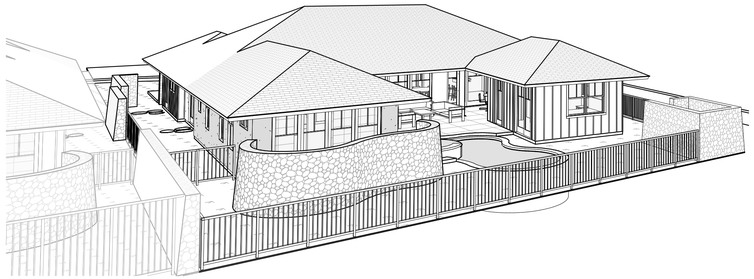
Single Family Residence - Lot 23 Nohea - Phase 1



Design Team

Owner
Nohea at Mauna Lani, LLC
16130 Ventura Blvd. Ste. 510
Encino, CA 91436 2538
Ph: (805) 494-7704
Fax: (805) 494-1226

Architect
Craig Monaghan
4522 Lower Drive
Lake Oswego, OR 97035
Ph: (503) 522-9000
E-mail: monaghan.craig@gmail.com

Mechanical & Plumbing Engineer
Eli Waltz
Engineering Partners
455 E. Lanikaula St.
Hilo, HI 96720
Ph: (808) 933-7900
Fax: (808) 933-3533
E-mail: eli.waltz@epinc.pro

Landscaping
Mark Mahaney
Mahaney Environmental Design
67-1275 Laikealoha St.
Kamuela, HI 96743
Ph: Office - (808) 895-0826
E-mail: mahaney08@yahoo.com

Pool / Spa
KoloheDesign, LLC
Water Feature Design & Consultation
P.O. Box 1174
Rowlett, Texas 75030-1174
Ph: Cell - (808) 620-0806
E-mail: linkolohedesign@yahoo.com

Electrical Engineer
Eli Waltz
Engineering Partners
455 E. Lanikaula St.
Hilo, HI 96720
Ph: (808) 933-7900
Fax: (808) 933-3533
E-mail: eli.waltz@epinc.pro

Structural Engineer
Chris Wilson
GFDS Engineers
65-1291 Kawaihae Road, Suite 102B
Kamuela, HI 96743
Ph: Office - (808) 887-6250
E-mail: cwilson@gfdseng.com

Civil Engineer
Yen Wen Fang
Engineering Partners
455 E. Lanikaula St.
Hilo, HI 96720
Ph: (808) 933-7900
Fax: (808) 933-3533
E-mail: yenwen.fang@epinc.pro

Surveyor
Tom Pattison
Pattison Land Surveying, Inc.
68-1125 North Kaniku Drive Unit 906
Kamuela, HI 96743
Ph: (808) 327-9439

Drawing Index

HAWAI'I COUNTY ENERGY CODE

2018 IECC, HAWAI'I REVISED STATUTES HRS 107-24 TO 28 **& HAWAI'I ADMINISTRATIVE RULES** HAR 3-181.1

RESIDENTIAL BUILDING ENERGY EFFICIENCY STANDARDS

I CERTIFY THAT THE DESIGN IS IN CONFORMANCE WITH THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO THE RESIDENTIAL PROVISIONS OF THE 2018 IECC WITH AMENDMENTS PER HAR CHAPTER 3-181.1:

STATE AMENDMENTS: EFFECTIVE FOR NEW APPLICATIONS BEGINNING 09/01/2021
COUNTY AMENDMENTS: PENDING

COMPLIANCE METHOD
- ☐ Tropical Zone. R401.2.1
  - ☐ Points Option. R407 (Populate Checklist)
- ☒ Prescriptive. R402
  - Roof and Wall
    - ☒ Insulation R-value. Table R402.1.2
    - ☐ Construction U-factor. Table R402.1.4
    - ☐ Total UA. R402.1.5
    - ☐ Points Option. R407 (Populate Checklist)
- ☐ Simulated Performance Alternative. R405
- ☐ Energy Rating Index Compliance Alternative. R406

INFORMATION IN CONSTRUCTION DOCUMENTS	Yes	N/A
Envelope		
Roof insulation R-value	☒	☐
Roof insulation type and location	☒	☐
Roof membrane solar reflectance and thermal emittance	☐	☒
Wall insulation R-value	☒	☐
Wall insulation type and location	☒	☐
Window and skylight SHGC	☒	☐
Air leakage testing requirement	☐	☒
Air Conditioning		
Air conditioning equipment capacity and efficiency	☐	☒
Programmable thermostat	☐	☒
Duct insulation R-value	☐	☒
Duct leakage testing requirement	☐	☒
Electrical		
Lighting fixture locations	☐	☒
Lamp type	☐	☒
Ceiling fans	☐	☒
Whole-house fan	☐	☒

NOTES

REFER MEP PLANS FOR A/C & ELECTRICAL

SIGNATURE:
DATE: 7/11/22
NAME: CRAIG MONAGHAN
TITLE: ARCHITECT
LICENSE NO.: AR9975

CRAIG MONAGHAN LICENSED PROFESSIONAL ARCHITECT NO. AR9975 HAWAII, U.S.A.

Area Map

Vicinity Map

JURISDICTION: HAWAII COUNTY, HAWAII
CODE: 2018 IBC WITH AMENDMENTS, 2018 IECC
OCCUPANCY: R-3
CONSTRUCTION TYPE: V-B
SEISMIC ZONE: CATEGORY 'E'
WIND LOADS: BASIC WIND SPEED 105 MPH
EXPOSURE 'C'
EFFECTIVE WIND SPEED 100 MPH
ZONE: 4
FIRE SPRINKLERS: NONE
ENERGY CODE COMPLIANCE FACTORS: WALLS R-19, CEILINGS R-30, FENESTRATION U .4

GROSS AREA TOTALS	
NAME	AREA
CONDITIONED AREA	2,084 SF
CONDITIONED AREA	277 SF
COVERED LANAI	116 SF
COVERED LANAI	432 SF
GARAGE	443 SF
TOTAL:	3,353 SF

Abbreviations

AB:	Anchor Bolt	BLKG:	Blocking	DIA:	Diameter	GL:	Glass	JST:	Joist	MM:	Millimeter	RR:	Railroad	PLYWD:	Plywood
ABV:	Above	BM:	Beam	DN:	Down	GND:	Ground	JT:	Joint	MT:	Mount	S:	South	PSI:	Pounds Per Square Inch
AC:	Air Conditioning	BSMT:	Basement	DTL:	Detail	GPM:	Gallons Per Minute	KIT:	Kitchen	MTD:	Mounted	SAN:	Sanitary	PVC:	Polyvinyl Chloride
ACC:	Access	BW:	Both Ways	DWG:	Drawing	GYP. BD:	Gypsum Board	KW:	Kilowatt	MULL:	Mullion	SCH:	Schedule	PWR:	Power
ACOUST:	Acoustical	CAB:	Cabinet	DS:	Downspout	HB:	Hose Bib	LAT:	Lateral	NIC:	Not in Contract	SEL:	Select	Qual:	Quality
ACT:	Acoustical Tile	CIP:	Cast in Place	EA:	Each	HORIZ:	Horizontal	LAV:	Lavatory	NO:	Number	SF:	Square Foot	QTY:	Quantity
ADDL:	Additional	CJ:	Control Joint	EB:	Expansion Bolt	HR:	Hour	LB:	Pound	NOM:	Nominal	SHT:	Sheet	RAD:	Radius
AFF:	Above Finished Floor	CL:	Center Line	EJ:	Expansion Joint	HWY:	Highway	LTG:	Lighting	NTS:	Not To Scale	SIM:	Similar	RD:	Roof Drain
ALUM:	Aluminum	CLG:	Ceiling	ELEC:	Electrical	HYD:	Hydraulic	MAINT:	Maintenance	OC:	On Center	SPEC:	Specification	REBAR:	Reinforcing Bar
APPROX:	Approximate	CLR:	Clear	EQ:	Equal	ID:	Inside Diameter	MAX:	Maximum	OD:	Outside Diameter	SS:	Stainless Steel	REF:	Refrigerator
AVG:	Average	COL:	Column	EQUIP:	Equipment	IN:	Inch	MET:	Metal	OH:	Overhead	STD:	Standard	REINF:	Reinforcement
BDY:	Boundary	CONC:	Concrete	EW:	Each Way	INFO:	Information	MEZZ:	Mezzanine	OHD:	Overhead Door	STL:	Steel	REQ:	Require
BDRM:	Bedroom	CPT:	Carpet	EXIST:	Existing	INSUL:	Insulation	MFG:	Manufacturer	OPNG:	Opening	STOR:	Storage	RH:	Right Hand
BEL:	Below	DBL:	Double	FD:	Floor Drain	INT:	Interior	MH:	Manhole	OPP:	Opposite	STRUCT:	Structural	RM:	Room
BET:	Between	DEMO:	Demolition	FF:	Finished Floor	J-BOX:	Junction Box	MIN:	Minimum	OR:	Outside Radius	SUR:	Surface	RO:	Rough Opening
BLK:	Block	DIAG:	Diagonal	FIN:	Finished	JAN:	Janitor	MISC:	Miscellaneous	P. LAM.:	Plastic Laminate	SYS:	System	ROW:	Right of Way
				FIXT:	Fixture										

T&G:	Tongue & Groove		
TAN:	Tangent		
TB:	Towel Bar		
TD:	Trench Drain		
TEL:	Telephone		
THK:	Thick		
TV:	Television		
UON:	Unless Otherwise Noted		
UT:	Utility		
V:	Volt		
VT:	Vinyl Tile		
W/O:	Without		
WD:	Wood		
WDW:	Window		
WF:	Wide Flange		
WH:	Water Heater		

APPROVALS

REVIEWER NAME:		REVIEWER NAME:	
DATE:		DATE:	
	PLANNING		PLUMBING
REVIEWER NAME:		REVIEWER NAME:	
DATE:		DATE:	
	ENGINEERING		MECHANICAL
REVIEWER NAME:		REVIEWER NAME:	
DATE:		DATE:	
	DEM WASTEWATER		FIRE
REVIEWER NAME:		REVIEWER NAME:	
DATE:		DATE:	
	DOH WASTEWATER		STRUCTURAL
REVIEWER NAME:		REVIEWER NAME:	
DATE:		DATE:	
	DOH FOOD SAFETY		BUILDING
REVIEWER NAME:		REVIEWER NAME:	
DATE:		DATE:	
	ELECTRICAL		

CRAIG MONAGHAN LICENSED PROFESSIONAL ARCHITECT NO. AR9975 HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/21/22

SCALE

SHEET **COVER SHEET**

SHEET A1.0

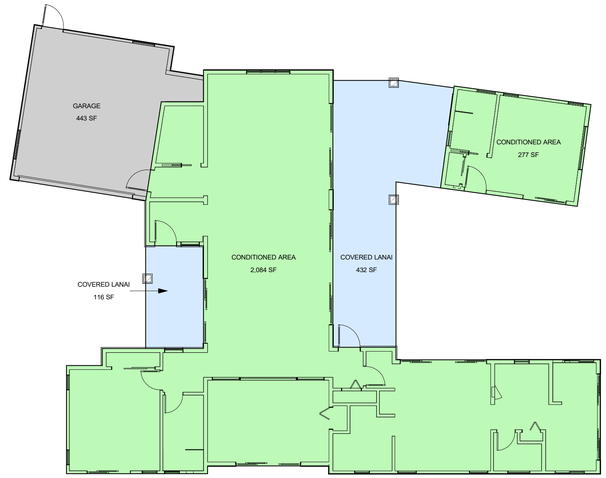
KEYNOTES	
NO.	NOTE
1	GAS METER.
2	ELEC. HEAT PUMP WATER HEATER
3	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL SCREENS SHOWER GARDEN.
4	3" BRONZE DRAIN BODY, TIE TO STORM.
5	6" DIAMETER RAIN HEAD W/ COPPER PIPE. TOP AT 6'-0" MAX IN REAR SETBACK.
6	STEPPING STONES.
7	ELECTRICAL GEAR. MOUNT AT 6'-0" MAX ABOVE FINISH GRADE.
8	CONDENSER.
9	6'-0" HIGH FROM FINISH GRADE A'A' LAVA ROCK WALL SCREENS TRASH AND RECYCLE AREA.
10	EDGE OF ASPHALT.
11	WATER METER.
12	CLEAN OUT.
13	HELCO.
14	TV.
15	HT HAWAII TELECOM
16	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL SCREENS POOL EQUIP. CORRAL.
17	6'-0" HIGH FROM FINISH GRADE A'A' LAVA ROCK WALL SCREENS FRONT OF RESIDENCE.
18	4' HIGH SQUARE TUBE W/ SQUARE PICKETS @ 4"O.C. BAKED ENAMEL FENCE AND SELF CLOSING, SELF LATCHING GATE BY MAJESTIC FENCE COMPANY SCREENS POOL AREA.
19	6" DIAMETER RAIN HEAD W/ COPPER PIPE.
20	EXISTING CRM WALL.
21	18" WIDE CONC. APRON.

GROSS AREAS CALCULATED

- CONDITIONED AREA
- COVERED LANAI
- GARAGE

GROSS AREA TOTALS	
NAME	AREA
CONDITIONED AREA	2,084 SF
CONDITIONED AREA	277 SF
COVERED LANAI	116 SF
COVERED LANAI	432 SF
GARAGE	443 SF
TOTAL:	3,353 SF

ROOM AREAS CALCULATED TO INTERIOR F.O. FINISH		
NO.	NAME	AREA
100	GREAT ROOM	500 SF
101	ENTRY	45 SF
104	LAUNDRY	48 SF
105	KITCHEN	221 SF
106	MULTI-PURPOSE	194 SF
107	HALL	33 SF
108	HALL	24 SF
110	GUEST SUITE 2	180 SF
111	BATH 2	46 SF
112	CL.	9 SF
113	CL.	7 SF
114	UTIL.	10 SF
115	HALL	33 SF
116	GUEST SUITE 1	179 SF
117	PDR/GUEST BATH	60 SF
118	CL.	15 SF
119	MASTER BED	230 SF
120	MASTER CLOSET	63 SF
121	MASTER BATH	68 SF
122	W.C.	31 SF
123	LINEN	4 SF
124	TUB/SHOWER	102 SF
125	GARAGE	412 SF
TOTAL:		2,514 SF



2 / A1.3 AREA CALCULATIONS
SCALE: 1" = 10'-0"

NORTH PAUOA ROAD

HOE ULI WAY

PROPERTY LINE

SETBACK LINE

20' - 0" SETBACK

8' - 0" SETBACK

(25) SETBACK LINE

PROPERTY LINE

TRASH

GARAGE 125 412 SF

LAUNDRY 104 48 SF

KITCHEN 105 221 SF

HALL 115 33 SF

ENTRY 101 45 SF

GREAT ROOM 100 500 SF

FIN. FLR. EL. 26.25'

PAD EL. 26.0'

COVERED LANAI 201 109 SF

CL. 118 15 SF

HALL 107 33 SF

GUEST SUITE 1 116 179 SF

PDR/GUEST BATH 117 60 SF

MULTI-PURPOSE 106 194 SF

CL. 113 7 SF

HALL 108 24 SF

MASTER CLOSET 120 63 SF

MASTER BED 119 230 SF

MASTER BATH 121 68 SF

TUB/SHOWER 124 102 SF

SHOWER GARDEN

COVERED LANAI 200 440 SF

CL. 112 9 SF

BATH 2 111 46 SF

GUEST SUITE 2 110 180 SF

POOL EQUIP. 202 63 SF

N29 POOL

SPA W/ WATERFALL EDGE

3 / A4.1

1 / A1.3 SITE PLAN
SCALE: 1/8" = 1'-0"

68-1001 HOE ULI WAY, KAMUELA, HI 96743

COVERAGE CALCULATION

2,361 S.F. ENCLOSED LIVING AREA, 548 S.F. COVERED LANAIS, 443 S.F. GARAGE
SITE AREA: 9,720 S.F.
COVERAGE: (2,361+548+443/9,720 = 34.48%

NORTH

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

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REVISIONS		
NO.	DESCRIPTION	DATE
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NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

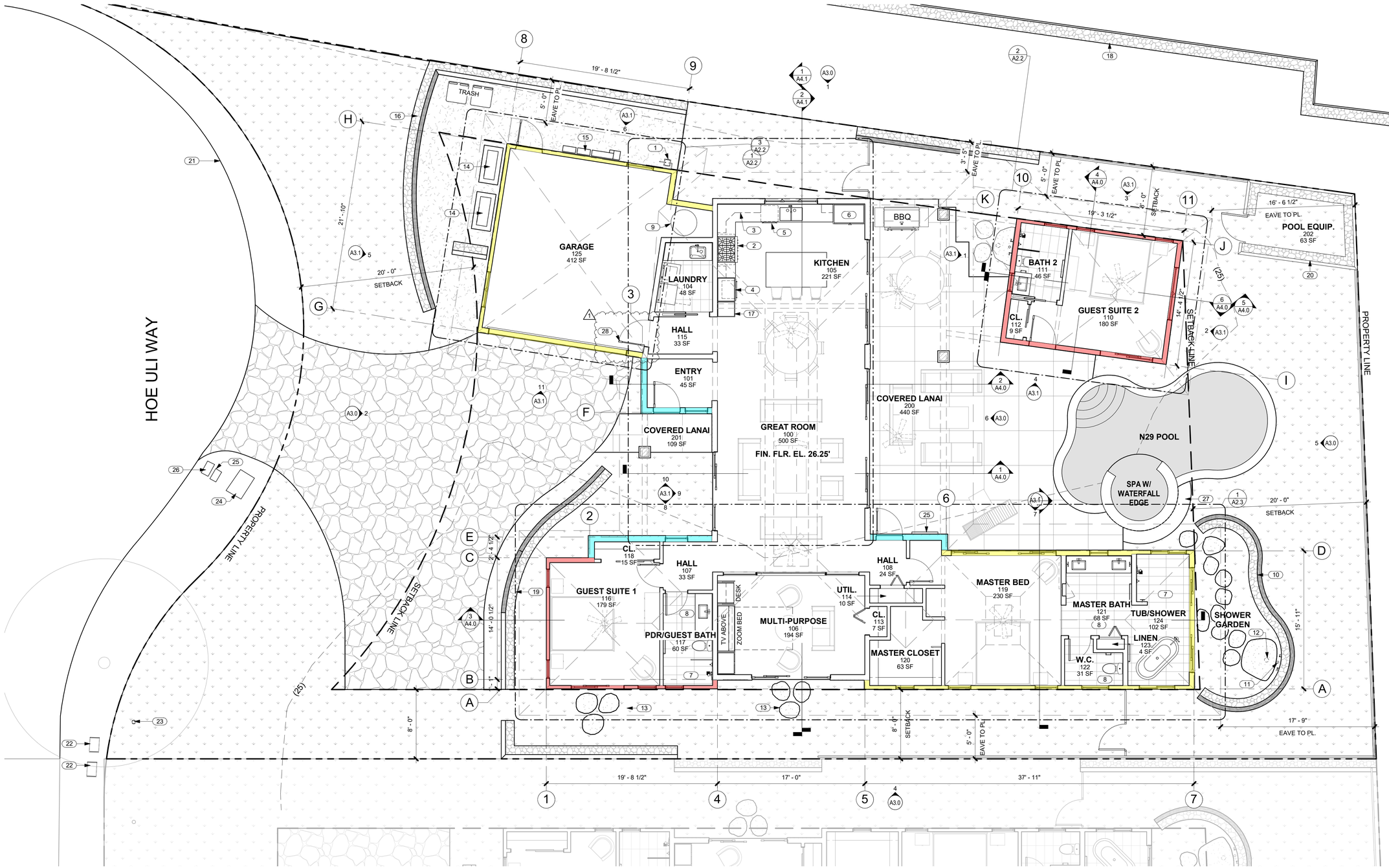
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/21/22

SCALE As indicated

SHEET **SITE PLAN**

SHEET A1.3



1 A2.1 FLOOR PLAN
SCALE: 3/16" = 1'-0"

NORTH

KEYNOTES	
NO.	NOTE
1	GAS METER.
2	GAS RANGETOP.
3	UPPER CABINETS ABOVE.
4	OVEN AND MICROWAVE.
5	DISHWASHER
6	REFRIGERATOR.
7	TILE FLOOR AND WALLS.
8	TILE FLOOR AND BASE.
9	ELEC. HEAT PUMP WATER HEATER
10	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL SCREENS SHOWER GARDEN.
11	6" DIAMETER RAIN HEAD W/ COPPER PIPE. TOP AT 6'-0" MAX IN REAR SETBACK.

KEYNOTES	
NO.	NOTE
12	6" DIAMETER RAIN HEAD W/ COPPER PIPE.
13	STEPPING STONES.
14	CONDENSER.
15	ELECTRICAL GEAR. MOUNT AT 6'-0" MAX ABOVE FINISH GRADE.
16	6'-0" HIGH FROM FINISH GRADE A'A' LAVA ROCK WALL SCREENS TRASH AND RECYCLE AREA.
17	FULL HEIGHT PANTRY CABINET.
18	EXISTING CRM WALL.
19	6'-0" HIGH FROM FINISH GRADE A'A' LAVA ROCK WALL SCREENS FRONT OF RESIDENCE.
20	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL SCREENS POOL EQUIP. CORRAL.

KEYNOTES	
NO.	NOTE
21	EDGE OF ASPHALT.
22	WATER METER.
23	CLEAN OUT.
24	HELCO.
25	TV.
26	HT HAWAII TELECOM
27	18" WIDE CONC. APRON.
28	GARAGE DOOR BETWEEN DWELLING AND GARAGE TO BE 20 MIN FIRE RATED WITH SELF-CLOSING HARDWARE, PER R302.5.1.

GENERAL NOTES

1. GRIDLINES REPRESENT F.O. CONC. SLAB AND EXTERIOR F.O. SHEATHING

EXTERIOR WALL MATERIAL LEGEND

- LIGHT STUCCO
- DARK STUCCO
- BOARD AND BATTEN SIDING
- FIELDSTONE

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

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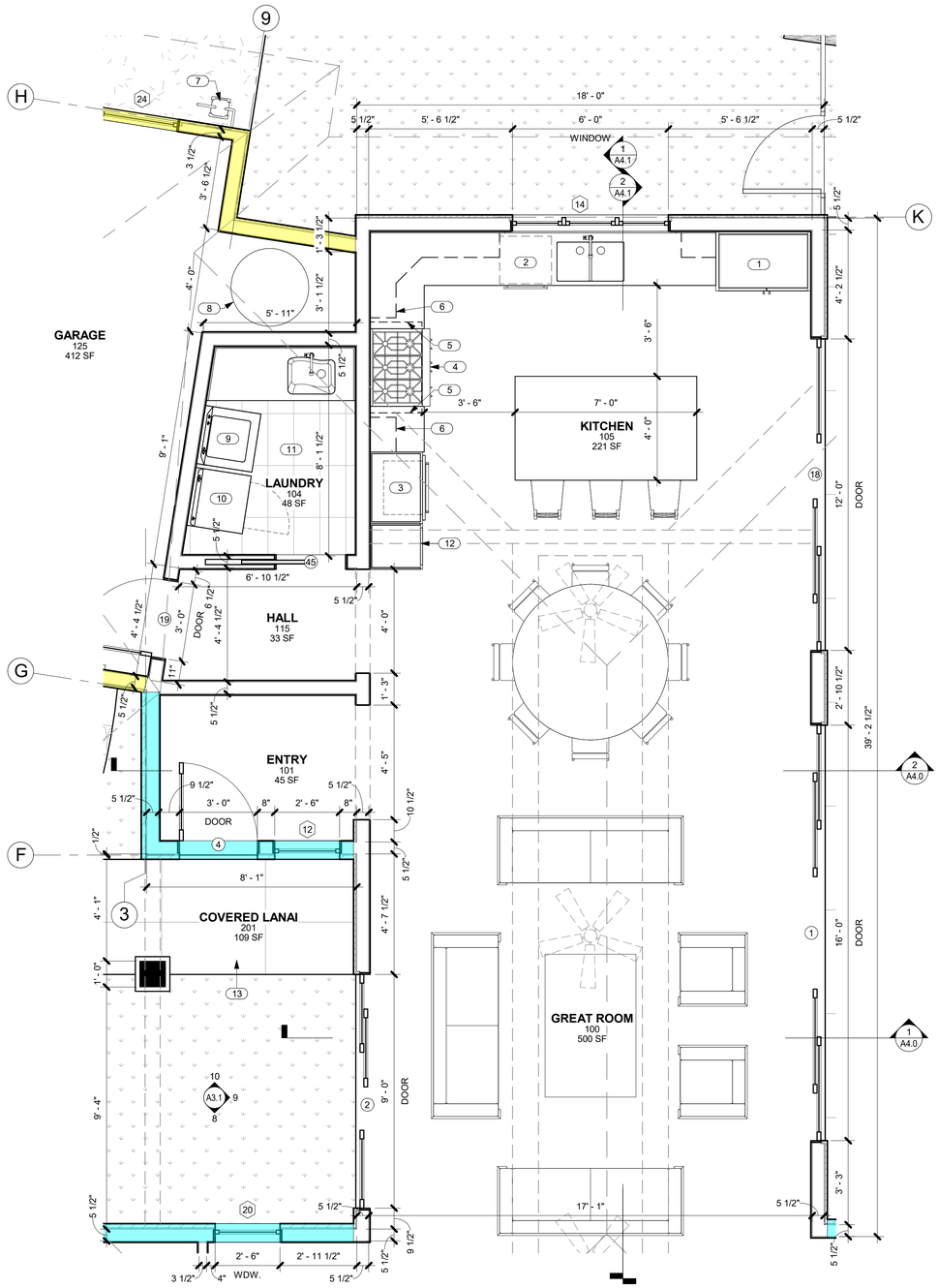
DATE
11/21/22

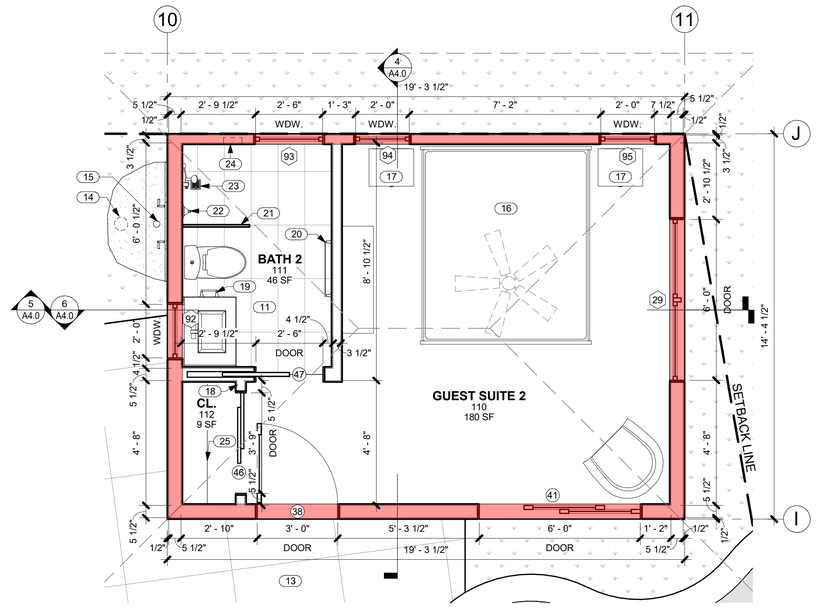
SCALE
As indicated

SHEET
FLOOR PLAN

SHEET
A2.1



1 A2.2 ENLARGED PLAN @ GREAT ROOM
SCALE: 3/8" = 1'-0"



2 A2.2 ENLARGED PLAN @ GUEST SUITE 2
SCALE: 3/8" = 1'-0"

3 A2.2 ENLARGED PLAN @ GARAGE
SCALE: 3/8" = 1'-0"

KEYNOTES	
NO.	NOTE
1	REFRIGERATOR.
2	DISHWASHER
3	OVEN AND MICROWAVE.
4	GAS RANGETOP.
5	RANGE HOOD ABOVE.
6	UPPER CABINETS ABOVE.
7	GAS METER.
8	ELEC. HEAT PUMP WATER HEATER
9	WASHER.
10	DRYER.
11	TILE FLOOR AND BASE.
12	FULL HEIGHT PANTRY CABINET.
13	SALTED AND STAINED CONCRETE LANAIS, WALKWAYS AND EXTERIOR SLABS.
14	3" BRONZE DRAIN BODY, TIE TO STORM.
15	6" DIAMETER RAIN HEAD W/ COPPER PIPE.
16	CALIFORNIA KING SIZE BED 7'-0" X 6'-0".
17	SIDE TABLE 1'-8" X 1'-5".
18	TOP OF CLOSET WALL @ +7'-8" A.F.F.
19	TISSUE HOLDER.
20	TOWEL BAR MOUNTED @ 4'-0" A.F.F.
21	FULL HT. GLASS WALL @ SHOWER, 1/2" TEMP. CLEAR, FRAMELESS, GLAZING CHANNEL TOP AND BOTTOM.
22	SHOWER CONTROLS.
23	FLUSH SQUARE DRAIN.
24	RECESS FOR SOAP/SHAMPOO.
25	SHELF AND ROD.
26	CONDENSER.
27	ELECTRICAL GEAR. MOUNT AT 6'-0" MAX ABOVE FINISH GRADE.
28	GARAGE DOOR BETWEEN DWELLING AND GARAGE TO BE 20 MIN FIRE RATED WITH SELF-CLOSING HARDWARE, PER R302.5.1.

GENERAL NOTES

1. DIMENSIONS LOCATING WINDOWS, DOORS AND INTERIOR WALLS ARE FROM F.O. STUD TO DOOR OR WINDOW OPENING.
2. DIMENSIONS NOTED AS CLR. ARE TO F.O. FINISH.

EXTERIOR WALL MATERIAL LEGEND

- LIGHT STUCCO
- DARK STUCCO
- BOARD AND BATTEN SIDING
- FIELDSTONE

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

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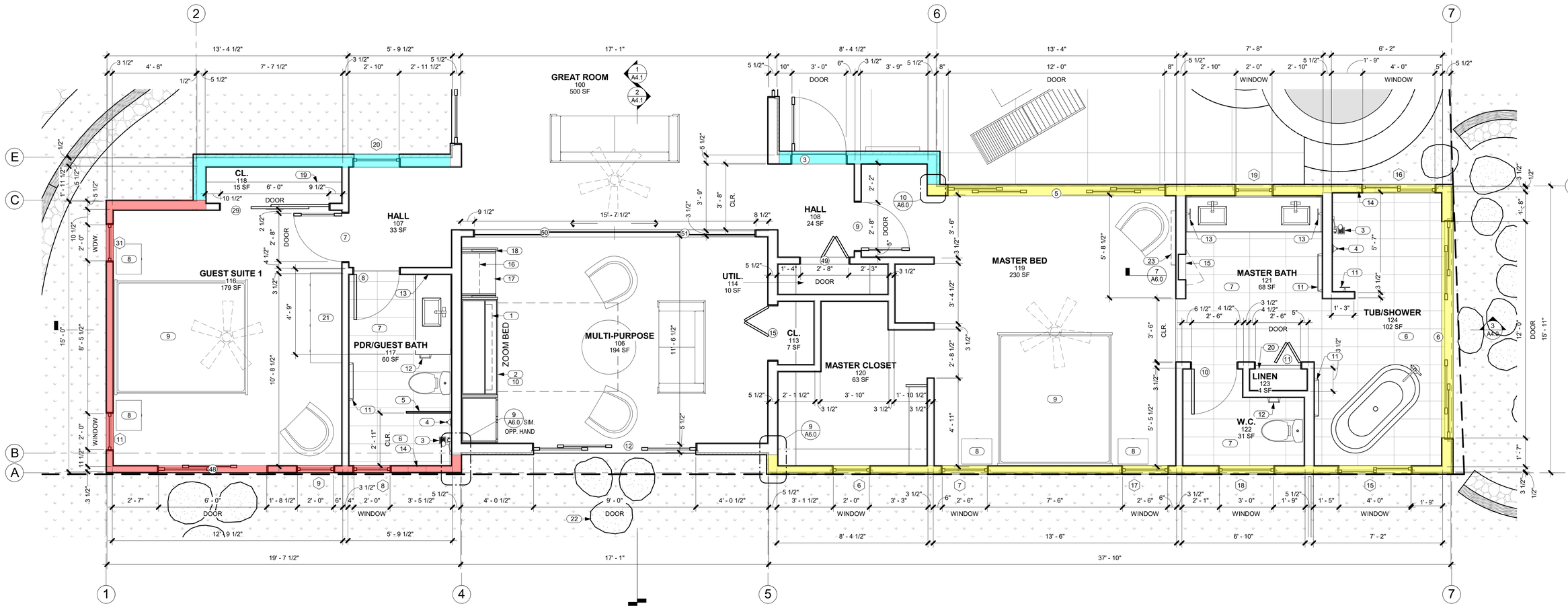
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

SCALE
As indicated

SHEET
ENLARGED PLANS

SHEET
A2.2



1 A2.3 ENLARGED PLAN @ MASTER BEDROOM, FLEX/MEDIA AND GUEST SUITE 3

SCALE: 3/8" = 1'-0"

GENERAL NOTES

1. DIMENSIONS LOCATING WINDOWS, DOORS AND INTERIOR WALLS ARE FROM F.O. STUD TO DOOR OR WINDOW OPENING.
2. DIMENSIONS NOTED AS CLR. ARE TO F.O. FINISH.

EXTERIOR WALL MATERIAL LEGEND

- LIGHT STUCCO
- DARK STUCCO
- BOARD AND BATTEN SIDING
- FIELDSTONE

KEYNOTES	
NO.	NOTE
1	TV ABOVE.
2	ZOOM BED ENCLOSURE.
3	FLUSH SQUARE DRAIN.
4	SHOWER CONTROLS.
5	FULL HT. GLASS WALL @ SHOWER, 1/2" TEMP. CLEAR, FRAMELESS, GLAZING CHANNEL TOP AND BOTTOM.
6	TILE FLOOR AND WALLS.
7	TILE FLOOR AND BASE.
8	SIDE TABLE 1'-8" X 1'-5".
9	CALIFORNIA KING SIZE BED 7'-0" X 6'-0".
10	QUEEN SIZE ZOOM BED ONLY TO BE INSTALLED IN MEDIA CABINET.
11	TOWEL BAR MOUNTED @ 4'-0" A.F.F.
12	TISSUE HOLDER.
13	TOWEL RING MOUNTED @ 5'-0" A.F.F.

KEYNOTES	
NO.	NOTE
14	RECESS FOR SOAP/SHAMPOO.
15	MEDICINE CABINET.
16	ADJUSTABLE SHELF.
17	DESK.
18	RETRACTABLE DOORS.
19	SHELF AND ROD.
20	(5) SHELVES STARTING @ 2'-0" A.F.F. 18"O.C.
21	5'-0" X 1'-9" DRESSER.
22	STEPPING STONES.
23	TV ABOVE ON PIVOT.

CRAIG MONAGHAN LICENSED PROFESSIONAL ARCHITECT NO. AR9975 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD, STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

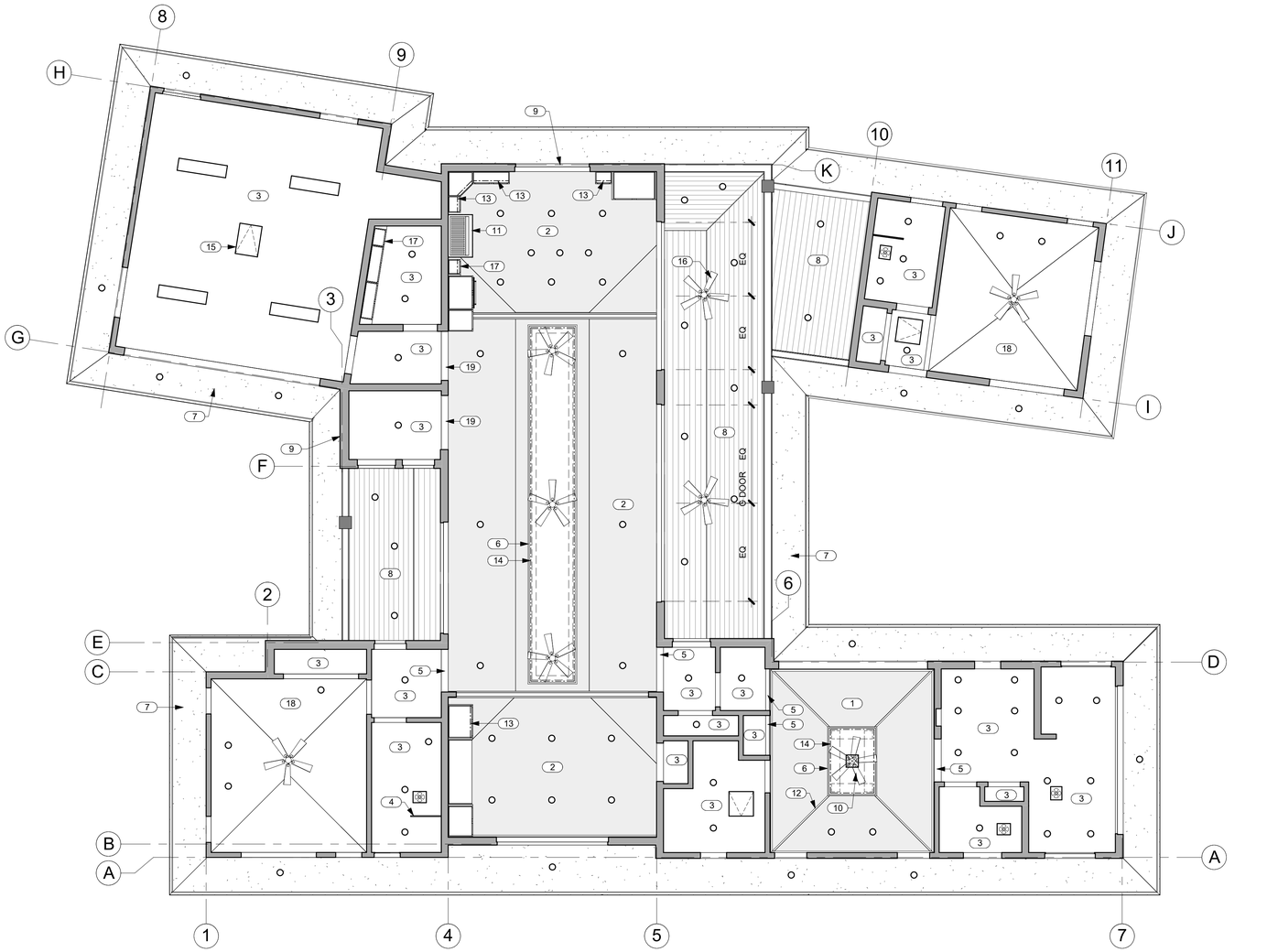
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/21/22

SCALE As indicated

SHEET **ENLARGED PLANS**

SHEET A2.3



1 A2.4 REFLECTED CEILING PLAN
SCALE: 3/16" = 1'-0"

NORTH

GENERAL NOTES

1. SEE ELECTRICAL FOR LIGHT FIXTURES AND SMOKE DETECTORS.
2. SEE MECHANICAL FOR GRILLES AND ACCESS PANELS.

KEYNOTES

NO.	NOTE
1	5/8" GYP. BD. VAULTED CEILING W/ GRASS CLOTH AND STAINED WOOD TRIM 4/12 SLOPE.
2	5/8" GYP. BD. VAULTED CEILING W/ GRASS CLOTH AND STAINED WOOD TRIM 6/12 SLOPE.
3	5/8" GYP. BD. CEILING @ 9'-0" A.F.F
4	FULL HT. GLASS WALL @ SHOWER, 1/2" TEMP. CLEAR, FRAMELESS, GLAZING CHANNEL TOP AND BOTTOM.
5	GYP. BD. SOFFIT @ 8'-0" A.F.F.
6	FRETWORK PANEL.
7	EAVES: 3/8" STUCCO ON 5/8" DENSGLASS TYP.
8	SOFFITS: 1 X 6 T&G CEDAR W/ CLEAR FINISH TYP.
9	STUCCO RETURNS @ STUCCO WINDOW AND DOOR OPENINGS TYP.
10	CEILING FAN.
11	RANGE HOOD.
12	STAINED WOOD TRIM.
13	LED UNDERCABINET LIGHTING.
14	LED ABOVE FRETWORK PANEL.
15	22" X 30" ATTIC ACCESS.
16	CEILING FAN BOTTOM @ 9'-0" A.F.F.
17	UPPER CABINETS.
18	5/8" GYP. BD. VAULTED CEILING 4/12 SLOPE.
19	GYP. BD. SOFFIT @ 9'-0" A.F.F.

LEGEND

- RETURN REGISTER
- SUPPLY DIFFUSER
- EXHAUST FAN
- RECESSED DOWNLIGHT
- 1 x 4 SURFACE MOUNT
- LED LIGHTING SEE KEYNOTES FOR LOCATIONS
- CEILING FAN
- ACCESS PANELS, COORDINATE W/ MECHANICAL.
- SMOKE DETECTOR

2 A2.4 TYP. FRETWORK PANEL
SCALE: 1" = 1'-0"

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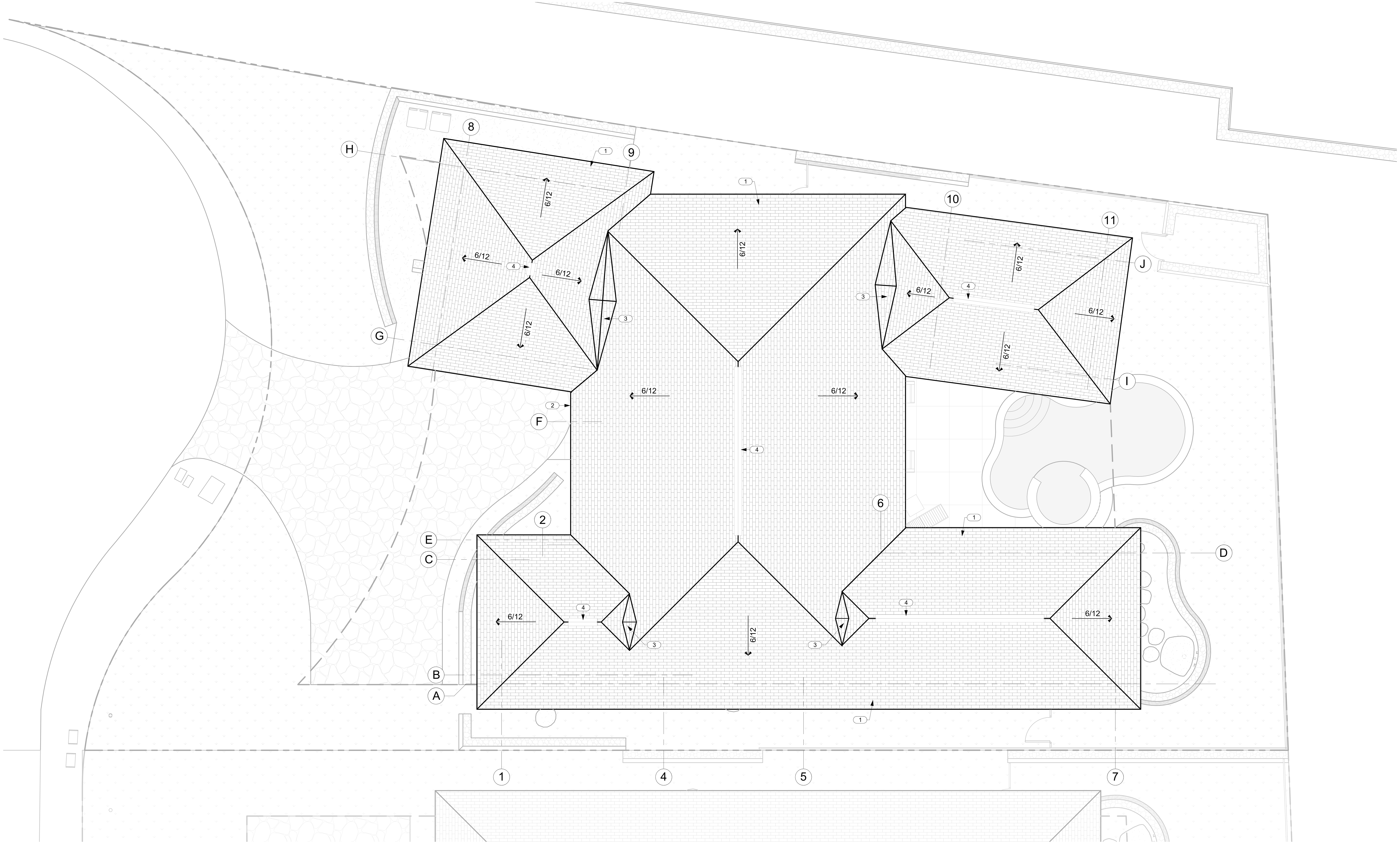
monaghan.craig@gmail.com

DATE
11/21/22

SCALE
As indicated

SHEET
REFLECTED CEILING PLAN

SHEET
A2.4



1
A2.5
ROOF PLAN
SCALE: 3/16" = 1'-0"

NORTH

KEYNOTES	
NO.	NOTE
1	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
2	BAKED ENAMEL ALUMINUM 6" HALF ROUND GUTTER WITH CHAIN DRAIN.
3	CRICKET.
4	RIDGEMASTER RIDGE VENT, ADEQUATE FOR HIGH WIND CONDITIONS.

1

ROOF VENTILATION PER R806:

2,804 SF ATTIC AREA/150 = **18.69 SF VENTILATION REQUIRED**

1 1/2" CONTINUOUS EAVE VENT AT 7 SQ. IN / LINEAR FOOT NET FREE AREA x 357 LINEAR FEET = **17.35 SF VENT**

RIDGE VENT : RIDGEMASTER RIDGE VENT, ADEQUATE FOR HIGH WIND CONDITIONS. 12.2 SQ. IN / LINEAR FOOT NET FREE AREA X 54.5' = **4.61 SF VENT**

21.96 SF VENT PROVIDED

1

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REVISIONS

NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22
1	PERMIT REV. #1	9/19/23

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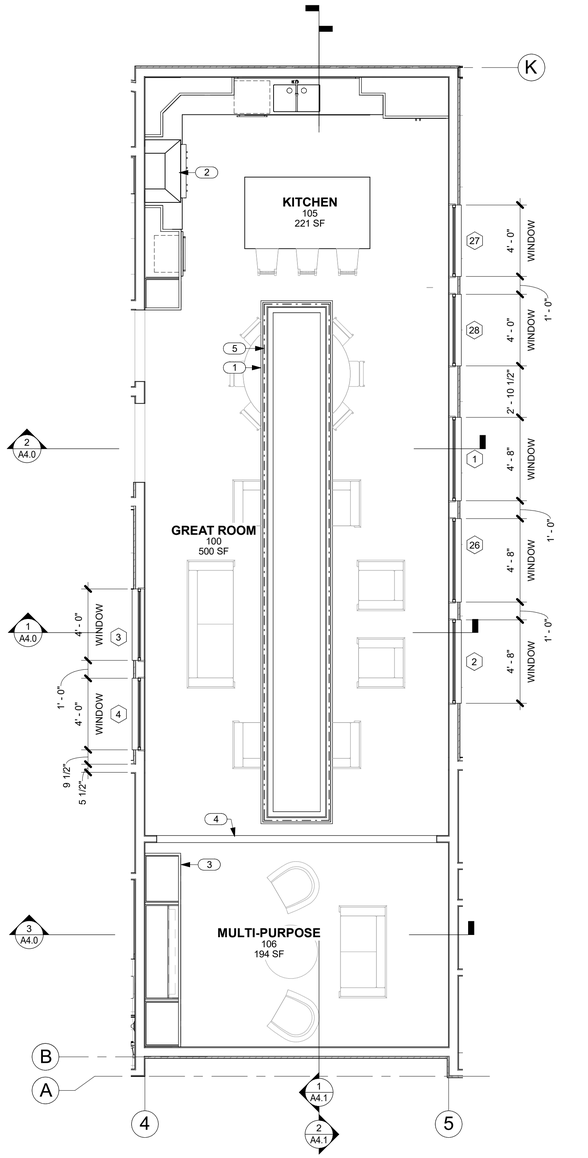
DATE 11/21/22

SCALE 3/16" = 1'-0"

SHEET
ROOF PLAN

SHEET
A2.5



1 A2.6 CLERESTORY PLAN

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

NORTH

NOTE:
DIMENSIONS ARE TO F.O. STUD AND DOOR AND WINDOW OPENINGS.

KEYNOTES	
NO.	NOTE
1	FRETWORK PANEL.
2	RANGE HOOD.
3	UPPER CABINETS.
4	BEAM AND DOOR BELOW.
5	LED ABOVE FRETWORK PANEL.

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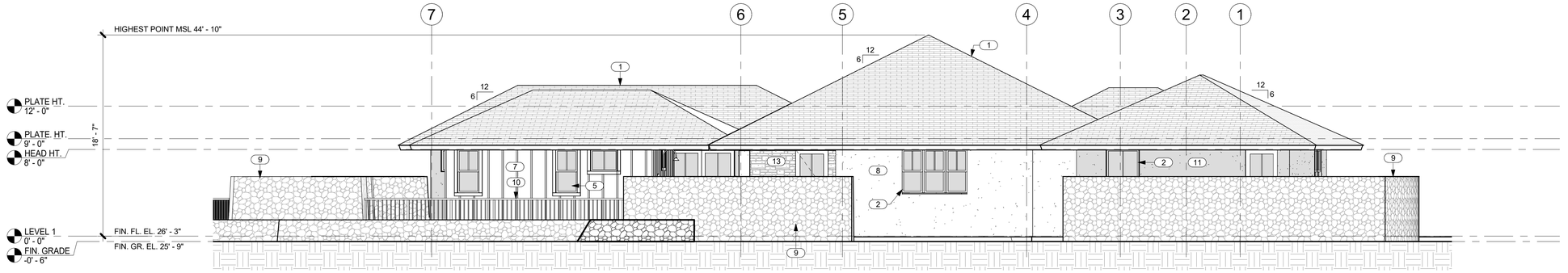
DATE
11/21/22

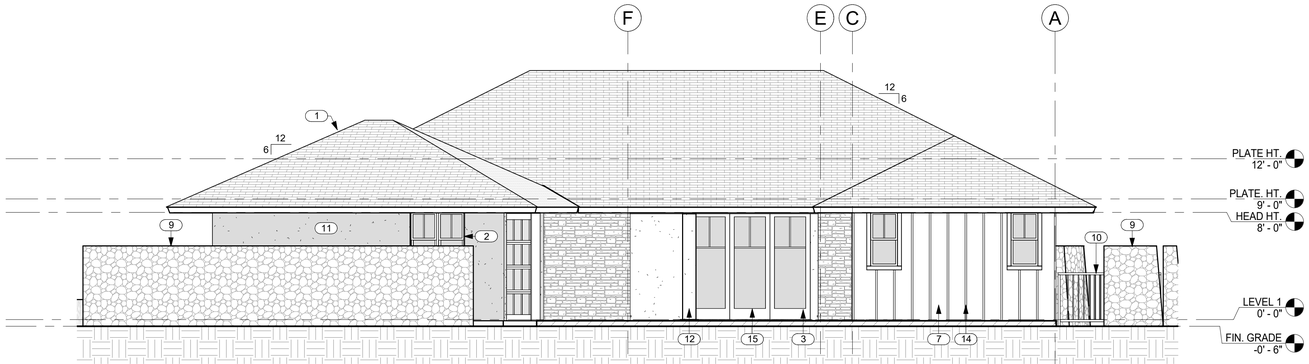
SCALE
1/4" = 1'-0"

SHEET
CLERESTORY PLAN

SHEET
A2.6

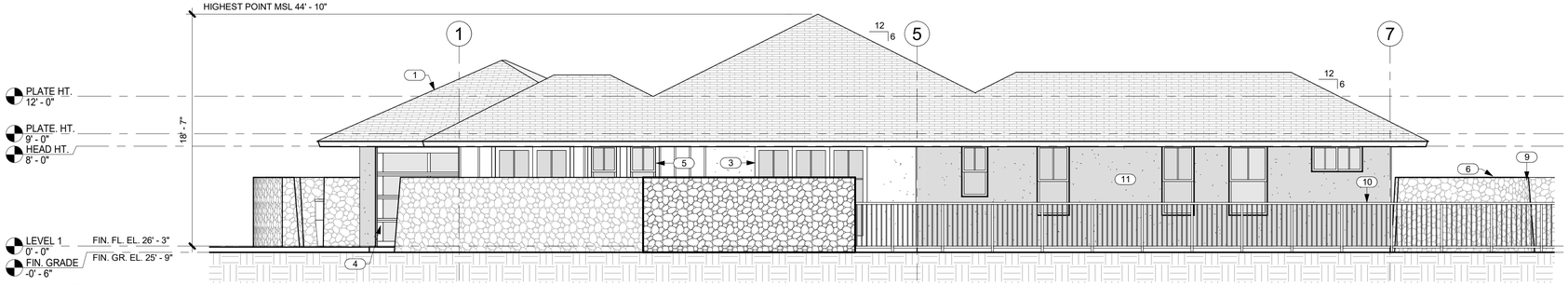


1 A3.0 EAST ELEVATION
SCALE: 3/16" = 1'-0"

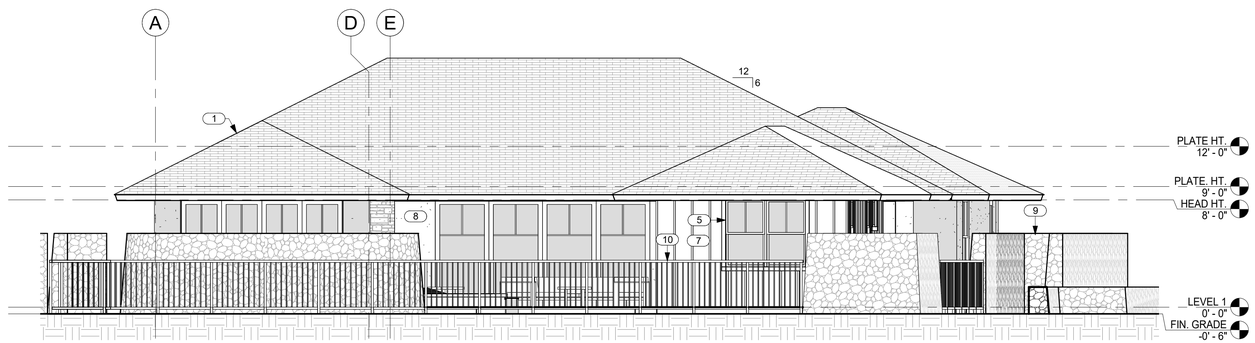


2 A3.0 NORTH ELEVATION
SCALE: 3/16" = 1'-0"

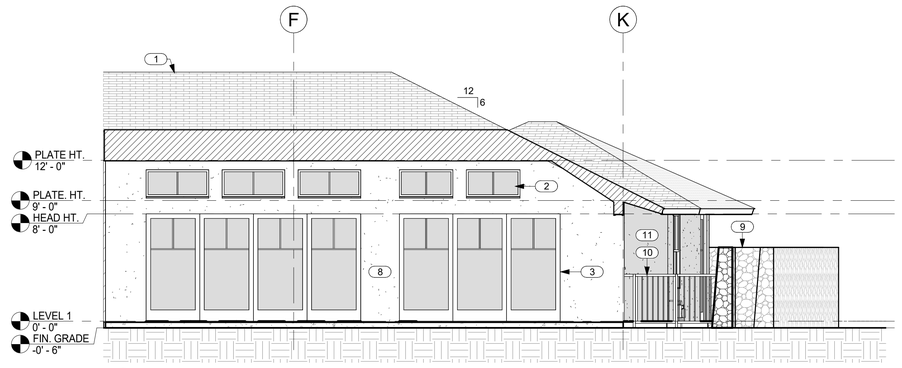
KEYNOTES	
NO.	NOTE
1	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
2	ANODIZED ALUMINUM DOUBLE GLAZED WINDOWS W/ STUCCO SILLS AT STUCCO WINDOW OPENINGS.
3	ANODIZED ALUMINUM SINGLE GLAZED SLIDING DOORS.
4	ANODIZED ALUMINUM GARAGE DOOR W/ WHITE OBSCURE LAMINATED GLASS.
5	ANODIZED ALUMINUM DOUBLE GLAZED WINDOWS.
6	6" DIAMETER RAIN HEAD W/ COPPER PIPE. TOP AT 6'-0" MAX IN REAR SETBACK.
7	5/8" BRECKINRIDGE SIDING.
8	1" STUCCO ON LATH OVER VAPOR BARRIER (LIGHT COLOR).
9	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL.
10	4' HIGH SQUARE TUBE W/ SQUARE PICKETS @ 4"O.C. BAKED ENAMEL FENCE AND SELF CLOSING, SELF LATCHING GATE BY MAJESTIC FENCE COMPANY SCREENS POOL AREA.
11	1" STUCCO ON LATH OVER VAPOR BARRIER (DARK COLOR).
12	STUCCO WRAPPED COLUMN.
13	FIELDSTONE.
14	1 X 2 CEDAR BATTS @ 16"O.C.
15	6'-0" HIGH FROM FINISH GRADE A'A' LAVA ROCK WALL SCREENS FRONT OF RESIDENCE.



4 A3.0 WEST ELEVATION
SCALE: 3/16" = 1'-0"



5 A3.0 SOUTH ELEVATION
SCALE: 3/16" = 1'-0"



6 A3.0 SOUTH ELEVATION @ COVERED LANAI
SCALE: 3/16" = 1'-0"

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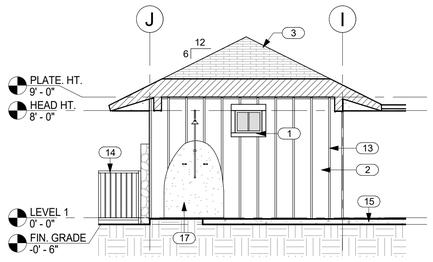
monaghan.craig@gmail.com

DATE 11/21/22

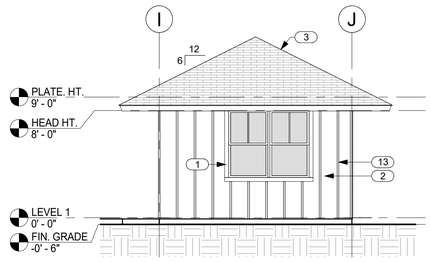
SCALE 3/16" = 1'-0"

SHEET **EXTERIOR ELEVATIONS**

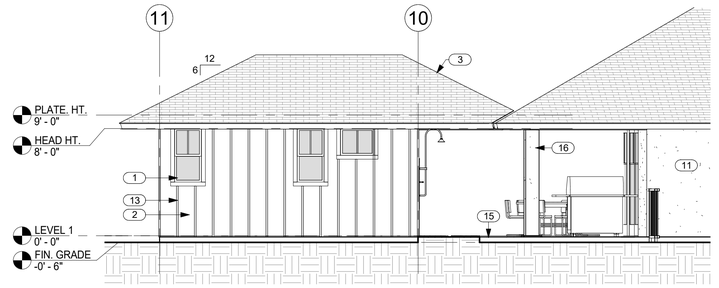
SHEET A3.0



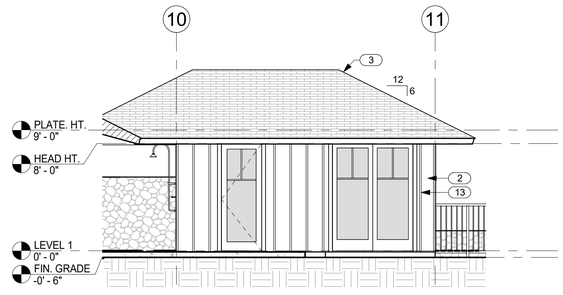
1 A3.1 NORTH ELEVATION @ GUEST SUITE 2
SCALE: 3/16" = 1'-0"



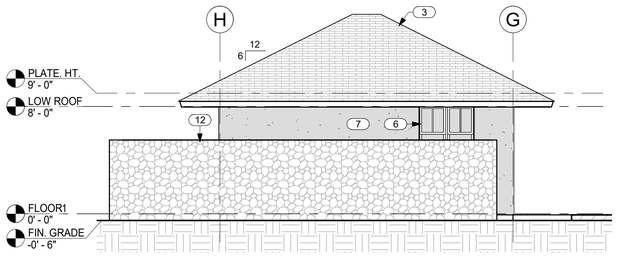
2 A3.1 SOUTH ELEVATION @ GUEST SUITE 2
SCALE: 3/16" = 1'-0"



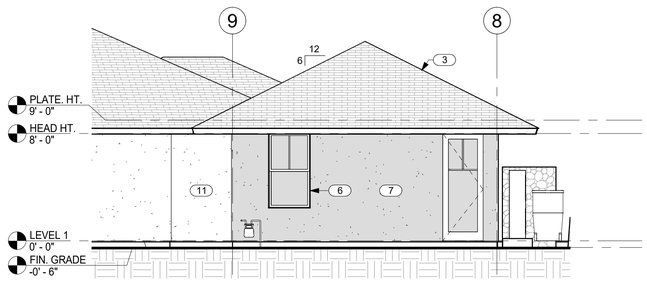
3 A3.1 EAST ELEVATION @ GUEST SUITE 2
SCALE: 3/16" = 1'-0"



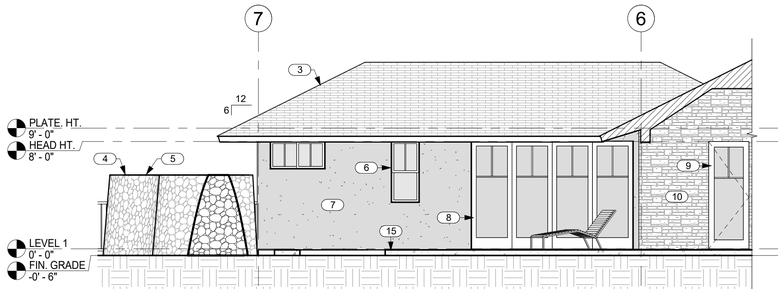
4 A3.1 WEST ELEVATION @ GUEST SUITE 2
SCALE: 3/16" = 1'-0"



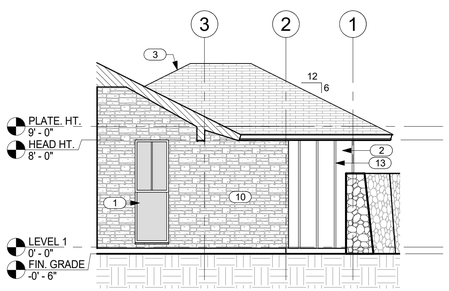
5 A3.1 NORTH ELEVATION @ GARAGE
SCALE: 3/16" = 1'-0"



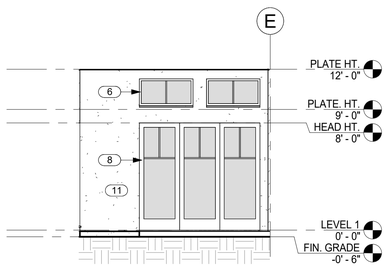
6 A3.1 WEST ELEVATION @ GARAGE
SCALE: 3/16" = 1'-0"



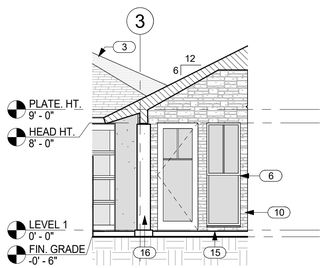
7 A3.1 EAST ELEVATION @ MASTER BEDROOM
SCALE: 3/16" = 1'-0"



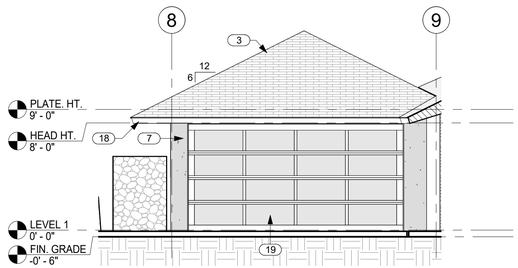
8 A3.1 WEST ELEVATION @ ENTRY
SCALE: 3/16" = 1'-0"



9 A3.1 NORTH ELEVATION @ ENTRY
SCALE: 3/16" = 1'-0"



10 A3.1 EAST ELEVATION @ ENTRY
SCALE: 3/16" = 1'-0"



11 A3.1 GARAGE DOOR WALL ELEVATION
SCALE: 3/16" = 1'-0"

KEYNOTES	
NO.	NOTE
1	ANODIZED ALUMINUM DOUBLE GLAZED WINDOWS.
2	5/8" BRECKINRIDGE SIDING.
3	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
4	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL SCREENS SHOWER GARDEN.
5	6" DIAMETER RAIN HEAD W/ COPPER PIPE. TOP AT 6'-0" MAX IN REAR SETBACK.
6	ANODIZED ALUMINUM DOUBLE GLAZED WINDOWS W/ STUCCO SILLS AT STUCCO WINDOW OPENINGS.
7	1" STUCCO ON LATH OVER VAPOR BARRIER (DARK COLOR).
8	ANODIZED ALUMINUM SINGLE GLAZED SLIDING DOORS.
9	ALUMINUM CLAD WOOD DOOR.
10	FIELDSTONE.
11	1" STUCCO ON LATH OVER VAPOR BARRIER (LIGHT COLOR).
12	6'-0" HIGH FROM FINISH GRADE A'A' LAVA ROCK WALL SCREENS TRASH AND RECYCLE AREA.
13	1 X 2 CEDAR BATTS @ 16"O.C.
14	4' HIGH SQUARE TUBE W/ SQUARE PICKETS @ 4"O.C. BAKED ENAMEL FENCE AND SELF CLOSING, SELF LATCHING GATE BY MAJESTIC FENCE COMPANY SCREENS POOL AREA.
15	SALTED AND STAINED CONCRETE LANAIS, WALKWAYS AND EXTERIOR SLABS.
16	STUCCO WRAPPED COLUMN.
17	ORGANIC SHAPE BASALT SLAB ON FACE OF SHEATHING, 6' TALL.
18	1 X T.K. W.R. CEDAR FASCIA W/ SEMI TRANSPARENT STAIN TYP.
19	ANODIZED ALUMINUM GARAGE DOOR W/ WHITE OBSCURE LAMINATED GLASS.

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DATE
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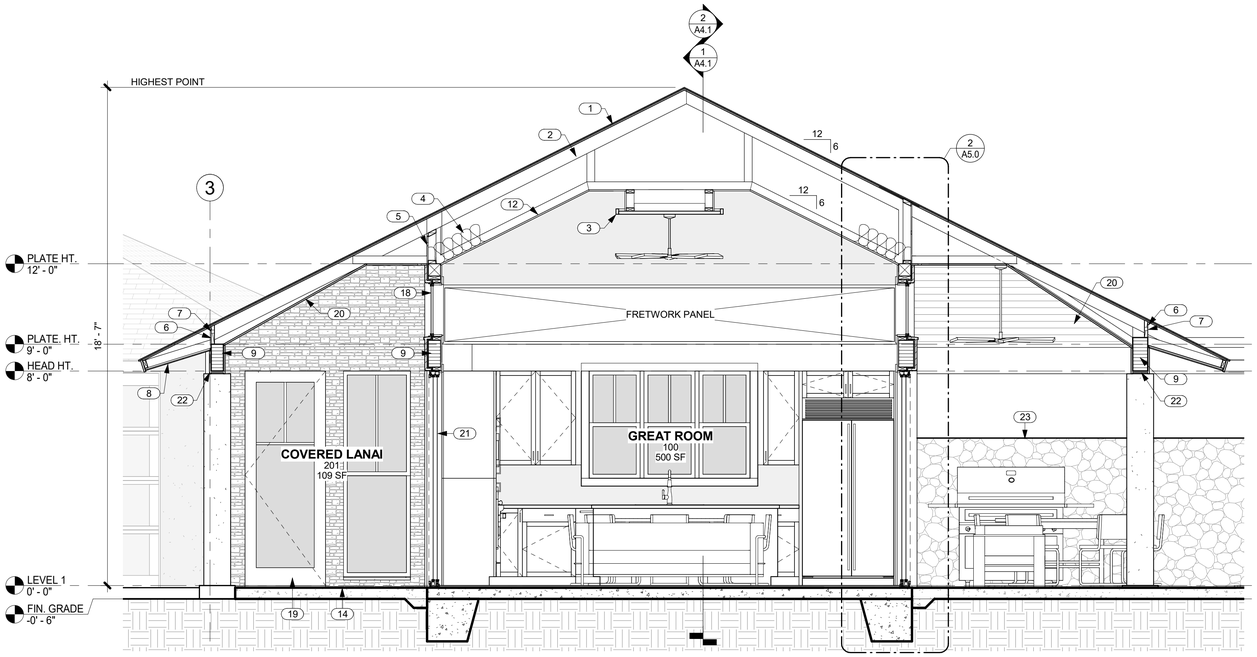
SCALE
3/16" = 1'-0"

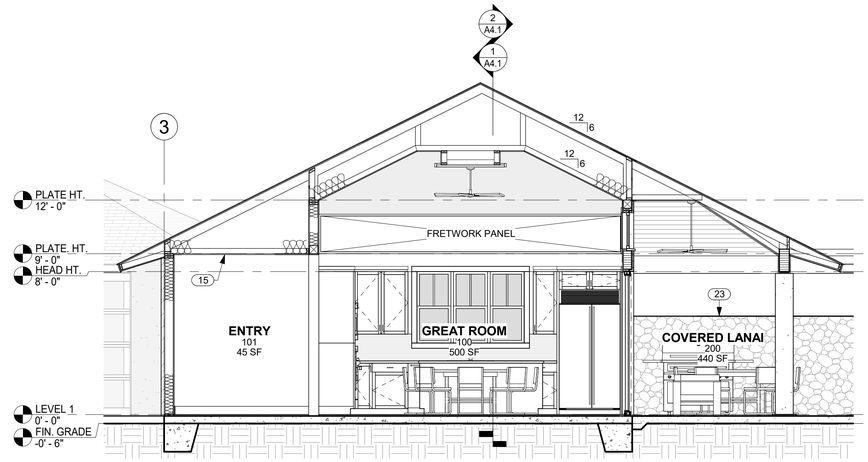
SHEET
EXTERIOR ELEVATIONS

SHEET
A3.1



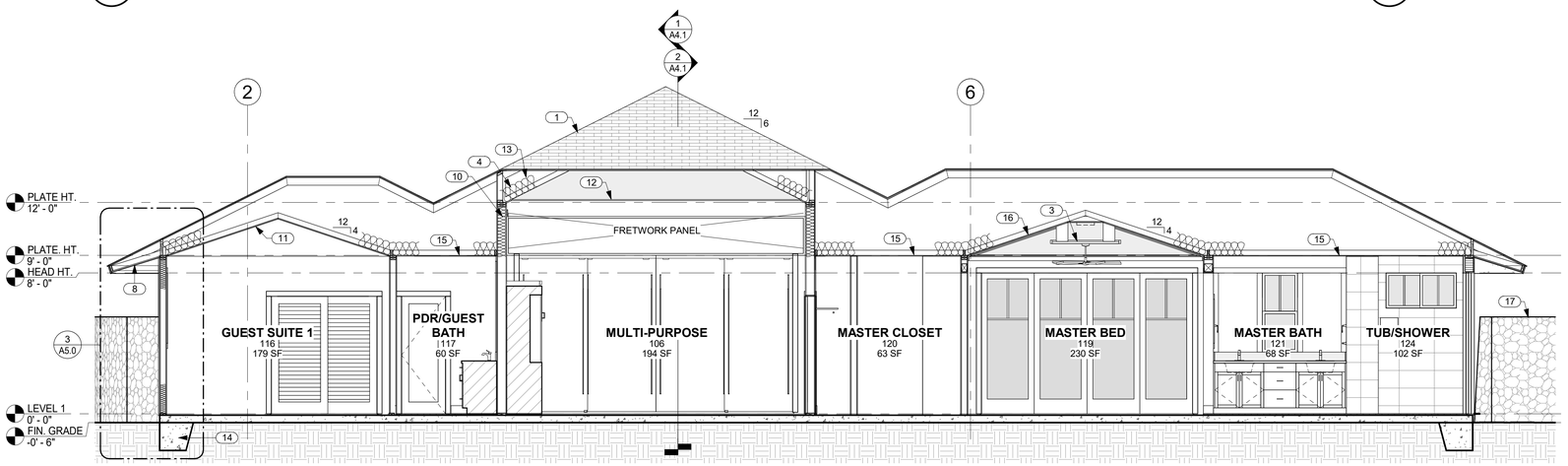
1 A4.0 SECTION THRU GREAT ROOM AND COVERED LANAIS LOOKING EAST

SCALE: 3/8" = 1'-0"



2 A4.0 SECTION THRU GREAT ROOM, COVERED LANAI AND PANTRY LOOKING EAST

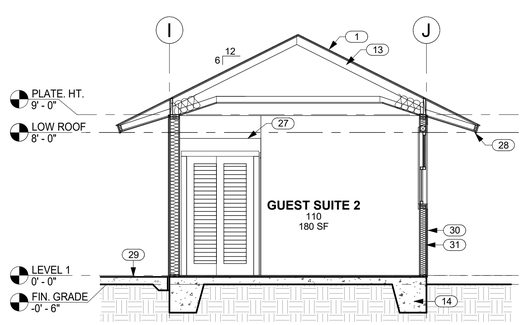
SCALE: 1/4" = 1'-0"



3 A4.0 BUILDING SECTION LOOKING EAST

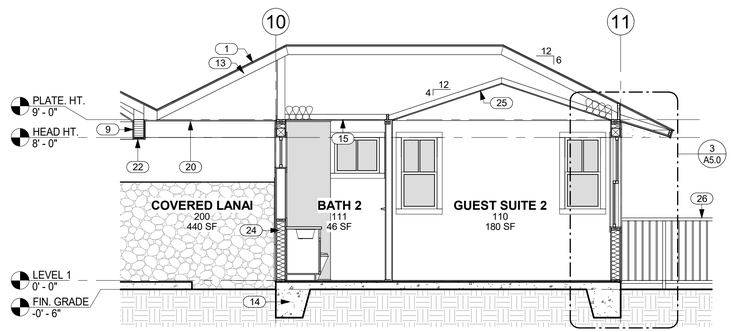
SCALE: 1/4" = 1'-0"

KEYNOTES	
NO.	NOTE
1	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
2	PREMANUFACTURED TRUSSES.
3	FRETWORK PANEL.
4	FACED BATT INSULATION R-30 @ CEILINGS TYP.
5	VENT HOLES IN SHEATHING.
6	BLOCKING BETWEEN TRUSSES.
7	VENT HOLES IN BLOCKING.
8	EAVES: 3/8" STUCCO ON 5/8" DENSGLASS TYP.
9	BEAM SEE STRUCTURAL.
10	FACED BATT INSULATION R-19 @ WALLS TYP.
11	5/8" GYP. BD. VAULTED CEILING 4/12 SLOPE.
12	5/8" GYP. BD. VAULTED CEILING W/ GRASS CLOTH AND STAINED WOOD TRIM 6/12 SLOPE.
13	PREMANUFACTURED TRUSSES.
14	CONCRETE SLAB AND FOOTING SEE STRUCTURAL.
15	5/8" GYP. BD. CEILING @ 9'-0" A.F.F
16	5/8" GYP. BD. VAULTED CEILING W/ GRASS CLOTH AND STAINED WOOD TRIM 4/12 SLOPE.
17	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL SCREENS SHOWER GARDEN.
18	ANODIZED ALUMINUM DOUBLE GLAZED WINDOWS.
19	ALUMINUM CLAD WOOD DOOR.
20	SOFFITS: 1 X 6 T&G CEDAR W/ CLEAR FINISH TYP.
21	ANODIZED ALUMINUM SINGLE GLAZED SLIDING DOORS.
22	EXTERIOR BEAM CLADDING 1 X T.K. CEDAR SEE EXTERIOR FINISH SCHEDULE FOR FINISH.
23	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL.
24	2 X 6 FRAMING.
25	5/8" GYP. BD. VAULTED CEILING 4/12 SLOPE @ GUEST SUITES.
26	4' HIGH SQUARE TUBE W/ SQUARE PICKETS @ 4"O.C. BAKED ENAMEL FENCE AND SELF CLOSING, SELF LATCHING GATE BY MAJESTIC FENCE COMPANY SCREENS POOL AREA.
27	TOP OF CLOSET WALL @ +7'-8" A.F.F.
28	1 X T.K. W.R. CEDAR FASCIA W/ SEMI TRANSPARENT STAIN TYP.
29	SALTED AND STAINED CONCRETE LANAIS, WALKWAYS AND EXTERIOR SLABS.
30	5/8" BRECKINRIDGE SIDING.
31	1 X 2 CEDAR BATTS @ 16"O.C.



