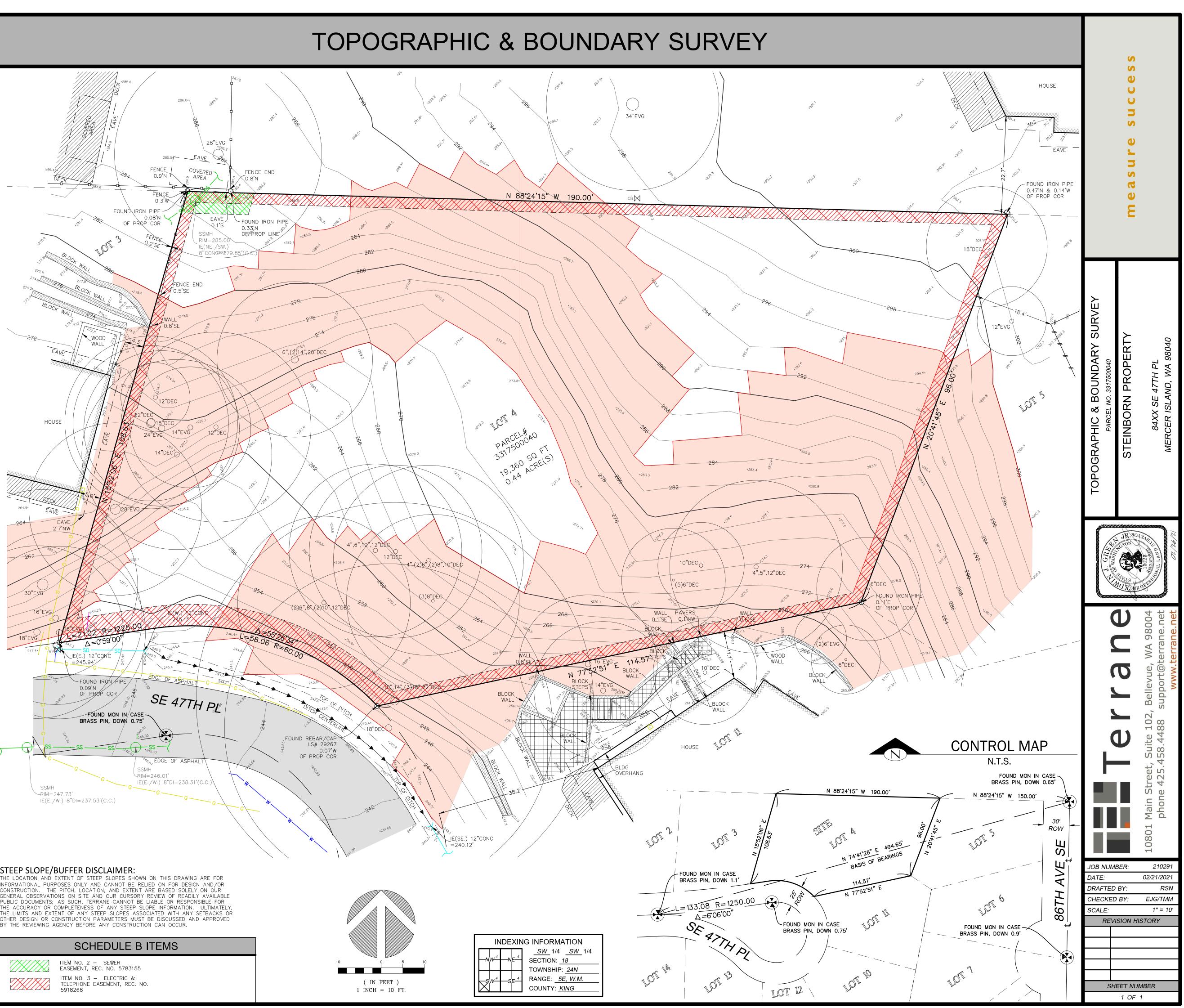
NAVD88 PER GPS OBSERVATIONS

#### SURVEYOR'S NOTES

- 1. THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS PERFORMED IN FEBRUARY OF 2021. THE FIELD DATA WAS COLLECTED AND RECORDED ON MAGNETIC MEDIA THROUGH AN ELECTRONIC THEODOLITE. THE DATA FILE IS ARCHIVED ON DISC OR CD. WRITTEN FIELD NOTES MAY NOT EXIST. CONTOURS ARE SHOWN FOR CONVENIENCE ONLY. DESIGN SHOULD RELY ON SPOT ELEVATIONS.
- 2. ALL MONUMENTS SHOWN HEREON WERE LOCATED DURING THE COURSE OF THIS SURVEY UNLESS OTHERWISE NOTED.
- 3. THE TYPES AND LOCATIONS OF ANY UTILITIES SHOWN ON THIS DRAWING ARE BASED ON INFORMATION PROVIDED TO US, BY OTHERS OR GENERAL INFORMATION READILY AVAILABLE IN THE PUBLIC DOMAIN INCLUDING, AS APPLICABLE, IDENTIFYING MARKINGS PLACED BY UTILITY LOCATE SERVICES AND OBSERVED BY TERRANE IN THE FIELD. AS SUCH, THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND SHOULD NOT BE RELIED ON FOR DESIGN OR CONSTRUCTION PURPOSES; TERRANE IS NOT RESPONSIBLE OR LIABLE FOR THE ACCURACY OR COMPLETENESS OF THIS UTILITY INFORMATION. FOR THE ACCURATE LOCATION AND TYPE OF UTILITIES NECESSARY FOR DESIGN AND CONSTRUCTION, PLEASE CONTACT THE SITE OWNER AND THE LOCAL UTILITY LOCATE SERVICE (800-424-5555).
- 4. SUBJECT PROPERTY TAX PARCEL NO. 3317500040.
- 5. SUBJECT PROPERTY AREA PER THIS SURVEY IS 19,360± S.F. (0.44 ACRES)
- 6. THE PROPERTY DESCRIBED HEREON IS THE SAME AS THE PROPERTY DESCRIBED IN CHICAGO TITLE COMPANY OF WASHINGTON, COMMITMENT NO. 0164787-ETU, WITH AN EFFECTIVE DATE OF FEBRUARY 4, 2021 AND THAT ALL EASEMENTS, COVENANTS, AND RESTRICTIONS REFERENCED IN SAID TITLE COMMITMENT OR APPARENT FROM A PHYSICAL NSPECTION OF THE PROPERTY OR OTHERWISE KNOWN TO ME HAVE BEEN PLOTTED HEREON OR OTHERWISE NOTED AS TO THEIR EFFECT ON THE PROPERTY.
- 7. FIELD DATA FOR THIS SURVEY WAS OBTAINED BY DIRECT FIELD MEASUREMENTS WITH A CALIBRATED ELECTRONIC 5-SECOND TOTAL STATION AND/OR SURVEY GRADE GPS OBSERVATIONS. ALL ANGULAR AND LINEAR RELATIONSHIPS ARE ACCURATE AND MEET THE STANDARDS SET BY WAC 332-130-090.

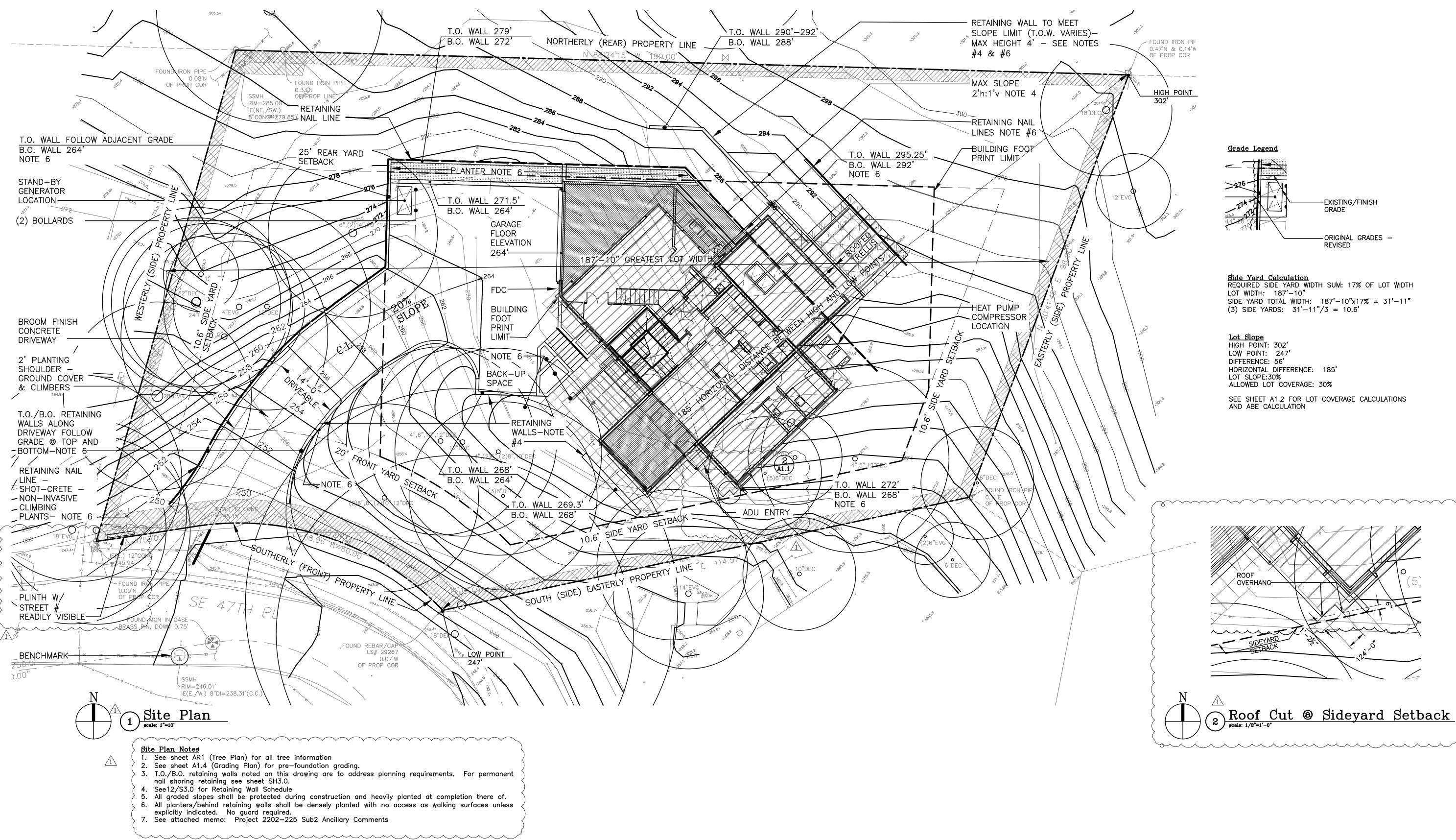






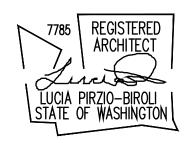
#### STEEP SLOPE/BUFFER DISCLAIMER:

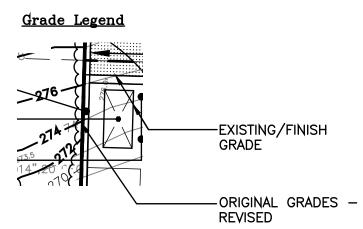
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4212 W. Mercer Way Mercer Island, WA 98040 t. (206) 232-9147 f. (206) 275-0312





<u>Side Yard Calculation</u> REQUIRED SIDE YARD WIDTH SUM: 17% OF LOT WIDTH LOT WIDTH: 187'-10" SIDE YARD TOTAL WIDTH: 187'-10"x17% = 31'-11" (3) SIDE YARDS: 31'-11"/3 = 10.6'

Lot Slope HIGH POINT: 302' LOW POINT: 247' DIFFERENCE: 56' HORIZONTAL DIFFERENCE: 185' LOT SLOPE:30% ALLOWED LOT COVERAGE: 30%

war

SEE SHEET A1.2 FOR LOT COVERAGE CALCULATIONS AND ABE CALCULATION

ROOF **OVERHANG** 

sidence Δ 47th ധ S New 8435

Date: 3/15/2021 Pre-App

2/14/2022 Permit Submittal 8/25/2022 Sub2-2202-225

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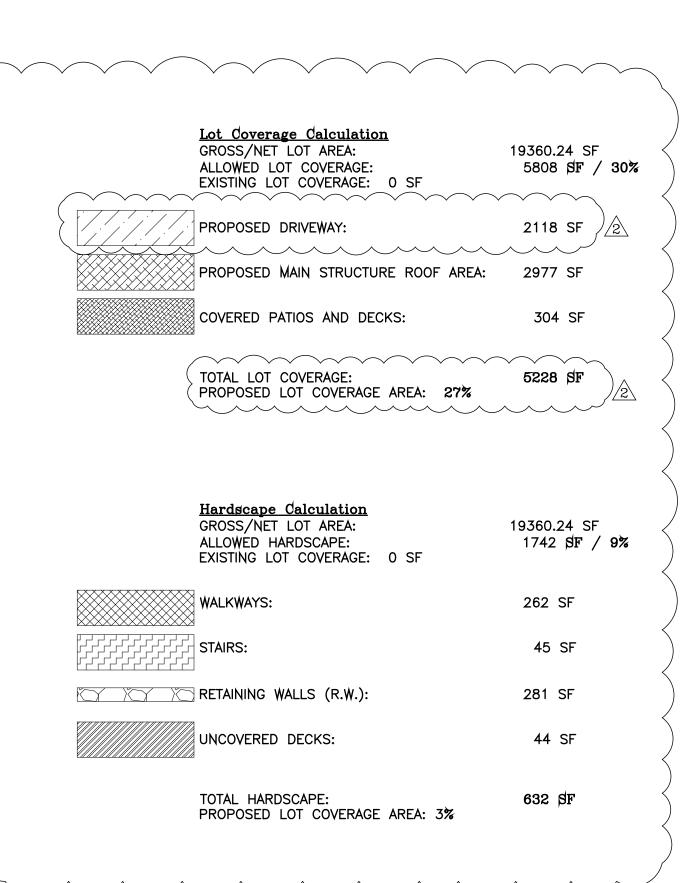
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$\geq$	B=	268.5	ft	*	b=	28.0	ft	=	7518.0
	C=	268.5	ft	<b>*</b>	c=	15.0	ft	=	4027.5
$\geq$	D=	268.5	ft	*	d=	15.0	ft	=	4027.5
	E=	268.5	ft	*	e=	15.0	ft	=	4027.5
$\geq$	F=	268.5	ft	<b>*</b>	f=	12.0	ft	=	3222.0
	G=	275	ft	)*	g=	29.0	ft	=	7964.0
$\geq$	H=	282	ft	*	h=	12.0	ft	=	3384.0
	=	286	ft	)*	i=	15.0	ft	=	4278.6
	J=	289	ft	<*	j=	25.0	ft	=	7225.0
	K=	284	ft	)*	k=	9.2	ft	=	2601.4
	L=	279.3	ft	<b>*</b>	=	18.6	ft	=	5189.4
	M=	279.3	ft	) *	m=	24.2	ft	=	6747.9
		$\wedge$	/	/	•	total=			total=
						242.8	ft.		66812.8
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	Allo	wed Build	ding	Heigh	t =	305.2	ft.		

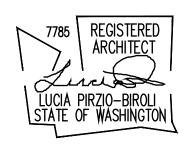
INDICATES FOOTPRINT OF FOUNDATION PERIMETER



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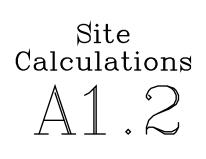


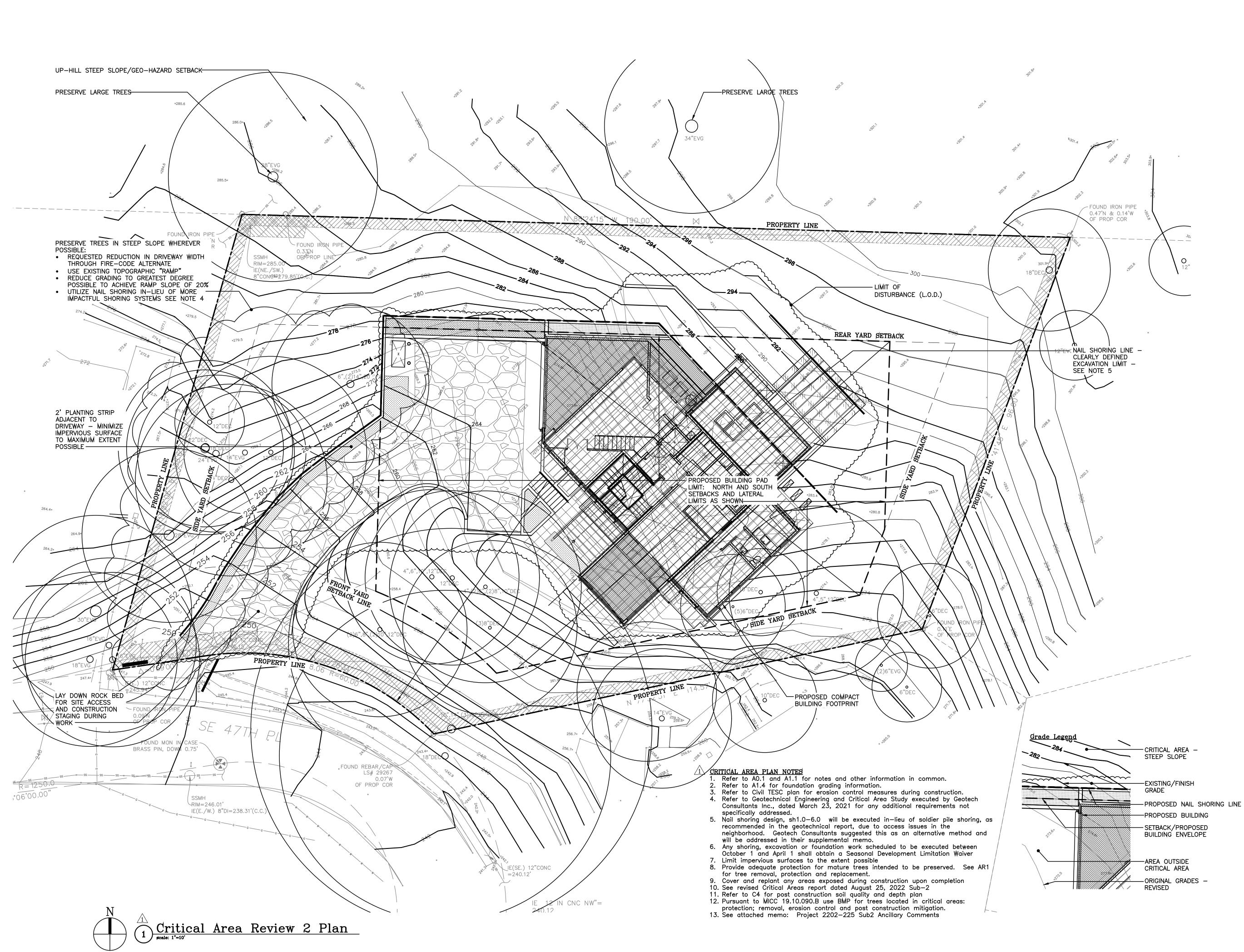
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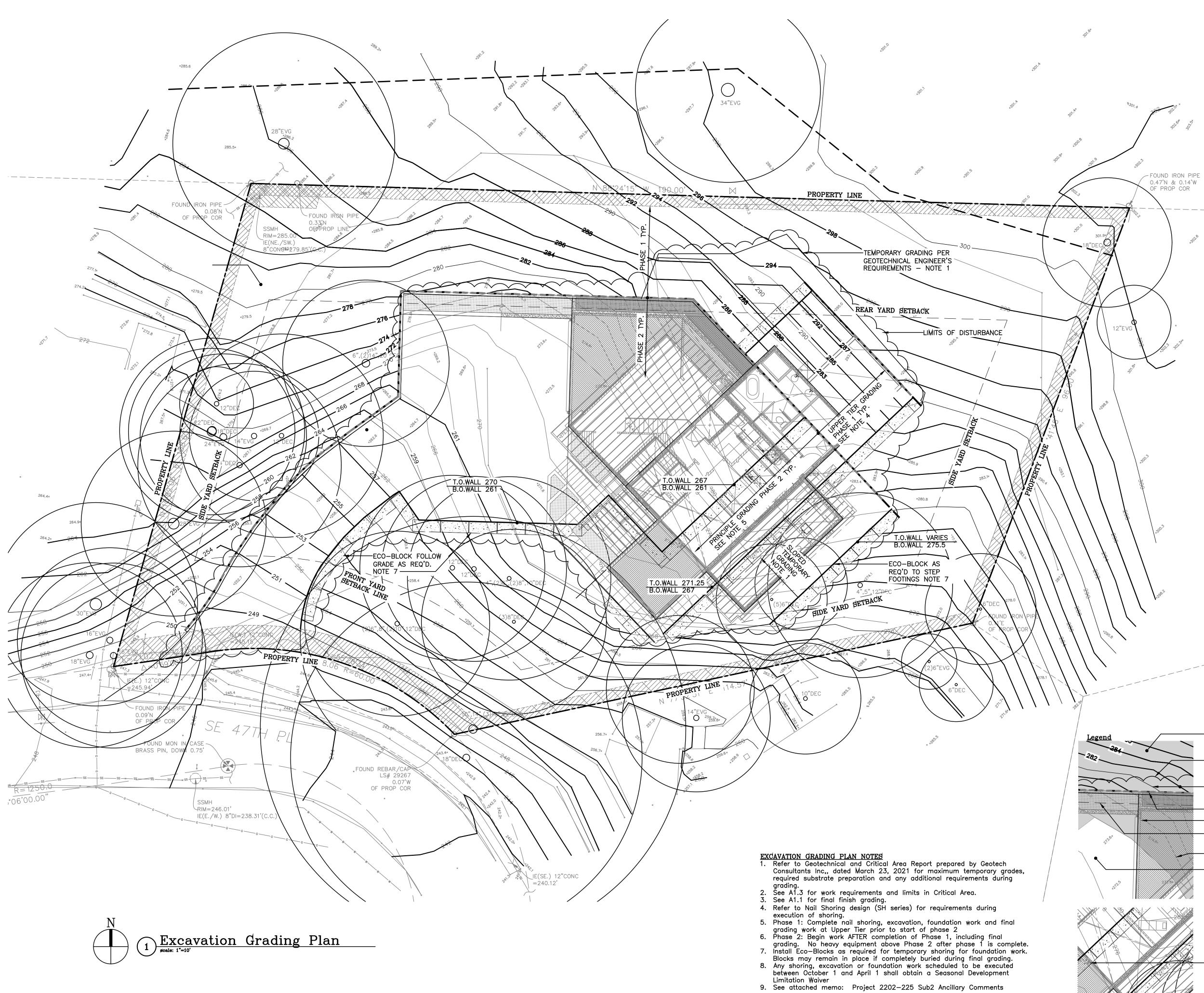
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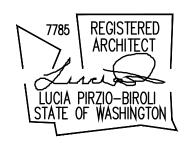
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- CRITICAL AREA -STEEP SLOPE

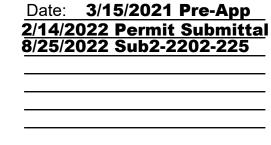
-LIMITS OF DISTURBANCE (L.O.D.)

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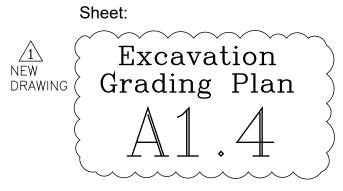
-EXISTING/FINISH GRADE

-PROPOSED NAIL SHORING LINE -PROPOSED BUILDING - SETBACK/PROPOSED BUILDING ENVELOPE -ORIGINAL GRADES -REVISED —AREA OUTSIDE CRITICAL AREA

\_ECO-BLOCKS - TEMPORARY SHORING AS REQUIRED. MAY REMAIN IN PLACE IF BURIED AND NOT INTERFERING WITH FINAL SITE WORK AND DESIGN.





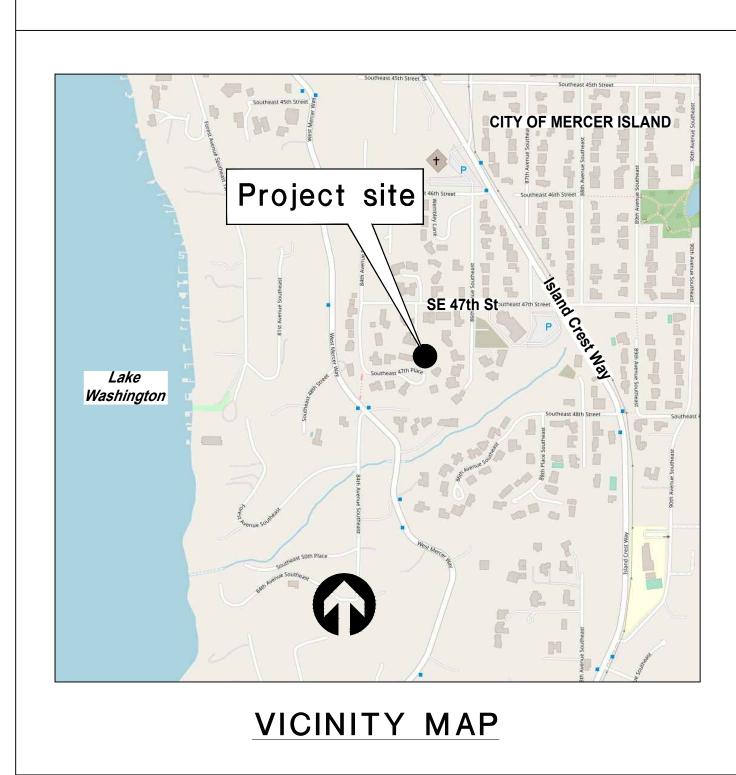


## PERMANENT SOIL NAIL RETAINING WALL PLANS

#### SHEET NUMBER

### SHEET TITLE

- SH O= ||SH2.0 SH3.0 SH4.0 SH5.0-5. SH6.0 SH7.0-7.1
- COVER SHEET AND NOTES WALL PLAN WALL ELEVATION CROSS-SECTIONS DETAILS SOIL NAILING SEQUENCE SPECIFICATIONS



#### <u>GENERAL</u>

THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING DIMENSIONS AND SITE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL ALL EXISTING UTILITIES SHOWN ON THE PLANS AND THOSE UTILITIES OR UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL ABANDONED UTILITIES, OR OTHER UNDERGROUND OBSTRUCTIONS THAT INTERFERE WITH THE NEW CONSTRUCTION.

THE CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE FOR THE CONSTRUCTION PROCESS AND THE SAFETY OF THE WORKERS. THIS INCLUDES BUT IS NOT LIMITED TO, THE CONSTRUCTION SEQUENCE, TEMPORARY HANDRAILS, EXCAVATION ACCESS, AND BARRIERS. IT ALSO INCLUDES LIFTING OF MATERIALS AND CONSTRUCTION EQUIPMENT INTO AND OUT OF THE EXCAVATION, TEMPORARY BRACING OF SINGLE-SIDED FORMWORK, TEMPORARY SHORING OF EXCAVATIONS, AND STABILITY OF ALL TEMPORARY CUT SLOPES.

#### REFERENCE DATA:

THE EXISTING SITE, TOPOGRAPHICAL, AND UTILITY DATA; THE PROPOSED GRADES, TOP AND BOTTOM OF WALL, AND THE WALL LOCATIONS, ARE ALL BASED ON THE FOLLOWING:

ECTYPOS ARCHITECTURE.

2018 INTERNATIONAL BUILDING CODE

BUILDING CODES, DESIGN MANUALS, AND SPECIFICATIONS:

PUBLICATION NO. FHWA-IF-03-017, GEOTECHNICAL ENGINEERING CIRCULAR NO. 7, SOIL NAIL WALLS

#### DESIGN LIVE LOADS:

FOR ALL THE WALLS, A UNIFORM SURCHARGE OF 250 PSF WAS CONSIDERED ON THE SLOPES BEHIND THE WALLS, EVEN THOUGH SURCHARGE IS UNLIKELY THERE. THE EXCEPTION IS IN NAIL SCHEDULE D (SEE WALL ELEVATION) WHERE A 500 PSF SURCHARGE WAS CONSIDERED TO ACCOUNT FOR THE FOOTING LOADS FROM THE STRUCTURE BEARING BEHIND THE WALL.

#### SEISMIC LOADING CONSIDERATIONS:

FOR THE PERMANENT SOIL NAIL WALLS, SEISMIC SLOPE STABILITY ANALYSES WERE PERFORMED FOR THE FINAL CONFIGURATION, BY CONSIDERING A PSEUDO-STATIC ACCELERATION OF 0.3G (CORRESPONDING TO AN MCE OF 0.678G). SEISMIC LOADING WAS FOUND TO BE MORE CRITICAL TO THE DESIGN THAN THE PERMANENT STATIC LOADING CONDITION FOR THE DETERMINATION OF UPPER ROW NAIL LENGTHS ONLY. BUT NAIL BAR SIZES AND FACING LOADS WERE GOVERNED BY STATIC LOADING.

#### MALL TYPES/SCOPE:

ALL OF THE SOIL NAILS ARE PERMANENT, AND AS SUCH, EPOXY-COATED. ALL OF THE SHOTCRETE FACING IS ALSO PERMANENT, BEING 7" THICK, AND CONNECTED TO THE NAILS. SOME FACING AREAS RECEIVE A SPECIAL FLOAT FINISH AND WILL BE VISIBLE; WHILE OTHERS ARE NOT GOING TO BE VISIBLE AND THE FINISH CAN BE LESS SMOOTH.

## DAN AND SUSAN STEINBORN

# 8435 SE 47TH PLACE **MERCER ISLAND, WASHINGTON**

• THE AUTOCAD DRAWING FILES NAMED: "LOWER-LEVEL-PERMIT.DWG", DATED JULY 19, 2022, "SITEPLAN-PERMIT.DWG", DATED AUGUST 9, 2022, AND "ELEVATIONS-PERMIT-PANEL.DWG", DATED AUGUST 9, 2022, ALL PREPARED BY

#### DESIGN CALCULATIONS

THE PERMANENT RETAINING WALL DESIGN CALCULATIONS ARE CONTAINED IN THE REPORT TITLED: "PERMANENT RETAINING WALL DESIGN CALCULATIONS AND PLANS, 8435 SE 47TH PLACE, MERCER ISLAND, WA", PREPARED BY GROUND SUPPORT PLLC FOR DAN AND SUSAN STEINBORN, DATED AUGUST 25, 2022

SUBSURFACE DESIGN PARAMETERS

THE SUBSURFACE CHARACTERIZATION USED TO DESIGN THE RETAINING WALLS IS BASED ON THE REPORT TITLED: "GEOTECHNICAL ENGINEERING STUDY, PROPOSED STEINBORN RESIDENCE, VACANT LOT EAST OF 8431 SE 47TH PLACE, PARCEL #3317500040, MERCER ISLAND, WASHINGTON", PREPARED BY GEOTECH CONSULTANTS, INC., DATED MARCH 23, 2021. THE FOLLOWING SOIL PROPERTIES WERE USED TO DESIGN THE SOIL NAIL RETAINING WALLS:

SUBSURFACE UNIT	UNIT	SOIL	SOIL	SERVICE
	WEIGHT	FRICTION	COHESION	NAIL PULLOUT
	(PCF)	(DEG)	(PSF)	(K/FT)
FILL	125	32	50	1.5
GLACIAL SOILS	135	40	100	3.5

FOR THE PURPOSES OF DESIGN OF THE RETAINING WALLS, THE WATER TABLE HAS BEEN ASSUMED TO OCCUR AT OR BENEATH THE BASE OF THE EXCAVATION, IN ACCORDANCE WITH THE FINDINGS FROM THE GEOTECHNICAL INVESTIGATION.

HOWEVER, SIGNIFICANT LOCALIZED WET ZONES AND/OR PERCHED POCKETS AND STRINGERS OF WATER-BEARING SOILS MAY BE ENCOUNTERED. THESE AREAS WILL REQUIRE SPECIAL ATTENTION TO DEWATERING USING METHODS SUCH AS INCREASED DRAIN BOARD COVERAGE, ADDITIONAL WEEP AND HEADER PIPES THROUGH THE SHOTCRETE WALL, AND SUMP PUMPS AS REQUIRED TO PREVENT THE WATER FROM CAUSING FACE INSTABILITY OR WATER PRESSURES FROM DEVELOPING BEHIND THE SHOTCRETE WALL DURING CONSTRUCTION.

RETAINING WALL STABILITY ANALYSES:

IN ACCORDANCE WITH THE REFERENCED FHWA PUBLICATION, THE FOLLOWING PARTIAL FACTORS OF SAFETY WERE USED IN THE ANALYSIS OF INTERNAL AND EXTERNAL RETAINING WALL STABILITY:

	PARTIAL	PARTIAL	PARTIAL
DESIGN COMPONENT	F.O.S. (TEMP)	F.O.S. (PERM)	F.O.S. (SEISMIC)
SOIL FRICTION	1.35	1.50	1.10
SOIL COHESION	1.35	1.50	1.10
SOIL-GROUT ADHESION	2.00	2.00	1.50
NAIL BAR YIELD	1.82	1.82	1.35
FACING CAPACITY	1.50	1.50	1.10

FOR THE INTERIM CONSTRUCTION CONDITIONS WHERE EXCAVATION FOR A LIFT HAS OCCURRED YET THE CORRESPONDING NAIL ROW HAS NOT BEEN INSTALLED, THE REQUIRED PARTIAL FACTORS OF SAFETY FOR SOIL FRICTION AND SOIL COHESION ARE REDUCED TO 1.20 IN ACCORDANCE WITH THE REFERENCED FHWA PUBLICATION.

SOIL NAIL THREADED BARS AND GROUT

SOIL NAIL THREADED BARS SHALL CONFORM TO EITHER ASTM A615 / AASHTO M31, GRADE 75 OR ASTM A722 / AASHTO M275, GRADE 150, AS INDICATED ON THE PLANS

NAIL GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI, AND A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 1500 PSI. SOIL NAIL GROUT MAY BE NEAT-CEMENT GROUT OR READY-MIX SAND-CEMENT GROUT. TYPE I/II PORTLAND CEMENT CONFORMING TO ASTM CI50 / AASHTO M85 SHALL BE USED.

SHOTCRETE:

ALL SHOTCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI, AND A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 2000 PSI. SEE THE SPECIFICATIONS PLAN SHEETS FOR SPECIFIC REQUIREMENTS.

TYPE I/II PORTLAND CEMENT CONFORMING TO ASTM CI50 / AASHTO M85 SHALL BE USED FOR SHOTCRETE. SUBMIT MIX DESIGNS IN ACCORDANCE WITH THE SPECIFICATIONS.

TEMPORARY SHOTCRETE MAY BE LEFT WITH A SCREEDED FINISH. PERMANENT SHOTCRETE SHALL RECEIVE A SMOOTH FLOAT FINISH.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 / AASHTO M31, GRADE 60 FOR DEFORMED BARS, AND ASTM A185 / AASHTO M55 FOR WELDED WIRE FABRIC. ALL REINFORCING DETAILS IN ACCORDANCE WITH ACI 315 MANUAL OF STANDARD PRACTICE.

WELDED WIRE FABRIC (WWF) LAPS SHALL BE 2 SQUARES. ALL DEFORMED REINFORCING BAR LAPS SHALL BE CLASS B, IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE, OR AS SUMMARIZED IN THE FOLLOWING TABLE:

BAR SIZE	TENSILE DEVELOP LENGTH (IN)	LAP SPLICE LENGTH (IN)
#4	12	6
#5	15	20
#6	22	28
#7	36	48
#8	48	62

#### STRUCTURAL STEEL:

ALL STRUCTURAL STEEL WIDE FLANGE AND OTHER ROLLED SHAPES SHALL CONFORM TO ASTM A572 / AASHTO M270, GRADE 50; ALL STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A36 / AASHTO M270, GRADE 36; ALL RECTANGULAR STEEL TUBE WALERS SHALL CONFORM TO ASTM A500, GRADE B; AND ALL PIPES SHALL CONFORM TO ASTM A53 GRADE B, UNLESS SHOWN OTHERWISE ON THE PLANS, OR APPROVED OTHERWISE BY THE ENGINEER.

#### STRUCTURAL WELDING:

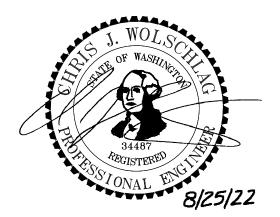
MINIMUM WELD SIZE 1/4" CONTINUOUS FILLET. MINIMUM WELD LENGTH 2 INCHES. ALL WELDING TO BE PERFORMED BY WABO-CERTIFIED WELDERS PER AWS STANDARD SPECIFICATIONS. USE ETOXX ELECTRODES.



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Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 2202-225-SUB2 August 25th, 2022

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#### HEADED STUDS:

ALL HEADED STUDS SHALL CONFORM TO ASTM AIO8 UNO. HEADED STUDS SHALL BE "NELSON STUDS" BY NELSON DIVISION OF TRW, INC. OR AN APPROVED EQUAL, AUTOMATICALLY END WELDED.

GEOCOMPOSITE WALL DRAINAGE BOARD:

ALL GEOCOMPOSITE WALL DRAINAGE BOARD SHALL BE AMERDRAIN 500, MIRAFI GIOO, OR AN APPROVED EQUAL.

SPECIAL INSPECTION OF THE SHORING WALLS:

IN ACCORDANCE WITH SECTION 1704 OF IBC (2018), SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING SHORING ITEMS OR PROCESSES: SOIL NAIL INSTALLATION; SOIL NAIL TESTING; AND SHOTCRETE FACING/LAGGING MATERIALS TESTING AND PLACEMENT.

SHORING MONITORING:

SURVEY MONITORING OF THE SHORING WALLS, SHALL BE PERFORMED TO DETERMINE THE VERTICAL AND HORIZONTAL MOVEMENT OF THE MONITORING POINTS. THE MEASURING SYSTEM SHALL HAVE AN ACCURACY OF AT LEAST 0.01 FEET.

THE MONITORING PROGRAM SHALL BE DETERMINED BY THE GEOTECHNICAL SPECIAL INSPECTOR BUT, AT A MINIMUM, SHALL INCLUDE THE FOLLOWING:

- MONITORING POINTS SHALL CONSIST OF RODS OR BOLTS EMBEDDED INTO THE OBJECT OF INTEREST OR CROSS-HAIRS INSCRIBED ONTO A PLATE THAT IS ATTACHED TO THE OBJECT OF INTEREST.

- MONITORING POINTS SHALL BE ESTABLISHED: (I) A MAXIMUM OF 25 FEET ON CENTER AT THE TOP OF THE SHOTCRETE WALLS, (2) A MAXIMUM OF 25 FEET ON CENTER A DISTANCE OF 5 FEET BEHIND THE SHORING WALLS WHERE THERE ARE NO ADJACENT BUILDINGS, (3) A MAXIMUM OF 25 FEET ON CENTER A DISTANCE BEHIND THE SHORING WALLS WHERE THERE ARE NO ADJACENT BUILDINGS EQUAL TO THE EXCAVATION HEIGHT OF THE WALL, AND (4) ON ANY ADJACENT STRUCTURES THAT ARE LOCATED WITHIN A HORIZONTAL DISTANCE EQUAL TO THE WALL HEIGHT ALONG THE SHORING WALLS.

- READINGS SHALL BE TAKEN AND REPORTED AT LEAST TWICE A WEEK, ONE TIME OF WHICH MUST BE BY A LICENSED SURVEYOR.

MONITORING DATA SHALL BE DISTRIBUTED TO THE GEOTECHNICAL ENGINEER, THE SHORING DESIGN ENGINEER, AND THE GENERAL CONTRACTOR FOR REVIEW.

THE EXPECTED LATERAL SHORING WALL MOVEMENT IS ON THE ORDER OF 1/2". IF MOVEMENTS EXCEED 1/2", THE EXCAVATION SHALL BE HALTED UNTIL FURTHER REVIEW BY GROUND SUPPORT PLLC.

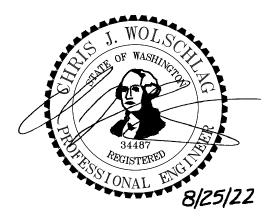
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# STEINBORN RESIDENCE New Residence

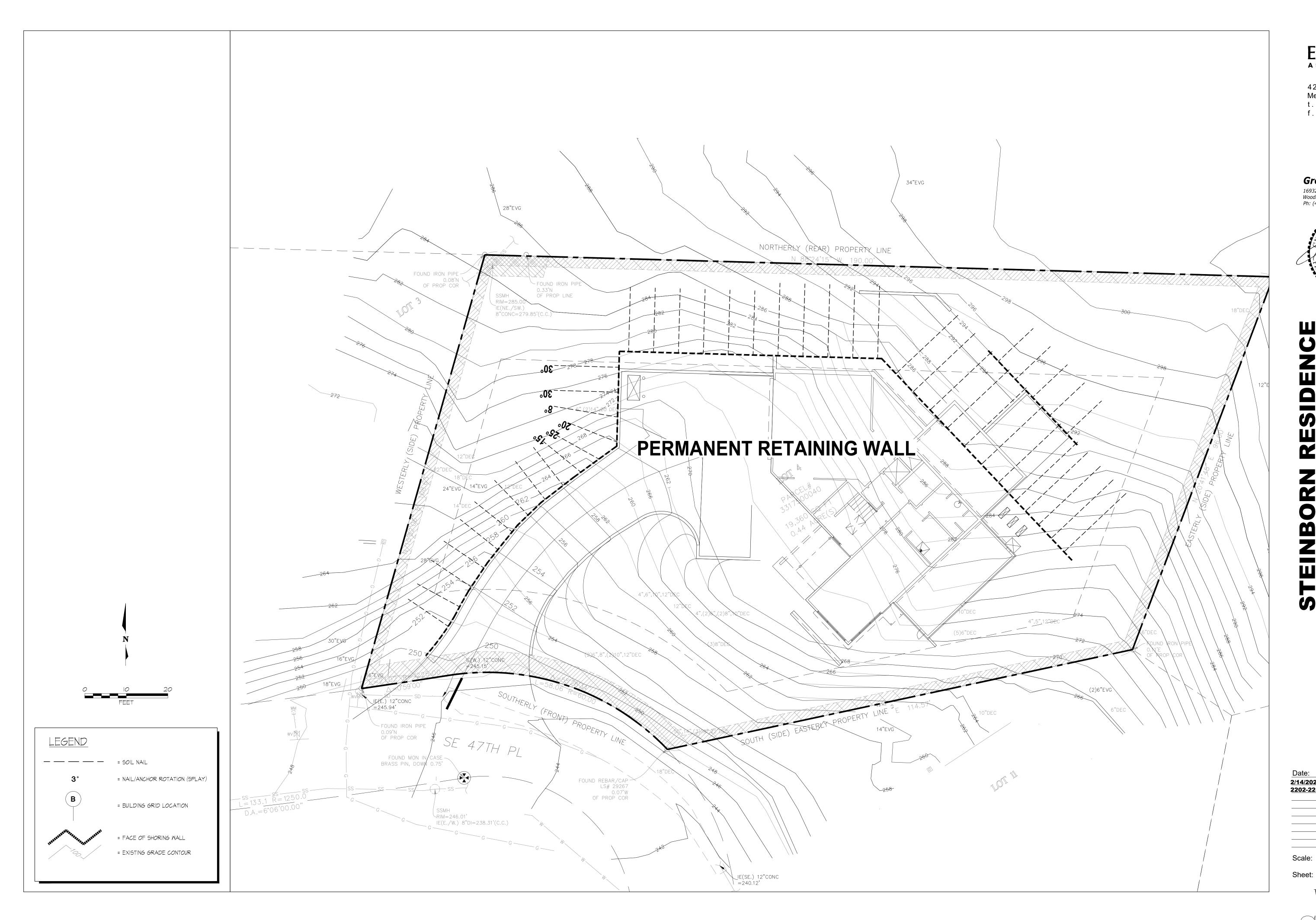
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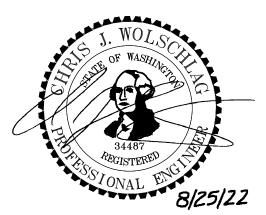




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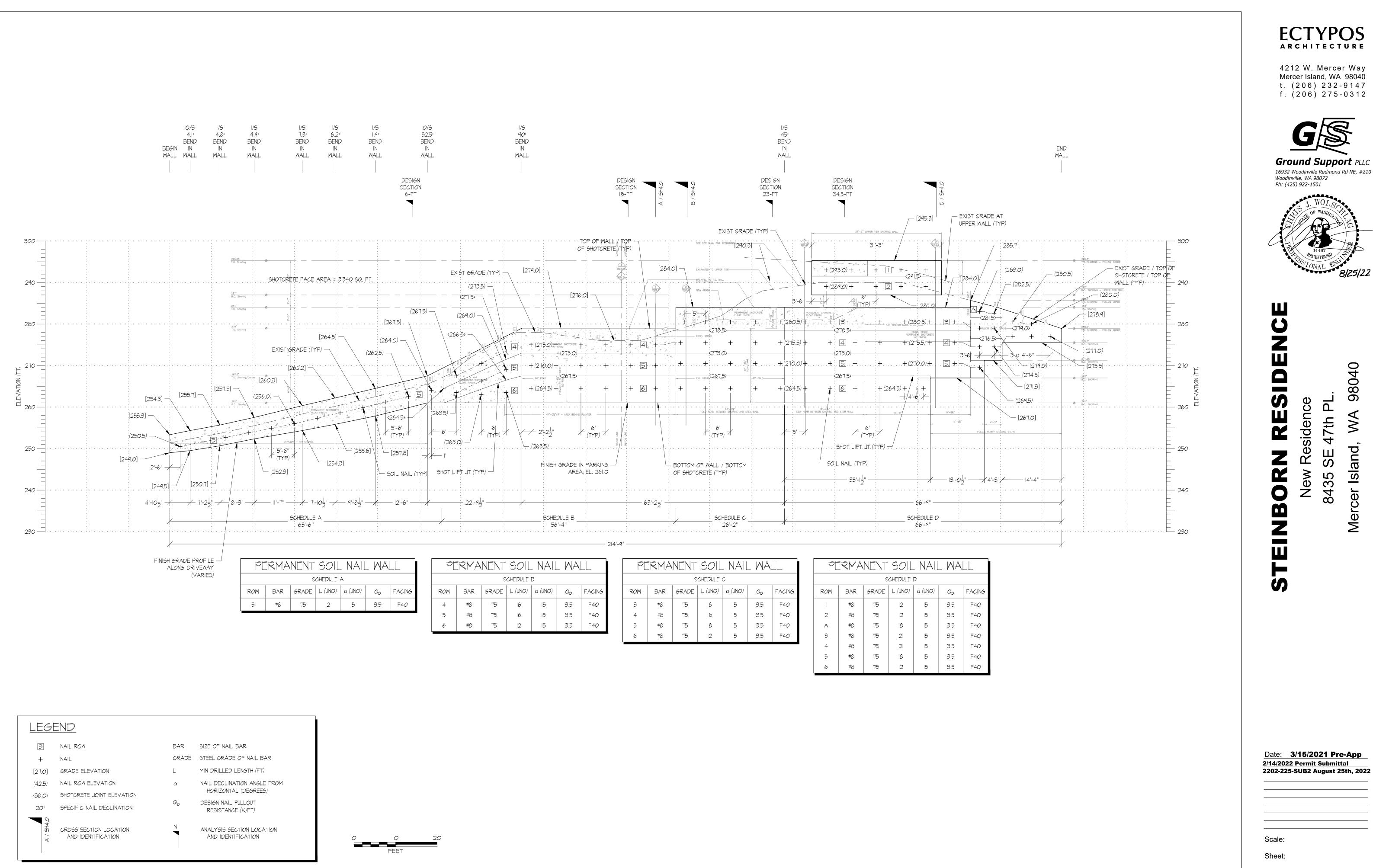
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Wall Plan





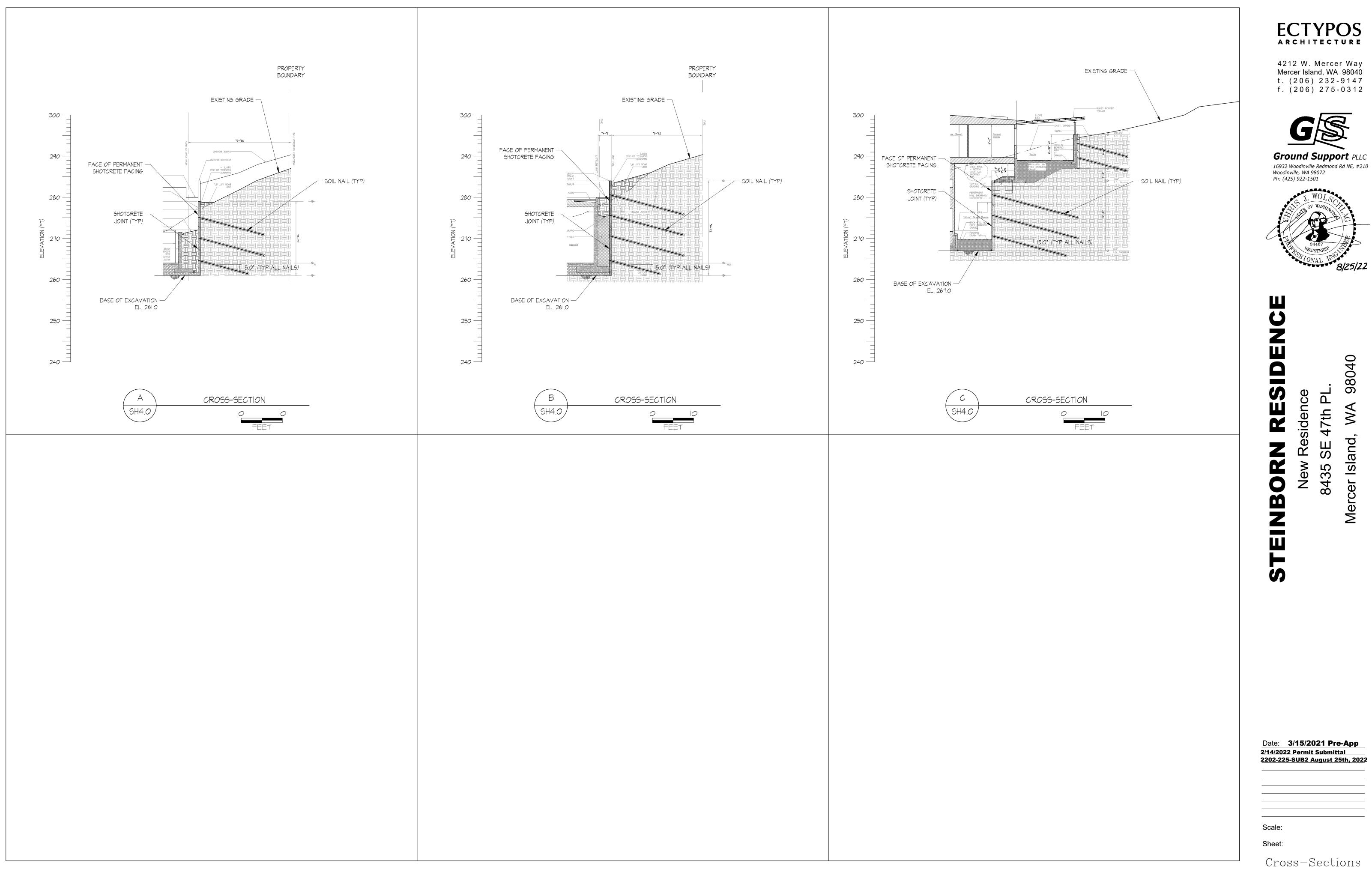
	PERMANENT SOIL NAIL WALL									
	SCHEDULE B									
	ROW BAR GRADE L (UNO) $\alpha$ (UNO) $Q_D$ FACING									
ſ	4	#8	75	6	15	3.5	F40			
	5	#8	75	16	15	3.5	F40			
	6	#8	75	12	15	3.5	F40			

