



## PLANNING & ZONING COMMISSION APRIL MEETING

April 09, 2024 at 6:00 PM  
0110 Whispering Pines Circle, Blue River, CO

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### AGENDA

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The public is welcome to attend the meeting either in person or via Zoom.

The Zoom link is available on the Town website:

<https://townofblueriver.colorado.gov/planning-zoning>

Please note that seating at Town Hall is limited.

**I. CALL TO ORDER, ROLL CALL**

**II. APPROVAL OF MINUTES**

**A.** Minutes from March 5, 2024

**III. PUBLIC HEARING**

**B.** Variance Request

**IV. PROJECT APPROVAL**

**C.** 0039 Lodestone New Construction

**D.** 0097 97 Circle New Construction

**V. ADJOURN**

**NEXT MEETING -**



**PLANNING & ZONING COMMISSION MARCH 2024**

**March 05, 2024 at 6:00 PM  
0110 Whispering Pines Circle, Blue River, CO**

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**MINUTES**

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**Please note that seating at Town Hall is limited.**

**I. CALL TO ORDER, ROLL CALL**

Chair Tim Johnson called the meeting to order at 6:00 p.m.

PRESENT

Mike Costello

Tim Johnson

Gordon Manin

Doug O'Brien

Troy Watts

Excused

Travis Beck

Ben Stuckey

Also present: Town Manager Michelle Eddy, Building Official Kyle Parag, and Board Liaison Noah Hopkins attended via Zoom.

**II. APPROVAL OF MINUTES**

A. Minutes from February 6, 2024

Motion made by Costello, Seconded by O'Brien to approve the minutes of February 6, 2024. Voting Yea: Costello, Johnson, Manin, O'Brien, Watts. Motion passed unanimously.

**III. PROJECT APPROVAL**

**B. 0537 Blue River Road-Garage**

The garage proposal for 0537 Blue River Road was presented and noted as recommended for approval by the Building Official.

Discussion was held concerning the colors. There were no colors presented.

Motion made by Johnson, Seconded by Costello to continue the project until colors are provided. Voting Yea: Costello, Johnson, Manin, O'Brien, Watts Motion passed unanimously.

**IV. OTHER BUSINESS**

**C.**

This was a continuation of the discussion from February. The Building Official provided additional information for consideration. He explained the information and his findings. Discussion of whether or not the change in code is needed. It was recommended not to make any changes and to wait and see if Summit County decides to make any changes.

Manin asked to review this again later.

**V. ADJOURN**

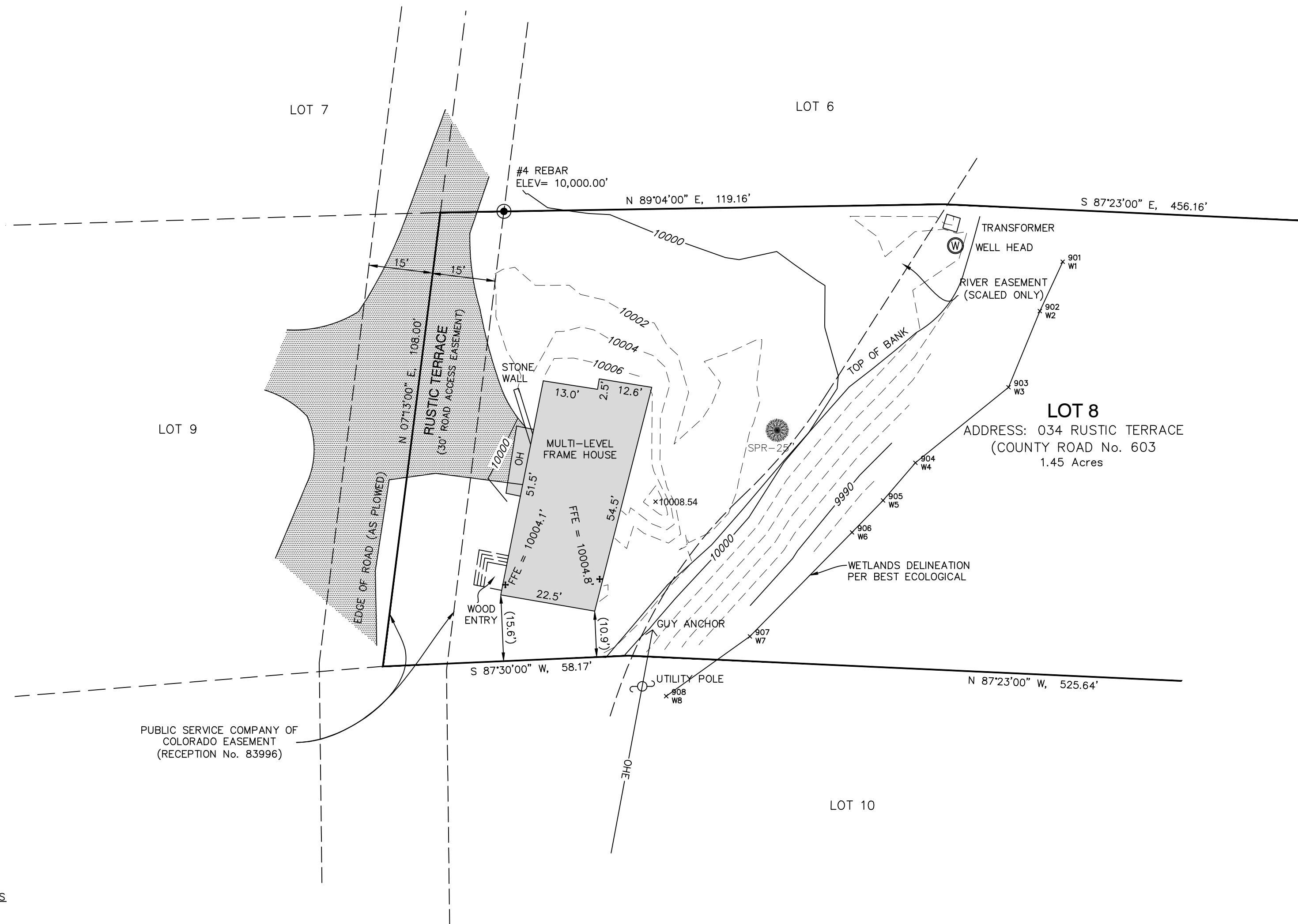
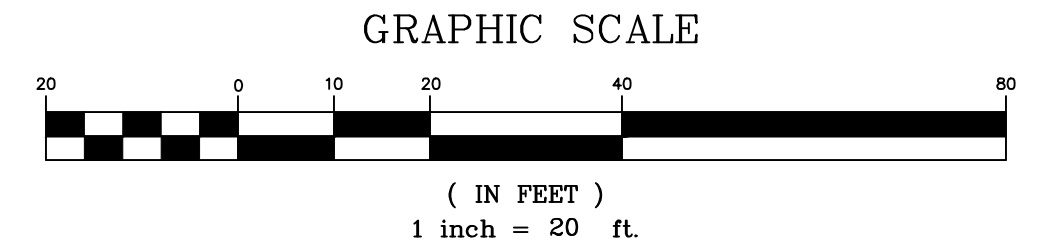
Motion made by Manin, Seconded by O'Brien to adjourn at 6:53 p.m.

Voting Yea: Costello, Johnson, Manin, O'Brien, Watts

**NEXT MEETING -**

April 3, 2024

# A PARTIAL TOPOGRAPHIC MAP OF LOT 8, BLUE RIVER ESTATES INC, BLUE ROCK SPRINGS SUBDIVISION TOWN OF BLUE RIVER, SUMMIT COUNTY, COLORADO



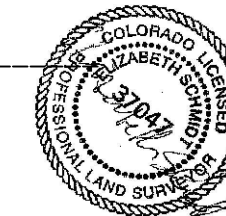
**LEGEND**

	#4 REBAR
	UTILITY POLE
	WELL HEAD
	WETLANDS FLAGGING WITH NUMBER
	SPRUCE TREE WITH TRUNK DIAMETER
	OHE OVERHEAD ELECTRIC LINE

**SURVEYOR'S CERTIFICATE**

I, ELIZABETH K. SCHMIDT, A PROFESSIONAL LAND SURVEYOR REGISTERED UNDER THE LAWS OF THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THIS TOPOGRAPHIC MAP WAS MADE BY ME AND UNDER MY SUPERVISION, AND THAT THE MAP IS ACCURATE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

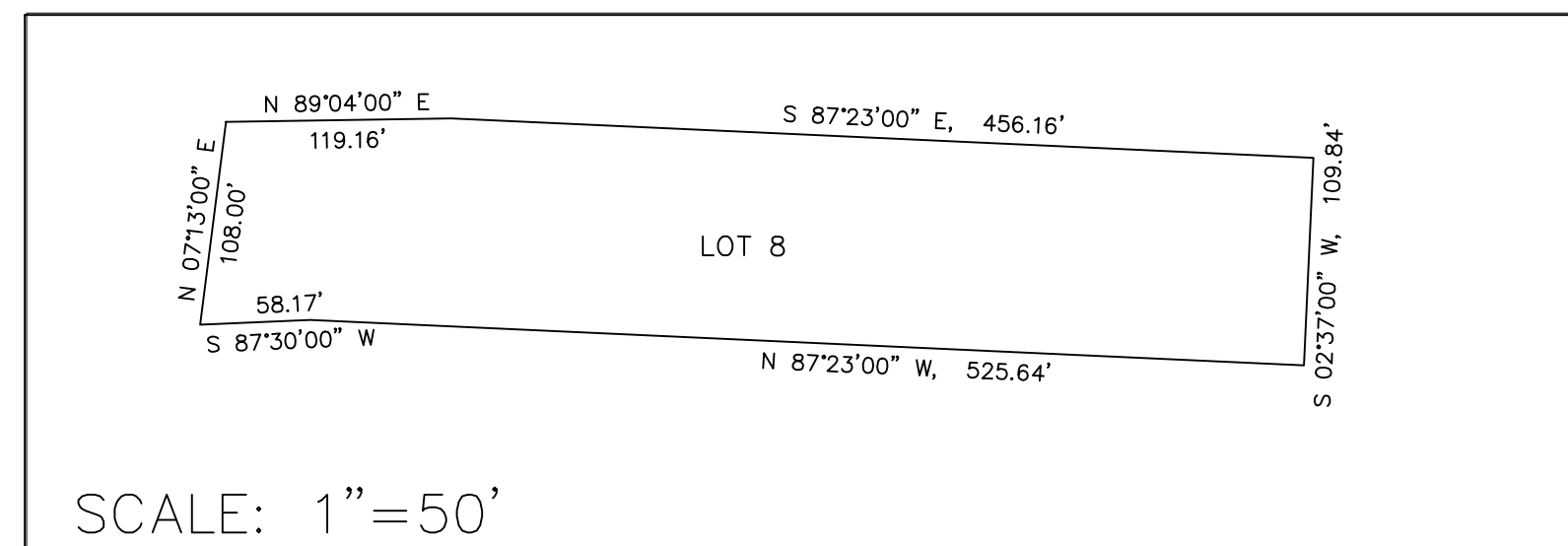
DATE: \_\_\_\_\_



*Elizabeth Schmidt*  
ELIZABETH K. SCHMIDT  
COLORADO P.L.S. 37047

**GENERAL NOTES**

1. DATE OF SURVEY: MARCH 11, 2022. ADD WETLANDS JUNE 13, 2023.
2. CONTOUR INTERVAL = TWO FEET.
3. PROJECT BENCHMARK: HELD ELEVATION 10,000.0' AT NORTHWEST CORNER LOT 8, INTERPOLATED FROM SUMMIT COUNTY GIS WEBSITE.
4. THE PLAT FOR LOT 8, BLUE RIVER ESTATES INC, BLUE ROCK SPRINGS SUBDIVISION, WAS RECORDED AUGUST 7, 1961 AT RECEPTION No. 93729 IN THE SUMMIT COUNTY CLERK AND RECORDER'S OFFICE.
5. TWO TO FOUR FEET OF SNOW ON SITE AT TIME OF SURVEY. OTHER FEATURES MAY EXIST THAT WERE NOT VISIBLE NOR SHOWN HERON.
6. SCHMIDT LAND SURVEYING, INC. DID NOT PERFORM A TITLE SEARCH OF THE SUBJECT PROPERTY TO ESTABLISH OWNERSHIP, EASEMENTS OR RIGHTS-OF-WAY OF RECORD.

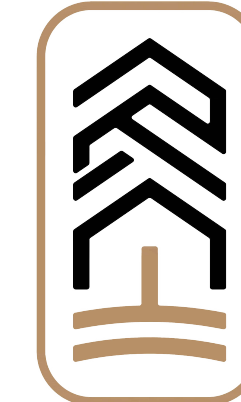


**NOTICE:**  
ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF CERTIFICATION SHOWN HEREON.

Drawn TMB	Dwg 2724 TP.dwg	Project 2724
Date 6/13/23	Scale 1" = 20'	Sheet 1 of 1

SCHMIDT

LAND SURVEYING, INC.  
P.O. Box 5761  
FRISCO, CO 80443 970-409-9963



**ROOTED**  
ARCHITECTURE

SEAL:

DRAWINGS AND SPECIFICATIONS AS INSTRUMENTS OF SERVICE ARE THE PROPERTY OF THE ARCHITECT. THEY SHALL NOT BE USED, TRANSFERRED, OR SOLD FOR USE EXCEPT BY AN AGREEMENT IN WRITING FROM THE ARCHITECT.

**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

No.	Date	Revisions

Project No: 2023-16  
 Stage: DD  
 Date: 02/13/2024  
 Scale: As indicated

DRAWING TITLE:

**ENLARGED SITE PLAN**

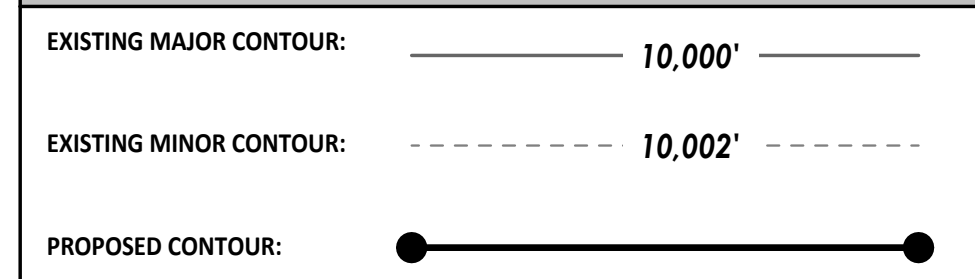
DRAWING NO:

**A0.3**

**NOTES: SITE PLAN**

1. VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY WORK. COORDINATE UTILITY ROUTING WITH APPLICABLE UTILITY COMPANY. ALL UTILITIES TO BE UNDERGROUND.
2. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION THAT DOES NOT CREATE A HAZARD. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL NOT FEWER THAN 6 INCHES WITHIN THE FIRST 10 FEET.
3. REFER TO FOUNDATION PLAN FOR FOUNDATION DRAIN LOCATION AND SLOPE.
4. FLAG ALL TREES FOR OWNER PRIOR TO THINNING OR REMOVAL.
5. PROTECT REMAINING TREES WITH APPROVED BARRIER DURING CONSTRUCTION.
6. GENERAL CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL ZONING AND SUBDIVISION CONDITIONS.
7. FINISHED GRADING SHALL BE A MINIMUM OF 6" BELOW FOUNDATION REFERENCE ADOPTED IRC.
8. CONTRACTOR TO TRIM OR REMOVE ANY TREES ADJACENT TO BUILDING FOUNDATION AS REQUIRED, VERIFY WITH OWNER PRIOR TO REMOVAL.

**NOTES: SITE CONTOUR LEGEND**



**NOTES: SITE DRAINAGE**

1. CONTRACTOR SHALL PROVIDE PROPER SITE GRADING THAT DIRECTS SURFACE WATER AWAY FROM BUILDING FOUNDATIONS, WALLS AND NEIGHBORING PROPERTIES.
  2. GRADING AND LANDSCAPING SHOULD BE PLANNED WITH A SURFACE GRADE
  3. OF AT LEAST 4% AROUND AND AWAY FROM THE ENTIRE STRUCTURE. REFER TO DALLAS DEVELOPMENT CODE FOR SITE DRAINAGE REQUIREMENT.
  4. PROPOSED SITE DRAINAGE INDICATED ON SITE PLAN WITH FLOW ARROWS:
- 

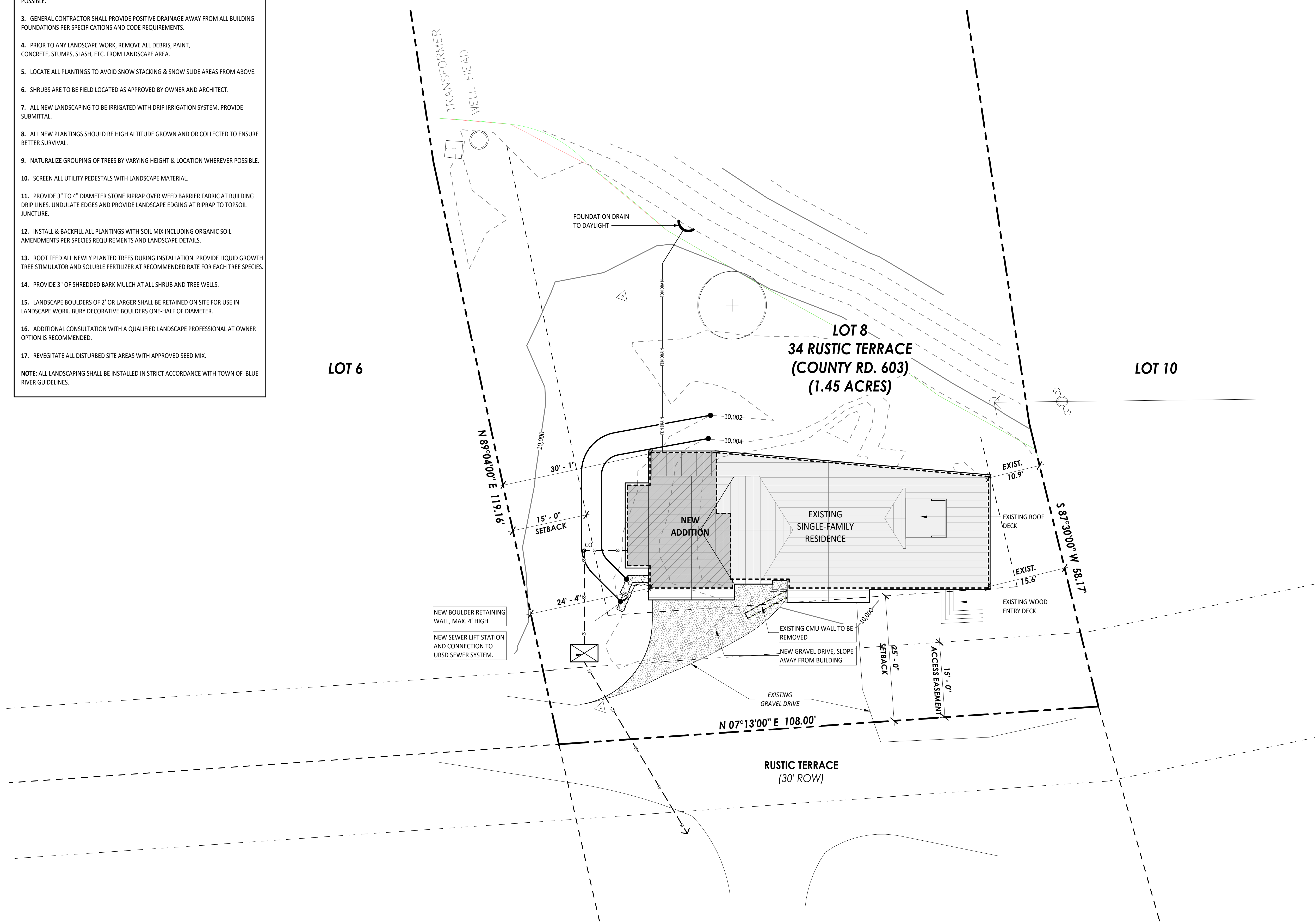
**NOTES: FOUNDATION DRAIN**

- INSTALL DRAIN TILE (PERFORATED PLASTIC DRAINAGE PIPE) ALONG THE EXTERIOR OF THE FOOTINGS OF BASEMENT OR CRAWLSPACE WALLS TO PROVIDE DRAINAGE AROUND FOUNDATION PERIMETER.
1. INSTALL DRAIN PIPE TO SIT OUTSIDE OF, NOT ON TOP OF, THE FOOTINGS AND BELOW THE BOTTOM OF THE CONCRETE SLAB OR CRAWLSPACE FLOOR.
  2. LAY THE PIPE WITH ENOUGH SLOPE TO DRAIN TO A NON-PERFORATED PIPE THAT CARRIES THE COLLECTED WATER TO DAYLIGHT, TO A DRYWELL, TO A STORM SEWER IF APPROVED BY THE LOCAL MUNICIPALITY, OR TO A SUMP PUMP THAT WILL TRANSPORT IT TO DAYLIGHT, A STORM SEWER, OR A DRYWELL.
  3. LAY THE DRAIN PIPE, PERFORATIONS DOWN, IN A GRAVEL TRENCH WITH AT LEAST 6 INCHES OF 3/4-INCH TO 1/2-INCH WASHED GRAVEL OR STONE ABOVE THE PIPE AND AT LEAST 2 INCHES BELOW (IRC).
  4. INSTALL LANDSCAPE FABRIC UNDER, AROUND, AND OVER THE WASHED GRAVEL (IRC) ALTERNATELY, USE DRAIN PIPE ENCASED IN A FILTER-FABRIC SOCK AND SURROUND THE CLOTH COVERED PIPE WITH GRAVEL. OR, INSTALL A CODE-APPROVED COMPOSITE FOUNDATION DRAINAGE SYSTEM (CFDS) (IRC).

**NOTES: LANDSCAPE**

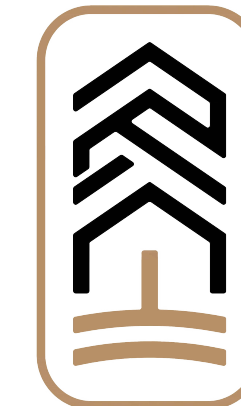
1. VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY WORK. COORDINATE UTILITY ROUTING WITH APPLICABLE UTILITY COMPANY. ALL UTILITIES TO BE UNDERGROUND. PROVIDE 2"-3" (MIN.) CLAY FREE TOPSOIL AND SEED ALL DISTURBED AREAS WITH SUMMIT CO. SHORT SEED MIX (AS APPROVED BY STRIP AND STOCKPILE EXISTING TOPSOIL IN CONSTRUCTION AREA. SCREEN TOPSOIL PRIOR TO INSTALLATION.
2. KEEP EXISTING TREES WHERE POSSIBLE, TAKING INTO CONSIDERATION DRIP LINES AND ROOT STRUCTURE. PROTECT EXISTING TREES WITH FENCING LOCATED AT OR OUTSIDE DRIP LINE OF TREE. STOCKPILE AND REUSE EXISTING TREES WHERE POSSIBLE.
3. GENERAL CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS PER SPECIFICATIONS AND CODE REQUIREMENTS.
4. PRIOR TO ANY LANDSCAPE WORK, REMOVE ALL DEBRIS, PAINT, CONCRETE, STUMPS, SLASH, ETC. FROM LANDSCAPE AREA.
5. LOCATE ALL PLANTINGS TO AVOID SNOW STACKING & SNOW SLIDE AREAS FROM ABOVE.
6. SHRUBS ARE TO BE FIELD LOCATED AS APPROVED BY OWNER AND ARCHITECT.
7. ALL NEW LANDSCAPING TO BE IRRIGATED WITH DRIP IRRIGATION SYSTEM. PROVIDE SUBMITTAL.
8. ALL NEW PLANTINGS SHOULD BE HIGH ALTITUDE GROWN AND OR COLLECTED TO ENSURE BETTER SURVIVAL.
9. NATURALIZE GROUPING OF TREES BY VARYING HEIGHT & LOCATION WHEREVER POSSIBLE.
10. SCREEN ALL UTILITY PEDESTALS WITH LANDSCAPE MATERIAL.
11. PROVIDE 3" TO 4" DIAMETER STONE RIPRAP OVER WEED BARRIER FABRIC AT BUILDING DRIP LINES. UNDULATE EDGES AND PROVIDE LANDSCAPE EDGING AT RIPRAP TO TOPSOIL JUNCTURE.
12. INSTALL & BACKFILL ALL PLANTINGS WITH SOIL MIX INCLUDING ORGANIC SOIL AMENDMENTS PER SPECIES REQUIREMENTS AND LANDSCAPE DETAILS.
13. ROOT FEED ALL NEWLY PLANTED TREES DURING INSTALLATION. PROVIDE LIQUID GROWTH TREE STIMULATOR AND SOLUBLE FERTILIZER AT RECOMMENDED RATE FOR EACH TREE SPECIES.
14. PROVIDE 3" OF SHREDDED BARK MULCH AT ALL SHRUB AND TREE WELLS.
15. LANDSCAPE BOULDERS OF 2' OR LARGER SHALL BE RETAINED ON SITE FOR USE IN LANDSCAPE WORK. BURY DECORATIVE BOULDERS ONE-HALF OF DIAMETER.
16. ADDITIONAL CONSULTATION WITH A QUALIFIED LANDSCAPE PROFESSIONAL AT OWNER OPTION IS RECOMMENDED.
17. REVEGETATE ALL DISTURBED SITE AREAS WITH APPROVED SEED MIX.

NOTE: ALL LANDSCAPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH TOWN OF BLUE RIVER GUIDE LINES.



**1 SITE PLAN - ENLARGED**  
1" = 10'-0"





**ROOTED**  
ARCHITECTURE

SEAL:

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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

**NOTES: FLOOR PLAN**

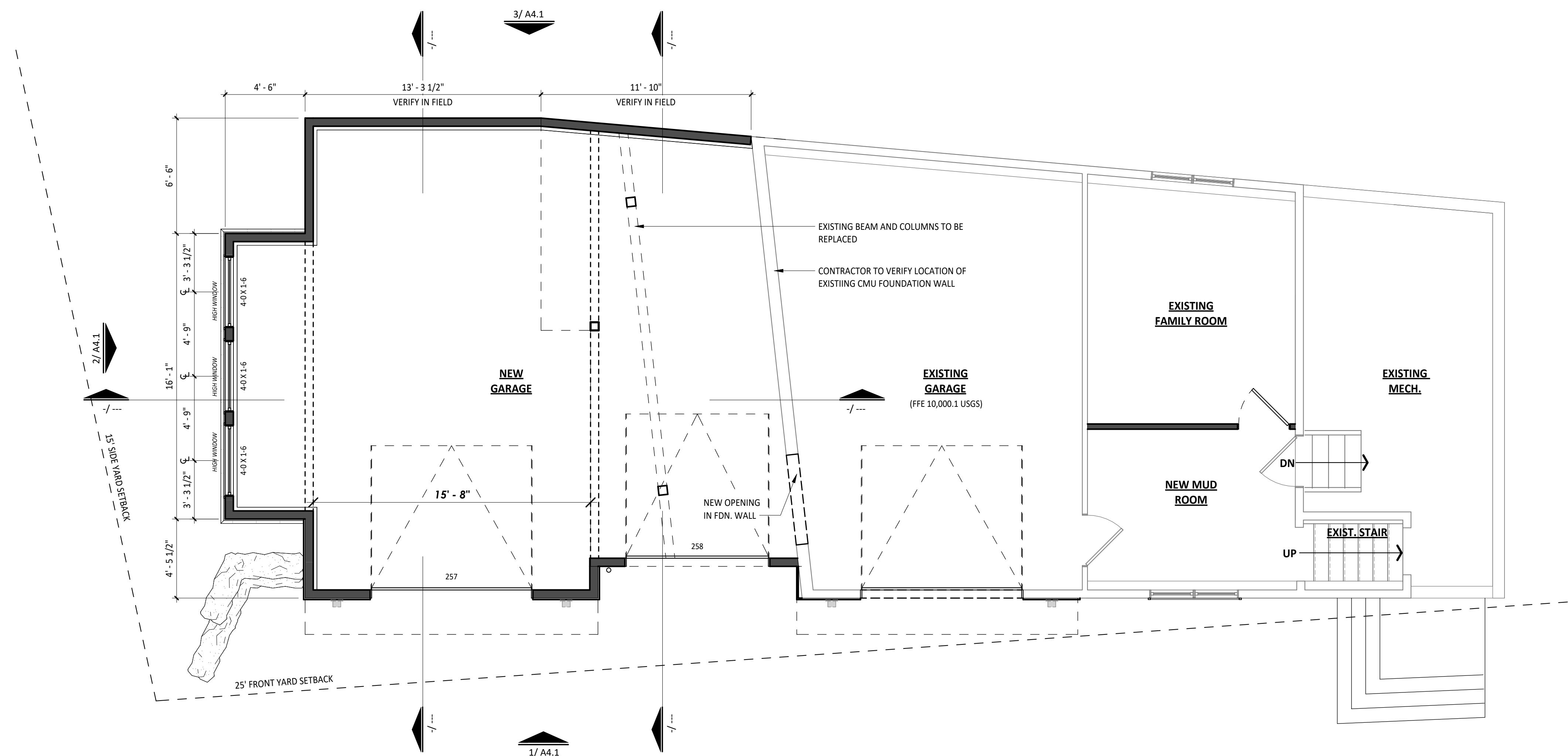
1. ALL INFORMATION MUST BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY ERRORS OR DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH WORK.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND/OR INDIVIDUAL CONTRACTORS TO SEE THAT ALL ITEMS MEET OR EXCEED CODE REQUIREMENTS.
3. BUILDING SHALL VERIFY ALL DIMENSIONS, INTERIOR & EXTERIOR FINISHES, CONSTRUCTION & FRAMING METHODS PRIOR TO CONSTRUCTION.
4. ALL MATERIALS & WORKMANSHIP INVOLVED IN THE CONSTRUCTION OF THIS PROJECT ARE TO CONFORM WITH ALL LOCAL, STATE, NATIONAL, & INTERNATIONAL BUILDING CODES AS DESCRIBED IN THE INTERNATIONAL ONE & TWO FAMILY DWELLING CODE.
5. DRAWINGS ARE NOT TO BE SCALED. ALL DIMENSIONS ARE FROM FACE OF STUD TO FACE OF STUD, U.N.O. ALL DIMENSIONS LABELED "CLEAR" ARE TO FACE OF FINISH MATERIAL.
6. ALL INTERIOR GYPSUM BOARD TO BE 1/2" MINIMUM. USE WATER-RESISTANT GYPSUM BOARD AT ALL WET WALL LOCATIONS. USE 5/8" TYPE "X" DRYWALL SEPARATIONS BETWEEN LIVING SPACES AND GARAGES AS REQUIRED BY CODE.
7. ALL TUB & SHOWER UNITS TO HAVE ANTI-SCALDING DEVICES INSTALLED.
8. GARAGE DOORS TO BE CERTIFIED BY MANUFACTURER FOR LOCAL WIND REQUIREMENTS
9. CONTRACTOR TO COORDINATE ELECTRICAL, PLUMBING AND HEATING WORK WITH SUBCONTRACTORS PRIOR TO STARTING WORK. PROVIDE ARCHITECT AND OWNER WITH SUBMITTALS WHERE APPLICABLE.
10. ALL ANGLED WALLS TO BE 45° UNLESS NOTED OTHERWISE.
11. MILLWORK SUBCONTRACTOR TO PROVIDE MILLWORK SHOP DRAWINGS TO THE ARCHITECTS, OWNER, AND CONTRACTOR FOR APPROVAL PRIOR TO COMMENCING FABRICATION.

**NOTES: DOOR AND WINDOW**

1. ALL WINDOWS ARE DIMENSIONED TO THE CENTERLINE OF WINDOW; CONTRACTOR TO COORDINATE ACTUAL REQUIRED ROUGH OPENING WITH WINDOW MANUFACTURER. PRIOR TO ANY FRAMING WORK, VERIFY ROUGH OPENING DIMENSIONS WITH WINDOW MANUFACTURER. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
2. SEE PLANS / DOOR AND WINDOW SCHEDULES FOR WINDOW / DOOR OPERATION, SIZES AND TYPES. VERIFY JAMB WIDTHS WITH WALL THICKNESS PRIOR TO INSTALLATION
3. PROVIDE WEATHER STRIPPING AND ALUMINUM THRESHOLD SET IN SEALANT AT ALL EXTERIOR DOORS.
4. PROVIDE SAFETY GLASS TO COMPLY WITH CODE REQUIREMENTS (SEE CURRENT I.R.C.). WINDOWS LOCATED MORE THAN 72" ABOVE FINISHED GRADE AND LESS THAN 24" ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED SHALL HAVE OPENING CONTROL DEVICES IN ACCORDANCE WITH IRC R312.2.2. WINDOWS / DOORS LOCATED IN SLEEPING ROOMS SHALL ACT AS EMERGENCY ESCAPE AND RESCUE OPENINGS PER, IRC R310.1
5. ALL GLAZING SYSTEMS SHALL BE RATED FOR USE AT HIGH ALTITUDES PER MANUFACTURER'S REQUIREMENTS. GLAZED FENESTRATION SHALL COMPLY WITH THE MINIMUM REQUIREMENTS OF IRC AND SUMMIT COUNTY SUSTAINABILITY CODE.
6. WRAP ALL EXTERIOR OPENINGS WITH WEATHER RESISTIVE BARRIER PER MANUFACTURER'S SPECIFICATIONS. PROVIDE 1-1/2" X 1-1/2" HEAD FLASHING AT ALL EXTERIOR OPENINGS (PRIME AND PAINT OR COLOR CLAD). INSULATE ALL EXTERIOR SHIM SPACES AT WINDOWS AND DOORS.
7. PROVIDE SHOP DRAWINGS FOR ALL SPECIAL/CUSTOM DOORS AND WINDOWS PRIOR TO FABRICATION. FIELD MEASURE TO VERIFY ALL CUSTOM UNIT SIZES.
8. WINDOWS AND PATIO DOORS REFER TO 'JELD-WEN' BRAND OR COMPARABLE
9. INTERIOR DOORS TO BE CENTERED ON SPACES OR INSTALLED W/ 4 1/2" OFFSET TO NEAREST WALL (U.N.O.). ALL WINDOW OPENINGS TO HAVE PAINTED GYPSUM BOARD RETURNS ON INTERIOR SIDE UNLESS NOTED OTHERWISE, REF. INTERIORS.
10. ALL WINDOW OPENINGS TO HAVE PAINTED GYPSUM BOARD RETURNS ON INTERIOR SIDE UNLESS NOTED OTHERWISE, REF. INTERIORS.
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12. COORDINATE WINDOW SILL HEIGHT WITH GYPCRETE AND FLOOR FINISH THICKNESS WHERE REQUIRED. VERIFY AT LOCATIONS WHERE WINDOW SILLS TERMINATE AT FLOOR LEVEL OR AT TOP OF MILLWORK.
13. VERIFY WINDOW STYLE, OPERATION, FINISH AND HARDWARE WITH OWNER PRIOR TO PLACING ORDER.
14. WINDOW SUPPLIER TO PROVIDE TEMPERED GLAZING WHERE REQUIRED BY CODE.

**WALL LEGEND**

- NEW 2X4 / 2X6 WOOD STUD WALL
- EXISTING 2X4 / 2X6 WOOD STUD WALL
- EXISTING WALL TO BE REMOVED



**1 FLOOR PLAN - LOWER LEVEL**  
1/4" = 1'-0"

No.	Date	Revisions

Project No: 2023-16  
 Stage: DD  
 Date: 02/13/2024  
 Scale: As indicated

DRAWING TITLE:

**FLOOR PLAN - LOWER**

DRAWING NO:

**A1.1**



**ROOTED**  
ARCHITECTURE

SEAL:

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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

**NOTES: FLOOR PLAN**

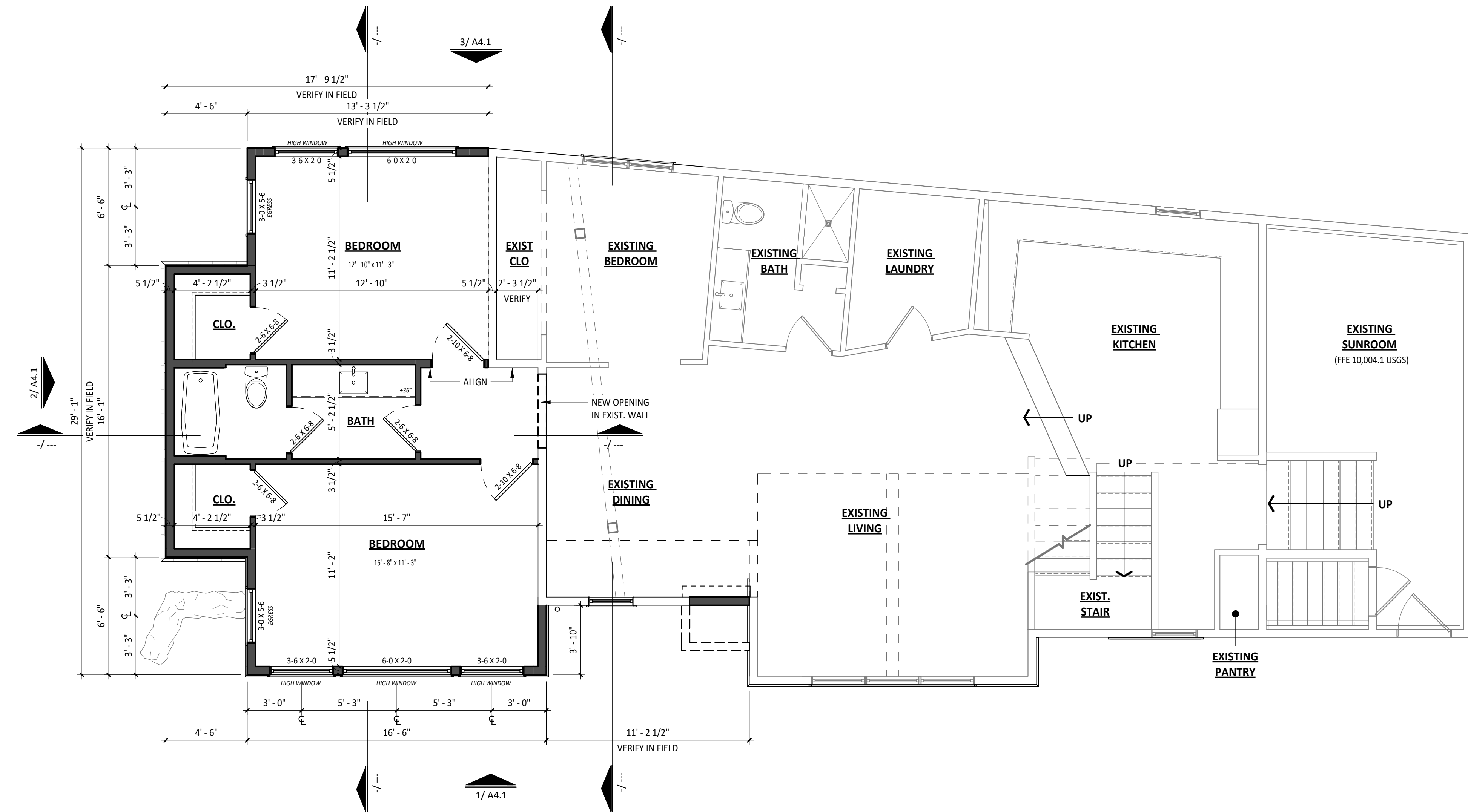
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**WALL LEGEND**

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- EXISTING 2X4 / 2X6 WOOD STUD WALL
- EXISTING WALL TO BE REMOVED



**1 FLOOR PLAN - MAIN LEVEL**  
1/4" = 1'-0"

No. Date Revisions

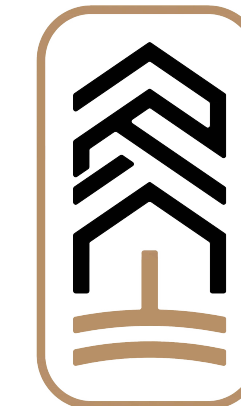
Project No: 2023-16  
Stage: DD  
Date: 02/13/2024  
Scale: As indicated

DRAWING TITLE:

**FLOOR PLAN - MAIN**

DRAWING NO:

**A1.2**



**ROOTED**  
ARCHITECTURE

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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

No.	Date	Revisions

Project No: 2023-16  
Stage: DD  
Date: 02/13/2024  
Scale: As indicated

DRAWING TITLE:

**FLOOR PLAN - UPPER**

DRAWING NO:

**A1.3**

**NOTES: FLOOR PLAN**

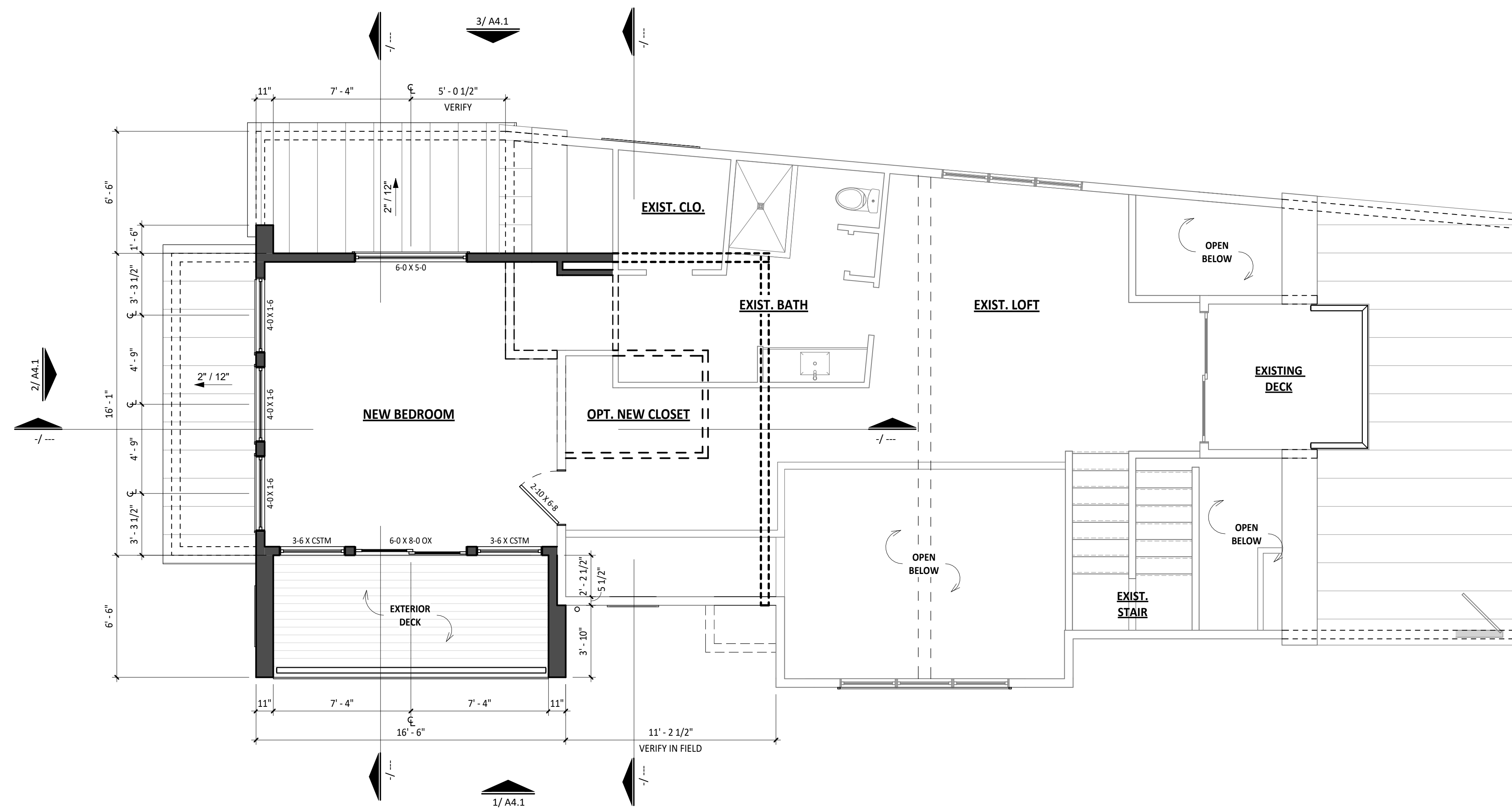
1. ALL INFORMATION MUST BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY ERRORS OR DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH WORK.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND/OR INDIVIDUAL CONTRACTORS TO SEE THAT ALL ITEMS MEET OR EXCEED CODE REQUIREMENTS.
3. BUILDING SHALL VERIFY ALL DIMENSIONS, INTERIOR & EXTERIOR FINISHES, CONSTRUCTION & FRAMING METHODS PRIOR TO CONSTRUCTION.
4. ALL MATERIALS & WORKMANSHIP INVOLVED IN THE CONSTRUCTION OF THIS PROJECT ARE TO CONFORM WITH ALL LOCAL, STATE, NATIONAL, & INTERNATIONAL BUILDING CODES AS DESCRIBED IN THE INTERNATIONAL ONE & TWO FAMILY DWELLING CODE.
5. DRAWINGS ARE NOT TO BE SCALED. ALL DIMENSIONS ARE FROM FACE OF STUD TO FACE OF STUD, U.N.O. ALL DIMENSIONS LABELED "CLEAR" ARE TO FACE OF FINISH MATERIAL.
6. ALL INTERIOR GYPSUM BOARD TO BE 1/2" MINIMUM. USE WATER-RESISTANT GYPSUM BOARD AT ALL WET WALL LOCATIONS. USE 5/8" TYPE "X" DRYWALL SEPARATIONS BETWEEN LIVING SPACES AND GARAGES AS REQUIRED BY CODE.
7. ALL TUB & SHOWER UNITS TO HAVE ANTI-SCALDING DEVICES INSTALLED.
8. GARAGE DOORS TO BE CERTIFIED BY MANUFACTURER FOR LOCAL WIND REQUIREMENTS
9. CONTRACTOR TO COORDINATE ELECTRICAL, PLUMBING AND HEATING WORK WITH SUBCONTRACTORS PRIOR TO STARTING WORK. PROVIDE ARCHITECT AND OWNER WITH SUBMITTALS WHERE APPLICABLE.
10. ALL ANGLED WALLS TO BE 45° UNLESS NOTED OTHERWISE.
11. MILLWORK SUBCONTRACTOR TO PROVIDE MILLWORK SHOP DRAWINGS TO THE ARCHITECTS, OWNER, AND CONTRACTOR FOR APPROVAL PRIOR TO COMMENCING FABRICATION.

**NOTES: DOOR AND WINDOW**

1. ALL WINDOWS ARE DIMENSIONED TO THE CENTERLINE OF WINDOW; CONTRACTOR TO COORDINATE ACTUAL REQUIRED ROUGH OPENING WITH WINDOW MANUFACTURER. PRIOR TO ANY FRAMING WORK, VERIFY ROUGH OPENING DIMENSIONS WITH WINDOW MANUFACTURER. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
2. SEE PLANS / DOOR AND WINDOW SCHEDULES FOR WINDOW / DOOR OPERATION, SIZES AND TYPES. VERIFY JAMB WIDTHS WITH WALL THICKNESS PRIOR TO INSTALLATION
3. PROVIDE WEATHER STRIPPING AND ALUMINUM THRESHOLD SET IN SEALANT AT ALL EXTERIOR DOORS.
4. PROVIDE SAFETY GLASS TO COMPLY WITH CODE REQUIREMENTS (SEE CURRENT I.R.C.). WINDOWS LOCATED MORE THAN 72" ABOVE FINISHED GRADE AND LESS THAN 24" ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED SHALL HAVE OPENING CONTROL DEVICES IN ACCORDANCE WITH IRC R312.2.2. WINDOWS / DOORS LOCATED IN SLEEPING ROOMS SHALL ACT AS EMERGENCY ESCAPE AND RESCUE OPENINGS PER, IRC R310.1
5. ALL GLAZING SYSTEMS SHALL BE RATED FOR USE AT HIGH ALTITUDES PER MANUFACTURER'S REQUIREMENTS. GLAZED FENESTRATION SHALL COMPLY WITH THE MINIMUM REQUIREMENTS OF IRC AND SUMMIT COUNTY SUSTAINABILITY CODE.
6. WRAP ALL EXTERIOR OPENINGS WITH WEATHER RESISTIVE BARRIER PER MANUFACTURER'S SPECIFICATIONS. PROVIDE 1-1/2" X 1-1/2" HEAD FLASHING AT ALL EXTERIOR OPENINGS (PRIME AND PAINT OR COLOR CLAD). INSULATE ALL EXTERIOR SHIM SPACES AT WINDOWS AND DOORS.
7. PROVIDE SHOP DRAWINGS FOR ALL SPECIAL/CUSTOM DOORS AND WINDOWS PRIOR TO FABRICATION. FIELD MEASURE TO VERIFY ALL CUSTOM UNIT SIZES.
8. WINDOWS AND PATIO DOORS REFER TO 'IELD-WEN' BRAND OR COMPARABLE
9. INTERIOR DOORS TO BE CENTERED ON SPACES OR INSTALLED W/ 4 1/2" OFFSET TO NEAREST WALL (U.N.O.). ALL WINDOW OPENINGS TO HAVE PAINTED GYPSUM BOARD RETURNS ON INTERIOR SIDE UNLESS NOTED OTHERWISE, REF. INTERIORS.
10. ALL WINDOW OPENINGS TO HAVE PAINTED GYPSUM BOARD RETURNS ON INTERIOR SIDE UNLESS NOTED OTHERWISE, REF. INTERIORS.
11. WINDOWS LOCATED IN SLEEPING ROOMS SHALL ACT AS EMERGENCY ESCAPE AND RESCUE OPENINGS PER, IRC R310.1
12. COORDINATE WINDOW SILL HEIGHT WITH GYPCRETE AND FLOOR FINISH THICKNESS WHERE REQUIRED. VERIFY AT LOCATIONS WHERE WINDOW SILLS TERMINATE AT FLOOR LEVEL OR AT TOP OF MILLWORK.
13. VERIFY WINDOW STYLE, OPERATION, FINISH AND HARDWARE WITH OWNER PRIOR TO PLACING ORDER.
14. WINDOW SUPPLIER TO PROVIDE TEMPERED GLAZING WHERE REQUIRED BY CODE.

**WALL LEGEND**

- NEW 2X4 / 2X6 WOOD STUD WALL
- EXISTING 2X4 / 2X6 WOOD STUD WALL
- EXISTING WALL TO BE REMOVED



**1 FLOOR PLAN - UPPER LEVEL**  
1/4" = 1'-0"





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**FITZGERALD ADDITION**  
34 RUSTIC TERRACE  
BLUE RIVER, CO

**NOTES: ROOF PLAN**

1. COORDINATE INSTALLATION OF NEW ROOFING WITH OTHER TRADES. REPORT ANY CONFLICTS WITH ITEMS INSTALLED BY OTHER TRADES TO DESIGNER.
2. REFER TO SPECIFICATIONS. PROVIDE ROOF PRIMER, ROOF MEMBRANE AND ALL ROOFING PER SPECIFICATION REQUIREMENTS. PROVIDE "W.R. GRACE" MANUFACTURER CERTIFICATION LETTER STATING THAT ALL MEMBRANES HAVE BEEN INSTALLED IN COMPLETE COMPLIANCE WITH ALL MANUFACTURER'S REQUIREMENTS.
3. ALL PLUMBING VENTS SHALL EXTEND ABOVE THE FINISHED SURFACE OF THE ROOF SYSTEM AS REQUIRED TO PROVIDE FOR A MINIMUM OF 8" BASE FLASHING.
4. ALL EXPOSED METAL FLASHING/ TRIM PIECES TO BE PRE-FINISHED 24 GA. STL. U.N.O.. PROVIDE PRE-FINISHED OR FIELD PAINT FLASHING ONLY AS NOTED.
5. GUTTERS - ALL GUTTERS TO BE PRE-FINISHED. PROVIDE PRE-FINISHED SUPPORTS AND SPACERS @ 36" O.C. MAX. MATCH EXISTING GUTTER PROFILE AND FINISH.
6. ALL DOWNSPOUTS TO BE PRE-FINISHED, REFERENCE ELEVATIONS FOR LOCATIONS.
7. PROVIDE HEAT TAPE AT GUTTERS AND DOWNSPOUTS. REFER TO ROOF PLAN FOR ADDITIONAL FUTURE HEAT TAPE OUTLETS. SEE ROOF PLAN FOR WATERPROOF OUTLETS AT SIDEWALL AREAS. ALL GUTTERS AND DOWNSPOUTS TO BE HEATED. REFER TO PLAN FOR ALL SOLAR AND HEAT TAPE.
8. PAINT ALL EXPOSED PIPING EXTENDING THROUGH ROOF TO MATCH ROOF
9. PROVIDE VALLEY FLASHING AT ALL VALLEYS AS INDICATED ON PLANS.
10. OVERHANG DIMENSIONS ARE TO END OF RAFTER OR TRUSS AS INDICATED ON PLANS.
11. PROVIDE KICK-OUT FLASHING AT ALL EAVE/WALL JUNCTURES.
12. PROVIDE ILC AS REQUIRED.
13. CONTRACTOR TO COORDINATE HEATED GUTTER AND DOWNSPOUT LOCATIONS WITH ARCHITECT.
14. DOWNSPOUTS SHALL NOT DISCHARGE ONTO FLATWORK OR DECKS BELOW. CONTRACTOR TO ROUTE DISCHARGE BELOW SURFACE OR PROVIDE CHANNEL DRAIN IN FLATWORK WITH HEAT TAPE.
15. REFER TO SPECIFICATIONS. PROVIDE ROOF PRIMER, ROOF MEMBRANE AND ALL ROOFING PER SPECIFICATION REQUIREMENTS. PROVIDE "W.R. GRACE" MANUFACTURER CERTIFICATION LETTER STATING THAT ALL MEMBRANES HAVE BEEN INSTALLED IN COMPLETE COMPLIANCE WITH ALL MANUFACTURER'S REQUIREMENTS.
16. UNVENTED ROOFS SHALL HAVE A MINIMUM 60% AIR IMPERMEABLE CLOSED CELL INSULATION AT UNDERSIDE OF DECK.

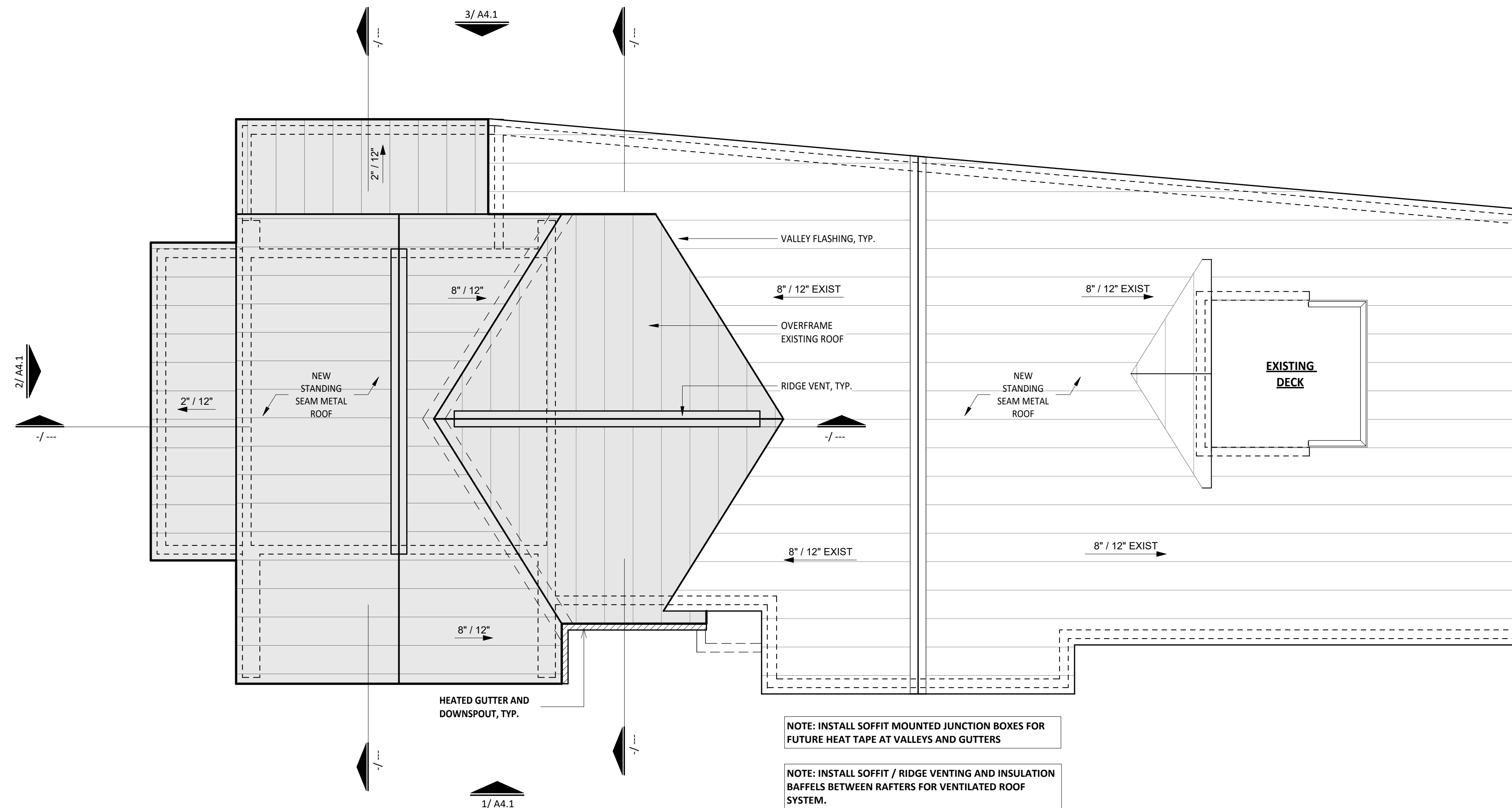
**NOTES: ROOF MAINTENANCE**

THE OWNER HAS BEEN ADVISED THAT ALL ROOF AND DECK SURFACES MUST BE MAINTAINED RELATIVELY FREE OF SNOW & ICE.

**RIDGE HEIGHT CALCULATIONS**

RIDGE	RIDGE HEIGHT (USGS)	PROP. GRADE (USGS)	EXIST. GRADE (USGS)	ROOF HEIGHT
A	XXX	XXX	XXX	XXX
B	---	---	---	---
C	---	---	---	---
D	---	---	---	---

NOTE:



**1** ROOF PLAN  
1/4" = 1'-0"

No. Date Revisions

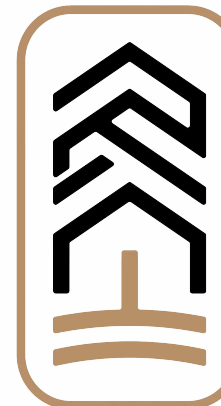
Project No: 2023-16  
Stage: DD  
Date: 02/13/2024  
Scale: As indicated

DRAWING TITLE:

**ROOF PLAN**

DRAWING NO:

**A3.1**



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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

**NOTES: AIR BARRIER / VAPOR BARRIER**

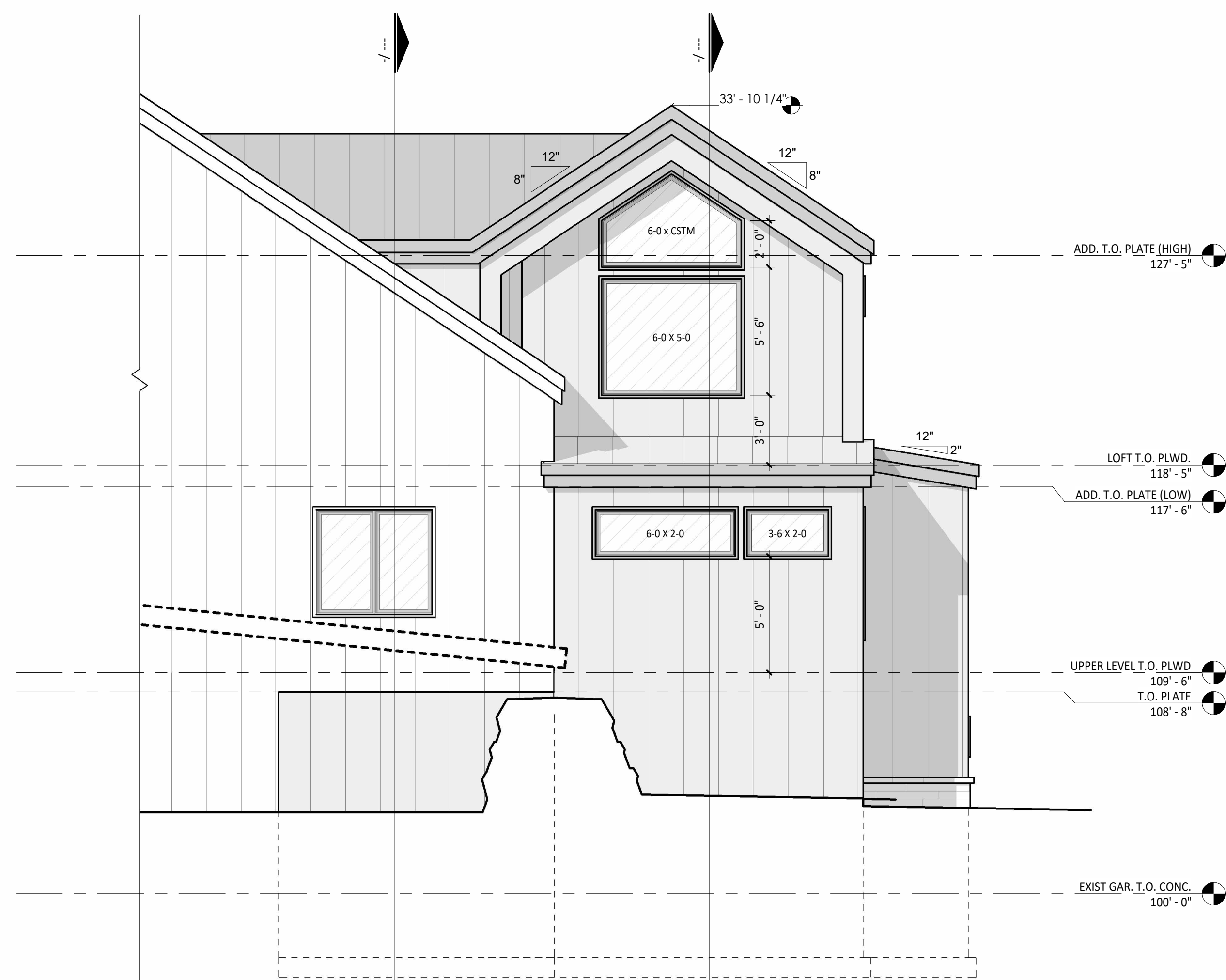
IN COMPLIANCE WITH ENERGY CODE REQUIREMENTS, PROVIDE CONTINUOUS, SOLID AIR BARRIERS OVER ALL INSULATION SURFACES. PROVIDE AIR BARRIERS BEHIND ALL CONCEALED AREAS, SUCH AS TUBS, DROPPED CEILING AREAS, SOFFITS DECORATIVE BEAMS AND STRUCTURAL BEAMS ADJACENT TO THERMAL ENVELOPE WALLS. THESE BARRIERS SHOULD BE COORDINATED AND INSTALLED AT THE TIME OF FRAMING AND MUST BE CONTINUOUS AND UNBROKEN. PROVIDE AIR BARRIERS AND INSULATION AT THE THERMAL ENVELOPE LINE OF ALL CHIMNEYS. AIR BARRIERS CAN BE 6 MIL POLYFILM PLASTIC, DRYWALL OR SOLID SHEATHING. COORDINATE ALL AIR BARRIERS WITH VAPOR BARRIERS AND INSULATION REQUIREMENTS AS OUTLINED IN DIVISION VII. PROVIDE AND SCHEDULE A PRE-MEETING WITH THE ARCHITECT AND FRAMER TO REVIEW THESE REQUIREMENTS PRIOR TO ANY FRAMING WORK.

**NOTES: WEATHER RESISTIVE BARRIER**

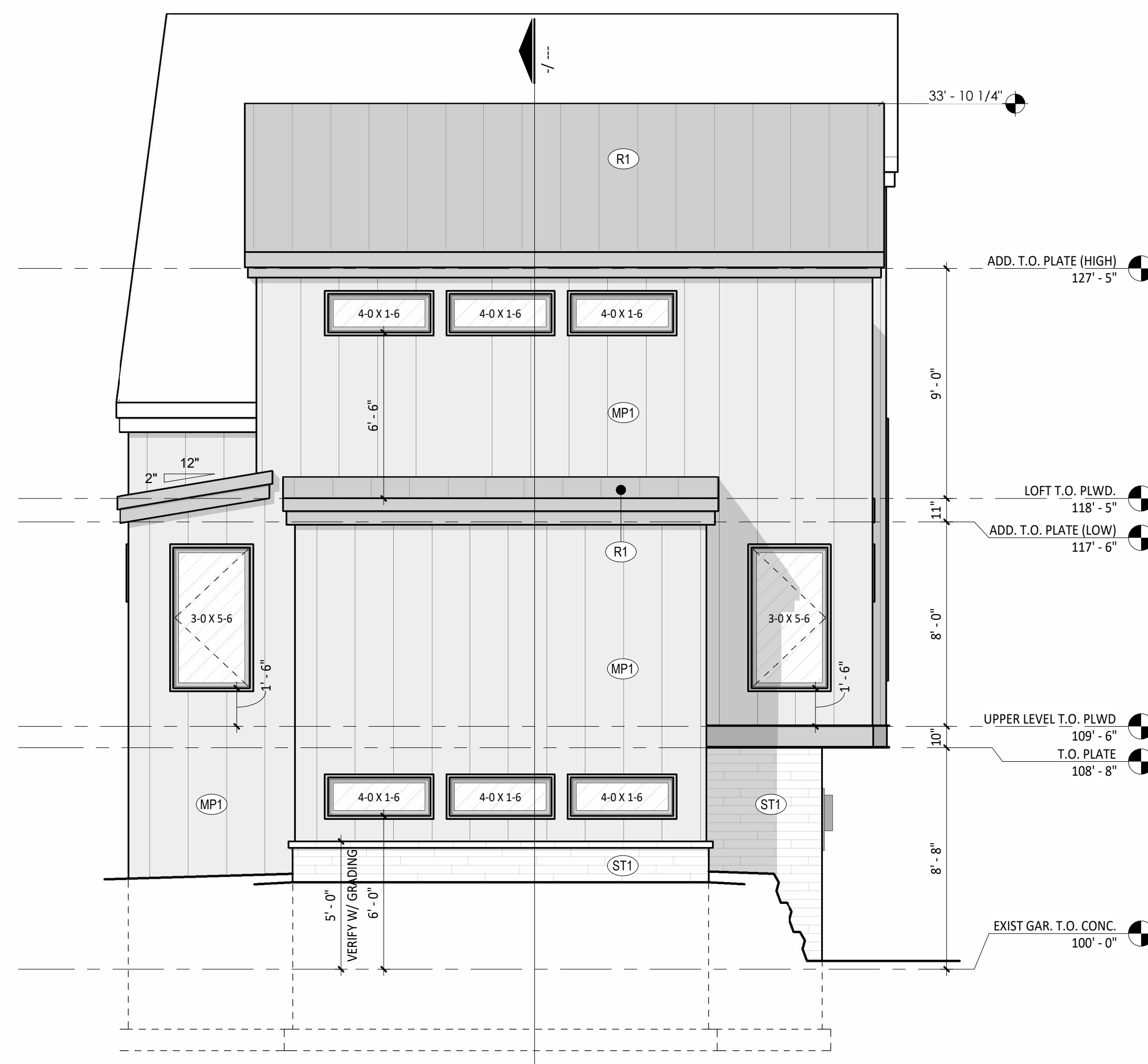
1. INSTALL WEATHER RESISTIVE BARRIER IN STRICT COMPLIANCE WITH MANUFACTURERS RECOMMENDATIONS AND DETAILS. USE ONLY APPROVED PRODUCTS AND FASTENING METHODS.
2. REFERENCE LOCAL AND NATIONAL BUILDING CODES AND REGULATIONS PRIOR TO INSTALLATION. INSTALL PER GOVERNING CODE REQUIREMENTS. NOTIFY ARCHITECT IF ANY CONFLICT ARISES.



**1 WEST ELEVATION**  
1/4" = 1'-0"



**3 EAST ELEVATION**  
1/4" = 1'-0"



**2 NORTH ELEVATION**  
1/4" = 1'-0"

No. Date Revisions

Project No: 2023-16  
Stage: DD  
Date: 02/13/2024  
Scale: As indicated

DRAWING TITLE:

**EXTERIOR ELEVATIONS**

DRAWING NO:

**A4.1**

SCHEDULE	FULLNAME	ADDRESS	CITYSTATEZIP
100227	Property Owner	PO BOX 6871	BRECKENRIDGE CO 804246871
100428	Property Owner	PO BOX 6871	BRECKENRIDGE CO 804246871
101184	Property Owner	PO BOX 6871	BRECKENRIDGE CO 804246871
101186	Property Owner	1404 EDGEWATER CIR	PAPILLION NE 680463320
100461	Property Owner	PO BOX 2710	BRECKENRIDGE CO 804242710
100462	Property Owner	16330 FAIRWAY DR	DENVER CO 800225201
100463	Property Owner	17450 W 67TH AVE	ARVADA CO 800076848
100792	Property Owner	PO BOX 9116	BRECKENRIDGE CO 804249116
101185	Property Owner	805 FRISCO AVE	CLINTON OK 736013322
100465	Property Owner	4810 E 6TH AVENUE PKWY	DENVER CO 802205137
101091	Property Owner	1530 THISTLE RIDGE RD	HIGHLANDS RANCH CO 801262676
100464	Property Owner	PO BOX 4462	BRECKENRIDGE CO 804244462
100786	Property Owner	PO BOX 37	BRECKENRIDGE CO 804240037
101209	Property Owner	PO BOX 37	BRECKENRIDGE CO 804240037
101090	Property Owner	PO BOX 7403	BRECKENRIDGE CO 804247403



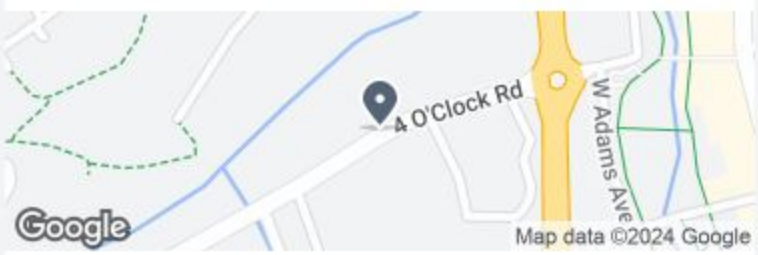
### Town of Blue River



Let Town of Blue River know how your experience was

# \$417.00

Building Permit	\$400.00
Convenience Fee 4.25%	\$17.00
Swiped	
<b>Total</b>	<b>\$417.00</b>

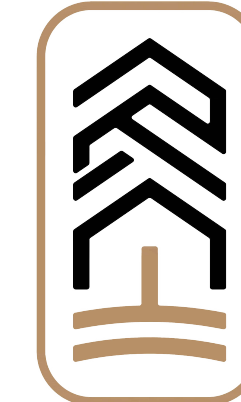


Town of Blue River  
110 Whispering Pines Cir  
Blue River, CO 80424

Visa 5727 (Keyed)      Mar 12 2024 at 11:08 AM  
**VISA**      #DHNd  
Auth code: 04794D

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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

No. Date Revisions

Project No: 2023-16  
Stage: VARIANCE REQUEST  
Date: 03/11/2024  
Scale: As indicated

DRAWING TITLE:

**ENLARGED SITE PLAN**

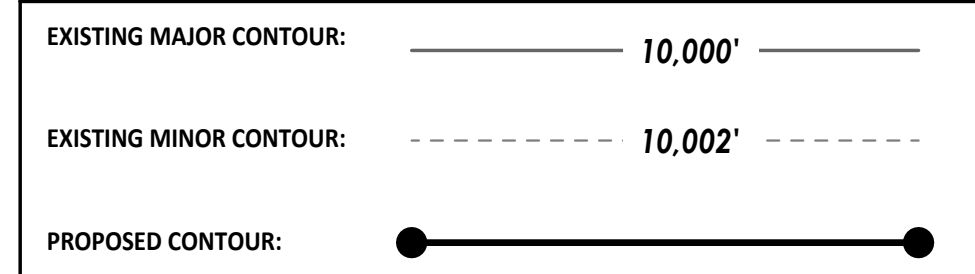
DRAWING NO:

**A0.3**

**NOTES: SITE PLAN**

1. VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY WORK. COORDINATE UTILITY ROUTING WITH APPLICABLE UTILITY COMPANY. ALL UTILITIES TO BE UNDERGROUND.
2. SURFACE DRAINAGE SHALL BE DIVERTED TO A STORM SEWER CONVEYANCE OR OTHER APPROVED POINT OF COLLECTION THAT DOES NOT CREATE A HAZARD. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL NOT FEWER THAN 6 INCHES WITHIN THE FIRST 10 FEET.
3. REFER TO FOUNDATION PLAN FOR FOUNDATION DRAIN LOCATION AND SLOPE.
4. FLAG ALL TREES FOR OWNER PRIOR TO THINNING OR REMOVAL.
5. PROTECT REMAINING TREES WITH APPROVED BARRIER DURING CONSTRUCTION.
6. GENERAL CONTRACTOR SHALL REVIEW AND COMPLY WITH ALL ZONING AND SUBDIVISION CONDITIONS.
7. FINISHED GRADING SHALL BE A MINIMUM OF 6" BELOW FOUNDATION REFERENCE ADOPTED IRC.
8. CONTRACTOR TO TRIM OR REMOVE ANY TREES ADJACENT TO BUILDING FOUNDATION AS REQUIRED, VERIFY WITH OWNER PRIOR TO REMOVAL.