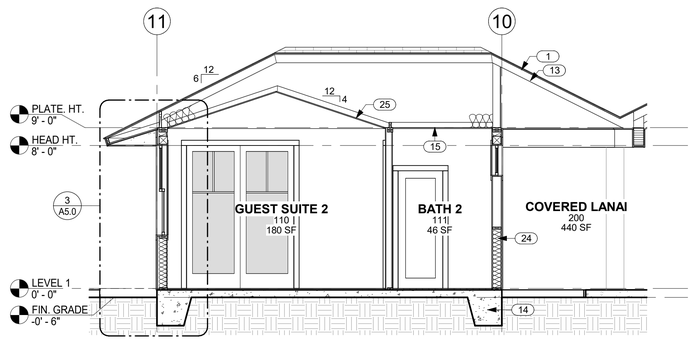
4 A4.0 SECTION THRU GUEST SUITE 2 LOOKING NORTH

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



5 A4.0 SECTION THRU GUEST SUITE 2 LOOKING EAST

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



6 A4.0 SECTION THRU GUEST SUITE 2 LOOKING WEST

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

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

. . .

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

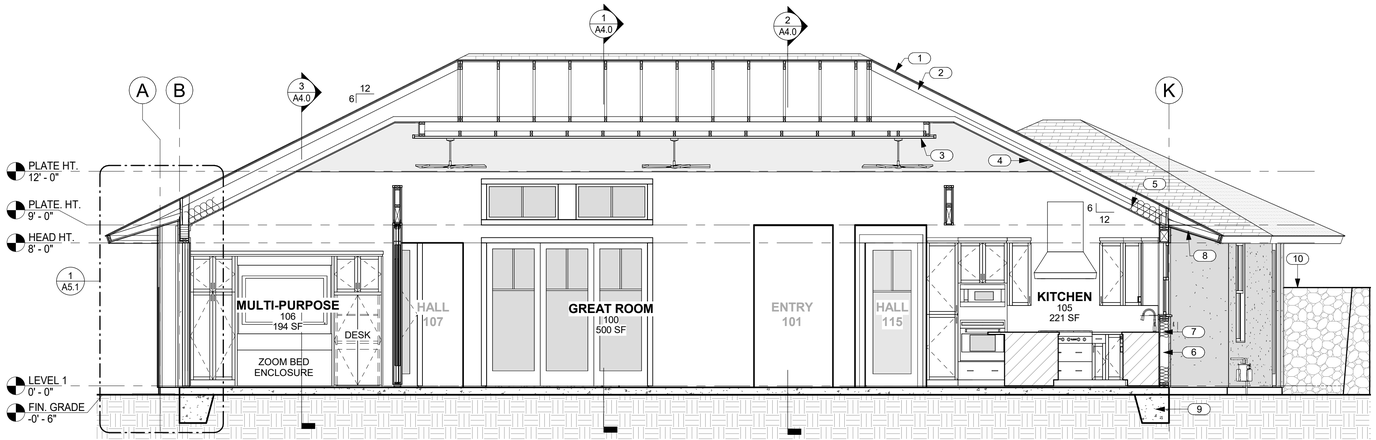
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

SCALE
As indicated

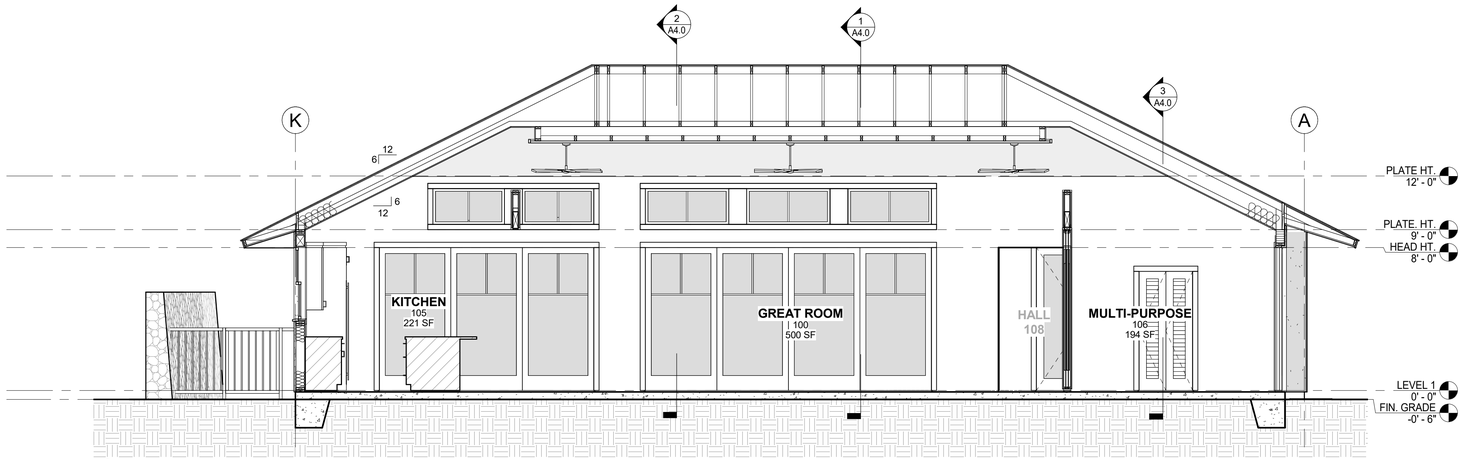
SHEET
BUILDING SECTIONS

SHEET
A4.0

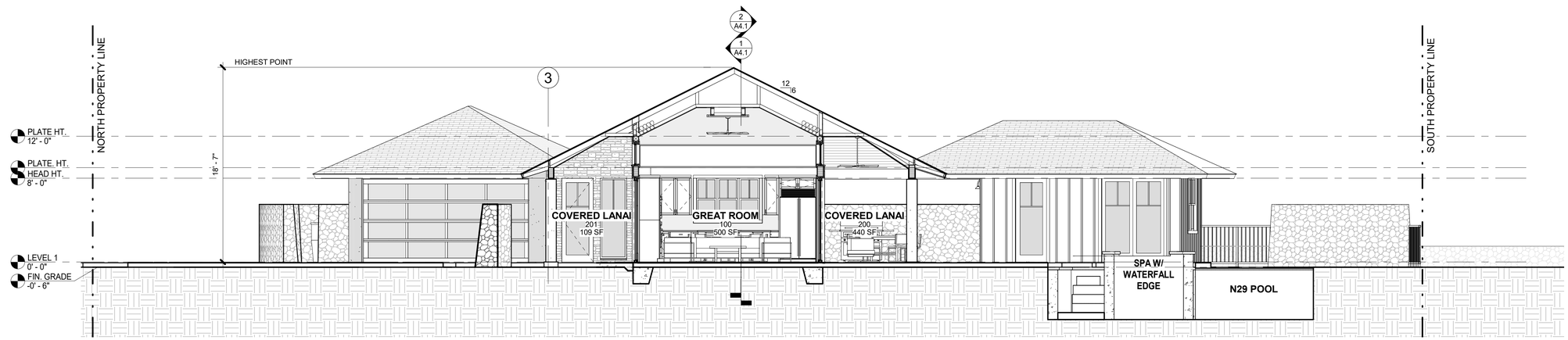


1 A4.1 SECTION THRU GREAT ROOM LOOKING EAST
SCALE: 1/4" = 1'-0"

KEYNOTES	
NO.	NOTE
1	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
2	PREMANUFACTURED TRUSSES.
3	FRETWORK PANEL.
4	5/8" GYP. BD. VAULTED CEILING W/ GRASS CLOTH AND STAINED WOOD TRIM 6/12 SLOPE.
5	FACED BATT INSULATION R-30 @ CEILINGS TYP.
6	2 X 6 FRAMING.
7	FACED BATT INSULATION R-19 @ WALLS TYP.
8	EAVES: 3/8" STUCCO ON 5/8" DENSGLASS TYP.
9	CONCRETE SLAB AND FOOTING SEE STRUCTURAL.
10	6'-0" HIGH FROM FINISH GRADE A'A LAVA ROCK WALL.



2 A4.1 SECTION THRU GREAT ROOM LOOKING WEST
SCALE: 1/4" = 1'-0"



3 A4.1 SITE SECTION
SCALE: 3/16" = 1'-0"

CRAIG MONAGHAN LICENSED PROFESSIONAL ARCHITECT NO. AR9975 HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

REVISIONS

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	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

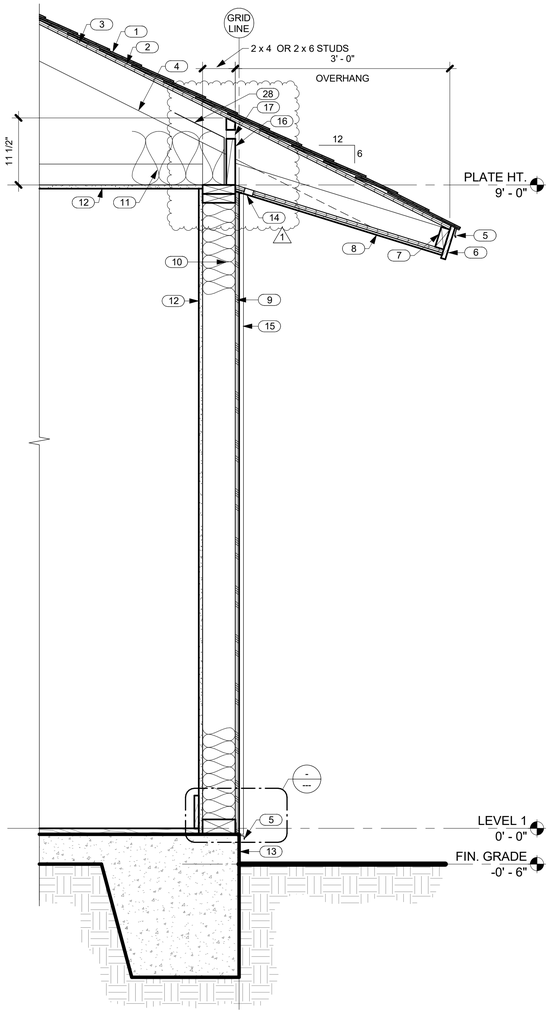
DATE 11/21/22

SCALE As indicated

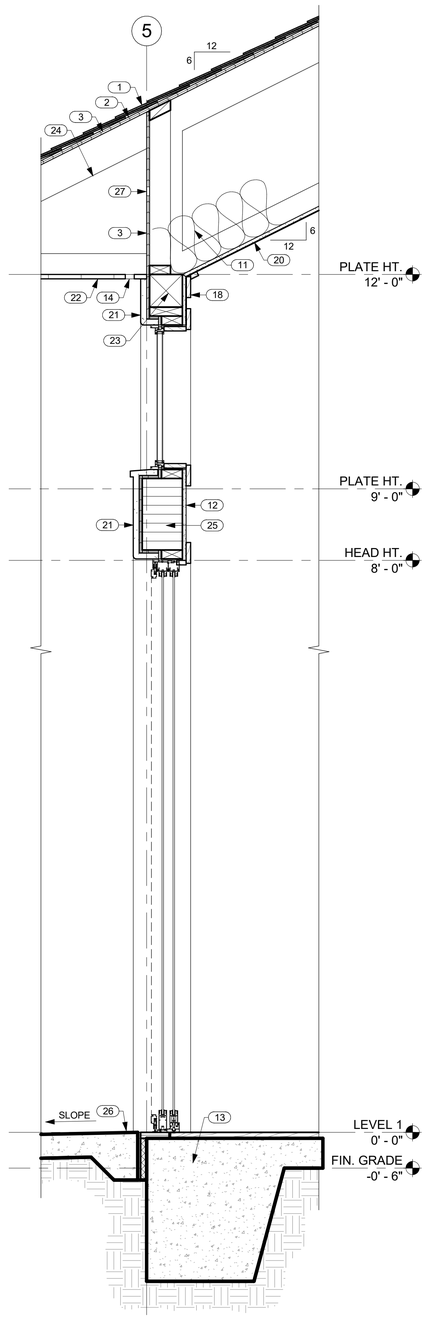
SHEET **BUILDING SECTIONS**

SHEET A4.1

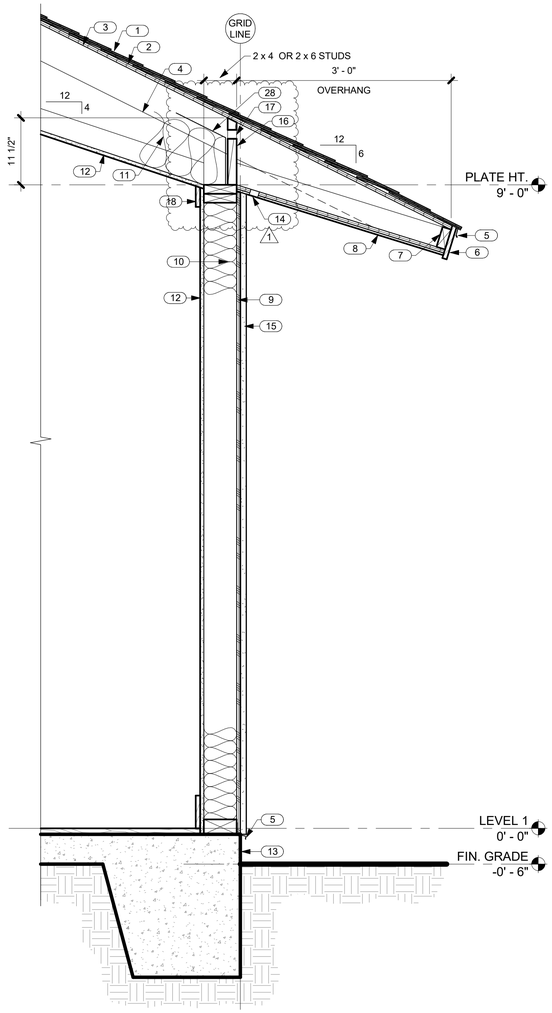
KEYNOTES	
NO.	NOTE
1	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
2	MEMBRANE, 40 MIL HIGH TEMPERATURE PEEL AND STICK.
3	SHEATHING SEE STRUCTURAL.
4	PREMANUFACTURED TRUSSES.
5	DRIP EDGE.
6	1 X T.K. W.R. CEDAR FASCIA W/ SEMI TRANSPARENT STAIN TYP.
7	2 X 4 SUB FASCIA.
8	EAVES: 3/8" STUCCO ON 5/8" DENSGLASS TYP.
9	5/8" BRECKINRIDGE SIDING.
10	FACED BATT INSULATION R-19 @ WALLS TYP.
11	FACED BATT INSULATION R-30 @ CEILINGS TYP.
12	5/8" GYP. BD.
13	CONCRETE SLAB AND FOOTING SEE STRUCTURAL.
14	1 1/2" CONTINUOUS SCREENED VENT SLOT. PLASTIC PER NOHEA REC. CENTER.
15	1 X 2 CEDAR BATTS @ 16"O.C.
16	BLOCKING BETWEEN TRUSSES.
17	VENT HOLES IN BLOCKING.
18	STAINED WOOD TRIM.
19	2 X 6 FRAMING.
20	5/8" GYP. BD. W/ GRASS CLOTH.
21	1" STUCCO ON LATH OVER VAPOR BARRIER (LIGHT COLOR).
22	SOFFITS: 1 X 6 T&G CEDAR W/ CLEAR FINISH TYP.
23	HEADER SEE STRUCTURAL.
24	PREMANUFACTURED TRUSSES.
25	BEAM SEE STRUCTURAL.
26	SALTED AND STAINED CONCRETE LANAIS, WALKWAYS AND EXTERIOR SLABS.
27	VENT HOLES IN SHEATHING.
28	EAVE BAFFLE PER IECC R402.2.3



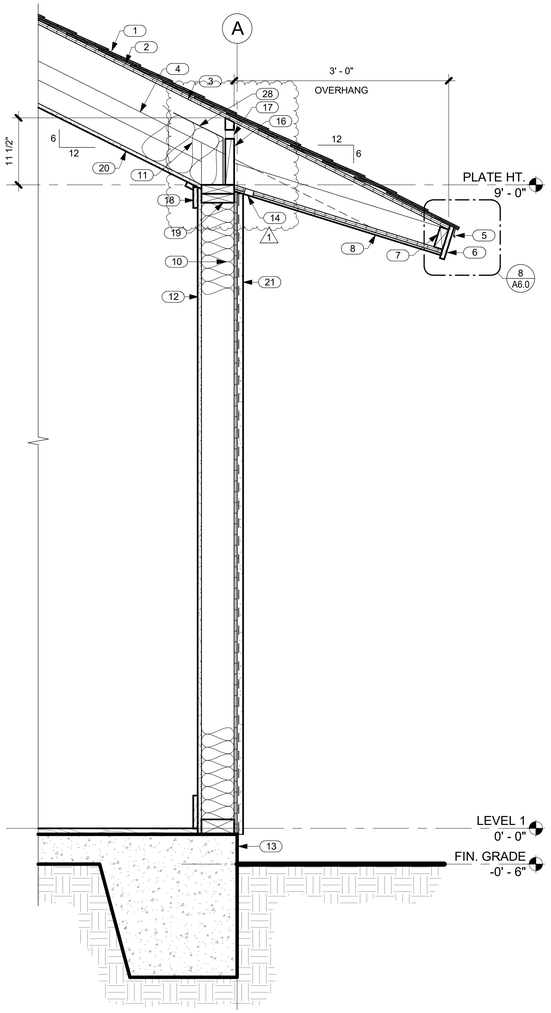
1 A5.0 TYP. WALL SECTION @ SIDING W/ FLAT CEILING
SCALE: 1" = 1'-0"



2 A5.0 SECTION THRU GREAT ROOM @ LANAI
SCALE: 1" = 1'-0"



3 A5.0 TYP. WALL SECTION @ GUEST SUITE BEDROOMS
SCALE: 1" = 1'-0"



4 A5.0 SECTION THRU WEST WALL OF GREAT ROOM LOOKING NORTH
SCALE: 1" = 1'-0"

CRAIG MONAGHAN LICENSED PROFESSIONAL ARCHITECT NO. AR9975 HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22
1	PERMIT REV. #1	9/19/23

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

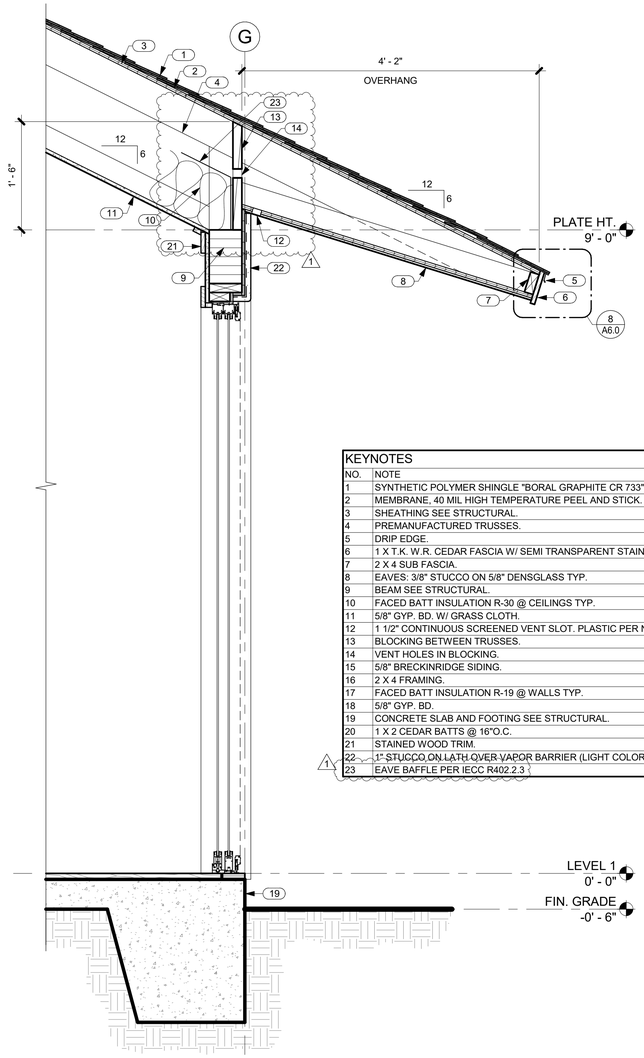
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/21/22

SCALE 1" = 1'-0"

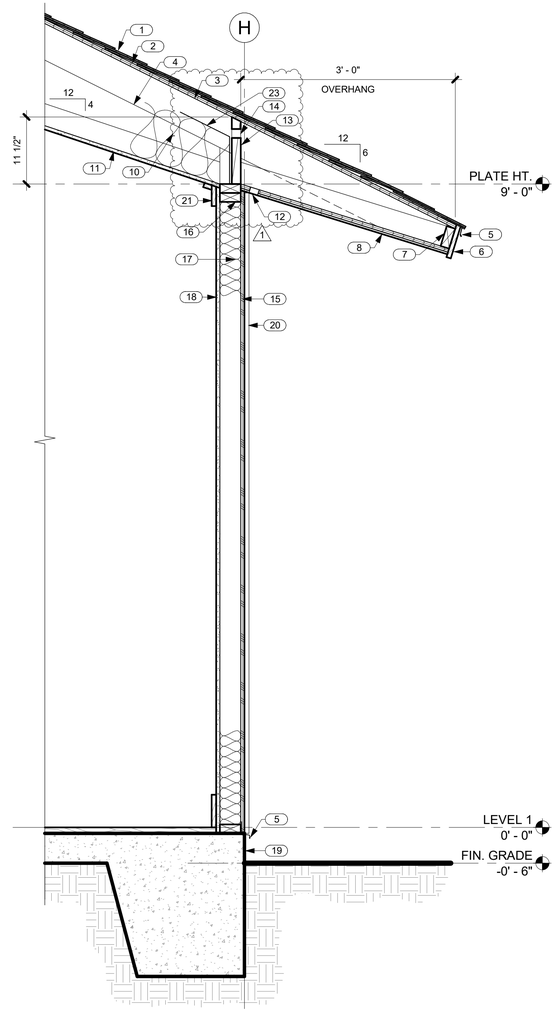
SHEET **WALL SECTIONS**

SHEET A5.0



KEYNOTES	
NO.	NOTE
1	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
2	MEMBRANE, 40 MIL HIGH TEMPERATURE PEEL AND STICK.
3	SHEATHING SEE STRUCTURAL.
4	PREMANUFACTURED TRUSSES.
5	DRIP EDGE.
6	1 X T.K. W.R. CEDAR FASCIA W/ SEMI TRANSPARENT STAIN TYP.
7	2 X 4 SUB FASCIA.
8	EAVES: 3/8" STUCCO ON 5/8" DENSGLASS TYP.
9	BEAM SEE STRUCTURAL.
10	FACED BATT INSULATION R-30 @ CEILINGS TYP.
11	5/8" GYP. BD. W/ GRASS CLOTH.
12	1 1/2" CONTINUOUS SCREENED VENT SLOT. PLASTIC PER NOHEA REC. CENTER.
13	BLOCKING BETWEEN TRUSSES.
14	VENT HOLES IN BLOCKING.
15	5/8" BRECKINRIDGE SIDING.
16	2 X 4 FRAMING.
17	FACED BATT INSULATION R-19 @ WALLS TYP.
18	5/8" GYP. BD.
19	CONCRETE SLAB AND FOOTING SEE STRUCTURAL.
20	1 X 2 CEDAR BATTS @ 16"O.C.
21	STAINED WOOD TRIM.
22	1" STUCCO ON LATH OVER VAPOR BARRIER (LIGHT COLOR).
23	EAVE BAFFLE PER IECC R402.2.3

1 SECTION THRU MULTI-PURPOSE ROOM
A5.1 SCALE: 1" = 1'-0"



2 SECTION THRU MASTER BEDROOM
A5.1 SCALE: 1" = 1'-0"

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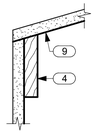
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

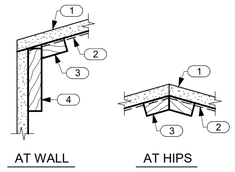
SCALE
1" = 1'-0"

SHEET
WALL SECTIONS

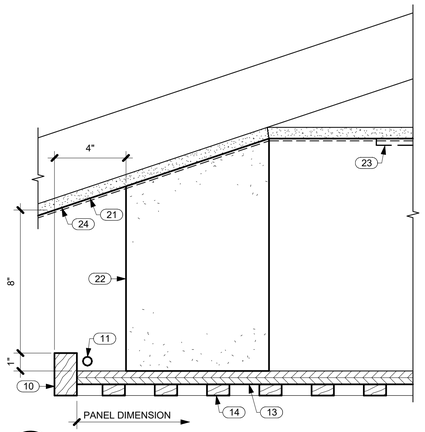
SHEET
A5.1



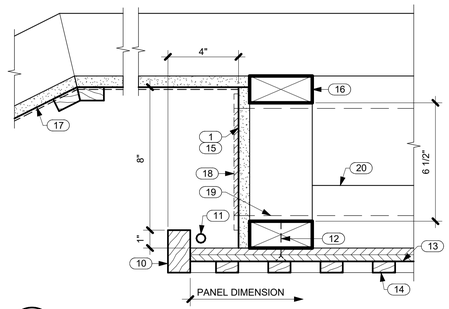
1 A6.0 CEILING TRIM @ GUEST SUITES
SCALE: 3" = 1'-0"



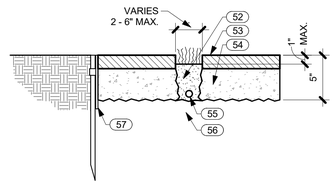
2 A6.0 CEILING TRIM @ MASTER BEDROOM AND GREAT ROOM
SCALE: 3" = 1'-0"



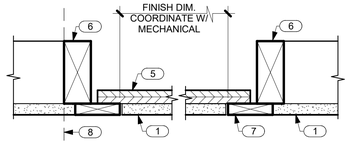
3 A6.0 BEDROOM FRETWORK PANEL (4) SIDES
SCALE: 3" = 1'-0"



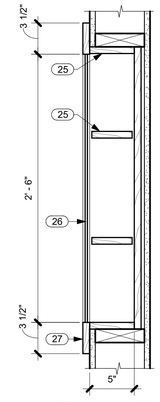
4 A6.0 GREAT ROOM FRETWORK PANEL (4) SIDES
SCALE: 3" = 1'-0"



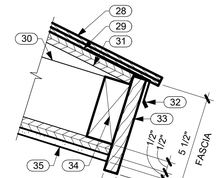
5 A6.0 AUTO COURT EDGE
SCALE: 1 1/2" = 1'-0"



6 A6.0 SECTION THRU ACCESS PANEL FOR AC EQUIP.
SCALE: 3" = 1'-0"



7 A6.0 SECTION THRU MEDICINE CABINET
SCALE: 1 1/2" = 1'-0"



8 A6.0 TYP. FASCIA DETAIL
SCALE: 3" = 1'-0"

9 A6.0 SIDING TO STUCCO TRANSITION 1
SCALE: 3" = 1'-0"

10 A6.0 SIDING TO STUCCO TRANSITION 2
SCALE: 3" = 1'-0"

11 A6.0 TYP. BASE OF WALL W/ STUCCO @ WALK/LANAI
SCALE: 3" = 1'-0"

KEYNOTES	
NO.	NOTE
1	5/8" GYP. BD.
2	GRASS CLOTH.
3	3/4" X 1 1/2" TRIM.
4	3/4" X 3 1/2" TRIM.
5	3/4" PLYWOOD.
6	FRAMING.
7	5/8" THICK WOOD STRIPS W/ TAPED JOINTS @ GYP. BD. / WOOD STRIP TRANSITION.
8	FACE OF WALL IN (2) LOCATIONS @ GUEST SUITE 1.
9	5/8" GYP. BD. VAULTED CEILING 4/12 SLOPE.
10	5/4 MAHOGANY EDGE TRIM, LIGHTER STAIN.
11	LED.
12	DARK BROWN SCREWS.
13	3/4" MAHOGANY PLYWD., DARKER STAIN.
14	5/8" FRETWORK PANEL, LIGHTER STAIN.
15	PAINT DARK.
16	CONTINUOUS FURRING (4) SIDES.
17	5/8" GYP. BD. VAULTED CEILING W/ GRASS CLOTH AND STAINED WOOD TRIM 6/12 SLOPE.
18	AC GRILLE W/ 45 DEGREE DEFLECTION.
19	6" AC DUCT.
20	2 X 4 STIFFENERS.
21	5/8" GYP. BD. VAULTED CEILING W/ GRASS CLOTH AND STAINED WOOD TRIM 4/12 SLOPE @ MASTER BEDROOM.
22	8" X 8" FURRING @ EACH CORNER; WRAP IN GYP. BD. PAINT DARK.
23	4 WAY AC GRILLE.
24	5/8" GYP. BD. VAULTED CEILING 4/12 SLOPE @ GUEST SUITES.
25	CABINET BODY AND SHELVES MATCH CABINETS.
26	MIRROR.
27	WOOD FRAME MATCH CABINETS.
28	SYNTHETIC POLYMER SHINGLE "BORAL GRAPHITE CR 733" BY INSPIRE.
29	MEMBRANE, 40 MIL HIGH TEMPERATURE PEEL AND STICK.
30	PREMANUFACTURED TRUSSES.
31	SHEATHING SEE STRUCTURAL.
32	DRIP EDGE.
33	1 X T.K. W.R. CEDAR FASCIA W/ SEMI TRANSPARENT STAIN TYP.
34	2 X 4 SUB FASCIA.
35	EAVES: 3/8" STUCCO ON 5/8" DENSGLASS TYP.
36	CEDAR TRIM.

KEYNOTES	
NO.	NOTE
37	1" STUCCO OR FIELDSTONE ON LATH OVER VAPOR BARRIER.
38	2 X 4 FRAMING.
39	FACED BATT INSULATION R-19 @ WALLS TYP.
40	1 X 2 CEDAR BATTS @ 16"O.C.
41	5/8" BRECKINRIDGE SIDING.
42	2 X 6 FRAMING.
43	VAPOR BARRIER SEAL TO FLANGES AND FLASHINGS WITH PEEL AND STICK MEMBRANE.
44	EXPANSION JOINT.
45	SEALANT AND B.U.R. HOLD DOWN 1/2".
46	RIGID INSULATION (CLOSED CELL) SPACER.
47	WATERPROOFING.
48	CONCRETE SLAB AND FOOTING SEE STRUCTURAL.
49	WOOD FLOORING.
50	5/8" X 5 1/2" WOOD BASE.
51	WALK OR LANAI.
52	1/3 MIX TOPSOIL.
53	1 1/2" SAWN BASALT.
54	3 1/2" "STIFF" MORTAR BASE.
55	DRIP EMITTER TUBING IF DRIP IRRIGATED.
56	C.A.B.
57	1/4" X 6" RYERSON STEEL EDGING W/ STAKES.

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EXPIRATION 4/30/24

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REVISIONS

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CRAIG MONAGHAN, ARCHITECT
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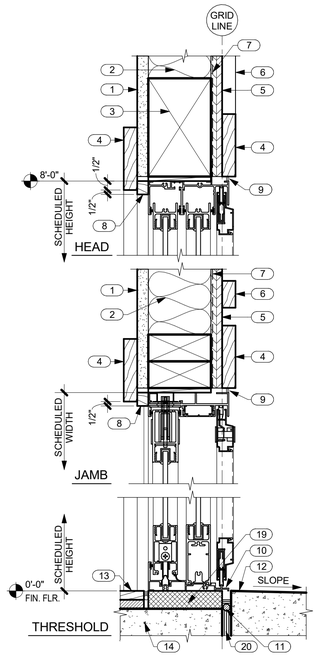
DATE
11/21/22

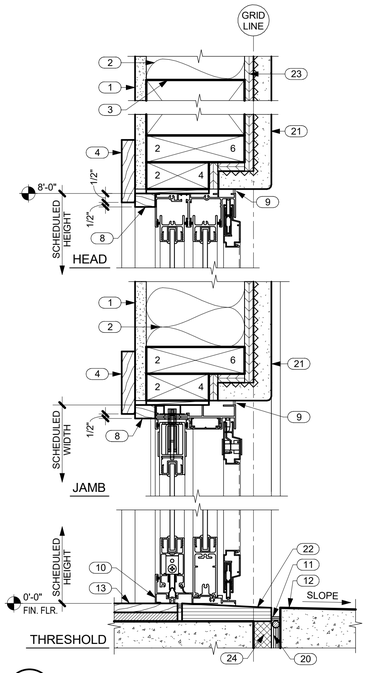
SCALE
As indicated

SHEET
DETAILS

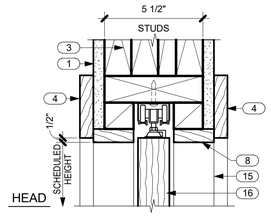
SHEET
A6.0



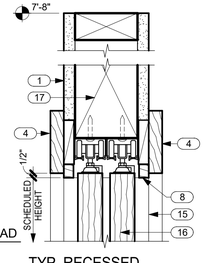
1 A6.1 TYP. SLIDING DOOR DETAILS IN SIDING
SCALE: 3" = 1'-0"



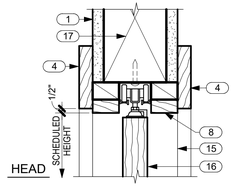
2 A6.1 TYP. SLIDING DOOR DETAILS IN STUCCO
SCALE: 3" = 1'-0"



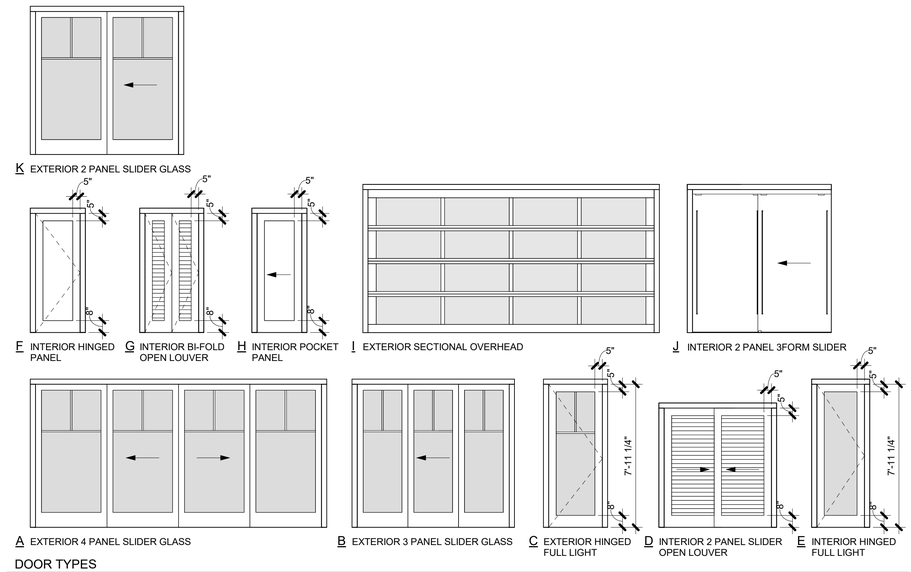
3 A6.1 TYP. RECESSED POCKET DOOR TRACK
SCALE: 3" = 1'-0"



4 A6.1 TYP. RECESSED SLIDING DOOR TRACK
SCALE: 3" = 1'-0"



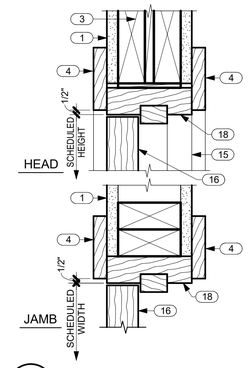
5 A6.1 TYP. BI-FOLD DOOR TRACK
SCALE: 3" = 1'-0"



DOOR TYPES

6 A6.1 TYP. HINGED DOOR DETAILS IN SIDING
SCALE: 3" = 1'-0"

7 A6.1 TYP. HINGED DOOR DETAILS IN STUCCO
SCALE: 3" = 1'-0"



8 A6.1 TYP. INTERIOR DOOR DETAILS
SCALE: 3" = 1'-0"

KEYNOTES	
NO.	NOTE
1	5/8" GYP. BD.
2	FACED BATT INSULATION R-19 @ WALLS TYP.
3	HEADER SEE STRUCTURAL.
4	1 X TRIM SEE TYP. DOOR ELEVATIONS THIS SHEET.
5	5/8" BRECKINRIDGE SIDING.
6	1 X 2 CEDAR BATTS @ 16"O.C.
7	VAPOR BARRIER SEAL TO FLANGES AND FLASHINGS WITH PEEL AND STICK MEMBRANE.
8	1 X TRIM.
9	SEALANT.
10	THRESHOLD SET IN SEALANT.
11	SEALANT AND B.U.R. HOLD DOWN 1/2".
12	LANAI WHERE OCCURS.
13	TILE OR WOOD FLOORING.
14	CONCRETE SLAB AND FOOTING SEE STRUCTURAL.
15	JAMB AND TRIM BEYOND.

KEYNOTES	
NO.	NOTE
16	DOOR.
17	4 X 8 HEADER.
18	DOOR FRAME.
19	GROUT AND HARD SHIMS.
20	EXPANSION JOINT.
21	1" STUCCO OR FIELDSTONE ON LATH OVER VAPOR BARRIER.
22	BASALT STONE THRESHOLD, SLOPE 1/4" TO EXTERIOR.
23	SHEATHING SEE STRUCTURAL.
24	RIGID INSULATION (CLOSED CELL) SPACER.
25	WOOD FLOORING.
26	DOOR.
27	DRIP EDGE.

DOOR SCHEDULE

NO.	TYPE	WIDTH	HEIGHT	THICKNESS	DESCRIPTION	LAMINATED OR TEMP. GLASS	DOOR MATERIAL	FRAME MATERIAL	TRIM INT.	TRIM EXT.	COMMENTS
1	A	16' - 0"	8'-0"	1 3/4"	EXTERIOR 4 PANEL SLIDER GLASS	YES	NOTE 5	NOTE 5	NOTE 4	NOTE 2	
2	B	9' - 0"	8'-0"	1 3/4"	EXTERIOR 3 PANEL SLIDER GLASS	YES	NOTE 5	NOTE 5	NOTE 4	NOTE 2	
3	C	3' - 0"	8'-0"	1 3/4"	EXTERIOR HINGED FULL LIGHT	YES	NOTE 1	NOTE 1	NOTE 4	NO TRIM	
4	C	3' - 0"	8'-0"	1 3/4"	EXTERIOR HINGED FULL LIGHT	YES	NOTE 1	NOTE 1	NOTE 4	NOTE 2	
5	A	12' - 0"	8'-0"	1 3/4"	EXTERIOR 4 PANEL SLIDER GLASS	YES	NOTE 5	NOTE 5	NOTE 4	NOTE 2	
6	A	12' - 0"	8'-0"	1 3/4"	EXTERIOR 4 PANEL SLIDER GLASS	YES	NOTE 5	NOTE 5	NOTE 11	NOTE 2	
7	E	2' - 8"	8'-0"	1 3/4"	INTERIOR HINGED FULL LIGHT	YES	NOTE 3	NOTE 3	NOTE 4	N/A	
8	F	2' - 6"	8'-0"	1 3/4"	INTERIOR HINGED PANEL		NOTE 3	NOTE 3	NOTE 4	N/A	
9	E	2' - 8"	8'-0"	1 3/4"	INTERIOR HINGED FULL LIGHT	YES	NOTE 3	NOTE 3	NOTE 4	N/A	
10	F	2' - 6"	8'-0"	1 3/4"	INTERIOR HINGED PANEL		NOTE 3	NOTE 3	NOTE 4	N/A	
11	G	2' - 6"	8'-0"	1 3/8"	INTERIOR BI-FOLD OPEN LOUVER		NOTE 3	NOTE 3	NOTE 4	N/A	
12	B	9' - 0"	8'-0"	1 3/4"	EXTERIOR 3 PANEL SLIDER GLASS	YES	NOTE 5	NOTE 5	NOTE 4	NO TRIM	
15	G	3' - 0"	8'-0"	1 3/8"	INTERIOR BI-FOLD OPEN LOUVER		NOTE 3	NOTE 3	NOTE 4	N/A	
18	B	12' - 0"	8'-0"	1 3/4"	EXTERIOR 3 PANEL SLIDER GLASS	YES	NOTE 5	NOTE 5	NOTE 4	NO TRIM	
19	C	3' - 0"	8'-0"	1 3/4"	EXTERIOR HINGED FULL LIGHT	YES	NOTE 1	NOTE 1	NOTE 4	NOTE 2	NOTE 12,14
23	C	3' - 0"	8'-0"	1 3/4"	EXTERIOR HINGED FULL LIGHT	YES	NOTE 1	NOTE 1	NOTE 4	NOTE 2	NOTE 12
24	I	16' - 0"	8'-0"	2 1/8"	EXTERIOR SECTIONAL OVERHEAD	YES	NOTE 6	NOTE 6	NOTE 4	NOTE 2	
29	D	6' - 0"	8'-0"	1 3/8"	INTERIOR 2 PANEL SLIDER OPEN LOUVER	YES	NOTE 5	NOTE 5	NOTE 4	NOTE 2	
38	C	3' - 0"	8'-0"	1 3/4"	EXTERIOR HINGED FULL LIGHT	YES	NOTE 1	NOTE 1	NOTE 4	NOTE 2	
41	K	6' - 0"	8'-0"	1 3/4"	EXTERIOR 2 PANEL SLIDER GLASS	YES	NOTE 5	NOTE 5	NOTE 4	NOTE 2	
45	H	2' - 8"	8'-0"	1 3/4"	INTERIOR POCKET PANEL						
46	D	3' - 9"	8'-0"	1 3/8"	INTERIOR 2 PANEL SLIDER OPEN LOUVER		NOTE 3	NOTE 3	NOTE 4	N/A	
47	H	2' - 6"	8'-0"	1 3/4"	INTERIOR POCKET PANEL		NOTE 3	NOTE 3	NOTE 4	N/A	
48	K	6' - 0"	8'-0"	1 3/4"	EXTERIOR 2 PANEL SLIDER GLASS						
49	G	2' - 8"	8'-0"	1 3/8"	INTERIOR BI-FOLD OPEN LOUVER		NOTE 3	NOTE 3	NOTE 4	N/A	
50	J	7' - 9 1/4"	8'-0"	1/2"	INTERIOR 2 PANEL 3FORM SLIDER		NOTE 13	NOTE 13	NOTE 4	N/A	
51	J	7' - 9 1/4"	8'-0"	1/2"	INTERIOR 2 PANEL 3FORM SLIDER		NOTE 13	NOTE 13	NOTE 4	N/A	

1

NOTES

1. EXTERIOR HINGED DOORS: ALUMINUM CLAD WOOD.
2. EXTERIOR TRIM: 1 X 4 TIGHT KNOT W.R. CEDAR W/ SIKKENS STAIN-009 DARK OAK, 1 COAT OF CETOL 1" AND 1 COAT OF CETOL 2/3 PLUS.
3. INTERIOR DOORS: 1 3/4" THICK. WOOD DOOR PANELS: 5/8" PLYWOOD W/ 1/8" VENEERS MATCHING STILE AND RAIL, SQUARE SHOULDER STOPS AT GLASS FLUSH W/ DOOR FACE. DOORS AND FRAMES: MIXED GRAIN SPANISH CEDAR W/ PPG PAINTS FOR INTERIOR CLEAR LACQUER BASED, SATIN FINISH, 2 COATS. OR STEAMED BEECH W/ PPG PAINTS SATIN STAIN TO MATCH SIKKENS STAIN-009 DARK OAK, 1 COAT OF CETOL 1" AND 1 COAT OF CETOL 2/3 PLUS.
4. INTERIOR TRIM: 3/4" X 3 1/2" MIXED GRAIN SPANISH CEDAR W/ PPG PAINTS FOR INTERIOR CLEAR LACQUER BASED, SATIN FINISH, 2 COATS. OR STEAMED BEECH W/ PPG PAINTS SATIN STAIN TO MATCH SIKKENS STAIN-009 DARK OAK, 1 COAT OF CETOL 1" AND 1 COAT OF CETOL 2/3 PLUS.
5. EXTERIOR SLIDING DOORS AND FRAMES: HERITAGE SERIES 1100, DARK BRONZE ANODIZED. SINGLE GLAZED, LOW E.
6. GARAGE DOOR: BRONZE ANODIZED ALUM. WITH WHITE OBSCURE LAMINATED GLASS BY NORTHWEST DOOR PER TRADEWIND HAWAII QUOTE #13881.
7. DIMENSIONS SHOWN ON DOOR TYPES ARE "SEE DIMENSIONS", SEE DETAILS.
8. 2 1/2" BACKSETS U.O.N. SEE HARDWARE SCHEDULE.
9. CLEAR OR FROSTED AS NOTED. LAMINATED OR TEMPERED GLASS IN ALL DOORS WITH GLASS. LOW E AT EXTERIOR WITH CODE SHGC.
10. GLAZING = U OF .34, NO U VALUE REQUIRED AT GARAGE.
11. TILE HEAD AND JAMBS.
12. OBSCURE GLASS.
13. INTERIOR 3FORM DOORS: 3 FORM SLIDER AND COMPLETE HARDWARE PACKAGE.
14. GARAGE DOOR BETWEEN DWELLING AND GARAGE TO BE 20 MIN FIRE RATED WITH SELF-CLOSING HARDWARE, PER R302.5.1.

1

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

. . .

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22
1	PERMIT REV. #1	9/19/23

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

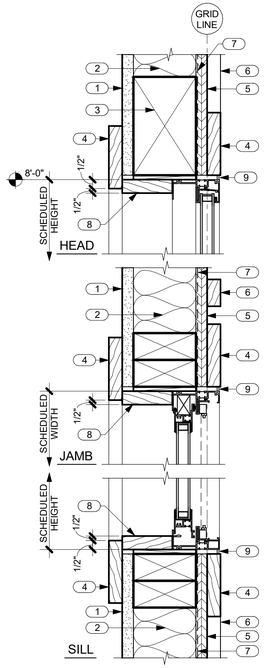
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

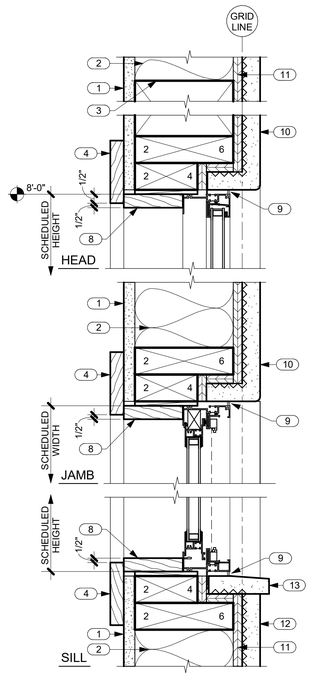
SCALE
As indicated

SHEET
DOOR SCHEDULE, DOOR TYPES, DOOR DETAILS

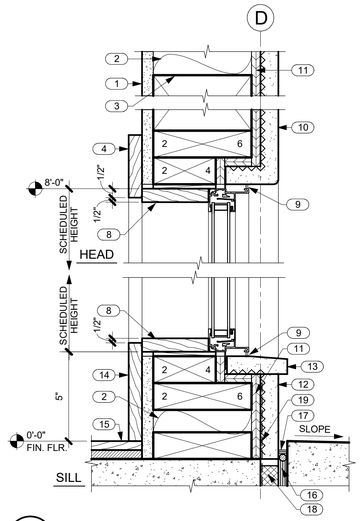
SHEET
A6.1



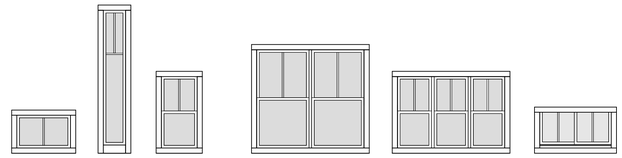
1 A6.2 TYP. WINDOW DETAILS IN SIDING
SCALE: 3" = 1'-0"



2 A6.2 TYP. WINDOW DETAILS IN STUCCO
SCALE: 3" = 1'-0"



3 A6.2 SIDELIGHT HEAD AND SILL DETAILS
SCALE: 3" = 1'-0"



WINDOW TYPES

WINDOW SCHEDULE

NO.	TYPE	WIDTH	HEIGHT	DESCRIPTION	LAMINATED OR TEMP. GLASS	TRIM INT.	TRIM EXT.	COMMENTS
1	A	4' - 8"	2' - 0"	FIXED		NOTE 3	NO TRIM	
2	A	4' - 8"	2' - 0"	FIXED		NOTE 3	NO TRIM	
3	A	4' - 0"	2' - 0"	FIXED		NOTE 3	NO TRIM	
4	A	4' - 0"	2' - 0"	FIXED		NOTE 3	NO TRIM	
6	C	2' - 0"	4' - 0"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	NOTE 8
7	C	2' - 6"	5' - 6"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	
8	C	2' - 0"	4' - 0"	SINGLE HUNG WITH SCREEN	YES	NOTE 5	NOTE 4	NOTE 8
9	C	2' - 0"	4' - 0"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	
11	C	2' - 0"	4' - 0"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	
12	C	2' - 6"	7' - 8"	SINGLE HUNG WITH SCREEN	YES	NOTE 3	NO TRIM	
14	E	6' - 0"	4' - 0"	3 PANEL SINGLE HUNG WITH SCREENS		NOTE 3	NO TRIM	
15	F	4' - 0"	2' - 0"	SLIDER WITH SCREEN	YES	NOTE 5	NOTE 4	NOTE 8
16	F	4' - 0"	2' - 0"	SLIDER WITH SCREEN	YES	NOTE 5	NOTE 4	NOTE 8
17	C	2' - 6"	5' - 6"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	
18	C	3' - 0"	5' - 6"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	NOTE 8
19	C	2' - 0"	4' - 6"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	NOTE 8
20	C	2' - 6"	7' - 8"	SINGLE HUNG WITH SCREEN		NOTE 3	NO TRIM	
24	C	3' - 0"	5' - 6"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	
25	D	4' - 0"	4' - 0"	2 PANEL SINGLE HUNG WITH SCREENS		NOTE 3	NOTE 4	
26	A	4' - 8"	2' - 0"	FIXED		NOTE 3	NO TRIM	
27	A	4' - 0"	2' - 0"	FIXED		NOTE 3	NO TRIM	
28	A	4' - 0"	2' - 0"	FIXED		NOTE 3	NO TRIM	
29	D	6' - 0"	5' - 0"	2 PANEL SINGLE HUNG WITH SCREENS				
31	C	2' - 0"	4' - 0"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	
92	A	2' - 0"	1' - 8"	FIXED		NOTE 3	NOTE 4	NOTE 8
93	A	2' - 6"	2' - 0"	FIXED		NOTE 3	NOTE 4	
94	C	2' - 0"	4' - 0"	SINGLE HUNG WITH SCREEN		NOTE 3	NOTE 4	
95	C	2' - 0"	4' - 0"	SINGLE HUNG WITH SCREEN	YES	NOTE 3	NOTE 4	

KEYNOTES

NO.	NOTE
1	5/8" GYP. BD.
2	FACED BATT INSULATION R-19 @ WALLS TYP.
3	HEADER SEE STRUCTURAL.
4	1 X TRIM SEE TYP. DOOR ELEVATIONS THIS SHEET.
5	5/8" BRECKINRIDGE SIDING.
6	1 X 2 CEDAR BATTS @ 16"O.C.
7	VAPOR BARRIER SEAL TO FLANGES AND FLASHINGS WITH PEEL AND STICK MEMBRANE.
8	1 X TRIM.
9	SEALANT.
10	1" STUCCO OR FIELDSTONE ON LATH OVER VAPOR BARRIER.
11	SHEATHING SEE STRUCTURAL.
12	1" STUCCO ON LATH OVER VAPOR BARRIER (LIGHT COLOR).
13	STUCCO OR FIELDSTONE SILL.
14	3/4" X 5 1/2" TRIM.
15	WOOD FLOORING.
16	EXPANSION JOINT.
17	SEALANT AND B.U.R. HOLD DOWN 1/2".
18	RIGID INSULATION (CLOSED CELL) SPACER.
19	WATERPROOFING.

NOTES

1. ALL WINDOWS: DOUBLE GLAZED CLEAR AND SUNCOAT LOW E.
2. ALL WINDOW FRAMES: MILGARD THERMAL BREAK ALUMINUM 920.
3. INTERIOR TRIM: 3/4" X 3 1/2" MIXED GRAIN SPANISH CEDAR W/ PPG PAINTS FOR INTERIOR CLEAR LACQUER BASED, SATIN FINISH, 2 COATS.
   OR
   STEAMED BEECH W/ PPG PAINTS SATIN STAIN TO MATCH SIKKENS STAIN-009 DARK OAK, 1 COAT OF CETOL 1" AND 1 COAT OF CETOL 2/3 PLUS.
4. EXTERIOR TRIM: 1 X 4 TIGHT KNOT W.R. CEDAR W/ SIKKENS STAIN-009 DARK OAK, 1 COAT OF CETOL 1" AND 1 COAT OF CETOL 2/3 PLUS.
5. TILE HEAD, JAMB AND SILL.
6. GLAZING = U OF .4, NO U VALUE REQUIRED AT GARAGE.
7. LAMINATED OR TEMPERED GLASS AS REQUIRED.
8. OBSCURE GLASS

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

. . .

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

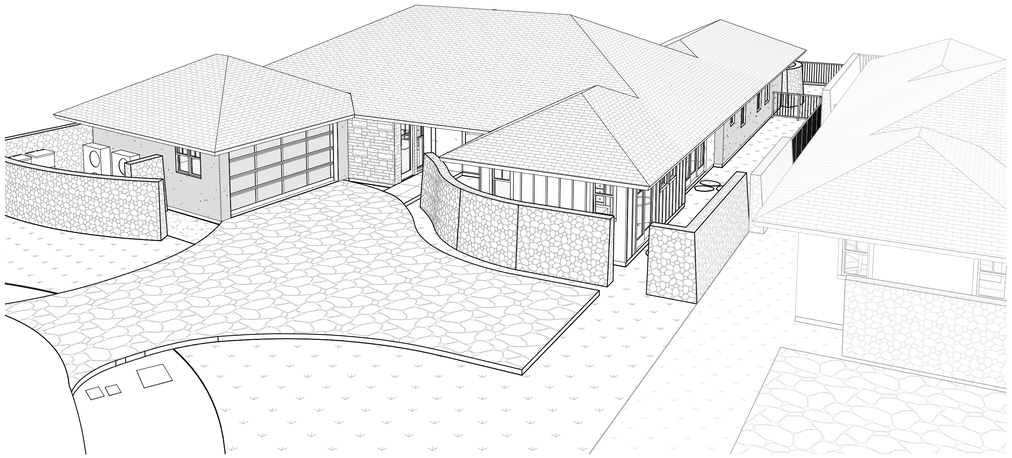
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

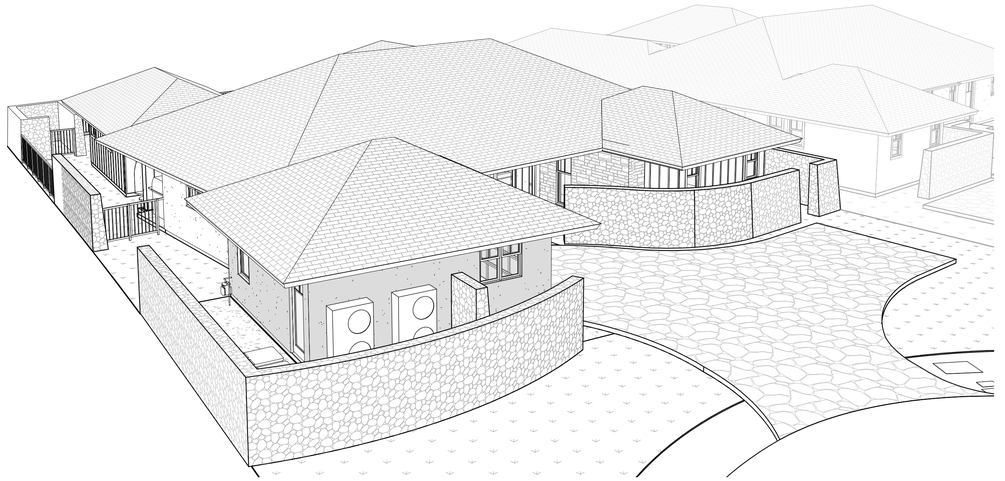
SCALE
As indicated

SHEET
WINDOW SCHEDULE, TYPES AND DETAILS

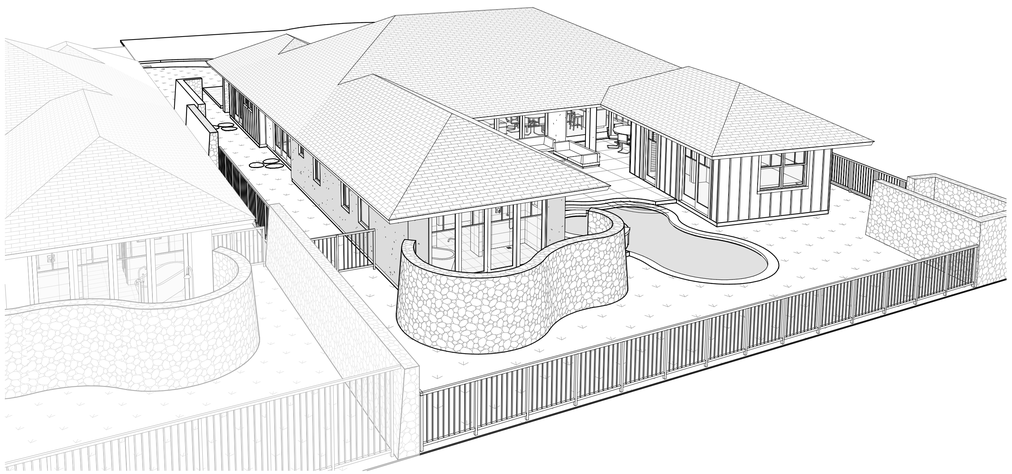
SHEET
A6.2



1 A8.0 3D View 1
SCALE:



2 A8.0 3D View 2
SCALE:



3 A8.0 3D View 3
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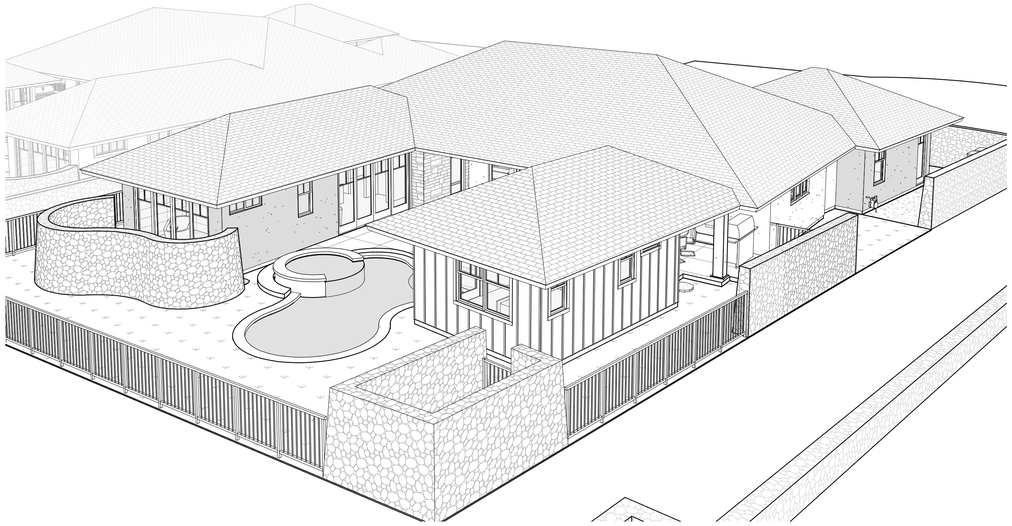

4 A8.0 3D View 4
SCALE:

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

. .

REVISIONS

NO.	DESCRIPTION	DATE
	FINAL DR SET	11/4/22
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/21/22

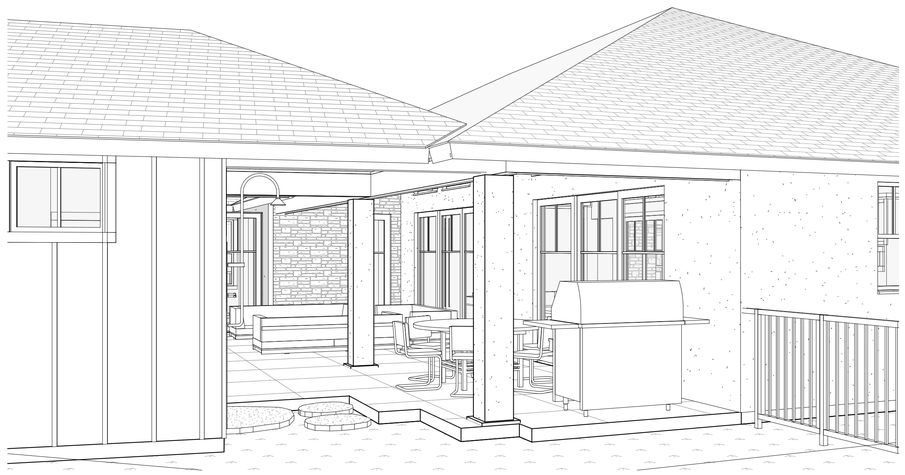
SCALE

SHEET
PERSPECTIVE VIEWS

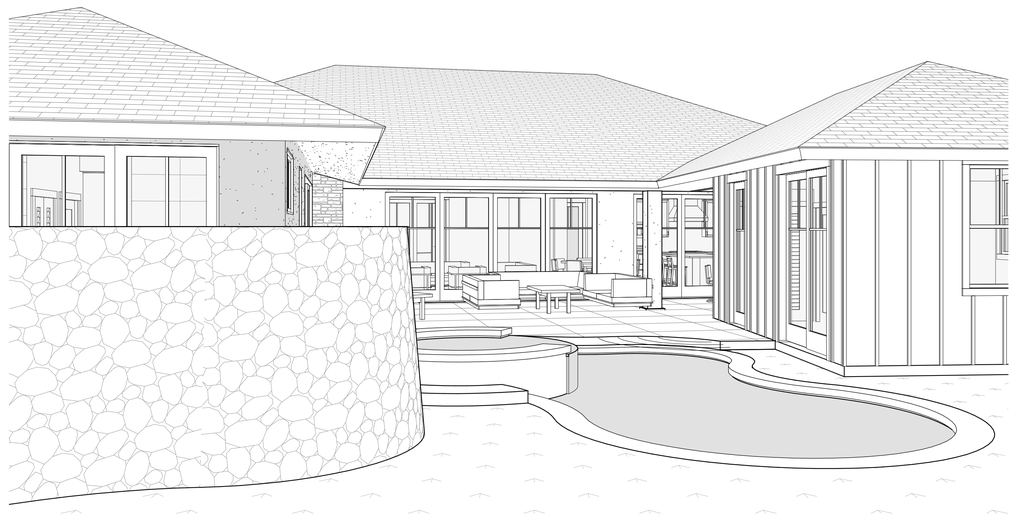
SHEET
A8.0

1 A8.1 GROUND LEVEL PERSPECTIVE - ENTRY
SCALE:

2 A8.1 GROUND LEVEL PERSPECTIVE - ENTRY VIEW 2
SCALE:



3 A8.1 GROUND LEVEL PERSPECTIVE AT CASITA/MAIN HALE
SCALE:



4 A8.1 GROUND LEVEL PERSPECTIVE - REAR YARD
SCALE:

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

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SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

. . .

REVISIONS NO.	DESCRIPTION	DATE
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

SCALE

SHEET
PERSPECTIVE VIEWS

SHEET
A8.1

1 A8.2 KITCHEN PERSPECTIVE
SCALE:

2 A8.2 MULTI-PURPOSE ROOM PERSPECTIVE
SCALE:

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

. .

REVISIONS

NO.	DESCRIPTION	DATE
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023

NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

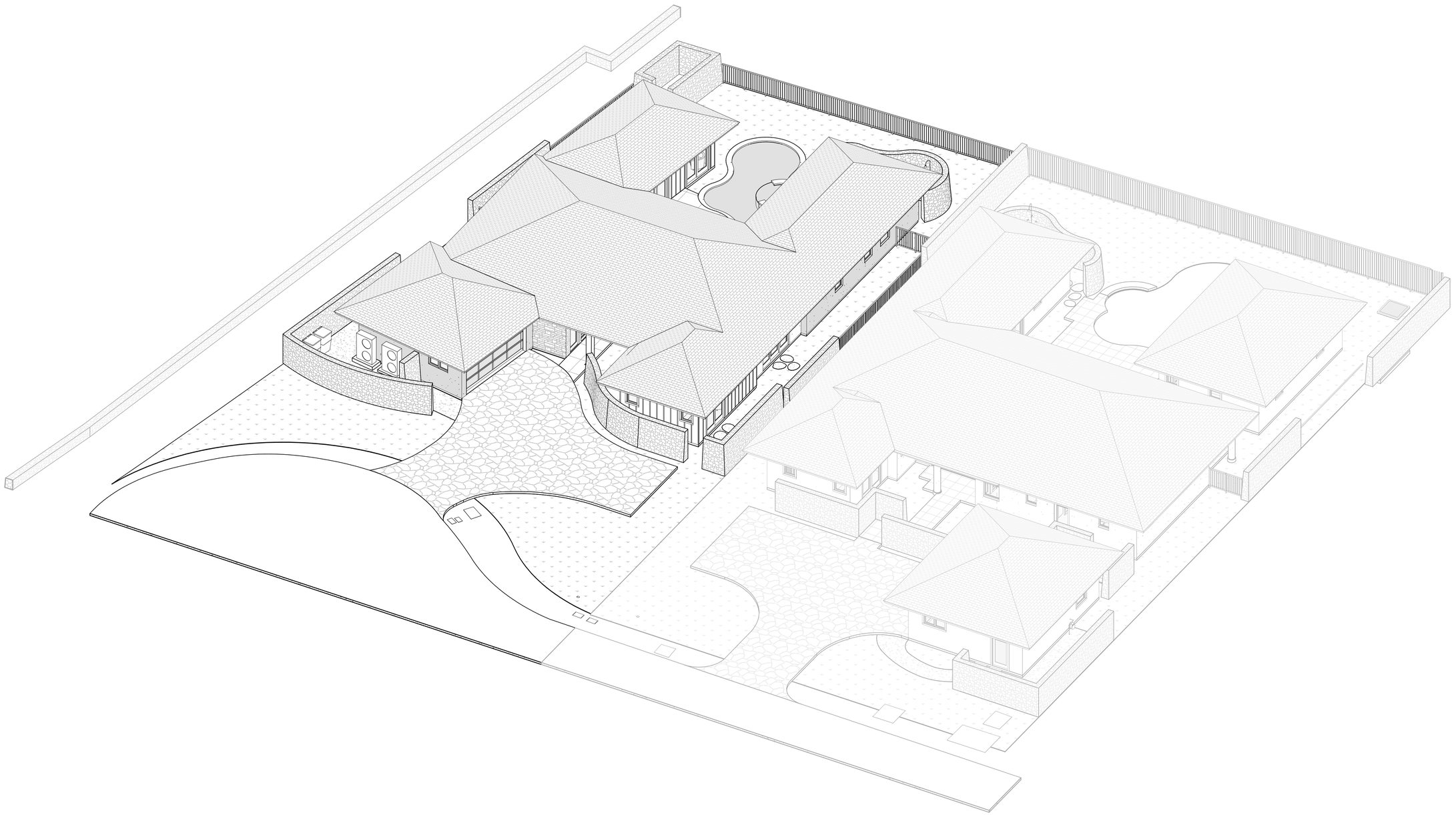
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

SCALE

SHEET
INTERIOR PERSPECTIVE VIEWS

SHEET
A8.2



1 A8.3 3D AXON
SCALE:

CRAIG MONAGHAN
LICENSED PROFESSIONAL ARCHITECT
NO. AR9975
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

EXPIRATION 4/30/24

GENERAL CONTRACTOR:

. .