PERMANENT SOIL NAIL WALL								
SCHEDULE C								
ROW	BAR	GRADE	L (UNO)	α (UNO)	QD	FACING		
3	#8	75	18	15	3.5	F40		
4	#8	75	18	15	3.5	F40		
5	#8	75	18	15	3.5	F40		
6	#8	75	12	15	3.5	F40		

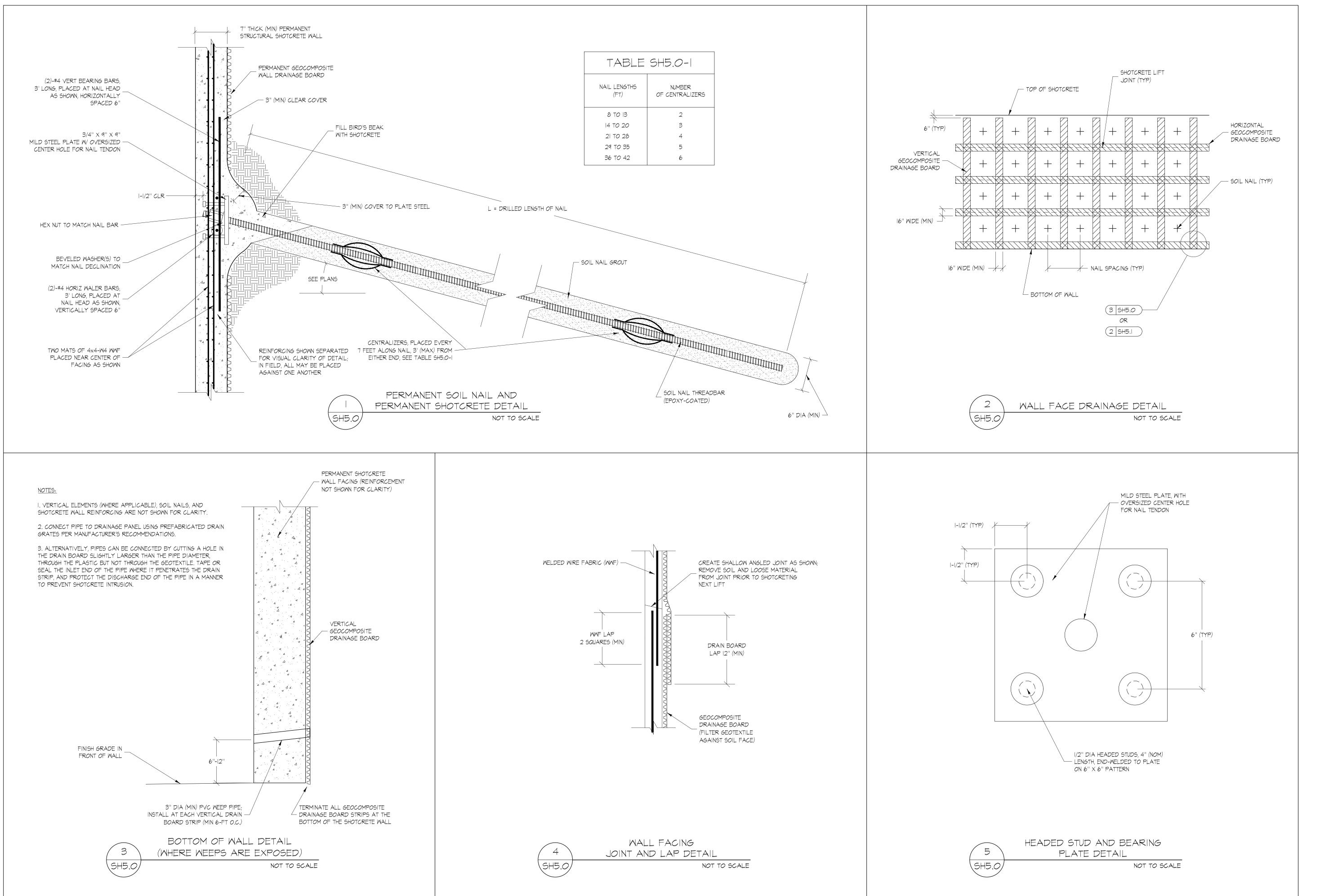
PERMANENT SOIL NAIL									
	SCHEDULE D								
ROW	BAR GRADE L (UNO) α (UNO)								
I	#8	75	12	15					
2	#8	75	12	15					
A	#8	75	18	15					
З	#8	75	21	15					
4	#8	75	21	15					
5	#8	75	18	15					
6	#8	75	12	15					

Wall Elevation

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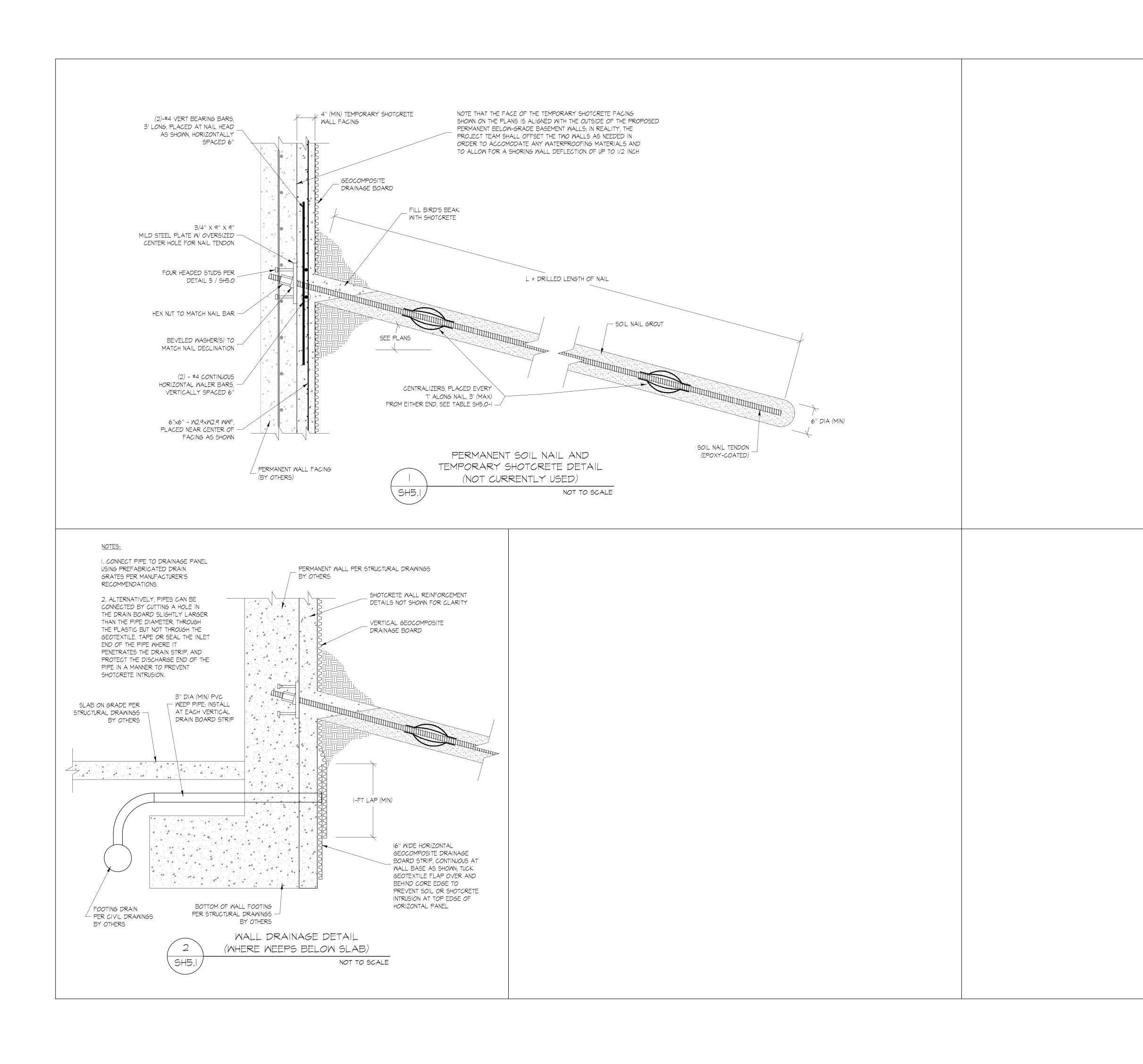
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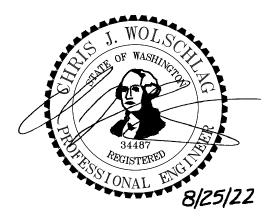




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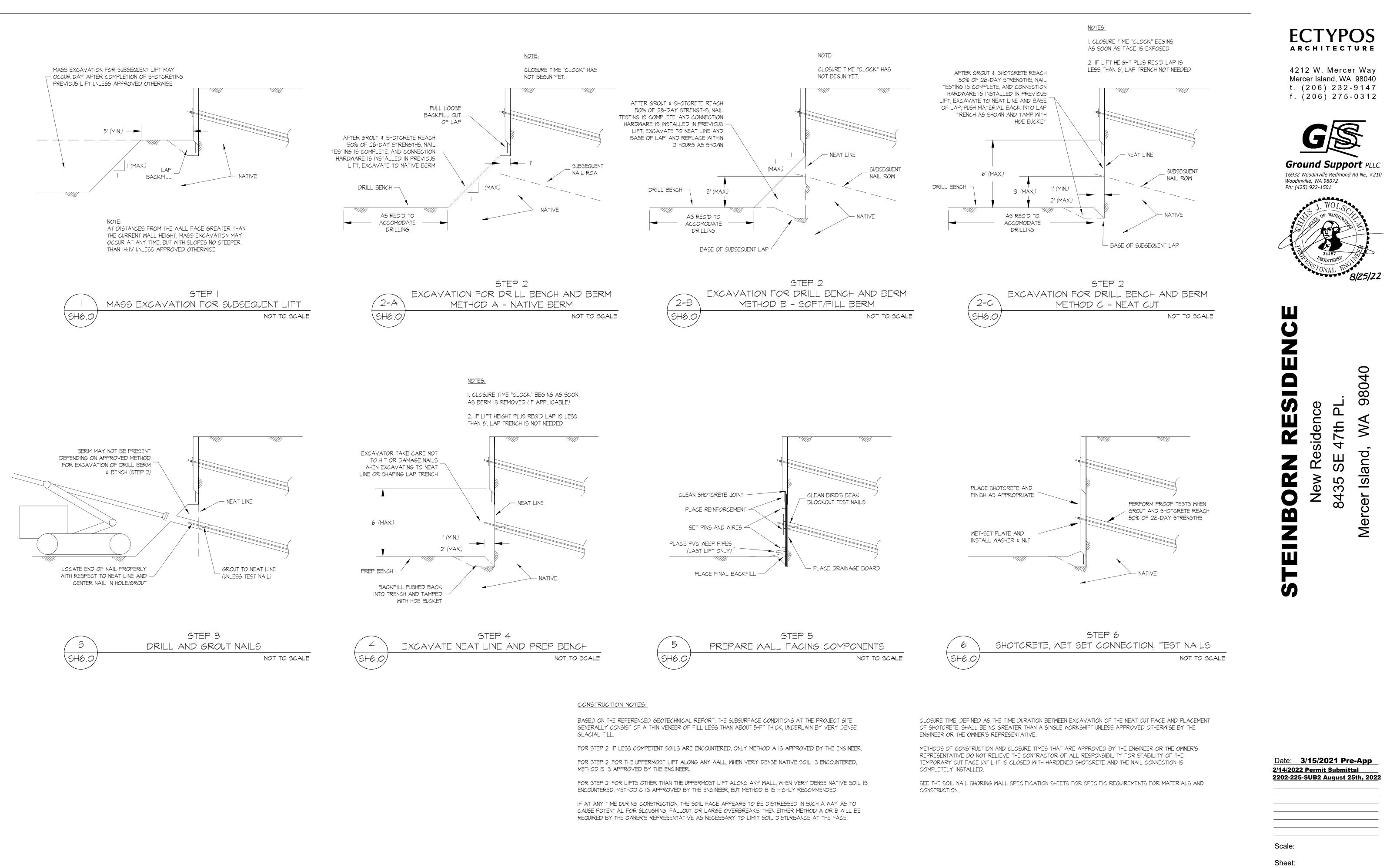
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Soil Nailing Sequence

#### SECTION 02350 - SOIL NAIL WALLS

TABLE OF CONTENTS

#### GENERAL

- 2. CONSTRUCTION SITE DRAINAGE 3. CONSTRUCTION METHODS AND SEQUENCE
- 4. EXCAVATION
- 5. TEMPORARY AND PERMANENT SOIL NAILS
- 6. PERMANENT SOIL NAILS ONLY 7. TEMPORARY AND PERMANENT SHOTCRETE
- 8. PERMANENT SHOTCRETE ONLY
- 9. NAIL HEAD CONNECTION HARDWARE

I. GENERAL

#### I.I DESCRIPTION

A. THE GENERAL CONTRACTOR AND SUBCONTRACTORS (HEREAFTER REFERRED TO COLLECTIVELY AS THE CONTRACTOR UNLESS INDICATED OTHERWISE) ARE RESPONSIBLE FOR THE CONSTRUCTION MEANS AND METHODS AND CONTROL THE PROCESS OF THE WORK. THIS INCLUDES THE CONSTRUCTION SEQUENCE, THE SAFETY OF THE WORKERS, TEMPORARY HANDRAILS, EXCAVATION ACCESS, BARRIERS, LIFTING OF MATERIALS AND CONSTRUCTION EQUIPMENT INTO AND OUT OF THE EXCAVATION, TEMPORARY BRACING OF FORMWORK, AND THE STABILITY OF ALL TEMPORARY CUT SLOPES.

B. THE SOIL NAIL SHORING WALL IS A SYSTEM OF SHORING DESIGNED TO SUPPORT THE EXCAVATION SIDEWALLS ONCE THE COMPONENTS OF THE SOIL NAILS AND FACING SYSTEM ARE COMPLETELY INSTALLED FOR ALL LIFTS UP TO AND INCLUDING THE CURRENT EXCAVATION LIFT. THE STABILITY OF INTERIM TEMPORARY FACE CUTS THAT EXIST PRIOR TO INSTALLATION OF THE WALL FACING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

C. THE WORK SHALL CONSIST OF INSTALLING SOIL NAILS, WALL DRAINAGE, AND WALL FACING AS SPECIFIED HEREIN AND SHOWN ON THE PLANS. THE WORK SHALL ALSO INCLUDE EXCAVATING IN ACCORDANCE WITH THE STAGED LIFTS SHOWN ON THE PLANS, INSTALLING SOIL NAILS TO THE SPECIFIED MINIMUM LENGTH AND ORIENTATION INDICATED ON THE PLANS, PLACING THE WALL DRAINAGE ELEMENTS AND FACING, AND PERFORMING SOIL NAIL PULLOUT TESTING. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR COMPLETING THE WORK.

#### 1.2 PRECONSTRUCTION MEETING

A. A PRECONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF THE WORK AND SHALL BE ATTENDED BY THE OWNER'S REPRESENTATIVES, THE ENGINEER, THE GENERAL CONTRACTOR, THE EXCAVATION SUBCONTRACTOR, AND THE SOIL NAIL SPECIALTY SUBCONTRACTOR. THE PRECONSTRUCTION MEETING SHALL BE CONDUCTED TO CLARIFY THE REQUIREMENTS FOR THE WORK, TO COORDINATE THE CONSTRUCTION ACTIVITIES, AND TO IDENTIFY CONTRACTUAL RELATIONSHIPS AND RESPONSIBILITIES.

#### 1.3 EXISTING SITE CONDITIONS, UTILITIES, AND UNDERGROUND OBSTRUCTIONS

A. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO ANY CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF OBSERVING AND DOCUMENTING THE PRECONSTRUCTION CONDITION OF ALL STRUCTURES, INFRASTRUCTURE, SIDEWALKS, ROADWAYS, AND ALL OTHER FACILITIES ADJACENT TO THE SITE. DURING CONSTRUCTION, THE CONTRACTOR SHALL OBSERVE THE CONDITIONS ABOVE THE SOIL NAIL WALL ON A DAILY BASIS FOR SIGNS OF GROUND OR BUILDING MOVEMENTS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND THE ENGINEER IF SIGNS OF MOVEMENT SUCH AS NEW CRACKS, INCREASED SIZE OF OLD CRACKS OR SEPARATION OF JOINTS IN STRUCTURES, FOUNDATIONS, STREETS OR PAVED AND UNPAVED SURFACES ARE OBSERVED. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WRITTEN DOCUMENTATION OF THE OBSERVED CONDITIONS WITHIN 24 HOURS OF INITIAL OBSERVATION.

B. THE CONTRACTOR MUST VERIFY ALL EXISTING DIMENSIONS AND SITE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND THOSE UTILITIES OR UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLANS, THAT MAY IMPACT OR CONFLICT WITH THE SOIL NAIL WALL.

C. BASED ON THE AS-BUILT LOCATIONS OF SIDE SEWERS, WATER SERVICE AND GAS OR POWER SERVICE LINES, THE CONTRACTOR SHALL SEEK APPROVAL OF THE ENGINEER TO SHIFT NAIL LOCATIONS TO AVOID CONFLICTS WITH THESE UTILITIES.

D. THE CONTRACTOR IS RESPONSIBLE FOR ANY REMOVAL OF ABANDONED UTILITIES, OR OTHER UNDERGROUND OBSTRUCTIONS THAT INTERFERE WITH THE SOIL NAIL WALL.

#### 1.4 SPECIAL INSPECTION

A. IN ACCORDANCE WITH THE LOCAL BUILDING CODE, SPECIAL INSPECTION SHALL BE PROVIDED BY THE OWNER FOR ALL SOIL NAIL INSTALLATION AND TESTING AND FOR ALL SHOTCRETE WORK. SUCH INSPECTION SHALL INCLUDE OBSERVATION AND TESTING OF TEST PANELS AND PLACEMENT OF REINFORCING STEEL AND SHOTCRETE.

B. THE OWNER'S REPRESENTATIVE PROVIDING THE SPECIAL INSPECTION SHALL BE A QUALIFIED GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE WITH EXPERIENCE MONITORING SOIL NAIL WALL CONSTRUCTION. ACCURATE RECORDS DOCUMENTING THE SOIL NAIL WALL CONSTRUCTION SHALL BE MAINTAINED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL ASSIST THE OWNER'S REPRESENTATIVE AS NECESSARY TO OBTAIN THE AS-BUILT NAIL LOCATIONS, TOP OF WALL ELEVATIONS, AND ALL OTHER INFORMATION AS REQUIRED BY THE OWNER AND ENGINEER. SPECIAL INSPECTION AND TESTING OF THE SHOTCRETE WORK SHALL BE PROVIDED BY A QUALIFIED MATERIALS TESTING AGENCY APPROVED BY THE ENGINEER.

C. ALL SHOTCRETE AND SOIL NAIL GROUT SHALL BE TESTED, AND SOIL NAIL DESIGN ADHESIONS VERIFIED, IN ACCORDANCE WITH THESE SPECIFICATIONS.

#### 2. CONSTRUCTION SITE DRAINAGE

A. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING CONSTRUCTION SITE DRAINAGE, BOTH BEHIND AND IN FRONT OF THE SOIL NAIL WALL, THAT IS INDEPENDENT OF THE WALL DRAINAGE SYSTEM.

B. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A DETAILED CONSTRUCTION SITE DRAINAGE PLAN ADDRESSING ALL ELEMENTS NECESSARY TO DIVERT, CONTROL, AND DISPOSE OF SURFACE WATER. AMONG OTHER MEANS, CONTROL OF SURFACE WATER FROM BEHIND THE WALL MAY BE ACCOMPLISHED BY GRADING AWAY FROM THE WALL, TRENCHES AND SUMPS, OR A SHOTCRETED GUTTER SYSTEM. IN ADDITION, THE EXCAVATION SHOULD BE GRADED SO AS TO DIRECT SURFACE WATER AWAY FROM THE TOE OF THE SOIL NAIL WALL AND TO PREVENT THE PONDING OF WATER.

C. EXISTING SUBSURFACE DRAINAGE FEATURES ENCOUNTERED DURING THE EXCAVATION SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER'S REPRESENTATIVE. WORK IN THESE AREAS SHALL BE SUSPENDED UNTIL REMEDIAL MEASURES MEETING THE APPROVAL OF THE OWNER'S REPRESENTATIVE ARE IMPLEMENTED BY THE CONTRACTOR. REMEDIAL MEASURES FOR EXISTING SUBSURFACE DRAINAGE FEATURES ENCOUNTERED DURING THE WORK, WHICH WERE NOT IDENTIFIED ON THE PLANS, WILL BE PAID FOR AS EXTRA WORK PER THE CONTRACT DOCUMENTS.

D. THE CONTRACTOR IS RESPONSIBLE FOR THE CONDITION AND MAINTENANCE OF ANY PIPE OR CONDUIT USED TO CONTROL SURFACE WATER DURING CONSTRUCTION. UPON SUBSTANTIAL COMPLETION OF THE WORK, SURFACE WATER CONTROL PIPES OR CONDUITS SHALL BE REMOVED FROM THE SITE. ALTERNATIVELY, PIPES OR CONDUITS THAT ARE LEFT IN PLACE WITH THE APPROVAL OF THE OWNER'S REPRESENTATIVE SHALL BE FULLY GROUTED (ABANDONED) OR LEFT IN A MANNER THAT PROTECTS THE STRUCTURE AND ALL ADJACENT FACILITIES FROM GROUND LOSS ASSOCIATED WITH MIGRATION OF FINES THROUGH THE PIPE OR CONDUIT.

#### 3. CONSTRUCTION METHODS AND SEQUENCE

A. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT THE PROPOSED CONSTRUCTION METHODS AND SEQUENCE TO THE ENGINEER FOR REVIEW AND APPROVAL.

B. THE CONSTRUCTION SEQUENCE SHALL BE AS SHOWN ON THE PLANS, OR IN ACCORDANCE WITH THE APPROVED SUBMITTAL, UNLESS APPROVED OTHERWISE BY THE ENGINEER. NO EXCAVATIONS STEEPER OR HIGHER THAN THOSE SPECIFIED HEREIN OR ON THE PLANS SHALL BE MADE ABOVE OR BELOW THE SOIL NAIL WALL WITHOUT WRITTEN APPROVAL OF THE ENGINEER.

C. TENTATIVELY APPROVED CONSTRUCTION METHODS, SEQUENCE, AND FACE CLOSURE TIMES ARE INDICATED ON THE PLANS. HOWEVER, CONSTRUCTION METHODS, SEQUENCE OR CLOSURE TIMES THAT ARE EITHER INDICATED ON THE PLANS OR APPROVED OTHERWISE BY THE ENGINEER DO NOT RELIEVE THE CONTRACTOR OF ALL RESPONSIBILITY FOR STABILITY OF THE TEMPORARY CUT FACE UNTIL IT IS CLOSED AND STABILIZED WITH HARDENED SHOTCRETE AND THE NAIL HEAD CONNECTION IS COMPLETELY INSTALLED.

D. WHERE THE CONTRACTOR'S CONSTRUCTION SEQUENCING RESULTS IN A DISCONTINUOUS LIFT ALONG ANY NAIL ROW, THE ENDS OF THE LIFT SHALL EXTEND BEYOND THE ENDS OF THE NEXT LOWER LIFT BY AT LEAST 10 FEET. A SOIL BERM SHALL BE CONSTRUCTED IMMEDIATELY BENEATH THESE STEPPED LIFTS TO PREVENT SLOUGHING OR FAILURE THAT WOULD RESULT IN LOSS OF GROUND AT THE FACE.

#### 4. EXCAVATION

A. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL EXCAVATION EQUIPMENT TYPES AND METHODS OF EXCAVATING TO THE STAGED LIFTS INDICATED ON THE PLANS.

B. FOR DISTANCES AWAY FROM THE SHOTCRETE WALL FACE GREATER THAN THE CURRENT SHOTCRETE WALL HEIGHT OR 10 FEET, WHICHEVER IS MORE, MASS EXCAVATION MAY OCCUR AT ANY TIME, BUT WITH SLOPES NO STEEPER THAN IH: IV, UNLESS APPROVED OTHERWISE BY THE ENGINEER.

C. MASS EXCAVATION OF THE DRILL BENCH FOR THE NEXT ROW OF SOIL NAILS MAY OCCUR ANY TIME THE DAY AFTER SHOTCRETING THE PRECEDING LIFT, PROVIDED SUCH EXCAVATION OCCURS NO CLOSER THAN 5 FEET FROM THE FACE OF THE SHOTCRETE.

D. MASS EXCAVATION BENEATH A PRECEDING SHOTCRETE LIFT, CLOSER THAN 5 FEET FROM THE SHOTCRETE WALL FACE, SHALL NOT OCCUR UNTIL: (I) NAIL GROUT AND SHOTCRETE ON THE PRECEDING LIFT SHALL HAVE REACHED 50% OF THEIR SPECIFIED 28-DAY COMPRESSIVE STRENGTHS; AND (2) INSTALLATION OF CONNECTION HARDWARE AND NAIL TESTING FOR THE PRECEDING LIFT ARE COMPLETE AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. MASS EXCAVATION CLOSER THAN 5 FEET TO THE SHOTCRETE FACE MUST BE IN ACCORDANCE WITH THE DRILL BERM REQUIREMENTS DESCRIBED BELOW AND SHOWN ON THE PLANS, UNLESS APPROVED OTHERWISE BY THE ENGINEER.

E. DURING MASS EXCAVATION OF THE DRILL BENCH FOR THE NEXT ROW OF SOIL NAILS, THE CONTRACTOR SHALL MAINTAIN A BENCH OF MATERIAL TO SERVE AS A PLATFORM FOR THE DRILLING EQUIPMENT AND AS A STABILIZING BERM FOR THE WALL EXCAVATION FACE (NEAT LINE). IN ACCORDANCE WITH THE PLANS OR AS APPROVED BY THE ENGINEER, THE STABILIZING BERM MAY BE EITHER (I) A NATIVE BERM, (2) A FILL BERM, OR (3) NEAT CUT. IN ALL THREE CASES, THE DRILL BENCH SHALL BE ESTABLISHED NOT MORE THAN 3-1/2 FEET BELOW THE ROW OF NAILS TO BE INSTALLED AND SHALL EXTEND OUT FROM THE WALL FACE A MINIMUM DISTANCE NECESSARY TO PROVIDE A SAFE WORKING BENCH FOR THE DRILL EQUIPMENT AND WORKERS.

F. EXCAVATION TO THE NEAT LINE SHALL BE DONE USING PROCEDURES THAT PREVENT OVEREXCAVATION OR LOOSENING, MINIMIZE DEGRADATION OF THE SOIL BEARING SUPPORT BELOW THE OVERLYING PORTIONS OF THE SOIL NAIL WALL AND BELOW THE SOIL NAILS CURRENTLY BEING INSTALLED, MINIMIZE LOSS OF SOIL MOISTURE, AND PREVENT GROUND FREEZING.

G. THE DURATION OF TIME BETWEEN FINAL EXCAVATION TO THE NEAT LINE AND THE APPLICATION OF SHOTCRETE IS REFERRED TO AS THE CLOSURE TIME. THE CLOSURE TIME FOR ALL WALL EXCAVATION FACES SHALL BE LESS THAN A SINGLE WORK SHIFT, UNLESS SHOWN OTHERWISE ON THE PLANS OR APPROVED OTHERWISE BY THE ENGINEER.

H. EXTENSION OF THE CLOSURE TIME SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. NO EXTENSION OF CLOSURE TIME SHALL BE APPROVED UNTIL A TEST CUT IS CONSTRUCTED AND THE CONTRACTOR DEMONSTRATES FOR EACH MATERIAL TYPE THAT THE CUT FACE WILL BE STABLE OVER THE PROPOSED CLOSURE TIME. EXTENSIONS TO THE CLOSURE TIME MAY BE REVOKED BY THE ENGINEER AT ANY TIME DEPENDING ON THE PERFORMANCE OF THE CUT FACE.

I. METHODS OF REMOVAL OF FACE PROTRUSIONS (E.G. COBBLES, BOULDERS, RUBBLE, OR OTHER OBJECTS) TO ACCOMPLISH THE CONSTRUCTION SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE PROPOSED METHOD FOR MITIGATION OF FACE PROTRUSIONS PRIOR TO INITIATION OF THE WORK. SHOULD THE REMOVAL OF FACE PROTRUSIONS RESULT IN VOIDS BEYOND THE NEAT LINE, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE METHOD OF BACKFILLING AND SHALL SUBMIT TO THE ENGINEER SUCH METHOD(S) PRIOR TO INITIATING THE WORK.

5. TEMPORARY AND PERMANENT SOIL NAILS

#### 5.1 GENERAL

A. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE ENGINEER FOR REVIEW AND APPROVAL:

I. DRILLING METHODS AND EQUIPMENT INCLUDING DRILL RIG TYPE, USE OF CASED OR OPEN-HOLE METHODS, PROPOSED DRILLHOLE DIAMETER, AND METHOD OF CUTTINGS REMOVAL TO ACHIEVE THE SPECIFIED PULLOUT RESISTANCE.

2. NAIL GROUT MIX DESIGN INCLUDING: BRAND AND TYPE OF PORTLAND CEMENT; SOURCE, GRADATION, AND QUALITY OF ALL AGGREGATES; PROPORTIONS OF MIX BY WEIGHT AND WATER-CEMENT RATIO; MANUFACTURER AND BRAND NAME OF ALL ADMIXTURES; AND COMPRESSIVE STRENGTH TEST RESULTS (PER ASTM CIO9 / AASHTO TIO6) VERIFYING THE SPECIFIED MINIMUM 3 AND 28 DAY GROUT STRENGTHS.

3. NAIL GROUT PLACEMENT PROCEDURES AND EQUIPMENT. 4. NAIL TESTING METHODS AND EQUIPMENT INCLUDING DETAILS OF THE JACKING FRAME AND APPURTENANT BRACING, METHODS OF ISOLATING TEST NAILS DURING SHOTCRETE APPLICATION, AND METHODS OF GROUTING THE UNBONDED LENGTH OF TEST NAILS AFTER TESTING. 5. IDENTIFICATION NUMBERS AND CERTIFIED CALIBRATION RECORDS FOR EACH TEST JACK AND PRESSURE GAUGE PAIR TO BE USED. CALIBRATION RECORDS SHALL INCLUDE THE DATE TESTED, DEVICE IDENTIFICATION NUMBER, AND THE CALIBRATION TEST RESULTS AND SHALL BE CERTIFIED FOR AN ACCURACY OF AT LEAST 2 PERCENT OF THE APPLIED CERTIFICATION LOADS BY A QUALIFIED INDEPENDENT TESTING LABORATORY WITHIN 90 DAYS PRIOR TO SUBMITTAL. 6. ONCE AVAILABLE, CERTIFIED MILL TEST RESULTS FOR NAIL BARS FROM EACH HEAT SPECIFYING THE ULTIMATE STRENGTH, YIELD STRENGTH, ELONGATION AND COMPOSITION.

7. MANUFACTURER CERTIFICATIONS FOR THE SOIL NAIL CENTRALIZERS AND SOIL NAIL BAR COUPLERS.

#### 5.2 MATERIALS

A. MATERIALS FOR CONSTRUCTION OF SOIL NAIL WALLS SHALL BE FURNISHED NEW AND WITHOUT DEFECTS. DEFECTIVE MATERIALS REJECTED BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED BY THE CONTRACTOR. THE MATERIALS SHALL CONSIST OF THE FOLLOWING:

I. CENTRALIZERS SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC, SHALL BE SECURELY ATTACHED TO THE NAIL BAR, SIZED TO POSITION THE NAIL BAR WITHIN I INCH OF THE CENTER OF THE DRILLHOLE, SIZED TO ALLOW TREMIE PIPE INSERTION TO THE BOTTOM OF THE DRILLHOLE, AND SIZED TO ALLOW GROUT TO FLOW FREELY UP THE DRILLHOLE. 2. NAIL GROUT SHALL BE A NEAT CEMENT OR SAND-CEMENT MIXTURE WITH A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 1500 PSI AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI PER ASTM CI09 / AASHTO TIO6.

3. CEMENT SHALL CONFORM TO ASTM CI50 / AASHTO M85. TYPE I. 4. FINE AGGREGATE SHALL CONFORM TO ASTM C33 / AASHTO M6. 5. NAIL BARS SHALL CONFORM TO ASTM A615 / AASHTO M31, GRADE 60 OR 75 OR ASTM A722 / AASHTO M275, GRADE 150. 6. BAR COUPLERS SHALL DEVELOP THE ULTIMATE TENSILE STRENGTH OF THE BAR AS CERTIFIED BY THE MANUFACTURER.

B. CEMENT SHALL BE ADEQUATELY STORED TO PREVENT MOISTURE DEGRADATION AND PARTIAL HYDRATION. CEMENT THAT HAS BECOME CAKED OR LUMPY SHALL NOT BE USED.

C. ALL NAIL BARS SHALL BE CAREFULLY HANDLED AND SHALL BE STORED ON SUPPORTS TO KEEP THE STEEL FROM CONTACT WITH THE GROUND. STEEL BARS SHALL BE PICKED UP IN SUCH A WAY AS TO PREVENT OVERSTRESSING. DAMAGE TO THE NAIL STEEL AS A RESULT OF OVERSTRESSING, ABRASION, CUTS, NICKS, WELDS, AND WELD SPLATTER SHALL BE CAUSE FOR REJECTION BY THE OWNER'S REPRESENTATIVE. GROUNDING OF WELDING LEADS TO THE NAIL STEEL SHALL NOT BE ALLOWED. NAIL STEEL SHALL BE PROTECTED FROM AND SUFFICIENTLY FREE OF DIRT, RUST, AND OTHER DELETERIOUS SUBSTANCES PRIOR TO INSTALLATION. HEAVY CORROSION OR PITTING OF NAILS SHALL BE CAUSE FOR REJECTION BY THE OWNER'S REPRESENTATIVE. LIGHT RUST THAT HAS NOT RESULTED IN PITTING IS ACCEPTABLE.

#### 5.3 NAIL INSTALLATION

A. FOR EACH DIFFERENT METHOD OF NAIL INSTALLATION, TWO SUCCESSFUL VERIFICATION TESTS SHALL BE PERFORMED IN EACH SOIL UNIT IDENTIFIED ON THE PLANS, PRIOR TO STARTING INSTALLATION OF PRODUCTION NAILS IN THE VARIOUS SOIL UNITS. THE VERIFICATION TEST LOCATIONS ARE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S REPRESENTATIVE.

B. NAILS SHALL BE INSTALLED AT THE LOCATIONS AND TO THE LENGTHS INDICATED ON THE PLANS. THE ENGINEER MAY ADD, ELIMINATE, OR RELOCATE NAILS TO ACCOMMODATE ACTUAL FIELD CONDITIONS. C. THE CONTRACTOR SHALL SELECT THE DRILLING EQUIPMENT AND

METHODS SUITABLE FOR THE GROUND CONDITIONS DESCRIBED IN THE GEOTECHNICAL REPORT. THE DRILLHOLE DIAMETER SHALL BE SELECTED TO PROVIDE THE MINIMUM SPECIFIED GROUT COVER OVER THE NAIL BAR AND TO DEVELOP THE SPECIFIED PULLOUT RESISTANCE. WATER, DRILLING MUDS, OR OTHER FLUIDS USED TO ASSIST IN CUTTING REMOVAL SHALL NOT BE ALLOWED FOR UNCASED DRILLHOLES. UNCASED DRILLHOLES SHALL BE OBSERVED FOR CLEANLINESS PRIOR TO INSERTION OF THE NAIL BAR. IN CAVING GROUND, THE CONTRACTOR SHALL USE CASED OR AUGERCAST DRILLING METHODS TO SUPPORT THE SIDES OF THE DRILLHOLE.

D. THE CONTRACTOR SHALL IMMEDIATELY SUSPEND DRILLING OPERATIONS IF GROUND SUBSIDENCE IS OBSERVED, IF THE SOIL NAIL WALL IS ADVERSELY AFFECTED, OR IF ADJACENT STRUCTURES ARE DAMAGED AS A RESULT OF THE DRILLING OPERATION. THE ADVERSE CONDITIONS SHALL BE STABILIZED IMMEDIATELY AND THE ENGINEER SHALL BE NOTIFIED OF SUCH CONDITIONS WITHIN 24 HOURS.

E. NAIL BARS SHALL BE INSERTED INTO THE DRILLHOLE TO THE REQUIRED LENGTH WITHOUT DIFFICULTY AND IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE DRILLHOLE. NAIL BARS THAT CANNOT BE FULLY INSERTED TO THE DESIGN DEPTH SHALL BE REMOVED FROM THE DRILLHOLE AND THE DRILLHOLE SHALL BE CLEANED SUFFICIENTLY TO ALLOW UNOBSTRUCTED INSTALLATION OF THE BAR.

F. IF THE NAIL BAR IS INSTALLED USING CASED OR AUGERCAST METHODS, CENTRALIZERS ARE NOT REQUIRED PROVIDED THE INSTALLATION METHOD ENSURES THAT THE BAR WILL REMAIN IN THE CENTRAL PORTION OF THE GROUT. IN SUCH SITUATIONS, SLUMP SHALL NOT EXCEED 8 INCHES.

#### 5.4 NAIL GROUTING

A. GROUT EQUIPMENT SHALL PRODUCE A UNIFORMLY MIXED GROUT FREE OF LUMPY AND UNDISPERSED CEMENT. A POSITIVE DISPLACEMENT GROUT PUMP SHALL BE USED. THE PUMP SHALL BE EQUIPPED WITH A PRESSURE GAUGE THAT CAN MEASURE AT LEAST TWICE BUT NO MORE THAN THREE TIMES THE INTENDED GROUT PRESSURE. THE GROUTING EQUIPMENT SHALL BE SIZED TO ENABLE THE ENTIRE NAIL TO BE GROUTED IN ONE CONTINUOUS OPERATION. THE MIXER SHALL BE CAPABLE OF CONTINUOUSLY AGITATING THE GROUT DURING USAGE.

B. UNCASED DRILLHOLES SHALL BE GROUTED AFTER INSTALLATION OF THE NAIL BAR. GROUTING PRIOR TO INSERTION OF THE NAIL BAR MAY BE ALLOWED PROVIDED NEAT CEMENT GROUT IS USED AND THE NAIL BAR IS IMMEDIATELY INSERTED THROUGH THE GROUT TO THE SPECIFIED LENGTH WITHOUT DIFFICULTY. NO PORTION OF THE NAIL HOLE SHALL BE LEFT OPEN FOR MORE THAN I HOUR PRIOR TO GROUTING UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE GROUT SHALL BE INJECTED AT THE LOWEST POINT OF EACH DRILLHOLE THROUGH A TREMIE PIPE, HOLLOW-STEM AUGER, OR DRILL RODS WITH THE DRILLHOLE FILLED IN ONE CONTINUOUS OPERATION. COLD JOINTS IN THE GROUT PLACEMENT ARE ALLOWED FOR CONSTRUCTION OF TEST NAILS. THE CONDUIT DELIVERING THE GROUT SHALL BE KEPT BELOW THE SURFACE OF THE GROUT AS THE CONDUIT IS WITHDRAWN. THE GROUTING CONDUIT SHALL BE WITHDRAWN AS THE NAIL HOLE IS FILLED IN A MANNER WHICH PREVENTS THE CREATION OF VOIDS. THE QUANTITY OF GROUT AND THE GROUTING PRESSURES SHALL BE RECORDED FOR EACH SOIL NAIL. GROUT PRESSURES SHALL BE CONTROLLED TO PREVENT EXCESSIVE GROUND HEAVE OR FRACTURING.

C. DURING CASING REMOVAL FOR DRILLHOLES ADVANCED BY EITHER CASED OR AUGERCAST METHODS, THE GROUT SURFACE WITHIN THE CASING SHALL BE CONTINUALLY MONITORED FOR MAINTENANCE OF "HEAD" SUFFICIENT TO OFFSET THE EXTERNAL GROUNDWATER/SOIL PRESSURE.

D. NAIL GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI IN 3 DAYS AND 3000 PSI IN 28 DAYS. NAIL GROUT SHALL BE TESTED BY A TESTING AGENCY UNDER CONTRACT WITH THE OWNER IN ACCORDANCE WITH ASTM CIO9 / AASHTO TIO6 AT A FREQUENCY OF NO LESS THAN ONE TEST FOR EVERY 50 CUBIC YARDS OF GROUT PLACED OR ONCE PER WEEK, WHICHEVER IS FIRST.

E. TEMPORARY UNBONDED LENGTHS SHALL BE PROVIDED FOR EACH TEST NAIL. THE TEST NAIL BAR SHALL BE ISOLATED FROM THE WALL FACING AND THE REACTION FRAME DURING TESTING. SATISFACTORY TEST NAILS MAY BE INCORPORATED IN THE WORK PROVIDED THE TEMPORARY TEST UNBONDED LENGTH IS FULLY GROUTED SUBSEQUENT TO TESTING.

#### 5.5 NAIL TOLERANCES

A. THE SOIL NAILS SHALL NOT EXTEND BEYOND THE RIGHT-OF-WAY OR EASEMENT LIMITS SHOWN ON THE PLANS, UNLESS APPROVED OTHERWISE. BARS SHALL BE CENTERED WITHIN I INCH OF THE CENTER OF THE DRILLHOLE. INDIVIDUAL NAILS SHALL BE POSITIONED PLUS OR MINUS I FOOT FROM THE DESIGN LOCATIONS SHOWN IN THE PLANS. LOCATION TOLERANCES SHALL BE CONSIDERED APPLICABLE TO ONLY ONE NAIL AND NOT CUMULATIVE OVER LARGE WALL AREAS. THE NAIL INCLINATION SHALL BE PLUS OR MINUS 3 DEGREES OF THAT SHOWN IN THE PLANS. NAIL SPLAY ANGLE SHALL BE WITHIN PLUS OR MINUS 3 DEGREES. NAILS THAT ENCOUNTER UNANTICIPATED OBSTRUCTIONS DURING DRILLING SHALL BE RELOCATED BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER.

#### 5.6 NAIL TESTING

#### 5.6.1 GENERAL

A. VERIFICATION TESTS SHALL BE PERFORMED AT THE LOCATIONS SELECTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. PROOF TESTS SHALL BE PERFORMED AT THE LOCATIONS SELECTED BY THE OWNER'S REPRESENTATIVE. ALL TEST DATA SHALL BE RECORDED BY THE OWNER'S REPRESENTATIVE, UNLESS APPROVED OTHERWISE. PULLOUT TESTING OF NAILS SHALL NOT BE PERFORMED UNTIL THE NAIL GROUT AND WALL FACING HAVE ATTAINED AT LEAST 50 PERCENT OF THEIR SPECIFIED 28-DAY COMPRESSIVE STRENGTHS.

B. WHERE TEMPORARY CASING OF THE UNBONDED LENGTH OF TEST NAILS IS PROVIDED, THE CASING SHALL BE INSTALLED TO PREVENT ANY REACTION BETWEEN THE CASING AND THE GROUTED BOND LENGTH OF THE NAIL AND/OR THE STRESSING APPARATUS.

C. TESTING EQUIPMENT SHALL INCLUDE TWO DIAL GAUGES, A DIAL GAUGE SUPPORT, JACK AND PRESSURE GAUGE, A PUMP, AND A REACTION FRAME.

D. A MINIMUM OF TWO DIAL GAUGES CAPABLE OF MEASURING TO 0.001-INCH SHALL BE AVAILABLE AT THE SITE TO MEASURE THE NAIL MOVEMENT. THE DIAL GAUGES SHALL BE ALIGNED WITHIN 5 DEGREES OF THE AXIS OF THE NAIL AND SHALL BE SUPPORTED INDEPENDENT OF THE JACKING SETUP AND THE WALL. A HYDRAULIC JACK, PRESSURE GAUGE, AND PUMP SHALL BE USED TO APPLY AND MEASURE THE TEST LOAD.

E. THE JACK AND PRESSURE GAUGE SHALL BE CALIBRATED BY AN INDEPENDENT TESTING LABORATORY AS A UNIT. THE PRESSURE GAUGE SHALL BE GRADUATED IN 100 PSI INCREMENTS OR LESS AND SHALL HAVE A RANGE NOT EXCEEDING TWICE THE ANTICIPATED MAXIMUM PRESSURE DURING TESTING UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE RAM TRAVEL OF THE JACK SHALL BE SUFFICIENT TO ENABLE THE TEST TO BE PERFORMED WITHOUT RESETTING THE JACK.

F. THE JACK SHALL BE INDEPENDENTLY SUPPORTED AND CENTERED OVER THE NAIL SO THAT THE NAIL DOES NOT CARRY THE WEIGHT OF THE JACK. THE STRESSING EQUIPMENT SHALL BE PLACED OVER THE NAIL IN SUCH A MANNER THAT THE JACK, BEARING PLATES, AND STRESSING ANCHORAGE ARE IN ALIGNMENT. THE JACK SHALL BE POSITIONED AT THE BEGINNING OF THE TEST SUCH THAT UNLOADING AND REPOSITIONING OF THE JACK DURING THE TEST WILL NOT BE REQUIRED.

G. THE TEST REACTION FRAME SHALL BE SUFFICIENTLY RIGID AND OF ADEQUATE DIMENSION SUCH THAT EXCESSIVE DEFORMATION OF THE TEST APPARATUS REQUIRING REPOSITIONING OF ANY COMPONENTS DOES NOT OCCUR DURING TESTING. WHERE THE REACTION FRAME BEARS DIRECTLY ON THE WALL, THE REACTION FRAME SHALL BE DESIGNED TO PREVENT DAMAGE OR CRACKING OF THE WALL FACING.

5.6.2 VERIFICATION TESTING OF SACRIFICIAL NAILS

A. VERIFICATION TESTING IN EACH SOIL UNIT SHALL BE PERFORMED IN THAT UNIT TO VERIFY THE CONTRACTOR'S INSTALLATION METHODS, NAIL PULLOUT CAPACITY, AND DESIGN ASSUMPTIONS. THE NAILS USED FOR THE VERIFICATION TESTS MAY BE INCORPORATED AS PRODUCTION NAILS. PAYMENT FOR ADDITIONAL VERIFICATION TEST NAILS REQUIRED DUE TO DIFFERING SITE CONDITIONS, AS DETERMINED BY THE ENGINEER, SHALL BE PER THE CONTRACT UNIT PRICE.

B. TEST NAILS SHALL BE CONSTRUCTED USING THE SAME EQUIPMENT, METHODS, AND HOLE DIAMETER AS PLANNED FOR THE PRODUCTION NAILS. CHANGES IN THE DRILLING OR INSTALLATION METHOD MAY REQUIRE ADDITIONAL NAIL TESTING AS DETERMINED BY THE ENGINEER.

C. THE UNBONDED LENGTH OF TEST NAILS SHALL BE AT LEAST 3 FEET UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE BOND LENGTH OF TEST NAILS SHALL BE DETERMINED BY THE OWNER'S REPRESENTATIVE SUCH THAT THE ALLOWABLE BAR LOAD IS NOT EXCEEDED BUT SHALL NOT BE LESS THAN 10 FEET. THE BAR LOAD DURING TESTING SHALL NOT EXCEED 80% OF THE STEEL ULTIMATE STRENGTH FOR GRADE 150 BARS OR 90% OF THE STEEL YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS.

D. THE DESIGN TEST LOAD (DTL) DURING TESTING SHALL BE DETERMINED BY MULTIPLYING THE BOND LENGTH OF THE NAIL TIMES THE DESIGN PULLOUT RESISTANCE. VERIFICATION TEST NAILS SHALL BE INCREMENTALLY LOADED AND UNLOADED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

OAD	HOLD TIME
L 2.25DL 2.50DL 2.15DL 00DL 25DL 50DL 15DL 2.00DL	I MINUTE IO MINUTES IO MINUTES IO MINUTES IO MINUTES IO MINUTES IO MINUTES IO MINUTES IO MINUTES

E. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 0.05DTL. DIAL GAUGES SHOULD BE ZEROED AFTER THE ALIGNMENT LOAD IS APPLIED.

F. EACH LOAD INCREMENT SHALL BE HELD FOR AT LEAST 10 MINUTES. THE VERIFICATION TEST NAIL SHALL BE MONITORED FOR CREEP FOR 60 MINUTES AT THE 1.50 DTL LOAD INCREMENT. NAIL MOVEMENTS DURING THE CREEP PORTION OF THE TEST SHALL BE MEASURED AND RECORDED AT 1, 2, 3, 5, 6, 10, 20, 30, 50, AND 60 MINUTES.

5.6.3 PROOF TESTING OF PRODUCTION NAILS

A. PROOF TESTING SHALL BE PERFORMED ON APPROXIMATELY 5 PERCENT OF THE PRODUCTION NAILS AS DETERMINED BY THE OWNER'S REPRESENTATIVE. IF NAIL INSTALLATION METHODS ARE SUBSTANDARD ON ANY PARTICULAR NAIL OR SERIES OF NAILS, ADDITIONAL TESTS MAY BE REQUIRED.

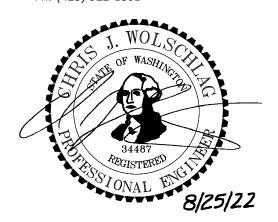
B. THE UNBONDED LENGTH OF TEST NAILS SHALL BE AT LEAST 3 FEET UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE BOND LENGTH OF TEST NAILS SHALL BE DETERMINED BY THE OWNER'S REPRESENTATIVE SUCH THAT THE ALLOWABLE BAR LOAD IS NOT EXCEEDED BUT SHALL NOT BE LESS THAN 10 FEET. THE BAR LOAD DURING TESTING SHALL NOT EXCEED 80% OF THE STEEL ULTIMATE STRENGTH FOR GRADE 150 BARS OR 90% OF THE STEEL YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS.