**NOTES: SITE CONTOUR LEGEND**



**NOTES: SITE DRAINAGE**

1. CONTRACTOR SHALL PROVIDE PROPER SITE GRADING THAT DIRECTS SURFACE WATER AWAY FROM BUILDING FOUNDATIONS, WALLS AND NEIGHBORING PROPERTIES.
  2. GRADING AND LANDSCAPING SHOULD BE PLANNED WITH A SURFACE GRADE
  3. OF AT LEAST 4% AROUND AND AWAY FROM THE ENTIRE STRUCTURE. REFER TO DALLAS DEVELOPMENT CODE FOR SITE DRAINAGE REQUIREMENT.
  4. PROPOSED SITE DRAINAGE INDICATED ON SITE PLAN WITH FLOW ARROWS:
- 

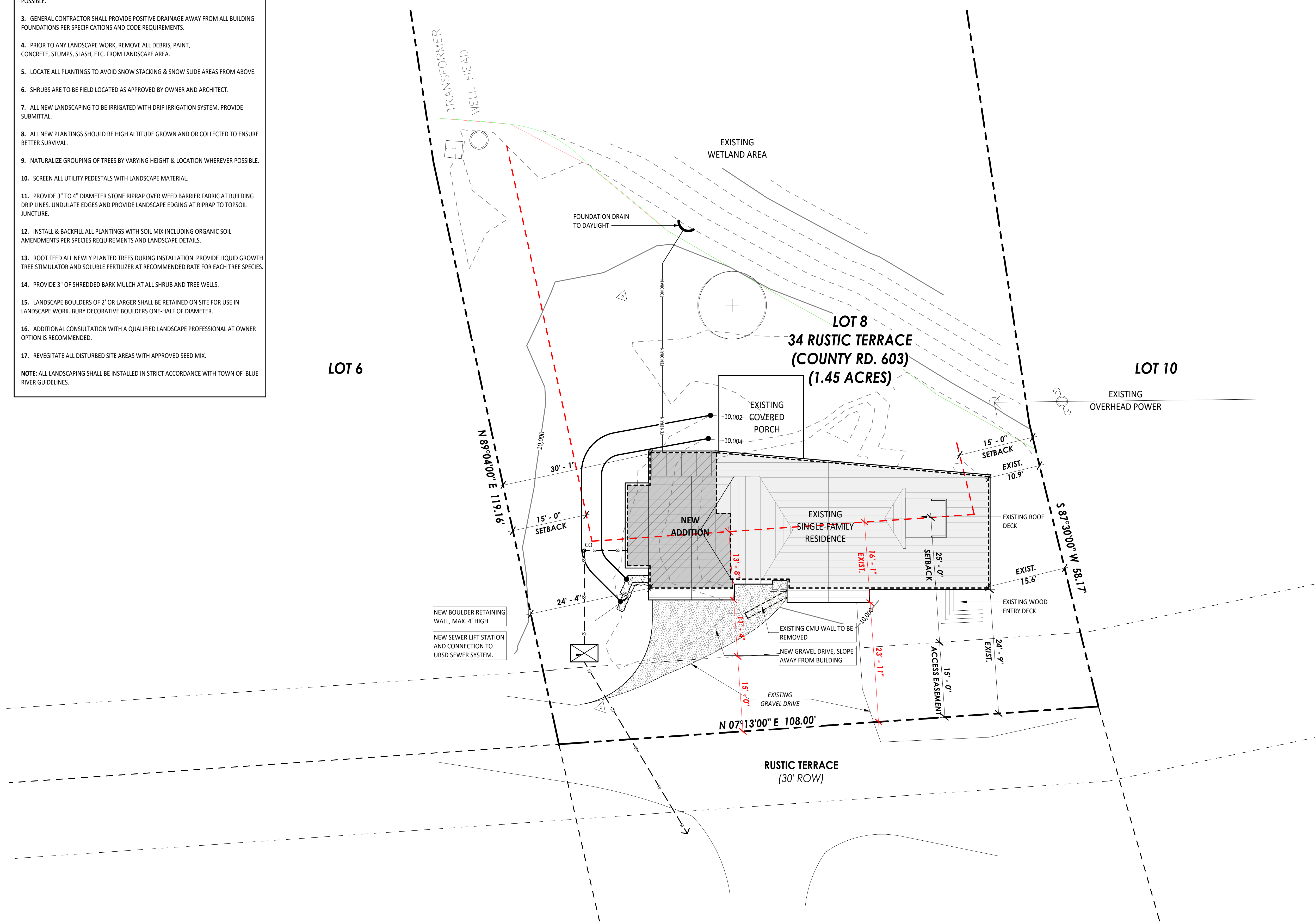
**NOTES: FOUNDATION DRAIN**

- INSTALL DRAIN TILE (PERFORATED PLASTIC DRAINAGE PIPE) ALONG THE EXTERIOR OF THE FOOTINGS OF BASEMENT OR CRAWLSPACE WALLS TO PROVIDE DRAINAGE AROUND FOUNDATION PERIMETER.
1. INSTALL DRAIN PIPE TO SIT OUTSIDE OF, NOT ON TOP OF, THE FOOTINGS AND BELOW THE BOTTOM OF THE CONCRETE SLAB OR CRAWLSPACE FLOOR.
  2. LAY THE PIPE WITH ENOUGH SLOPE TO DRAIN TO A NON-PERFORATED PIPE THAT CARRIES THE COLLECTED WATER TO DAYLIGHT, TO A DRYWELL, TO A STORM SEWER IF APPROVED BY THE LOCAL MUNICIPALITY, OR TO A SUMP PUMP THAT WILL TRANSPORT IT TO DAYLIGHT, A STORM SEWER, OR A DRYWELL.
  3. LAY THE DRAIN PIPE, PERFORATIONS DOWN, IN A GRAVEL TRENCH WITH AT LEAST 6 INCHES OF 1/2-INCH TO 3/4-INCH WASHED GRAVEL OR STONE ABOVE THE PIPE AND AT LEAST 2 INCHES BELOW (IRC).
  4. INSTALL LANDSCAPE FABRIC UNDER, AROUND, AND OVER THE WASHED GRAVEL (IRC) ALTERNATELY, USE DRAIN PIPE ENCASED IN A FILTER-FABRIC SOCK AND SURROUND THE CLOTH-COVERED PIPE WITH GRAVEL. OR, INSTALL A CODE-APPROVED COMPOSITE FOUNDATION DRAINAGE SYSTEM (CFDS) (IRC).

**NOTES: LANDSCAPE**

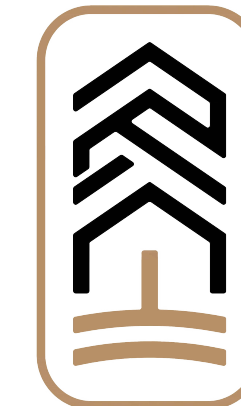
1. VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY WORK. COORDINATE UTILITY ROUTING WITH APPLICABLE UTILITY COMPANY. ALL UTILITIES TO BE UNDERGROUND. PROVIDE 2"-3" (MIN.) CLAY FREE TOPSOIL AND SEED ALL DISTURBED AREAS WITH SUMMIT CO. SHORT SEED MIX (AS APPROVED BY STRIP AND STOCKPILE EXISTING TOPSOIL IN CONSTRUCTION AREA. SCREEN TOPSOIL PRIOR TO INSTALLATION.
2. KEEP EXISTING TREES WHERE POSSIBLE, TAKING INTO CONSIDERATION DRIP LINES AND ROOT STRUCTURE. PROTECT EXISTING TREES WITH FENCING LOCATED AT OR OUTSIDE DRIP LINE OF TREE. STOCKPILE AND REUSE EXISTING TREES WHERE POSSIBLE.
3. GENERAL CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS PER SPECIFICATIONS AND CODE REQUIREMENTS.
4. PRIOR TO ANY LANDSCAPE WORK, REMOVE ALL DEBRIS, PAINT, CONCRETE, STUMPS, SLASH, ETC. FROM LANDSCAPE AREA.
5. LOCATE ALL PLANTINGS TO AVOID SNOW STACKING & SNOW SLIDE AREAS FROM ABOVE.
6. SHRUBS ARE TO BE FIELD LOCATED AS APPROVED BY OWNER AND ARCHITECT.
7. ALL NEW LANDSCAPING TO BE IRRIGATED WITH DRIP IRRIGATION SYSTEM. PROVIDE SUBMITTAL.
8. ALL NEW PLANTINGS SHOULD BE HIGH ALTITUDE GROWN AND OR COLLECTED TO ENSURE BETTER SURVIVAL.
9. NATURALIZE GROUPING OF TREES BY VARYING HEIGHT & LOCATION WHEREVER POSSIBLE.
10. SCREEN ALL UTILITY PEDESTALS WITH LANDSCAPE MATERIAL.
11. PROVIDE 3" TO 4" DIAMETER STONE RIPRAP OVER WEED BARRIER FABRIC AT BUILDING DRIP LINES. UNDULATE EDGES AND PROVIDE LANDSCAPE EDGING AT RIPRAP TO TOPSOIL JUNCTURE.
12. INSTALL & BACKFILL ALL PLANTINGS WITH SOIL MIX INCLUDING ORGANIC SOIL AMENDMENTS PER SPECIES REQUIREMENTS AND LANDSCAPE DETAILS.
13. ROOT FEED ALL NEWLY PLANTED TREES DURING INSTALLATION. PROVIDE LIQUID GROWTH TREE STIMULATOR AND SOLUBLE FERTILIZER AT RECOMMENDED RATE FOR EACH TREE SPECIES.
14. PROVIDE 3" OF SHREDDED BARK MULCH AT ALL SHRUB AND TREE WELLS.
15. LANDSCAPE BOULDERS OF 2' OR LARGER SHALL BE RETAINED ON SITE FOR USE IN LANDSCAPE WORK. BURY DECORATIVE BOULDERS ONE-HALF OF DIAMETER.
16. ADDITIONAL CONSULTATION WITH A QUALIFIED LANDSCAPE PROFESSIONAL AT OWNER OPTION IS RECOMMENDED.
17. REVEGETATE ALL DISTURBED SITE AREAS WITH APPROVED SEED MIX.

NOTE: ALL LANDSCAPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH TOWN OF BLUE RIVER GUIDELINES.



**1 SITE PLAN - ENLARGED**  
1" = 10'-0"





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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

No. Date Revisions

Project No: 2023-16  
Stage: VARIANCE REQUEST  
Date: 03/11/2024  
Scale: As indicated

DRAWING TITLE:

**FLOOR PLAN - LOWER**

DRAWING NO:

**A1.1**

**NOTES: FLOOR PLAN**

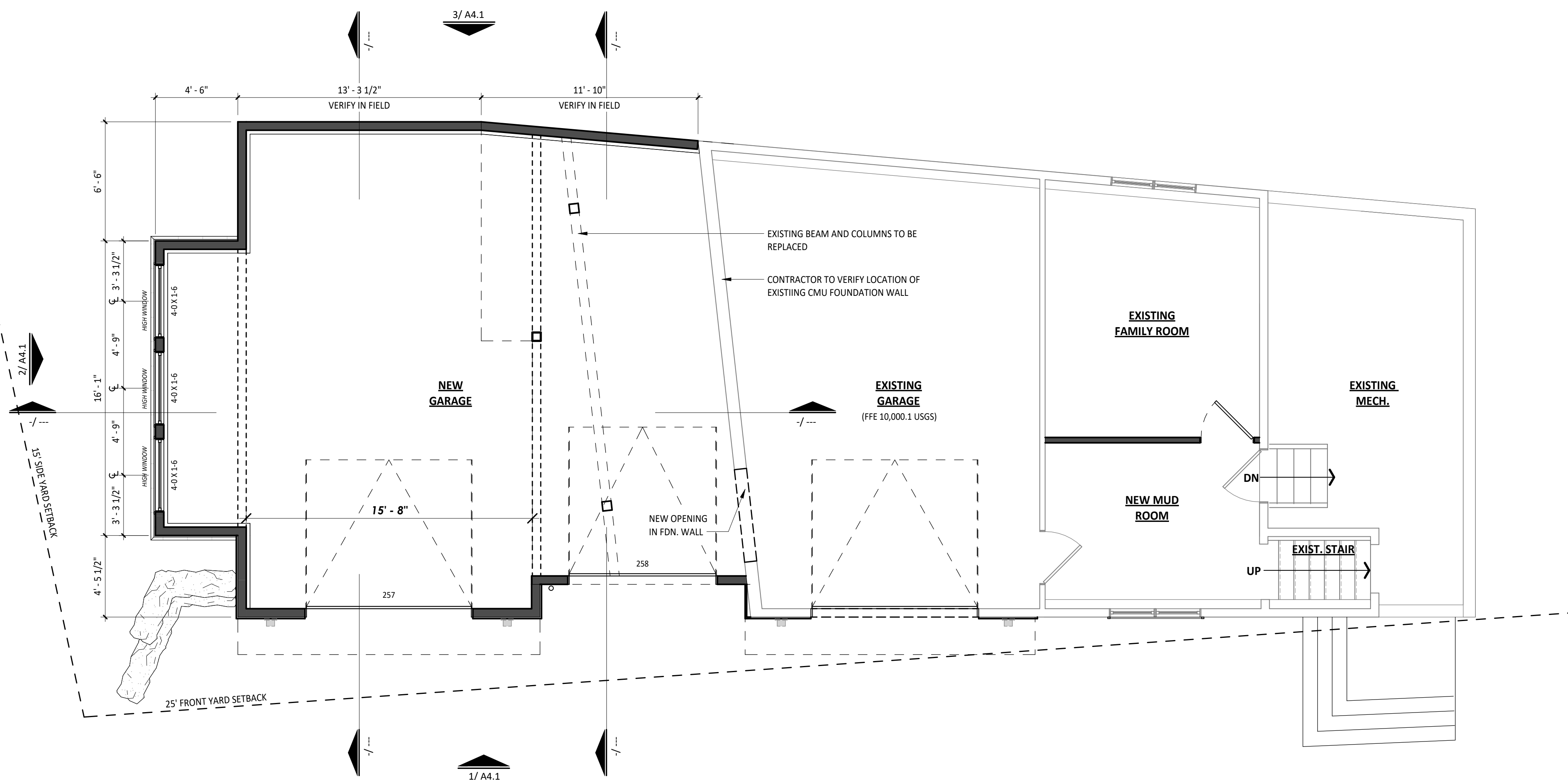
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8. WINDOWS AND PATIO DOORS REFER TO 'JELD-WEN' BRAND OR COMPARABLE
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13. VERIFY WINDOW STYLE, OPERATION, FINISH AND HARDWARE WITH OWNER PRIOR TO PLACING ORDER.
14. WINDOW SUPPLIER TO PROVIDE TEMPERED GLAZING WHERE REQUIRED BY CODE.

**WALL LEGEND**

- NEW 2X4 / 2X6 WOOD STUD WALL
- EXISTING 2X4 / 2X6 WOOD STUD WALL
- EXISTING WALL TO BE REMOVED



**1 FLOOR PLAN - LOWER LEVEL**  
1/4" = 1'-0"



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ARCHITECTURE

SEAL:

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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

**NOTES: FLOOR PLAN**

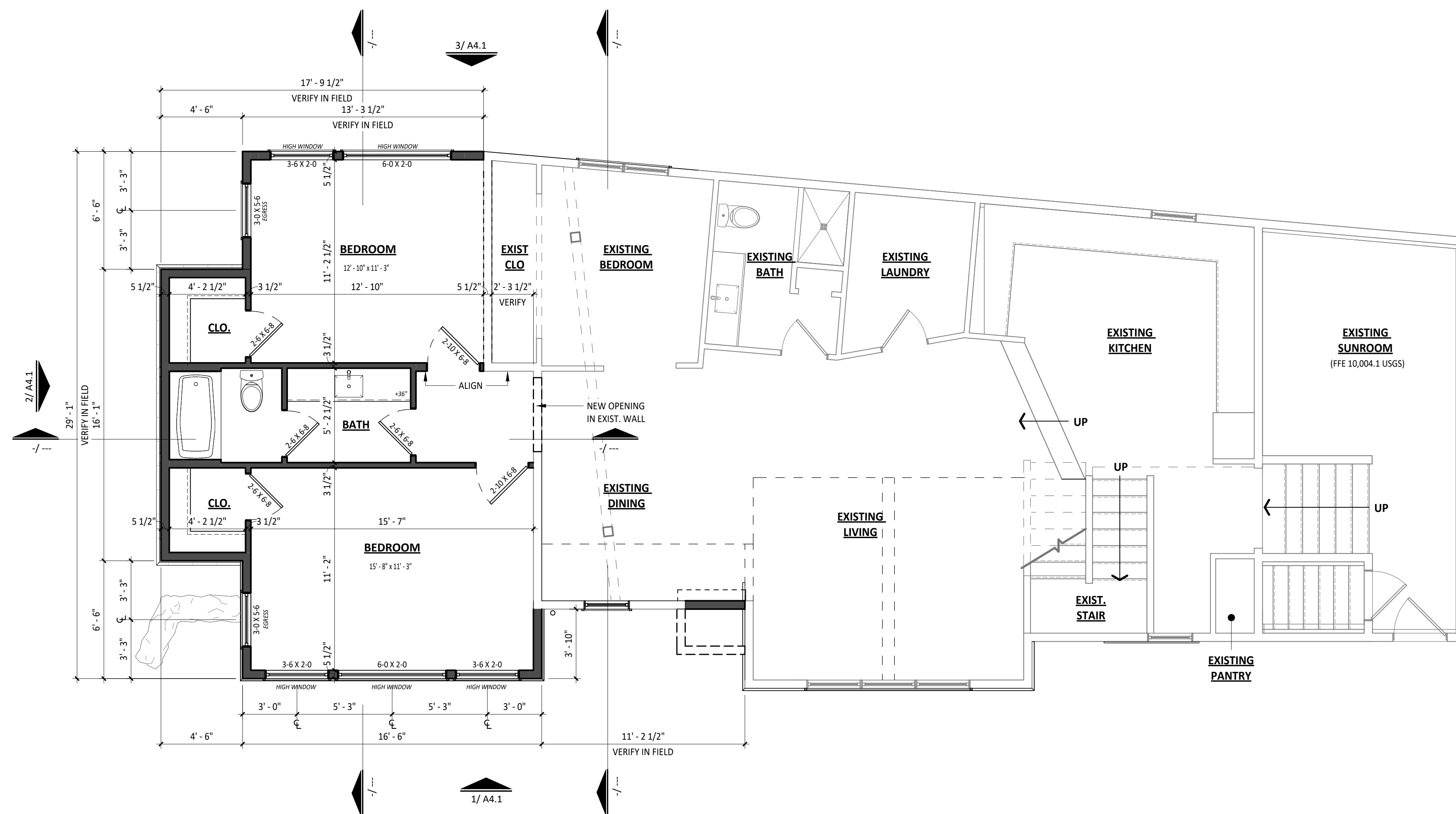
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**NOTES: DOOR AND WINDOW**

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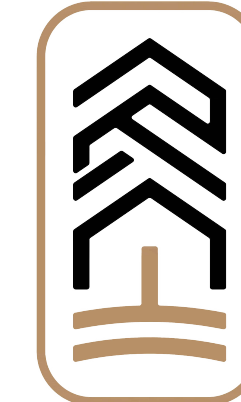
**1 FLOOR PLAN - MAIN LEVEL**  
1/4" = 1'-0"

No.	Date	Revisions

Project No: 2023-16  
 Stage: VARIANCE REQUEST  
 Date: 03/11/2024  
 Scale: As indicated

DRAWING TITLE:  
**FLOOR PLAN - MAIN**  
 DRAWING NO:

**A1.2**



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ARCHITECTURE

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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

No.	Date	Revisions

Project No: 2023-16  
 Stage: VARIANCE REQUEST  
 Date: 03/11/2024  
 Scale: As indicated

DRAWING TITLE:

**FLOOR PLAN - UPPER**

DRAWING NO:

**A1.3**

**NOTES: FLOOR PLAN**

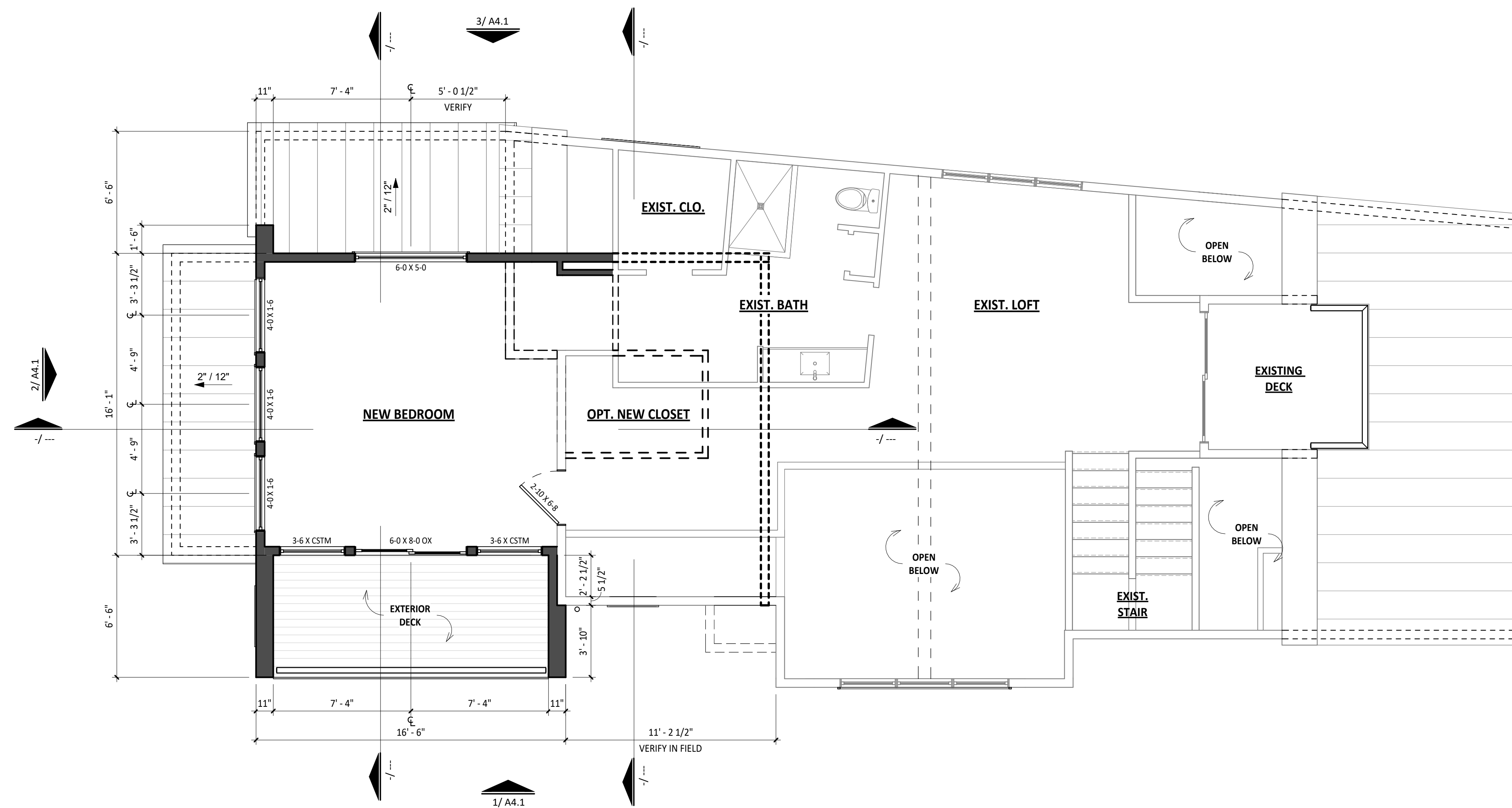
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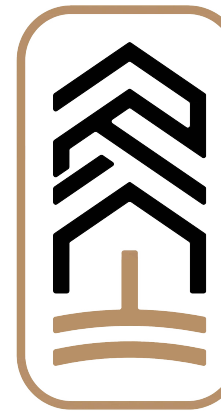
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**1 FLOOR PLAN - UPPER LEVEL**  
 1/4" = 1'-0"





**ROOTED**  
ARCHITECTURE

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**FITZGERALD ADDITION**  
34 RUSTIC TERRACE  
BLUE RIVER, CO

**NOTES: ROOF PLAN**

- COORDINATE INSTALLATION OF NEW ROOFING WITH OTHER TRADES. REPORT ANY CONFLICTS WITH ITEMS INSTALLED BY OTHER TRADES TO DESIGNER.
- REFER TO SPECIFICATIONS. PROVIDE ROOF PRIMER, ROOF MEMBRANE AND ALL ROOFING PER SPECIFICATION REQUIREMENTS. PROVIDE "W.R. GRACE" MANUFACTURER CERTIFICATION LETTER STATING THAT ALL MEMBRANES HAVE BEEN INSTALLED IN COMPLETE COMPLIANCE WITH ALL MANUFACTURER'S REQUIREMENTS.
- ALL PLUMBING VENTS SHALL EXTEND ABOVE THE FINISHED SURFACE OF THE ROOF SYSTEM AS REQUIRED TO PROVIDE FOR A MINIMUM OF 8" BASE FLASHING.
- ALL EXPOSED METAL FLASHING/ TRIM PIECES TO BE PRE-FINISHED 24 GA. STL. U.N.O.. PROVIDE PRE-FINISHED OR FIELD PAINT FLASHING ONLY AS NOTED.
- GUTTERS - ALL GUTTERS TO BE PRE-FINISHED. PROVIDE PRE-FINISHED SUPPORTS AND SPACERS @ 36" O.C. MAX. MATCH EXISTING GUTTER PROFILE AND FINISH.
- ALL DOWNSPOUTS TO BE PRE-FINISHED, REFERENCE ELEVATIONS FOR LOCATIONS.
- PROVIDE HEAT TAPE AT GUTTERS AND DOWNSPOUTS. REFER TO ROOF PLAN FOR ADDITIONAL FUTURE HEAT TAPE OUTLETS. SEE ROOF PLAN FOR WATERPROOF OUTLETS AT SIDEWALL AREAS. ALL GUTTERS AND DOWNSPOUTS TO BE HEATED. REFER TO PLAN FOR ALL SOLAR AND HEAT TAPE.
- PAINT ALL EXPOSED PIPING EXTENDING THROUGH ROOF TO MATCH ROOF
- PROVIDE VALLEY FLASHING AT ALL VALLEYS AS INDICATED ON PLANS.
- OVERHANG DIMENSIONS ARE TO END OF RAFTER OR TRUSS AS INDICATED ON PLANS.
- PROVIDE KICK-OUT FLASHING AT ALL EAVE/WALL JUNCTURES.
- PROVIDE ILC AS REQUIRED.
- CONTRACTOR TO COORDINATE HEATED GUTTER AND DOWNSPOUT LOCATIONS WITH ARCHITECT.
- DOWNSPOUTS SHALL NOT DISCHARGE ONTO FLATWORK OR DECKS BELOW. CONTRACTOR TO ROUTE DISCHARGE BELOW SURFACE OR PROVIDE CHANNEL DRAIN IN FLATWORK WITH HEAT TAPE.
- REFER TO SPECIFICATIONS. PROVIDE ROOF PRIMER, ROOF MEMBRANE AND ALL ROOFING PER SPECIFICATION REQUIREMENTS. PROVIDE "W.R. GRACE" MANUFACTURER CERTIFICATION LETTER STATING THAT ALL MEMBRANES HAVE BEEN INSTALLED IN COMPLETE COMPLIANCE WITH ALL MANUFACTURER'S REQUIREMENTS.
- UNVENTED ROOFS SHALL HAVE A MINIMUM 60% AIR IMPERMEABLE CLOSED CELL INSULATION AT UNDERSIDE OF DECK.

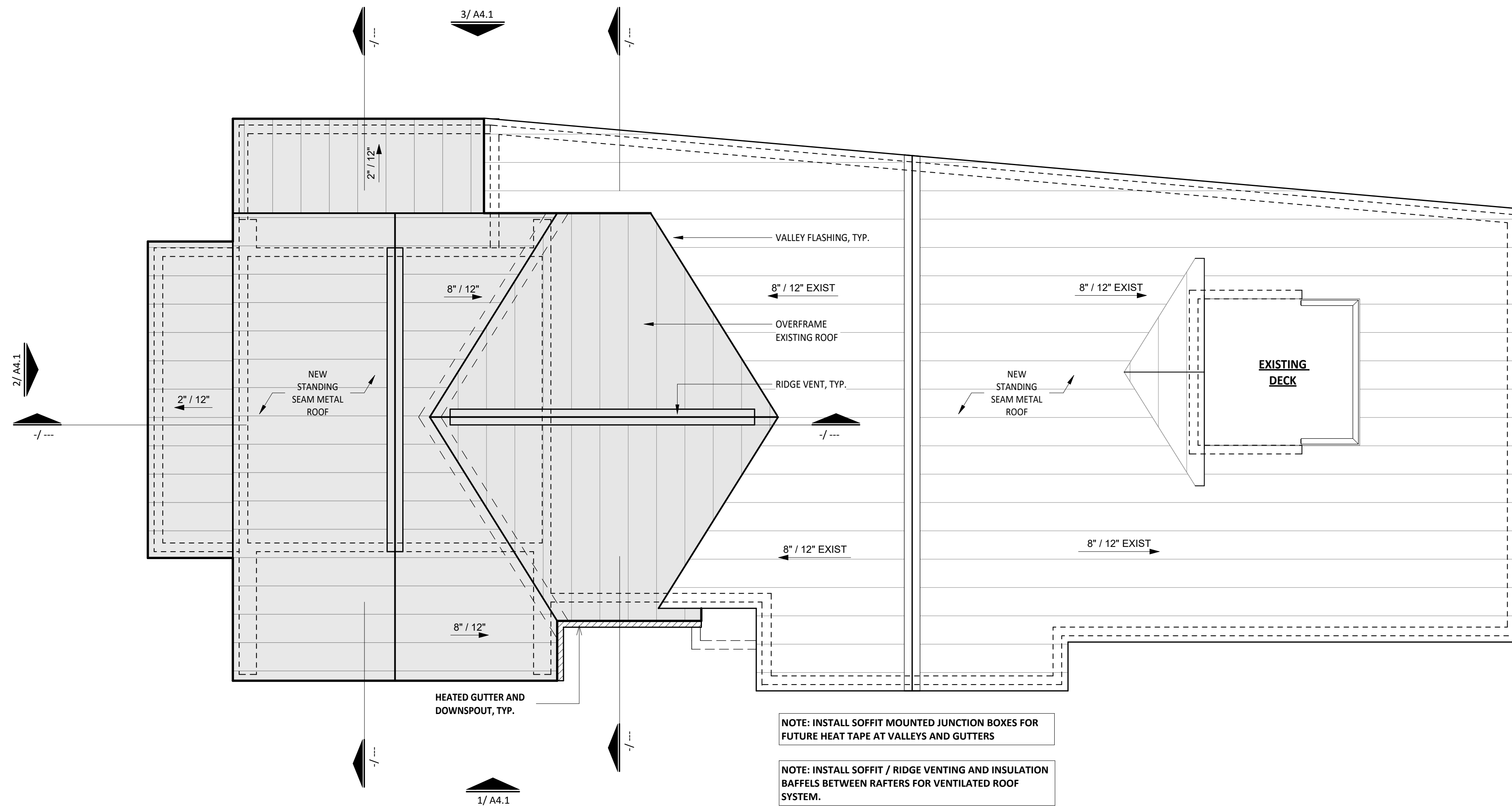
**NOTES: ROOF MAINTENANCE**

THE OWNER HAS BEEN ADVISED THAT ALL ROOF AND DECK SURFACES MUST BE MAINTAINED RELATIVELY FREE OF SNOW & ICE.

**RIDGE HEIGHT CALCULATIONS**

RIDGE	RIDGE HEIGHT (USGS)	PROP. GRADE (USGS)	EXIST. GRADE (USGS)	ROOF HEIGHT
A	XXX	XXX	XXX	XXX
B	---	---	---	---
C	---	---	---	---
D	---	---	---	---

NOTE:



**1** ROOF PLAN  
1/4" = 1'-0"

No. Date Revisions

Project No: 2023-16  
Stage: VARIANCE REQUEST  
Date: 03/11/2024  
Scale: As indicated

DRAWING TITLE:

**ROOF PLAN**

DRAWING NO:

**A3.1**



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**FITZGERALD ADDITION**

34 RUSTIC TERRACE  
BLUE RIVER, CO

**NOTES: AIR BARRIER / VAPOR BARRIER**

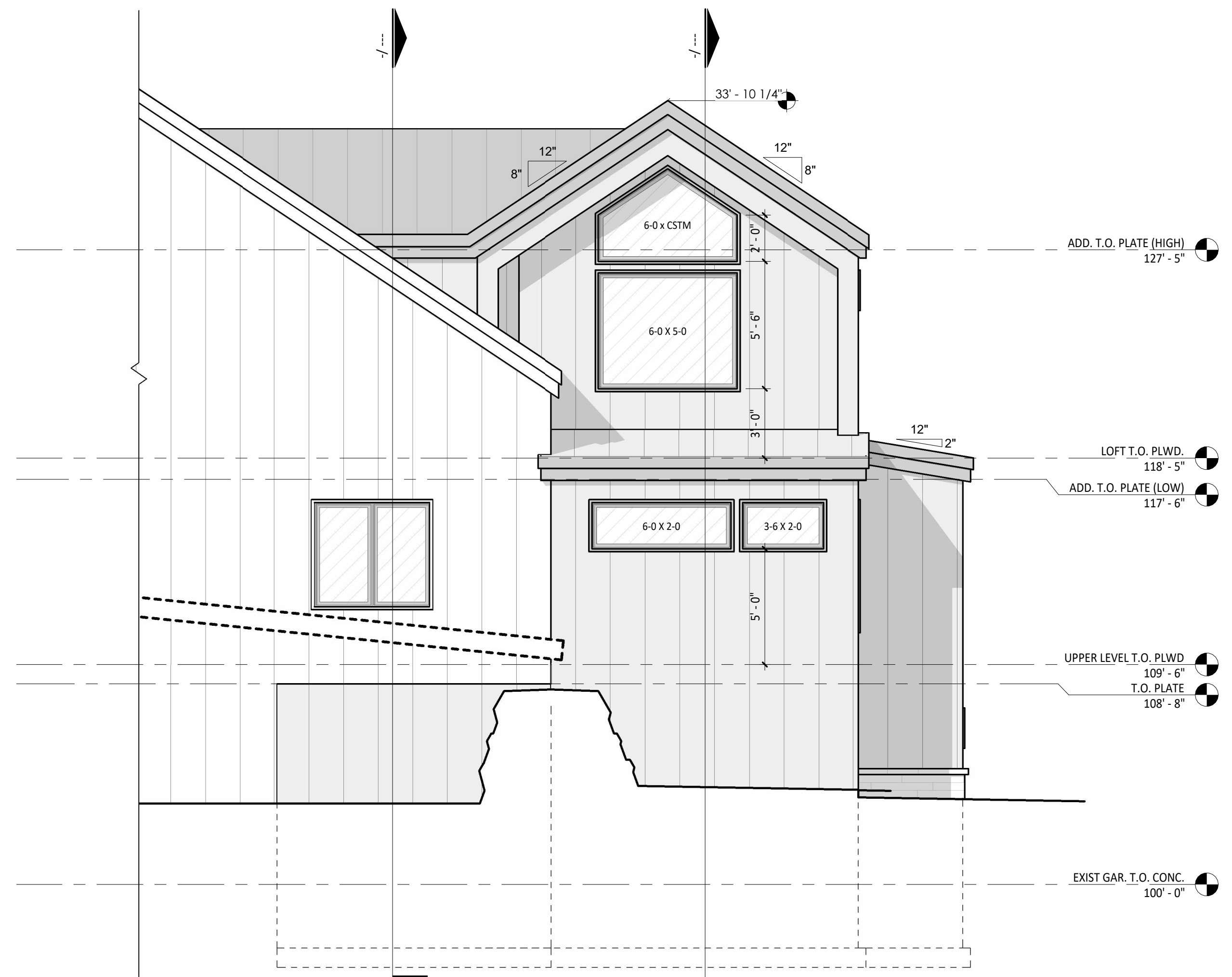
IN COMPLIANCE WITH ENERGY CODE REQUIREMENTS, PROVIDE CONTINUOUS, SOLID AIR BARRIERS OVER ALL INSULATION SURFACES. PROVIDE AIR BARRIERS BEHIND ALL CONCEALED AREAS, SUCH AS TUBS, DROPPED CEILING AREAS, SOFFITS DECORATIVE BEAMS AND STRUCTURAL BEAMS ADJACENT TO THERMAL ENVELOPE WALLS. THESE BARRIERS SHOULD BE COORDINATED AND INSTALLED AT THE TIME OF FRAMING AND MUST BE CONTINUOUS AND UNBROKEN. PROVIDE AIR BARRIERS AND INSULATION AT THE THERMAL ENVELOPE LINE OF ALL CHIMNEYS. AIR BARRIERS CAN BE 6 MIL POLYFILM PLASTIC, DRYWALL OR SOLID SHEATHING. COORDINATE ALL AIR BARRIERS WITH VAPOR BARRIERS AND INSULATION REQUIREMENTS AS OUTLINED IN DIVISION VII. PROVIDE AND SCHEDULE A PRE-MEETING WITH THE ARCHITECT AND FRAMER TO REVIEW THESE REQUIREMENTS PRIOR TO ANY FRAMING WORK.

**NOTES: WEATHER RESISTIVE BARRIER**

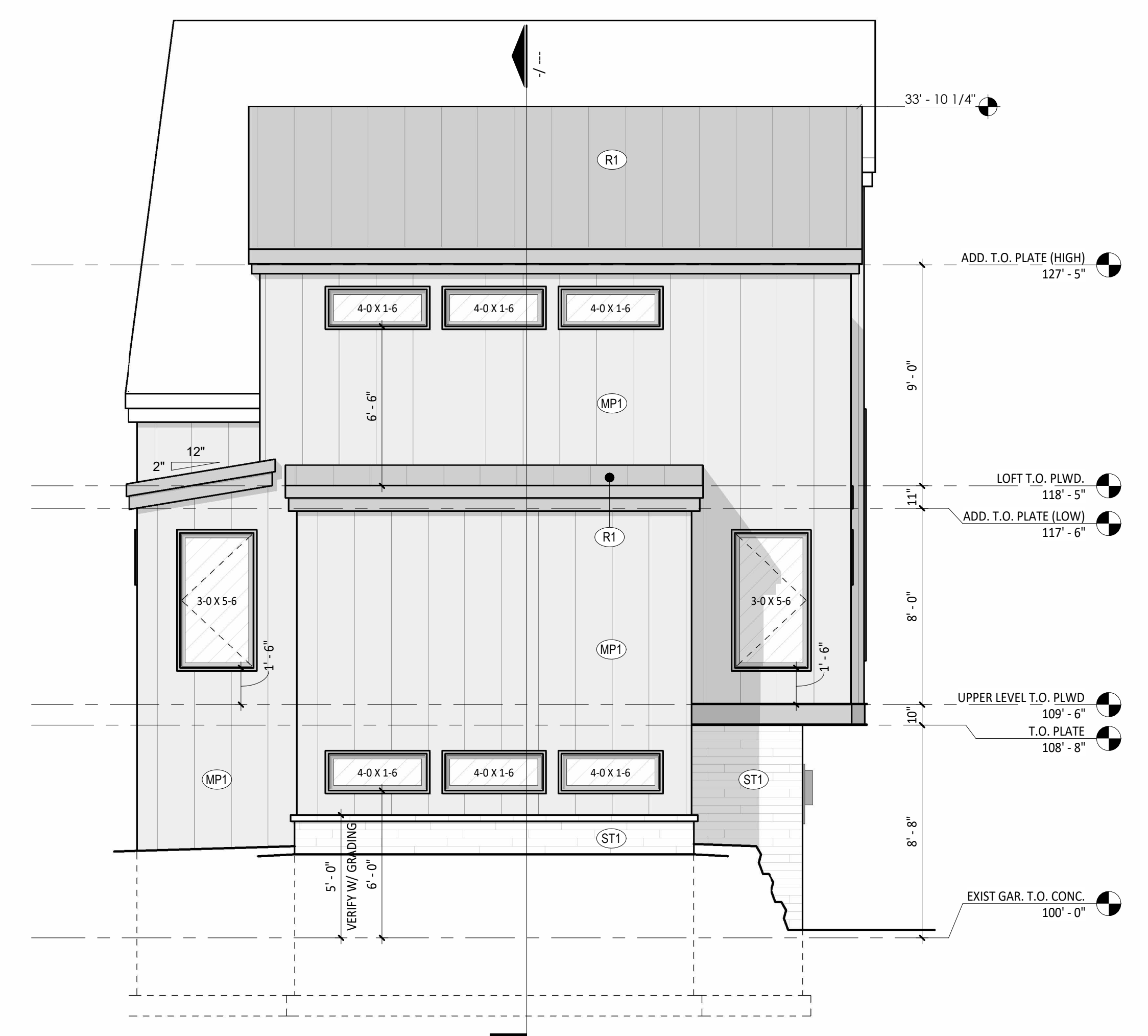
1. INSTALL WEATHER RESISTIVE BARRIER IN STRICT COMPLIANCE WITH MANUFACTURERS RECOMMENDATIONS AND DETAILS. USE ONLY APPROVED PRODUCTS AND FASTENING METHODS.
2. REFERENCE LOCAL AND NATIONAL BUILDING CODES AND REGULATIONS PRIOR TO INSTALLATION. INSTALL PER GOVERNING CODE REQUIREMENTS. NOTIFY ARCHITECT IF ANY CONFLICT ARISES.



**1 WEST ELEVATION**  
1/4" = 1'-0"



**3 EAST ELEVATION**  
1/4" = 1'-0"



**2 NORTH ELEVATION**  
1/4" = 1'-0"

No.	Date	Revisions

Project No: 2023-16  
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 Date: 03/11/2024  
 Scale: As indicated

DRAWING TITLE:  
**EXTERIOR ELEVATIONS**  
 DRAWING NO:

**A4.1**



### VARIANCE APPLICATION

Legal Description: Lot LOT 8 Subdivision BLUE ROCK SPRINGS SUB  
Street Address: 0034 RUSTIC TER (CR 603) - BLUE RIVER, CO

Homeowner Name: TOM AND ALEX FITZGERALD Phone: 408-802-1233  
Mailing Address: PO Box 2710 - Breckenridge CO 80424 Email: ataylor.fitz@gmail.com

**Variance Being Requested:**

We are requesting a variance to the front property setback for a proposed addition to an existing non-conforming home. The site is restricted by wetlands, topography, and existing overhead power lines.

**Zoning Ordinance to which the variance is requested, and specify the nature of the variance requested:**

Sec. 16-5-50. Site and structure requirements

a. Front yard. The front yard requirement shall be twenty-five (25) feet

We are requesting that the front setback as measured from road easement be reduced as shown on attached site plan.

State if the variance requested meets each of the following six (6) conditions. Please explain for each one:

- 1. That the granting of the variance will not authorize a use not permitted by the zoning regulations of the Town:

There is no proposed change to the existing use of this lot with the approval of this variance.

- 2. That the granting of the variance will not constitute a grant of special privilege inconsistent with the limitation on other properties having the same classification in the same zone district:

We believe that any other property with similar existing hardships could apply for similar setback variances.

- 3. That the granting of the variance will not be detrimental to the public health, safety or welfare, materially injurious to properties or improvements in the vicinity, or prevent the proper access of light and air to adjacent properties:

The requested variance presents no detrimental effects to the health, safety, and welfare of the public.

- 4. That the strict, literal interpretation and enforcement of the specified regulation would result in unnecessary hardship inconsistent with the objectives of the Title:

A majority of this site is determined to be unbuildable area due to existing utilities, wetlands, and topography conditions.

A setback of 25' from the existing road easement further limits the buildable area and creates complications for adding on to the existing structure.

5. That the circumstances found to create a hardship were not created by the owner, and are not due to, or the result of, general conditions in the zone district and cannot reasonably be corrected:

The hardship circumstances were created outside of the control of the existing homeowner. Previous zoning allowances, utility providers, and natural lot features have contributed to the hardships on this site.

6. That the variance would not be out of harmony with the intent and purpose of the zoning code:

Approval of this variance does not promote any development that is not in harmony with the intent and purpose of the zoning code.

Efforts have been made to reduce the addition footprint and minimize lot disturbance.

### NO VARIANCE AUTHORIZING A CHANGE IN THE PERMITTED USE OF THE PROPERTY SHALL BE GRANTED.

The following documents are submitted herewith for the Commission's information and review:

1. Completed Application Form / Application Fee
2. Site plan diagram with proposed addition and setbacks / Proposed plans and elevations.
3. Adjacent neighbor mailing list.
4. \_\_\_\_\_

I/We the applicant named herein understand the following:

1. That the main function of the Planning and Zoning Commission is to provide for reasonable interpretations of codes and ordinances with relation to their intent, so that the spirit of the ordinance(s) shall be observed, public safety and welfare secured and justice adhered to.
2. Notice of hearings to be given at the expense of the applicant by publication in a newspaper of general circulation within the Town by posting on the premises and by mailing to all property owners within three hundred (300) feet of the property in question. Notices shall be posted, published and mailed at least ten (10) days before the hearing date and shall contain the time and date of the hearing, the name of the applicant, a general description of the property indicating its location (which may be shown by map), what relief is being sought and the grounds on which the relief is being sought. The owners within three hundred (300) feet of the affected property were notified of the variance request. This letter shall contain all the names and addresses of those notified, and shall be submitted to the Building Department at least ten (10) days prior to the scheduled hearing. The application must be submitted to the Building Department at least twenty (20) days prior to the date of the hearing.
3. I/We (the applicant) shall be notified of the Commission's decision within thirty (30) days after the date of the hearing.
4. That any decision made by the Planning and Zoning Commission is not binding as to covenants, which apply to the property in question. Applicant is responsible for obtaining any necessary approvals from the Homeowner's Associations or Committees, which administer the covenants within the subdivision where the property is located.
5. Within seven (7) days following action by the Planning and Zoning Commission, written findings and decision, in the form of a resolution, shall be transmitted to the applicant and to the Board of Trustees. Such decision of the Planning and Zoning Commission, with respect

to variances, is final and is subject to appeal only through a court competent jurisdiction pursuant to §31-23-307, C. R. S.

Signature:  Date: 3.12.24

Findings of the Planning & Zoning Commission:

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TO: Michelle Eddy, CMC/CPM - Town Manager/Clerk  
 FROM: Kyle Parag, Plan Reviewer - CAA  
 DATE: October 30, 2023  
 RE: Planning/Zoning/Architectural Guidelines review – 0039 Lodestone-Review 2

Below please find staff’s analysis that outlines the review with the Town’s Zoning regulations and adopted Architectural Design Guidelines for the structure proposed.

Staff Recommendation:

**Zoning Regulation analysis –**

Proposal: A new single-family residence with an attached garage. The proposed 2 story, 4 bedroom, 3.5 bath home, includes 2,900 s.f. of living space and an attached 562 s.f., 2 vehicle garage for a combined 3495 square feet.

Zoning district: R-1

Lot Size: ~ 26,390 sq. ft.  
80,000 sq. ft. Required– Existing Non-Conforming

Lot Width: ~ 133  
100 ft. Required - Complies

Setbacks: Proposed residence is located on a difficult lot. The front setback was difficult to determine, but was defined as a circle, that then extends across the front of the lot.. The resubmittal show compliance with direction provided to the applicant.

Height: The building complies with the Town of Blue River height definition and limitation of 35’. The building steps down the slope at the rear.

Garage Stds: The proposed garage is ~562 sq. ft. and complies with the standards for structures less than 5,000 sq. ft. in habitable size.

Parking Stds: Parking requirements will be met through the proposed garage and exterior parking. **The exterior parking is within the setback.** 3 spaces are required total

**Architectural Design Guideline analysis -**

Please note the following key to the interpretation of the analysis table:

Y	Element is in substantial compliance with the design guidelines
N	Does not comply with the design guidelines
PC	Subject to Planning Commission Specific approval
	Requires additional information from applicant
N/A	Not Applicable to the application

STANDARD	NOTES/REMARKS	SUBSTANTIAL COMPLIANCE
<b>DEVELOPMENT STANDARD</b>		
Article 3: Utilites and Easements	A power line is indicated on the property, no powerline easement information could be located that would apply to the area. Guy wires are very close to the home. The access easement is indicated and verified.	Y
Article 4: Buildable Area/setbacks	The front setback shall be measured from nearest of the property line or right of way or road. Loadstone Trl is indicated to extend onto the property. The site plan correctly indicates the setbacks as provided to applicant.	Y
<b>Article 5 Building Design Standards</b>		
Article 5-20 Building Height	Building height is clearly indicated on the drawings. Elevations provide a height of 34'-0" when measured in accordance to the Town Definitions. (b)(1)	Y

Article 5-60 Foundation	Foundation appears to be in general conformance with stone veneer.	Y
Article 5-70 Roofs	Roof appears to be in general conformance with primarily a gable roof design. Additional lower sloped areas are provided.	Y
Article 5-80 Garages	The garage is predominating feature of the home as viewed from public areas. It does not show direct compliance with (a), however site conditions are limiting.	PC
Article 5-90 Window and Doors	Windows and door appear to be in general conformance	Y
Article 5-100 Balconies and railings	Railings consist of horizontal metal system and appears in general conformance.	Y
Article 5-110 Chimney and Roof Penetrations	Chimneys are indicated to be constructed of metal and extend above roof line.	Y
<b>Article 6 Building Materials and Colors</b>		
Article 6-10 Materials	Materials are indicated and appear to be in general conformance.	Y
Article 6-10 Colors	Colors consist of wood, to grey stone and black colors. Colors appear to be in general conformance.	Y
<b>Article 7 Accessory Improvements</b>		
Article 7-50 Driveways	Driveway is indicated 6% slope down towards the home. <b>Width is indicated at 22'</b> exceeding the maximum of 12'. Snow storage is indicated beyond the extents of the driveway. Site limitations exist.	PC
Article 7-60 Parking Areas	2 parking spaces are indicated on interior of garage. The third required space is not directly indicated but assumed exterior. The space exterior garage is within the setback in violation of (d)(3). The required 9x18 parking space <b>is located in the setback.</b>	PC



Article 7-100 Decks	Deck appears in general conformance	Y
Article 7-120 Hot Tubs	A hot tub is indicated at the rear of the home on the lower level.	Y
Article 7-140 Fences	No fencing is indicated.	Y
Article 7-150 Retaining walls	Retaining walls integral to the foundation system is proposed near the main entrance to the home. Retaining wall design appears to be in general conformance. Additional stone landscape walls are proposed around the septic system.	Y
<b>Article 8 Signs</b>		
Article 8 Signs	No signs are indicated	Y
<b>Article 9 Lighting</b>		
Article 9 Lighting	Exterior lighting is indicated as downcast, and show general conformance	Y
<b>Article 13 Environmental Regulations</b>		
Article 13-20 Wetlands	No wetlands are indicated	Y



# Building Permit Application

Email to: [info@townofblueriver.org](mailto:info@townofblueriver.org)

Questions? Call (970) 547-0545 ext. 1

Lot Number: 532 Subdivision: THE CROWN  
Blue River Physical Address: 0039 LODESTONE TRAIL TOWN OF BLUE RIVER, CO. 80424

### Homeowner Information:

Name: \_\_\_\_\_  
Mailing Address: 3347 CEMETERY ROAD TRENTON, KY. 42286  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

### Contractor Information

Company Name: MIRIAM AND LEE HOLOMBO  
Contact Name: LEE HOLOMBO (HOWEOWNER)  
Mailing Address: 3347 CEMETERY ROAD TRENTON, KY. 42286  
Phone: 931.220.7787  
Email: holombocon@aol.com  
Contractor Registration #: N/A

*\*\*Please note a Town of Blue River Business License is required for all businesses to conduct business in the Town of Blue River including contractors, sub-contractors and architects. \*\**

### Description of Project:

TO BUILD A 3,500 SQ. FT SINGLE FAMILY HOME  
\_\_\_\_\_  
\_\_\_\_\_

Distance to Property Line	Type of Heat: <u>RADIANT</u>	Construction Type: <u>V-N</u>
North: <u>52'</u>	Roof: <u>COMPOSITION</u>	Building Height: <u>35'-0"</u>
South: <u>15'</u>	Exterior Walls: <u>2X6</u>	No. Stories: <u>2</u>
East: <u>15'</u>	Interior Walls: <u>2X4, 2X6</u>	Total # Bedrooms: <u>4</u>
West: <u>90'</u>	Basement Fin. Sq.Ft.: <u>1445</u>	Total # Bathrooms: <u>3.5</u>
New Addition/Res. Sq.Ft.:	Main Level Sq.Ft.: <u>1488</u>	Septic or Sewer:
Garage Sq.Ft.: <u>562</u>	2 <sup>nd</sup> Level Sq.Ft.:	<u>SEWER</u>
Total Square footage: <u>3495</u>	3 <sup>rd</sup> Level Sq.Ft.:	

SEPARATE PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING, HEATING, VENTILATION WORK, & FIREPLACES. THIS PERMIT BECOMES NULL AND VOID IF CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN \_\_\_\_ OR IF CONSTRUCTION IS SUSPENDED OR ABANDONED FOR A PERIOR OF \_\_\_\_ AT ANY TIME AFTER WORK IS COMMENCED.

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINDED THIS APPLICATION AND KNOW THE SAME TO BE TRUE AND CORRECT. I AGREE TO COMPLY WITH ALL TOWN ORDINANCES AND STATE LAWS REGARDING BUILDING CONSTRUCTION AND TO BUILD ACCORDING TO THE APPROVED PLANS. THE GRANT OF A PERMIT DOES NOT PRESUMED TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF ANY OTHER STATE OR LOCAL LAW REGULATING CONSTRUCTION OR THE PERFORMANCE OF CONSTRUCTION.

Signature of Owner or Contractor: LEE HOLOMBO Date: 10.26.23

# Submittal Requirements

**\*\*ALL Submittals Must be Electronic\*\***

**Emailed to: [info@townofblueriver.org](mailto:info@townofblueriver.org)**

## Planning & Zoning Review Submittal Requirements

**\*\*Please indicate via check box item included as well as page number in submitted packet.**

Completed <input checked="" type="checkbox"/>	Item	Description	Page #
X	<b>Site Plan</b>	Scale: 1" = 10'; May appear on a single sight plan. IF on a separate page, please indicate the page.	SP-1.1
X		Property Boundaries	SP-1.1
X		Building Envelope with setbacks	SP-1.1
X		Proposed Buildings	SP-1.1
X		Structures (existing & proposed)	SP-1.1
X		Driveway & Grades	SP-1.1
NA		A wetlands delineation & Stream crossing structures where applicable.	NA
X		Topographic survey, prepared and stamped by a licensed surveyor, indicating site contours at 2' intervals, easements, and significant natural features such as rock outcroppings, drainages and mature tree stands.	SEE PDF
X		Transformer & vault location (if installed by owner or existing)	SP-1.1
X		Well location; septic if applicable	SP-1.1
X		Snow storage areas and calculations	SP-1.1
X		Major site improvements	SP-1.1
X		Existing & proposed grading & drainage	SP-1.1
	<b>Landscaping Plan</b>	<b>*May be included in the site plan**</b>	
X		Landscaping must indicate tree removal for defensible space requirement; any trees 6" or more primarily noting the removal of any ponderosa pines or large trees. Clear cutting of a site is not allowed.	SP-1.1
X		Indicate the percentage of trees removed and revegetation to be conducted.	SP-1.1
X		Upon completion of the construction project, all land must be raked and	SP-1.1

		reseeded with native seed prior to issuance of CO. in cases of completion during snow coverage and/or winter, CO may be issued with conditions for completions within 60 days of the last snow and a deposit.	SP-1.1
		Any major structures (retaining walls; fences; landscaping rocks) must be indicated in detail on plans in conformance with the design regulations.	SP-1.1
		Indicating building walls, floors and roof relative to the site, including existing and proposed grades, retaining wall and proposed site improvements.	SP-1.1
	<b>Floor Plans</b>	<i>Scale 1/8" = 1'</i>	
		Indicate the general layout of all rooms, approximate size, and total square footage of enclosed space for each floor level.	A-1.1 A-1.2 A-1.3
	<b>Exterior Elevations</b>	<i>Scale same as floor plans</i>	
		Detail to indicate the architectural character of the residence, fenestration and existing and proposed grades. Elevations must include a description of exterior materials and colors.	A-2.1 A-2.2 A-2.3
	<b>Roof Plan</b>	<i>Scale same as floor plans</i>	
		Indicate the proposed roof pitch, overhang lengths, flue locations, roofing materials and elevations of major ridge lines and all eave lines.	A-1.4
	<b>Materials Sheet</b>	Display materials to be used. Color renderings are suggested as well. In cases of additions, if matching the existing structure, photos of current home.	A-2.1 SEE PDF

After Approval and BEFORE Permit is Issued:

**ELECTRONIC COPY Stamped set.**

- All of the above mentioned plus items below in one plan set.

Completed <input checked="" type="checkbox"/>	Item	Page #
	Soils report if applicable	OPEN HOLE
X	Electrical, plumbing and mechanical plans.	SEE PLANS
X	Construction Management Plan. Please refer to the Town Code and Architectural Guidelines for all requirements.	CMP-1.1
X	Stamped structural plan	SEE PLANS
X	Current Summit County Septic System Permit (including system plot plan), or evidence of full payment of tap fees to Upper Blue Sanitary District.	SEE PDF
X	Current Colorado Well Permit or evidence of full payment of tap fees to Timber Creek Water District	SEE PDF
	Colorado Department of Transportation Hwy Access Permit	N/A
	Designation of General Contractor, except for bona fide homeowner contractor	N/A
	For Manufactured Homes the following additional information is required	N/A
	<ul style="list-style-type: none"> <li>• State of Colorado Division of Housing Approved Plans</li> </ul>	N/A
	<ul style="list-style-type: none"> <li>• State of Colorado Division of Housing Registered Installer Certificate</li> </ul>	N/A

# Blue River Plan Submittal Requirements for Residential Plan Review

- ❖ When designing the structure, refer to the Blue River Municipal Town Code, Chapter 16 for zoning information and allowable uses/construction. The Building Code information is available under Chapter 18. <https://townofblueriver.colorado.gov>.
- ❖ Building Codes Adopted:
  - International Residential Code 2018
  - The Electrical Code is the current code adopted by the State of Colorado: 2020

**Note: Applicable codes are required to be notated on plans.**

- ❖ Snow loads:
  - Roofs shall be designed in accordance with accepted engineering practice based upon a ground snow load of 100 psf.
  - Balconies/decks-125 psf.
  - No reductions for duration.
- ❖ Frost line depth:
  - Foundation footing minimum depth below grade-40 inches.
  - Uncovered deck piers may be set at 24 inches.
- ❖ Roof underlayment 100% Ice & Water shield.
- ❖ Roof may be metal; 30-year minimum architectural grade, composition fiberglass (dark brown, dark gray, dark green, weathered wood or black only); or class-A #1 cedar shakes.
- ❖ Wind speed: 90 mph, exposure “B”. Seismic design category: “B”.
- ❖ Propane gas alarm/shutoff system required.
- ❖ Wood burning stoves: Required to meet Colorado Dept. of Health, Regulation No. 4.
- ❖ The building height limit in the Town is 35 feet. Refer to the Architectural Guidelines for additional information.
- ❖ Locally re-settable GFCI breakers are required in bathrooms.
- ❖ Compliance with the International Energy Conservation Code is required.
- ❖ Any application that would create an accessory apartment must meet zoning regulations and will not be processed without prior approval of the Town Board of Trustees.
- ❖ Note that Hwy 9 access permits may require 3-4 months and well permits 5-6 weeks.
- ❖ Planning & Zoning Commission approvals become void if the building permit is not issued within eighteen (18) months.
- ❖ Building permits become void if construction is discontinued for more than 180 days.

In order for your permit application to be reviewed and processed properly, the following construction information must be provided. **Note:** "Preliminary" and/or plans shown as "Not for Construction" or similar are unacceptable. ***Hardcopy submittals will not be accepted.***

***Note: Items below are not all inclusive of the requirements. Please review the Building Application Packet, design guidelines, building and land use codes for complete information.***

**Soils Report**

Must be sealed and signed by a licensed Colorado Engineer.

- Provide an engineer's soil investigation report indicating type of soil and recommended foundation design. include any required shoring.

**Improvement Survey Plat**

- Provide an Improvement Survey Plat (ISP) following Colorado Revised Statutes for new principal structures, substantial expansions (25% or more) to principal structures and new accessory dwelling units (ADU's).
- Provide a permanent reference to spot elevation (benchmark) that will not be disturbed during construction.
- Provide existing spot elevations at property corners and at midpoints of the side property lines.
- Must be stamped and signed by a Professional Land Surveyor (PLS) licensed by the state of Colorado.

**Site Plan**

- Provide site plan that shows dimensions reflecting the distances to property lines
- Indicate all public or private easements
- Show location of all proposed and existing structures with dimensions
- Prove type of construction for all structures on site
- Provide landscaping plan.
- Show permanent reference spot elevation (benchmark), existing spot elevations at property corners and at midpoints of the side property lines.
- Indicate roof drainage on site plan with arrows showing the direction of the gutter downspouts. Roof drainage shall flow towards the road and away from all structures.

**Structural Plans**

Plans must be sealed and signed by a Colorado Structural Engineer or Architect

- Indicate size, location and method of reinforcement for all proposed footings, column pads, piers, caissons, grad beams, foundation walls, decks, guardrails, guardrail posts. Specify location of reinforcing steel and anchor bolts.

- Provide complete and clearly dimensioned floor framing plan for each level and roof framing plan which indicates the materials, types, sizes and location of all structural elements.
- Provide complete structural design criteria including but not limited to required design loads, material specifications and structural construction requirements.
- Provide complete structural calculations for each structure.

**Architectural Plans**

- Provide complete and dimensioned floor layout at each level which identifies the use of each room.
- Provide Complete and dimensioned roof plan and indicate all roof slopes.
- Provide complete and dimensioned reflected ceiling plan.
- Provide exterior elevations for each side of the building which contains an overall building height and floor-to-floor heights and indicate location, size and types of all doors and glazed openings including hazardous glazing and fall protection locations.
- Provide a bulk plane diagram on front and rear exterior elevations relative to the base plane elevation. The base plan for the bulk plane is establishing by taking the average of the existing grades of the midpoints of the two side property lines.
- Provide building and wall sections which clearly identify the required type and location of all materials for construction of beams, columns, floors, walls, ceilings, roofs.
- Provide stair geometry. Include rise and run, handrail and guardrail heights.
- Provide one major section through the exterior wall from footings to the highest part of the roof (min. scale 1/4"=1')
- Provide square foot area breakdown per floor level.

**Electrical Plans**

Provide electrical plans showing the location and capacity of the service equipment and electrical panels, the location of all smoke detectors, carbons monoxide detectors, electrical receptacles, switches, and lighting fixtures.

**Mechanical Plans**

- Provide mechanical plans and indicate the location of all heating, ventilating and air conditioning equipment. Show the location of the condensing unit. Detail the equipment access and working clearances.
- Show dryer exhaust termination location and clearances, environmental exhaust termination locations and clearances.
- Provide Manual J and Manual D calculations. Must be legible. No exceptions.
- Provide all fireplace specifications, rated separation details, direct vent termination details when applicable, hearth extensions when required, chimney clearances, shutoff and control access.



### **Plumbing Plans**

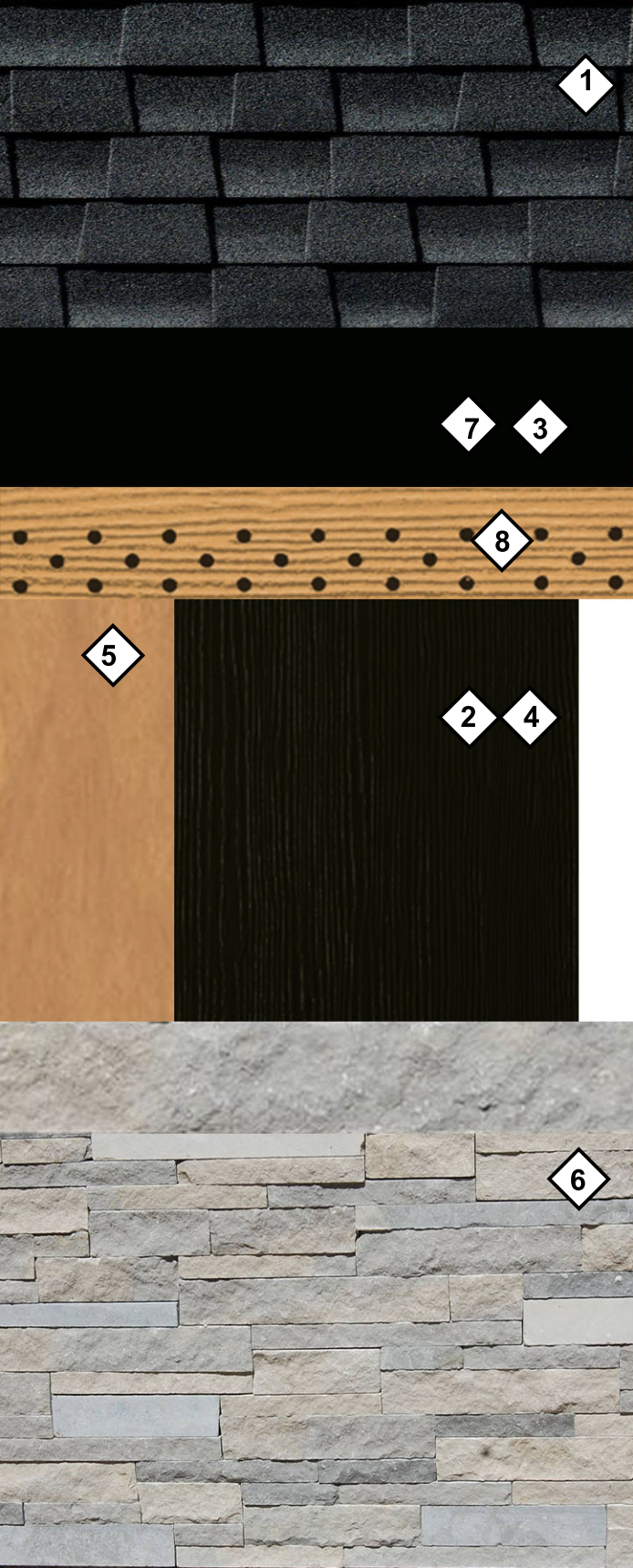
- Provide plumbing plans and indicate the location of all plumbing fixtures and appliances (Isometric may be required per the discretion of the plans examiner.)
- Provide the supply line size and main discharge size. Note the water supply inlet location.
- Indicate whether appliances are gas-operated, electric, or otherwise. List types of material to be used for all water supply, drainage and vent piping. Provide fixture max flow rates and insulation values.
- Gas load calculations and piping diagram is required.

### **Energy Conservation Plans**

Provide verification that the project meets the requirements of the IECC, or provide a simulated energy performance analysis such as RES-check. Provide all required information per 2012 IECC R103.2.

### **Resubmittal Requirements**

- Provide a written response addressing each correction.
- Provide revision clouds for each correction made.
- Provide updated information in the revision section of the title block.
- Provide complete plan packs per discipline requiring corrections. Example: If you are resubmitting for Civil corrections, provide a complete revised plan pack.



**1. COMPOSITION  
SHINGLE ROOFING**

MFGR: CER  
LANDMARK  
COLOR: MAX DEF MOIRE  
BLACK

Section IV, ItemC.

**2. FASCIA and TRIM**

MFGR: JAMES HARDIE  
PROFILE: 5/4 X  
COLOR: MIDNIGHT SOOT

**3. WINDOW CLAD**

MFGR: SIERRA PACIFIC  
COLOR: BLACK

**4. VERTICAL BOARD  
and BATTEN**

MFGR: JAMES HARDIE  
COLOR: MIDNIGHT SOOT

**5. BEAMS and  
COLUMNS**

MFGR: SHERWIN WILLIAMS  
COLOR: CROSSROADS

**6. STONE VENEER**

MFGR: GALLEGOS STONE CO  
COLOR: #366  
COURTLAND LOW RISE

**7. METALS**

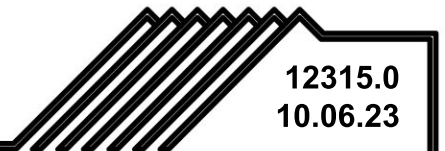
COLOR: MATTE BLACK

**8. SOFFITS**

MFGR: JAMES HARDIE  
COLOR: CYPRUS YELLOW

**bhh** Partners

P.O. BOX 931, 160 EAST ADAMS BRECKENRIDGE, CO 80424 (970) 453-6880  
P.O. BOX 2113, 560 ADAMS AVENUE SILVERTHORNE, CO 80498 (970) 513-1000



12315.0  
10.06.23

**HOLOMBO RESIDENCE**

0039 LODESTONE TRAIL, BLUE RIVER, COLORADO 80424



# AN ADVANCED TREATMENT ADVANTEX AX-25RT-(MODE 3B) PRESSURIZED GRAVEL ON-SITE WASTEWATER TREATMENT SYSTEM

## 39 LODESTONE TRAIL, BLUE RIVER, CO 80424

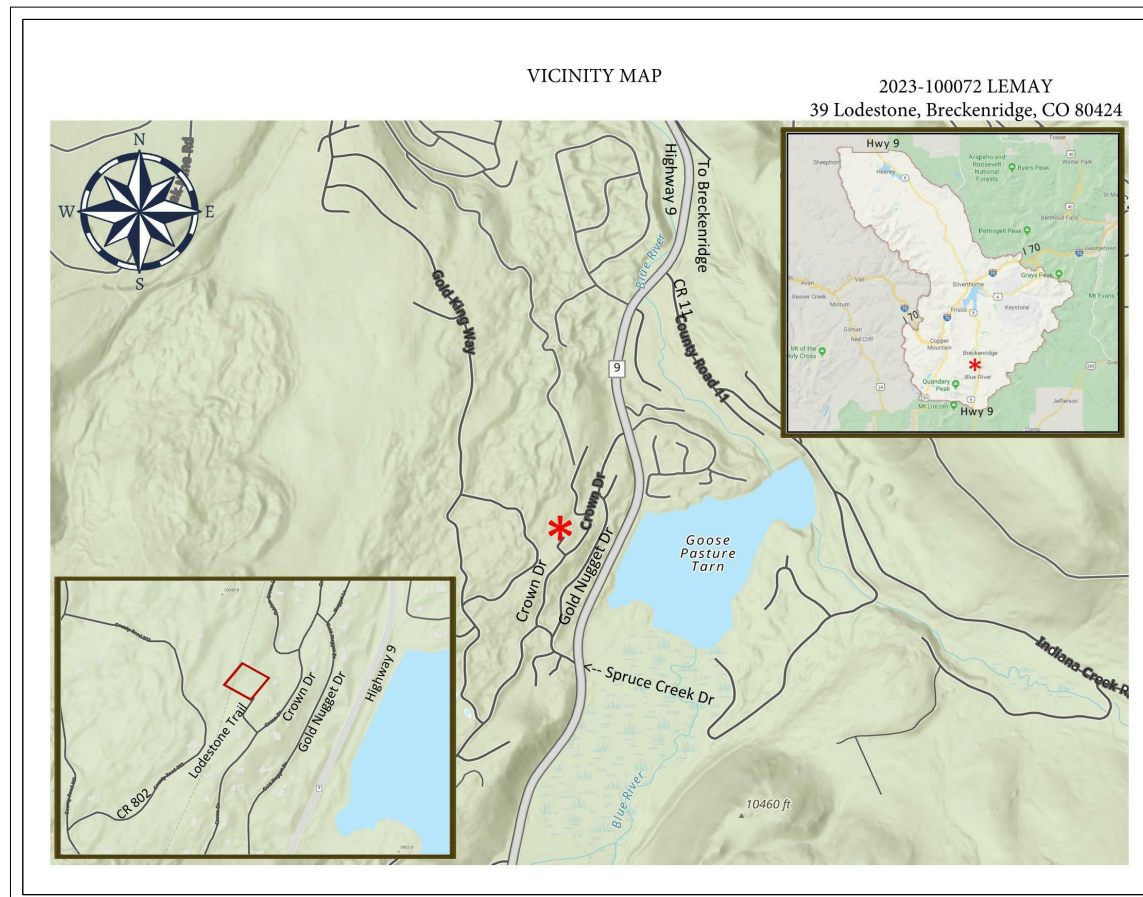
A PERMIT IS REQUIRED FROM SUMMIT COUNTY TO INSTALL THIS 4 BEDROOM OWTS SYSTEM

### INSPECTION REQUIREMENTS:

1. THE COUNTY WILL CONDUCT INSPECTIONS AS REQUIRED BY THEIR PERMIT.
2. IT IS HIGHLY RECOMMENDED THAT THE CLIENT CONTACT THE ENGINEER AND SCHEDULE A PRE-CONSTRUCTION MEETING TO DISCUSS THE PROPOSED LAYOUTS AND DESIGN.
3. THE ENGINEER SHALL BE CONTACTED TO PERFORM THREE INSPECTIONS OF THE SEPTIC SYSTEM:
  1. AN OPEN HOLE OF THE SEPTIC TANK AND STA.
  2. A PRE-COVER INSPECTION (PRIOR TO BACKFILL).
  3. A FINAL GRADE INSPECTION AFTER BACKFILL. ANY EQUIPMENT SHOULD BE OPERATIONAL AND ACCESSIBLE DURING THIS INSPECTION. IF A POTABLE WELL IS PLANNED, IT SHOULD BE DRILLED BY THE TIME OF THIS INSPECTION.
4. SOILS COMPACTION SHALL BE TESTED AS REQUIRED (REFER TO SHEET D0 FOR COMPACTION NOTES).
5. IF RETAINING WALLS ARE TO BE INSTALLED WITHIN 25 FEET OF THE STA, THESE SHALL BE INSPECTED AT THE BEGINNING OF THE INSTALLATION, DURING THE INSTALLATION, AND AFTER COMPLETION.