REVISIONS

NO.	DESCRIPTION	DATE
	ISSUE FOR PERMIT	11/21/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023

NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE
11/21/22

SCALE

SHEET
3D AXON

SHEET
A8.3

ABBREVIATIONS

AB	ANCHOR BOLT	JNT	JOINT
ABV	ABOVE	JST	JOIST
ADH	ADHESIVE	LOCN	LOCATION
ALT	ALTERNATE	LSL	LAMINATED STRAND LUMBER
ARCH	ARCHITECTURAL	LVL	LAMINATED VENEER LUMBER
AWS	AMERICAN WELDING SOCIETY	LWC	LIGHT WEIGHT CONCRETE
BLW	BELOW	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BLK	BLOCK	MECH	MECHANICAL
BLKG	BLOCKING	MFR	MANUFACTURER
BM	BEAM	MIN	MINIMUM
BO	BOTTOM OF	(N)	NEW
BRG	BEARING	NA	NOT APPLICABLE
BOTT	BOTTOM	NIC	NOT IN CONTRACT
BTWN	BETWEEN	NO, #	NUMBER
CIP	CAST IN PLACE	NS	NEAR SIDE
CL	CENTERLINE	NTS	NOT TO SCALE
CLG	CEILING	NWC	NORMAL WEIGHT CONCRETE
CLR	CLEAR	O/	OVER
COL	COLUMN	OC	ON CENTER
CONC	CONCRETE	OH	OPPOSITE HAND
CONN	CONNECTION	OPP	OPPOSITE
CONST	CONSTRUCTION	OPNG	OPENING
CONT	CONTINUOUS	OSB	ORIENTED STRAND BOARD
CP	COMPLETE PENETRATION	OWSJ	OPEN WEB STEEL JOISTS
CTR	CENTER	PDF	POWER DRIVEN FASTENER
DBL	DOUBLE	PERP	PERPENDICULAR
DET	DETAIL	PERIM	PERIMETER
DF	DOUGLAS FIR	PL	PLATE
DF-L	DOUGLAS FIR-LARCH	PLWD	PLYWOOD
DIA	DIAMETER	PSL	PARALLEL STRAND LUMBER
DIAG	DIAGONAL	PT	POST TENSIONED OR
DIM	DIMENSION		PRESSURE TREATED
DWG	DRAWING	RCJ	ROUGHENED CONCRETE
(E)	EXISTING		JOINT
EA	EACH	REF	REFERENCE
EF	EACH FACE	REINF	REINFORCING
EL	ELEVATION	REQ'D	REQUIRED
EMBED	EMBEDMENT	RET	RETAINING
EN	EDGE NAIL	RO	ROUGH OPENING
EQUIP	EQUIPMENT	RDWD	REDWOOD
EW	EACH WAY	SAD	SEE ARCHITECTURAL DRAWINGS
EXP	EXPANSION	SCHED	SCHEDULE
EXT	EXTERIOR	SEL STRUCT	SELECT STRUCTURAL
FNDN	FOUNDATION	SFRS	SEISMIC FORCE RESISTING
FIN FLR, FF	FINISHED FLOOR		SYSTEM
FLR	FLOOR	SHTG	SHEATHING
FO	FACE OF	SIM	SIMILAR
FRMG	FRAMING	SOG	SLAB ON GRADE
FS	FAR SIDE	SPEC	SPECIFICATIONS
FT	FOOT	SQ	SQUARE
FTG	FOOTING	SS	STAINLESS STEEL
GA, ga	GAGE	STD	STANDARD
GALV	GALVANIZED	T&B	TOP AND BOTTOM
GR	GRADE	T&G	TONGUE AND GROOVE
GL	GLULAM	TN	TOE NAIL
GYP BD	GYPSUM BOARD	T.O.	TOP OF
HDG	HOT DIPPED GALVANIZED	TYP	TYPICAL
HDR	HEADER	UON	UNLESS OTHERWISE NOTED
HGR	HANGER	VERT	VERTICAL
HK	HOOK	WP	WATER PROOFING OR
HORIZ	HORIZONTAL		WORK POINT
HSB	HIGH STRENGTH BOLT	WT	WEIGHT
HSS	HOLLOW STRUCTURAL STEEL	WWF	WELDED WIRE FABRIC
INFO	INFORMATION	W/	WITH
INSUL	INSULATION	XS	EXTRA STRONG
INT	INTERIOR	XXS	DOUBLE-EXTRA STRONG

DESIGN CRITERIA

CODE AND STANDARDS	
DESIGN IS BASED ON THE INTERNATIONAL BUILDING CODE, 2018 EDITION. CONSTRUCTION SHALL CONFORM WITH APPLICABLE SECTIONS OF THE CODE. REFERENCE STANDARDS SHALL BE THE EDITION NOTED IN THE CODE, UNLESS OTHERWISE INDICATED.	
LIVE LOADS	
DESIGN LIVE LOADS PER IBC TABLE 1607.01 AND AS FOLLOWS. LIVE LOADS MAY BE REDUCED IN ACCORDANCE WITH IBC 1607.10.	
ROOF LIVE	20 PSF
FLOOR LIVE	NA
EARTHQUAKE DESIGN DATA	
SEISMIC FORCE-RESISTING SYSTEM:	
Ie	1.0
Ss	1.5
S1	0.552
SITE CLASS	D
Sds	1.0
Sd1	0.552
SEISMIC DESIGN CATEGORY	D
Cs	0.154
R	6.5 PLYWOOD SHEAR WALL
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE
REDUNDANCY FACTOR	1.0
WIND DESIGN DATA	
BASIC ULTIMATE WIND SPEED,V	130 MPH
EFFECTIVE ULTIMATE WIND SPEED	120 MPH
Iw	1.0 (CATEGORY II)
EXPOSURE	C (OPEN TERRAIN)
MAIN WIND-FORCE RESISTING SYSTEMS	
ANALYSIS PROCEDURE	METHOD 1, RIGID, LOW-RISE, h < OR = 60 FT
COMPONENTS AND CLADDING	
ANALYSIS PROCEDURE	METHOD 1, RIGID, LOW-RISE, h < OR = 60 FT
FOUNDATIONS	
SPREAD FOOTINGS - MAXIMUM ALLOWABLE SOIL BEARING PRESSURE:	
DEAD PLUS LIVE	1500 PSF
TOTAL LOADS, INCLUDING WIND OR SEISMIC	2000 PSF

STRUCTURAL OBSERVATIONS

NOTE: GFDS ENGINEERS WILL PROVIDE STRUCTURAL OBSERVATION IN ACCORDANCE WITH IBC 2018, CHAPTER 17, SECTION 1704.6. CONTRACTOR SHALL REVIEW THE REQUIRED STRUCTURAL OBSERVATION ITEMS BELOW AND NOTIFY GFDS ENGINEERS AT LEAST 48 HOURS PRIOR TO A REQUIRED STRUCTURAL OBSERVATION.

OBSERVATION ITEM	REQUIRED (R)
STRUCTURAL FOUNDATION	R
STEEL FRAMING	R
CONCRETE CONSTRUCTION	
MASONRY CONSTRUCTION	
WOOD FRAMING	R

SHEET LIST

PLAN MATERIAL LEGEND

▭	CONCRETE FOOTING	
▭	CONCRETE SLAB	
▭	CONCRETE WALL	
▨	MASONRY WALL	
═	WOOD STRUCTURAL WALL ABOVE	
- - -	STRUCTURAL WALL BELOW	
#FT IN	WOOD SHEAR WALL, MIN OUT-OUT LENGTH	SHT / S08.2
⬡	TIEDOWN	8 / S08.1
#FT IN	PERFORATED WOOD SHEAR WALL WITH STRAPS	8 / S08.2
- - -	WOOD SHEAR WALL BELOW	
— — —	STRAP	5 / S08.1
━	STEEL BEAM	
—	WOOD BEAM, FLUSH UON	
HDR	HEADER OR DROPPED BEAM, SIZE PER	3 / S08.1
—	RAFTER OR JOIST	
⌐	HANGER	
⊠	WOOD POST ABOVE 4X4, UON	
◪	WOOD POST BELOW 4X4, UON	
◪	WOOD POST ABV & BLW 4X4, UON	
□	HSS STEEL COLUMN	
▨	OVER FRAMING AT ROOF	10 / S08.1
░	SHEATHING	

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

[illegible]

Chris Wilson Exp. 4-30-24

Structural design for fine architecture™
65-1291 Kawaihae Road, Ste 102B
Kamuela, Hawaii 96743
808 887 6250
GFDS ENGINEERS

NO.	DESCRIPTION	Date
	PERMIT SET	11/18/22

REVISIONS

JOB NUMBER: 22017.H0

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023

NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE NO SCALE / AS SHOWN

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
S00.0

U:\PROJECTS\2022 FOLDER\22017.H0 Nohea Lot 23\Dwg\S00-S01.dwg WAS PLOTTED ON 11/21/2022 2:37 PM BY CHRIS WILSON

GENERAL NOTES

SCOPE

THE SCOPE OF WORK INCLUDES A NEW RESIDENCE.

COORDINATION

DETAILS SHOWN ARE TYPICAL, SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS. QUESTIONS OF IDENTIFICATION OF APPLICABLE DETAIL OR STRUCTURAL MEMBER SHALL BE BROUGHT TO THE ARCHITECT FOR RESOLUTION BEFORE PROCEEDING WITH WORK. CONTRACTOR SHALL COMPARE STRUCTURAL DRAWINGS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AS TO LAYOUT, DETAILS, DIMENSIONS AND ELEVATIONS. ALL QUESTIONS, DISCREPANCIES AND CONFLICTS SHALL BE REPORTED TO THE ARCHITECT FOR ADJUSTMENT BEFORE PROCEEDING WITH WORK.

CONTRACTOR MEANS AND METHODS

GFDS ENGINEERS SHALL NOT SUPERVISE, DIRECT OR HAVE ANY CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES SELECTED BY THE CONTRACTOR NOR FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR PROGRAMS IN CONNECTION WITH THE WORK. THESE RIGHTS AND RESPONSIBILITIES ARE SOLELY THOSE OF THE CONTRACTOR.

UNLESS OTHERWISE APPROVED BY THE ARCHITECT, THE CONTRACTOR SHALL INSTALL DOORS, WINDOWS, PARTITIONS AND FINISHES AFTER THE MAJORITY OF THE DEAD LOADS HAVE BEEN INSTALLED (I.E. STRUCTURAL FRAMING, ROOFING, HEAVY FINISHES, ETC.) IN ORDER TO LIMIT DAMAGE TO FINISHES, WINDOWS, DOORS AND PARTITIONS DUE TO DEAD LOAD DEFLECTIONS.

CONSTRUCTION PHASE SITE VISITS

GFDS ENGINEERS WILL PROVIDE CONSTRUCTION SITE VISITS AND OBSERVE THE PROGRESS AND QUALITY OF STRUCTURAL PORTIONS OF THE WORK. THESE VISITS AND OBSERVATIONS ARE NOT INTENDED TO BE AN EXHAUSTIVE CHECK OR DETAILED INSPECTION OF THE CONTRACTOR'S WORK, BUT RATHER TO ALLOW GFDS ENGINEERS TO BECOME GENERALLY FAMILIAR WITH THE WORK IN PROGRESS AND TO DETERMINE, IN GENERAL, IF THE WORK IS PROCEEDING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

THE GENERAL CONTRACTOR SHALL TAKE THE APPROPRIATE ACTION TO CORRECT PORTIONS OF THE WORK INDICATED AS BEING NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.

SPECIAL INSPECTION AND TESTING

IN ACCORDANCE WITH IBC 2018, CHAPTER 17 THE OWNER OR OWNER'S AGENT SHALL ENGAGE A SPECIAL INSPECTOR TO PROVIDE SPECIAL INSPECTIONS. UNLESS OTHERWISE SPECIFICALLY INDICATED, GFDS ENGINEERS SHALL NOT PROVIDE SPECIAL INSPECTION. CONTRACTOR SHALL REVIEW THE SPECIAL INSPECTION REQUIREMENTS SHOWN ON THE CONTRACT DOCUMENTS AND/ OR ON COMPLETED FORMS ISSUED BY THE BUILDING DEPARTMENT HAVING JURISDICTION OVER THE WORK AND SHALL NOTIFY TESTING AGENCIES AT LEAST 24 HOURS IN ADVANCE OF TIME WHEN WORK THAT REQUIRES TESTING OR INSPECTING WILL BE PERFORMED.

STRUCTURAL OBSERVATION

GFDS ENGINEERS WILL PROVIDE STRUCTURAL OBSERVATION IN ACCORDANCE WITH IBC 2018, CHAPTER 17, SECTION 1704.6 AS INDICATED ON THE DRAWINGS. CONTRACTOR SHALL REVIEW THE STRUCTURAL OBSERVATION REQUIREMENTS SHOWN ON THE CONTRACT DOCUMENTS AND NOTIFY GFDS ENGINEERS AT LEAST 48 HOURS IN ADVANCE OF TIME WHEN WORK THAT REQUIRES STRUCTURAL OBSERVATION WILL BE COMPLETED.

SUBMITTALS

THE FOLLOWING SHALL BE SUBMITTED TO GFDS ENGINEERS, WITH COPY TO THE ARCHITECT, FOR REVIEW.

CONTRACTOR PROPOSED CHANGES IN PRODUCTS, MATERIALS, EQUIPMENT, AND METHODS OF CONSTRUCTION FROM THOSE SPECIFIED ON THE STRUCTURAL DRAWINGS.

CONCRETE MIX DESIGN
STRUCTURAL STEEL ERECTION AND DETAIL DRAWINGS
SHOP FABRICATED WOOD TRUSS CALCULATIONS AND PLACEMENT DRAWINGS

FOUNDATIONS

FOUNDATION DESIGN IS BASED ON IBC TABLE 1804.2. FOUNDATION DESIGN CRITERIA IS SPECIFIED ON THE TITLE SHEET.

CONTRACTOR SHALL REVIEW AND FOLLOW THE RECOMMENDATIONS IN THE REPORT AND SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER WITH REGARD TO THE REQUIRED INSPECTION/ TESTING OF FOUNDATION EXCAVATION.

EXCEPT WHERE OTHERWISE SHOWN, EXCAVATIONS SHALL BE MADE AS NEAR AS POSSIBLE TO THE NEAT LINES REQUIRED BY THE SITE AND SHAPE OF THE STRUCTURE. ALL FOUNDATIONS SHALL BE POURED WITH OUT THE USE OF SIDE-FORMS WHEREVER POSSIBLE. IF THE TRENCHES CAN NOT FULLY STAND, FULLY FORM SIDES TO DIMENSIONS SHOWN.

DO NOT ALLOW WATER TO STAND IN TRENCHES. IF BOTTOMS OF TRENCHES BECOMES SOFTENED DUE TO RAIN OR OTHER WATER BEFORE CONCRETE IS CAST, EXCAVATE SOFTENED MATERIAL AND REPLACE WITH PROPERLY COMPACTED BACKFILL OR CONCRETE.

WATERPROOFING

WHERE STRUCTURAL DETAILS INDICATE ANY WATERPROOFING OR VENTILATION ITEMS, THEY ARE SCHEMATIC ONLY AND FOR THE PURPOSE OF ASSISTING IN SHOWING A COMPLETE STRUCTURAL DETAIL. REFER ONLY TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR THE COMPLETE DESCRIPTION OF ALL REQUIRED WATERPROOFING AND VENTILATION SYSTEMS.

CONCRETE

CONCRETE SHALL BE NORMAL WEIGHT AND SHALL BE REINFORCED UNLESS OTHERWISE NOTED. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301-16, SPECIFICATIONS FOR STRUCTURAL CONCRETE. CONCRETE SHALL ATTAIN A MINIMUM ULTIMATE COMPRESSIVE STRENGTH (F'c) OF 2500 PSI AT 28 DAYS UNLESS NOTED OTHERWISE.

REINFORCING STEEL

REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60.

REINFORCING BARS NOTED OR SHOWN AS CONTINUOUS SHALL RUN IN AS LONG LENGTHS AS PRACTICAL. IN SLAB AND BEAMS LOCATE TOP BAR SPLICES MIDWAY BETWEEN SUPPORTS, BOTTOM BAR SPLICES AT SUPPORTS. SPLICE LOCATIONS SHALL BE SUBMITTED FOR REVIEW. THE FOLLOWING SPLICE LENGTHS APPLY UNLESS OTHERWISE DETAILED OR NOTED IN THE STRUCTURAL DRAWINGS.

WELDING OF REINFORCEMENT BARS SHALL COMPLY WITH AWS D1.4 STRUCTURAL WELDING CODE-REINFORCING STEEL. USE GRADE A706 UNLESS SHOWN OTHERWISE.

UNLESS OTHERWISE NOTED, THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3"
CONCRETE EXPOSED TO EARTH OR WEATHER:	2½"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS AND WALLS:	2"
BEAMS AND COLUMNS:	2"

STRUCTURAL AND MISCELLANEOUS STEEL

CONFORM TO THE FOLLOWING:
WIDE FLANGE SHAPES: ASTM A992.
CONNECTION PLATE FOR WIDE FLANGE MEMBERS: ASTM A36.
MISCELLANEOUS CHANNELS, ANGLES, AND PLATE: ASTM A36.
RECTANGULAR AND ROUND HSS SECTIONS: ASTM A500, GRADE B.
STEEL PIPE: ASTM A53, TYPE E, GRADE B.

STEEL NOT RECEIVING FIREPROOFING OR STEEL EXPOSED TO WEATHER SHALL HAVE ONE COAT OF SHOP PRIMER. STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED OR OTHER APPROVED PROTECTIVE COATING.

DETAILS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST AISC STANDARD SPECIFICATIONS.

WELDING SHALL SHALL CONFORM TO AWS D1.1 STRUCTURAL WELDING CODE USING E70XX ELECTRODES. WELDS THAT ARE PART OF THE SEISMIC LOAD RESISTING SYSTEM (SLRS) SHALL, IN ADDITION, CONFORM TO AWS D1.8. FILLER MATERIAL FOR ALL DEMAND CRITICAL WELDS SHALL CONFORM TO AWS D1.8 CURRENT EDITION, PROVIDING A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FOOT-POUNDS AT A TEMPERATURE OF -20 DEGREES FAHRENHEIT WHEN TESTED IN ACCORDANCE WITH AWS A5 AND 40 FT-POUNDS AT 70° F AS DETERMINED BY APPENDIX X OR OTHER APPROVED METHOD, WHEN THE STEEL IS NORMALLY ENCLOSED AND MAINTAINED AT 50° F OR HIGHER. FOR SERVICE TEMPERATURES LOWER THAN 50° F, THE QUALIFICATION TEMPERATURE FOR APPENDIX X SHALL BE 20° F ABOVE THE LOWEST ANTICIPATED SERVICE TEMPERATURE, OR AT A LOWER TEMPERATURE.

HIGH STRENGTH BOLTS (H.S.B.) SHALL CONFORM TO ASTM A325 TYPE N.
COMMON BOLTS SHALL CONFORM TO ASTM A307 USE UNLESS OTHERWISE SPECIFIED.
ANCHOR RODS SHALL CONFORM TO ASTM F1554 GR. 36.
THREADED ROD SHALL CONFORM TO ASTM A36.

BEAM WEB OPENINGS MUST BE APPROVED BY GFDS ENGINEERS PRIOR TO CUTTING. OPENINGS SHALL BE THERMALLY CUT, USING A MACHINE GUIDE OR TEMPLATE, UNLESS APPROVED OTHERWISE. IN ACCORDANCE WITH AWS D1.1 SECTION 5, EDGES OF OPENINGS SHALL HAVE A SURFACE ROUGHNESS VALUE NOT EXCEEDING 1000 AS DEFINED IN ASME B46.1.

ROUGH CARPENTRY

MOISTURE CONTENT AND PROTECTION

MOISTURE CONTENT SHALL MEET THE FOLLOWING LIMITS: "DRY" FOR VERTICAL FRAMING (19% MAXIMUM). FINISHES SHALL NOT BE INSTALLED OVER DIMENSIONAL LUMBER FRAMING UNTIL MOISTURE CONTENT IS BELOW 12% MAXIMUM.

MATERIALS SHALL BE PROPERLY STORED ON THE JOB SITE. MATERIALS SHALL BE STORED OFF OF THE GROUND, AND PROTECTED FROM EXPOSURE TO THE ELEMENTS.

PRESERVATIVE TREATMENT

FRAMING MEMBERS EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE, BUT NOT IN CONTACT WITH THE GROUND SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD U1 & T1, USE CATEGORY UC3B. FIELD CUTS AND HOLES SHALL BE FIELD TREATED IN ACCORDANCE WITH THE AWPA M-4.

STRUCTURAL LUMBER AND SHEATHING SHALL BE TREATED WITH INORGANIC BORAN (SBX) IN ACCORDANCE WITH AWPA P25-10.

ENGINEERED LUMBER PRODUCTS BY iLEVEL SUCH AS PARALLAM PSL, MICROLAM LVL, OR TJI JOISTS SHALL BE TREATED WITH HI-CLEAR II OR TRIBB II IN ACCORDANCE WITH WEYERHAUESER PRESERVATIVE TREATMENTS TECHNICAL RESOURCE SHEET TJ-1020.

DIMENSION LUMBER AND TIMBER

DIMENSIONAL LUMBER AND TIMBER SHALL CONFORM TO THE FOLLOWING WCLIB MINIMUM GRADES AND SHALL BE DOUGLAS FIR, UNLESS OTHERWISE NOTED.

JOISTS (2"-4", 5" AND WIDER)	NO. 2
HEADERS (4" THICK, 5" AND WIDER)	NO. 1
BEAMS (6" THICK, 10" AND WIDER)	NO. 1
POSTS (6" THICK, 6"-8" WIDE)	NO. 1
POSTS (4X4)	NO. 1
MUD SILLS (3X)	NO. 1, PRESSURE TREATED (DO NOT USE HEM-FIR)
STUDS (2X, 3X)	STUD
TOP AND BOTTOM PLATES	STUD

NO SUBSTITUTIONS SHALL BE MADE WITHOUT PRIOR APPROVAL.

PARALLAM PSL LUMBER (PSL)

PARALLAM PSL HEADERS AND BEAMS SHALL BE 2.2E, CONFORMING TO ICC-ES RESEARCH REPORT NO. ESR-1387, OR EQUAL AND SHALL HAVE DESIGN VALUES EQUAL TO OR EXCEEDING THE FOLLOWING:

BENDING (Fb):	2900 PSI
COMPRESSION PARALLEL TO THE GRAIN (Fc PARALLEL):	2900 PSI
MODULUS OF ELASTICITY (E):	2,200,000 PSI
HORIZONTAL SHEAR:	290 PSI

MICROLLAM LVL LUMBER (LVL)

MICROLAM LVL HEADERS AND BEAMS SHALL BE 2.0E, CONFORMING TO ICC-ES RESEARCH REPORT NO. ESR-1387, OR EQUAL AND SHALL HAVE DESIGN VALUES EQUAL TO OR EXCEEDING THE FOLLOWING:

BENDING (Fb):	2600 PSI
COMPRESSION PARALLEL TO THE GRAIN (Fc PARALLEL):	2510 PSI
MODULUS OF ELASTICITY (E):	2,000,000 PSI
HORIZONTAL SHEAR:	285 PSI

STRUCTURAL GLUED LAMINATED WOOD MEMBERS (GLULAMS)

"GLULAMS," (GL) SHALL BE MANUFACTURED FROM SPECIES AND GRADES OF LUMBER WHICH WILL PRODUCE DESIGN VALUES EQUAL TO OR EXCEEDING THE FOLLOWING, WHEN LOADED PERPENDICULAR TO THE WIDE FACES OF THE LAMINATIONS:

BENDING (Fb)	-TENSION ON TENSION FACE:	2400 PSI
	-TENSION ON COMPRESSION FACE:	1850 PSI
HORIZONTAL SHEAR (Fv):		265 PSI
COMPRESSION PERPENDICULAR TO THE GRAIN ON THE TENSION FACE (Fc PERP):		650 PSI
MODULUS OF ELASTICITY (E):		1,800,000 PSI

DESIGN AND CONSTRUCTION SHALL CONFORM TO ANSI STANDARD A190.1 AND ASTM STANDARD D3737-85.

FASTENERS

FOR SCHEDULE OF MINIMUM NAILING SEE INTERNATIONAL BUILDING CODE TABLE 2304.9.1. NAILING SHALL BE WITH COMMON WIRE NAILS UNLESS NOTED OTHERWISE. CONTRACTOR SHALL SUBMIT FOR APPROVAL A DESCRIPTION OF NAIL GAGE, LENGTH, HEAD TYPE AND COATING (IF ANY) FOR ANY PROPOSED SUBSTITUTION FOR NAILS SHOWN ON THE STRUCTURAL DRAWINGS. BOLTS AND LAG SCREWS BEARING ON WOOD SHALL HAVE WASHERS.

METAL FRAMING ANCHORS SHALL BE MANUFACTURED BY SIMPSON COMPANY OR EQUAL. JOIST HANGERS SHALL BE "U" SERIES U,N.O. ON DRAWINGS. BOLTS IN CONNECTIONS SHALL BE RETIGHTENED JUST PRIOR TO CLOSING OF THE WALL AND/OR FLOOR.

FASTENERS FOR INTERIOR APPLICATIONS PENETRATING PRESSURE-TREATED LUMBER SHALL BE HOT DIPPED ZINC-COATING GALVANIZED WITH A MINIMUM G185 (1.85 OZ/ SF) COATING OR STAINLESS STEEL. FASTENERS EXPOSED TO WEATHER INCLUDING EXTERIOR APPLICATIONS OF PRESSURE-TREATED LUMBER, SHALL USE STAINLESS STEEL FASTENERS. FASTENERS EXPOSED TO WEATHER FOR ARCHITECTURAL FEATURES MAY ALSO BE SILICON BRONZE OR COPPER.

FASTENERS PENETRATING LUMBER TREATED WITH INORGANIC BORON (SBX), HI-CLEAR II, OR TRIBB II SHALL BE HOT-DIPPED ZINC-COATING GALVANIZED WITH A MINIMUM G90 (0.09 OZ/ SF) COATING.

SILLS OR PLATES SHALL BE BOLTED TO CONCRETE WITH 5/8" DIAMETER BOLTS WITH 3X3X1/4" WASHERS, EMBEDDED 7" MINIMUM AT 4'-0" MAXIMUM ON CENTER, U.O.N.

FOR ALL SHEATHING REQUIREMENTS SEE PLANS

CONCRETE AND MASONRY ANCHORS

INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALTERNATES MAY BE SUBMITTED FOR CONSIDERATION IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

UNLESS NOTED OTHERWISE, BOLTS, ANCHOR RODS OR THREADED RODS SHALL BE AS SPECIFIED IN STRUCTURAL STEEL. REINFORCING BARS SHALL BE A-615, GRADE 60.

ADHESIVE ANCHORS (DOWELS) IN CONCRETE

INSTALLATION OF ADHESIVE ANCHORS THAT ARE TO BE UNDER SUSTAINED TENSION LOADING IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI AND IN ACCORDANCE WITH ACI 318-2014 (SECTION 17.8.2.4). PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.

PER ACI 318-2014 (SECTION 17.1.2) ADHESIVE ANCHORS SHALL BE INSTALLED IN CONCRETE HAVING A MINIMUM AGE OF 21 DAYS AT TIME OF ANCHOR INSTALLATION. FOR INSTALLATIONS SOONER THAN 21 DAYS CONSULT ADHESIVE MANUFACTURER.

HILTI HIT-RE 500 v3 SYSTEM CONFORMING TO ICC-ES REPORT ESR-3814.

POWDER ACTUATED FASTENERS(PAF) IN CONCRETE

HILTI X-CP (0.145Ø) EMBEDDED 1-1/4", U.O.N. CONFORMING TO ICC-ES REPORT ESR-1663.

POWDER ACTUATED FASTENERS(PAF) IN STEEL

HILTI X-ENP-19 (0.177Ø) EMBEDDED 1/2", U.O.N. CONFORMING TO ICC-ES REPORT ESR-2776.

SCREW ANCHORS IN CONCRETE OR GROUTED MASONRY

HILTI KH-EZ SCREW ANCHORS CONFORMING TO ICC-ES REPORT ESR-3027.
SIMPSON STRONG-TIE TITEN HD SCREW ANCHORS CONFORMING TO ICC-ES REPORT ESR-2713.
DEWALT/ POWERS SCREWBOLT+ SCREW ANCHORS CONFORMING TO ICC-ES REPORT ESR-3889 (CONCRETE), ESR-1678 (MASONRY).

ROOF TRUSSES

MINIMUM DESIGN LOADS:	DL	LL
TOP CHORD	10 PSF	20 PSF
BOTTOM CHORD	10 PSF	10 PSF

THE TRUSS SUPPLIER SHALL SUBMIT DESIGN CALCULATIONS BASED ON DESIGN LOADING AND CONFIGURATION SHOWN, ACCOMPANIED BY SHOP DRAWINGS SHOWING LAYOUT OF TRUSSES ON EACH BUILDING, ALL MEMBER SIZES AND GRADES, CONNECTIONS PROPOSED FOR EACH JOINT, AND THE LOCATIONS OF PERMANENT AND TEMPORARY BRACING.

DESIGN SHALL CONFORM TO RECOMMENDATIONS OF "DESIGN SPECIFICATIONS FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES," TPI-85, WITH LUMBER STRESSES AND GRADES IN CONFORMANCE WITH THE APPLICABLE BUILDING CODE. BOTH CALCULATIONS AND SHOP DRAWING SHALL BE SIGNED BY A REGISTERED CIVIL OR STRUCTURAL ENGINEER. THE SUBMISSION SHALL INCLUDE SUFFICIENT BACKGROUND ENGINEERING DATA TO PERMIT AN INDEPENDENT APPRAISAL BY THE ARCHITECT OF THE SUITABILITY OF ANY STANDARD DEVICES PROPOSED FOR USE IN THE CONNECTIONS. ALTERNATE CONFIGURATIONS AND SIZES MAY BE SUBMITTED FOR CONSIDERATION BY THE ARCHITECT.

SUBMIT TRUSS DRAWINGS TO THE BUILDING DEPARTMENT FOR APPROVAL PRIOR TO ERECTION.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

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Chris Wilson Exp. 4-30-24

Structural design for fine architecture™
65-1291 Kawaihae Road, Ste 102B
Kamuela, Hawaii 96743
808-887-0200
GFDS ENGINEERS

REVISIONS

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SINGLE FAMILY RESIDENCE
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TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

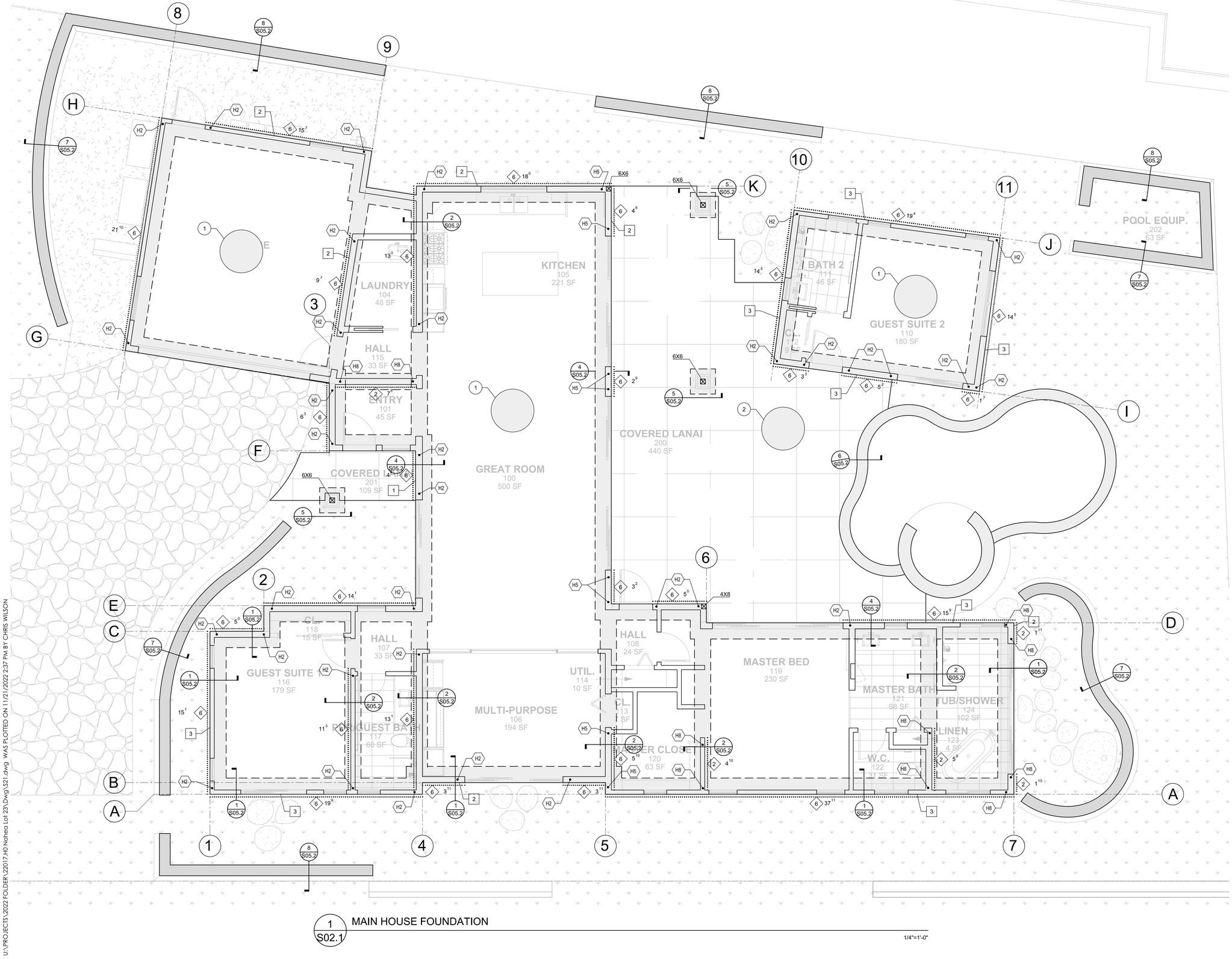
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE NO SCALE

SHEET TITLE: **GENERAL NOTES**

SHEET NUMBER: S00.1



1 S02.1 MAIN HOUSE FOUNDATION

1/4"=1'-0"

SHEET NOTES

1	5" INTERIOR SLAB-ON-GRADE	1 S05.1
2	5" EXTERIOR SLAB-ON-GRADE	1 S05.1
3	NOT USED	
4	PRE-FAB TRUSSES@24" MAX	
5	HIP/VALLEY TRUSS	
6	GIRDER TRUSS	
7	DRAG TRUSS	6 S08.3
8	EDGE NAIL TO 2X SHAPED BLOCKING, TYP	
9	2X10 @ 24" (ALT: 2X8 @ 24". CONTRACTOR TO FUR CEILING TO CONCEAL HIPS AS REQ'D. SEE RCP FOR ADDITIONAL INFO)	

1 WALL SHEATHING

WALL SHEATHING AT SHEAR WALLS, INDICATED ON DRAWINGS WITH APPROPRIATE SYMBOLS, SHALL CONFORM TO THE SHEAR WALL SCHEDULE.
AT EXTERIOR WALLS THAT ARE NOT SHEAR WALLS, SHEATHING SHALL BE 15/32", APA RATED EXPOSURE 1, NAIL SHEET EDGES WITH 10d@6", AND INTERMEDIATE STUDS WITH 10d@12".

2 WALL FRAMING — 3 S8.1

EXTERIOR WALL STUDS SHALL BE 2X6 DOUGLAS FIR NO. 2 SPACED AT 16" OC TYP, UON.

3 WALL FRAMING — 3 S8.1

EXTERIOR WALL STUDS SHALL BE 2X6 DOUGLAS FIR NO. 2 SPACED AT 16" OC TYP, UON.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Chris Wilson Exp. 4-30-24

Structural design for fine architecture™
65-1291 Kawaihae Road, Ste 1028
Kamuela, Hawaii 96743
808.887.0200
GFDS ENGINEERS

REVISIONS NO.	DESCRIPTION	Date
	PERMIT SET	11/18/22

JOB NUMBER: 22017.H0

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023

NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

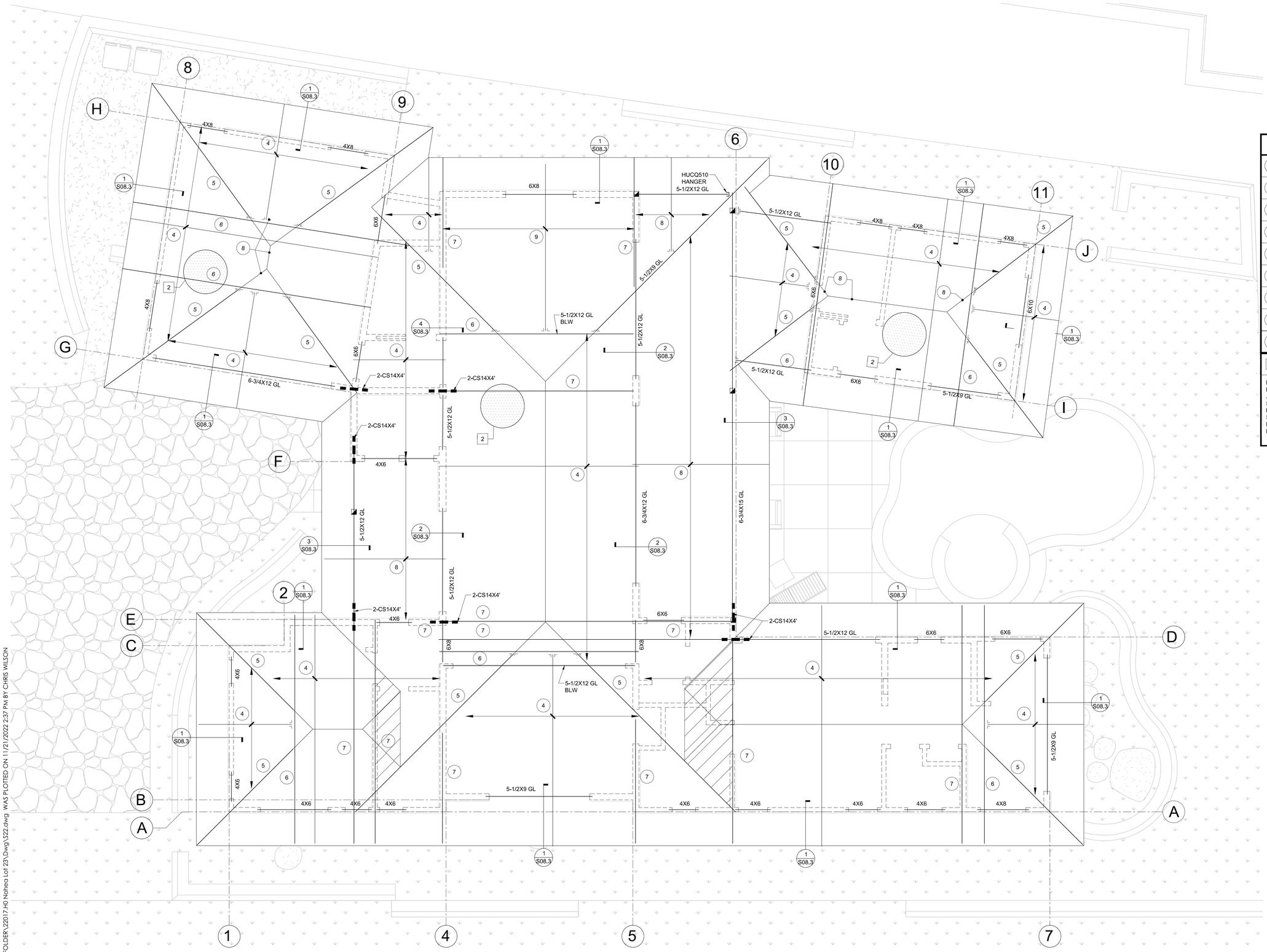
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE AS SHOWN

SHEET TITLE: **MAIN HOUSE**

SHEET NUMBER: S02.1



1 S02.2 MAIN HOUSE ROOF FRAMING PLAN

1/4"=1'-0"

SHEET NOTES

1	5" INTERIOR SLAB-ON-GRADE	1 S05.1
2	5" EXTERIOR SLAB-ON-GRADE	1 S05.1
3	NOT USED	
4	PRE-FAB TRUSSES@24" MAX	
5	HIP/VALLEY TRUSS	
6	GIRDER TRUSS	
7	DRAG TRUSS	6 S08.3
8	EDGE NAIL TO 2X SHAPED BLOCKING, TYP	
9	2X10 @ 24" (ALT: 2X8 @ 24". CONTRACTOR TO FUR CEILING TO CONCEAL HIPS AS REQ'D. SEE RCP FOR ADDITIONAL INFO)	

2 ROOF SHEATHING — 1 S08.1

ROOF SHEATHING SHALL BE 5/8" APA RATED SHEATHING, EXPOSURE 1, SPAN RATING 40/20. LAY FACE GRAIN ACROSS RAFTERS, STAGGER SHEETS. PROVIDE 1/8" SPACING AT PANEL ENDS AND EDGES. NAIL SHEET EDGES WITH 10d@6", INTERMEDIATE MEMBERS 10d@12". SEE STRUCTURAL DRAWINGS FOR OTHER DETAILED OR NOTED SHEATHING NAILING. NO UNBLOCKED PANELS LESS THAN 12" WIDE SHALL BE USED.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

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Chris Wilson Exp. 4-30-24

Structural design for fine architecture™
65-1291 Kawaihae Road, Ste 102B
Kamuela, Hawaii 96743
808-887-0200
GFDS ENGINEERS

REVISIONS

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JOB NUMBER: 22017.H0

SINGLE FAMILY RESIDENCE
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TMK: 3-6-8-043:023

NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

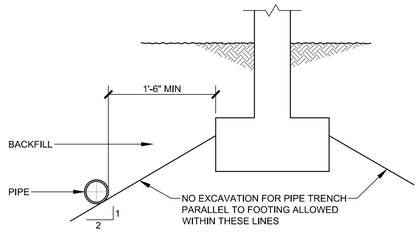
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE AS SHOWN

SHEET TITLE: **MAIN HOUSE ROOF PLAN**

SHEET NUMBER: S02.2



9 S05.1 PIPE PARALLEL TO FOOTING

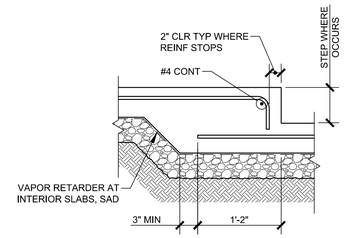
1"=1'-0"

CLASS B TENSION SPLICE LENGTH (IN)*								
F'C	2500 PSI		3000 PSI		4000 PSI		5000 PSI	
BAR SIZE	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	31	24	28	22	25	19	22	17
#4	41	32	37	29	33	25	29	23
#5	51	39	47	36	41	31	36	28
#6	61	47	56	43	49	37	44	34
#7	89	69	81	63	71	54	63	49
#8	102	78	93	72	81	62	72	56
#9	115	88	105	81	91	70	81	63

*SEE GENERAL NOTES AND 5/- FOR ADDITIONAL INFORMATION

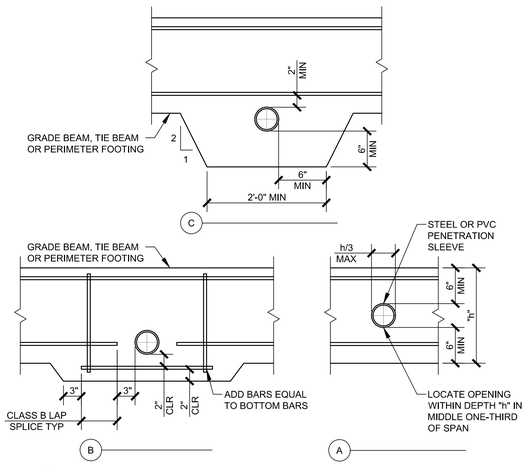
6 S05.1 TYPICAL REINFORCEMENT LAP SPLICE LENGTH (ld)

1"=1'-0"



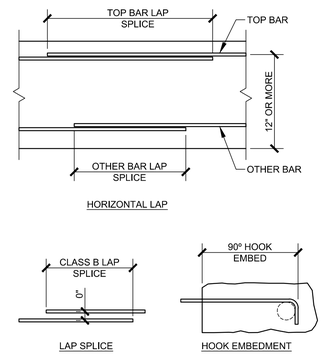
3 S05.1 SLAB ON GRADE WITH STEP

1"=1'-0"



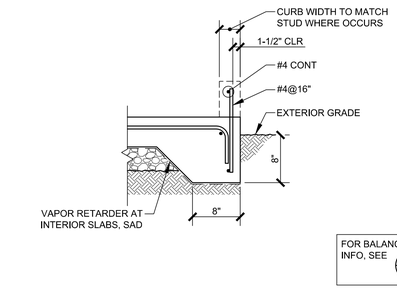
8 S05.1 PIPE PENETRATION THRU FOOTING

1"=1'-0"



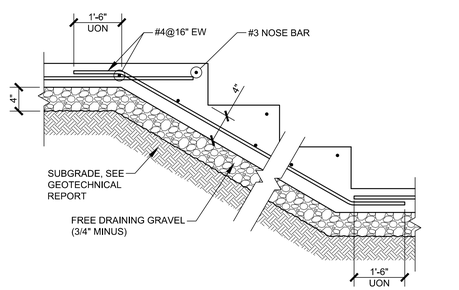
5 S05.1 TYPICAL REINFORCEMENT LAP SPLICE (ld) AND HOOK EMBED (ldh)

1"=1'-0"



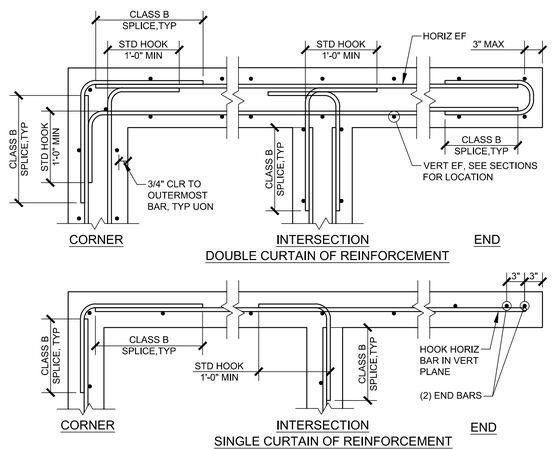
2 S05.1 SLAB ON GRADE EDGE

1"=1'-0"



10 S05.1 STAIRS ON GRADE EXTERIOR

1"=1'-0"



7 S05.1 TYPICAL REINFORCEMENT AT INTERSECTING CONCRETE MEMBERS

NTS

HOOK EXTENSION				
BAR SIZE	STANDARD HOOK		STIRRUP & TIE HOOK	
	90°	180°	90°	135°
#3	4-1/2"	2-1/2"	2-1/4"	2-1/4"
#4	6"	2-1/2"	3"	3"
#5	7-1/2"	2-1/2"	3-3/4"	3-3/4"
#6	9"	3"	9"	4-1/2"
#7	10-1/2"	3-1/2"	10-1/2"	5-1/4"
#8	12"	4"	12"	6"
#9	13-1/2"	4-1/2"	-	-
#10	15"	5"	-	-
#11	16-1/2"	5-1/5"	-	-

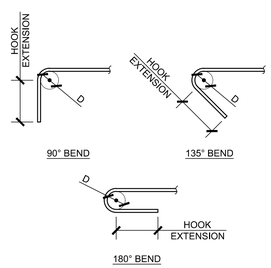
HOOK EMBEDMENT (ldh)				
F'C	2500 PSI	3000 PSI	4000 PSI	5000 PSI
BAR SIZE	EMBED	EMBED	EMBED	EMBED
#3	9"	9"	8"	7"
#4	12"	11"	10"	9"
#5	15"	14"	12"	11"
#6	18"	17"	15"	13"
#7	21"	20"	17"	15"
#8	24"	22"	19"	17"
#9	27"	25"	22"	20"

λ = 1.0, Ψe = 1.0, Ψc = 1.0, Ψt=1.0 - ACI TABLE 25.4.3.2

STANDARD HOOK BEND DIAMETER
#3 THROUGH #8: D = 6d
#9, #10, #11: D = 8d

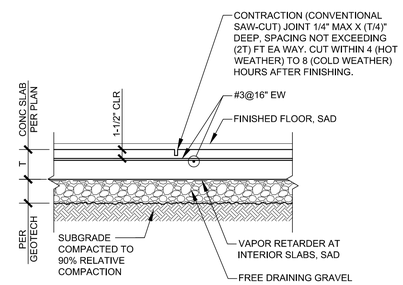
STIRRUP & TIE HOOK BEND DIAMETER
#3 THROUGH #5: D = 4d
#6 THROUGH #8: D = 6d

NOTE:
d=BAR DIAMETER
D=INSIDE DIAMETER OF BEND



4 S05.1 STANDARD REINFORCING HOOKS EXTENSION, BEND Ø AND EMBEDMENT

NTS



1 S05.1 SLAB ON GRADE

1"=1'-0"

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

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16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

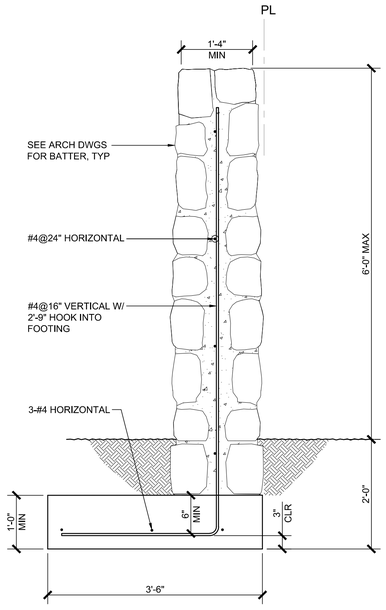
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE AS SHOWN

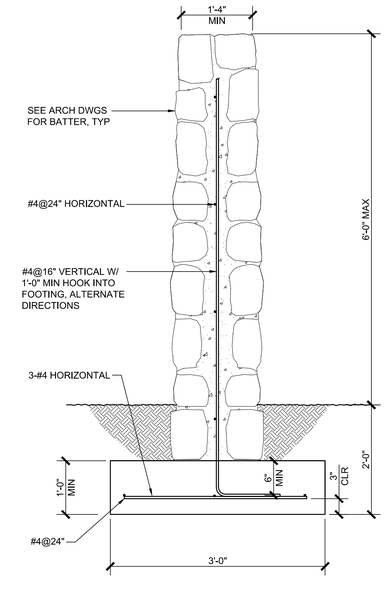
SHEET TITLE: **CONCRETE DETAILS**

SHEET NUMBER: **S05.1**



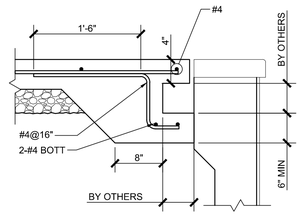
8 S05.2 EXTERIOR ROCK WALL AT PROPERTY LINE

3/4"=1'-0"



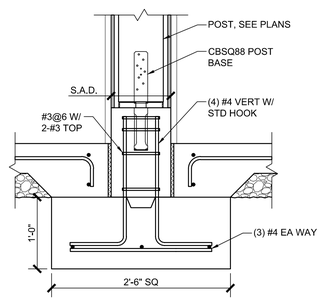
7 S05.2 EXTERIOR ROCK WALL

3/4"=1'-0"



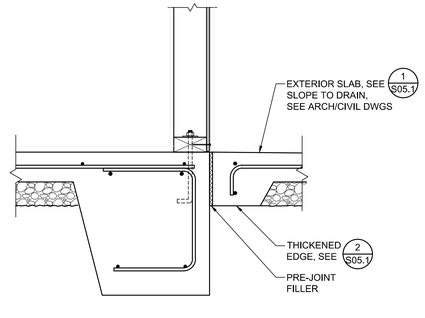
6 S05.2 DECK EDGE

1"=1'-0"



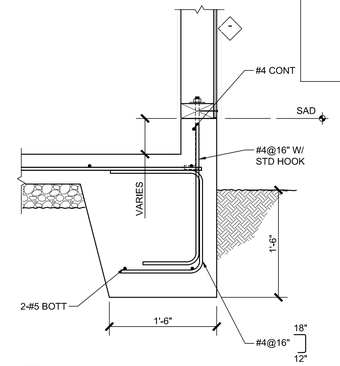
5 S05.2 SPREAD FOOTING

1"=1'-0"



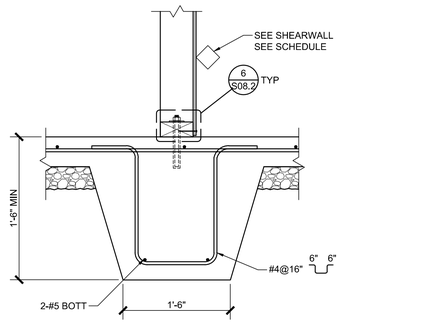
4 S05.2 LANAI SLAB AT EXTERIOR FOUNDATION

1"=1'-0"



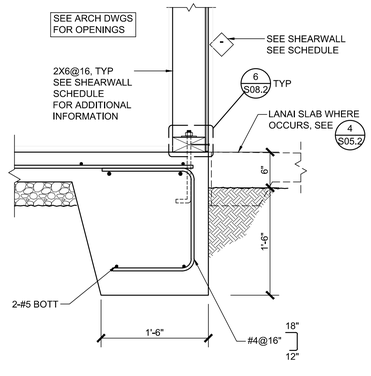
3 S05.2 GARAGE FOUNDATION

1"=1'-0"



1 S05.2 TYPICAL INTERIOR FOUNDATION

1"=1'-0"



1 S05.2 TYPICAL EXTERIOR FOUNDATION

1"=1'-0"

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.

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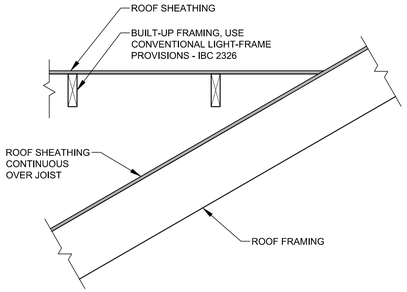
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE AS SHOWN

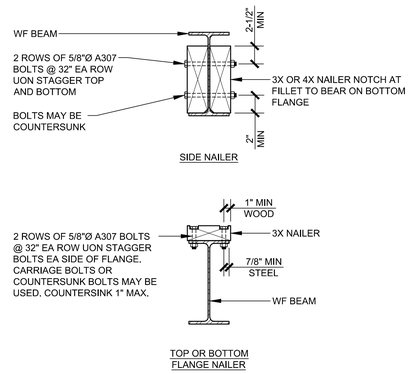
SHEET TITLE: **CONCRETE DETAILS**

SHEET NUMBER: S05.2



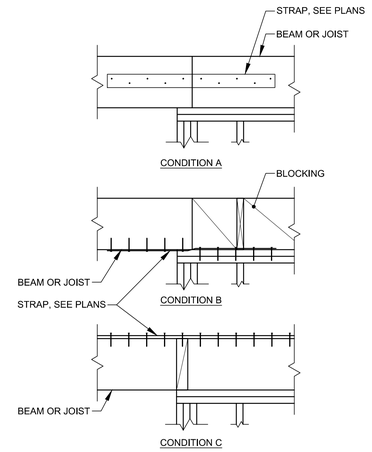
10 S08.1 TYPICAL CALIFORNIA FRAMING

1"=1'-0"



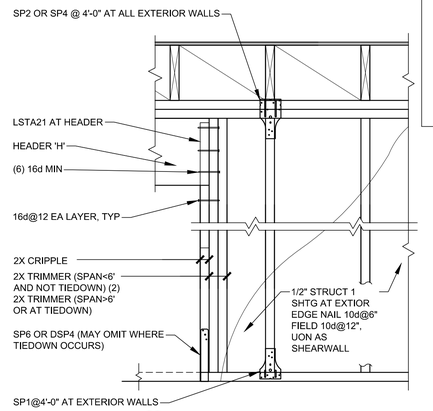
7 S08.1 WF STEEL BEAM NAILER

1"=1'-0"



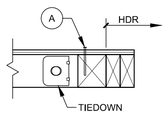
5 S08.1 TIE STRAPS

3/4"=1'-0"



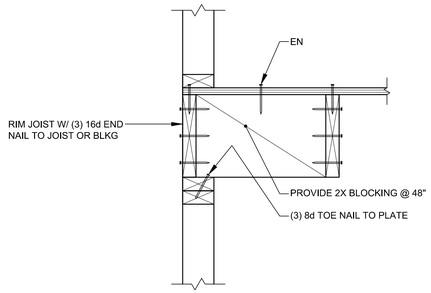
3 S08.1 HEADER AND WALL FRAMING

1"=1'-0"



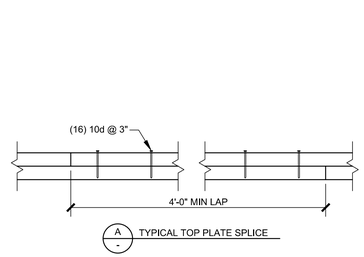
9 S08.1 TIEDOWN AT INTERSECTING SHEARWALL

1"=1'-0"



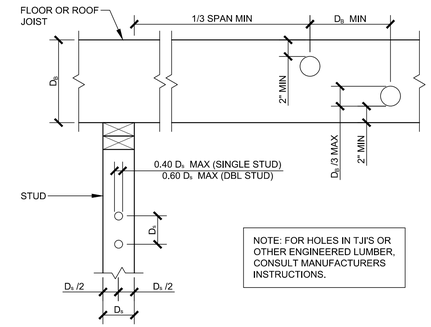
6 S08.1 PARALLEL JOISTS AT EXTERIOR WALL

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



4 S08.1 TOP PLATE SPLICE

1½"=1'-0"



2 S08.1 HOLES IN SAWN LUMBER

REF: 2018 IBC 2308.4, .5

NTS

TIEDOWN LOADING & POST SCHEDULE

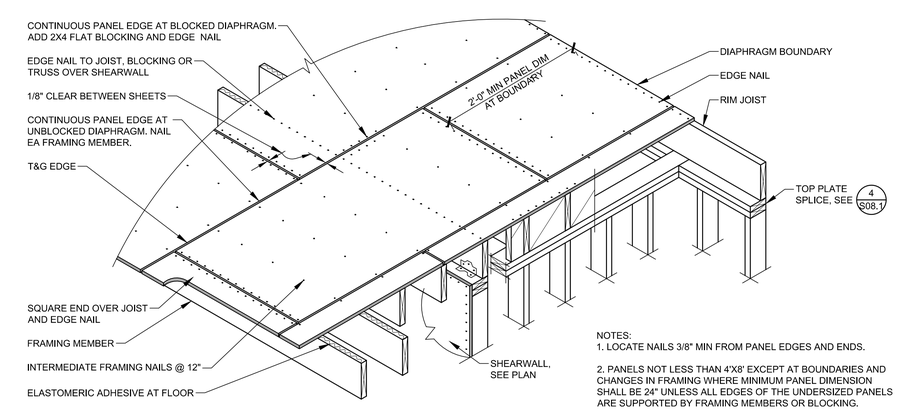
SYMBOL	ASD TENSION LOAD (KIPS) SIMPSON C-2017	TIEDOWN ASSEMBLY (1)	SSTB/ SB ANCHOR BOLT (1)		ALL-THREAD ANCHOR BOLT		SPLICE 2-2X TIEDOWN POSTS		TIEDOWN POST 4" OR 6" THICK WALLS (3)(4)	SQUARE WASHER ON WOOD (5)
			ANCHOR	MINIMUM EMBEDMENT	DIAMETER (2)	CAST IN PLACE MIN EMBEDMENT	BOX OR SINKER NAILS	SDS1/4"X2-1/2"		
H2	3.1	HDU2-SDS2.5	SSTB24 OR SB 5/8X24	20-5/8" 18"	5/8"	16"	16d@4"	5 TOTAL EQUAL SPACE	(2) 2X OR 4X NO.1	1/2"X3"X3"
H4	4.6	HDU4-SDS2.5	SB 5/8X24	24-7/8" 18"	5/8"	20"	16d@3"	8 TOTAL EQUAL SPACE	(2) 2X OR 4X NO.1	1/2"X3"X3"
H5	5.6	HDU5-SDS2.5	SB 5/8X24	18"	5/8"	20"	(2) 16d@4"	11 TOTAL EQUAL SPACE	(2) 2X OR 4X NO.1	1/2"X3"X3"
H8	7.9	HDU8-SDS2.5	SB 7/8X24 (6)	18"	7/8"	20"	N/A	N/A	4X6 (4X WALL) 6X6 (6X WALL)	5/8"X4"X4"
H11	9.3	HDU11-SDS2.5	SB 1X30 (7)	24"	1"	24"	N/A	N/A	4X6 SELECT STRUCT 6X6 NO.1	N/A
H14	14.4	HDU14-SDS2.5	N/A	N/A	1" W/ HEAVY HEX ANCHOR NUT PROVIDED	24"	N/A	N/A	6X6 SELECT STRUCT	N/A

FOOTNOTES

(1) SIMPSON OR APPROVED EQUIVALENT
(2) ASTM A36
(3) DOUGLAS FIR LARCH, GRADE AS NOTED
(4) POST SIZED TO RESIST COMBINED AXIAL AND BENDING STRESS DUE TO ECCENTRICITY BETWEEN BOLT AND POST CENTER LINE
(5) BASE BOLT WASHER BEARING ON WOOD BEAM (WHERE APPLICABLE)
(6) ONLY APPLICABLE IN CORNER AND MIDWALL LOCATIONS, NOT APPLICABLE TO END WALL CONDITIONS
(7) ONLY APPLICABLE IN MIDWALL LOCATIONS, NOT APPLICABLE TO CORNER OR END WALL CONDITIONS

1 S08.1 TIEDOWN SCHEDULE

1"=1'-0"



NOTES:
1. LOCATE NAILS 3/8" MIN FROM PANEL EDGES AND ENDS.

2. PANELS NOT LESS THAN 4'X8' EXCEPT AT BOUNDARIES AND CHANGES IN FRAMING WHERE MINIMUM PANEL DIMENSION SHALL BE 24" UNLESS ALL EDGES OF THE UNDERSIZED PANELS ARE SUPPORTED BY FRAMING MEMBERS OR BLOCKING.

1 S08.1 DIAPHRAGM SHEATHING

CASE 1 & 3 RE: 2005 NDS SPECIAL DESIGN PROVISIONS FOR WIND & SEISMIC

NTS

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Chris Wilson Exp. 4-30-24

Structural design for fine architecture™
65-1291 Kawaihae Road, Ste 102B
Kamuela, Hawaii 96743
808.887.0200
GFDS ENGINEERS

REVISIONS NO.	DESCRIPTION	Date
	PERMIT SET	11/18/22

JOB NUMBER: 22017.H0

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD, STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

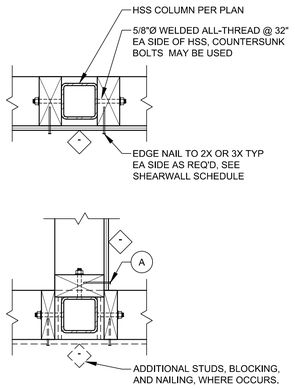
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE AS SHOWN

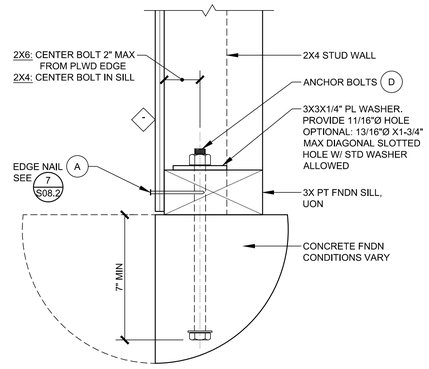
SHEET TITLE: **WOOD DETAILS**

SHEET NUMBER: **S08.1**



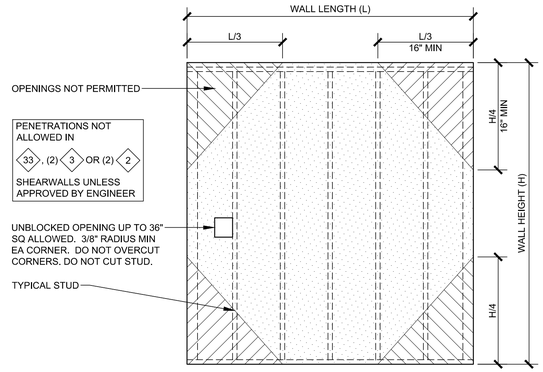
9 S08.2 HSS COLUMN SHEARWALL ANCHOR

1"=1'-0"



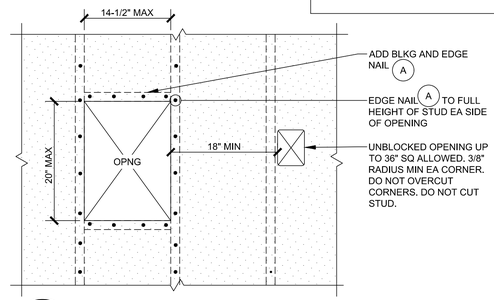
6 S08.2 SHEAR WALL BOLTED SILL TO CONCRETE

3"=1'-0"



4 S08.2 SHEAR WALL UNBLOCKED OPENING

½"=1'-0"



3 S08.2 SHEAR WALL OPENING

1"=1'-0"

STRAP SCHEDULE

STRAP	NO. OF NAILS (#)	MIN LENGTH EA SIDE OF OPNG
CS16	(12) 10d COMMON	2'-0"

8 S08.2 SHEARWALL STRAPS AROUND OPENING

1" = 1'-0"

5 S08.2 SHEAR WALL PLWD PANEL JOINT NAILING

3"=1'-0"

2 S08.2 SHEARWALL SCHEMATIC ELEVATION

1"=1'-0"

7 S08.2 SHEAR WALL PLWD EDGE NAIL AT SILL, TIEDOWN POST SIMILAR

3"=1'-0"

1 S08.2 SHEARWALL SCHEDULE

NTS

WOOD SHEAR WALL SCHEDULE - ANSI 2008 SDPWS SEISMIC

SYMBOL	ASD/(LRFD) SHEAR CAPACITY FOR SEISMIC (PLF)	SHEATHING MATERIAL (PLF)	MIN STUD AT ADJOINING PANEL EDGES (1.)	FOUNDATION SILL (2.)	SILL AT UPPER FLOOR	EDGE NAILS (3.) A	2X BLOCK OR TRANSFER STUD (4.) B	3X BLOCK OR TRANSFER STUD (5.) B	FLOOR SILL (5.) C	ANCHOR BOLT (6.) D	CLIPS (7.) E
6	340 (544)	15/32" STRUCT 1 SHEATHING	2X	2X	2X	10d@6"	16d@6"	SDS1/4"X4-1/2" @12"	SDS1/4"X6" (2) @16"	5/8"Ø@48"	A34@16" OR LTP4@16"
4	510 (816)		3X	3X	2X	10d@4"	16d@4"	SDS1/4"X4-1/2" @8"	SDS1/4"X6" (2) @16"	5/8Ø"@32"	(2) A34@16" OR (2) LTP4@16"
3	665 (1064)		3X	3X	2X	10d@3"	16d@3"	SDS1/4"X4-1/2" @6"	SDS1/4"X6" (3) @16"	5/8Ø"@32"	(2) A34@16" OR (2) LTP4@16"
2	870 (1392)		3X	3X	2X	10d@2"	16d@3"	SDS1/4"X4-1/2" @4"	SDS1/4"X6" (3) @16"	5/8Ø"@16"	(3) A34@16" OR (2) LTP4@16"
33	1240 (1984)		4X	3X	3X	2 ROWS 10d@3"	NA	SDS1/4"X4-1/2" @3"	SDS1/4"X6" (4) @16"	5/8Ø"@16"	(2) HGA 10KT@16" OR (3) LTP4@16"
(2) 3 (8.)	1330 (2128)		3X	3X	3X	10d@3"	NA	SDS1/4"X4-1/2" @3"	SDS1/4"X6" (5) @16"	5/8Ø"@16"	(2) HGA 10KT@16" OR (3) LTP4@16"
(2) 2 (8.)	1740 (2784)		3X	3X	3X	10d@2"	NA	SDS1/4"X4-1/2" @2"	SDS1/4"X6" (6) @16"	5/8Ø"@12"	(2) HGA 10KT@16"

FOOTNOTES

1. (2) 2X STUDS MAY BE SUBSTITUTED FOR 3X STUD AT ADJOINING PANEL EDGES FOR SINGLE-SIDED SHEAR WALLS ONLY. FASTEN (2) 2X STUDS TOGETHER WITH 2 ROWS 16d@4" STAGGER NAILS.
2. FOUNDATION SILLS SHALL BE PRESSURE TREATED DF-L OR NON-PRESSURE TREATED WITH BITUTHENE MEMBRANE BETWEEN SILL & CONCRETE.
3. PROVIDE FLAT BLOCKING AT UNSUPPORTED EDGES, 2X4 FOR ONE ROW, 2X6 FOR TWO ROWS. COMMON OR GALVANIZED BOX NAILS MAY BE USED.
4. COMMON, BOX OR SINKER NAILS. STAGGER NAILS.
5. SIMPSON COMPANY OR APPROVED EQUIVALENT. STAGGER SCREWS.
6. MINIMUM TWO BOLTS PER PIECE OF SILL. PROVIDE 3"X3"X1/4" PL WASHER WITH 11/16"Ø HOLE BETWEEN SILL PLATE AND NUT. SEE GENERAL NOTES.
7. SIMPSON COMPANY OR APPROVED EQUIVALENT.
8. SHEAR WALL IS SHEATHED WITH PLYWOOD ON EACH FACE. ALL NAILING REQUIREMENTS APPLY TO EACH SIDE. PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS.

NAIL NOTES

NAILS SHALL BE SPACED 2" OC MINIMUM. USE HOT DIPPED GALVANIZED OR STAINLESS STEEL WHEN PENETRATING PRESSURE-TREATED WOOD. DO NOT DRIVE NAILS THROUGH FACE LAYER OF PLYWOOD. DO NOT SPLIT LUMBER. ANY STRUCTURAL LUMBER SPLIT DUE TO NAILING SHALL BE REPLACED. IF REQUIRED, PRE-DRILL NAIL HOLES TO AVOID SPLITTING.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Chris Wilson Exp. 4-30-24

Structural design for fine architecture™
65-1291 Kawaihae Road, Ste 102B
Kamuela, Hawaii 96743
808.887.0200
GFDS ENGINEERS

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SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD, STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

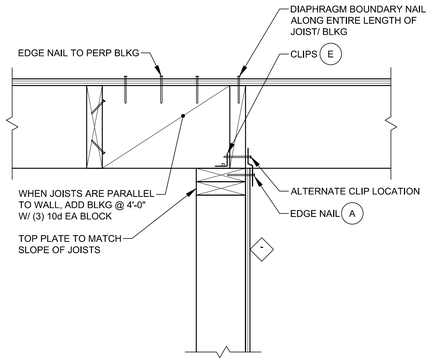
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

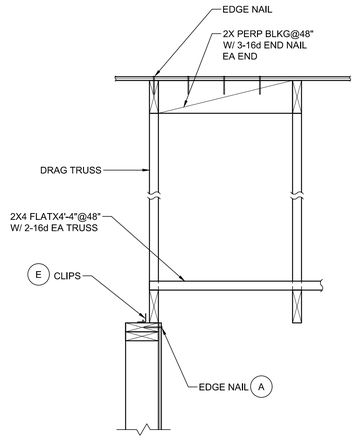
SCALE AS SHOWN

SHEET TITLE: **WOOD DETAILS**

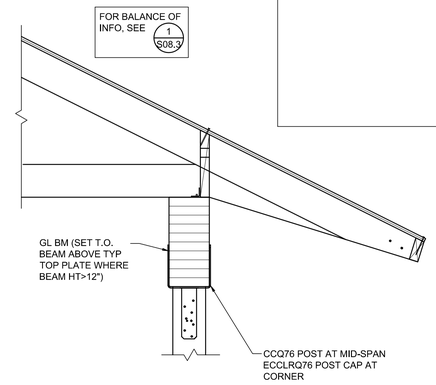
SHEET NUMBER: S08.2



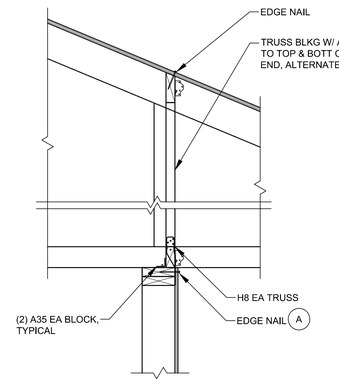
9 S08.3 SHEAR WALL TOP PLWD STOPS AT BOTT OF JOIST 1½"=1'-0"



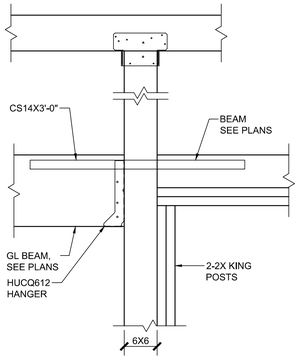
6 S08.3 INTERIOR SHEAR TRANSFER 1"=1'-0"



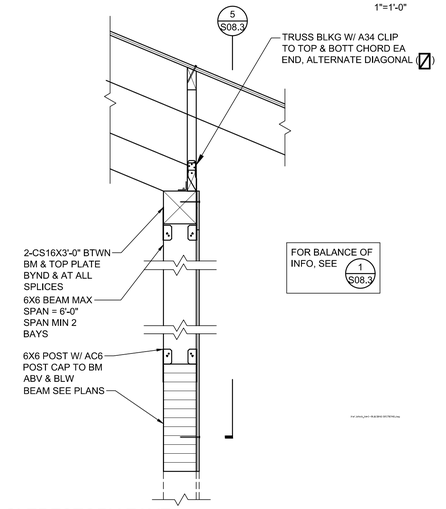
3 S08.3 LANAI EAVE 1"=1'-0"



8 S08.3 SHEAR TRANSFER AT TRUSS BLOCKING 1"=1'-0"



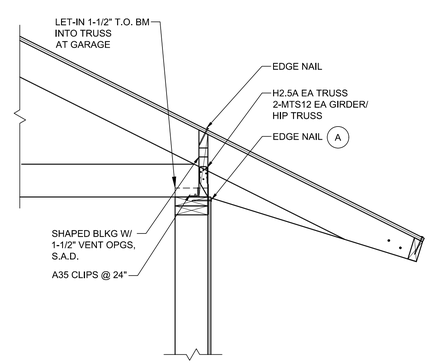
5 S08.3 GREAT ROOM BEAM SUPPORT 1"=1'-0"



2 S08.3 CLERESTORY EAVE 1"=1'-0"

7 S08.3 NOT USED 1"=1'-0"

4 S08.3 NOT USED 1"=1'-0"



1 S08.3 TYPICAL EAVE 1"=1'-0"

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

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CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE 11/18/22

SCALE AS SHOWN

SHEET TITLE: **WOOD DETAILS**

SHEET NUMBER: S08.3

CIVIL GENERAL NOTES

GENERAL CONSTRUCTION NOTES

1. All work shall be done in accordance with the "Standard Details for Public Works Construction", dated May 2013, "Standard Specifications for Public Works Construction", dated September 1986, as amended, of the Department of Public Works, County of Hawaii, the "Hawaii Standard Specification for Road and Bridge Construction", Department of Transportation, Highways Division, 2005, and AASHTO LRFD Bridge Construction Specifications, 3rd Edition with 2010 Interim Revisions (AASHTO Construction Specifications), unless indicated otherwise in the plans, these notes, or the special provisions. In the event of conflicting provisions in the AASHTO Construction Specifications and the State Standard Specifications, the State Standard Specifications shall apply.