#### ECTYPOS ARCHITECTURE

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Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 2202-225-SUB2 August 25th, 2022

Scale:

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Specifications



C. PROOF TEST NAILS SHALL BE INCREMENTALLY LOADED IN 0.25DTL INCREMENTS TO A MAXIMUM LOAD OF 1.50DTL IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

AL 0.25DL 0.50DL 0.75DL	1.00DL 1.25DL 1.50DL
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D. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 0.05DTL. DIAL GAUGES SHOULD BE ZEROED AFTER THE ALIGNMENT LOAD IS APPLIED.

E. DEPENDING ON PERFORMANCE, EITHER A IO MINUTE OR 60 MINUTE CREEP TEST SHALL BE PERFORMED AT I.50DTL. NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1, 2, 3, 5, 6, AND 10 MINUTES. WHERE THE NAIL MOVEMENT BETWEEN I MINUTE AND 10 MINUTES EXCEEDS 0.04 INCHES, THE MAXIMUM TEST LOAD SHALL BE MAINTAINED AN ADDITIONAL 50 MINUTES AND MOVEMENTS SHALL BE RECORDED AT 20, 30, 50, AND 60 MINUTES.

#### 5.6.4 TEST NAIL ACCEPTANCE

A. A TEST NAIL SHALL BE CONSIDERED ACCEPTABLE WHEN:

I. FOR VERIFICATION TESTS, A CREEP RATE LESS THAN 0.08 INCHES PER LOG CYCLE OF TIME BETWEEN THE 6 AND 60 MINUTE READINGS IS OBSERVED DURING CREEP TESTING, AND THE RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD. 2. FOR PROOF TESTS, A CREEP RATE LESS THAN 0.04 INCHES PER LOG CYCLE OF TIME BETWEEN THE I AND IO MINUTE READINGS IS OBSERVED OR A CREEP RATE LESS THAN 0.08 INCHES PER LOG CYCLE OF TIME BETWEEN THE 6 AND 60 MINUTE READINGS, AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.

3. THE TOTAL MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80% OF THE THEORETICAL ELASTIC ELONGATION OF THE UNBONDED LENGTH. 4. A PULLOUT FAILURE DOES NOT OCCUR DURING TESTING. PULLOUT FAILURE IS DEFINED AS THE LOAD AT WHICH ATTEMPTS TO INCREASE THE TEST LOAD SIMPLY RESULT IN CONTINUED PULLOUT MOVEMENT OF THE TEST NAIL.

B. AT THE CONTRACTOR'S OPTION, SUCCESSFUL PROOF TEST NAILS MEETING THE ABOVE TEST ACCEPTANCE CRITERIA MAY BE INCORPORATED AS PRODUCTION NAILS PROVIDED THAT (I) THE UNBONDED TEST LENGTH OF THE NAIL HOLE HAS NOT COLLAPSED DURING TESTING, (2) THE MINIMUM REQUIRED HOLE DIAMETER HAS BEEN MAINTAINED, AND (3) THE TEST NAIL LENGTH AND BAR SIZE ARE EQUAL TO OR GREATER THAN THE SCHEDULED PRODUCTION NAIL LENGTH AND BAR SIZE. TEST NAILS MEETING THESE REQUIREMENTS SHALL BE COMPLETED BY SATISFACTORILY GROUTING THE UNBONDED TEST LENGTH. MAINTAINING THE TEMPORARY UNBONDED TEST LENGTH FOR SUBSEQUENT GROUTING IS THE CONTRACTOR'S RESPONSIBILITY.

C. THE ENGINEER SHALL EVALUATE THE RESULTS OF EACH VERIFICATION TEST. NAIL INSTALLATION METHODS THAT DO NOT SATISFY THE NAIL TESTING REQUIREMENTS SHALL BE CONSIDERED INADEQUATE. THE CONTRACTOR SHALL PROPOSE ALTERNATIVE METHODS AND INSTALL REPLACEMENT VERIFICATION TEST NAILS.

D. THE ENGINEER MAY REQUIRE THAT THE CONTRACTOR REPLACE SOME OR ALL OF THE PRODUCTION NAILS REPRESENTED BY INADEQUATE PROOF TESTS.

6. PERMANENT SOIL NAILS (ONLY)

6.1 GENERAL

A. IN ADDITION TO THE REQUIREMENTS OF SECTION 5, PERMANENT NAILS SHALL SATISFY THE REQUIREMENTS OF SECTION 6.

6.2 MATERIALS

A. THE MATERIALS SHALL CONSIST OF THE FOLLOWING:

I. EPOXY COATING, WHERE REQUIRED ON THE PLANS, SHALL CONFORM TO AASHTO M284, MINIMUM 12 MIL ELECTROSTATICALLY APPLIED, BEND TEST REQUIREMENTS SHALL BE WAIVED.

2. ENCAPSULATION, WHERE REQUIRED ON THE PLANS, SHALL CONSIST OF MINIMUM 0.04-IN CORRUGATED HDPE (CONFORMING TO AASHTO M252) OR PVC (CONFORMING TO ASTM DI784 CLASS 13464-B). ENCAPSULATION SHALL PROVIDE AT LEAST 0.2-IN OF GROUT COVER OVER THE NAIL BAR AND BE RESISTANT TO ULTRA VIOLET LIGHT DEGRADATION, NORMAL HANDLING STRESSES, AND GROUT PRESSURES. THE ENCAPSULATION SHALL BE APPLIED AT THE FACTORY UNDER CONTROLLED CONDITIONS OR, UPON THE ENGINEER'S APPROVAL, MAY BE FIELD CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

B. FOR DAMAGED EPOXY COATED NAILS, THE COATING SHALL BE REPAIRED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS USING AN EPOXY FIELD REPAIR KIT APPROVED BY THE EPOXY MANUFACTURER.

C. ENCAPSULATED NAILS SHALL NOT BE TRANSPORTED UNTIL THE GROUT HAS REACHED SUFFICIENT STRENGTH TO RESIST DAMAGE DURING HANDLING. ENCAPSULATED NAILS SHALL NOT BE HANDLED IN A WAY THAT WILL CAUSE LARGE DEFLECTIONS DURING HANDLING. ANY ENCAPSULATED NAILS THAT ARE DAMAGED OR DEFECTIVE SHALL BE REPAIRED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS OR REMOVED FROM THE SITE.

7. TEMPORARY AND PERMANENT SHOTCRETE

7.1 GENERAL

A. ALL SHOTCRETE SHALL COMPLY WITH THE REQUIREMENTS OF ACI 506.2-95 EXCEPT AS SPECIFIED OTHERWISE HEREIN. THE OWNER SHALL CONTRACT AN INDEPENDENT TESTING LABORATORY TO CORE AND TEST SHOTCRETE PANELS AND INSPECT ALL SHOTCRETE AND STEEL REINFORCEMENT PLACEMENT IN ACCORDANCE WITH ACI 506.4R-94.

B. ALL WORKERS, INCLUDING FOREMAN, NOZZLEMEN, FINISHERS AND DELIVERY EQUIPMENT OPERATORS, SHALL BE FULLY QUALIFIED TO PERFORM THE WORK. QUALIFICATION OF THE NOZZLEMEN SHALL BE BASED ON THE RESULTS OF TEST PANELS AS REQUIRED HEREIN, UNLESS APPROVED OTHERWISE BY THE ENGINEER.

C. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE ENGINEER FOR REVIEW AND APPROVAL:

. WRITTEN DOCUMENTATION OF THE NOZZLEMENS QUALIFICATIONS AND PROPOSED METHOD OF SHOTCRETE PLACEMENT. 2. SHOTCRETE MIX DESIGN INCLUDING: BRAND AND TYPE OF PORTLAND CEMENT; SOURCE, GRADATION, AND QUALITY OF AGGREGATES; MIX PROPORTIONS BY WEIGHT; PROPOSED ADMIXTURES AND THEIR MANUFACTURER, DOSAGE, AND TECHNICAL LITERATURE; AND COMPRESSIVE STRENGTH TEST RESULTS FROM THE SUPPLIER NO OLDER THAN 6 MONTHS VERIFYING THE 28-DAY COMPRESSIVE STRENGTH. 3. ONCE AVAILABLE, CERTIFIED MILL TESTS FOR ALL REINFORCING STEEL FROM EACH HEAT SPECIFYING THE MINIMUM ULTIMATE STRENGTH, YIELD STRENGTH, ELONGATION, AND COMPOSITION. 4. SPECIFICATION AND DATA FOR REVIEW ON EQUIPMENT PROPOSED FOR THE PROJECT INCLUDING SHOTCRETING AND COMPRESSED AIR EQUIPMENT, PROPOSED ACCESS ARRANGEMENTS, AND CAPACITIES. 5. METHODS OF CONTROLLING THE LOCATION OF THE FINISH FACE AND DETERMINING SHOTCRETE THICKNESS.

#### 7.2 MATERIALS

A. ALL MATERIALS FOR SHOTCRETE SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.

I. CEMENT SHALL CONFORM TO ASTM CI50 / AASHTO M85, TYPE I. 2. FINE AGGREGATE SHALL CONFORM TO ASTM C33 / AASHTO M6. 3. COARSE AGGREGATE SHALL CONFORM TO AASHTO M-80, CLASS B. 4. WATER SHALL BE POTABLE, CLEAN, AND FREE FROM SUBSTANCES

DELETERIOUS TO CONCRETE AND STEEL, OR THAT WOULD CAUSE STAINING

5. ACCELERATOR SHALL BE THE FLUID TYPE, APPLIED AT NOZZLE, AND MEET THE REQUIREMENTS HEREIN. 6. WATER-REDUCER AND SUPER-PLASTICIZER SHALL CONFORM TO ASTM

C494 / AASHTO MI94, TYPE A, D, F, G. 7. AIR-ENTRAINING AGENT SHALL CONFORM TO ASTM C260 / AASHTO

8. FLY ASH SHALL CONFORM TO ASTM C618 / AASHTO M295, TYPE F OR G, CEMENT REPLACEMENT UP TO 35% BY WEIGHT OF CEMENT. 9. SILICA FUME SHALL CONFORM TO ASTM CI240, 90% MINIMUM SILICON DIOXIDE SOLIDS CONTENT, NOT TO EXCEED 12% BY WEIGHT OF CEMENT. IO. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 / AASHTO

II. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 / AASHTO M3I, GRADE 60. ALL REINFORCING STEEL DETAILS SHALL CONFORM TO

ACI 315. 12. CURING COMPOUNDS SHALL CONFORM TO AASHTO MI48, TYPE ID OR TYPE 2.

13. FILM PROTECTION FOR CURING SHALL CONFORM TO AASHTO MITI OR POLYETHYLENE FILM.

B. SHOTCRETE ADMIXTURES SHALL NOT BE USED UNLESS APPROVED BY THE ENGINEER. ADMIXTURES USED TO ENTRAIN AIR, TO REDUCE WATER-CEMENT RATIO, TO RETARD OR ACCELERATE SETTING TIME, OR TO ACCELERATE THE DEVELOPMENT OF STRENGTH, SHALL BE THOROUGHLY MIXED INTO THE SHOTCRETE AT THE RATE SPECIFIED BY THE MANUFACTURER UNLESS SPECIFIED OTHERWISE. ACCELERATING ADDITIVES SHALL BE COMPATIBLE WITH THE CEMENT USED, BE NON-CORROSIVE TO STEEL AND SHALL NOT PROMOTE OTHER DETRIMENTAL EFFECTS SUCH AS CRACKING OR EXCESSIVE SHRINKAGE. THE MAXIMUM ALLOWABLE CHLORIDE ION CONTENT OF ALL INGREDIENTS SHALL NOT EXCEED O.IO PERCENT WHEN TESTED PER AASHTO T260.

C. MATERIALS SHALL BE DELIVERED, STORED AND HANDLED TO PREVENT CONTAMINATION, SEGREGATION, CORROSION OR DAMAGE. LIQUID ADMIXTURES SHALL BE STORED TO PREVENT EVAPORATION AND FREEZING.

D. AGGREGATES FOR SHOTCRETE SHALL MEET THE STRENGTH AND DURABILITY REQUIREMENT OF AASHTO M80 AND SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING BY WEIGHT	SIEVE SIZE	PERCENT PASSING BY WEIGHT
1/2 INCH	100	NO. 16	35-55
3/8 INCH	90-100	NO. 30	20-35
NO. 4	70-85	NO. 50	8-20
NO. 8	50-70	NO. 100	2-10

E. CEMENT CONTENT SHALL BE AT LEAST 600 POUNDS PER CUBIC YARD. THE WATER/CEMENT RATIO SHALL NOT BE GREATER THAN 0.45. FOR WET-MIX SHOTCRETE EXPOSED TO FREEZING AND THAWING, THE AIR CONTENT AT THE TRUCK SHALL BE BETWEEN 7 TO 10 PERCENT WHEN TESTED IN ACCORDANCE WITH ASTM C231 / AASHTO TI52.

F. SHOTCRETE SHALL BE PROPORTIONED TO ATTAIN A COMPRESSIVE STRENGTH OF 2000 PSI IN 3 DAYS AND 4000 PSI IN 28 DAYS. THE AVERAGE COMPRESSIVE STRENGTH OF EACH SET OF THREE CORES EXTRACTED FROM TEST PANELS OR WALL FACE MUST BE EQUAL TO OR EXCEED 85%, WITH NO INDIVIDUAL CORE LESS THAN 75% OF THE SPECIFIED COMPRESSIVE STRENGTH IN ACCORDANCE WITH ACI 506.2.

G. AGGREGATE AND CEMENT MAY BE BATCHED BY WEIGHT OR BY VOLUME IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C94 / AASHTO MI57. MIXING EQUIPMENT SHALL BE CAPABLE OF THOROUGHLY MIXING THE MATERIALS IN SUFFICIENT QUANTITY TO MAINTAIN PLACING CONTINUITY. READY-MIX SHOTCRETE SHALL BE DELIVERED AND PLACED WITHIN I-I/2 HOURS OF THE BATCH TIME UNLESS APPROVED OTHERWISE BY THE ENGINEER.

#### 7.3 TEST PANELS

A. IN GENERAL, PRECONSTRUCTION AND PRODUCTION SHOTCRETE TEST PANELS SHALL BE REQUIRED. HOWEVER, DEPENDING ON THE AMOUNT OF SHOTCRETE WALL REINFORCEMENT, THE ENGINEER MAY WAIVE THE REQUIREMENTS FOR A REINFORCED PRECONSTRUCTION TEST PANEL. PRECONSTRUCTION AND PRODUCTION TEST PANELS SHALL NOT BE DISTURBED OR MOVED WITHIN THE FIRST 24 HOURS AFTER SHOOTING. TEST PANELS SHALL BE FIELD CURED UNDER CONDITIONS SIMILAR TO THOSE ANTICIPATED FOR THE WORK. SHOTCRETING AND CORING OF TEST PANELS SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE NOT LESS THAN 2 DAYS PRIOR TO THE SHOOTING OF THE PRECONSTRUCTION TEST PANELS.

B. EACH NOZZLEMAN SHALL FURNISH AT LEAST TWO PRECONSTRUCTION TEST PANELS FOR EACH PROPOSED MIXTURE BEING CONSIDERED AND FOR EACH SHOOTING POSITION ENCOUNTERED ON THE JOB. PRECONSTRUCTION TEST PANELS SHALL BE MADE BY EACH APPLICATION CREW USING THE EQUIPMENT, MATERIALS, MIXTURE PROPORTIONS, AND PROCEDURES PROPOSED FOR THE JOB PRIOR TO THE COMMENCEMENT OF WORK.

C. PRECONSTRUCTION TEST PANELS SHALL BE 30 INCHES X 30 INCHES (MINIMUM), IN ACCORDANCE WITH ACI 506.2-95 AND THE FOLLOWING:

I. ONE TEST PANEL SHALL BE THE MAXIMUM SHOTCRETE THICKNESS SHOWN ON THE PLANS AND SHALL INCLUDE THE MAXIMUM ANTICIPATED REINFORCING CONGESTION. CORES EXTRACTED FROM THE REINFORCED TEST PANEL SHALL DEMONSTRATE ENCAPSULATION OF THE REINFORCEMENT IN ACCORDANCE WITH ACI 506.2 EQUAL TO CORE GRADE 2 OR BETTER.

2. ONE TEST PANEL SHALL BE UNREINFORCED, AT LEAST 6 INCHES THICK, AND USED FOR COMPRESSIVE STRENGTH TESTING. 3. THE SIDES OF THE TEST PANELS SHALL BE CHAMFERED OUTWARD AT 45 DEGREES OVER THE FULL THICKNESS OF THE PANEL

D. THE CONTRACTOR SHALL FURNISH AT LEAST ONE PRODUCTION TEST PANEL OR, IN LIEU OF PRODUCTION TEST PANELS, SIX 3-INCH DIAMETER CORES FROM THE SHOTCRETE FACE DURING THE FIRST APPLICATION OF SHOTCRETE AND HENCEFORTH FOR EVERY FIFTH APPLICATION OF SHOTCRETE, OR EVERY 5000 SQUARE FEET, OR 50 CUBIC YARDS OF SHOTCRETE PLACED, WHICHEVER IS LESS. THE PRODUCTION TEST PANELS SHALL BE CONSTRUCTED SIMULTANEOUSLY WITH THE SHOTCRETE FACING INSTALLATION AT TIMES DESIGNATED BY THE OWNER'S REPRESENTATIVE. THE PRODUCTION TEST PANELS SHALL HAVE MINIMUM DIMENSIONS OF 18 INCHES X 18 INCHES X 6 INCHES.

E. SHOTCRETE WILL BE ACCEPTED BASED ON THE 28-DAY STRENGTH OF CORES TAKEN FROM THE PRODUCTION TEST PANELS. THE FREQUENCY SPECIFIED FOR THE PRODUCTION TEST PANELS IS APPROXIMATE. A GREATER NUMBER OF PANELS MAY BE REQUIRED BY THE ENGINEER.

F. AT LEAST SIX CORES WILL BE CUT FROM EACH PRECONSTRUCTION AND PRODUCTION TEST PANEL FOR COMPRESSIVE STRENGTH TESTING. CORES SHALL BE SOAKED IN WATER FOR AT LEAST 40 HOURS IN ACCORDANCE WITH AASHTO T24 OR ACI 506.2. CORES SHALL BE AT LEAST 3 INCHES IN DIAMETER AND SHALL HAVE A MINIMUM LENGTH TO DIAMETER RATIO OF ONE. WHEN THE LENGTH OF A CORE IS LESS THAN TWICE THE DIAMETER, APPLY THE CORRECTION FACTORS GIVEN IN ASTM C42 TO OBTAIN THE COMPRESSIVE STRENGTH OF INDIVIDUAL CORES. THREE CORES SHALL BE TESTED AT 3-DAYS, AND THREE CORES SHALL BE TESTED AT 28-DAYS FOR COMPRESSIVE STRENGTH. CORE HOLES IN THE WALL SHALL BE FILLED WITH PATCHING MORTAR AFTER CLEANING AND THOROUGH DAMPENING.

7.4 EXECUTION OF PRODUCTION SHOTCRETE WORK

7.4.1 ALIGNMENT CONTROL

A. ALIGNMENT WIRES AND/OR THICKNESS CONTROL PINS SHALL BE PROVIDED AS NECESSARY TO ESTABLISH AND MAINTAIN THE MINIMUM SHOTCRETE THICKNESS SHOWN ON THE PLANS. THE MAXIMUM DISTANCE BETWEEN THE WIRES AND/OR THICKNESS CONTROL PINS ON ANY SURFACE SHALL BE EQUAL TO THE VERTICAL NAIL SPACING. THE CONTRACTOR SHALL ENSURE THAT ALIGNMENT WIRES ARE TIGHT, TRUE TO LINE, AND PLACED TO ALLOW FURTHER TIGHTENING.

7.4.2 SURFACE PREPARATION

A. PRIOR TO SHOTCRETING THE UNGROUTED ZONE ABOVE THE NAIL GROUT AT THE EXCAVATION CUT FACE (BIRDS BEAK), THE CONTRACTOR SHALL REMOVE ALL LOOSE MATERIALS FROM THE SURFACE OF THE GROUT.

B. THE CONTRACTOR SHALL REMOVE ALL LOOSE MATERIALS AND LOOSE DRIED SHOTCRETE FROM PREVIOUS PLACEMENT OPERATIONS AND FROM ALL RECEIVING SURFACES BY METHODS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. THE REMOVAL SHALL BE ACCOMPLISHED IN SUCH A MANNER AS NOT TO LOOSEN, CRACK, OR SHATTER THE SURFACES TO RECEIVE THE SHOTCRETE. ANY SURFACE MATERIAL THAT, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, IS SO LOOSENED OR DAMAGED SHALL BE REMOVED TO SUFFICIENT DEPTH TO PROVIDE A BASE THAT IS SUITABLE TO RECEIVE THE SHOTCRETE. MATERIAL THAT LOOSENS AS THE SHOTCRETE IS APPLIED SHALL BE REMOVED. SHOTCRETE SHALL NOT BE PLACED ON FROZEN SURFACES.

7.4.3 DELIVERY AND APPLICATION

A. A CLEAN, DRY, OIL-FREE SUPPLY OF COMPRESSED AIR SUFFICIENT FOR MAINTAINING ADEQUATE NOZZLE VELOCITY FOR ALL PARTS OF THE WORK AND FOR SIMULTANEOUS OPERATION OF A BLOW PIPE FOR CLEANING AWAY REBOUND SHALL BE MAINTAINED AT ALL TIMES. THE EQUIPMENT SHALL BE CAPABLE OF DELIVERING THE PREMIXED MATERIAL ACCURATELY, UNIFORMLY, AND CONTINUOUSLY THROUGH THE DELIVERY HOSE.

B. THE SHOTCRETE SHALL BE APPLIED FROM THE LOWER PART OF THE WORK AREA UPWARDS TO PREVENT ACCUMULATION OF REBOUND ON UNCOVERED SURFACES. THICKNESS, METHODS OF SUPPORT, AIR PRESSURE, AND RATE OF PLACEMENT OF SHOTCRETE SHALL BE CONTROLLED TO PREVENT SAGGING OR SLOUGHING OF FRESHLY APPLIED SHOTCRETE. WHERE SHOTCRETE IS USED TO FILL THE BIRD'S BEAK, THE NOZZLE SHALL BE POSITIONED INTO THE MOUTH OF THE DRILLHOLE TO COMPLETELY FILL THE VOID. REBOUND SHALL NOT BE WORKED BACK INTO THE PLACEMENT NOR SHALL THE REBOUND BE SALVAGED. REBOUND THAT DOES NOT FALL CLEAR OF THE WORKING AREA SHALL BE REMOVED. THE NOZZLE SHALL BE HELD AT A DISTANCE AND AT AN ANGLE APPROXIMATELY PERPENDICULAR TO THE WORKING FACE SO THAT REBOUND WILL BE MINIMAL AND COMPACTION WILL BE MAXIMIZED. THE NOZZLE SHOULD BE ROTATED STEADILY IN A SMALL CIRCULAR PATTERN.

C. SHOTCRETE PLACEMENT SHALL BE BY THE BENCH GUNNING METHOD WHEN THE THICKNESS OF THE SHOTCRETE LAYER IS 6 INCHES OR GREATER. THE GUNNING METHOD SHALL CONSIST OF BUILDING UP A THICK LAYER OF SHOTCRETE FROM THE BOTTOM OF THE LIFT AND MAINTAINING THE TOP SURFACE AT APPROXIMATELY A 45-DEGREE SLOPE.

7.4.4 VISUAL OBSERVATION

A. A CLEARLY DEFINED PATTERN OF CONTINUOUS HORIZONTAL OR VERTICAL RIDGES OR DEPRESSIONS AT THE REINFORCING ELEMENTS AFTER THEY ARE COVERED WILL BE CONSIDERED INDICATION OF INSUFFICIENT COVER OF REINFORCEMENT OR POOR APPLICATION AND PROBABLE VOID. IN THIS CASE, THE WORK SHALL BE IMMEDIATELY SUSPENDED AND THE WORK CAREFULLY INSPECTED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL IMPLEMENT AND COMPLETE CORRECTIVE MEASURES PRIOR TO RESUMING THE SHOTCRETE OPERATIONS.

B. THE SHOTCRETING PROCEDURE MAY BE CORRECTED BY ADJUSTING THE NOZZLE DISTANCE AND ORIENTATION PERPENDICULAR TO THE SURFACE, ADJUSTING THE WATER CONTENT OF THE SHOTCRETE MIX, OR OTHER MEANS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. ALL OVERSPRAY AND REBOUND SHALL BE REMOVED FROM THE SURFACE.

C. SURFACE DEFECTS SHALL BE REPAIRED AS SOON AS POSSIBLE AFTER INITIAL PLACEMENT OF SHOTCRETE. ALL SHOTCRETE THAT LACKS UNIFORMITY, EXHIBITS SEGREGATION, SAGGING, HONEYCOMBING, OR LAMINATION, OR CONTAINS ANY VOIDS OR SAND POCKETS SHALL BE REMOVED AND REPLACED WITH FRESH SHOTCRETE BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.

7.4.5 ATTACHMENT OF THE NAIL HEAD CONNECTION HARDWARE

A. FOR BEARING PLATE CONNECTIONS, THE PLATE SHALL BE WET-SET WHILE THE SHOTCRETE IS PLASTIC TO ASSURE FULL SHOTCRETE BEARING BEHIND THE PLATE. HOWEVER, THE RETENTION NUT SHALL ONLY BE HAND TIGHTENED SUCH THAT FULL BEARING IS ACHIEVED WITHOUT EXCESSIVELY SQUEEZING FRESH SHOTCRETE OUT FROM UNDER THE PLATE.

7.4.6 CONSTRUCTION JOINTS

A. CONSTRUCTION JOINTS SHALL BE TAPERED TOWARD THE EXCAVATION FACE OVER A MINIMUM DISTANCE EQUAL TO THE THICKNESS OF THE SHOTCRETE LAYER. THE SURFACE OF THE JOINTS SHALL BE ROUGH AND CLEANED OF ALL LAITANCE AND FOREIGN SUBSTANCES PRIOR TO SHOTCRETE PLACEMENT.

7.4.7 FINISHING AND CURING REQUIREMENTS

A. TEMPORARY SHOTCRETE MAY BE LEFT WITH AN AS-SHOT GUN FINISH.

B. THERE ARE NO SPECIFIC CURING REQUIREMENTS FOR TEMPORARY

7.4.8 WEATHER LIMITATIONS

SHOTCRETE.

A. SHOTCRETE SHALL NOT BE PLACED IN COLD WEATHER UNLESS ADEQUATELY PROTECTED WHEN THE AMBIENT TEMPERATURE IS BELOW 40° F AND FALLING AND/OR WHEN THE SHOTCRETE IS LIKELY TO BE SUBJECTED TO FREEZING TEMPERATURES BEFORE REACHING A MINIMUM STRENGTH OF 750 PSI. COLD WEATHER PROTECTION SHALL BE MAINTAINED UNTIL THE STRENGTH OF THE SHOTCRETE IS GREATER THAN 750 PSI. COLD WEATHER PROTECTION SHALL INCLUDE HEATING UNDER TENTS, BLANKETS OR OTHER MEANS ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. THE TEMPERATURE OF THE SHOTCRETE, WHEN DEPOSITED, SHALL BE NOT LESS THAN 50° F NOR MORE THAN 80° F. THE AIR IN CONTACT WITH SHOTCRETE SURFACES SHALL BE MAINTAINED AT TEMPERATURES ABOVE 32° F FOR A MINIMUM OF 7 DAYS.

B. SHOTCRETE APPLICATION SHALL ALSO BE SUSPENDED DURING HIGH WINDS AND HEAVY RAINS WHEN IN THE OPINION OF THE OWNER'S REPRESENTATIVE THE QUALITY OF THE APPLICATION IS NOT ACCEPTABLE. NEWLY-PLACED SHOTCRETE EXPOSED TO RAIN THAT WASHES OUT CEMENT OR OTHERWISE MAKES THE SHOTCRETE UNACCEPTABLE TO THE OWNER'S REPRESENTATIVE SHALL BE REMOVED AND REPLACED. THE CONTRACTOR SHALL PROVIDE ADEQUATELY SECURED POLYETHYLENE SHEETING OR EQUIVALENT WHEN ADVERSE EXPOSURE TO WEATHER IS ANTICIPATED.

7.4.9 TOLERANCES

A. THE TOLERANCES FOR SHOTCRETE FACINGS SHALL BE AS FOLLOWS:

I. THE VERTICAL LOCATION OF A HORIZONTAL SHOTCRETE JOINT SHALL BE WITHIN I FOOT OF THE ELEVATION SHOWN ON THE PLANS. 2. THE SHOTCRETE WALL THICKNESS SHALL BE NO LESS THAN THAT SHOWN ON THE PLANS MINUS 0.5 INCHES.

3. THE HORIZONTAL AND VERTICAL LOCATIONS OF REINFORCING BARS SHALL BE WITHIN I INCH OF THE LOCATIONS SHOWN ON THE PLANS. 4. REINFORCING BAR LAP LENGTHS SHALL BE NO LESS THAN THAT SHOWN ON THE PLANS MINUS | INCH.

5. REINFORCING BAR SPACING SHALL NOT EXCEED THAT SHOWN ON THE PLANS PLUS | INCH.

8. PERMANENT SHOTCRETE (ONLY)

8.1 GENERAL

A. IN ADDITION TO THE REQUIREMENTS OF SECTION 7, PERMANENT SHOTCRETE SHALL SATISFY THE REQUIREMENTS OF SECTION 8.

8.2 SUBMITTALS

A. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL:

. WRITTEN DOCUMENTATION OF THE FINISHERS QUALIFICATIONS. 2. SHOP DRAWINGS OF THE REINFORCING LAYOUT AND SCHEDULES.

8.3 EXECUTION OF PRODUCTION SHOTCRETE WORK

8.3.1 ATTACHMENT OF THE NAIL HEAD CONNECTION HARDWARE A. FOR EMBEDED PLATE CONNECTIONS (TYPICALLY WITH HEADED STUDS), THE EMBEDMENTS SHALL BE LOCATED WITHIN THE WALL SUCH THAT THE PROPER SHOTCRETE COVER IS PROVIDED AS SHOWN ON THE PLANS. IN ADDITION, THE PLATE, WASHER, AND NUT SHALL INSTALLED SO THAT THEY HAVE SUFFICIENT CONTACT WITH EACH OTHER AS SHOWN ON THE PLANS.

8.3.2 CONSTRUCTION JOINTS

A. CONSTRUCTION JOINTS SHALL BE WATERTIGHT AND UNIFORMLY TAPERED TOWARD THE EXCAVATION FACE OVER A MINIMUM DISTANCE EQUAL TO THE THICKNESS OF THE SHOTCRETE LAYER. THE SURFACE OF THE JOINTS SHALL BE ROUGH, CLEAN, SOUND AND DAMP. THE HARDENED SURFACE SHALL BE CLEANED OF ALL LAITANCE, FOREIGN SUBSTANCES, WASHED WITH CLEAN WATER, AND WETTED THOROUGHLY IMMEDIATELY PRIOR TO PLACEMENT OF FRESH SHOTCRETE.

8.3.3 FINISHING AND CURING REQUIREMENTS

A. SHOTCRETE FINISH SHALL BE AS INDICATED ON THE PLANS.

B. THE SHOTCRETE SHALL BE PROTECTED FROM LOSS OF MOISTURE FOR AT LEAST 7 DAYS AFTER PLACEMENT. WHEN SHOTCRETE IS BEING PROTECTED FROM LOW TEMPERATURES, CURING SHALL BE TERMINATED NO SOONER THAN ONE DAY AFTER THE REMOVAL OF LOW TEMPERATURE PROTECTION. CURING OF SHOTCRETE SHALL BE BY METHODS THAT WILL KEEP SHOTCRETE SURFACES ADEQUATELY WET AND PROTECTED DURING THE SPECIFIED PERIOD. CURING SHALL COMMENCE WITHIN ONE HOUR OF SHOTCRETE APPLICATION. WHEN THE AMBIENT TEMPERATURE EXCEEDS 80 DEGREES FAHRENHEIT, THE CONTRACTOR SHALL PLAN THE WORK SUCH THAT CURING CAN COMMENCE IMMEDIATELY AFTER FINISHING. THE CURING SHALL BE COMPLETED USING WATER, MEMBRANE, OR FILM CURING METHODS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

C. FOR WATER CURING, THE RATE OF WATER APPLICATION SHALL BE REGULATED TO PROVIDE COMPLETE SURFACE COVERAGE WITH A MINIMUM OF RUNOFF.

D. FOR MEMBRANE CURING, CURING COMPOUNDS SHALL NOT BE USED ON ANY SURFACES AGAINST WHICH ADDITIONAL SHOTCRETE OR OTHER FINISHING MATERIALS ARE TO BE BONDED UNLESS THE SURFACE IS SANDBLASTED IN A MANNER ACCEPTABLE TO THE OWNER'S REPRESENTATIVE. MEMBRANE CURING COMPOUNDS SHALL BE SPRAY APPLIED AS QUICKLY AS PRACTICAL AFTER INITIAL SHOTCRETE SET AT A COVERAGE OF NOT LESS THAN 40 SQUARE FEET PER GALLON.

E. FOR FILM CURING, POLYETHYLENE SHEETING MAY BE USED TO SUPPLEMENT WATER CURING ON SHOTCRETE THAT WILL BE COVERED LATER WITH ADDITIONAL SHOTCRETE OR CONCRETE. THE SHEETING SHALL COMPLETELY COVER ALL SURFACES, AND HAVE EDGES OVERLAPPED FOR PROPER SEALING AND ANCHORAGES.

8.3.4 TOLERANCES

A. THE TOLERANCES FOR SHOTCRETE FACINGS SHALL BE AS FOLLOWS:

I. THE VERTICAL LOCATION OF A HORIZONTAL SHOTCRETE JOINT SHALL BE WITHIN 0.5 FEET OF THE ELEVATION SHOWN ON THE PLANS. 2. THE SHOTCRETE WALL THICKNESS SHALL BE NO LESS THAN THAT SHOWN ON THE PLANS MINUS 0.5 INCHES.

3. THE HORIZONTAL AND VERTICAL LOCATIONS OF REINFORCING BARS SHALL BE WITHIN I INCH OF THE LOCATIONS SHOWN ON THE PLANS. 4. REINFORCING BAR LAP LENGTHS SHALL BE NO LESS THAN THAT SHOWN ON THE PLANS MINUS I INCH.

5. REINFORCING BAR SPACINGS SHALL NOT EXCEED THAT SHOWN ON THE PLANS PLUS | INCH. 6. THE DEVIATION IN PLANENESS OF THE FINISHED WALL SURFACE SHALL NOT EXCEED 0.5 INCHES IN 10 FEET.

9. NAIL HEAD CONNECTION HARDWARE

A. DEPENDING ON THE CONNECTION DETAIL SHOWN ON THE PLANS, THE NAIL HEAD CONNECTION HARDWARE MAY CONSIST OF ONE OR MORE OF THE FOLLOWING: EMBEDDED OR BEARING STEEL PLATES PER ASTM A36 / AASHTO M270, GRADE 36; NUTS & WASHERS PER AASHTO M291, GRADE B, HEXAGONAL FITTED WITH BEVELED WASHER OR SPHERICAL SEAT TO PROVIDE UNIFORM BEARING; AND HEADED STUDS PER ASTM AIOS OR APPROVED EQUAL.

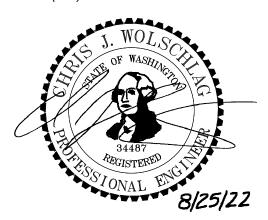
B. STEEL PLATE DIMENSIONS SHALL BE WITHIN 0.25 INCHES OF THAT SHOWN ON THE PLANS. HEADED STUDS SHALL BE LOCATED ON THE PLATES WITHIN 0.25 INCHES OF THAT SHOWN ON THE PLANS.



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Ground Support PLLC 16932 Woodinville Redmond Rd NE, #210 Woodinville, WA 98072 Ph: (425) 922-1501



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Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 2202-225-SUB2 August 25th, 2022

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Specifications



GENERAL NOTES

- ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF MERCER ISLAND STANDARD SPECIFICATIONS, AND WSDOT/APWA STANDARD SPECIFICATIONS, LATEST EDITION. THE CITY OF MERCER ISLAND RESERVES THE RIGHT TO REJECT ANY DAMAGED AND/OR NON-COMPLIANT CONSTRUCTION MATERIAL
- 2. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH THE CITY OF MERCER ISLAND CONSTRUCTION INSPECTION PERSONNEL.
- 3. AN APPROVED PLAN SET MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
- 4. ALL SITE WORK IMPROVEMENTS SHALL BE CONSTRUCTED TO OBTAIN STREET USE AND ANY OTHER RELATED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY.
- 5. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND ANY OTHER RELATED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY.
- 6. ANY APPROVED CUTS OF EXISTING PUBLIC ROADWAYS SHALL BE BACK FILLED AND COMPACTED IN ACCORDANCE WITH CITY OF MERCER ISLAND STANDARDS. ALL CUTS INTO EXISTING ASPHALT SHALL BE ALONG NEAT, CONTINUOUS, SAWED, OR WHEEL CUT LINES. A TEMPORARY COLD MIX PATCH MUST BE PLACED IMMEDIATELY AFTER BACKFILL AND COMPACTION. THIS EXISTING ROAD CUT SHALL BE REPLACED WITH AT LEAST THREE (3) INCHES OF COMPACTED CL "B" ASPHALT CONCRETE, SIX (6) INCH CRUSHED ROCK SURFACING TOP COURSE (5/8 INCH MINUS), AS REQUIRED DEPENDENT UPON A SOILS ENGINEER'S RECOMMENDATION AND TESTS. IN NO CASE SHALL THE REPLACEMENT BE LESS THAN THE EXISTING SECTION.
- PAVED SURFACES INCLUDING ROADWAYS, SIDEWALKS, AND CURBS THAT ARE DAMAGED BY NEW CONSTRUCTION SHALL BE REPAIRED AS REQUIRED BY THE CITY OF MERCER ISLAND INSPECTOR.
- 8. ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
- THE CONTRACTOR SHALL LOCATE AND PROTECT ALL CASTINGS AND UTILITIES DURING CONSTRUCTION AND SHALL CONTACT THE UNDERGROUND UTILITIES LOCATOR SERVICE (1-800-424-5555) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- 10. THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLE RIMS, DRAINAGE STRUCTURE LIDS, VALVE BOXES, AND UTILITY ACCESS STRUCTURES TO FINISH GRADE WITHIN AREAS AFFECTED BY THE PROPOSED IMPROVEMENTS
- 11. UTILITY SERVICE CONNECTIONS SHOWN ON THIS PLAN ARE TO BE MAINTAINED PRIVATELY AND NOT BY THE CITY MERCER ISLAND.
- 12. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY SEDIMENTATION COLLECTION FACILITIES TO ENSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE NATURAL OR PUBLIC DRAINAGE SYSTEM. AS CONSTRUCTION PROGRESSES AND UNEXPECTED (SEASONAL) CONDITIONS DICTATE, MORE SILTATION CONTROL FACILITIES MAY BE REQUIRED TO INSURE COMPLETE SILTATION CONTROL OF THE PROJECT. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES THAT MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES.
- 13. THE CONTRACTOR SHALL KEEP OFF-SITE STREETS CLEAN AT ALL TIMES BY SWEEPING. WASHING OF THESE STREETS WILL NOT BE ALLOWED WITHOUT PRIOR CITY OF MERCER ISLAND APPROVAL.
- 14. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE TRAFFIC CONTROL MANUAL.
- 15. CARE SHALL BE EXERCISED WHEN EXCAVATING NEAR EXISTING CHARGED WATER MAINS.

#### SURVEY NOTE:

UNDERGROUND UTILITIES AND EXISTING IMPROVEMENTS SHOWN ARE BASED UPON THE SURVEY "TOPOGRAPHIC AND BOUNDARDY SURVEY, STEINBORN PROPERTY, BY TERRANE, DATED FEBRUARY 21, 2021 AND RECORD DRAWINGS. NO WARRANTY OR GUARANTEE OF ACCURACY OR COMPLETENESS IS EITHER IMPLIED OR EXPRESSED. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS HAVE BEEN SHOWN ON THIS DRAWING FOR THE PURPOSE OF ASSISTING THE CONTRACTOR IN LOCATING SAID UTILITIES AND IMPROVEMENTS IN THE FIELD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING WITH APPROPRIATE AGENCIES THAT MAY HAVE UNDERGROUND UTILITIES AND IMPROVEMENTS WITHIN THE PROJECT LIMITS AND FOR CHECKING LOCATIONS IN THE FIELD. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY AND ALL DAMAGE TO UNDERGROUND UTILITIES AND IMPROVEMENTS RESULTING FROM HIS OPERATION.

#### VERTICAL DATUM

#### NAVD88 PER GPS OBSERVATIONS

FIELD DATA FOR THIS SURVEY WAS OBTAINED BY DIRECT FIELD MEASUREMENTS WITH A CALIBRATED ELECTRONIC 5-SECOND TOTAL STATION AND/OR SURVEY GRADE GPS OBSERVATIONS. ALL ANGULAR AND LINEAR RELATIONSHIPS ARE ACCURATE AND MEET THE STANDARDS SET BY WAC 332-130-090.

GENERAL DRAINAGE NOTES

- MANAGEMENT MANUAL FOR WESTERN WASHINGTON
- PERSONNEL.
- OWNER, ENGINEER AND APPROPRIATE PUBLIC AGENCIES.
- ANY OTHER RELATED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY.
- 5. ALL STORM DRAIN PIPE MAY BE CONSTRUCTED OF ONE OF THE FOLLOWING MATERIALS EXERCISE THE OPTION TO ACCEPT OR REJECT ALL DAMAGED OR NON-COMPLIANT COSTS ASSOCIATED WITH REJECTED OR SUBSTITUTED CONSTRUCTION MATERIAL
- 6. PIPE SHALL BE AS FOLLOWS: PVC FOUR (4) INCH THROUGH EIGHTEEN (18) INCH BASIN CONNECTION) OR KOR-N-SEAL BOOTS.
- BEDDING MATERIAL SHALL BE 5/8 INCH MINUS CRUSHED ROCK ONLY.
- 9. CONSTRUCTION OF DEWATERING (GROUNDWATER INTERCEPTION) SYSTEMS SHALL BE IN ACCORDANCE WITH THE APWA STANDARD SPECIFICATIONS, SECTION 61-3.02.
- 10. THE CONTRACTOR SHALL KEEP OFF-SITE STREETS CLEAN AT ALL TIMES BY SWEEPING. APPROVAL
- 11. ALL STORMWATER FACILITIES WILL BE INSTALLED AND IN OPERATION PRIOR TO OR IN OTHERWISE APPROVED BY THE CITY.
- UTILITY AS APPROVED BY THE INSPECTOR.

#### EROSION CONTROL/CONSTRUCTION SEQUENCE

- 1. ARRANGE AND ATTEND PRE-CONSTRUCTION MEETING WITH BETWEEN OWNER OR OWNER'S REPRESENTATIVE AND CITY OF MERCER ISLAND SITE INSPECTOR.
- OUT CONTROL POINTS FOR WORK. 3. INSTALL STRAW WATTLE BARRIERS AND GRATE INLET
- PROTECTION. 4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (IF REQUIRED).
- 5. CLEAR AND GRUB AREA.
- CONSTRUCT OR INSTALL SOIL STABILIZATION MEASURES.
- 7. COORDINATE REMOVAL AND CAPPING OF EXISTING UTILITY LINES WITH APPROPRIATE PURVEYOR.
- 8. GRADE SITE PER PLAN. STABILIZE GRADED AREAS WITH TEMPORARY EROSION CONTROL MEASURES AS REQUIRED.
- 9. CONSTRUCT SITE IMPROVEMENTS. 10. HYDROSEED REMAINING DISTURBED AREAS.
- 11. RETURN SILTATION CONTROL AREAS TO ORIGINAL
- GROUND CONDITIONS. 12. REMOVE REMAINING TEMPORARY EROSION/SEDIMENTATION CONTROL ONLY AFTER SITE HAS BEEN STABILIZED AND CITY OF MERCER ISLAND SITE INSPECTOR HAS

APPROVED THE REMOVAL.

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF MERCER ISLAND STANDARD SPECIFICATIONS AND WSDOT/APWA STANDARD SPECIFICATIONS, LATEST EDITION AND THE REQUIREMENTS OF THE DEPARTMENT OF ECOLOGY STORMWATER

2. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH CITY OF MERCER ISLAND CONSTRUCTION INSPECTION

3. ALL STORM DRAINAGE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE APPROVED PLANS. ANY DEVIATION FROM THESE PLANS WILL REQUIRE APPROVAL FROM THE

4. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND

UNLESS OTHERWISE SPECIFIED IN THE PLANS. ALL PIPE JOINTS MUST BE GASKETED WATERTIGHT AND MUST BE OF THE SAME MATERIAL AS THE PIPE. ALL PIPE SHALL HAVE A MINIMUM COVER AS SPECIFIED AND SHALL BE ADEQUATELY PROTECTED DURING CONSTRUCTION (REFER TO THE MANUFACTURE'S RECOMMENDATIONS FOR MINIMUM COVER FOR HEAVY EQUIPMENT LOADINGS). THE CITY OF MERCER ISLAND PUBLIC WORKS DEPARTMENT SHALL CONSTRUCTION MATERIAL. THE CONTRACTOR/DEVELOPER SHALL BE RESPONSIBLE FOR ALL

DIAMETER PIPE, WITH TWENTY FOUR (24) INCH TO THIRTY SIX (36) INCH OF COVER SHALL BE IN ACCORDANCE WITH ASTM D3034 SDR 21. FOUR (4) INCH THROUGH EIGHTEEN (18) INCH DIAMETER PIPE, WITH ASTM D3034 SDR 35 SHALL HAVE THIRTY SIX (36) INCHES MINIMUM COVER. ALL JOINTS SHALL BE PUSH-ON WITH RUBBER GASKETS. PVC STORM PIPE REQUIRES SAND COLLARS MEETING ASTM D-3034-78 SDR 35 SPECIFICATIONS (I.E. CATCH

7. ALL PIPE BEDDING SHALL BE APWA TYPE "F" FOR FLEXIBLE PIPE (I.E. PVC, SMP OR ADS).

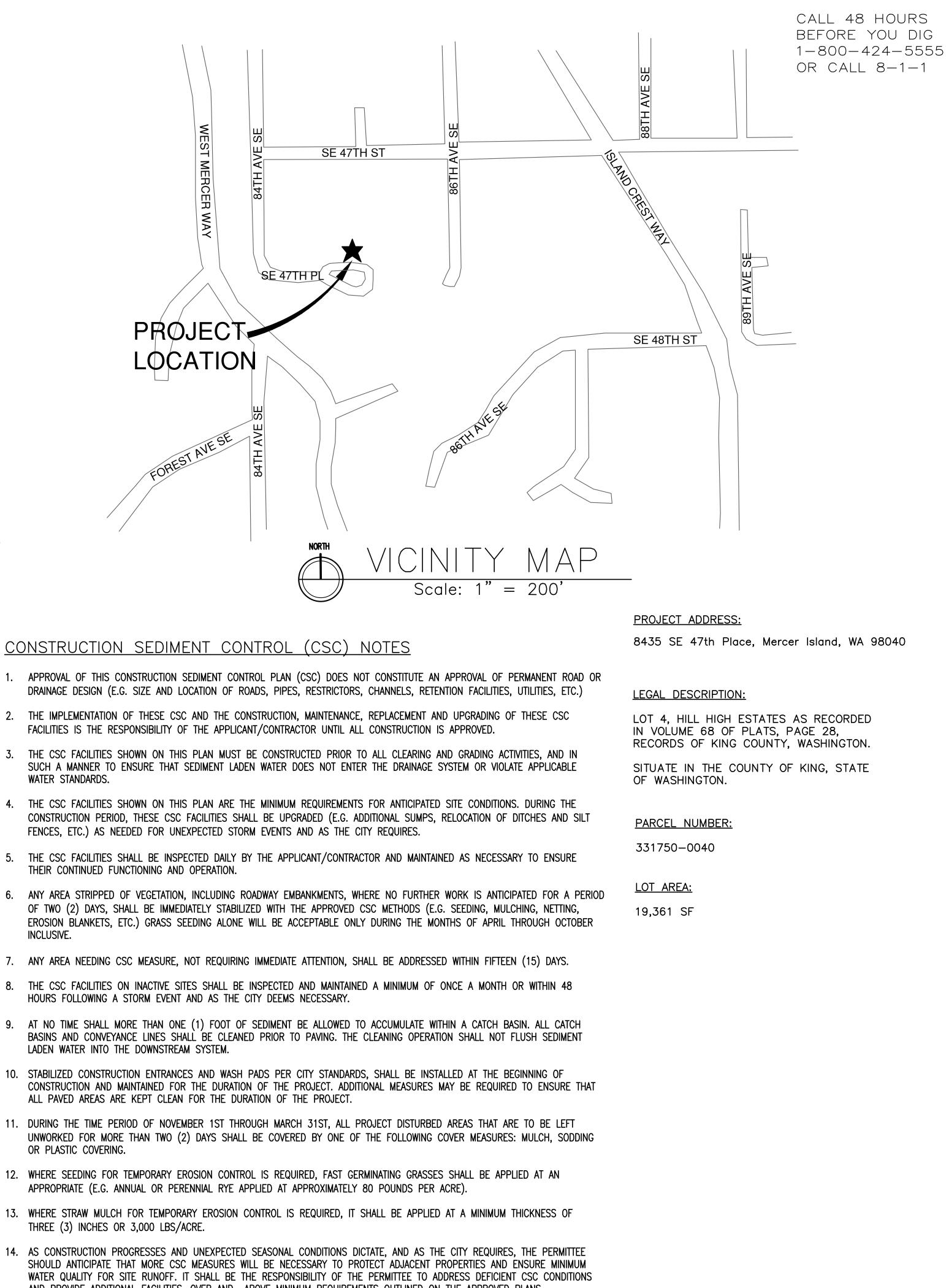
8. ALL TRENCH BACKFILL IN AREAS OF FUTURE PAVEMENT OR STRUCTURAL LOADING SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY PER ASTM D 1557-70 (MODIFIED PROCTOR). ALL OTHER AREAS SHALL BE COMPACTED TO 90 PERCENT MINIMUM).