### SOME ABBREVIATIONS USED:

AM: AS MEASURED WITH HAND TAPE  
 BOC: BOTTOM OF CHAMBER  
 BOG: BOTTOM OF GRAVEL  
 BOS: BOTTOM OF SAND  
 BR: BEDROOM  
 CH: INFILTRATOR CHAMBER  
 EXT: EXISTING  
 OWTS: ON-SITE WASTEWATER TREATMENT SYSTEM  
 RV: RECREATIONAL VEHICLE OR CAMPER  
 SFR: SINGLE-FAMILY RESIDENCE  
 STA: SOIL TREATMENT AREA (AKA LEACH FIELD OR ABSORPTION BED)  
 TBD: TO BE DETERMINED  
 TOCH: TOP OF CHAMBER  
 TOG: TOP OF GRAVEL  
 TOR: TOP OF RISER  
 TOS: TOP OF SAND  
 TOT: TOP OF TANK



VICINITY MAP

PROPERTY INFORMATION  
 CROWN SUBDIVISION, LOT 532  
 39 LODESTONE TRAIL  
 BLUE RIVER, CO 80424

DRAWINGS PREPARED FOR:  
 HELEN LEMAY  
 P.O. BOX 7571  
 BRECKENRIDGE, CO 80424

THE SEPTIC TANK AND ON-SITE WASTEWATER TREATMENT SYSTEM SHALL BE COMPRISED OF THE MATERIALS AND EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE COUNTY HEALTH DEPARTMENT AND THE STATE OF COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT. OPERATING PERMITS ARE REQUIRED FOR CERTAIN TYPES OF SYSTEMS. REFER TO THE COUNTY REGULATIONS FOR MORE INFORMATION.



DIG SAFELY - CALL 811  
 GAS/ELECTRIC/TELEPHONE/CABLE  
 WWW.UNCC2.ORG



SHEET INDEX	
SHEET#	SHEET DESCRIPTION
COVER	OWTS COVER SHEET
D0	GENERAL CONSTRUCTION & SITE NOTES
D1	DESIGN & INSTALLATION NOTES
D2	OVERALL SITE PLAN FOR OWTS
D2.1	SITE PLAN DETAIL FOR OWTS
D3	STA DETAILS & NOTES
D4	SEPTIC TANK DETAILS & SPECIFICATIONS
D4.1	ORENCO ADVANTEX AX-RT MFG. DRAWING 1 OF 2
D4.2	ORENCO ADVANTEX AX-RT MFG. DRAWING 2 OF 2
D5	OWTS DETAIL DRAWINGS
D6	OWTS OWNER'S MAINTENANCE REQUIREMENTS
D7	SOILS TESTING & PUMP CALCULATIONS

### CONTRACTOR INSTALLATION REFERENCE TABLE:

#### SEPTIC TANK:

VALLEY PRECAST 1500 GALLON TOP SEAM 2 COMPARTMENT CONCRETE TANK WITH EFFLUENT FILTER  
 - ITEM #1500T-2CP-F  
 -ADVANTEX AX-25RT (MODE 3B) ADVANCED TREATMENT UNIT

#### SOIL TREATMENT AREA:

SIZE: 12'X36' GRAVEL BED OVER 18'X42' SAND BASIN AREA

DEPTH: 60" MAX. ALONG THE HIGH SIDE OF SAND BASIN. KEY IN SAND 12" MIN. ALONG THE LOW SIDE.

MATERIALS: 24" CLEAN SECONDARY-TYPE SAND, 1" OR 1.5"Ø GRAVEL. 8" GRAVEL BELOW PIPE AND 2" GRAVEL ABOVE PIPE.

LATERALS: 3, 1.5"Ø SCH 40 PVC, USE ORIFICE SHIELDS BY SIM/TECH (STF-106D) OR ORENCO (OS150).

ORIFICES: 7/32"Ø @ 24" O.C. AT 6:00 WITH ORIFICE SHIELDS. 17 ORIFICES PER LATERAL, 51 TOTAL.

#### SUBMITTALS REQUIRED:

- SAND
- GRAVEL
- TANK AND ASSOCIATED EQUIPMENT (INCLUDING AIR-RELIEF AND BALL VALVES)
- PIPE AND ASSOCIATED CEMENT/PRIMER

CONTRACTOR SHALL OBTAIN COUNTY APPROVAL BEFORE ORDERING MATERIALS AND PRIOR TO ANY CONSTRUCTION.

THESE CONSTRUCTION PLANS SHALL BE CONSIDERED VALID FOR THREE (3) YEARS FROM THE DATE ON THE ENGINEERING STAMP, AFTER WHICH TIME THESE PLANS SHALL BE VOID AND WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY LITTLEHORN ENGINEERING.

Section IV, Item C.

ANY REPRODUCTION OR COPYING OF THE INFORMATION CONTAINED IN THESE PLANS IS CONSIDERED AN INFRINGEMENT ON COPYRIGHT LAWS.

OWTS COVER SHEET  
 CROWN SUBDIVISION, LOT 532  
 39 LODESTONE TRAIL  
 BLUE RIVER, CO 80424

**LITTLEHORN ENGINEERING, LLC**  
 351 US HWY 285, #201  
 FAIRPLAY, CO 80440  
 FAIRPLAY OFFICE 719.836.7120  
 SILVER CLIFF OFFICE 719.783.3757  
 "PEACE OF MIND THROUGH HOLISTIC DESIGN"



PROJECT NO.  
 2023-100072

CLIENT  
 HELEN LEMAY

DATE  
 07.31.2023

REVISION:  
 △ N/A  
 △ N/A  
 △ N/A

COVER 35

**CONSTRUCTION NOTES- CONSTRUCTION NOTES SHALL GOVERN ALL SEPTIC (OWTS) DRAWINGS**

**GENERAL**

1. THE SITE IS NOT SERVED BY A PUBLIC WASTEWATER SYSTEM SO THE PROPOSED RESIDENCE WILL HAVE TO BE SERVED BY A PRIVATE, ON-SITE WASTE DISPOSAL TREATMENT SYSTEM (OWTS). AS REQUESTED, WE HAVE PREPARED THESE DESIGN DRAWINGS TO PRESENT THE METHODOLOGY AND ENGINEERING FOR THE NEW DISPOSAL SYSTEM.
2. CONTRACTOR SHALL PROVIDE MATERIALS AND WORKMANSHIP AS MAY BE REQUIRED TO COMPLETE THE NECESSARY WORK IN ACCORDANCE WITH THE DESIGN DRAWINGS AND ANY MUNICIPALITY REQUIREMENTS. THE DESIGN DRAWINGS AND SPECIFICATIONS HEREIN REFER TO THE ONSITE WASTEWATER TREATMENT SYSTEM (OWTS). THIS INCLUDES WASTEWATER PIPING LOCATED OUTSIDE THE RESIDENCE. PIPING WITHIN THE RESIDENCE IS REGULATED BY OTHER APPLICABLE BUILDING & PLUMBING REGULATIONS.
3. THE OWNER AND BUILDER SHALL BE RESPONSIBLE FOR AND VERIFY, PRIOR TO CONSTRUCTION COMMENCEMENT: 1) PERMIT ISSUANCE, 2) SITE CONDITIONS, 3) ALL SITE SETBACKS, 4) BUILDING LOCATIONS, 5) COMPONENT DIMENSIONS, 6) MATERIALS, 7) QUANTITIES, AND 8) ELEVATIONS AND GRADE FINISHES. ALL WORK SHALL COMPLY WITH APPLICABLE GOVERNING CODES, HEALTH DEPARTMENT ORDINANCES, LAWS, AND MANUFACTURER'S SPECIFICATIONS.
4. IT IS THE OWNER'S AND CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE DISPOSAL SYSTEM IS: 1) DESIGNED FOR THE CORRECT NUMBER OF BEDROOMS AND APPLIANCES, 2) WILL MEET ALL SETBACK REQUIREMENTS, AND 3) IS INSTALLED PER THIS ENGINEERED DESIGN, COUNTY GUIDELINES, NATIONAL ELECTRIC CODE, AND COLORADO STATE GUIDELINES.
5. IF NOT ALREADY COMPLETED, A REGISTERED SURVEYOR SHOULD CONDUCT A BOUNDARY SURVEY TO ENSURE THAT THE PROPERTY PINS ARE IN THEIR CORRECT LOCATIONS AND HAVE NOT BEEN MOVED.
6. THESE PLANS ARE NOT AN INSTALLATION MANUAL. INSTALLATION MANUALS AND CODES ARE LISTED ON THIS SHEET. THE CONTRACTOR SHALL NOTIFY ENGINEER OF DETAILS NOT SHOWN ON PLANS THAT ARE NECESSARY FOR THE WORK TO PROCEED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL METHODS OF CONSTRUCTION AND CONSTRUCTION SEQUENCING, INCLUDING TEMPORARY BRACING OR SHORING REQUIRED TO PROTECT WORKERS, THE EXCAVATED TRENCHES, AND ANY EXCAVATED HOLES, AS MAY BE REQUIRED. SITE VISITS BY THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE. JOB-SITE SAFETY IS BEYOND THE SCOPE OF THESE DRAWINGS AND THE ABILITY OF THE ENGINEER TO MANAGE. THE OWNER AND CONTRACTOR BEAR ALL RESPONSIBILITY FOR THEIR OWN SAFETY AND THE SAFETY OF EMPLOYEES, WORKERS, AND ALL PASSERSBY'S.
8. LOCATE ALL BURIED UTILITIES PRIOR TO ANY CONSTRUCTION.
9. ALL MATERIALS SHALL BE PROTECTED WITH SUITABLE TEMPORARY WEATHER FACILITIES AS MAY BE REQUIRED TO PROTECT MATERIALS FROM DAMAGE DURING CONSTRUCTION. WEATHER PROTECTION AND SNOW REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND OWNER.
10. DO NOT SCALE DRAWINGS. VERIFY LINES & DIMENSIONS ON DRAWINGS PRIOR TO ANY WORK. CALL ENGINEER FOR ANY DIMENSIONING QUESTIONS.
11. SURFACING OF PARKING AND DRIVE AREAS: IF THE AREA ABOVE THE TANK OR SEWER LINE IS TO BE PAVED WITH CONCRETE OR ASPHALT OR SIMILAR MATERIALS, THE ENGINEER SHALL BE NOTIFIED FOR SOILS TESTING OF THE BACKFILL PLACED WITHIN ANY EXCAVATED TRENCHES AND HOLES. IF SOILS TESTING IS NOT PERFORMED, THE SOIL MAY SETTLE AND CRACK THE ASPHALT OR CONCRETE PAVING. WHERE THE ACCESS ROAD IS PAVED, DRIVES ARE USUALLY PAVED (THIS MAY BE REQUIRED BY THE MUNICIPALITY).
12. RE-VEGETATION, LANDSCAPING WORK, AND EROSION CONTROL SYSTEMS ARE OUTSIDE THE SCOPE OF THESE PLANS. THIS WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE LAND USE AND DEVELOPMENT CODE.
13. IF A RETAINING WALL OR SUBSURFACE DRAIN IS TO BE LOCATED BELOW AND WITHIN 25 FEET OF THE STA, IT SHALL BE DESIGNED BY AN ENGINEER REGARDLESS OF THE HEIGHT.
14. SNOW STACK SPACE: THE STA, SEPTIC TANK, AND SEWER PIPE AREAS SHALL NOT BE USED AS A SNOW STORAGE AREA.

**CODES GOVERNING MATERIALS AND WORKMANSHIP:**

ASTM: AMERICAN SOCIETY FOR TESTING AND MATERIALS.  
 CDPHE: COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT.  
 IRC: RESIDENTIAL/BUILDING CODE & ADOPTED PLUMBING CODE & ELECTRICAL CODE  
 MSDS: MATERIAL SAFETY DATA SHEETS  
 NSF: NATIONAL SANITATION FEDERATION INTERNATIONAL  
 OSHA: OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION  
 SCEHD: SUMMIT COUNTY ENVIRONMENTAL HEALTH DEPARTMENT  
 UL: UNDERWRITERS LABORATORIES, INC.  
 WATER: STATE OF COLORADO & DIVISION OF WATER RESOURCES

15. THE RESIDENCE AND DRIVEWAY DIMENSIONS MAY BE GENERALLY SHOWN. THE PROPOSED DRIVEWAY AND RESIDENCE LOCATION, DIMENSIONS, SITE LAYOUT, ETC. SHALL BE VERIFIED PRIOR TO CONSTRUCTION. IF DEVELOPMENT PLANS ARE DIFFERENT FROM WHAT IS SHOWN HEREIN, PLEASE NOTIFY THE ENGINEER.
16. TREE CLEARING SHALL BE COMPLETED IN ACCORDANCE WITH FIRE REGULATIONS, SUBDIVISION REGULATIONS, HOME OWNERS DESIRES, AND COUNTY REGULATIONS.
17. INSULATION: THE STA, SEPTIC TANK, AND SEWAGE PIPING HAS BEEN DESIGNED WITH A MINIMUM SPECIFIED SOIL COVER. THE MINIMUM SOIL COVER ASSUMES THE SYSTEM IS USED PROPERLY, ON A FULL-TIME BASIS, AND IS MAINTAINED PROPERLY. IF ANY OF THESE THREE ITEMS ARE LACKING, THE SYSTEM MAY FREEZE. AS AN EXTRA PRECAUTIONARY METHOD THE SEPTIC TANK, BUILDING SEWER, AND EFFLUENT SEWER LINE MAY BE INSULATED OR HEAT-TAPED ON THE EXTERIOR. THE STA SHALL NOT BE INSULATED AS THE "FOAM" WILL HINDER EVAPORATION FROM THE STA. REFER TO SYSTEM MAINTENANCE AND OPERATION GUIDELINES.



**GROUND AND IRRIGATION WATER:**

1. WATER AND MOISTURE IN AND AROUND STA'S IS A MAJOR PROBLEM IN THE MOUNTAIN AREAS, DUE TO SNOW MELT. TO MITIGATE WATER APPROPRIATELY AWAY FROM THE OWTS, THE STA HAS BEEN DESIGNED TO BE A VERY SPECIFIC VERTICAL DISTANCE ABOVE THE AVERAGE SEASONAL WATER TABLE. REFER TO STA CROSS SECTION FOR DESIGN DEPTHS.
2. SEPTIC TANKS SHALL NOT BE PLACED WITHIN A 100 YEAR FLOOD PLAIN OR NEAR ANY TYPE OF FLOODWAY UNLESS OTHERWISE APPROVED BY THE ENGINEER. WHEN PLACED IN OR NEAR THESE AREAS, APPROVAL FROM THE ENGINEER IS REQUIRED. TYPICALLY THE TOP OF THE TANK IS MAINTAINED AT LEAST 18 INCHES ABOVE THE BASE FLOOD ELEVATION AND PROTECTED BY A SURROUNDING DRAIN/SUMP. SEPTIC TANKS WHICH ARE PLACED IN HIGH GROUND WATER AREAS SHALL BE WATERPROOFED AND A TOP SEAM TANK SHALL BE USED. SOME COUNTIES NOW REQUIRE TOP SEAM TANKS FOR ALL SEPTIC TANKS.
3. FOUNDATION DRAINS AND WATER SOURCES MUST NOT BE DIRECTED TOWARDS SEPTIC TANKS, STA'S, WELLS, OR BURIED UTILITIES. EROSION MUST ALSO BE CONSIDERED AND MITIGATED PER COUNTY REQUIREMENTS AT DAYLIGHT LOCATIONS.
4. LAWN SPRINKLER HEADS, SNOW BUILDUP AND IMPROPER WATER MITIGATION PRACTICES CAN CAUSE REAL PROBLEMS FOR THE SEPTIC SYSTEM AND MUST BE APPROPRIATELY CONTROLLED.

**WATER SUPPLY**

1. WHEN WATER FOR THE RESIDENCE IS TO BE OBTAINED FROM A PRIVATE WELL OR DEVELOPED SPRING, IT SHALL BE DRILLED/INSTALLED/DEVELOPED AT THE MINIMUM SPECIFIED DISTANCE SHOWN IN THE SITE PLAN FROM THE STA AND AT LEAST 50 FEET FROM THE SEPTIC TANK AND SEWER LINES. ALL SPRINGS/WELLS REQUIRE STATE APPROVAL.
2. ACCESS, UTILITY LINES, EASEMENTS, AND OTHER CRITERIA MUST BE EVALUATED BY A QUALIFIED WELL DRILLER TO ENSURE THE WELL CAN BE DRILLED AT THE PROPOSED LOCATION SHOWN. THE ATTACHED PLAN SHOWS A LOCATION FOR THE WELL THAT IS ONLY INTENDED TO MEET THE SETBACK REQUIREMENTS.
3. EXISTING AND PROPOSED WELL LOCATIONS WITHIN 200 FEET OF THE PROPOSED SEPTIC SYSTEM ARE TYPICALLY DEPICTED IN THE DRAWINGS. SOMETIMES DUE TO SNOW COVER, BUILDINGS, OR OTHER ISSUES ALL NEIGHBORING WELLS CAN NOT BE LOCATED. THE CONTRACTOR SHALL VERIFY SUCH LOCATIONS BEFORE THE WASTE DISPOSAL SYSTEM IS INSTALLED.
4. THE WELL SHALL BE GROUTER PER STATE AND COUNTY REQUIREMENTS.

**GRADING AND EXCAVATION SPECIFICATIONS:**

1. ALL FINISH SLOPES MUST SLOPE AWAY FROM BUILDINGS, BUILDING SEWER, SEPTIC TANK(S), EFFLUENT LINES, AND STA AREAS. WHEN INSTALLING BERMS, SUBSURFACE DRAINS, AND OTHER METHODS TO MITIGATE THE WATER AWAY FROM THESE AREAS, BE SURE THE HISTORICAL FLOW QUANTITIES AND PATTERNS ARE VERIFIED AND MAINTAINED FOR ANY WATER LEAVING THE SITE.
2. WHEN THE GRADING/EXCAVATION OPERATIONS ENCOUNTER REMAINS OF PREHISTORIC PEOPLE'S DWELLING SITES, REMAINS, OR ARTIFACTS OF HISTORICAL, PALEONTOLOGICAL OR ARCHAEOLOGICAL SIGNIFICANCE, THE OPERATIONS SHALL BE TEMPORARILY DISCONTINUED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND PROMPTLY CONTACT THE PROPER AUTHORITIES TO DETERMINE THE DISPOSITION THEREOF. IF REQUIRED BY STATE OR FEDERAL AUTHORITIES, THE CONTRACTOR SHALL PRESERVE THE AREA OF SIGNIFICANCE TO ALLOW AUTHORITIES TO EXCAVATE AND RECOVER THE ITEMS OF SIGNIFICANCE.
3. AT ALL TIMES, PRECAUTIONS SHALL BE TAKEN FOR THE PROTECTION OF CULVERTS, EROSION CONTROL STRUCTURES, IRRIGATION CROSSINGS, SURVEY MONUMENTS, UNDERGROUND OR OVERHEAD UTILITY LINES AND ALL OTHER PUBLIC OR PRIVATE INSTALLATIONS THAT MAY BE ENCOUNTERED DURING CONSTRUCTION. ANY DAMAGE TO SUCH STRUCTURES SHALL BE REPAIRED, DOCUMENTED AND SUBMITTED TO THE APPROPRIATE AUTHORITY.
4. CLEARING AND GRUBBING. ALL TREES AND OTHER VEGETATION SHALL BE SALVAGED WHERE POSSIBLE (VERIFY WITH THE HOME OWNER BEFORE REMOVING TREES). STUMP HOLES AND OTHER HOLES FROM WHICH OBSTRUCTIONS ARE REMOVED, SHALL BE BACKFILLED (AND COMPACTED WHEN REQUIRED) WITH SUITABLE MATERIALS. STUMPS, DEBRIS, AND WOOD SHALL NOT BE PLACED IN ANY TRENCHES OR USED FOR ANY BACKFILL. ALL TREES AND SHRUBS WITHIN 10 FEET OF THE STA AND SEPTIC TANK AND WITHIN 5 FEET OF THE WASTE WATER PIPING SHALL BE CLEARED. MATERIALS AND DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH STATE AND COUNTY REGULATIONS. WITH OWNER APPROVAL, STUMPS MAY BE BURIED ON-SITE AT AN APPROVED LOCATION.
5. TOPSOIL. ALL TOPSOIL, WHERE PHYSICALLY PRACTICABLE, SHALL BE SALVAGED. TOPSOIL SHALL CONSIST OF LOOSE FRIABLE LOAM REASONABLY FREE OF ADMIXTURES OF SUBSOIL, REFUSE, STUMPS, OR TREE ROOTS. MATERIALS SELECTED FOR TOPSOIL SHALL BE EXCAVATED AND STOCKPILED AS REQUIRED. TOPSOIL SHALL BE KEYED TO THE UNDERLYING MATERIALS BY THE USE OF HARROWS, ROLLERS, OR OTHER EQUIPMENT SUITABLE FOR THE PURPOSE. FOR SITES THAT DON'T CONTAIN ENOUGH REUSABLE TOP SOIL, APPROVED TOP SOIL WILL HAVE TO BE IMPORTED TO THE SITE. SITES WITH MORE THAN 1.0 ACRE OF DISTURBANCE REQUIRE SPECIAL PERMITTING.
6. EXCAVATION. VIBRATORY EQUIPMENT AND OTHER EQUIPMENT WHICH MIGHT COMPACT THE SOILS SHALL BE KEPT OUT OF THE STA BED. IF A RUBBER Tired VEHICLE ABSOLUTELY MUST BE USED WITHIN THE STA, SCARIFY THE SOILS VERY CAREFULLY BEFORE STA CONSTRUCTION TO ENSURE THE UNDERLYING SOILS ARE NOT COMPACTED. SHORTCUTTING GOOD CONTRACTOR PRACTICE WILL CAUSE PREMATURE STA FAILURE (SEE COMPACTION BELOW).
7. WHEN GROUND WATER IS ENCOUNTERED, THE CONTRACTOR SHALL PUMP, OR OTHERWISE REMOVE ANY WATER THAT ACCUMULATES IN THE TRENCHES, TANK HOLE, AND STA. MATERIALS SHALL NOT BE CONSTRUCTED IN WATER AND WATER SHALL NOT BE ALLOWED TO DRAIN THROUGH THE SEWER PIPE. AT THE END OF THE DAY, THE OPEN END OF THE PIPE SHALL BE KEPT CLOSED BY PLACING A WATERTIGHT FITTING PLUG INTO THE BELL END TO PREVENT WASHING OF ANY FOREIGN MATTER INTO THE LINE. ALL WATER REMOVED FROM THE CONSTRUCTION SITE SHALL BE CONVEYED IN A PROPER MANNER TO A SUITABLE POINT OF DISCHARGE AND SHALL COMPLY WITH THE APPLICABLE EROSION, SEDIMENTATION AND WATER CONTROL LAWS.
8. BACKFILLING SHALL BE THE RESPONSIBILITY OF THE OWNER/CONTRACTOR. ALL DISTURBED AREAS SHOULD BE RESEDED TO MITIGATE EROSION. IT IS GOOD PRACTICE TO SLIGHTLY MOUND THE AREA OVER THE TRENCHES, THE TANK, AND THE STA AREAS TO MITIGATE SURFACE WATER AWAY FROM THESE AREAS.
9. COMPACTION. ALL PLACED FILL SHALL BE BROUGHT TO THE PROPER MOISTURE CONTENT AND ADEQUATELY COMPACTED TO PREVENT SETTLEMENT. CALL ENGINEER FOR INSPECTION OF THE ABOVE ITEMS AS REQUIRED. SOILS WHICH ARE NOT TESTED FOR COMPACTION ADEQUACY MAY SETTLE AND LEAD TO SYSTEM FREEZING AND PREMATURE FAILURE. A) HOUSE: SOILS BELOW THE BUILDING SLAB AND BELOW ANY HOUSE FOOTINGS SHALL BE ADEQUATELY COMPACTED AS REQUIRED BY THE HOUSE GEOTECHNICAL ENGINEER OF RECORD; B) SEPTIC TRENCHES AND SEPTIC TANK: SOILS SHOULD BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR AND WITHIN 2% OF OPTIMUM MOISTURE. COMPACT SOILS UNDER PIPE IN TRENCHES AND UNDER SEPTIC TANK AREA WITH SHEEPSFOOT ROLLERS, MULTIPLE-WHEEL PNEUMATIC-TIRED ROLLERS, OR OTHER APPROVED EQUIPMENT. FILL-TYPE SOILS SHALL BE PLACED IN NO MORE THAN 10-INCH LOOSE LIFTS; C) SOIL TREATMENT AREA: AREAS UNDER THE STA SHALL NOT BE COMPACTED; KEEP TIRE AND TRACK-TYPE EQUIPMENT OUT OF THE EXCAVATED BED WHEN THE LAST 12 INCHES IS EXCAVATED. WHEN AN STA CONTAINS MORE THAN 24 INCHES OF SAND, THE SAND SHALL BE CONSOLIDATED BY THE APPLICATION OF CLEAN WATER OVER EVERY 12-INCH SAND LAYER/LIFT. ANY TYPE OF MECHANICAL COMPACTION OF THE SAND & STA IS PROHIBITED.

Section IV, Item C.

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GENERAL CONSTRUCTION & SITE NOTES

CROWN SUBDIVISION, LOT 532  
 39 LODESTONE TRAIL  
 BLUE RIVER, CO 80424

**LITTLEHORN ENGINEERING, LLC**

351 US HWY 285, #201  
 FAIRPLAY, CO 80440  
 FAIRPLAY OFFICE 719.836.7120  
 SILVER CLIFF OFFICE 719.783.3757

"PEACE OF MIND THROUGH HOLISTIC DESIGN"



PROJECT NO. 2023-100072

CLIENT HELEN LEMAY

DATE 07.31.2023

REVISION:  
 △ N/A  
 △ N/A  
 △ N/A

DO

**PROJECT SUMMARY AND SOILS TESTING**

1. THE OWNERS ARE PREPARING TO INSTALL A NEW WASTEWATER DISPOSAL SYSTEM FOR A PROPOSED SINGLE-FAMILY RESIDENCE. A CONVENTIONAL-TYPE SEPTIC SYSTEM CANNOT BE PLACED ON THE PROPERTY AND MEET COUNTY REQUIRED SETBACKS. ACCORDINGLY AN ADVANCED-TREATMENT TYPE SEPTIC SYSTEM IS DESIGNED.
4. THE SURFACE GEOLOGY OF THE LOT IS COMPRISED GENERALLY OF ORGANIC TOPSOIL WITH PINE TREES, NATIVE GRASSES, AND SHRUBS.
3. WE VISITED THE REFERENCED SITE ON JUNE 13, 2023. THE SITE WAS ENTIRELY FREE OF SNOW. PROFILE AND SOIL TESTING HOLES WERE EXCAVATED ON THE PROPERTY IN THE AREA OF THE PROPOSED STA AND EXAMINED. THESE HOLES REVEALED THE FOLLOWING:

**Soil Profile Hole A (96-inch depth)**

HOLE	DEPTHS	DESCRIPTION	SHAPE	GRADE	TYPE	COLOR
ROCK	70%	Organic topsoil with medium to fine roots	GR	WK	2A	Dark brown
SLOPE SHAPE	LL					
NOTES ↓		Sandy silt loam with gravel, cobbles and a few boulders	BK	WK	R2/2A	Brown
No standing water. Minimal smearing. Fine roots to 60"	8 - 96"					

**Soil Profile Hole B (96-inch depth)**

HOLE	DEPTHS	DESCRIPTION	SHAPE	GRADE	TYPE	COLOR
ROCK	65%	Organic topsoil with medium to fine roots	GR	WK	2A	Dark brown
SLOPE SHAPE	LL					
NOTES ↓		Sandy silt loam with gravel, cobbles and a few boulders	BK	WK	R2/2A	Brown
No standing water. Minimal smearing. Fine roots to 60"	8 - 96"					

**DESIGN CRITERIA**

1. BASED ON THE DATA RECORDED FROM THE REFERENCED SITE, R2/SOIL TYPE 2A WILL BE USED FOR THE DESIGN.
2. THERE WAS EVIDENCE OF A SEASONAL HIGH GROUND WATER TABLE AT 60" BELOW THE SURFACE.

**GENERAL SETBACKS NOTES:**

1. STA: PLACE STA AT LEAST (A) 10' FROM ALL PROPERTY LINES, (B) 20' FROM ANY STRUCTURE WITH A FOUNDATION DRAIN; (C) 10' FROM ANY STRUCTURE WITHOUT A FOUNDATION DRAIN; (D) 25' FROM A LAKE, WATER COURSE, IRRIGATION DITCH, STREAM, AND/OR WETLAND WITH ADVANCED TREATMENT (TL3N); (E) 5' FROM SEPTIC TANK; (F) AT LEAST 100 FEET FROM ANY POTABLE SPRING/WELL (WITHOUT JUSTIFICATION), OR SUCTION LINE. FOR TL3N EFFLUENT, A REDUCTION TO 75 FEET IS ALLOWED IF A VARIANCE FROM THE WATER WELL CONSTRUCTION REGULATIONS IS OBTAINED.; (G) 25' FROM A DRY GULCH, CUTBANK, OR SWALE AND; (H) 100' FROM ANY WATER CISTERN UNLESS A VARIANCE IS OBTAINED IN ACCORDANCE WITH DIVISION OF WATER RESOURCES, RULE 18.2.
2. SEPTIC TANK: PLACE SEPTIC TANK AT LEAST (A) 50' FROM ALL WELL HEADS AND SPRINGS, (B) 10' FROM ALL PROPERTY LINES, (C) 5' FROM ANY DWELLING OR OCCUPIED STRUCTURE, (D) 50' FROM A LAKE, WATER COURSE, STREAM, WATER CISTERN, IRRIGATION DITCH AND/OR WETLAND (E) 10' FROM FROM A DRY GULCH OR SWALE.
3. WATER LINES: ALL POTABLE WATER SUPPLY LINES SHALL BE POSITIONED A MINIMUM OF 10' FROM THE SEPTIC TANK AND SEWAGE PIPING AND 25' FROM AN STA.
4. SEWAGE PIPING: ALL SEWAGE PIPING SHALL BE LOCATED AT LEAST 50' FROM A WELL HEAD, LAKE, WATER COURSE, STREAM, WATER CISTERN, IRRIGATION DITCH AND/OR WETLAND, 10' FROM ALL PROPERTY LINES, AND 3 FEET FROM ANY DECK FOOTING OR PIER.

**OWTS DESIGN FLOWS AND CALCULATIONS**

1. THE AVERAGE FLOW AND DESIGN SEWAGE WASTE FLOWS DISCHARGED TO THE SOIL TREATMENT AREA (STA) EVERY DAY, AS REQUIRED BY THE COUNTY AND AS LISTED UNDER THE RESIDENTIAL WASTEWATER DESIGN FLOW TABLE FOR A FOUR (4) BEDROOM SINGLE-FAMILY RESIDENCE WITH A CLOTHES WASHER, ONE AUTOMATIC DISHWASHER, AND A GARBAGE DISPOSAL.

AVERAGE FLOW : 4 BEDROOM = 600 GALLONS PER DAY (GPD)  
(TABLE 13-1)

2. DUE TO SOIL TYPE, A PUMP IS REQUIRED. PER TABLE 15-1, A TANK THAT IS AT LEAST 1500 GALLONS IS REQUIRED. A 1500 GALLON TWO COMPARTMENT TANK (TOTAL TANK CAPACITY IS 1509 GALLONS) SHALL BE INSTALLED ALONG WITH AN ORENCO ADVANTEX AX25RT-(MODE 3B) ADVANCED TREATMENT UNIT (CONTAINING THE DISCHARGE PUMP) DOWNSTREAM OF THE PRIMARY TANK. THE LIQUID VOLUME OF 1509 GALLONS SHALL BE PROVIDED IN THE FIRST TWO COMPARTMENTS OF THE PRIMARY TANK. THIS WILL PROVIDE 2.52 DAYS (1509/600) OF RETENTION FOR THE WASTEWATER PRIOR TO THE ADVANCED TREATMENT UNIT.
3. WITH A DESIGN FLOW OF 600 GPD AND 4 DOSES PER DAY. A 150 GALLON DOSE IS RECOMMENDED. A 16-INCH DRAW-DOWN EQUATES TO A 162 GALLON DOSE. GIVEN THE DISCHARGE PIPE SIZE AND SLOPE TO THE STA, 12 GAL IS LOST IN THE PUMP CYCLE. THEREFORE WITH A 162 GALLON VOLUME MOVED IN A PUMP CYCLE, 150 GALLONS IS ACTUALLY RECEIVED BY THE STA AND 12 GAL IS DRAINED BACK INTO THE TANK. USE AN ORENCO MODEL PF5005 HIGH HEAD EFFLUENT PUMP IN THE PUMP TANK. AN ORENCO EFFLUENT FILTER SHALL BE INSTALLED IN THE MIDDLE COMPARTMENT OF THE TANK. USE AN ORENCO MODEL PF5005 HIGH HEAD EFFLUENT PUMP IN THE TANK. THE TANK MANUFACTURER, VALLEY PRECAST, SHALL INSTALL THE PUMP CONTROL PANEL AS REQUIRED BY ADOPTED COUNTY AND STATE REGULATIONS AND PER MANUFACTURER SPECIFICATIONS.
4. FOR AN STA WITH TL3N EFFLUENT TREATMENT (ORENCO ADVANTEX AX25-RT MODE 3B) AT THE SEPTIC TANK AND DISCHARGE INTO A DEEP SECONDARY SAND FILTER AND THEN TO A NATIVE SOIL TYPE R2/ 2A INTERFACE AT THE BOTTOM OF THE SAND FILTER: APPLICATION FACTORS:

BED IS PRESSURE DOSED: 1.0 (TABLE 16-1)  
BED IS GRAVEL: 1.0 (TABLE 16-2)  
NO APPLICATION FACTORS ALLOWEDFOR R-TYPE SOILS

**TOP OF SAND/BOTTOM OF GRAVEL**

- 4.1 RECEIVING SOIL IS SAND VIA TREATMENT LEVEL 3N: FLOW/LTAR FOR SAND = 600 GPD /1.55 LTAR = 388 SQFT.
- 4.2 A GRAVEL BED THAT IS 12 FEET X 36 FEET IS PROPOSED. THIS WILL PROVIDE 432 SQUARE FEET.
- 4.3 SAND LOADING RATE WILL BE 16.67 GALLONS PER LINEAR FOOT (600 GPD/ 36 FEET.)

**BOTTOM OF SAND FILTER UNDER THE STA**

- 4.4 FLOW/LTAR FOR INSITU SOIL TYPE 2A, TL3N = 600 GPD /0.8 LTAR = 750 SQFT.
- 4.5 A SAND BED THAT HAS A BASIL AREA OF 18 FEET IN WIDTH AND 42 FEET IN LENGTH SHALL BE INSTALLED. THIS WILL PROVIDE 756 SF.
- 4.6 SOIL LOADING RATE WILL BE 14.28 GALLONS PER LINEAR FOOT (600 GPD/ 42 FEET.)

**INSPECTION REQUIREMENTS AND GUARANTEE:**

1. SEE COVER SHEET FOR REQUIRED INSPECTIONS. WITHOUT OUR INSPECTIONS WE CANNOT VERIFY THAT THE SYSTEM WAS INSTALLED TO OUR SPECIFICATIONS. A MINIMUM OF FIVE (5) WORKING DAYS' ADVANCE NOTICE IS REQUESTED FOR CONDUCTING EACH INSPECTION. INSPECTION APPROVALS DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE DESIGN DRAWINGS & SPECIFICATIONS. UPON REQUEST AND FOR A FEE, THE ENGINEER CAN PREPARE THE AS-BUILT OR RECORD DRAWING.

**SOIL TREATMENT AREA (STA):**

1. SUBMIT SAND, GRAVEL, TANK AND ASSOCIATED EQUIPMENT (INCLUDING AIR-RELIEF AND BALL VALVES), PIPING AND ASSOCIATED CEMENT/PRIMER FOR ENGINEER APPROVAL.
2. STRIP ALL TOPSOIL (SEE GRADING & EXCAVATION SPECIFICATIONS ON SHEET D0) IN THE AREA OF THE NEW BED AND EXCAVATE A LEVEL BED WHERE SHOWN IN THE SITE PLAN THAT IS 60 INCHES MAX. ALONG THE HIGH SIDE (KEY IN SAND 12 INCHES MIN. ALONG THE LOW SIDE) IN DEPTH X 18 FEET WIDE X 42 FEET IN LENGTH. BE SURE TO KEEP RUBBER TIERED AND OTHER EXCAVATION-TYPE EQUIPMENT OUT OF THE STA BED WHEN THE LAST 12 INCHES OF THE BED IS EXCAVATED.
3. INSTALL AT LEAST 24 INCHES OF SECONDARY-TYPE CLEAN SAND\* \*\* THAT IS FREE OF ORGANIC MATTER, DIRT, DEBRIS, SNOW, ICE, AND ROCKS THAT MEETS THE FOLLOWING ASTM 33 CRITERIA SHALL:
  - 3.1. PASS A SCREEN HAVING FOUR MESHES TO THE INCH;
  - 3.2. HAVE AN EFFECTIVE SIZE BETWEEN 0.15 AND 0.60 MM;
  - 3.3. FINES PASSING A #200 SIEVE SHALL NOT EXCEED 3%;
  - 3.4. HAVE A UNIFORMITY COEFFICIENT OF 7.0 OR LESS.

4. AFTER SAND APPROVAL\* AND SAND INSTALLATION, INSTALL AT LEAST 8-9 INCHES OF CLEAN (DIRT AND SAND FREE) GRADED, COARSE 1" OR 1-1/2" GRAVEL\* IN THE ENTIRE BED TO BE USED AS THE STA CONFORMING TO THE FOLLOWING TABLE:

SIEVE SIZE%	PASSING BY WEIGHT%
2 1/2"	100
3/4 -1"	0-20
4	0-3

\* SUBMIT A MATERIAL ANALYSIS TO LITTLEHORN; IF A SIEVE AND MATERIAL ANALYSIS IS UNAVAILABLE, A SAMPLE OF THE MEDIA MUST BE PROVIDED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

\*\* THE BASIL AREA OF THE SAND BED SHALL BE KEYED IN BELOW ALL ORGANIC TOPSOIL

- 4.1 WHEN THE GRAVEL IS INSTALLED, IT MUST CREATE A LEVEL AREA FOR THE DISTRIBUTION PIPING.
- 4.2 ALL GRAVEL MUST BE FREE OF DIRT; AVOID PICKING UP DIRT, DEBRIS (STICKS, ROOTS, LEAVES) AND ANY ICE AND SNOW WITH THE LAST BUCKETS OF GRAVEL PUT ON THE STA.
- 4.3 FOR SOME ADDED PROTECTION, THE OWNER SHOULD STRONGLY CONSIDER INSTALLING 1 TO 3 INCHES OF ADDITIONAL GRAVEL UNDER THE PIPING.
5. AFTER THE INITIAL GRAVEL LAYER IS INSTALLED, INSTALL LEVEL DISTRIBUTION PIPING FOLLOWED BY 6 MORE INCHES OF GRAVEL (GRAVEL WILL BE AT LEAST 12" THICK; GRAVEL MUST BE AT LEAST 2 INCHES ABOVE THE PIPE AND LEVEL). ALL GRAVEL THAT IS NOT CLEAN WILL BE REJECTED BY THE ENGINEER AND SHALL BE REPLACED.
6. INSTALL APPROVED FILTER (MAX. 2 OZ. PER SQUARE YARD) FABRIC [BOWMAN CONSTRUCTION (303) 696-8960] OVER THE GRAVEL FIELD. THEN INSTALL AT LEAST 18 INCHES OF SOIL COVER AND NO MORE THAN 36 INCHES OF SOIL COVER OVER THE FILTER FABRIC PER COUNTY GUIDELINES TO MITIGATE FREEZING.
7. CREATE A MOUND OVER THE BED TO PREVENT SURFACE WATER PONDING AND FACILITATE RAIN WATER AND SNOW MELT RUN-OFF. WHEN A MOUND IS CREATED, USE 3:1 (3 FEET HORIZONTAL TO 1 FOOT VERTICAL) SIDE SLOPES ON THE MOUND BACKFILL. FINISH GRADING AROUND THE ENTIRE STA AREA MUST MITIGATE WATER AWAY FROM THE STA.
8. RESEED DISTURBED AREAS WITH NATIVE GRASSES AND WILD FLOWERS HAVING A SHALLOW ROOT SYSTEM TO PREVENT EROSION PROBLEMS. SIDE SLOPES OF MOUNDED STA'S SHOULD BE NETTED TO PREVENT EROSION. IF EROSION BEGINS IN ANY PART OF THE DISPOSAL SYSTEM, CONTACT US IMMEDIATELY.



**Section IV, Item C.**

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DESIGN & INSTALLATION NOTES  
CROWN SUBDIVISION, LOT 532  
39 LODESTONE TRAIL  
BLUE RIVER, CO 80424

**LITTLEHORN ENGINEERING, LLC**  
351 US HWY 285, #201  
FAIRPLAY, CO 80440  
FAIRPLAY OFFICE 719.836.7120  
SILVER CLIFF OFFICE 719.783.3757  
"PEACE OF MIND THROUGH HOLISTIC DESIGN"

PROJECT NO.  
2023-100072  
CLIENT  
HELEN LEMAY  
DATE  
07.31.2023  
REVISION:  
△ N/A  
△ N/A  
△ N/A

**LEGEND: SEE SHEET D0 FOR DRAWING ABBREVIATIONS**

- (1000)--- EXISTING CONTOUR & LABEL
- ⊙ WELL HEAD
- PROPERTY CORNERS
- ▨ GRAVEL ROADWAY/DRIVE
- ⇒ DRAINAGE ROUTE
- 3H:1V SLOPE OF GRADE
- SS--- SEWER LINE
- ① / D4 DETAIL # / PAGE #

**GENERAL NOTES:**

1. HOUSE ENGINEERING IS BY OTHERS.
2. DRIVEWAY ENGINEERING IS BY OTHERS.
3. VERIFY ALL BUILDING SETBACKS AND BUILDING DESIGN PRIOR TO PLACING CONCRETE AND PRIOR TO OWTS INSTALLATION. VERIFICATION AND CONSTRUCTION STAKING SHOULD BE PERFORMED BY A LICENSED SURVEYOR.
4. ALL DISTURBED AREAS TO BE RE-VEGETATED WITH NATIVE WEED-FREE GRASS SEED.
5. SHORING AND JOB-SITE SAFETY IS THE RESPONSIBILITY OF OTHER QUALIFIED CONTRACTORS AND PERSONNEL.

OVERALL SITE PLAN FOR OWTS

**LITTLEHORN ENGINEERING, LLC**

"PEACE OF MIND THROUGH HOLISTIC DESIGN"

PROJECT NO. 2023-100072

CLIENT HELEN LEMAY

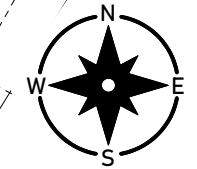
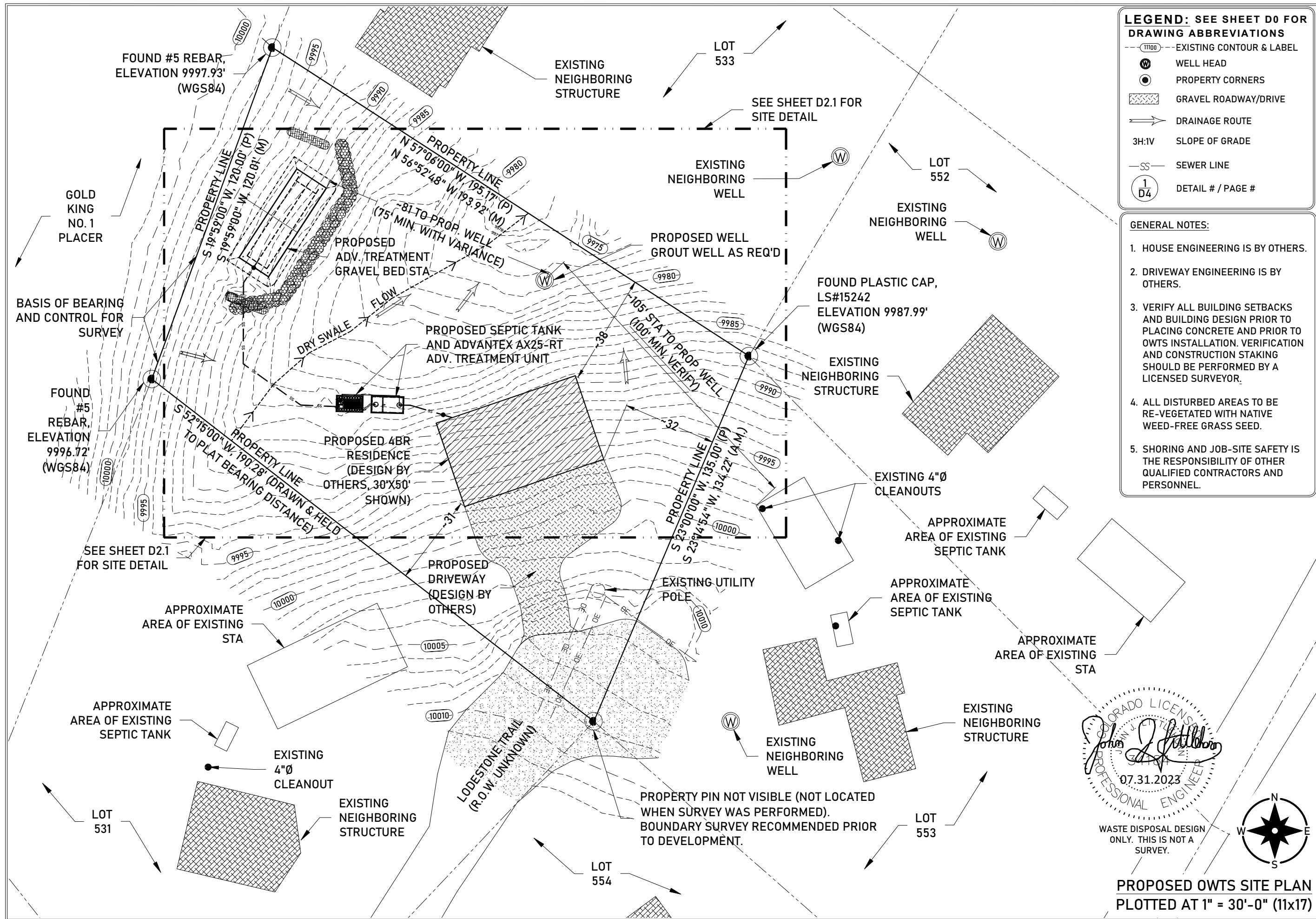
DATE 07.31.2023

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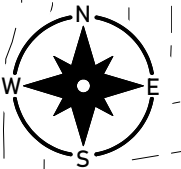
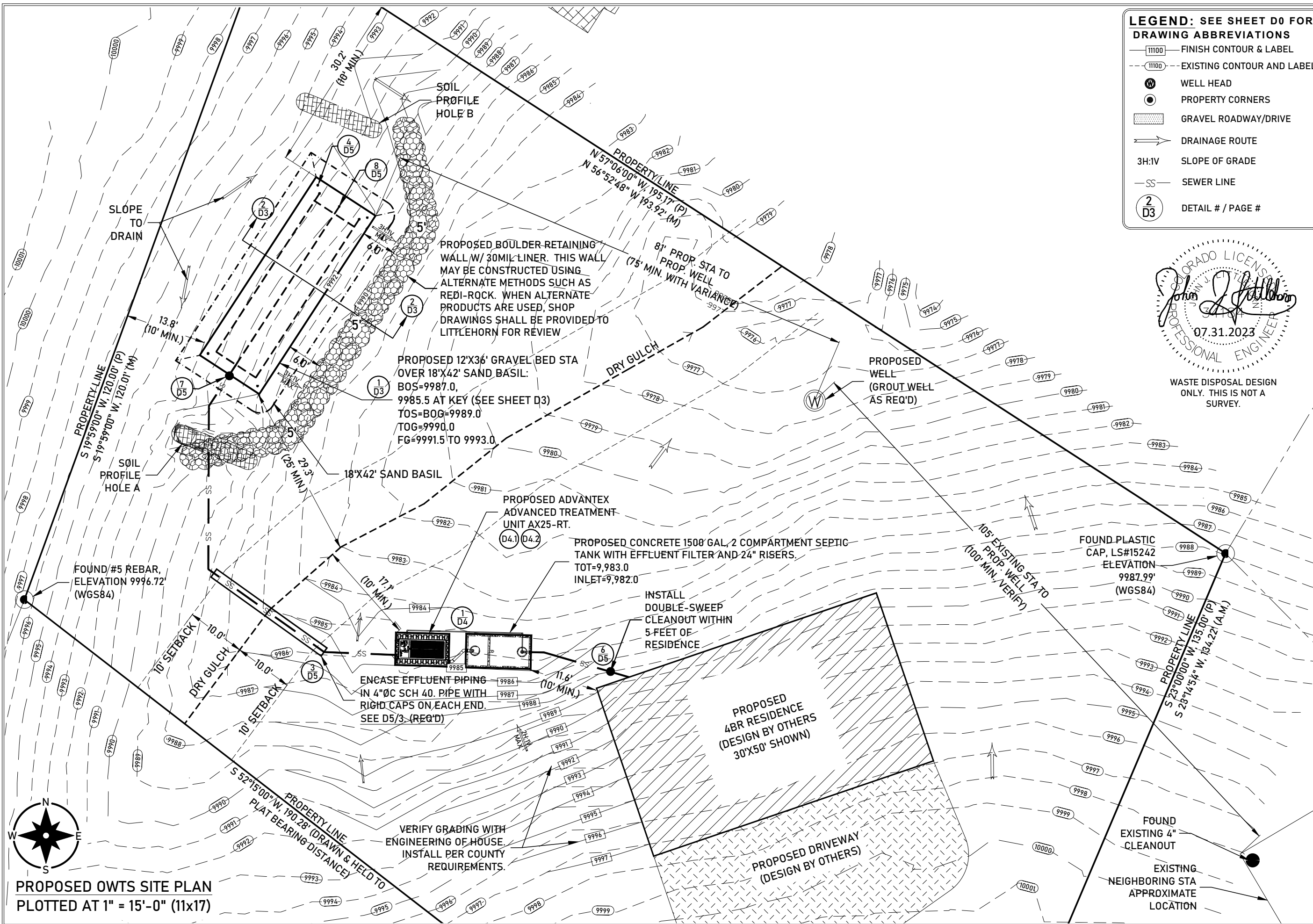
**PROPOSED OWTS SITE PLAN**  
PLOTTED AT 1" = 30'-0" (11x17)

**LEGEND: SEE SHEET D0 FOR DRAWING ABBREVIATIONS**

- 11100 — FINISH CONTOUR & LABEL
- - 11100 - - EXISTING CONTOUR AND LABEL
- ⊙ WELL HEAD
- PROPERTY CORNERS
- ▨ GRAVEL ROADWAY/DRIVE
- DRAINAGE ROUTE
- 3H:1V SLOPE OF GRADE
- SS — SEWER LINE
- ② / D3 DETAIL # / PAGE #



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**PROPOSED OWTS SITE PLAN**  
 PLOTTED AT 1" = 15'-0" (11x17)

SITE PLAN DETAIL FOR OWTS

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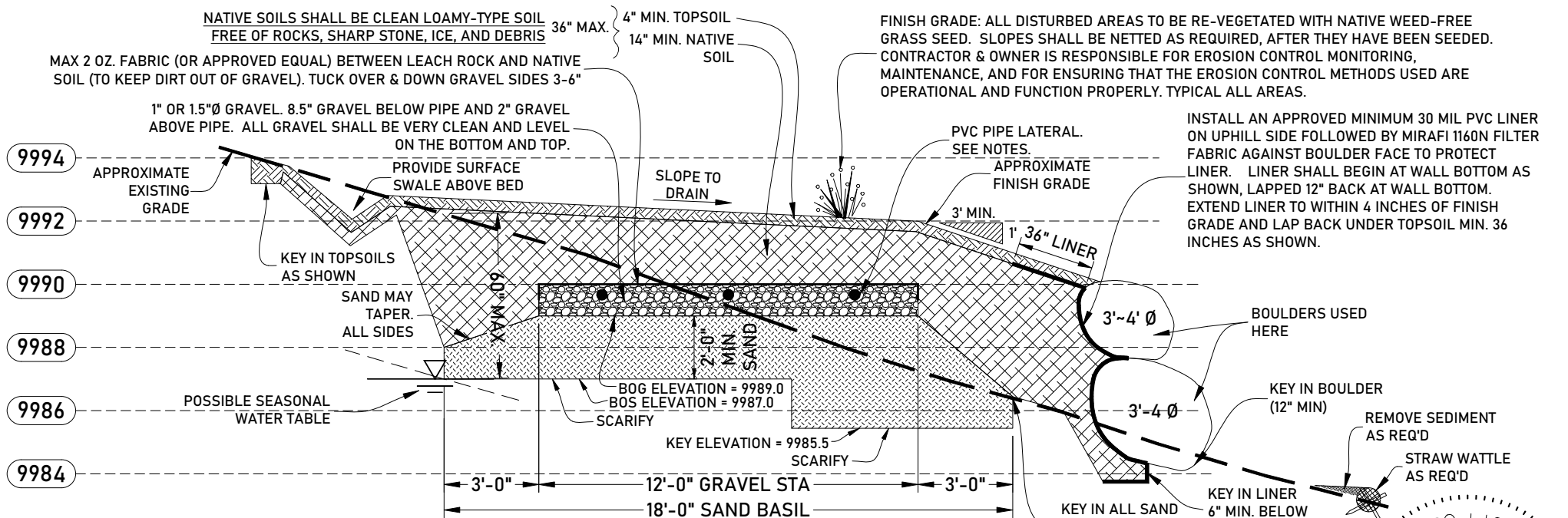
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"PEACE OF MIND THROUGH HOLISTIC DESIGN"

PROJECT NO.	2023-100072
CLIENT	HELEN LEMAY
DATE	07.31.2023
REVISION:	△ N/A △ N/A △ N/A

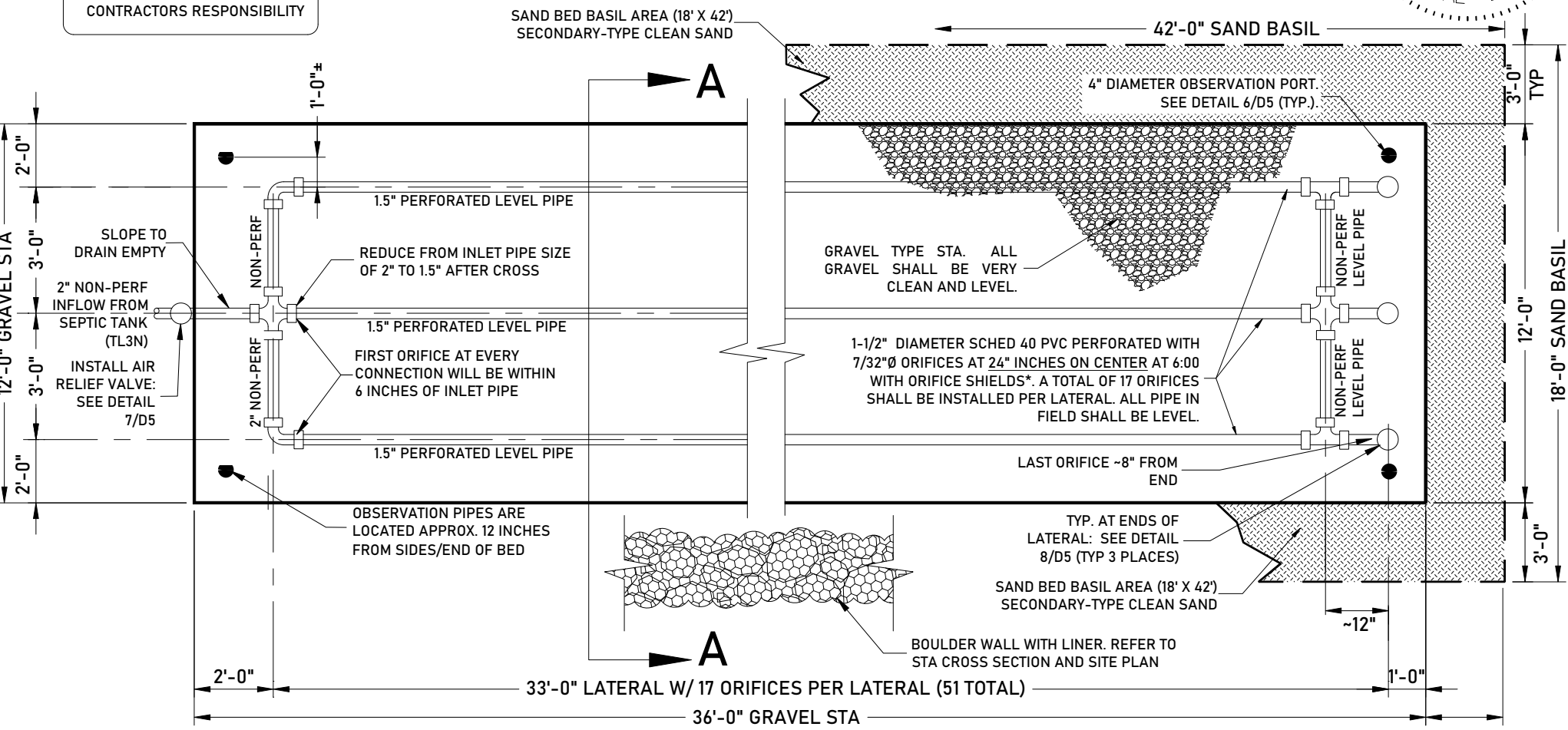
**BUILDING SEWER AND WASTEWATER PIPING:**

- ALL PIPING JOINTS MUST BE WATERTIGHT, ROOT PROOF, AND LAID WITH THE FLARED ENDS IN THE PROPER DIRECTION.
- ALL PIPING SHALL BE ADEQUATELY BEDDED WITH GRAVEL, PEA GRAVEL, OR APPROVED EQUAL COMPACTED AND VIBRATED INTO PLACE PROPERLY TO PREVENT SETTLEMENT AND HAVE AT LEAST 30 INCHES OF SOIL COVER (i.e. MOUNDING IS PERMITTED WITH COMPACTED STRUCTURAL FILL) TO MITIGATE FREEZING; ALL PIPING LAID WITHIN 5 FEET AND BELOW A VEHICULAR TRAFFIC AREA SHALL HAVE A MINIMUM OF 3 FEET OF SOIL COVER UNLESS OTHERWISE APPROVED.
- ALL BENDS IN THE SEWER LINE GREATER THAN 45° MUST BE LONG SWEEP ELBOWS.
- ALL PIPING WHICH WILL BE LAID IN A VEHICULAR TRAFFIC AREAS SHALL BE MINIMUM SCHEDULE 40 PVC PIPE OR EQUIVALENT. PIPING BETWEEN THE TANK AND STA THAT IS NOT WITHIN A VEHICULAR TRAFFIC AREA MAY BE SDR35 U.N.O.
- LAYING PIPE IN THE TRENCH: EVERY PRECAUTION SHALL BE TAKEN TO PREVENT FOREIGN MATERIAL FROM ENTERING THE PIPE DURING PLACEMENT. DURING LAYING OPERATIONS, NO DEBRIS, TOOLS, CLOTHING OR OTHER MATERIAL SHALL BE PLACED IN THE PIPE. SEE DETAILS FOR PIPE BEDDING INSTRUCTIONS.
- BACKFILLING AROUND THE SEPTIC TANK SHALL BE ACCOMPLISHED IN A MANNER THAT PREVENTS SETTLEMENT AND AVOIDS UNDUE STRAIN ON THE PIPES ENTERING AND EXITING THE SEPTIC TANK.
- FOR PIPING FROM THE RESIDENCE TO THE SEPTIC TANK, USE 4-INCH DIAMETER SCHEDULE 40 PVC PIPE, OR EQUIVALENT, LAID WITH A DOWNWARD SLOPE OF 2% TO 8% (1/4-INCH PER FOOT TO 3/4-INCH PER FOOT) EXCEPT FOR THE LAST 5 FEET WHERE THE SLOPE MUST NOT EXCEED 4%. IF POSSIBLE IT IS ALWAYS BETTER TO LAY THE PIPING AT A CONSTANT GRADE WITHOUT FLUCTUATIONS. IF A 2% TO 8% PERCENT GRADE CANNOT BE MAINTAINED AND STEP DOWNS ARE REQUIRED, USE 22 OR 45 DEGREE ELBOWS.
- INSTALL CLEAN-OUTS:
  - WITHIN 5 FEET OF THE RESIDENCE (USE DOUBLE SWEEP HERE)
  - AT INTERVALS OF 100 FEET OR LESS.
  - WHERE THE LINE BENDS AT ANGLES FORTY-FIVE DEGREES OR MORE.
- USE TRAFFIC RATED RISERS WHERE REQUIRED.
- USE PRESSURIZED CAP WHERE REQUIRED (SEE SHEET D5, ITEM 9, PRESSURE CAP DETAIL).
- FOR PIPING FROM THE SEPTIC TANK TO THE STA, USE 2-INCH DIAMETER SCHEDULE 40 PVC PIPE, LAID WITH A MINIMUM UPWARD SLOPE OF 2% TO ALLOW DRAINING OF THE PIPE AT THE END OF THE DOSING CYCLE. ACCORDINGLY, THE PIPE SHALL DRAIN EMPTY AT THE END OF THE DOSING CYCLE.
- FOR PIPING IN THE STA, INSTALL 1.5"Ø PIPING, SCHEDULE 40 PVC, SET ON A LEVEL GRADE USING A BUILDER'S OR ENGINEER'S LEVEL INSTRUMENT WITH PERFORATIONS AS SHOWN IN THE STA PLAN VIEW.
- NO PART OF THE SYSTEM CAN BE BACKFILLED PRIOR TO INSPECTION. IF ANY PART OF THE SYSTEM IS BACKFILLED WITHOUT APPROVAL OR CONSENT OF THE ENGINEER AND THE COUNTY, AS REQUIRED, REMOVAL OF BACKFILL MAY BE REQUIRED FOR EXAMINATION. IT IS THE CONTRACTORS RESPONSIBILITY TO BUILD THE SYSTEM IN COMPLIANCE WITH THE ENGINEERS SPECIFICATIONS, COUNTY REGULATIONS, AND STATE REGULATIONS, AS REQUIRED.
- FOR BACKFILL, ALL PIPE SHALL BE INSTALLED AND BEDDED PROPERLY. THIS REQUIRES MOISTURE TO BE APPLIED TO THE BACKFILL TO OBTAIN PROPER COMPACTION. REFER TO SHEET D0.



**2 STA CROSS SECTION A-A**

PROVIDE SHORING AS REQUIRED. SHORING AND JOB SAFETY IS THE CONTRACTORS RESPONSIBILITY



**1 STA PLAN VIEW**



Section IV, Item C.

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STA DETAILS AND NOTES

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"PEACE OF MIND THROUGH HOLISTIC DESIGN"

PROJECT NO. 2023-100072  
CLIENT HELEN LEMAY  
DATE 07.31.2023  
REVISION: N/A

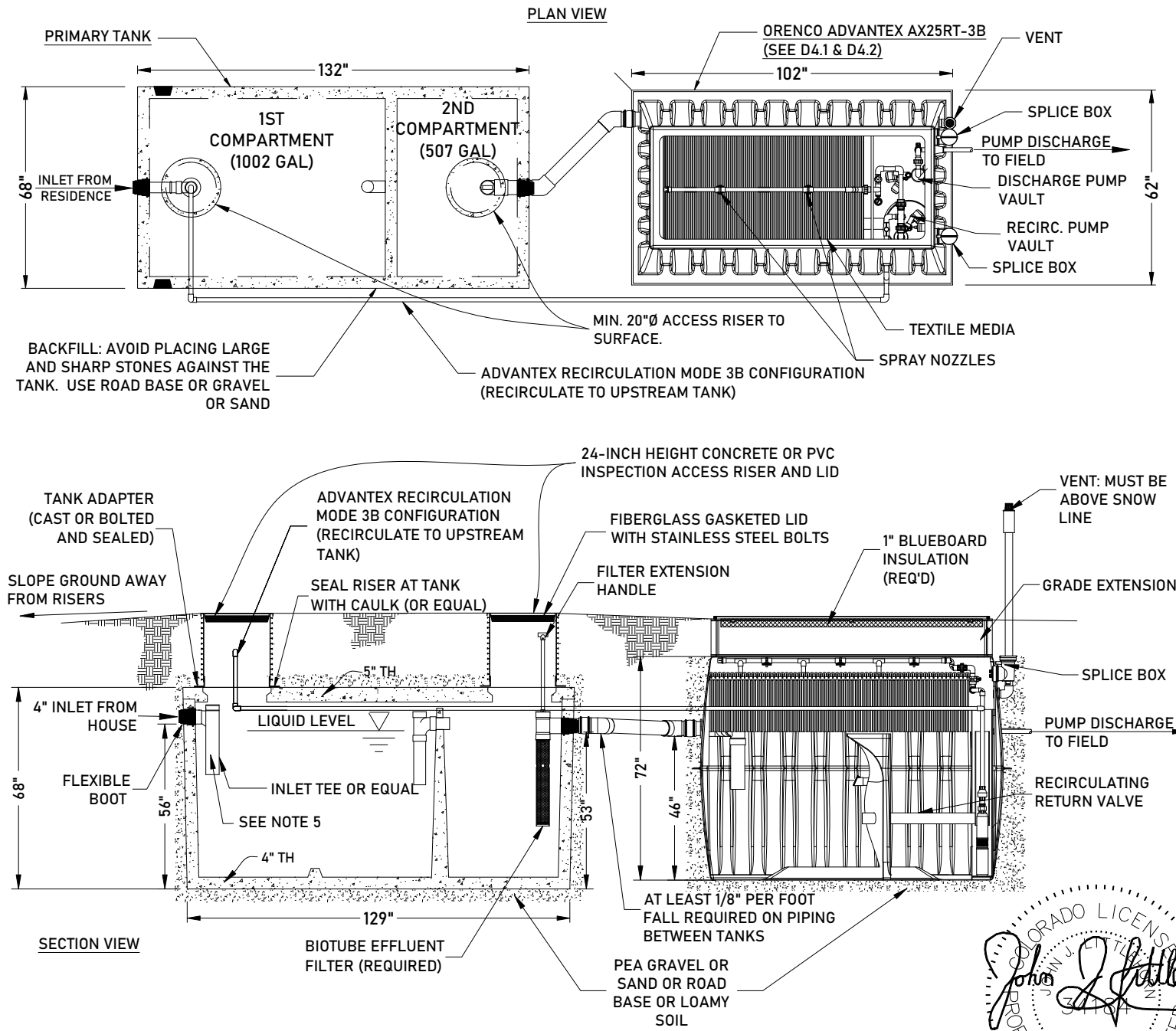
**D3**

40



**SEPTIC TANK:**

1. THE PRIMARY SEPTIC TANK SHALL HAVE A MINIMUM HOLDING CAPACITY OF 1500 GALLONS IN THE FIRST TWO COMPARTMENTS (1509 GALLON TANK CAPACITY TOTAL). THIS TANK WILL SERVE AS PRIMARY TREATMENT AND ALL EFFLUENT DISCHARGED WILL ENTER THE ORENCO ADVANTEX AX25RT-(MODE 3B) ADVANCED TREATMENT UNIT.
2. ORENCO ADVANTEX AX25RT-(MODE 3B): EFFLUENT ENTERING THE ADVANCED TREATMENT UNIT (ORENCO ADVANTEX AX25RT) IS RECIRCULATED OVER A SERIES OF TEXTILE MEDIA UTILIZING A SELF-CONTAINED RECIRCULATION PUMP. NATURAL BACTERIA IN THE UNIT BECOME "FIXED" OR ATTACHED TO THE STATIONARY TEXTILE MEDIA. THIS IS WHERE THE ABUNDANT, DIVERSE, SELF-REGULATING POPULATION OF MICROBES CONSISTENTLY METABOLIZE THE RECIRCULATED WASTE. DUE TO THE NATURAL AEROBIC PROCESSES OCCURRING, A PASSIVE VENT IS ATTACHED TO THE UNIT. THE PASSIVE VENT MUST EXTEND ABOVE SNOWLINE. AN ADDITIONAL DISCHARGE PUMP IS USED TO PUMP THE TREATED WATER TO THE SOIL TREATMENT AREA. FOR THE DISCHARGE PUMP, USE AN ORENCO PUMP MODEL PF5005 HIGH HEAD EFFLUENT PUMP, 2-INCH DISCHARGE, 1/2 HP, 115V OR 230V [(719) 395-6764]. FOR THIS SYSTEM, THE PUMP IS DESIGNED FOR A FLOW RATE OF 61.8 GPM WITH A TOTAL DYNAMIC HEAD OF 32.2 FEET.
3. THE ORENCO EFFLUENT DISCHARGE PUMP SHALL BE EQUIPPED WITH A COLD WEATHER DISCHARGE ASSEMBLY WITHOUT CHECK VALVE. THE COLD WEATHER ASSEMBLY WILL ENABLE THE LINE TO EMPTY AT END OF PUMPING CYCLE. INSTALL CONTROL PANEL AND FLOATS FOR TIMED DOSING PER MANUFACTURER REQUIREMENTS. A REDUNDANT UL LISTED FLOAT SHOULD BE INSTALLED TO ENSURE THE PUMP DOES NOT RUN DRY. THE FLOATS SHOULD BE SET FOR A 16-INCH DRAW DOWN TO DOSE THE FIELD WITH 150 GALLONS (PIPE DRAINS BACK TO TANK). INSTALL PUMP CONTROL PANEL WITH BOTH AUDIBLE AND VISUAL ALARM SIGNALS WITHIN THE INTERIOR OF THE HOME OR GARAGE IN A DRY AND SECURE PLACE. AN ELAPSED TIME METER AND COUNTER IS REQUIRED. THE INSTALLER SHALL PERFORM ALL ELECTRICAL WIRING IN ORDER TO AVOID THE HAZARDOUS AREA (REF. TO COUNTY REGULATIONS). NON-METALLIC PVC OR THREADED RIGID METAL CONDUIT WILL BE REQUIRED BETWEEN THE JUNCTION BOX WITHIN THE TANK AND THE ELECTRICAL EQUIPMENT OUTSIDE OF THE TANK. CONDUIT SEALS SHALL BE USED WHEN ENTERING OR LEAVING THE ELECTRICAL CONTROL BOX. BE SURE THE HIGH WATER ALARM AND PUMP ARE CONNECTED TO SEPARATE CONTROL BREAKERS
4. THE DISCONNECT/CONTROL EQUIPMENT ENCLOSURE MUST BE WEATHERPROOF.
5. THE EFFLUENT PUMPING SYSTEM AND CONTROL PANEL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ALL STATE AND LOCAL REGULATIONS. THE PUMP SHALL BE PRIMED PROPERLY PRIOR TO START-UP.
6. THE SEPTIC TANK SHALL BE A WATERTIGHT PRECAST CONCRETE (EQUIPPED WITH LIFTING RINGS) VAULT MEETING ASTM C1227-13. THE TANK SHALL HAVE TWO COMPARTMENTS SEPARATED BY INTEGRAL OR SEPARATELY CAST WALLS, KEYED INTO THE SIDES OF THE TANK. THE TANK SHALL CONFORM TO SUMMIT COUNTY REGULATIONS. IN PART THESE REGULATIONS STATE THE FOLLOWING: A) THE FIRST COMPARTMENT SHALL HAVE THE SPECIFIED MINIMUM LIQUID CAPACITY. B) THE LIQUID DEPTH IN THE TANK SHALL BE NO LESS THAN 30". C) FREE VENTILATION BETWEEN COMPARTMENTS SHALL BE PROVIDED IMMEDIATELY BELOW THE VAULT CEILING. D) AN INLET TEE OR Baffle SHALL BE PROVIDED AND SHALL EXTEND ABOVE THE SURFACE OF THE LIQUID AT LEAST 5" AND SHALL EXTEND A MINIMUM OF 8" BELOW THE LIQUID SURFACE. E) Baffle SYSTEMS SHALL BE PROVIDED TO DISSIPATE ENERGY AND PREVENT SHORT CIRCUITING FLOW THROUGH THE COMPARTMENTS (35 TO 40% OF THE LIQUID DEPTH). F) THE INLET INVERT SHALL BE AT LEAST 2" ABOVE THE OUTLET INVERT. J) THE Baffles SHALL EXTENT TO 14" BELOW THE OUTLET INVERT. I) THE SEPTIC TANK AND EQUIPMENT AND MATERIALS WITHIN THE TANK SHALL BE MANUFACTURED FROM DURABLE AND CHEMICALLY RESISTANT MATERIALS WHICH ARE UNAFFECTED BY GASES AND FLUIDS ASSOCIATED WITH DOMESTIC SEWAGE.
7. ACCESS RISERS: ACCESS OPENINGS WITH A MINIMUM DIMENSION OF 20 INCHES SHALL BE PROVIDED OVER EACH COMPARTMENT WITH THE EXCEPTION OF THE DOSING COMPARTMENT, WHERE A 24"Ø RISER IS REQUIRED. CONCRETE, PVC OR FIBERGLASS RISERS WITH SECURE CLOSING MECHANISMS OR OF SUFFICIENT WEIGHT SHALL BE PROVIDED OVER EACH ACCESS OPENING AS NECESSARY TO PROVIDE ACCESS FROM FINISH GRADE. RISERS SHALL BE ATTACHED TO THE TANKS SUCH THAT A WATERTIGHT SEAL IS PROVIDED; MECHANICAL FASTENERS ARE RECOMMENDED TO AUGMENT THE SAFETY (& SEAL) OF POSITIVE CLOSURE OF THE LID. TO MITIGATE FREEZING, AT LEAST 18-INCH TALL RISERS SHALL BE USED. TANK HEATERS ARE A MUST IN PART-TIME SYSTEMS & WHEN THE TANK IS MORE THAN 50 FEET FROM THE HOUSE. USE TRAFFIC RATED LIDS WHERE REQUIRED.
8. TANK SUB-GRADE/WATERPROOFING: THE TANK SHALL BE INSTALLED ON A LEVEL SUBGRADE OF UNDISTURBED SOIL OR WELL COMPACTED BACKFILL CAPABLE OF SUPPORTING A 2000 PSF LOAD (TESTING IS HIGHLY RECOMMENDED IF YOU'RE NOT SURE). THE TANK SHALL BE BACKFILLED WITH SUITABLE GRANULAR SOIL (FREE OF CLAY, ORGANIC MATTER, COBBLES, SNOW, OR ICE), SAND, PEA GRAVEL, OR SQUEEGEE. IN AREAS OF HIGH GROUND WATER, THE TANK SHOULD BE PROTECTED BY APPLYING A HEAVY CEMENT-BASE WATERPROOF COATING IN COMPLIANCE WITH TANK MANUFACTURER.
9. DRAINAGE: ROOF DRAINS, FOUNDATION DRAINS, AREA DRAINS, AND SPRINKLER HEADS MUST BE DIRECTED AWAY FROM THE SEPTIC TANK. MAKE SURE ALL AREAS AROUND THE TANK ARE GRADED TO MITIGATE GROUND WATER AWAY FROM THE TANK LIDS TO PREVENT WATER INFILTRATION INTO THE TANK.
10. PIPING: FOR THE INFLOW LINE, SET THE TANK AT A DEPTH THAT PERMITS GRAVITY INFLOW AS SPECIFIED. ALL PIPING SHALL BE ADEQUATELY SUPPORTED ON COMPACTED SELECT BACKFILL TO PREVENT FAILURE FROM DIFFERENTIAL SETTLEMENT. BACKFILLING AROUND THE SEPTIC TANK SHALL BE ACCOMPLISHED IN A MANNER THAT PREVENTS SETTLEMENT AND AVOIDS UNDUE STRAIN ON THE PIPES ENTERING AND EXITING THE SEPTIC TANK.
11. GENERAL: NO STRUCTURE SHALL BE CONSTRUCTED OVER ANY PORTION OF THE SEPTIC TANK. FOR INSTALLATION IN TRAFFIC AREAS, THE TANK SHALL BE DESIGNED TO WITHSTAND AN AASHTO H20-44 WHEEL LOAD + THE EQUIVALENT SOIL WEIGHT ON THE TANK + A 30 PSF FLUID UNIT SIDE WALL PRESSURE. ALL TANKS MUST BE WATERTIGHT.