2. The contractor shall verify the location of all existing utilities, whether shown on the plan or not, and shall be responsible for the repair or replacement of same in the event of damages due to his construction practices. The contractor shall coordinate his work with the respective utility companies.

3. The contractor shall maintain vehicular and pedestrian access to existing facilities at all times and shall schedule and prosecute his work in such a manner as to avoid interruption of normal activities at the existing facilities. The contractor shall provide early notification of and obtain approval for any anticipated interruptions. Contractor shall submit a construction phasing plan for approval prior to beginning construction. Temporary safe pedestrian passageways around or through a construction site shall comply with ADAAG Sections 206.1 and 402.1.

4. The contractor shall provide and install all traffic control devices in conformance with the current version of the "Manual of Uniform Traffic Control Devices for Streets and Highways", and to the satisfaction of the engineer.

5. Except during actual working hours, all signs which do not pertain to the construction activity, such as "Men Working" and "Flagman Ahead" shall be covered or laid down. However all signs necessary for the safety of the public shall be maintained.

6. No construction equipment shall be parked within the road right-of-way in such a manner that the equipment will obstruct the normal movement and sight distance of the driving motorist, except during actual working hours.

7. All existing pavements, walks, utilities, and other facilities whether shown on the plans or not, which are damaged by the contractor shall be reconstructed or replaced by the contractor at his own expense to the original undamaged condition.

8. No trenching shall be left open for more than five (5) working days. Contractor shall properly barricade all open trenches during all phases of construction.

9. Existing conditions are shown to the best of our knowledge. Discrepancies shall be promptly reported to the owner and be resolved before proceeding with the work.

10. Prior to commencement of construction, the contractor shall verify the locations of all utilities, which may be affected by his work. Interference with the structure shall be promptly reported to the owner and be resolved before proceeding with the work.

11. Should a discrepancy occur on the drawings between any project special notes/ special details, and the typical specs/typical details, said special notes/special details shall take precedence.

ABBREVIATIONS

AB	Aggregate Base Course	Mech	Mechanical
AC	Asphalt Concrete	Min.	Minimum
Arch	Architectural	MJ	Mechanical Joint
CL	Centerline	N	North/Northing
CF	Curb Face	Pav't	Pavement
Conc	Concrete	PCC	Portland Cement Concrete
Cont	Continued/Continuous	PE	Plain End
CRM	Concrete Rubble Masonry	PL	Property Line
DPW	Department of Public Works	PO	Push On
DWS	Department of Water Supply	Reinf.	Reinforcing
Det	Detail	ROW	Right of Way
Diag	Diagonal	O.C.	On Center
Dwy	Driveway	O.D.	Outside Diameter
E	East/Easting	S	Slope
EL	Elevation	S.L.	Service Lateral
Elev	Elevation	Sect	Section
Ex	Existing	Std	Standard
FF	Finished Floor	TBM	Temporary Benchmark
FG	Finished Grade	TC	Top of Curb/Concrete
FL	Flowline	TG	Top of Grate
Flg	Flanged	Thk.	Thick/Thickness
FS	Finished Surface	TOF	Top of Footing
GV	Gate Valve	TOP	Top of Pipe
HDPE	High Density Polyethylene	TW	Top of Wall
ID	Inside Diameter	Typ	Typical
Inv	Invert	U.O.N.	Unless Otherwise Noted
Max	Maximum	WV	Water Valve

GRADING NOTES

1. All grading work shall conform to Chapter 10 of the Hawaii County Code. Should a grading permit be required, no work shall commence until the Department of Public Works approves a grading permit.

2. The contractor shall remove all silt and debris deposited in drainage facilities, roadways and other areas resulting from his work. The costs incurred for any necessary remedial action by the owner shall be payable by the contractor.

3. The contractor, at his own expense, shall keep the project and surrounding areas free from dust nuisances. The work shall be in conformance with the air pollution control rules of the State Department of Health, HAR 11-60.1. Fugitive dust.

4. All grading operations shall be performed in conformance with the applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 55, Water Pollution Control and Chapter 54, Water Quality Standards, and to the Erosion and Sedimentation Control Standards and Guidelines of the Department of Public Works, County of Hawaii.

5. The contractor shall sod or plant all slopes and exposed areas immediately after the grading work has been completed.

6. The contractor shall inform the Department of Public Works of the locations of the disposal and/or borrow site(s) required for this project when an application for a grading permit is made. The disposal and/or borrow site(s) must also fulfill the requirements of the grading ordinance.

7. No grading work shall be done on Saturdays, Sundays and holidays anytime without prior approval from the owner. Grading work on normal working days shall be between the hours of 7:00am to 3:30pm.

8. The contractor shall verify all lines, levels, elevations, and improvements indicated on the drawings before any clearing, excavation or construction begins. Any discrepancy shall be immediately brought to the attention of the owner and any change shall be made in accordance with his instruction. Starting of clearing and grubbing operations shall be construed to mean that the contractor agrees that the existing grades and improvements are essentially correct as shown. The contractor shall not be entitled to extra payment if existing grades and improvements are in error after his verification thereof, or if he fails to report the discrepancies before proceeding with any work whether within area affected or not.

9. The contractor shall remove all vegetation, organic debris, trash, large boulders, muck/mud and any deleterious materials before the placing of fills on a natural ground surface. The removed materials shall be disposed of off-site in accordance with applicable Hawaii County regulations.

10. The exposed ground surfaces shall be proof-rolled with a minimum 20-ton vibratory drum roller for a minimum of eight passes to help detect and collapse near-surface cavities and/or voids.

11. Unless otherwise approved by a geotechnical engineer licensed in State of Hawaii, permanent cut slopes in loose clinker, broken rock or rock soil mix shall not be steeper than 2 horizontal to 1 vertical (2H:1V). Cut slopes in ash soil or loosely compacted soil shall be no steeper than 3 horizontal to 1 vertical (3H:1V). Near vertical cut slope in solid rock shall be inspected and approved by the geotechnical engineer.

12. Fill slopes shall not be built steeper than 2 horizontal to 1 vertical (2H:1V). The face of all fill slopes shall be overfilled and cut back or continuously compacted with heavy equipment as the slope progresses.

13. Existing slope (steeper than 15% grade) shall be benched and keyed prior to placing fill material. Benching shall be level or with a slight negative grade (sloping down toward hillside). Overexcavate a 5' deep by 5'wide minimum continuous key into the existing grade at the toe of proposed slope construction (daylight elevation). New fill slopes shall be over-built in horizontal compacted layers and cut back to the design slope.

14. Unless otherwise noted, structural fill and backfill beneath Building Pad and pavement areas and trench backfill material shall be compacted to a minimum of 95% compaction of the Maximum Dry Density per ASTM D1557.

15. General fill in areas outside of structural fill shall be compacted to a minimum 90% relative compaction in accordance with ASTM D1557.

16. For compaction, structural fill materials should be placed in level lifts not exceeding 10 inches in loose thickness, and compacted to a minimum of 90 percent relative compaction in accordance with ASTM D1557.

17. Estimated earthwork quantities

    Total raw cut = 4 C.Y.
    Total raw fill = 179 C.Y.

    Total area to be graded = 7,863 sq. ft.

    Notes:

1. The quantities shown are for grading permit purposes only. The contractor shall be responsible to determine the exact quantities for bidding purposes.

2. No adjustment factor is applied to the raw cut/fill quantities.

3. Earthwork quantities shown were taken from existing ground to finish grade.

4. Contractor/bidder shall not use the earthwork quantities shown above for bidding purposes. Regardless of the cut and fill earthwork quantities shown above, the contractor is responsible to import or export all necessary materials to complete the grading work at no additional cost to the owner.

CONCRETE NOTES (FOR SITE CONCRETE ONLY)

1. All concrete unless otherwise noted shall be regular weight hard rock type (150 lb/cu. Ft.)

2. All phases of work pertaining to the concrete construction shall conform to the "Building Code Requirements for Reinforced Concrete" (ACI 318) with modification as noted in the drawings or specifications.

3. Schedule of concrete 28-day strength and types:

Location of Structure	Strength
Walkway	2,500 psi
All other concrete	2,500 psi

4. Portland cement shall conform to ASTM C-150 type II.

5. Aggregate for hardrock concrete shall conform to all requirements and tests of ASTM C-33 and project specifications.

6. Concrete mixes shall be designed by a qualified testing laboratory and shall be submitted to the engineer for his review.

7. Concrete mixing operation, etc. shall conform to ASTM C-94.

8. Placement of concrete shall conform to ACI Standard 301 and project specifications.

9. Unless otherwise noted on the plans, minimum clear coverage of new concrete over outer reinforcing bars shall be as follows:

    a. Concrete poured directly against earth_____3" clear to reinforcing

10. All reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position prior to placing concrete.

11. Projecting corners of beams, walls, columns, equipment pads, etc. shall be formed with 3/4" chamfer, unless otherwise noted on architectural drawings.

12. Provide sleeves for plumbing and electrical openings in concrete before placing. Do not cut any reinforcing which may conflict. Coring in concrete is not permitted except as shown. Notify the engineer in advance of conditions not shown on the drawings.

13. Conduit or pipe size (O.D.) that is buried in any concrete slabs shall not exceed 25 percent of slab thickness and shall be placed between the top and bottom reinforcing unless specifically detailed otherwise. Concentrations of conduits or pipes shall be avoided except where detailed openings are provided.

14. The concrete slab thickness shall be maintained as a minimum unless otherwise shown.

REINFORCING STEEL NOTES (FOR SITE CONCRETE ONLY)

1. All reinforcing steel shall be detailed and placed in conformance with the "Building Code Requirements for Reinforced Concrete" (ACI 318), the CRSI "Manual of Standard Practice", and the "ACI Detailing Manual - 1994" (SP-66) as modified by the project drawings and specifications.

2. Reinforcing bars shall conform to ASTM A-615 Grade 60 requirements. #4 and smaller bars may be grade 40 unless otherwise noted.

3. Anchor bolts, dowels and other embedded items are to be securely tied in place before concrete is poured.

4. All reinforcing bar bends shall be made cold.

5. Reinforcing splices shall be made only where indicated on the drawings.

6. Dowels between footing and wall or columns shall be the same grade, size, spacing, and number as the vertical reinforcing respectively, unless otherwise noted.

7. Welding of reinforcing steel is not permitted unless otherwise shown on the drawings.

8. Reinforcing bars shall be as long as practicable and as detailed and shall be lapped at splices and corners not less than 32 bar diameter (24" minimum), unless otherwise shown. Stagger horizontal wall bar splices. In general, bar splices shall be made at points of minimum stress. In beams and slabs, splice top bars at mid-span, bottom bars over supports, unless otherwise shown.

9. Embedded metal components made up of alloys that are dissimilar to that of the reinforcing steel shall not be attached directly to reinforcing. Measures shall be taken to electrically isolate said components from any reinforcing to prevent cathodic effects.

EROSION / TEMPORARY DUST CONTROL NOTES

1. During construction, preventive measures shall be used to control forseeable dust, erosion or sedimentation problems which may arise as the job progresses.

2. Drainage systems as shown on the construction plans shall be constructed as early as practically possible.

3. The contractor shall conduct his grading operations so that excavation, embankment and imported material shall be damped with water during his grading operations at all times.

4. Water truck and/or temporary sprinklers shall be available on the jobsite at all times to ensure bare earth does not create dust problems. However, dust control watering shall not be excessive so that runoff will not be generated from watering.

5. Fugitive dust and solid waste disposal during grubbing and grading activities shall meet requirements of Administrative Rules, Title 11, Chapter 60, Air Pollution Control and Chapter 58, Solid Waste Management Control.

SOLID WASTE NOTES

1. All wastes generated by construction including grubbing excess are prohibited at all transfer stations island wide. Construction wastes may be delivered directly to the South Hilo or West Hawai'i Sanitary Landfills.

2. Hazardous materials are only accepted at the West Hawai'i Sanitary Landfill.

3. The contractor is responsible to obtain a "Notice of Authorization to Dispose" prior to the disposal of any construction and demolition debris.

4. If more than 50 cubic yards of waste will be delivered to the landfill, the contractor is responsible to notify the scale house 72 hours prior to arrival.

5. The contractor is responsible to provide all necessary labor, equipment, materials and supplies to properly landfill his waste.

6. A Solid Waste Management Plan has been prepared for this project. The contractor is responsible to review this plan and notify the engineer if any revisions are necessary.

7. If demolition will occur, the contractor is responsible to prepare and submit a Solid Waste Demolition Diversion Report to the County of Hawai'i Department of Environmental Management.

YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/22
No. 9361-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

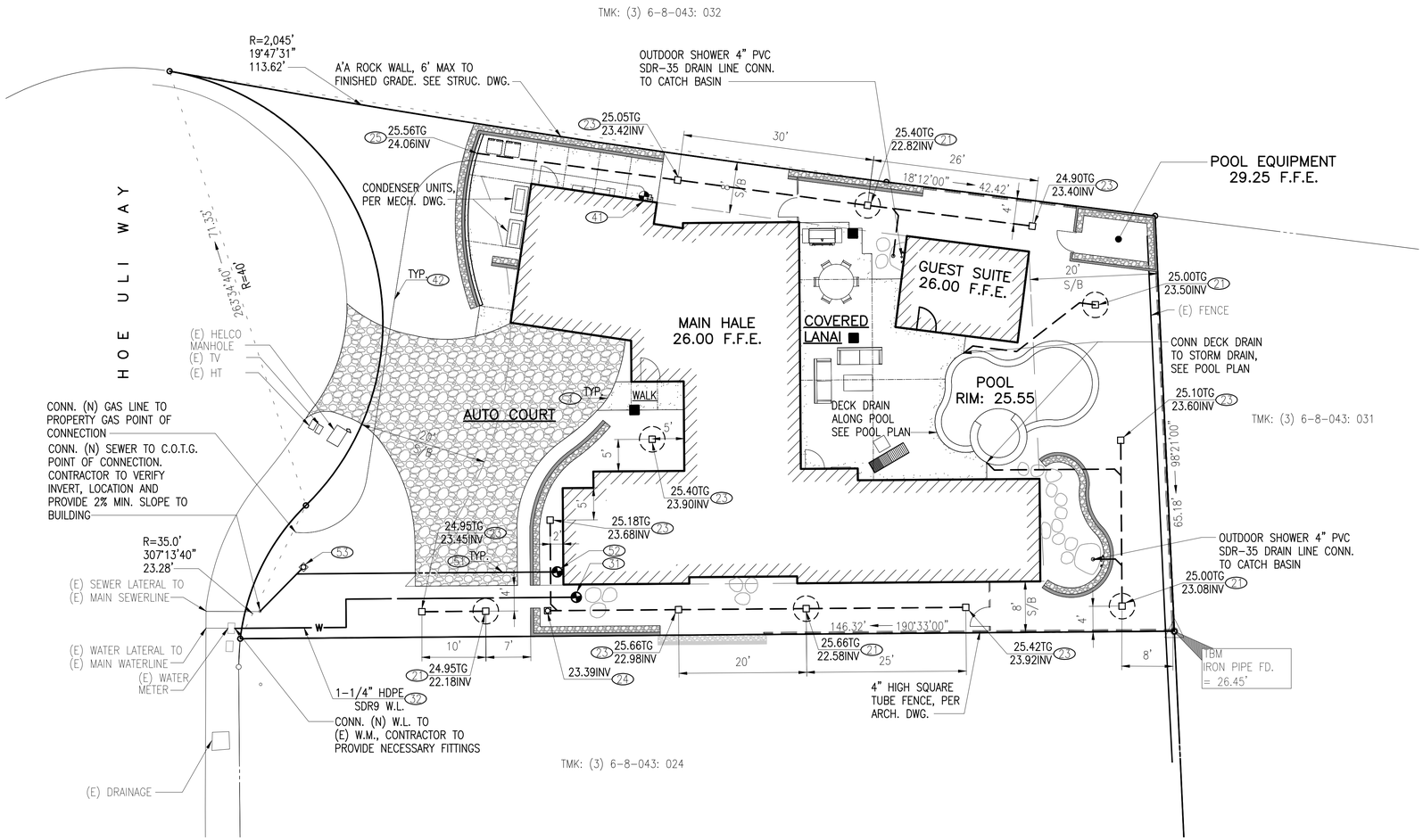
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
NOTES

SHEET NUMBER:
C0.1



PAV'T CONST. NOTES

1. CONSTRUCT 4"THICK CONC. WALK PER DETAIL — 1/C3.1

DRAINAGE CONST. NOTES

21. CONSTRUCT 24"ø NDS FLO-WELL WITH DRAIN ROCK WELL PER DETAIL — 8/C3.1
22. CONSTRUCT 4" PVC-SDR-35 STORM DRAIN, WITH A 2% SLOPE MIN., PER DETAIL — 6/C3.1
23. CONSTRUCT SQUARE GRATED INLET PER DETAIL — 9/C3.1
24. CONSTRUCT NON-TRAFFIC RATED CLEANOUT TO GRADE (C.O.T.G.) PER DETAIL — 4/C3.1
25. CONSTRUCT MICRO CHANNEL DRAIN SYSTEM, PER DETAIL — 5/C3.1
26. CONSTRUCT MICRO CHANNEL DRAIN SYSTEM, PER DETAIL — 2/C3.2

WATER CONST. NOTES

31. CONNECT NEW WATER LINE TO BUILDING WATER LINE. SEE PLUMBING DRAWINGS FOR CONTINUATION
32. CONSTRUCT HDPE SDR9 POTABLE WATERLINE, SIZE PER PLAN, PER DETAIL — 6/C3.1

GAS CONST. NOTES

41. CONNECT NEW GAS LINE TO BUILDING GAS METER LINE. SEE PLUMBING DRAWINGS FOR CONTINUATION
42. CONSTRUCT HDPE SDR-11 GAS LINE PER DETAIL, SIZE PER PLUMBING DRAWINGS — 2/C3.1

SEWER CONST. NOTES

51. CONSTRUCT ON-SITE 4" PVC SDR-35 BUILDING SEWER LATERAL, WITH A 2% SLOPE MIN., PER DETAIL — 6/C3.1
52. CONNECT NEW SEWER LINE TO BUILDING SEWER LINE. SEE PLUMBING DRAWINGS FOR CONTINUATION
53. CONSTRUCT NON-TRAFFIC RATED CLEANOUT TO GRADE (C.O.T.G.) PER DETAIL — 4/C3.1

NOTES:

1. ALL PIPING UNDER ROCK WALLS SHALL BE CONSTRUCTED WITH PIPE SLEEVES
2. CONTRACTOR TO VERIFY BUILDING LAYOUT IS WITHIN THE SETBACKS PRIOR TO CONSTRUCTION.
3. PROVIDE PRE-CAST CONCRETE SPLASH BLOCKS AT ALL ROOF DOWN SPOUTS
4. OFFSET WALL BASE 2" MINIMUM FROM PROPERTY LINE. WALLS AND FENCES WITHIN BUILDING SETBACK SHALL NOT EXCEED 6' ABOVE FINISH GRADE. WALL DETAILS PER STRUCTURAL PLANS
5. PROPERTY AZIMUTH AND DISTANCE SHOWN IS BASED ON RECORD MAP.

A SITE PLAN
SCALE: 1" = 10'

YEN WEN FANG
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/22
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HAWAII, U.S.A.

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PH: 805-494-7704 FAX: 805-494-1226

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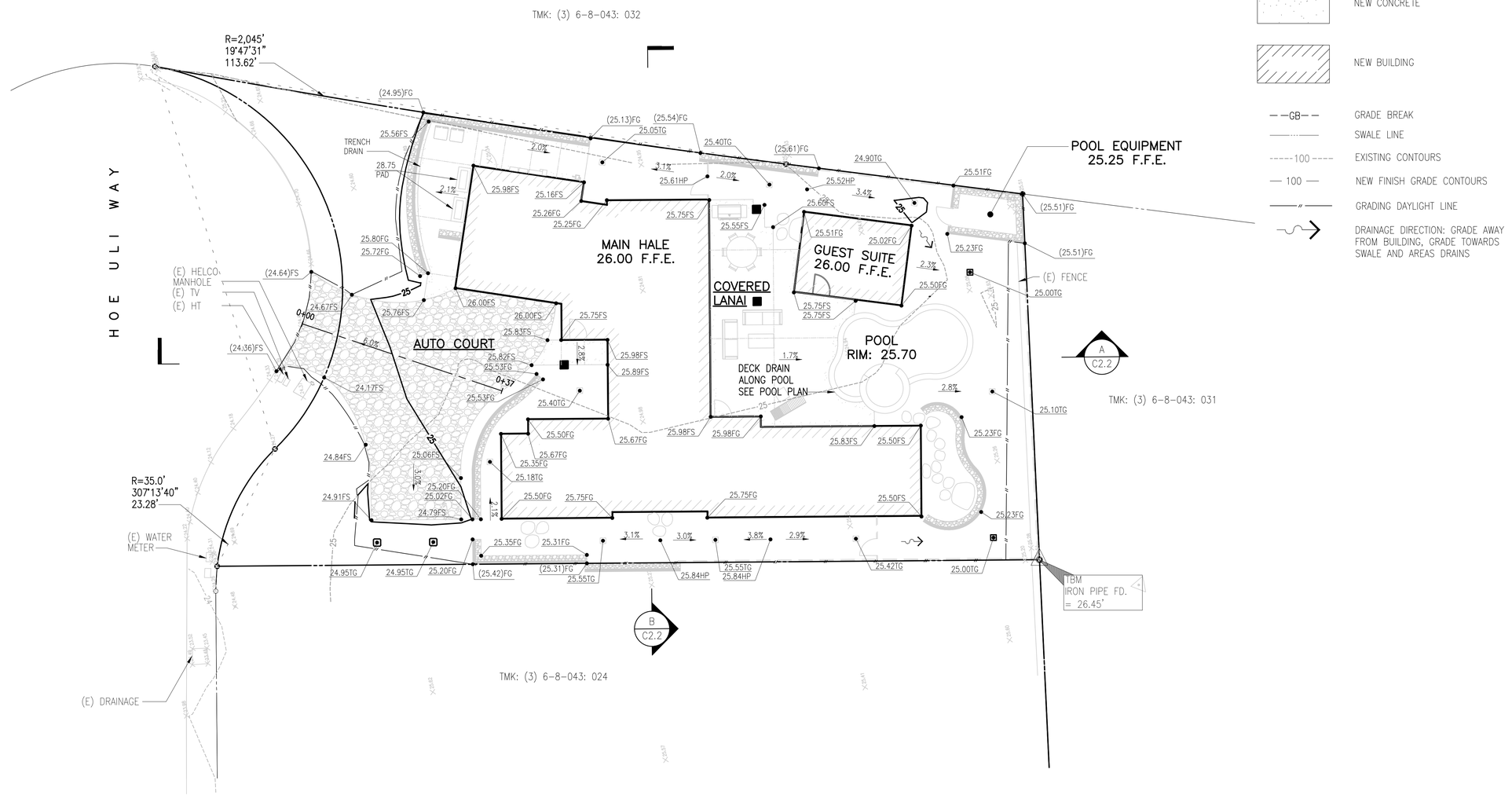
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE: **SITE PLAN**

SHEET NUMBER: C1.1



SPOT ELEVATIONS ABBREVIATION

FG: FINISH GRADE
FL: FLOW LINE
FS: FINISH SURFACE
HP: HIGH POINT
TG: TOP OF GRATE
(ELEV): MATCH EXISTING ELEVATION

LEGEND

- NEW CONCRETE
- NEW BUILDING
- GB — GRADE BREAK
- SWALE LINE
- 100 — EXISTING CONTOURS
- 100 — NEW FINISH GRADE CONTOURS
- GRADING DAYLIGHT LINE
- DRAINAGE DIRECTION: GRADE AWAY FROM BUILDING, GRADE TOWARDS SWALE AND AREAS DRAINS

A GRADING PLAN
SCALE: 1" = 10'
0 10' 20'

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LICENSED PROFESSIONAL ENGINEER
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16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

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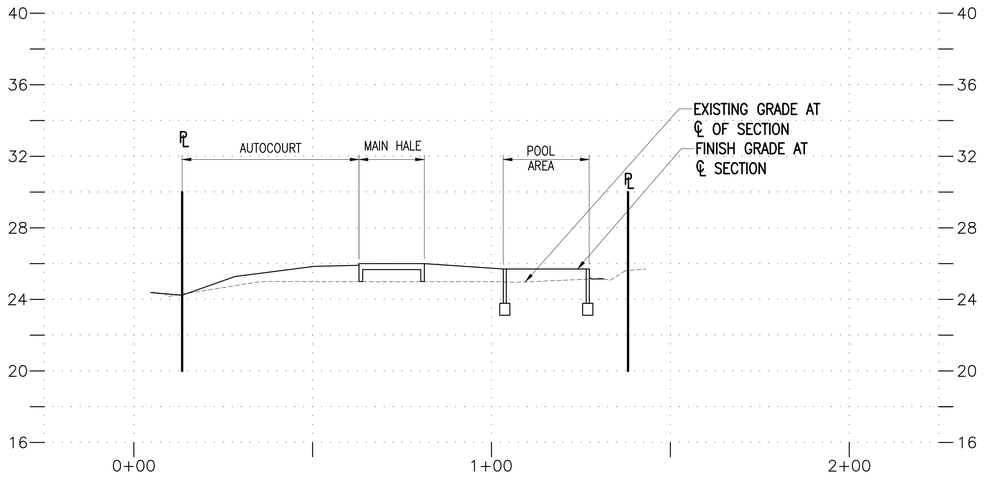
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

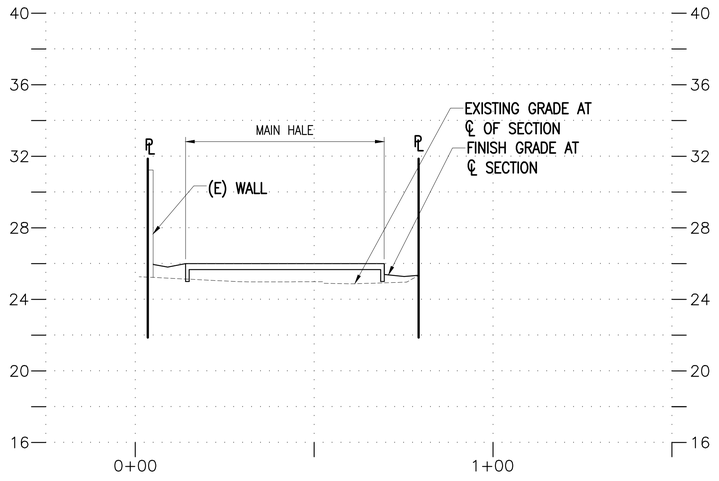
SCALE: As indicated

SHEET TITLE: **GRADING PLAN**

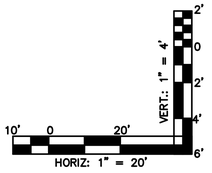
SHEET NUMBER: C2.1

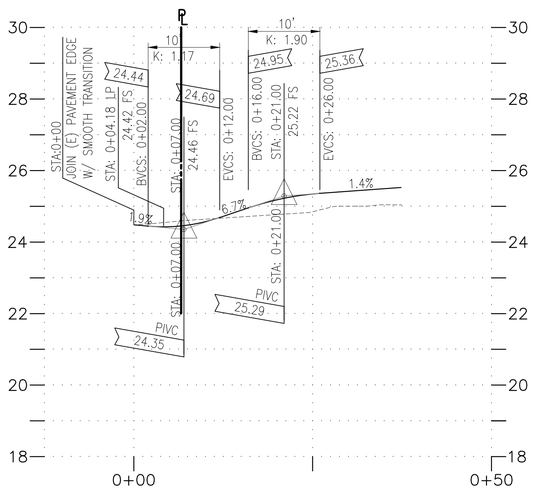


A SITE SECTION 'A'
SCALE: 1" = 20'

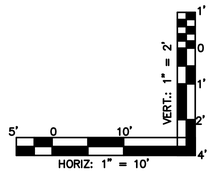


B SITE SECTION 'B'
SCALE: 1" = 20'





C DRIVEWAY PROFILE
SCALE: 1" = 10'



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ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

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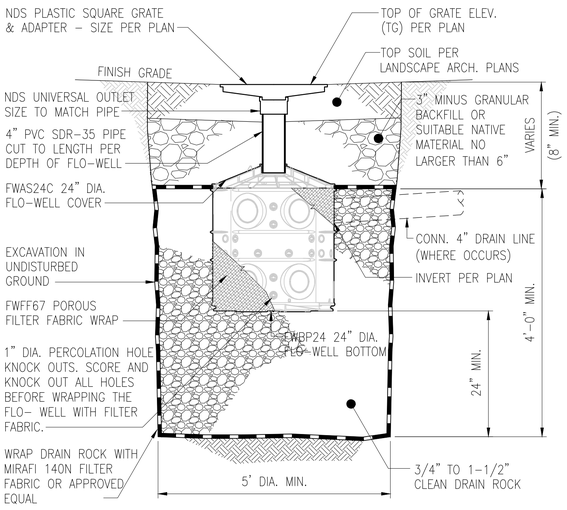
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
CROSS SECTIONS

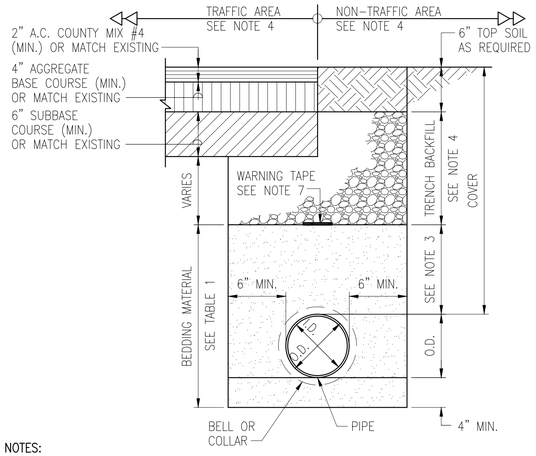
SHEET NUMBER:
C2.2



NOTE:

1. MUST BE INSTALLED 10 AWAY FROM STRUCTURE OR FOUNDATION
2. SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS & SPECIFICATIONS FOR BALANCE OF INFORMATION

8 NDS FLO-WELL DETAIL
SCALE: NOT TO SCALE



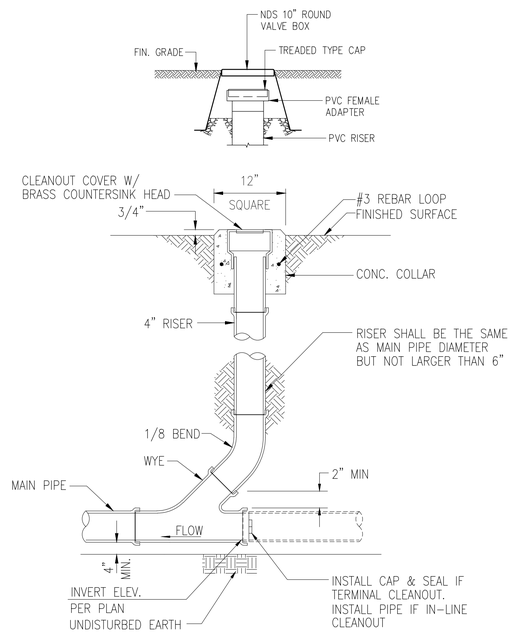
NOTES:

1. THIS TRENCH SECTION APPLIES TO FLEXIBLE PIPES INCLUDING SEWER, STORM DRAIN, AND WATERLINES. FLEXIBLE PIPE MATERIAL INCLUDES COPPER, CMP, PVC, ABS, AND HDPE.
2. BEDDING MATERIAL ABOVE PIPE SHALL BE 12" HIGH FOR GRANULAR MATERIAL AND 6" HIGH FOR CONCRETE. NO. 10 OR NO. 67 GRANULAR BEDDING SHALL BE COMPACTED BY MAKING TWO PASSES PER LIFT WITH A VIBRATORY PLATE COMPACTOR. BEDDING MATERIAL FOR PIPES 2'ø OR LARGER SHALL BE 3/4" BASE COURSE COMPACTED TO 95% MAX. DRY DENSITY.
3. INCH BACKFILL SHALL BE 3" MINUS GRANULAR BACKFILL OR SUITABLE NATIVE MATERIAL NO LARGER THAN 6". TRENCH BACKFILL SHALL BE COMPACTED TO 95% MAX. DRY DENSITY.
4. TRAFFIC AREA SHALL INCLUDE BUT NOT BE LIMITED TO PAVED OR UNPAVED ROADWAY, SHOULDER, DRIVEWAY, AUTOCOURT AND AREAS NOT PROTECTED FROM TRAFFIC LOAD. NON-TRAFFIC AREA SHALL BE PROTECTED FROM TRAFFIC LOAD BY MEANS OF CONCRETE CURBS, GUARDRAILS, AND AREAS INACCESSIBLE BY VEHICLES.
5. BEDDING MATERIAL FOR COPPER PIPE SHALL BE #4 SAND OR CONCRETE ONLY.
6. MIN. 6" WIDE WARNING TAPE IDENTIFYING THE BURIED UTILITY SHALL BE PLACED CONTINUOUSLY ALONG THE LENGTH OF THE PIPE, ON TOP OF BEDDING MATERIAL. FOR METALLIC PIPE, TAPE SHALL BE NON-METALLIC. FOR NON-METALLIC PIPE, TAPE SHALL BE DETECTABLE BY STANDARD, NON-DESTRUCTIVE PIPE DETECTION METHODS.

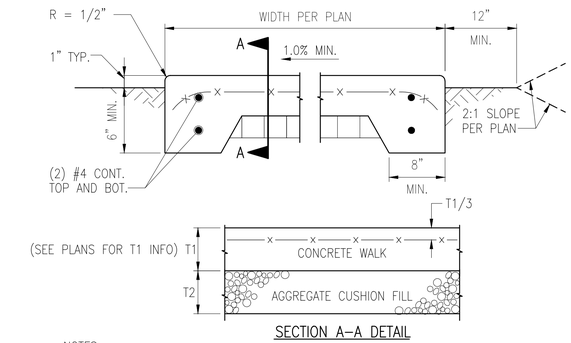
TABLE 1: BEDDING MATERIAL

DEPTH OF COVER IN FT.	TRAFFIC AREA	NON-TRAFFIC AREA
6" < COVER < 12"	NOT ALLOWED	ALLOWED FOR 6"ø PIPE OR SMALLER ONLY WITH NO. 10 CRUSHED ROCK (SEE NOTE 3)
12" < COVER < 18"	ALLOWED FOR 6"ø PIPE OR SMALLER ONLY WITH CLASS "C" CONCRETE	NO. 10 CRUSHED ROCK (#4 SAND) (SEE NOTE 3)
18" < COVER < 24"	CLASS "C" CONCRETE	NO. 10 OR NO. 67 CRUSHED ROCK (SEE NOTE 3)
COVER > 24"	NO. 10 OR NO. 67 CRUSHED ROCK	NO. 10 OR NO. 67 CRUSHED ROCK (SEE NOTE 3)

6 FLEXIBLE PIPE TRENCH SECTION
SCALE: NOT TO SCALE



4 CLEANOUT TO GRADE (C.O.T.G.)
SCALE: NOT TO SCALE

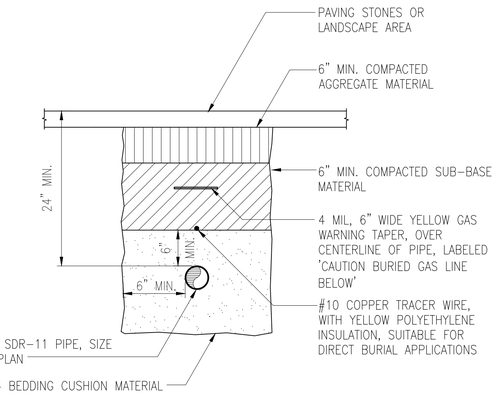


SECTION A-A DETAIL

NOTES:
U.O.N. MINIMUM REQUIREMENTS SHALL BE:

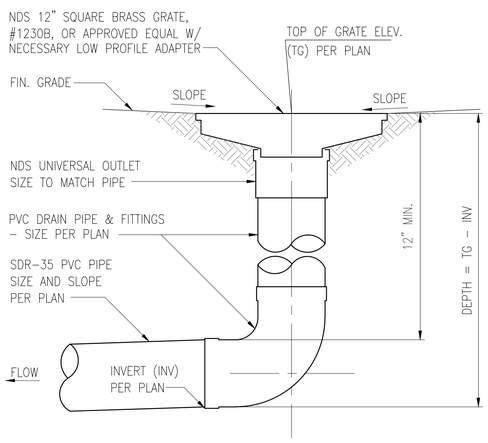
1. CONCRETE SHALL BE CLASS "B". T1 = 4"
2. AGGREGATE CUSHION FILL SHALL BE ASTM C33 NO. 67. T2 = 4"
3. REINFORCING SHALL BE GALVANIZED 6"x6" 10/10 (6"x6" W1.4xW1.4) WWM.
4. #4 BARS MAY BE SUBSTITUTED WITH 3/8" GATORBAR

1 TYPICAL CONCRETE DRIVEWAY
SCALE: NOT TO SCALE

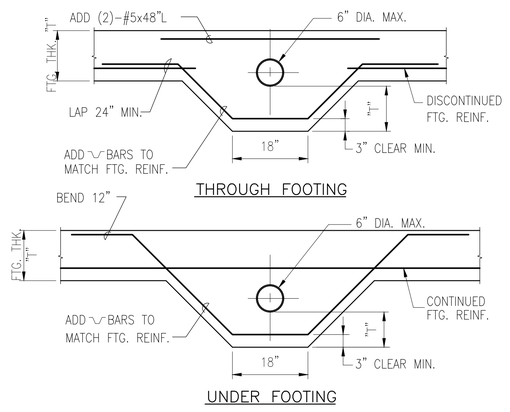


NOTE:
WHEN MINIMUM COVER CANNOT BE PROVIDED, CONTRACTOR SHALL CONCRETE ENCASE PIPE IN 3" CONCRETE AROUND PIPE

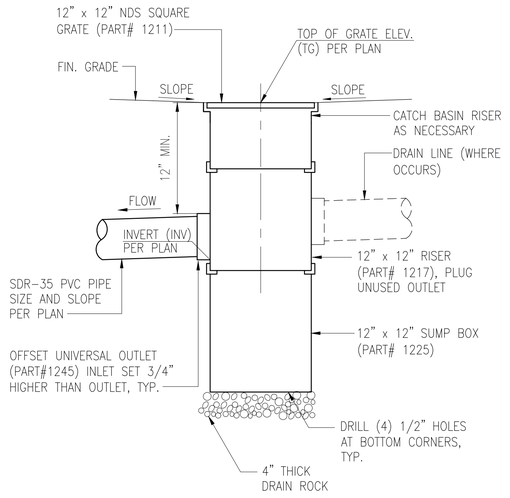
2 GAS LINE TRENCH
SCALE: NOT TO SCALE



9 GRATED YARD DRAIN DETAIL
SCALE: NOT TO SCALE



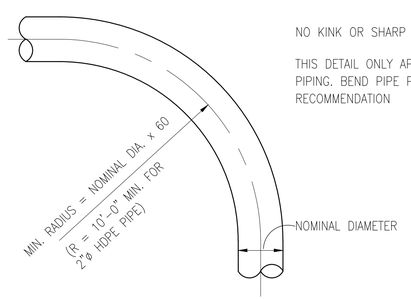
7 TYP. PIPE SLEEVE FOOTING
SCALE: NOT TO SCALE



NOTE

1. FRAME MUST BE ATTACHED TO CATCH BASIN BEFORE BACKFILLING
2. INSTALL GRATED INLET PER MANUFACTURE'S INSTALLATION INSTRUCTIONS AND SPECIFICATIONS

5 CATCH BASIN WITH SUMP BOX
SCALE: NOT TO SCALE



NO KINK OR SHARP BEND IS ALLOWED.

THIS DETAIL ONLY APPLIES TO H.D.P.E. PIPING. BEND PIPE PER MANUFACTURER'S RECOMMENDATION

3 PIPE BENDING DETAIL
SCALE: NOT TO SCALE

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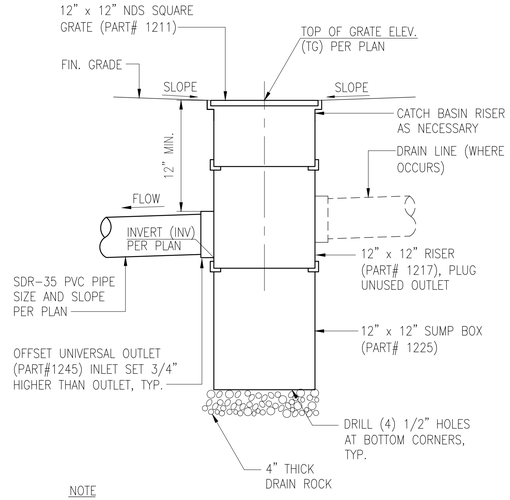
SHEET TITLE: **DETAILS**

SHEET NUMBER: C3.1

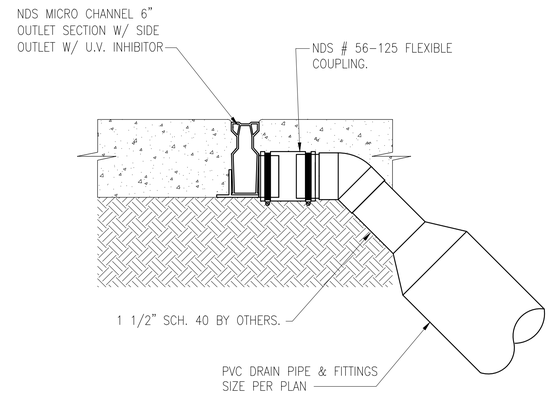


NOTE

1. FRAME MUST BE ATTACHED TO CATCH BASIN BEFORE BACKFILLING
2. INSTALL GRATED INLET PER MANUFACTURE'S INSTALLATION INSTRUCTIONS AND SPECIFICATIONS

1 CATCH BASIN WITH SUMP BOX

SCALE: NOT TO SCALE



2 MICRO CHANNEL DRAIN SYSTEM

SCALE: NOT TO SCALE

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SCALE: As indicated

SHEET TITLE: **DETAILS**

SHEET NUMBER: C3.2

GENERAL ELECTRICAL SPECIFICATIONS

1. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.
2. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE. INSTALL CONDUIT RUNS AS SPECIFIED WITH SCHEMATIC REPRESENTATION INDICATED ON THE DRAWINGS AND AS SPECIFIED.
3. WHERE CONDUITS ARE SHOWN AS "HOME RUNS" ON THE CONTRACT DRAWINGS, OR STATED TO BE FURNISHED, BUT NOT EXPLICITLY SHOWN AS PART OF THE SCOPE OF WORK, THE CONTRACTOR SHALL PROVIDE ALL CONDUITS, FITTINGS, BOXES, WIRING, CONDUIT SEALS, ETC., AS REQUIRED FOR COMPLETION OF THE RACEWAY SYSTEM IN COMPLIANCE WITH THE NEC AND THE CONTRACT DOCUMENTS.
4. MODIFY CONDUIT RUNS TO SUIT FIELD CONDITIONS, AS ACCEPTED BY THE OWNER'S REPRESENTATIVE.
5. FINAL CONNECTIONS & ROUGH-IN REQUIREMENTS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
6. CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL AND OTHER DRAWINGS PRIOR TO BID.
7. CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL REPORT DISCREPANCIES TO THE ARCHITECT AND INCLUDE IN ITS BID ALL COSTS REQUIRED TO MAKE HIS WORK MEET EXISTING CONDITIONS.
8. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE.
9. WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES.
10. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
11. PROVIDE PERMITS AND INSPECTIONS REQUIRED.
12. GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
13. PROVIDE RECORD DRAWINGS TO THE OWNER'S REPRESENTATIVE. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
14. VERIFY EXACT LOCATION AND ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE FURNISHED BY OTHER DISCIPLINES PRIOR TO ROUGH-IN.
15. SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
17. CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS OR EQUIPMENT.
18. SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION. LIGHTS, SWITCHES, RECEPTACLES, MOTORS, ETC., SHALL BE CONNECTED AND OPERABLE.
19. PRESENT SUBMITTAL DATA AT ONE TIME BOUND IN PDF FORMAT OR PER THE OWNER'S REQUIREMENTS. SUBMITTALS SHALL BE INDEXED IN A NEAT AND ORDERLY MANNER. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED. SUBMITTALS SHALL INCLUDE ALL EQUIPMENT SPECIFIED UNDER THIS PROJECT. SHOULD CONTRACTOR FAIL TO PROVIDE SUBMITTALS, CONTRACTOR PROCEEDS AT ITS OWN RISK AND ANY COST FOR CORRECTIVE WORK WILL BE BORNE BY THE CONTRACTOR.
20. PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURERS INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE. FIRESTOP ALL PENETRATIONS THROUGH FIRE RATED WALLS AS REQUIRED TO PRESERVE THE FIRE RATING OF THE STRUCTURE.
21. PROTRUDING OBJECTS SHALL COMPLY WITH ADAAG 307. WALL MOUNTED FIXTURES OR SIMILAR WALL MOUNTED DEVICES SHALL NOT PROTRUDE MORE THAN 4" HORIZONTALLY INTO THE CIRCULATION PATH, OR OTHERWISE SHALL BE INSTALLED 80" MINIMUM TO THE BOTTOM OF THE FIXTURE.

DISTRIBUTION EQUIPMENT

1. SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS, ETC. SHALL BE MANUFACTURED BY GENERAL ELECTRIC, SIEMENS, SQUARE 'D' OR CUTLER-HAMMER. BOLT FREE STANDING EQUIPMENT TO 4" HIGH CONCRETE HOUSEKEEPING PADS. PROVIDE FUSED DISCONNECT SWITCHES WHEN FED FROM PANELBOARDS OR DISTRIBUTION BOARDS RATED OVER 10kAIC.
2. PROVIDE ARC FLASH WARNING LABELS ON ALL ELECTRICAL EQUIPMENT SUCH AS SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS THAT ARE LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE WHILE ENERGIZED PER NEC 2008 110.16 TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS.
3. ALL EQUIPMENT SUCH AS SWITCHBOARDS, DISTRIBUTION BOARDS, DISCONNECT SWITCHES, TRANSFORMERS AND PANELBOARDS SHALL BE BY THE SAME MANUFACTURER. ALL FUSES PROVIDED SHALL BE OF THE SAME MANUFACTURER.
4. WHERE PANELS ARE INSTALLED FLUSH WITH WALLS, EMPTY CONDUITS SHALL BE EXTENDED FROM THE PANEL TO AN ACCESSIBLE SPACE ABOVE OR BELOW. A MINIMUM OF ONE 3/4"C SHALL BE INSTALLED FOR EVERY THREE SINGLE POLE SPARE CIRCUIT BREAKERS OR SPACES, OR FRACTION THEREOF, BUT NOT LESS THAN TWO CONDUITS.
5. PROVIDE ENGRAVED NAMEPLATES ON SWITCHBOARDS, PANELBOARDS, DISCONNECT SWITCHES, MOTOR CONTROL CENTERS, TRANSFORMERS, ETC., INDICATING EQUIPMENT DESIGNATION (OR DESIGNATION OF EQUIPMENT SERVED) AND VOLTAGE.
6. PANEL DIRECTORIES SHALL BE REMOVABLE. SUBMIT PROPOSED SCHEDULE OF DIRECTORIES TO OWNER FOR APPROVAL. ROOM NAMES AND NUMBERS SHALL BE AS DIRECTED BY OWNER. DIRECTORIES SHALL BE TYPED AND INSTALLED UNDER CLEAR PLASTIC COVERS.
7. DISCONNECT SWITCHES SHALL BE HEAVY DUTY TYPE. FUSIBLE SWITCHES SHALL ACCEPT CLASS 'R' FUSES ONLY AND REJECT ALL OTHERS. INSTALL DISCONNECT SWITCH ON TWO 24" LONG UNISTRUT CHANNELS DRILLED AND BOLTED TO HVAC UNIT FRAME WHERE POSSIBLE (COORDINATE LOCATION W/ HVAC MANUFACTURER TO AVOID WARRANTY INFRACTIONS). SILICONE SEAL ALL HOLES IN UNIT.

ELECTRICAL SYMBOLS

- (D) or -x-x-x-x-x- : ELECTRICAL DEMOLITION. REMOVE EQUIPMENT AND APPURTENANCES IN THEIR ENTIRETY U.N.O. COORDINATE WORK RESTRICTIONS PRIOR TO DEMOLITION.
- HOMERUN CONDUIT – STROKES INDICATE QUANTITY OF CONDUCTORS
- CONDUIT/WIRE CONCEALED IN WALL OR ABOVE CEILING EXCEPT IN EXPOSED STRUCTURE AREAS 1/2"-2 #12 & 1 #12 GND THWN U.N.O.
- CONDUIT AND/OR WIRE BELOW FLOOR OR GRADE 3/4"-2 #12 & 1 #12 GND THWN UNLESS NOTED
- EXISTING CONDUIT AND/OR CONDUCTORS TO REMAIN (SHOWN LIGHT)
- S^{a}_{b} : SINGLE POLE SWITCH @ +48" TO TOP UNLESS NOTED
  a = DEVICE SWITCH IDENTIFICATION (LOWERCASE)
  IF b:
  F = 3 SPEED SWITCH; 2 = 2 POLE SWITCH; 3 = 3-WAY SWITCH; 4 = 4-WAY SWITCH; L = BACKLIT SWITCH; D = DIMMER SWITCH; K = KEY OPERATED SWITCH; M = MOTION SENSOR SWITCH; T = THERMAL OVERLOAD SWITCH; TM = SWITCH WITH DIGITAL TIMER
- WALL MOUNTED DUPLEX RECEPTACLE @ +18" TO CENTER U.N.O.
  = GFCI RECEPTACLE; = DOUBLE DUPLEX RECEPTACLE; = 1/2 SWITCHED (BOTTOM HALF) DUPLEX RECEPTACLE
- $\ominus^{a}_{b}$: IF a: AV = AV RECEPTACLE; C = RECEPTACLE INSTALLED ABOVE COUNTER; H = RECEPTACLE INSTALLED HORIZONTALLY; T = TIMECLOCK RECEPTACLE; IG = ISOLATED GROUND TYPE (ORANGE) RECEPTACLE
  IF b: MOUNTING HEIGHT IN INCHES TO TOP OF RECEPTACLE
- FLOOR MOUNT RECEPTACLE
- HD : SPECIAL RECEPTACLE @ +18" TO CENTER UNLESS NOTED
- PC : PHOTOCELL (INSTALL ON ROOF FACING NORTH)
- (S) : SMOKE DETECTOR
- $\frac{a}{A}$: LUMINAIRE IDENTIFICATION
  A = LUMINAIRE DESIGNATION (UPPERCASE); a = SWITCH DESIGNATION (LOWERCASE)
- SURFACE MOUNT TROFFER
- DOWNLIGHT LUMINAIRE
- WALL MOUNTED LUMINAIRE
- SURFACE MOUNTED PANELBOARD
- FLUSH MOUNTED PANELBOARD
- MAIN SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD
- METER
- N : NON-FUSED DISCONNECT SWITCH
- F : FUSED DISCONNECT SWITCH
- (J)^{a} : JUNCTION BOX, IF a:
  FS = FIRE/SMOKE DAMPER CONNECTION; V = VARIABLE AIR VOLUME BOX CONNECTION; CF = CEILING FAN; S = SIGNAGE; WH = WATER HEATER
- COMBINATION METER/MAIN
- (M) : SINGLE METER WITH CT,
- CIRCUIT BREAKER
- HP : MOTOR LOAD
- GROUND BUS & GROUND ELECTRODES
- GROUNDING BUSBAR
- TV : TELEVISION OUTLET
  (1) SERIES 6 COAX CABLE FROM TV TAP TO TV OUTLET
- ^{X} : TELEPHONE/DATA OUTLET
  (X) 4-PAIR CAT-6 CABLES (TYPE 'H')
  PROVIDE CORRESPONDING FACEPLATE WITH QTY OF PORTS AS REQUIRED, WHERE "X" INDICATED NUMBER OF PORTS.

WIRING DEVICES

1. WIRING DEVICES SHALL BE SPECIFICATION GRADE AND RATED AT 20 AMPERES. THE DEVICE PLATES SHALL BE LEXAN OR NYLON (IN KITCHENS WITH STAINLESS STEEL COUNTERS DEVICE PLATES SHALL BE STAINLESS STEEL). THE COLOR OF THE DEVICES AND COVER PLATES SHALL BE AS DIRECTED BY ARCHITECT.
2. RECEPTACLES WHICH ARE SHOWN WALL MOUNTED ON THE ELECTRICAL DRAWINGS ON WALLS WHICH, ON THE ARCHITECTURAL DRAWINGS AND ELEVATIONS ARE SHOWN AS GLASS OR PARTITIONS, SHALL BE FLUSH FLOOR DUPLEX RECEPTACLES MOUNTED ADJACENT TO BASE OR WALLS. COORDINATE MOUNTING HEIGHTS & LOCATIONS OF ALL OUTLETS & DEVICES WITH ARCHITECTURAL CABINET DRAWINGS & INTERIOR ELEVATIONS.
3. FLUSH FLOOR RECEPTACLE OUTLETS SHALL BE HUBBELL #B-2527 WITH BRASS COVER #S-3925. PROVIDE CARPET OR TILE FLANGE TO MATCH
4. FLOOR FINISH. FLUSH FLOOR TELEPHONE OUTLETS SHALL BE HUBBELL #B-2527 WITH BRASS COVER #S-2725. PROVIDE CARPET OR TILE FLANGE TO MATCH FLOOR FINISH.
5. BOXES SHALL BE MINIMUM 4" SQUARE WITH REQUIRED EXTENSIONS & PLASTER OR TILE RINGS.
6. DEVICES INSTALLED IN FIRE RATED WALLS SHALL HAVE HEVI-DUTY NELSON FSP PUTTY, PADS INSTALLED TO MAINTAIN FIRE INTEGRITY-ONE PAD PER HOUR OF RATING. APPLY UL LISTED FIRESTOP SEALANT TO ELECTRICAL AND TELECOMMUNICATIONS PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY, INSTALLED PER MANUFACTURER'S UL LISTED ASSEMBLY DETAILS. VERIFY LOCATIONS OF FIRE RATED FLOOR AND WALL ASSEMBLIES WITH ARCHITECTURAL DRAWINGS.
7. RECEPTACLES INSTALLED OUTSIDE, ON THE BUILDING EXTERIOR OR ROOF, IN KITCHENS OR WITHIN 6 FEET HORIZONTALLY FROM A SINK OR DRINKING FOUNTAIN UNLESS LOCATED BELOW A COUNTER OR OTHERWISE PROTECTED SHALL BE GFCI TYPE OR PROTECTED BY GFI CIRCUIT BREAKER.
8. WIRING DEVICES IN DWELLING UNITS AND GUESTROOMS SHALL BE PROVIDED IN SUFFICIENT QUANTITY TO MEET THE REQUIREMENTS OF NEC 210. DEVICE LOCATIONS SHALL ALSO COMPLY WITH NEC 210.
9. COORDINATE THE LOCATION OF ALL WALL MOUNTED EQUIPMENT WITH THE ARCHITECTURAL INTERIOR AND EXTERIOR ELEVATIONS. UNLESS OTHERWISE VERIFIED IN WRITING THE ARCHITECTURAL DRAWINGS SHALL GOVERN.

MECHANICAL SYSTEMS

1. CONTRACTOR SHALL PROVIDE CONTROLS, INTERLOCKS, ACCESSORIES, ETC., AS REQUIRED BY THE TEMPERATURE CONTROL CONTRACTOR. STARTERS SHALL CONTAIN 120V CONTROL TRANSFORMER, PILOT LIGHT, AND PUSHBUTTONS OR SELECTOR SWITCH AS REQUIRED, IN ADDITION TO OTHER ITEMS (AUXILIARY CONTACTS, DOOR SWITCHES, RELAYS, ETC.) REQUIRED. REFER TO DIV. 15 DRAWINGS AND TEMPERATURE CONTROL DIAGRAMS FOR ADDITIONAL CONDUIT, WIRE, RELAYS, TRANSFORMERS, CONNECTIONS, ETC. REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
2. WHERE MECHANICAL EQUIPMENT IS INSTALLED ABOVE A GYPBOARD CEILING REQUIRING ACCESS THROUGH AN ACCESS PANEL, PROVIDE A RECEPTACLE, SWITCH AND LIGHT IN THE CEILING SPACE AT THE ACCESS LOCATION.
3. PROVIDE MAINTENANCE RECEPTACLE WITHIN 25'-0" OF ALL MECHANICAL OR MOTORIZED EQUIPMENT. INSTALL PER NEC 210.63.
4. SEE DIVISION 15 DRAWINGS FOR LOCATION OF MECHANICAL EQUIPMENT. PROVIDE SERVICE TO AND CONNECT EQUIPMENT AS REQUIRED. PROVIDE FUSES OR HACR-TYPE CIRCUIT BREAKERS FOR ALL AIR CONDITIONING EQUIPMENT SIZED IN ACCORDANCE WITH MANUFACTURER'S NAMEPLATE.

NFPA 70 CODE VERSION: 2017

ELECTRICAL ABBREVIATIONS

+18"	INDICATES MOUNTING HEIGHTS ARE TO CENTERLINE OF DEVICE AFF OR AFG
AF	AMP FUSE (FOR FUSES), AMP FRAME (FOR CIRCUIT BREAKERS)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CONT	CONTINUATION
CU	COPPER
AFCI	INDICATES ARC FAULT CIRCUIT INTERRUPTER WITH DEDICATED NEUTRAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER WITH DEDICATED NEUTRAL
GND	GROUND
HELCO	ELECTRICAL UTILITY COMPANY
IWP	IN-USE WEATHER-PROOF (NEMA 3R)
LO	LUGS ONLY (SEE ALSO MLO)
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE, AS ADOPTED BY THE AHJ
P	POLE
PH	PHASE
PNL	INDICATES PANEL
S/N	SOLID NEUTRAL
TYP	TYPICAL
WP	WEATHER-PROOF (NEMA 3R)
(N)	NEW

HAWAII COUNTY ENERGY CODE

2018 IECC, HAWAII REVISED STATUTES HRS 107-24 TO 28 & HAWAII ADMINISTRATIVE RULES HAR 3-181.1

RESIDENTIAL BUILDING ENERGY EFFICIENCY STANDARDS

I CERTIFY THAT THE DESIGN IS IN CONFORMANCE WITH THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO THE RESIDENTIAL PROVISIONS OF THE 2018 IECC WITH AMENDMENTS PER HAR CHAPTER 3-181.1:

COMPLIANCE METHOD			
	TROPICAL ZONE. R401.2.1		
	POINTS OPTION. R407		
X	PRESCRIPTIVE. R402		
	POINTS OPTION. R407		
	SIMULATED PERFORMANCE ALTERNATIVE. R405		
	ENERGY RATING INDEX COMPLIANCE ALTERNATIVE. R406		
INFORMATION IN CONSTRUCTION DOCUMENTS		YES	N/A
ENVELOPE			X
	ROOF INSULATION R-VALUE		X
	ROOF INSULATION TYPE AND LOCATION		X
	ROOF MEMBRANE SOLAR REFLECTANCE AND THERMAL EMITTANCE		X
	WALL INSULATION R-VALUE		X
	WALL INSULATION TYPE AND LOCATION		X
	WINDOW AND SKYLIGHT SHGC		X
	AIR LEAKAGE TESTING REQUIREMENT		X
AIR CONDITIONING			
	AIR CONDITIONING EQUIPMENT CAPACITY AND EFFICIENCY		X
	PROGRAMMABLE THERMOSTAT		X
	DUCT INSULATION R-VALUE		X
	DUCT LEAKAGE TESTING REQUIREMENT		X
ELECTRICAL			
	LIGHTING FIXTURE LOCATIONS	X	
	LAMP TYPE	X	
	CEILING FANS	X	
	WHOLE-HOUSE FAN	X	

NOTES:

SIGNATURE: Eli Waltz
DATE: 11/16/2022
NAME: ELI B. WALTZ
TITLE: ELECTRICAL ENGINEER
LICENSE NO.:18572-E

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

GENERAL CONTRACTOR:

REVISIONS
NO. | DESCRIPTION | DATE
1 | FINAL DR SET | 10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD, STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22
SCALE: As indicated

SHEET TITLE:
ELECTRICAL SYMBOLS, & ABBREVIATION

SHEET NUMBER:
E1.0

RESIDENTIAL OUTLETS

1. APPLIANCE RECEPTACLE OUTLETS INSTALLED IN A DWELLING UNIT FOR SPECIFIC APPLIANCES SUCH AS LAUNDRY EQUIPMENT, SHALL BE INSTALLED WITHIN 6' OF THE INTENDED LOCATION OF THE APPLIANCE.

2. IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM, OR SIMILAR ROOM OR AREA OF DWELLING UNITS, RECEPTACLE OUTLETS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING GENERAL PROVISIONS:

   a. RECEPTACLES SHALL BE INSTALLED SUCH THAT NO POINT MEASURED HORIZONTALLY ALONG THE FLOOR LINE IN ANY WALL SPACE IS MORE THAN 6' FROM A RECEPTACLE OUTLET.

   b. WALL SPACE SHALL BE DEFINED AS:

      - AND SPACE 2' OR MORE IN WIDTH (INCLUDING SPACE MEASURED AROUND CORNERS) AND UNBROKEN ALONG THE FLOOR LINE BY DOORWAYS, FIREPLACES, AND SIMILAR OPENINGS
      - THE SPACE OCCUPIED BY FIXED PANELS IN EXTERIOR WALLS, EXCLUDING SLIDING PANELS
      - THE SPACE AFFORDED BY FIXED ROOM DIVIDERS SUCH AS FREE STANDING BAR-TYPE COUNTERS OR RAILING.

   c. RECEPTACLE OUTLETS IN FLOORS SHALL NOT BE COUNTED AS PART OF THE REQUIRED NUMBER OF RECEPTACLE OUTLETS UNLESS LOCATED WITHIN 18" OF THE WALL.

3. TWO OR MORE SMALL-APPLIANCE BRANCH CIRCUITS SHALL BE REQUIRED IN THE KITCHEN, PANTRY, BREAKFAST ROOM, DINING ROOM, OR SIMILAR AREA OF A DWELLING UNIT. NO OTHER OUTLETS SHALL BE CONNECTED TO THESE SMALL-APPLIANCE BRANCH CIRCUITS. NO SMALL-APPLIANCE BRANCH CIRCUIT SHALL SERVE MORE THAN ONE KITCHEN

4. IN KITCHENS, PANTRIES, BREAKFAST ROOMS, DINING ROOMS, AND SIMILAR AREAS OF DWELLING UNITS, RECEPTACLE OUTLETS FOR COUNTERTOP SPACES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING:

   a. A RECEPTACLE OUTLET SHALL BE INSTALLED AT EACH WALL COUNTERTOP SPACE THAT IS 12" OR WIDER. RECEPTACLE OUTLETS SHALL BE INSTALLED SO THAT NO POINT ALONG THE WALL LINE IS MORE THAN 24".

   b. AT LEAST ONE RECEPTACLE SHALL BE INSTALLED AT EACH ISLAND COUNTERTOP SPACE WITH A LONG DIMENSION OF 24" OR GREATER AND A SHORT DIMENSION OF 12" OR GREATER.

   c. AT LEAST ONE RECEPTACLE OUTLET SHALL BE INSTALLED AT EACH PENINSULAR COUNTERTOP SPACE WITH A LONG DIMENSION OF 24" OR GREATER AND A SHORT DIMENSION OF 12" OR GREATER. A PENINSULAR COUNTERTOP IS MEASURED FROM THE CONNECTING EDGE.

   d. COUNTERTOP SPACES SEPARATED BY RANGETOPS, REFRIGERATORS, OR SINKS SHALL BE CONSIDERED AS SEPARATE COUNTERTOP SPACES.

   e. RECEPTACLE OUTLETS SHALL BE LOCATED ABOVE, BUT NOT MORE THAN 20" ABOVE, THE COUNTERTOP. RECEPTACLE OUTLETS RENDERED NOT READILY ACCESSIBLE BY APPLIANCES FASTENED IN PLACE, APPLIANCE GARAGES, SINKS, OR RANGETOPS ETC. ARE EXEMPT FROM THIS REQUIREMENT. APPLIANCES OCCUPYING DEDICATED SPACE SHALL NOT BE CONSIDERED AS THESE REQUIRED OUTLETS.

5. IN DWELLING UNITS, AT LEAST ONE RECEPTACLE OUTLET SHALL BE INSTALLED IN BATHROOMS WITHIN 3' OF THE OUTSIDE EDGE OF EACH BASIN. THE RECEPTACLE OUTLET SHALL BE LOCATED ON A WALL OR PARTITION THAT IS ADJACENT TO THE BASIN OR BASIN COUNTERTOP, OR INSTALLED ON THE SIDE OR FACE OF THE BASIN CABINET NOT MORE THAN 12" BELOW THE COUNTERTOP.

6. OUTDOOR OUTLETS SHALL BE INSTALLED IN ACCORDANCE TO THE FOLLOWING:

   a. FOR A ONE FAMILY DWELLING AND EACH UNIT OF A TWO-FAMILY DWELLING THAT IS AT GRADE LEVEL, AT LEAST ONE RECEPTACLE OUTLET ACCESSIBLE WHILE STANDING AT GRADE LEVEL AND LOCATED NOT MORE THAN 6.5' ABOVE GRADE SHALL BE INSTALLED AT THE FRONT AND BACK OF THE DWELLING.

   b. FOR EACH DWELLING UNIT OF A MULTIFAMILY DWELLING WHERE THE DWELLING UNIT IS LOCATED AT GRADE LEVEL AND PROVIDED WITH INDIVIDUAL EXTERIOR ENTRANCE/EGRESS, AT LEAST ONE RECEPTACLE OUTLET ACCESSIBLE FROM GRADE LEVEL AND NOT MORE THAN 6.5' ABOVE GRADE SHALL BE INSTALLED.

   c. BALCONIES, DECKS, AND PORCHES THAT ARE ACCESSIBLE FROM INSIDE THE DWELLING UNIT SHALL HAVE AT LEAST ONE RECEPTACLE OUTLET INSTALLED WITHIN THE PERIMETER OF THE BALCONY, DECK, OR PORCH. THE RECEPTACLE SHALL NOT BE LOCATED MORE THAN 6.5' ABOVE THE BALCONY, DECK, OR PORCH SURFACE.

7. IN DWELLING UNITS, AT LEAST ONE RECEPTACLE OUTLET SHALL BE INSTALLED FOR THE LAUNDRY.

8. FOR A ONE-FAMILY DWELLING THE FOLLOWING PROVISIONS SHALL APPLY:

   a. AT LEAST ONE RECEPTACLE OUTLET, IN ADDITION TO THOSE FOR SPECIFIC EQUIPMENT, SHALL BE INSTALLED IN EACH BASEMENT, IN EACH ATTACHED GARAGE, AND IN EACH DETACHED GARAGE WITH ELECTRIC POWER.

   b. WHERE A PORTION OF THE BASEMENT IS FINISHED INTO ONE OR MORE HABITABLE ROOMS, EACH SEPARATE UNFINISHED PORTION SHALL HAVE A RECEPTACLE OUTLET INSTALLED IN ACCORDANCE WITH THIS SECTION.

9. IN DWELLING UNITS, HALLWAYS OF 10' OR MORE IN LENGTH SHALL HAVE AT LEAST ONE RECEPTACLE OUTLET. THE HALL LENGTH SHALL BE CONSIDERED THE LENGTH ALONG THE CENTERLINE OF THE HALL WITHOUT PASSING THROUGH A DOORWAY.

SMOKE DETECTOR GENERAL NOTES

1. SMOKE DETECTORS SHALL BE MARKED WITH THEIR NOMINAL PRODUCTION SENSITIVITY AND TOLERANCE (PERCENT PER FOOT OBSCURATION, AS REQUIRED BY THE LISTING.

2. SPOT-TYPE SMOKE DETECTORS SHALL BE LOCATED ON THE CEILING OR, IF ON A SIDEWALL BETWEEN THE CEILING AND 12 IN. DOWN FROM THE CEILING TO THE TOP OF THE DETECTOR.

3. SMOKE AND HEAT ALARMS SHALL BE INSTALLED IN ALL OCCUPANCIES WHERE REQUIRED BY OTHER GOVERNING LAWS, CODES, OR STANDARDS.

4. WHERE REQUIRED BY OTHER GOVERNING LAWS, CODES, OR STANDARDS FOR SPECIFIC TYPE OF OCCUPANCY, APPROVED SINGLE- AND MULTIPLE-STATION SMOKE ALARMS SHALL BE INSTALLED AS FOLLOWS:

   a. IN ALL SLEEPING ROOMS AND GUEST ROOMS
   b. OUTSIDE OF EACH SEPARATE DWELLING UNIT SLEEPING AREA, WITHIN 21 FT OF ANY DOOR TO A SLEEPING ROOM, WITH DISTANCE MEASURED ALONG A PATH OF TRAVEL.
   c. ON EVER LEVEL OF A DWELLING UNIT, INCLUDING BASEMENTS.
   d. ON EVERY LEVEL OF A RESIDENTIAL BOARD AND CARE OCCUPANCY (SMALL FACILITY), INCLUDED BASEMENTS AND EXCLUDING CRAWL SPACES AND UNFINISHED ATTICS
   e. IN LIVING AREAS OF A GUEST SUITE
   f. IN THE LIVING AREA(S) OF A RESIDENTIAL BOARD AND CARE OCCUPANCY (SMALL FACILITY).

5. ALL POINTS ON THE CEILING SHALL HAVE A SMOKE ALARM WITHIN A DISTANCE OF 30 FT TRAVEL DISTANCE OR SHALL HAVE AND EQUIVALENT OF ONE SMOKE ALARM PER 500 FT^2 OF FLOOR AREA. ONE SMOKE ALARM PER 500 FT^2 IS EVALUATED BY DIVIDING THE TOTAL INTERIOR SQUARE FOOTAGE OF FLOOR AREA PER LEVEL BY 500 FT^2.

6. UNLESS OTHERWISE PERMITTED BY THE AUTHORITY HAVING JURISDICTION, AUDIBLE FIRE ALARM SIGNALS SHALL SOUND ONLY IN AN INDIVIDUAL DWELLING UNIT, SUITE OF ROOMS, OR SIMILAR AREA AND SHALL NOT BE ARRANGED TO OPERATE FIRE-WARNING EQUIPMENT OR FIRE ALARM SYSTEMS OUTSIDE THESE LOCATIONS. REMOTE ANNUNCIATION SHALL BE PERMITTED.