WASHING THESE STREETS WILL NOT BE ALLOWED WITHOUT PRIOR CITY OF MERCER ISLAND

CONJUNCTION WITH ALL CONSTRUCTION ACTIVITY UNLESS THAT ACTIVITY EXCEEDS THE CAPACITY AND INTENT OF THE EROSION/SEDIMENTATION CONTROL FACILITY OR UNLESS

12. RELAY EXISTING SERVICE DRAINS AND SIDE SEWERS TO CLEAR OVER OR UNDER THE NEW

2. CONTRACTOR'S SURVEYOR TO ESTABLISH AND STAKE

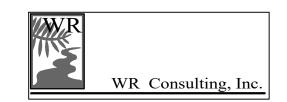


#### CONSTRUCTION SEDIMENT CONTROL (CSC) NOTES

- 2. THE IMPLEMENTATION OF THESE CSC AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THESE CSC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
- 3. THE CSC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO ALL CLEARING AND GRADING ACTIVITIES, AND IN WATER STANDARDS.
- 4. THE CSC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE FENCES, ETC.) AS NEEDED FOR UNEXPECTED STORM EVENTS AND AS THE CITY REQUIRES.
- 5. THE CSC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING AND OPERATION.
- INCLUSIVE.
- 7. ANY AREA NEEDING CSC MEASURE, NOT REQUIRING IMMEDIATE ATTENTION, SHALL BE ADDRESSED WITHIN FIFTEEN (15) DAYS.
- 8. THE CSC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT AND AS THE CITY DEEMS NECESSARY.
- LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- 10. STABILIZED CONSTRUCTION ENTRANCES AND WASH PADS PER CITY STANDARDS, SHALL BE INSTALLED AT THE BEGINNING OF ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
- 11. DURING THE TIME PERIOD OF NOVEMBER 1ST THROUGH MARCH 31ST, ALL PROJECT DISTURBED AREAS THAT ARE TO BE LEFT OR PLASTIC COVERING.
- 12. WHERE SEEDING FOR TEMPORARY EROSION CONTROL IS REQUIRED, FAST GERMINATING GRASSES SHALL BE APPLIED AT AN APPROPRIATE (E.G. ANNUAL OR PERENNIAL RYE APPLIED AT APPROXIMATELY 80 POUNDS PER ACRE).
- 13. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED. IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF THREE (3) INCHES OR 3,000 LBS/ACRE.
- AND PROVIDE ADDITIONAL FACILITIES, OVER AND ABOVE MINIMUM REQUIREMENTS OUTLINED ON THE APPROVED PLANS.
- 15. FILTER FABRIC FENCE SHALL BE USED WHERE NOTED ON THE PLANS OR AS DIRECTED BY THE CITY.

#### ECTYPOS ARCHITECTURE

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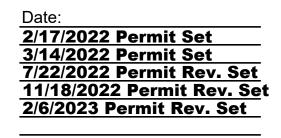


**Civil Engineer:** 

WR Consulting, Inc. 3611 45th Ave W. Seattle, WA 98199 P: 206.285.1593

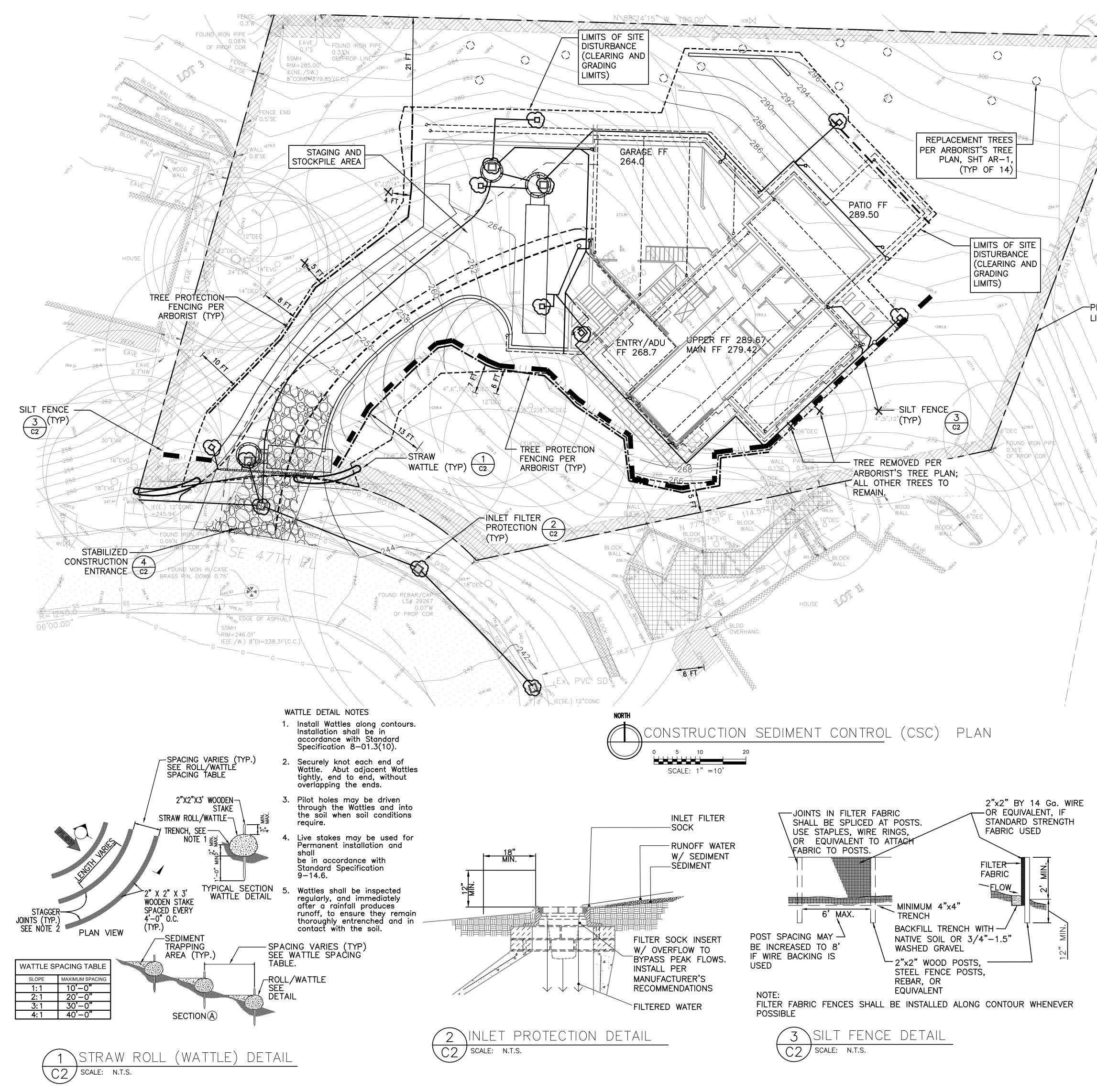


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GENERAL NOTES					
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#### TREE PROTECTION NOTES:

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- 1. ALL TREES NOT INDICATED FOR REMOVAL SHALL REMAIN UNDISTURBED.
- INSTALL ADDITIONAL TREE PROTECTION FENCING AS NEEDED TO PREVENT DAMAGE TO EXISTING TREES.
- 3. EXCESS EXCAVATED MATERIALS SHALL NOT BE DISPOSED OF ON-SITE OR PLACED ON ANY ROOT ZONE OF EXISTING TREES TO REMAIN.
- 4. SPOILS, EXCESS MATERIALS AND CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE HILLSIDE AND DISPOSED OF IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
- ALL INFORMATION ABOUT TREES, PLANTINGS, MAINTENANCE, ETC. ARE IN ACCORDANCE WITH THE ARBORIST'S TREE PLAN (AR-1) AND CITY OF MERCER ISLAND REQUIREMENTS. THEY ARE SHOWN ON THIS SHEET IN RESPONSE TO CITY OF MERCER ISLAND REVIEW REQUIREMENTS. THE ENGINEERING SEAL AFFIXED TO THIS PLAN DOES NOT ADDRESS ANY ASPECT OF TREES OR PLANTINGS FOR THIS PROJECT.
- LINE (TYP) REPLACEMENT TREES SHALL BE MAINTAINED FOR A MINIMUM OF 5 YEARS FOR PLANT ESTABLISHMENT.

-PROPERTY

#### <u>LEGEND</u>

INLET PROTECTION

REMOVE TREE

SILT FENCE

STRAW WATTLE/COIR LOG 🧲

STABILIZED CONSTRUCTION ENTRANCE

TREE PROTECTION FENCE

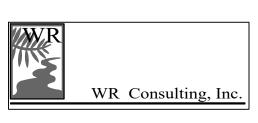
#### TESC SEASONAL WAIVER NOTES:

- 1. DURING CONSTRUCTION OF DETENTION SYSTEM OR OTHER SITE WORK, A STORMWATER MANAGEMENT FACILITY INCLUDING STORAGE (EG. BAKER TANKS), PUMPS, TREATMENT COMPONENTS AND SETTLING MEASURES SHALL BE IN PLACE AS NEEDED TO CONTROL SEDIMENT WHEN DISCHARGING STORMWATER TO THE STORM DRAIN SYSTEM.
- 2. THE STORMWATER MANAGEMENT FACILITY SHALL BE MAINTAINED AND OPERATED AS REQUIRED TO PREVENT THE DISCHARGE OF SEDIMENT LADEN SOILS FROM THE SITE.

IF USED, STABILIZE THE INLET AND OUTLET OF THE TEMPORARY CULVERT WITH QUARRY SPALLS LENGTH PER TEMPORARY CL 52 THE PLAN DUCTILE IRON CULVERT REQUIRED IF CONSTRUCTION ACCESS CROSSES A DRAINAGE DITCH R=25' MIN. 4"-8" QUARRY SPALLS (RECYCLED CONCRETE IS NOT ALLOWED) GEO-TEXTILE-FABRIC 12" MIN. THICKNESS CONSTRUCTION ACCESS TABILIZED C2, SCALE: N.T.S.

## **ECTYPOS** ARCHITECTURE

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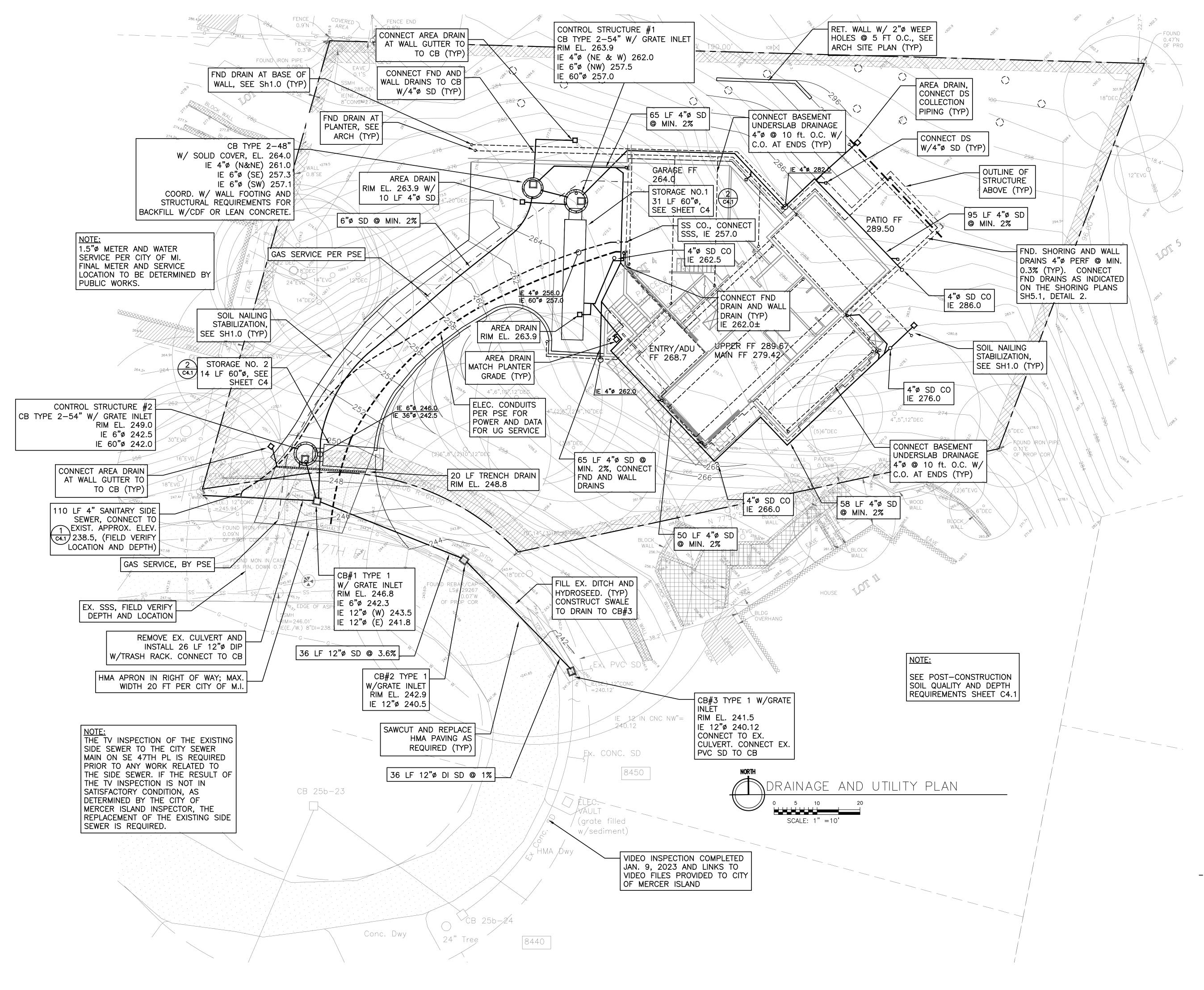
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CSC PLAN AND DETAILS					



CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555 OR CALL 8-1-1

#### DETENTION TANK CONSTRUCTION SEQUENCING NOTES:

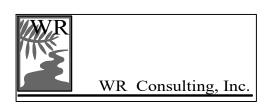
- 1. DETENTION TANK AND ASSOCIATED STRUCTURES SHALL BE INSTALLED ONLY AFTER SOIL NAILING STABILIZATION IMPROVEMENTS ARE COMPLETE.
- 2. EXCAVATION FOR DETENTION TANKS AND OTHER UTILITIES SHALL BE A SINGLE VERTICAL WALL TRENCH WITH TEMPORARY SHORING AND SAFETY SYSTEMS AS REQUIRED.
- 3. EXCAVATION FOR DETENTION FACILITIES SHALL BE REVIEWED AND APPROVED BY CITY OF MI INSPECTOR PRIOR TO FURTHER CONSTRUCTION.
- 4. THE DETENTION TANKS SHALL BE LOWERED INTO PLACE AND BACKFILLED AS INDICATED. EXCESS SPOILS SHALL BE REMOVED FROM THE SITE IMMEDIATELY.

#### CONSTRUCTION NOTES:

- 1. FURNISH AND INSTALL ALL TRANSITION COUPLINGS (FERNCO REDUCERS AND COUPLINGS) AS NEEDED FOR CONNECTIONS TO BLDG UTILITIES
- 2. INVERT ELEVATIONS ARE APPROXIMATE. ADJUST INVERT ELEVATIONS AS NEEDED TO COORDINATE WITH BLDG UTILITIES AND EXISTING GRADES.
- 3. SEE ARCHITECTURE PLANS FOR BUILDING AND SITE FURNISHINGS DETAILS.
- 5. FOUNDATION DRAINS FOR THE STRUCTURES ARE SHOWN ALONG THE BUILDING PERIMETER OR WALL FOR CLARITY. ADJUST LOCATION TO INTERIOR OF WALL TO DRAIN GROUNDWATER FROM RETAINED SOIL AT THE WALLS AND RELIEVE HYDROSTATIC PRESSURE AGAINST THE STRUCTURE AS INDICATED ON SHORING AND STRUCTURAL PLANS.



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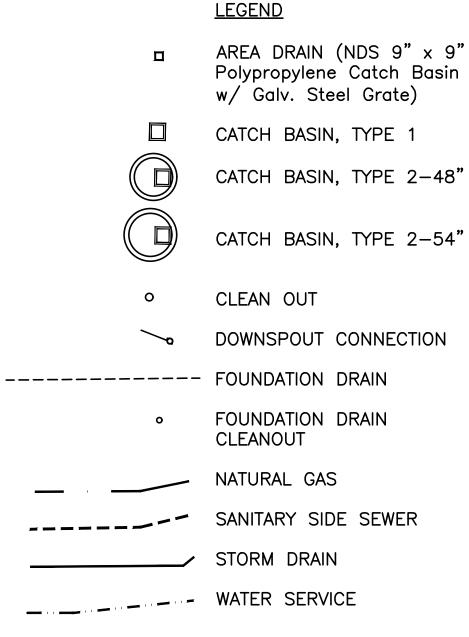
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New Residence 8435 SE 47th PL.

Mercer Island, WA 98040



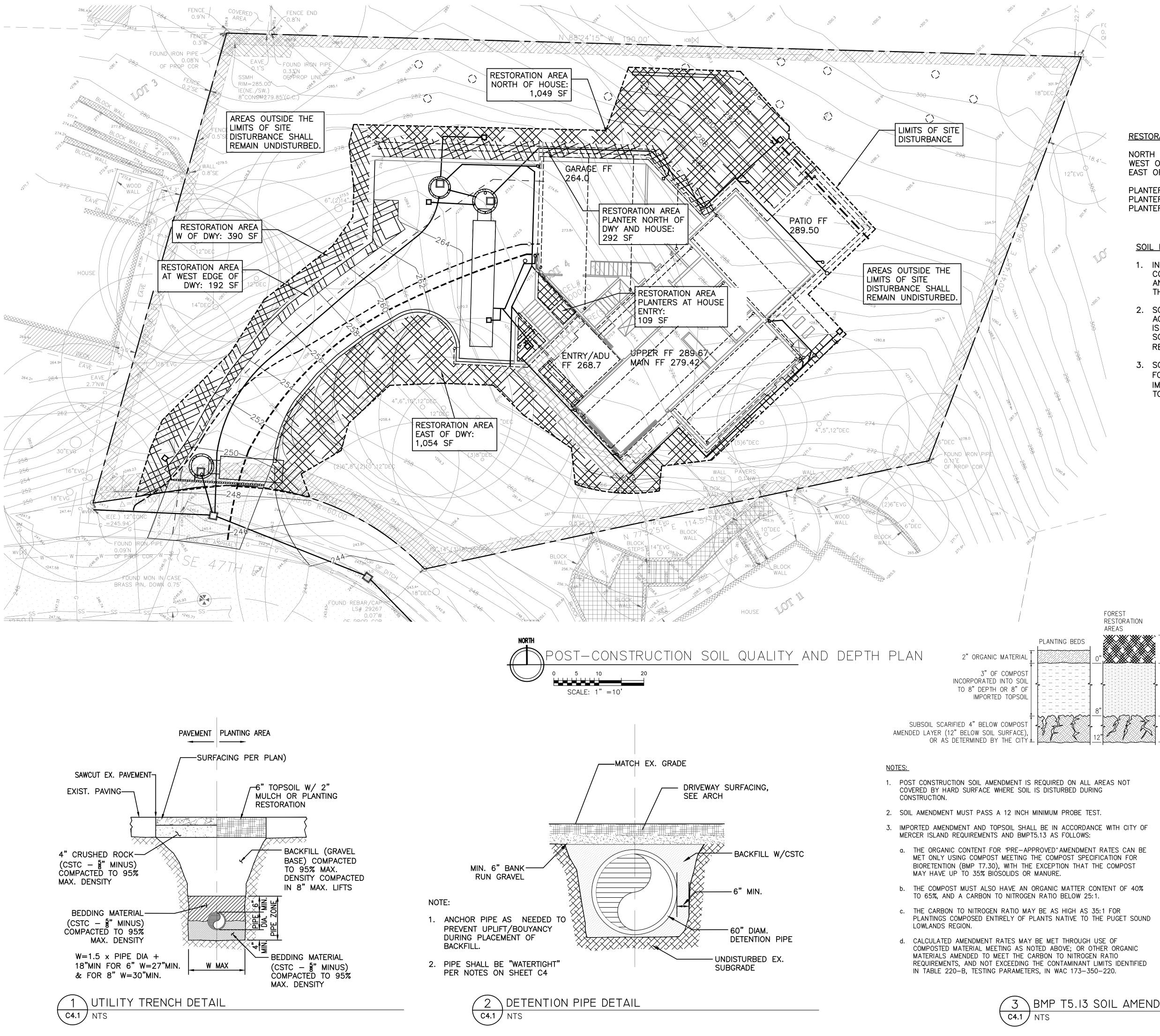
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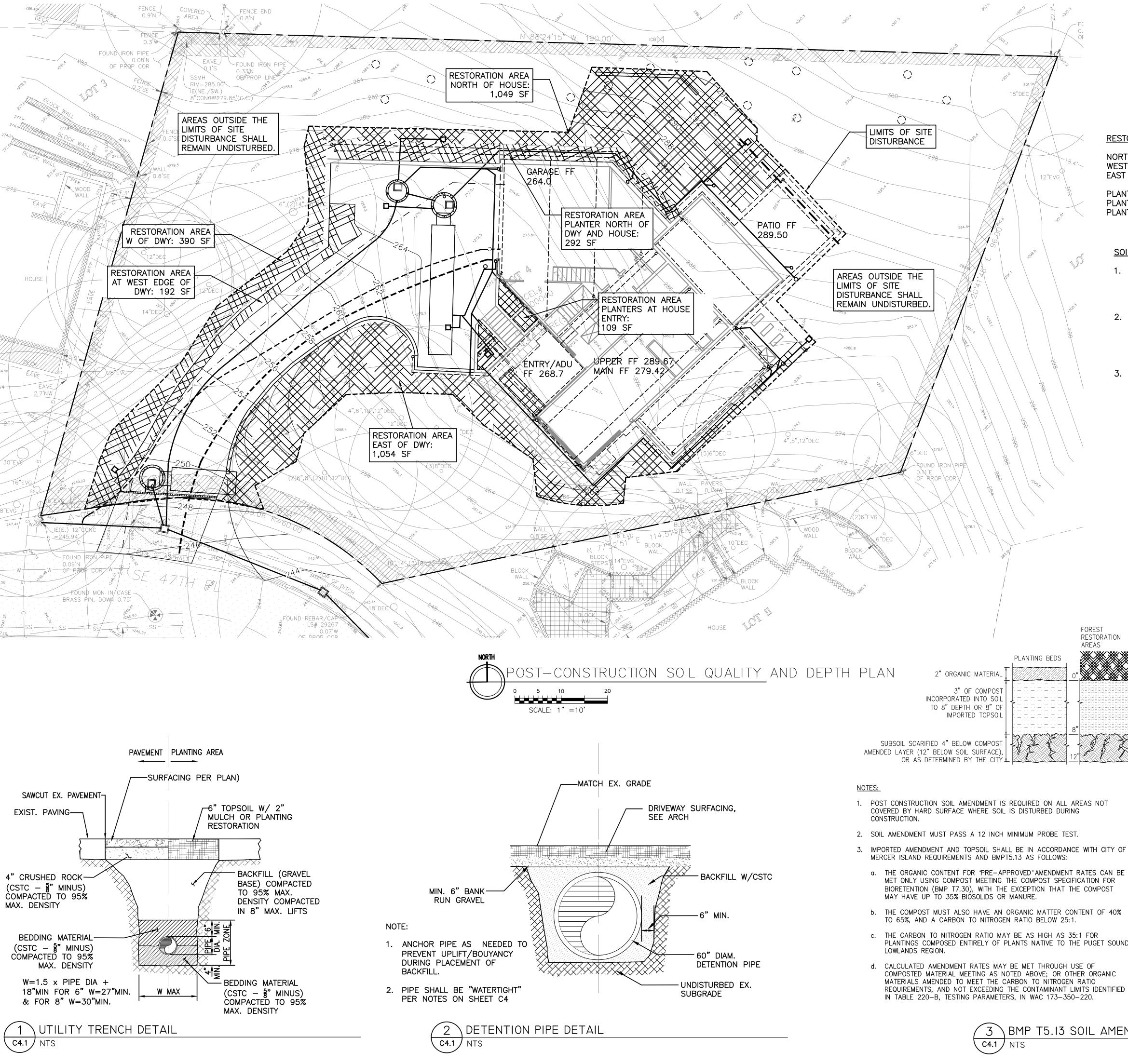
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DRAINAGE AND UTILITY PLAN

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NOTE: SEE ADDITIONAL DETENTION PIPE DETAILS SHEET C4





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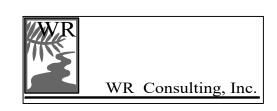
RESTORATION AREAS ARE	<u>A</u> (SF)
NORTH OF HOUSE	1,049 SI
WEST OF DRIVEWAY	390 SI
EAST OF DRIVEWAY	1,054 SI
PLANTER AT WEST EDGE OF DWY	192 SF
PLANTER N. OF DWY AND HOUSE	292 SF
PLANTERS AT ENTRY	109 SF

#### SOIL RESTORATION REQUIREMENTS:

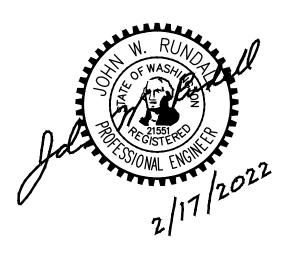
- 1. IN ALL AREAS DISTURBED BY CONSTRUCTION AND IN NEW PLANTERS AND PLANTING BEDS AS INDICATED ON THE PLAN.
- 2. SOIL RESTORATION SHALL BE IN ACCORDANCE WITH CITY OF MERCER ISLAND POST-CONSTRUCTION SOIL-MANAGEMENT MINIMUM REQUIREMENT #5, BMP T5.13
- 3. SOIL RESTORATION SHALL BE AS FOLLOWS: TILL IN 3" COMPOST OR IMPORT 8" OF COMPOST AMENDED TOPSOIL



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ARBORIST'S MULCH

3" OF COMPOST INCORPORATED INTO SOIL TO 8" DEPTH OR 8" OF IMPORTED TOPSOIL

SUBSOIL SCARIFIED 4" BELOW COMPOST AMENDED LAYER 12" BELOW SOIL SURFACE), OR AS DETERMINED BY THE CITY UNLESS NOT RECOMMENDED BY ARBORIST DUE TO IMPACTS TO EXISTING TREE ROOTS.

#### **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.
- AMEND EXISTING SITE TOPSOIL OR SUBSOIL EITHER AT DEFAULT "PRE APPROVED" RATES, OR AT CUSTOM CALCULATED RATES BASED ON TESTS OF THE SOIL AND AMENDMENT.
- 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

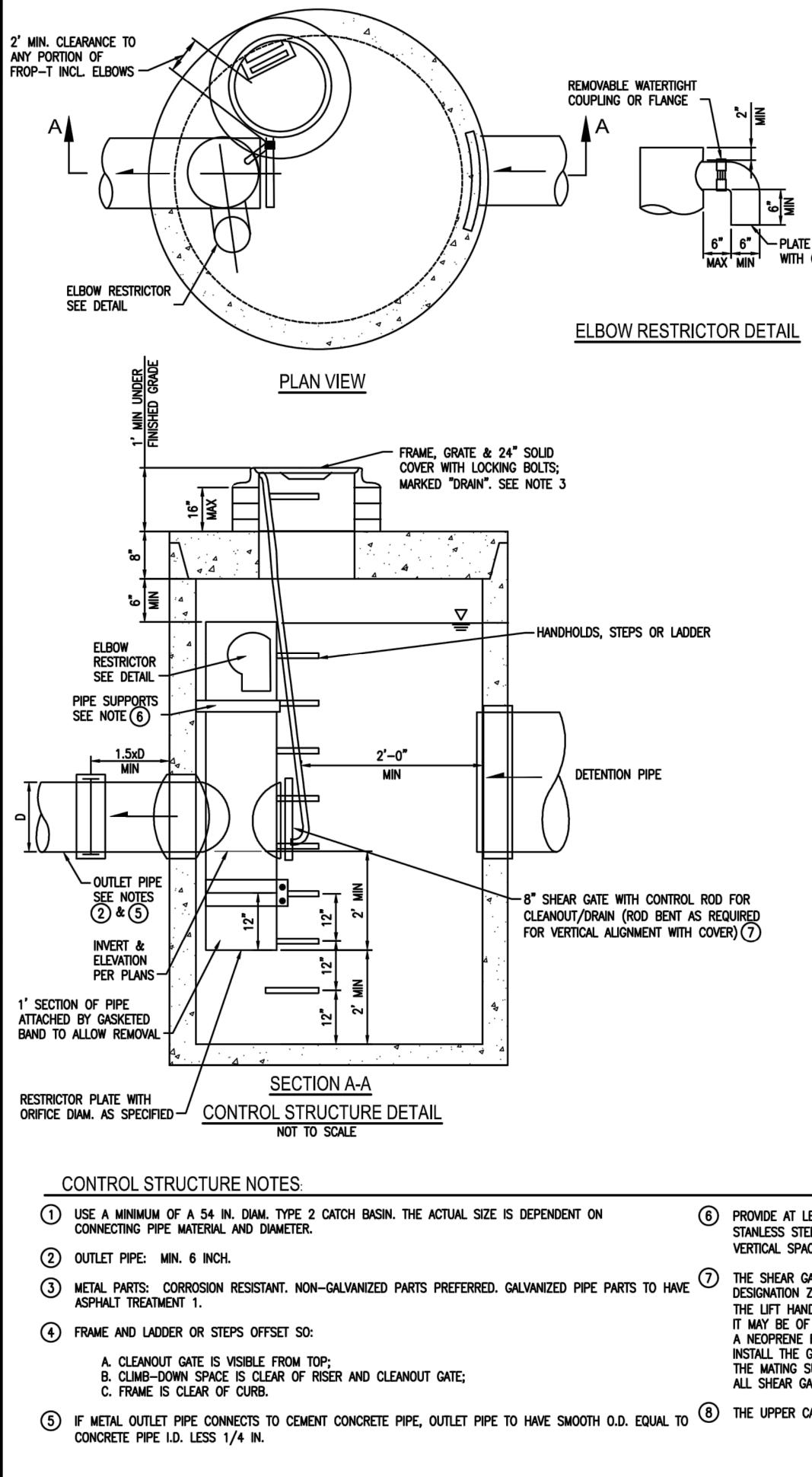
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DRAINAGE

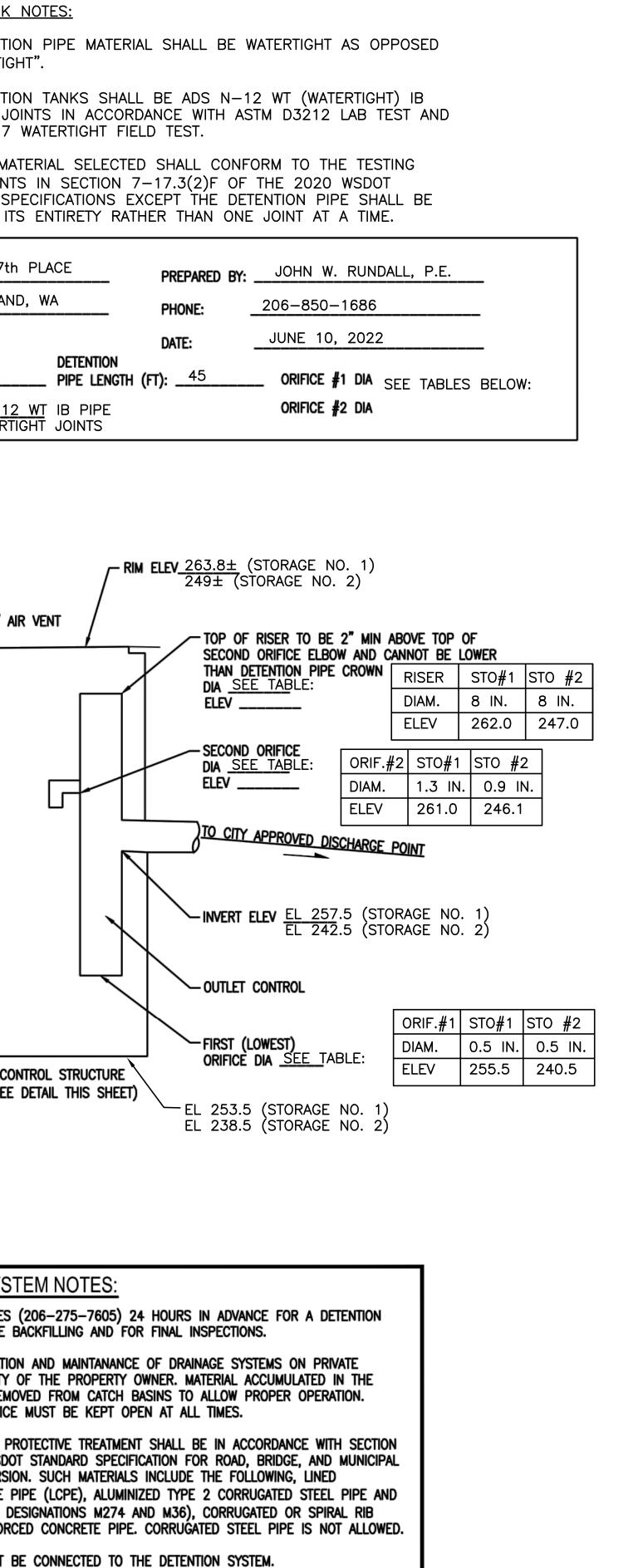
BMP T5.13 SOIL AMENDMENT DESIGN CRITERIA

DETAILS



ATTACHMENT 1 CITY OF MERCER IS ON-SITE DETENTION SYSTEM (FOR NEW PLUS REPLACED AREA OF 9,500 SF OR	SLAND M WORKSHEET IMPERVIOUS	DETENTION TANK N 1. THE DETENTION TO "SOIL TIGHT 2. THE DETENTION PIPE WITH JOIN ASTM F1417 W 3. THE PIPE MATE REQUIREMENTS STANDARD SPE TESTED IN JTS
E WELDED TO ELBOW ORIFICE AS SPECIFIED	OWNER: Dan and Susan Steinborn   PERMIT #:   NEW PLUS REPLACED IMPERVIOUS   SURFACE AREA (SF):   5,795   SOIL TYPE:	TESTED IN ITS ADDRESS: <u>8435 SE 47th</u> MERCER ISLAND, DETENTION PIPE DIA (INCH): <u>60" Ø</u> PIPE MATERIAL: <u>ADS N-12</u> W/WATERTIG
RIM ELEV FINISLED GRADE TIGHTLINE INV. ELEV UPPER CATCH BASIN (SEE CONTROL STRUCTUR NOTES 1 AND 8) NOTE: 1. UPPER CATCH BASIN NOT REQUIRED FOR EITHER STORAGE TANK PER CONTROL	DETENTION PIPE LENGTH 31 FT (UPPER) 14 FT (LOWER) DETENTION PIPE DIA IS _60 IN. LEVEL 	CONT (SEE D
EAST ONE 3 X 0.090 GAUGE SUPPORT BRACKET ANCHORED TO CONCRETE W EEL EXPANSION BOLTS OR EMBEDDED SUPPORTS 2 IN. INTO CATCH BASIN WA CING). ATE SHALL BE MADE OF ALUMINUM ALLOY IN ACCORDANCE WITH ASTM B 26N ZG322; OR CAST IRON IN ACCORDANCE WITH ASTM A 48, CLASS 30B. DLE SHALL BE MADE OF A SIMILAR METAL TO THE GATE (TO PREVENT GALVAI "SOLID ROD OR HOLLOW TUBING, WITH ADJUSTABLE HOOK AS REQUIRED. RUBBER GASKET IS REQUIRED BETWEEN THE RISER MOUNTING FLANGE AND T GATE SO THAT THE LEVEL-LINE MARK IS LEVEL WHEN THE GATE IS CLOSED. SURFACES OF THE LID AND THE BODY SHALL BE MACHINED FOR PROPER FIT. ATE BOLTS SHALL BE STAINLESS STEEL.	ALL WITH 5/8 IN. ALL (MAXIMUM 3'-0" M AND ASTM B 275, INIC CORROSION), THE GATE FLANGE.	<ul> <li>N-SITE DETENTION SYSTEM</li> <li>1. CALL DEVELOPMENT SERVICES (2 SYSTEM INSPECTION BEFORE BA</li> <li>2. RESPONSIBILITY FOR OPERATION PROPERTY IS RESPONSIBILITY OF STORAGE PIPE MUST BE REMOVE THE OUTLET CONTROL ORIFICE I</li> <li>3. PIPE MATERIAL, JOINT, AND PRO 7.04 AND 9.05 OF THE WSDOT CONSTRUCTION, LATEST VERSION CORRUGATED POLYETHYLENE PIP PIPE ARCH (MEETS AASHTO DES ALUMINUM PIPE, OR REINFORCEI</li> <li>4. FOOTING DRAINS SHALL NOT BE</li> </ul>

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555 OR CALL 8-1-1





2/17/2022 Permit Set 3/14/2022 Permit Set 7/22/2022 Permit Rev. Set 11/18/2022 Permit Rev. Set 2/6/2023 Permit Rev. Set

Project No.: 2205-225					
Scale: As Noted					
Sheet: 4 of 5					
DETENTION					
TANK DETAILS					



ECTYPOS

ARCHITECTURE

4212 W. Mercer Way

#### EXISTING TREE SCHEDULE

						1		
Arborist	s NW Tree Inventory							
Tree Number	Common name	Scientific Name	# of Trunks	DBH (Inches)	Dripline (Feet)	Condition	Retain	Notes
1	DOUGLAS FIR	Pseudotsuga menziesii	1	14	19	FAIR	YES	
2	DOUGLAS FIR	Pseudotsuga menziesii	1	15	12	FAIR	YES	
3	DOUGLAS FIR	Pseudotsuga menziesii	1	18	12	FAIR	YES	
4	DOUGLAS FIR	Pseudotsuga menziesii	1	25	19	FAIR	YES	
5	DOUGLAS FIR	Pseudotsuga menziesii	1	21	20	FAIR	YES	
6	CHERRY	Prunus avium	1	16	12	FAIR	YES	
7	DOUGLAS FIR	Pseudotsuga menziesii	1	15	14	FAIR	YES	
8	BIG LEAF MAPLE	Acer macrophyllum		14	18	FAIR	YES	
9	BIG LEAF MAPLE	Acer macrophyllum	1	12	14	FAIR	NO	
10	BIG LEAF MAPLE	Acer macrophyllum	4	17.2	18	FAIR	YES	STUMP SPROUTED
11	BIG LEAF MAPLE	Acer macrophyllum	1	12	12	FAIR	YES	
12	BIG LEAF MAPLE	Acer macrophyllum	6	17.7	18	FAIR	YES	STUMP SPROUTED
13	BIG LEAF MAPLE	Acer macrophyllum	3	13.8	14	FAIR	YES	STUMP SPROUTED
14	BIG LEAF MAPLE	Acer macrophyllum	6	20.6	18	FAIR	YES	STUMP SPROUTED
15	BIG LEAF MAPLE	Acer macrophyllum	1	18	27	FAIR	YES	STUMP SPROUTED
16	BIG LEAF MAPLE	Acer macrophyllum	6	31	20	FAIR	YES	STUMP SPROUTED
17	DOUGLAS FIR	Pseudotsuga menziesii	1	16	14	FAIR	YES	
18	BIG LEAF MAPLE	Acer macrophyllum	5	17.4	14	FAIR	NO	STUMP SPROUTED
19	BIG LEAF MAPLE	Acer macrophyllum	1	10	18	FAIR	NO	
20	BIG LEAF MAPLE	Acer macrophyllum	3	13.6	18	FAIR	NO	STUMP SPROUTED
21	DOUGLAS FIR	Pseudotsuga menziesii	1	18	14	FAIR	YES	
22	SCOULERS WILLOW	Salix scoulerlana	4	28.7	16	FAIR	YES	CLINGING TO STEEP EDGE
23	BIG LEAF MAPLE	Acer macrophyllum	1	10	12	FAIR	YES	STUMP SPROUTED - OFF SITE
24	DOUGLAS FIR	Pseudotsuga menziesii	1	14	14	GOOD	YES	OFF SITE
25	BIG LEAF MAPLE	Acer macrophyllum	1	6	10	FAIR	YES	OFF SITE
26	BIG LEAF MAPLE	Acer macrophyllum	4	18.2	14	FAIR	YES	STUMP SPROUTED
27	DOUGLAS FIR	Pseudotsuga menziesii	1	8.4	10	FAIR	YES	OFF SITE
28	BIG LEAF MAPLE	Acer macrophyllum	1	6	10	FAIR	YES	OFF SITE
29	DOUGLAS FIR	Pseudotsuga menziesii	1	12	12	FAIR	YES	OFF SITE
30	DOUGLAS FIR	Pseudotsuga menziesii	1					
31	DOUGLAS FIR	Pseudotsuga menziesii	1	34	26	FAIR	YES	OFF SITE
		Total DBH		492.6				
		Retained DBH		439.6				
		Retained Percentage		89.2%				

				 	 	 $\overline{}$	 $\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	 $\checkmark$	$\searrow$
	CEMEN	TTDEE	<b>CUEDI</b>									

$\succ$	REPLACEM	ENT TREE SCHEDULE						
(	TREE (R#)	COMMON NAME	LATIN NAME	SIZE	QTY			
	R1	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
$\succ$	R2	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
(	R3	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
	R4	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
	R5	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
(	R6	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
(	R7	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
	R8	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
1	R9	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
(	R10	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
$\mathbf{A}$	R11	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
$\boldsymbol{\mathcal{Y}}$	R12	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
(	R13	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1			
	R14	EXCELSA CEDAR	Thuja Plicata Excelsa	8'-10'	1		x x	ς
$\backslash$	 \ λ	$\lambda \lambda \lambda$		$\mathbf{\mathbf{x}}$	$\mathbf{X}$	X	$\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{\mathbf{$	大

#### $\overline{}$ GENERAL ARBORISTS NOTES:

3.

PROJECT ARBORIST MUST BE ON-SITE DURING EXCAVATION ALONG THE DRIVEWAY.

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

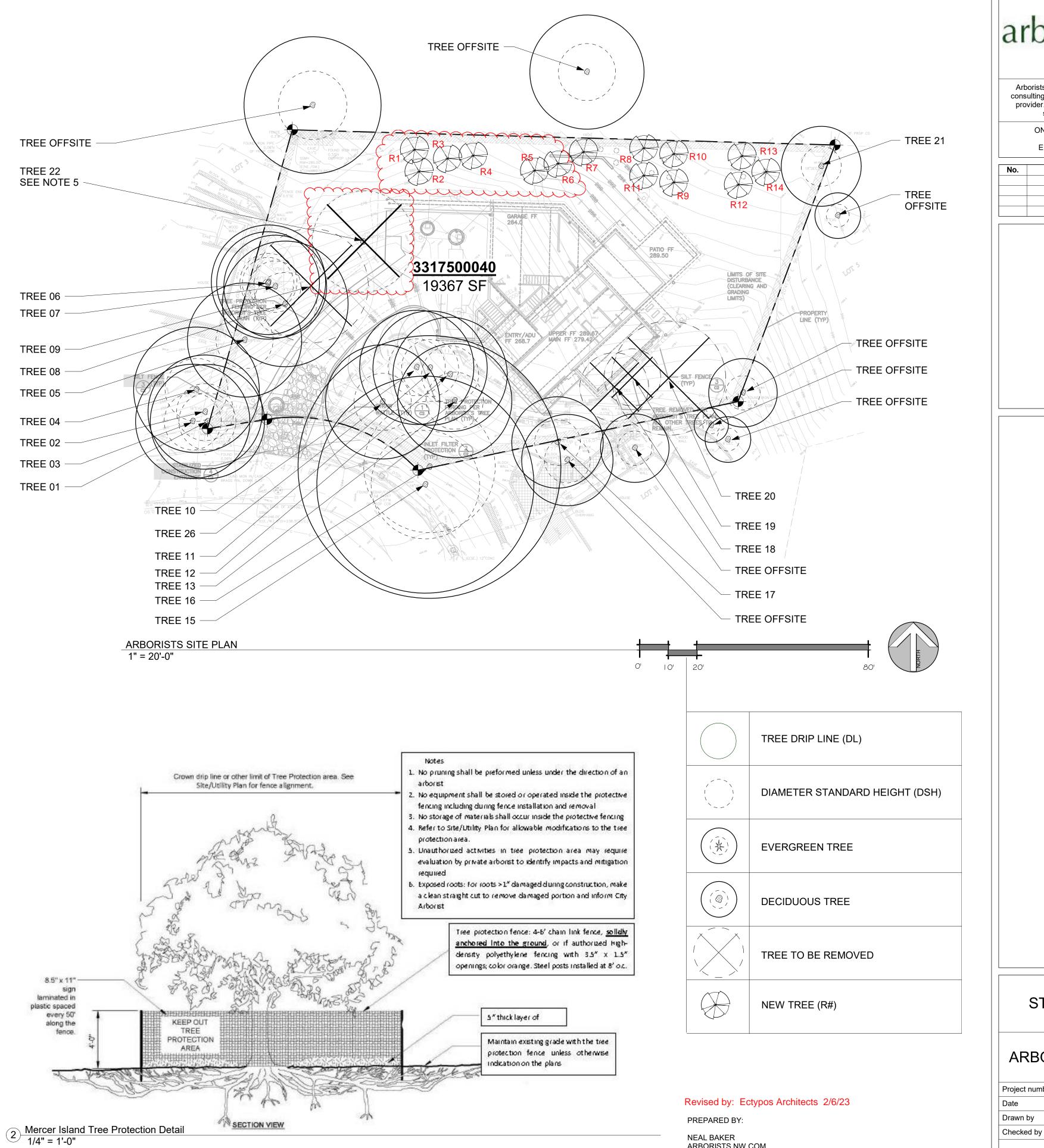
PURSUANT TO MICC 19.10.070,D, TREES SHALL BE MAINTAINED IN A HEALTHY CONDITION FOR 5 YEARS. DEAD OR DEPRESSED TREES SHALL BE REPLACED. REFER TO C4 FOR THE POST-CONSTRUCTION SOIL QUALITY AND DEPTH PLAN. 4.