**MANUFACTURER NOTES\*:**

- ORENCO ADVANTEX AX25RT INSTALLATION TO BE PERFORMED BY AN ADVANTEX TRAINED INSTALLER ONLY.
- ORENCO ADVANTEX AX25RT START-UP AND SERVICE TO BE PERFORMED BY AN ADVANTEX TRAINED SERVICE PROVIDER ONLY.
- TANK TO BE SET ON 5" MIN. SAND BED OR PEA GRAVEL
- TANK TO BE BACKFILLED UNIFORMLY ON ALL SIDES IN LIFTS LESS THAN 24" AND MECHANICALLY COMPACTED
- EXCAVATION SHOULD BE DEWATERED
- FILL TANK WITH CLEAN WATER PRIOR TO BEING PUT IN SERVICE WHEN WATER TABLE IS WITHIN 24" OF TANK TOP.

\*SEE INSTALLATION GUIDE ON WEBSITE

PRIMARY TANK	TOTAL CAPACITY		APPROXIMATE WEIGHTS		
	1509 GALLONS		TANK	TOTAL	LID
			11,180 LBS	14,780 LBS	3,600 LBS

**1 SEPTIC TANK DETAILS**  
 NO SCALE FOR THIS PROJECT, A VALLEY PRECAST TANK IS SPECIFIED (719-395-6764). IF A DIFFERENT TANK MFG IS CHOSEN BY THE CONTRACTOR, SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.



GENERAL OWTS DESIGN ONLY. NO TANK STRUCTURALS.

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SEPTIC TANK DETAILS & SPECIFICATIONS  
 CROWN SUBDIVISION, LOT 532  
 39 LODGESTONE TRAIL  
 BLUE RIVER, CO 80424

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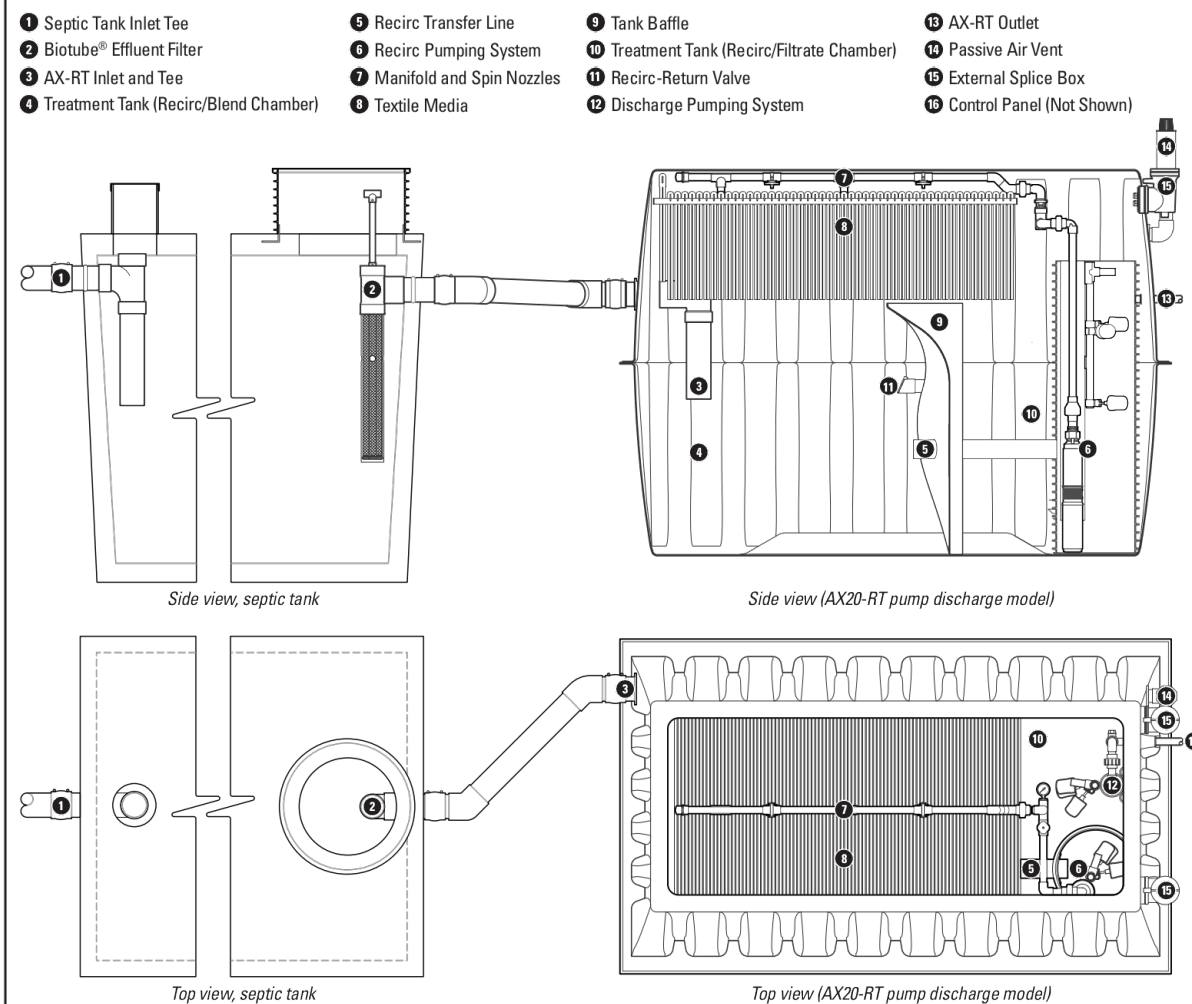
## Introduction: AdvanTex® AX-RT Treatment Unit Operation

This supplement contains information to help you successfully operate and maintain an AdvanTex® AX-RT Treatment System. The AX-RT operates similarly to the AdvanTex AX20 Treatment System, but there are some differences to be aware of when performing O&M activities. A big difference is that the AX-RT consists of a single, self-contained module for recirculation, treatment, and dosing, instead of separate units.

Another difference is that the AX-RT has no Recirculating Splitter Valve (RSV). Effluent percolates down through the textile media and is split — by means of a tank baffle — between the recirc/blend chamber and the recirc/filtrate chambers of the AX-RT recirculating treatment tank.

Raw sewage enters the septic tank through its inlet tee. In the septic tank, the raw sewage separates into three distinct zones — a scum layer, a sludge layer, and a clear zone. Effluent from the clear layer passes through a Biotube® effluent filter and is discharged by gravity to the recirc/blend chamber of the AX-RT unit. The effluent then flows through the recirc transfer line to the recirc pumping system. The recirc pumping system pumps effluent from the recirc/blend chamber through the manifold to the spray nozzles in the top of the unit. Effluent percolates down through the textile media and is divided — by means of a tank baffle — between the recirc/blend chamber and the recirc/filtrate chamber inside of the unit.

**Figure 1. AdvanTex® AX-RT Functional Areas and Components (AX20-RT Shown):**



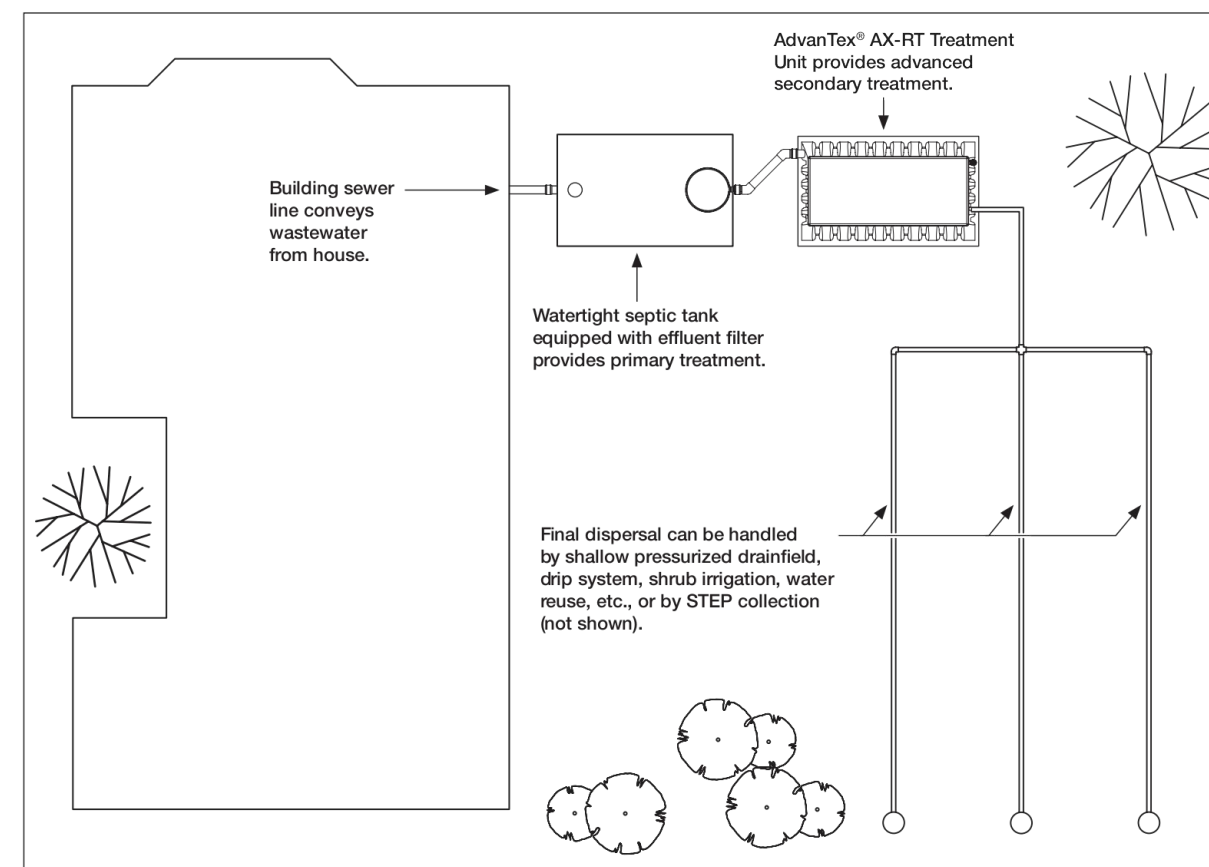
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## Introduction to AdvanTex AX-RT, continued

The recirc pump's operation is controlled by a timer in the control panel. It allows the pump to dose the textile media for short periods (usually 0.8 to 1.0 minutes), typically 72 times a day. These frequent "micro-doses," which optimize the treatment process, occur 24 hours a day, to maintain the proper biological environment.

Treated effluent can be discharged to the drainfield by means of a discharge pump system or by gravity discharge. The "High Level Alarm" and "ON" floats for the discharge pump are set at the factory and are non-adjustable. Dose volume for the discharge pump system is determined by adjustments to the "OFF" float. AX-RT units with gravity discharge simply discharge when the level of treated effluent in the recirc/filtrate chamber is at the level of the discharge outlet. For units equipped with UV disinfection, the effluent passes through the UV treatment unit before being pumped or flowing by gravity to final dispersal.

## Typical Site Plan for an AdvanTex AX-RT Treatment Unit



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THIS DRAWING IS PROVIDED FOR ILLUSTRATION AND ADVANTEX UNIT SPECIFICATIONS ONLY. REFER TO SHEET D4 FOR THE FULL CONFIGURATION WITH PRIMARY TANK. ORENCO ADVANTEX AX25RT INSTALLATION TO BE PERFORMED BY AN ADVANTEX TRAINED INSTALLER ONLY. ALL SERVICE AND MAINTENANCE ON ORENCO TO BE PERFORMED BY AN ADVANTEX TRAINED SERVICE PROVIDER ONLY.

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ORENCO ADVANTEX AX-RT MFG. DRAWING 1 OF 2

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FAIRPLAY OFFICE 719.836.7120  
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2023-100072

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## AdvanTex O&M Manual: Changes Specific to the AX-RT

The following shows AX-RT-specific information not found in Parts 1 and 2 of the *AdvanTex® O&M Manual* that are relevant to operating and maintaining the AdvanTex AX-RT Treatment Unit. Use the general information found in the *O&M Manual* along with this information to start up and properly service AX-RT systems.

### Start-Up Checklist Changes Primary Treatment

**Note:** All pumping equipment is contained in the AX-RT unit. Substitute the checklist item below for the checklist items in the "Process Tank Pumping Equipment" and "Process Tank Pumping System" sections.

#### Septic Tank

- Biotube® filter installed correctly on the septic tank outlet.

**Note:** There is no recirculating splitter valve (RSV) or separate discharge basin in an AX-RT system. Floats in the recirculation pump system are set at the factory for correct performance. Do not adjust the floats in the recirculation pump system. Substitute the checklist items below for the checklist items in the "Secondary Treatment" section.

#### Secondary Treatment AX-RT Unit

- AX-RT unit installed level.
- All piping properly covered and compacted.

#### Ventilation System

- Passive air vent on AX-RT unit properly installed.

#### Recirculation Pump System

- Floats operate properly.
- Pump plumbing connected correctly to manifold.

#### Recirculation Pump System Operation

- Pump operates in "Manual."
- Pump operates in "Automatic."
- Pump run amps: \_\_\_\_\_
- Pump rest volts: \_\_\_\_\_ run volts: \_\_\_\_\_

#### AX-RT Filter Operation

- Complete, square spray square pattern with full coverage of sheets

#### AX-RT Discharge Unit (pump discharge only)

- Floats operate properly.
- Pump discharge plumbing connected correctly.
- "Off" float adjusted for correct discharge dose to dispersal.

### Setting Timers for New Systems

Initial timer settings for an AX-RT should be established based upon expected average daily flows and a recirculation ratio of 4:1 (filter recirculation ratio). Table 1 provides recommended timer settings. If flows vary significantly from expected flows, timer settings should be adjusted accordingly. Contact Orenco for more information.

**Table 1. Recommended Timer Settings for New Systems**

Models AX20-RT, AX20-RTUV	Number of Residents	Time On Setting Min (Sec)	Avg Daily Flow, gpd (L/day)	Time Off Setting Min
	2	0.8 (48)	100 (379)	36.1
	3	0.8 (48)	150 (568)	23.8
	4	0.8 (48)	200 (757)	17.6
	5	0.8 (48)	250 (946)	13.9
	6	0.8 (48)	300 (1136)	11.5
	7	0.8 (48)	350 (1325)	9.7
	8	0.8 (48)	400 (1514)	8.4

Model AX25-RT	Number of Residents	Time On Setting Min (Sec)	Avg Daily Flow, gpd (L/day)	Time Off Setting Min
	2	0.7 (42)	100 (379)	47.7
	3	0.7 (42)	150 (568)	31.6
	4	0.7 (42)	200 (757)	23.5
	5	0.7 (42)	250 (946)	18.7
	6	0.7 (42)	300 (1136)	15.4
	7	0.7 (42)	350 (1325)	13.1
	8	0.7 (42)	400 (1514)	11.4
	9	0.7 (42)	450 (1703)	10.1
	10	0.7 (42)	500 (1893)	9.0
	11	0.7 (42)	550 (2082)	8.1
	12	0.7 (42)	600 (2271)	7.4

• Assumes water usage of 50 gal. (190 L) per person per day and a return recirculation ratio of 3:1. (Filter recirculation ratio of 4:1.)

• Override OFF cycle time is set at one-half of the OFF cycle time. Override ON cycle time is set the same as the ON cycle time.

### Setting Discharge Dose Volume

The AX-RT is pre-set at the factory for a discharge dose volume of 43 gal/dose (162 L/dose). If necessary, use the discharge pump "Off" float to make adjustments to the discharge dose volume. Each 1-in. (25 mm) increase or decrease in "Off" float height is equal to approximately 8.7 gal. (33 L) change in dose volume.

Do not adjust the settings of the "High-Level Alarm" and "On" floats.

**Table 2. Dose Volume Information**

Pump gal./min (L/sec)	10 (0.6)	20 (1.3)	30 (1.9)	50 (3.2)
Factory float setting*, in. (mm)	30 (762)	30 (762)	30 (762)	30 (762)
Lowest "Off" setting, in. (mm)	16 (406)	18 (457)	20 (508)	24 (610)
Max dose volume, gal. (L)	156 (591)	139 (526)	123 (466)	90 (341)

\*Settings are measured from the bottom of the discharge side of the AX-RT unit.

### Perform Field Sampling

When you arrive at the site, remove the lid from the AX-RT and take your sample from the recirc/filtrate side of the AX-RT unit before doing anything else, so that the sample won't be contaminated by material that you stir up while working.

### Notes

When you collect effluent samples, be careful not to touch the textile sheets, unit walls, or other components. Disturbing the sheets, walls, or other components could contaminate the samples. Also, be sure to thoroughly clean and dry your sampling device between uses to avoid cross-contamination.

### Measure Sludge and Scum

Measure sludge and scum in the septic tank AND on the recirc/blend side of the AX-RT unit. Follow the instructions for pumpouts found in the *AdvanTex O&M Manual* for the process tank.

**NOTE:** A light buildup of solids is expected to form in the AX-RT unit over time. After the second year that the system is in use, we recommend measuring solids accumulation in the AX-RT whenever you perform regularly scheduled maintenance.

If more than trace amounts of scum or solids are found in the recirc/blend side of the AX-RT unit, check the recirc/filtrate side of the unit for solids and scum, schedule a pumpout, and begin troubleshooting the system. The Advanced Service Tips and Troubleshooting Guide can help you determine the cause. You may need to change timer settings or discuss household habits with the system users.

THIS DRAWING IS PROVIDED FOR ILLUSTRATION AND ADVANTEX UNIT SPECIFICATIONS ONLY. REFER TO SHEET D4 FOR THE FULL CONFIGURATION WITH PRIMARY TANK. ORENCO ADVANTEX AX25RT INSTALLATION TO BE PERFORMED BY AN ADVANTEX TRAINED INSTALLER ONLY. ALL SERVICE AND MAINTENANCE ON ORENCO TO BE PERFORMED BY AN ADVANTEX TRAINED SERVICE PROVIDER ONLY.

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ORENCO ADVANTEX AX-RT MFG. DRAWING 2 OF 2

CROWN SUBDIVISION, LOT 532  
39 LODGESTONE TRAIL  
BLUE RIVER, CO 80424

**LITTLEHORN ENGINEERING, LLC**

351 US HWY 285, #201  
FAIRPLAY, CO 80440  
FAIRPLAY OFFICE 719.836.7120  
SILVER CLIFF OFFICE 719.783.3757

"PEACE OF MIND THROUGH HOLISTIC DESIGN"

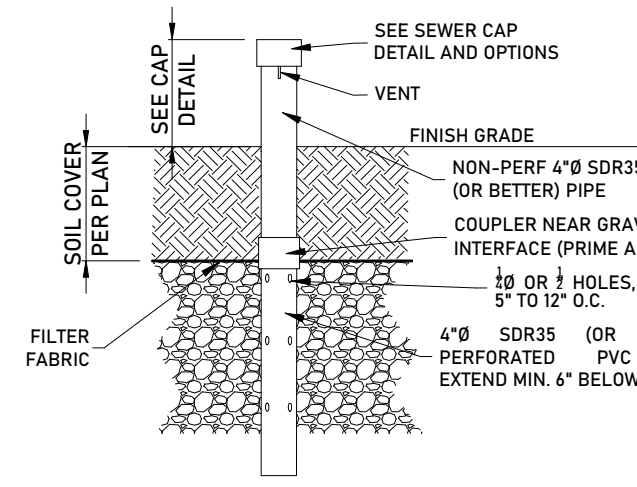


PROJECT NO.  
2023-100072

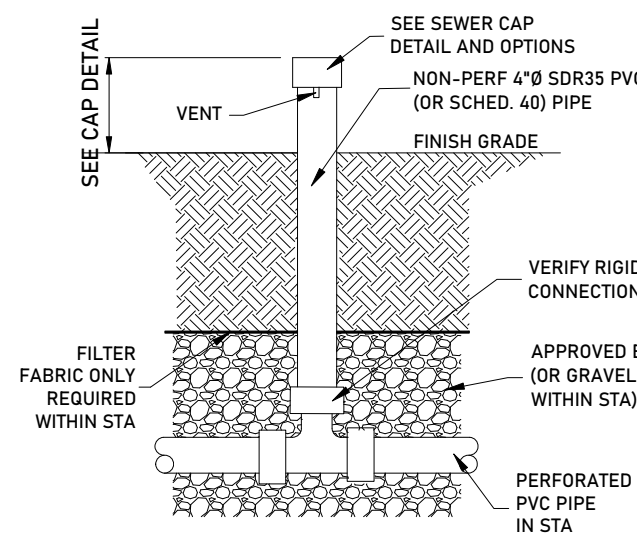
CLIENT  
HELEN  
LEMAY

DATE  
07.31.2023

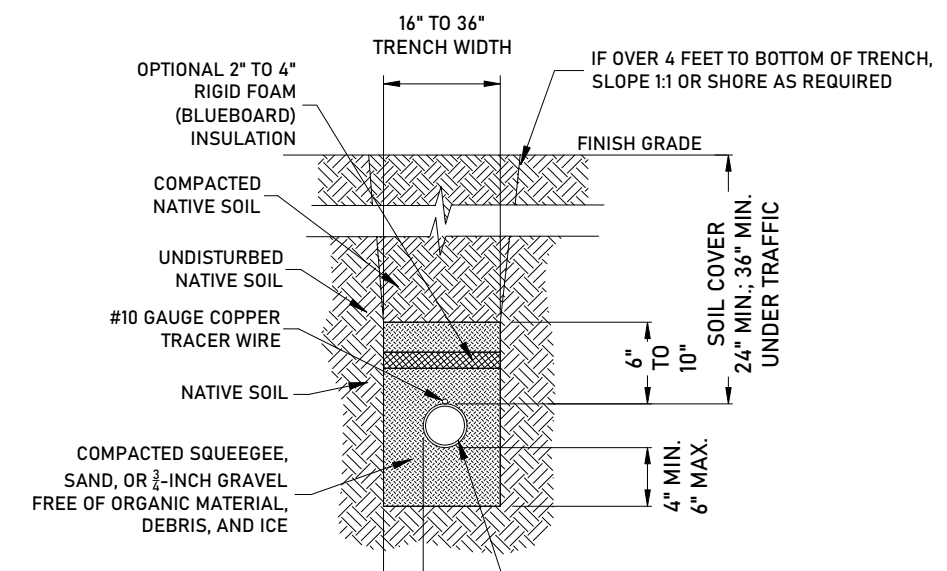
REVISION:  
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△ N/A



**4 4" STA OBSERVATION/VENT DETAIL**  
NO SCALE



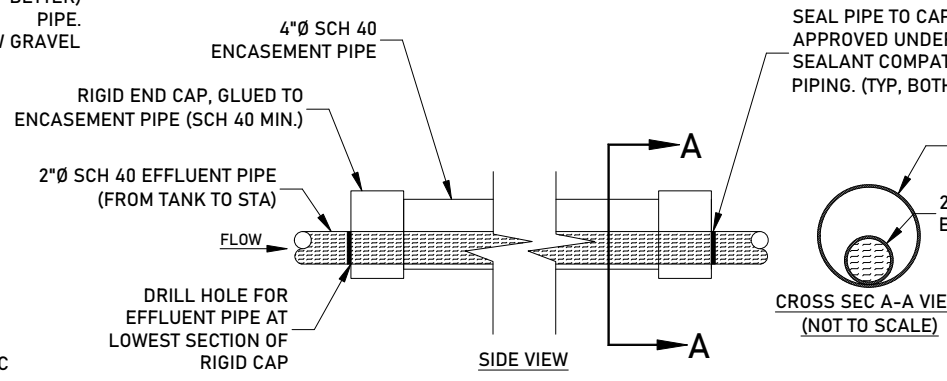
**5 4" OBSERVATION/VENT PIPE DETAIL**  
NO SCALE



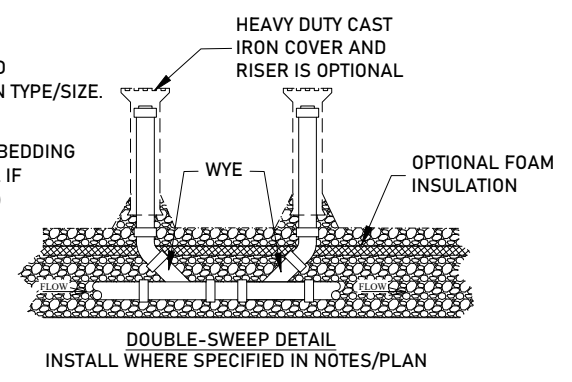
**6 TRENCH DETAIL**  
NO SCALE

**LEGEND:**

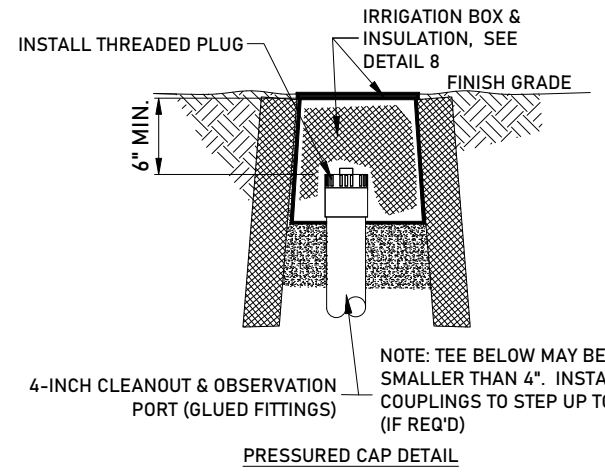
- CLEAN GRAVEL
- APPROVED BEDDING
- COMPACTED TOPSOIL
- INSULATION



**3 EFFLUENT PIPING ENCASEMENT DETAIL**  
NO SCALE

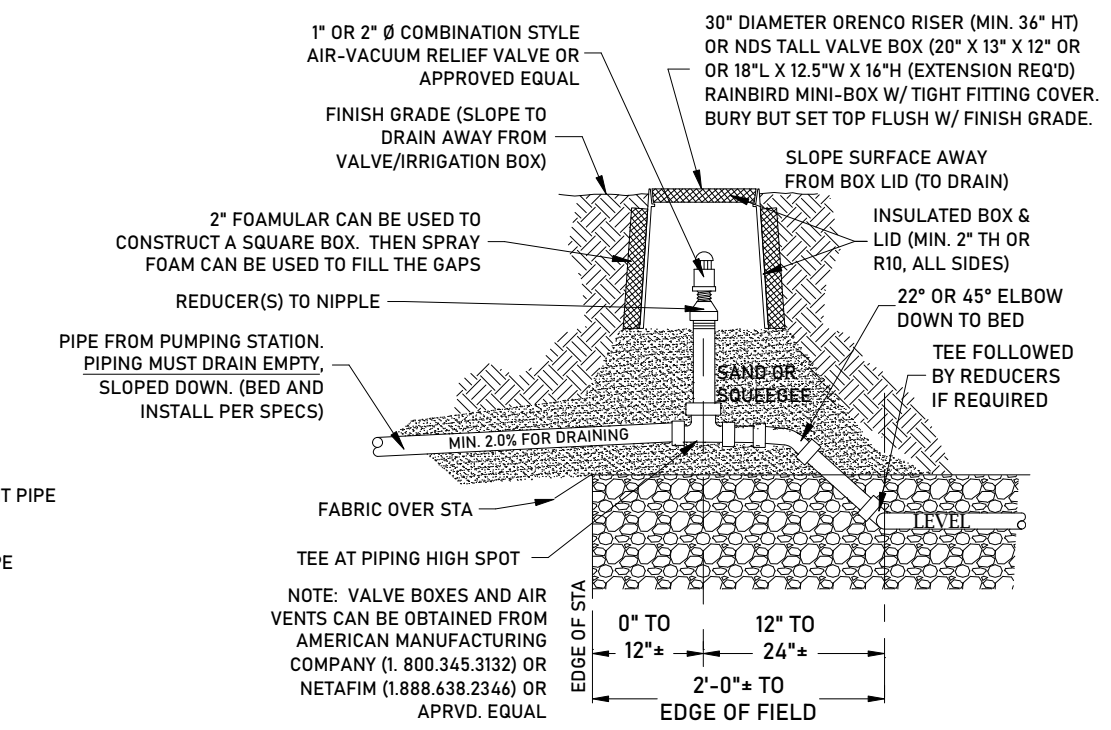


**DOUBLE-SWEEP DETAIL**  
INSTALL WHERE SPECIFIED IN NOTES/PLAN

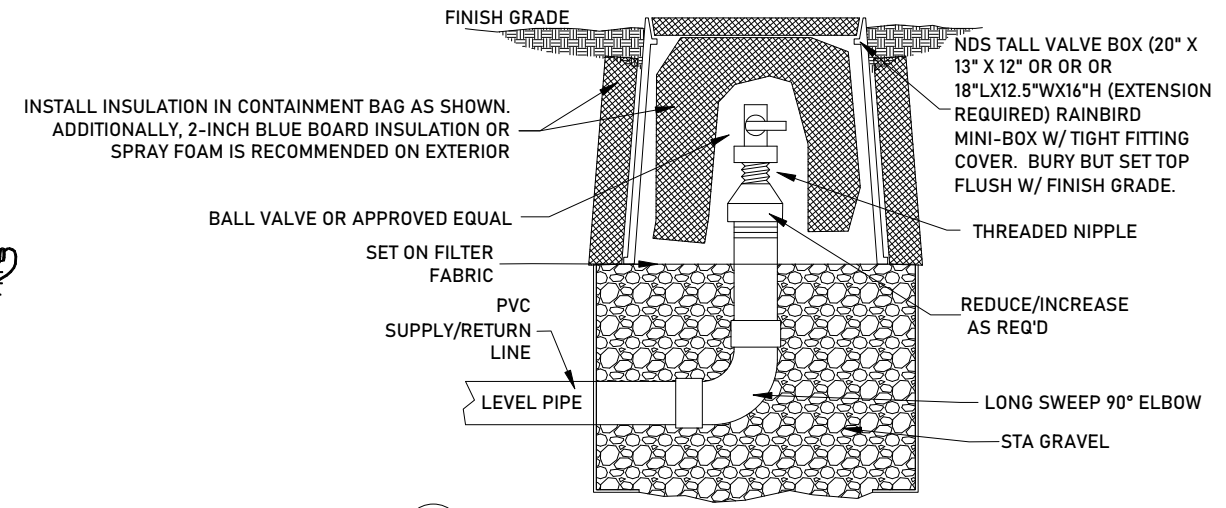


**9 SEWER CAP DETAIL & OPTIONS**  
NO SCALE

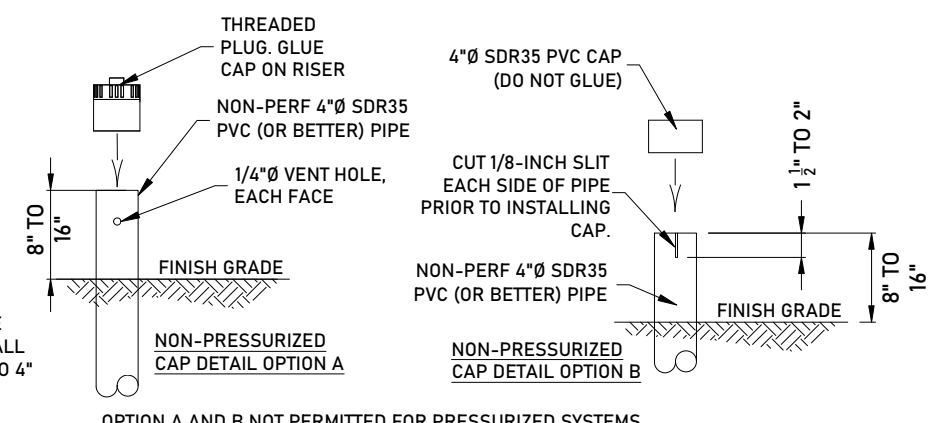
WHEN WASTEWATER IS NON-PRESSURIZED, USE OPTION A OR B OR C. WHEN PORT IS WITHIN PRESSURIZED PIPE SYSTEM, USE PRESSURIZED CAP DETAIL



**7 AIR-VAC FIELD INLET DETAIL**  
NO SCALE



**8 FLUSHING VALVE ASSEMBLY IN BED**  
NO SCALE



**OPTION A AND B NOT PERMITTED FOR PRESSURIZED SYSTEMS**

Section IV, Item C.

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OWTS DETAIL DRAWINGS  
CROWN SUBDIVISION, LOT 532  
39 LODGESTONE TRAIL  
BLUE RIVER, CO 80424

**LITTLEHORN ENGINEERING, LLC**  
351 US HWY 285, #201  
FAIRPLAY, CO 80440  
FAIRPLAY OFFICE 719.836.7120  
SILVER CLIFF OFFICE 719.783.3757  
"PEACE OF MIND THROUGH HOLISTIC DESIGN"



PROJECT NO.  
2023-100072

CLIENT  
HELEN LEMAY

DATE  
07.31.2023

REVISION:  
△ N/A  
△ N/A  
△ N/A

**IMPORTANT**  
**SAVE**  
**TO BE GIVEN TO PROPERTY TENANTS**  
**(POST IN MECH. ROOM)**

1. AN OPERATION AND MAINTENANCE CONTRACT IS REQUIRED FOR ALL ADVANCED TREATMENT SYSTEMS. THIS ENTAILS HAVING A QUALIFIED SERVICE PROVIDER (NAWT O&M 2 CERTIFIED OR EQUAL) MAINTAIN AND INSPECT THE SYSTEM ROUTINELY. IN GENERAL, MAINTENANCE SHALL BE PERFORMED EVERY SIX (6) MONTHS FOR HIGHER LEVEL TREATMENT SYSTEMS. THE COUNTY MAY AMEND OPERATION PERMITS TO REDUCE OR INCREASE THE MAINTENANCE FREQUENCY BASED ON THE INFORMATION CONTAINED IN THE REQUIRED INSPECTION REPORTS.
2. SYSTEMS WHICH ARE ABUSED BY IMPROPER USE AND NOT PROPERLY MAINTAINED WILL FAIL AND CAN FREEZE DURING THE COLD SEASON.
3. IT IS THE PROPERTY OWNER'S RESPONSIBILITY TO USE THE SYSTEM CORRECTLY, OBSERVE THE OPERATION OF THE SYSTEM, AND TO PERFORM REGULAR MINOR MAINTENANCE TO ALLOW FOR PROPER, LONG-TERM FUNCTIONING OF THE DISPOSAL SYSTEM.
4. HAVE YOUR SYSTEM INSPECTED BY A QUALIFIED INSPECTOR OR CONTRACTOR AT LEAST ONCE EVERY TWO YEARS.
5. AN OPERATION AND MAINTENANCE CONTRACT WITH AN ON-SITE WASTEWATER COMPANY IS REQUIRED TO ENSURE PROPER OPERATION AND LONGEVITY.
6. DO NOT DRIVE OR PARK OVER YOUR SEPTIC TANK OR ANY PART OF YOUR ABSORPTION FIELD. THIS CAN COMPACT THE SOIL AND CRUSH YOUR SYSTEM RENDERING IT INOPERABLE. TRAFFIC BARRIERS SHOULD BE INSTALLED AROUND THE PERIMETER OF THE ABSORPTION FIELD AND SEPTIC TANK.
7. PRACTICE WATER CONSERVATION.
8. REPAIR DRIPPING FAUCETS AND LEAKING TOILETS AND USE WATER-SAVING FEATURES IN SHOWER HEADS, FAUCETS, AND TOILETS. LARGE GATHERINGS WILL OVERLOAD THE SYSTEM SINCE SEVERAL PEOPLE MAY BE USING THE SYSTEM IN A SHORT PERIOD OF TIME. FAILURE TO PROPERLY CONSERVE WATER MAY DAMAGE YOUR SEPTIC SYSTEM OR CAUSE COMPLETE FAILURE.
9. TOILET SEALS SHOULD BE REPLACED AS NEEDED OR EVERY 3 YEARS.
10. SEPTIC TANKS CONTAIN HARMFUL, HAZARDOUS GASES. ONLY QUALIFIED PERSONNEL SHOULD ENTER THE SEPTIC TANK IF REQUIRED WITH AN APPROPRIATE AIR SUPPLY.
11. STA OR LEACH FIELD AREAS MUST BE KEPT FREE OF ASPEN TREES, SHRUBS, OR ANY PLANT SPECIES HAVING A DEEP ROOT SYSTEM. DISTURBED AREAS SHOULD BE RE-SEEDED WITH NATIVE GRASSES HAVING A SHALLOW ROOT SYSTEM. MONITOR SOIL EROSION AROUND THE OSWTS.
12. FREEZING CAN OCCUR DURING PERIODS OF STARTUP, WHEN THE SYSTEM IS USED ON A PART TIME BASIS, AND DURING THE WINTER. IN THE DESIGN DRAWINGS WE HAVE SPECIFIED A MINIMAL SOIL COVER. SIX INCHES TO 12 INCHES OF ADDITIONAL SOIL COVER OVER THE ENTIRE SYSTEM CAN HELP TO MITIGATE FREEZING HOWEVER THE BEST OPTION TO MITIGATE FREEZING IS TO INSTALL A SEPTIC HEATER (MODEL A100 OR T100) [719.395.6764] AT THE TANK AND RISER AT THE STA. IN LIEU OF THE HEATER A 115 VOLT SUBMERSIBLE FLOATING TANK HEATER CAN BE USED (BUT IS NOT AS EFFECTIVE AND MAY BE ILLEGAL IF NOT PROPERLY INSTALLED) IN EACH COMPARTMENT OF THE SEPTIC TANK(S) BUT THESE TANK HEATERS WILL NOT MITIGATE LEACH FIELD FREEZING.
13. IF YOU PLAN TO INSTALL A JACUZZI, HOT TUB, THERAPEUTIC OR RECREATIONAL BATHING FACILITY, THIS OFFICE SHALL BE NOTIFIED TO INCLUDE THIS PROVISION IN THE DESIGN OF THE SYSTEM. DO NOT CONNECT THESE ITEMS TO THE SYSTEM WITHOUT CONSULTING WITH US TO PREVENT PERMANENT DAMAGE OR COMPLETE FAILURE.
14. BE AWARE OF YOUR ENVIRONMENT. REPORT ANY SURFACE WATER SEEPING OUT OF THE SOIL THAT SMELLS FUNNY.
15. USE PHOSPHATE-FREE OR LOW PHOSPHATE AUTOMATIC DISH WASHING DETERGENTS.
16. NOTIFY THE ENGINEER OF ANY UNUSUAL CONDITIONS AS SOON AS THEY ARE DISCOVERED.
17. CONTACT THE ENGINEER OR THE COUNTY HEALTH DEPARTMENT FOR ANY HEALTH RELATED QUESTIONS AND FOR ANY QUESTIONS ABOUT THE INSTALLATION OR MAINTENANCE OF THE SEPTIC SYSTEM.



Your home includes a reliable, carefully engineered AdvanTex®-AXN Treatment System for the collection and treatment of residential wastewater. This AdvanTex-AXN Treatment System has been evaluated by the National Sanitation Foundation (NSF) and has been certified by NSF to meet the requirements of NSF-ANSI Standard 40 for Class I Systems.

Your AdvanTex-AXN Treatment System can effectively treat household-strength waste. And it can recycle precious water resources because the treated effluent can be returned harmlessly to the soil, where it receives final polishing and filtration for groundwater recharge.

Your AdvanTex-AXN Treatment System comes with an initial, two-year service contract, which includes regular testing and servicing after system start-up by an authorized AdvanTex Service Provider. All testing and servicing activities are to be performed three to six months after start-up; and an annual field-service inspection, including sampling, is to be scheduled in late spring or in early summer, with a minimum of four inspections during the first two years and annual inspections thereafter. For a complete description of those services, consult your service contract. An extended service contract is also available. Consult your AdvanTex-AXN Treatment System Dealer or Service Provider for a complete description of those services.

Many people are responsible for the care and maintenance of your AdvanTex-AXN Treatment System:

**Homeowner's Responsibilities** – Homeowners and other system users are responsible for preventive maintenance. You need to know what can go into the wastewater treatment system and what cannot. Read and practice the "Do's and Don'ts" in your Homeowner's Manual and instruct all system users to do the same.

Also, you need to know what to do in the event a problem arises or service is required:

- First, call your authorized Service Provider. Your Service Provider's name and phone number are on the back page of your Homeowner's Manual.
- If you cannot reach your Service Provider, call your authorized AdvanTex Dealer. Your AdvanTex Dealer's name and phone number are on the back page of your Homeowner's Manual.
- If you cannot reach either your Service Provider or your AdvanTex Dealer, call the manufacturer: Orenco Systems®, Inc., at **800-348-9843**.

(You'll also find the manufacturer's name and address on the System Data Plate affixed to the inside of the filter pod.)

Finally, ask for and retain copies of all maintenance and service calls on your system.

**Service Provider's Responsibilities** – Authorized AdvanTex Service Providers are responsible for regular testing and servicing of your system, as spelled out in your initial service contract. Service Providers are also responsible for alarm response, in the event of a problem.

In addition, Service Providers should be present at system installation (so that they are familiar with your individual system, especially the location of service lines, conduits, and connections that get buried), and at system start-up.

**Manufacturer's Responsibilities** – Orenco Systems is responsible for training authorized AdvanTex Dealers and providing Dealers with training materials for authorized AdvanTex Service Providers. As long as the system is serviced in accordance with the initial service contract by an authorized AdvanTex Service Provider, Orenco Systems® will replace or repair any AdvanTex Treatment System components that fail because of defects in workmanship or materials.

One last note: If your AdvanTex-AXN Treatment System is used intermittently or if extended periods of non-use are anticipated, no special action needs to be taken. That's one of the advantages of the AdvanTex technology. Within the first day of operation after start-up or after extended periods of non-use, AdvanTex units achieve treatment removal efficiencies of 80% or greater. The system may be left running even during periods of vacancy, as the electrical consumption is negligible and the unit will continue to break down organic and inorganic wastewater constituents, even when the system isn't continually loaded. Nevertheless, it is always good practice to periodically observe your system and verify that it is functioning and that the effluent quality is consistent with the expectations described in your O&M manual.

With your preventive maintenance and with regular maintenance by an authorized Service Provider, your AdvanTex-AXN Treatment System should function for decades, providing better wastewater treatment than many municipal systems, without degradation to rivers and oceans. Congratulations, again, for making an environmentally sound investment.

Congratulations!

**Orenco Systems**  
Incorporated

*Changing the Way the World Does Wastewater®*

**800-348-9843**  
**www.orencosystems.com**

ABR-OM-2  
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OWTS OWNER'S MAINTENANCE REQ.  
CROWN SUBDIVISION, LOT 532  
39 LODGESTONE TRAIL  
BLUE RIVER, CO 80424

**LITTLEHORN ENGINEERING, LLC**  
351 US HWY 285, #201  
FAIRPLAY, CO 80440  
FAIRPLAY OFFICE 719.836.7120  
SILVER CLIFF OFFICE 719.783.3757

"PEACE OF MIND THROUGH HOLISTIC DESIGN"

PROJECT NO. 2023-100072
CLIENT HELEN LEMAY
DATE 07.31.2023
REVISION: △ N/A △ N/A △ N/A

# LITTLEHORN ENGINEERING, LLC

205 FOURTH STREET, SILVER CLIFF, CO 81252

(719) 836-7120 - FAIRPLAY (719) 783-3757 - SILVER CLIFF

## Sieve Test Results - Profile Hole A

Project Number: 2023-1519

Date of Testing: 19-Jun-23

Client: Lemay

Property Information

39 Lodestone Trail

Blue River, CO (Summit County)

### Soil Classification:

Soil Group - Gravelly poorly graded sand with silt (SP-SM)

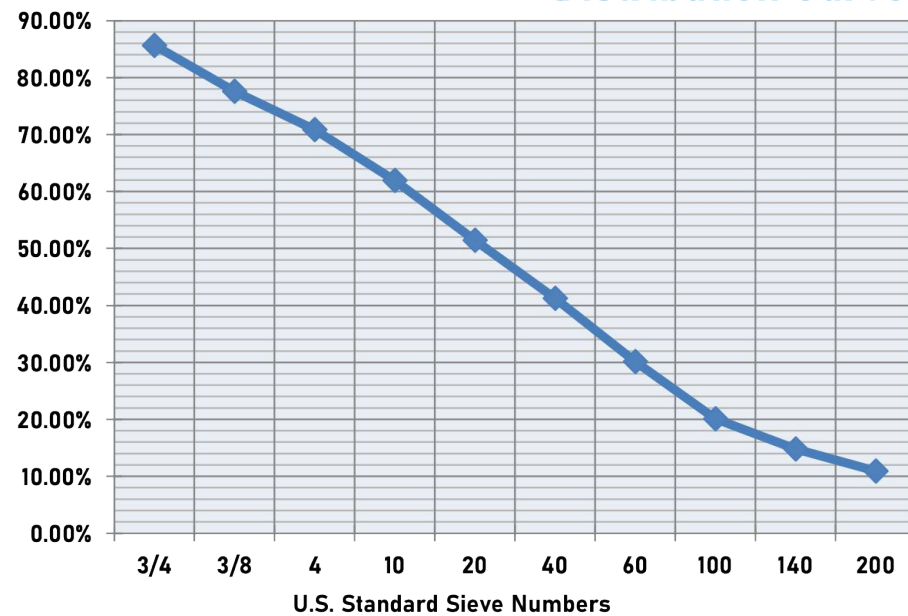
### Soil Type:

LTAR Soils Type - Silt Loam - R2/2A

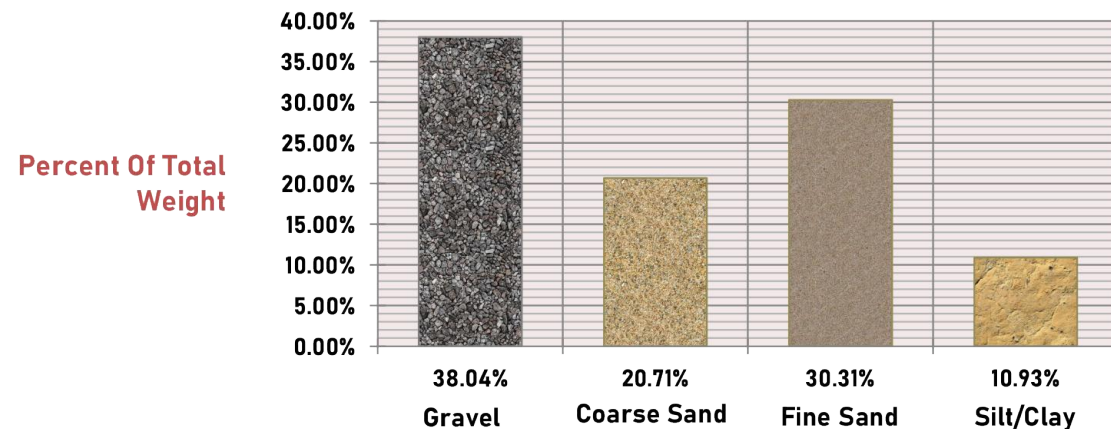
### Typical Grain Size Distribution Curve

Moisture Content: 7.87%

Percent Finer by Weight



### AASHTO Classification By Particle Size



Uniformity Coefficient (Cu): 44.46

Curvature Coefficient (Cc): 0.44

### Pump Selection for a Pressurized System - Single Family Residence Project

LEMAY / 2023-100072

#### Parameters

Discharge Assembly Size	2.00	inches
Transport Length	73	feet
Transport Pipe Class	40	
Transport Line Size	2.00	inches
Distributing Valve Model	None	
Max Elevation Lift	11.5	feet
Manifold Length	8	feet
Manifold Pipe Class	40	
Manifold Pipe Size	2.00	inches
Number of Laterals per Cell	3	
Lateral Length	33	feet
Lateral Pipe Class	40	
Lateral Pipe Size	1.50	inches
Orifice Size	7/32	inches
Orifice Spacing	2	feet
Residual Head	4.1	feet
Flow Meter	None	inches
'Add-on' Friction Losses	4.2	feet

#### Calculations

Minimum Flow Rate per Orifice	1.20	gpm
Number of Orifices per Zone	51	
Total Flow Rate per Zone	61.8	gpm
Number of Laterals per Zone	3	
% Flow Differential 1st/Last Orifice	3.4	%
Transport Velocity	5.9	fps

#### Frictional Head Losses

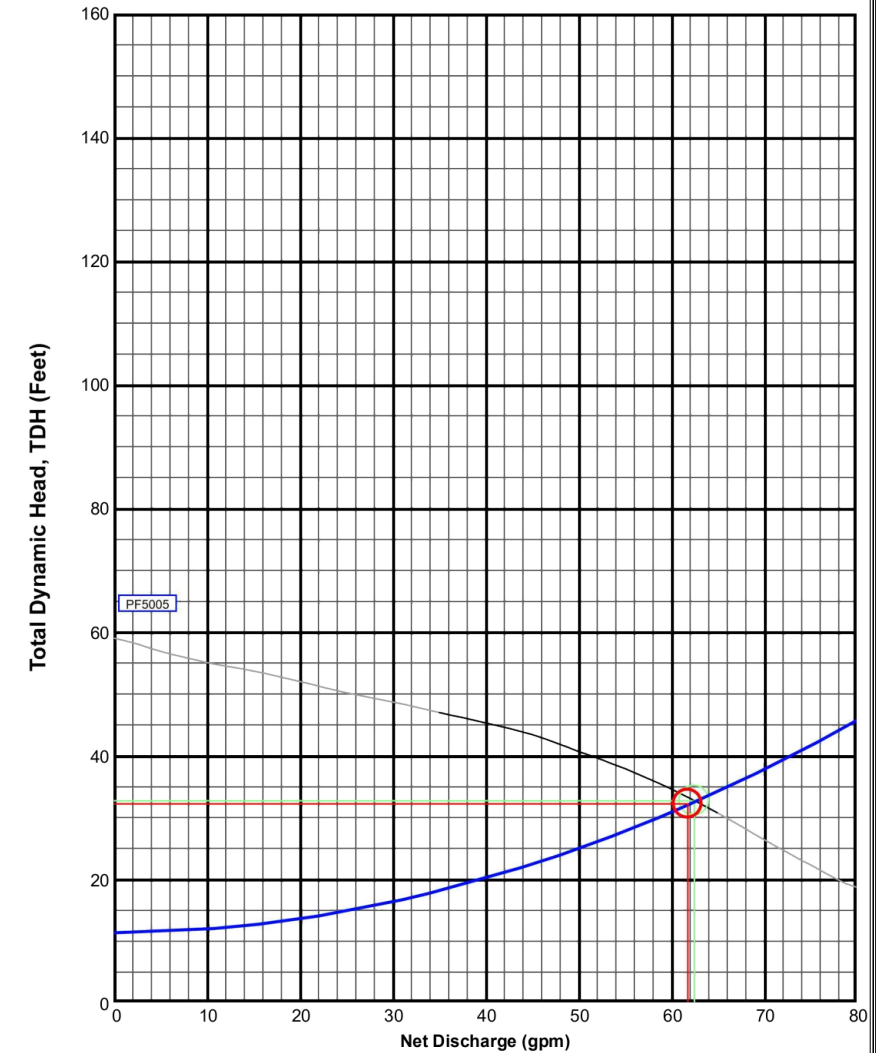
Loss through Discharge	7.6	feet
Loss in Transport	4.3	feet
Loss through Valve	0.0	feet
Loss in Manifold	0.1	feet
Loss in Laterals	0.3	feet
Loss through Flowmeter	0.0	feet
'Add-on' Friction Losses	4.2	feet

#### Pipe Volumes

Vol of Transport Line	12.7	gals
Vol of Manifold	1.4	gals
Vol of Laterals per Zone	10.5	gals
Total Volume	24.6	gals

#### Minimum Pump Requirements

Design Flow Rate	61.8	gpm
Total Dynamic Head	32.2	feet



#### PumpData

PF5005 High Head Effluent Pump  
50 GPM, 1/2HP  
115/230V 1Ø 60Hz, 200/230V 3Ø 60Hz

#### Legend

System Curve:	
Pump Curve:	
Pump Optimal Range:	
Operating Point:	
Design Point:	



Section IV, Item C.

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SOILS TESTING & PUMP CALCULATIONS

LITTLEHORN ENGINEERING, LLC

CROWN SUBDIVISION, LOT 532  
39 LODESTONE TRAIL  
BLUE RIVER, CO 80424

351 US HWY 285, #201  
FAIRPLAY, CO 80440  
FAIRPLAY OFFICE 719.836.7120  
SILVER CLIFF OFFICE 719.783.3757

"PEACE OF MIND THROUGH HOLISTIC DESIGN"



PROJECT NO. 2023-100072

CLIENT HELEN LEMAY

DATE 07.31.2023

REVISION:  
△ N/A  
△ N/A  
△ N/A

D7



Ted Shaffer <tshaffer@bhpartners.com>

---

**Fwd: Contact info and link to monitor status of re-issuance of well permit from State of Colorado**

1 message

---

**Lee Holombo** <holombocon@aol.com>  
To: Ted Shaffer <tshaffer@bhpartners.com>

Mon, Oct 9, 2023 at 11:38 AM

Hi Ted,  
See attached

Sent from my iPad  
Lee's Excavation LLC  
931-220-7787  
[www.clarksvilleexcavatingservices.com](http://www.clarksvilleexcavatingservices.com)

Begin forwarded message:

**From:** Guilhem Buiguès <[guilhem.buigues@gmail.com](mailto:guilhem.buigues@gmail.com)>  
**Date:** August 31, 2023 at 4:24:06 PM CDT  
**To:** Lee Holombo <[holombocon@aol.com](mailto:holombocon@aol.com)>  
**Subject:** Fwd: Contact info and link to monitor status of re-issuance of well permit from State of Colorado

Hi Lee,

Here is everything you need to follow up on the Well Permit Application.

Let me know if you have any questions.

Best,

Guilhem

----- Forwarded message -----

De : **Rob Neyland** <[rob@breckenridgeassociates.com](mailto:rob@breckenridgeassociates.com)>  
Date: ven. 18 août 2023 à 11:49  
Subject: Contact info and link to monitor status of re-issuance of well permit from State of Colorado  
To: [guilhem.buigues](mailto:guilhem.buigues@gmail.com) <[guilhem.buigues@gmail.com](mailto:guilhem.buigues@gmail.com)>  
Cc: Natalie Murray <[natalie@tccreated.com](mailto:natalie@tccreated.com)>

Begin forwarded message:

**From:** "Whitehead - DNR, Dwight" <[dwight.whitehead@state.co.us](mailto:dwight.whitehead@state.co.us)>  
**Date:** August 15, 2023 at 11:49:24 AM MDT  
**To:** Kelly Smith <[kellyanmarie@hotmail.com](mailto:kellyanmarie@hotmail.com)>  
**Subject:** Re: Question about Well Permit Application status

Kelly, the Water Well Permit application for Helen Lemay, 39 Lodestone Trail (Tax #100072), was received by our Denver Office on August 3, 2023, which was entered and will be reviewed under Receipt no. 10030827. Currently our Denver Staff is running about six weeks from the date an application received for review of the application. When the permit is approved or if additional information is requested, correspondence will be sent to the email address noted on the permit application, being: [HELENS@SGMEET.COM](mailto:HELENS@SGMEET.COM). You can always monitor the status of the application at our website, under receipt no. 10030827, hyperlink attached

Receipt no. 10030827: . <https://dwr.state.co.us/Tools/WellPermits/10030827>

I hope it helps.

Regards

**Dwight Whitehead**  
**Well Commissioner**  
**Division 5 Water Resources**  
**PO Box 396**  
**Glenwood Springs, CO 81602**

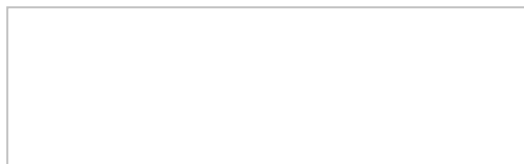


**COLORADO**  
**Division of Water Resources**  
Department of Natural Resources

**P 970-945-5665 x5011 f 970-945-8741**  
**[dwight.whitehead@state.co.us](mailto:dwight.whitehead@state.co.us) | [www.water.state.co.us](http://www.water.state.co.us)**

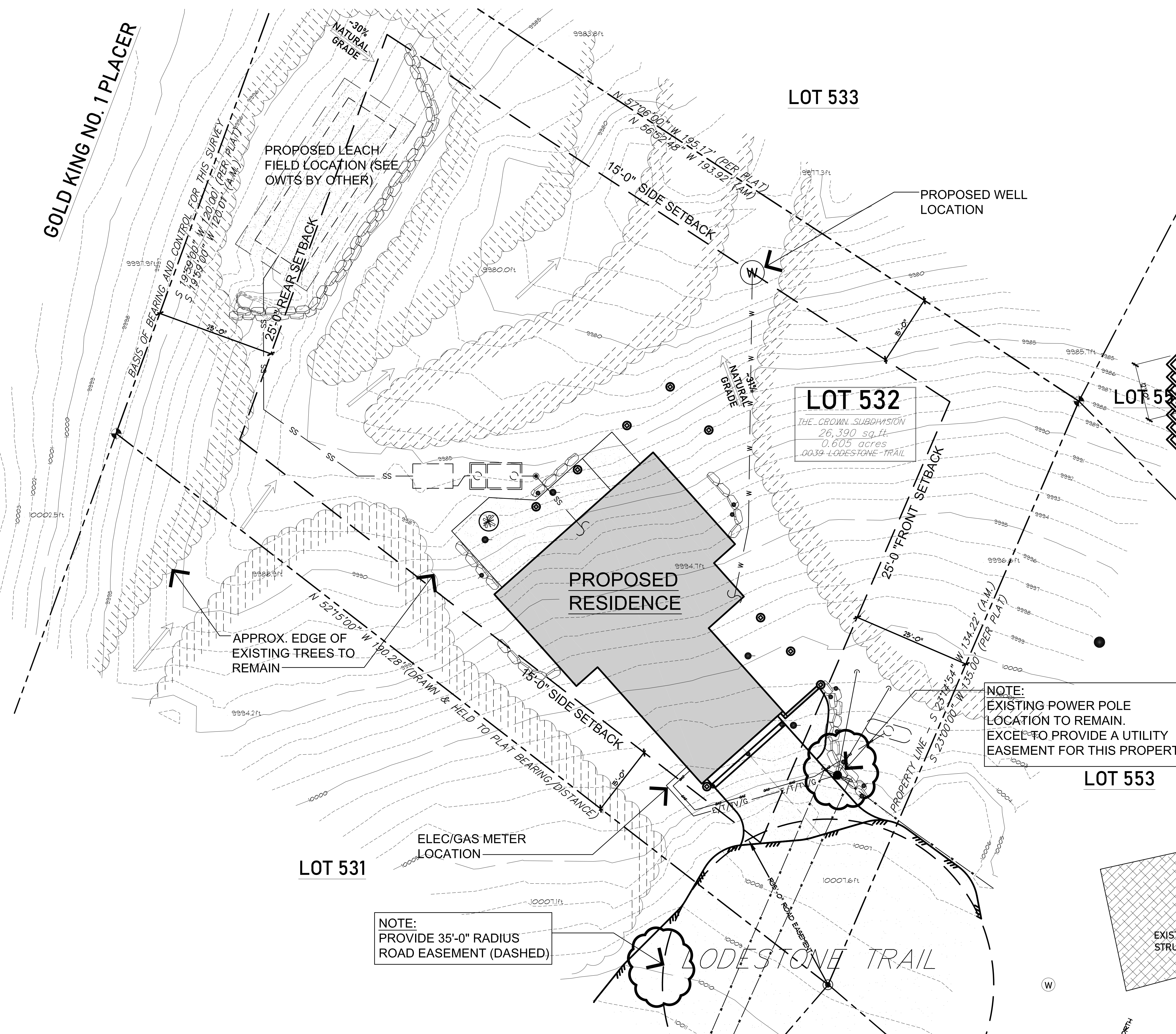
**Rob Neyland**

**Partner/Broker**





GOLD KING NO. 1 PLACER



PROPOSED LEACH FIELD LOCATION (SEE OWT'S BY OTHER)

LOT 533

PROPOSED WELL LOCATION

**LOT 532**  
 THE CROWN SUBDIVISION  
 26,390 sq. ft.  
 0.605 acres  
 0039 LODGESTONE-TRAIL

PROPOSED RESIDENCE

APPROX. EDGE OF EXISTING TREES TO REMAIN

**NOTE:**  
 EXISTING POWER POLE LOCATION TO REMAIN.  
 EXCEPT TO PROVIDE A UTILITY EASEMENT FOR THIS PROPERTY.

LOT 553

ELEC/GAS METER LOCATION

LOT 531

**NOTE:**  
 PROVIDE 35'-0" RADIUS ROAD EASEMENT (DASHED)

LODGESTONE TRAIL

EXISTING STRU

REVISIONS:

JOB NO:	12315.0
DATE:	11.16.23
DRAWN BY:	T. SHAFFER
CHECKED BY:	Z. LEVIN

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ISSUED FOR CONSTRUCTION:  
 10.16.23

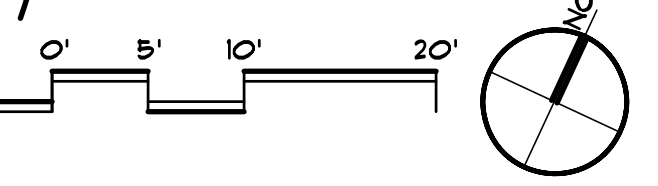
**bhh Partners** of Colorado  
 560 ADAMS AVE SILVERTHORNE, CO 80498 • P.O. BOX 7399-334 BRECKENRIDGE, CO 80424 (970) 453-6880

**HOLOMBO RESIDENCE**  
 0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

©2023  
 SHEET NUMBER:  
**SP-1.0**  
 EASEMENT/UTILITY EXHIBIT

**EASEMENT/UTILITY PLAN**

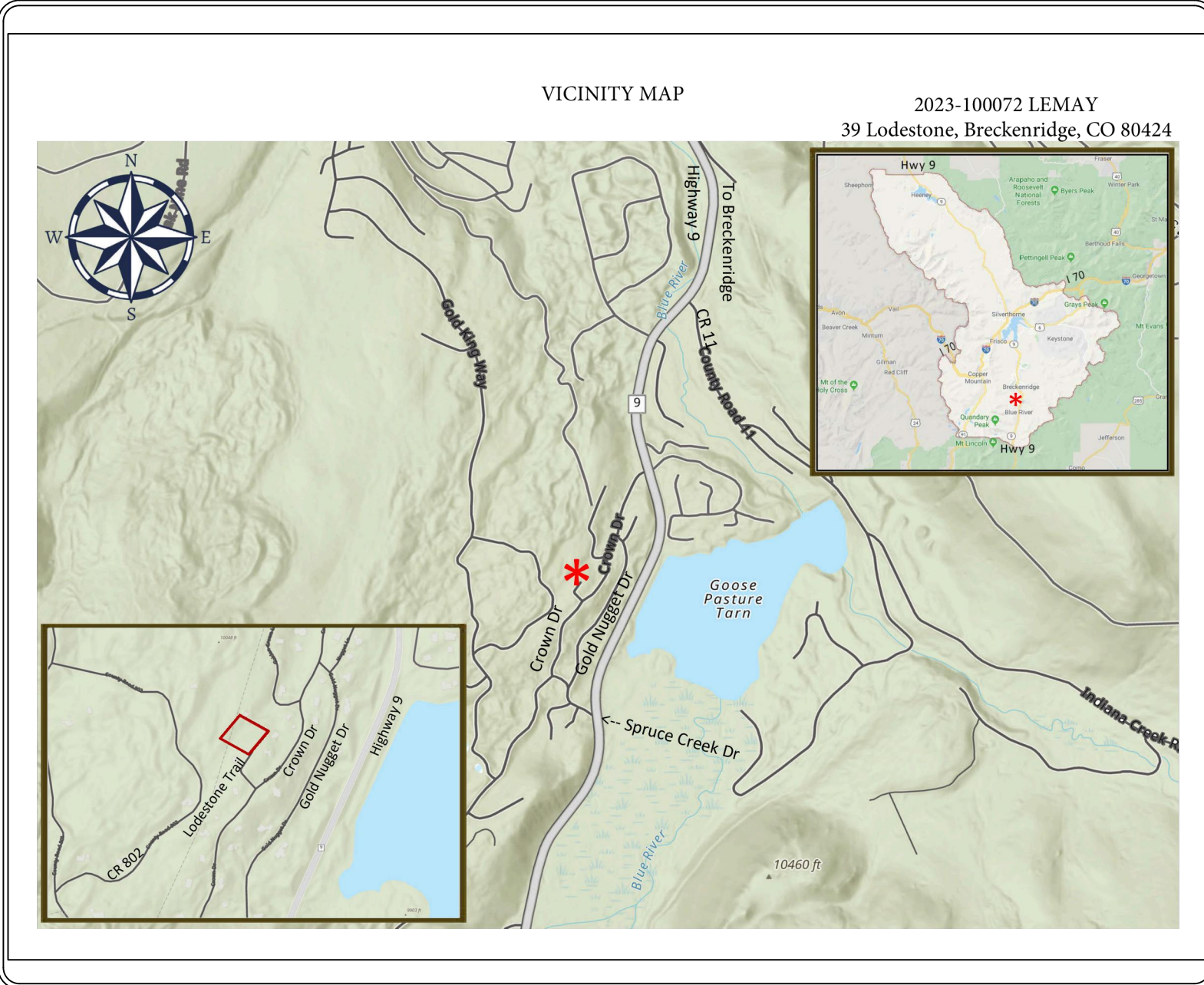
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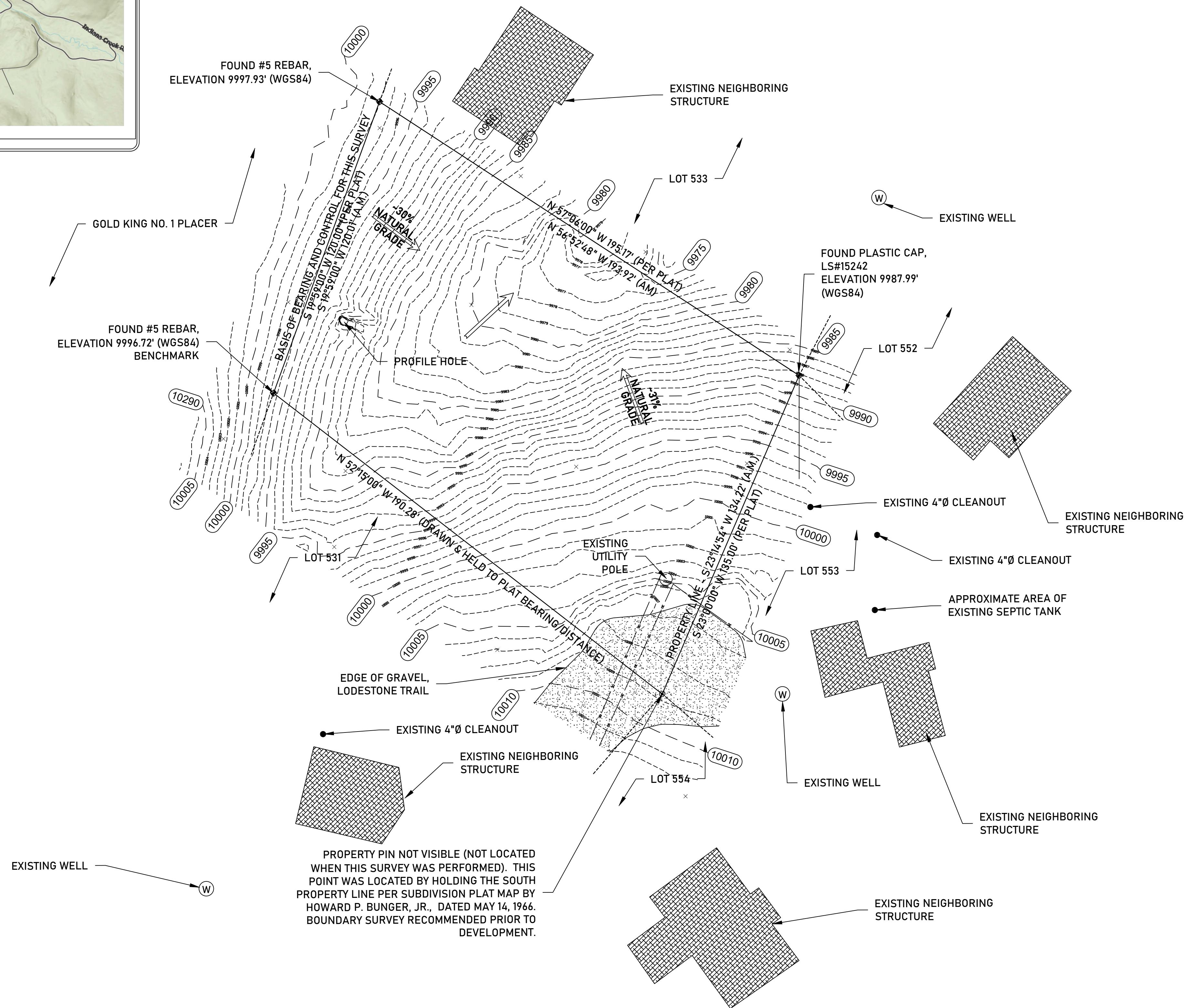


# TOPOGRAPHIC SURVEY MAP

THE CROWN, GOOSE PASTURE TARN, BLUE RIVER ESTATES INC.