7. SMOKE ALARMS SHALL BE POWERED BY ONE OF THE FOLLOWING MEANS:

   a. A COMMERCIAL LIGHT AND POWER SOURCE ALONG WITH A SECONDARY POWER SOURCE THAT IS CAPABLE OF OPERATING THE DEVICE FOR AT LEAST 24 HOURS IN THE NORMAL CONDITIONS, FOLLOWED BY 4 MINUTES OF ALARM
   b. IF A COMMERCIAL LIGHT AND POWER SOURCE IS NOT NORMALLY AVAILABLE, A NONCOMMERCIAL AC POWER SOURCE ALONG WITH A SECONDARY POWER SOURCE THAT IS CAPABLE OF OPERATING THE DEVICE FOR AT LEAST 7 DAYS IN THE NORMAL CONDITION, FOLLOWED BY 4 MINUTES OF ALARM.
   c. A NONRECHARGEABLE, NONREPLACEABLE PRIMARY BATTER THAT IS CAPABLE OF OPERATING THE DEVICE FOR AT LEAST 10 YEARS IN THE NORMAL CONDITION, FOLLOWED BY 4 MINUTES OF ALARM, FOLLOWED BY 7 DAYS OF TROUBLE.
   d. IF A BATTERY PRIMARY POWER SUPPLY IS SPECIFICALLY PERMITTED, A BATTERY MEETING THE REQUIREMENTS OF NFPA 72 29.6.6 (NONRECHARGEABLE PRIMARY BATTERY) OR THE REQUIREMENTS OF 2010 NFPA 72 29.6.7 (RECHARGEABLE PRIMARY BATTERY) SHALL BE USED.

8. SMOKE ALARMS, SMOKE DETECTORS, DEVICES, COMBINATION DEVICES, AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S LISTING AND PUBLISHED INSTRUCTIONS, AND, UNLESS SPECIFICALLY LISTED FOR THE APPLICATION, SHALL COMPLY WITH REQUIREMENTS IN 2010 NFPA 72 29.8.3.1 THROUGH 29.8.3.4

9. SMOKE ALARMS, SMOKE DETECTORS, DEVICES, COMBINATION DEVICES, AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S LISTING AND PUBLISHED INSTRUCTIONS, AND, UNLESS SPECIFICALLY LISTED FOR THE APPLICATION, SHALL COMPLY WITH REQUIREMENTS IN 2010 NFPA 72 29.8.3.1 THROUGH 29.8.3.4. THIS INCLUDES, BUT IS NOT LIMITED TO NOT BEING INSTALLED WITHIN 36 IN. OF:

   e. HORIZONTAL PATH FROM THE TIP OF THE BLADE OF A CEILING SUSPENDED (PADDLE) FAN.
   f. HORIZONTAL PATH FROM SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS.
   g. HORIZONTAL PATH FROM A DOOR TO A BATHROOM CONTAINING A SHOWER OR TUB.

10. SMOKE ALARMS OR SMOKE DETECTORS MOUNTED ON A SLOPED CEILING HAVING A RISE GREATER THAN 1' IN 8' HORIZONTALLY SHALL BE LOCATED WITHIN 36" OF THE HIGH SIDE OF THE CEILING, BUT NOT CLOSER THAN 4" FROM THE ADJOINING WALL SURFACE.

11. FOR TRAY-SHAPED CEILINGS THAT ARE LEVEL AT THE TOP, SMOKE ALARMS MUST BE MOUNTED ON THE HIGH CEILING OR ON THE SLOPED RISE BETWEEN LEVELS WITHIN 12" VERTICALLY FROM THE ADJOINING HIGH CEILING.

12. SMOKE ALARMS PLACED BETWEEN 10' AND 20' OF A STATIONARY OR FIXED COOKING APPLIANCE SHALL HAVE A SILENCING MEANS OR BE THE PHOTOELECTRIC TYPE.

UTILITY COORDINATION

A. ELECTRICAL SERVICE:
   1. COORDINATE WITH THE UTILITY COMPANIES TO PROVIDE SERVICE.
   2. FURNISH MATERIALS IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE UTILITIES AND THESE SPECIFICATIONS.
   3. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR SCHEDULING AND COORDINATING THE WORK OF SUBCONTRACTORS, SUPPLIERS, AND OTHER INDIVIDUALS OR ENTITIES PERFORMING OR FURNISHING ANY OF CONTRACTOR'S WORK.
   4. PROVIDE ALL WORK AND MATERIALS AND BEAR ALL COSTS FOR PROVIDING TEMPORARY CONSTRUCTION POWER AND THE PERMANENT ELECTRICAL SERVICE, INCLUDING BUT NOT LIMITED TO:
      a. ALL WORK AND MATERIALS NOT PROVIDED BY THE ELECTRIC UTILITY.
      b. ALL PERMITS AND FEES REQUIRED BY THE ELECTRIC UTILITY.
   5. PROVIDE ELECTRICAL DUCTS, RACEWAYS, CONDUCTORS AND CONNECTIONS INDICATED ON THE DRAWINGS, AND ALL OTHER WORK AND MATERIALS REQUIRED FOR A COMPLETE ELECTRICAL SERVICE, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
      a. ELECTRICAL SERVICE CONDUITS AND CONDUCTORS FROM THE POINT OF ELECTRIC UTILITY CONNECTION TO THE SERVICE ENTRANCE EQUIPMENT.
      b. METERING CONDUITS FROM THE INSTRUMENT TRANSFORMERS TO THE METER.

B. TELEPHONE/CATV SERVICE:
   1. PROVIDE ALL WORK AND MATERIALS AND BEAR ALL COSTS FOR THE TELEPHONE/CATV SERVICE DURING CONSTRUCTION.
   2. PROVIDE THE TELEPHONE/CATV ENTRANCE CONDUIT(S) FROM THE TERMINAL POLE TO THE TELEPHONE BOARD, AND ALL OTHER WORK AND MATERIALS REQUIRED FOR A COMPLETE TELEPHONE/CATV SERVICE.
   3. COORDINATE AND OBTAIN INSPECTIONS AND FINAL INSTALLATION APPROVAL FROM SERVING UTILITIES AND OTHER AUTHORITIES HAVING JURISDICTION.
   4. BEFORE COMMENCING WORK, COORDINATE COMPLETE TELEPHONE/CATV SERVICE:
      a. VERIFY COMPLIANCE WITH TELEPHONE/CATV UTILITY REQUIREMENTS.
      b. VERIFY EXACT LOCATION OF EACH SERVICE POINT AND TYPE OF SERVICE.
      c. PAY ANY CHARGES REQUIRED BY THE TELEPHONE/CATV UTILITY FOR CONNECTION AND TURN-ON.
   5. COORDINATE COMPLETE TELEPHONE/CATV LINE CONNECTIONS AT LOCATIONS INDICATED ON THE DRAWINGS WITH THE LOCAL TELEPHONE UTILITY.

D. CERTIFICATION:
   1. PRIOR TO EQUIPMENT PROCUREMENT, SUBMIT CERTIFICATION THAT THE INTENDED INSTALLATION HAS BEEN COORDINATED WITH THE UTILITY COMPANIES AND MEETS ALL UTILITY REQUIREMENTS.
   2. BEFORE START OF SITE WORK, MAKE ARRANGEMENTS FOR TEMPORARY TELEPHONE AND ELECTRICAL SERVICE AS REQUIRED.
   3. BEFORE BIDDING, THE ELECTRICAL CONTRACTOR SHALL CONTACT THE UTILITIES TO DETERMINE THE WORK AND MATERIALS THAT WILL BE REQUIRED FROM THE CONTRACTOR, AND ALL FEES AND PERMITS THAT WILL BE REQUIRED, SO THAT ALL UTILITY SYSTEMS FURNISHED BY THE CONTRACTOR WILL BE INCLUDED IN THE BID.
   4. COORDINATE WORK WITH ENGINEER TO MINIMIZE DOWNTIME OF EXISTING OPERATING EQUIPMENT AND ELECTRICAL DISTRIBUTION SYSTEMS AND TO PRECLUDE UNSAFE OPERATION:
      a. NOTIFY OWNER 10 DAYS BEFORE POWER INTERRUPTIONS.
      b. COORDINATE DOWNTIME WITH OWNER AND LOCAL ELECTRIC UTILITY.
   5. BEFORE COMMENCING WORK, COORDINATE ELECTRIC SERVICE ENTRANCE REQUIREMENTS WITH LOCAL ELECTRIC UTILITY TO ASSURE THAT THE INSTALLATION WILL BE COMPLETE IN ACCORDANCE WITH THESE SPECIFICATIONS AND UTILITY COMPANY REQUIREMENTS:
      a. ENSURE POWER TRANSFORMER SIZE, ELECTRICAL CHARACTERISTICS, AND LOCATION ARE CONSISTENT WITH THE DESIGN AND SERVICE VOLTAGE PROVIDED BY THE ELECTRIC UTILITY COORDINATED WITH OTHER TRADES.
      b. ARRANGE FOR UTILITY REVENUE METER.
      c. COORDINATE INSTALLATION OF METERING C.T.'S AND P.T.'S FURNISHED BY THE ELECTRIC UTILITY.
      d. PAY ANY CHARGES REQUIRED BY THE ELECTRIC UTILITY FOR CONNECTION AND TURN-ON.
   6. DURING THE CONSTRUCTION OF THE PROJECT, THE EXISTING ELECTRICAL SERVICE MUST REMAIN FULLY FUNCTIONAL IN ORDER TO SUPPLY UNINTERRUPTED ELECTRICAL POWER TO THE FACILITY AND ITS ANCILLARY BUILDINGS AND STRUCTURES.

E. BEFORE COMMENCING SITE WORK, COORDINATE UNDERGROUND CONDUIT INSTALLATIONS WITH OTHER WORK TO ELIMINATE CONFLICTS AND AVOID INTERFERENCES WITH OTHER UNDERGROUND SYSTEMS.

LUMINAIRE GENERAL SPECIFICATIONS

1. RECESSED LUMINAIRES INSTALLED IN GYP. BOARD OR PLASTER CEILINGS SHALL HAVE PLASTER FRAMES INSTALLED PRIOR TO CEILING MATERIAL.

2. RECESSED LUMINAIRES INSTALLED INDOORS SHALL BE THERMALLY PROTECTED.

3. COORDINATE THE LOCATION OF LUMINAIRES WITH THE ARCHITECTURAL REFLECTED CEILING PLAN. UNLESS OTHERWISE VERIFIED IN WRITING THE REFLECTED CEILING PLAN LOCATIONS SHALL GOVERN.

4. LUMINAIRES INDICATED ABOVE SHALL BE USED AS A BASIS FOR BIDDING. ANY ALTERNATE LUMINAIRE PACKAGES SHALL BE SUBMITTED IN ACCORDANCE WITH THE LUMINAIRE SUBSTITUTION PROVISIONS IN THE GENERAL CONDITIONS OF THE CONTRACT.

5. MANUFACTURERS CATALOG NUMBERS SHOWN INDICATE BASIC LUMINAIRE TYPES REQUIRED FOR THIS PROJECT. VERIFY WITH MANUFACTURER TO INCLUDE ALL ACCESSORIES REQUIRED FOR ACTUAL INSTALLATION.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LUMINAIRE LOCATIONS, MOUNTING REQUIREMENTS AND ALL U.L. LABELING OF LUMINAIRES PRIOR TO ORDERING. INCLUDE MOUNTING CLIPS, HARDWARE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION.

7. WHERE AREAS ON THE PLANS ARE INDICATED FOR DUAL SWITCHING SHALL BE SWITCHED AS FOLLOWS: ONE SWITCH SHALL OPERATE THE THE INNER LAMP AND THE OTHER SWITCH SHALL OPERATE THE OUTER LAMPS. PROVIDE ALL BALLASTS, LUMINAIRE WHIPS, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION.

8. PRIOR TO PASSING FINAL INSPECTION, THE CONTRACTOR SHALL PROVIDE EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED, AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS.

9. COMMISSION REPORT ON LIGHTING SYSTEMS PER 2015 IECC C408.3.

CONDUIT AND WIRE

1. WIRE SHALL BE COPPER, 75°C RATED FOR GENERAL USE. FOR HID FIXTURES AND WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS WIRE SHALL BE COPPER, MINIMUM 90°C RATED. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30°C AMBIENT TEMPERATURE. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS. 600 VOLT STABILOY 8030 SERIES ALLOY ALUMINUM WIRE AND CABLE (OR EQUAL) IN SIZES 1/0 AND LARGER MAY BE SUBSTITUTED FOR COPPER ON SERVICES AND FEEDERS IF AMPACITY IS EQUAL TO OR GREATER THAN COPPER AND VOLTAGE DROP IS EQUAL TO OR LESS THAN COPPER. SUBMIT CALCULATIONS TO ENGINEER PRIOR TO SUBSTITUTION.

2. ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A #12 PULLWIRE OR EQUAL AND SHALL BE IDENTIFIED AT ALL JUNCTION, PULL AND TERMINATION POINTS, USING PERMANENT METALLIC TAGS. TAG SHALL INDICATE INTENDED USE OF CONDUIT, ORIGINATION AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT. STUB CONDUIT OUT 6" INTO AN ACCESSIBLE AREA. CAP OPEN ENDS NOT TERMINATED IN A JUNCTION BOX.

3. FIRE ALARM, SOUND, TELEPHONE, COMPUTER, AND SIMILAR SYSTEMS CONDUITS LARGER THAN 1" SHALL HAVE LONG RADIUS SWEEPS (12 TIMES THE DIAMETER OF THE CONDUIT).

4. NON-METALLIC AND FLEXIBLE METAL CONDUITS SHALL HAVE A CODE SIZED COPPER GROUNDING CONDUCTOR. INCREASE CONDUIT SIZE AS REQUIRED.

5. CONDUITS PENETRATING THRU ROOF SHALL HAVE ROOF FLASHING WITH CAULKED TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATERTIGHT.

6. PROVIDE SEPARATE NEUTRAL CONDUCTOR FOR EACH ARC-FAULT OR GROUND FAULT CIRCUIT.

7. FINAL CONNECTIONS TO MOTORS, TRANSFORMERS AND OTHER VIBRATING EQUIPMENT SHALL BE WITH SEAL-TITE FLEX (3'-0" MAXIMUM LENGTH) AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.

8. ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC RACEWAYS. RACEWAYS IN SLAB-ON-GRADE OR BELOW GRADE SHALL BE SCHEDULE 40 PVC. TRANSITIONS FROM BELOW TO ABOVE GRADE SHALL BE WITH SCHEDULE 80 PVC OR APPROVED EQUAL PROTECTION. EMT FITTINGS SHALL BE STEEL. CONNECTORS SHALL BE INSULATED THROAT TYPE. TYPE MC CABLE MAY BE USED FOR BRANCH CIRCUITS #8 AWG AND SMALLER AND WHERE ALLOWED BY NEC 330. TYPE NM CABLE MAY BE USED WHERE ALLOWED BY NEC 334.

9. WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75°C.

10. MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH A DISCONNECTING MEANS PER NEC 210.4(B).

UNDERGROUND AND EXTERIOR INSTALLATIONS

1. VERIFY EXACT LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING AND RACEWAY SYSTEMS PRIOR TO TRENCHING. PROVIDE NECESSARY TRENCHING, BACKFILL, EXCAVATION, SUPPORTS, SERVICE FEEDERS (CONDUIT AND/OR WIRE), PULLBOXES, TRANSFORMER PADS, SAWCUTTING AND PATCHING, CONCRETE/PAVING, ETC., REQUIRED. BACKFILL TRENCHES TO 90% COMPACTION AND PATCH TO MATCH EXISTING. CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS.

2. SPLICES IN EXTERIOR PULLBOXES AND MANHOLES SHALL BE MADE WATERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.

3. PULLBOXES, CABINETS, ETC., MOUNTED ON THE EXTERIOR AT GRADE LEVEL, SHALL BE WEATHERPROOF TYPE WITH HINGED LOCKABLE COVERS SECURED WITH TAMPER-PROOF SCREWS.

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL OR SET	10/12/22
		7/22/19

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

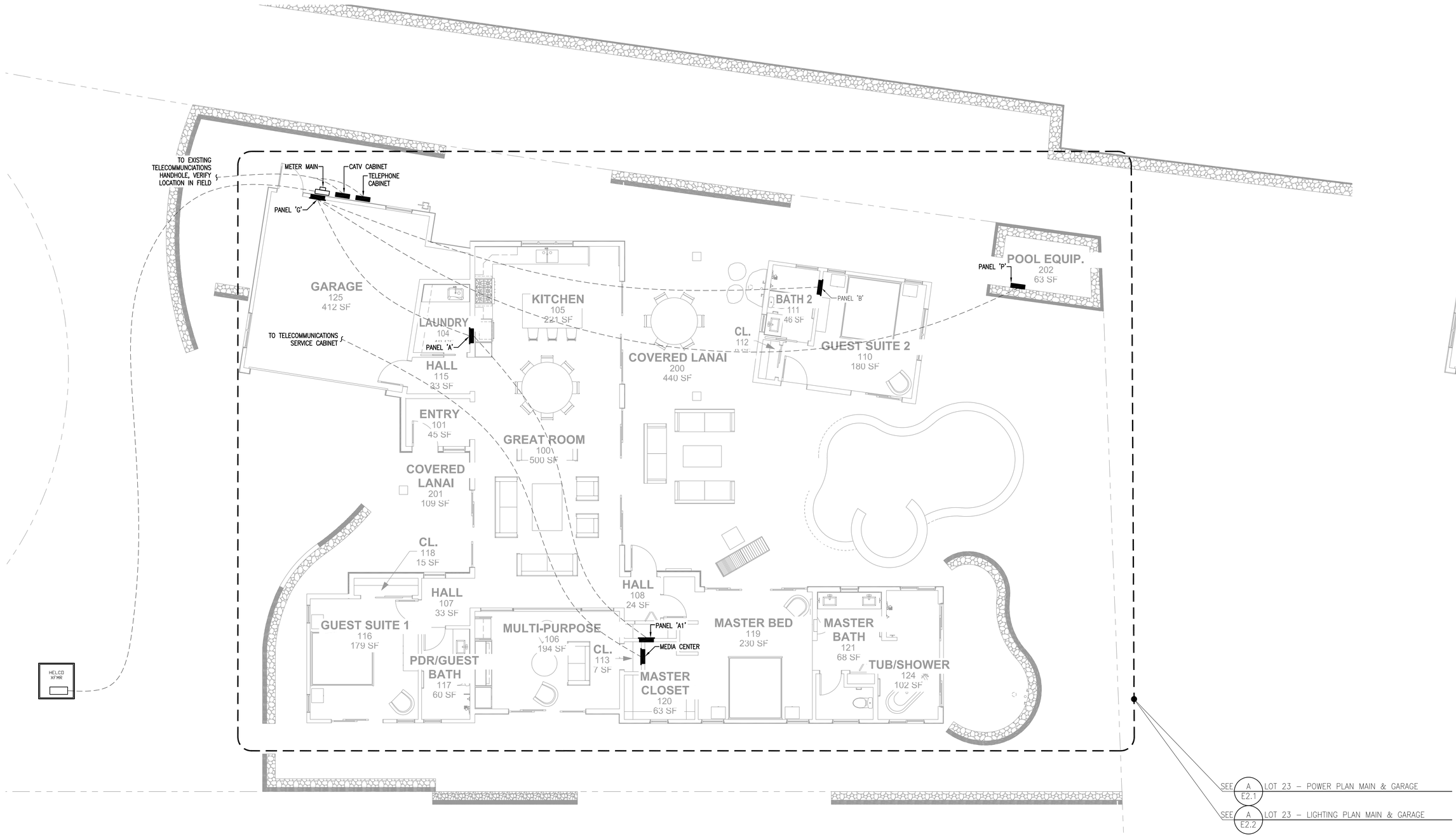
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
ELECTRICAL SYMBOLS, & ABBREVIATION

SHEET NUMBER:
E1.1



A LOT 23 OVERALL ELECTRICAL PLAN
SCALE: 3/16" = 1'-0"
0 4' 8' 12' N

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

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SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

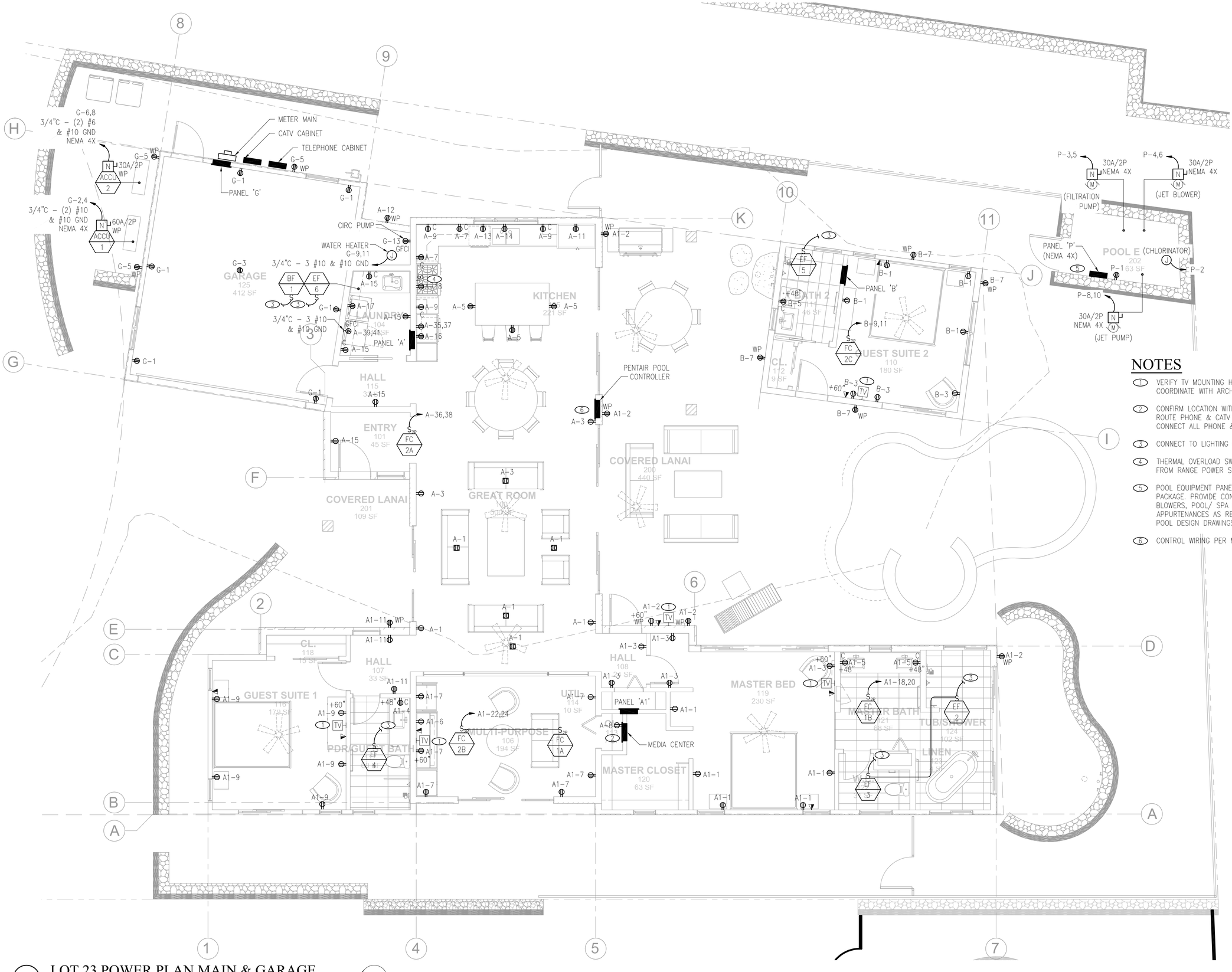
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
LOT 23 OVERALL ELECTRICAL PLAN

SHEET NUMBER:
E2.0



NOTES

1. VERIFY TV MOUNTING HEIGHT PRIOR TO ROUGH IN. COORDINATE WITH ARCHITECT.
2. CONFIRM LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. ROUTE PHONE & CATV SERVICE TO THIS PANEL. CONNECT ALL PHONE & DATA OUTLETS TO THIS PANEL.
3. CONNECT TO LIGHTING CIRCUIT.
4. THERMAL OVERLOAD SWITCH FOR VENT HOOD, SUPPLIED FROM RANGE POWER SUPPLY
5. POOL EQUIPMENT PANEL PROVIDED UNDER POOL DESIGN PACKAGE. PROVIDE CONNECTION TO ALL PUMPS, AIR BLOWERS, POOL/ SPA LIGHTS, AND OTHER APPURTENANCES AS REQUIRED BY 680.20 REFER TO POOL DESIGN DRAWINGS FOR ADDITIONAL INFO.
6. CONTROL WIRING PER MANUFACTURER'S INSTALLATION.

A LOT 23 POWER PLAN MAIN & GARAGE
SCALE: 1/4" = 1'-0"

N

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

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SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL OR SET	10/1/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

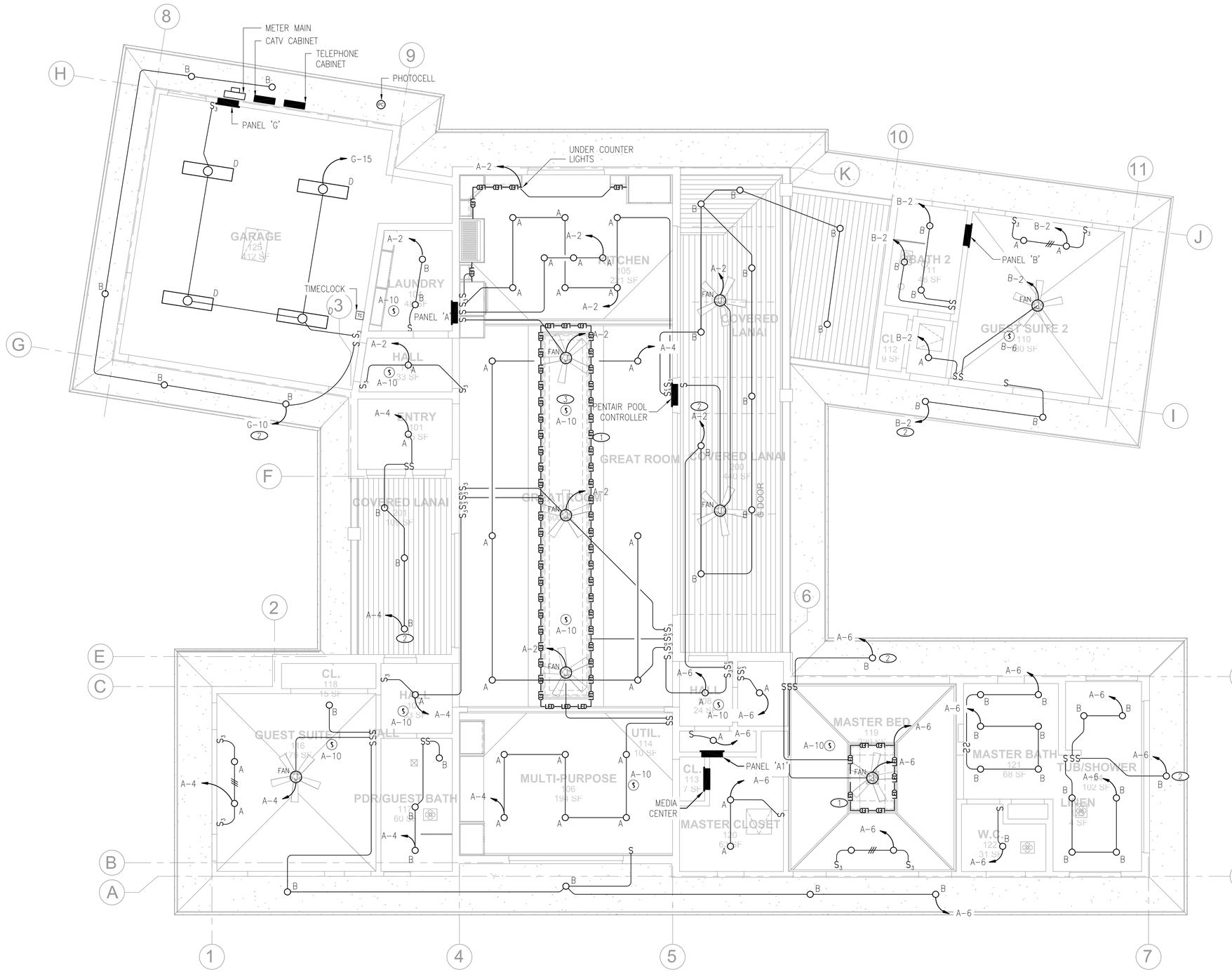
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
LOT 23 POWER PLAN

SHEET NUMBER:
E2.1



NOTICES

1. VERIFY ALL SMOKE DETECTOR LOCATIONS WITH RESPECT TO CEILING FANS, VAULTED CEILINGS, AND MECHANICAL AIR TERMINALS. LOCATE AS REQUIREDBY NFPA 72 – 29.8.3.4 AND MANUFACTURERS INSTRUCTIONS.

NOTES

1. FIELD INSTALL SWITCH RECEPTACLE IN CEILING COVE AREA FOR LED STRIP LIGHTING TRANSFORMERS. VERIFY ALLOWABLE LIGHTING QUANTITIES WITH LIGHTING MANUFACTURER.
2. CIRCUIT VIA PHOTOCELL/ TIMECLOCK, SEE DETAIL 2/E2.4
3. PROVIDE PHOTOELECTRIC DETECTOR FOR DETECTOR PLACEMENT BETWEEN 10FT AND 20FT FROM STATIONARY COOKING EQUIPMENT PER NFPA 72–29.8.3.4(4)

A LOT 23 LIGHTING PLAN MAIN & GARAGE
SCALE: 1/4" = 1'–0"

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	10/1/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
LOT 23 LIGHTING PLAN

SHEET NUMBER:
E2.2

ELECTRICAL LOAD CALCULATIONS

PANEL 'A' – MAIN HOUSE	=	20.6KVA
PANEL 'B' – GUEST HOUSE	=	4.3KVA
PANEL 'G' – GARAGE	=	19.2KVA
PANEL 'P' – POOL	=	8.2KVA
TOTAL	=	52.3KVA
/240V, 1Ø	=	217.9A

PANEL: G

VOLTAGE: 240 / 120 1Ø 3W — BUS: 400A — MAINS: 300A — LOCATION: GARAGE — MOUNTING: FLUSH
CIRCUIT CODE: blank or N: NON-CONTINUOUS, L: LONG-CONTINUOUS, R: DEMANDABLE RECEPTACLES, K: KITCHEN
DATE: 11/13/22 6:20 PM — JOB: 16117-19-01 — AIC RATING: 10 KAIC — NO. OF EQUIPMENT: 0

CKT NO	CODE	TRIP	POLE	LOAD DESIGNATION (NOTE)	M	R	L	CONNECTED VA ØA	ØB	A	B	ØA	ØB	L	R	M	LOAD DESIGNATION (NOTE)	TRIP	POLE	CODE	CKT NO
1		20	1	GARAGE RECEPT				–		•		–					ACCU-1	45			2
3		20	1	GARAGE DOOR OPENER RECEPT					–		•		–				--		2		4
5		20	1	GARAGE EXTERIOR RECEPT				–		•		–					ACCU-2	30			6
7		20	1	BEDROOM 2/ BATH 2 RECEPT					–		•		–				--		2		8
9		30		WATER HEATER				–		•							EXT. LIGHTS	20	1		10
11			2	--					–		•						SPARE	20	1		12
13		20	1	CIRCULATION PUMP RECEPT						•							SPARE	20	1		14
15		20	1	GARAGE LIGHTS							•						SPACE				16
17		20	1	SPARE						•							PANEL 'A'	125			18
19				SPACE							•						--		2		20
21		100		PANEL 'P'						•							--	60			22
23			2	--							•								2		24
25										•											26
27											•										28
29										•											30
31											•										32
33										•											34
35											•										36
37										•											38
39											•										40
41										•											42

PANEL NOTES: — PHASE TOTALS: ØA: 0 — ØB: 0

TOTAL CONNECTED VA	0
CONNECTED VA (CODE N)	0
CONNECTED VA (CODE L)	0
CONNECTED VA (CODE R)	0
CONNECTED VA (CODE K)	0
PANEL CONNECTED KVA	0.0
PANEL DEMAND KVA	0.0
PANEL DEMAND AMPS	0.0
HIGH Ø AMPS w/ DEMAND	0.0

* PROVIDE ARC FAULT PROTECTION WHERE REQUIRED PER NEC 210.12

24 CIRCUIT PANEL

PANEL: A

VOLTAGE: 240 / 120 1Ø 3W — BUS: 125A — MAINS: M.L.O. — LOCATION: LAUNDRY — MOUNTING: FLUSH
CIRCUIT CODE: blank or N: NON-CONTINUOUS, L: LONG-CONTINUOUS, R: DEMANDABLE RECEPTACLES, K: KITCHEN
DATE: 11/14/22 11:43 AM — JOB: 16117-19-01 — AIC RATING: 10 KAIC — NO. OF EQUIPMENT: 0

CKT NO	CODE	TRIP	POLE	LOAD DESIGNATION (NOTE)	M	R	L	CONNECTED VA ØA	ØB	A	B	ØA	ØB	L	R	M	LOAD DESIGNATION (NOTE)	TRIP	POLE	CODE	CKT NO
1		20	1	GREAT ROOM RECEPT						•							LAUNDRY/KIT/PANTRY/LANAI LIGHT	20	1		2
3		20	1	GREAT ROOM RECEPT							•						GREAT ROOM/ENTRY/SUITE 1 LIGHT	20	1		4
5		20	1	KITCHEN ISLAND RECEPT						•							MASTER LIGHTS	20	1		6
7		20	1	KITCHEN RECEPT							•						MEDIA CENTER	20	1		8
9		20	1	KITCHEN RECEPT						•							SMOKE DETECTOR	20	1		10
11		20	1	REFER.							•						EXT RECEPT	20	1		12
13		20	1	DISWASHER						•							DISPOSAL	20	1		14
15		20	1	ENTRY/HALL RECEPT							•						MICROWAVE	20	1		16
17		20	1	WASHER						•							RANGE HOOD	20	1		18
19		20	1	SPARE							•						SPARE	20	1		20
21		20	1	SPARE						•							SPARE	20	1		22
23		20	1	SPARE							•						SPARE	20	1		24
25		20	1	SPARE						•							SPARE	20	1		26
27		20	1	SPARE							•						SPARE	20	1		28
29		20	1	SPARE						•							SPARE	20	1		30
31				SPACE							•						SPACE				32
33				SPACE						•							SPACE				34
35		30		OVEN							•						FC-2A	20			36
37			2	--						•							--		2		38
39		30		DRYER							•						PANEL 'A1'	60			40
41			2	--						•							--		2		42

PANEL NOTES: — PHASE TOTALS: ØA: 0 — ØB: 0

TOTAL CONNECTED VA	0
CONNECTED VA (CODE N)	0
CONNECTED VA (CODE L)	0
CONNECTED VA (CODE R)	0
CONNECTED VA (CODE K)	0
PANEL CONNECTED KVA	0.0
PANEL DEMAND KVA	0.0
PANEL DEMAND AMPS	0.0
HIGH Ø AMPS w/ DEMAND	0.0

* PROVIDE ARC FAULT PROTECTION WHERE REQUIRED PER NEC 210.12

42 CIRCUIT PANEL

PANEL: A1

VOLTAGE: 240 / 120 1Ø 3W — BUS: 125A — MAINS: 60A — LOCATION: LAUNDRY — MOUNTING: FLUSH
CIRCUIT CODE: blank or N: NON-CONTINUOUS, L: LONG-CONTINUOUS, R: DEMANDABLE RECEPTACLES, K: KITCHEN
DATE: 11/14/22 11:43 AM — JOB: 16117-19-01 — AIC RATING: 10 KAIC — NO. OF EQUIPMENT: 0

CKT NO	CODE	TRIP	POLE	LOAD DESIGNATION (NOTE)	M	R	L	CONNECTED VA ØA	ØB	A	B	ØA	ØB	L	R	M	LOAD DESIGNATION (NOTE)	TRIP	POLE	CODE	CKT NO
1		20	1	MASTER BED RECEPT				–		•		–					LANAI RECEPT	20	1		2
3		20	1	MASTER BED/HALL RECEPT					–		•		–				GUEST SUITE 1 BATH	20	1		4
5		20	1	MASTER BATH RECEPT				–		•		–					MURPHY BED	20	1		6
7		20	1	MEDIA ROOM RECEPT					–		•		–				SPARE	20	1		8
9		20	1	GUEST SUITE 1 BED RECEPT				–		•		–					SPARE	20	1		10
11		20	1	GUEST SUITE 1 HALL RECEPT					–		•		–				SPARE	20	1		12
13		20	1	SPARE				–		•		–					SPARE	20	1		14
15		20	1	SPARE					–		•		–				SPARE	20	1		16
17				SPACE				–		•		–					FC-1B	20			18
19				SPACE					–		•		–				--		2		20
21				SPACE				–		•		–					FC-1B,1A	20			22
23				SPACE					–		•		–				--		2		24
25								–		•		–									26
27									–		•		–								28
29								–		•		–									30
31									–		•		–								32
33								–		•		–									34
35									–		•		–								36
37								–		•		–									38
39									–		•		–								40
41								–		•		–									42

PANEL NOTES: — PHASE TOTALS: ØA: 0 — ØB: 0

TOTAL CONNECTED VA	0
CONNECTED VA (CODE N)	0
CONNECTED VA (CODE L)	0
CONNECTED VA (CODE R)	0
CONNECTED VA (CODE K)	0
PANEL CONNECTED KVA	0.0
PANEL DEMAND KVA	0.0
PANEL DEMAND AMPS	0.0
HIGH Ø AMPS w/ DEMAND	0.0

* PROVIDE ARC FAULT PROTECTION WHERE REQUIRED PER NEC 210.12

24 CIRCUIT PANEL

PANEL: P

VOLTAGE: 240 / 120 1Ø 3W — BUS: 100A — MAINS: 100A — LOCATION: VAULT — MOUNTING: SURFACE
CIRCUIT CODE: blank or N: NON-CONTINUOUS, L: LONG-CONTINUOUS, R: DEMANDABLE RECEPTACLES, K: KITCHEN
DATE: 11/13/22 6:19 PM — JOB: 16117-19-01 — AIC RATING: 10 KAIC — NO. OF EQUIPMENT: 0

CKT NO	CODE	TRIP	POLE	LOAD DESIGNATION (NOTE)	M	R	L	CONNECTED VA ØA	ØB	A	B	ØA	ØB	L	R	M	LOAD DESIGNATION (NOTE)	TRIP	POLE	CODE	CKT NO
1		20	1	POOL VAULT RECEPT				1000		•		500					CHLORINTAOR	20	1		2
3		20		FILTRATION PUMP					1600		•		900				JET BLOWER	20			4
5			2	--				1600		•		900					--		2		6
7		20	1	SPARE					–		•		850				JET PUMP	20			8
9		20	1	SPARE				–		•		850					--		2		10
11		20	1	SPARE					–		•		–				SPARE	20	1		12
13		20	1	SPARE				–		•		–					SPARE	20	1		14
15		20	1	SPARE					–		•		–				SPARE	20	1		16
17				SPACE						•							SPACE				18
19				SPACE							•						SPACE				20
21				SPACE						•							SPACE				22
23				SPACE							•						SPACE				24
25										•											26
27											•										28
29										•											30
31											•										32
33										•											34
35											•										36
37										•											38
39											•										40
41										•											42

PANEL NOTES: — PHASE TOTALS: ØA: 4850 — ØB: 3350

TOTAL CONNECTED VA	8200
CONNECTED VA (CODE N)	8200
CONNECTED VA (CODE L)	0
CONNECTED VA (CODE R)	0
CONNECTED VA (CODE K)	0
PANEL CONNECTED KVA	8.2
PANEL DEMAND KVA	8.2
PANEL DEMAND AMPS	34.2
HIGH Ø AMPS w/ DEMAND	40.4

24 CIRCUIT PANEL

PANEL: B

VOLTAGE: 240 / 120 1Ø 3W — BUS: 125A — MAINS: 60A — LOCATION: GUESTROOM — MOUNTING: FLUSH
CIRCUIT CODE: blank or N: NON-CONTINUOUS, L: LONG-CONTINUOUS, R: DEMANDABLE RECEPTACLES, K: KITCHEN
DATE: 11/13/22 6:20 PM — JOB: 16117-19-01 — AIC RATING: 10 KAIC — NO. OF EQUIPMENT: 0

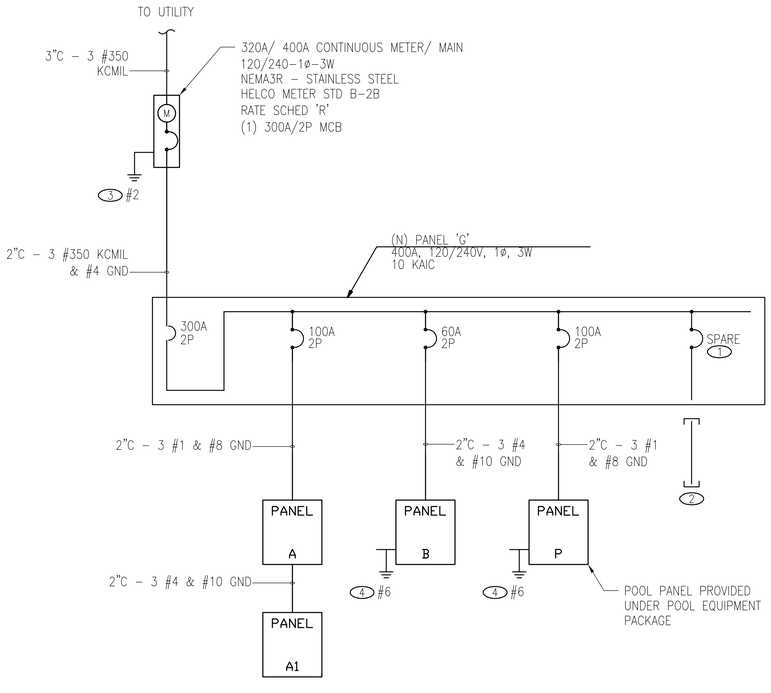
CKT NO	CODE	TRIP	POLE	LOAD DESIGNATION (NOTE)	M	R	L	CONNECTED VA ØA	ØB	A	B	ØA	ØB	L	R	M	LOAD DESIGNATION (NOTE)	TRIP	POLE	CODE	CKT NO
1		20	1	BEDROOM 2 RECEPT						•							BEDROOM 2/BATH 2 LIGHTS	20	1		2
3		20	1	BEDROOM 2 RECEPT							•						SUITE 2 EXT. RECEPT	20	1		4
5		20	1	BEDROOM 2/ BATH 2 RECEPT						•							SMOKE DECTECTOR	20	1		6
7		20	1	SUITE 2 EXT. RECEPT							•						SPARE	20	1		8
9		20		FC-2C						•							SPARE	20	1		10
11			2	--							•						SPARE	20	1		12
13		20	1	SPARE						•							SPARE	20	1		14
15		20	1	SPARE							•						SPARE	20	1		16
17		20	1	SPARE						•							SPACE				18
19				SPACE							•						SPACE				20
21				SPACE						•							SPACE				22
23				SPACE							•						SPACE				24
25										•											26
27											•										28
29										•											30
31											•										32
33										•											34
35											•										36
37										•											38
39											•										40
41										•											42

PANEL NOTES: — PHASE TOTALS: ØA: 0 — ØB: 0

TOTAL CONNECTED VA	0
CONNECTED VA (CODE N)	0
CONNECTED VA (CODE L)	0
CONNECTED VA (CODE R)	0
CONNECTED VA (CODE K)	0
PANEL CONNECTED KVA	0.0
PANEL DEMAND KVA	0.0
PANEL DEMAND AMPS	0.0
HIGH Ø AMPS w/ DEMAND	0.0

* PROVIDE ARC FAULT PROTECTION WHERE REQUIRED PER NEC 210.12

24 CIRCUIT PANEL



1 ONE-LINE DIAGRAM
NO SCALE

NOTES

1. PROVIDE SPARE BREAKER AT OPPOSITE END OF INCOMING UTILITY FEEDER FOR FUTURE PV SYSTEM CONNECTION.
2. PROVIDE 2"C STUB–OUT AT ACCESSIBLE LOCATION AT EXTERIOR FOR FUTURE PV SYSTEM CONNECTION.
3. BOND TO ALL AVAILABLE GEC PER NEC 250.52
4. BOND TO ALL AVAILABLE GEC PER NEC 250.32

LUMINAIRE SCHEDULE

FIXTURE TYPE	MANUFACTURER NAME	MANUFACTURER CATALOG NUMBER	VOLT AMPS	MOUNTING	LAMP TYPE	REMARKS	VOLT
A	EATON	H7ICAT–310W	15	RECESSED	LED	6" RECESSED CAN, DIMMABLE	120
B	EATON	H7ICAT–70PS	15	RECESSED	LED	6" RECESSED CAN, SHOWER LIGHT, AIR TIGHT	120
C	LITHONIA	FMLL 930 840	35	SURFACE	LED	1X4 SURFACE MOUNTED WITH 4–SIDED LENSES	120
—LED—	TBC	TBC	4/LF	SURFACE	LED	LED STRIP LIGHTING, DIMMABLE	120

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

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SIGNATURE

GENERAL CONTRACTOR:

REVISIONS

NO.	DESCRIPTION	DATE
	FINAL DR SET	10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
ELECTRICAL ONE LINE & SCHEDULES

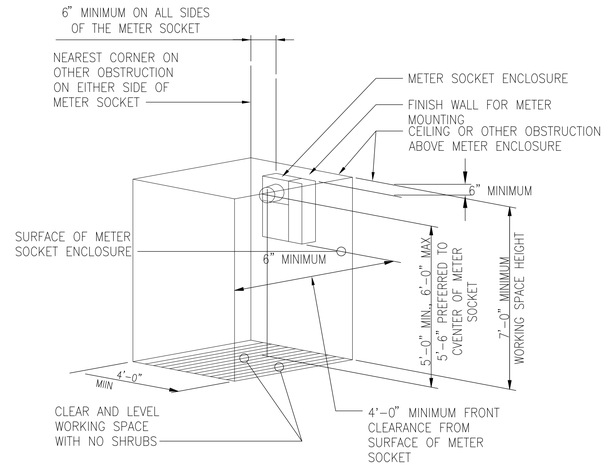
SHEET NUMBER:
E2.3

CLEARANCES AROUND METERS

ALLOW THE FOLLOWING CLEARANCES AROUND METERING EQUIPMENT:

1. CLEARANCE AROUND THE METER: 6 INCHES ABOVE, AND TO THE SIDE OF THE METER SOCKET ENCLOSURE OR INSTRUMENT TRANSFORMER ENCLOSURE, TO ANY OBSTRUCTION.

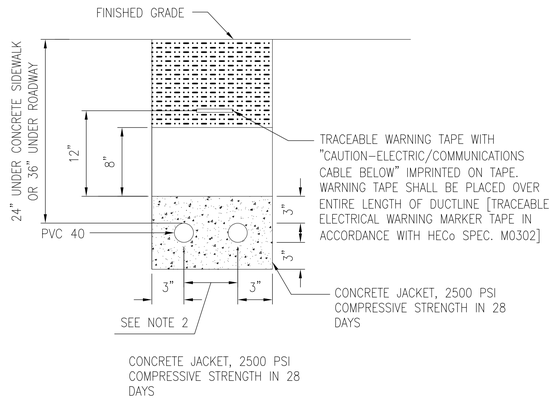
2. A CLEARANCE IN FRONT OF METERING EQUIPMENT OF 4 FEET BY 7 FEET WITH NO OBSTRUCTIONS SUCH AS WALLS, FENCES, TREES, HEDGES, OR OTHER STRUCTURES OR EQUIPMENTS.



- DIAGRAM PROVIDED FOR REFERENCE ONLY
- REFERENCE HAWAII ELECTRIC LIGHT COMPANY ELECTRIC SERVICE INSTALLATION MANUAL, SEVENTH EDITION FOR ACTUAL REQUIREMENTS

5 HELCO METER CLEARANCE REQUIREMENTS

NO SCALE



BACKFILL:

TYPE "A" NON–CONTAMINATED NATIVE SOIL MATERIAL WHICH DOES NOT CONTAIN MORE THAN 50% GRAVEL, AND ALSO, DOES NOT CONTAIN HARD LUMPS OF EARTH 3 INCHES IN GREATEST DIMENSION, ROCKS LARGER THAN 3 INCHES IN LARGEST DIMENSION, HIGHLY PLASTIC CLAY, POORLY–GRADED SAND AND GRAVEL (CLASSIFIED AS SP AND GP USING THE UNITED SOIL CLASSIFICATION SYSTEM), ORGANICS, DEBRIS, OR OTHER UNSUITABLE OR DELETERIOUS MATERIALS.

TYPE "B" SELECT GRANULAR MATERIAL PASSING A ONE (1) INCH SIEVE SUCH AS THREE–QUARTERS (3/4) INCH AGGREGATE BASE COURSE GRAVEL, S4C OR MATERIAL THAT IS FREE OF ORGANICS DEBRIS OR HIGHLY–PLASTIC CLAY AND MEETS THE FOLLOWING GRADATION:

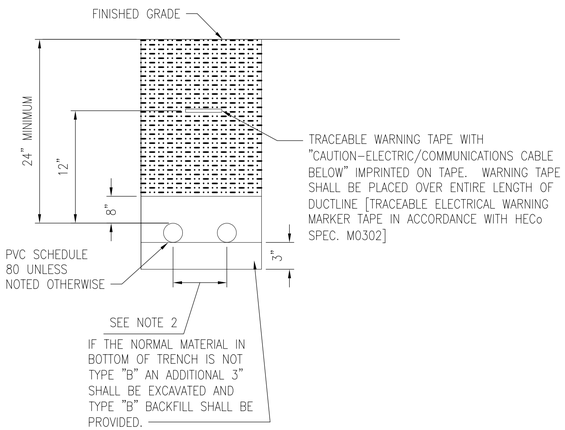
SIEVE SIZE	PERCENT PASSING BY WEIGHT
1"	100
3/4"	90–100
NO. 4	35–100
NO. 40	10–30
NO. 200	3–15

NOTES:

1. ELECTRICAL AND TELEPHONE DUCTS SIMILAR.
2. PROVIDE 1–1/2" SEPARATION BETWEEN DUCTS OF SAME SYSTEM AND 3" BETWEEN DUCTS OF DIFFERENT SYSTEMS
3. WHERE TRENCH ENCOUNTERS EXISITING CONCRETE OR ASPHALT CONCRETE, SURFACE SHALL BE SAWCUT. BACKFILL, COMPACT AND PATCH SURFACE TO MATCH ADJACENT AREA. SEE TRENCH RESTORATION DETAIL
4. SEE DUCT SECTION DETAILS FOR CONDUIT ARRANGEMENT

3 TYPICAL DUCT SECTION CONCRETE ENCASED

NO SCALE



BACKFILL:

TYPE "A" NON–CONTAMINATED NATIVE SOIL MATERIAL WHICH DOES NOT CONTAIN MORE THAN 50% GRAVEL, AND ALSO, DOES NOT CONTAIN HARD LUMPS OF EARTH 3 INCHES IN GREATEST DIMENSION, ROCKS LARGER THAN 3 INCHES IN LARGEST DIMENSION, HIGHLY PLASTIC CLAY, POORLY–GRADED SAND AND GRAVEL (CLASSIFIED AS SP AND GP USING THE UNITED SOIL CLASSIFICATION SYSTEM), ORGANICS, DEBRIS, OR OTHER UNSUITABLE OR DELETERIOUS MATERIALS.

TYPE "B" : SELECT GRANULAR MATERIAL PASSING A ONE (1) INCH SIEVE SUCH AS THREE–QUARTERS (3/4) INCH AGGREGATE BASE COURSE GRAVEL, S4C OR MATERIAL THAT IS FREE OF ORGANICS DEBRIS OR HIGHLY–PLASTIC CLAY AND MEETS THE FOLLOWING GRADATION:

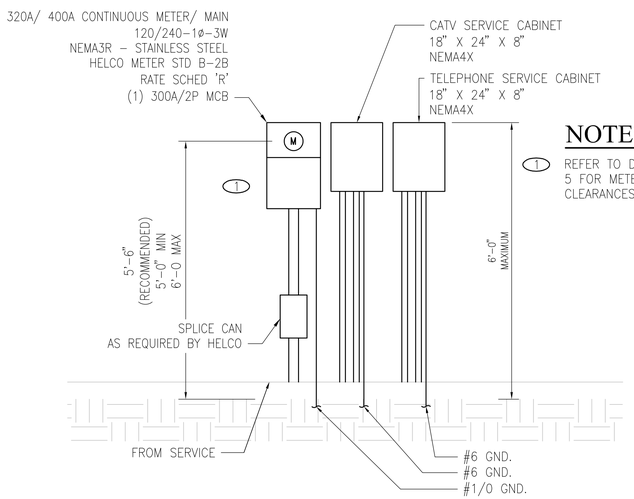
SIEVE SIZE	PERCENT PASSING BY WEIGHT
1"	100
3/4"	90–100
NO. 4	35–100
NO. 40	10–30
NO. 200	3–15

NOTES:

1. WHERE TRENCH ENCOUNTERS EXISITING CONCRETE OR ASPHALT CONCRETE, SURFACE SHALL BE SAWCUT. BACKFILL, COMPACT AND PATCH SURFACE TO MATCH ADJACENT AREA.
2. PROVIDE 3" SEPARATION BETWEEN DUCTS OF SAME SYSTEM AND 12" SEPARATION BETWEEN ELECTRICAL DUCTS AND DUCTS OF DIFFERENT SYSTEMS.

1 TYPICAL DUCT SECTION DIRECT BURIED

NO SCALE

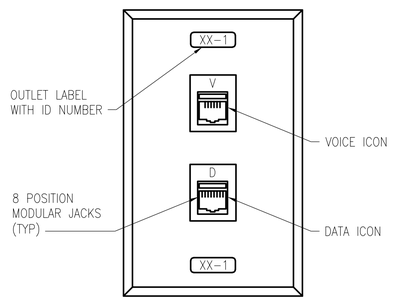


NOTES

1 REFER TO DETAIL 5 FOR METER CLEARANCES.

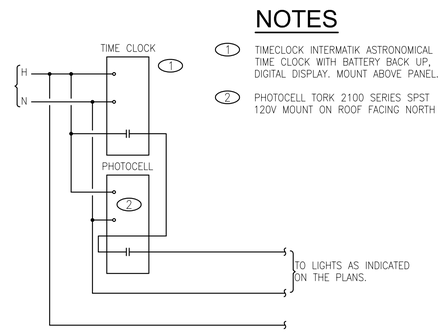
A ELECTRICAL DISTRIBUTION ELEVATION

NO SCALE



4 2-PORT FACEPLATE

NO SCALE



NOTES

1 TIMECLOCK INTERMATIK ASTRONOMICAL TIME CLOCK WITH BATTERY BACK UP, DIGITAL DISPLAY. MOUNT ABOVE PANEL.

2 PHOTOCELL TORK 2100 SERIES SPST 120V MOUNT ON ROOF FACING NORTH

2 LIGHTING CONTROL WITH TIMECLOCK AND PHOTOCELL

NO SCALE

ELI B. WALTZ
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

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SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL OR SET	10/1/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023

NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE: **ELECTRICAL DETAILS**

SHEET NUMBER: E2.4

SERVICE DATA

1) SERVICE VOLTAGE: 120/240
2) LOAD DATA: CONNECTED: 52.3 KVA
   ESTIMATED DEMAND: 36.6 KVA
3) SERVICE CONDUCTORS: #350 KCMIL
4) METERING: 320A
5) METER SOCKET: B-2B, 4 JAW, RATE SCHEDULE "R"
6) TYPE: UNDERGROUND
7) BILLING INFORMATION: NOHEA AT MAUNA LANI, LLC
   101 HODENCAMP RD. SUITE 200
   THOUSAND OAKS, CA 91360

5 SERVICE LOAD CALCULATION
NO SCALE

SERVICE LOAD CALCULATIONS FOR RESIDENCE	120/240
SQUARE FOOTAGE	2170 SQ. FT.
GENERAL LIGHTING LOAD	
(SQFT X 3VA)	6510 VA
SMALL APPLIANCE LOADS (1,500VA EA.)	
>2 SMALL APPLIANCE	3000 VA
LAUNDRY BRANCH CIRCUITS	1500 VA
BATHROOMS (1.5KVA/BATHROOM)	3000 VA
SUBTOTAL #1	14010 VA
DEMAND FACTOR	
1ST 3KVA @ 100%	3000 VA
REM KVA @ 35%	3854 VA
OVER 120KVA @25%	0 VA
GENERAL LIGHTING/POWER LOADS	6854 VA
APPLIANCE LOAD (>4 APPLIANCE @ 75%)	
REFRIGERATOR	1200 VA
DISHWASHER	1000 VA
OVEN	6500 VA
GENERAL APPLIANCE LOADS	8700 VA
DRYER LOAD	
5KVA OR NAMEPLATE	5000 VA
TOTAL	20554 VA
MINIMUM SERVICE	86 A

3 SERVICE LOAD CALCULATION (MAIN HOUSE)
NO SCALE

SERVICE LOAD CALCULATIONS FOR RESIDENCE	120/240
SQUARE FOOTAGE	0 SQ. FT.
GENERAL LIGHTING LOAD	
(SQFT X 3VA)	0 VA
SMALL APPLIANCE LOADS (1,500VA EA.)	
>2 SMALL APPLIANCE	VA
LAUNDRY BRANCH CIRCUITS	VA
BATHROOMS (1.5KVA/BATHROOM)	VA
SUBTOTAL #1	0 VA
DEMAND FACTOR	
1ST 3KVA @ 100%	0 VA
REM KVA @ 35%	0 VA
OVER 120KVA @25%	0 VA
GENERAL LIGHTING/POWER LOADS	0 VA
MOTOR LOADS (@100%)	
SPA FILTRATION PUMP	3200
SPA JET PUMP	1700
JET AIR BLOWER	1800
POOL LIGHTS	1000
CHLORINATOR	500
TOTAL	8200 VA
TOTAL	8200 VA
MINIMUM SERVICE	34 A

4 SERVICE LOAD CALCULATION (POOL)
NO SCALE

SERVICE LOAD CALCULATIONS FOR RESIDENCE	120/240
SQUARE FOOTAGE	420 SQ. FT.
GENERAL LIGHTING LOAD	
(SQFT X 3VA)	1260 VA
SMALL APPLIANCE LOADS (1,500VA EA.)	
>2 SMALL APPLIANCE	VA
LAUNDRY BRANCH CIRCUITS	VA
BATHROOMS (1.5KVA/BATHROOM)	VA
SUBTOTAL #1	1260 VA
DEMAND FACTOR	
1ST 3KVA @ 100%	1260 VA
REM KVA @ 35%	0 VA
OVER 120KVA @25%	0 VA
GENERAL LIGHTING/POWER LOADS	1260 VA
MOTOR LOADS (@100%)	
WATER HEATER	4500
CIRC PUMPS	1000
ACCU-1	5600
ACCU-2	5600
HVAC	16700 VA
SPACE HEATING (@100%)	
TOTAL	17960 VA
MINIMUM SERVICE	75 A

1 SERVICE LOAD CALCULATION (GARAGE)
NO SCALE

SERVICE LOAD CALCULATIONS FOR RESIDENCE	120/240
SQUARE FOOTAGE	280 SQ. FT.
GENERAL LIGHTING LOAD	
(SQFT X 3VA)	840 VA
SMALL APPLIANCE LOADS (1,500VA EA.)	
>2 SMALL APPLIANCE	3000 VA
LAUNDRY BRANCH CIRCUITS	1500 VA
BATHROOMS (1.5KVA/BATHROOM)	1500 VA
SUBTOTAL #1	6840 VA
DEMAND FACTOR	
1ST 3KVA @ 100%	3000 VA
REM KVA @ 35%	1344 VA
OVER 120KVA @25%	0 VA
GENERAL LIGHTING/POWER LOADS	4344 VA
TOTAL	4344 VA
MINIMUM SERVICE	18 A

2 SERVICE LOAD CALCULATION (GUEST HOUSE)
NO SCALE

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Exp. 04/30/24
No. 18572-E
HAWAII, U.S.A.

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REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	10/12/22

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TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
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CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE: **LOAD CALCS**

SHEET NUMBER: E2.5

AIR CONDITIONING AND VENTILATION SPECIFICATIONS

1. DUCT DIMENSIONS SHOWN ON PLANS ARE INSIDE CLEAR DIMENSIONS. FIT OF DUCTWORK SHALL BE VERIFIED PRIOR TO FABRICATION.

2. INSULATED, FACTORY FABRICATED, FLEXIBLE DUCTWORK MAY BE UTILIZED AT RUNOUTS TO AIR DIFFUSERS. FLEXIBLE DUCTWORK SHALL CONSIST OF AN EXTERIOR REINFORCED LAMINATED VAPOR BARRIER, 1.5" FIBERGLASS INSULATION AND INTERIOR VINYL LINER (NON-PERFORATED) WITH SPRING STEEL WIRE HELIX. FIBERGLASS INSULATION SHALL HAVE A MAXIMUM CONDUCTIVITY OF 0.25 AT 75°F. FLEXIBLE DUCT ASSEMBLY SHALL HAVE A FLAME SPREAD/SMOKE DEVELOPED RATING OF 25/50 OR LESS. FLEXIBLE DUCT TO FLEXIBLE DUCT CONNECTIONS SHALL BE MADE WITH FACTORY FABRICATED STEEL COLLARS. SECURE TO RIGID DUCTWORK AND AIR DEVICES WITH SCREWS AND DRAWBANDS. LENGTH OF FLEXIBLE DUCTWORK SHALL BE LIMITED TO 5' AND SHALL NOT BE COMPRESSED. FLEXIBLE DUCTWORK SHALL NOT BE USED FOR ELBOWS AND SHALL NOT PASS THROUGH WALLS.

3. DUCT HANGERS SHALL BE CONSTRUCTED OF GALVANIZED STEEL (UNLESS OTHERWISE STATED). DUCTS SHALL BE SUPPORTED AND CONNECTED TO THE STRUCTURE PER SMACNA DUCT CONSTRUCTION STANDARDS. HANGERS AND SUPPORTS FOR GREASE DUCT SHALL BE OF NONCOMBUSTIBLE MATERIALS. FLEXIBLE DUCTS SHALL BE SUPPORTED WITH GALVANIZED STRAPS (UNLESS OTHERWISE STATED).

4. HEAVY FLEXIBLE CONNECTIONS SHALL BE FURNISHED AND INSTALLED AT DUCT CONNECTIONS TO FANS AND WHERE INDICATED. FLEXIBLE CONNECTIONS SHALL BE 6" MINIMUM AND 10" MAXIMUM IN LENGTH. MATERIAL SHALL BE VENTFAB MANUFACTURED BY VENTFABRICS, METAL-FAB MANUFACTURED BY DURO-DYNE OR APPROVED EQUAL.

5. MANUAL VOLUME DAMPERS SHALL BE FURNISHED AND INSTALLED WHERE INDICATED AT SUPPLY AIR DUCT RUNOUTS TO AIR DIFFUSERS AND GRILLES AS NEAR AS POSSIBLE TO THE TRUNK DUCT. MANUAL VOLUME DAMPERS FOR RECTANGULAR DUCT SHALL BE CONSTRUCTED OF ALUMINUM AND BE THE OPPOSED BLADE TYPE. STAND-OFFS TO OUTSIDE OF INSULATION SHALL BE PROVIDED FOR MANUAL VOLUME DAMPERS IN INSULATED DUCTS. LOCKING AND INDICATING QUADRANTS SHALL BE PROVIDED WHERE DAMPER IS ACCESSIBLE. REMOTE CEILING OPERATORS SHALL BE FURNISHED AND INSTALLED FOR DAMPERS ABOVE INACCESSIBLE CEILINGS. OPERATORS SHALL BE GEAR AND LINKAGE TYPE EQUAL TO YOUNG REGULATOR WITH CHROME PLATED CEILING ESCUTCHEON AND COVER PLATE. PROVIDE RUSKIN OR APPROVED EQUAL.

6. ROOF CURB ASSEMBLIES SHALL CONSIST OF HEAVY GAUGE GALVANIZED STEEL(UNLESS OTHERWISE STATED) ROOF CURB, UTILIZED CONSTRUCTION, WITH INTEGRAL BASE PLATE, 3 LB DENSITY INSULATION AND 2 X 2 NAILER. ROOF CURB SHALL BE AS MANUFACTURED BY PATE OR EQUAL.

7. SUPPLY AND RETURN AIR DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED STEEL (UNLESS OTHERWISE STATED) PER SMACNA DUCT CONSTRUCTION STANDARDS AND CHAPTER 1, AIR DUCT DESIGN, 2012 EQUIPMENT VOLUME ASHRAE HANDBOOK. DUCTWORK SHALL BE CONSTRUCTED FOR THE PRESSURE CLASS REQUIRED TO MEET SYSTEM STATIC PRESSURE INDICATED ON THESE DRAWINGS. SPIRAL LOCK-FORMED ROUND DUCT MAY BE UTILIZED. TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SHALL BE SEALED AIR-TIGHT WITH MASTIC OR APPROVED SEALANT COMPOUND AROUND ALL JOINTS. RADIUSED ELBOWS OR MITERED ELBOWS WITH SINGLE THICKNESS TURNING VANES SHALL BE UTILIZED. TURNING VANES SHALL BE SUPPORTED AT INTERVALS OF 36" MAXIMUM. TURNING VANE RUNNERS SHALL HAVE A VANE IN EVERY SLOT AND SHALL CONFORM TO SMACNA DUCT CONSTRUCTION STANDARDS.

8. ALL SUPPLY AIR AND RETURN DUCT WORK SHALL BE WRAPPED WITH 1-1/2" INCH THICK DUCT WRAP WITH VAPOR BARRIER – OWENS CORNING FIBERGLASS DUCT WRAP WITH FOIL-SCRIM-KRAFT FACING. INSULATION SHALL BE SECURED WITH WIRE TIES AT 12" ON CENTER OR WITH SELF-SEALING LAP AND TAPE JOINTS 3" ON CENTER AT FITTINGS. JOINTS SHALL BE COVERED WITH 3" WIDE FOIL REINFORCED KRAFT TAPE. ADHESIVE OR MECHANICAL FASTENERS SHALL BE USED WHERE NECESSARY TO PREVENT SAGGING. VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS SHALL BE SEALED WITH VAPOR BARRIER ADHESIVE. INSULATION SHALL STOP AND POINT AROUND ACCESS DOORS AND DAMPER OPERATORS TO ALLOW OPERATION WITHOUT DISTURBING WRAPPING.

9. AIR DISTRIBUTION DEVICES:
   STORMPROOF LOUVER: STATIONARY DRAINABLE BLADE TYPE CONSTRUCTED OF EXTRUDED ALUMINUM. LOUVERS SHALL BE COMPATIBLE WITH THE ADJACENT SUBSTRATE AND INSTALLED WITH INSECT SCREEN. RUSKIN OR APPROVED EQUAL. PAINT EXPOSED PORTIONS OF LOUVER TO MATCH THE SURROUNDING SURFACES.

   ROOF CAP: GREENHECK OR EQUAL, LOW PROFILE ROOF CAP, ALL ALUMINUM CONSTRUCTION, PAINT TO MATCH ROOF, PROVIDE WITH INSECT SCREEN. SIZING SHALL BE AS RECOMMENDED BY THE MANUFACTURER BASED ON SUPPLY OR EXHAUST AIR AND THE VOLUME OF AIR MOVING THROUGH THE DEVICE.

10. ALL CEILING DIFFUSERS AND REGISTERS IN FIRE RATED CEILINGS SHALL BE CONSTRUCTED OF STEEL. WHERE FIRE SMOKE DAMPERS ARE REQUIRED, PROVIDE RUSKIN FSD FIRE DAMPER OR APPROVED EQUAL. CEILING RADIATION DAMPERS SHALL BE RUSKIN CFD OR APPROVED EQUAL. PROVIDE DIFFUSERS AND REGISTERS WITH THERMAL BLANKETS BETWEEN DAMPERS AND FIRE RATED CEILING. INSTALLATION SHALL BE PER MANUFACTURER'S UL LISTED INSTALLATION INSTRUCTIONS.

11. DUCT SMOKE DETECTORS SHALL BE PROVIDED FOR UNITS PROVIDING MORE 2000 CFM. DUCT SMOKE DETECTORS SHALL BE LOCATED ON THE SUPPLY DUCT PRIOR TO ANY BRANCHES AND AIR TERMINALS.

12. CONTROLS: PROVIDE THERMOSTAT IN RETURN AIR DUCT WITH SUBBASE MOUNTED ON THE WALL AS INDICATED ON DRAWINGS. EACH DUCTLESS SPLIT INDOOR UNIT SHALL BE PROVIDED WITH A WIRED REMOTE CONTROLLER AS INDICATED ON DRAWINGS. PROVIDE CONTROL WIRING PER MANUFACTURER'S WRITTEN INSTRUCTION, RUN CONCEALED IN FINISHED SPACE.

13. VIBRATION ISOLATORS: SPRING ISOLATORS WITH A MINIMUM STATIC DEFLECTION OF 1.0 INCHES OR AS REQUIRED BY THE MANUFACTURER. KORFUND VIBRO-ISOLATOR, SERIES VX OR EQUAL. KORFUND NEOPRENE PAD "KORPAD" OR EQUAL.

14. AFTER THE SYSTEM IS ENERGIZED, OPERATE THE EQUIPMENT TO TEST FOR PROPER OPERATION AND TO ADJUST THE DAMPERS. CLEAN UP EQUIPMENT AS NECESSARY. FURNISH WRITTEN INSTRUCTIONS FOR NORMAL USAGE OF THE WALL THERMOSTAT CONTROLLER AND OWNER'S RESPONSIBILITIES CONCERNING NORMAL SERVICING OF THE INSTALLED EQUIPMENT.

15. BALANCE, ADJUST, AND TEST: AN INDEPENDENT TEST AND BALANCE FIRM WHICH IS AABC OR NEBB CERTIFIED SHALL BE RETAINED FOR CHECK/TEST-START-UP AND TESTING AND BALANCING OF AIR AND WATER SYSTEMS. THE TEST REPORT SHALL BE IN A FORMAT APPROVED FOR SYSTEMS OF THIS TYPE AND COMPLEXITY. QUALIFICATIONS OF INDEPENDENT TEST AND BALANCE FIRM SHALL BE SUBMITTED FOR REVIEW. TAB WORK SHALL COMPLY WITH THE LATEST PROCEDURAL STANDARDS AND SMACNA'S TAB PROCEDURAL GUIDE.

16. TEST MECHANICAL SYSTEMS TO DETERMINE QUANTITATIVE PERFORMANCE. COMPARE OBSERVED QUANTITIES WITH DESIGN QUANTITIES. ADJUST SYSTEMS TO PRODUCE OBSERVED QUANTITIES THAT WILL CONFORM TO DESIGN QUANTITIES WITHIN TOLERANCES SPECIFIED.

16. EQUIPMENT AND CONDENSATE DRAINS SHALL BE SCHEDULE 80 PVC PIPE WITH SOLVENT WELDED JOINTS AND DRAINAGE PATTERN FITTINGS. PROVIDE CLEANOUTS AT EVERY CHANGE IN DIRECTION. ALL INTERIOR CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH MINIMUM 1" ARMAFLEX, PROVIDE PVC OR ALUMINUM JACKET FOR EXTERIOR PIPING. DRAINS SHALL BE ROUTED SO AS NOT TO CREATE A TRIPPING HAZARD. SLOPE LINES AT 1/4-INCH PER FOOT UNLESS OTHERWISE DIRECTED. PROVIDE A WATER SEAL WITH WATER COLUMN 1-INCH GREATER THAN THE TOTAL STATIC PRESSURE OF THE FAN IN INCHES OF WATER. TERMINATE AS INDICATED ON DRAWING.