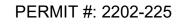
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5. REFER TO ATTACHED ARCHITECT'S MEMO

≻ 6. REFER TO C2 FOR LIMITS OF DISTURBANCE

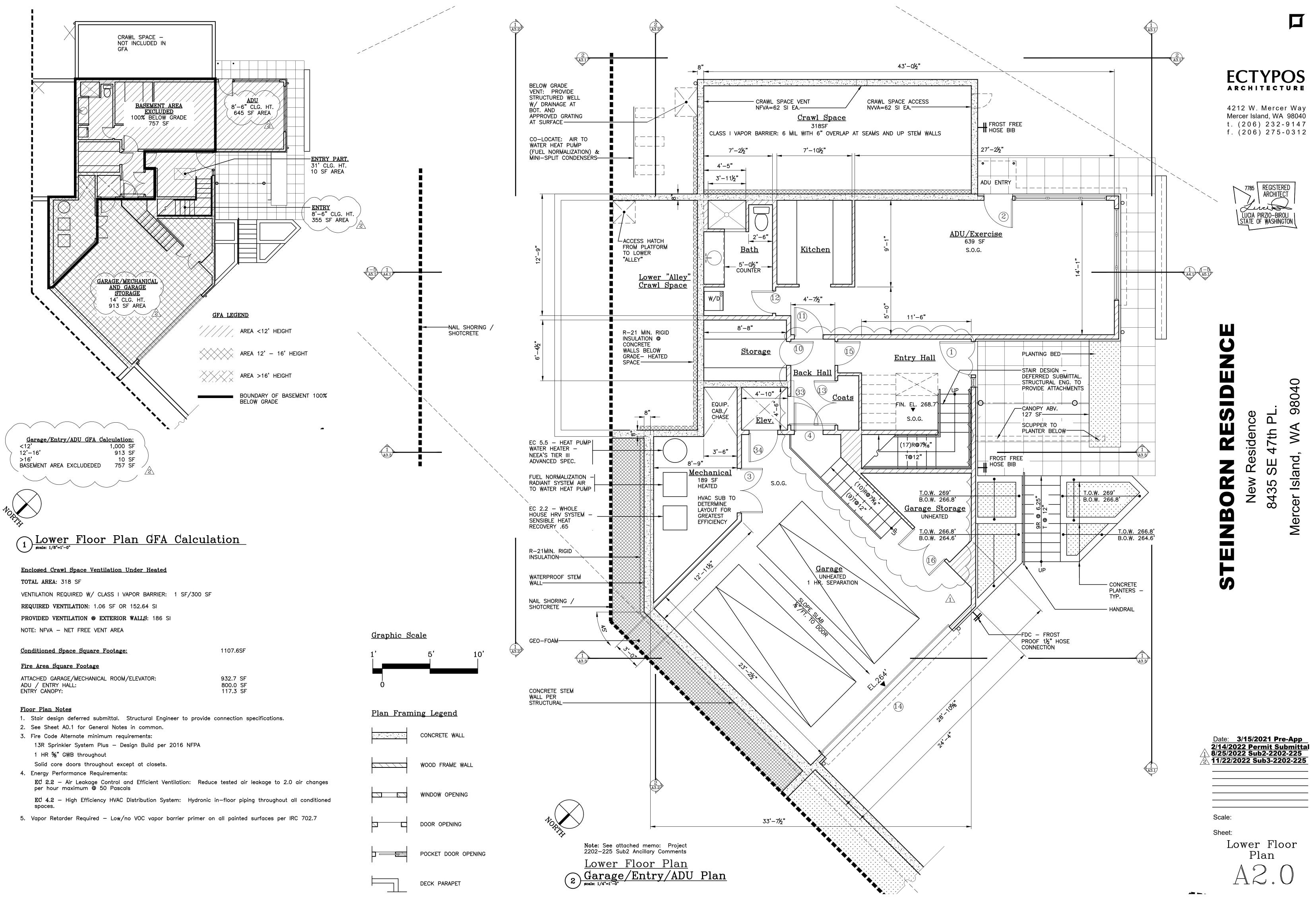
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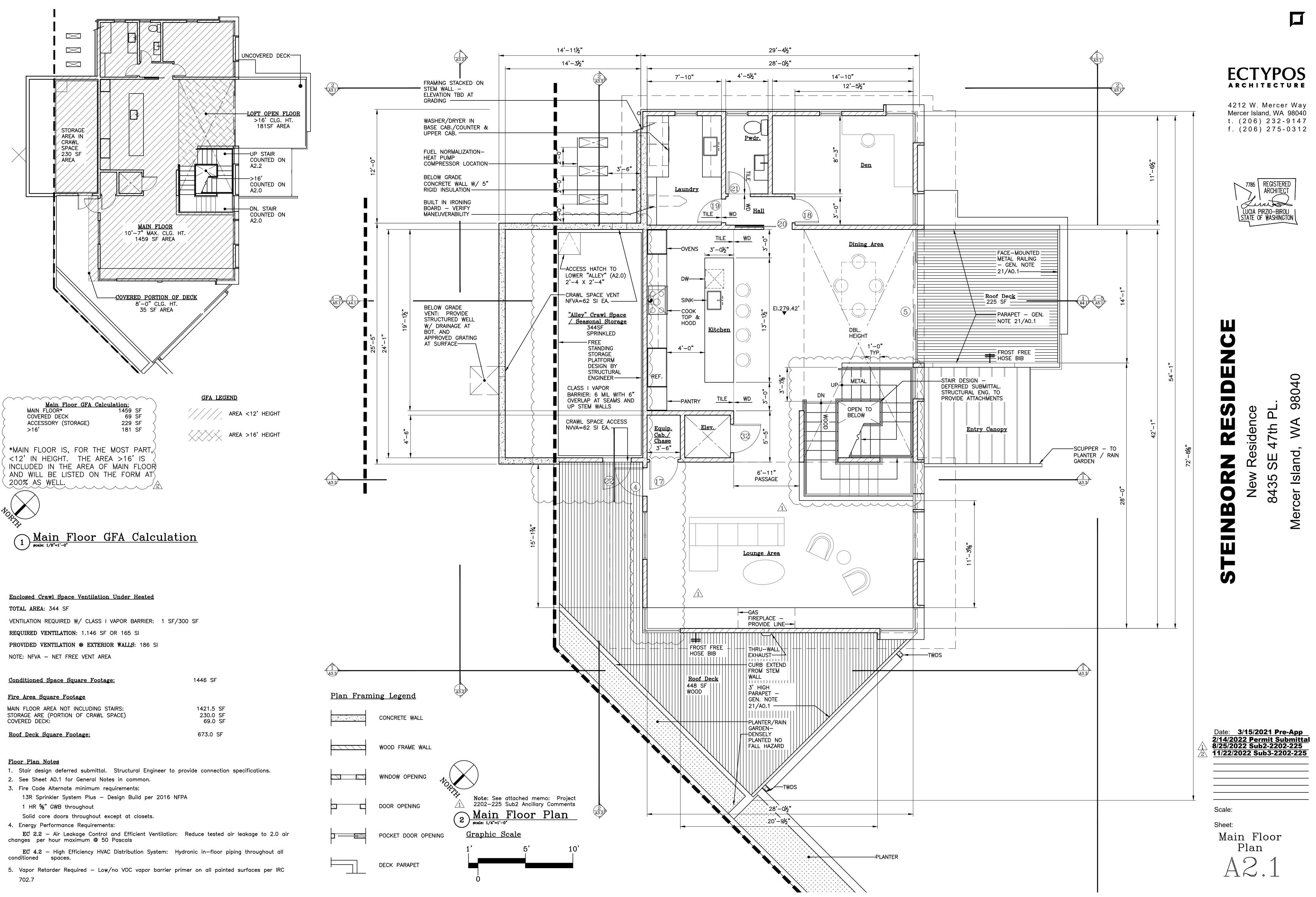




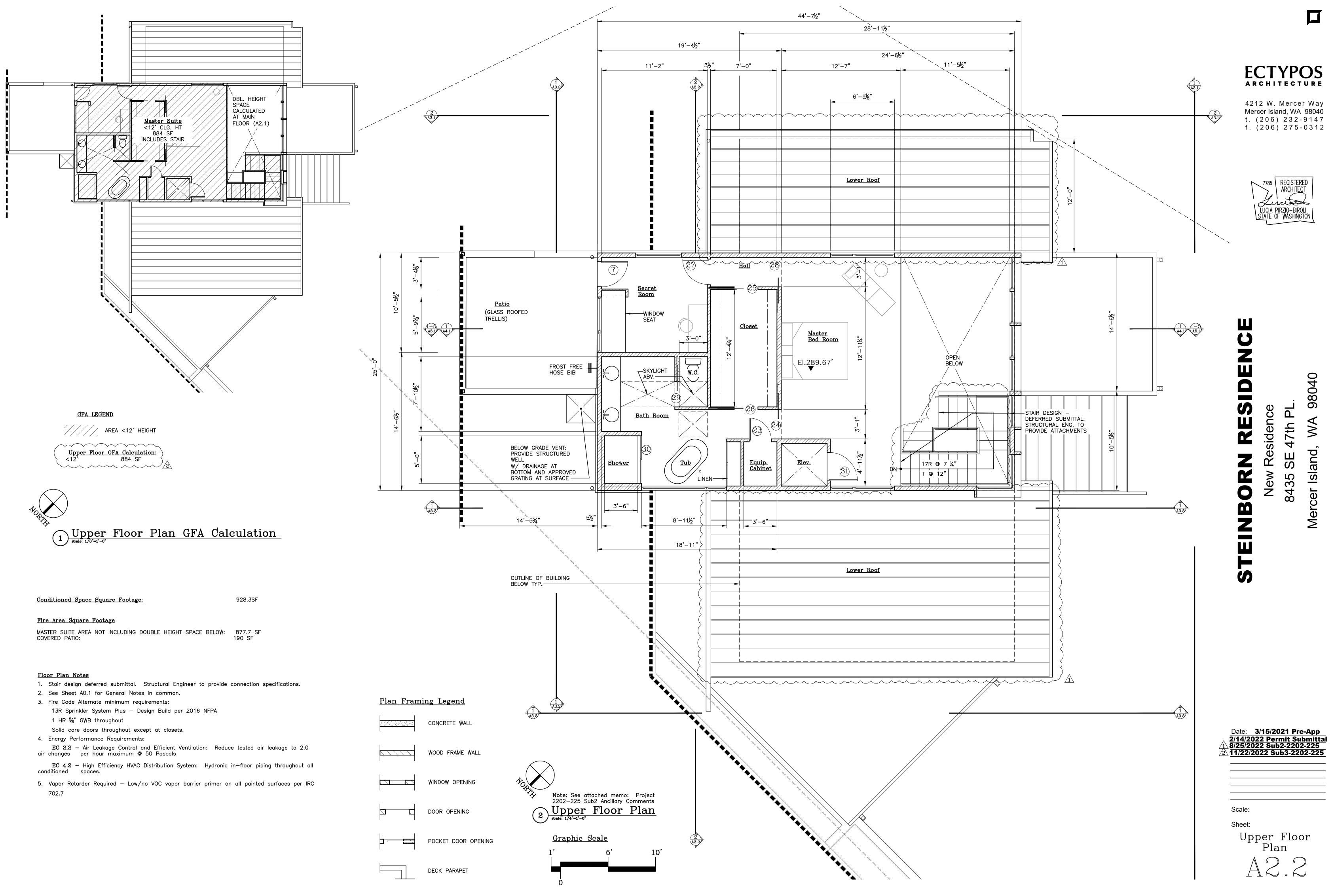
NEAL BAKER ARBORISTS NW.COM ISA CERT. PN1075A TRAQ ISA (TREE RISK ASSESSMENT QUALIFIED) MEMBER AREA & SOCA PH: 206 779 2579

arboristsNW Arborists NW is a full spectrum arboricultural, consulting and landscape design and installation provider. When you think tree and landscape services, think Arborists NW. ONLINE: https://arboristsnw.com/ PHONE: 206-779-2579 EMAIL: neal@arboristsnw.com Description Date 98040 MA Ú. ISLAND AR MERCER **STEINBORN** Ŀ, 47TH SП 8435 **STEINBORN AR-1** ARBORIST TREE PLAN Project number 21029 CW NB Checked by AR-1 Scale As indicated

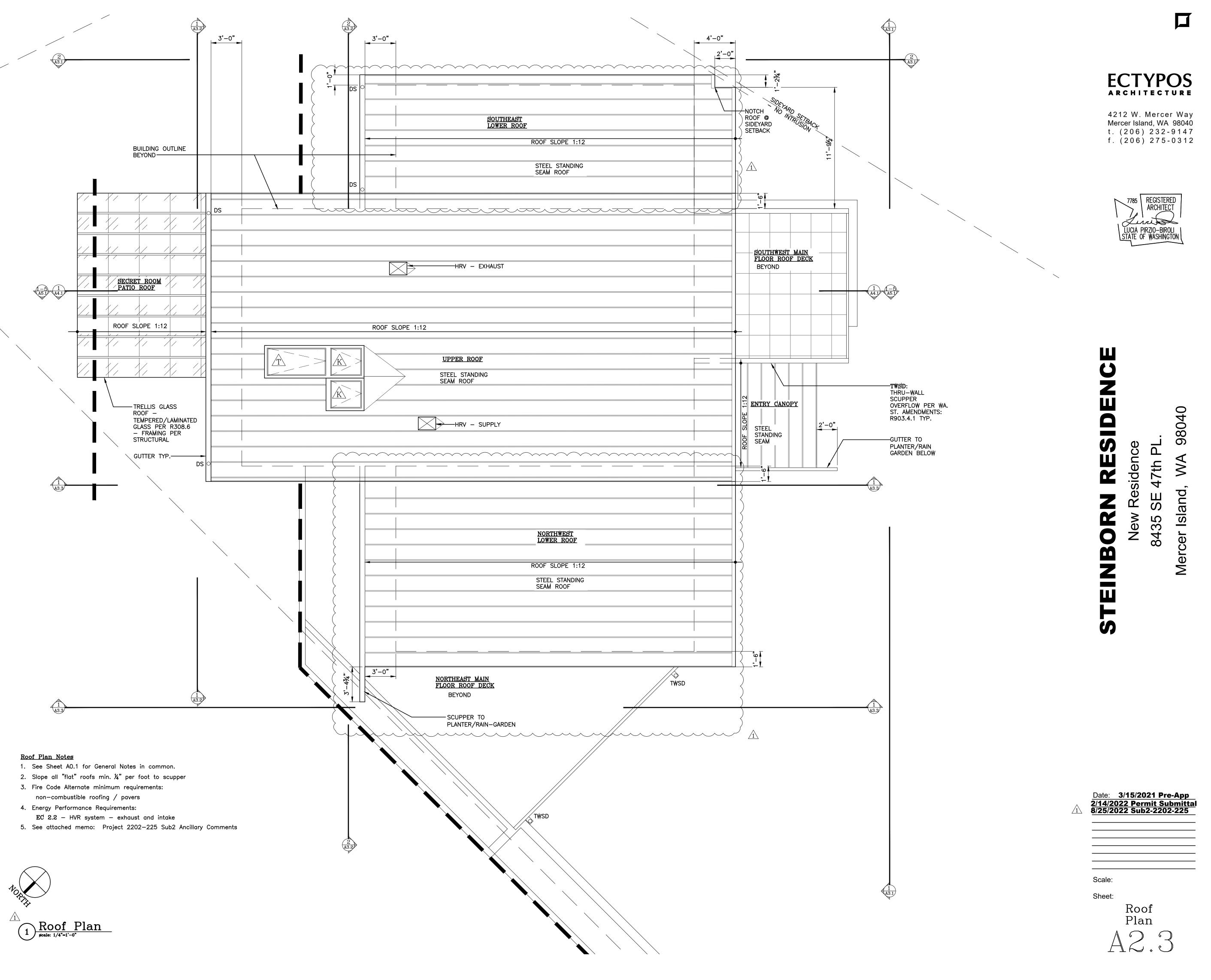


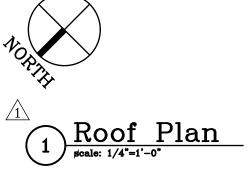


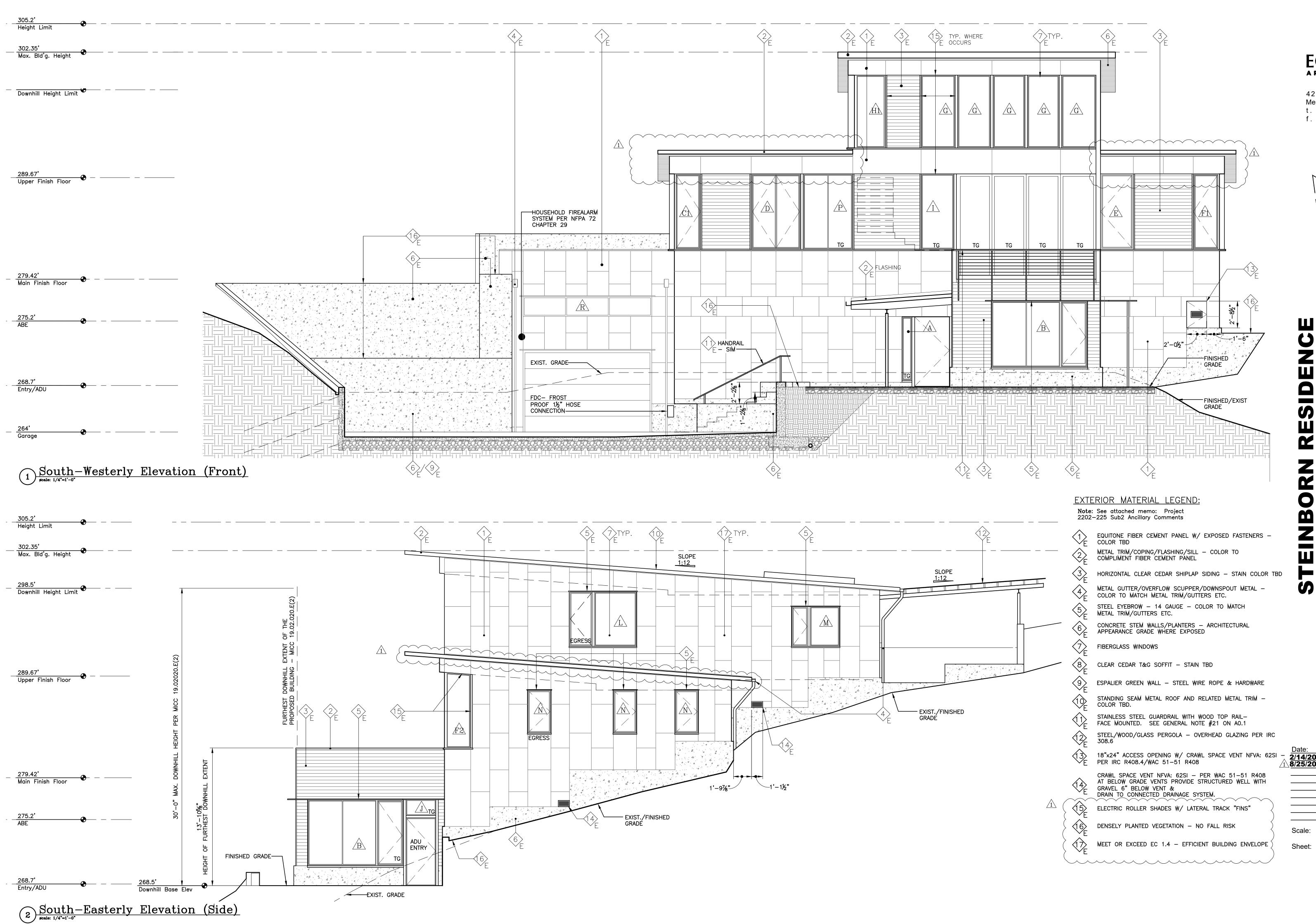
WOOD FRAME WALL
WINDOW OPENING
DOOR OPENING
POCKET DOOR OPE



CONCRETE
WOOD FRAM
WINDOW OF
DOOR OPEN
POCKET DO
DECK PARA







ECTYPOS ARCHITECTURE

4212 W. Mercer Way Mercer Island, WA 98040 t. (206) 232-9147 f. (206) 275-0312



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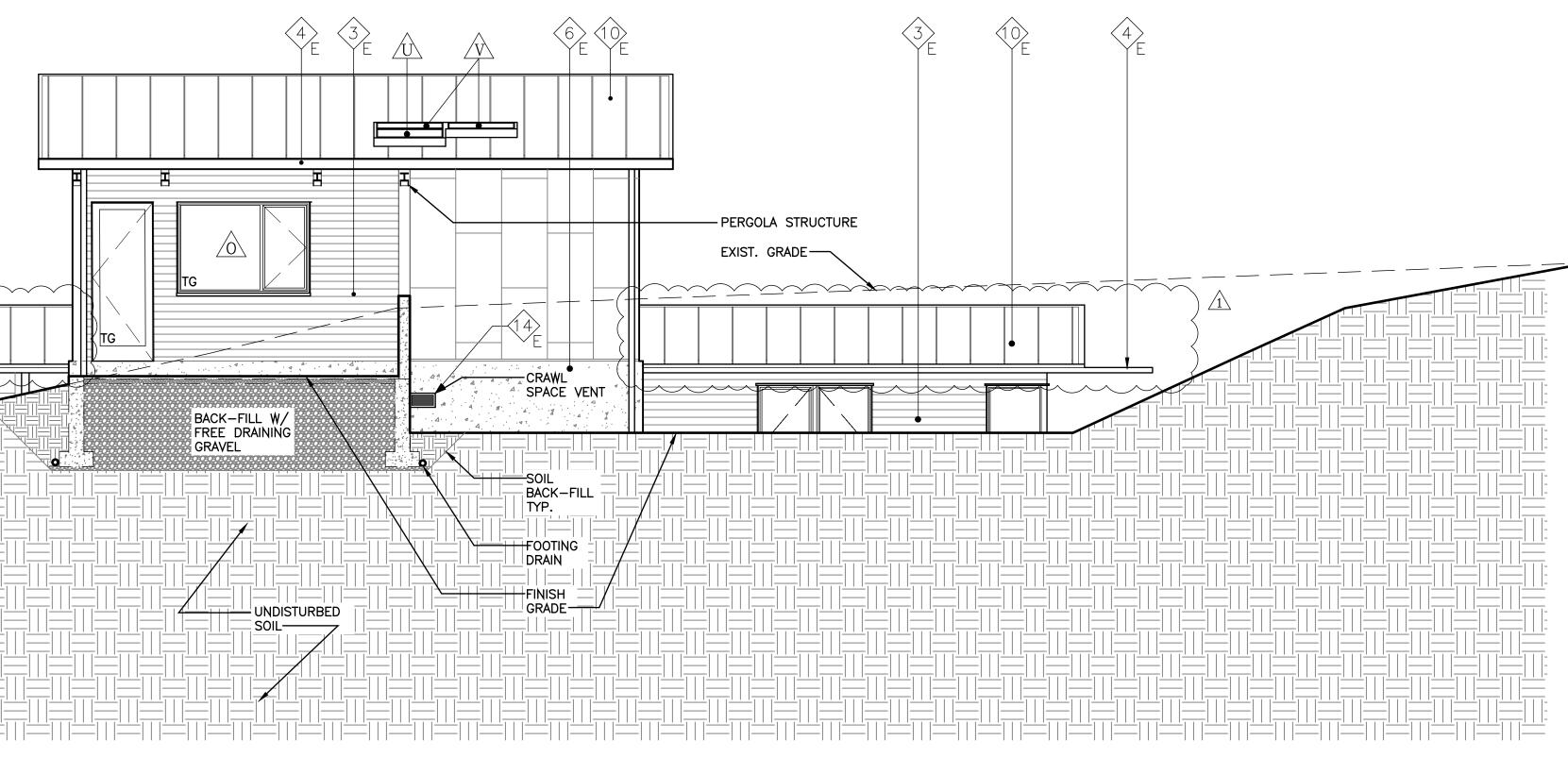
Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 8/25/2022 Sub2-2202-225

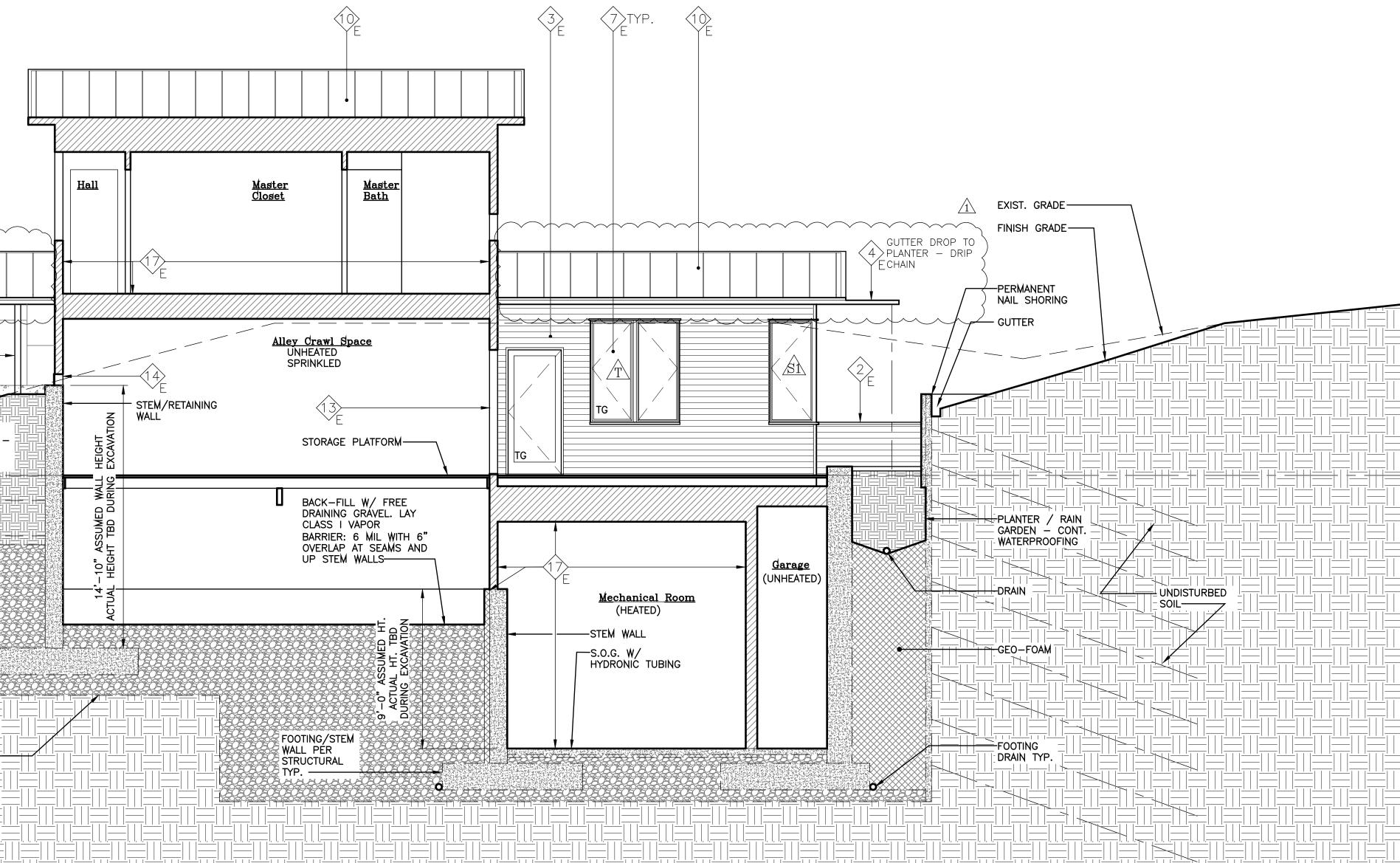
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Elevations



<u>305.2'</u> Height Limit	<b>— •</b> — — — — — — — — — — — — — — — — — —	
<u> </u>		
<u>298.5'</u> Downhill Height Lir	<u>−</u> −−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−−	
289.67' Upper Finish Floor	━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━	
		EXIST./FINISH GRADE
<u>279.42'</u> Main Finish Floor	━━━━━━=	
275.2'	<b></b>	
1 <u>North-</u> #cale: 1/4*=1'-0*	-Easterly Elevation (Rear)	
305.2' Height Limit 302.35' Max. Bld'g. Height	●	
<u>298.5'</u> Downhill Height Lir		
<u>289.67'</u> Upper Finish Floor	₽	
		AIN FLOOR SYSTEM BEYOND PREFABRICATED
279.42' Main Finish Floor	━€	PREFABRICATED CRAWL SPACE VENT WELL EXIST./ FINISH GRADE
<u>275.2'</u> ABE	━━━	CRAWL SPACE
268.7' Entry/ADU	━━━	
<u>264'</u> Garage		-       -
2 Buildin #cale: 1/4"=1'-0"	ng Section / Partial Elevation	









4212 W. Mercer Way Mercer Island, WA 98040 t. (206) 232-9147 f. (206) 275-0312





98040

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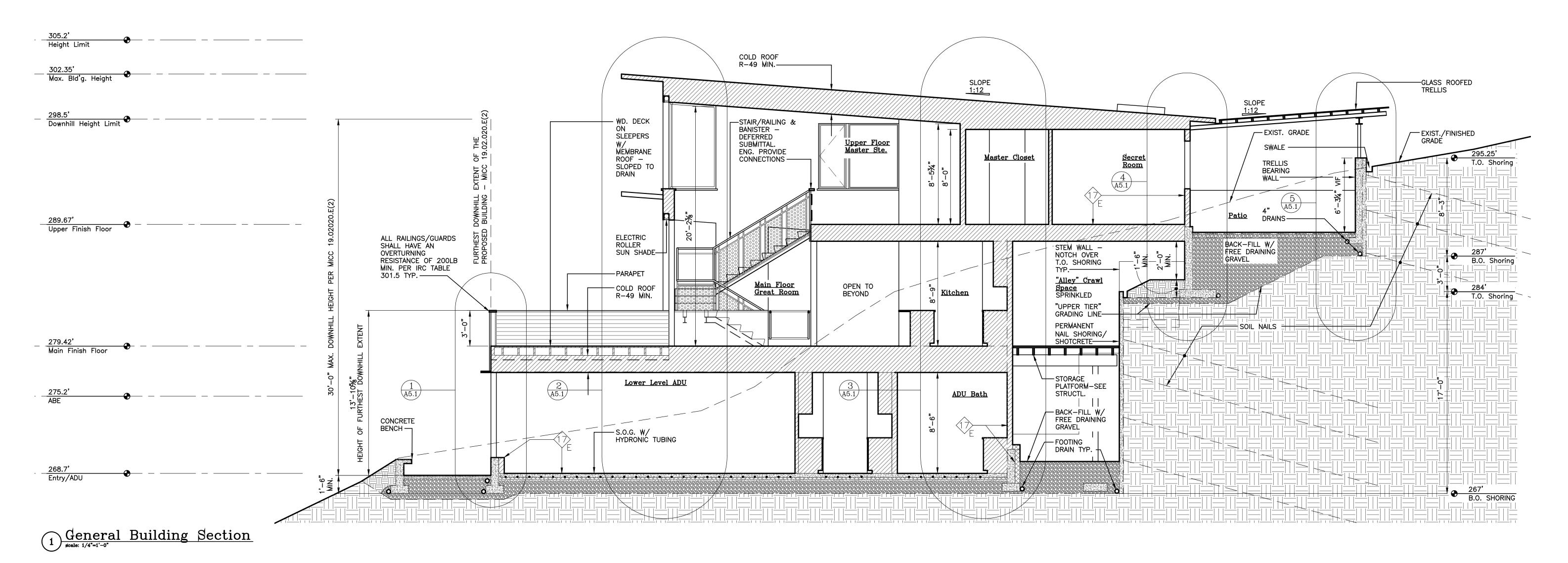
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ZB Mer STEII Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 8/25/2022 Sub2-2202-225 Scale: Sheet: Elevations/ Sections







4212 W. Mercer Way Mercer Island, WA 98040 t. (206) 232-9147 f. (206) 275-0312



# STEINBORN RESIDENCE New Residence

98040

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47th PL

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8435

 Date:
 3/15/2021
 Pre-App

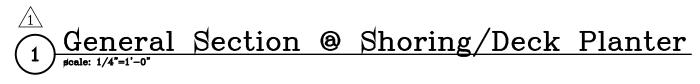
 2/14/2022
 Permit
 Submittal

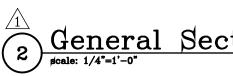
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 8/25/2022
 Sub2-2202-225

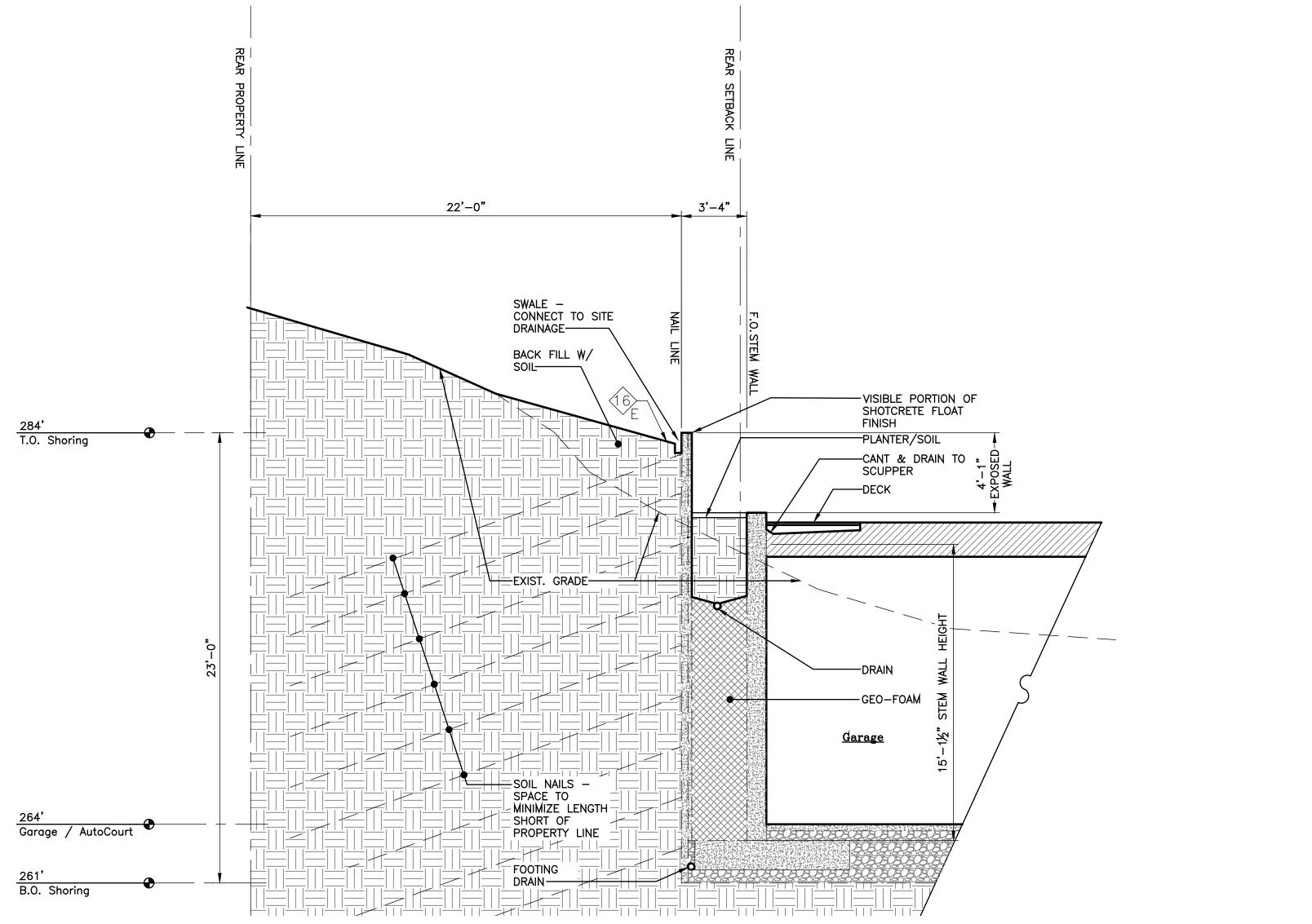
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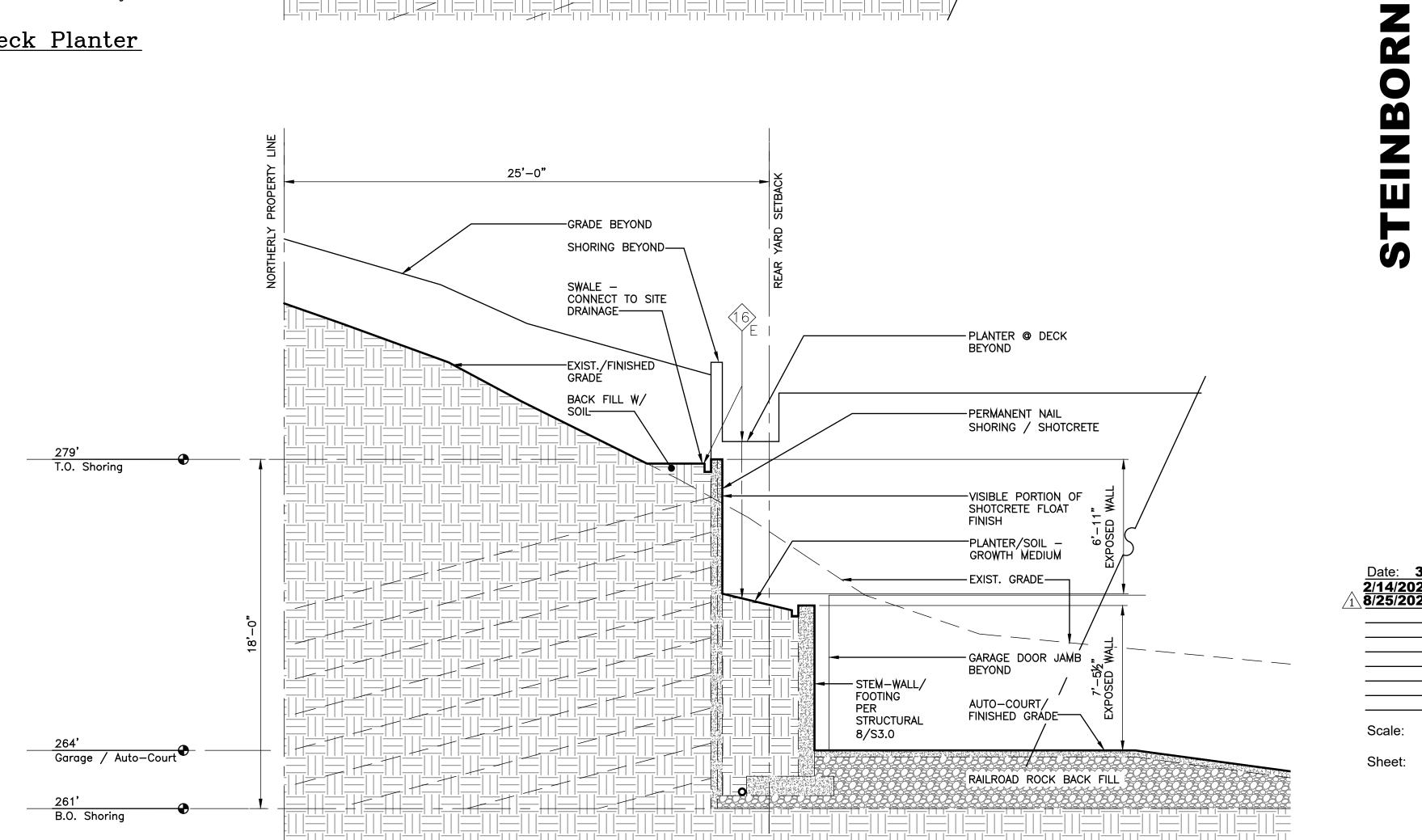
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2 General Section @ Shoring/Driveway Planter

ECTYPOS ARCHITECTURE

4212 W. Mercer Way Mercer Island, WA 98040 t. (206) 232-9147 f. (206) 275-0312



47th PL Residence SП New 8435

RESIDENCE

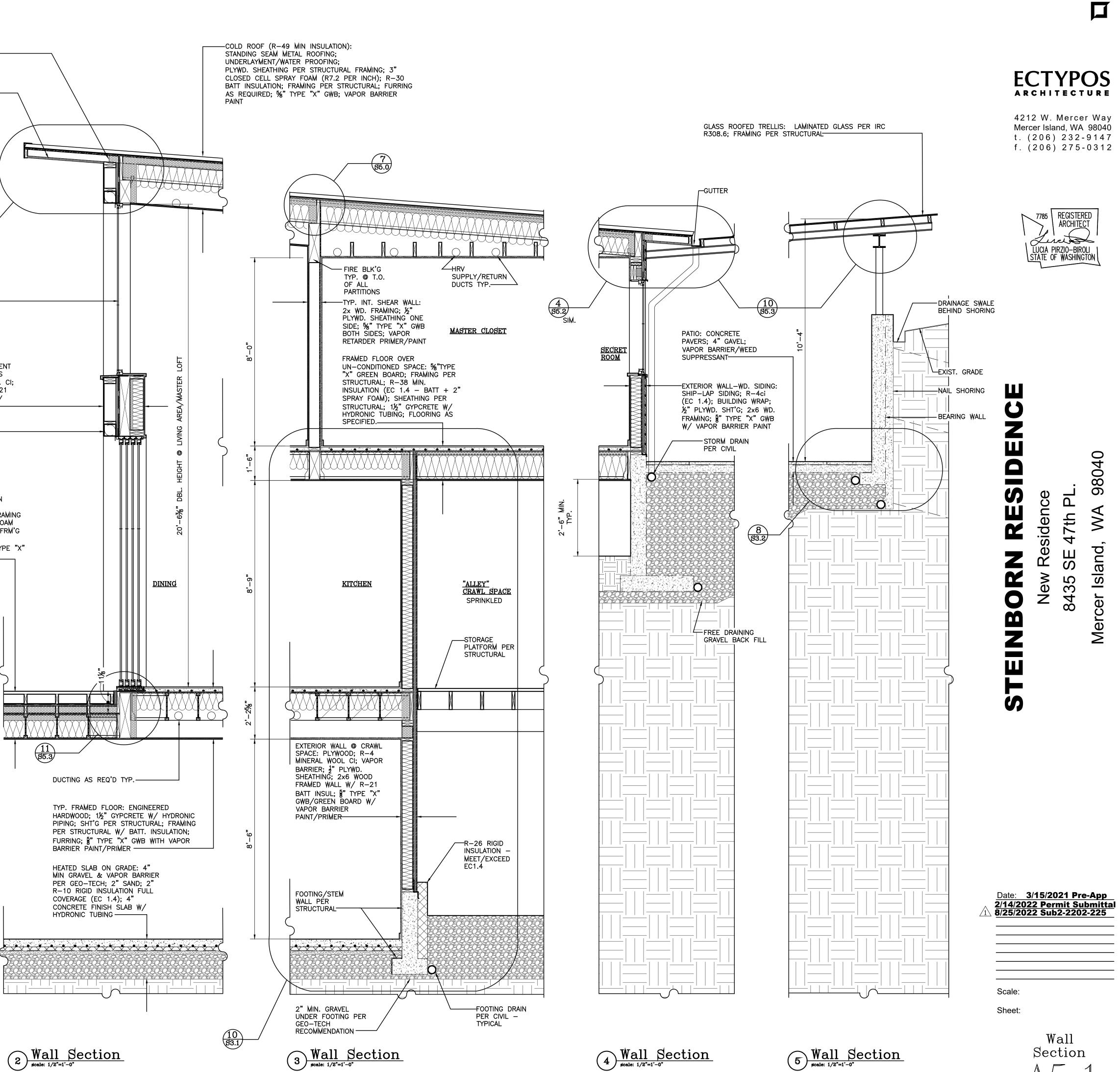
98040 MA and, Mercer Isla

Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 8/25/2022 Sub2-2202-225



306.5'		EXTERIORLY APPLIED SPRAY FOAM
Height Limit		AT ALL STRUCTURAL BAYS
		T&G CEDAR SOFFIT
302.33'		
Max. Bld'g. Height		
		3
		CURTAIN WALL- U-20
		TYP. RAINSCREEN WALL @ FIBER CEMENT
		PANEL (CAVITY WHERE ROLLER SHADES OCCUR); VERTICAL FURNING; R-4 MIN. CI; VB; SHEATHING; 2X WD. FRAMING; R-21
		MIN. INSULATION; §" TYPE "X" GWB W/ VAPOR BARRIER PRIMER/PAINT
289.67'		ELECTRIC ROLLER SHADE
Upper Finish Floor		
		TYP. ROOF DECK: WOOD DECKING ON
		SLEEPERS; TPO MEMBRANE & UNDERLAYMENT; $\frac{1}{2}$ " PLYWD.; RIPPED FRAMING TO SLOPE W/ CLOSED CELL SPRAY FOAM
		INSULATION; SHT'G PER STRUCTURAL; FRM'G PER SSRUCTURAL W/ 3" SPRAY FOAM INSULATION & BATT. INSULATION; §" TYPE "X'
	STEEL GUARD RAIL WITH WOOD TOP RAIL – SEE GEN. NOTE	GWB W/ VB PAINT/PRIMER
	#21 ON A0.1	
		MIN MIN MIN
279.42' Main Finish Floor		
276.8'		
ABE		
ABE		11 S5.4 BEYOND
ABE	FIBERGLASS WINDOWS MAX.	11 S5.4 BEYOND
ABE		11 S5.4 BEYOND
ABE	FIBERGLASS WINDOWS MAX. U—.25 TYP.	11 S5.4 BEYOND
ABE	FIBERGLASS WINDOWS MAX. U25 TYP. STEM WALL W/ INTERIOR FRAMING: CONCRETE STEM WALL PER STRUCTURAL; VAPOR BARRIER; 2×8 WD. FRAMING W/ R-8 MINERAL WOOL BOARD +	
ABE	FIBERGLASS WINDOWS MAX. U25 TYP. STEM WALL W/ INTERIOR FRAMING: CONCRETE STEM WALL PER STRUCTURAL; VAPOR BARRIER; 2×8 WD. FRAMING W/ R-8 MINERAL WOOL BOARD + R-21 BATT INSULATION	
	FIBERGLASS WINDOWS MAX. U25 TYP. STEM WALL W/ INTERIOR FRAMING: CONCRETE STEM WALL PER STRUCTURAL; VAPOR BARRIER; 2×8 WD. FRAMING W/ R-8 MINERAL WOOL BOARD +	
ABE 268.7' Entry/ADU	FIBERGLASS WINDOWS MAX. U25 TYP. STEM WALL W/ INTERIOR FRAMING: CONCRETE STEM WALL PER STRUCTURAL; VAPOR BARRIER; 2×8 WD. FRAMING W/ R-8 MINERAL WOOL BOARD + R-21 BATT INSULATION	
268.7'	FIBERGLASS WINDOWS MAX. U25 TYP. STEM WALL W/ INTERIOR FRAMING: CONCRETE STEM WALL PER STRUCTURAL; VAPOR BARRIER; 2×8 WD. FRAMING W/ R-8 MINERAL WOOL BOARD + R-21 BATT INSULATION (EXCEED EC 1.4); §" TYPE "X" GWB W/ VAPOR BARRIER PRIMER/PAINT	





A5.1

									Wind	ow Sc	hedu	le			
TAG		O₩ R.O. 1, 2 & 9	UNIT AREA	QTY.	TOTAL	MAX U-VALUE	UA VALUE	HEAD HEIGHT	TYPE OPERATION NOTES 3&5	SCREEN NOTE 8	TYPE	FRAME / FINISH	GLASS NOTES 4&7	MANUF.	NOTES
	width	height	square ft.		window area	NOTE 6		(AFF)						$\underline{1}$	
A	1'-0"	× 6'-4"	6.3 SQ. FT.	1	6.3 SQ. FT.	0.25	1.6 SQ. FT.	7'-0"	FIX			FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON/LAM	MARVIN	COORDINATE W/ ADJ. DOOR & CONCRETE
В	9'-8"	× 6'-8"	64.4 SQ. FT.	2	128.9 SQ. FT.	0.25	32.2 SQ. FT.	8'-6"	FIX/CASE	×		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	SEE ELEVATIONS/COORD. RAILING STANCHIONS
Ċ1	2'-6"	x 7'-7 ½"	19.1 SQ. FT.	1	19.1 SQ. FT.	0.25	4.8 SQ. FT.	10'-7 1/2"	CASE	×	CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORD. W/ "C2"
C2	3'-10"	× VARIES	29.6 SQ. FT.	1	29.6 SQ. FT.	0.25	7.4 SQ. FT.	FOLLOW ROOF	FIX		CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORD. W/ "C1"
D	5'-0"	x 7'-7 ½"	38.1 SQ. FT.	1	38.1 SQ. FT.	0.25	9.5 SQ. FT.	10'-7 1/2"	FIX	×		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	
E	2'-6"	x 7'-7 ½"	19.1 SQ. FT.	1	19.1 SQ. FT.	0.25	4.8 SQ. FT.	10'-7 1/2"	CASE	x		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	EGRESS
F1	2'-6"	x 7'-7 ½"	19.1 SQ. FT.	1	19.1 SQ. FT.	0.25	4.8 SQ. FT.	10'-7 1/2"	CASE	×	CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORDINATE W/ "F2"
F2	3'-10"	x VARIES	29.6 SQ. FT.	1	29.6 SQ. FT.	0.25	7.4 SQ. FT.	FOLLOW ROOF	FIX		CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORDINATE W/ "F1"
G	3'-4"	x 7'-4"	24.4 SQ. FT.	5	122.2 SQ. FT.	0.25	30.6 SQ. FT.	10'-4"	FIX			FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORDINATE WITH DOOR PANELS BELOW
H1	3'-8"	x 7'-4"	26.9 SQ. FT.	1	26.9 SQ. FT.	0.25	6.7 SQ. FT.	10'-4"	FIX		CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORDINATE W/ "H2"
H2	3'-10"	x VARIES	28.3 SQ. FT.	1	28.3 SQ. FT.	0.25	7.1 SQ. FT.	FOLLOW ROOF	FIX		CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORDINATE W/ "H1"
Ι	3'-4"	x 7'-7 ½"	25.4 SQ. FT.	1	25.4 SQ. FT.	0.25	6.4 SQ. FT.	10'-7 1/2"	FIX	x		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORDINATE W/ OVERHEAD DOOR
J	5'-0"	x 7'-7 ½"	38.1 SQ. FT.	1	38.1 SQ. FT.	0.25	9.5 SQ. FT.	10'-7 1/2"	CASE	x				MARVIN	
K	3'-0"	x 1'-6"	4.5 SQ. FT.	3	13.5 SQ. FT.	0.25	3.4 SQ. FT.		FIX		TRANSOM	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORDINATE W/ DOOR
L	6'-9"	× 5'-6"	37.1 SQ. FT.	1	37.1 SQ. FT.	0.25	9.3 SQ. FT.	8'-6"	FIX/CASE	×		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	EGRESS/ALIGN SILL W/ "K" / MIRROR "M"
М	6'-9"	x 5'-6"	37.1 SQ. FT.	1	37.1 SQ. FT.	0.25	9.3 SQ. FT.	8'-6"	FIX/CASE	×		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	EGRESS/MIRROR "L"
Ŋ	2'-4"	x 4'-4"	10.1 SQ. FT.	3	30.3 SQ. FT.	0.25	7.6 SQ. FT.	8'-10"	CASE	×		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	EGRESS AS SHOWN ON 2/A3.1
0	<b>4'</b> -10"	x 4'-0"	19.3 SQ. FT.	1	19.3 SQ. FT.	0.25	4.8 SQ. FT.	7'-0"	FIX/CASE	x		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	
Р	5 <b>'</b> —10 <b>"</b>	× 4'-0"	23.3 SQ. FT.	1	23.3 SQ. FT.	0.25	5.8 SQ. FT.	7'-0"	FIX/CASE	x		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	
Q	8'-11 1/2"	x 1'-6"	13.4 SQ. FT.	1	13.4 SQ. FT.	0.25	3.4 SQ. FT.	4'-6" VIF	FIX/CASE	×		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	VERIFY SILL W/ ADJACENT TUB HEIGHT
R	2'-0"	× 13'-4"	26.7 SQ. FT.	1	26.7 SQ. FT.	0.25	6.7 SQ. FT.	13'-8" VIF	FIX			FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORD. $\psi$ / GARAGE DOOR AND TRACKS
\$1	2'-6"	x 5'-9"	14.4 SQ. FT.	1	14.4 SQ. FT.	0.25	3.6 SQ. FT.	8'-9"	CASE	×	CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	ALIGN WITH "C1" OPPOSITE / COORD. W/ "S2"
<b>B</b> S	3'-10"	x 5'-9"	22.0 SQ. FT.	1	22.0 SQ. FT.	0.25	5.5 SQ. FT.	8' <b>-</b> 9"	FIX		CORNER	FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	COORD. W/ "S1"
Т	5'-0"	x 5'-9"	28.8 SQ. FT.	1	28.8 SQ. FT.	0.25	7.2 SQ. FT.	8' <b>-</b> 9"	CASE	x		FIBERGLASS/BLACK	LO-E3/LOW ERS/ARGON	MARVIN	ALIGN W/ "D" OPPOSITE
U	2'-10 5/8"	x 4'-2 5/8"	12.2 SQ. FT.	1	12.2 SQ. FT.	0.48	5.8 SQ. FT.	NA	"FRESH AIR"	×	SKYLIGHT	FIBERGLASS/BLACK	LO-E366/TG/LAM	VELUX	ELECTRIC/SHADE
v	2'-10 5/8"	x 2'-10 5/8"	8.3 SQ. FT.	2	16.7 SQ. FT.	0.48	8.0 SQ. FT.	NA	"FRESH AIR"	×	SKYLIGHT	FIBERGLASS/BLACK	LO-E366/TG/LAM	VELUX	ELECTRIC/SHADE
						-									
WINDOW	UA:		WINDOW AR	EA	825.5 SQ. FT.	TOTAL UA	213.0 SQ. FT.								

<u>WINDOW NOTES:</u>

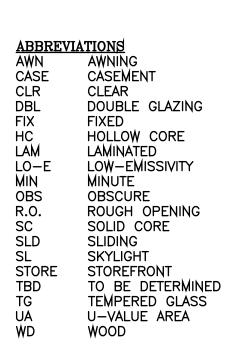
1. CONTRACTOR SHALL MEASURE ACTUAL FRAMED OPENINGS PRIOR TO ORDERING UNITS. ROUGH OPENING PER MANUFACTURER'S REQUIREMENTS. 2. WINDOW MANUFACTURER: MARVIN EXCEPT AS NOTED OTHERWISE

3. WINDOW MANUFACTURER TO VERIFY OPERATION AND WIDTH OPENING - COORDINATE WITH ARCHITECT WHERE DIFFERS FROM DRAWINGS 4. TEMPERED GLASS: WITHIN TWO FEET OF ALL EXTERIOR DOORS, WITHIN 18" OF FLOOR, IN SHOWERS AND OTHER HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC R308.4. SEE

ELEVATIONS FOR TEMPERED LIGHTS. 5. EGRESS WINDOWS AT SLEEPING ROOMS SHALL MEET IRC R310 1. 6. EC 1.4: EFFICIENT BUILDING ENVELOPE ALL NEW EXTERIOR WINDOWS SHALL MEET MINIMUM U-25 MINIMUM COMPLIANCE.