LEGEND	
NOTE: NOT ALL ITEMS BELOW ARE REFERENCED IN THIS PLAN	
EOA	EDGE OF ASPHALT
EOG	EDGE OF GRAVEL
FG	FINISH GRADE (AT SURFACE)
STA	SOIL TREATMENT AREA (LEACH FIELD)
TOS	TOP OF SLAB
TOT	TOP OF TANK
(W)	EXISTING WELL
•	PVC PIPE CLEANOUT LOCATED
—SS—	SEWER LINE
●WF#	WETLAND FLAG LOCATION AND RESPECTIVE #
---	EXISTING MAJOR CONTOUR
- - -	EXISTING MINOR CONTOUR
(100)	EXISTING CONTOUR (ELEV. FT) LABEL
—	PROPOSED CONTOUR
(100)	PROPOSED CONTOUR LABEL
⊙	PROPERTY PIN LOCATED BY SURVEY
⊙	PROPERTY PIN NOT FOUND
•	ELEVATION POINT (0.1 FEET ±)
□	UTILITY
←	DRAINAGE ROUTE
FT	TREE LOCATION/CANOPY & HEIGHT
[Pattern]	WETLANDS (IF DELINEATED)
[Pattern]	GRAVEL OR DIRT ROADWAY
[Pattern]	ASPHALT ROADWAY
⊕	FIRE HYDRANT
⊕	GUY ANCHOR
⊕	MANHOLE
⊕	POLE-FLAG
⊕	POLE - LIGHT
⊕	POLE-TRAFFIC LIGHT
⊕	POLE-UTILITY
⊕	BOLLARD
—	OVERHEAD UTILITY LINE



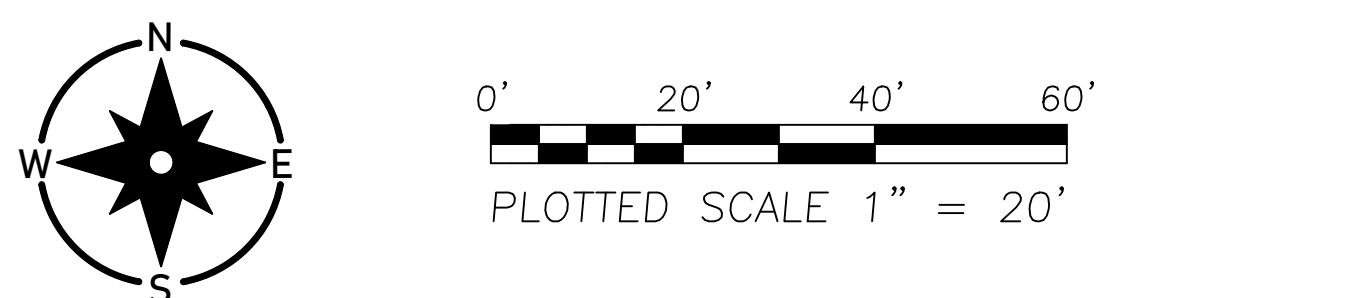
<b>PROPERTY INFORMATION</b>	<b>DRAWING PREPARED FOR:</b>
THE CROWN SUBDIVISION GOOSE PASTURE TARN LOT 532 39 LODESTONE TRAIL BLUE RIVER, CO 80424	HELEN SCHNEIDER LEMAY 266 CROWN DRIVE BLUE RIVER, CO 80424
	<b>PROPERTY OWNER:</b> SAME AS ABOVE

- SURVEY NOTES**
- SURVEY WAS COLLECTED USING AERIAL IMAGERY. AERIAL SURVEY IS A METHOD OF COLLECTING GEOMATICS OR OTHER IMAGERY BY USING UAV'S, AND OTHER AERIAL METHODS. TECHNIQUES OF AERIAL PHOTOGRAPHY AND LIDAR SENSING IN THE NON-VISIBLE PART OF THE ELECTROMAGNETIC SPECTRUM AND EARTH OBSERVATION WERE USED TO CREATE THIS SURVEY.
  - BASIS OF BEARING IS THE WEST LINE OF THE CROWN SUBDIVISION, WHICH BEARS SOUTH 19°59'00" WEST, 120 FEET. MONUMENTS FOUND, AS SHOWN.
  - BASIS OF ELEVATION IS THE SOUTHWEST CORNER OF LOT 532. ELEVATION IS 9996.72 FEET, BASED ON WGS84 MAPPING.
  - THE PURPOSE OF THIS SURVEY IS FOR THE CREATION OF A TOPOGRAPHIC MAP. ENGINEER DID NOT REVIEW A TITLE COMMITMENT; THIS SURVEY DOES NOT REPRESENT A TITLE SEARCH BY THIS ENGINEER.
  - ENGINEER DID NOT REVIEW EASEMENTS, BUILDING SETBACKS, CONSTRUCTION SETBACK REQUIREMENTS, RIGHT OF WAYS, AND/OR NEIGHBORING LOT INFORMATION.
  - ENGINEER DID NOT REVIEW SPECIFIC BUILDING COMPONENTS INCLUDING BUT NOT LIMITED TO STRUCTURES, SEPTIC SYSTEMS, ACCESS REQUIREMENTS
  - CERTIFICATION NOT VALID WITHOUT ORIGINAL SEAL AND SIGNATURE. THIS SURVEY AND ALL RELATED DOCUMENTS ARE FOR THE SOLE USE OF THE CLIENT AT THE DATE OF CERTIFICATION AND DOES NOT EXTEND TO ANY UNNAMED PERSON OR ENTITY WITHOUT AND EXPRESSED RESTATEMENT BY THE ENGINEER NAMING SAID PERSON OR ENTITY.
  - UNITS OF MEASURE: SURVEY FEET
  - ONE FOOT CONTOUR INTERVAL SHOWN HEREIN.
  - AREA: 0.54 ACRES, 23,695 SQUARE FEET.
  - REFERENCE DOCUMENT: SUBDIVISION PLAT "THE CROWN, GOOSE PASTURE TARN, BLUE RIVER ESTATES, INC." ACCEPTED MAY 14, 1966.
  - ONLY VISIBLE UTILITIES LOCATED AND SHOWN. UNDERGROUND LOCATE NOT DONE.
  - ANY PERSON WHO KNOWINGLY REMOVES, ALTERS, OR DEFACTS ANY PUBLIC LAND SURVEY MONUMENT OR BOUNDARY MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.
  - THE SOUTHEAST PROPERTY CORNER WAS UNABLE TO BE LOCATED IN THE FIELD. IT IS SHOWN BASED ON THE BEARING AND DISTANCE OF THE SOUTH PROPERTY LINE ILLUSTRATED ON THE SUBDIVISION PLAT (SEE NOTE 11). THE EAST PROPERTY LINE IS DRAWN AS MEASURED BETWEEN NORTHEAST KNOWN PIN AND CALCULATED SOUTHEAST PIN LOCATION.

NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF THE CERTIFICATION SHOWN HEREON.

THIS DRAWING IS SIGNED AND/OR SEALED BY A PROFESSIONAL ENGINEER REPRESENTING THAT THE ENGINEERING SERVICES ADDRESSED HEREIN HAVE BEEN PERFORMED BY THE PROFESSIONAL ENGINEER OR UNDER THE PROFESSIONAL ENGINEER IN RESPONSIBLE CHARGE.

THIS SURVEY IS BASED UPON THE PROFESSIONAL ENGINEER'S KNOWLEDGE, INFORMATION, AND BELIEF AND IS IN ACCORDANCE WITH APPLICABLE STANDARDS OF TOPOGRAPHIC SURVEY PRACTICE KNOWN TO THE ENGINEER. THIS SURVEY IS NOT A GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED, OF CONFIRMATION OF THE PROPERTY BOUNDARY LINES AND PROPERTY MONUMENTS. IF THERE ARE ANY QUESTIONS ABOUT PROPERTY BOUNDARY MONUMENTS, PROPERTY BOUNDARY LINES, AND/OR EASEMENTS, A REGISTERED COLORADO SURVEYOR SHOULD BE CONTACTED FOR VERIFICATION OF SUCH.



THIS IS THE PROPERTY OF LITTLEHORN ENGINEERING, L.L.C. ANY REPRODUCTION OR COPYING OF THE INFORMATION CONTAINED IN THIS SURVEY IS CONSIDERED AN INFRINGEMENT ON COPYRIGHT LAWS.

Section IV, Item C

39 LODESTONE TRAIL  
BLUE RIVER, CO 80424  
THE CROWN SUBDIVISION, LOT 532  
GOOSE PASTURE TARN

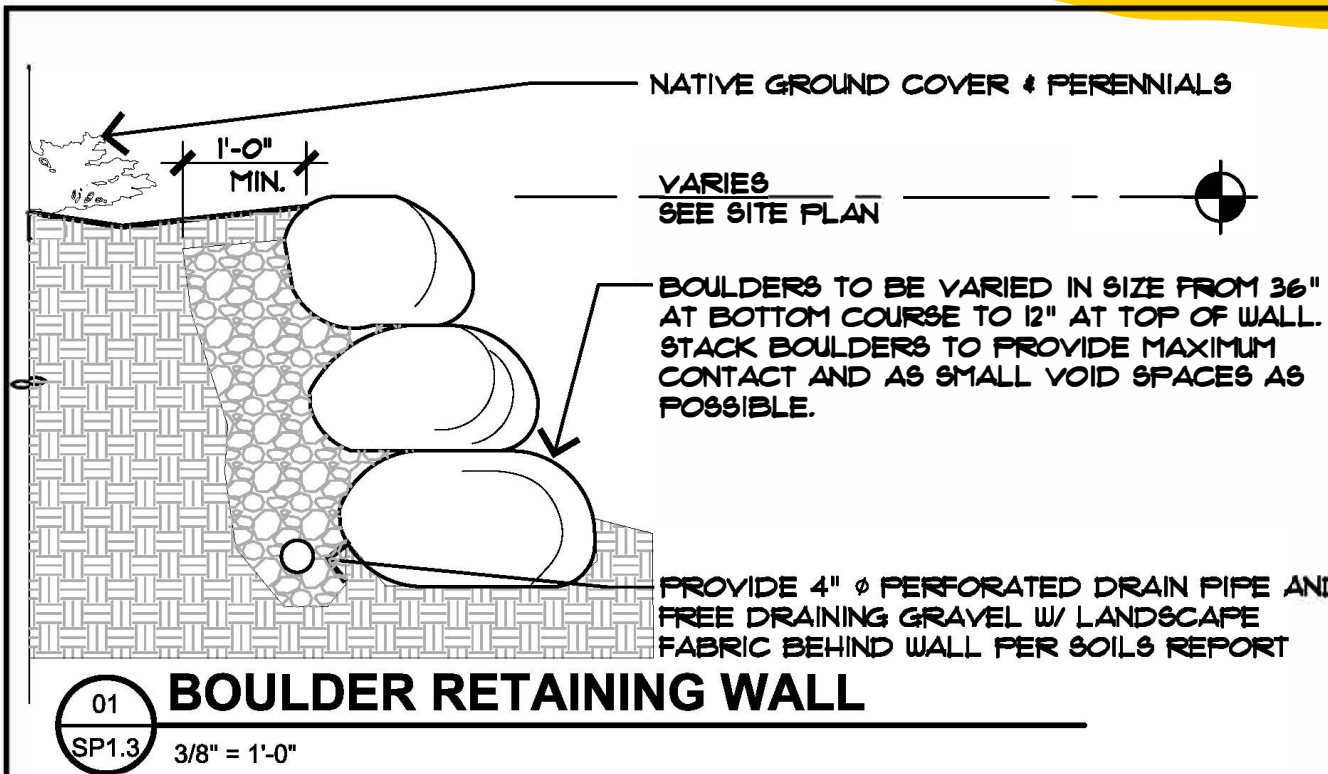
**LITTLEHORN ENGINEERING, LLC**  
351 HIGHWAY 285, SUITE #201  
FAIRPLAY, COLORADO 80440  
MAIN OFFICE 719.836.7120  
SILVER CLIFF PHONE 719.783.3757

"PEACE OF MIND THROUGH HOLISTIC DESIGN"

<b>PROJECT NO.</b>	2023-100072
<b>CLIENT</b>	HELEN LEMAY
<b>DATE</b>	07.13.2023
<b>REVISION:</b>	△ - △ -

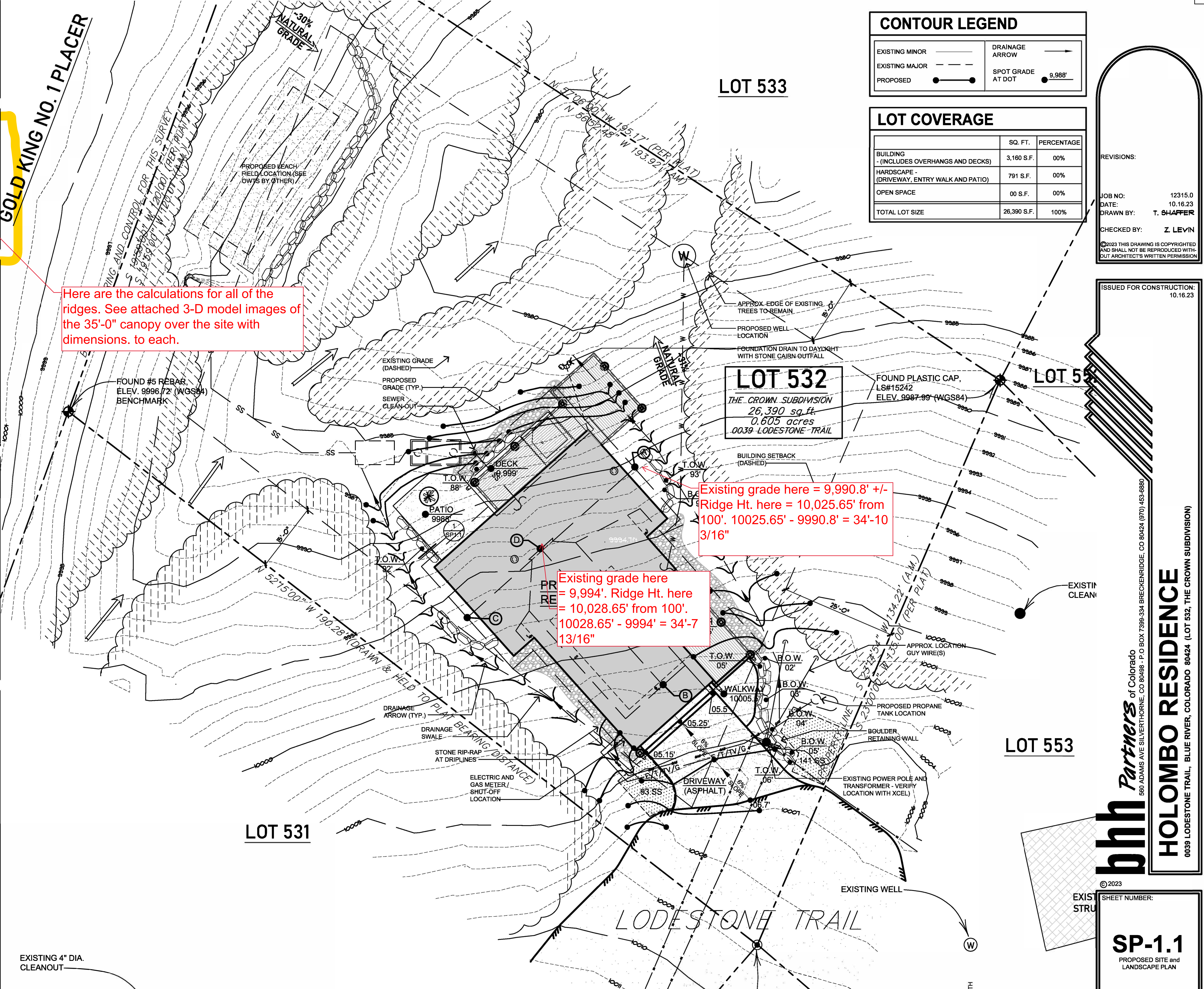
REQUIRED SNOWSTACK		
	SQ. FT.	PERCENTAGE
HARDSCAPE - (DRIVEWAY, ENTRY WALK AND PATIO)	791 S.F.	100%
REQ'D SNOW STACK (25% OF HARDSCAPE)	198 S.F.	25%
TOTAL SNOW STACK PROVIDED	234 S.F.	29%

BUILDING HEIGHT TABLE						
RIDGE POINT	RIDGE ELEVATION	NATURAL EXIST'G GRADE ELEVATION (APPROX.)	FINISHED GRADE ELEVATION	AS MEASURED FROM	CALCULATIONS	HEIGHT
(A)	10,025.65'	9,990.8'	9,990'	EXIST'G GRADE	10,025.65' - 9,990.8' =	34.85'
(B)	10,028.29'	10,001.75'	9,986'	EXIST'G GRADE	10,028.29' - 10,001.75' =	26.54'
(C)	10,025.65'	9,996.6'	10,005.5'	EXIST'G GRADE	10,025.65' - 9,996.6' =	29.05'
(D)	10,028.29'	9,994'	9,988'	FINISH GRADE	10,028.29' - 9,994' =	34.29'



- ### REVEGETATION NOTES
- REVEGETATE ALL DISTURBED AREAS ON THE SITE WITH:
- SHORT DRY GRASS MIX #2 LBS/1000 SF.
    - HARD FESCUE 30%
    - CREeping RED FESCUE 30%
    - SHEEP FESCUE 25%
    - CANADA BLUEGRASS 10%
    - CANDY BLUEGRASS 5%
  - SLOPES OVER 3:1 SHALL BE MAT TACKIFIED OR NETTED.
  - MOUNTAIN MAGIC WILDFLOWER MIX #1 LBS/1000 SF.
    - BABY'S BREATH
    - CALIFORNIA POPPY
    - BLUE FLAX
    - WALLFLOWER
    - FENSTEMON, ROCKY MOUNTAIN
    - BLANKETFLOWER
    - SHIRLEY TOMMY
    - LUPINE MIX
    - MAIDEN PINKS
    - WILD THYME
  - ROCKY MOUNTAIN BLUE COLUMBINE MIX #1 LBS/25,000 SF OR WESTERN NATIVE WILDFLOWER MIX #1 LBS/6000 SF.
    - CONEFLOWER, WESTERN
    - SULFUR FLOWER
    - GERANIUM, RICHARDSON
    - ASTER, ENGLEMANNS
    - ORANGE MOUNTAIN DAISY
    - GIANT LOUSEWORT
    - FENSTEMON, SMALL FLOWERED
    - FENSTEMON, ROCKY MOUNTAIN
    - FENSTEMON, WABATCH
    - FENSTEMON, RYDBERGS
    - GAILLARDIA/BLANKETFLOWER

- ### LANDSCAPE NOTES
- PROVIDE 3" (MIN.) CLAYFREE TOPSOIL AND SEED ALL DISTURBED AREAS WITH SHORT SEED MIX (AS APPROVED BY SUMMIT COUNTY STRIP AND STOCKPILE EXISTING TOPSOIL IN CONSTRUCTION AREA. SCREEN TOPSOIL PRIOR TO INSTALLATION.)
  - KEEP EXISTING TREES WHERE POSSIBLE, TAKING INTO CONSIDERATION DRIP LINES AND ROOT STRUCTURE. PROTECT EXISTING TREES WITH FENCING LOCATED AT OR OUTSIDE DRIP LINE OF TREE. STOCKPILE AND REUSE EXISTING TREES WHERE POSSIBLE.
  - GENERAL CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS PER SPECIFICATIONS AND CODE REQUIREMENTS.
  - PRIOR TO ANY LANDSCAPE WORK, REMOVE ALL DEBRIS, PAINT, CONCRETE, STUMPS, SLASH, ETC. FROM LANDSCAPE AREA.
  - LOCATE ALL PLANTINGS TO AVOID SNOW STACKING & SNOW SLIDE AREAS FROM ABOVE.
  - SHRUBS ARE TO BE FIELD LOCATED AS APPROVED BY OWNER AND ARCHITECT.
  - ALL NEW LANDSCAPING TO BE IRRIGATED WITH DRIP IRRIGATION SYSTEM. MAXIMUM 1,000 SF IRRIGATED SPACE. PROVIDE SUBMITTAL.
  - ALL NEW PLANTINGS SHOULD BE HIGH ALTITUDE GROWN AND OR COLLECTED TO ENSURE BETTER SURVIVAL.
  - NATURALIZE GROUPING OF TREES BY VARYING HEIGHT & LOCATION WHEREVER POSSIBLE.
  - SCREEN ALL UTILITY PEDESTALS WITH LANDSCAPE MATERIAL.
  - PROVIDE 3" TO 4" DIAMETER STONE RIP-RAP OVER WEED BARRIER FABRIC AT BUILDING DRIP LINES. UNULATE EDGES AND PROVIDE LANDSCAPE EDGING AT RIPRAP TO TOPSOIL JUNCTURE.
  - INSTALL & BACKFILL ALL PLANTINGS WITH SOIL MIX INCLUDING ORGANIC SOIL AMENDMENTS PER SPECIES REQUIREMENTS AND LANDSCAPE DETAILS.
  - ROOT FEED ALL NEWLY PLANTED TREES DURING INSTALLATION. PROVIDE LIQUID GROWTH TREE STIMULATOR AND SOLUBLE FERTILIZER AT RECOMMENDED RATE FOR EACH TREE SPECIES.
  - PROVIDE 3" OF SHREDDED BARK MULCH AT ALL SHRUB AND TREE WELLS.
  - LANDSCAPE BOULDERS OF 2' OR LARGER SHALL BE RETAINED ON SITE FOR USE IN LANDSCAPE WORK. BURY DECORATIVE BOULDERS ONE-HALF OF DIAMETER AS APPROVED BY TOWN OF BLUE RIVER PRIOR TO INSTALLATION.
  - ALL ROCK OUTCROPPINGS THAT ARE TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITY.
  - ADDITIONAL CONSULTATION WITH A QUALIFIED LANDSCAPE PROFESSIONAL AT OWNER OPTION IS RECOMMENDED.
  - NOTE: ALL LANDSCAPING SHALL BE INSTALLED IN STRICT ACCORDANCE WITH SUMMIT COUNTY AND TOWN OF BLUE RIVER.



Here are the calculations for all of the ridges. See attached 3-D model images of the 35'-0" canopy over the site with dimensions. to each.

Existing grade here = 9,990.8' +/- Ridge Ht. here = 10,025.65' from 100'. 10025.65' - 9990.8' = 34'-10 3/16"

Existing grade here = 9,994'. Ridge Ht. here = 10,028.65' from 100'. 10028.65' - 9994' = 34'-7 13/16"

### CONTOUR LEGEND

EXISTING MINOR	---	DRAINAGE ARROW	→
EXISTING MAJOR	- - -	SPOT GRADE AT DOT	● 9.988'
PROPOSED	—●—		

### LOT COVERAGE

	SQ. FT.	PERCENTAGE
BUILDING - (INCLUDES OVERHANGS AND DECKS)	3,160 S.F.	00%
HARDSCAPE - (DRIVEWAY, ENTRY WALK AND PATIO)	791 S.F.	00%
OPEN SPACE	00 S.F.	00%
TOTAL LOT SIZE	26,390 S.F.	100%

REVISIONS:

JOB NO: 12315.0  
 DATE: 10.16.23  
 DRAWN BY: T. SHAFFER  
 CHECKED BY: Z. LEVIN

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ISSUED FOR CONSTRUCTION: 10.16.23

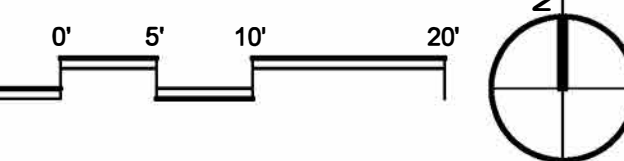
bhh Partners of Colorado  
 560 ADAMS AVE SILVER THORNE, CO 80498 - P.O. BOX 7396-334 BRECKENRIDGE, CO 80424 (970) 455-6880

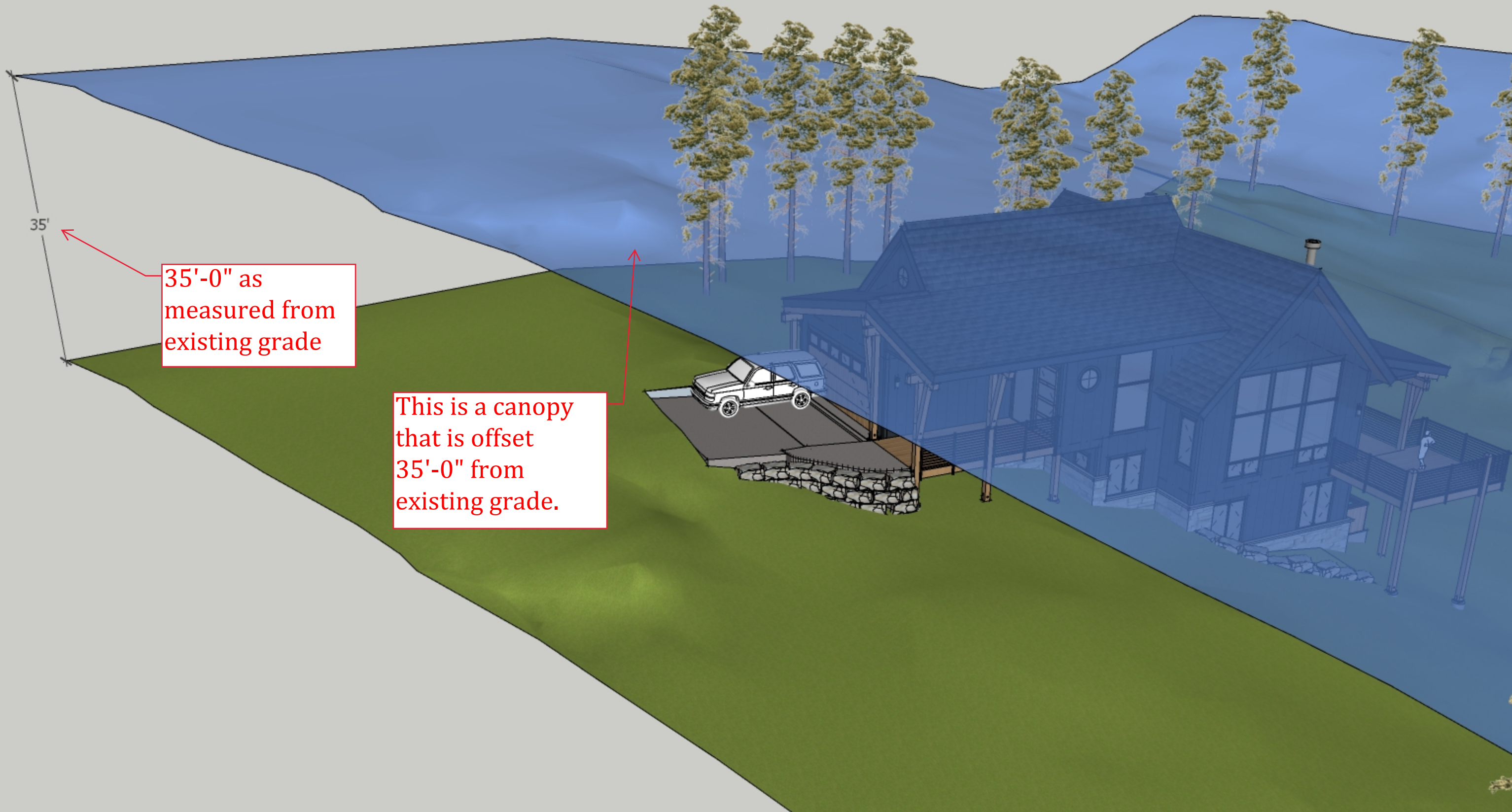
**HOLMBO RESIDENCE**  
 0039 LODESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

©2023  
 SHEET NUMBER:  
**SP-1.1**  
 PROPOSED SITE and LANDSCAPE PLAN

## PROPOSED SITE and LANDSCAPE PLAN

SCALE: 1" = 10'-0"



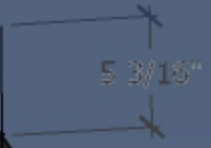


35'

35'-0" as measured from existing grade

This is a canopy that is offset 35'-0" from existing grade.

This is the nested roof above the main living gable. Under the 35'-0" topo canopy by 5".



Measurement at gable on North end. Just under the 35'-0" ht.

3/4"

35'

Chimney is the only thing over the 35'-0" topo canopy.

This nested ridge is under the 35'-0" canopy.



### C. Setbacks

Building Setbacks are defined by Town Ordinance (see Section 16-5-50) as a distance from the street, side or rear property line that most construction activity is not allowed. Buildings, including all roof overhangs, shall be completely within the designated setbacks. All parking, not contained in garages, shall also be within the setbacks. Development of driveways, walkways, on grade patios and decks not exceeding 18” above finish grade are generally allowed in the setbacks but patios and decks cannot extend more than half of setback distance.

In addition to the designated building setbacks, the building envelope may be further restricted by the State or Federal rules and regulations regarding wetlands and riparian habitat protection. Building lots on street corners can be reviewed by the Town on a case by case basis for front setback placement.

How they should be of that in the in the mass. Thus, they are exceptions, which I feel we are under a graphic canopy. So the element is really false.

### D. Building Height

The building height limit in the Town is 35 feet, as defined below. Maximum allowable building heights are not intended to imply that all portions of a building may be built to the maximum allowable height limit. Rather, building height and massing shall be designed in relationship to the characteristics of the topography. Form and massing shall step with the natural grades.

Building Height (exclusive of chimneys and other architectural features) shall be measured from any point around the building at existing or finished grade (whichever is more restrictive) to the ridge of the highest roof. Existing grade is the natural topography that exists before any development takes place. Height measurement of buildings with stepped roofs will be at the discretion of the Town.

The intent is that building roof forms and skylines will be fragmented, with foundations and roof lines stepped to follow existing slopes, and the roof lines are to appear to be below the surrounding tree top levels when viewed from off site.

For that reason, the Town may allow cupolas, and/or roof peaks in limited areas to exceed the limits or maximum height, provided the intent is achieved. A site-specific topographical survey completed by a registered engineer, or surveyor must be used to determine existing grade. Finish grade for purposes of these height calculations is the final elevation of the surface material (soil, paving or patio) adjacent to the building as shown on the architect’s site plan. Construction of berms or building up grades around the building for the purposes of satisfying building height requirements shall be prohibited.

### E. Roofs

Simple patterns shall be the basis of all primary and secondary roof forms. Primary roofs should be gabled or shed with slopes of 4:12 to 12:12 and secondary roof slopes shall be a minimum of 2:12. Lower primary roof pitches may be considered

Roof forms should be relatively simple and limited to mainly gable and sheds. Although clipped gables and hips are discouraged they should be incorporated and may be allowed if the Town deems them to be appropriate to reduce overall roof length and height. Roof overhangs are



**Sec. 16-5-50. Site and structure requirements.**

- (a) Lot area, width and yard requirements.
- (1) Lot area. The minimum gross lot area per dwelling unit shall be eighty thousand (80,000) square feet.
  - (2) Lot width. The minimum width per lot shall be one hundred (100) feet.
  - (3) Yards. The minimum yard setback requirement per lot shall be as follows:
    - a. Front yard. The front yard requirement shall be twenty-five (25) feet, except as follows: in Rivershore Subdivision, the requirement shall be fifteen (15) feet.
    - b. Rear yard. The rear yard requirement shall be twenty-five (25) feet, except as follows: in Rivershore Subdivision, the requirement shall be fifteen (15) feet.
    - c. Side yards. Each side yard requirement shall be fifteen (15) feet.
  - (4) Waiver of lot area, width and yard requirements. Although the gross density of any lot in a subdivision approved after the effective date of this Code in an R-1 development cannot exceed one (1) dwelling unit per each eighty thousand (80,000) square feet, the Planning and Zoning Commission may, by its discretion, waive lot area, width and yard requirements upon presentation and approval of detailed plans and documents as required herein and a written request from the applicant stating the rationale of the waiver.
- (b) Height requirements. The maximum building height of any structure in Zone R-1 shall be thirty-five (35) feet. On steeper lots, where the average slope across the footprint of the proposed structure exceeds fifteen percent (15%), the Planning and Zoning Commission may allow additional height for a limited unobtrusive ridge projection at the downslope terminus of said structure. Such relief will be considered on a case-by-case basis and may not be construed as a blanket waiver for sloping lots in general. The intent of this requirement is that the roof forms for homes on sloping sites step down with the grade to integrate with the natural setting.
- (c) Garages. The maximum total size in square feet of the first floor of any garage or garages on a lot whether detached from or incorporated into a principal permitted structure shall be:
- (1) For principal permitted residential structures of five thousand (5,000) square feet or less in habitable size, the greater of: (i) eight hundred (800) square feet; or (ii) forty five (45) percent of the total habitable size of the existing principal permitted structure on the same lot; provided that in no event shall the maximum size of garage(s) on a lot exceed one thousand two hundred (1,200) square feet; or
  - (2) For principal permitted residential structures of greater than five thousand (5,000) square feet in habitable size, twenty-five (25) percent of the total principal permitted structure's habitable size.

The maximum height of any garage shall not exceed the lesser of: (1) the height of the existing principal permitted structure on the lot; or (2) the maximum building height for the lot established by Chapter 16 of the Town Code. It is the intent of this subsection that garages shall be subordinate in size and height to both the principal permitted structure and use of a property.

- (d) Sheds. The maximum total size of the first floor any shed or sheds on a lot whether detached from or incorporated into a principal permitted structure shall not exceed a total of two hundred (200) square feet. The maximum height of any shed shall [be] fifteen (15) feet. It is the intent of this subsection that sheds shall be subordinate in size and height to both the principal permitted structure and use of a property.

(Prior code 6-5-4; Ord. 06-01 §1, 2006; Ord. No. 2020-06, § 4, 2-18-2020; Ord. No. 2020-10, § 7, 7-21-2020)

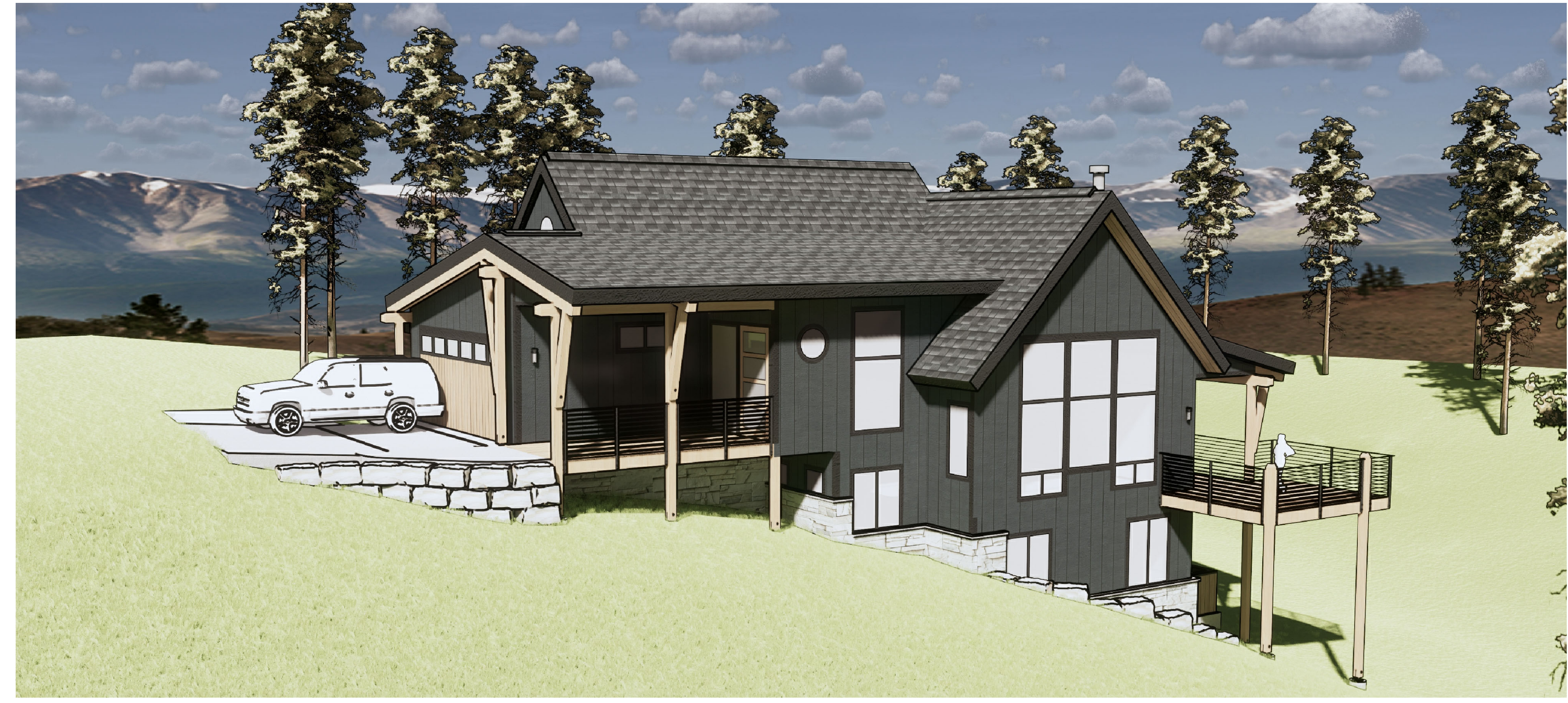
# HOLOMBO RESIDENCE

## GENERAL NOTES

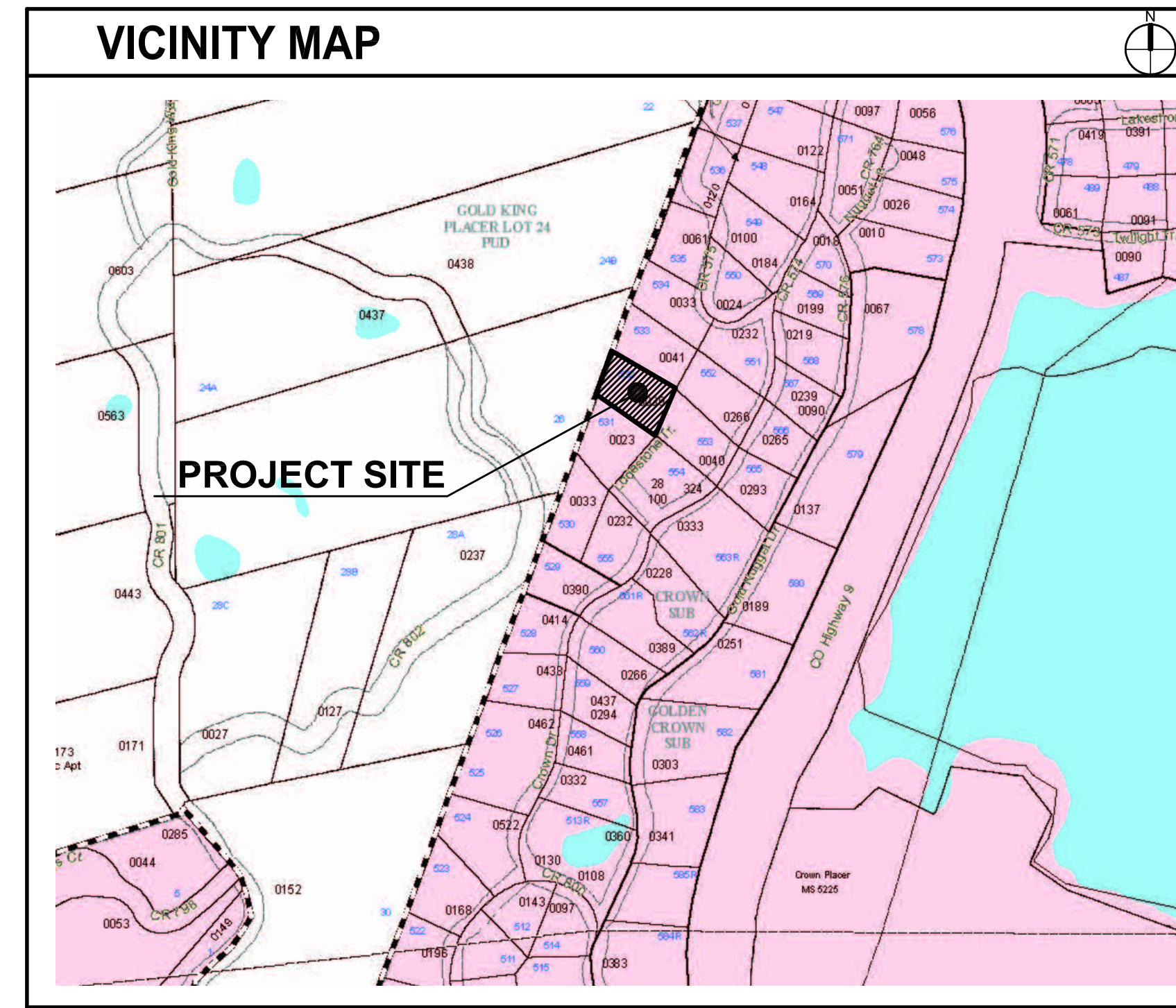
- 1) COPYRIGHT: All plans, designs, and concepts shown in these drawings are the exclusive property of BHH Partners, Planners and Architects, A.I.A./P.C. and shall not be used, disclosed, or reproduced for any purpose whatsoever without the Architect's written permission.
- 2) CODES: This project is governed by the applicable building code as adopted by the jurisdiction of record in Colorado. Code compliance is mandatory. The drawings and specifications shall not permit work that does not conform to these codes. The General Contractor and Subcontractors shall be responsible for satisfying all applicable codes and obtaining all permits and required approvals. Building areas are shown for code purposes only and shall be recalculated for any other purposes.
- 3) FIELD VERIFICATION: Verify all dimensions, conditions, and utility locations on the job site prior to beginning any work or ordering any materials. Notify Architect of any conflicts or discrepancies in the drawings immediately.
- 4) DIMENSIONS: Written dimensions always take precedence over scaled dimensions. DO NOT SCALE DRAWINGS. Verify all dimensions shown prior to beginning any work and notify Architect of any conflicts or discrepancies for interpretation or clarification. Plan dimensions are to the face of framing members, face of wood furring or face of concrete walls unless otherwise noted. Section or elevation dimensions are to top of concrete, top of plywood, or top of wall plates or beams unless otherwise noted.
- 5) DISCREPANCIES: The Owner has requested the Architect to provide limited architectural and engineering services. In the event additional details or guidance is needed by the Contractor for construction of any aspect of this project, he shall immediately notify the Architect. Failure to give simple notice shall relieve the Architect of responsibility. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved with written direction from the Architect.
- 6) DUTY OF COOPERATION: Release of these plans contemplates further cooperation among the Owner, his Contractor, and the Architect. Design and construction are complex. Although the Architect and his Consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect, and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the Architect. Failure to notify the Architect compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the Architect shall relieve the Architect from responsibility for all consequences.
- 7) CHANGES TO THE WORK: Any items described herein that impact project budget or time shall be requested from the Contractor via a written change order request prior to such work. Performance of such work without approval by change order indicates General Contractor's acknowledgment of no increase in contract sum or time. Changes from the plans or specifications made without consent of the Architect are unauthorized and shall relieve the Architect of responsibility for any and all consequences resulting from such changes.
- 8) WORKMANSHIP: It is the intent and meaning of these drawings that the Contractor and each Subcontractor provide all labor, materials, transportation, supplies, equipment, etc., to obtain a complete job within the recognized standards of the industry.
- 9) SUBSTITUTIONS: Substitution of "equal" products will be acceptable with Architect's written approval. See specifications.
- 10) CONSTRUCTION SAFETY: These drawings do not include the necessary components for construction safety. The General Contractor shall provide for the safety, care of utilities and adjacent properties during construction, and shall comply with state and federal safety regulations.
- 11) EXCAVATION PROCEDURES: Upon completion of any excavation, the Owner shall retain a soils engineer to inspect the subsurface conditions in order to determine the adequacy of foundation design. See specifications. CONTRACTOR SHALL NOT POUR ANY CONCRETE UNTIL APPROVAL IS OBTAINED FROM SOILS ENGINEER.
- 12) FIELD CUTTING OF STRUCTURAL MEMBERS: The General Contractor shall field coordinate and obtain approval from Engineer before any cutting, notching or drilling of any cast-in-place concrete, steel framing, or any other structural elements which may affect the structural integrity of the building. Refer to the appropriate Code Requirements, manufacturer's or supplier's instructions, and structural drawings for additional requirements.
- 13) WEATHER CONDITIONS: The Owner has been advised that due to harsh winter conditions, roof and deck surfaces must be maintained reasonably free of ice and snow to ensure minimal problems with these surfaces. All roofing, roofing membranes, and waterproofing shall be approved in writing by product manufacturer (W.R. Grace for bluthene, etc.) prior to proceeding with any work. Failure to provide these written approvals removes all responsibility for the work from the Architect.
- 14) BUILDING AREA: Building areas are shown for code purposes only and shall be recalculated for any other use.
- 15) PROJECT STAKING: The general contractor shall verify all existing grades and stake all building corners and the driveway location for Owner/Architect and jurisdiction approval prior to beginning any site clearing.
- 16) SITE DISTURBANCE: It is the responsibility of the contractor to protect the existing trees to remain and adjacent properties from damage during construction. Provide protective fencing throughout construction.
- 17) PROJECT GRADES: The general contractor shall check and verify all grades including paved area slopes prior to pouring any foundations. Survey work should be verified in detail. See numbers 5 and 6.
- 18) EXTERIOR MATERIAL MOCK UP: The General Contractor shall provide a mock up of all exterior materials for review by the Owner and Architect. This mock up shall be provided and signed off in writing prior to any exterior stain or exterior finish work. The sample shall include fascia, trim, window cladding and all other exterior finishes including a 3'-0"x3'-0" (min) sample of exterior stonework if applicable. This mock up shall be retained on site until the final punch.

## BID ALTERNATES

- ALTERNATE NO. 1 - ALTERNATE INSULATION SYSTEMS - Provide additional cost for complete Closed Cell Insulation Systems in walls, roofs, cantilevered floors and underslab. Provide submittal and breakdown of proposed alternate.
- ALTERNATE NO. 2 - INSULATION UPGRADE - Provide cost for insulation at roofs and exterior walls to be of closed cell foam throughout.
- ALTERNATE NO. 3 - FOUNDATION WALL WATERPROOFING - If recommended by the Soils Engineer, provide upgraded waterproofing (Bluthene 3000 System and waffle drain). Provide cost for all concrete walls.
- ALTERNATE NO. 4 - SEALANT PACKAGE UPGRADE - Provide cost to add "Knauf Eco-seal™" sealant package to home prior to insulation work. Install water-based elastomeric sealant system in strict accordance with manufacturer's requirements.
- ALTERNATE NO. 5 - COPPER PIPING/PEX PIPING - Provide cost for domestic hot water and domestic cold water piping for both materials for owner consideration. (Pex piping requires written owner approval. Pex domestic water piping is not recommended by Architect).
- ALTERNATE NO. 6 - WOOD CEILING OPTIONS - Provide additional alternates for Owner consideration as deemed appropriate by the General Contractor. Verify scope with Owner.
- ALTERNATE NO. 7 - UNDER SLAB INSULATION - Provide bid alternate for closed cell foam under all ground slabs for the project (vapor barrier is not needed).
- ALTERNATE NO. 8 - EPOXY FLOOR - Provide cost to apply epoxy paint coating, as selected by Owner, at garage floor. Heavy duty latex to be in base bid.
- ALTERNATE NO. 9 - EMERGENCY WATER SHUTOFF CONTROL - Provide additional cost for adding a self-contained, wireless leak detection and automatic water shutoff system. Provide a "Water Cop" valve and (3) "Water Hound" wireless shutoff sensors by Smart Home Products, www.smarthomecatalog.com.
- ALTERNATE NO. 10 - ERV/HRV SYSTEM - Provide cost savings for deletion of HRV system in lieu of continuously running fan. Coordinate location with Owner and Architect.
- ALTERNATE NO. 11 - MAKE UP AIR UNIT - Provide options for reduction or deletion of makeup air unit for range hood. Provide submittal.
- ALTERNATE NO. 12 - CAMERA SYSTEM - Provide added cost for camera system to be integrated with security system.
- ALTERNATE NO. 13 - WIRELESS SATELLITE DISH - Provide additional cost for providing satellite dish, Internet and television with all related equipment.
- ALTERNATE NO. 14 - MOTORIZED WINDOW SHADES - Provide additional cost for motorized window shades enclosed in wood valance for great room window walls.
- ALTERNATE NO. 15 - ENVIRONMENTAL PRODUCTS - Provide additional cost for substitution of environmental, sustainable or non-toxic building products.



## VIEW FROM NORTH



## LEGAL DESCRIPTION

LOT 532 THE CROWN SUBDIVISION XX AC. / XX SQ. FT. 0039 LODSTONE TRAIL BLUE RIVER, COLORADO

## AREA CALCULATIONS

	UN-FINISHED	FINISHED	TOTAL
LOWER	00	1,445	1,445 SF
MAIN	562	1,488	2,050 SF
<b>TOTAL</b>	<b>562 SF</b>	<b>2,933 SF</b>	<b>3,495 SF</b>

5/8" TYPE GYPSUM BOARD USED THROUGHOUT  
NOTE: SQUARE FOOTAGES ARE CALCULATED FOR CODE PURPOSES ONLY AND SHOULD BE RECALCULATED FOR ANY OTHER PURPOSES.

## FINISHED FLOOR ELVs.

	U.S.G.S.	= ARCHITECTURAL
LOWER LEVEL - T.O. CONC.	9,988'	= 100'-0"
MAIN LEVEL - T.O. PLYWD.	9,999'	= 111'-0"
GARAGE LEVEL - T.O. CONC.	10,005.5'	= 117'-6"

## SHEET INDEX

- T-1.1 TITLE SHEET and GENERAL NOTES
- SP-1.1 PROPOSED SITE and LANDSCAPE PLAN
- A-1.1 LOWER LEVEL PLAN and ROOM FINISH SCHEDULE
- A-1.2 MAIN LEVEL PLAN and ROOM FINISH SCHEDULE
- A-1.3 ATTIC LEVEL PLAN
- A-1.4 ROOF PLAN
- A-2.1 BUILDING ELEVATIONS
- A-2.2 BUILDING PERSPECTIVES
- A-2.3 BUILDING SECTIONS and NOTES
- A-3.1 BUILDING SECTIONS and TRUSS PROFILES
- A-3.2 BUILDING SECTIONS and TRUSS PROFILES
- A-3.3 ARCHITECTURAL DETAILS
- A-4.1 ARCHITECTURAL DETAILS
- A-4.2 ARCHITECTURAL DETAILS
- A-5.1 OUTLINE SPECIFICATIONS
- A-5.2 OUTLINE SPECIFICATIONS
- A-5.3 OUTLINE SPECIFICATIONS
- S1 FOUNDATION PLAN
- S2 FOUNDATION DETAILS
- S3 ENTRY and MAIN FLOOR FRAMING PLAN
- S4 ROOF FRAMING PLAN
- E-0.1 NOTES AND LEGEND
- E-0.2 NOTES
- E-1.1 LOWER LEVEL ELECTRICAL PLAN
- E-1.2 MAIN LEVEL ELECTRICAL PLAN
- E-1.3 UPPER LEVEL ELECTRICAL PLAN
- CMP-1.1 CONSTRUCTION MANAGEMENT PLAN

<b>SURVEYOR:</b> LITTLEHORN ENGINEERING, LLC. 351 U.S. HIGHWAY 285 SUITE 201 FAIRPLAY, CO. 80440 719.836.7120 design@johnlittlehorn.com	<b>SOILS ENGINEER:</b> LITTLEHORN ENGINEERING, LLC. 351 U.S. HIGHWAY 285 SUITE 201 FAIRPLAY, CO. 80440 719.836.7120 design@johnlittlehorn.com	<b>M/E/P ENGINEER:</b> DMCE ENGINEERING 1480 HOYT STREET, SUITE 200 LAKEWOOD, COLORADO 80215-4728 JOSHUA L. COOK - P.E. 720.798.5041 josh@dmce.com	<b>ENGINEER:</b> ENGINEERING DESIGNWORKS 1855 SKI TIME SQUARE, UNIT E2C STEAMBOAT SPRINGS, COLORADO 80477 970.879.4890 carl@engineeringdesignworks.com	<b>CONTRACTOR:</b> LEE HOLOMBO 3347 CEMETERY ROAD TRENTON, KY. 42286 931.220.7787 - LEE holombocon@aol.com	<b>ARCHITECT:</b> BHH Partners of COLORADO 560 ADAMS AVENUE SILVERTHORNE, COLORADO 80498 (970) 513-1000 ZANE LEVIN (principal architect) zlevin@bhpartners.com TED SHAFFER (arch1 manager) tshaffer@bhpartners.com	<b>OWNER:</b> LEE & MIRIAM HOLOMBO 3347 CEMETERY ROAD TRENTON, KY. 42286 931.220.7787 - LEE holombocon@aol.com
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DATE: 10.16.23  
DRAWN BY: T. SHAFFER  
CHECKED BY: Z. LEVIN

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**HOLOMBO RESIDENCE**  
0039 LODSTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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SHEET NUMBER:

**T-1.1**  
TITLE SHEET, GENERAL NOTES, SCHEDULES AND INFORMATION





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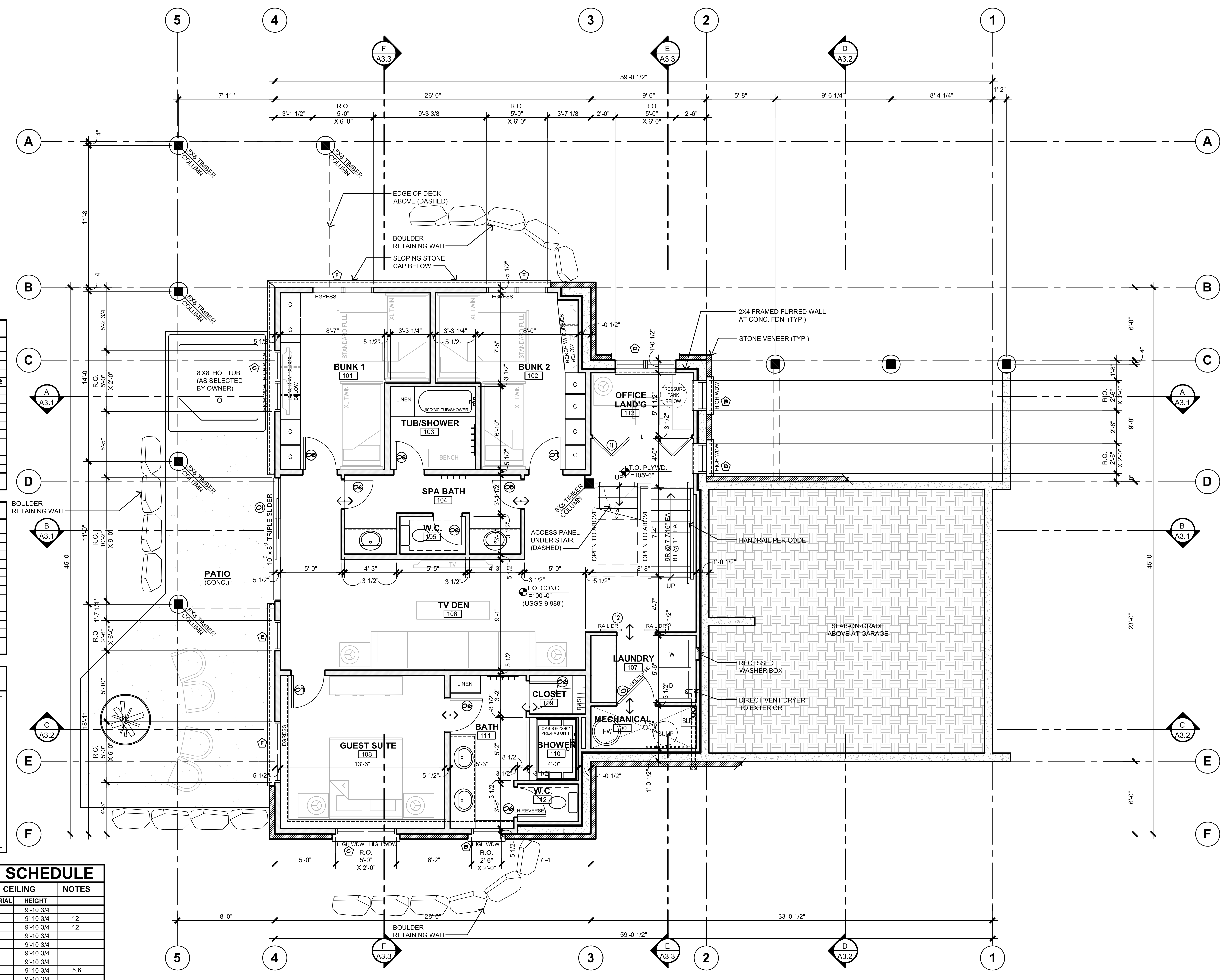
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 SHEET NUMBER:  
**A-1.1**  
 LOWER LEVEL PLAN



**DOOR TYPE SCHEDULE**

ID	WIDTH	HEIGHT	OPERATION	NOTES
O1	10'-0"	9'-0"	TRIPLE SLIDER	
O2	12'-0"	9'-0"	TRIPLE SLIDER	
O3	4'-0"	9'-0"	RT HAND SWING	
O4	18'-0"	8'-0"	OVERHEAD	WIDUS ON UPPER
O5	2'-4"	1'-0"	RH SWING	
O6	2'-4"	1'-0"	LH SWING	
O7	2'-8"	1'-0"	RH SWING	
O8	2'-8"	1'-0"	LH SWING	
O9	3'-0"	1'-0"	RH SWING	
O10	3'-0"	1'-0"	LH SWING	
O11	8'-0"	1'-0"	BI-FOLD	(2) DOORS
O12	3'-0"	1'-0"	DBL. RAIL	

NOTE: SEE ELEVATIONS FOR DOOR ID TAGS

**WINDOW TYPE SCHEDULE**

ID	WIDTH	HEIGHT	OPERATION	NOTES
A	2'-0"	DIAMETER	FIXED	
B	2'-6"	2'-0"	AWNING	
C	5'-0"	2'-0"	DBL. AWNING	
D	5'-0"	5'-0"	DBL. CASEMENT	
E	2'-6"	6'-0"	CASEMENT	
F	5'-0"	6'-0"	DBL. CASEMENT	
G	4'-0"	9'-0"	FIXED	TEMPERED
H	5'-0"	4'-0"	FIXED	
I	5'-0"	5'-0"	FIXED	
J	5'-0"	6'-0"	FIXED	

NOTE: SEE ELEVATIONS FOR WINDOW ID TAGS

- ROOM FINISH NOTES**
- NOTE: VERIFY ALL INTERIOR FINISHES WITH OWNER
- 5/8" TYPE 'X' GYPSUM BOARD WITH LIGHT HAND TROWELED FINISH (PAINT)
  - 1/2" CEMENT BOARD WITH TILED FINISH
  - PROVIDE EPOXY FLOOR FINISH
  - VERIFY MILLWORK WITH OWNER-PROVIDE SUBMITTAL
  - PROVIDE RAIL DOOR & RAIL DOOR HARDWARE. VERIFY FINISH WITH OWNER
  - TOP LOAD WASHER AND DRYER
  - PROVIDE 60"X40" AQUAPEUTICS OASIS LUXURY STEAM SHOWER. ROUGH-IN REQUIRED ELECTRICAL AND PLUMBING PER MANUFACTURER SPECIFICATIONS.
  - PROVIDE SPECIAL FINISHES, LAVATORY, AND LIGHT FIXTURES PER OWNER
  - VERIFY CLOSET SYSTEMS WITH OWNER
  - OPTIONAL BUNK ALCOVE WITH NICHE & ELECTRICAL OUTLET (2 PER BUNK TYP.)

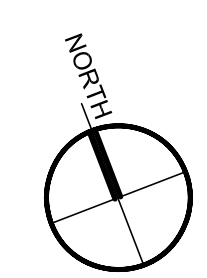
**LOWER LEVEL ROOM FINISH SCHEDULE**

#	ROOM NAME	FLOOR	WALLS	CEILING	NOTES		
		MATERIAL	BASE	MATERIAL	MATERIAL	HEIGHT	
100	MECHANICAL	CONCRETE	VINYL	1	1	9'-10 3/4"	
101	BUNK 1	CARPET	WOOD	1	1	9'-10 3/4"	12
102	BUNK 2	CARPET	WOOD	1	1	9'-10 3/4"	12
103	TUB/SHOWER	TILE	TILE	1	1	9'-10 3/4"	
104	SPA BATH	TILE	WOOD	1	1	9'-10 3/4"	
105	WATER CLOSET	TILE	WOOD	1	1	9'-10 3/4"	
106	TV DEN	CARPET	WOOD	1	1	9'-10 3/4"	
107	LAUNDRY	TILE	WOOD	1	1	9'-10 3/4"	5,6
108	GUEST SUITE	CARPET	WOOD	1	1	9'-10 3/4"	
109	CLOSET	CARPET	WOOD	1	1	9'-10 3/4"	
110	SHOWER	TILE	TILE	1	1	9'-10 3/4"	7
111	BATH	TILE	WOOD	1	1	9'-10 3/4"	
112	WATER CLOSET	TILE	WOOD	1	1	9'-10 3/4"	
113	OFFICE LAND'G	CARPET	WOOD	1	1	10'-10"	

**LOWER LEVEL PLAN**

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

1,445 SF - FINISHED  
 00 SF - UNFINISHED



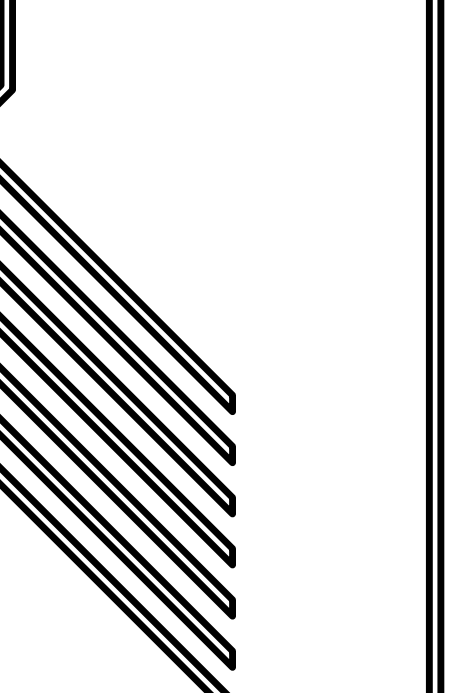


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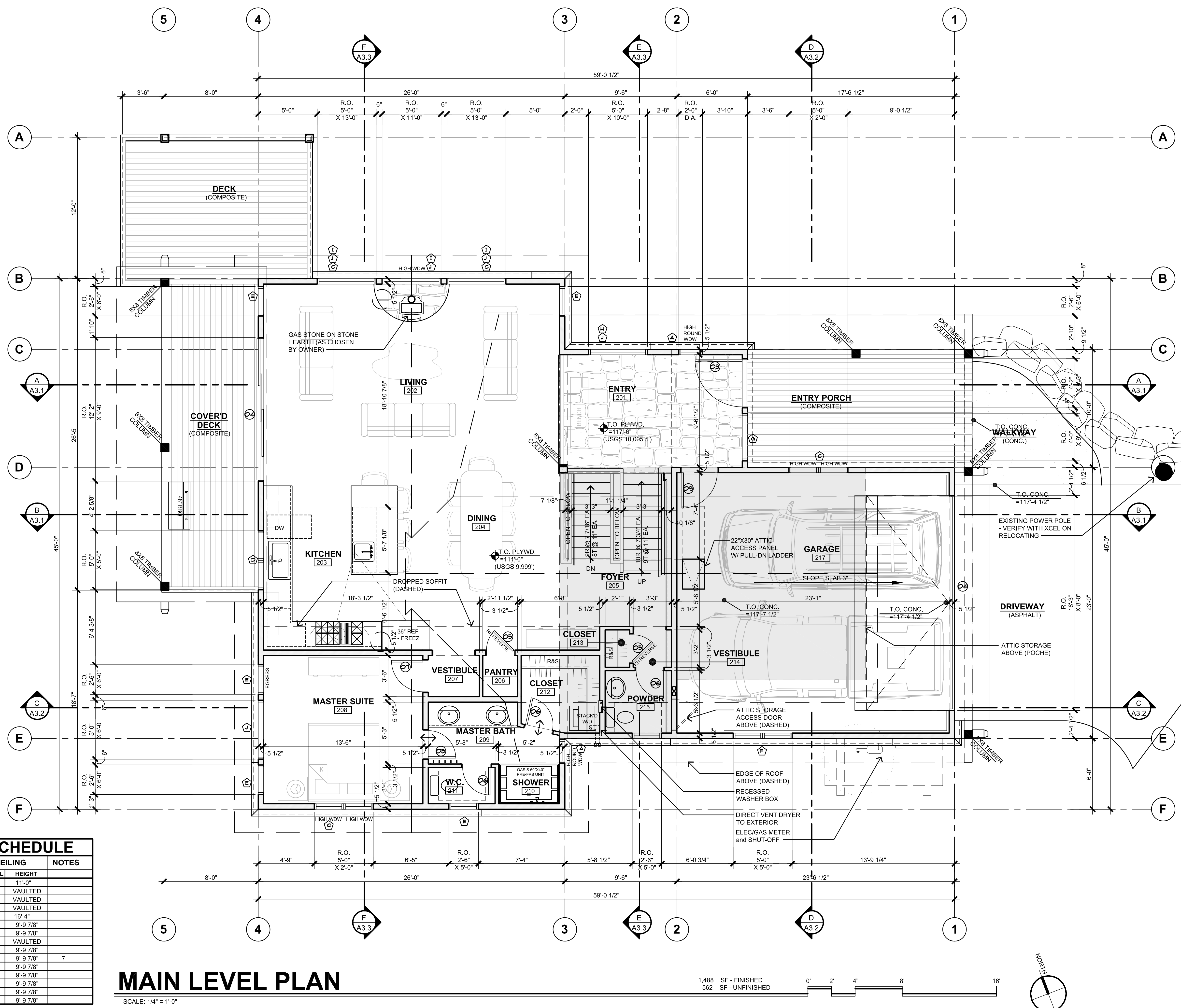
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**HOLOMBO RESIDENCE**  
 0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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 SHEET NUMBER:  
**A-1.2**  
 MAIN LEVEL PLAN



**DOOR TYPE SCHEDULE**

ID	WIDTH	HEIGHT	OPERATION	NOTES
O1	10'-0"	9'-0"	TRIPLE SLIDER	
O2	12'-0"	9'-0"	TRIPLE SLIDER	
O3	4'-0"	9'-0"	RT HAND SWING	
O4	18'-0"	8'-0"	OVERHEAD	WIDUS ON UPPER
O5	2'-4"	1'-0"	RH SWING	
O6	2'-4"	1'-0"	LH SWING	
O7	2'-8"	1'-0"	RH SWING	
O8	2'-8"	1'-0"	LH SWING	
O9	3'-0"	1'-0"	RH SWING	
O10	3'-0"	1'-0"	LH SWING	
O11	8'-0"	1'-0"	BI-FOLD	(2) DOORS
O12	3'-0"	1'-0"	DBL. RAIL	

NOTE: SEE ELEVATIONS FOR DOOR ID TAGS

**WINDOW TYPE SCHEDULE**

ID	WIDTH	HEIGHT	OPERATION	NOTES
A	2'-0"	DIAMETER	FIXED	
B	2'-6"	2'-0"	AWNING	
C	5'-0"	2'-0"	DBL. AWNING	
D	5'-0"	5'-0"	DBL. CASEMENT	
E	2'-6"	6'-0"	CASEMENT	
F	5'-0"	6'-0"	DBL. CASEMENT	
G	4'-0"	9'-0"	FIXED	TEMPERED
H	5'-0"	4'-0"	FIXED	
I	5'-0"	5'-0"	FIXED	
J	5'-0"	6'-0"	FIXED	

NOTE: SEE ELEVATIONS FOR WINDOW ID TAGS

- ROOM FINISH NOTES**
- NOTE: VERIFY ALL INTERIOR FINISHES WITH OWNER
- 5/8" TYPE 'X' GYPSUM BOARD WITH LIGHT HAND TROWELED FINISH (PAINT)
  - 1/2" CEMENT BOARD WITH TILED FINISH
  - PROVIDE EPOXY FLOOR FINISH
  - VERIFY MILLWORK WITH OWNER-PROVIDE SUBMITTAL
  - PROVIDE RAIL DOOR & RAIL DOOR HARDWARE. VERIFY FINISH WITH OWNER
  - TOP LOAD WASHER AND DRYER
  - PROVIDE 60"x40" 'AQUAPEUTICS' OASIS LUXURY STEAM SHOWER. ROUGH-IN REQUIRED ELECTRICAL AND PLUMBING PER MANUFACTURER SPECIFICATIONS.
  - PROVIDE SPECIAL FINISHES, LAVATORY, AND LIGHT FIXTURES PER OWNER
  - VERIFY CLOSET SYSTEMS WITH OWNER
  - OPTIONAL BUNK ALCOVE WITH NICHE & ELECTRICAL OUTLET (2 PER BUNK TYP.)