17. REFRIGERANT PIPING: DIMENSIONS AND MATERIAL REQUIREMENTS FOR PIPE, PIPE FITTINGS AND COMPONENTS SHALL CONFORM TO ASHRAE 15 AND ANSI B31.5 AND SHALL BE COMPATIBLE WITH FLUIDS USED AND CAPABLE OF WITHSTANDING THE PRESSURES AND TEMPERATURES OF THE SERVICE. PIPE, TUBING AND COMPONENTS USED FOR REFRIGERANT SERVICE SHALL BE CLEANED, SEALED, CAPPED OR PLUGGED PRIOR TO SHIPMENT FROM THE MANUFACTURER'S PLANT. TYPE "L" HARD DRAWN COPPER TUBE WITH WROUGHT COPPER FITTINGS BRAZED WITH SILVER OR COPPER PHOSPHORUS ALLOYS. SUCTION LINES SHALL BE INSULATED WITH 1" FLEXIBLE ELASTOMERIC THERMAL INSULATION, ARMAFLEX OR APPROVED EQUAL. ALL EXTERIOR INSULATION SHALL BE WRAPPED WITH AN ALUMINUM JACKET. ALL UNDERGROUND INSULATION SHALL BE 1" CELLULAR GLASS WITH PIT WRAP. PROVIDE PROSET SYSTEMS U.L. FIRE RATED SLEEVE/COUPLING PENETRATORS FOR EACH PIPE PENETRATION PASSING THROUGH FIRE RATED FLOORS, WALLS, PARTITION OR FLOOR CEILING ASSEMBLIES. ALL PENETRATORS SHALL COMPLY WITH ASTM E-814 OR U.L. 1479 FIRE TEST STANDARDS. SLEEVE PENETRATORS SHALL HAVE A BUILT IN ANCHOR RING FOR WATER PROOFING AND ANCHORING INTO CONCRETE POURS OR USE THE SPECIAL FIT CORED HOLE PENETRATOR FOR CORED HOLES. INSTALL PIPING SYSTEM IN ACCORDANCE WITH ANSI STANDARD B9.1 AND B31.5 AND WITH ASHRAE RECOMMENDATIONS. AFTER COMPLETION OF PIPING INSTALLATION AND PRIOR TO INITIAL OPERATION, CONDUCT TESTS ON PIPING SYSTEM. FURNISH MATERIALS AND EQUIPMENT REQUIRED FOR TESTS. TEST SYSTEMS FOR TIGHTNESS AND IF NECESSARY, CORRECT BY REMAKING OR RE-WELDING JOINTS. REFRIGERANT SYSTEM TEST PRESSURES FOR TIGHTNESS SHALL NOT BE LESS THAN TEST PRESSURES SPECIFIED IN ANSI/ASHRAE 15 OR ASME/ANSI B31.5. AFTER COMPLETION OF LEAK TESTING OF REFRIGERANT SYSTEM, REMOVE ALL AIR AND MOISTURE FROM SYSTEM WITH A HIGH VACUUM PUMP. PROVIDE INITIAL CHARGE OF R-410A REFRIGERANT.

18. PIPE HANGERS FOR INSULATED PIPE SIZES 1/2" TO 1-1/2" SHALL BE ADJUSTABLE, STEEL, BAND TYPE. PIPE HANGERS FOR INSULATED PIPE SIZES 2" AND OVER SHALL BE ADJUSTABLE, STEEL CLEVIS TYPE. SHIELDS SHALL BE USED WHERE HANGER SUPPORTS INSULATED PIPE. SHIELDS SHALL BE 18 GAGE GALVANIZED STEEL OVER INSULATION 180 DEGREES AND A MINIMUM OF 12 INCHES LONG. PIPE HANGERS FOR BARE PIPE SHALL BE ADJUSTABLE, MALLEABLE STEEL, SPLIT RING TYPE. BARE COPPER PIPE SHALL BE PROTECTED FROM CORROSION BY TRISOLATOR OR SIMILAR PRODUCT. HANGERS SHALL BE LOCATED 12" MAXIMUM FROM ANY CHANGE IN DIRECTION AND SPACED AS FOLLOWS FOR STRAIGHT RUNS.

PIPE SIZE MAX.	HANGER SPACING	HANGER ROD DIAMETER
1/2" TO 1-1/4"	6'	1/4"
1-1/2" TO 2"	8'	1/4"

19. ALL PIPE PENETRATIONS THRU EXISTING OR NEW EXTERIOR WALLS SHALL BE SLEEVED AND WEATHER PROOFED TO PREVENT LEAKING INTO THE BUILDING.

MECHANICAL SYMBOLS

- SHEET METAL DUCTWORK
- DUCTWORK TRANSITION
- DEMOLITION
- SUPPLY OR OA DUCT ELBOW DOWN
- RETURN OR EXHAUST DUCT ELBOW DOWN
- 45° BOOT BRANCH TAKEOFF
- DUCT CONTINUATION
- ELBOW WITH TURNING VANES
- SUPPLY OR OA DUCT UP
- RETURN AIR OR EXHAUST DUCT UP
- EXHAUST AIR DUCT UP
- SUPPLY AIR DIFFUSER
- RETURN AIR OR EXHAUST REGISTER
- VD — VOLUME DAMPER
- F — FIRE DAMPER OR CEILING RADIATION DAMPER
- FIS — COMBINATION FIRE SMOKE DAMPER
- M — MOTORIZED DAMPER
- BDD — BACKDRAFT DAMPER
- T — THERMOSTAT MOUNTED AT MAX +48" A.F.F. TO THE TOP OF THE CONTROL DEVICE PLATE

- EQUIPMENT TAG
- CO2 — CO2 SENSOR MOUNTED IN DUCT
- SD — SMOKE DETECTOR MOUNTED IN DUCT
- M#.# — DETAIL DESIGNATION
- CEILING ACCESS PANEL
- PIPE RISER TO UPPER LEVEL
- CAPPED LINE
- PIPE ELBOW UP/DOWN
- PIPE BRANCH TOP CONNECTION
- PIPE BRANCH BOTTOM CONNECTION
- PIPE UNION
- POINT OF CONNECTION
- POINT OF DISCONNECTION

GENERAL MECHANICAL SPECIFICATIONS

1. PROVIDE COMPLETE AND OPERATING SYSTEMS AS SPECIFIED AND INDICATED ON DRAWINGS. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL" WHEN USED HEREIN.

2. WORK SHALL COMPLY WITH ALL LOCAL CODES AND ORDINANCES INCLUDING: ANSI B9.1/ASHRAE 15 – SAFETY CODE FOR MECHANICAL REFRIGERATION; HAWAII DOH CHAPTER 39, TITLE 11 – AIR CONDITIONING AND VENTILATION; HAWAII COUNTY BUILDING CODE; ASHRAE 62-2016 – VENTILATION STANDARD; SMACNA HVAC DUCT CONSTRUCTION STANDARDS; 2018 INTERNATIONAL ENERGY CONSERVATION CODE.

3. CONTRACTOR SHALL ARRANGE AND PAY FOR ALL PERMITS AND FEES.

4. MATERIALS AND EQUIPMENT SHALL BE NEW AND GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE. MATERIALS AND EQUIPMENT SHALL BE AS SCHEDULED OR EQUAL, MEETING THE REQUIREMENTS OF THE SPECIFICATION. MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO ORDER RELEASE. WORK SHALL BE GUARANTEED AGAINST DEFECTIVE WORKMANSHIP OR MATERIALS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT. WARRANTY WORK SHALL BE COMPLETED AT NO EXTRA CHARGE TO THE OWNER. FURNISH MANUFACTURER'S PRODUCT WARRANTY CERTIFICATES IN A BINDER.

5. PRIOR TO COMMENCEMENT OF WORK AND ORDERING OF EQUIPMENT, CONTRACTOR SHALL SUBMIT 6 BOUND SETS OF PROPOSED MATERIALS AND EQUIPMENT. RECORD DRAWINGS, OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE SUBMITTED AS REQUIRED BY OWNER'S REPRESENTATIVE UPON COMPLETION.

6. DRAWINGS SHALL NOT BE SCALED.

7. PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURERS INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE. PROVIDE FIRE DAMPERS ON ALL DUCT PENETRATIONS THROUGH FIRE RATED WALLS AS REQUIRED TO PRESERVE THE FIRE RATING OF THE STRUCTURE.

8. MECHANICAL EQUIPMENT SHALL BE SECURED AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND APPLICABLE SECTIONS OF THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.

9. ELECTRICAL CHARACTERISTICS OF MECHANICAL EQUIPMENT SHALL BE VERIFIED WITH ELECTRICAL DRAWINGS PRIOR TO ORDER RELEASE. ADDITIONAL ELECTRICAL WORK RESULTING FROM EQUIPMENT SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

10. DUCTWORK, PIPING AND EQUIPMENT SHALL BE PROVIDED WITH SEISMIC RESTRAINTS IN ACCORDANCE WITH THE SMACNA SEISMIC RESTRAINT MANUAL – GUIDELINES FOR MECHANICAL SYSTEMS.

11. ELECTRICAL: CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. OBTAIN EQUIPMENT MANUFACTURER'S CONTROL WIRING DIAGRAMS FOR THE EQUIPMENT FURNISHED. ELECTRICAL EQUIPMENT SHALL BE FURNISHED WITH WEATHER PROOF (NEMA 4X WHEN POSSIBLE) ENCLOSURES FOR OUTDOOR INSTALLATIONS AND OTHERWISE AS INDICATED ON PLANS.

12. FIELD INVESTIGATIONS: VISIT THE WORK-SITE AND BECOME FULLY AWARE OF ALL EXISTING CONDITIONS. INVESTIGATE THE CONTRACT DOCUMENTS AND MAKE PROPER PROVISIONS TO AVOID INTERFERENCES OR CONSTRUCTION DELAYS. DETERMINE THE EXACT ROUTE OF EACH DUCT AND PIPE. ANY DISCREPANCY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

13. WORK CONDITIONS: FIELD VERIFY CONDITIONS AND DIMENSIONS FOR INTERFERENCES. INSTALLED WORK SHALL BE PROTECTED DURING CONSTRUCTION AND CLEANED FOR FINAL INSPECTION. TOUCH-UP PAINT ALL RAW EDGES OF METAL EXPOSED TO WEATHER. COORDINATE WITH OTHER TRADES FOR PIPE SLEEVES AND INSTALLATION OF EQUIPMENT SUPPORTS.

14. REQUIREMENTS: PERFORM WORK USING PERSONNEL SKILLED IN THE TRADE INVOLVED. PROVIDE COMPETENT SUPERVISION. FURNISH NEW EQUIPMENT, MATERIALS AND ACCESSORIES BEARING THE MANUFACTURER'S IDENTIFICATION AND CONFORMING TO THE RECOGNIZED COMMERCIAL STANDARDS.

15. EQUIPMENT INSTALLATION: INSTALL EQUIPMENT IN THE SPACE ALLOTTED WITH SUFFICIENT CLEARANCE FOR PROPER OPERATION AND MAINTENANCE AND WITH SUFFICIENT HEAD CLEARANCE ACCORDING TO THE BUILDING CODE. WHERE EQUIPMENT DIFFERS IN ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, PROVIDE ALL REQUIRED CHANGES IN PIPING, SUPPORTS AND APPURTENANCES. PROVIDE ACCESS PANELS WHERE REQUIRED FOR MAINTENANCE ACCESS TO EQUIPMENT.

MECHANICAL ABBREVIATIONS

(E)	EXISTING	FPM	FEET PER MINUTE
(D)	DEMOLISH	FT	FEET
(N)	NEW	HTR	HEATER
(R)	RELOCATED	HZ	HERTZ
A	AMPERE	KW	KILOWATT
A/C	AIR CONDITIONING	LAT	LEAVING AIR TEMPERATURE
ABV	ABOVE	LBS	POUNDS
ADJ	ADJUSTABLE	MAN	MANUFACTURER
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
ACCU	AIR COOLED CONDENSING UNIT	MCA	MINIMUM CIRCUIT AMPS
AHU	AIR HANDLING UNIT	MECH	MECHANICAL
APPROX	APPROXIMATELY	MIN	MINIMUM
ARCH	ARCHITECT	MOCP	MAXIMUM OVERCURRENT PROTECTION
BLDG	BUILDING	MTD	MOUNTED
BHP	BRAKE HORSEPOWER	NOM	NOMINAL
BV	BALL VALVE	OA	OUTSIDE AIR
CAP	CAPACITY	PH	PHASE
CD	CEILING DIFFUSER	PLMB	PLUMBING
CLG	CEILING	QTY	QUANTITY
CFM	CUBIC FEET PER MINUTE	REQ'D	REQ'D
CONC	CONCRETE	RM	ROOM
CONN	CONNECT	RA	RETURN AIR
CONT	CONTINUATION	RAR	RETURN AIR REGISTER
DB	DRY BULB	RLA	RUNNING LOAD AMPS
DBA	DECIBELS (A-WEIGHTED)	SA	SUPPLY AIR
DN	DOWN	SQ	SQUARE
EA	EXHAUST AIR	SS	STAINLESS STEEL
EAT	ENTERING AIR TEMPERATURE	TDH	TOTAL DISCHARGE HEAD
EF	EXHAUST FAN	TEMP	TEMPERATURE
ELEC	ELECTRICAL	TYP	TYPICAL
ER	EXHAUST REGISTER	V	VOLT
ESP	EXTERNAL STATIC PRESSURE	VAV	VARIABLE AIR VOLUME
EXH	EXHAUST	VD	MANUAL VOLUME DAMPER
EXIST	EXISTING	VTR	VENT TO ROOF
FC	FAN COIL	W	WATT
FD	FIRE DAMPER	W/	WITH
FLA	FULL LOAD AMPS	WB	WET BULB
FLEX	FLEXIBLE	ZD	ZONE DAMPER
FLR	FLOOR		

HAWAII COUNTY ENERGY CODE

2018 IECC, HAWAII REVISED STATUTES HRS 107-24 TO 28 & HAWAII ADMINISTRATIVE RULES HAR 3-181.1

RESIDENTIAL BUILDING ENERGY EFFICIENCY STANDARDS

I CERTIFY THAT THE DESIGN IS IN CONFORMANCE WITH THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO THE RESIDENTIAL PROVISIONS OF THE 2018 IECC WITH AMENDMENTS PER HAR CHAPTER 3-181.1:

COMPLIANCE METHOD			
	TROPICAL ZONE. R401.2.1		
	POINTS OPTION. R407		
X	PRESCRIPTIVE. R402		
	POINTS OPTION. R407		
	SIMULATED PERFORMANCE ALTERNATIVE. R405		
	ENERGY RATING INDEX COMPLIANCE ALTERNATIVE. R406		
INFORMATION IN CONSTRUCTION DOCUMENTS		YES	N/A
ENVELOPE			
	ROOF INSULATION R-VALUE		X
	ROOF INSULATION TYPE AND LOCATION		X
	ROOF MEMBRANE SOLAR REFLECTANCE AND THERMAL EMITTANCE		X
	WALL INSULATION R-VALUE		X
	WALL INSULATION TYPE AND LOCATION		X
	WINDOW AND SKYLIGHT SHGC		X
	AIR LEAKAGE TESTING REQUIREMENT		X
AIR CONDITIONING			
	AIR CONDITIONING EQUIPMENT CAPACITY AND EFFICIENCY	X	
	PROGRAMMABLE THERMOSTAT	X	
	DUCT INSULATION R-VALUE	X	
	DUCT LEAKAGE TESTING REQUIREMENT	X	
ELECTRICAL			
	LIGHTING FIXTURE LOCATIONS		X
	LAMP TYPE		X
	CEILING FANS		X
	WHOLE-HOUSE FAN		X

NOTES:

SIGNATURE: _____
DATE: 11/10/2022
NAME: NIMR Y. TAMIMI
TITLE: MECHANICAL ENGINEER
LICENSE NO.:7936-M

NIMR Y. TAMIMI
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 7936-M
HAWAII, U.S.A.

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SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD. STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
MECHANICAL SYMBOLS, & ABBREVIATION

SHEET NUMBER:
M1.0

AIR COOLED CONDENSING UNIT SCHEDULE

UNIT NO.	AREA SERVED	NOMINAL CAPACITY (TONS)	COMPRESSOR QTY/TYPE	CONDENSER EAT (°F)	ELECTRICAL			WEIGHT (LBS)	SYSTEM SEER	REMARKS
					V/HZ/PH	MCA	MOP			
ACCU 1	FC-1A, FC-1B	4.0	1/INVERTER DRIVEN SCROLL	100	208-230V/60/1	29	44	271	16.5	MITSUBISHI PUMY OR APPROVED EQUAL.
ACCU 2	FC-2A,2B,2C	3.0	1/INVERTER DRIVEN SCROLL	100	208-230V/60/1	29	30	271	18.3	MITSUBISHI PUMY OR APPROVED EQUAL.

FAN COIL UNIT SCHEDULE

UNIT NO.	AREA SERVED	CFM	OA CFM	NOM. CAPACITY (BTUH)	TOTAL CAPACITY (BTUH)	SENS. CAPACITY (BTUH)	EXT. STATIC PRESSURE	AIR TEMPERATURE				ELECTRICAL DATA			UNIT WEIGHT (LB)	MAX UNIT HEIGHT (IN)	REMARKS
								ENT. °F		LVG. °F		MCA	MOP	V/HZ/PH			
								DB	WB	DB	WB						
FC 1A	GREAT ROOM	735	100	24,000	21,300	16,300	0.6	74.8	64.5	57.0	56.1	3.0	15	208-230V/60/1	113	17"	MITSUBISHI MULTI-POSITION OR APPROVED EQUAL. PROVIDE WITH BUILT IN CONDENSATE LIFT.
FC 1B	MASTER BED/BATH	875	200	30,000	23,000	14,500	0.6	79.4	68.4	56.8	55.9	4.13	15	208-230V/60/1	141	21"	MITSUBISHI MULTI-POSITION OR APPROVED EQUAL. PROVIDE WITH BUILT IN CONDENSATE LIFT.
FC 2A	LAUNDRY/KITCHEN	585	50	18,000	12,100	9,900	0.6	74.6	63.8	56.7	55.7	3.0	15	208-230V/60/1	113	17"	MITSUBISHI MULTI-POSITION OR APPROVED EQUAL. PROVIDE WITH BUILT IN CONDENSATE LIFT.
FC 2B	GUEST 1 & MULTI-PURPOSE	585	75	18,000	14,700	11,600	0.6	75.0	64.4	57.1	56.1	3.0	15	208-230V/60/1	113	17"	MITSUBISHI MULTI-POSITION OR APPROVED EQUAL. PROVIDE WITH BUILT IN CONDENSATE LIFT.
FC 2C	GUEST SUITE 2	400	50	12,000	7,900	6,100	0.6	75.5	64.8	57.1	56.2	3.0	15	208-230V/60/1	113	17"	MITSUBISHI MULTI-POSITION OR APPROVED EQUAL. PROVIDE WITH BUILT IN CONDENSATE LIFT.

EXHAUST FAN SCHEDULE

UNIT NO.	AREA SERVED	CFM	STATIC PRESSURE (IN. W.G.)	MOTOR DATA		DRIVE	RPM	TYPE	WEIGHT (LBS.)	SOUND LEVEL (SONES)	OPERATION	REMARKS
				HP/W	V/HZ/PH							
EF 1	LAUNDRY/PANTRY	50	0.375	7.2W	120/60/1	ECM DIRECT	1093	CEILING CENTRIFUGAL	11	0.4	SWITCH	PANASONIC WHSIPERCEILING DC SMARTFLOW OR APPROVED EQUAL. PROVIDE WITH SPEED CONTROL. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.
EF 2	MASTER BATH	130	0.375	25.4W	115/60/1	DIRECT	1105	CEILING MOUNTED	13	<1.5	SWITCH	PANASONIC WHISPERGREEN OR APPROVED EQUAL. PROVIDE WITH SPEED CONTROL. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.
EF 3	MASTER WC	50	0.375	7.2W	120/60/1	ECM DIRECT	1093	CEILING CENTRIFUGAL	11	0.4	SWITCH	PANASONIC WHSIPERCEILING DC SMARTFLOW OR APPROVED EQUAL. PROVIDE WITH SPEED CONTROL. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.
EF 4	BATH 1	50	0.375	7.2W	120/60/1	ECM DIRECT	1093	CEILING CENTRIFUGAL	11	0.4	SWITCH	PANASONIC WHSIPERCEILING DC SMARTFLOW OR APPROVED EQUAL. PROVIDE WITH SPEED CONTROL. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.
EF 5	BATH 2	50	0.375	7.2W	120/60/1	ECM DIRECT	1093	CEILING CENTRIFUGAL	11	0.4	SWITCH	PANASONIC WHSIPERCEILING DC SMARTFLOW OR APPROVED EQUAL. PROVIDE WITH SPEED CONTROL. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.

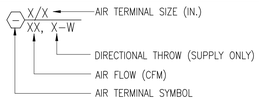
BOOSTER FAN SCHEDULE

UNIT NO.	AREA SERVED	CFM	STATIC PRESSURE (IN. W.G.)	MOTOR DATA		DRIVE	RPM	TYPE	WEIGHT (LBS.)	SOUND LEVEL (SONES)	OPERATION	REMARKS
				HP/W	V/HZ/PH							
B 1	DRYER	188 (ADJ.)	VARIES	65 W	120/1/60	DIRECT	2175	CENTRIFUGAL INLINE	9	–	FAN MOTOR AND PRESSURE SWITCH	FANTECH DBF OR APPROVED EQUAL

AIR TERMINAL SCHEDULE

SUPPLY AIR	DESCRIPTION
A	ALL ALUMINUM CONSTRUCTION, SURFACE MOUNTED, ALUMINUM OPPOSED BLADE VOLUME DAMPER. TITUS TDC-AA OR APPROVED EQUAL.
B	ALL ALUMINUM CONSTRUCTION, SURFACE MOUNTED, OFF-WHITE BAKED ENAMEL FINISH. TITUS 300FL-AA OR APPROVED EQUAL. PROVIDE WITH 45 DEGREE DEFLECTION.

RETURN/EXHAUST AIR	DESCRIPTION
1	ALL ALUMINUM CONSTRUCTION, SURFACE MOUNTED, ALUMINUM OPPOSED BLADE VOLUME DAMPER, TITUS 350FL OR APPROVED EQUAL.
2	ALL ALUMINUM CONSTRUCTION, SURFACE MOUNTED, ALUMINUM OPPOSED BLADE VOLUME DAMPER, TITUS 350FL OR APPROVED EQUAL.



AIR TERMINAL NOTES

1. ALL AIR DEVICES SHALL BE FULLY INSULATED SUCH THAT NO METAL PORTIONS OF THE DIFFUSER ARE EXPOSED IN UNCONDITIONED AREAS. PROVIDE MOLDED FIBERGLASS INSULATION DIFFUSER BLANKET FOR 24"X24" LAY-IN MODULES. DIFFUSER BLANKET SHALL HAVE FOIL BACK VAPOR BARRIER WITH 6.0 R-VALUE OR GREATER.
2. ALL AIR DEVICES SHALL BE UNIFORM IN COLOR. OWNER'S REPRESENTATIVE TO CONFIRM COLOR OF ALL AIR TERMINALS.

NOTES

1. PROVIDE PSX 700 OR APPROVED EQUAL FOR ALL EXTERNAL FAN BLADES AND OUTDOOR EQUIPMENT HOUSINGS (INTERNAL & EXTERNAL).
2. PROVIDE BLYGOLD POLYAL XT OR APPROVED EQUAL FOR ALL EXTERNAL COILS.

DUCT AND PLENUM INSULATION NOTES

1. DUCT INSULATION THICKNESS SHALL BE GREATER THAN OR EQUAL TO R-6 FOR DUCTS AND PLENUMS LOCATED IN UNCONDITIONED SPACES.
2. DUCT INSULATION THICKNESS SHALL BE GREATER THAN OR EQUAL TO R-8 FOR DUCTS AND PLENUMS LOCATED OUTDOORS.
3. DUCTS AND PLENUMS TO BE SEALED PER IMC 2018.

PIPING INSULATION NOTES

1. PROVIDE PIPE INSULATION THICKNESSES PER IECC 2018 TABLE C403.11.3
2. PIPING REQUIRED INSULATION SHALL BE INSULATED CONTINUOUSLY THROUGH CLAMPING, SUPPORTS, AND SLEEVING WITH THE INSULATION THICKNESS AND SPECIFICATIONS PER IECC 2018.

RESIDENTIAL DUCT LEAKAGE TESTING

PROVIDE DUCT LEAKAGE TESTING BASED ON THE FOLLOWING CRITERIA : ROUGH-IN TEST : TOTAL LEAKAGE SHALL BE MEASURED WITH A PRESSURE DIFFERENTIAL OF 0.1 INCH W.G. (25 PA) ACROSS THE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE IF INSTALLED AT THE TIME OF THE TEST. REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST. THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CUBIC FEET PER MINUTE (113.3 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA WHERE THE AIR HANDLER IS NOT INSTALLED AT THE TIME OF TEST. WHERE THE AIR HANDLER IS NOT INSTALLED AT THE TIME OF THE TEST, THE TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 3 CUBIC FEET PER MINUTE (85 L/MIN) PER 100 SQUARE FEET (9.29 M2) OF CONDITIONED FLOOR AREA.

NIMR Y. TAMIMI
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HAWAII, U.S.A.

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SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023

NOHEA AT MAUNA LANI, LLC
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ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

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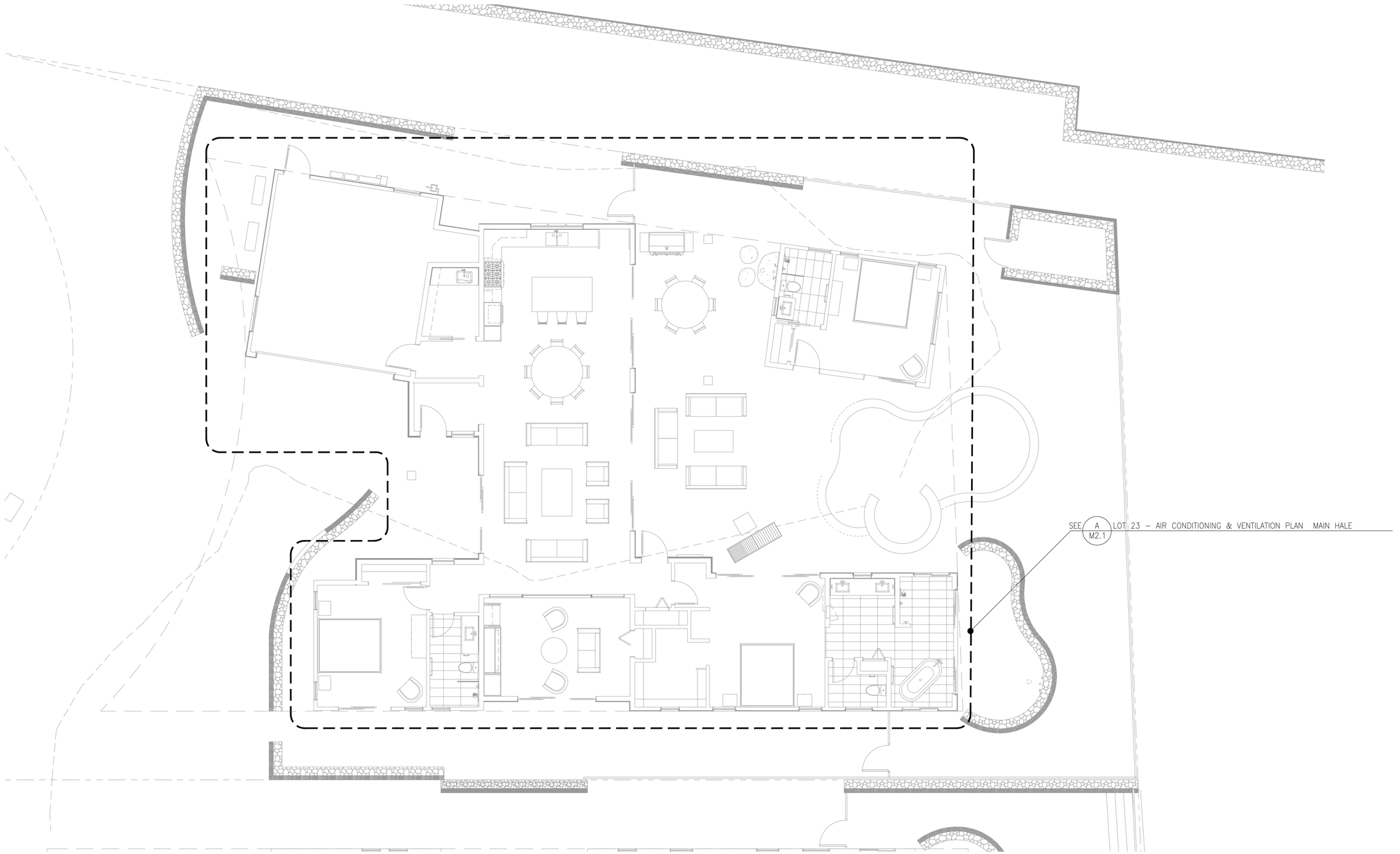
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
MECHANICAL SCHEDULES

SHEET NUMBER:
M1.1



A LOT 23 MECHANICAL SITE PLAN
SCALE: 3/16" = 1'-0"
0 4' 8' 12'

N

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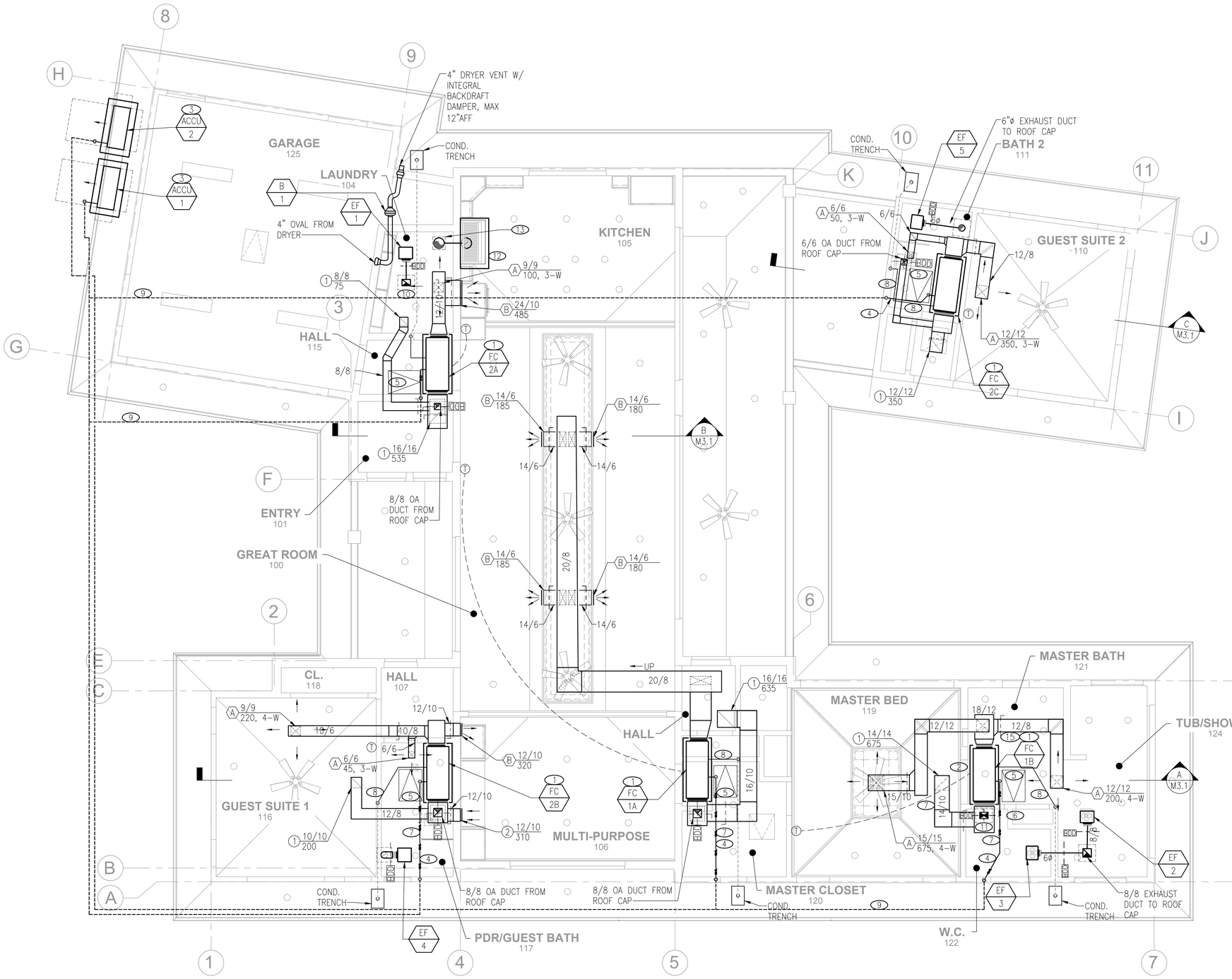
SHEET TITLE:
LOT 23 MECHANICAL SITE PLAN

SHEET NUMBER:
M2.0



NOTICES

1. FAN COIL UNITS SHALL BE CAPABLE OF CONNECTING TO A DOOR SWITCH.
2. COORDINATE DUCT AND EQUIPMENT LOCATIONS WITH TRUSS MANUFACTURER. PROVIDE ADEQUATE CLEARANCE FOR MAINTENANCE.
3. PROVIDE JACKETING FOR ALL EXPOSED REFRIGERANT PIPING, PAINT TO MATCH FINISH COLOR OF ADJACENT SUBSTRATE.
4. ALL THERMOSTATS SHALL BE MOUNTED AT +48" MAXIMUM TO TOP MOST OPERABLE PORTION OF CONTROL.
5. EXHAUST OUTLETS SHALL BE A MINIMUM OF 3' AWAY FROM ANY OPENINGS INTO THE BUILDING.
6. RETURN AIR TEMPERATURE SENSOR IN DUCT.
7. PROVIDE CLEANOUTS FOR EVERY CHANGE IN DIRECTION FOR CONDENSATE PIPING.
8. VERIFY TRUSS OPENINGS AVAILABILITY PRIOR TO INSTALLATION. TRUSS ATTIC SPACE LIMITED. COORDINATE WITH OTHER DISCIPLINES TO AVOID CONFLICTS.
9. ROTATE DUCTWORK AS REQUIRED TO FIT BETWEEN TRUSSES. DO NOT CUT TRUSSES.
10. LIMITED CEILING SPACE CLEARANCE IN AREA. INSTALL DUCTWORK PRIOR TO PLUMBING AND ELECTRICAL DISCIPLINES. COORDINATE WITH OTHER DISCIPLINES TO AVOID CONFLICTS.

NOTES

1. SECONDARY DRAIN PAN. PROVIDE SENSOR IN PAN TO SHUT DOWN UNIT UPON DETECTION OF MOISTURE.
2. PROVIDE 1" UNDERCUT AT DOOR.
3. 6" THICK CONCRETE MAINTENANCE PAD. EXTEND 6" MIN. AROUND ALL UNITS ON ALL SIDE, SLOPE TO REPEL WATER.
4. REFRIGERANT PIPING ABOVE CEILING, CONSULT MANUFACTURER FOR PROPER SIZING.
5. 22/30 ACCESS PANEL, SEE ARCH. DWGS.
6. 8/8 EXH DUCT UP TO ROOF CAP.
7. ROUTE REFRIG. PIPING AND DUCTWORK AS HIGH AS POSSIBLE TO PROVIDE ACCESS/MAINTENANCE CLEARANCE.
8. 1" COND. DRAIN PIPE ABOVE CEILING.
9. REFRIGERANT PIPING UNDERGROUND, CONSULT MANUFACTURER FOR PROPER SIZING AND INSTALLATION.
10. 8/6 EXH DUCT UP TO ROOF CAP.
11. 8/6 OA DUCT UP TO ROOF CAP.
12. RANGE HOOD WITH INTEGRAL BLOWER (600 CFM). SEE ARCH. DWGS. FOR DETAILS AND SCHEDULE.
13. 10"ø EXH. DUCT TO ROOF CAP

A LOT 23 AIR CONDTIONING & VENTILATION PLAN
SCALE: 1/4" = 1'-0"

N

NIMR Y. TAMIMI
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 7936-M
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
1	FINAL DR SET	7/22/19
	BID SET	10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD, STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

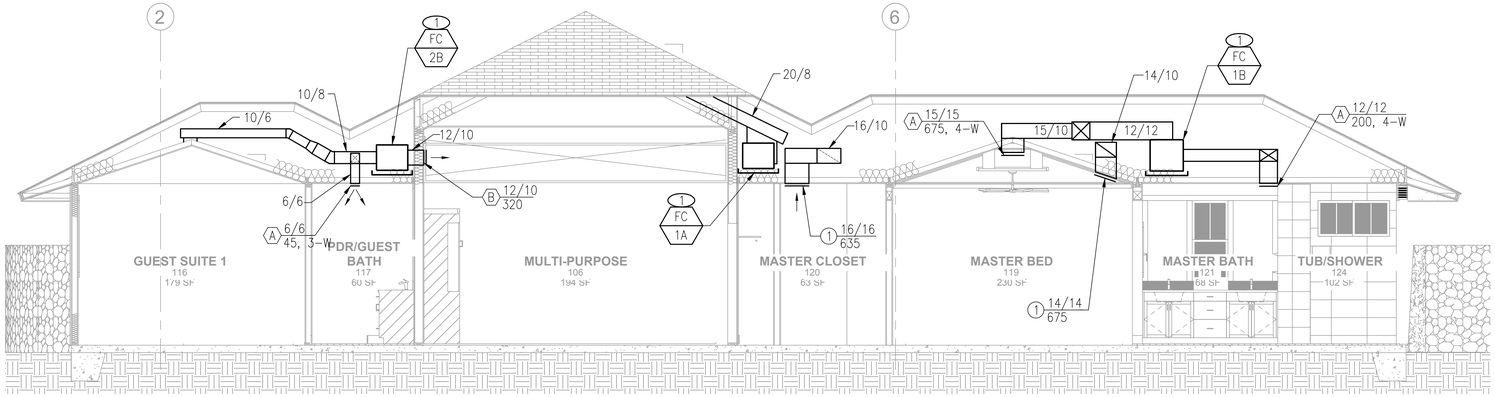
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
LOT 23 AIR COND. & VENT. PLAN MAIN HALE

SHEET NUMBER:
M2.1

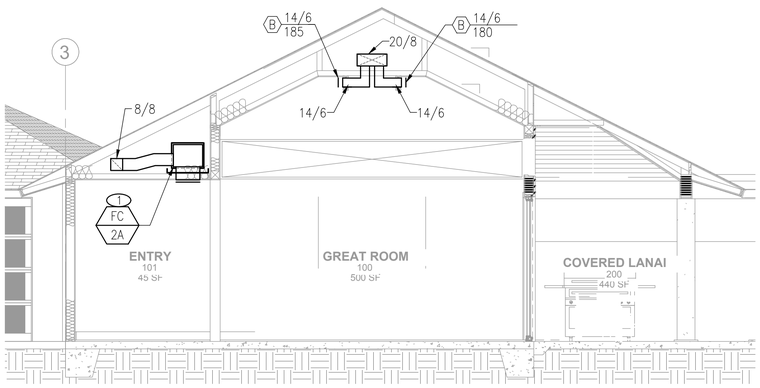


A

LOT 23 AIR CONDITIONING & VENTILATION PLAN HVAC SECTION

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

0 4' 8'

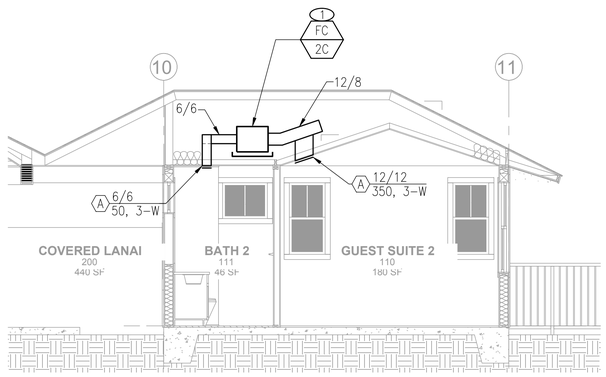


B

LOT 23 AIR CONDITIONING & VENTILATION PLAN HVAC SECTION

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

0 4' 8'



C

LOT 23 AIR CONDITIONING & VENTILATION PLAN HVAC SECTION

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

0 4' 8'

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	FINAL DR SET	10/12/22

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16130 VENTURA BLVD. STE 510
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4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE: **LOT 23 SECTIONS**

SHEET NUMBER: M3.1

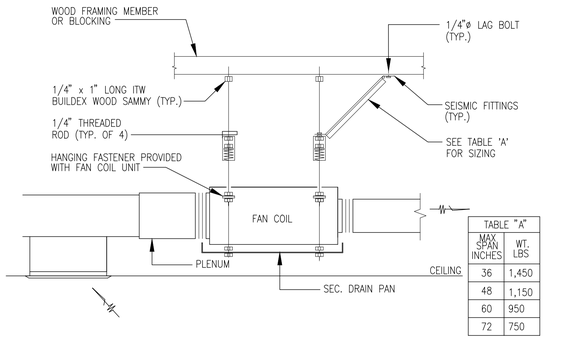
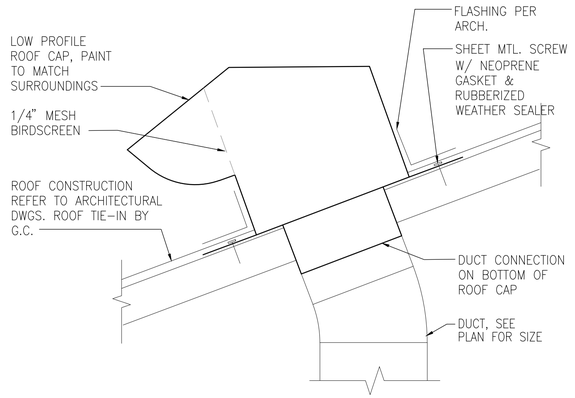


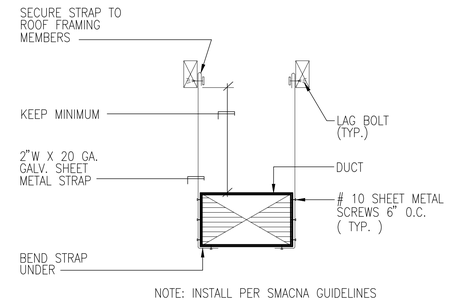
TABLE "A"	
MAX SPAN INCHES	WT. LBS
36	1,450
48	1,150
60	950
72	750

NOTE:
UNI-STRUT PA-158
(1⅝" x 1⅝" x 14 GA.)

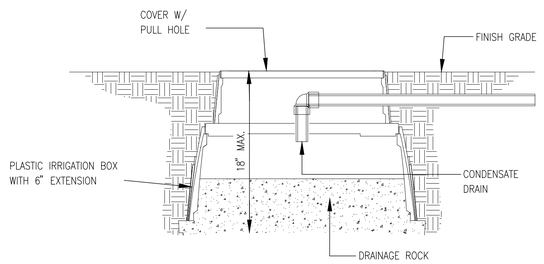
6 TYPICAL FAN COIL HANGING DETAIL
NO SCALE



3 TYP. ROOF CAP DETAIL
NO SCALE



1 DUCT SUPPORT DETAIL
NO SCALE



7 CONDENSATE TRENCH DETAIL
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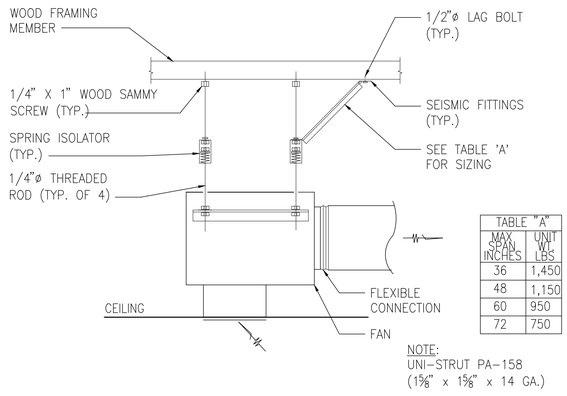
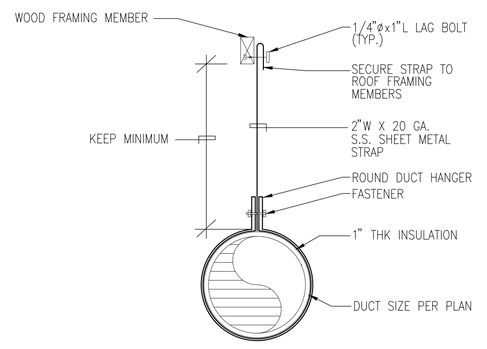
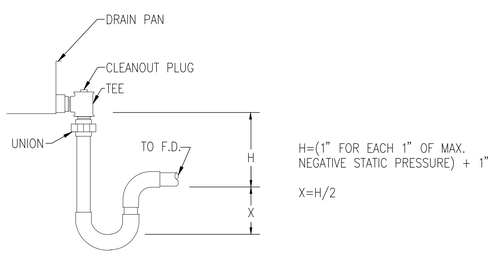


TABLE "A"	
MAX SPAN INCHES	UNIT W.L. LBS
36	1,450
48	1,150
60	950
72	750

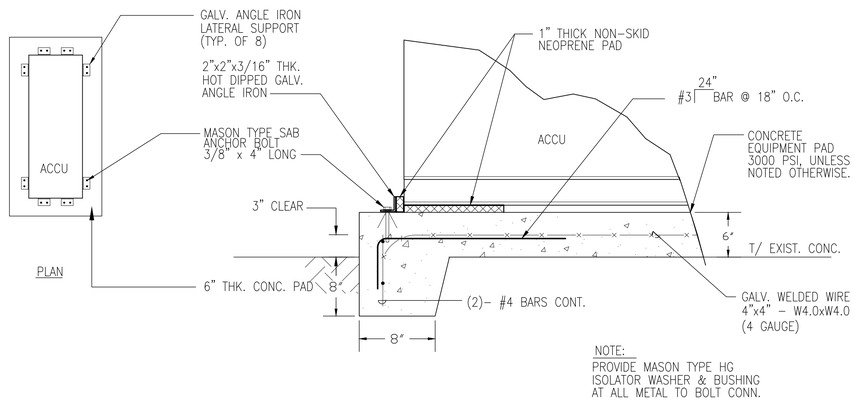
4 TYPICAL CEILING EXHAUST FAN MOUNTING DETAIL
NO SCALE



2 ROUND DUCT SUPPORT DETAIL
NO SCALE



8 DRAW THRU DRAIN TRAP DETAIL
NO SCALE



5 ACCU LATERAL SUPPORT DETAIL
NO SCALE

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PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
MECHANICAL DETAILS

SHEET NUMBER:
M4.1

GENERAL PLUMBING NOTES

1. PROVIDE COMPLETE AND OPERATING SYSTEMS AS SPECIFIED AND INDICATED ON DRAWINGS. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL" WHEN USED HEREIN.
2. THESE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO SHOW WORK SCOPE, NOT SHOP DRAWINGS SHOWING ALL CONDITIONS OF EXISTING WORK. CONTRACTOR MAY MODIFY TO SUIT CONDITIONS.
3. WORK SHALL COMPLY WITH ALL LOCAL CODES AND ORDINANCES INCLUDING: HAWAII COUNTY PLUMBING CODE, 2018 INTERNATIONAL PLUMBING CODE, HAWAII COUNTY BUILDING CODE, AND ALL OTHER APPLICABLE STANDARDS AND CODES.
4. CONTRACTOR SHALL ARRANGE AND PAY FOR ALL PERMITS AND FEES.
5. WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES. WORK SHALL BE GUARANTEED AGAINST DEFECTIVE WORKMANSHIP OR MATERIALS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE OF THE PROJECT. WARRANTY WORK SHALL BE COMPLETED AT NO EXTRA CHARGE TO THE OWNERS. FURNISH MANUFACTURER'S PRODUCT WARRANTY CERTIFICATES IN A BINDER.
6. MATERIALS AND EQUIPMENT SHALL BE NEW AND GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE. MATERIALS AND EQUIPMENT SHALL BE AS SCHEDULED OR EQUAL, MEETING THE REQUIREMENTS OF THE SPECIFICATION. MATERIALS AND EQUIPMENT SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO ORDER RELEASE.
7. RECORD DRAWINGS, OPERATION MANUALS AND MAINTENANCE MANUALS SHALL BE SUBMITTED AS REQUIRED BY ARCHITECT UPON COMPLETION.
8. DRAWINGS SHALL NOT BE SCALED.
9. PENETRATIONS OF FIRE RATED WALLS OR FLOORS BY PIPE SHALL BE SEALED BY A FIRESTOPPING SYSTEM UL LISTED FOR THE APPLICATION. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURERS INSTRUCTIONS. FIRESTOPPING SYSTEM SHALL BE EQUAL TO 3M FIRE BARRIER. FIRESTOPPING MATERIAL SHALL BE CAULK OR PUTTY TYPE.
10. EQUIPMENT SHALL BE SECURED AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND APPLICABLE SECTIONS OF THE UNIFORM BUILDING CODE AND UNIFORM MECHANICAL CODE.
11. EQUIPMENT SHALL BE IDENTIFIED WITH BAKELITE NAMEPLATES. COLOR CODING OF NAMEPLATES AND IDENTIFICATION INFORMATION SHALL BE COORDINATED WITH THE OWNER.
12. ELECTRICAL CHARACTERISTICS OF EQUIPMENT SHALL BE VERIFIED WITH ELECTRICAL DRAWINGS PRIOR TO ORDER RELEASE. ADDITIONAL ELECTRICAL WORK RESULTING FROM EQUIPMENT SUBSTITUTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
13. THE OWNER SHALL BE NOTIFIED IN WRITING OF SHUTDOWN OF UTILITIES REQUIRED BY THE EXECUTION OF THIS CONTRACT.
14. INSPECTIONS: ARRANGE FOR INSPECTIONS BY ADMINISTRATIVE AUTHORITY.
15. ELECTRICAL: CONFORM TO THE REQUIREMENTS OF ANSI, AND NATIONAL ELECTRICAL CODE. OBTAIN EQUIPMENT MANUFACTURER'S CONTROL WIRING DIAGRAMS FOR THE EQUIPMENT FURNISHED.
16. FIELD INVESTIGATIONS: VISIT THE WORK-SITE AND BECOME FULLY AWARE OF ALL EXISTING CONDITIONS. INVESTIGATE THE CONTRACT DOCUMENTS AND MAKE PROPER PROVISIONS TO AVOID INTERFERENCES OR CONSTRUCTION DELAYS. EXISTING UTILITY LOCATIONS SHALL BE FIELD-VERIFIED. UNFORESEEN OBSTRUCTIONS OR LACK OF INVERT DEPTH SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.
17. REQUIREMENTS: PERFORM WORK USING PERSONNEL SKILLED IN THE TRADE INVOLVED. PROVIDE COMPETENT SUPERVISION. FURNISH NEW EQUIPMENT, MATERIALS AND ACCESSORIES BEARING THE MANUFACTURER'S IDENTIFICATION AND CONFORMING TO THE RECOGNIZED COMMERCIAL STANDARDS. COORDINATE WITH OTHER TRADES FOR PIPE SLEEVES AND INSTALLATION OF EQUIPMENT SUPPORTS
18. EQUIPMENT INSTALLATION: INSTALL EQUIPMENT IN THE SPACE ALLOTTED WITH SUFFICIENT CLEARANCE FOR PROPER OPERATION AND MAINTENANCE AND WITH SUFFICIENT HEAD CLEARANCE ACCORDING TO THE BUILDING CODE. WHERE EQUIPMENT DIFFERS IN ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, PROVIDE ALL REQUIRED CHANGES IN PIPING, SUPPORTS AND APPURTENANCES. INSTALLED WORK SHALL BE PROTECTED DURING CONSTRUCTION AND CLEANED FOR FINAL INSPECTION. TOUCH-UP PAINT ALL RAW EDGES OF METAL EXPOSED TO WEATHER.
19. PIPING: INSPECT FOR AND REMOVE ALL INTERIOR OBSTRUCTIONS AND BURRS BEFORE INSTALLATION. SLOPE DRAINS AT ¼" PER FOOT. PERFORATED STRAP AND WIRES ARE NOT ACCEPTABLE HANGERS.
20. WATER LINES: PROTECT AGAINST ELECTROLYSIS WITH TWO LAYERS OF ANTI-CORROSION TAPE WHERE THEY CONTACT FERROUS METAL.
21. PRESSURIZE ROUGH-IN WATER LINES TO 125 PSI FOR 3 HOURS AND INSPECT FOR LEAKS BEFORE BEING CLOSED UP. RETEST LINES AT 75 PSI AFTER FIXTURES ARE CONNECTED. TEST WASTE LINES TO HOLD 10' WATER HEAD FOR 15 MINUTES WITHOUT LOSS.
22. FLUSH OUT AND DISINFECT WATER LINES WITH 50 PPM CHLORINE FOR 6 HOURS OR 100PPM FOR TWO UNLESS WAIVED BY THE OWNER IN WRITING. FLUSH PIPES UNTIL RESIDUAL IS DOWN TO 0.3 PPM.
23. TEST ALL GAS LINES IN ACCORDANCE WITH METHODS DESCRIBED IN THE PLUMBING CODE. REPAIR ALL LEAKS AND REPEAT THE TEST UNTIL ALL LINES ARE LEAK FREE.
24. INSTALL INSULATION SYSTEM IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING TRADESMAN SKILLED IN THIS TRADE AND APPROVED BY THE INSULATION MANUFACTURER. PROVIDE INSULATION PRODUCTS WITH A COMPOSITE (INSULATION, JACKET AND ADHESIVE) FIRE AND SMOKE HAZARD RATING AS TESTED UNDER ASTM E84, NFPA 255 AND UL 723, NOT EXCEEDING A FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50.
25. EXPANSION CLEARANCES: AT POINTS WHERE PIPE WILL MOVE DURING EXPANSION AND CONTRACTION (EXPANSION JOINTS, Z-BENDS, EXPANSION LOOPS AND ELLS), CLEARANCES BETWEEN THE PIPE AND ENCASED INSULATION SHALL BE SIZED TO PERMIT FULL PIPE MOVEMENT WITHOUT CRACKING OR DAMAGING INSULATION AND JACKET.

PLUMBING MATERIAL SPECIFICATIONS

1. PIPING:
   A. WASTE AND VENT LINES: SCHEDULE 40 DRAIN, WASTE AND VENT PIPE SHALL BE ROCKY MOUNTAIN COLBY PIPE COMPANY PVC DWV CELLULAR CORE MANUFACTURED TO ASTM F-891 AND CERTIFIED BY A RECOGNIZED LISTING AGENCY, OR, ROCKY MOUNTAIN COLBY PIPE COMPANY ABS DWV CELLULAR CORE MANUFACTURED TO ASTM F-628 AND CERTIFIED BY A RECOGNIZED LISTING AGENCY. PVC JOINTS SHALL BE MADE-UP WITH WELD-ON PVC 705 MEDIUM BODIED, FAST SETTING, PVC CEMENT AND SUITABLE PRIMER. ABS JOINTS SHALL BE MADE-UP WITH WELD-ON ABS 733 MEDIUM BODIED, FAST SETTING, ABS CEMENT.
   B. WATER LINES ABOVE GRADE: COPPER TYPE L, HARD TEMPER, WITH WROUGHT COPPER OR CAST BRONZE FITTINGS MADE UP WITH 95-5 SOLDER. ALL COPPER PIPING IN WALLS AND THRU FLOORS SHALL BE PROVIDED WITH IPS WELD-ON PIPE INSULATORS AT ALL WOOD CONTACT WITH THE COPPER PIPING. ALL WATER PIPING PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE CAULKED WITH 3M FIRE RATED CAULKING.
   C. WATER LINES BELOW GRADE: COPPER TYPE K, SOFT TEMPER, WITH SILVER-SOLDER BRAZED JOINTS.
   D. GAS PIPING: SCHEDULE 40 GALVANIZED STEEL WITH GALVNIZED MALLEABLE IRON SCREWED FITTINGS. JOINTS MADE UP WITH APPROVED LUBRICANT FOR LPG SERVICE OR TEFLON TAPE. GAS CONNECTOR, REFRIGERANT QUALITY SOFT TEMPER COPPER TUBING, 3/8" O.D. UNDERGROUND GAS PIPING SHALL BE BLACK IRON WITH X-TRU COAT CORROSION PROTECTION.
2. PIPING INSULATION: INSULATION EXTERIOR SHALL BE CLEANABLE, GREASE-RESISTANT, NON-FLAKING AND NON-PEELING. PIPE INSULATION SHALL CONFORM WITH THE REFERENCED PUBLICATIONS AND THE SPECIFIED TEMPERATURE RANGES AND DENSITIES IN POUNDS PER CUBIC FOOT (PCF). INSULATION FOR FITTINGS AND FLANGES SHALL BE PRE-MOLDED, PRE-CUT OR JOB FABRICATED INSULATION OF THE SAME THICKNESS AND CONDUCTIVITY AS USED ON ADJACENT PIPING.
   A. INTERIOR COLD WATER PIPING: INSULATE WITH ¾" RUBATEX OR APPROVED EQUAL.
   B. INTERIOR HOT WATER PIPING: INSULATE WITH 1" FIBERGLASS INSULATION WITH INSULATION JACKET.
   C. EXTERIOR HOT WATER PIPING: INSULATE WITH 1" PITTSBURGH CORNING FOAMGLAS INSULATION, WRAPPED WITH PIT WRAP AND MADE LIQUID TIGHT. FINISHED MADE LIQUID TIGHT JACKET, 0.2 MILS THICK, OR APPROVED EQUAL.
3. WALL CLEANOUT (WCO): ZURN CO-2411 PVC CLEANOUT BODY AND PLUG OR APPROVED EQUAL.
4. CLEANOUT (FCO) ZURN CO-2400 PVC CLEANOUT BODY WITH THREADED CAST IRON PLUG, ADJUSTABLE SCORIATED NICKEL BRONZE TOP.
5. BALL VALVES: BRASS BODY, NIBCO S-FP-600 OR APPROVED EQUAL.
6. CHECK VALVES: HORIZONTAL SWING, 200 PSI CWP. NIBCO S-413-Y-LF OR APPROVED EQUAL.
7. PRESSURE REDUCING VALVE: WATTS U5-Z3 OR APPROVED EQUAL.
8. UNIONS: BRONZE BODY, 200 PSIG. PROVIDE DIELECTRIC UNIONS BETWEEN ALL FEROUS AND NON-FERROUS METALS IN ALL PIPING SYSTEMS. PROVIDE UNIONS AT POINTS OF CONNECTION TO ALL EQUIPMENT.
9. PIPE SUPPORTS: SUPERSTRUT C-727-P, ADJUSTABLE RING HANGER, PLASTIC COATED.
10. GAS COCKS: APPROVED FOR LPG SERVICE, BRONZE BODY, TEE OR LEVER HANDLE, 25 PSIG. MCDONALD 10552-10558.
11. EXTERIOR HOSE BIBB: CHICAGO NO. 998 WITH VACUUM BREAKER, 3/4" CHROME FINISH WITH SQUARE HEAD COCK.

PLUMBING SYMBOLS

	SANITARY LINE
	PLUMBING VENT
	COLD WATER LINE
	HOT WATER LINE
	HOT WATER RETURN LINE
G	GAS LINE
	DEMOLITION
	PIPE RISER TO UPPER LEVEL
	CAPPED LINE
	PIPE ELBOW UP/DOWN
	PIPE BRANCH TOP CONNECTION
	PIPE BRANCH BOTTOM CONNECTION
	PIPE UNION
	BALL VALVE
	CHECK VALVE
	GATE VALVE
	PRESSURE REDUCING VALVE
	EMERGENCY GAS SHUT-OFF VALVE
	EQUIPMENT TAG

PLUMBING ABBREVIATIONS

(E)	EXISTING	HZ	HERTZ
(D)	DEMOLITION	KW	KILOWATT
(N)	NEW	LAV	LAVATORY
(R)	RELOCATED	MANUF	MANUFACTURER
ABV	ABOVE	MAX	MAXIMUM
ADJ	ADJUSTABLE	MECH	MECHANICAL
AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	MTD	MOUNTED
APPROX	APPROXIMATELY	NOM	NOMINAL
ARCH	ARCHITECT	NPSH	NET POSITIVE SUCTION HEAD
BLDG	BUILDING	PH	PHASE
BHP	BRAKE HORSEPOWER	PLMB	PLUMBING
BTU	BRITISH THERMAL UNITS	PRV	PRESSURE REDUCING VALVE
BV	BALL VALVE	QTY	QUANTITY
CAP	CAPACITY	RD	ROOF DRAIN
CLG	CEILING	REQ'D	REQUIRED
CONC	CONCRETE	RPBP	REDUCING PRESSURE BACKFLOW PREVENTOR
CONN	CONNECT	RM	ROOM
CONT'N	CONTINUATION	S	SANITARY
CW	COLD WATER	SD	SHOWER DRAIN
DF	DRINKING FOUNTAIN	SHWR	SHOWER
DN	DOWN	SS	SERVICE SINK
EA	EACH	T&P	TEMPERATURE AND PRESSURE
ELEC	ELECTRICAL	TDH	TOTAL DISCHARGE HEAD
EXIST	EXISTING	TEMP	TEMPERATURE
FD	FLOOR DRAIN	TP	TRAP PRIMER
FCO	FLOOR CLEANOUT	TYP	TYPICAL
FLR	FLOOR	UR	URINAL
GAL	GALLONS	V	VENT
GPM	GALLONS PER MINUTE	VB	VACUUM BREAKER
HB	HOSE BIBB	VTR	VENT TO ROOF
FLEX	FLEXIBLE	W/	WITH
FLR	FLOOR	WC	WATER CLOSET
FT	FEET	WCO	WALL CLEANOUT
HTR	HEATER		

WATER HEATER SCHEDULE

UNIT NO.	LOCATION	TYPE	CAPACITY	SUPPLY TEMP	RECOVERY @ 90 DEG TEMP RISE	FLOW @ 50 DEG TEMP RISE	ELECTRICAL	REMARKS
WH 1	GARAGE	HEAT PUMP	80 GAL.	140°	21.0 GPH	--	240V/1PH/60HZ 4500W UPPER/4000 LOWER	AEROTHERM MODEL RE2H80T10 HEAT PUMP WATER HEATER

PUMP SCHEDULE

UNIT NO.	LOCATION	DESCRIPTION	TYPE	FLOW (GPM)	TDH (FT)	MOTOR DATA		REMARKS
						HP	V/HZ/PH	
CP 1	UNIT A L	HOT WATER CIRCULATOR	IN-LINE CIRCULATOR	2.0	10	1/25	115V/1PH/60HZ	GRUNFOS MODEL UP 15-42F OR APPROVED EQUAL

1. PROVIDE ACCESSORIES AND REQUIRED COMPONENTS FOR COMPLETE AND OPERABLE SYSTEM. PROVIDE WITH GRUNFOS UP 599388 PROGRAMMABLE TIMER AND AQUASTAT 595444, ¾" CLIP-ON

NIMR Y. TAMIMI
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 7936-M
HAWAII, U.S.A.

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SIGNATURE

GENERAL CONTRACTOR:

REVISIONS NO.	DESCRIPTION	DATE
	FINAL DR SET	10/12/22

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: 3-6-8-043:023
NOHEA AT MAUNA LANI, LLC
16130 VENTURA BLVD, STE 510
ENCINO, CA 91436 2538
PH: 805-494-7704 FAX: 805-494-1226

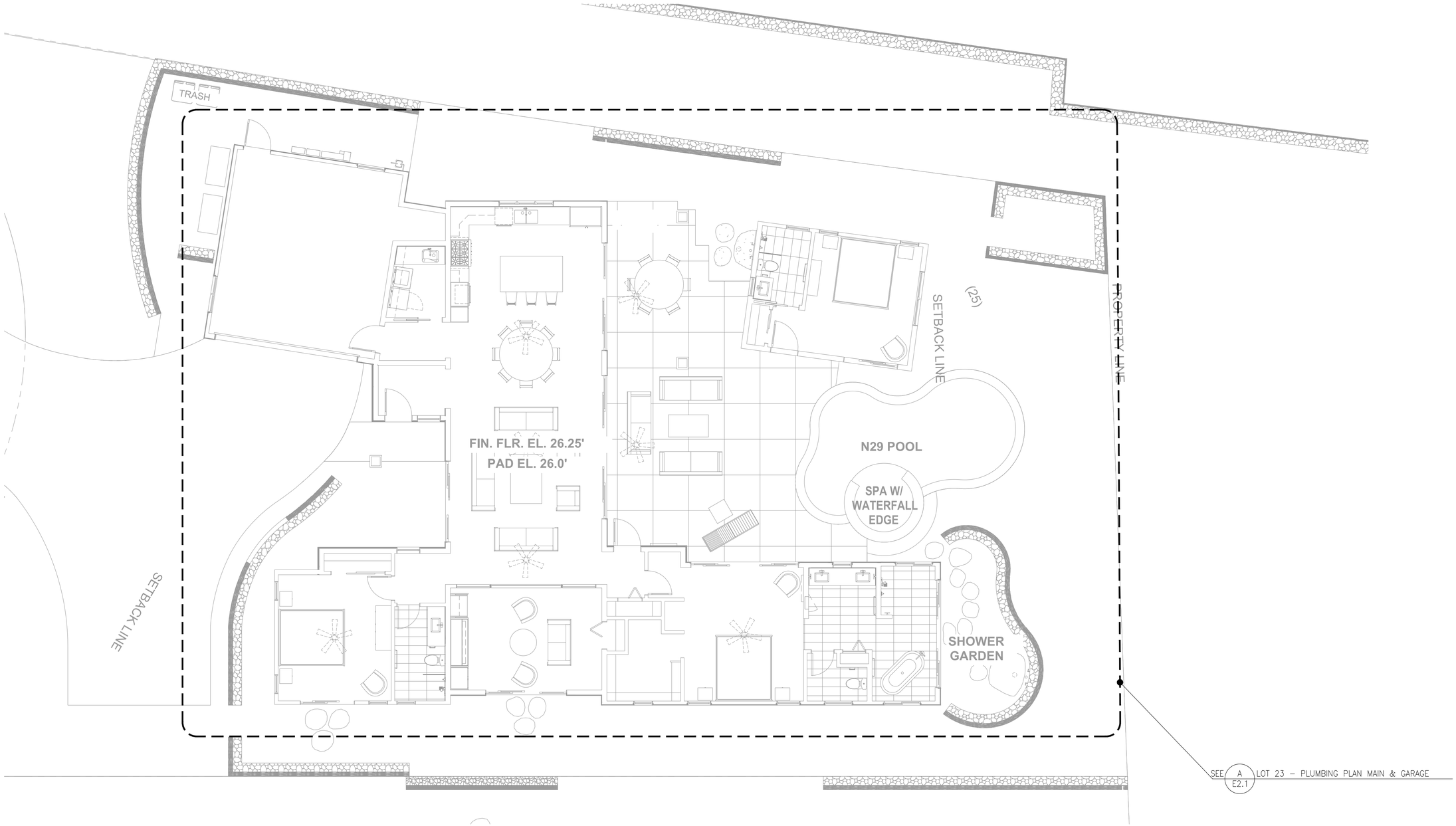
CRAIG MONAGHAN, ARCHITECT
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE : 10/12/22

SCALE : As indicated

SHEET TITLE:
PLUMBING SYMBOLS. ABBREVIATION & SPECS

SHEET NUMBER:
P1.0



A LOT 23 OVERALL PLUMBING PLAN
SCALE: 3/16" = 1'-0"
0 4' 8' 12'

N

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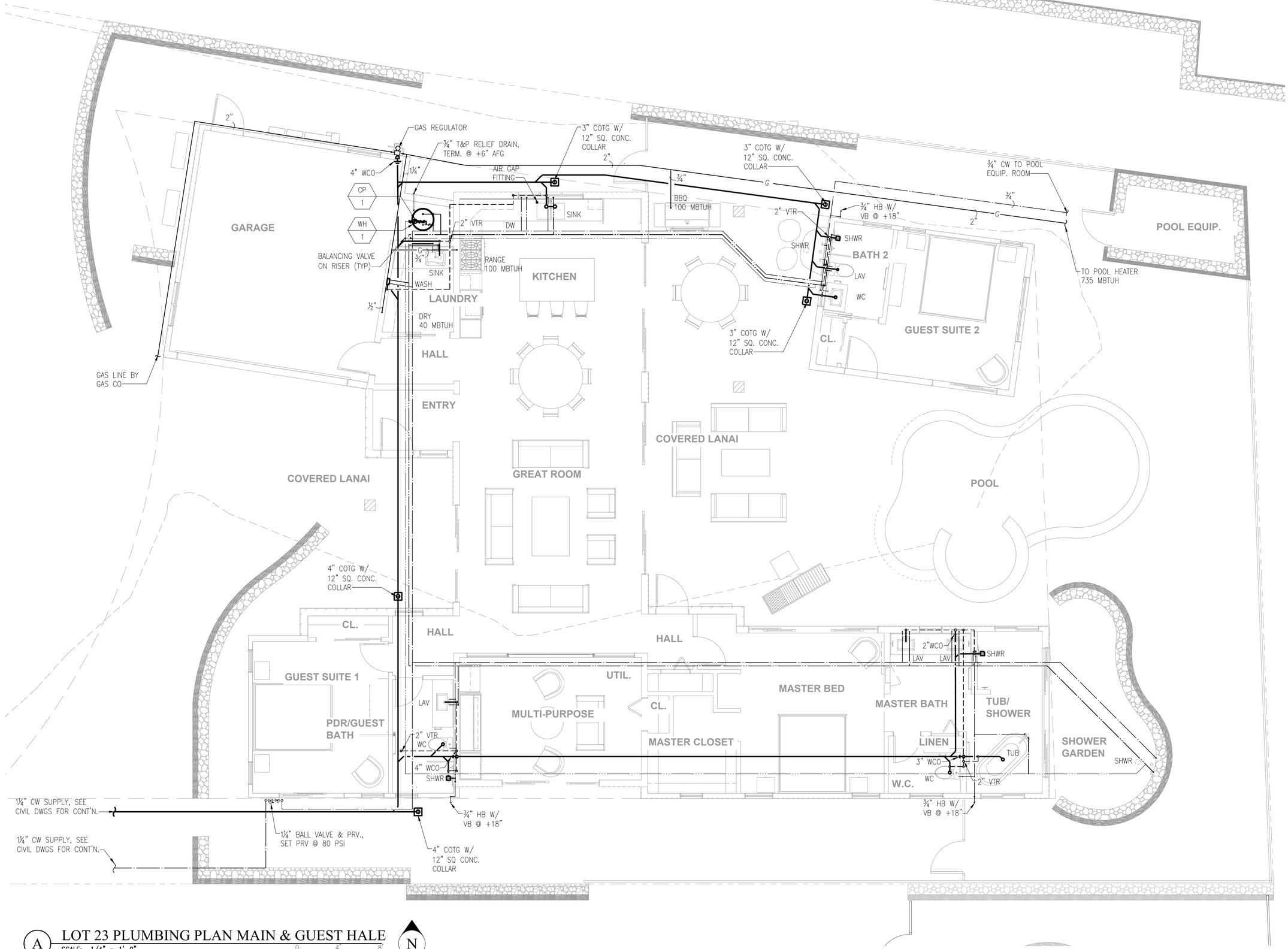
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
LOT 23 OVERALL PLUMBING PLAN

SHEET NUMBER:
P2.0



A LOT 23 PLUMBING PLAN MAIN & GUEST HALE

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

0 4 8

N

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LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
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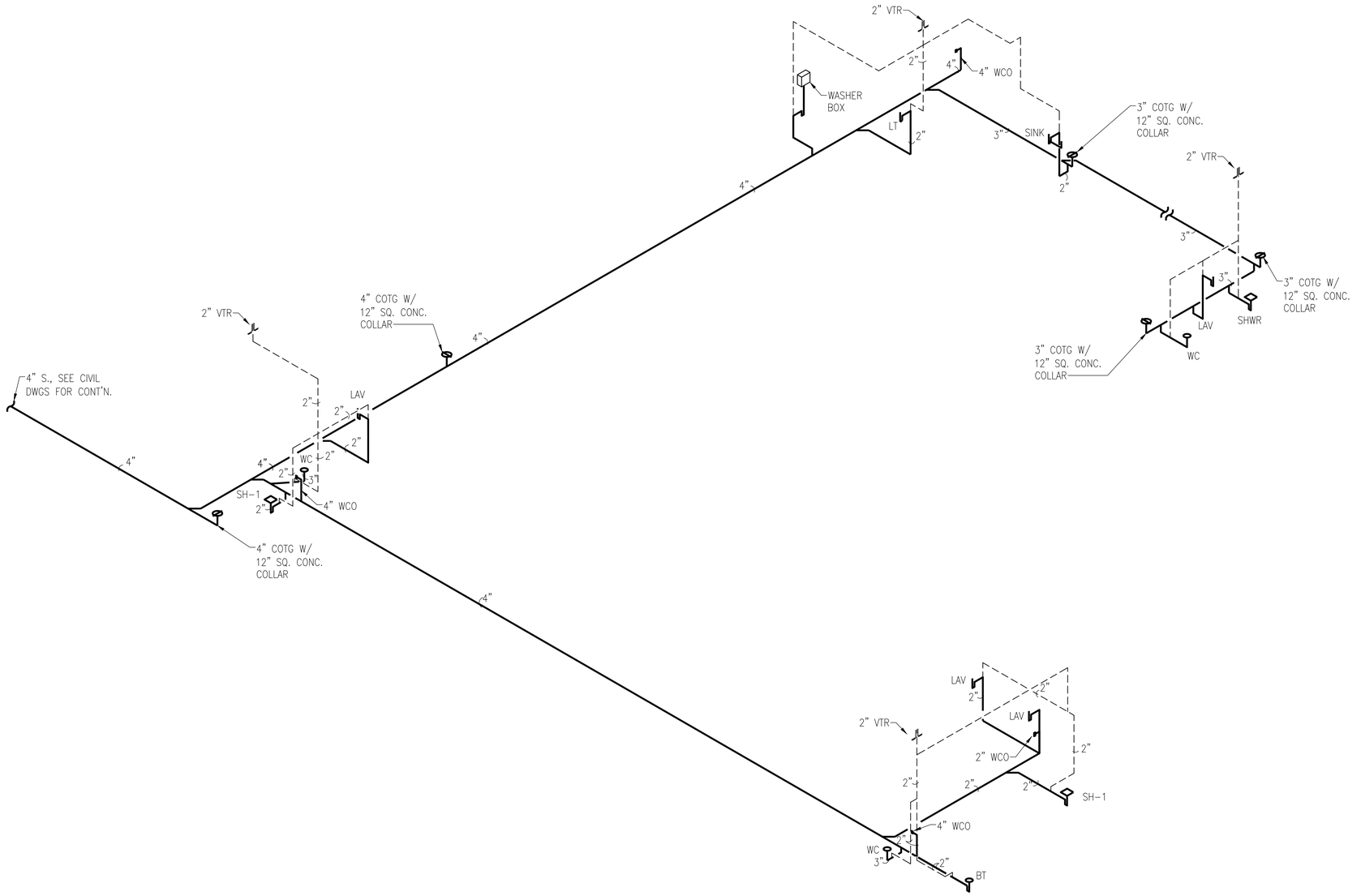
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
LOT 23 PLUMBING PLAN MAIN & GUEST HALE

SHEET NUMBER:
P2.1



A SANITARY PIPING DIAGRAM
NO SCALE

NIMR Y. TAMIMI
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 7936-M
HAWAII, U.S.A.