7. OBSCURED GLASS AS NOTED.

8. SCREENS ON ALL OPERABLE WINDOWS. CONNECT SCREENS TO SECURITY SYSTEM. 9. ALL OPERABLE WINDOWS CONNECTED TO WHOLE-HOUSE SECURITY SYSTEM



ECTYPOS ARCHITECTURE

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## RESIDENCE Ζ OR M Z Ш 5

Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 8/25/2022 Sub2-2202-225

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						-1			EXte	erior Doc	or to Co	nditioned	Space	· · · · · ·			
TAG	DANEL SIZE		UNIT AREA	PANEL	TOTAL	MAX	UA VALUE		Location	TYPE	HARDWARE	MATERIAL/FINISH	FRAME/FINISH	GLASS	MANUF.	COLOR	NOTES
IAG	width	heigh	square ft.	QTY.	door area	$\int U - VALUE$	UA VALUE	IIIICKIIEBB			NOTE 3			GLADD	WAN OF.	COLOR	NOTES
1	3'-6"	× 7'-0"	24.5 SQ. FT.	1	24.5 SQ. FT.	.46	11.3 SQ. FT.	0'-1 3/4"	ENTRY	SC/INSULATED/SLAB	DEADBOLT/TBD	₩D/TBD	WD./TBD	NA	CUSTOM	TBD	COORD \\/ SIDELIGHT \\INDO\\ "A"
2	3'-0"	× 7'-0"	21.0 SQ. FT.	1	21.0 SQ. FT.	.46	9.7 SQ. FT.	0'-1 3/4"	ADU ENTRY	SC/FLUSH/INSULATED	DEADBOLT/LEVER	₩D/STAIN	WD./STAIN	NA	TBD	TBD	coord. W/ transoM "k"
3	2'-4"	× 7'-0"	16.3 SQ. FT.	2	32.7 SQ. FT.	.46	15.0 SQ. FT.	0'-1 3/4"	GARAGE/MECH.	SC/FLUSH/INSULATED	SELF-CLOSING/LEVER	₩D/STAIN	WD./STAIN	NA	TBD	MATCH INT. DOORS	20 Minute
4	3'-0"	× 7'-0"	21.0 SQ. FT.	1	21.0 SQ. FT.	.46	9.7 SQ. FT.	0'-1 3/4"	GARAGE/ENTRY	SC/FLUSH/INSULATED	SELF-CLOSING/LEVER	WD./STAIN	WD./STAIN	NA	TBD	MATCH INT. DOORS	20 Minute
5	3'-6"	× 10'-7"	37.0 SQ. FT.	4	148.2 SQ. FT.	.25	37.0 SQ. FT.	0'-1 3/4"	MAIN DINING/DECK 1	STORE/MULTI-SLIDE	TRACK/3 PT. LOCK	FIBERGLASS/MATCH WINDOWS	FIBERGLASS/FACTORY	LO-E3/LO-ERS/ARGON/TG	MARVIN	BLACK	NOTE 4
6	3'-0"	× 7'-0"	21.0 SQ. FT.	1	21.0 SQ. FT.	.25	5.3 SQ. FT.	0'-1 3/4"	MAIN LOUNGE/DECK 2	STORE/INSULATED	DEADBOLT/LEVER	FIBERGLASS/MATCH WINDOWS	FIBERGLASS/FACTORY	LO-E3/LO-ERS/ARGON/TG	MARVIN	BLACK	
7	2'-8"	× 7'-0"	18.7 SQ. FT.	1	18.7 SQ. FT.	.25	4.7 SQ. FT.	0'-1 3/4"	SECRET ROOM/ PATIO	STORE/INSULATED	DEADBOLT/LEVER	FIBERGLASS/MATCH WINDOWS	FIBERGLASS/FACTORY	LO-E3/LO-ERS/ARGON/TG	MARVIN	BLACK	
31	3'-0"	× 7'-0"	21.0 SQ. FT.	1	21.0 SQ. FT.	.46	9.7 SQ. FT.	0'-1 3/4"	ELEVATOR/ MASTER STE	SC/FLUSH/INSULATED	SELF-CLOSING/LEVER	WD./STAIN	WD./STAIN	NA	TBD	MATCH INT. DOORS	20 MINUTE
32	3'-0"	× 7'-0"	21.0 SQ. FT.	1	21.0 SQ. FT.	.46	9.7 SQ. FT.	0'-1 3/4"	ELEVATOR/ MAIN FLOOR	SC/FLUSH/INSULATED	SELF-CLOSING/LEVER	WD./STAIN	WD./STAIN	NA	TBD	MATCH INT. DOORS	20 Minute
33	3'-0"	× 7'-0"	21.0 SQ. FT.	1	21.0 SQ. FT.	.46	9.7 SQ. FT.	0'-1 3/4"	ELEVATOR/ENTRY	SC/FLUSH/INSULATED	SELF-CLOSING/LEVER	WD./STAIN	₩D./STAIN	NA	TBD	MATCH INT. DOORS	20 MINUTE
34	3'-0"	× 7'-0"	21.0 SQ. FT.	1	21.0 SQ. FT.	.46	9.7 SQ. FT.	0'-1 3/4"	ELEVATOR/GARAGE	SC/FLUSH/INSULATED	SELF-CLOSING/LEVER	WD./STAIN	₩D./STAIN	NA	TBD	MATCH INT. DOORS	20 MINUTE
AREA	DOORS IMP	ACTING UA:	E	XT. DOOR AREA	268.3 SQ. FT.	TOTAL UA	A 87.9 SQ. FT.										

EXTERIOR DOOR NOTES:

- 1. CONTRACTOR SHALL MEASURE ACTUAL FRAMED OPENINGS PRIOR TO ORDERING UNITS. ROUGH OPENING PER MANUFACTURER'S REQUIREMENTS. 2. UNIT BREAK DOWN W/ IN ROUGH OPENING
- 3. (3) MINIMUM HEAVY DUTY CONCEALED HINGES MIN. AT ALL EXTERIOR SWING DOORS
- 4. 3 POINT LOCKING SYSTEM MINIMUM5. MANUFACTURER: MARVIN EXCEPT AS NOTED OTHERWISE
- 6. MANUFACTURER TO VERIFY OPERATION AND WIDTH OPENING COORDINATE WITH ARCHITECT WHERE DIFFERS FROM DRAWINGS 7. TEMPERED GLASS: WITHIN TWO FEET OF ALL EXTERIOR DOORS, WITHIN 18" OF FLOOR, IN SHOWERS AND OTHER HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC R308.4
- 8. GLASS LO-E3/LOW ERS/ARGON FILLED AT ALL WINDOWS AND STOREFRONT DOORS 9. EGRESS WINDOWS AT SLEEPING ROOMS SHALL MEET IRC R310. NOTED ON ELEVATIONS
- 10. EC 1.4: EFFICIENT BUILDING ENVELOPE ALL NEW EXTERIOR WINDOWS AND GLAZED DOORS SHALL MEET MINIMUM U-25 MINIMUM COMPLIANCE. 11. OBSCURED GLASS AS NOTED.
  - 12. SCREENS ON ALL OPERABLE WINDOWS, SLIDING GLASS DOORS AND SWING DOORS AS NOTED. 13. ALL EXTERIOR DOORS AND SCREENS CONNECTED TO WHOLEHOUSE SECURITY SYSTEM.
  - 14. ELEVATOR DOORS: 20 MINUTE WITH SELF-CLOSING HARDWARE

				Int	cerior D	oor Sc	hedule d	& Doors F	rom Un-	condit	ioned Spa	ace to	Exterior
	PANEL	SIZE	C (NOTE #4)	PANEL	UNIT AREA	Thickness					HARDWARE		
TAG	width		height	QTY.	square ft.		TYPE	LOCATION	MATERIAL/ FINISH	GLASS	NOTES 2&3	MANUF.	NOTES
10	2'-6"	×	7'-0"	1	17.5 SQ. FT.	0'-1 3/8"	HC/SLAB	ENTRY HALL/STORAGE	₩OOD/TBD	NA	PULL/RC	TBD.	NOTE 4
11	3'-0"	×	7 <b>'</b> -0"	1	21.0 SQ. FT.	0'-1 3/8"	SC/SLAB	ENTRY HALL/ADU	₩OOD/TBD	NA	SELF-CLOSING/LEVER/ DEADBOLT	TBD	20 MIN. DOOR/PROVIDE SEPARATE LOCKS BOTH SIDES
12	2'-4"	×	7'-0"	1	16.3 SQ. FT.	0'-1 3/8"	SC/SLAB	ADU/BATH	₩00D/TBD	NA	LEVER/PRIVACY	TBD	NOTE 4
13	2'-4"	×	7'-0"	2	16.3 SQ. FT.	0'-1 3/8"	HC/SLAB	ENTRY COATS	WOOD/TBD	N/A	PULLS/RC	TBD	NOTE 4
14	18'-0"	×	8'-0"	1	144.0 SQ. FT.	0'-1 3/4"	SECTIONAL	GARAGE	WD. FACED/STAIN	N/A	MOTORIZED TRACK	TBD	MATCH CEDAR SIDING FINISH
15	3'-0"	×	7'-0"	1	21.0 SQ. FT.	0'-1 3/8"	SC/SLAB/PKT	ENTRY HALL	WOOD/TBD	N/A	FLUSH PULL	TBD	SEE NOTE 4/PART OF FLUSH PANEL SYSTEM
16	2'-6"	×	7'-0"	2	17.5 SQ. FT.	0'-1 3/8"	HC/SLAB	GARAGE STORAGE	WOOD/TBD	N/A	PULL/RC	TBD	NOTE 4
17	3'-0"	×	7'-0"	1	21.0 SQ. FT.	0'-1 3/8"	HC/SLAB	LOUNGE/EQUIP.	WOOD/TBD	N/A	PULL/RC	TBD	NOTE 4
18	2'-6"	×	7'-0"	1	17.5 SQ. FT.	0'-1 3/8"	SC/SLAB	HALL/DEN-GUEST	WOOD/TBD	N/A	LEVER/PRIVACY	TBD	NOTE 4
19	2'-6"	×	7'-0"	1	17.5 SQ. FT.	0'-1 3/8"	SC/SLAB	HALL/LAUNDRY	WOOD/TBD	N/A	LEVER/PASS	TBD	NOTE 4
20	3'-0"	×	7'-0"	1	21.0 SQ. FT.	0'-1 3/8"	STORE/PKT	GREAT ROOM/HALL	WOOD/TBD	OBS/TG	FLUSH PULL	TBD	NOTE 4
21	2'-4"	×	7'-0"	1	16.3 SQ. FT.	0'-1 3/8"	SC/SLAB	HALL/GUEST BATH	WOOD/TBD	N/A	LEVER/PRIVACY	TBD	NOTE 4
22	3'-0"	×	7'-0"	1	21.0 SQ. FT.	0'-1 3/4"	SC/SLAB	DECK/"ALLEY"	MATCH ADJ. SIDING	N/A	LEVER/DEADBOLT	TBD	MATCH SIDING/PROVIDE GRILL W/ MIN. NVVA=62SI
23	2'-4"	×	7'-0"	1	16.3 SQ. FT.	0'-1 3/8"	SC/SLAB	MASTER BATH/EQUIP CABINET	₩OOD/TBD	N/A	PULL/RC	TBD	NOTE 4
24	3'-0"	×	7'-0"	1	21.0 SQ. FT.	0'-1 3/8"	SC/PKT	MASTER BED/BATH	WOOD/TBD	N/A	FLUSH PULL	TBD	NOTE 4
25	2'-6"	×	7'-0"	1	17.5 SQ. FT.	0'-1 3/8"	SC/SLAB	CLOSET/HALL	WOOD/TBD	N/A	FLUSH PULL	TBD	NOTE 4
26	2'-6"	×	7'-0"	1	17.5 SQ. FT.	0'-1 3/8"	SC/SLAB	CLOSET/HALL	₩OOD/TBD	N/A	FLUSH PULL	TBD	NOTE 4
27	2'-8"	×	7'-0"	1	18.7 SQ. FT.	0'-1 3/8"	STORE	SECRET ROOM/HALL	₩00D/TBD	OBS/TG	LEVER/PRIVACY	TBD	NOTE 4
28	3'-0"	×	7'-0"	1	21.0 SQ. FT.	0'-1 3/8"	SC/PKT	MASTER BED/HALL	₩00D/TBD	N/A	FLUSH PULL	TBD	NOTE 4
29	2'-6"	×	7'-0"	1	17.5 SQ. FT.	0'-1 3/8"	SC/SLAB	MSTR. BATH/W.C.	₩OOD/TBD	N/A	LEVER/PRIVACY	TBD	NOTE 4
30	3'-0"	x	6'-8"	1	20.0 SQ. FT.	0'-0 3/8"	SHOWER	MASTER BATH	FRAMELESS SHOWER	LAMINATED/TG	CHROME TRACK/PULL	TBD	4" UNDER-CUT/COORD. W/ SHOWER ENCLOSURE

INTERIOR DOOR NOTES: 1. ALL NON-CLOSET FLUSH DOORS - SOLID CORE

2. (3) HINGES MINIMUM

3. HÁNDLE LEVER UNO 4. UNDERCUT DOORS 1/2" TO HABITABLE SPACES AS NECESSARY TO MEET WHOLE HOUSE VENTILATION REQUIREMENTS 5. MEASURE PRIOR TO ORDERING DOORS.

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ABBREVIA AWN CASE CLR DBL FIX HC LAM LO-E	AWNING CASEMENT CLEAR DOUBLE GLAZING FIXED HOLLOW CORE LAMINATED LOW-EMISSIVITY
HC LAM LO-E MIN OBS R.C. R.O. SC	HOLLOW CORE LAMINATED

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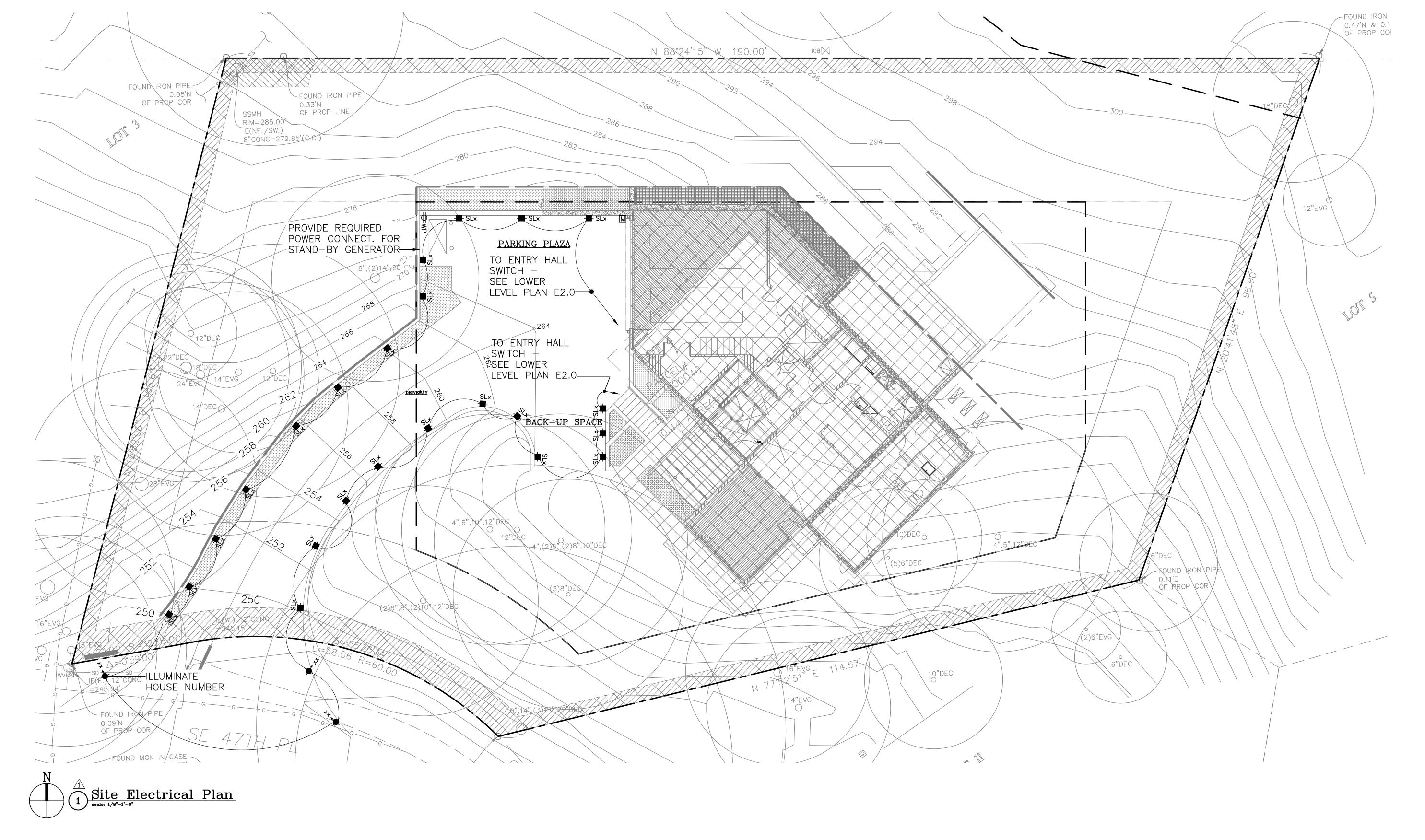
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## Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 8/25/2022 Sub2-2202-225

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#### Power and Lighting Legend

CFM	Recessed Ceiling Mounted Exhaust Fan
SC	Recessed Ceiling Mounted Smoke Detector/Carbon Monoxide
HD	Heat Detector / Heat Alarm
©	Cable Connection
C	Floor Mounted Cable Connection
	Dedicated Data Outlet (CatVI)
<del>.</del>	Switch
<b>₩</b>	Switch, Multi—way
\$	Switch, Dimmer
	Switch, Dimmer/Multi—way
Dr. Act.	Switch, Door Activated
$\Rightarrow$	Duplex Outlet
<del>-</del> € GFI	Ground Fault Circuit Interupter
₩P	Exterior Duplex Outlet
•	Four-plex Outlet
<b>÷</b>	Floor Mounted Duplex Outlet

<b>\$</b>	Strip Outlets	□ xx	Surface Mounted LED Batten Fixture
●220V	220 V Outlet	<b>↓</b> + ××	Recessed Mounted Wall LED Washer
' P	Breaker Panel	-[]- ××	Recessed Wall LED Light
M	Meter	+ xx	Exterior Recessed Ceiling Mounted LED Downlight
S	Security Panel	- <b>∳</b> → xx	Exterior Ground LED Light
-ф-××	Recessed Ceiling Mounted LED Downlight	<b>⊢</b> ∳-Sxx	Exterior Surface Mounted Wall LED Sconce
-∰+ ××	Recessed Ceiling Mounted LED Wallwasher	- SLx	Exterior Recessed Wall LED Step Light
Ъф-хх	Surface Ceiling Mounted LED Downlight	- <b>H</b> -DBx	Exterior Direct Burial Uplight
ф-sxx	Surface Mounted Wall LED Sconce	<b>↓</b> ××	Pool Light
' ⊢───┤TLxx	Surface Mounted Track LED Lighting	0	Waste Disposal
⊢ UCxx	Surface Mounted Undercabinet Strip LED Lighting		Level 2 240V EV Charger
⊢––– I RL××	Ribbon LED linear light	-ŏ	Ceiling Fan with Light
-ф-Рхх	Pendant Fixture	<b>∢</b> SC	Security Camera w/ Night Vision Capability
- <b></b> 	Cluster Pendant Fixture	NOTEO	
- <b>Ó</b> -SDLx	Surface Mounted Downlight	<u>NOTES</u> : 1— INSTALL	HOUSEHOLD FIRE ALARM

1– INSTALL HOUSEHOLD FIRE ALARM 2– INSTALL COMPREHENSIVE SECURITY

ECTYPOS Architecture

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Mercer Island, WA 98040

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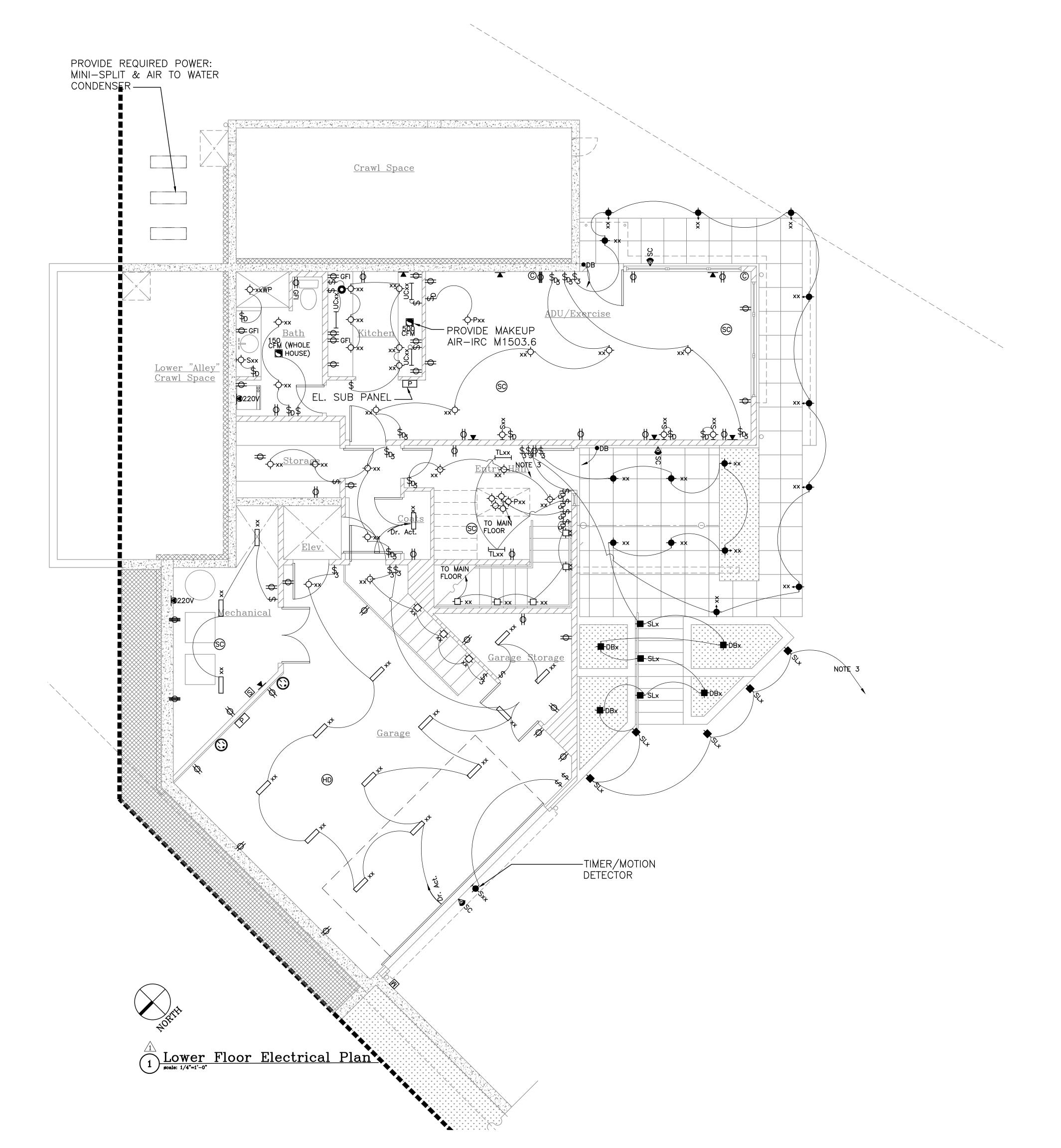
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	Date: 3/15/2021 Pre-App
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Sheet: Site Electrical Plan E1.0





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# 7785 REGISTERED ARCHITECT LUCIA PIRZIO-BIROLI STATE OF WASHINGTON

# DENC RESI Residence New Re 8435 SE Ζ STEINBOR

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<u>Notes:</u> 1. Install household fire alarm system as outlined in General Notes on A0.1

Pool Light

DOOR BELL

Waste Disposal

- Install comprehensive security system as specified.
   To parking plaza and driveway lighting see E1.0 for site electrical plan.

Power and Lighting Legend

Switch

Recessed Ceiling Mounted Exhaust Fan

Heat Detector / Heat Alarm

Floor Mounted Cable Connection

Dedicated Data Outlet (CatVI)

Switch, Dimmer/Multi-way

Ground Fault Circuit Interupter

Floor Mounted Duplex Outlet

Recessed Ceiling Mounted LED Downlight

Recessed Ceiling Mounted LED Wallwasher

Surface Mounted Undercabinet Strip LED Lighting

Exterior Recessed Ceiling Mounted LED Downlight

Exterior Surface Mounted Wall LED Sconce

Security Camera w/ Night Vision Capability

Exterior Recessed Wall LED Step Light

Surface Ceiling Mounted LED Downlight

Surface Mounted Wall LED Sconce

Ribbon LED linear light

Cluster Pendant Fixture

Surface Mounted Downlight

Recessed Step LED Light

Exterior Ground LED Light

Exterior Direct Burial Uplight

Level 2 240V EV Charger

Pendant Fixture

Surface Mounted Track LED Lighting

Surface Mounted LED Batten Fixture

Switch, Door Activated

Exterior Duplex Outlet

Four-plex Outlet

Strip Outlets

220 V Outlet

Breaker Panel

Security Panel

Meter

Cable Connection

Switch, Multi—way

Switch, Dimmer

Duplex Outlet

Recessed Ceiling Mounted Smoke Detector/Carbon Monoxide

SCFM

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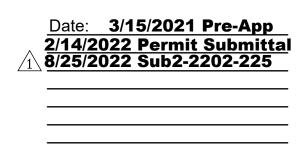
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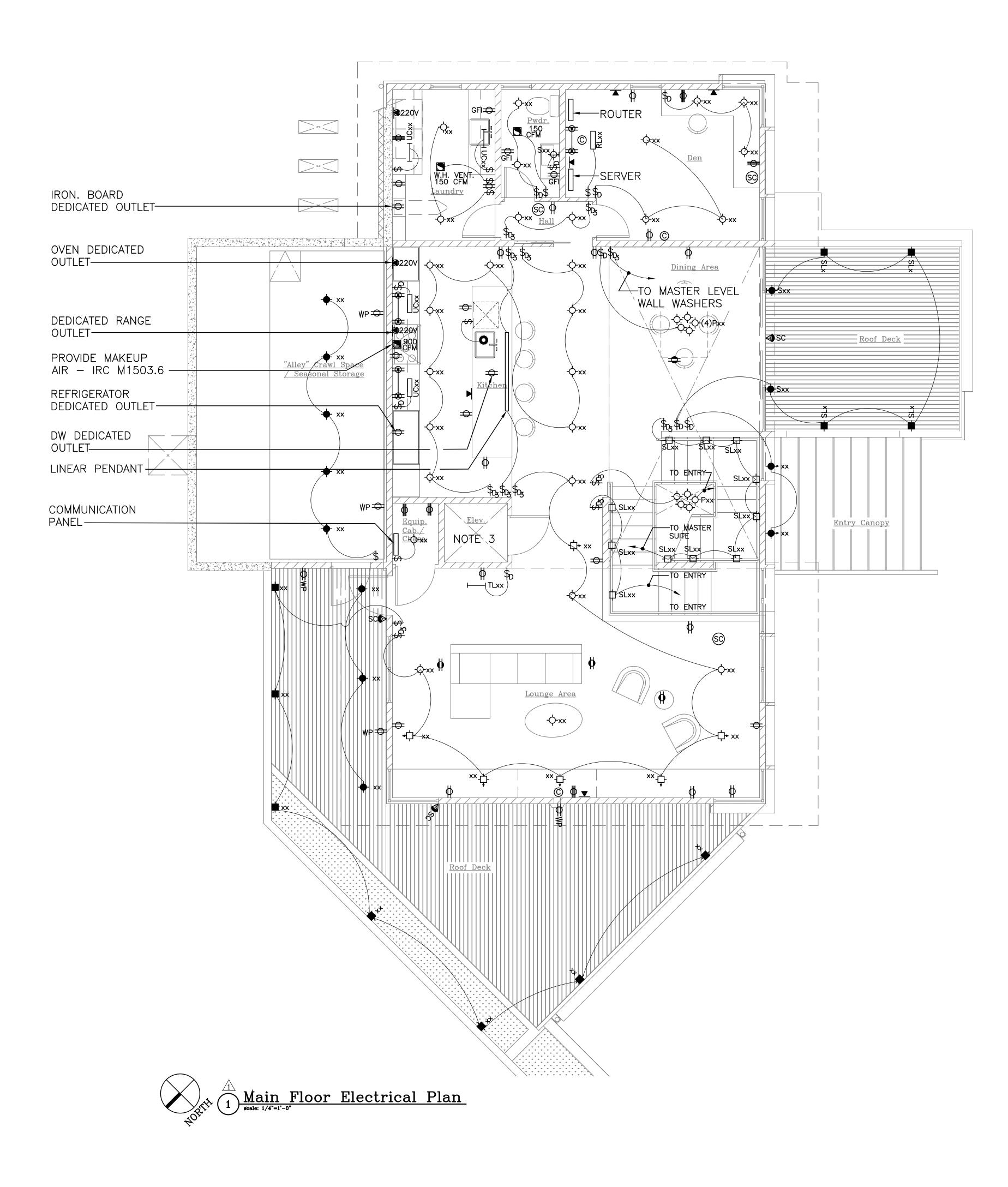
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<u>Power and</u>	Lighting
S CFM	Recessed Co
SC	Recessed C
μD	Heat Detect
©	Cable Conne
C	Floor Mount
	Dedicated D
- <del>\cy</del>	Switch
₩	Switch, Mult
\$ \$	Switch, Dim
#	Switch, Dim
Dr. Act.	Switch, Doo
<b>\$</b>	Duplex Outle
GFI	Ground Faul
- <b>⊕</b> ₩P	Exterior Dup
<b>●</b>	Four-plex C
	Floor Mount Strip Outlets
	220 V Outle
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т ЭФ-хх	Surface Cei
ю́-sxx	Surface Mou
⊢ TLxx	Surface Mo
⊢––– UC××	Surface Mou
⊢ RL××	Ribbon LED
-ф-Рхх	Pendant Fix
- <b></b>	Cluster Pen
- <b>今</b> -SDLx	Surface Mou
□ xx	Surface Mou
	Recessed W
+ ××	Exterior Rec
- + xx	Exterior Gro
l <b>∳</b> -Sxx	Exterior Sur
	Exterior Rec
	Exterior Dire
<b>↓</b> + xx	Pool Light Waste Dispo
$\overset{\bullet}{\frown}$	Level 2 240
≪) SC	Security Ca
●DB	DOOR BELL

No	tes:
	Install household fire alarm system as o
2.	in General Notes on A0.1 Install comprehensive security system as
3.	specified. Provide all necessary power for elevator

<u>g Legend</u>

Ceiling Mounted Exhaust Fan Ceiling Mounted Smoke Detector/Carbon Monoxide ctor / Heat Alarm nection nted Cable Connection Data Outlet (CatVI) ulti—way nmer mmer/Multi-way or Activated tlet ult Circuit Interupter uplex Outlet Outlet nted Duplex Outlet Ceiling Mounted LED Downlight Ceiling Mounted LED Wallwasher eiling Mounted LED Downlight ounted Wall LED Sconce ounted Track LED Lighting ounted Undercabinet Strip LED Lighting linear light ixture endant Fixture ounted Downlight ounted LED Batten Fixture Wall LED Light ecessed Ceiling Mounted LED Downlight round LED Light Irface Mounted Wall LED Sconce ecessed Wall LED Step Light irect Burial Uplight osal 40V EV Charger Camera w/ Night Vision Capability

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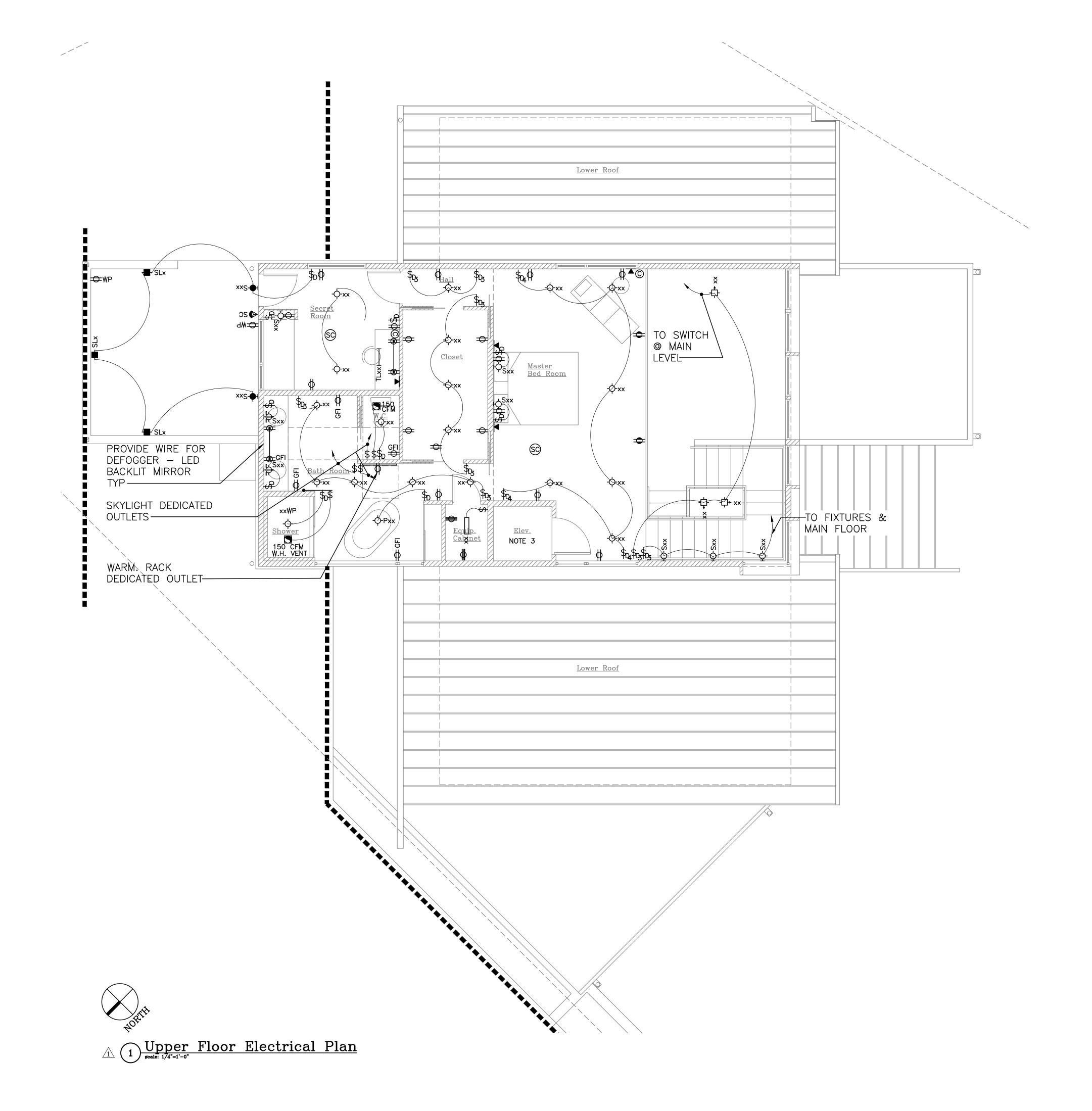
# RESIDENCE New Residence 8435 SE 47th PL. Z **STEINBORI**

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ECTYPOS ARCHITECTURE

4212 W. Mercer Way Mercer Island, WA 98040 t. (206) 232-9147 f. (206) 275-0312

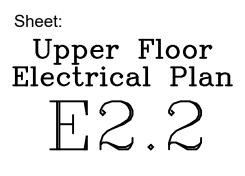
### S cřím Recessed Ceiling Mounted Exhaust Fan SC Recessed Ceiling Mounted Smoke Detector/Carbon Monoxide (HD)Heat Detector / Heat Alarm $\bigcirc$ Cable Connection Ċ Floor Mounted Cable Connection Dedicated Data Outlet (CatVI) Switch Switch, Multi—way Switch, Dimmer \$ Switch, Dimmer/Multi-way Dr. Act. Switch, Door Activated $\oplus$ Duplex Outlet 🕀 GFI Ground Fault Circuit Interupter Exterior Duplex Outlet ₽₩₽ Four-plex Outlet € Floor Mounted Duplex Outlet $\mathbf{\Phi}$ Strip Outlets **2**20V 220 V Outlet Ρ Breaker Panel M Meter S Security Panel -ф-хх Recessed Ceiling Mounted LED Downlight Recessed Ceiling Mounted LED Wallwasher -∰+ ×× Ъ. Surface Ceiling Mounted LED Downlight Surface Mounted Wall LED Sconce Ю́-Sxx Surface Mounted Track LED Lighting H TLxx Surface Mounted Undercabinet Strip LED Lighting H UCxx Ribbon LED linear light H RLxx -ф-Рхх Pendant Fixture Cluster Pendant Fixture -�-SDLx Surface Mounted Downlight Surface Mounted LED Batten Fixture □ xx Ċ≁×× Recessed Mounted Wall LED Washer Recessed Wall LED Light -⊡ ×× Exterior Recessed Ceiling Mounted LED Downlight - **•** xx Exterior Ground LED Light -**●**→ xx H-Sxx Exterior Surface Mounted Wall LED Sconce - SLx Exterior Recessed Wall LED Step Light -B-DBx Exterior Direct Burial Uplight **→** xx Pool Light Waste Disposal $\mathbf{O}$ Level 2 240V EV Charger Ceiling Fan with Light Security Camera w/ Night Vision Capability

Power and Lighting Legend

- <u>Notes:</u> 1. Install household fire alarm system as outlined in General Notes on A0.1
- 2. Install comprehensive security system as
- specified. 3. Provide all necessary power for elevator

Date: 3/15/2021 Pre-App 2/14/2022 Permit Submittal 8/25/2022 Sub2-2202-225

Scale:



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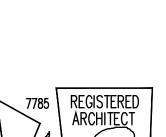
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### -GENERAL STRUCTURAL NOTES (The following apply unless shown otherwise on the plans) **CRITERIA** ALL MATERIALS WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE 2018 INTERNATIONAL 14. BUILDING CODE (IBC) INCLUDING WASHINGTON STATE MODIFICATIONS. DESIGN LOADING CRITERIA GROUND SNOW LOAD. $P_{\alpha} = 25 PSF$ SNOW LOAD RAIN ON SNOW SURCHARGE = 5 PSF 40 PSF FLOOR LIVE LOAD (RESIDENTIAL) 60 PSF FLOOR LIVE LOAD (RESIDENTIAL BALCONIES AND DECKS) GUARDRAILS/BALCONY RAILS (RESIDENTIAL) 200 LBS. FOLLOWED. WIND (MAIN WIND FORCE RESISTING SYSTEM) BASIC WIND SPEED = 97 MPH ALLOWABLE STRESS DESIGN WIND SPEED = 75 MPH IMPORTANCE FACTOR, I<sub>w</sub>= 1.0 RISK CATEGORY = II TOPOGRAPHIC FACTOR, K<sub>zt</sub> = 1.60 EXPOSURE CATEGORY = C INTERNAL PRESSURE COEFFICIENT. (GCni)= 0.18/-0.18 15. STATEMENT SPECIAL INSPECTIONS: GROSS WIND PRESSURES FOR COMPONENTS AND CLADDING ZONE 1 = -61.2 PSF ZONE 2 = -80.5 PSF ZONE 3 = -109.8 PSF ZONE 4 = -61.6 PSF INSPECTION REPORTS AND TEST RESULTS. ZONE 5 = -51.3 PSF REPORT. NOTE: WIND PRESSURES ARE BASED ON TRIBUTARY AREAS LESS THAN 10 SQ-FT AISC 341-16, AWS D1.1, AND AWS D1.8. EARTHQUAKE (EQUIVALENT LATERAL FORCE PROCEDURE) S<sub>s</sub>= 1.439 $S_{ds} = 0.959$ S<sub>1</sub>= 0.5 $S_{d1} = 0.6$ IMPORTANCE FACTOR, Ie= 1.0 SITE CLASS D SEISMIC DESIGN CATEGORY= D RISK CATEGORY = II R = 6.5 FOR WOOD STRUCTURAL PANEL SHEAR WALLS OVER STRENGTH FACTOR, $\Omega_0 = 3.0$ DEFLECTION AMPLIFICATION FACTOR, $C_d = 4.0$ REDUNDANCY FACTOR = 1.0 SEISMIC RESPONSE COEFFICIENT, $C_s = 0.148$ SEISMIC BASE SHEAR = 24.5 KIPS RAIN INTENSITY 1.0 INCHES/HOUR ALLOWABLE SOIL PRESSURE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL LATERAL EARTH PRESSURE (SEISMIC) VERIFY DIMENSIONS AND CONDITIONS FOR COMPATIBILITY AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. ALL PASSIVE EARTH PRESSURE (ULTIMATE) DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE INTENDED FOR REFERENCE ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR ALL COEFFICIENT OF FRICTION (ULTIMATE) DIMENSIONS. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE STRUCTURAL DRAWINGS ARE INTENDED AS GUIDELINES ONLY AND MUST BE VERIFIED. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. 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 FOLLOWING COMPRESSIVE CAPACITIES. 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. PILE DIAMET 3-INCH DIAMETER PILE (COMPRESSION) CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED, BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER. ALL STRUCTURAL SYSTEMS WHICH ARE TO BE COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE, AND ERECTION IN ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER. MECHANICAL / ELECTRICAL / PLUMBING: CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING THE LOCATION, LOADS, AND ANCHORAGE OF ALL MECHANICAL, ELECTRICAL, PLUMBING, AND SPRINKLER ATTACHMENTS IN EXCESS OF 50 POUNDS TO STRUCTURAL ENGINEER FOR REVIEW PRIOR TO INSTALLATION. ALL DETAILS NECESSARY FOR ATTACHING THESE SYSTEMS TO THE BASE BUILDING STRUCTURE, INCLUDING THE DESIGN AND DETAILING OF THE DESIGNATED SEISMIC LOAD RESISTING SYSTEM AS REQUIRED BY SECTION 1705.12.4 OF THE INTERNATIONAL BUILDING CODE, ARE THE RESPONSIBILITY OF THE SUPPLIER OF THAT EQUIPMENT AND MUST BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF WASHINGTON. SUBMITTAL REVIEW PERIOD: SUBMITTALS SHALL BE MADE IN TIME TO ALLOW MINIMUM OF TWO WEEKS FOR REVIEW BY THE ARCHITECT/ENGINEER 11. PRIOR TO FABRICATION. GENERAL CONTRACTOR'S PRIOR REVIEW OF SUBMITTALS: PRIOR TO SUBMISSION TO THE ARCHITECT/ENGINEER THE CONTRACTOR SHALL REVIEW THE 12. SUBMITTAL FOR COMPLETENESS. DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER AND THEREFORE MUST BE VERIFIED BY THE GENERAL CONTRACTOR. GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DIMENSIONAL INFORMATION REQUESTED BY THE DETAILER AND TESTING. SHALL PROVIDE THE GENERAL CONTRACTOR'S REVIEW STAMP AND SIGNATURE PRIOR TO FORWARDING THE SUBMITTAL TO THE ARCHITECT/ENGINEER. 13. <u>SHOP DRAWINGS FOR:</u> A. REINFORCING STEEL (FOR BOTH CONCRETE AND MASONRY CONSTRUCTION) B. STRUCTURAL STEEL

- C. GLUED LAMINATED MEMBERS
- D. OPEN WEB WOOD (OR COMBINATION WOOD/STEEL) TRUSSES
- E. CONNECTOR PLATE WOOD ROOF TRUSSES
- F. PLYWOOD WEB JOISTS

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SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION OF THESE ITEMS. CONTRACTOR SHALL ALSO SUBMIT SHOP DRAWINGS TO THE BUILDING DEPARTMENT AS REQUIRED. SHOP DRAWINGS FOR CONNECTOR PLATE WOOD ROOF TRUSSES SHALL ALSO BE SUBMITTED TO THE MECHANICAL ENGINEER FOR COORDINATION.

CONTRACTOR SHALL SUBMIT WALL ELEVATION DRAWINGS OF AT LEAST 1/8" = 1'-0" SCALE INDICATING CONNECTION EMBEDMENTS AND WALL OPENINGS FOR REVIEW PRIOR TO CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH REINFORCEMENT SHOP DRAWINGS

SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD, THEREFORE, MUST BE VERIFIED BY THE CONTRACTOR. CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL, THERETO.

SHOP DRAWINGS SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT, BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS. IF DEVIATIONS DISCREPANCIES. OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL AND SHALL BE

DEFERRED SUBMITTALS FOR BUILDING COMPONENTS INCLUDING. BUT NOT LIMITED TOO, STAIRS, PREFABRICATED CONNECTOR PLATE WOOD ROOF TRUSSES, AND EXTERIOR CLADDING SHALL INCLUDE THE ENGINEER'S STAMP FOR THE STATE OF WASHINGTON AND SHALL BE APPROVED BY THE COMPONENT DESIGNER PRIOR TO CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. DEFERRED SUBMITTALS SHALL INDICATE MAGNITUDE AND DIRECTION OF ALL LOADS IMPOSED ON BASIC STRUCTURE. DESIGN CALCULATIONS SHALL BE INCLUDED IN THE SUBMITTAL.

THE FOLLOWING CONSTRUCTION TYPES ARE TO BE REVIEWED BY A SPECIAL INSPECTOR DESIGNATED BY THE OWNER OR ARCHITECT. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. SPECIAL INSPECTION SHALL CONFORM TO SECTION 1704 OF THE 2018 INTERNATIONAL BUILDING CODE. SPECIAL INSPECTION AGENCY SHALL BE RESPONSIBLE FOR KEEPING RECORDS OF SPECIAL INSPECTIONS AND TESTS. THE ARCHITECT, STRUCTURAL ENGINEER, AND BUILDING DEPARTMENT SHALL BE FURNISHED WITH COPIES OF ALL

SOILS: SHALL BE SPECIAL INSPECTED AS REQUIRED IN THE INTERNATIONAL BUILDING CODE SECTION 1705.6 AND AS DIRECTED IN THE GEOTECHNICAL

STEEL CONSTRUCTION AND WELDING: SHALL BE SPECIAL INSPECTED AS REQUIRED IN THE INTERNATIONAL BUILDING CODE SECTION 1705.2, AISC 360-16,

POST INSTALLED ANCHORS: PERIODIC SPECIAL INSPECTION IN ACCORDANCE WITH THE PRODUCTS APPROVED ICC-ES REPORT.

16. THE CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND OR SEISMIC FORCE RESISTING SYSTEM, DESIGNATED WIND OR SEISMIC SYSTEM, OR SEISMIC FORCE RESISTING COMPONENT SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO COMMENCEMENT OF WORK AS REQUIRED BY SECTION 1704.4 OF THE INTERNATIONAL BUILDING CODE.

### **GEOTECHNICAL**

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.

LATERAL EARTH PRESSURE (RESTRAINED/UNRESTRAINED)

4.000 PSF 60 PCF/40 PCF 9H (ULTIMATE LOAD) 300 PCF 0.45

SOILS REPORT REFERENCE: REPORT JN 21061 ISSUED BY GEOTECH CONSULTANTS INC., MARCH 23, 2021

ALL PILE SIZES, EXCEPT 2-INCH DIAMETER PILES, SHALL BE SUBJECT TO ASTM LOAD TESTING ON A MINIMUM OF 3% OF PILES, UP TO 5 PILES MAXIMUM (1 MINIMUM). TESTING SHALL BE IN ACCORDANCE WITH ASTM STANDARD D1143-81 FOR PILES UNDER STATIC AXIAL COMPRESSIVE LOAD.

AS INDICATED IN THE GEOTECHNICAL REPORT PIPE PILES DRIVEN USING HAMMERS AND DRIVING RATES SHOWN BELOW MAY BE ASSIGNED THE

ETER	FINAL DRIVING RATE	JACKHAMMER WEIGHT	CAPACITY
METER PILE (COMPRESSION)	12 SEC/INCH	650 POUND HAMMER	6 TONS

IF 140 POUND HAMMER IS USED TO INSTALL 2-INCH DIAMETER PIPE PILES THE CONTRACTOR SHALL VERIFY THE REQUIRED REFUSAL CRITERIA USING A 90 POUND HAMMER IF REQUIRED BY THE GEOTECHNICAL ENGINEER. THE DRIVING CRITERIA, FOR 3-INCH DIAMETER PILES, IS VALID ONLY FOR HYDRAULIC HAMMERS MOUNTED ON SLIDING LEADS THAT ALLOW THE HAMMER TO SIT ON TOP OF THE PILE DURING INSTALLATION.

MINIMUM PILE EMBEDMENT SHALL NOT BE LESS THAN 6'-0" AND FINAL LENGTH OF 2-INCH DIAMETER PIPE PILES SHALL NOT EXCEED 30'-0". INDIVIDUAL PILE SECTIONS SHALL BE CONNECTED USING SLEEVE COUPLERS INSTALLED BY WABO CERTIFIED WELDERS. ALTERNATE COUPLING METHODS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION.

STEEL PIPE SHALL CONFORM TO ASTM A 53, TYPE E OR S, GRADE B, Fy = 35 KSI. MINIMUM PILE WEIGHT FOR 2-INCH DIAMETER PIPE SHALL BE EXTRA-STRONG (SCHEDULE 80) AS NOTED IN THE AISC STEEL CONSTRUCTION MANUAL. MINIMUM PIPE WEIGHT FOR ALL OTHER PILES SHALL BE AS RECOMMENDED IN THE GEOTECHNICAL REPORT. PIPE PILES SHALL BE GALVANIZED.

PILE INSTALLATION AND TESTING SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER.

## CONCRETE

18. CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH ACI 318-14 AND ACI 301-16. CONCRETE SHALL ATTAIN A 28-DAY STRENGTH (f'c) OF 3500 PSI BASED ON EXPOSURE CLASS F1, SHALL CONTAIN NO LESS THAN 5-1/2 SACKS OF CEMENT, HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.45, MAXIMUM AGGREGATE OF 34-INCH, AND A SLUMP OF 5 INCHES OR LESS. CONCRETE HAS BEEN DESIGNED BASED ON A CONCRETE STRENGTH (f'c) OF 2500 PSI PER INTERNATIONAL BUILDING CODE SECTION 1705.3 EXCEPTION 2.3 TO AVOID SPECIAL INSPECTIONS AND MATERIAL

ALL CONCRETE WITH SURFACES EXPOSED TO STANDING WATER SHALL BE AIR-ENTRAINED WITH AN AIR-ENTRAINING AGENT CONFORMING TO ASTM C260, C494M, AND C618. UNLESS OTHERWISE NOTED THE TOTAL AIR CONTENT SHALL BE 5%. AIR CONTENT SHALL BE SAMPLED IN ACCORDANCE WITH ASTM C172 AND AIR CONTENT MEASURED IN ACCORDANCE WITH ASTM C231 OR C173.