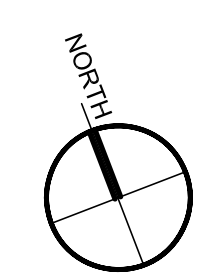
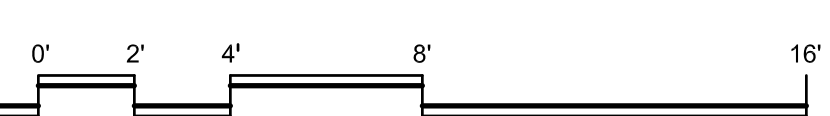
**MAIN LEVEL ROOM FINISH SCHEDULE**

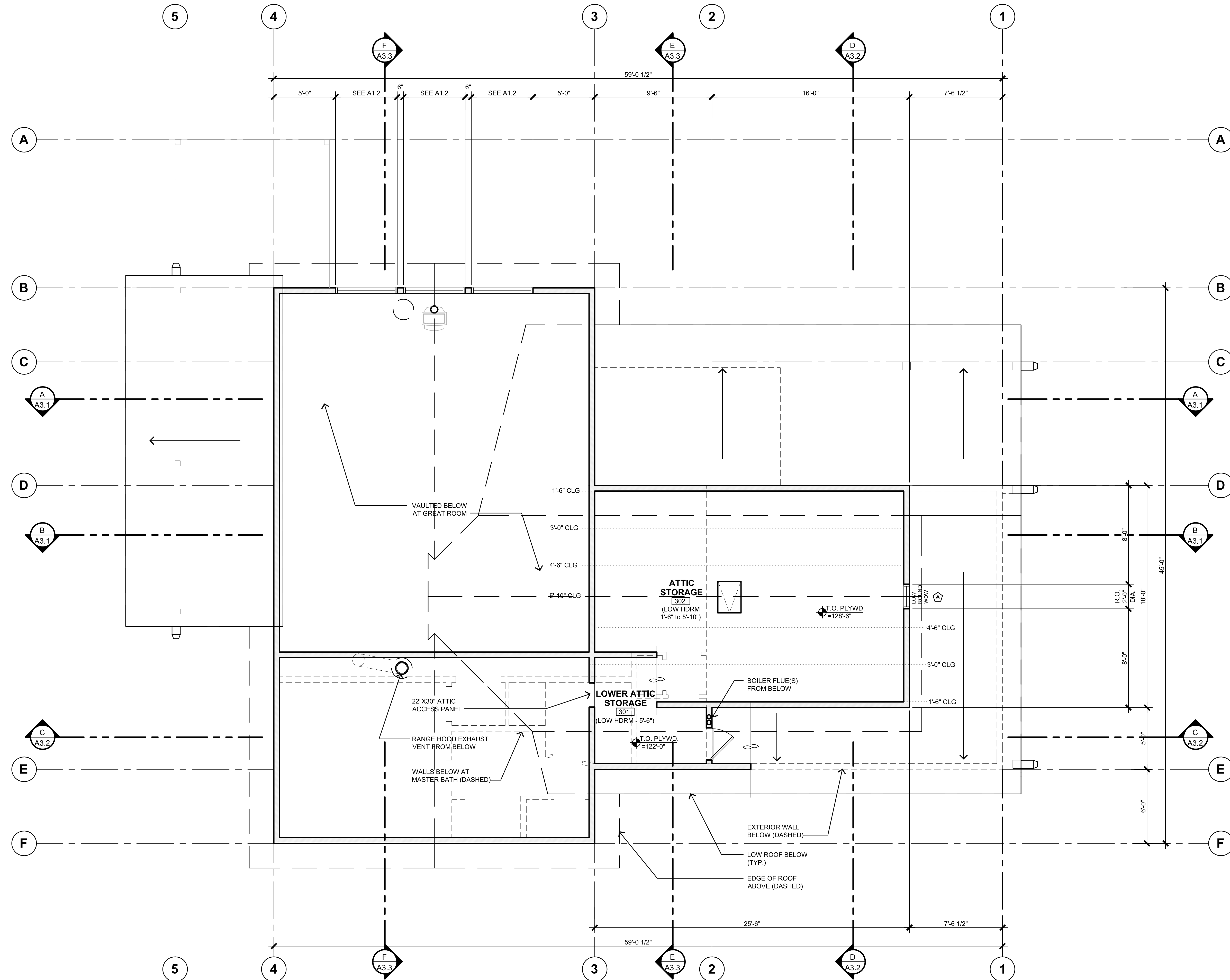
#	ROOM NAME	FLOOR	WALLS	CEILING	NOTES	
		MATERIAL	BASE	MATERIAL	MATERIAL	HEIGHT
201	ENTRY	SLATE	WOOD	WOOD	1	11'-0"
202	LIVING	WOOD	WOOD	1	1	VAULTED
203	KITCHEN	WOOD	WOOD	1	1	VAULTED
204	DINING	WOOD	WOOD	1	1	VAULTED
205	FOYER	WOOD	WOOD	1	1	16'-4"
206	PANTRY	WOOD	WOOD	1	1	9'-9 7/8"
207	VESTIBULE	WOOD	WOOD	1	1	9'-9 7/8"
208	MASTER SUITE	WOOD	WOOD	1	1	VAULTED
209	MASTER BATH	TILE	WOOD	1	1	9'-9 7/8"
210	SHOWER	TILE	TILE	1	1	9'-9 7/8"
211	WATER CLOSET	TILE	WOOD	1	1	9'-9 7/8"
212	CLOSET	WOOD	WOOD	1	1	9'-9 7/8"
213	CLOSET	WOOD	WOOD	1	1	9'-9 7/8"
214	VESTIBULE	WOOD	WOOD	1	1	9'-9 7/8"
215	POWDER	WOOD	WOOD	1	1	9'-9 7/8"

**MAIN LEVEL PLAN**

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

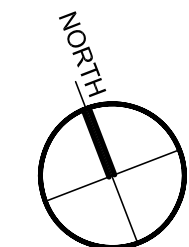
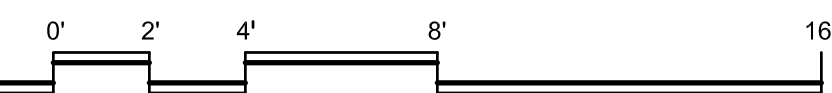
1,488 SF - FINISHED  
 562 SF - UNFINISHED





# ATTIC LEVEL PLAN

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



**COLOrado LICENSED ARCHITECT**  
 T. SHAFER  
 10/16/23  
 405836

REVISIONS:

JOB NO: 12315.0  
 DATE: 10.16.23  
 DRAWN BY: T. SHAFER  
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**HOLMBO RESIDENCE**  
 0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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SHEET NUMBER:

**A-1.3**  
 ATTIC LEVEL PLAN

### ROOF NOTES:

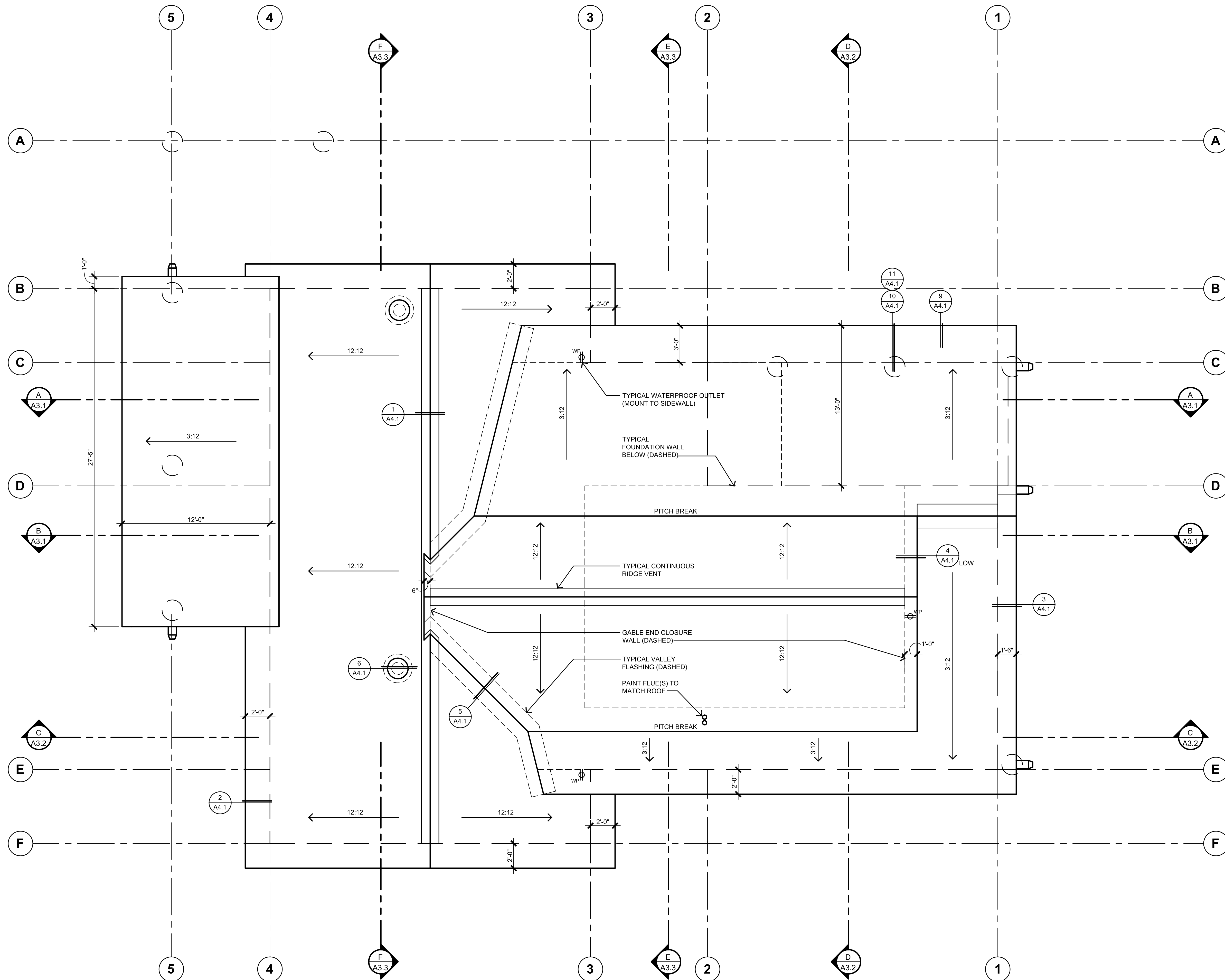
1. PROVIDE HEAT TAPE @ HEATED GUTTERS & DOWNSPOUTS. PROVIDE ELECTRIC OUTLET FOR HEAT TAPE AT EACH DOWNSPOUT LOCATION.
2. PAINT ALL EXPOSED PIPING EXTENDING THROUGH ROOF TO MATCH ROOF.
3. PROVIDE VALLEY FLASHING AT ALL VALLEYS.
4. OVERHANG DIMENSIONS ARE TO END OF RAFTER/TRUSSES - SEE DETAILS.
5. REFER TO PLAN FOR ALL ROOF OVERHANGS.
6. PROVIDE KICK-OUT FLASHING AT ALL EAVE/WALL JUNCTURES.
7. PROVIDE ADDITIONAL SOFFIT OUTLETS FOR CHRISTMAS LIGHTING - LOCATE PER OWNER INPUT.
8. SEE SHEET SP.2 FOR BUILDING RIDGE HEIGHTS.
9. PROVIDE ILC AS REQUIRED.
10. CONTRACTOR TO COORDINATE HEATED GUTTER AND DOWNSPOUT LOCATIONS WITH ARCHITECT
11. ALL PLUMBING VENTS, BOILER VENTS, AND OTHER ROOF PENETRATIONS ARE WITHIN 5" OF RIDGE LINES. PAINT TO MATCH ROOF COLOR.

### COLD ROOF NOTE:

THIS PROJECT INCLUDES A "COLD ROOF" DESIGN. PROVIDE INSULATION BAFFLES AT ALL RAFTER SPACES AND HOLD DOWN VALLEY FRAMING TO ENSURE AIRFLOW ABOVE ALL VALLEYS. THIS INCLUDES FLUSH VALLEYS (SEE DETAIL). IF NECESSARY DRILL HOLES FOR VENTILATION AS APPROVED BY THE STRUCTURAL ENGINEER. THIS INCLUDES BEAMS AND ALL AREAS THAT RESTRICT AIR FLOW FROM SOFFIT VENTS UP TO RIDGE VENTS. PROVIDE 1" DIAMETER HOLES @ 8' O.C. IN THESE AREAS. RETAIN 1 1/2" OF BEAM ABOVE VENTILATION HOLES. VERIFY WITH STRUCTURAL ENGINEER.

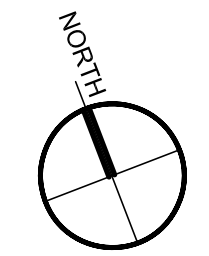
ROOFING NOTE:  
REFER TO SPECIFICATIONS. PROVIDE ROOF PRIMER, ROOF MEMBRANE AND ALL ROOFING PER SPECIFICATION REQUIREMENTS. PROVIDE "W.R. GRACE" MANUFACTURER CERTIFICATION LETTER STATING THAT ALL MEMBRANES HAVE BEEN INSTALLED IN COMPLETE COMPLIANCE WITH ALL MANUFACTURER'S REQUIREMENTS.

MAINTENANCE NOTE:  
THE OWNER HAS BEEN ADVISED THAT ALL ROOF AND DECK SURFACES MUST BE MAINTAINED RELATIVELY FREE OF SNOW & ICE.



## ROOF PLAN

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



**COLOrado LICENSED ARCHITECT**  
 T. SHAFER  
 10/16/23  
 405836

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SHEET NUMBER:

**A-1.4**  
 ROOF PLAN

**COLORADO LICENSED ARCHITECT**  
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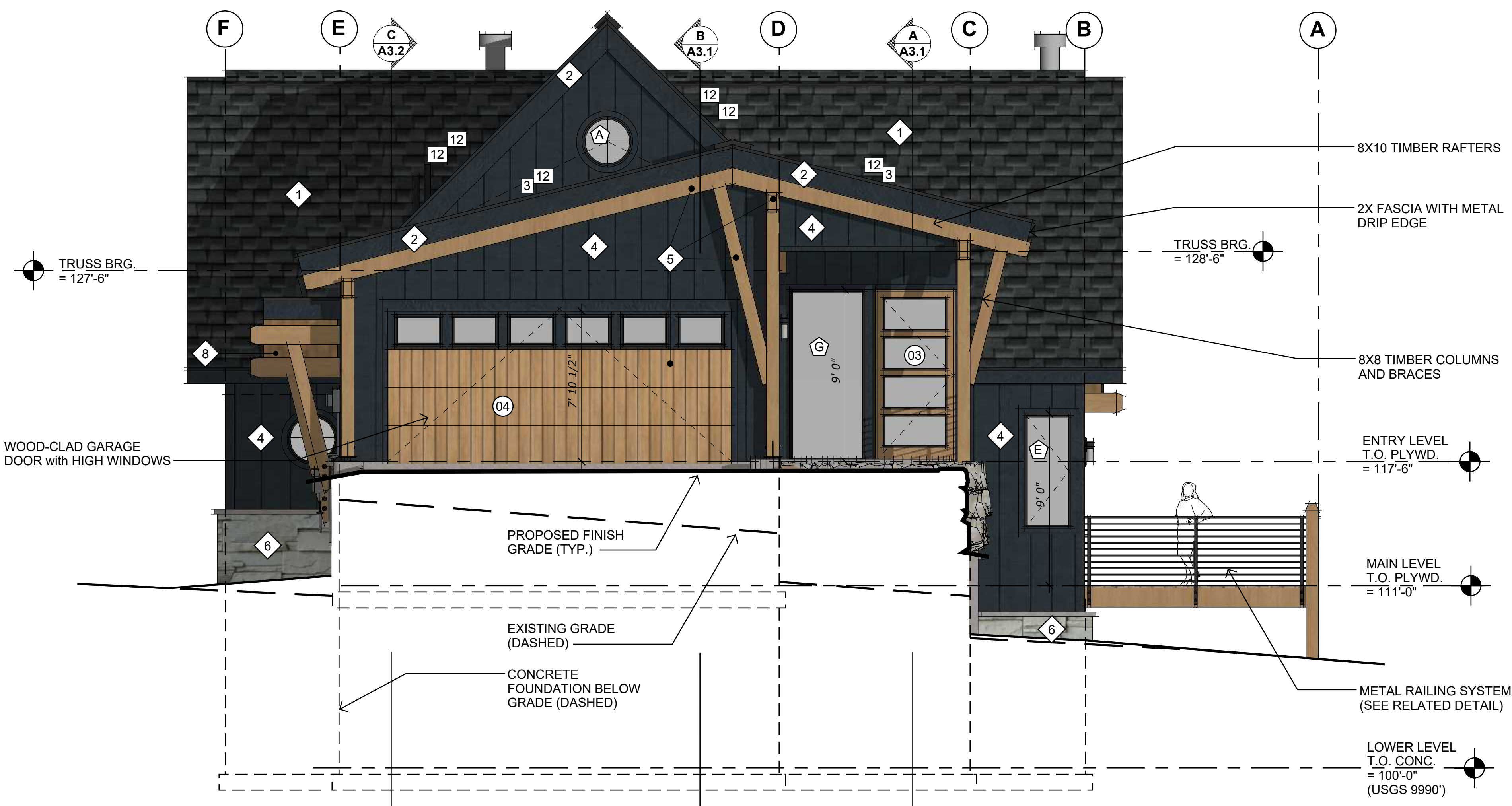
**HOLOMBO RESIDENCE**  
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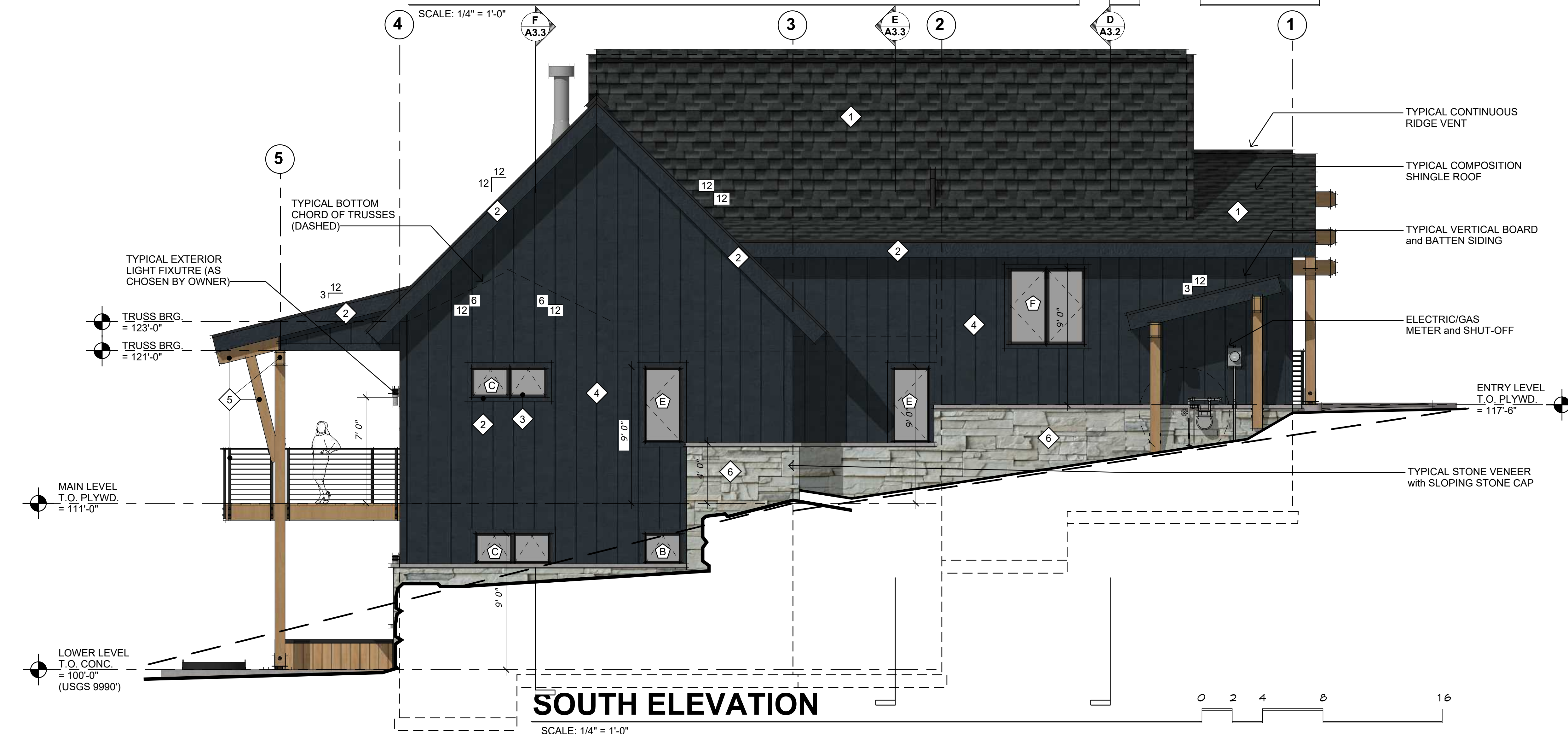
**A2.1**  
 BUILDING ELEVATIONS

**COLOR LEGEND**

1	COMPOSITION SHINGLE ROOFING 40 YR	- MFGR: CERTAINTEED LANDMARK PRO - COLOR: MAX DEF MOIRE BLACK
2	FASCIA and TRIM	- MFGR: JAMES HARDIE - COLOR: MIDNIGHT SOOT
3	WINDOW CLAD	- MFGR: SIERRA PACIFIC - COLOR: BLACK
4	VERTICAL BOARD and BATTEN	- MFGR: JAMES HARDIE - COLOR: MIDNIGHT SOOT
5	BEAMS and COLUMNS	- MFGR: SHERWIN WILLIAMS - COLOR: CROSSROADS
6	STONE VENEER	- MFGR: GALLEGOS STONE COMPANY - COLOR: #366 COURTLAND LOW RISE
7	METAL DRIP EDGE, METAL RAILINGS and ACCENTS	- COLOR: MATTE BLACK
8	SOFFITS	- MFGR: JAMES HARDIE - COLOR: CYPRUS YELLOW



**EAST ELEVATION**



**SOUTH ELEVATION**





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**HOLOMBO RESIDENCE**  
 0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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**A2.2**  
 BUILDING ELEVATIONS



**WEST ELEVATION**

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

NOTE: REFER TO SHEET A-2.1 FOR TYPICAL NOTES AND MATERIALS.

TRUSS BRG. = 123'-0"  
 TRUSS BRG. = 121'-0"

MAIN LEVEL T.O. PLYWD. = 111'-0"

LOWER LEVEL T.O. CONC. = 100'-0"



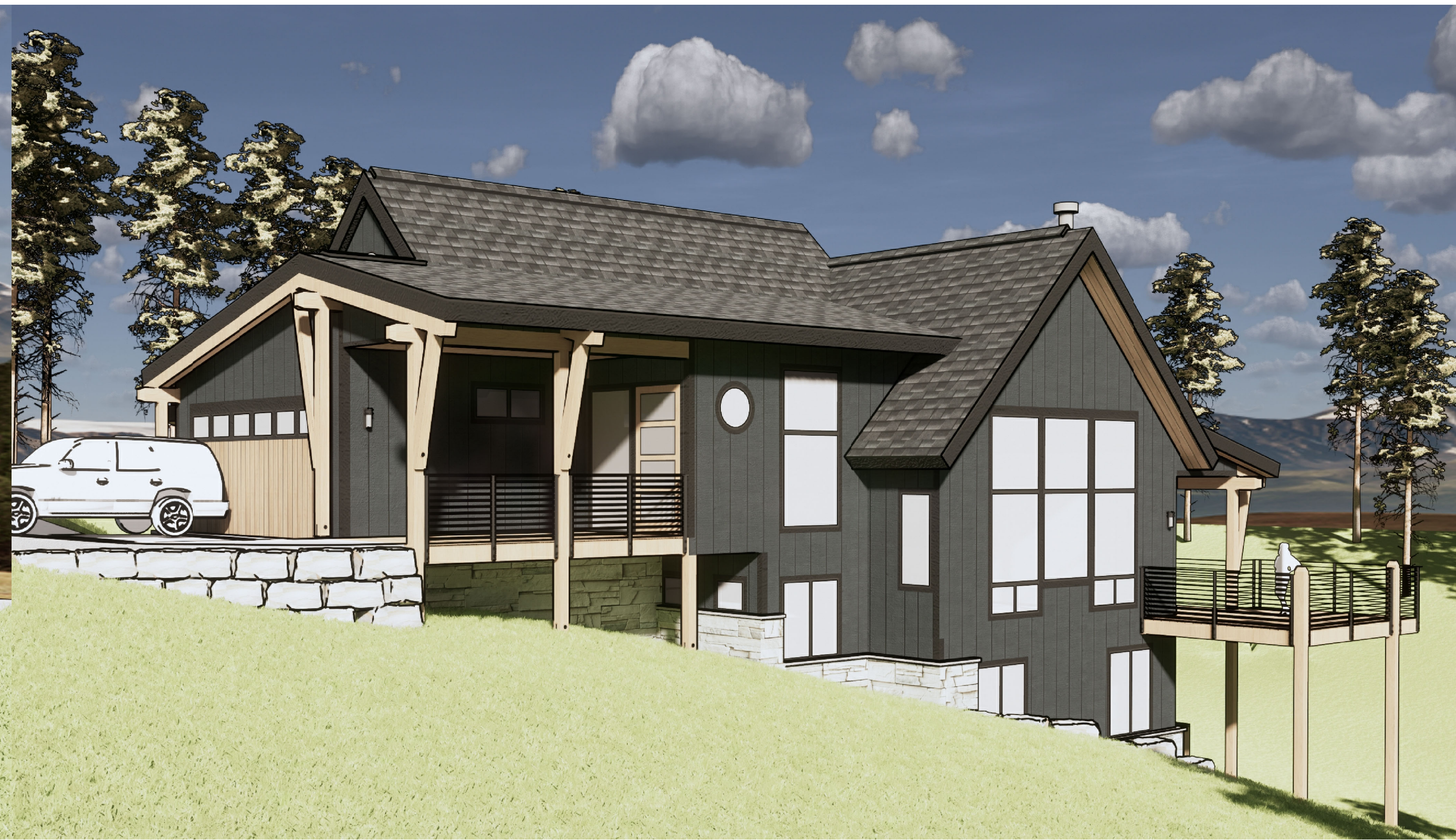
**NORTH ELEVATION**

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



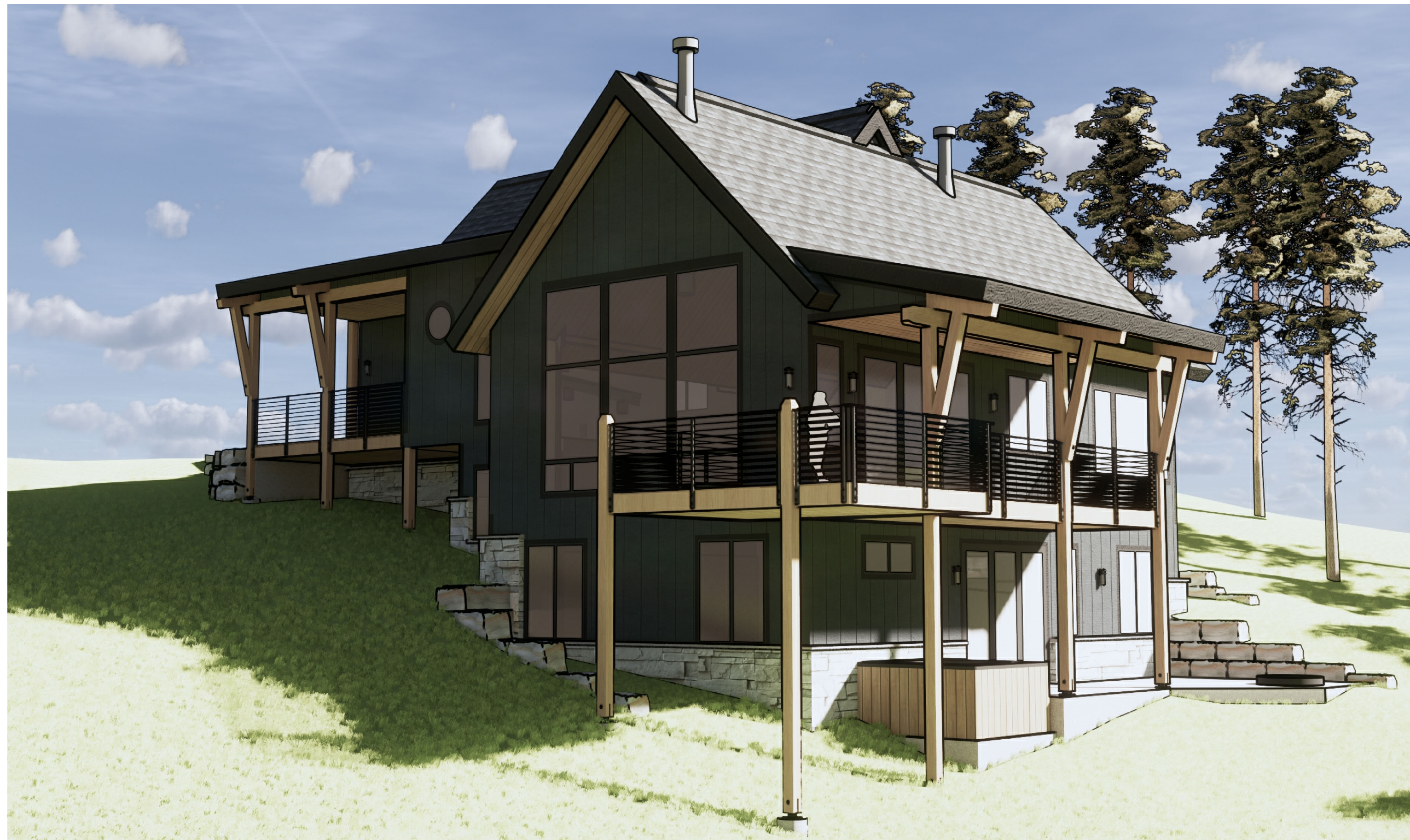
**VIEW FROM SOUTHEAST**

SCALE: N.T.S.



**VIEW FROM NORTHEAST**

SCALE: N.T.S.



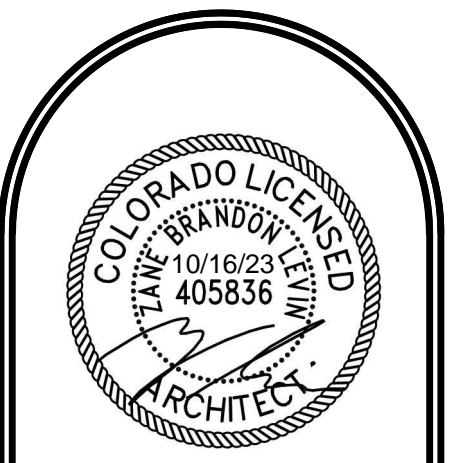
**VIEW FROM NORTHWEST**

SCALE: N.T.S.



**VIEW FROM SOUTHWEST**

SCALE: N.T.S.



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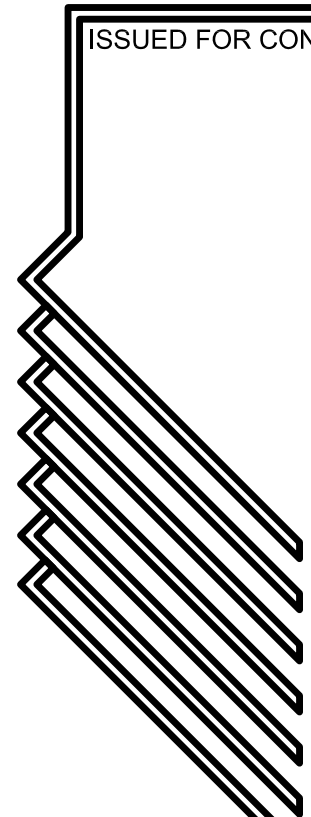
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**HOLOMBO RESIDENCE**  
0039 LODestone TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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SHEET NUMBER:

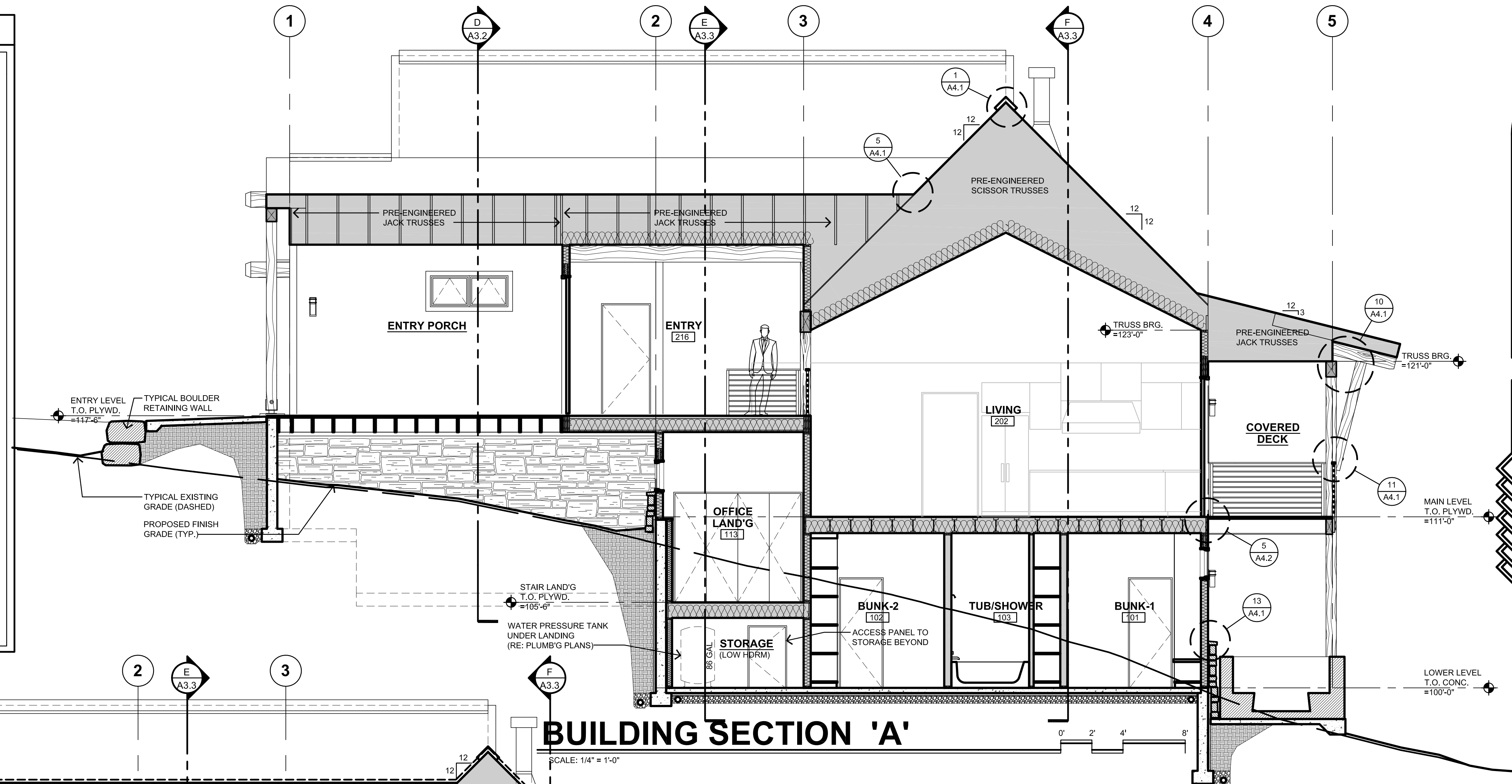
**A-2.3**

BUILDING PERSPECTIVES

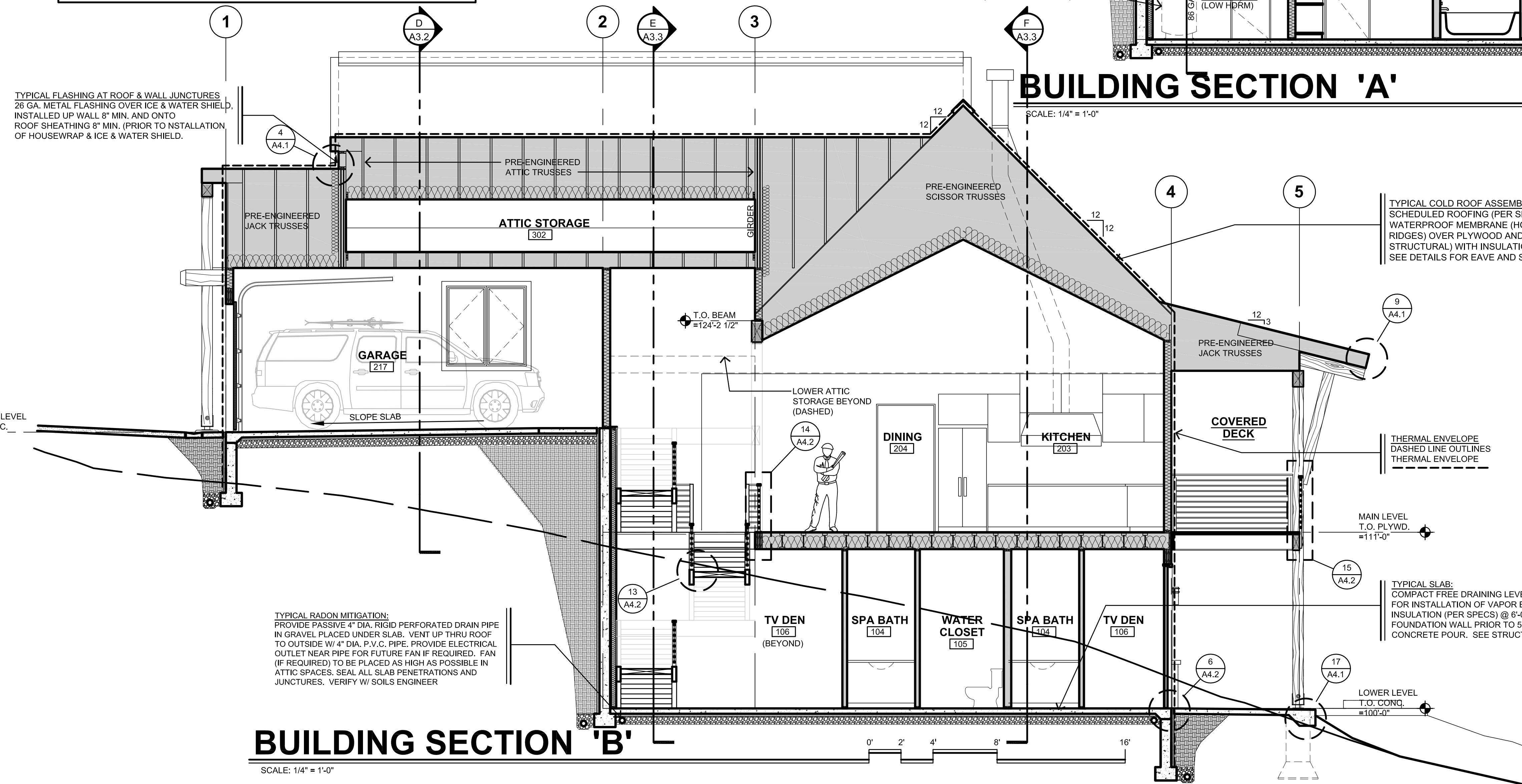
# AIR BARRIER REQUIREMENTS

PROVIDE SEALED AIR BARRIER CONSTRUCTION PER INTERNATIONAL ENERGY CODE REQUIREMENTS AS ADOPTED BY THE LOCAL BUILDING DEPARTMENT FOR THIS PROJECT. WORK SHALL INCLUDE THE FOLLOWING AS APPLICABLE TO THE SPECIFIC PROJECT:

1. **EXTERIOR BUILDING ENVELOPE**  
- PROVIDE CONTINUOUS SEALANT BEAD AROUND ALL ELECTRICAL & ENVIRONMENTAL AIR PENETRATIONS AT THE EXTERIOR BUILDING ENVELOPE.
2. **EXTERIOR FLOOR PLATES**  
- PROVIDE CONTINUOUS SEALANT BEAD BETWEEN PLYWOOD OR SLABS AND BOTTOM PLATE OF EXTERIOR FRAMING.
3. **GARAGE SEALS**  
- PROVIDE CONTINUOUS SEALANT BEAD BETWEEN CONDITIONED SPACE & GARAGE SPACE TO INCLUDE FLOOR PLATES, RIM JOISTS, ATTIC TOP PLATES, & WALL PLATES.
4. **INTERIOR BATH TUBS & SHOWERS ADJACENT TO EXTERIOR WALLS**  
- PROVIDE CONTINUOUS SEALANT BEAD BETWEEN FLOOR PLATES AND FLOORING AT TUBS THAT ARE LOCATED ADJACENT TO ANY EXTERIOR WALL. PROVIDE CONTINUOUS SEALANT BEAD BETWEEN DRYWALL AND CEMENT BOARD AT ANY JOINTS AT EXTERIOR WALLS.
5. **INTERIOR RIM FLOOR BOARDS**  
- PROVIDE CONTINUOUS SEALANT BEAD AT CEILING AND FLOOR PLATES AND AT TOP AND BOTTOM OF EXTERIOR RIM BOARD CONSTRUCTION.
6. **ATTIC & EAVE BAFFLE CONSTRUCTION**  
- PROVIDE CONTINUOUS SEALANT BEAD AT BOTH CUT ROOFS & ATTIC TRUSSES.
7. **INTERIOR SOFFITS, EXTERIOR WALLS, & EXTERIOR CEILINGS**  
- PROVIDE CONTINUOUS SEALANT BEAD AT TOP PLATES AND ALL DRYWALL JOINTS PRIOR TO INTERIOR SOFFIT CONSTRUCTION. (CONTINUOUS DRYWALL TO BE PROVIDED AT ALL EXTERIOR WALLS AND CEILINGS PRIOR TO ANY SOFFIT CONSTRUCTION). PROVIDE SEALANT BEAD AT ALL SOFFIT JUNCTURES AT ALL EXTERIOR WALLS AND CEILINGS.
8. **INSULATED CANTILEVERED FLOORS**  
- PROVIDE CONTINUOUS SEALANT BEAD AT EXTERIOR LOWER PLATE AT CANTILEVER, AT TOP AND BOTTOM OF RIM BOARDS AT EXTERIOR CANTILEVER, AND AT BOTTOM PLATE AT EXTERIOR WALL AT CANTILEVER.
9. **RECESSED CAN LIGHTING AT EXTERIOR CEILINGS & ATTICS**  
- PROVIDE CONTINUOUS SEALANT BEAD AT ALL CAN LIGHTS AT CEILING PLANE. PROVIDE SEALED UNITS OR PROVIDE CONTINUOUS SEALANT BEAD AT ALL CAN LIGHT HOUSING EDGES AND OPENINGS.
10. **FIREPLACE PLATFORMS AT EXTERIOR WALLS**  
- PROVIDE CONTINUOUS SEALANT BEAD AROUND ALL FRAMING PRIOR TO FIREPLACE PLATFORM CONSTRUCTION. PROVIDE DRYWALL ON ALL SURFACE PRIOR TO PLATFORM OR FIREPLACE CHASE CONSTRUCTION.
11. **TOP PLATE PLUMBING & ELECTRICAL PENETRATIONS AT EXTERIOR WALLS**  
- PROVIDE CONTINUOUS SEALANT OR EXPANDING FOAM SEALANT AT ALL PLUMBING PENETRATIONS AT EXTERIOR WALLS TO INCLUDE TOP PLATES.
12. **ATTIC ACCESS HATCHES**  
- PROVIDE MINIMUM OF 1 INCH RIGID INSULATION AT ALL ATTIC ACCESS HATCHES. INSTALL HATCHES TO PROVIDE AIR TIGHT CONSTRUCTION. PROVIDE CONTINUOUS SEALANT BEAD AROUND ALL FRAMING PRIOR TO ATTIC ACCESS HATCH INSULATION.



TYPICAL FLASHING AT ROOF & WALL JUNCTURES  
26 GA. METAL FLASHING OVER ICE & WATER SHIELD,  
INSTALLED UP WALL 8" MIN. AND ONTO  
ROOF SHEATHING 8" MIN. (PRIOR TO INSTALLATION  
OF HOUSEWRAP & ICE & WATER SHIELD.



TYPICAL RADON MITIGATION:  
PROVIDE PASSIVE 4" DIA. RIGID PERFORATED DRAIN PIPE  
IN GRAVEL PLACED UNDER SLAB. VENT UP THRU ROOF  
TO OUTSIDE W/ 4" DIA. P.V.C. PIPE. PROVIDE ELECTRICAL  
OUTLET NEAR PIPE FOR FUTURE FAN IF REQUIRED. FAN  
(IF REQUIRED) TO BE PLACED AS HIGH AS POSSIBLE IN  
ATTIC SPACES. SEAL ALL SLAB PENETRATIONS AND  
JUNCTURES. VERIFY W/ SOILS ENGINEER

TYPICAL COLD ROOF ASSEMBLY:  
SCHEDULED ROOFING (PER SPECS) OVER  
WATERPROOF MEMBRANE (HOLD DOWN 3'-0" FROM  
RIDGES) OVER PLYWOOD AND FRAMING (PER  
STRUCTURAL) WITH INSULATION (PER SPECS).  
SEE DETAILS FOR EAVE AND SOFFIT VENTS.

THERMAL ENVELOPE	
ROOF INSULATION:	R-49
EXTERIOR WALLS:	R-20 CAVITY
EXTERIOR WALLS BELOW GRADE:	R-15 CONTINUOUS EXTERIOR or R-19 CAVITY INTERIOR
FLOORS AT CANTILEVERS:	R-13 w/ R-10 CONT. AT EXTERIOR (2x4 STUDS+ 8" CONC.)
UNDER SLABS:	R-30
WINDOWS/DOORS:	R-10 (FOR ENTIRE HEATED SLAB + SLAB EDGE) U-FACTOR: 0.30 (max)

SEE DETAILS AND SPECIFICATIONS FOR RELATED SPECIFIC INSULATION REQUIREMENTS FOR EXTERIOR BUILDING ENVELOPE

THERMAL ENVELOPE  
DASHED LINE OUTLINES  
THERMAL ENVELOPE

TYPICAL SLAB:  
COMPACT FREE DRAINING LEVELING COURSE  
FOR INSTALLATION OF VAPOR BARRIER OVER  
INSULATION (PER SPECS) @ 6'-0" WITHIN PERIMETER  
FOUNDATION WALL PRIOR TO 5" REINFORCED  
CONCRETE POUR. SEE STRUCTURAL PLANS.

**COLORADO LICENSED**  
LAND SURVEYOR  
10/16/23  
405836  
ARCHITECT

REVISIONS:

JOB NO: 12315.0  
DATE: 10.16.23  
DRAWN BY: T. SHAFFER  
CHECKED BY: Z. LEVIN

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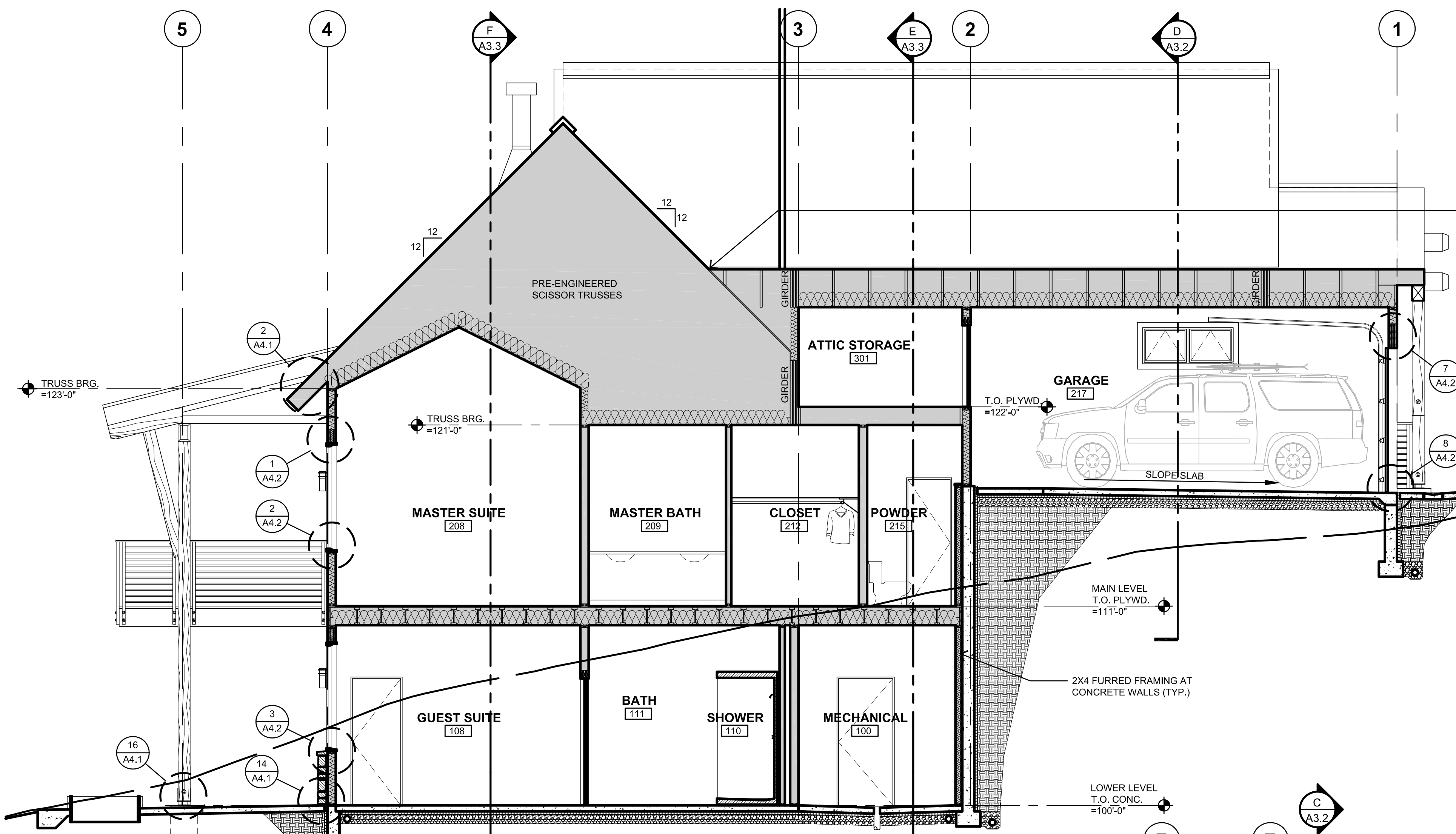
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**HOLOMBO RESIDENCE**  
0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

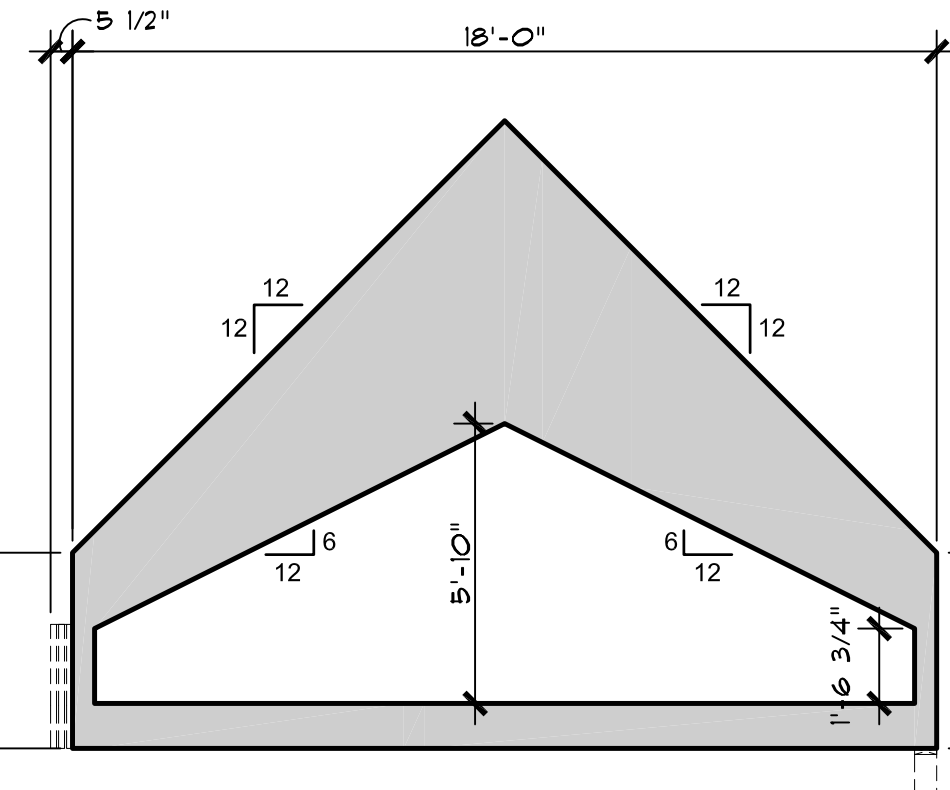
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SHEET NUMBER:  
**A-3.1**  
BUILDING SECTIONS



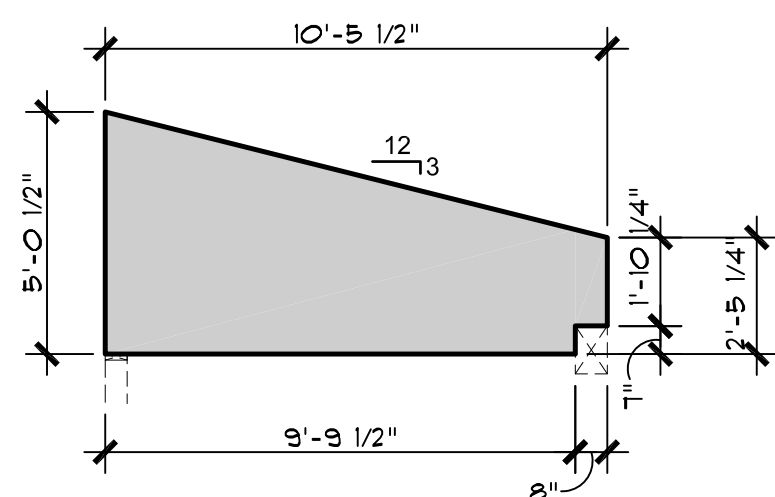
**BUILDING SECTION 'C'**

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



**TRUSSES AT GARAGE**

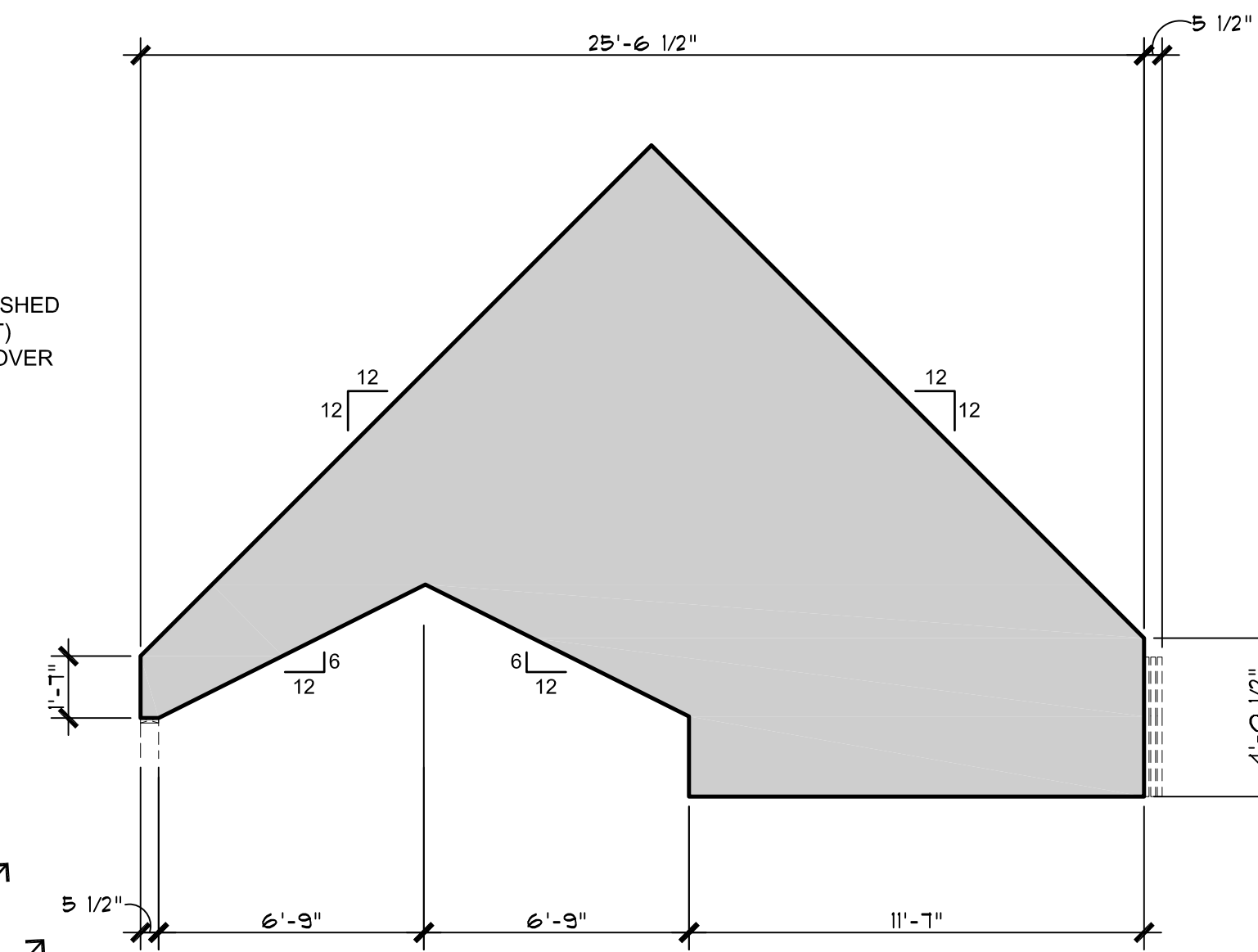
SCALE: 1/4" = 1'-0"



**TRUSS AT ENTRY PORCH**

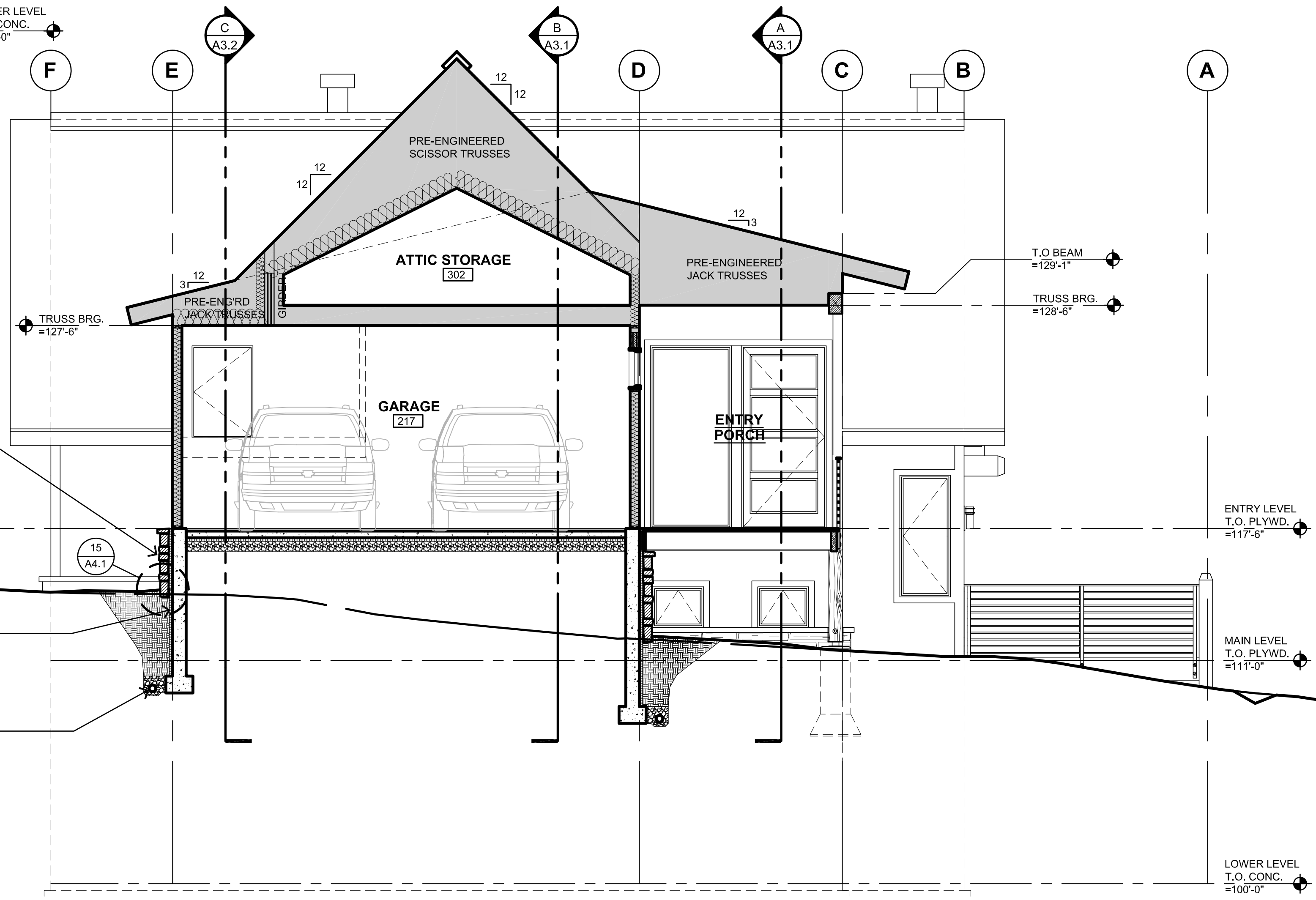
SCALE: 1/4" = 1'-0"

**TYPICAL VALLEY FLASHING:**  
 36" WIDE, 26 GA. METAL FLASHING, PRE-FINISHED TO MATCH ROOF COLOR (OR PRIME & PAINT) CENTERED AT VALLEY BY ROOF SUPPLIER OVER WATERPROOF MEMBRANE (RE: DETAILS)



**TRUSS AT MASTER**

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



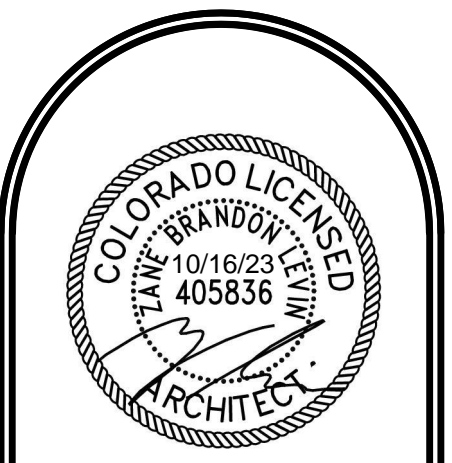
**BUILDING SECTION 'D'**

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

**TYPICAL STONE VENEER:**  
 5" NOMINAL THICK STONE (PER SPECS) WITH METAL TIES @ 16" O.C. EACH WAY OVER WAFFLE DRAIN OR DRAINAGE BOARD OVER 1/2" PRESSURE TREATED PLYWOOD SHEATHING OR CONCRETE FOUNDATION WALL. BEAR ON 4" C.M.U. UP FROM FOOTING OR ON STEEL ANGLE ALONG FINISH GRADES PER STRUCTURAL WITH 2 COATS DAMPPROOFING.

**TYPICAL FOUNDATION WATERPROOFING:**  
 AT UPHILL SIDES OF FOUNDATION INSTALL RIGID INSULATION (PER SPECS) OVER DRAIN MAT OVER WATERPROOF MEMBRANE (IF REQUIRED BY SOILS ENGINEER). PROVIDE DAMPPROOFING AT SIDE WALLS AND DOWNHILL WALLS.

**TYPICAL FOUNDATION DRAIN:**  
 SET 4" DIA. RIGID PVC IN BED OF WASHED ROCK. SLOPE & TERMINATE PER SITE PLAN, SP-1.



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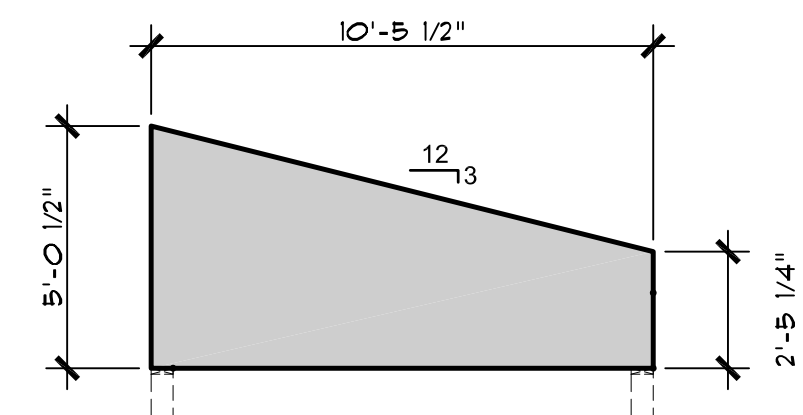
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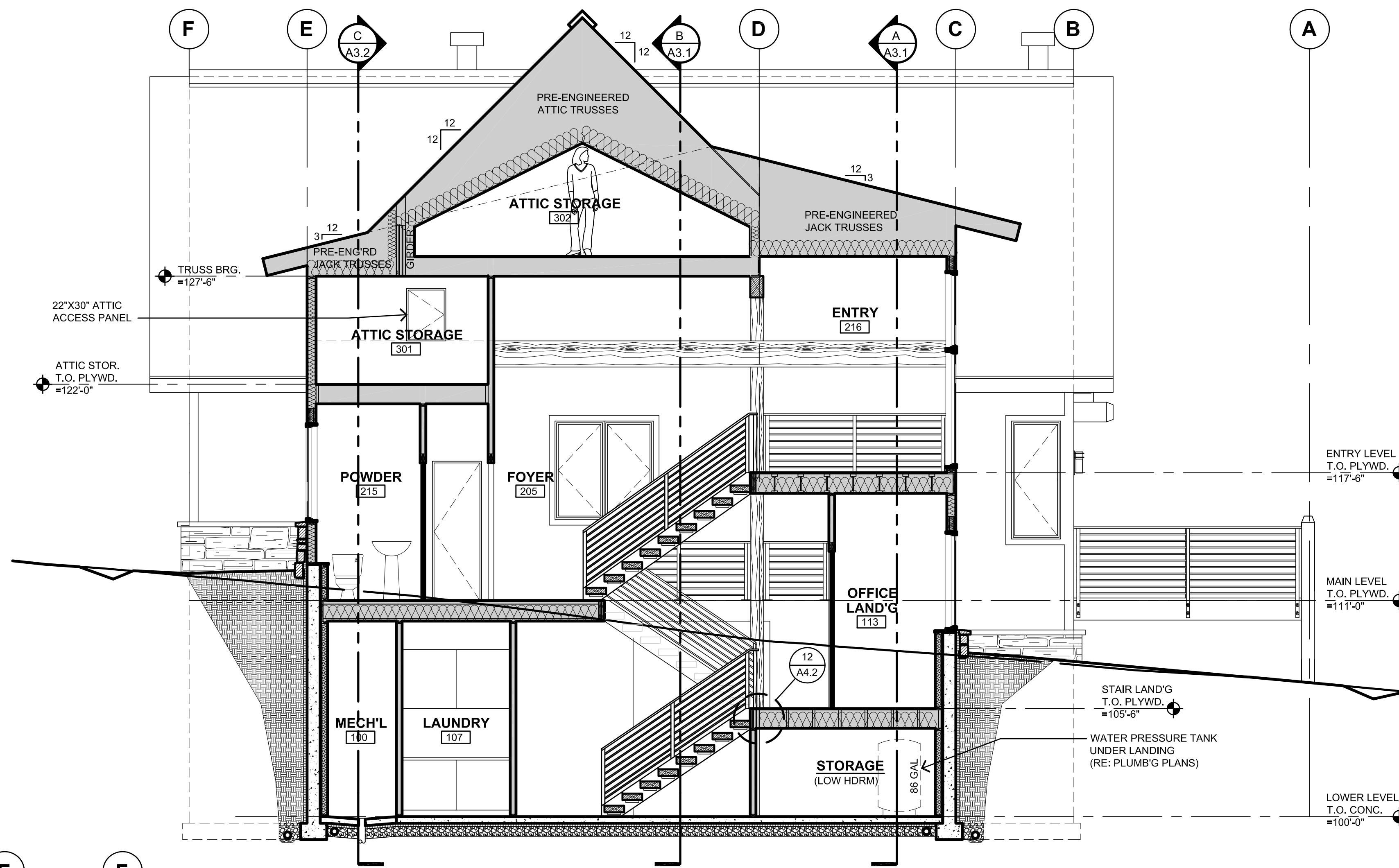
**HOLOMBO RESIDENCE**  
 0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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**A-3.2**  
 BUILDING SECTIONS



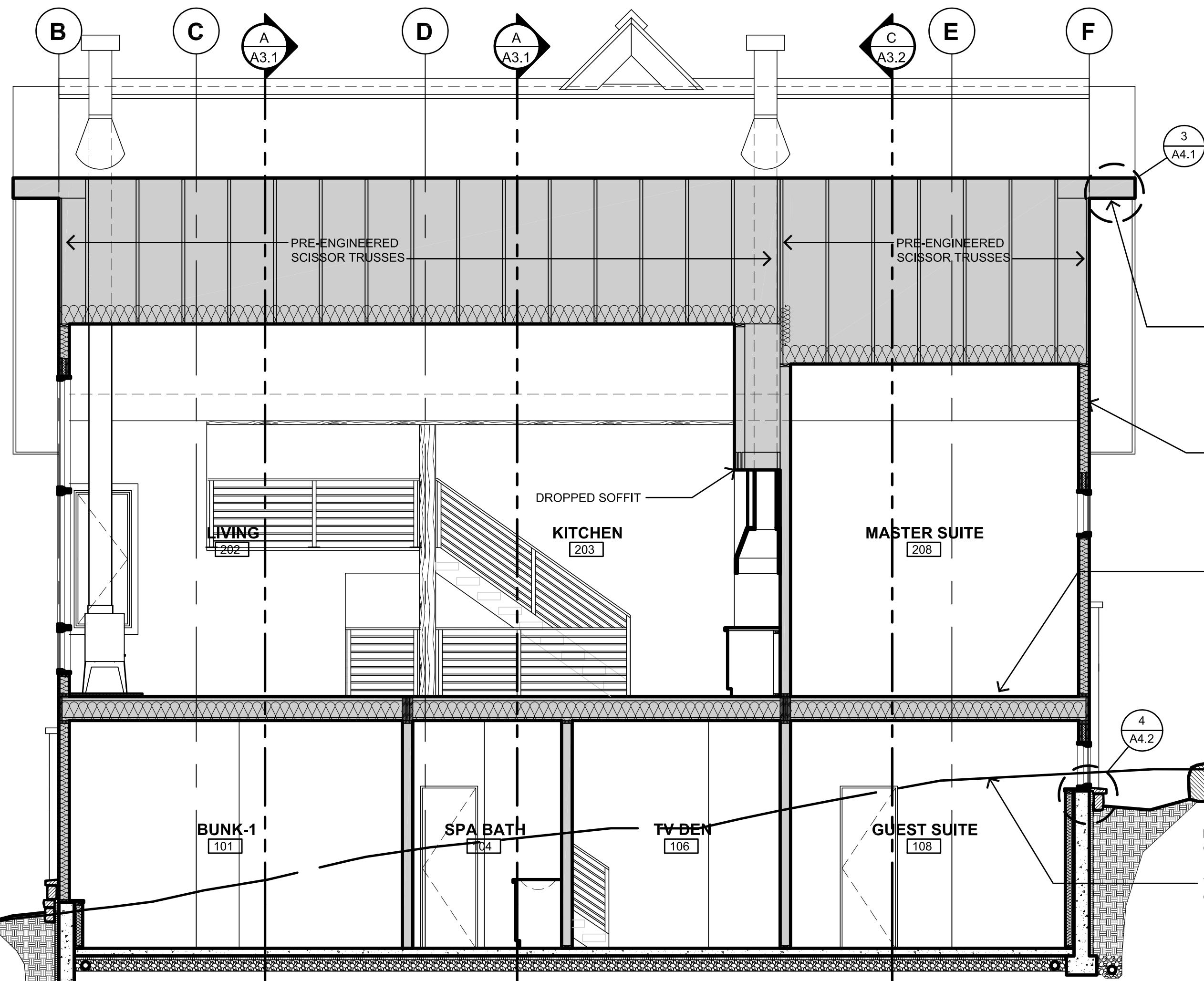
### TRUSS AT ENTRY

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



### BUILDING SECTION 'E'

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



### BUILDING SECTION 'F'

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

TYPICAL SOFFIT @ RAKES & EAVES:  
BLOCK BETWEEN RAFTERS FOR 1x8 T&G CVG  
CEDAR (PER SPECS.) OVER FRAMING PER  
STRUCTURAL PLANS (U.N.O.)

TYPICAL EXTERIOR WALL:  
SIDING (PER SPECS & ELEVATIONS) OVER TYVEK,  
OVER 1/2" SHEATHING, 2X8 STUDS @ 16" O.C. W/  
INSULATION (PER SPECS) PROVIDE 5/8" DRYWALL  
OVER 4 MIL. VAPOR BARRIER @ INTERIOR.

TYPICAL FLOOR / CEILING:  
3/4" PLYWOOD SUBFLOOR (PER STRUCT.) OVER  
WOOD JOISTS (PER STRUCT.) W/ INSULATION (PER SPECS)  
PROVIDE 5/8" GYP. BD AT CEILING. PROVIDE 5/8" X GYP.  
BOARD AT GARAGE CEILING.

PROPOSED FINISH  
GRADE (TYP.)