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REVISIONS NO.	DESCRIPTION	DATE
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PH: 805-494-7704 FAX: 805-494-1226

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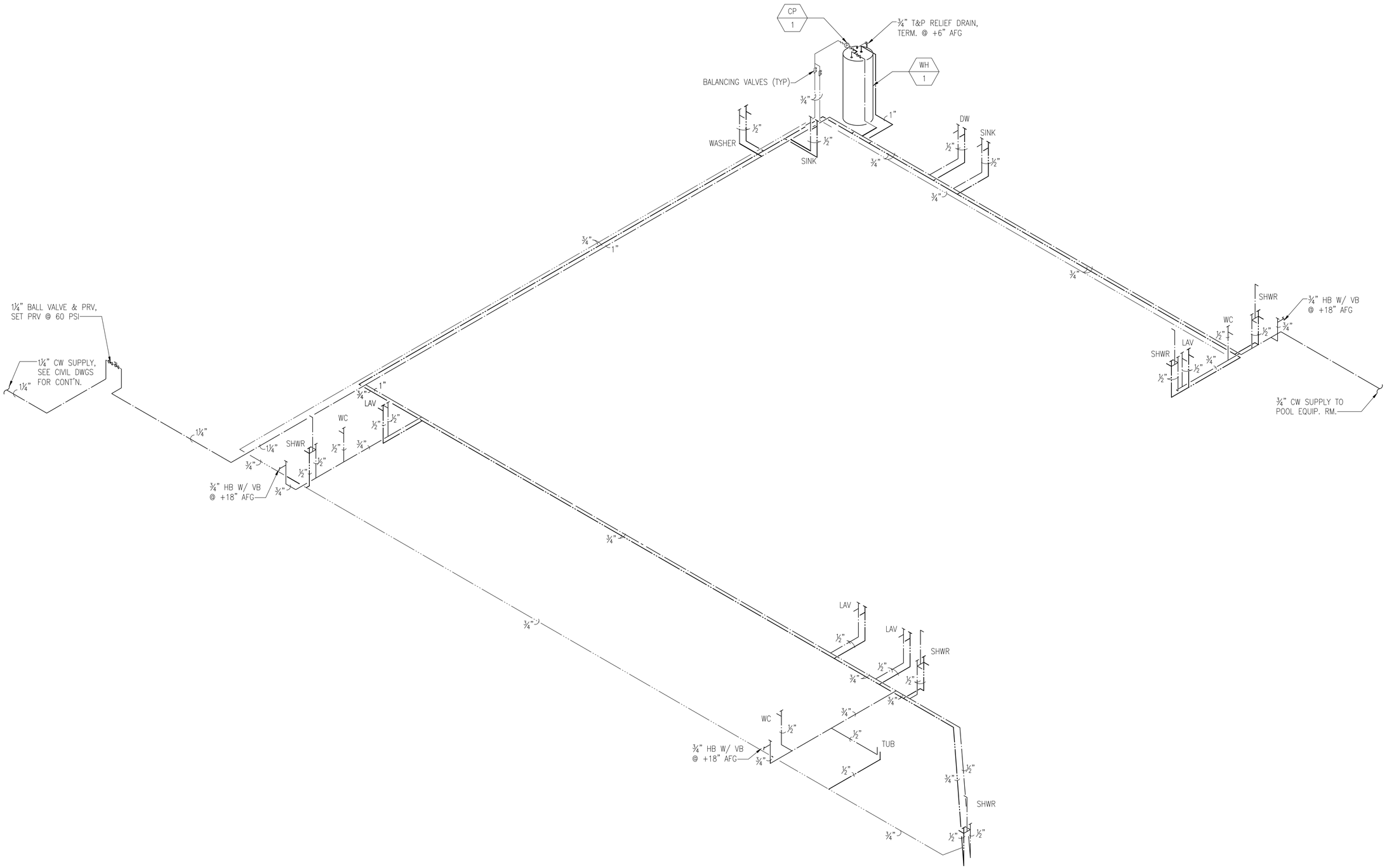
4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
SANITARY PIPING DIAGRAM

SHEET NUMBER:
P2.3



A WATER PIPING DIAGRAM
NO SCALE

NIMR Y. TAMIMI
LICENSED PROFESSIONAL ENGINEER
Exp. 04/30/24
No. 7936-M
HAWAII, U.S.A.

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4522 LOWER DR. LAKE OSWEGO, OR 97035
PH: 503-522-9000
monaghan.craig@gmail.com

DATE: 10/12/22

SCALE: As indicated

SHEET TITLE:
WATER PIPING DIAGRAM

SHEET NUMBER:
P2.4

PRINT DATE11.18.2022

GENERAL NOTES

GENERAL REQUIREMENTS

1. NEOPRENE PADS TO BE USED UNDER ALL PUMPS.
2. NOT SHOWN: ELECTRICAL CONDUITS & $\frac{3}{4}$"Ø WATER MAKE-UP LINES.
3. PUMPS SHALL BE SET ON 4" THICK CONCRETE PADS.
4. POOL CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS.
5. POOL SHALL BE FILLED BY EXISTING HOSE BIB. POOL WATER LEVEL SHALL BE MAINTAINED BY AUTOMATED WATER LEVEL CONTROLLER WITH APPROVED BACKFLOW PREVENTION.
6. ALL MATERIALS AND ALL WORKMANSHIP SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND REGULATIONS.
7. ALL SHOTCRETE SHALL BE 3000 PSI MINIMUM AT 28 DAYS. SPECIAL INSPECTION FOR SHOTCRETE WORK IF REQUIRED.
8. ALL REINFORCING SHALL CONFORM TO ASTM-A615, GRADE 60.
9. ALL FIELD PIPING SHALL BE PVC, SCHEDULE 40. ALL EQUIPMENT ROOM/PAD PIPING SHALL BE PVC, SCHEDULE 80 WITH EXCEPTIONS AS NOTED.
10. SUPPORTING SOIL SHALL BE UNDISTURBED, UNIFORM, NATURAL SOIL CAPABLE OF SUPPORTING 1000 POUNDS PER SQUARE FOOT, IF ANY OTHER CONDITIONS ARE ENCOUNTERED, BUILDER SHALL NOTIFY ENGINEER. BUILDER SHALL BE PROVIDED WITH COPY OF GEO-TECHNICAL REPORT IF AVAILABLE AND FOLLOW RECOMMENDATIONS THEREIN.
11. ALL POOL EQUIPMENT SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
12. ALL PIPING SHALL BE NSF APPROVED (ANSI/NSF14), SCHED. 40 PVC (EXCEPT AS NOTED).
13. ALL DRAIN FITTINGS TO CARY 100% OF RECIRCULATION FLOW RATE NOT TO EXCEED MAX. RATED FLOW RATE FOR SELECTED DRAIN FITTING WHEN ONE (1) DRAIN FITTING IS COVERED.
14. MAIN DRAIN PIPING SHALL CARRY 100% OF RECIRCULATION RATE AT A VELOCITY NOT TO EXCEED 6FT PER SECOND.
15. ALL PIPING DESIGNED FOR 6 FT PER SECOND MAX. SUCTION, 8 FT. PER SECOND RETURN, AND 3 FT. PER SECOND MAX. GRAVITY IF APPLICABLE.
16. POOL CONTRACTOR SHALL COORDINATE ALL WORK WITH GENERAL CONTRACTOR TO TAKE PRECAUTIONS AS NECESSARY TO PROTECT FROM DAMAGING NEW/EXISTING UTILITY LINES, WALKWAYS, LANDSCAPING ETC. WHICH WILL REMAIN AS PART OF THE FINAL PRODUCT.

2018 INTERNATIONAL ENERGY CONSERVATION CODE

R403.10
POOLS AND PERMANENT SPA ENERGY CONSUMPTION (MANDATORY). THE ENERGY CONSUMPTION OF POOLS AND PERMANENT SPAS SHALL BE IN ACCORDANCE WITH SECTIONS R403.10.1 THROUGH R403.10.4.

R403.10.1
RESIDENTIAL POOLS AND PERMANENT RESIDENTIAL SPAS. SWIMMING POOLS AND PERMANENT SPAS THAT ARE ACCESSORY TO DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES THREE STORIES OR LESS IN HEIGHT ABOVE GRADE PLANE AND THAT ARE AVAILABLE ONLY TO THE HOUSEHOLD AND ITS GUESTS SHALL BE IN ACCORDANCE WITH APSP-145.

R403.10.2 HEATERS
THE ELECTRIC POWER TO HEATERS SHALL BE CONTROLLED BY A READILY ACCESSIBLE ON-OFF SWITCH THAT IS AN INTEGRAL PART OF THE HEATER MOUNTED ON THE EXTERIOR OF THE HEATER, OR EXTERNAL TO AND WITHIN 3 FEET (914 MM) OF THE HEATER. OPERATION OF SUCH SWITCH SHALL NOT CHANGE THE SETTING OF THE HEATER THERMOSTAT. SUCH SWITCHES SHALL BE IN ADDITION TO A CIRCUIT BREAKER FOR THE POWER TO THE HEATER. GAS-FIRED HEATERS SHALL NOT BE EQUIPPED WITH CONTINUOUSLY BURNING IGNITION PILOTS.

R403.10.3 TIME SWITCHES
TIME SWITCHES OR OTHER CONTROL METHODS THAT CAN AUTOMATICALLY TURN OFF AND ON ACCORDING TO A PRESET SCHEDULE SHALL BE INSTALLED FOR HEATERS AND PUMP MOTORS. HEATERS AND PUMP MOTORS THAT HAVE BUILT-IN TIME SWITCHES SHALL BE IN COMPLIANCE WITH THIS SECTION.

EXCEPTIONS:
1. WHERE PUBLIC HEALTH STANDARDS REQUIRE 24-HOUR PUMP OPERATION.
2. PUMPS THAT OPERATE SOLAR- AND WASTE-HEAT-RECOVERY POOL HEATING SYSTEMS.

R403.10.4 COVERS
OUTDOOR HEATED POOLS AND OUTDOOR PERMANENT SPAS SHALL BE PROVIDED WITH A VAPOR-RETARDANT COVER OR OTHER APPROVED VAPOR-RETARDANT MEANS.
EXCEPTION: WHERE MORE THAN 70 PERCENT OF THE ENERGY FOR HEATING, COMPUTED OVER AN OPERATION SEASON, IS FROM SITE-RECOVERED ENERGY, SUCH AS FROM A HEAT PUMP OR SOLAR ENERGY SOURCE, COVERS OR OTHER VAPOR-RETARDANT MEANS SHALL NOT BE REQUIRED.

R403.11 PORTABLE SPAS (MANDATORY)
THE ENERGY CONSUMPTION OF ELECTRIC-POWERED PORTABLE SPAS SHALL BE CONTROLLED BY THE REQUIREMENTS OF APSP-14.

R403.12 RESIDENTIAL POOLS AND PERMANENT RESIDENTIAL SPAS
RESIDENTIAL SWIMMING POOLS AND PERMANENT RESIDENTIAL SPAS THAT ARE ACCESSORY TO DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES THREE STORIES OR LESS IN HEIGHT ABOVE GRADE PLANE AND THAT ARE AVAILABLE ONLY TO THE HOUSEHOLD AND ITS GUESTS SHALL BE IN ACCORDANCE WITH APSP-15.

POOL/SPA VAPOR-RETARDANT COVER (BY HOME OWNER)

IECC 2018 R403.10.4 COVERS

THIS POOL AND SPA REQUIRE THE USE OF A VAPOR-RETARDANT COVER OR OTHER APPROVED VAPOR-RETARDANT MEANS SUCH AS THE FOLLOWING OR SIMILAR:

☐ T-STAR EnergySaver STANDARD THERMAL FLOATING POOL COVER

☒ Sun2Solar CLEAR 1200 SERIES STYLE FLOATING SOLAR BLANKET

ADDITIONAL NOTES:

THE ABOVE POOL COVERS ARE FOR THERMAL/VAPOR-RETARDANT PROPERTIES ONLY AND ARE NOT CONSIDERED POOL SAFETY COVERS.

SAFETY:
IT IS THE RESPONSIBILITY OF HOME OWNER TO ENSURE THE POOL BARRIER, GATES AND SAFETY DOOR ALARMS ARE ALWAYS OPERATING AS SPECIFIED

CODE DATA

IRC 2018

THE DESIGN AND CONSTRUCTION OF POOLS AND SPAS SHALL COMPLY WITH THE INTERNATIONAL SWIMMING POOL AND SPA CODE.

2018 IECC REQUIREMENTS	CODE SECTION
POOLS AND PERMANENT SPAS:	R403.10 R403.12
HEATERS. ELECTRIC POWER SWITCH REQUIRED.	
NO GAS PILOT.	
AUTOMATIC TIME SWITCHES ON HEATER AND PUMPS.	
COVERS REQUIRED (EXCEPT WITH SOLAR HEATING).	
COMPLY WITH APSP-15 STANDARD.	

FLOOR LIVE LOAD ____N/A___ PSF
ROOF LIVE LOAD ____N/A___ PSF
ULTIMATE WIND SPEED ____130___ MPH
ALLOWABLE WIND SPEED ____100___ MPH
WIND EXPOSURE CATEGORY (REF. R301.2.1.4) ____C____
SEISMIC DESIGN CATEGORY (REF. FIGURE 301.2(2)) ____E____

ELECTRICAL STANDARDS FOR WATER FEATURES

ELECTRICAL STANDARDS FOR SWIMMING POOLS, FOUNTAINS, SPAS, THERAPEUTIC POOLS, AND SIMILAR INSTALLATIONS

1. THE FOLLOWING IS A BRIEF SUMMARY OF THE REQUIREMENTS FOR SWIMMING POOLS, FOUNTAINS, SPAS, THERAPEUTIC POOLS, AND SIMILAR INSTALLATIONS. FOR SPECIFIC DETAILS AND EXCEPTIONS, REFER TO ARTICLE 680 NATIONAL ELECTRICAL CODE, LATEST EDITION.

2. ALL ELECTRICAL EQUIPMENT TO BE U/L APPROVED FOR THE PURPOSE.

3. BONDING CONDUCTOR FOR POOL REINFORCING STEEL AND OTHER METALLIC EQUIPMENT TO BE #8 AWG SOLID COPPER CONDUCTOR. GROUNDING PER 680-24 & 680-25.

4. NO ATTACHMENT PLUG RECEPTACLES SHALL BE INSTALLED WITHIN 10 FEET OF INSIDE OF WALLS OF POOL. WHERE SWIMMING POOL IS INSTALLED AT A DWELLING, AT LEAST ONE 125 VOLT CONVENIENCE RECEPTACLE SHALL BE INSTALLED BETWEEN 10 AND 20 FEET OF THE INSIDE OF THE POOL. ALL 125-VOLT RECEPTACLES LOCATED WITHIN 20 FEET FROM POOL SHALL BE PROTECTED BY A GROUND FAULT CIRCUIT INTERRUPTER (CFGI).

5. IF LIGHTING FIXTURES AND LIGHTING OUTLETS ARE LOCATED:
   (A) WITHIN 5 FEET OF POOL, FIXTURES, ND OUTLETS SHALL BE AT LEAST 12 FEET ABOVE MAXIMUM WATER LEVEL.
   (B) WITHIN 10 FEET AND NOT LESS THAN 5 FEET OF POOL FIXTURES, AND OUTLETS SHALL BE PROTECTED BY A CFGI UNLESS INSTALLED 5 FEET ABOVE THE MAXIMUM WATER LEVEL AND RIGIDLY ATTACHED TO THE STRUCTURE ADJACENT TO OR ENCLOSING THE POOL.
   (C) SEE ARTICLE 680 FOR EXCEPTIONS TO (A) AND (B) ABOVE.

6. SWITCHING DEVICES ON THE PROPERTY MUST BE LOCATED AT LEAST 5 FEET FROM THE POOL.

7. OVERHEAD WIRING SHALL NOT BE INSTALLED WITHIN 10 FEET OF SWIMMING POOL AREA.

8. UNDERGROUND WIRING SHALL NOT BE PERMITTED UNDER THE POOL OR UNDER THE AREA EXTENDING 5 FEET HORIZONTALLY FORM THE INSIDE WALL OF THE POOL.

9. ANY UNDERWATER LIGHTING FIXTURE OVER 15 VOLTS SHALL BE PROTECED BY A CFGI.

10. STORABLE SWIMMING POOLS: ALL ELECTRICAL EQUIPMENT, INCLUDING POWER SUPPLY CORDS, USED WITH STORABLE SWIMMING POOLS SHALL BE PROTECTED BY A CFGI.

11. SPAS, HOT TUBS, AND HYDROMASSAGE BATHTUBS:
   (A) ALL RECEPTACLES MUST BE LOCATED AT LEAST 5 FEET AWAY FROM THE SPA OR HOT TUB.
   (B) ALL RECEPTACLES WITHIN 20 FEET OF SPA OR HOT TUB MUST BE PROTECTED BY A CFGI.
   (C) ALSO ANY RECEPTABLE THAT PROVIDES POWER FOR A SPA OR HOT TUB MUST BE PROTECTED BY A CFGI.
   (D) LIGHTING FIXTURES AND LIGHTING OUTLETS LOCATED OVER OR WITHIN 5 FEET OF SPA OR HOT TUB JUST BE PROTECTED BY A CFGI AND BE AT LEAST 7.5 FEET ABOVER WATER LEVEL.
   (E) WALL SWITCHES MUST BE LOCATED AT LEAST 5 FEET AWAY FROM SPA OR HOT TUB.
   (F) UNDERWATER LIGHTING FIXTURES SHALL MEET THE SAME REQUIREMENTS AS THOSE LISTED FOR SWIMMING POOL UNDERWATER LIGHTING FIXTURES.

12. FOUNTAINS, FOUNTAIN POOLS, ORNAMENTAL DISPLAY POOLS, AND REFLECTOR POOLS: LIGHTING FIXTURES, SUBMERSIBLE PUMPS AND OTHER SUBMERSIBLE EQUIPMENT, CORD AND PLUG CONNECTED EQUIPMENT SHALL BE PROTECTED BY A CFGI.

13. THERAPEUTIC POOLS AND TUBS IN HEALTH CARE FACILITIES: SEE ARTICLE 680 FOR COMPLETE REQUIREMENTS.

14. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENT OF THE CITY & COUNTY OF HONOLULU N.E.C. ART. 680.

15. ALL ELECTRICAL EQUIPMENT SHALL COMPLY WITH N.E.C.

16. ALL ELECTRICAL EQUIPMENT SHALL BE U.L. APPROVED.

17. BONDING AND GROUNDING OF ALL EQUIPMENT OF REINFORCING STEEL SHALL BE WITH A.W.S. #8 INSULATED COPPER CONDUCTOR.

18. NO ELECTRICAL ATTACHMENTS OR RECEPTICALS SHALL BE WITHIN 10'-0" OF POOL.

19. OVERHEAD WIRING SHALL NOT BE INSTALLED WITHIN 10'-0" OF POOL.

20. UNDERWATER LIGHTS SHALL BE INSTALLED WITH ADEQUATE CORD LENGTH TO ALLOW LIGHT TO BE REMOVED FROM NICHE AND SET ON DECK FOR BULB REPLACEMENT.

21. PENTAIR IN-HOUSE CONTROL PANEL LOCATION TO BE INDOOR AND DETERMINED BY GENERAL CONTRACTOR/OWNER AND (4) 22 GUAGE MIN., STANDARD WIRES TO BE RUN BY ELECTRICIAN FROM THAT LOCATION TO MASTER PANEL IN PUMP ROOM.

22. ELECTRICAL CONTRACTOR TO PROVIDE ALL CONDUITS REQUIRED FOR ALL ELECTRICAL WORK RELATED TO SWIMMING POOL.

SHEET INDEX

STRUCTURAL NOTES

1. #4 @ 12" O.C. HORIZONTAL & #4 @ 12" O.C. VERTICAL, UNLESS OTHERWISE NOTED.

2. PROVIDE 3" COVER WHEN CAST AGAINST EARTH & 2" COVER ALL REBAR.

3. EXTEND ALTERNATE VERTICALS INTO BOND BEAM.

4. #3 @ 6 O.C. B.W. CONTINUOUS AROUND SKIMMER, LIGHT NICHE, DRAIN AND ANCHORS.

5. LAP SPLICES SHALL BE NON-CONTACT SPLICES. LAP SPLICES 2'-0", AND SHALL HAVE MIN. 2" BETWEEN BARS.

6. REINFORCING BARS SHALL BE A-615, GRADE 60.

DESIGN LOADS
1. UNIFORM LIVE LOADS:
   ROOFS: 20 PSF
   FLOORS: 40 PSF
   LANAIS: 40PSF
2. LATERAL LOADS:
WIND: EXPOSURE C
   132 MPH EFFECTIVE (ULT) WINF SPEED
   Kzt = 1.0
   OCCUPANCY CATEGORY II
   IMPORTANCE FACTOR= 1.0
EARTHQUAKE: SITE CLASSIFICATION D
   RISK CATEGORY II
   R=6.5, PLYWOOD SHEAR WALLS
   IMPORTANCE FACTOR = 1.0
   Ss = 2.31, S1 = 0.854
   Sds = 1.848

PLUMBING STANDARDS

1. CROSS-CONNECTION SHALL BE PREVENTED BY:
   __APPROVED PRESSURE VACUUM BREAKER
   __FEBCO 765 INSTALLED ABOVE FLOOD LEVEL
   __APPROVED AIR-GAP ABOVE FLOOD LEVEL
   __FILLED VIA EXISITING HOUSE BIB

2. STANDARD PLUMBING AND DISCHARGE NOTES FOR SWIMMING POOLS:
   A) POOL BACKWASH WATER DISCHARGES AND/OR WASHING OUT OF DEBRIS INTO THE PUBLIC RIGHT-OF-WAY, INTO ANY PUBLIC EASEMENT, AND INTO THE CITY'S STOM DRAIN SYSTEM, ARE NOT ALLOWED.
   B) IF DISCHARGING POOL WATER WITHIN THE SUBJECT PROPERTY, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS AND/OR SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE. IN ADDITION, THE POOL WATER SHOULD NOT CAUSE WATER TO STAGNATE ON, OR TO FLOOD, ANY ADJOINING PROPERTIES.
   C) POOL WATER DISCHARGES TO THE CITY'S STORM DRAIN SYSTEM REQUIRE APPROVAL BY THE STORM WATER QUALITY BRANCH OF THE CITY DEPARTMENT OF ENVIRONMENTAL SERVICES (ENV). FOR MORE INFORMATION AND TO ARRANGE FOR INSPECTION PRIOR TO COMMENCEMENT OF DISCHARGE, PLEASE CONTACT ENV AT (808) 768-3245.
   D) POOL WATER DISCHAARGES TO CITY'S SANITARY SEWER SYSTEM REQUIRE APPROVAL BY THE REGULATORY CONTROL BRANCH OF THE CITY DEPARTMENT OF ENVIRONMENTAL SERVICES (ENV). PLEASE CONTACT ENV AT (808) 768-3261 OR (808) 768-3262.
   E) POOL WATER DISCHARGES TO THE STATE'S STOM DRAIN SYSTEM REQUIRE APPROVAL BY THE HIGHWAYS DIVISION OF THE STATE DEPARTMENT OF TRANSPORTATION (DOT). PLEASE CONTACT DOT AT (808) 831-6712.
   F) POOL WATER (PUBLIC SWIMMING POOL) DISCHARGES REQUIREAPPROVAL BY THE SANITATION BRANCH OF THE STATE DEPARTMENT OF HEALTH (DOH). PLEASE CONTACT DOH AT (808) 586-8000.
   G) NO STOCKPILING OF EXCAVATED MATERIALS SHALL BE ALLOWED WITHIN THE PUBLIC RIGHT-OF-WAY OR ANY PUBLIC EASEMENT. IF WORK ON THE PUBLIC RIGHT-OF-WAY IS NECESSITATED. PLEASE CONTACT THE STREET USAGE BRANCH OF THE CITY DEPARMENT OF TRANSPORTATION SERVICES (DTS) AT (808) 768-8390
   H) NON-COMPLIANCE WITH ANY OF THE ABOVE REQUIREMENTS MAY RESULT IN ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

SIGNATURE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION (AS DEFINED BY HAWAII ADMIN. RULES, TITLE 16, CHAPTER 115. EXP. 04.30.24

Kolohe Design LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-0806
e-mail: lin@kolohedesign.com

REVISIONS
No. | Description | Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd. Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

Date: 11/18/2022

Scale:

Sheet Title: GENERAL NOTES

Sheet Number: LW01

PERMIT SET

PRINT DATE11.18.2022

SPECIFICATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

THE GENERAL CONDITIONS AND SPECIAL PROVISIONS OF THE PROJECT SPECIFICATIONS SHALL GOVERN WORK SPECIFIED HEREIN.

1.02 DESCRIPTION OF WORK

WORK INCLUDED: THE WORK SPECIFIED IN THIS SECTION INCLUDES ALL LABOR, MATERIALS, EQUIPMENT TO CONSTRUCT AND COMPLETE THE SWIMMING POOL WORK, AND EQUIPMENT AT LOT 23 NOHEA, PHASE 1, MAUNA LANI- HAWAII, AS SHOWN ON THE DRAWINGS AND HEREIN SPECIFIED INCLUDING BUT NOT LIMITED TO:

1. SHOP DRAWINGS, SUBMITTALS, AND PERMITS.
2. START-UP, INSTRUCTION AND MAINTENANCE MANUALS
3. FORMING WORK
4. STEEL REINFORCEMENT
5. PNEUMATICALLY APPLIED CONCRETE (SHOTCRETE)
6. CERAMIC TILE WORK
7. MARBLEIZED PLASTER
8. RECIRCULATING AND FILTRATION SYSTEMS
9. PIPING AND FITTINGS
10. SANITATION AND CONTROL SYSTEMS
11. WATER SANITATION SYSTEMS
12. UNDERWATER NICHE AND LIGHTING SYSTEMS
13. MAKE-UP WATER SYSTEMS
14. COPING
15. ROCKWORK

1.03 RELATED WORK SPECIFIED IN OTHER AREAS

A. POOL DECK IS BY OTHERS.

B. UTILITY SERVICES TO EQUIPMENT AREA.

1. POTABLE WATER SUPPLY LINE WITH A DEDICATED REDUCED PRESSURE BACKFLOW PREVENTOR.
2. ELECTRICAL SERVICE TO THE EQUIPMENT ROOM FOR THE SIMMING POOL EQUIPMENT.

C. ALL EXCAVATION AND EARTHWORKS BY OTHERS

D. MINIMUM 4" DRAIN CONNECTIONS TO DRYWELL FOR EQUIPMENT BACKWASH (AS REQUIRED)

1.04 PERMITS

WORK INCLUDED: SECURE AND PAY FOR ALL NECESSARY PERMITS REQUIRED FOR CONSTRUCTION OF POOL.

1.05 QUALIFICATIONS & QUALITY CONTROL

A. CONTRACTOR SHALL HAVE A VALID C-49 HAWAII LICENSE AND SHALL SHOW PROOF OF FIVE PROJECTS OF A SIMILAR TYPE SUCCESSFULLY COMPLETED.

B. CONTRACTOR SHALL PROVIDE ONE PERSON WHO SHALL BE PRESENT DURING THE EXECUTION OF THE WORK SPECIFIED WHO SHALL BE FAMILIAR WITH THE TYPES OF MATERIALS AND PROCESSES AND SHALL DIRECT THE WORK INVOLVED.

C. THE WORKER USED BY ALL SUB-TRADES IN THE PERFORMANCE OF THE SPECIFIED WORK SHALL BE EXPERIENCED IN THEIR RESPECTIVE AREA OF WORK.

D. THE WORK SPECIFIED HEREIN SHALL COMPLY WITH THE PLUMBING CODE OF THE COUNTY OF HAWAII WITH THE REGULATIONS OF THE DEPARTMENT OF HEALTH OF THE STATE OF HAWAII AND ALL GOVERNMENTAL CODES APPLICABLE TO THE WORK.

E. THE WORK SPECIFIED HEREIN SHALL COMPLY WITH THE STANDARDS OF NSPI (NATIONAL SWIMMING POOL INSTITUTE) TO THE EXTENT THAT SAME ARE APPLICABLE TO THE WORK.

F. IN ADDITION TO ALL OTHER EXPRESSLY REQUIRED AND PROVIDED GUARANTEES AND WARRANTIES, ALL PRODUCTS OF THE WORK SPECIFIED HEREIN SHALL HAVE A WARRANTY PERIOD OF ONE YEAR.

1.06 SUBMITTALS

A. BUILDING PERMIT: CONTRACTOR TO OBTAIN ALL NECESSARY WATER FEATURE PERMITS.

B. PRODUCT LITERATURE: PRIOR TO COMMENCEMENT OF ANY WORK, ONE SET OF PRODUCT LITERATURE FOR ALL MANUFACTURED PRODUCTS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL. ALL SUBSTITUTIONS OF SPECIFIED PRODUCTS SHALL FIRST BE APPROVED BY OWNER.

C. AS-BUILT DRAWINGS: UPON COMPLETION OF PROJECT, CONTRACTOR SHALL SUBMIT ONE SET OF DRAWINGS SPECIFYING AS-BUILT CONDITION.

1.07 LAWS & REGULATIONS

THE INSTALLATION SHALL COMPLY WITH THE BUILDING CODE OF THE COUNTY OF HAWAII, THE REGULATIONS OF THE DEPARTMENT OF HEALTH OF THE STATE OF HAWAII, NATIONAL STANDARDS AS APPLICABLE AND ALL OTHER APPLICABLE REGULATIONS.

PART 2 - PRODUCTS

2.01 STEEL REINFORCEMENT

A. REINFORCING BAR: CONFORMS TO ASTM A615, DEFORMED STEEL BARS GRADE 60.

B. TIE WIRE: TIE REINFORCING WITH #16 GAUGE, BLACK ANNEALED WIRE.

C. SUPPORT FOR REINFORCEMENTS: SET REINFORCEMENTS ON 3-INCH PRECAST CONCRETE BLOCKS.

2.02 GUNITE/SHOTCRETE

MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.

2.03 CEMENT

PORTLAND CEMENT CONFORMING TO ASTM C150, TYPE I OR II.

2.04 INTERIOR FINISH

BASALT STONE TILE WITH FLAME FINISH. THE FINAL SPECIFICATION SHALL BE APPROVED BY THE ARCHITECT & OWNER.

2.05 PLUMBING MATERIALS

ALL PIPING AND FITTINGS SHALL BE SCHEDULE 40 PVC CONFORMING TO ASTM D1785.

2.06 SWIMMING POOL & SPA EQUIPMENT

A. PUMP: ALL PUMPS SHALL BE PENTAIR OR EQUAL, SELF-PRIMING WITH THERMOPLASTIC BODY, BUNA N O-RINGS, CLOSED IMPELLER AND INTERNAL HIGH TEMPERATURE CUT-OFF WITH STRAINER BASKETS OF A SIZE CAPABLE OF PUMPING ENTIRE POOL VOLUME THROUGH FILTER EVERY SIX HOURS OR TO DEPARTMENT OF HEALTH MINIMUM STANDARDS.

B. FILTER UNIT: ALL FILTER UNITS SHALL BE HIGH RATE SAND FILTERS (TREATED SYSTEMS) OF FIBERGLASS CONSTRUCTION WITH MULTI-PORT VALVE.

C. FITTINGS: HAYWARD, AMERICAN PRODUCTS, PARAGON, PENTAIR POOL PRODUCTS, WATERWAY PLASTICS, OR SWIMQUIP FITTINGS MAY BE SUBMITTED.

1. MAIN DRAIN: THE MAIN DRAINS FOR THE SWIMMING POOL SHALL BE NON-CORROSIVE AND NON-CONDUCTIVE CONSTRUCTION WITH 8" BODY AND ANTI-VORTEX COVER PLATE AND ANSI/ASME A112.19.8M 2008 APPROVED.
2. INLET JET FITTINGS: INLET FITTINGS SHALL BE 1½" "EYEBALL" WITH DIRECTIONAL BALL TYPE NOZZLE OF CYCOLAC CONSTRUCTION.
3. SKIMMER: SKIMMER SHALL BE OF ABS PLASTIC CONSTRUCTION WITH 2" PIPE CONNECTIONS, FLOATING WEIR, REMOVABLE PLASTIC STRAINER BASKET, AND FLOAT VALVE (EQUALIZER).
4. OVERFLOW/WATER MAKE-UP: POOLMISER HOUSING WITH 1" OVERFLOW AND ¾" WATER MAKE-UP FLOAT VALVE (ONE EACH)-OAE.

D. SANITATION/WATER TREATMENT SYSTEMS: SALT CHLORINATOR.

E. FLOW METER: FLOW METER SHALL BE SIZED TO THE SYSTEM PIPE DIAMETER AND SHALL READ THE FLOW RATES IN GALLONS PER MINUTE AND INSTALLED DOWNSTREAM OF THE FILTER AND PER MANUFACTURERS INSTRUCTIONS. FLOWVIS FLOW METER MANUFACTURED BY H2FLOW CONTROLS, INC., 1.5" TO 2.5" (IF REQUIRED).

F. TRUE-UNION BALL VALVES: CPVC JANDY NEVER-LUBE VALVES, DUO-BLOC, TRUE BLUE OR EQUIVALENT.

G. WALL LIGHT AND NICHE: WALL LIGHT SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES WITH LOW-WATER CUT-OFF DEVICES. REFER TO LIGHT CONSULTANT DRAWINGS FOR SPECIFICATION.

2.07 ELECTRICAL MATERIALS (SUPPLIED & INSTALLED BY OTHERS)

A. NO. 8 AWG SOLID COPPER INSULATED GROUNDING WIRE

B. CIRCUIT BREAKERS, ELECTRICAL WIRING, AND GROUND FAULT INTERRUPTERS FROM CIRCUIT PANEL AT EQUIPMENT PAD TO PUMPS, DISCONNECT SWITCHES, CONTROL SYSTEM AND LIGHTS.

C. ALL ELECTRICAL EQUIPMENT TO BE UL APPROVED FOR APPLICATION.

D. BONDING CONDUCTOR FOR REINFORCING STEEL AND OTHER METALLIC EQUIPMENTS IS TO BE #8 AWG SOLID COPPER CONDUCTOR.

E. FOR SPECIFIC DETAILS AND EXCEPTIONS, REFER TO ARTICLE 680, NEC (NATIONAL ELECTRICAL CODE) CURRENT EDITION.

PART 3 - EXECUTION

3.01 INSTALLATION:

LAYOUT: POSITION AND LAYOUT OF POOL BASED ON REFERENCE POINTS PROVIDED BY GENERAL CONTRACTOR.

3.02 EXCAVATION:

ALL SHALL BE DONE IN MANNER THAT WILL HAVE THE POOL SHAPE IN LOAD BEARING MATERIAL OF AT LEAST 1,000 PSI. ANY LOOSE SOIL SHALL BE REMOVED. POOL SHAPE SHALL BE FILLED WITH SHOTCRETE. IF THE OVER-DIG OF A LARGE PORTION, THEN THE WALL MUST BE FORMED - THE FORM REMOVED AFTER THE GUNITE SHOT AND BACK-FILL PUT IN AND TAMPED TO 90% OF ORIGINAL EARTH BACK. ALL INSIDE RADIUS AND SHAPE SHALL BE HAND FORMED AND CONFORM TO DRAWINGS.

3.03 FORM WORK:

WOOD FORMS SHALL BE SET TO DEFINE THE OUTSIDE PERIMETER OF THE POOL. THESE FORMS SHALL BE LEVELED TO THE TOP OF THE CONCRETE, SQUARED TO THE DESIGNATED HORIZONTAL DIMENSIONS AND ANGLES, AND SECURELY STAKED AND BRACED IN PLACE. BOXES SHALL BE FORMED AROUND ALL APPURTENANCES ALLOWING AT LEAST 6" OF CONCRETE COVER. IMMEDIATELY BEFORE PLACING THE CONCRETE, ALL FRAME WORK DIMENSIONS, DEPTH TO SUB-GRADE, AND ESPECIALLY LEVELNESS AND ELEVATION SHALL BE RECHECKED. AFTER THE CONCRETE IS PLACED, ALL FORMS, STAKES AND BRACES, ETC., OF WOOD OF OTHER MATERIALS EXCEPT EXPANDED METAL MESH SHALL BE COMPLETELY REMOVED BEFORE BACKFILLING.

3.04 REINFORCING STEEL:

REINFORCING STEEL SHALL BE TIED SECURELY IN PLACE AND BLOCKED TO THE DESIGNATED CLEARANCE BEFORE THE CONCRETE IS PLACED. REBAR SHALL BE PLACED BEHIND, AROUND AND BELOW LIGHT FIXTURE NICHES, SKIMMERS, AND MAIN DRAINS. SPLICES SHALL BE STAGGERED AND LAPS SHALL NOT BE LESS THAN 30 DIAMETERS OR 24" MINIMUM. ALL REBAR SHALL BE OF A SIZE, AND SHALL BE SPACED AS INDICATED ON THE DRAWINGS, UNLESS OTHERWISE AUTHORIZED BY THE DESIGNER. ALL CROSSING SHALL BE 90% AND AT LEAST EVERY OTHER CROSSING SHALL BE TIED. REBAR SHALL BE FREE OF LOOSE RUST, OIL, MUD OR DIRT. NO REBAR SHALL BE IN CONTACT WITH SUB-GRADE OR FORM WORK, AND ALL REBAR EXCEPT DESIGNATED DOWELS SHALL BE TOTALLY ENCASED IN CONCRETE.

3.05 ROUGH PLUMBING & ELECTRICAL:

BEFORE THE CONCRETE IS PLACED, THE FOLLOWING ROUGH PLUMBING AND ELECTRICAL WORK SHALL BE ACCOMPLISHED AND INSPECTED:

A. LIGHT NICHE: LIGHT NICHE SHALL BE FITTED WITH 1" PVC ELECTRICAL CONDUIT EXTENDING WELL BEYOND SUB-GRADE AND FORM WORK, SHALL BE FIRMLY SECURED AND IN CORRECT LOCATION WITH REBAR AND TIE WIRE.

B. BONDING: ALL LIGHT NICHES SHALL BE ADEQUATELY BONDED TO THE REBAR GROUNDING GRID. BONDING CLAMPS AND WIRES SHALL BE PROVIDED FOR ANY METAL FEATURE WITHIN 10' OF POOL PER NEC SPECIFICATIONS. GROUNDING WIRE SHALL BE FIRMLY SECURED TO THE REBAR GROUNDING GRID AND SHELL EXTEND TOWARD THE EQUIPMENT ENCLOSURE WITH SUFFICIENT UN-SPLICED LENGTH TO REACH THE GROUNDING BUSS IN THE EQUIPMENT CONTROL PANEL.

C. MAIN DRAINS: THE MAIN DRAINS AND OTHER SUCTION (TWO PROVIDED PER SUCTION SOURCE) PIPING SHALL BE INSTALLED USING A MINIMUM NUMBER OF FITTINGS TO A POINT WELL BEYOND POOL PERIMETER AND SHALL BE PRESSURE TESTED BEFORE THE PLACEMENT OF CONCRETE.

D. RETURN PLUMBING: RETURN PIPING SHALL BE SCHEDULE 40 AND INSTALLED WITH A TEE OR 90 DEGREE ELBOW FIRMLY SECURED TO THE REBAR IN THE WALL, TO BE ENCASED IN GUNITE. RETURN FITTINGS, WHERE INDICATED, SHALL BE INSTALLED TO SET FLUSH WITH THE FINISH INTERIOR. WHERE NO FITTING IS REQUIRED, THE RETURN PIPING SHALL BE EXTENDED WELL BEYOND THE POOL PERIMETER, AND ALL FITTINGS AND OPEN ENDS SHALL BE PROTECTED AGAINST THE INTRUSION OF FOREIGN MATERIALS BEFORE GUNITING.

E. PLUMBING:

1. POOL CONTRACTOR MUST GUARANTEE THAT THE PIPING WILL ALLOW THE CIRCULATION OF THE NECESSARY GPM WITH ALL THE FRICTIONAL LOSSES INVOLVED. ALL SUCTION PIPING TO BE LAID WITH A CONSTANT GRADIENT TO ELIMINATE AIR LOCKS AND LOSS OF PRIME. PIPING TO BE LAID USING GOOD PRACTICES TO ELIMINATE AND REDUCE TO A MINIMUM CHANGES IN DIRECTION OF WATER FLOW THAT INCREASE FRICTIONAL LOSS. ALL VALVES SHALL BE PVC AND LOCATED AS SHOW ON DRAWINGS. ALL PIPING TO BE LABELED SHOWING DIRECTION OF FLOW AND FUNCTION AND ALL VALVES ARE TO BE LABELED.
2. ALL PIPING IS TO BE TESTED TO ENSURE INTEGRITY OF JOINTS AND CONNECTIONS, USING STANDARD PRESSURE TESTING TECHNIQUES, PRIOR TO ENCASEMENT IN SHOTCRETE OR BURIAL.
3. VALVES AND UNIONS SHALL BE PROVIDED AT CONNECTIONS TO EQUIPMENT TO FACILITATE MAINTENANCE OF THE EQUIPMENT.
4. ALL CONNECTIONS BETWEEN DOMESTIC WATER SUPPLY AND POOL EQUIPMENT SHALL BE MADE USING AN APPROVED BACKFLOW PROTECTION DEVICE.

3.06 CONCRETE:

ALL WORKERS PLACING CONCRETE SHALL BE EXPERIENCED IN SIMILAR APPLICATION. EQUIPMENT USED FOR CONCRETE PLACEMENT SHALL BE IN GOOD REPAIR, ADEQUATE AND APPROPRIATE FOR THE JOB. ALL MATERIALS EXHIBITING INADEQUATE HYDRATION, INSUFFICIENT MIXING, FOREIGN MATTER, BALLING, SEPARATION OR LOSS OF INITIAL COHESIVENESS SHALL BE SEPARATED FROM THE "LIVE" MATERIAL AND WASTED. CONCRETE SHALL BE APPLIED AS INDICATED AND SUCH THAT ALL REINFORCING STEEL IS COMPLETELY ENCASED AND ADEQUATELY PROTECTED FROM CORROSION BY THE CONCRETE. UPON COMPLETION OF THE PLACEMENT, THE CONCRETE SHALL BE KEPT WET FOR 7 CONSECUTIVE DAYS BY THE POOL CONTRACTOR.

3.07 SHOTCRETE:

SHOTCRETE SHALL BE CAREFULLY APPLIED UNDER THE MAIN DRAIN, BEHIND THE LIGHT NICHES, AROUND THE SKIMMERS, UP TO THE TOP OF THE BOND BEAM, AND AROUND ALL FITTINGS. SHOTCRETE SHALL BE NOZZLED TO ITS FINAL POSITION NOT SHOVELED OR HAND PACKED. THE IN-PLACE SHOTCRETE SHALL BE FRESNOED TO PLUMB AND TRUE STRAIGHT LINES OR DIMENSIONED RADII AS REQUIRED BY THE DRAWINGS; VOIDS AND DEPRESSED AREAS SHALL BE FLASHED WITH THE NOZZLE, NOT WOOD FLOATED. AFTER THE REQUIRED SHAPES HAVE BEEN FRESNOED, THE ENTIRE EXPOSED GUNITE SURFACE SHALL BE BROOMED WITH A STIFF BRISTLED BRUSH TO ROUGHEN ANY SMOOTH PATCHES, AND ALL SHOTCRETE WASTE SHALL BE CLEANED UP AND DISPOSED OF. UPON COMPLETION OF PLACEMENT, THE SHOTCRETE SHALL BE WETTED DOWN CONTINUALLY FOR 7 CONSECUTIVE DAYS BY THE POOL CONTRACTOR.

3.08 CONCRETE MASONRY:

CONCRETE MASONRY SHALL BE REINFORCED AND ALL CELLS GROUTED U.O.N. ULTIMATE COMPRESSIVE STRENGTH, F'M, SHALL BE 1500 PSI MINIMUM. UNLESS OTHERWISE APPROVED BY THE ENGINEER, MATERIALS SHALL CONFORM TO THE FOLLOWING:
UNITS: OPEN END, ASTM C90-90 TYPE 1, 1900 PSI.
MORTAR: TYPE M OR S CEMENT-LIME MORTAR IN ACCORDANCE WITH UBC TABLE 21-A.
GROUT: MINIMUM COMPREHENSIVE STRENGTH 2000 PSI.

DETAILS OF WORKMANSHIP SHALL BE IN ACCORDANCE WITH UBC CHAPTER 21 AND FOLLOWING:
- RUNNING BOND.
- ROUGHEN CONSTRUCTION SURFACES BEFORE PLACING UNITS.
- CLEANOUTS REQUIRED AT BOTTOM COURSE FOR EACH VERTICAL BAR (32" O.C. MAX) FOR ALL GROUT POURS OVER FIVE FEET IN HEIGHT.
- PROVIDE BOND BEAM UNIT AT HORIZONTAL REINFORCING.
- NO PIPES OR DUCTS SHALL BE EMBEDDED OR CHASED IN BLOCK EXCEPT AS DETAILED ON DRAWINGS.

3.09 PLASTER FINISH:

A. SURFACE PREPARATION:

1. SURFACE SHALL BE CLEAN AND FREE OF ALL DUST AND LOOSE PARTICLES AND OTHER FOREIGN MATTER. ANY OIL, GREASE OR PAINT SHALL BE REMOVED AND THE SURFACE SCRUBBED WITH A DILUTE SOLUTIONS OF TRISODIUM PHOSPHATE FOLLOWED BY AN APPLICATION OF 10% SOLUTION OF MURIATIC ACID FOLLOWING BY A CLEAN WATER RINSE (IF REQUIRED).

B. INSTALLATION:

1. A FINISH COAT OF THE SPECIFIED MARBLE PLASTER SHALL BE APPLIED BY TROWEL TO A THICKNESS OF ½" MINIMUM AND ¾" MAXIMUM UNTO THE ROUGH GUNITE SURFACE OR A PREVIOUSLY APPLIED BROWNCOAT.
2. THE PLASTER SHALL BE FLOATED TO A UNIFORM PLANE AND TROWELED TO A SMOOTH, DENSE IMPERVIOUS SURFACE USING EXTREME CARE TO AVOID STAINS.
3. THE PLASTER SHALL BE ACCURATELY INTERFACED WITH THE FINISH PLANE OF ITEMS INSTALLED BY OTHER TRADES.

C. CURING PLASTER:

1. THE CONTRACTOR SHALL ANTICIPATE THE NEED FOR THE EQUIPMENT REQUIRED FOR CURING OF THE PLASTER AND HAVE IT AVAILABLE ON-SITE.
2. POOL FILLING:
   a. AFTER THE PLASTER HAS SUFFICIENTLY SET AND BEFORE DRYING HAS PROCEEDED TO A DAMAGING POINT, THE PLASTER SHALL BE CURED BY GRADUALLY FILLING THE POOL WITH WATER PREVENTING DAMAGE TO SURFACE DURING THIS PROCESS.
   b. THE FILLING WATER SHALL BE CONTINUOUSLY FLOWED UNTIL POOL IS FULL.
   c. WHEN THE WEATHER IS HOT OR THE FLOW IS SLOW, THE PLASTERED WALLS SHALL BE KEPT CONTINUOUSLY DAMP UNTIL POOL IS FULL.

D. SPECIAL CONDITIONS:

1. PLASTER SHALL NOT BE APPLIED UNDER CONDITIONS WHICH MAY LEAVE DOUBT AS TO THE QUALITY OF THE FINISH, ALLOWING FOR TIME TO PROPERLY FILL, CHEMICALLY BALANCED AND CURE THE NEW PLASTER.

3.10 STONE TILE:

A. SURFACE PREPARATION:

1. THOROUGHLY SOUND THE SURFACE FOR LOOSE CONCRETE.
2. PRESSURE WASH ALL SURFACES.
3. LEVEL ALL LOOSE SURFACES.

B. INSTALLATION:

1. SET TILE WITH LINES AND PLANES TRUE, EVEN, PLUMB AND LEVEL. ALIGN JOINTS. STONE ANY SHARP EDGES.
2. CAREFULLY ESTABLISH AND FOLLOW THE REQUIRED VERTICAL AND HORIZONTAL ELEVATIONS.
3. REMOVE AND RESET ANY TILE THAT IS LOOSE OR RINGS HOLLOW.
4. FINISH WITH GROUT APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
5. UPON COMPLETION, THOROUGHLY CLEAN ALL INSTALLED TILE, REMOVE DEBRIS AND LEAVE THE SITE IN A CLEAN PRESENTABLE CONDITION.

3.11 STONE SUPPORT EQUIPMENT:

ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS. ALL SERVICEABLE AND ALL CONTROL VALVES SHALL BE READILY ACCESSIBLE. ALL GAUGES SHALL BE LOCATED WHERE THEY CAN EASILY BE READ.

3.12 START-UP & OPERATING INSTRUCTIONS:

POOL CONTRACTOR SHALL START-UP AND OPERATE ALL EQUIPMENT IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE AND MAKE ALL ADJUSTMENTS REQUIRED FOR PROPER OPERATION. INITIAL WATER TREATMENT AND ACHIEVING INITIAL CHEMICAL BALANCE ARE PART OF THIS CONTRACTORS RESPONSIBILITY. HE SHALL INSTRUCT OWNER'S REPRESENTATIVE IN THE PROPER CARE, OPERATION, AND MAINTENANCE OF THE POOL AND ALL RELATED EQUIPMENT. IN ADDITION HE SHALL DELIVER TO THE OWNER TWO (2) COMPLETE SETS OF INSTRUCTIONS REGARDING OPERATION AND MAINTENANCE PROCEDURES. CONTRACTOR WILL CLEAN AND MAINTAIN POOL AND CHEMICAL BALANCES FOR 30 DAYS FOLLOWING INITIAL START-UP.

3.13 SPECIAL CONDITIONS:

A. WEATHER CONDITIONS: DO NOT APPLY CONCRETE, PLASTER OR TILE DURING RAIN. PROTECT NEWLY APPLIED FINISHES FROM DIRT THAT MIGHT GET BLOWN ONTO FRESH SURFACES UNTIL THEY HAVE SET OR CURED.

3.14 INSTRUCTIONS:

A QUALIFIED REPRESENTATIVE OF THIS CONTRACTOR SHALL VISIT THE SITE OF WORK AFTER INSTALLATION OF THE EQUIPMENT HAS BEEN COMPLETED, SHALL PUT INTO OPERATION ALL MECHANICAL EQUIPMENT AND SHALL FOR A PERIOD NOT TO EXCEED 8 HOURS, ASSIST AND INSTRUCT THE OWNER'S, INCLUDING ON THE PROPER MIXTURE OF CHEMICALS. IF THE EQUIPMENT FAILS TO FUNCTIONS AS INTENDED, THE CONTRACTOR SHALL CORRECT THE MALFUNCTION AND ANY ADDITIONAL TIME OVER 8 HOURS OF INSTRUCTION THAT MAY BE REQUIRED WILL BE AT THE CONTRACTOR'S EXPENSE.

3.15 GUARANTEE:

ALL WORK EXECUTED WITHIN THESE SPECIFICATIONS SHALL BE GUARANTEED TO BE FREE FROM DEFECTS OF MATERIAL AND WORKMANSHIP FOR ONE YEAR FROM DATE OF PLASTER. ALL NORMAL REPAIRS AND REPLACEMENT REQUIRED WITHIN THAT TIME SHALL BE PERFORMED WITHOUT COST TO OWNER.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

SIGNATURE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION (AS DEFINED BY HAWAII ADMIN. RULES, TITLE 16, CHAPTER 115. EXP. 04.30.24

Kolohe Design LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-0806
e-mail: lin@kolohedesign.com

REVISIONS

No.	Description	Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd, Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

Date: 11/18/2022

Scale:

Sheet Title: SPECIFICATIONS

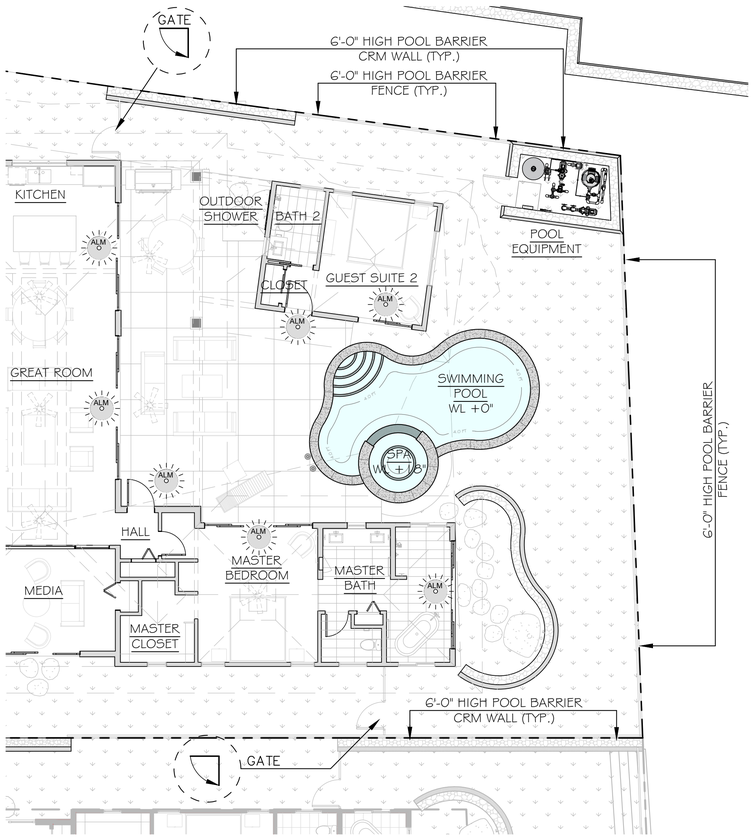
Sheet Number: LW01.1

PERMIT SET

PRINT DATE11.18.2022

1 SWIMMING POOL AND SPA BARRIER PLAN

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



DOORS WITH DIRECT ACCESS TO POOL DOOR ALARM

DOOR ALARM
Installation Instructions

MODEL DAPT-2
MEETS UL 2017

SIGNALING
UL LISTED

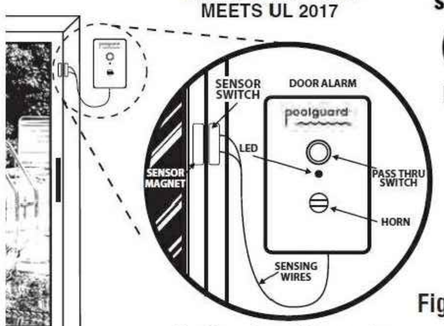


Figure 1

The horn is 85dB at 10 feet

IMPORTANT
READ THOROUGHLY BEFORE USING ALARM

The product has been designed to aid in the detection of unwanted intrusions into unsupervised areas. POOLGUARD DAPT-2 IS A SAFETY ALARM SYSTEM AND NOT A LIFE SAVING DEVICE. It should be used in conjunction with the safety equipment currently in use and should not affect existing safety procedures.

PBM INDUSTRIES, INC.
P.O. Box 658
NORTH VERNON, IN 47265
812-346-2648

poolguard®

PBM INDUSTRIES, INC.
MADE IN THE USA
REV. 5-09

POOL BARRIER NOTES

1. SELF-CLOSING AND SELF-LATCHING GATES WILL BE PROVIDED AT ENTRY POINTS TO POOL AND SPA.
2. A 4-FOOT HIGH FENCE OR GRADE SEPARATION 4 FEET HIGH OR GREATER WILL BE PROVIDED AROUND POOL AND SPA.

SYMBOL INDEX

ALM — IBC 2018 DIRECT ACCESS DOOR ALARM UL 2017 LISTED

4'-0" HIGH SELF-CLOSING AND LATCHING GATE (TYP. ALL POOL BARRIER GATES)

2018 INTERNATIONAL SWIMMING POOL AND SPA POOL BARRIER CODE SECTION 305

305.1 GENERAL

THE PROVISIONS OF THIS SECTION SHALL APPLY TO THE DESIGN OF BARRIERS FOR RESTRICTING ENTRY INTO AREAS HAVING POOLS AND SPAS. WHERE SPAS OR HOT TUBS ARE EQUIPPED WITH A LOCKABLE SAFETY COVER COMPLYING WITH ASTM F1346 AND SWIMMING POOLS ARE EQUIPPED WITH A POWERED SAFETY COVER THAT COMPLIES WITH ASTM F1346, THE AREAS WHERE THOSE SPAS, HOT TUBS OR POOLS ARE LOCATED SHALL NOT BE REQUIRED TO COMPLY WITH SECTIONS 305.2 THROUGH 305.7.

305.2 OUTDOOR SWIMMING POOLS AND SPAS

OUTDOOR POOLS AND SPAS AND INDOOR SWIMMING POOLS SHALL BE SURROUNDED BY A BARRIER THAT COMPLIES WITH SECTIONS 305.2.1 THROUGH 305.7.

305.2.1 BARRIER HEIGHT AND CLEARANCES

BARRIER HEIGHTS AND CLEARANCES SHALL BE IN ACCORDANCE WITH ALL OF THE FOLLOWING:
THE TOP OF THE BARRIER SHALL BE NOT LESS THAN 48 INCHES (1219 MM) ABOVE GRADE WHERE MEASURED ON THE SIDE OF THE BARRIER THAT FACES AWAY FROM THE POOL OR SPA. SUCH HEIGHT SHALL EXIST AROUND THE ENTIRE PERIMETER OF THE BARRIER AND FOR A DISTANCE OF 3 FEET (914 MM) MEASURED HORIZONTALLY FROM THE OUTSIDE OF THE REQUIRED BARRIER.
THE VERTICAL CLEARANCE BETWEEN GRADE AND THE BOTTOM OF THE BARRIER SHALL NOT EXCEED 2 INCHES (51 MM) FOR GRADE SURFACES THAT ARE NOT SOLID, SUCH AS GRASS OR GRAVEL, WHERE MEASURED ON THE SIDE OF THE BARRIER THAT FACES AWAY FROM THE POOL OR SPA.
THE VERTICAL CLEARANCE BETWEEN A SURFACE BELOW THE BARRIER TO A SOLID SURFACE, SUCH AS CONCRETE, AND THE BOTTOM OF THE REQUIRED BARRIER SHALL NOT EXCEED 4 INCHES (102 MM) WHERE MEASURED ON THE SIDE OF THE REQUIRED BARRIER THAT FACES AWAY FROM THE POOL OR SPA.
WHERE THE TOP OF THE POOL OR SPA STRUCTURE IS ABOVE GRADE, THE BARRIER SHALL BE INSTALLED ON GRADE OR SHALL BE MOUNTED ON TOP OF THE POOL OR SPA STRUCTURE. WHERE THE BARRIER IS MOUNTED ON THE TOP OF THE POOL OR SPA, THE VERTICAL CLEARANCE BETWEEN THE TOP OF THE POOL OR SPA AND THE BOTTOM OF THE BARRIER SHALL NOT EXCEED 4 INCHES (102 MM).

305.2.2 OPENINGS

OPENINGS IN THE BARRIER SHALL NOT ALLOW PASSAGE OF A 4-INCH-DIAMETER (102 MM) SPHERE.

305.2.3 SOLID BARRIER SURFACES

SOLID BARRIERS THAT DO NOT HAVE OPENINGS SHALL NOT CONTAIN INDENTATIONS OR PROTRUSIONS THAT FORM HANDHOLDS AND FOOTHOLDS, EXCEPT FOR NORMAL CONSTRUCTION TOLERANCES AND TOOLED MASONRY JOINTS.

305.2.4 MESH FENCE AS A BARRIER

MESH FENCES, OTHER THAN CHAIN LINK FENCES IN ACCORDANCE WITH SECTION 305.2.7, SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND SHALL COMPLY WITH THE FOLLOWING:
THE BOTTOM OF THE MESH FENCE SHALL BE NOT MORE THAN 1 INCH (25 MM) ABOVE THE DECK OR INSTALLED SURFACE OR GRADE.
THE MAXIMUM VERTICAL CLEARANCE FROM THE BOTTOM OF THE MESH FENCE AND THE SOLID SURFACE SHALL NOT PERMIT THE FENCE TO BE LIFTED MORE THAN 4 INCHES (102 MM) FROM GRADE OR DECKING.
THE FENCE SHALL BE DESIGNED AND CONSTRUCTED SO THAT IT DOES NOT ALLOW PASSAGE OF A 4-INCH (102 MM) SPHERE UNDER ANY MESH PANEL. THE MAXIMUM VERTICAL CLEARANCE FROM THE BOTTOM OF THE MESH FENCE AND THE SOLID SURFACE SHALL BE NOT GREATER THAN 4 INCHES (102 MM) FROM GRADE OR DECKING.
AN ATTACHMENT DEVICE SHALL ATTACH EACH BARRIER SECTION AT A HEIGHT NOT LOWER THAN 45 INCHES (1143 MM) ABOVE GRADE. COMMON ATTACHMENT DEVICES INCLUDE, BUT ARE NOT LIMITED TO, DEVICES THAT PROVIDE THE SECURITY EQUAL TO OR GREATER THAN THAT OF A HOOK-AND-EYE-TYPE LATCH INCORPORATING A SPRING-ACTUATED RETAINING LEVER SUCH AS A SAFETY GATE HOOK.
WHERE A HINGED GATE IS USED WITH A MESH FENCE, THE GATE SHALL COMPLY WITH SECTION 305.3.
PATIO DECK SLEEVES SUCH AS VERTICAL POST RECEPTACLES THAT ARE PLACED INSIDE THE PATIO SURFACE SHALL BE OF A NONCONDUCTIVE MATERIAL.
MESH FENCES SHALL NOT BE INSTALLED ON TOP OF ON-GROUND RESIDENTIAL POOLS.

305.2.5 CLOSELY SPACED HORIZONTAL MEMBERS

WHERE THE BARRIER IS COMPOSED OF HORIZONTAL AND VERTICAL MEMBERS AND THE DISTANCE BETWEEN THE TOPS OF THE HORIZONTAL MEMBERS IS LESS THAN 45 INCHES (1143 MM), THE HORIZONTAL MEMBERS SHALL BE LOCATED ON THE POOL OR SPA SIDE OF THE FENCE. SPACING BETWEEN VERTICAL MEMBERS SHALL NOT EXCEED 13/4 INCHES (44 MM) IN WIDTH. WHERE THERE ARE DECORATIVE CUTOUTS WITHIN VERTICAL MEMBERS, SPACING WITHIN THE CUTOUTS SHALL NOT EXCEED 13/4 INCHES (44 MM) IN WIDTH.

305.2.6 WIDELY SPACED HORIZONTAL MEMBERS

WHERE THE BARRIER IS COMPOSED OF HORIZONTAL AND VERTICAL MEMBERS AND THE DISTANCE BETWEEN THE TOPS OF THE HORIZONTAL MEMBERS IS 45 INCHES (1143 MM) OR MORE, SPACING BETWEEN VERTICAL MEMBERS SHALL NOT EXCEED 4 INCHES (102 MM). WHERE THERE ARE DECORATIVE CUTOUTS WITHIN VERTICAL MEMBERS, THE INTERIOR WIDTH OF THE CUTOUTS SHALL NOT EXCEED 13/4 INCHES (44 MM).

305.2.7 CHAIN LINK DIMENSIONS

THE MAXIMUM OPENING FORMED BY A CHAIN LINK FENCE SHALL BE NOT MORE THAN 13/4 INCHES (44 MM). WHERE THE FENCE IS PROVIDED WITH SLATS FASTENED AT THE TOP AND BOTTOM THAT REDUCE THE OPENINGS, SUCH OPENINGS SHALL BE NOT GREATER THAN 13/4 INCHES (44 MM).

305.2.8 DIAGONAL MEMBERS

WHERE THE BARRIER IS COMPOSED OF DIAGONAL MEMBERS, THE MAXIMUM OPENING FORMED BY THE DIAGONAL MEMBERS SHALL BE NOT GREATER THAN 13/4 INCHES (44 MM). THE ANGLE OF DIAGONAL MEMBERS SHALL BE NOT GREATER THAN 45 DEGREES (0.79 RAD) FROM VERTICAL.

305.2.9 CLEAR ZONE

THERE SHALL BE A CLEAR ZONE OF NOT LESS THAN 36 INCHES (914 MM) BETWEEN THE EXTERIOR OF THE BARRIER AND ANY PERMANENT STRUCTURES OR EQUIPMENT SUCH AS PUMPS, FILTERS AND HEATERS THAT CAN BE USED TO CLIMB THE BARRIER.

305.2.10 POOLSIDE BARRIER SETBACKS

THE POOL OR SPA SIDE OF THE REQUIRED BARRIER SHALL BE NOT LESS THAN 20 INCHES (508 MM) FROM THE WATER'S EDGE.

305.3 GATES

ACCESS GATES SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 305.3.1 THROUGH 305.3.3 AND SHALL BE EQUIPPED TO ACCOMMODATE A LOCKING DEVICE. PEDESTRIAN ACCESS GATES SHALL OPEN OUTWARD AWAY FROM THE POOL OR SPA, SHALL BE SELF-CLOSING AND SHALL HAVE A SELF-LATCHING DEVICE.

305.3.1 UTILITY OR SERVICE GATES

GATES NOT INTENDED FOR PEDESTRIAN USE, SUCH AS UTILITY OR SERVICE GATES, SHALL REMAIN LOCKED WHEN NOT IN USE.

305.3.2 DOUBLE OR MULTIPLE GATES

DOUBLE GATES OR MULTIPLE GATES SHALL HAVE NOT FEWER THAN ONE LEAF SECURED IN PLACE AND THE ADJACENT LEAF SHALL BE SECURED WITH A SELFLATCHING DEVICE. THE GATE AND BARRIER SHALL NOT HAVE OPENINGS LARGER THAN 1/2 INCH (12.7 MM) WITHIN 18 INCHES (457 MM) OF THE LATCH RELEASE MECHANISM. THE SELF-LATCHING DEVICE SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 305.3.3.

305.3.3 LATCHES

WHERE THE RELEASE MECHANISM OF THE SELF-LATCHING DEVICE IS LOCATED LESS THAN 54 INCHES (1372 MM) FROM GRADE, THE RELEASE MECHANISM SHALL BE LOCATED ON THE POOL OR SPA SIDE OF THE GATE NOT LESS THAN 3 INCHES (76 MM) BELOW THE TOP OF THE GATE, AND THE GATE AND BARRIER SHALL NOT HAVE OPENINGS GREATER THAN 1/2 INCH (12.7 MM) WITHIN 18 INCHES (457 MM) OF THE RELEASE MECHANISM.

305.4 STRUCTURE WALL AS A BARRIER

WHERE A WALL OF A DWELLING OR STRUCTURE SERVES AS PART OF THE BARRIER AND WHERE DOORS OR WINDOWS PROVIDE DIRECT ACCESS TO THE POOL OR SPA THROUGH THAT WALL, ONE OF THE FOLLOWING SHALL BE REQUIRED:
OPERABLE WINDOWS HAVING A SILL HEIGHT OF LESS THAN 48 INCHES (1219 MM) ABOVE THE INDOOR FINISHED FLOOR AND DOORS SHALL HAVE AN ALARM THAT PRODUCES AN AUDIBLE WARNING WHEN THE WINDOW, DOOR OR THEIR SCREENS ARE OPENED. THE ALARM SHALL BE LISTED AND LABELED AS A WATER HAZARD ENTRANCE ALARM IN ACCORDANCE WITH UL 2017. IN DWELLINGS OR STRUCTURES NOT REQUIRED TO BE ACCESSIBLE UNITS, TYPE A UNITS OR TYPE B UNITS, THE OPERABLE PARTS OF THE ALARM DEACTIVATION SWITCHES SHALL BE LOCATED 54 INCHES (1372 MM) OR MORE ABOVE THE FINISHED FLOOR. IN DWELLINGS OR STRUCTURES REQUIRED TO BE ACCESSIBLE UNITS, TYPE A UNITS OR TYPE B UNITS, THE OPERABLE PARTS OF THE ALARM DEACTIVATION SWITCHES SHALL BE LOCATED NOT GREATER THAN 54 INCHES (1372 MM) AND NOT LESS THAN 48 INCHES (1219 MM) ABOVE THE FINISHED FLOOR.
A SAFETY COVER THAT IS LISTED AND LABELED IN ACCORDANCE WITH ASTM F1346 IS INSTALLED FOR THE POOLS AND SPAS.
AN APPROVED MEANS OF PROTECTION, SUCH AS SELF-CLOSING DOORS WITH SELF-LATCHING DEVICES, IS PROVIDED. SUCH MEANS OF PROTECTION SHALL PROVIDE A DEGREE OF PROTECTION THAT IS NOT LESS THAN THE PROTECTION AFFORDED BY ITEM 1 OR 2.

305.5 ONGROUND RESIDENTIAL POOL STRUCTURE AS A BARRIER

AN ONGROUND RESIDENTIAL POOL WALL STRUCTURE OR A BARRIER MOUNTED ON TOP OF AN ONGROUND RESIDENTIAL POOL WALL STRUCTURE SHALL SERVE AS A BARRIER WHERE ALL OF THE FOLLOWING CONDITIONS ARE PRESENT:
WHERE ONLY THE POOL WALL SERVES AS THE BARRIER, THE BOTTOM OF THE WALL IS ON GRADE, THE TOP OF THE WALL IS NOT LESS THAN 48 INCHES (1219 MM) ABOVE GRADE FOR THE ENTIRE PERIMETER OF THE POOL, THE WALL COMPLIES WITH THE REQUIREMENTS OF SECTION 305.2 AND THE POOL MANUFACTURER ALLOWS THE WALL TO SERVE AS A BARRIER.
WHERE A BARRIER IS MOUNTED ON TOP OF THE POOL WALL, THE TOP OF THE BARRIER IS NOT LESS THAN 48 INCHES (1219 MM) ABOVE GRADE FOR THE ENTIRE PERIMETER OF THE POOL, AND THE WALL AND THE BARRIER ON TOP OF THE WALL COMPLY WITH THE REQUIREMENTS OF SECTION 305.2.
LADDERS OR STEPS USED AS MEANS OF ACCESS TO THE POOL ARE CAPABLE OF BEING SECURED, LOCKED OR REMOVED TO PREVENT ACCESS EXCEPT WHERE THE LADDER OR STEPS ARE SURROUNDED BY A BARRIER THAT MEETS THE REQUIREMENTS OF SECTION 305.
OPENINGS CREATED BY THE SECURING, LOCKING OR REMOVAL OF LADDERS AND STEPS DO NOT ALLOW THE PASSAGE OF A 4-INCH (102 MM) DIAMETER SPHERE.
BARRIERS THAT ARE MOUNTED ON TOP OF ONGROUND RESIDENTIAL POOL WALLS ARE INSTALLED IN ACCORDANCE WITH THE POOL MANUFACTURER'S INSTRUCTIONS.

305.6 NATURAL BARRIERS

IN THE CASE WHERE THE POOL OR SPA AREA ABUTS THE EDGE OF A LAKE OR OTHER NATURAL BODY OF WATER, PUBLIC ACCESS IS NOT PERMITTED OR ALLOWED ALONG THE SHORELINE, AND REQUIRED BARRIERS EXTEND TO AND BEYOND THE WATER'S EDGE NOT LESS THAN 18 INCHES (457 MM), A BARRIER IS NOT REQUIRED BETWEEN THE NATURAL BODY OF WATER SHORELINE AND THE POOL OR SPA.