CONCRETE MAY BE PLACED BY THE "SHOTCRETE" METHOD, PROVIDED THE APPROVALS, TESTS, AND INSPECTIONS REQUIRED BY BUILDING DEPARTMENT ARE OBTAINED. SHOTCRETE MATERIALS, EQUIPMENT, PROCEDURES, PROPORTIONS, BATCHING AND MIXING, AND PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 506R-05, ACI 506.2-13, ACI 506.4R-94 AND INTERNATIONAL BUILDING CODE SECTION 1908.

REINFORCING STEEL SHALL CONFORM TO ASTM A615 (INCLUDING SUPPLEMENTS S1), GRADE 60, Fy = 60,000 PSI. EXCEPTIONS: ANY BARS SPECIFICALLY SO NOTED ON THE DRAWINGS SHALL BE GRADE 40, Fy = 40,000 PSI.

	WELDED WIRE FABRIC	C SHALL CONFORM TO ASTM A-185	
20.	DETAILING OF REINFO REINFORCEMENTS AS	<u>DRCING STEEL</u> (INCLUDING HOOKS A S FOLLOWS:	ND BENDS) SHALL BE IN ACCOF
	BAR SIZE #3 #4 #5	MINIMUM LAP LENGTH 24-INCHES 31-INCHES 39-INCHES	MINIMUM HOOK EMBEDMENT 6-INCHES 8-INCHES 11-INCHES
	PROVIDE CORNER BA ENDS.	RS AT ALL WALL AND FOOTING INTE	RSECTIONS. LAP ADJACENT MA
		EMBEDDED IN HARDENED CONCRET	
21.	CONCRETE PROTECT	ION (COVER) FOR REINFORCING STE	<u>EL</u> SHALL BE AS FOLLOWS:
	FOOTINGS AND OTH ALL OTHER CASES	HER UNFORMED SURFACES CAST AG	AINST AND PERMANENTLY EXP
22.		ILESS NOTED OTHERWISE SHALL BE DIRECTED BY SOILS REPORT PROVI	,
23.	CONCRETE WALLS. S SEE ARCHITECTURAL	ERETE: SEE ARCHITECTURAL DRAWI EE MECHANICAL DRAWINGS FOR SIZ DRAWINGS FOR ALL GROOVES, NOT SURFACES. TOLERANCES FOR ALL	ZE AND LOCATION OF MISCELLA TCHES, CHAMFERS, FEATURE S
24.		SHALL BE FURNISHED BY AN APPRO IBLISHED RECOMMENDATIONS. GRO	
			POST INSTALLED ANCHORS
25.	FROM THE ENGINEER CARE SHALL BE TAKE CLEANED IN ACCORD OTHER THAN THOSE ARE PREPARED & SEA THE SUBSTITUTED PR	CHORS SHALL ONLY BE USED WHERE OF-RECORD PRIOR TO INSTALLING IN IN PLACING POST-INSTALLED ANC ANCE WITH THE MANUFACTURER'S V SPECIFIED BELOW, SHALL BE SUBMI ALED BY A PROFESSIONAL ENGINEEI RODUCT IS CAPABLE OF ACHIEVING E N PROCEDURE AND/OR STANDARD(S PROVAL.	B POST-INSTALLED ANCHORS IN HORS TO AVOID CONFLICTS WI WRITTEN INSTRUCTIONS AND IC TTED BY THE CONTRACTOR TO R REGISTERED IN THE STATE O EQUIVALENT PERFORMANCE VA
		ANCHORS FOR USE IN CRACKED AN 2 AND ICC-ES AC193. PRE-APPROVE SIMPSON STRONG-TIE "STRONG-E SIMPSON STRONG-TIE "TITEN-HD"	D MECHANICAL ANCHORS INCLI 30LT 2" (ICC-ES ESR-3037) (ICC-ES ESR-2713)
	WITH ICC-ES a. b.	SIMPSON STRONG-TIE "AT-XP" (IA HILTI "HIT-RE 500-V3" (ICC-ES ESR	NCHORS INCLUDE: CC-ES ESR-2508) PMO UES ER-263) -3814)
26.		DESIGN, FABRICATION, AND ERECTIC	
	<ol> <li>AISC 303-16 CC PARAGRAPH 4. DETAIL CONFIG</li> <li>AISC 341-16 SE</li> <li>SPECIFICATION</li> </ol>	ECIFICATION FOR STRUCTURAL STE DE OF STANDARD PRACTICE FOR ST 2.1: "THIS APPROVAL CONSTITUTES GURATION OF CONNECTIONS DEVELO ISMIC PROVISIONS FOR STRUCTURA N FOR STRUCTURAL JOINTS USING A LDING SOCIETY (AWS) STRUCTURAL	TEEL BUILDINGS AND BRIDGES, THE OWNER'S ACCEPTANCE O OPED BY THE FABRICATOR AS F IL STEEL BUILDINGS STM A325 OR A490 BOLTS.
27.	STRUCTURAL STEEL	SHALL CONFORM TO THE FOLLOWING	G REQUIREMENTS:
	ANCHOR BOLTS (EMB CONNECTION BOLTS		

28.	ALL BEAM PENETRATIONS NOT SPECIFIENGINEER FOR REVIEW PRIOR TO FAB
29.	ARCHITECTURALLY EXPOSED STRUCTURE VIEW UPON COMPLETION OF THE PROJ FABRICATION AND ERECTION REQUIRE

ALL A-325 CONNECTION BOLTS SHALL
THE MANUFACTURER'S PUBLISHED RE

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4.	ALL WELDING SHALL BE IN CONFORMA
	ELECTRODES UNLESS OTHERWISE NO

DRDANCE WITH ACI SP-66-04 AND ACI 318-14 CHAPTER 25. LAP ALL

ATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND

SS SPECIFICALLY SO DETAILED OR APPROVED BY THE EALLOWED.

POSED TO EARTH

1-1/2"

WITH 6X6 W1.4XW1.4 WELDED WIRE FABRIC CENTERED IN SLAB. RRIER OVER 4" OF COMPACTED SAND OR GRAVEL

AND DIMENSIONS OF DOOR AND WINDOW OPENINGS IN ALL ANEOUS MECHANICAL OPENINGS THROUGH CONCRETE WALLS. STRIPS, COLOR, TEXTURE, AND OTHER FINISH DETAILS AT ALL REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 117-10 AND

ALL BE MIXED AND PLACED IN STRICT ACCORDANCE WITH THE EAST EQUAL TO THE MATERIAL ON WHICH IT IS PLACED (3.000 PSI

JCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS. VITH EXISTING REINFORCEMENT. HOLES SHALL BE DRILLED AND ICC-ES REPORT. SUBSTITUTION REQUESTS, FOR PRODUCTS O THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT OF WASHINGTON. THE CALCULATIONS SHALL DEMONSTRATE THAT ALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE INATIONAL BUILDING CODE. SUBSTITUTIONS SHALL HAVE

IALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE UDF

HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE

ATEST EDITIONS OF THE A.I.S.C. SPECIFICATIONS AND CODES AS

AMENDED BY THE DELETION OF THE FOLLOWING SENTENCE IN OF ALL RESPONSIBILITY FOR THE DESIGN ADEQUACY OF ANY 5 PART OF HIS PREPARATION OF THESE SHOP DRAWINGS."

TM SPECIFICATION (TYPE E OR S. GRADE B) ) (GRADE B) OR A307 GRADE C

36 KSI 50 KSI 35 KSI 46 KSI

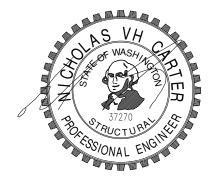
36 KSI

FICALLY INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL RICATION.

URAL STEEL SHALL CONFORM TO SECTION 10 OF THE AISC 303-10. ANY STRUCTURAL STEEL THAT IS EXPOSED TO DJECT SHALL BE CONSIDERED ARCHITECTURALLY EXPOSED. SEE PROJECT SPECIFICATIONS FOR SPECIFIC EMENTS.

. BE INSTALLED TO THE SNUG-TIGHT CONDITION PER AISC SPECIFICATIONS. INSTALL IN STRICT ACCORDANCE WITH ECOMMENDATIONS.

ANCE WITH AISC AND AWS STANDARDS AND SHALL BE PERFORMED BY WABO CERTIFIED WELDERS USING E70 XX OTED. ONLY PREQUALIFIED WELDS (AS DEFINED BY AWS) SHALL BE USED.





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IF SHEET IS NOT 24"x36" IT HAS BEEN RESCALED COPYRIGHT STUDIO ECTYPOS 2017

General Structural Notes

		WOOD			AINLESS STEEL. HOT DIPPED GALVANIZED FASTEN	,
35.	FRAMING LUMBER SHALL BE KILN DRIED OR MC-19, AND GRADED A	ND MARKED IN CONFORMANCE WITH WCLIB STANDARD GRADING RULES FOR WEST			CONFORM TO ASTM STANDARD A653 (CLASS G-18)	
	COAST LUMBER NO. 17, LATEST EDITION. FURNISH TO THE FOLLOW	VING MINIMUM STANDARDS.			LATED GALVANIZED FASTENERS AND CONNECTOR	
					ESPONDING TO THE ABOVE REQUIREMENTS ARE Z	(
	JOISTS:	HEM-FIR NO. 2 (UNLESS NOTED OTHERWISE ON PLANS)		STAINLESS STEEL HARDWARE AND F	FASTENERS SHALL NOT BE COMBINED WITH UNTRE	ATED OR GALVANIZED MATERIAL.
	(2X, 3X, AND 4X MEMBERS)	MINIMUM BASE VALUE, $F_b = 850 PSI$				
	BEAM AND STRINGERS:	DOUGLAS FIR LARCH NO. 1	43.	WOOD FASTENERS:		
	(6 X AND LARGER MEMBERS)	MINIMUM BASIC DESIGN STRESS, $F_b = 1,350$ PSI				
	POSTS AND TIMBERS:	DOUGLAS FIR LARCH NO. 1		A. <u>NAIL SIZES</u> SPECIFIED ON DR/	AWINGS ARE BASED ON THE FOLLOWING SPECIFIC	ATIONS:
	(6 X AND LARGER MEMBERS)	MINIMUM BASIC DESIGN STRESS, $F_b = 1,200$ PSI, $F_c = 1,000$ PSI				
	STUDS PLATES & MISCELLANEOUS LIGHT FRAMING	DOUGLAS FIR LARCH OR HEM-FIR NO. 2, MINIMUM BASIC DESIGN STRESS F₅ = 850 PSI, Fc = 1,300 PSI		SIZE	LENGTH	DIAMETER
	2X AND 3X TONGUE AND GROOVE DECKING	HEM-FIR COMMERCIAL DEX. $F_b = 1.350$ PSI		6d	2"	0.113"
				8d	2-1/2"	0.131"
				10d	3"	0.148"
36.		MP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE		12d	3-1/4"	0.148"
	GRADE, PRODUCT DESIGNATION OR TYPE, THE PRODUCTION DATE	, SPECIES OR SPECIES GROUP DESIGNATION, AND THE QUALITY CONTROL AGENCY.		100	3-1/2"	0.162"

NODUCT DESIGNATION ON TITE, THE FRODUCTION DATE, SPECIES ON SPECIES GROUP DESIGNATION, AND THE QUALITY CONTROL MEMBERS SHALL BE GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. STRUCTURAL CAPACITIES SHALL BE ESTABLISHED IN ACCORDANCE WITH ASTM D5456 AND PRODUCT SHALL HAVE AN APPROVED ICC-ES EVALUATION REPORT. MEMBERS SHALL BE TRANSPORTED AND STORED PER MANUFACTURERS RECOMMENDATIONS AND SHALL NOT BE EXPOSED TO PROLONGED MOISTURE. MINIMUM REQUIRED DESIGN PROPERTIES: Fb = 2900 PSI, E = 2000.000 PSI, Fv = 290 PSI.

WOOD

DESIGN SHOWN ON PLANS IS BASED ON LUMBER MANUFACTURED BY THE WEYERHAEUSER. 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-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH MEMBERS PROVIDED.

37. LAMINATED VENEER LUMBER (LVL): EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE GRADE, PRODUCT DESIGNATION OR TYPE, THE PRODUCTION DATE, SPECIES OR SPECIES GROUP DESIGNATION, AND THE QUALITY CONTROL AGENCY. MEMBERS SHALL BE GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. STRUCTURAL CAPACITIES SHALL BE ESTABLISHED IN ACCORDANCE WITH ASTM D5456 AND PRODUCT SHALL HAVE AN APPROVED ICC-ES EVALUATION REPORT. MEMBERS SHALL BE TRANSPORTED AND STORED PER MANUFACTURERS RECOMMENDATIONS AND SHALL NOT BE EXPOSED TO PROLONGED MOISTURE. MINIMUM REQUIRED DESIGN PROPERTIES: Fb = 2600 PSI, Fv = 285 PSI, E = 2,000,000 PSI.

DESIGN SHOWN ON PLANS IS BASED ON LUMBER MANUFACTURED BY WEYERHAEUSER. 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-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH MEMBERS PROVIDED.

LAMINATED STRAND LUMBER (LSL): EACH PIECE SHALL BEAR A STAMP OR STAMPS NOTING THE NAME AND PLANT NUMBER OF THE MANUFACTURER, THE 38. GRADE, PRODUCT DESIGNATION OR TYPE, THE PRODUCTION DATE, SPECIES OR SPECIES GROUP DESIGNATION, AND THE QUALITY CONTROL AGENCY. MEMBERS SHALL BE GLUED WITH A WATERPROOF ADHESIVE MEETING THE REQUIREMENTS OF ASTM D2559 WITH ALL GRAIN PARALLEL WITH THE LENGTH OF THE MEMBER. STRUCTURAL CAPACITIES SHALL BE ESTABLISHED IN ACCORDANCE WITH ASTM D5456 AND PRODUCT SHALL HAVE AN APPROVED ICC-ES EVALUATION REPORT. MEMBERS SHALL BE TRANSPORTED AND STORED PER MANUFACTURERS RECOMMENDATIONS AND SHALL NOT BE EXPOSED TO PROLONGED MOISTURE. MINIMUM REQUIRED DESIGN PROPERTIES:  $F_b = 2325$  PSI, Fv = 310 PSI, E = 1,550,000 PSI,

LSL RIM JOISTS SHALL CONFORM TO ANSI/APA PRR 410 AND SHALL BE MARKED IN ACCORDANCE WITH THE STANDARD.

DESIGN SHOWN ON PLANS IS BASED ON LUMBER MANUFACTURED BY WEYERHAEUSER. 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-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH MEMBERS PROVIDED.

- PREFABRICATED PLYWOOD WEB JOIST DESIGN SHOWN ON PLANS IS BASED ON JOIST MANUFACTURED BY THE WEYERHAEUSER. ALTERNATE PLYWOOD 39. 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-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL JOIST HANGERS AND OTHER HARDWARE SHALL BE COMPATIBLE IN SIZE WITH PLYWOOD WEB JOIST PROVIDED.
- PLYWOOD SHEATHING SHALL BE GRADE C-D, EXTERIOR GLUE OR STRUCTURAL II, EXTERIOR GLUE IN CONFORMANCE WITH DOC PS 1-09 OR PS 2-18 AND 40. AMERICAN PLYWOOD ASSOCIATION PERFORMANCE STANDARD PRP-108. ORIENTED STRAND BOARD OF EQUIVALENT THICKNESS, EXPOSURE RATING AND PANEL INDEX MAY BE USED IN LIEU OF PLYWOOD. SEE PLANS FOR THICKNESS, PANEL IDENTIFICATION INDEX AND NAILING REQUIREMENTS. EACH PANEL SHALL BE IDENTIFIED FOR GRADE AND GLUE TYPE BY THE TRADEMARKS OF AN APPROVED TESTING AND GRADING AGENCY.
- ALL WOOD PLATES IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE-TREATED WITH AN APPROVED PRESERVATIVE, PROVIDE 2 41. LAYERS OF ASPHALT IMPREGNATED BUILDING PAPER BETWEEN UNTREATED LEDGERS. BLOCKING, ETC. AND CONCRETE OR MASONRY.

PRESSURE TREATED LUMBER SHALL COMPLY WITH THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA) STANDARD U1, COMMODITY SPECIFICATION A AS INDICATED BELOW OR HAVE EQUIVALENT ICC-ES APPROVAL.

PROPOSED USE		AWPA USE CATEGORY
RESIDENTIAL DECKS	DECKING	3B
	JOISTS ABOVE GROUND	3B
	POSTS	4A
	RAILING	3B
	LEDGERS	3B
SAWN LUMBER	ABOVE GROUND	3B
PLYWOOD	DAMP ABOVE GROUND	2
	EXTERIOR ABOVE GROUND	3B
SILL PLATES	IN CONTACT WITH CONCRETE OR MASONRY	2
INTERIOR LEDGERS	IN CONTACT WITH CONCRETE OR MASONRY	2

ALL TREATED LUMBER SHALL BEAR THE QUALITY MARK OF AN ACCREDITED INSPECTION AGENCY. THE QUALITY MARK SHALL INCLUDE:

- A. IDENTIFICATION OF TREATING MANUFACTURER
- B. TYPE OF PRESERVATIVE USED
- C. MINIMUM PRESERVATIVE RETENTION (PCF) D. END USE FOR WHICH THE PRODUCT IS TREATED
- E. IDENTITY OF THE ACCREDITED INSPECTION AGENCY
- F. STANDARD TO WHICH THE PRODUCT IS TREATED
- 42.

TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, AS SPECIFIED IN THEIR CATALOG NUMBER C-C-2019. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICC-ES APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY MANUFACTURER TO ACHIEVE THE MAXIMUM PUBLISHED ALLOWABLE LOAD. ALL 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. SHIMS, WHERE REQUIRED, SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

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. ALL LAG SCREWS SHALL BE INSTALLED IN PRE-DRILLED HOLES.

UNLESS NOTED OTHERWISE ALL SAWN LUMBER JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "LUS" SERIES JOIST HANGERS AND ALL PREFABRICATED PLYWOOD WEB JOISTS SHALL BE CONNECTED TO FLUSH BEAMS WITH "IUS" SERIES JOIST HANGERS.

ALL CONNECTIONS/FASTENERS IN CONTACT WITH PRESERVATIVE-TREATED OR FIRE-RETARDANT-TREATED WOOD, SHALL BE OF HOT DIPPED ZINC-TM STANDARD 153, AND HOT DIPPED RS AND CONNECTORS SHOULD BE RESSURE TREATED WOOD. ) AND SST300 (STAINLESS STEEL).

COUNTERSINKING PERMITTED.

44.

DESIGN IS BASED ON COMMON STEEL WIRE NAILS MEETING THE REQUIREMENTS OF ASTM F1667. USE OF ALTERNATE FASTENERS MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO THE START OF CONSTRUCTION.

B. NAILS — PLYWOOD (APA RATED SHEATHING) FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO

<u>WOOD FRAMING NOTES</u> — THE FOLLOWING APPLY UNLESS OTHERWISE SHOWN ON THE PLANS:

- 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 AS SPECIFIED ABOVE. 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. INSTALLATION OF BOLTS AND LAG SCREWS SHALL CONFORM TO SECTIONS 12.1.3 AND 12.1.4 OF THE 2018 NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. NATURALLY DURABLE OR PRESSURE TREATED WOOD SHALL BE PROVIDED WHERE REQUIRED BY SECTION 2304.12 OF THE INTERNATIONAL BUILDING CODE.
- B. WALL FRAMING: ALL STUD WALLS SHOWN AND NOT OTHERWISE NOTED SHALL BE 2X6 AT 16" O.C. TWO STUDS MINIMUM SHALL BE PROVIDED AT THE END OF ALL WALLS AND AT EACH SIDE OF ALL OPENINGS. TWO 2 x 8 HEADERS SHALL BE PROVIDED OVER ALL OPENINGS NOT OTHERWISE NOTED AND SHALL BEAR FULLY ON A MINIMUM OF TWO STUDS. SOLID BLOCKING FOR WOOD COLUMNS SHALL BE PROVIDED THROUGH FLOORS TO SUPPORTS BELOW. PROVIDE SOLID BLOCKING BETWEEN STUDS AT MID\_HEIGHT OF ALL STUD WALLS OVER 10' IN HEIGHT.

STUDS MAY BE NOTCHED, CUT, OR PENETRATED WITH ROUND BORED HOLES AS FOLLOWS:

STUD SIZE	MAXIMUM NOTCH / CUT	MAXIMUM BORED HOLE
2X4	7/8"	1-3/8"
2X6	1-3/8"	2-1/8"

BORED HOLES SHALL NOT BE LOCATED WITH 5/8" FROM THE EDGE OF THE STUD OR AT THE SAME LOCATION AS A NOTCH OR CUT.

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 EIGHT 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. PROVIDE 3"x3" x1/4" HOT-DIPPED GALVANIZED PLATE WASHERS AT ALL ANCHOR BOLTS. INDIVIDUAL MEMBERS OF BUILT UP POSTS SHALL BE NAILED TO EACH OTHER WITH 16d NAILS @ 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. PROVIDE 15/32" APA RATED SHEATHING (SPAN RATING 24/0) ON EXTERIOR SURFACES NAILED AT ALL PANEL EDGES (BLOCK UNSUPPORTED EDGES), TOP AND BOTTOM PLATES WITH 8d NAILS @ 6" O.C. AND TO ALL INTERMEDIATE STUDS AND BLOCKING WITH NAILS @ 12" O.C. ALLOW 1/8" SPACING AT ALL PANEL EDGES AND ENDS.

C. FLOOR AND ROOF FRAMING: PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS THAT EXTEND OVER MORE THAN HALF THE JOIST LENGTH AND AROUND ALL OPENINGS IN FLOORS OR ROOFS UNLESS OTHERWISE NOTED. PROVIDE SOLID BLOCKING AT ALL BEARING POINTS.

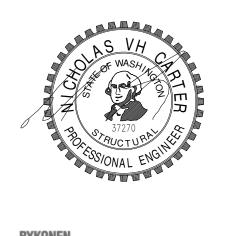
NOTCHES AT THE END OF JOISTS AND RAFTERS SHALL NOT EXCEED 1/4 THE DEPTH OF THE MEMBER. NOTCHES IN THE TOP OR BOTTOM SHALL NOT EXCEED 1/6 THE DEPTH OF THE MEMBER AND SHALL NOT BE LOCATED WITHIN THE MIDDLE 1/3 OF THE SPAN. THE DIAMETER OF ROUND HOLES BORED IN JOISTS AND RAFTERS SHALL NOT EXCEED 1/3 OF THE DEPTH OF THE MEMBER AND SHALL NOT BE LOCATED WITHIN 2" FROM THE TOP OR BOTTOM EDGE.

TOENAIL JOISTS TO SUPPORTS WITH TWO 16d NAILS. ATTACH TIMBER JOISTS TO FLUSH HEADERS OR BEAMS WITH SIMPSON METAL JOIST HANGERS IN ACCORDANCE WITH NOTES ABOVE. NAIL ALL MULTI JOIST BEAMS TOGETHER WITH TWO ROWS OF 16d @ 12" O.C. ATTACH RAFTERS AND ROOF TRUSSES AT BEARING LINES WITH H2.5 @ 24" O.C. UNLESS OTHER METAL CONNECTIONS ARE INDICATED.

UNLESS OTHERWISE NOTED ON THE PLANS, APA RATED ROOF AND FLOOR SHEATHING SHALL BE LAID UP WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS AND ATTACHED WITH 10d 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 TONGUE AND GROOVE 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 NAILS @ 12" O.C. UNLESS OTHERWISE NOTED. AT BLOCKED FLOOR AND ROOF DIAPHRAGMS PROVIDE FLAT 2X BLOCKING AT ALL UNFRAMED PANEL EDGES AND FASTEN SHEATHING TO FRAMING/BLOCKING AS SPECIFIED.

TONGUE AND GROOVE STRUCTURAL ROOF AND FLOOR DECKING SHALL BE INSTALLED AS FOLLOWS:

- A. 2X DECKING SHALL BE TOENAILED THROUGH THE TONGUE AND FACE NAILED WITH ONE 16d NAIL PER PIECE PER SUPPORT.
- B. 3X AND 4X DECKING SHALL BE TOENAILED WITH ONE 40d NAIL AND FACE NAILED WITH ONE 60d NAIL PER SUPPORT. COURSES SHALL BE SPIKED TOGETHER WITH 8" SPIKES AT 30" O.C. (MAXIMUM) AND AT 10" (MAXIMUM) FROM EACH END OF EACH PIECE. SPIKES SHALL BE INSTALLED IN PREDRILLED EDGE HOLES



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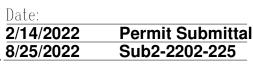
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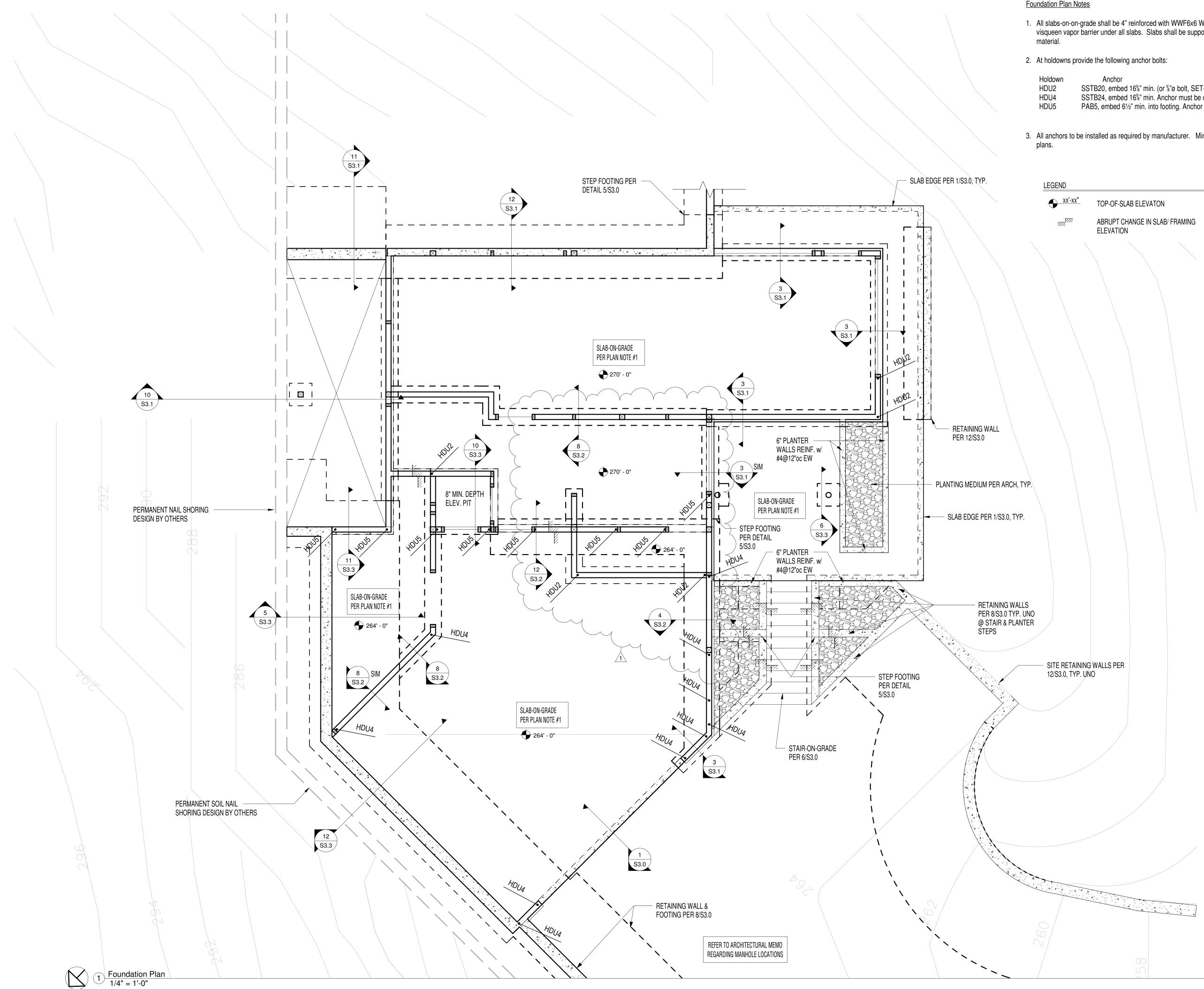


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General Structural Notes

2017



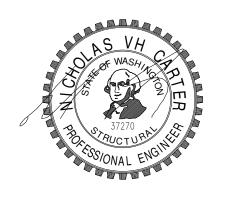


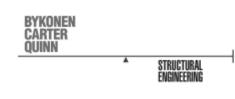
## Foundation Plan Notes

- All slabs-on-on-grade shall be 4" reinforced with WWF6x6 W1.4xW1.4 u.n.o. Provide minimum 6-mil visqueen vapor barrier under all slabs. Slabs shall be supported on a minimum 4 inches of free draining

Holdown	Anchor
HDU2	SSTB20, embed 16 <sup>%</sup> ," min. (or <sup>%</sup> ,"ø bolt, SET-XP epoxy embed 10 min.")
HDU4	SSTB24, embed 16 <sup>%</sup> min. Anchor must be cast-in-place.
HDU5	PAB5, embed 61/2" min. into footing. Anchor must be cast-in-place.

3. All anchors to be installed as required by manufacturer. Minimum (2) 2x studs unless otherwise noted on





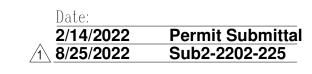


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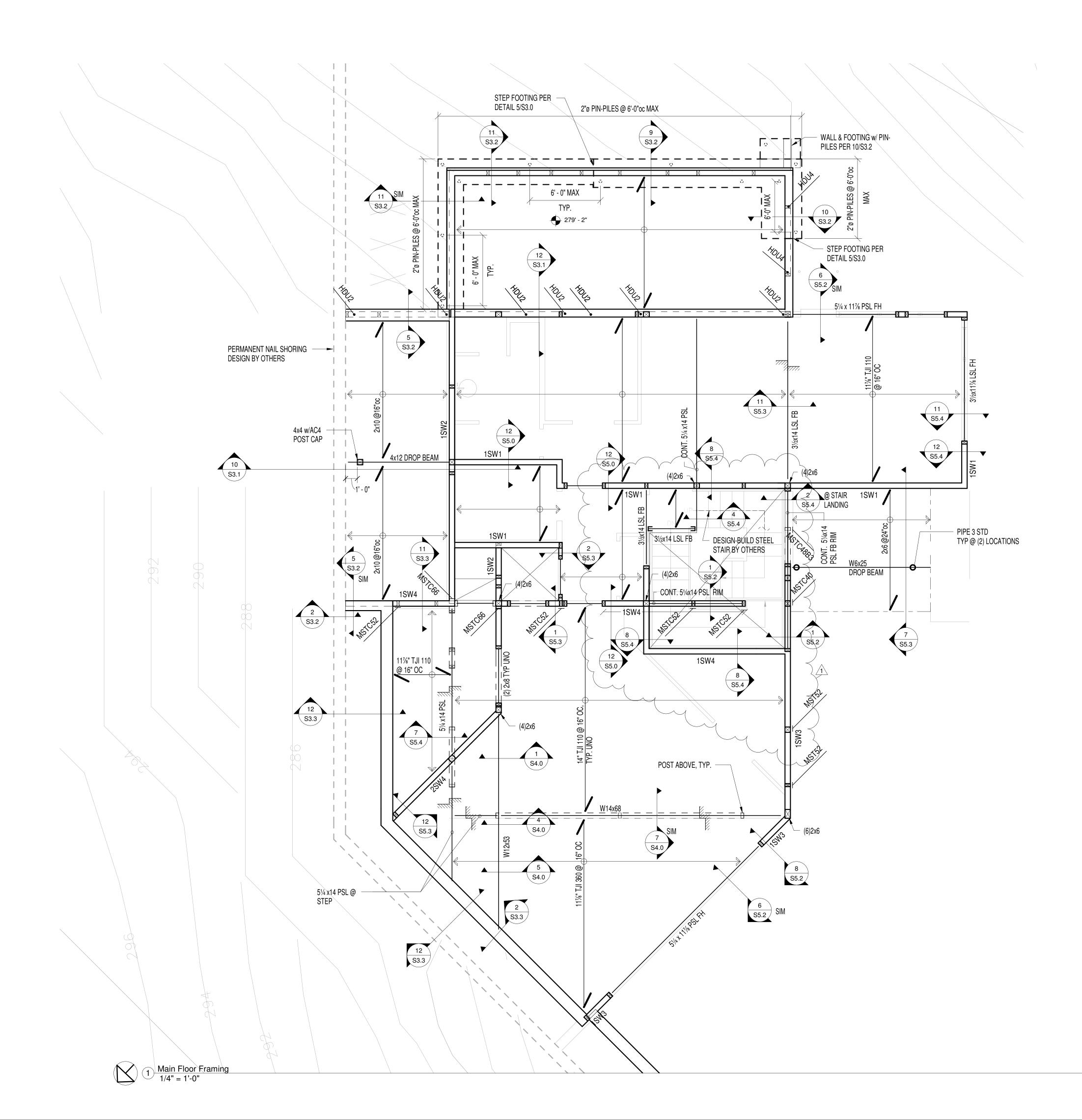
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Foundation Plan





# Floor Framing Plan Notes

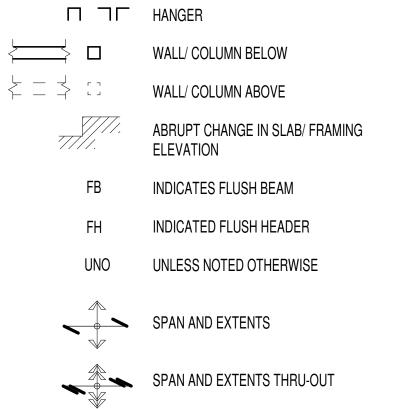
LEGEND

- Floor sheathing shall be 23/32" APA, Sturd-I-Floor with a panel index of 40/20. Nail to framing with 10d common nails at 6" oc at panel edges and 12" oc in field unless noted otherwise on plans.
   All headers and beams shall be (2) 2x8 minimum, u.n.o. Refer to note 3 for support requirements.
- 3. All columns shall be double stud minimum, u.n.o., with the beam or header bearing fully on the column. Individual studs
- All columns shall be double stud minimum, diff.o., with the beam of neader beaming fully on the column. Individual study shall be nailed together per the general structural notes.
   Exterior wall sheathing shall be 15/32" APA Rated sheathing with a panel index of 24/0 (Oriented strand board of equivalent thickness, exposure rating, and panel index may be used in lieu of plywood at contractors' option).
   Attach LVL plies w/ (2) SDS25600 @16"oc.

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STRUCTURAL Engineering

BYKONEN Carter Quinn





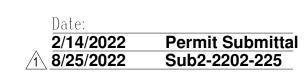


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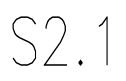
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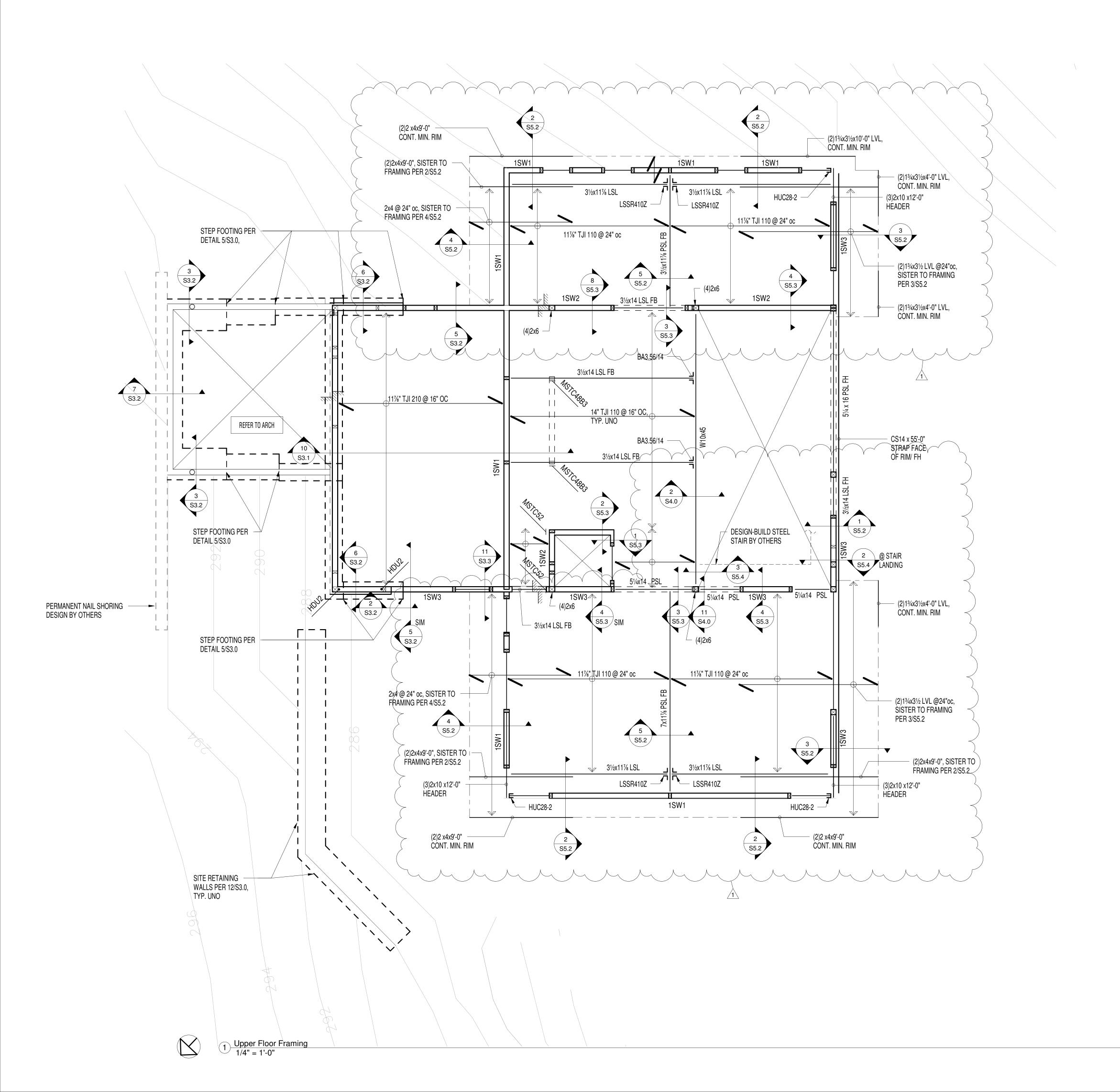
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Main Floor Framing Plan



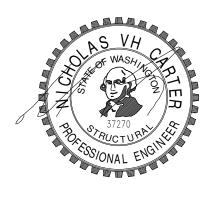


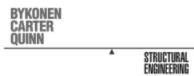
# Floor Framing Plan Notes

- 1. Floor sheathing shall be 23/32" APA, Sturd-I-Floor with a panel index of 40/20. Nail to framing with 10d common nails at 6" oc at panel edges and 12" oc in field unless noted otherwise on plans.
- 2. All headers and beams shall be (2) 2x8 minimum, u.n.o. Refer to note 3 for support requirements. 3. All columns shall be double stud minimum, u.n.o., with the beam or header bearing fully on the column. Individual studs
- All be nailed together per the general structural notes.
   Exterior wall sheathing shall be 15/32" APA Rated sheathing with a panel index of 24/0 (Oriented strand board of equivalent thickness, exposure rating, and panel index may be used in lieu of plywood at contractors' option).
   Attach LVL plies w/ (2) SDS25600 @16"oc.

# LEGEND

ח חר	HANGER
	WALL/ COLUMN BELOW
	WALL/ COLUMN ABOVE
	ABRUPT CHANGE IN SLAB/ FRAMING ELEVATION
FB	INDICATES FLUSH BEAM
FH	INDICATED FLUSH HEADER
UNO	UNLESS NOTED OTHERWISE
	SPAN AND EXTENTS
	SPAN AND EXTENTS THRU-OUT





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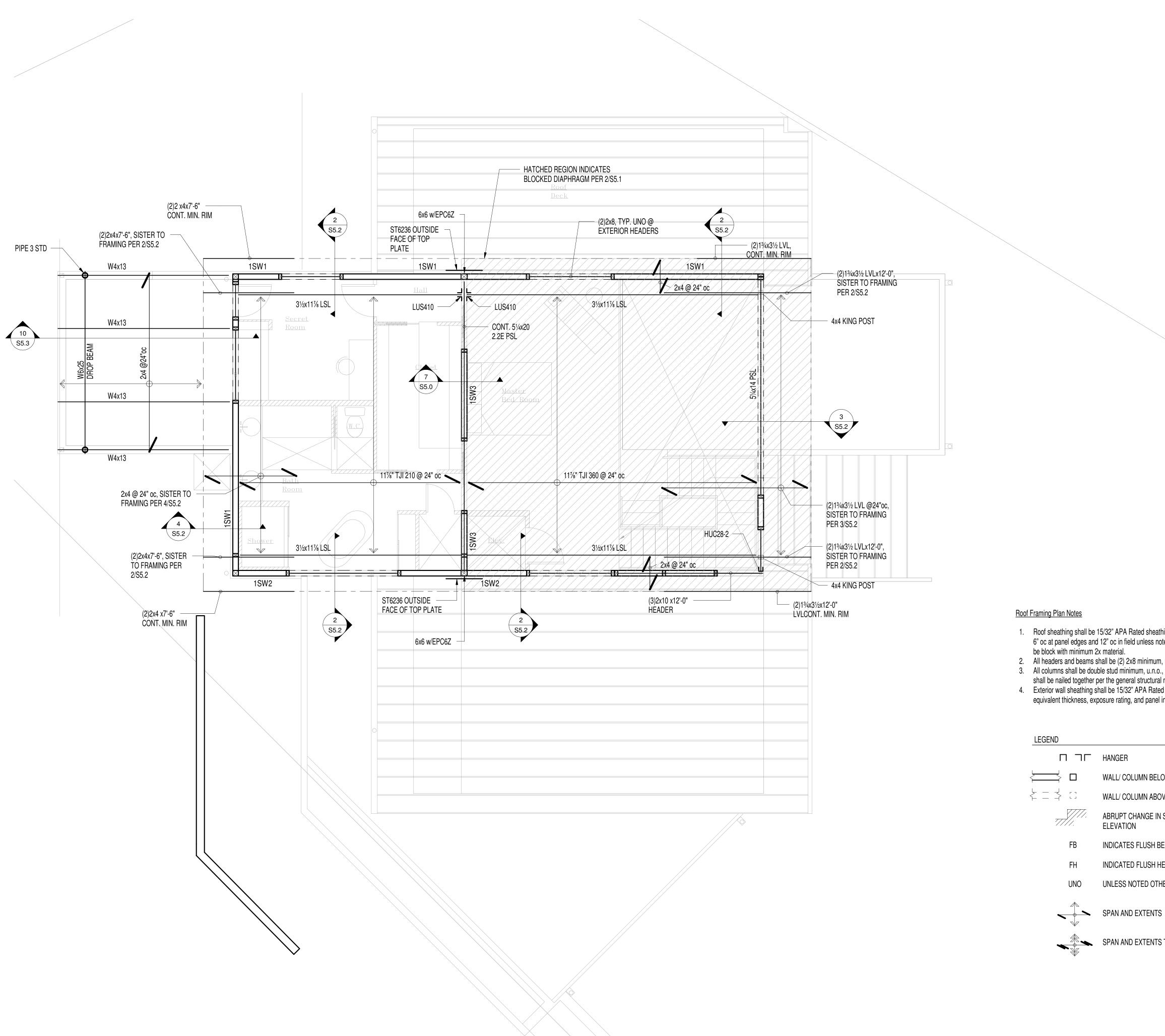


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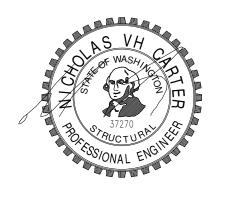
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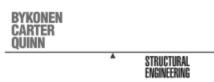
Upper Floor Framing Plan











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1. Roof sheathing shall be 15/32" APA Rated sheathing with a panel index of 24/0. Nail to framing with 8d common nails at 6" oc at panel edges and 12" oc in field unless noted otherwise on plans. Where noted on the plans all panel edges shall

2. All headers and beams shall be (2) 2x8 minimum, u.n.o. Refer to note 3 for support requirements.

3. All columns shall be double stud minimum, u.n.o., with the beam or header bearing fully on the column. Individual studs shall be nailed together per the general structural notes.

4. Exterior wall sheathing shall be 15/32" APA Rated sheathing with a panel index of 24/0 (Oriented strand board of equivalent thickness, exposure rating, and panel index may be used in lieu of plywood at contractors' option).