TYPICAL EXISTING  
GRADE (DASHED)



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## HOLOMBO RESIDENCE

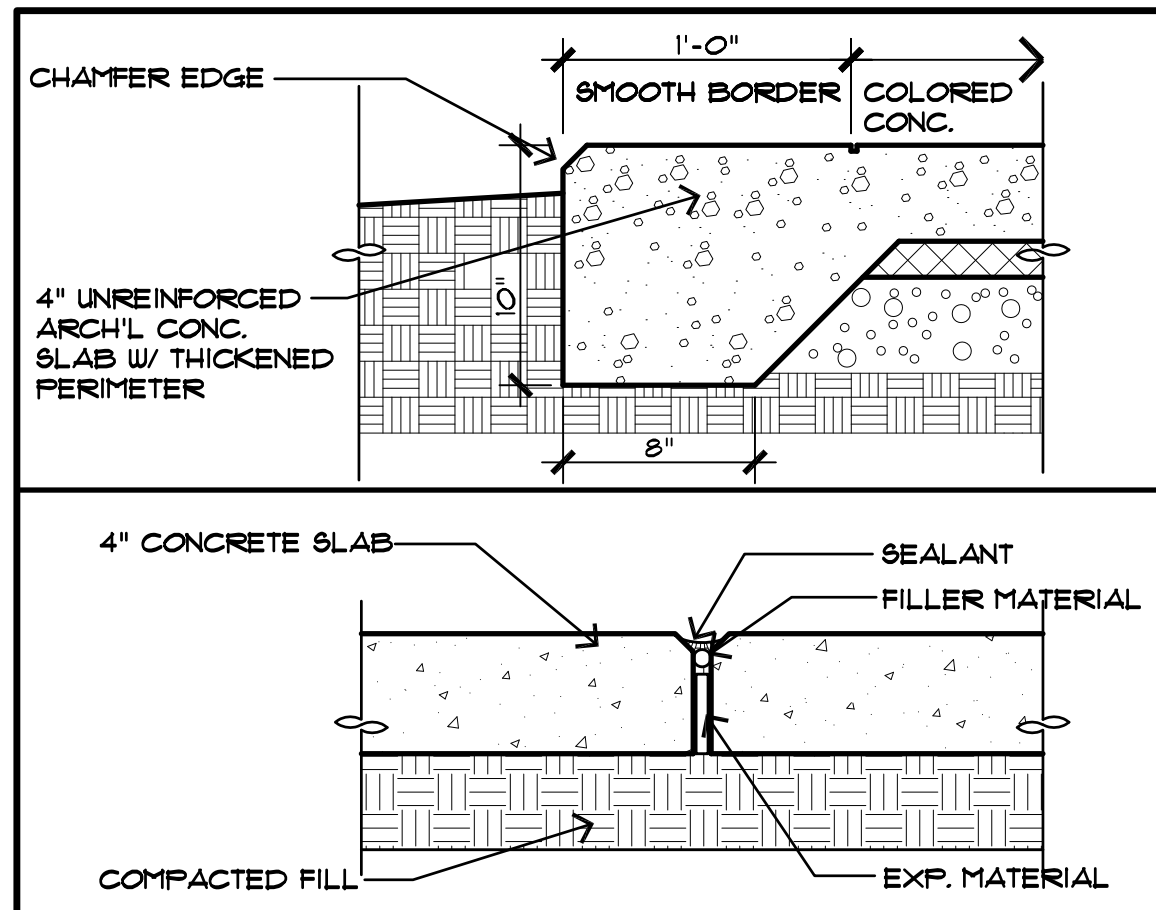
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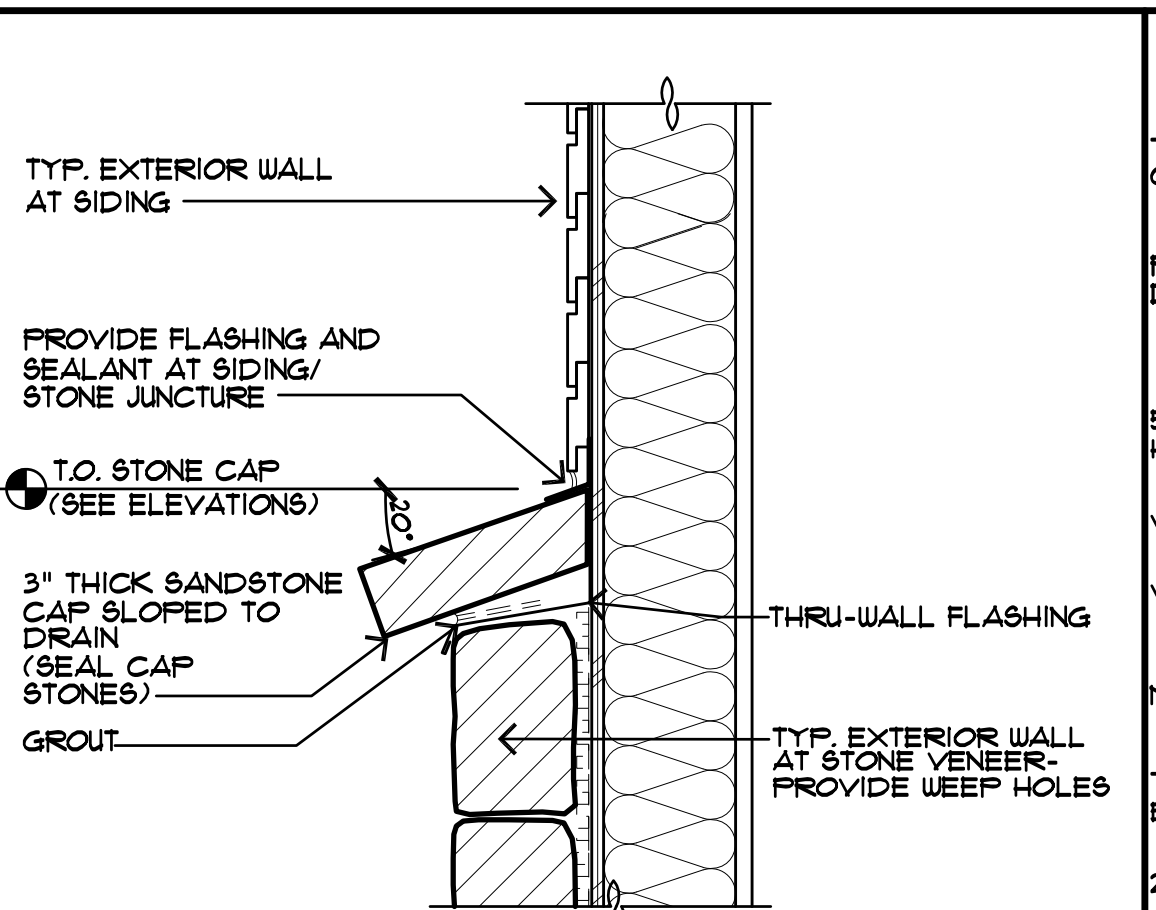
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## A-3.3

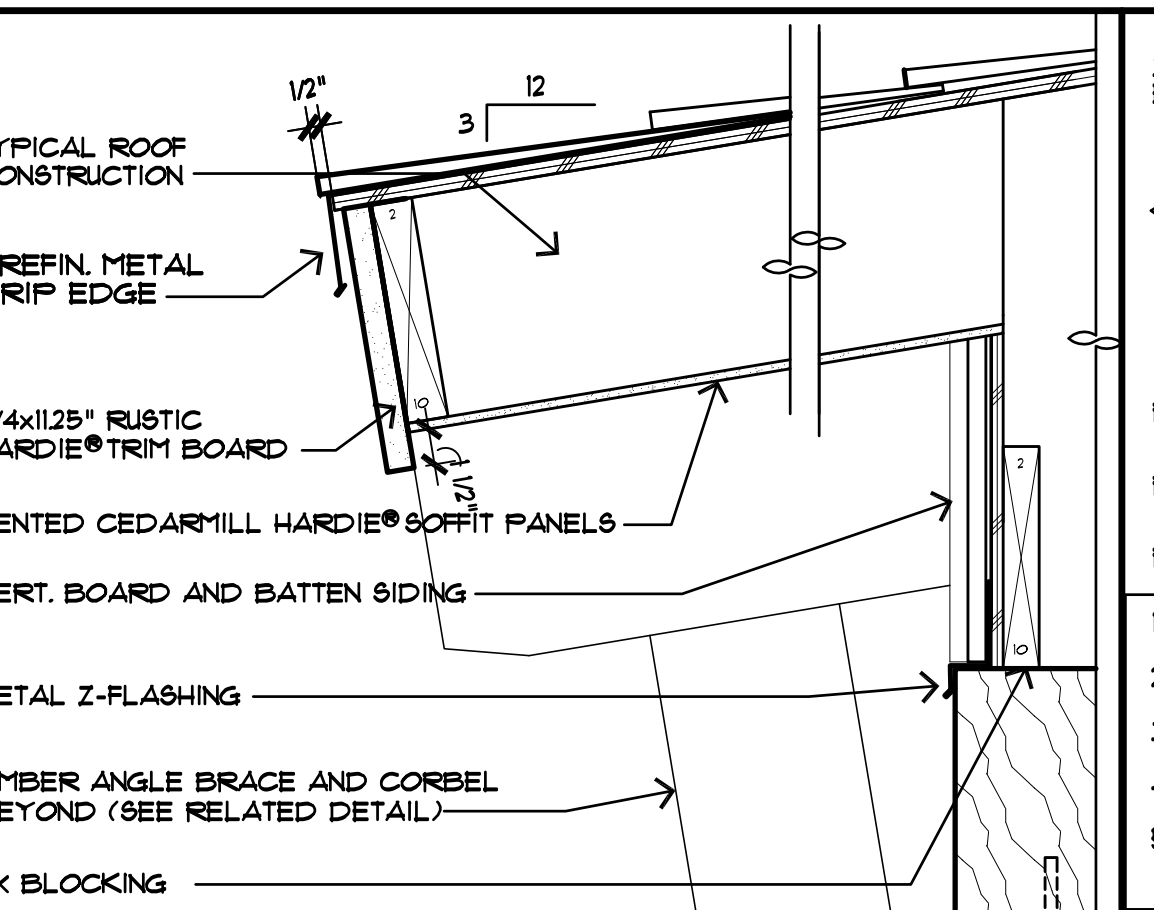
BUILDING SECTIONS



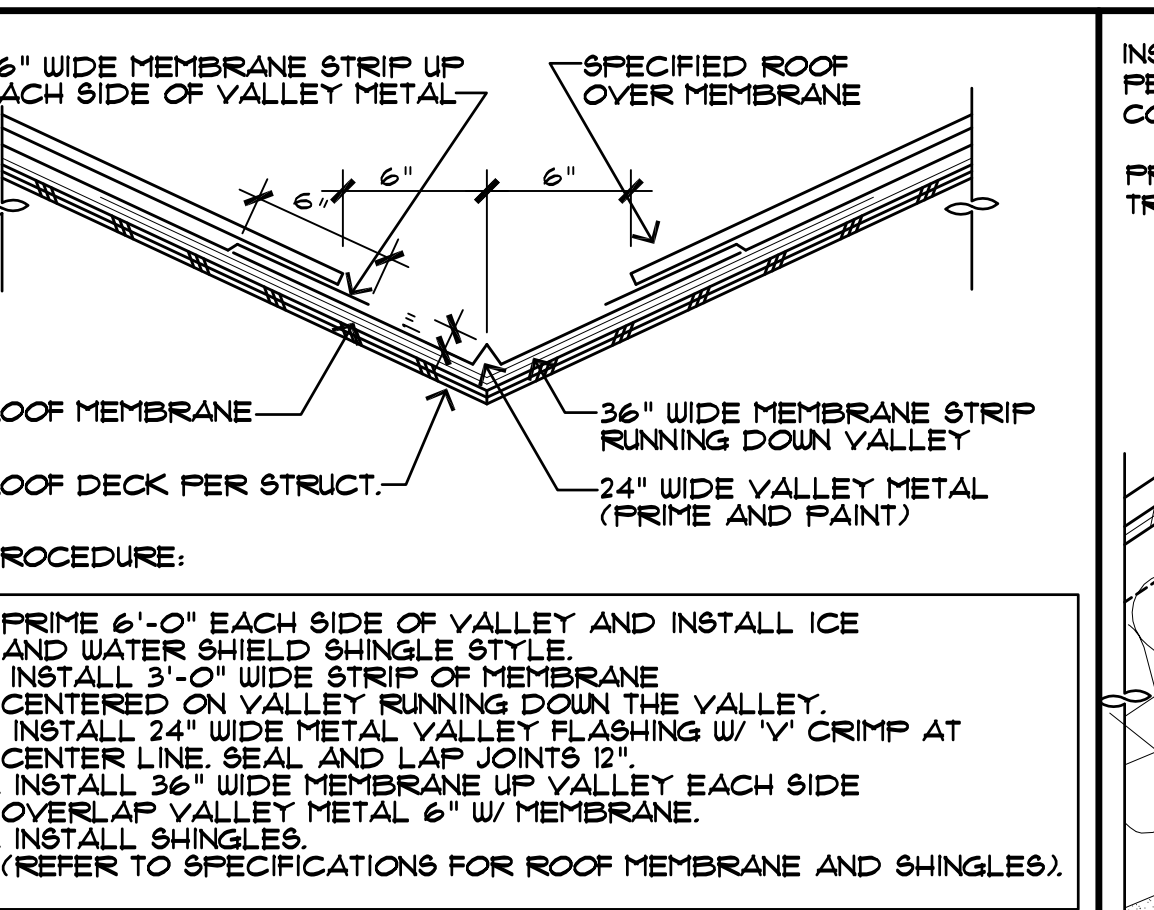
**17 WINDOW HEAD AT HORIZONTAL SIDING**  
 A4.1 1 1/2" = 1'-0"



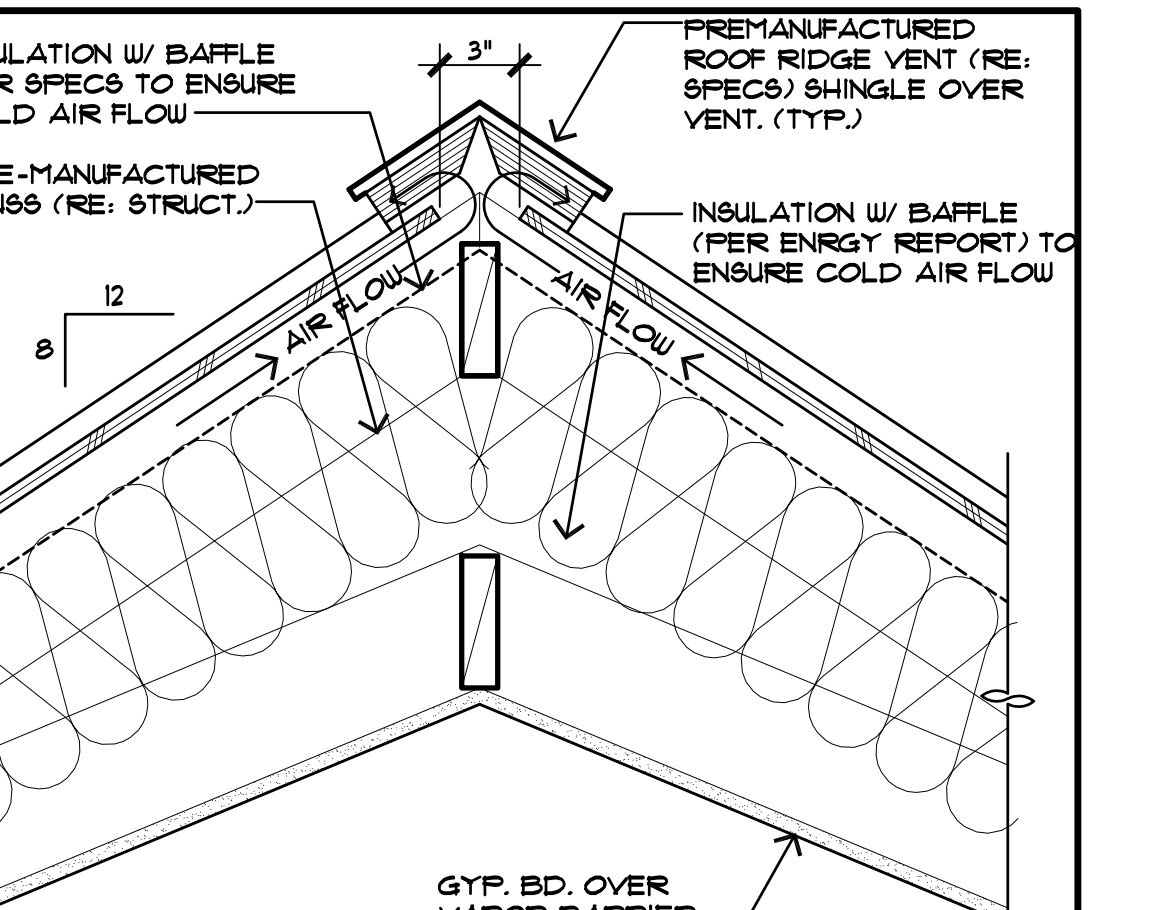
**13 STONE VENEER AT STONE CAP**  
 A4.1 1 1/2" = 1'-0"



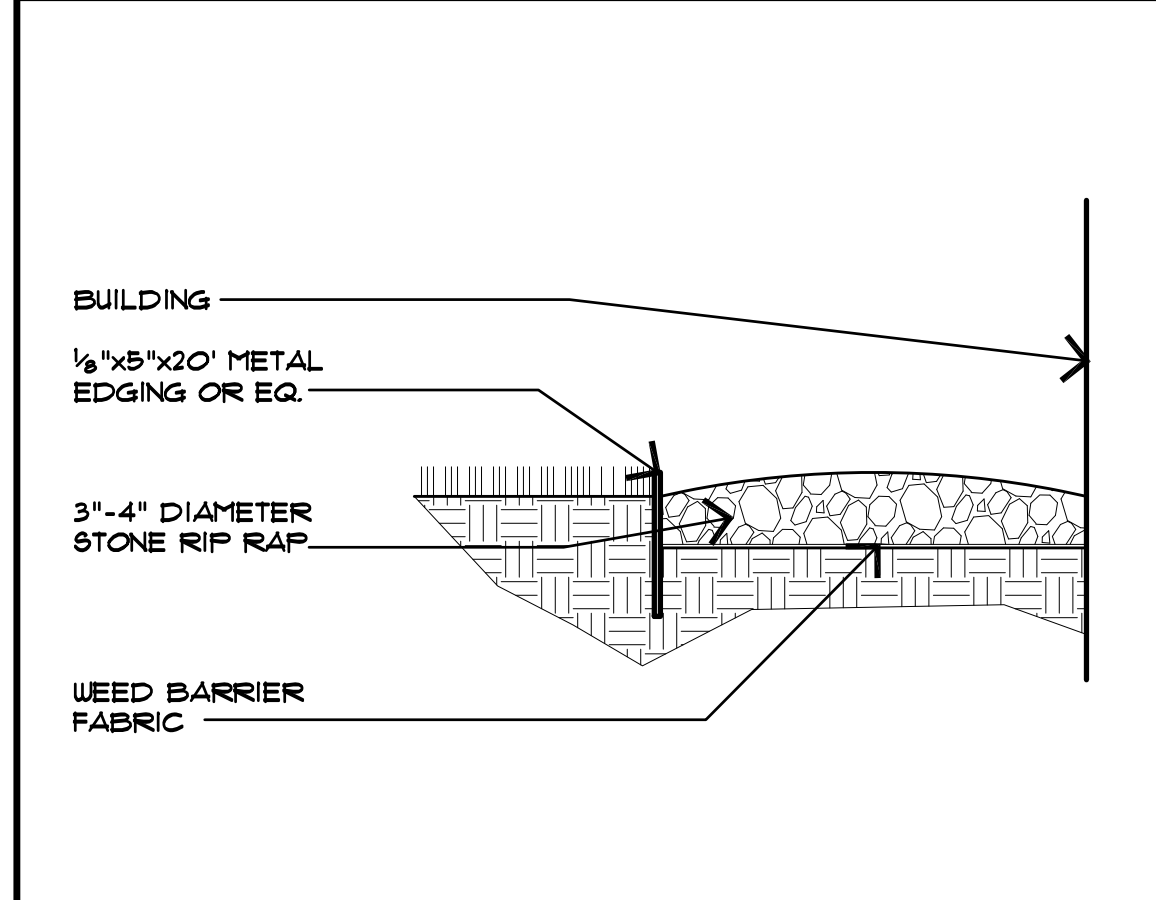
**9 FASCIA AT PORCH**  
 A4.1 1 1/2" = 1'-0"



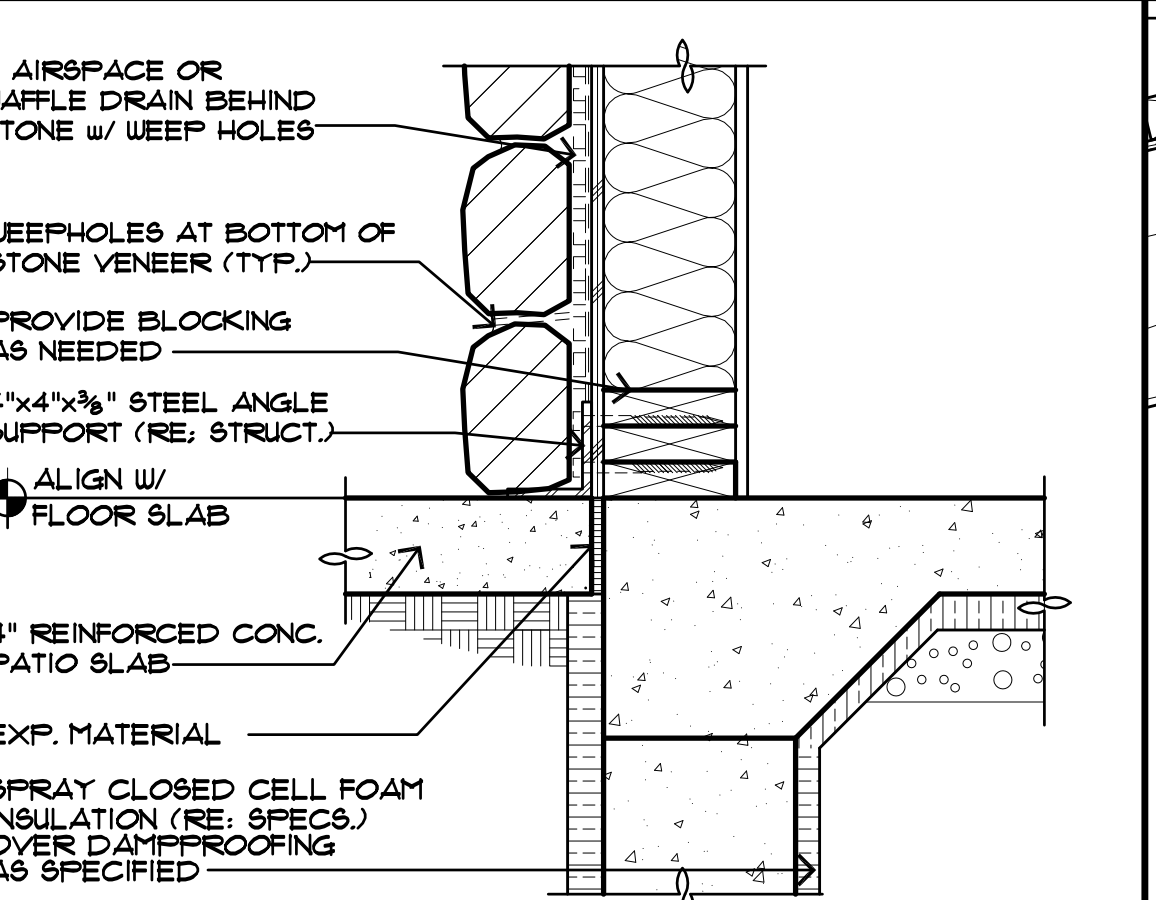
**5 VALLEY FLASHING**  
 A4.1 1 1/2" = 1'-0"



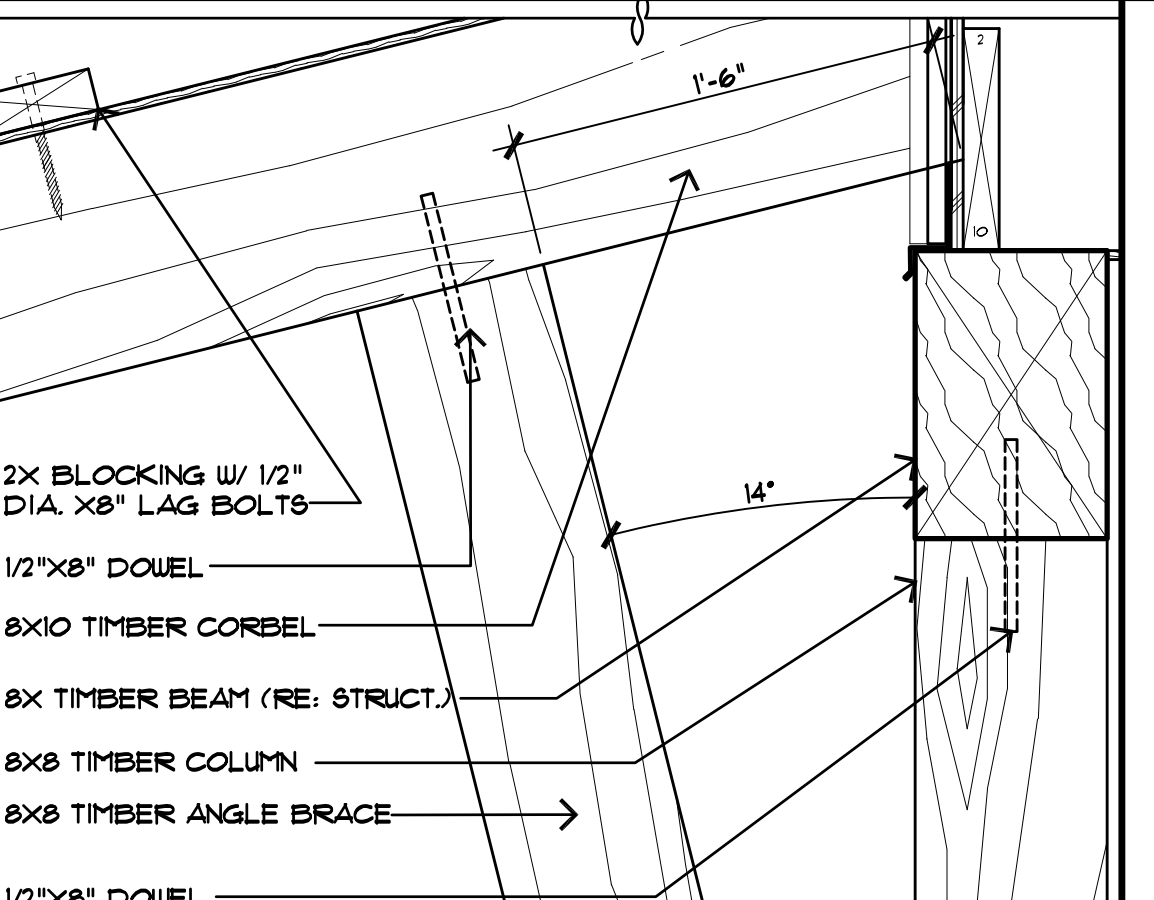
**1 RIDGE VENT**  
 A4.1 1 1/2" = 1'-0"



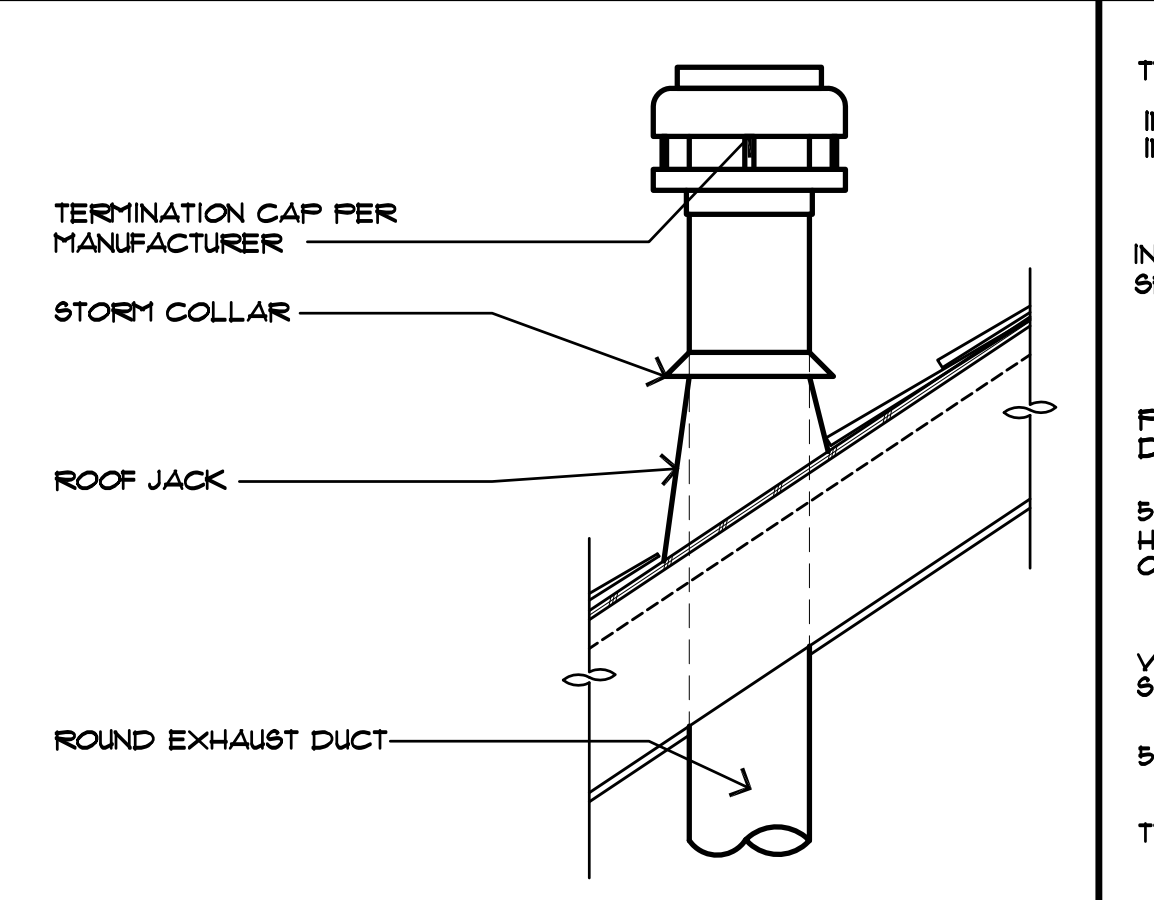
**18 STONE RIP-RAP AT EAVE DRIP LINES**  
 A4.1 1 1/2" = 1'-0"



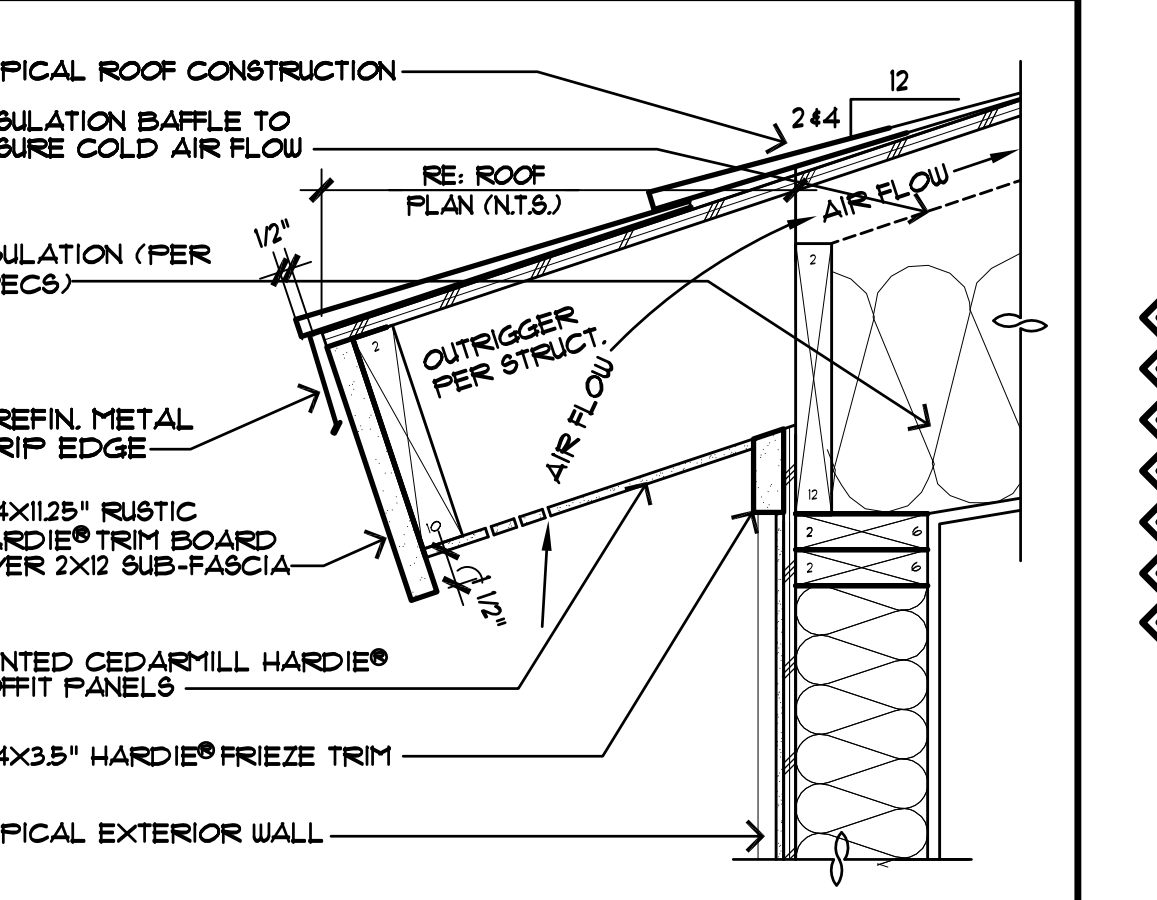
**14 STONE VENEER AT PATIO**  
 A4.1 1 1/2" = 1'-0"



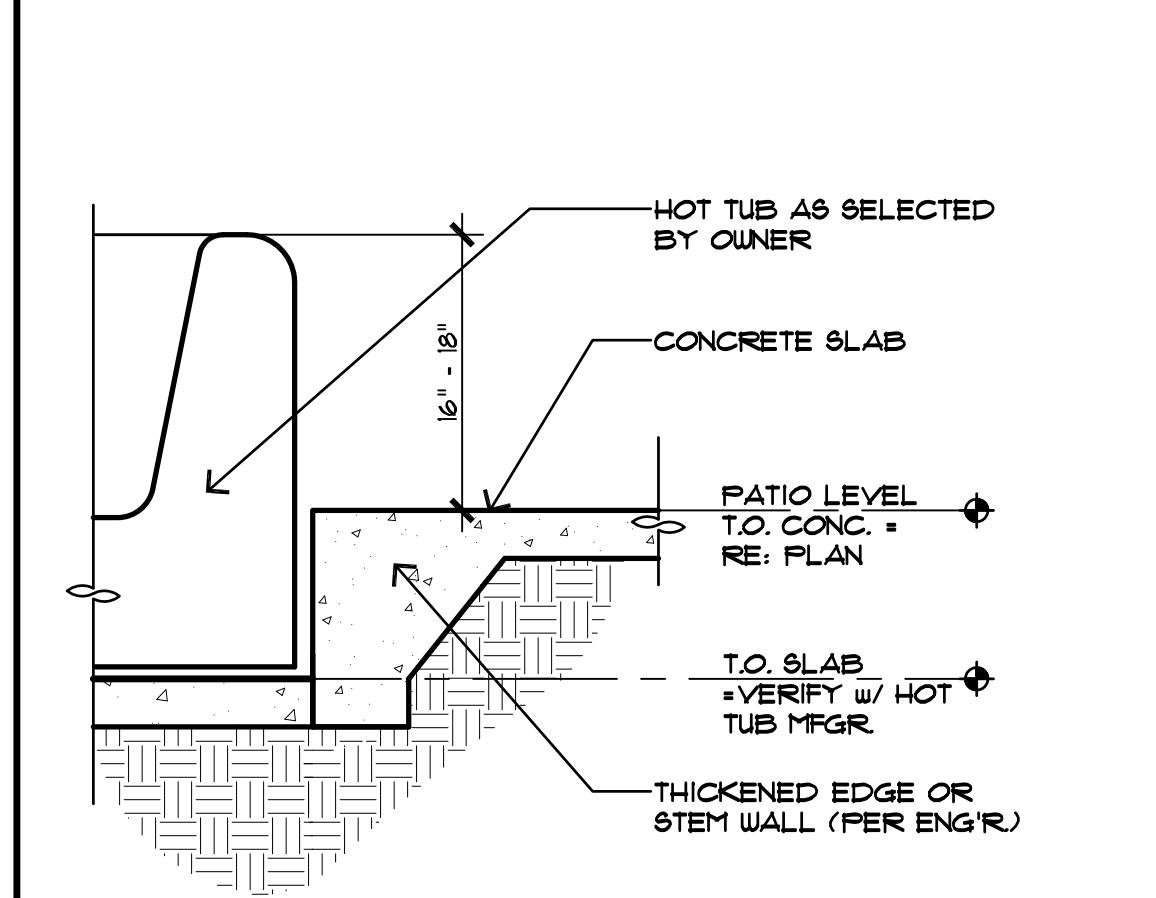
**10 ANGLE BRACE AT BEAM**  
 A4.1 1 1/2" = 1'-0"



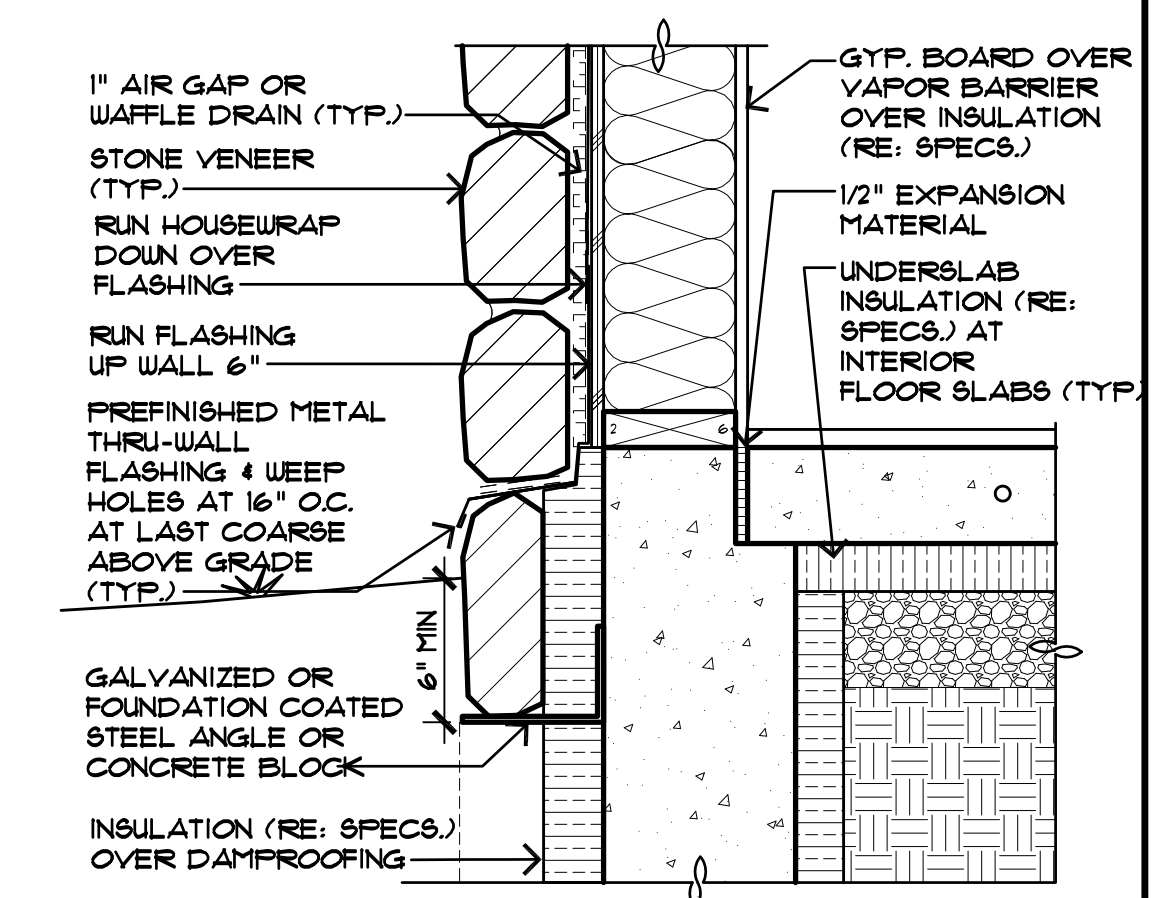
**6 THROUGH-ROOF VENT**  
 A4.1 3/4" = 1'-0"



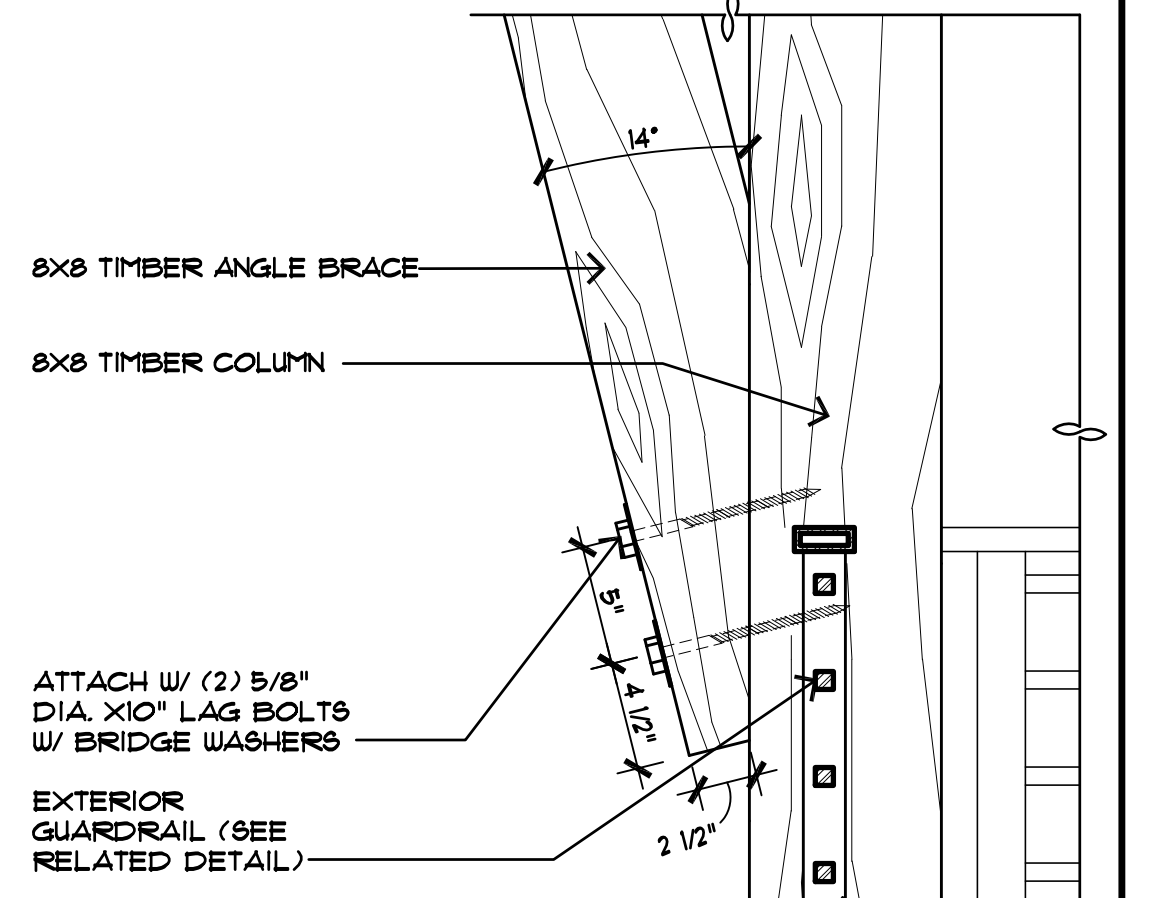
**2 FASCIA AT EAVE**  
 A4.1 1 1/2" = 1'-0"



**19 PATIO EDGE AT DROPPED HOT TUB**  
 A4.1 3/4" = 1'-0"



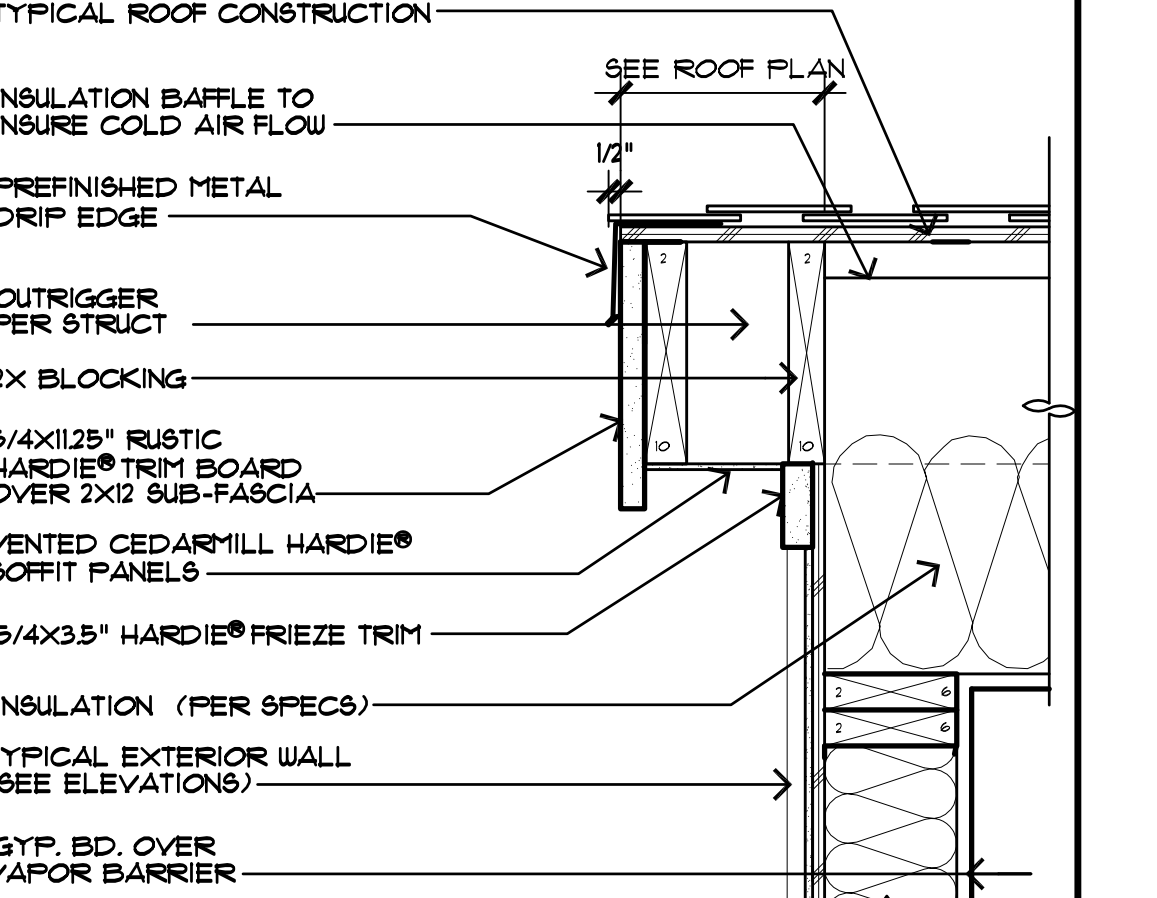
**15 STONE VENEER AT FOUNDATION**  
 A4.1 1 1/2" = 1'-0"



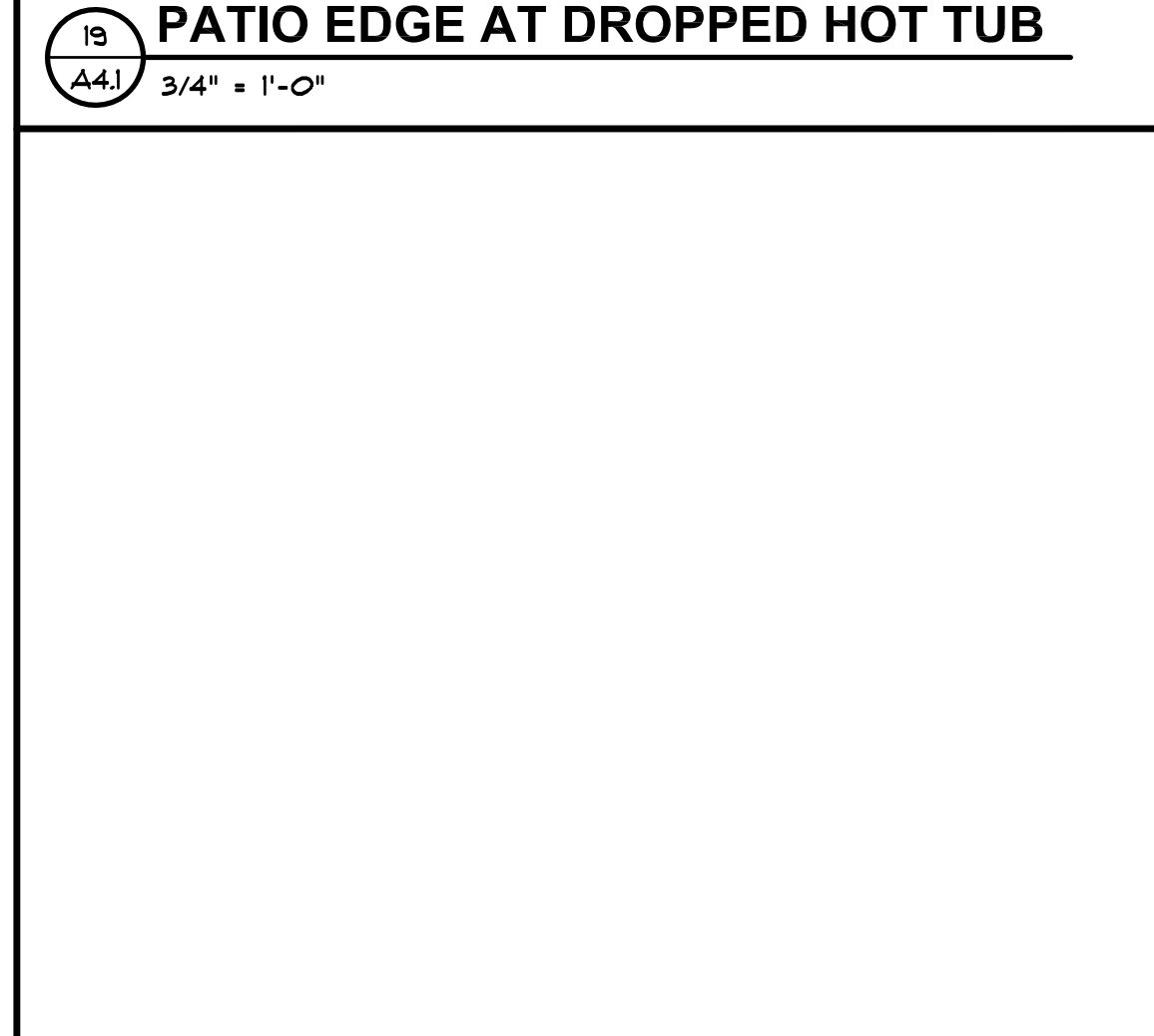
**11 ANGLE BRACE AT COLUMN**  
 A4.1 1 1/2" = 1'-0"



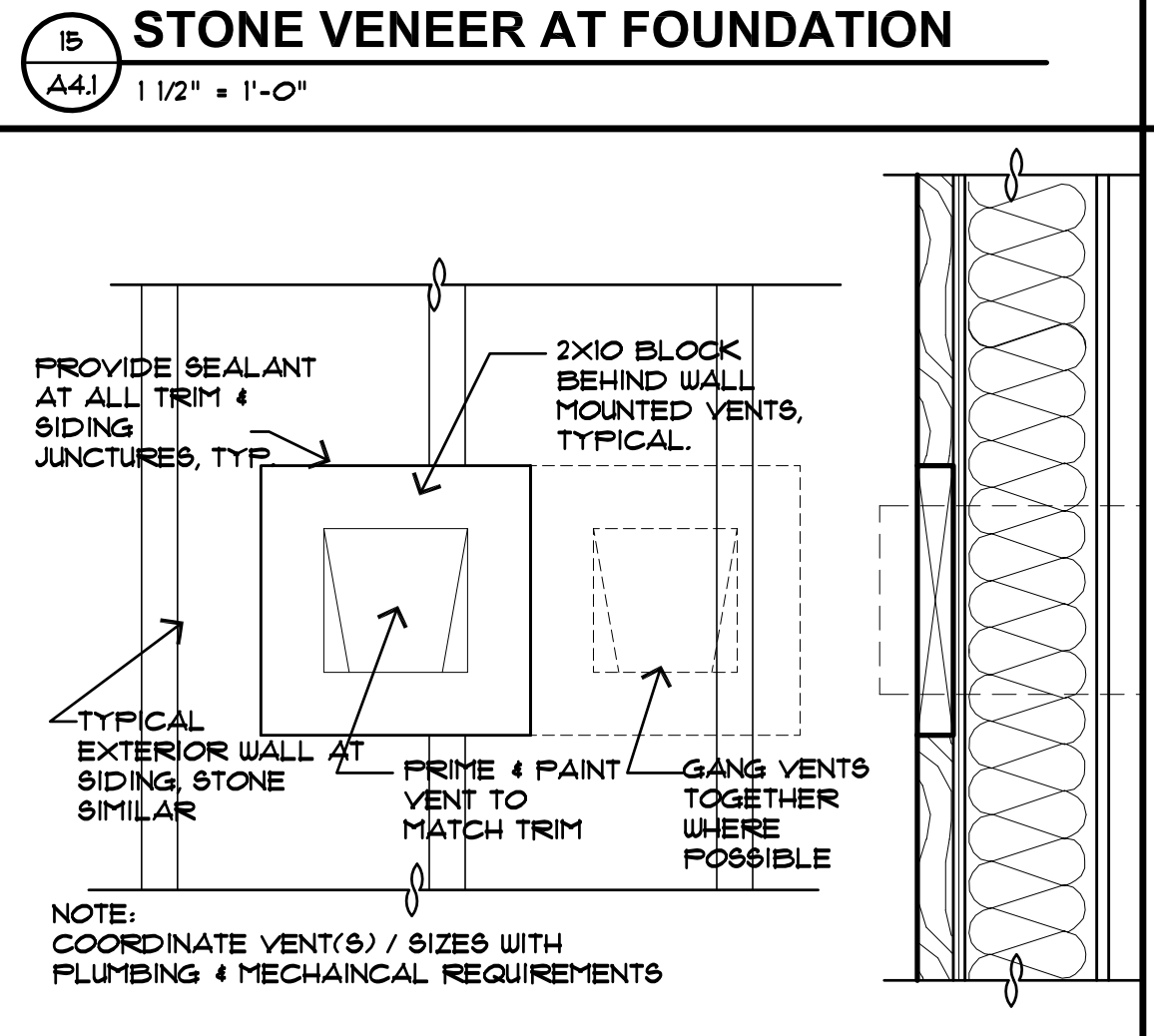
**1 BLANK**  
 A4.1 1 1/2" = 1'-0"



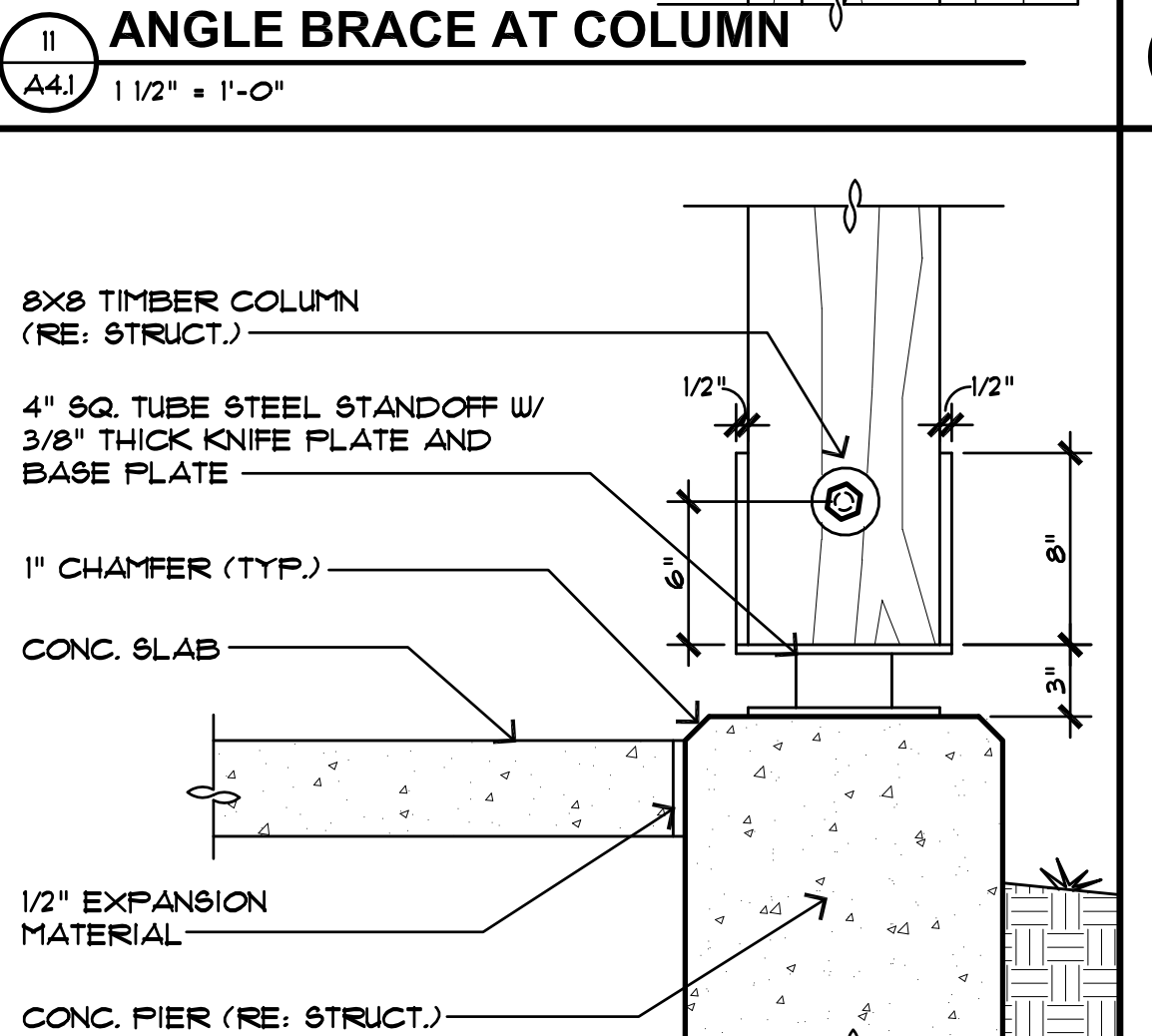
**3 FASCIA AT RAKE**  
 A4.1 1 1/2" = 1'-0"



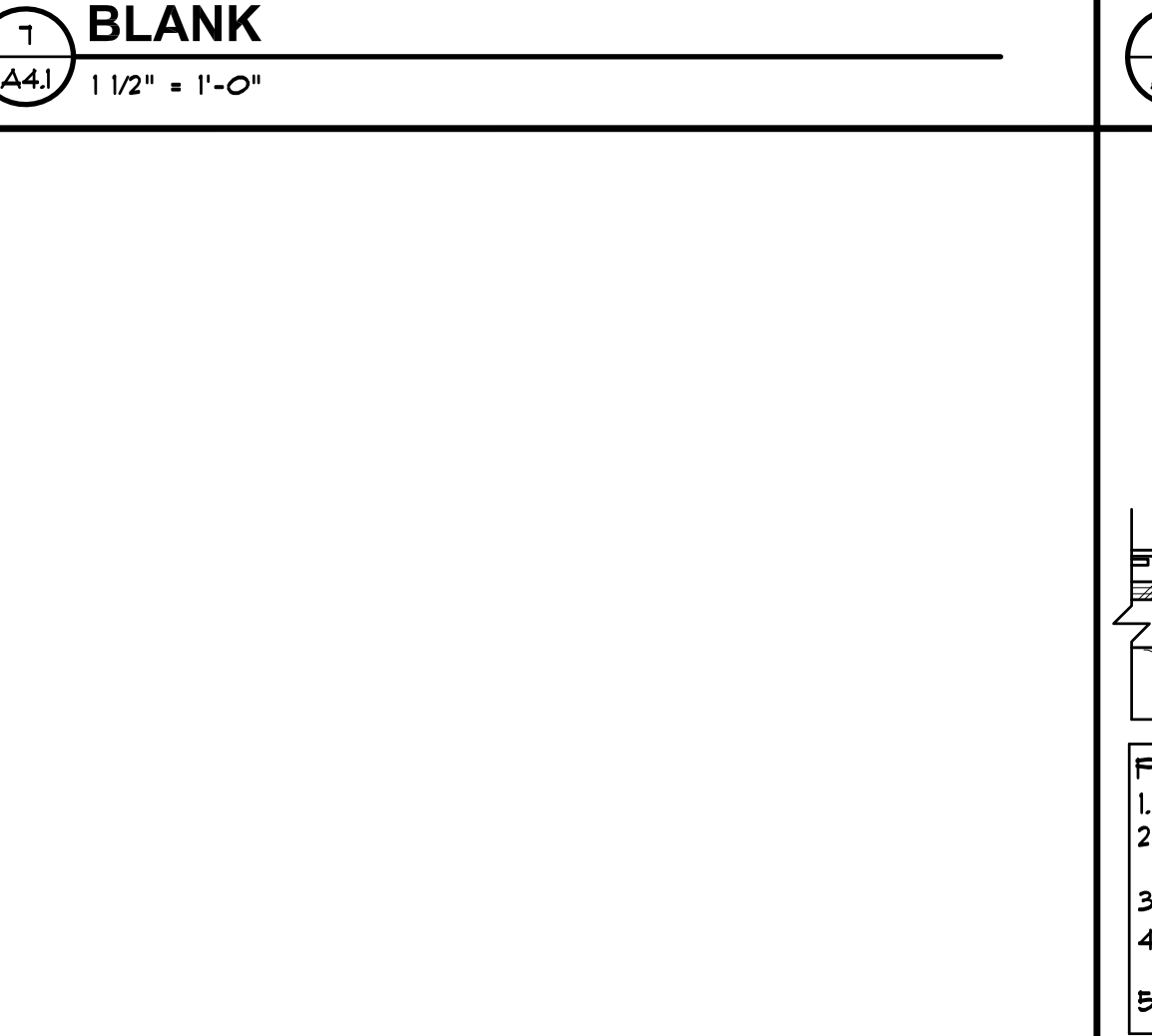
**20 BLANK**  
 A4.1 3/4" = 1'-0"



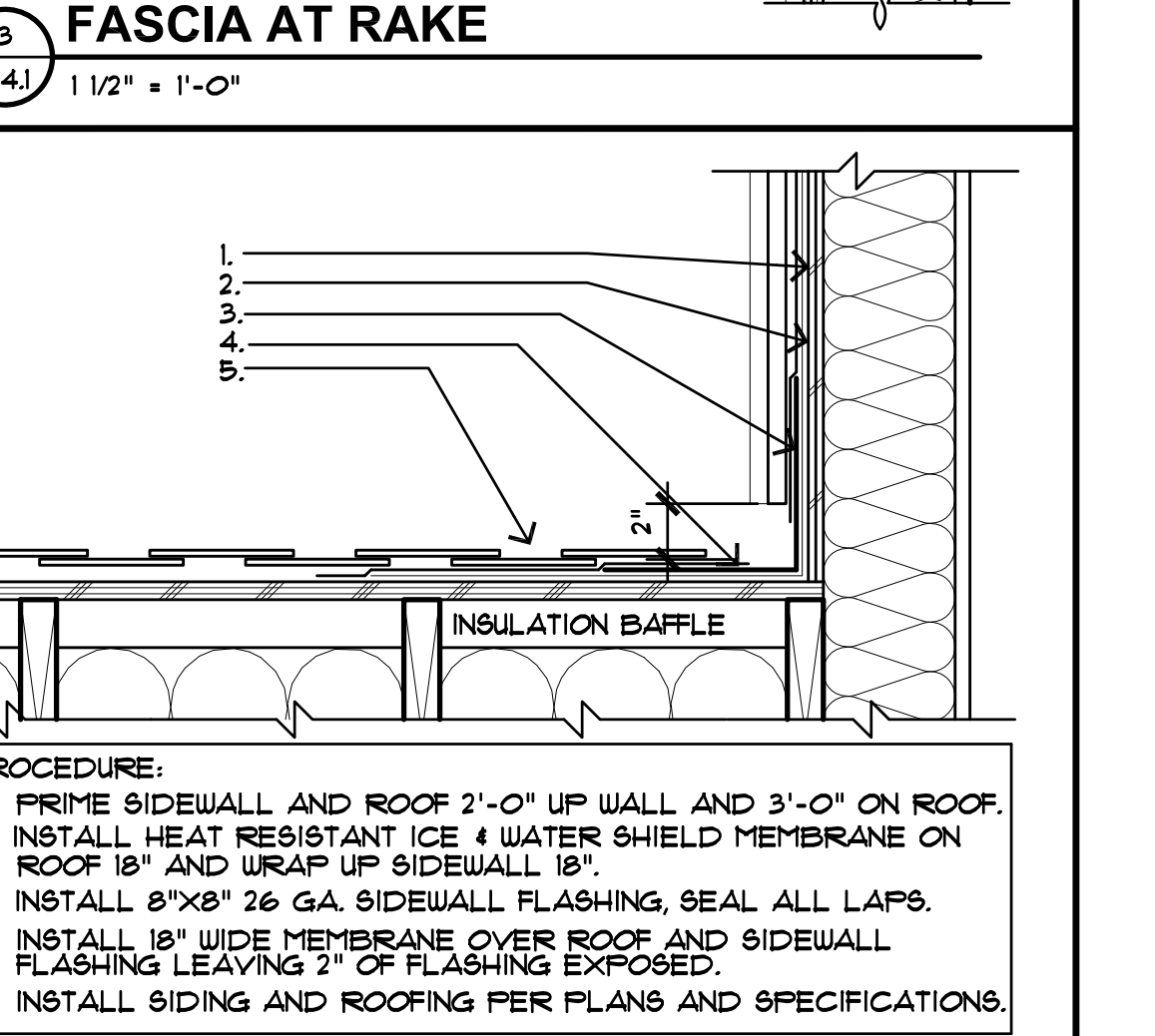
**16 WALL VENT TERMINATION**  
 A4.1 1 1/2" = 1'-0"



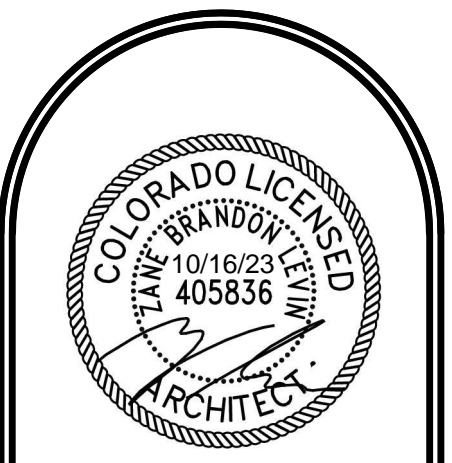
**12 COLUMN AT BASE**  
 A4.1 1 1/2" = 1'-0"



**8 BLANK**  
 A4.1 1 1/2" = 1'-0"



**4 ROOF/WALL FLASHING**  
 A4.1 1 1/2" = 1'-0"



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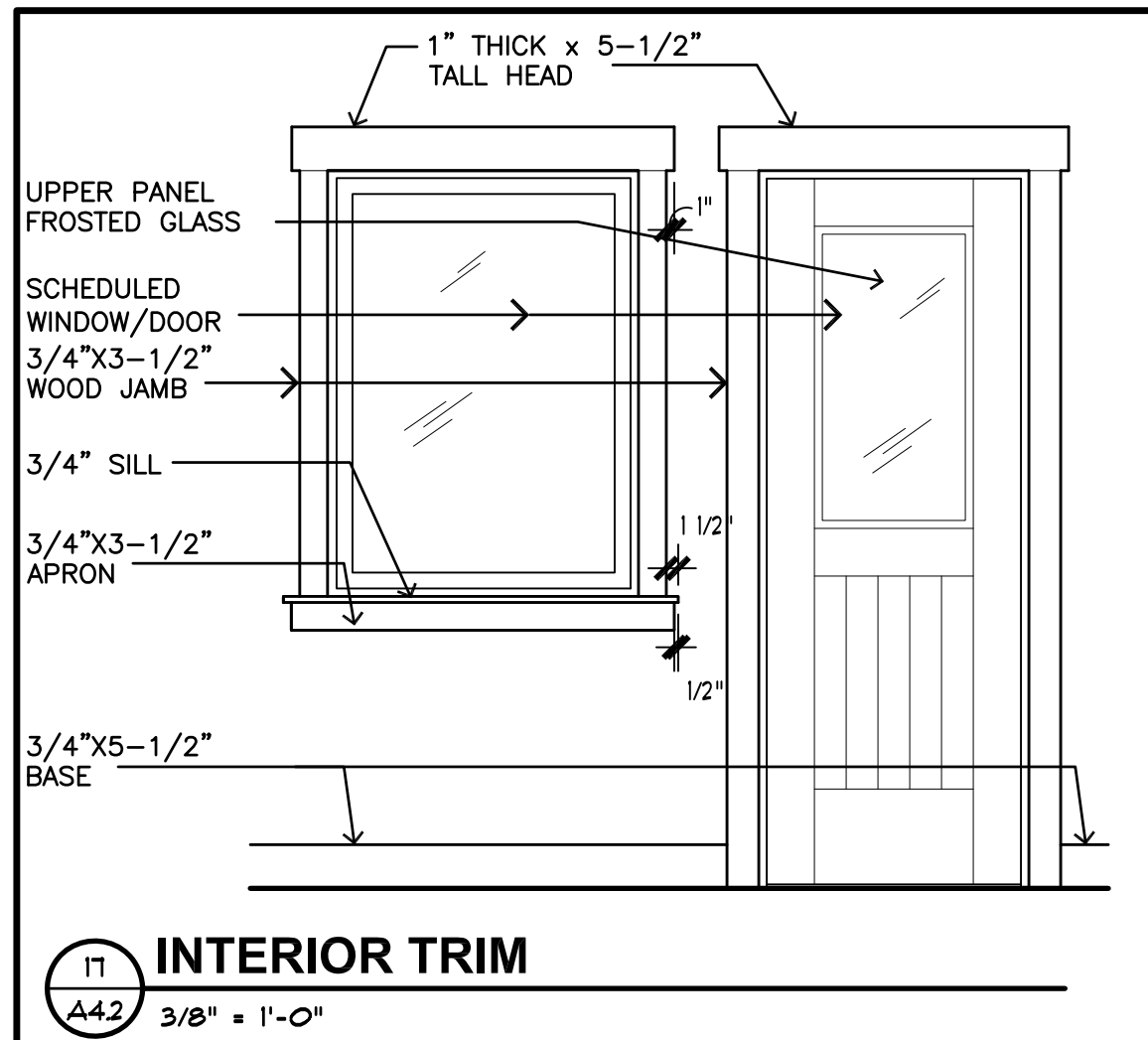
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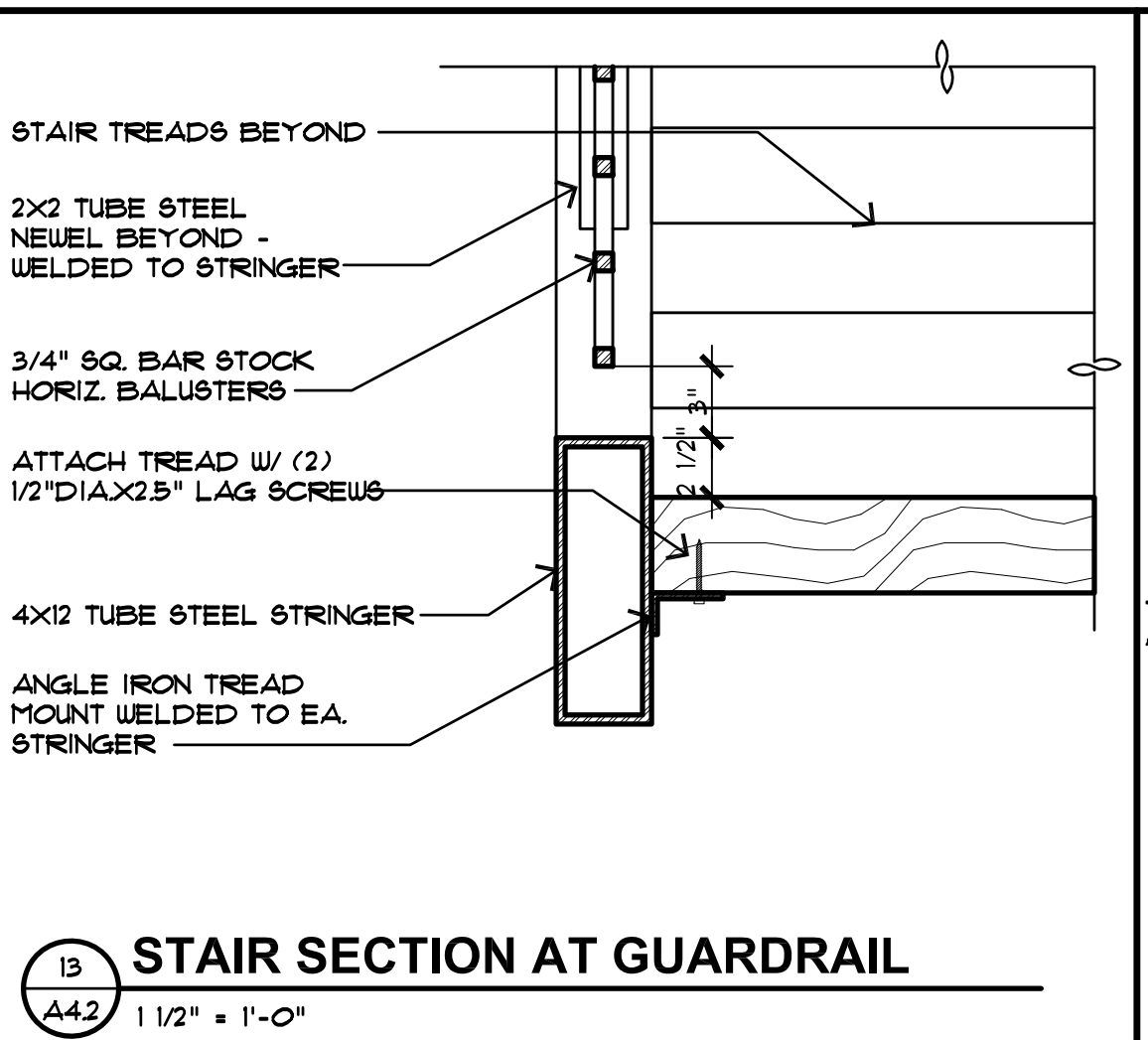
**HOLOMBO RESIDENCE**  
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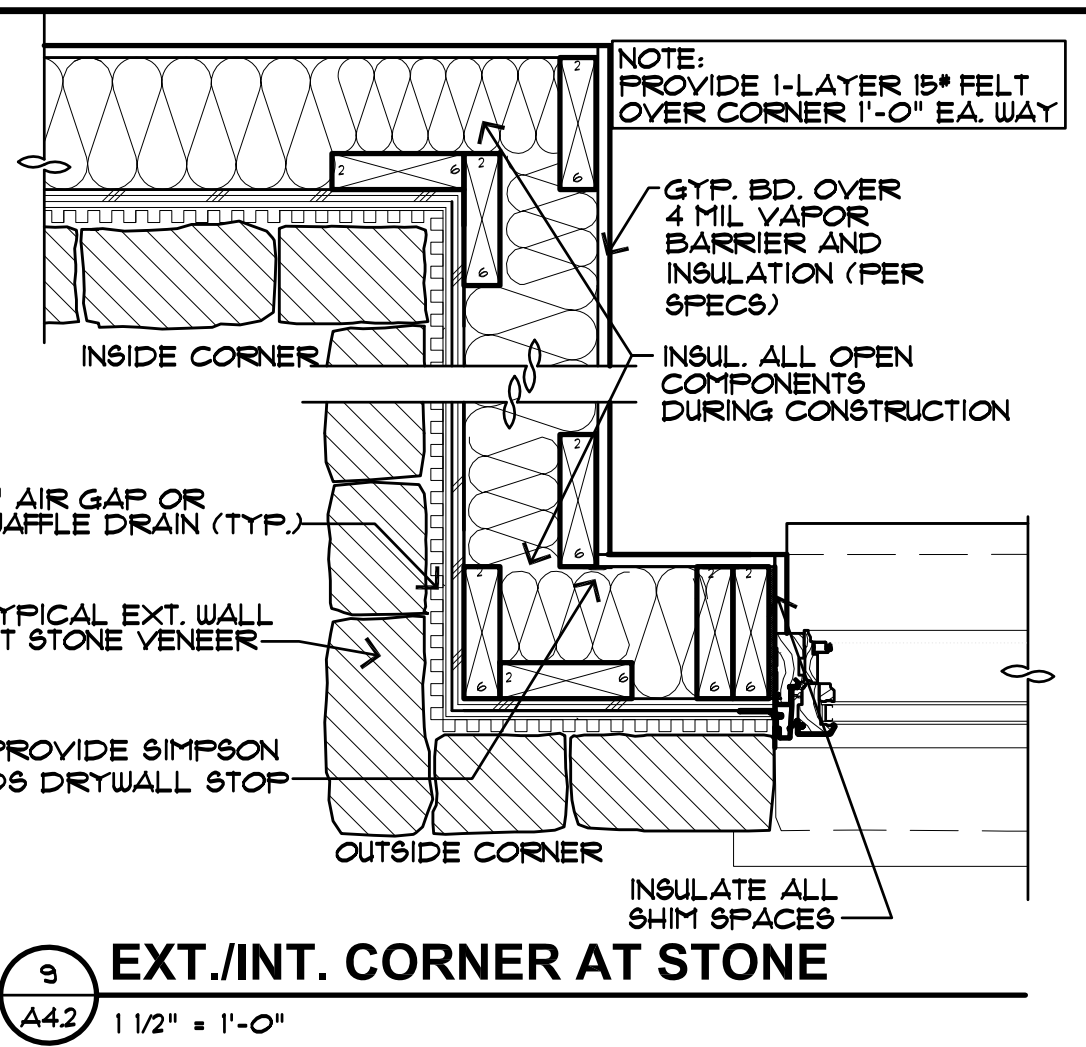
**A-4.1**  
 ARCHITECTURAL DETAILS