305.7 NATURAL TOPOGRAPHY

NATURAL TOPOGRAPHY THAT PREVENTS DIRECT ACCESS TO THE POOL OR SPA AREA SHALL INCLUDE BUT NOT BE LIMITED TO MOUNTAINS AND NATURAL ROCK FORMATIONS. A NATURAL BARRIER APPROVED BY THE GOVERNING BODY SHALL BE ACCEPTABLE PROVIDED THAT THE DEGREE OF PROTECTION IS NOT LESS THAN THE PROTECTION AFFORDED BY THE REQUIREMENTS OF SECTIONS 305.2 THROUGH 305.5.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

SIGNATURE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION (AS DEFINED BY HAWAII ADMIN. RULES, TITLE 16, CHAPTER 115. EXP. 04.30.24

Kolohe Design LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-9606
e-mail: lin@kolohedesign.com

REVISIONS

No.	Description	Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd. Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

Date: 11/18/2022

Scale:

Sheet Title: SWIMMING POOL BARRIER PLAN

Sheet Number: LW01.2

PERMIT SET

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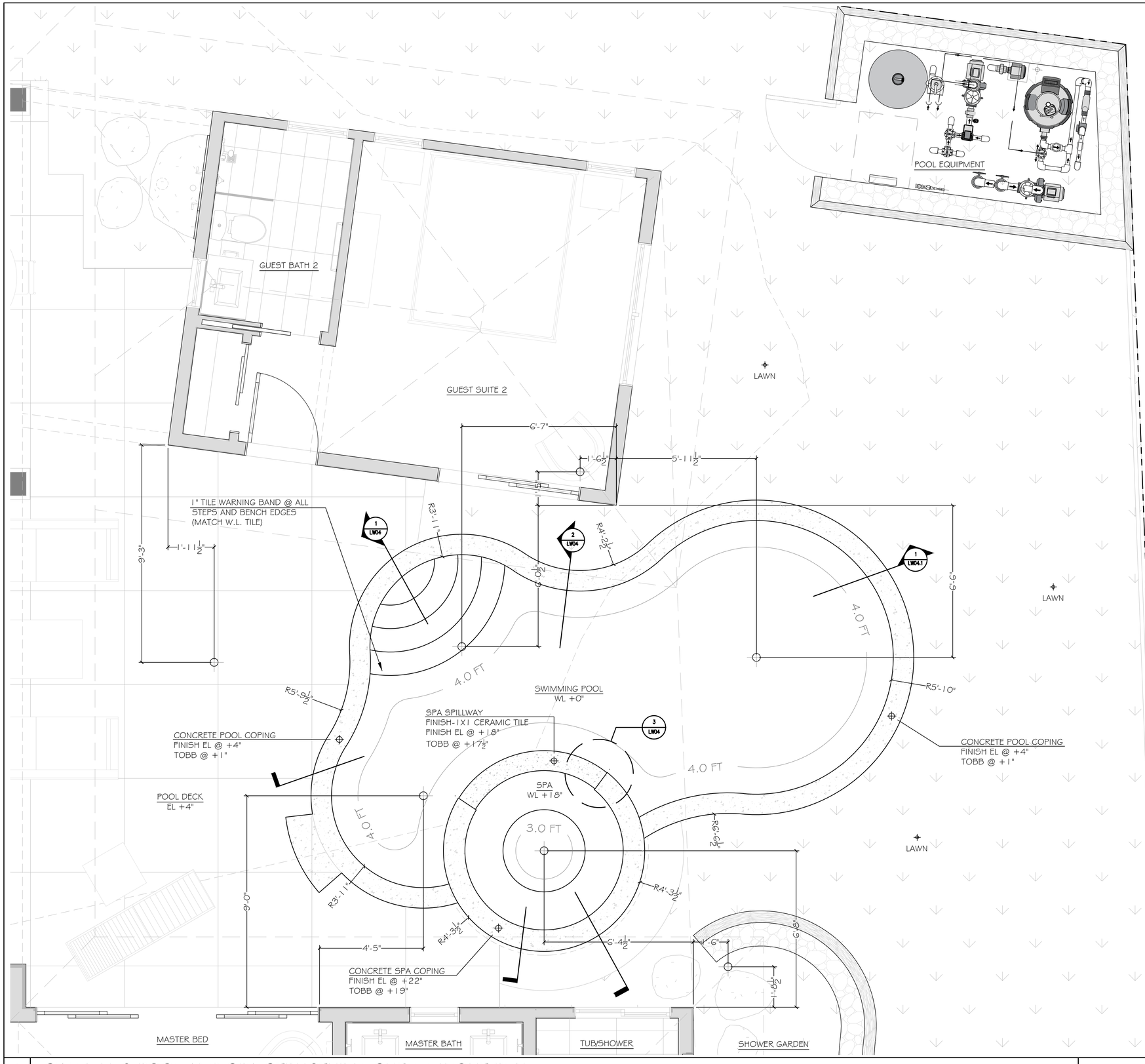


1 SWIMMING POOL AND SPA STRUCTURAL SHELL LAYOUT PLAN — SCALE: ½"= 1'-0"

Ⓐ 3" THK. x 12" POURED IN PLACE CONCRETE COPING W/ CONTROL JOINTS @ 18" O/C (ROCK SALT FINISH)

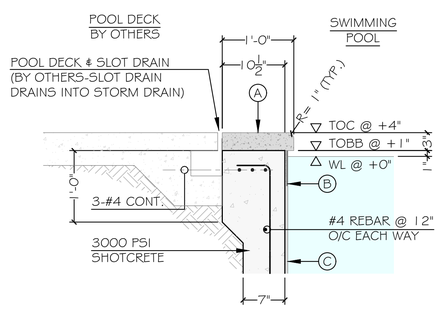
Ⓑ 1X1 CERAMIC TILE (TBD)

Ⓒ ½" THK. MEDIUM DARK GREY PLASTER FINISH

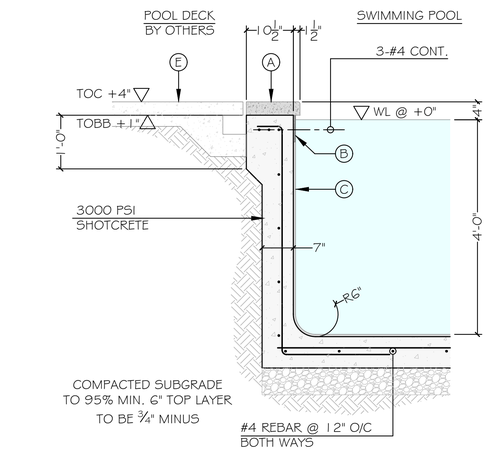
Ⓓ STUCCO FINISH (BY OTHERS)

Ⓔ CONCRETE DECK WITH ROCK SALT FINISH (BY OTHERS)

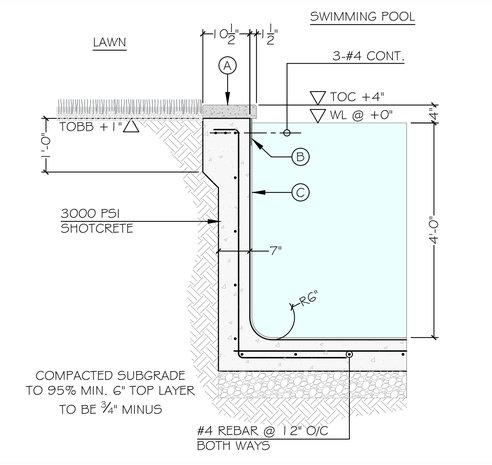
FINISH SCHEDULE



2 POOL BOND BEAM — SCALE: 1"= 1'-0"



3 POOL DECK EDGE — SCALE: ¾"= 1'-0"



4 POOL LAWN EDGE — SCALE: ¾"= 1'-0"

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

SIGNATURE

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EXP. 04.30.24

Kolohe Design LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-8606
e-mail: lim@kolohedesign.com

REVISIONS No.	Description	Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE I
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd. Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

Date: 11/18/2022

Scale:

Sheet Title: SWIMMING POOL AND SPA STRUCTURAL SHELL PLAN AND DETAILS

Sheet Number: LW02

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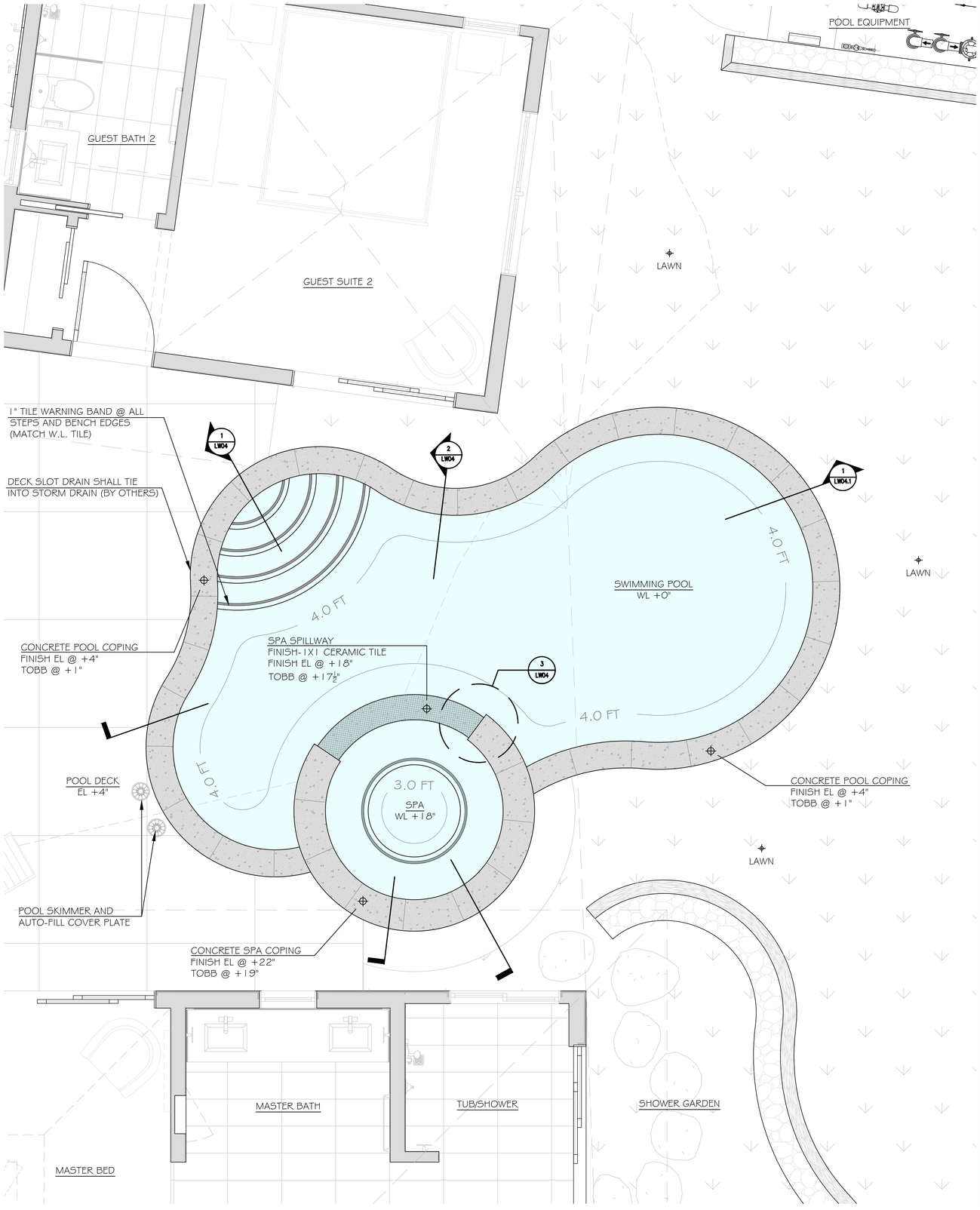
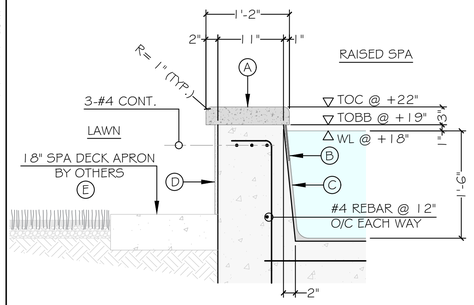
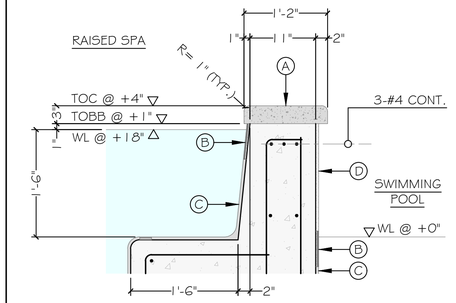


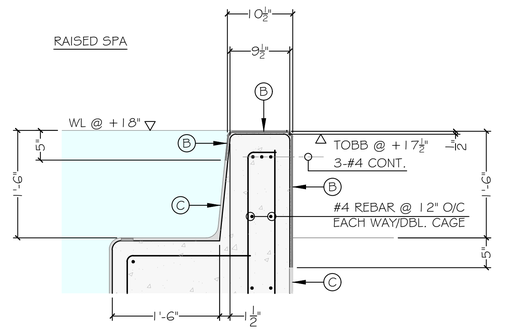
1 SWIMMING POOL AND SPA FINISH PLAN — SCALE: ½"= 1'-0"



2 SPA BOND BEAM-A — SCALE: 1"= 1'-0"



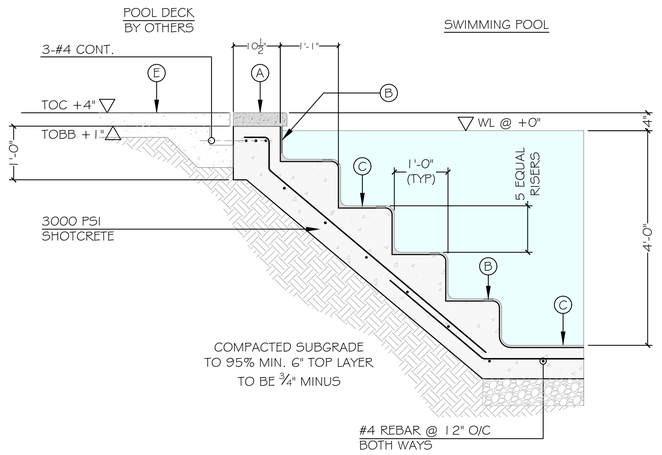
3 SPA BOND BEAM-B — SCALE: 1"= 1'-0"



4 SPA WEIR BOND BEAM — SCALE: 1"= 1'-0"

FINISH SCHEDULE

- (A) 3" THK. x 12" POURED IN PLACE CONCRETE COPING W/ CONTROL JOINTS @ 18" O/C (ROCK SALT FINISH)
- (B) 1X1 CERAMIC TILE (TBD)
- (C) ½" THK. MEDIUM DARK GREY PLASTER FINISH
- (D) STUCCO FINISH (BY OTHERS)
- (E) CONCRETE DECK WITH ROCK SALT FINISH (BY OTHERS)



5 POOL STAIR SECTION — SCALE: ¾"= 1'-0"

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.
SIGNATURE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION (AS DEFINED BY HAWAII ADMIN. RULES, TITLE 16, CHAPTER 115. EXP. 04.30.24

Kolohe Design LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-0808
e-mail: lino@kolohedesign.com

REVISIONS

No	Description	Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd. Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

Date: 11/18/2022

Scale:

Sheet Title: SWIMMING POOL AND SPA FINISH PLAN AND DETAILS

Sheet Number: LW03

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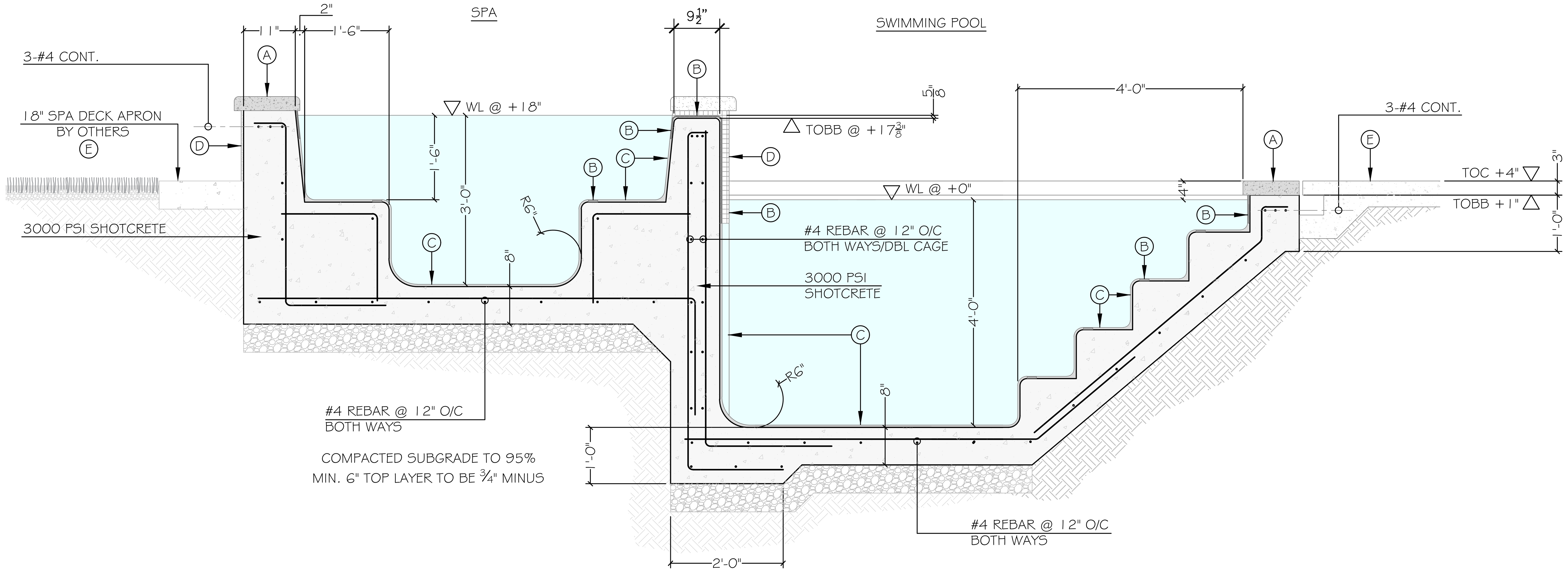
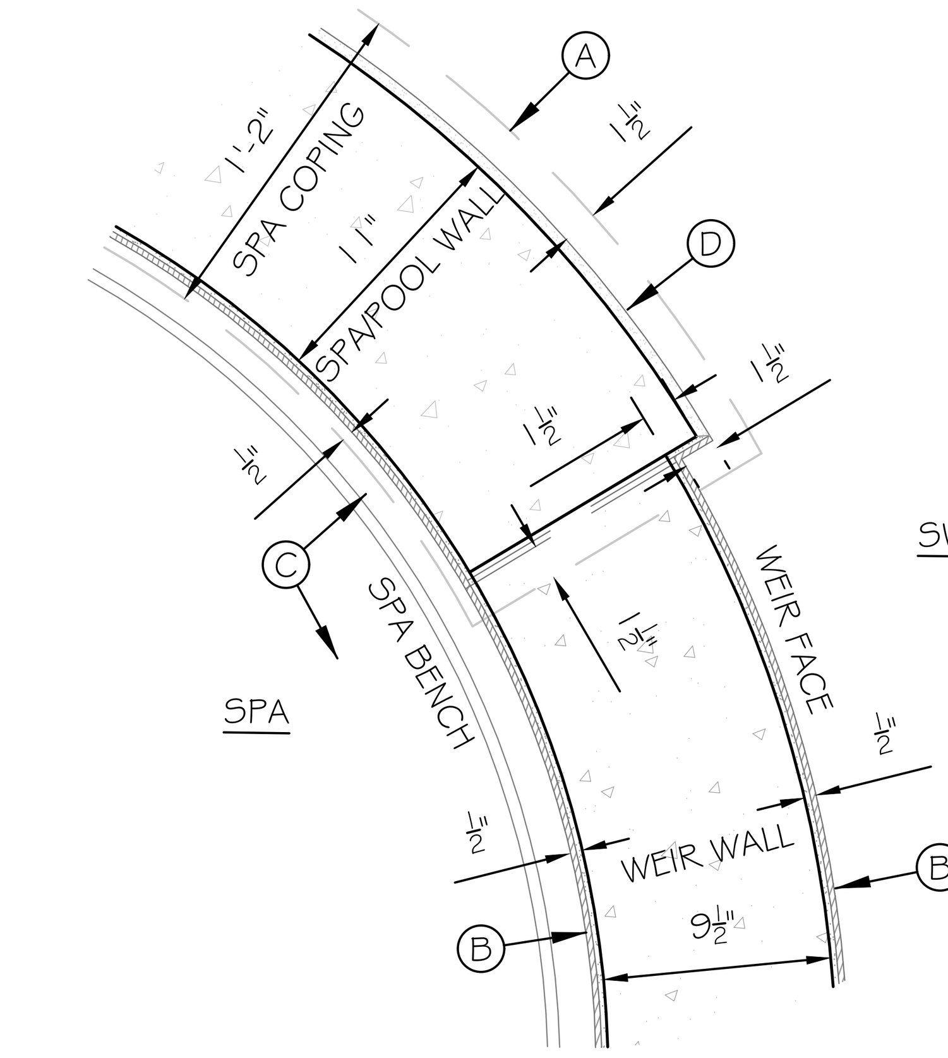
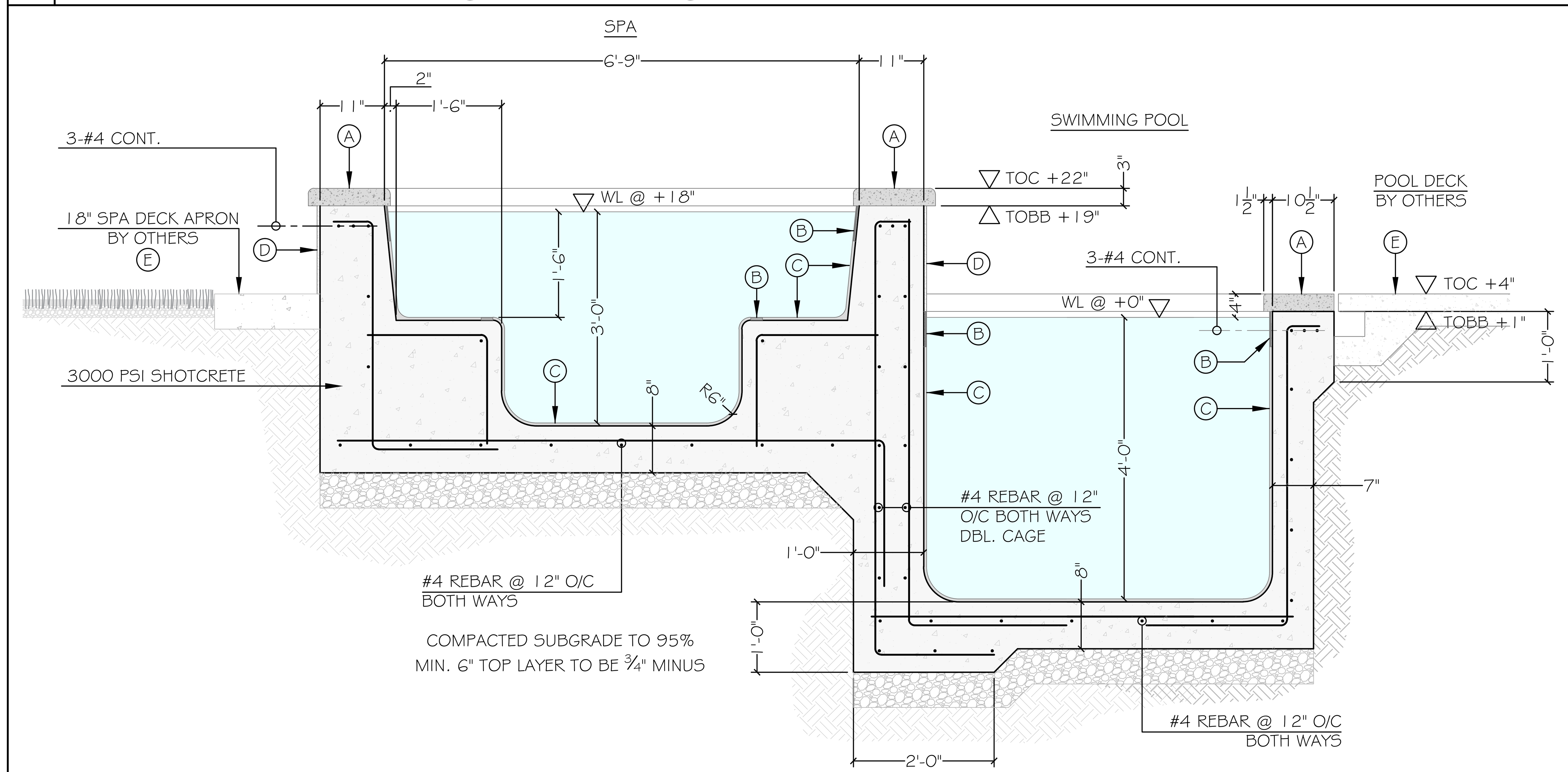


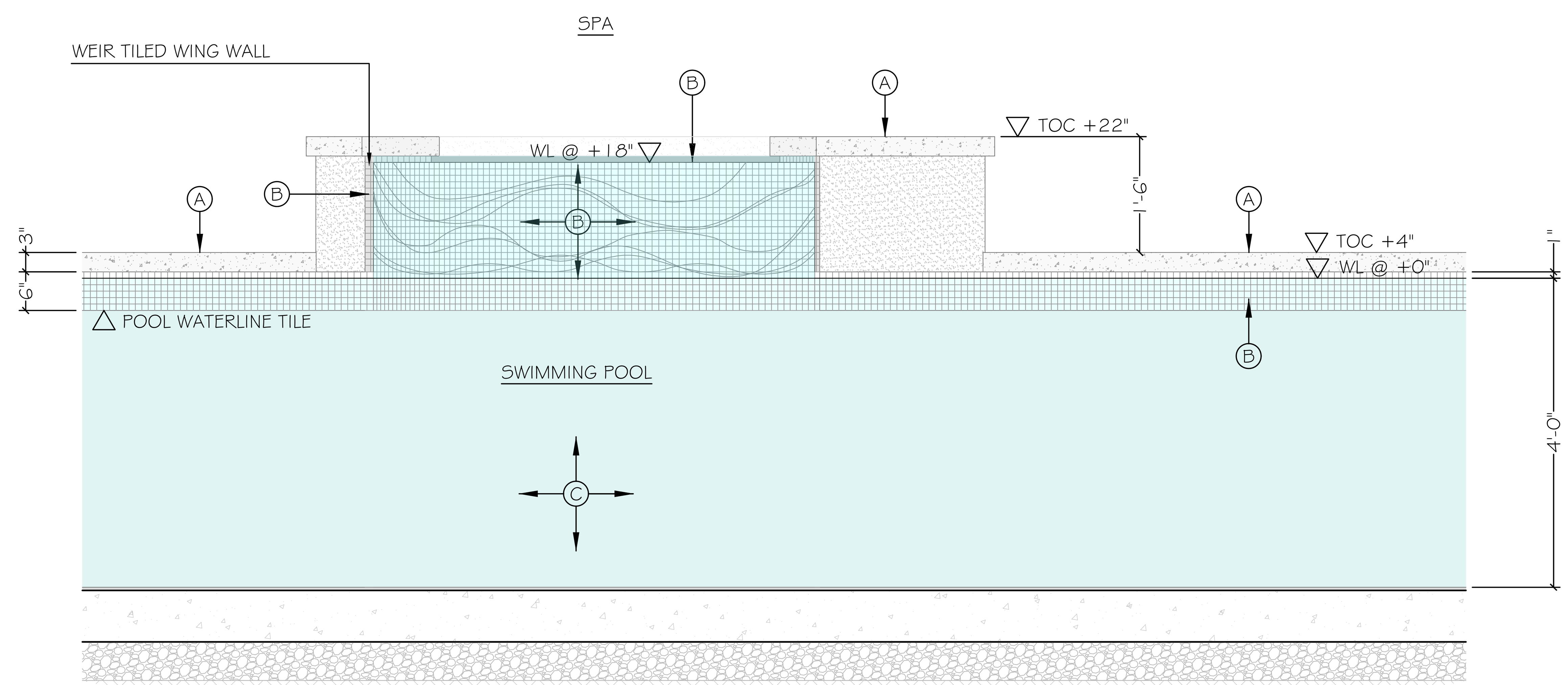
1 SPA & POOL SECTION @ SPILLWAY @ POOL STAIR — SCALE: ¾"= 1'-0"



3 SPA WEIR WALL/TILE DETAIL — SCALE: 1½"= 1'-0"



2 SPA & POOL SECTION — SCALE: ¾"= 1'-0"



4 SPA & POOL ELEVATION @ WEIR WALL — SCALE: ¾"= 1'-0"

Ⓐ 3" THK. x 12" POURED IN PLACE CONCRETE COPING W/ CONTROL JOINTS @ 18" O/C (ROCK SALT FINISH)

Ⓑ 1X1 CERAMIC TILE (TBD)

Ⓒ ½" THK. MEDIUM DARK GREY PLASTER FINISH

Ⓓ STUCCO FINISH (BY OTHERS)

Ⓔ CONCRETE DECK WITH ROCK SALT FINISH (BY OTHERS)

FINISH SCHEDULE

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

[illegible]
SIGNATURE

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Kolohe Design, LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-0806
e-mail: lin@kolohedesign.com

REVISIONS

No.	Description	Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd. Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

Date: 11/18/2022

Scale:

Sheet Title: SWIMMING POOL AND SPA SECTIONS

Sheet Number: LW04

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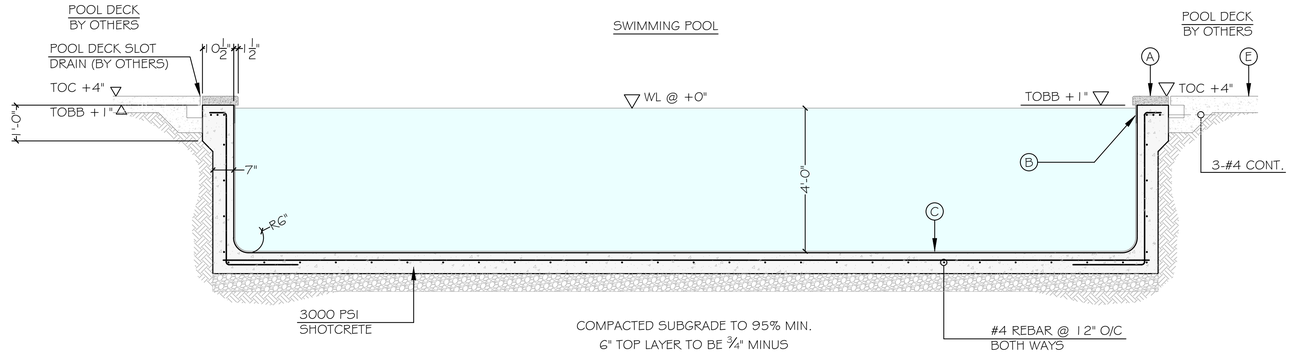
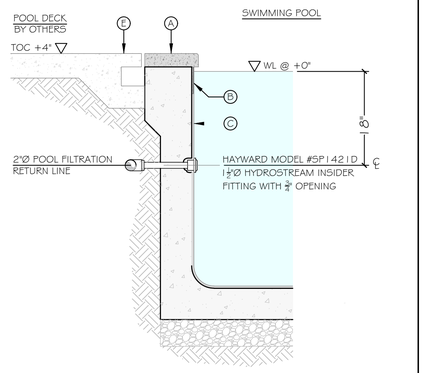


1 SWIMMING POOL SECTION

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

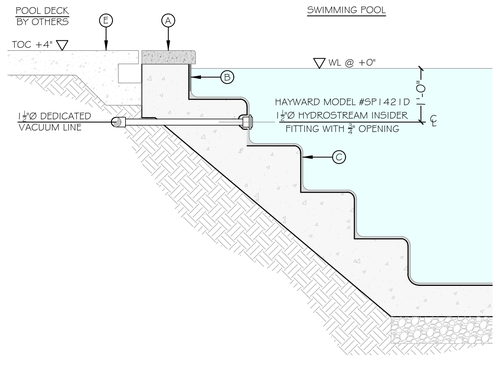
- (A) 3" THK. x 12" POURED IN PLACE CONCRETE COPING W/ CONTROL JOINTS @ 18" O/C (ROCK SALT FINISH)
- (B) 1X1 CERAMIC TILE (TBD)
- (C) 1/2" THK. MEDIUM DARK GREY PLASTER FINISH
- (D) STUCCO FINISH (BY OTHERS)
- (E) CONCRETE DECK WITH ROCK SALT FINISH (BY OTHERS)

FINISH SCHEDULE



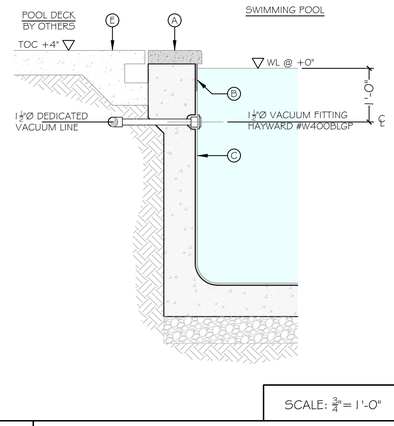
2 POOL WALL INLET JET

SCALE: 3/4"= 1'-0"



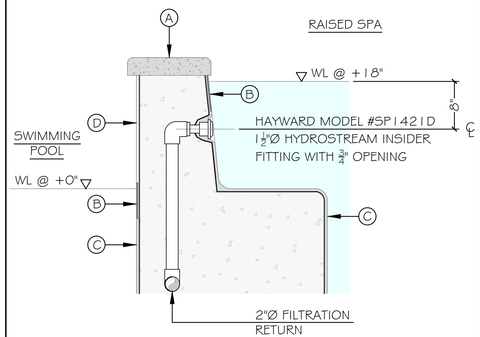
3 POOL STAIR INLET JET

SCALE: 3/4"= 1'-0"



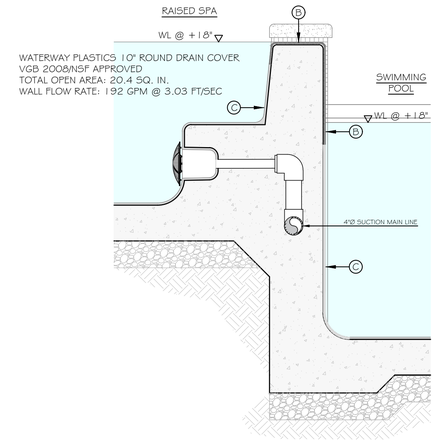
4 POOL VACUUM FITTING

SCALE: 3/4"= 1'-0"



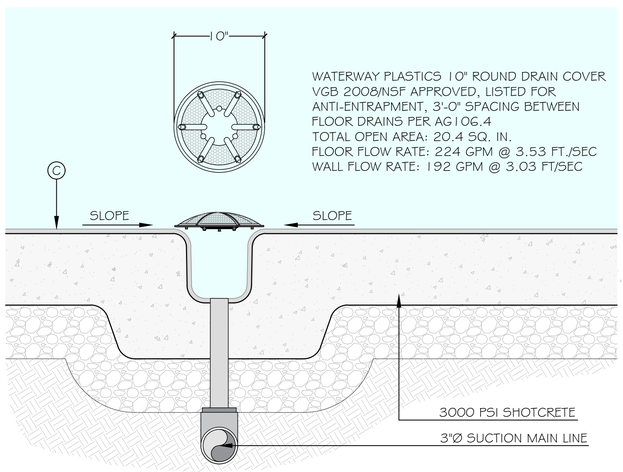
5 SPA WALL INLET JET

SCALE: 1"= 1'-0"



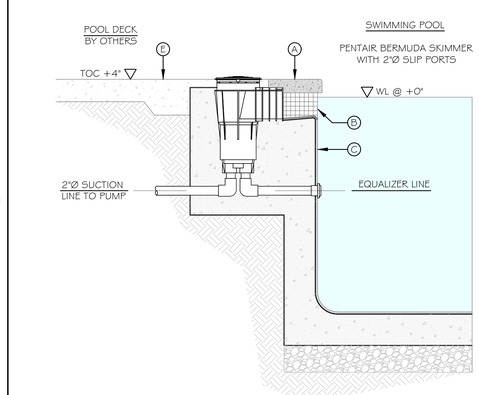
6 SPA WALL DRAIN

SCALE: 3/4"= 1'-0"



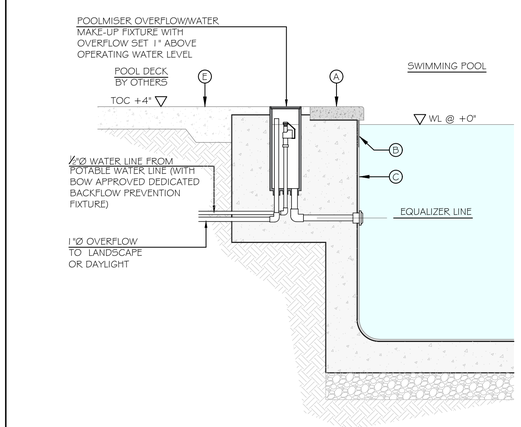
7 POOL & SPA FLOOR DRAIN

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



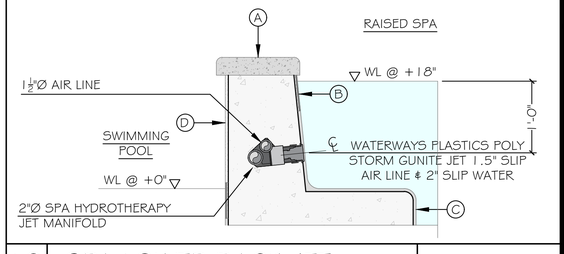
8 POOL SKIMMER

SCALE: 3/4"= 1'-0"



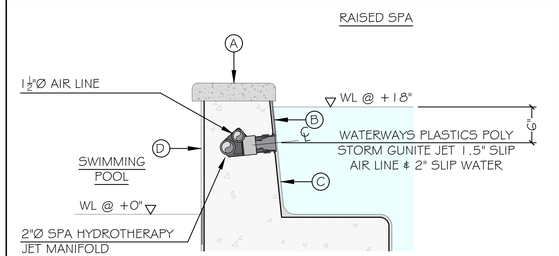
9 POOL WATER LEVEL CONTROL

SCALE: 3/4"= 1'-0"



10 SPA LOWER BACK JET

SCALE: 1"= 1'-0"



11 SPA UPPER BACK JET

SCALE: 1"= 1'-0"

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

SIGNATURE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION (AS DEFINED BY HAWAII ADMIN. RULES, TITLE 16, CHAPTER 115.
EXP. 04.30.24

Kolohe Design, LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-0606
e-mail: lin@kolohedesign.com

REVISIONS

No.	Description	Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd. Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

Date: 11/18/2022

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Sheet Title: SWIMMING POOL SECTION AND FITTING DETAILS

Sheet Number: LW04.1

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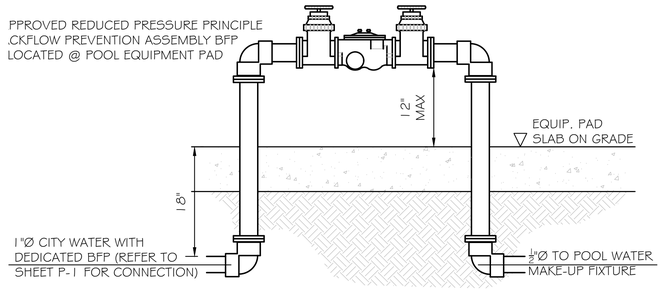
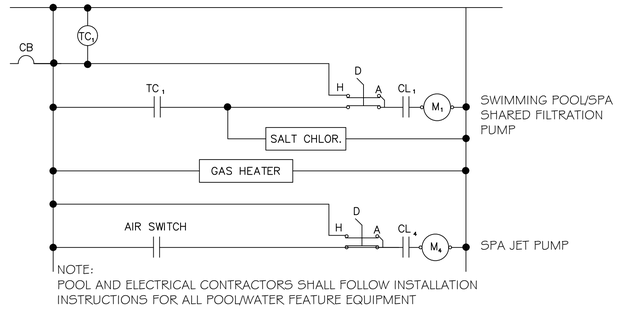


DEDICATED POOL BFP ASSEMBLY



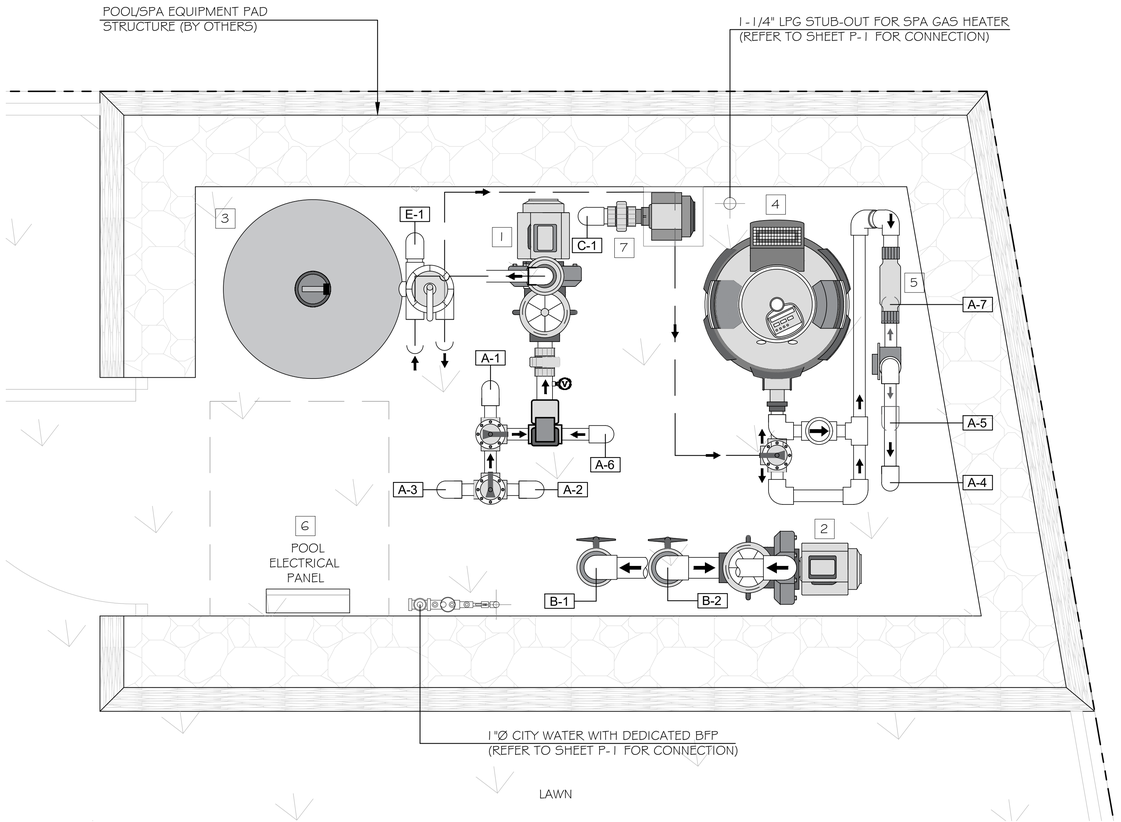
NOTE:
POOL AND ELECTRICAL CONTRACTORS SHALL FOLLOW INSTALLATION INSTRUCTIONS FOR ALL POOL/WATER FEATURE EQUIPMENT

MOTOR WIRING DIAGRAM

DESCRIPTION	SWIMMING POOL SYSTEM	SPA SYSTEM (SPA MODE)
POOL SURFACE AREA:	218 SQ. FT.	40 SQ. FT.
POOL VOLUME:	6,257 GALLONS	484 GALLONS
SPA VOLUME:	484 GALLONS	-
TOTAL VOLUME:	6,741 GALLONS	-
FILTER TYPE:	HIGH RATE SAND FILTER	SHARED
FILTRATION RATE:	30 GPM	20 GPM
TURNOVER RATE:	3 HOURS 30 MINUTES	25 MINUTES
BACKWASH RATE:	40 GPM	SHARED SYSTEM
BACKWASH LOAD:	200 GALLONS	SHARED SYSTEM
SANITATION:	SALT CHLORINATION	SHARED SYSTEM
HEATING SOURCE:	GAS HEATER	GAS HEATER

SYSTEM ANALYSIS

ITEM	QTY.	PUMPS
1.	1	SWIMMING POOL/SPA FILTRATION PUMP PENTAIR INTELLIFLO-VS HIGH PERFORMANCE PUMP 3.2 KW/230 VOLT/16 FLA/1 PH/60 HZ.
2.	1	SPA HYDROTHERAPY JET PUMP PENTAIR WHISPERFLO HIGH PERFORMANCE PUMP 1.5 HP/115/208-230 VOLT/1 PHASE/60 HZ./14.8-7.8-7.4 FLA
ITEM	QTY.	FILTERS
3.	1	SWIMMING POOL/SPA SAND FILTER PENTAIR TR-60 HIGH RATE SAND FILTER WITH 3.41 SQ. FT. FILTER MEDIA AREA
ITEM	QTY.	HEAT SOURCE
4.	1	SWIMMING POOL GAS HEATER STA-RITE MAX-E-THERM SR400 WITH 400,000 BTU INPUT-24 VAC/5 AMP
ITEM	QTY.	SANITATION
5.	1	SWIMMING POOL/SPA SALT CHLORINATOR PENTAIR INTELLICHLOR SALT CHLORINATOR MODEL IC-20 WITH UP TO 0.70 LBS./CHLORINE GENERATION EVERY 24 HRS.-15 AMP BRKR
ITEM	QTY.	MISC.
6.	1	SWIMMING POOL AND SPA SHARED SYSTEM CONTROL PENTAIR EASYTOUCH 8 WITH IC-20 SALT CHLORINATOR (PART #520544) MAX. ELECTRICAL CAPACITY: 230 VOLT-150 AMP/10 BREAKER CONTROL: • SPA AIR BLOWER • SPA JET PUMP • SPA LIGHT • POOL LIGHTS INDOOR WALL MOUNT (PART #520549) SPA 4 FUNCTION iS4 SIDE REMOTE (PART #521885)
7.	1	SPA HYDROTHERAPY JET AIR BLOWER POLARIS BLOWER, 2 HP/220 VOLT/8 AMPS/1 PH/60 HZ.
8.		FLOW METER FLOW-VIS FLOW METER-NSF CERTIFIED FLOW METER



2 SWIMMING POOL & SPA PAD EQUIPMENT LAYOUT PLAN — SCALE: 3/4" = 1'-0"

PIPING LEGEND

- A-1 2"Ø POOL FILTRATION FLOOR DRAIN SUCTION
- A-2 2"Ø POOL FILTRATION SKIMMER SUCTION LINE
- A-3 1½"Ø POOL VACUUM LINE
- A-4 2"Ø POOL FILTRATION WALL INLET JET RETURN
- A-5 2"Ø POOL FILTRATION SPA INLET RETURN
- A-6 2"Ø SPA FILTRATION FLOOR DRAIN SUCTION (SPA MODE)
- A-7 2"Ø SPA FILTRATION WALL INLET JET RETURN (SPA MODE)
- B-1 4"Ø SPA HYDROTHERAPY JET WALL DRAIN SUCTION
- B-2 3"Ø SPA HYDROTHERAPY JET RETURN LINE
- C-1 2"Ø SPA HYDROTHERAPY JET AIR BLOWER LINE
- D-1 ¾"Ø POOL WATER AUTOFILL
- D-2 1½"Ø POOL OVERFLOW TO AREA DRYWELL
- E-1 2"Ø BACKWASH LINE TO AREA DRYWELL

SWIMMING POOL & SPA EQUIPMENT LIST

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

SIGNATURE

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EXP. 04.30.24

Kolohe Design LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-600-0806
e-mail: lin@kolohedesign.com

REVISIONS

No.	Description	Date

SINGLE FAMILY RESIDENCE
LOT 23 NOHEA, PHASE 1
TMK: (3) 6-8-043:023
Nohea at Mauna Lani, LLC
101 Hodencamp Rd. Suite 200
Thousand Oaks, Ca 91360
PH: 805-494-7704
FAX: 805-494-1226

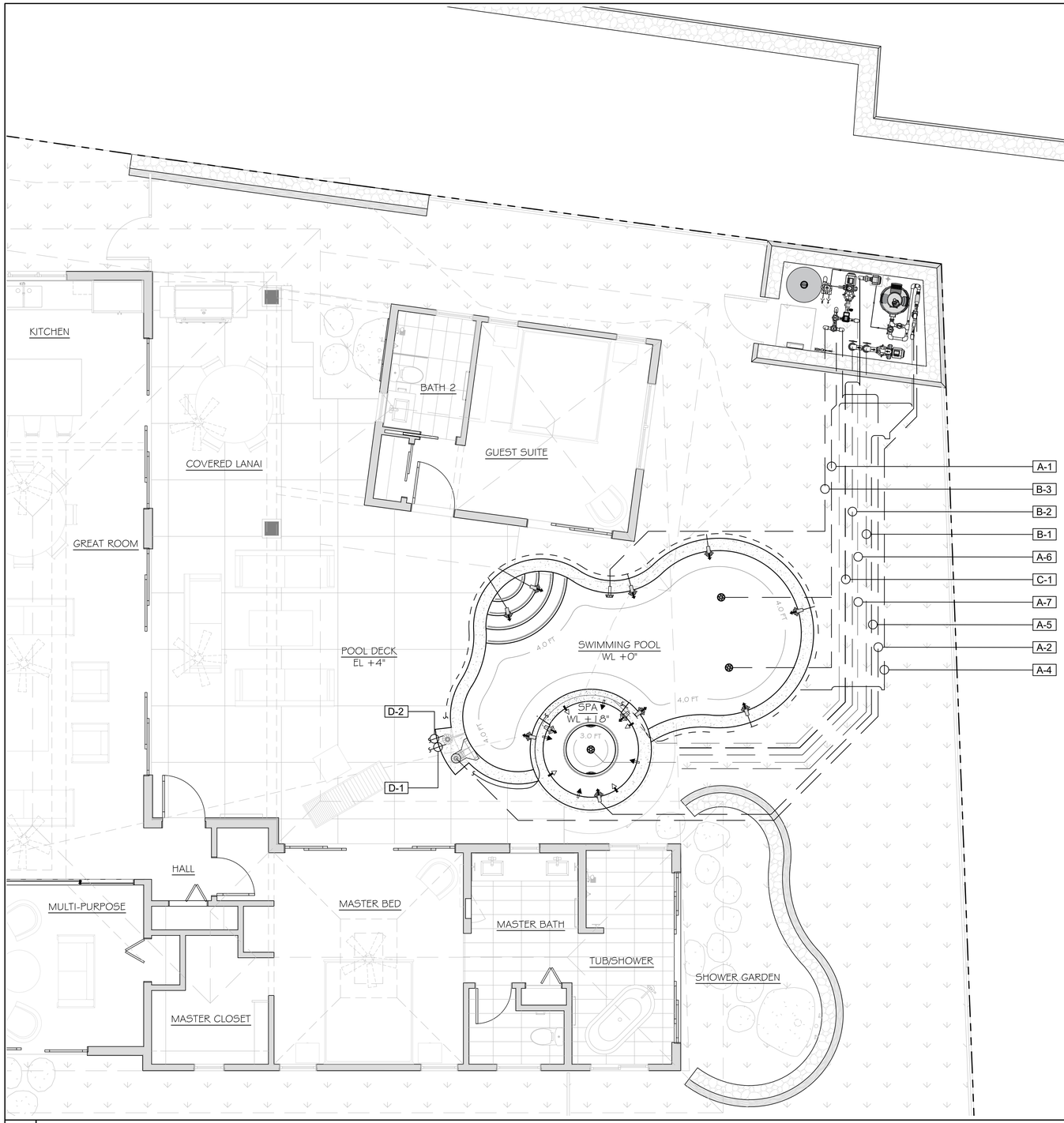
Date: 11/18/2022

Scale:

Sheet Title:
SWIMMING POOL AND SPA EQUIPMENT LAYOUT/LIST AND SYSTEM ANALYSIS

Sheet Number:
LW05
PERMIT SET

PRINT DATE11.18.2022



DESCRIPTION	SWIMMING POOL SYSTEM	SPA SYSTEM (SPA MODE)
POOL SURFACE AREA:	306 SQ. FT.	35 SQ. FT.
POOL VOLUME:	8,843 GALLONS	490 GALLONS
SPA VOLUME:	621 GALLONS	-
TOTAL VOLUME:	9,464 GALLONS	-
FILTER TYPE:	HIGH RATE SAND FILTER	SHARED
FILTRATION RATE:	30 GPM	25 GPM
TURNOVER RATE:	5 HOURS 0 MINUTES	25 MINUTES
BACKWASH RATE:	40 GPM	SHARED SYSTEM
BACKWASH LOAD:	200 GALLONS	SHARED SYSTEM
SANITATION:	SALT CHLORINATION	SHARED SYSTEM
HEATING SOURCE:	GAS HEATER	GAS HEATER

SYSTEM ANALYSIS

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- A-7 2"Ø SPA FILTRATION WALL INLET JET RETURN (SPA MODE)
- B-1 4"Ø SPA HYDROTHERAPY JET WALL DRAIN SUCTION
- B-2 3"Ø SPA HYDROTHERAPY JET RETURN LINE
- C-1 2"Ø SPA HYDROTHERAPY JET AIR BLOWER LINE
- D-1 ½"Ø POOL WATER AUTOFILL
- D-2 1½"Ø POOL OVERFLOW TO AREA DRYWELL
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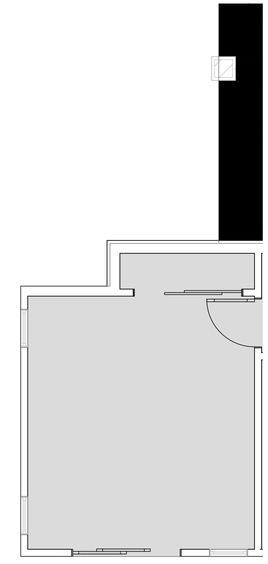
PIPING LEGEND



1 SWIMMING POOL & SPA FITTING PLAN

SCALE: ¼"= 1'-0"

FLOOR WALL

WATERWAY PLASTICS 10" ROUND
DRAIN COVER
VGB 2008/NSF APPROVED
TOTAL OPEN AREA: 20.4 SQ. IN.
FLOOR FLOW RATE: 224 GPM @ 3.53 FT./SEC

PENTAIR BERMUDA SKIMMER

POOL VACUUM

POOL INLET JET

SPA INLET JET

SPA UPPER BACK HYDROTHERAPY JET

SPA LOWER BACK HYDROTHERAPY JET

POOL AUTO-FILL AND OVERFLOW FITTING

FITTING SYMBOL LEGEND

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
HAWAII, U.S.A.

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Kolohe Design, LLC
2413 SOLOMONS PLACE
ST PAUL, TEXAS 75098
phone: 808-620-0806
e-mail: lin@kolohedesign.com

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TMK: (3) 6-8-043:023
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101 Hodencamp Rd. Suite 200
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Date: 11/18/2022

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Sheet Title: SWIMMING POOL AND SPA PIPING/FITTING PLAN

Sheet Number: LW05.1

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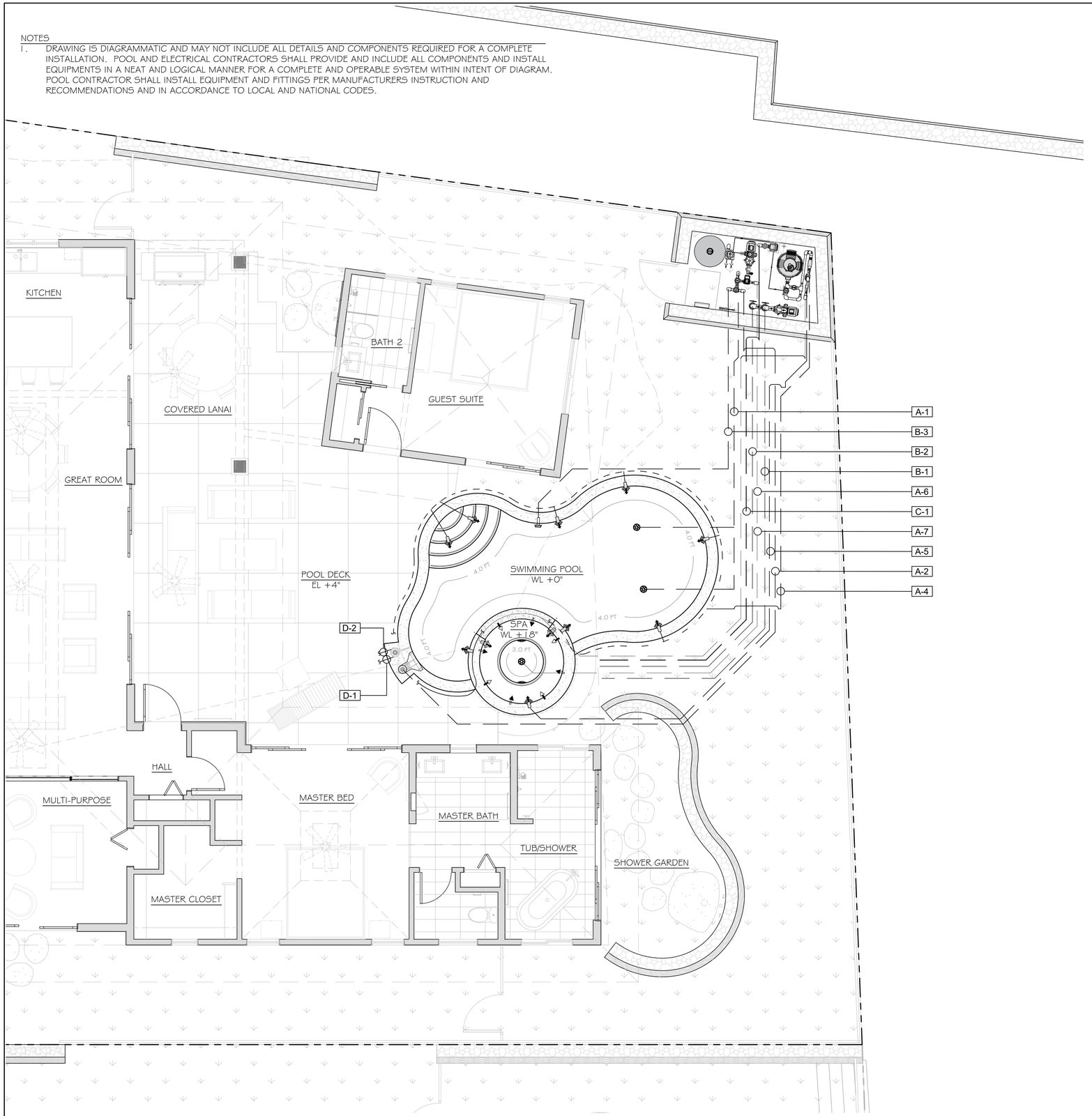
PRINT DATE11.18.2022

NOTES

1. DRAWING IS DIAGRAMMATIC AND MAY NOT INCLUDE ALL DETAILS AND COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION. POOL AND ELECTRICAL CONTRACTORS SHALL PROVIDE AND INCLUDE ALL COMPONENTS AND INSTALL EQUIPMENTS IN A NEAT AND LOGICAL MANNER FOR A COMPLETE AND OPERABLE SYSTEM WITHIN INTENT OF DIAGRAM. POOL CONTRACTOR SHALL INSTALL EQUIPMENT AND FITTINGS PER MANUFACTURERS INSTRUCTION AND RECOMMENDATIONS AND IN ACCORDANCE TO LOCAL AND NATIONAL CODES.



1 SWIMMING POOL & SPA FITTING PLAN — SCALE: 1/4"= 1'-0"

DESCRIPTION	SWIMMING POOL SYSTEM	SPA SYSTEM (SPA MODE)
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BACKWASH RATE:	40 GPM	SHARED SYSTEM
BACKWASH LOAD:	200 GALLONS	SHARED SYSTEM
SANITATION:	SALT CHLORINATION	SHARED SYSTEM
HEATING SOURCE:	GAS HEATER	GAS HEATER

SYSTEM ANALYSIS

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- A-2 2"Ø POOL FILTRATION SKIMMER SUCTION LINE
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- A-6 2"Ø SPA FILTRATION FLOOR DRAIN SUCTION (SPA MODE)
- A-7 2"Ø SPA FILTRATION WALL INLET JET RETURN (SPA MODE)
- B-1 4"Ø SPA HYDROTHERAPY JET WALL DRAIN SUCTION
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- D-1 ½"Ø POOL WATER AUTOFILL
- D-2 1½"Ø POOL OVERFLOW TO AREA DRYWELL
- E-1 2"Ø BACKWASH LINE TO AREA DRYWELL

PIPING LEGEND

FLOOR WALL

WATERWAY PLASTICS 10" ROUND
DRAIN COVER
VGB 2008/NSF APPROVED
TOTAL OPEN AREA: 20.4 SQ. IN.
FLOOR FLOW RATE: 224 GPM @ 3.53 FT./SEC
WALL FLOW RATE: 192 GPM @ 3.03 FT/SEC

PENTAIR BERMUDA SKIMMER

POOL VACUUM

POOL INLET JET

SPA INLET JET

SPA UPPER BACK
HYDROTHERAPY JET

SPA LOWER BACK
HYDROTHERAPY JET

POOL AUTO-FILL AND
OVERFLOW FITTING

FITTING SYMBOL LEGEND

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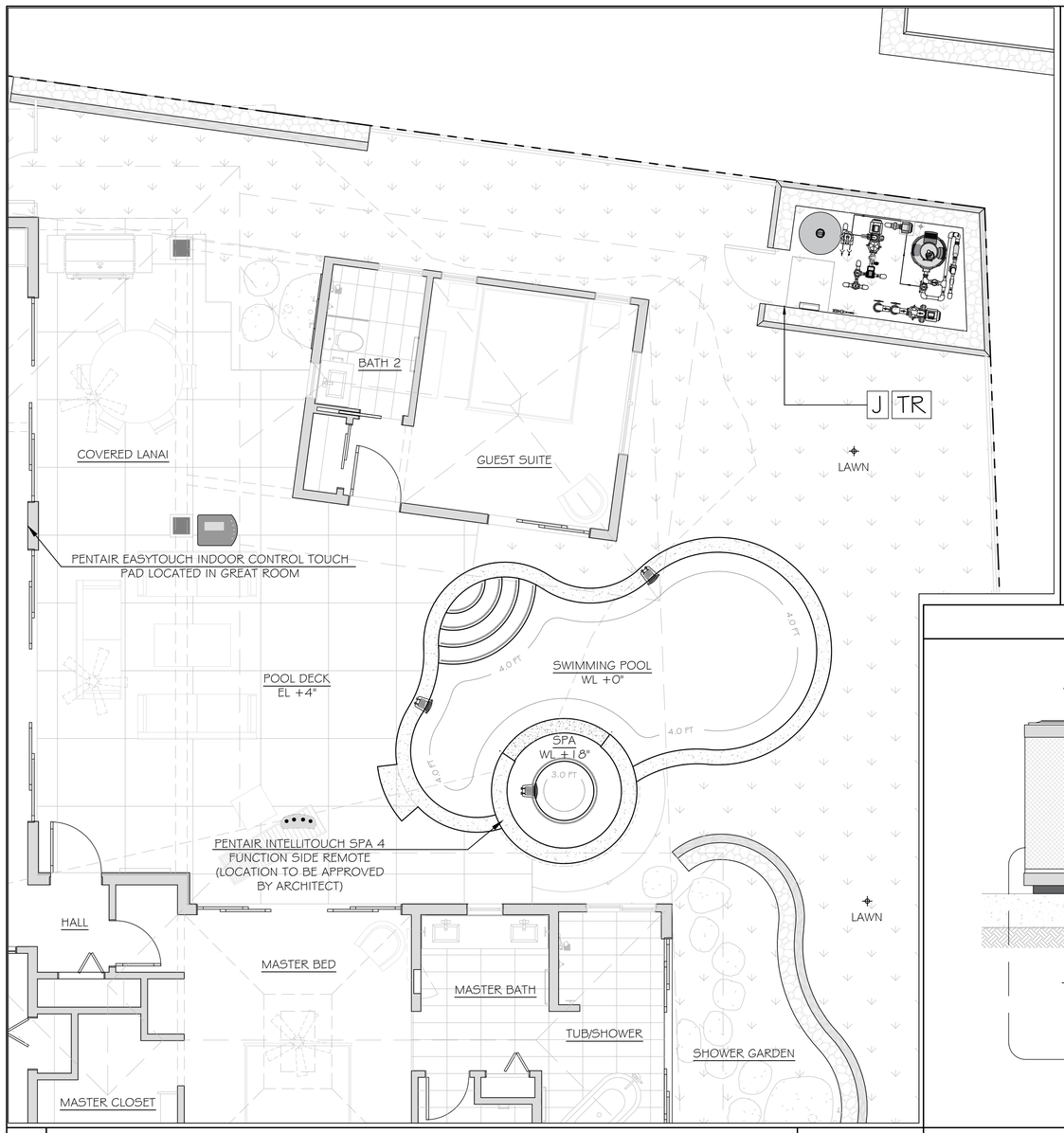
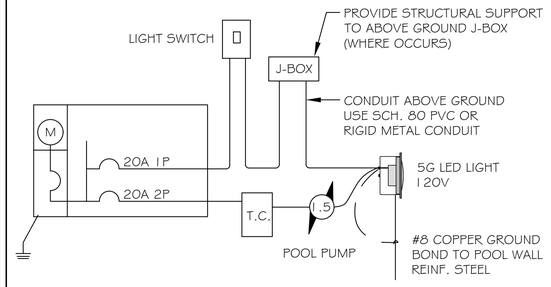
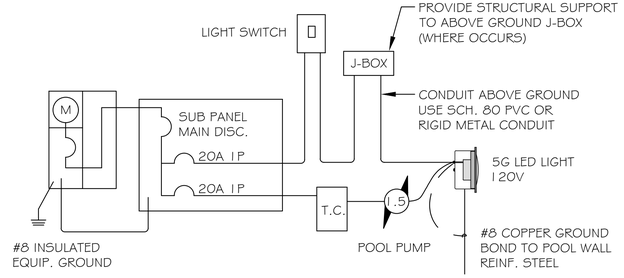


1 POOL/SPA UNDERWATER LIGHTING PLAN — SCALE: $\frac{1}{4}$"= 1'-0"

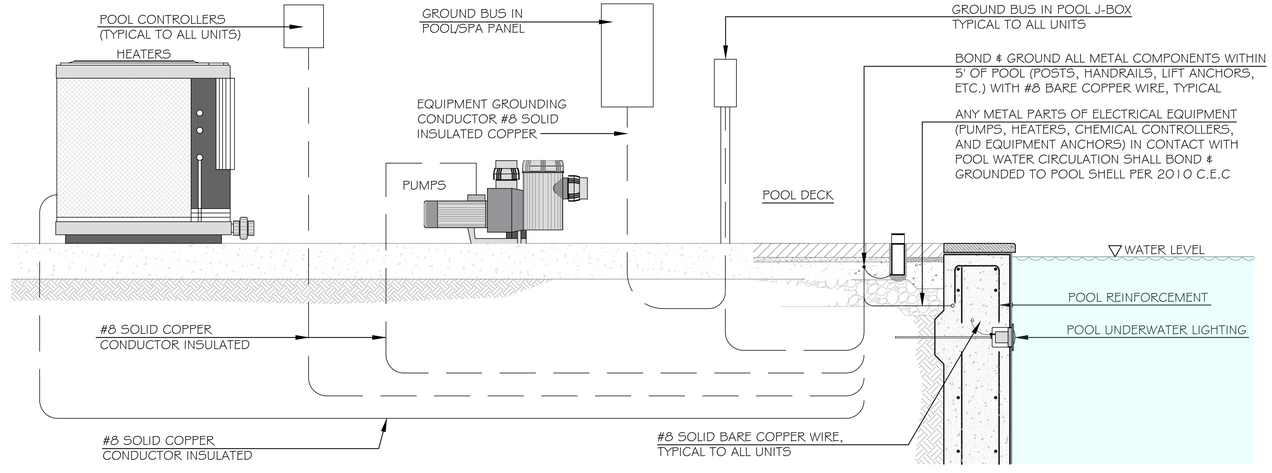


WITHOUT SUB PANEL



WITH SUB PANEL

UNDERWATER LIGHTING DIAGRAM



POOL & SPA EQUIPOTENTIAL BONDING/GROUNDING

PENTAIR INTELLIBRITE 5G LED WHITE SPA LIGHT 12 VOLT

J — LIGHTING JUNCTION BOX

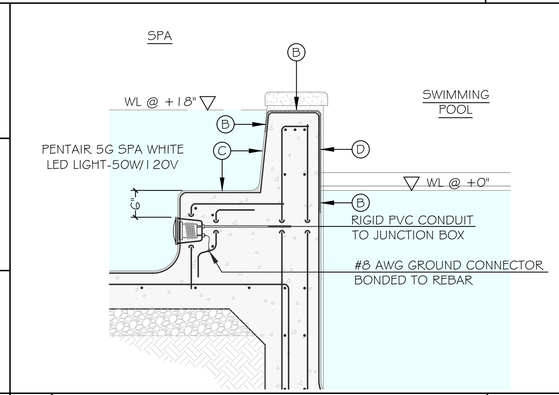
PENTAIR EASYTOUCH INDOOR CONTROL TOUCH PAD

TR — LIGHTING LOW VOLTAGE TRANSFORMER

PENTAIR INTELLITOUCH SPA 4 FUNCTION SIDE REMOTE

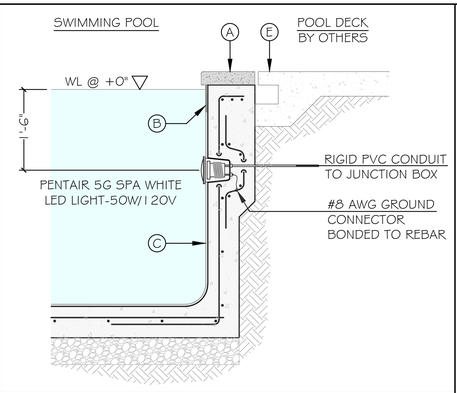
ELECTRICAL SYMBOL KEY

2 SPA LIGHT



SCALE: $\frac{3}{4}$"= 1'-0"

3 POOL LIGHT



SCALE: $\frac{3}{4}$"= 1'-0"

ELECTRICAL NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF HAWAII COUNTY AND N.E.C. ART. 680.
2. ALL ELECTRICAL EQUIPMENT SHALL COMPLY WITH N.E.C.
3. ALL ELECTRICAL EQUIPMENT SHALL BE U.L. APPROVED.
4. BONDING AND GROUNDING OF ALL EQUIPMENT TO REINFORCING STEEL SHALL BE WITH A.W.S. #8 INSULATED COPPER CONDUCTOR.
5. NO ELECTRICAL ATTACHMENTS OR RECEPTACLES SHALL BE WITHIN 10'-0" OF POOL.
6. OVERHEAD WIRING SHALL NOT BE INSTALLED WITHIN 10'-0" OF POOL.
7. UNDERWATER LIGHTS SHALL BE INSTALLED WITH ADEQUATE CORD LENGTH TO ALLOW LIGHT TO BE REMOVED FROM NICHE AND SET ON DECK FOR BULB REPLACEMENT.
8. PENTAIR IN-HOUSE CONTROL PANEL LOCATION TO BE INDOOR AND DETERMINED BY GENERAL CONTRACTOR/OWNER AND (4) 22 GAUGE MIN., STANDARD WIRES TO BE RUN BY ELECTRICIAN FROM THAT LOCATION TO MASTER PANEL IN PUMP ROOM.
9. ELECTRICAL CONTRACTOR TO PROVIDE ALL CONDUITS REQUIRED FOR ALL ELECTRICAL WORK RELATED TO SWIMMING POOL.
10. POOL AND ELECTRICAL CONTRACTORS SHALL FOLLOW INSTALLATION INSTRUCTIONS FOR ALL POO/WATER FEATURE EQUIPMENT.

CHRIS WILSON
LICENSED PROFESSIONAL ENGINEER
No. 14056-S
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Sheet Title: SWIMMING POOL AND SPA ELECTRICAL LIGHTING PLAN, NOTES AND DETAILS

Sheet Number: LW06

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