WALL/ COLUMN BELOW

WALL/ COLUMN ABOVE

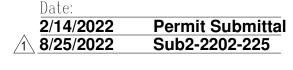
ABRUPT CHANGE IN SLAB/ FRAMING ELEVATION

INDICATES FLUSH BEAM

INDICATED FLUSH HEADER

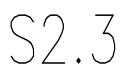
UNLESS NOTED OTHERWISE

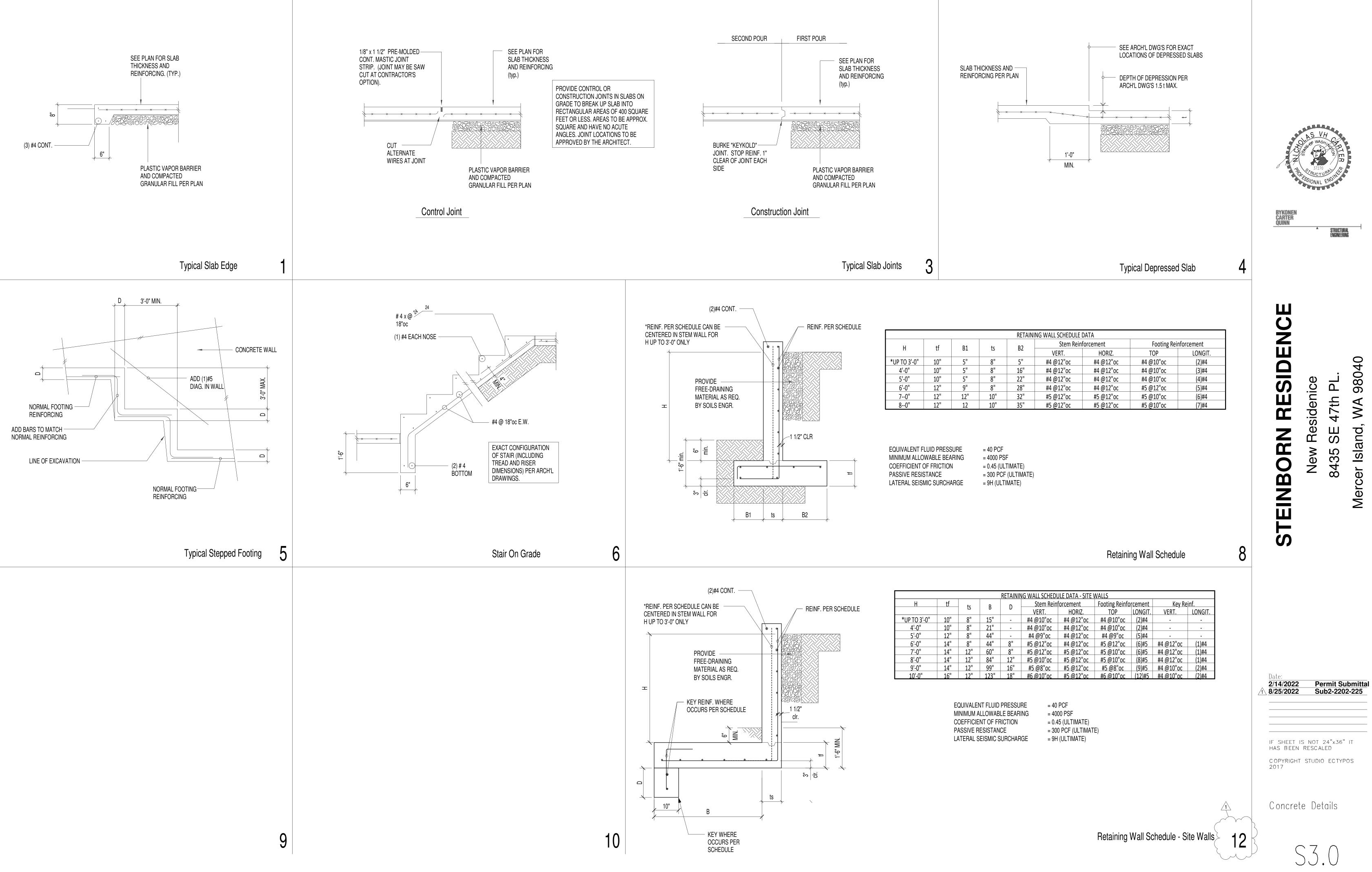
SPAN AND EXTENTS THRU-OUT

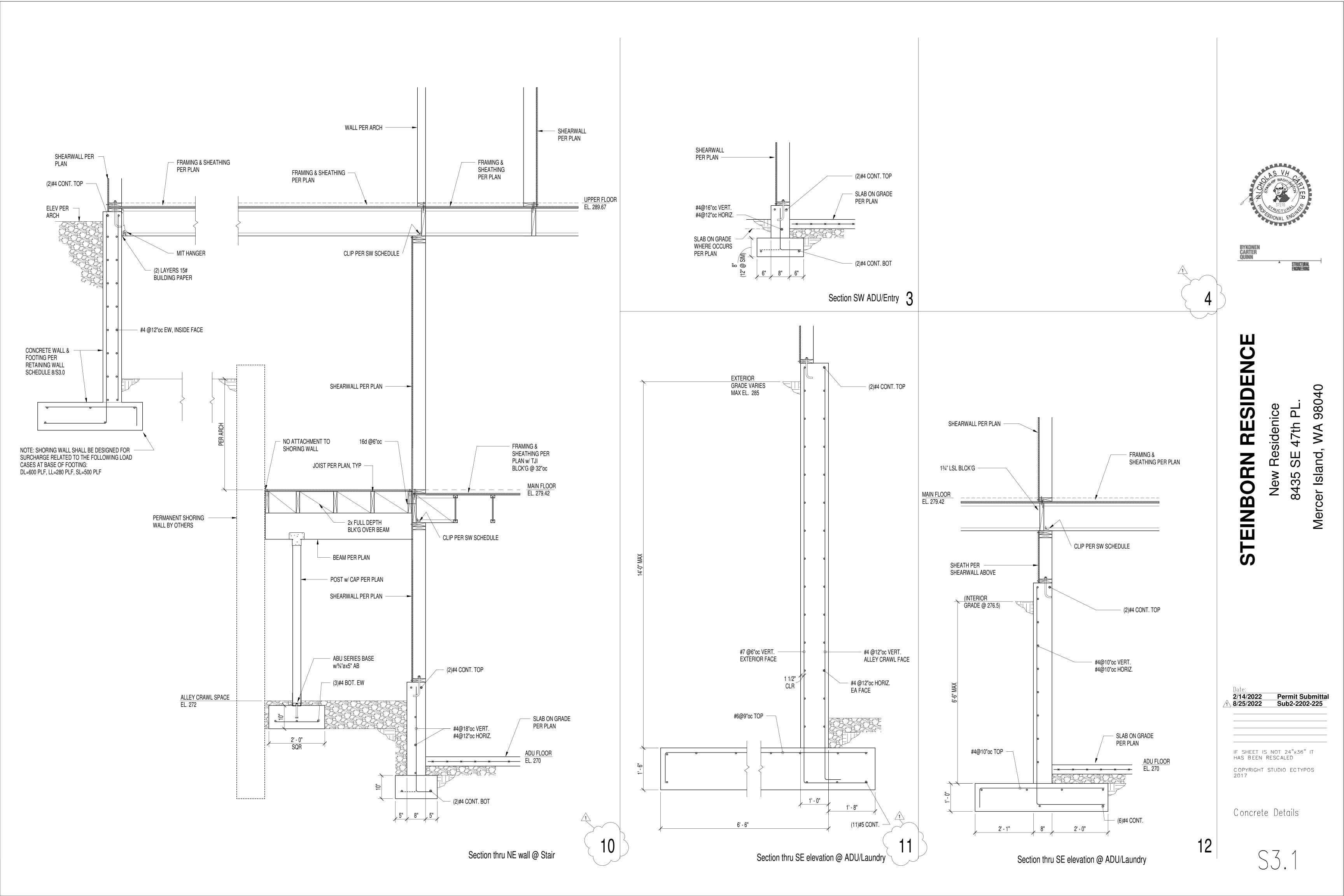


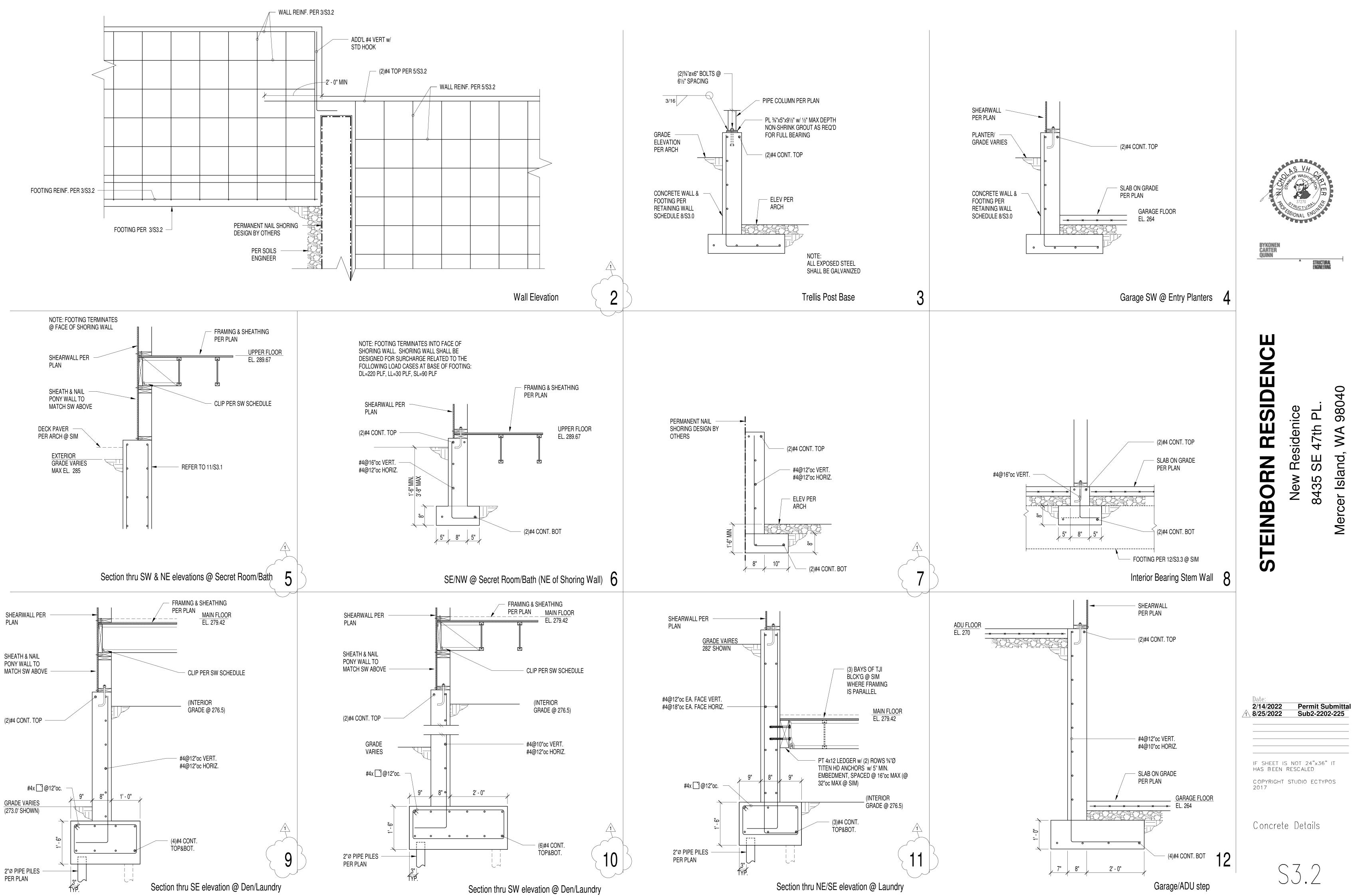
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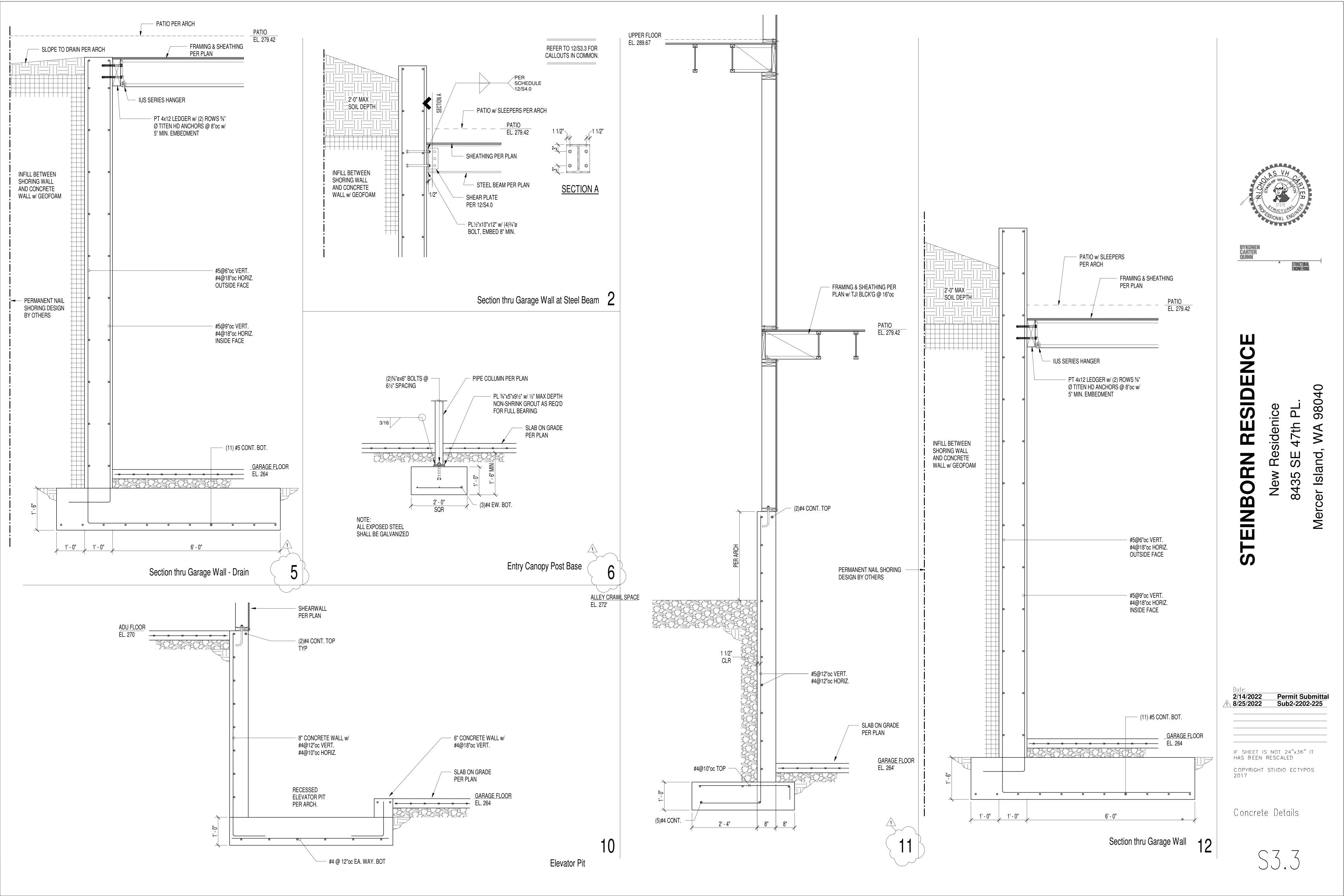
Roof Framing Plan

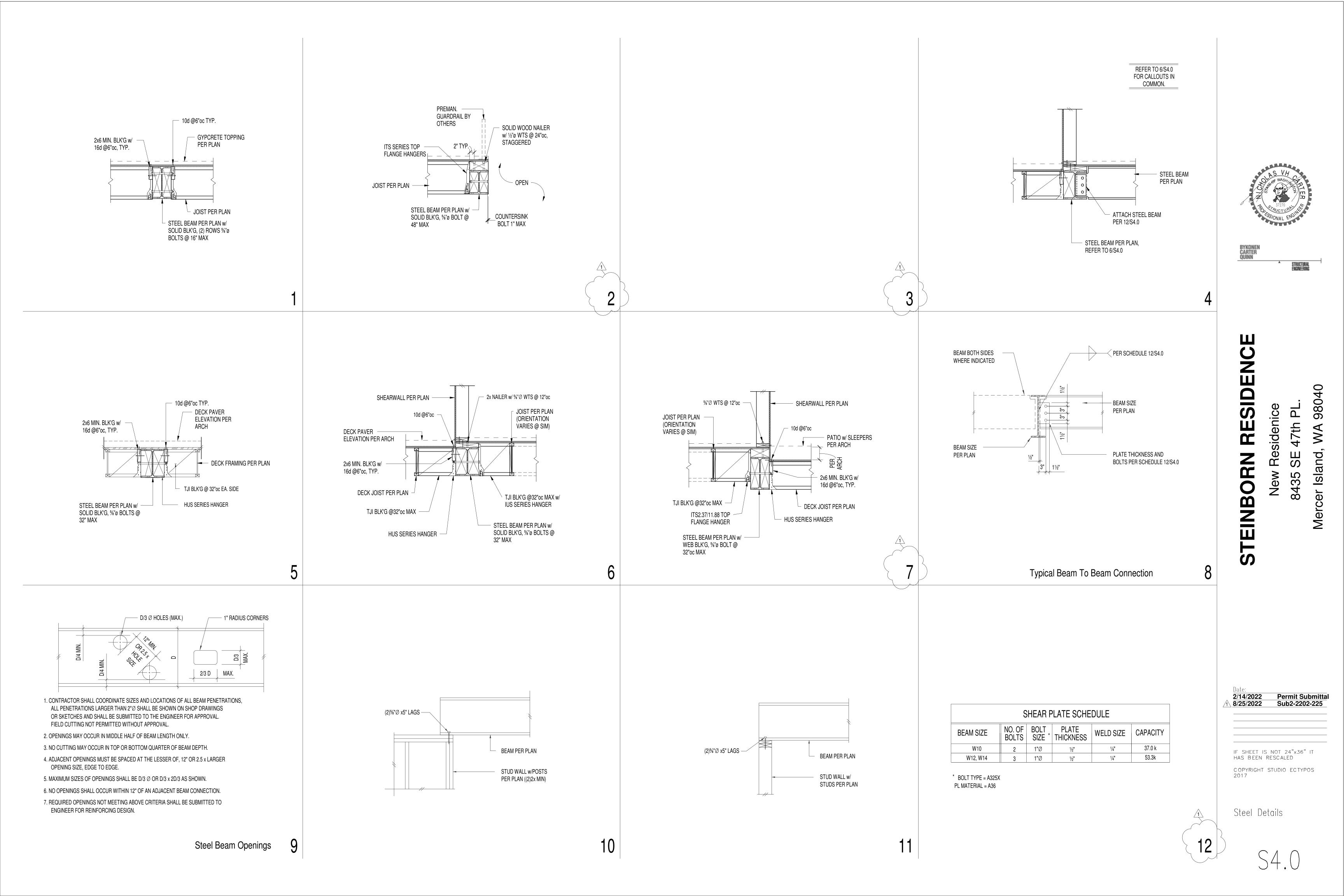










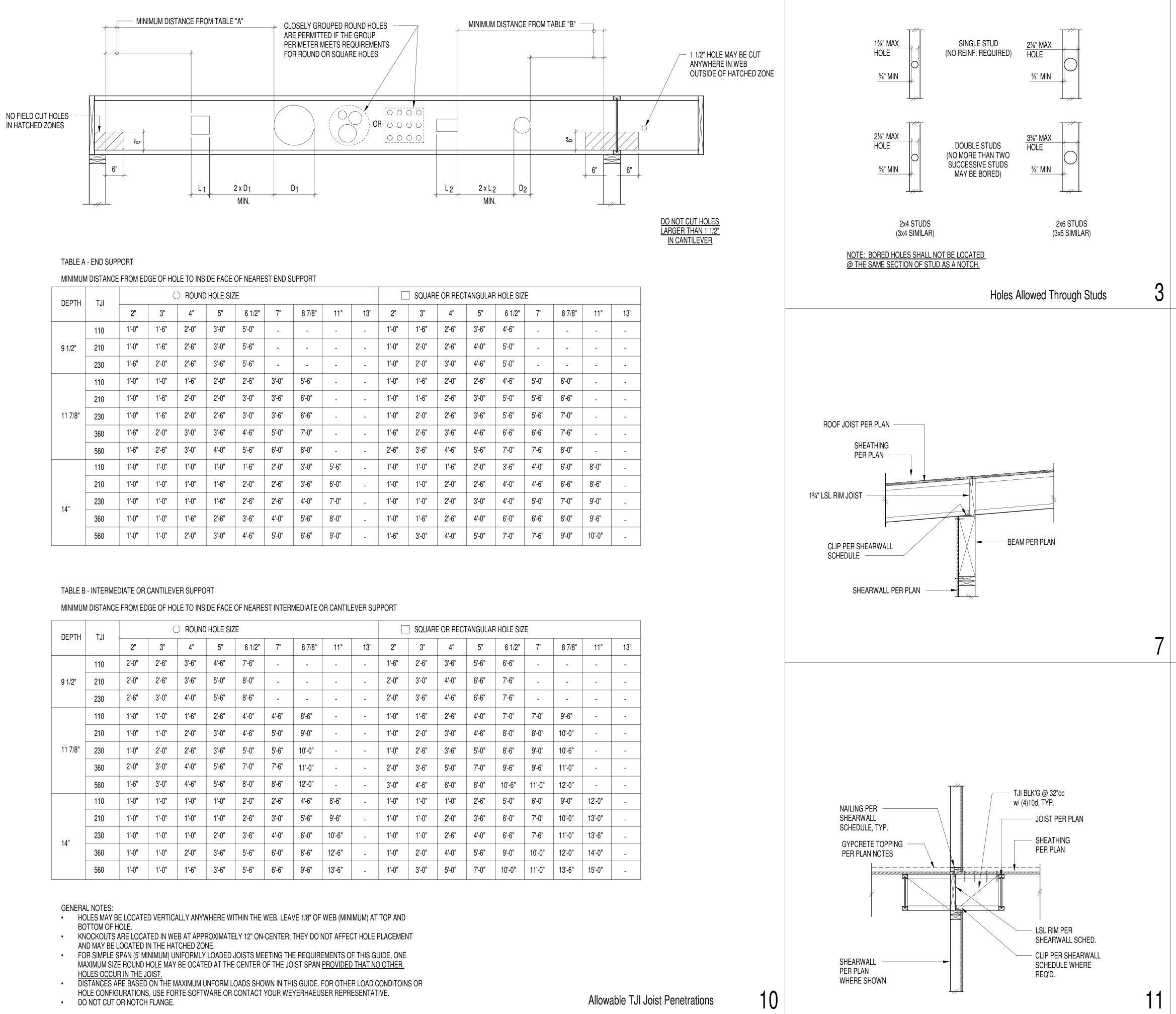


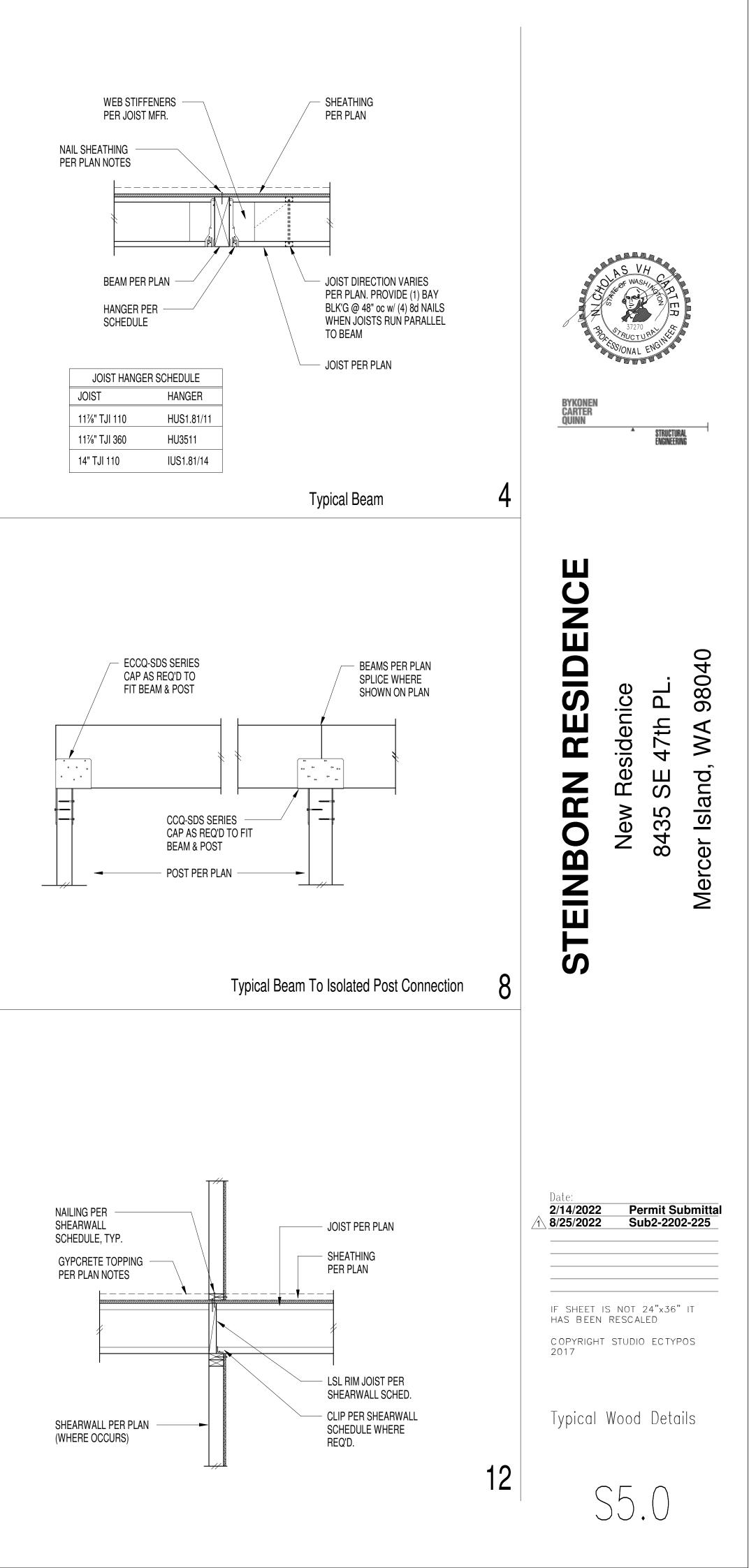
HOLES OCCUR IN THE JOIST.

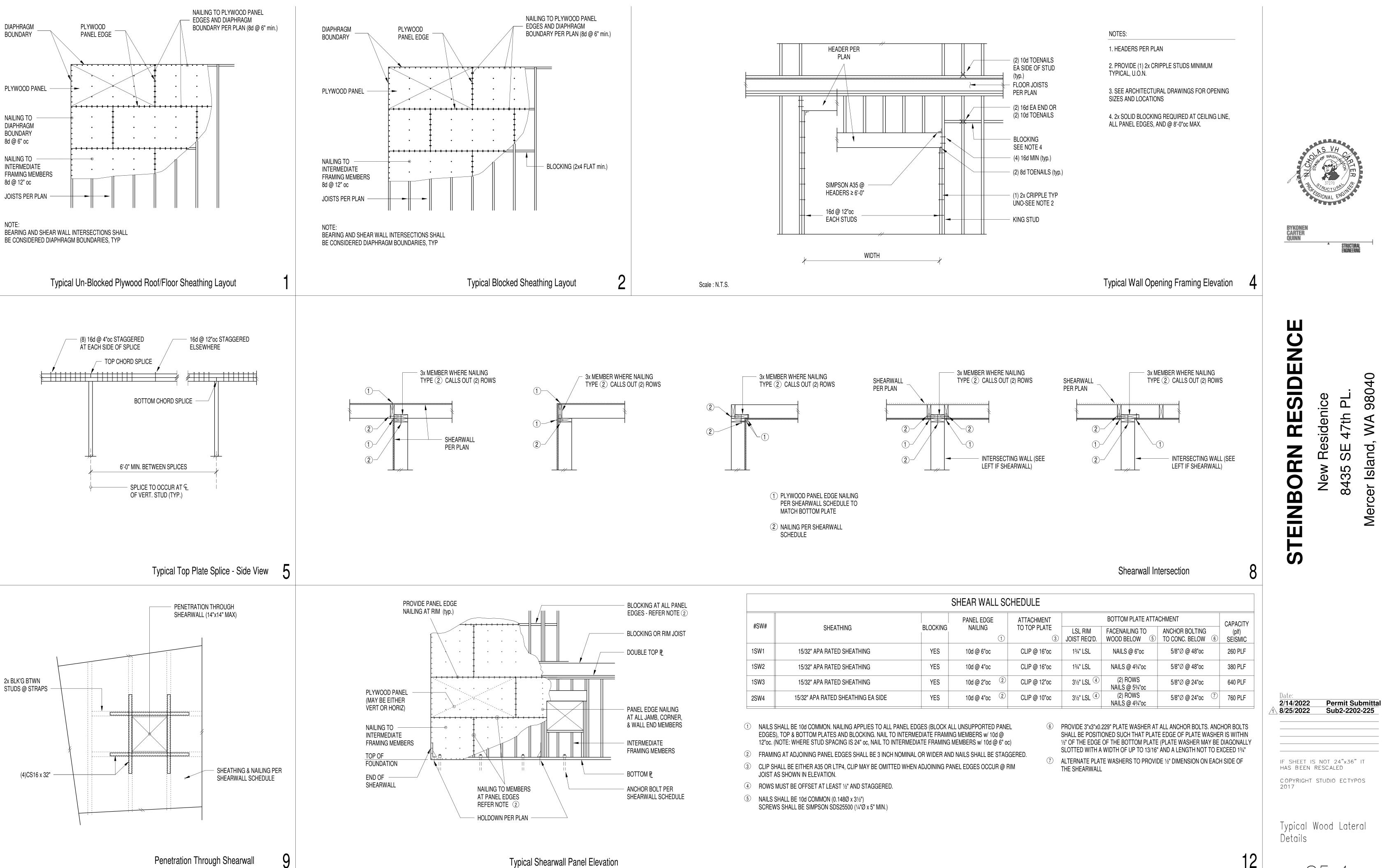
MAXIMUM SIZE ROUND HOLE MAY BE OCATED AT THE CENTER OF THE JOIST SPAN PROVIDED THAT NO OTHER

DEPTH	TJI		(	) Roune	O HOLE SIZ	ZE						SQUAR	E OR REC	TANGULAI	R HOLE SIZ	Έ		
	101	2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"	2"	3"	4"	5"	6 1/2"	7"	8 7/8"	
	110	2'-0"	2'-6"	3'-6"	4'-6"	7'-6"	-	-	-	-	1'-6"	2'-6"	3'-6"	5'-6"	6'-6"	-	-	
9 1/2"	210	2'-0"	2'-6"	3'-6"	5'-0"	8'-0"	-	-	-	-	2'-0"	3'-0"	4'-0"	6'-6"	7'-6"	-	-	
	230	2'-6"	3'-0"	4'-0"	5'-6"	8'-6"	-	-	-	-	2'-0"	3'-6"	4'-6"	6'-6"	7'-6"	-	-	
	110	1'-0"	1'-0"	1'-6"	2'-6"	4'-0"	4'-6"	8'-6"	-	-	1'-0"	1'-6"	2'-6"	4'-0"	7'-0"	7'-0"	9'-6"	
	210	1'-0"	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	9'-0"	-	-	1'-0"	2'-0"	3'-0"	4'-6"	8'-0"	8'-0"	10'-0"	
11 7/8"	230	1'-0"	2'-0"	2'-6"	3'-6"	5'-0"	5'-6"	10'-0"	-	-	1'-0"	2'-6"	3'-6"	5'-0"	8'-6"	9'-0"	10'-6"	
	360	2'-0"	3'-0"	4'-0"	5'-6"	7'-0"	7'-6"	11'-0"	-	-	2'-0"	3'-6"	5'-0"	7'-0"	9'-6"	9'-6"	11'-0"	
	560	1'-6"	3'-0"	4'-6"	5'-6"	8'-0"	8'-6"	12'-0"	-	-	3'-0"	4'-6"	6'-0"	8'-0"	10'-6"	11'-0"	12'-0"	
	110	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	2'-6"	4'-6"	8'-6"	-	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	6'-0"	9'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	5'-6"	9'-6"	-	1'-0"	1'-0"	2'-0"	3'-6"	6'-0"	7'-0"	10'-0"	
14"	230	1'-0"	1'-0"	1'-0"	2'-0"	3'-6"	4'-0"	6'-0"	10'-6"	-	1'-0"	1'-0"	2'-6"	4'-0"	6'-6"	7'-6"	11'-0"	
14	360	1'-0"	1'-0"	2'-0"	3'-6"	5'-6"	6'-0"	8'-6"	12'-6"	-	1'-0"	2'-0"	4'-0"	5'-6"	9'-0"	10'-0"	12'-0"	
	560	1'-0"	1'-0"	1'-6"	3'-6"	5'-6"	6'-6"	9'-6"	13'-6"	-	1'-0"	3'-0"	5'-0"	7'-0"	10'-0"	11'-0"	13'-6"	

-     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     1'-0"       -     2'-6"	1'-6" 2'-0" 2'-0" 1'-6" 1'-6" 2'-0" 2'-0"	2'-6" 2'-6" 2'-0" 2'-6" 2'-6" 3'-6"	3'-6" 4'-0" 4'-6" 2'-6" 3'-0" 3'-6" 4'-6"	4'-6" 5'-0" 5'-0" 4'-6" 5'-0" 5'-6" 6'-6"	- - 5'-0" 5'-6" 5'-6" 6'-6"	- - 6'-0" 6'-6" 7'-0"	
- 1'-0" - 1'-0" - 1'-0" - 1'-0" - 1'-6"	2'-0" 1'-6" 1'-6" 2'-0" 2'-6"	3'-0" 2'-0" 2'-6" 2'-6"	4'-6" 2'-6" 3'-0" 3'-6"	5'-0" 4'-6" 5'-0" 5'-6"	- 5'-0" 5'-6" 5'-6"	- 6'-0" 6'-6" 7'-0"	
- 1'-0" - 1'-0" - 1'-0" - 1'-6"	1'-6" 1'-6" 2'-0" 2'-6"	2'-0" 2'-6" 2'-6"	2'-6" 3'-0" 3'-6"	4'-6" 5'-0" 5'-6"	5'-6" 5'-6"	6'-0" 6'-6" 7'-0"	
- 1'-0" - 1'-0" - 1'-6"	1'-6" 2'-0" 2'-6"	2'-6" 2'-6"	3'-0" 3'-6"	5'-0" 5'-6"	5'-6" 5'-6"	6'-6" 7'-0"	
- 1'-0" - 1'-6"	2'-0" 2'-6"	2'-6"	3'-6"	5'-6"	5'-6"	7'-0"	
- 1'-6"	2'-6"						
		3'-6"	4'-6"	6'-6"	6'-6"	71.01	+
2'-6"			1			7'-6"	
- 2-0	3'-6"	4'-6"	5'-6"	7'-0"	7'-6"	8'-0"	
- 1'-0"	1'-0"	1'-6"	2'-0"	3'-6"	4'-0"	6'-0"	8
- 1'-0"	1'-0"	2'-0"	2'-6"	4'-0"	4'-6"	6'-6"	8
- 1'-0"	1'-0"	2'-0"	3'-0"	4'-0"	5'-0"	7'-0"	Q
- 1'-0"	1'-6"	2'-6"	4'-0"	6'-0"	6'-6"	8'-0"	(
- 1'-6"	3'-0"	4'-0"	5'-0"	7'-0"	7'-6"	9'-0"	1
	- 1'-0" - 1'-0"	- 1'-0" 1'-0" - 1'-0" 1'-6"	- 1'-0" 1'-0" 2'-0" - 1'-0" 1'-6" 2'-6"	- 1'-0" 1'-0" 2'-0" 3'-0" - 1'-0" 1'-6" 2'-6" 4'-0"	- 1'-0" 1'-0" 2'-0" 3'-0" 4'-0" - 1'-0" 1'-6" 2'-6" 4'-0" 6'-0"	- 1'-0" 1'-0" 2'-0" 3'-0" 4'-0" 5'-0" - 1'-0" 1'-6" 2'-6" 4'-0" 6'-0" 6'-6"	-       1'-0"       1'-0"       2'-0"       3'-0"       4'-0"       5'-0"       7'-0"         -       1'-0"       1'-6"       2'-6"       4'-0"       6'-0"       6'-6"       8'-0"

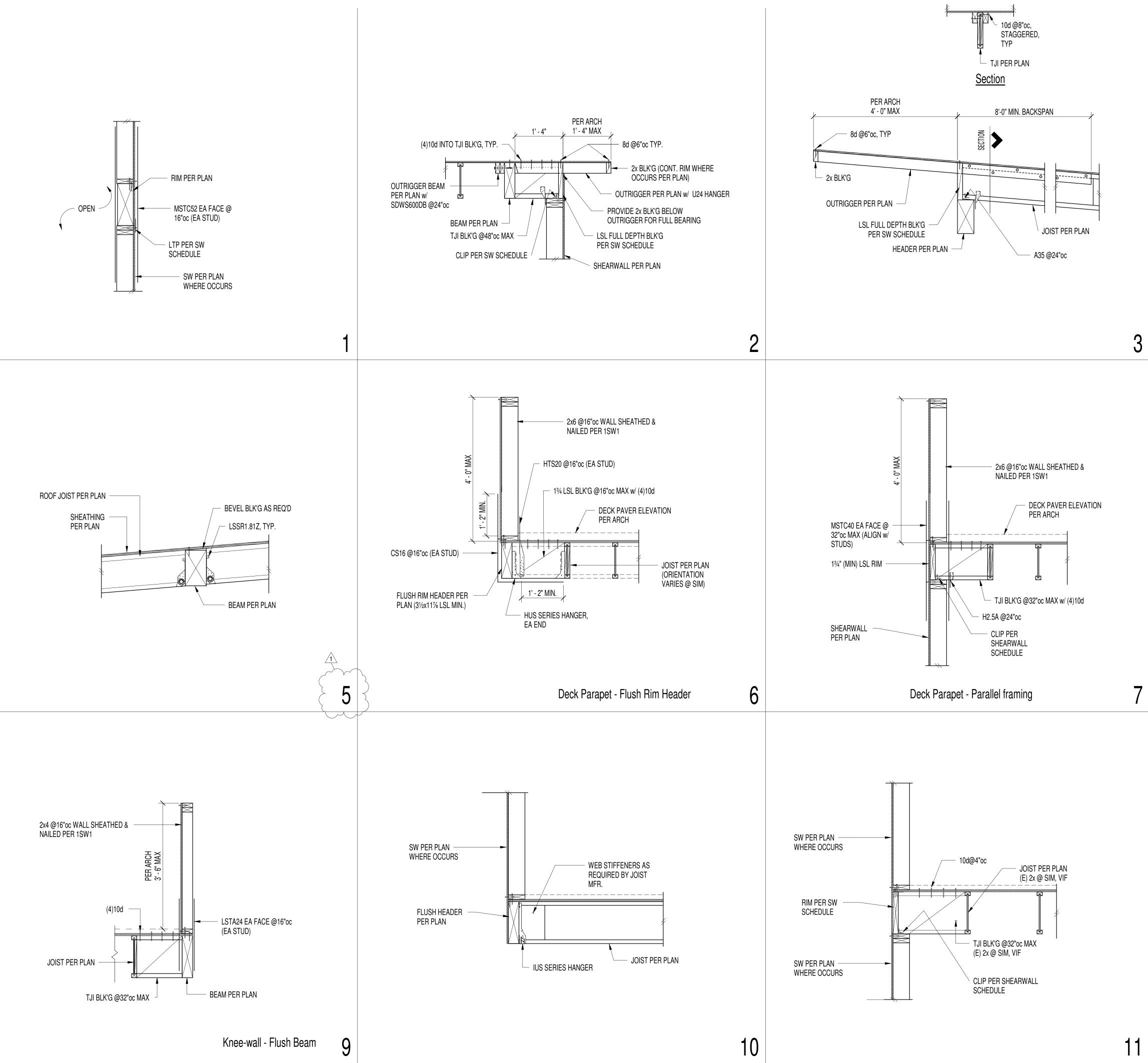


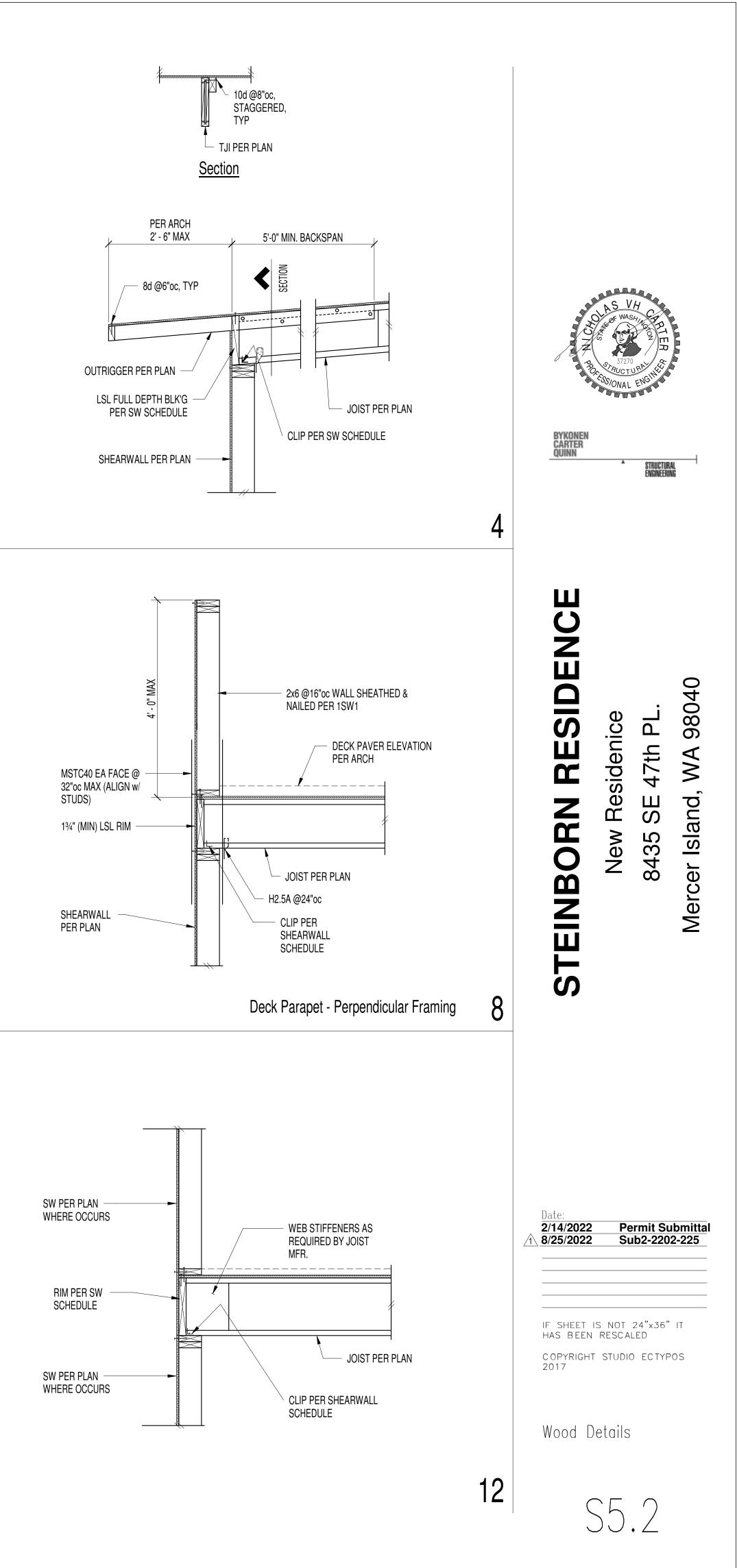


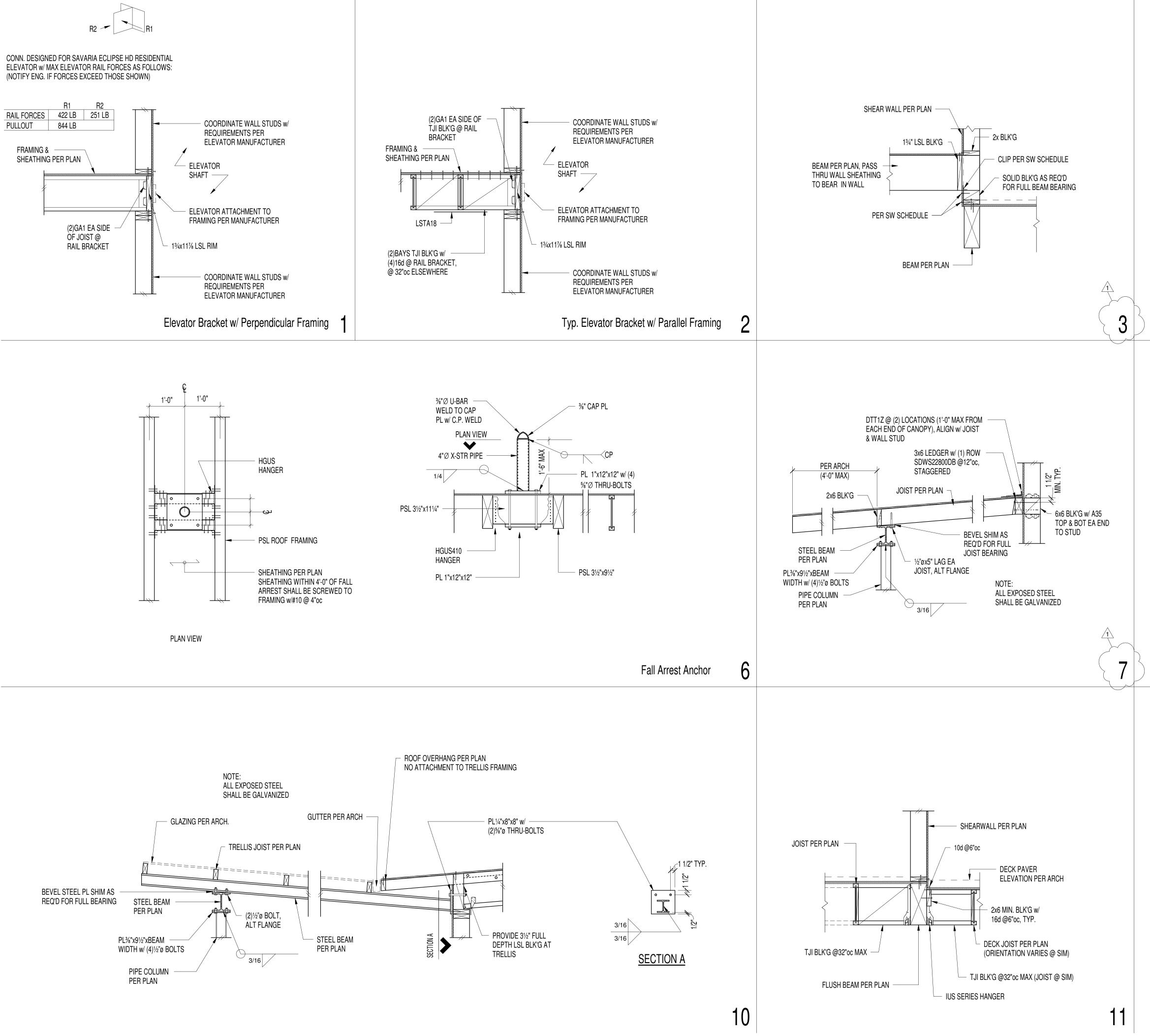


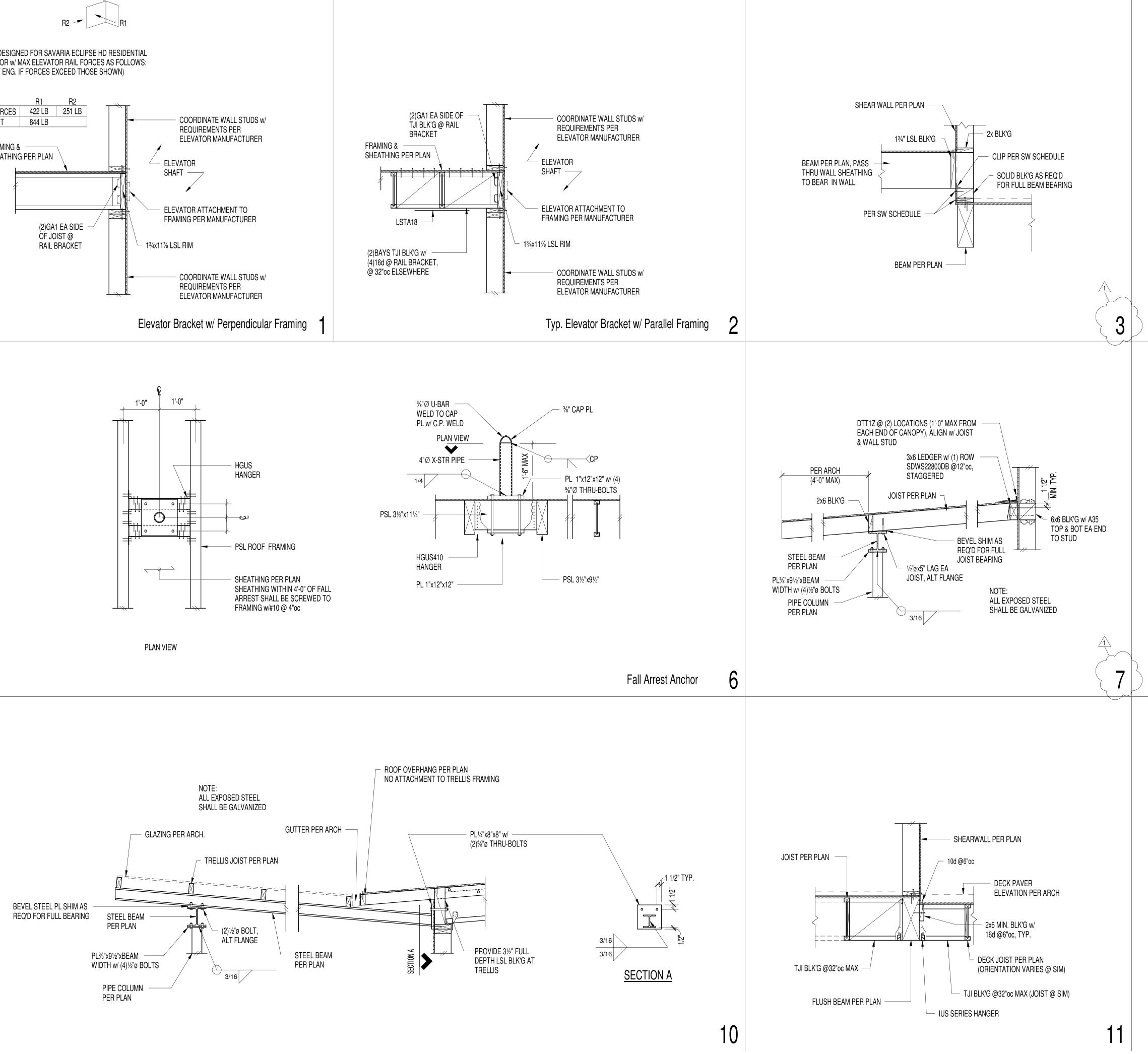
			SHE
#SW#	SHEATHING	BLOCKING	PA
1SW1	15/32" APA RATED SHEATHING	YES	1
1SW2	15/32" APA RATED SHEATHING	YES	1
1SW3	15/32" APA RATED SHEATHING	YES	1
2SW4	15/32" APA RATED SHEATHING EA SIDE	YES	1

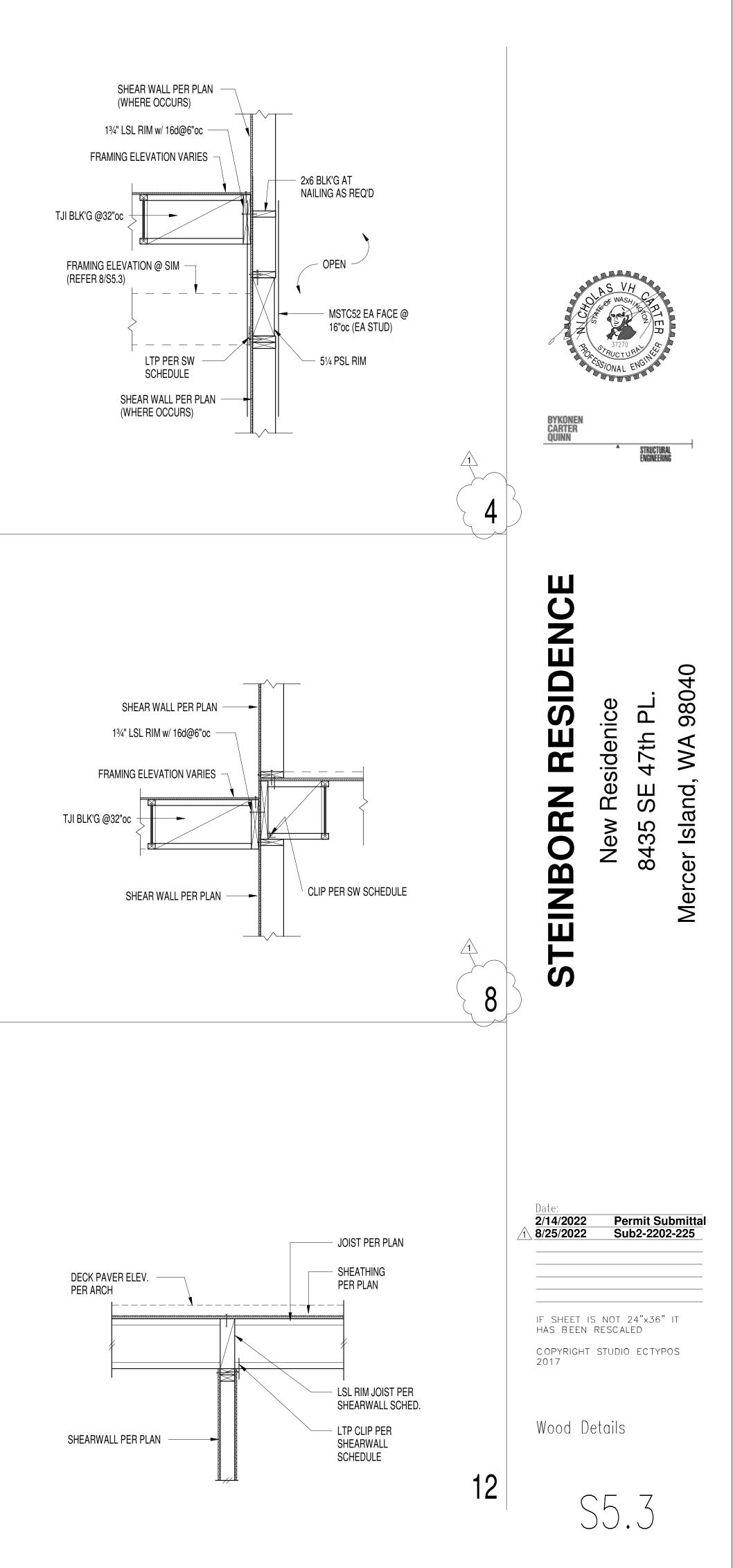












	NOTES: 1. STRUCTURE IS DESIGNED FOR FORCES IMPOSED BY
	<ul> <li>ASSUMES SINGLE STRINGER. NOTIFY ENGINEER OF R</li> <li>STEEL PLATE CONNECTION IS BY MANUFACTURER AND DRAWINGS AND CALCULATIONS.</li> </ul>
	V MAXIMUM TOTAL LOAD FORCES A
	V=2250 # B=1508 #
	(NOTIFY ENGINEER OF RECORD IF
	SHEARWALL PER PLAN
	PROVIDE 6x FULL
	DEPTH BLK'G AS REQ'D PER STAIR MFR
	PROVDE (2)2x
	EA END OF BLK'G
1	
-	
5	
9	
9	