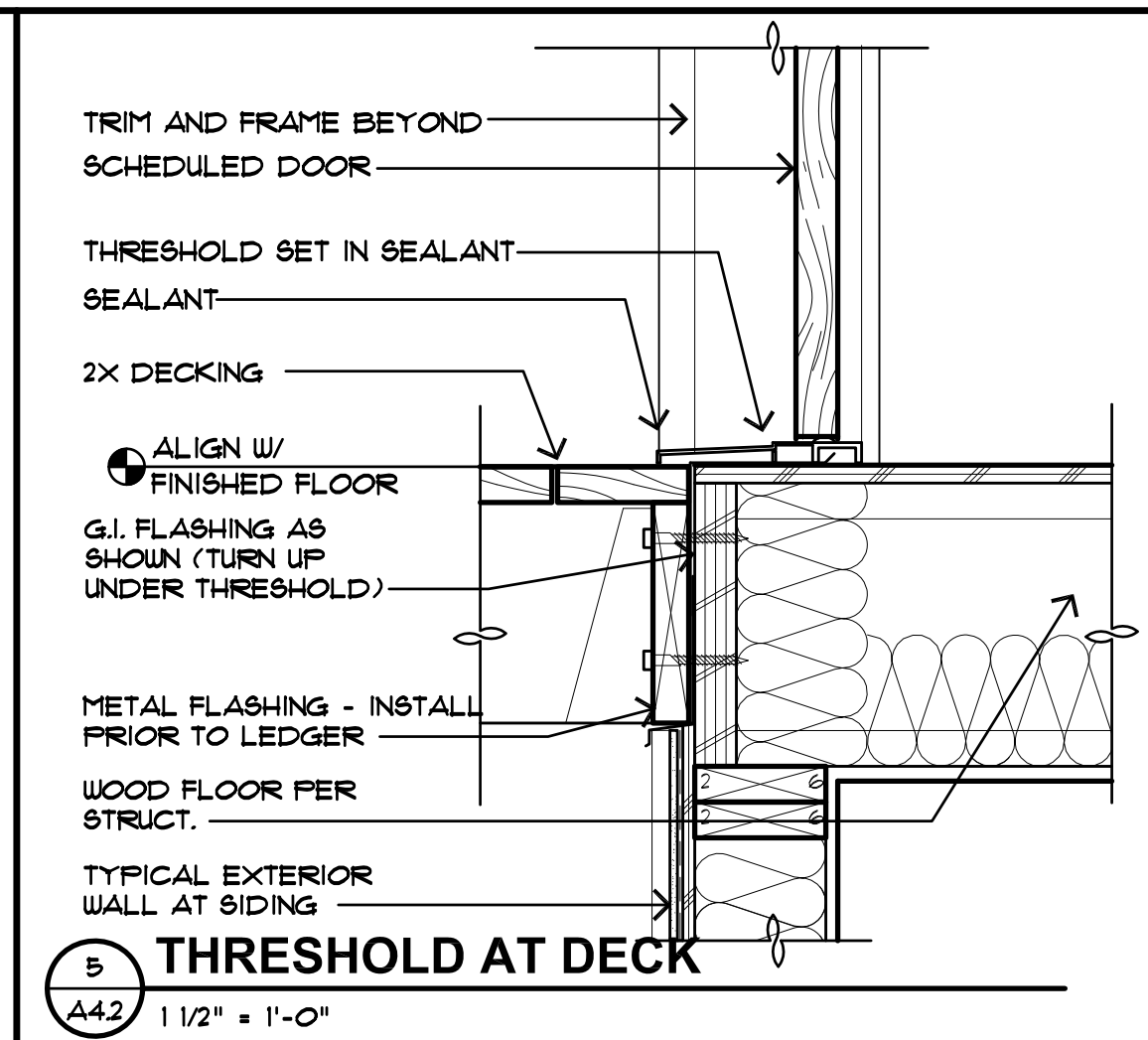
**17 INTERIOR TRIM**  
A4.2 3/8" = 1'-0"



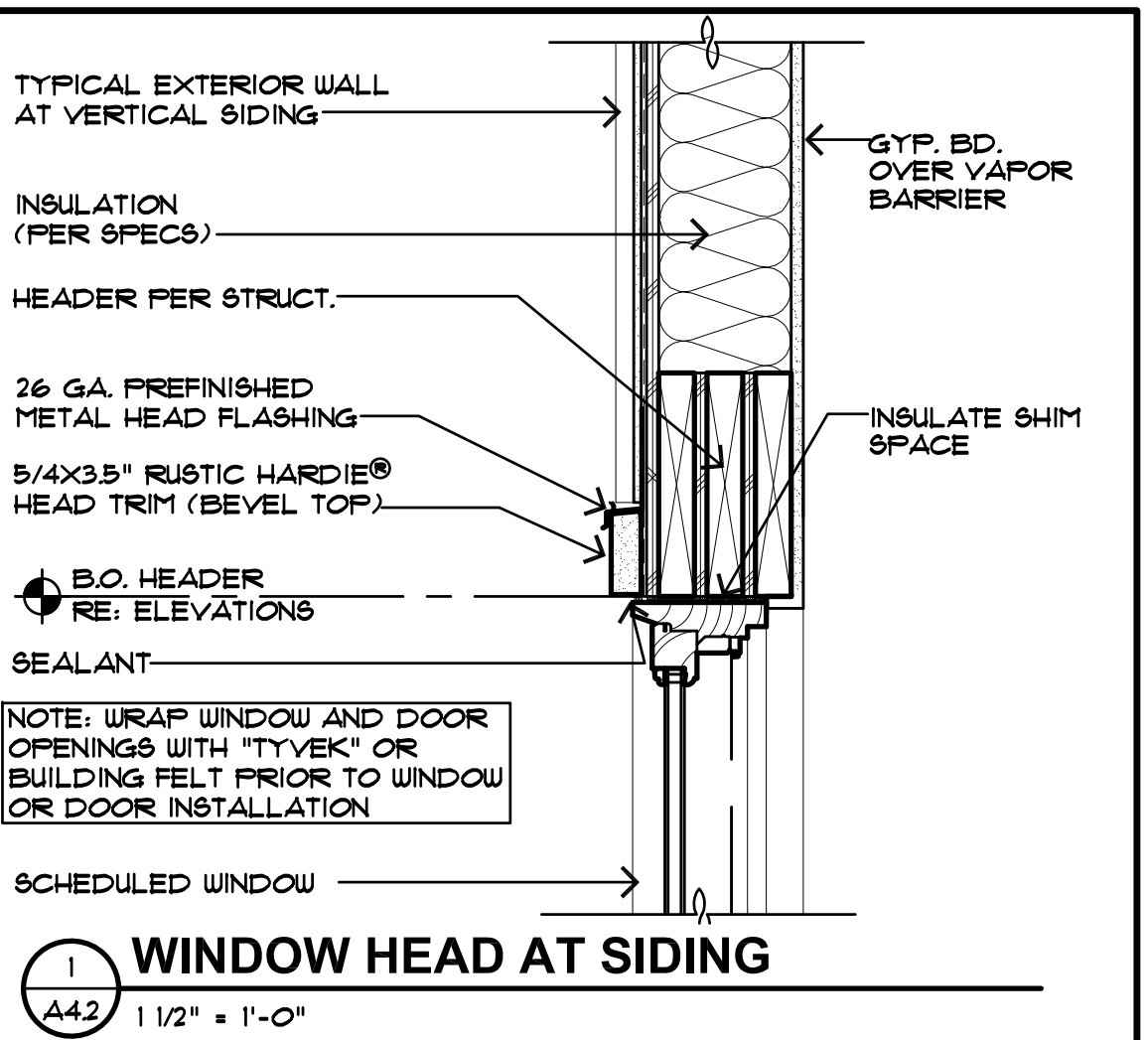
**13 STAIR SECTION AT GUARDRAIL**  
A4.2 1/2" = 1'-0"



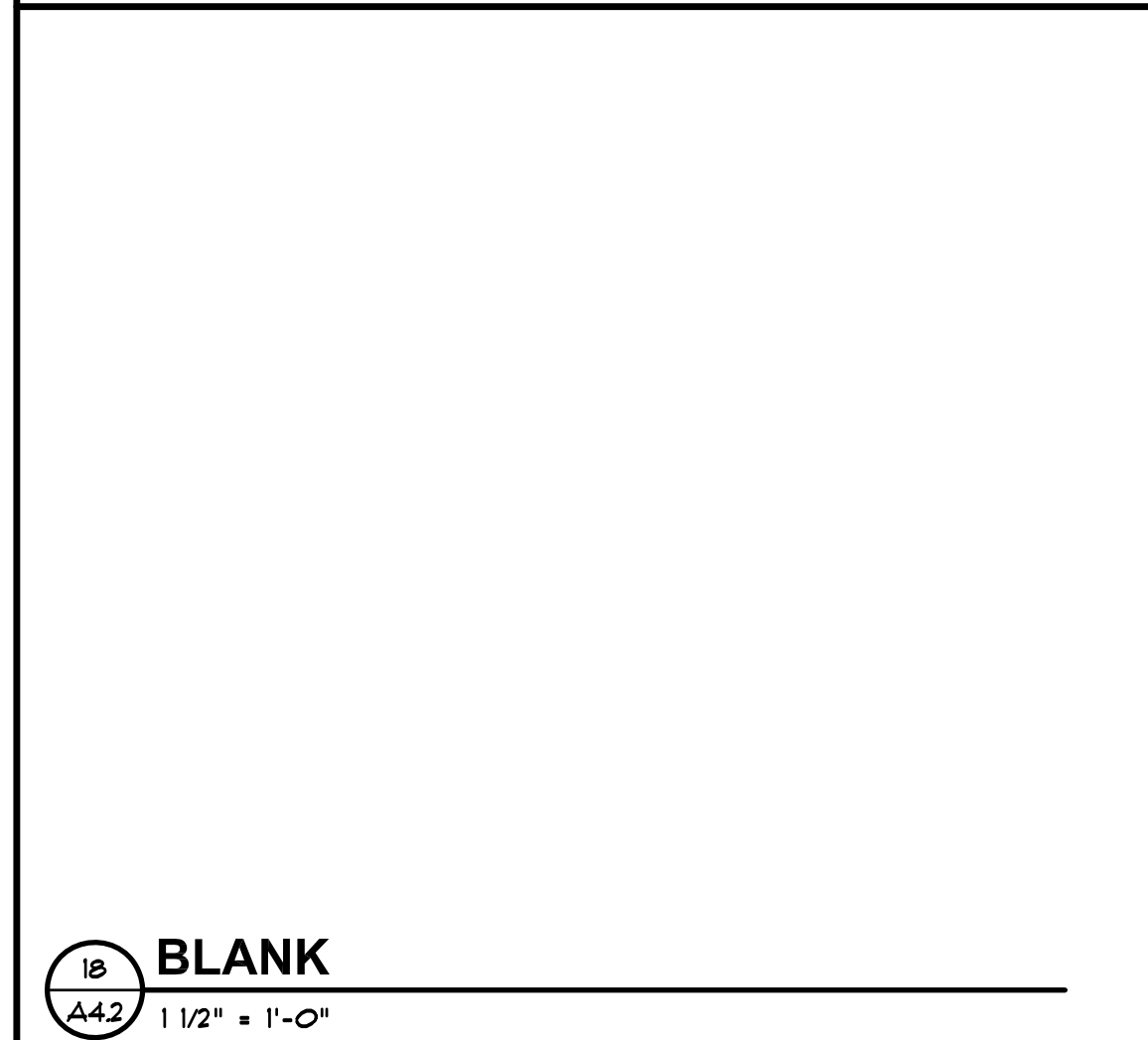
**9 EXT./INT. CORNER AT STONE**  
A4.2 1/2" = 1'-0"



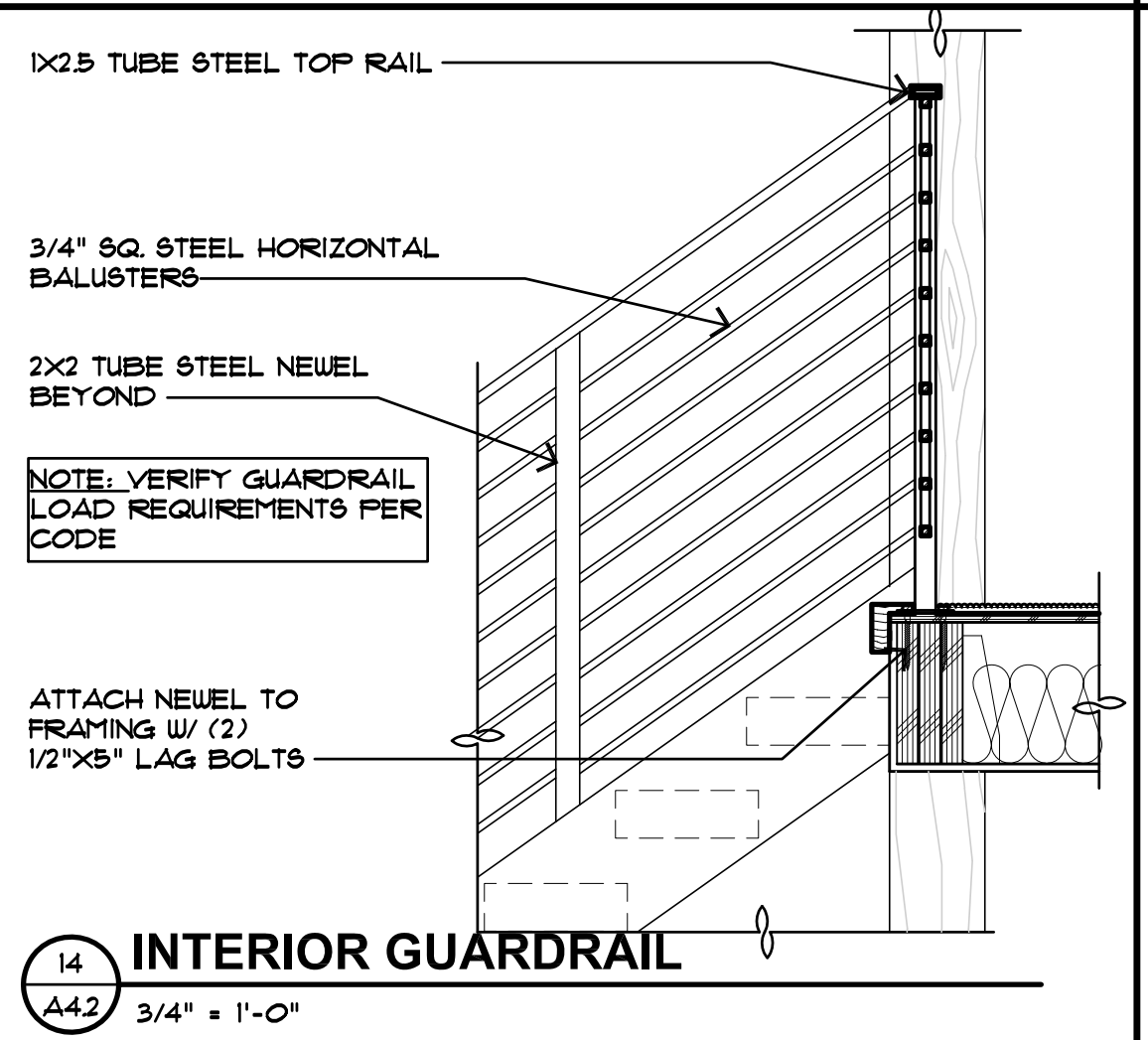
**5 THRESHOLD AT DECK**  
A4.2 1/2" = 1'-0"



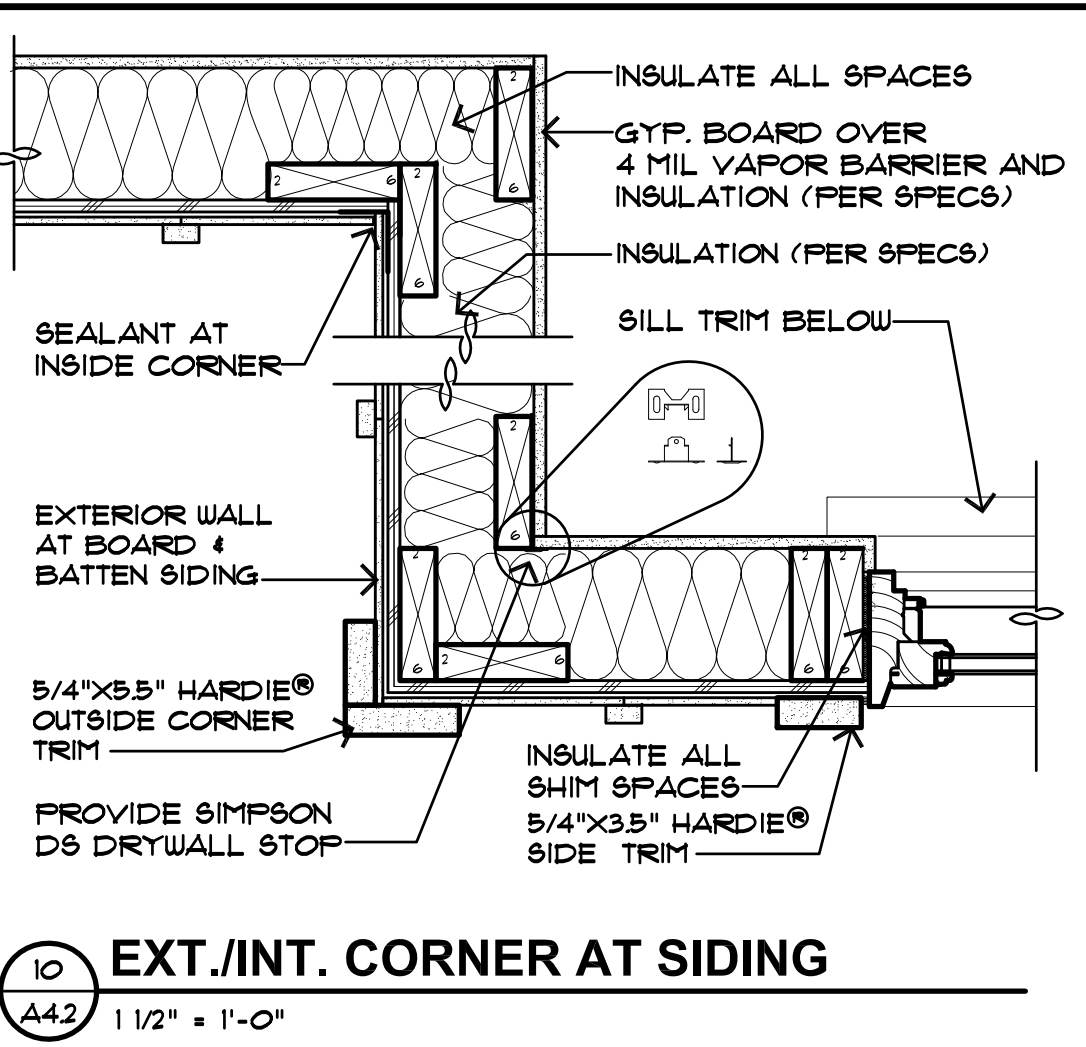
**1 WINDOW HEAD AT SIDING**  
A4.2 1/2" = 1'-0"



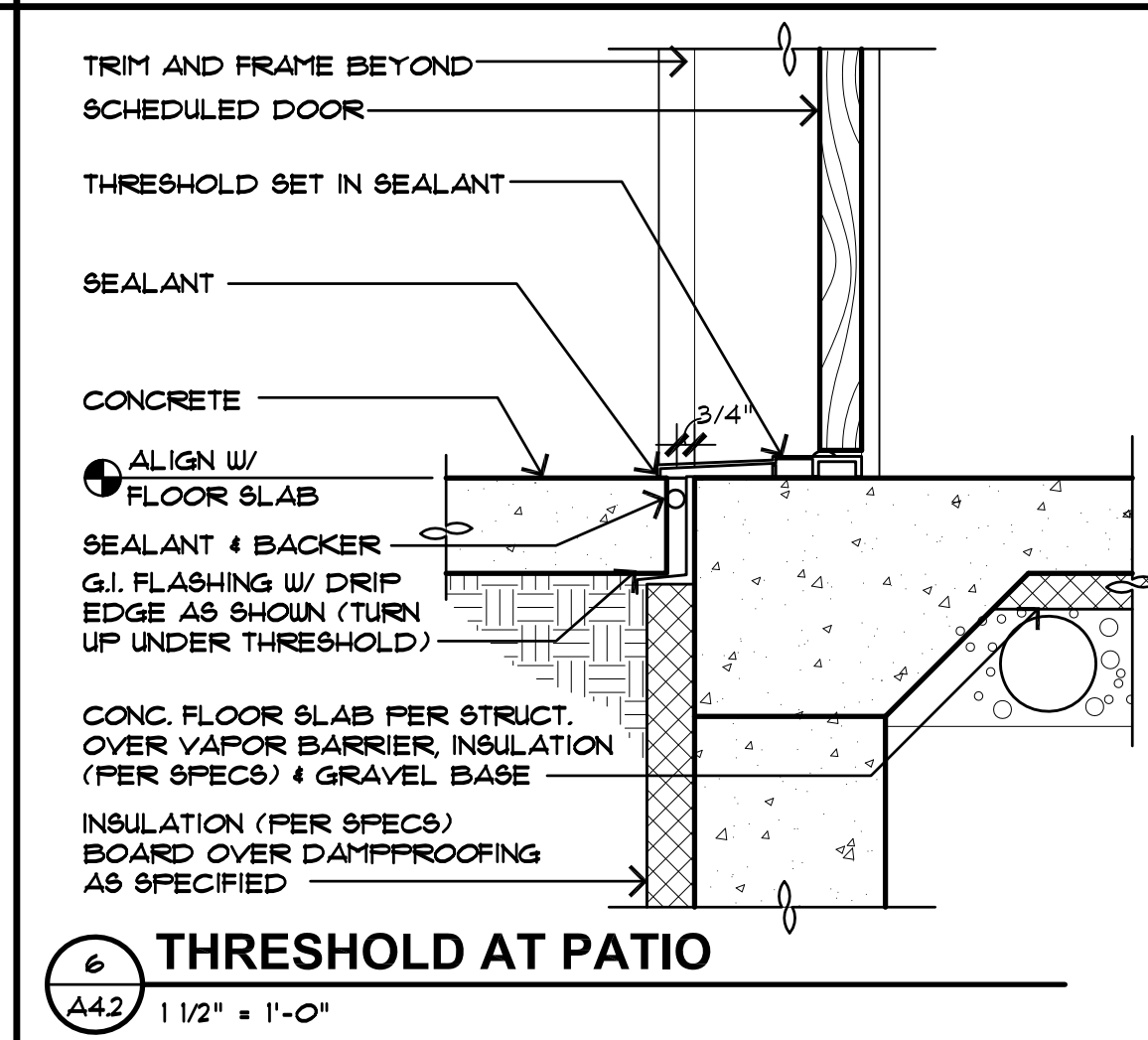
**18 BLANK**  
A4.2 1/2" = 1'-0"



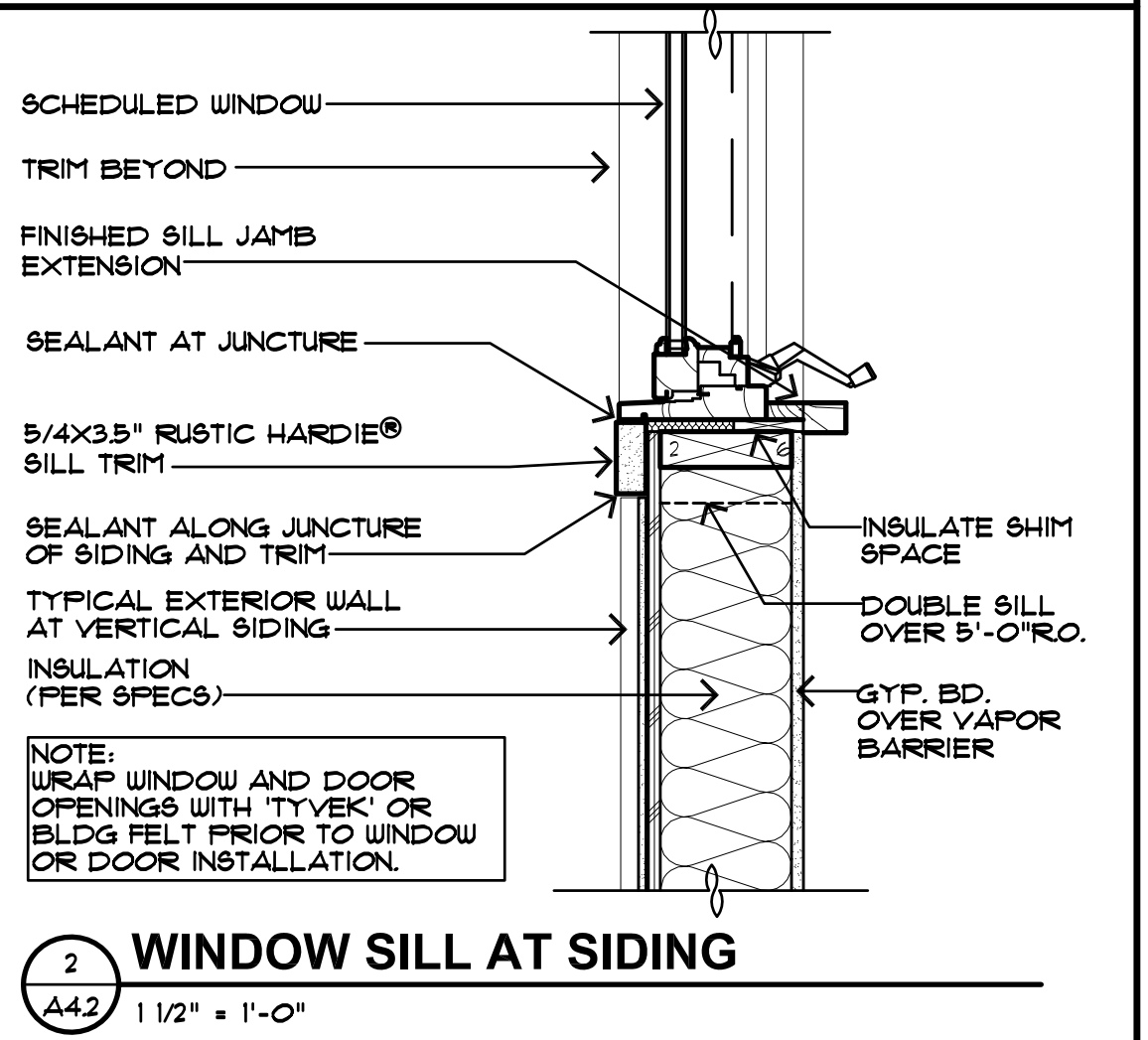
**14 INTERIOR GUARDRAIL**  
A4.2 3/4" = 1'-0"



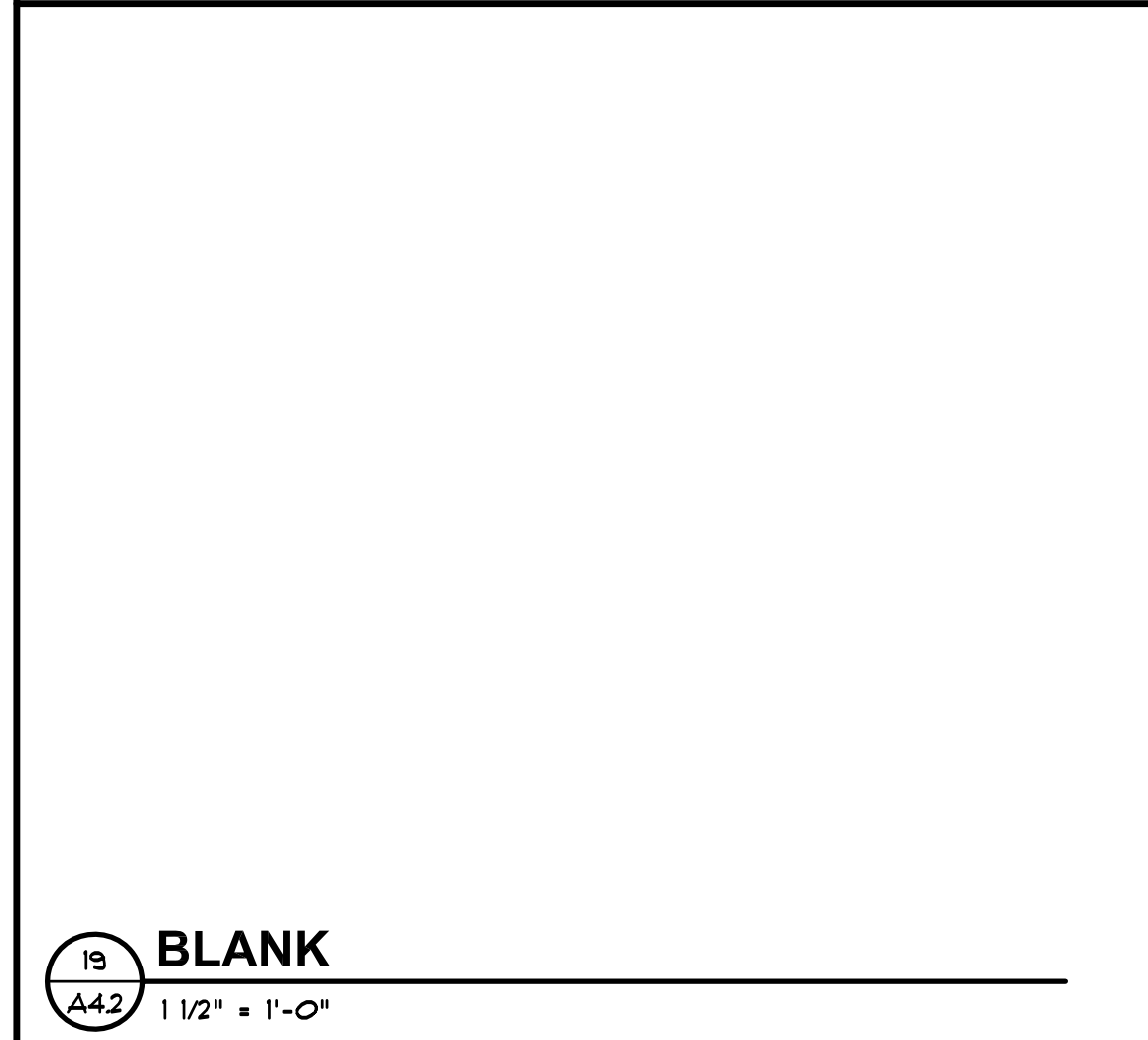
**10 EXT./INT. CORNER AT SIDING**  
A4.2 1/2" = 1'-0"



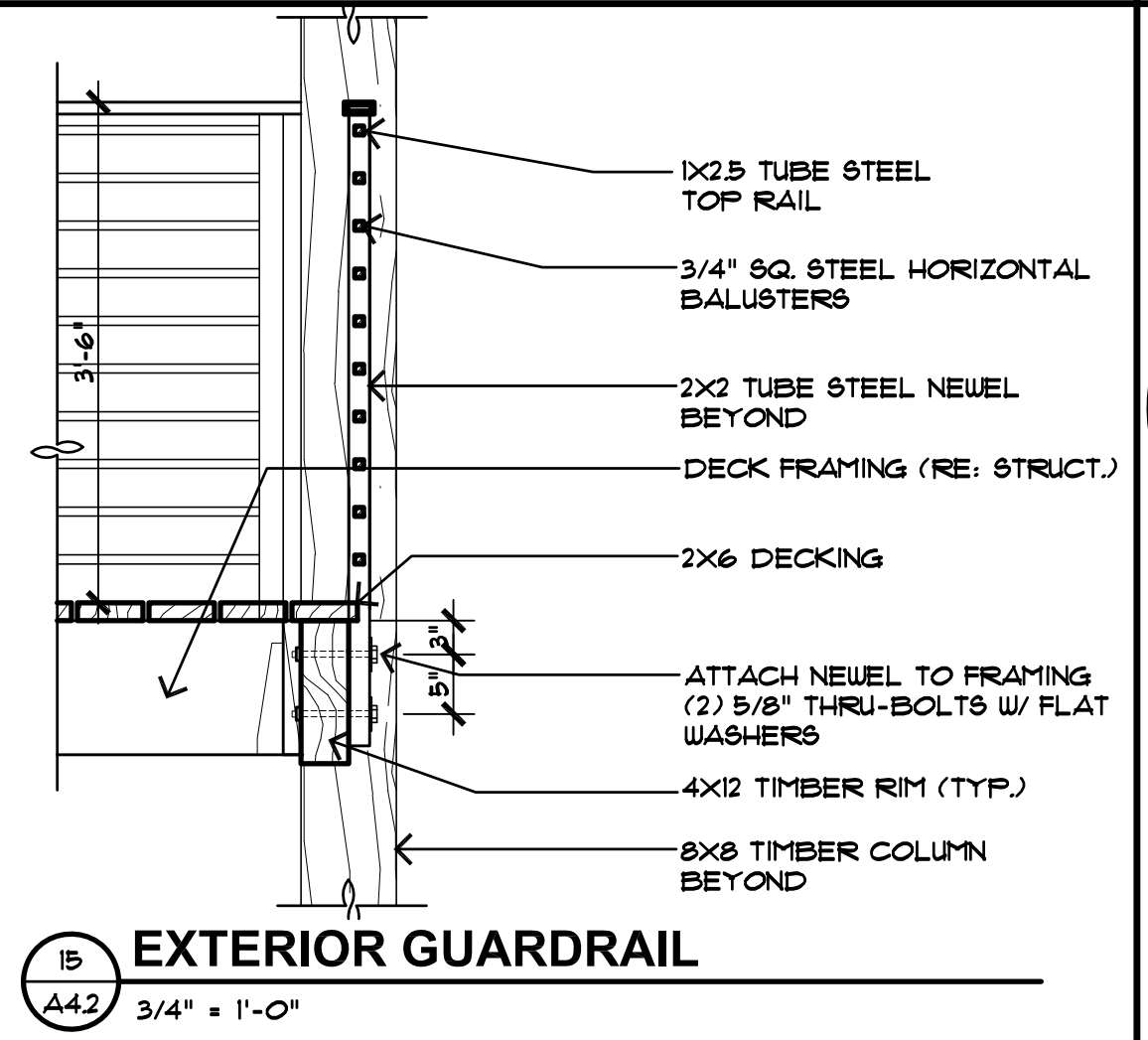
**6 THRESHOLD AT PATIO**  
A4.2 1/2" = 1'-0"



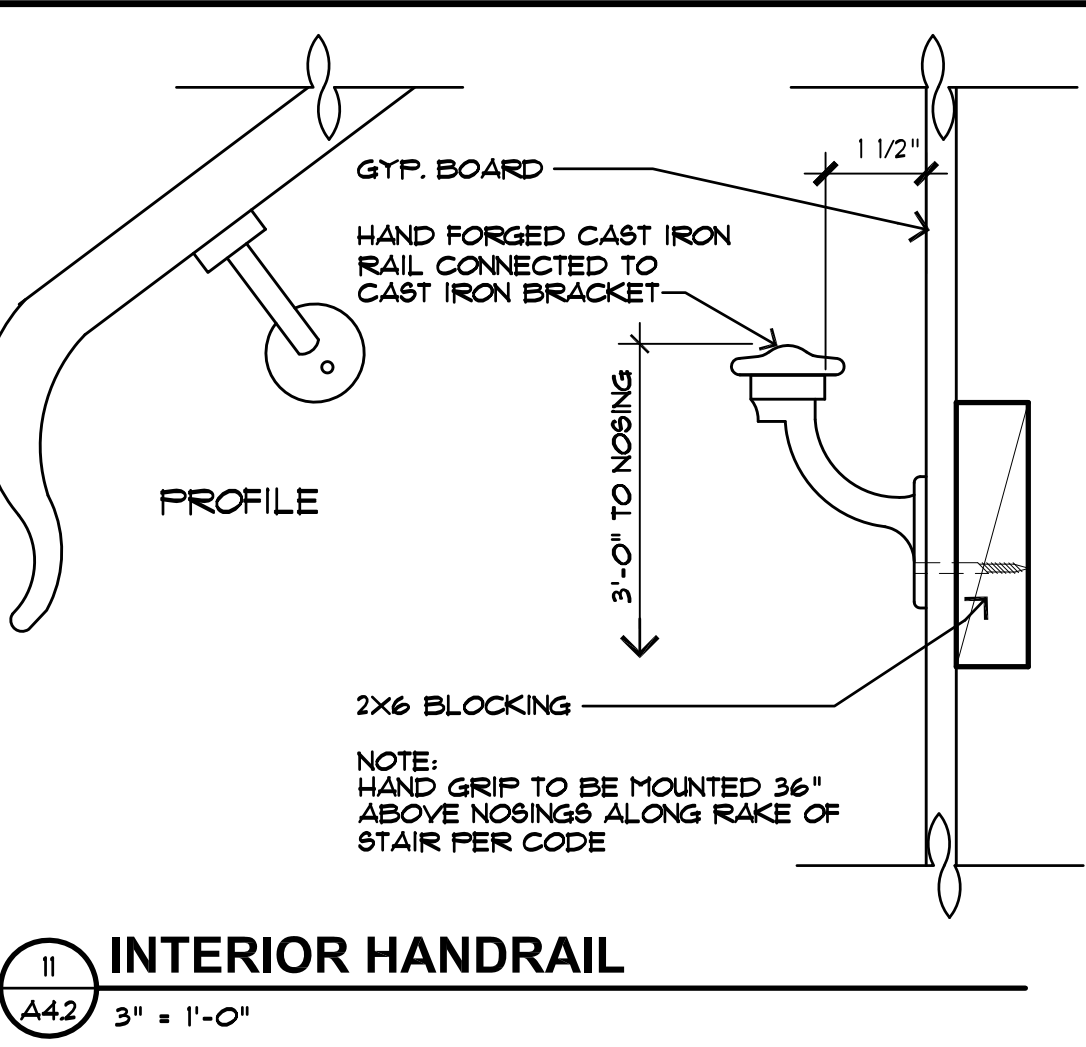
**2 WINDOW SILL AT SIDING**  
A4.2 1/2" = 1'-0"



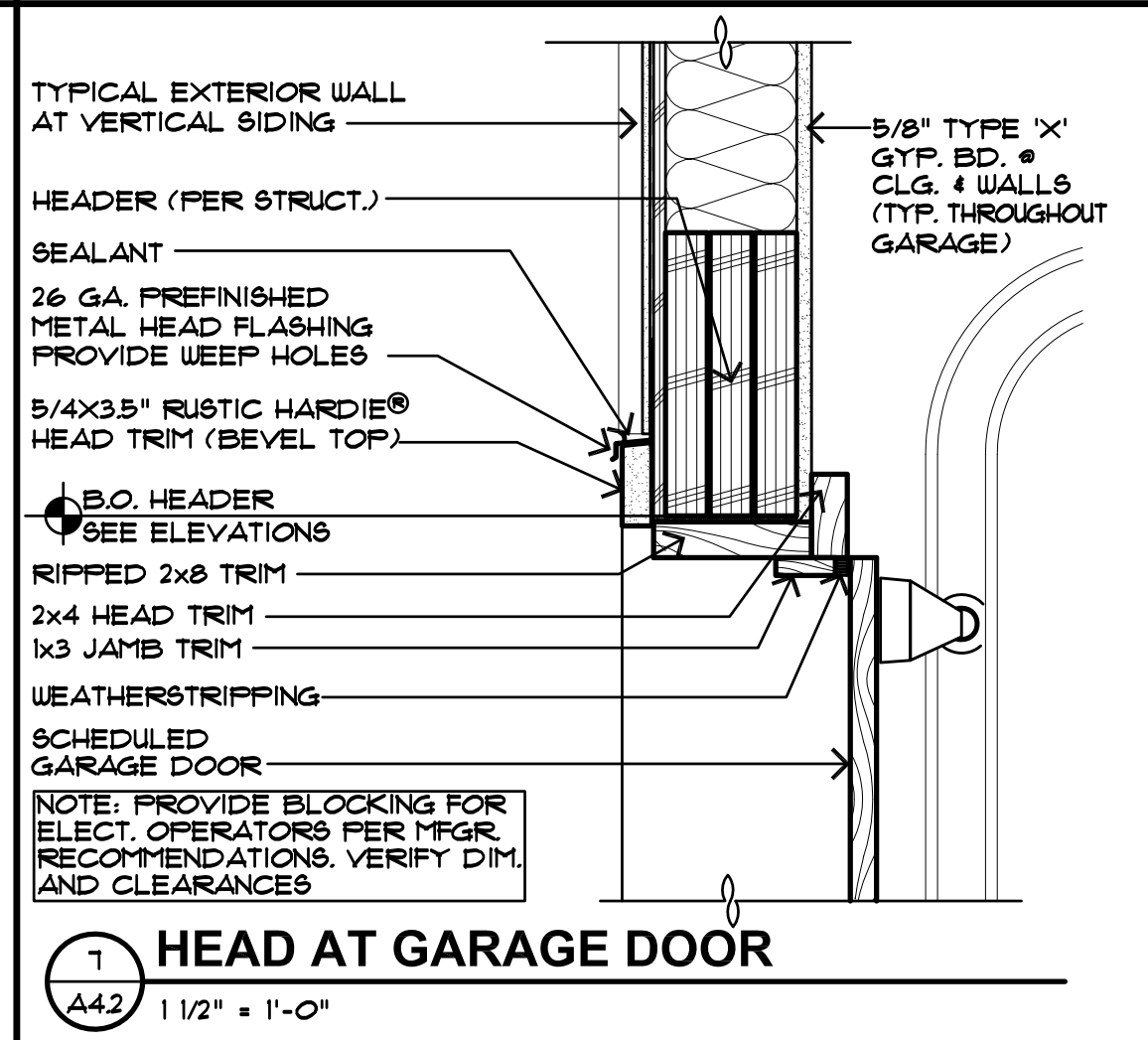
**19 BLANK**  
A4.2 1/2" = 1'-0"



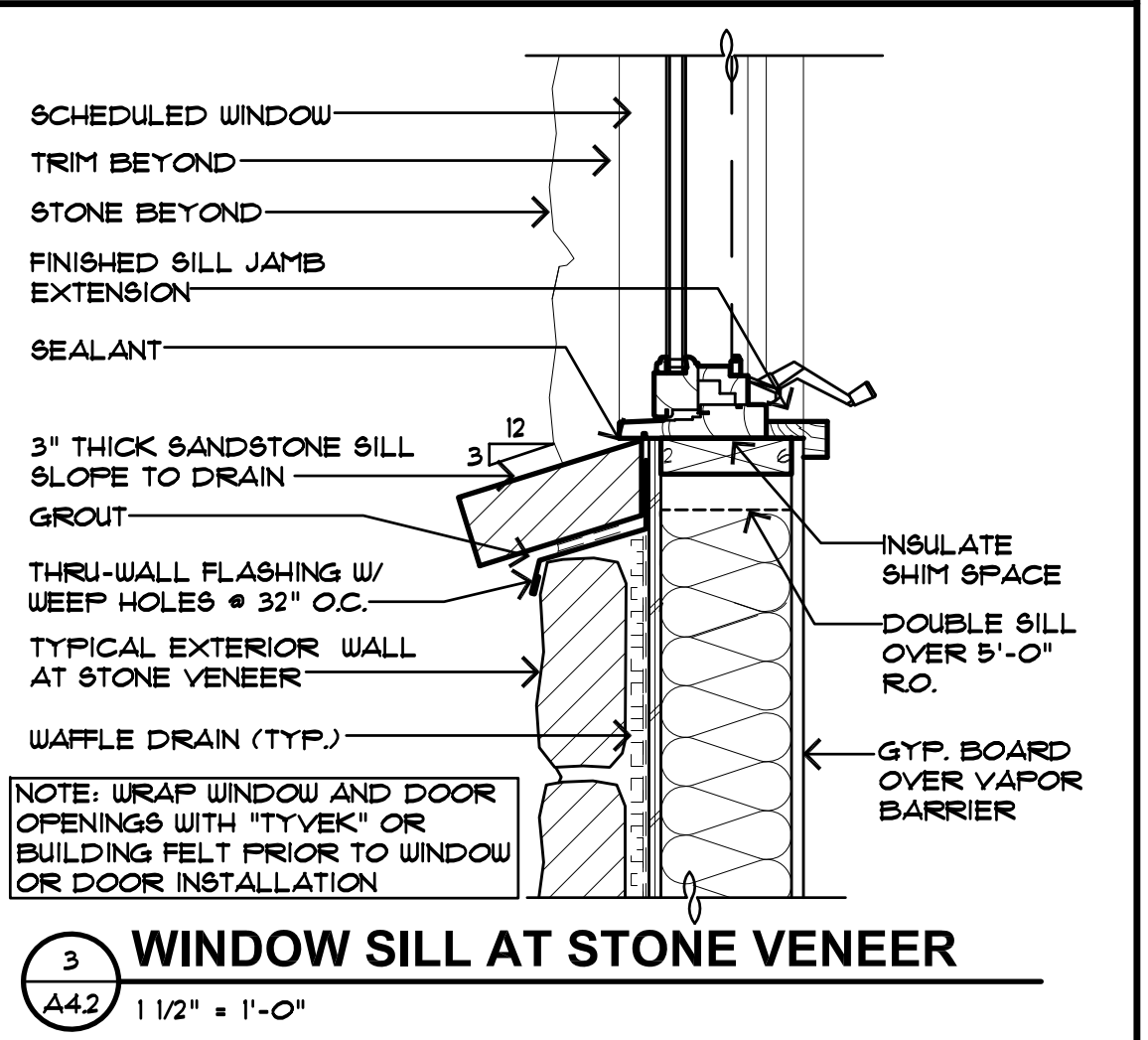
**15 EXTERIOR GUARDRAIL**  
A4.2 3/4" = 1'-0"



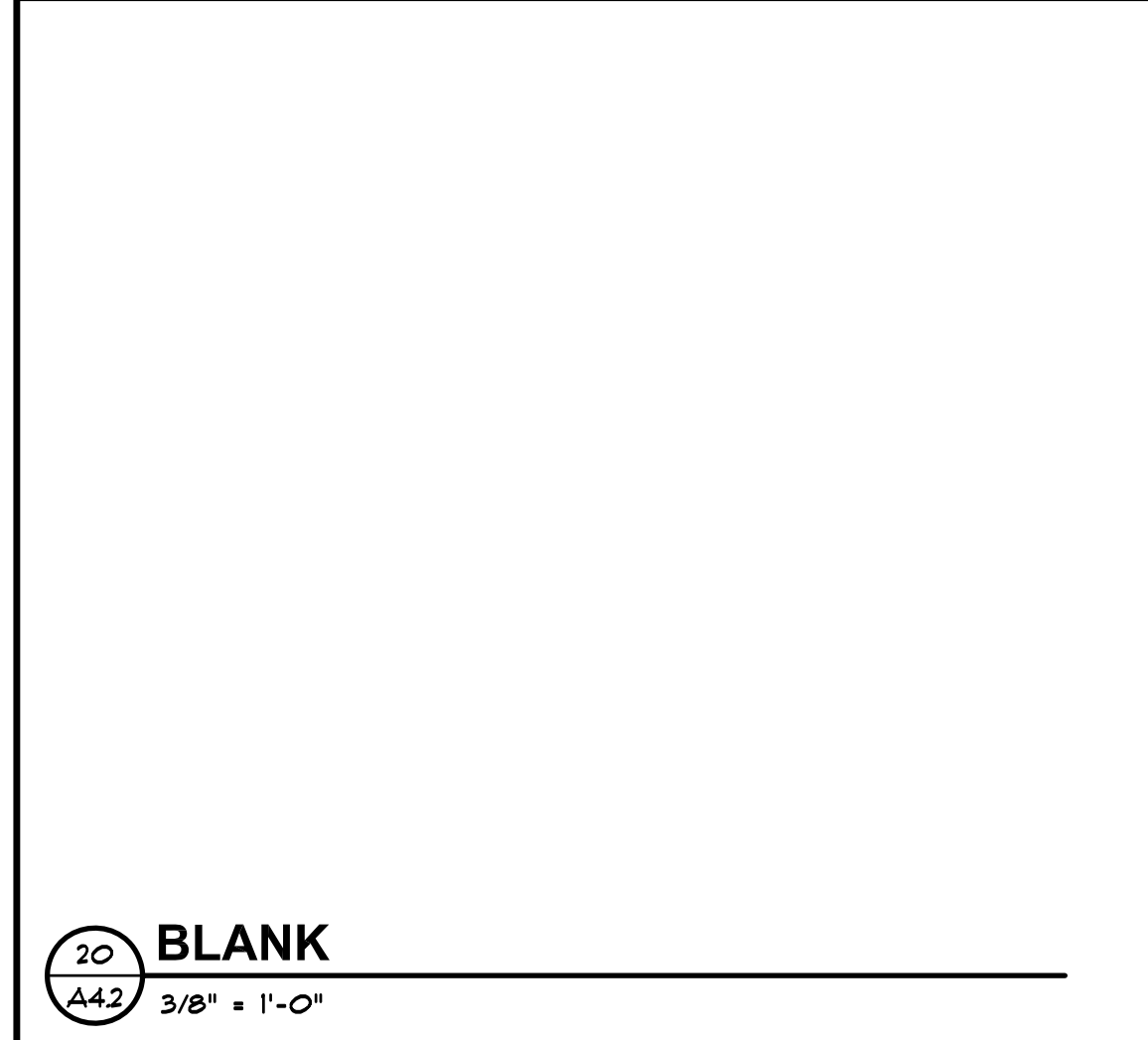
**11 INTERIOR HANDRAIL**  
A4.2 3" = 1'-0"



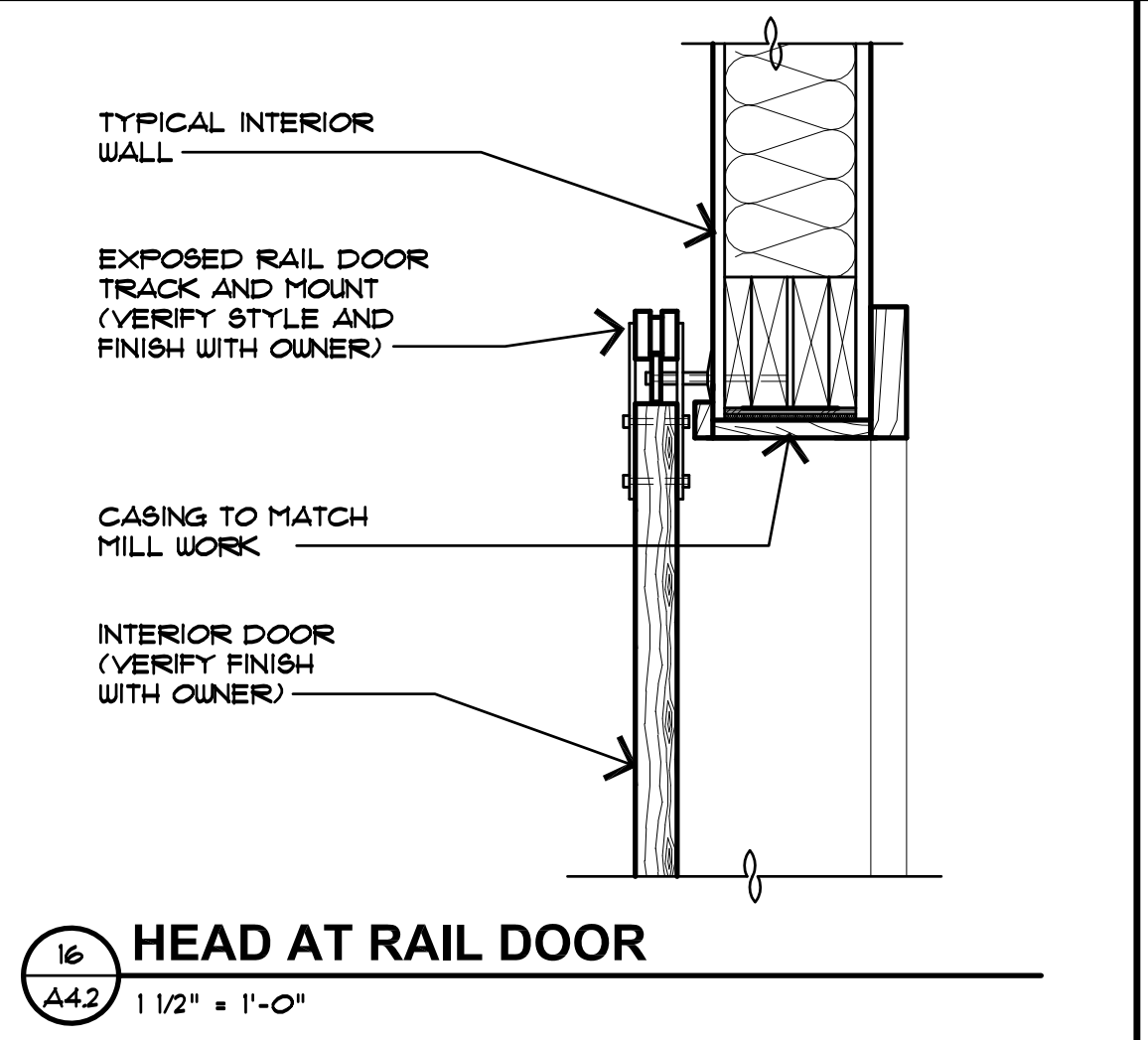
**7 HEAD AT GARAGE DOOR**  
A4.2 1/2" = 1'-0"



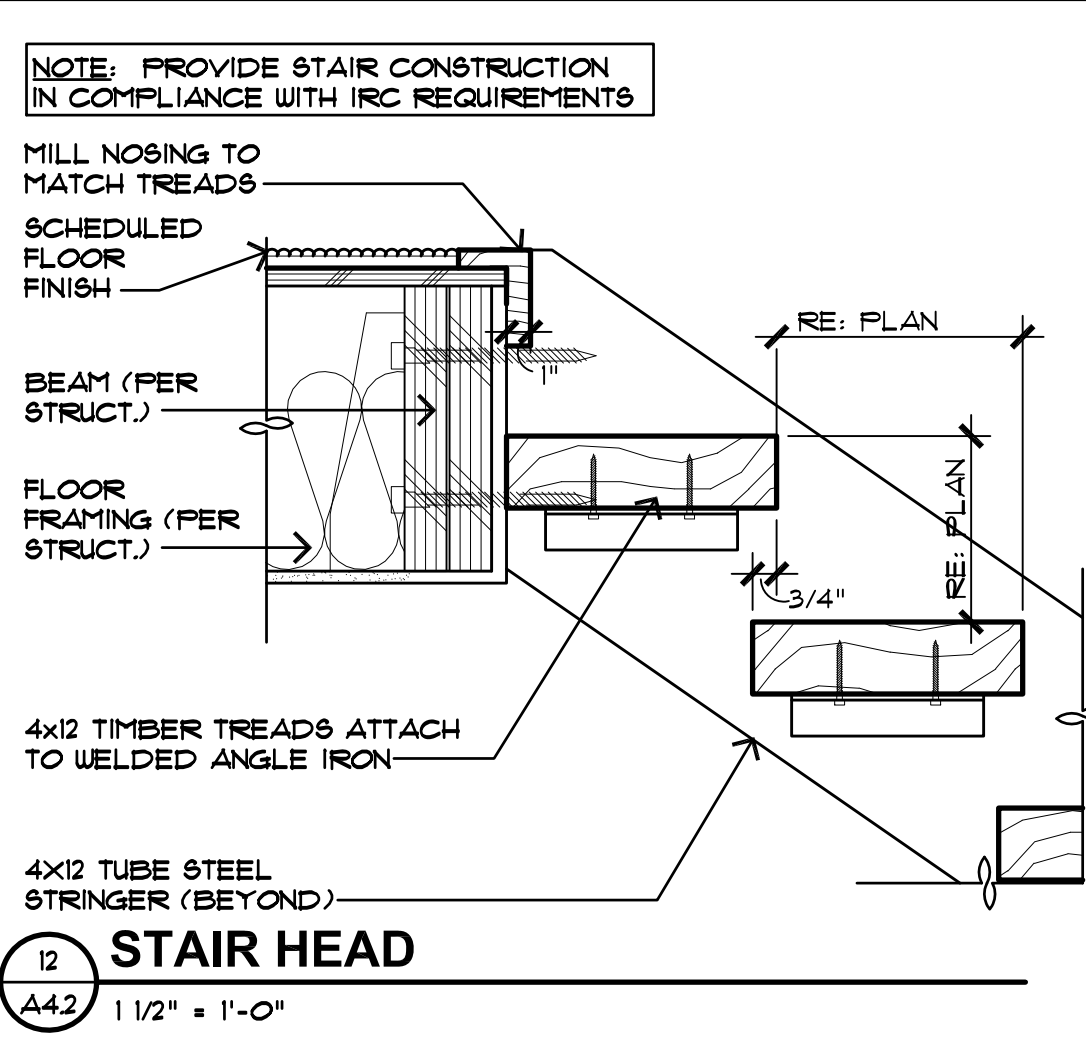
**3 WINDOW SILL AT STONE VENEER**  
A4.2 1/2" = 1'-0"



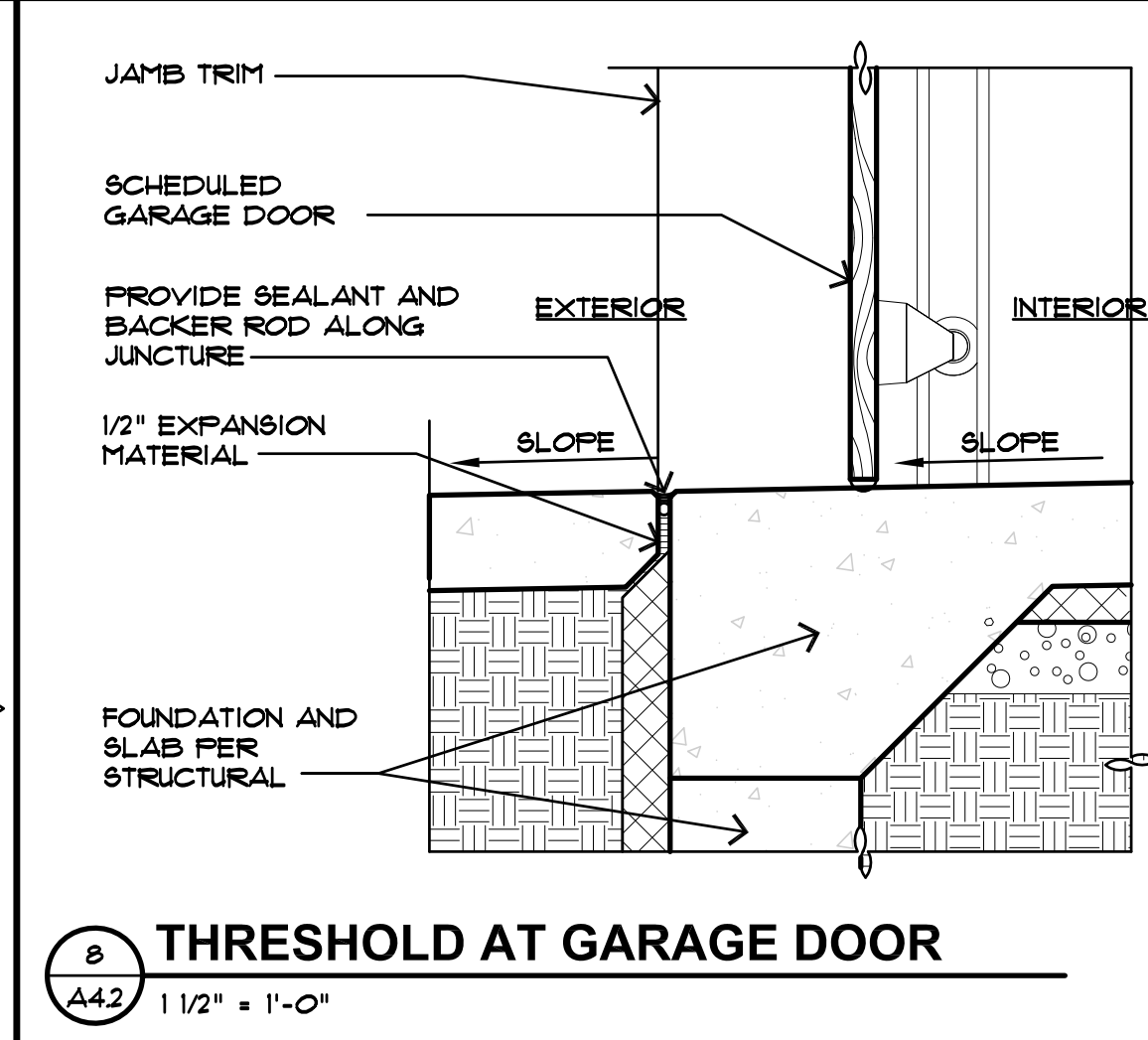
**20 BLANK**  
A4.2 3/8" = 1'-0"



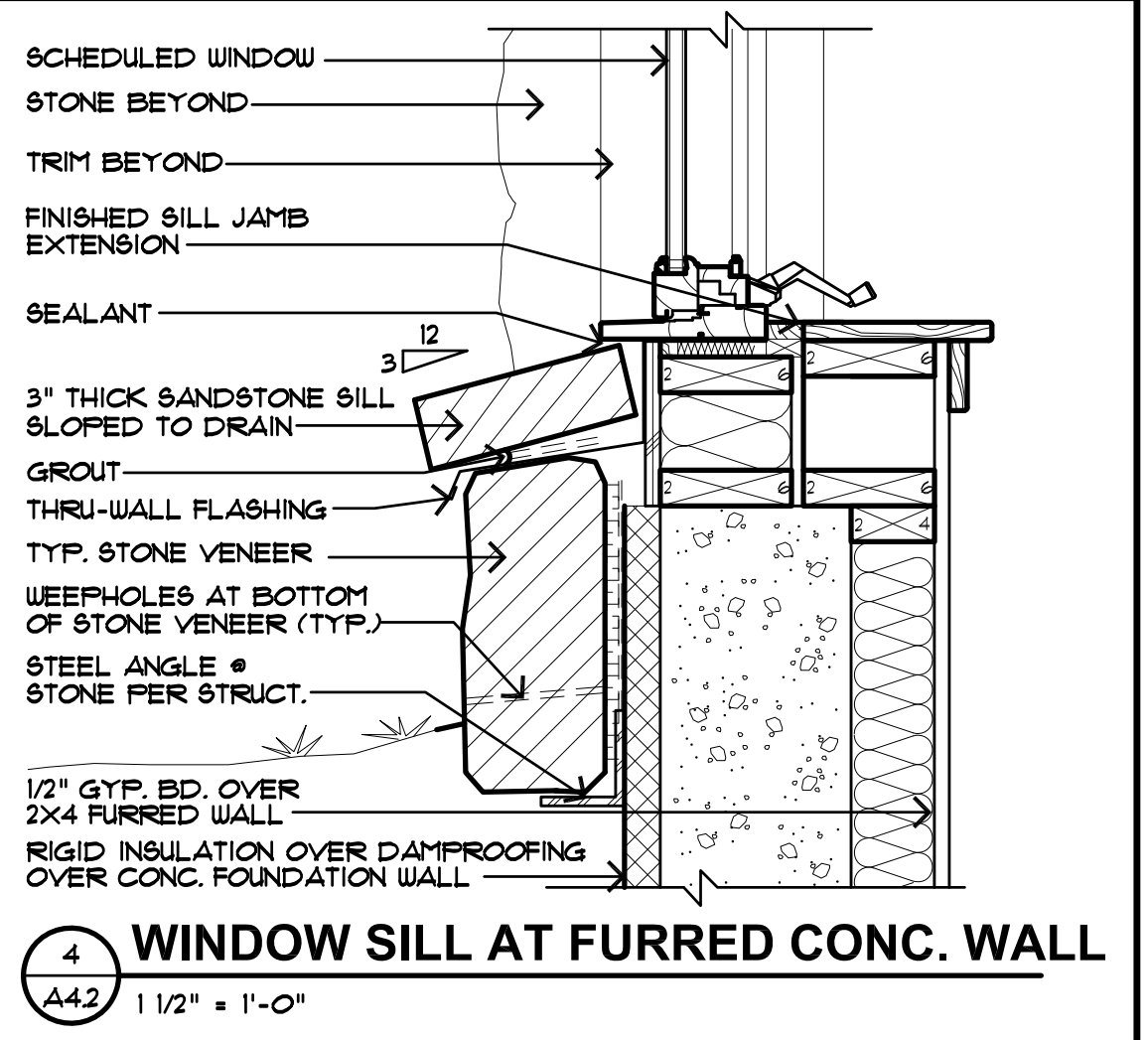
**16 HEAD AT RAIL DOOR**  
A4.2 1/2" = 1'-0"



**12 STAIR HEAD**  
A4.2 1/2" = 1'-0"



**8 THRESHOLD AT GARAGE DOOR**  
A4.2 1/2" = 1'-0"



**4 WINDOW SILL AT FURRED CONC. WALL**  
A4.2 1/2" = 1'-0"

REVISIONS:
   
 JOB NO: 12315.0
   
 DATE: 10.16.23
   
 DRAWN BY: T. SHAFFER
   
 CHECKED BY: M. HOGAN
   
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ISSUED FOR CONSTRUCTION: 10.16.23

**bhh Partners**
  
 P.O. BOX 931 • 160 EAST ADAMS • BRECKENRIDGE, CO 80424 • (970) 453-6880
   
**HOLOMBO RESIDENCE**
  
 0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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 SHEET NUMBER:
   
**A4.2**
  
 ARCHITECTURAL DETAILS

HOLOMBO RESIDENCE  
OUTLINE SPECIFICATIONS

I. GENERAL REQUIREMENTS:

A. GENERAL NOTES

1. SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS: Reference is made to the Project Drawings, Project Contract, Project Addenda, Architect's Supplemental Instructions, and other Contract Documents pertaining to the work related to and associated with these specifications.

2. CONFLICTS/DISCREPANCIES/ERRORS/OMISSIONS IN DOCUMENTS: Notify the Architect of any conflicts between this and other Contract Documents prior to performance of any work.

In the event of conflict between documents, the item of most or greatest extent of work as determined by the Architect, shall apply and be performed by the Contractor. If code or other requirements exceed the provisions shown on the contract documents, the Contractor shall notify the Architect in writing. If requirements of the contract documents exceed code requirements, work shall be furnished and installed in accordance with the contract documents.

Figured dimensions on the drawings shall govern and details shall take precedence over smaller scale drawings. Specifications and construction drawings are intended to agree. Generally the specifications shall take precedence over the drawings, but should discrepancies occur, the Contractor shall do no work without clarification from the Architect. Work called for by the drawings and not mentioned in the specifications, or vice versa, shall be furnished as though set forth by both.

In the case of disagreement between the drawings and specifications or within either document itself, the better quality or greater quantity of work shall be performed by the Contractor and the matter drawn to the Architect's attention for decision.

Any work done contrary to these requirements shall be removed and replaced at the Contractor's expense.

3. SUBSTITUTIONS: Substitution of "equal products" is acceptable but only with the Architect's and Owner's written permission. Submittal of manufacturer's literature is required.

4. INDUSTRY STANDARDS REQUIREMENTS: All trades shall perform their work within the recognized standards of the applicable industry. Reference is made to specific trade standards for each subcontractor trade. No subcontractor shall begin work until he has accepted the substrates on which his work will be based or installed.

5. CODE REQUIREMENTS: All work shall be in complete conformance with the current edition of the International Residential Code (IRC) as modified and adopted by the local jurisdiction.

6. NOTICE OF REVIEW: The Contractor and all Subcontractors shall review all sections of these specifications prior to performance of any work.

7. SUBMITTALS: Formal written/graphic shop drawings and/or submittals are required for Architect's review and approval. Failure of the Contractor to provide shop drawings and/or submittals removes all responsibility for the design of the work from the Architect. Shop drawings or submittals are to be provided for each item indicated in the specifications.

8. DEVIATIONS FROM DRAWINGS: Any deviation whatsoever from the drawings and/or specifications is not allowed without the Architect's written permission. Failure to provide such written authorization places all responsibility for the variation on the contractor. Deviations from the contract documents shall be made only after written approval is obtained from the Owner and Architect.

9. CHANGE ORDERS: Any request for increase in contract sum or contract time must be approved on A.I.A. Document G701 prior to any related work. Failure of the Contractor to obtain this approval prior to the work constitutes his acceptance of no change in contract sum or contract time.

APPROVALS: The conditions of approval by the Town of Blue River and Summit County must be followed by the Contractor.

11. STANDARD OF CARE: The Architect shall perform its services in accordance with that degree of skill and care ordinarily exercised by similarly situated members of Architect's profession involved in the design of similar projects in the same locale as the Project.

12. MOLD NOTIFICATION: It is understood by the parties that the existing or constructed building may, as a result of post-construction, use, maintenance, operation or occupation, contain or be caused to contain mold substances which can present health hazards and result in bodily injury, property damage and/or necessary remedial measures and costs. Owner and General Contractor agree to release, indemnify and hold the Architect harmless from and against all claims, costs, liabilities and damages, including reasonable attorneys' fees and costs, arising in any way from the existence of mold as a result of the use, maintenance, operation, or occupation of the completed project.

13. EXTERIOR MATERIAL MOCK UP: The General Contractor shall provide a mock up of all exterior materials for review by the Owner, Architect and Interior Designer. This mock up shall be provided and signed off in writing prior to any exterior stain or exterior finish work. The sample shall include fascia, trim, window cladding, and all other exterior finishes including 3' x 3' sample of exterior stonework. This shall be retained on site until the final punch list is complete.

14. MAINTENANCE REQUIREMENT: The Owner and General Contractor are advised that ongoing maintenance of the proposed project will be required during and after construction. These items of work that need maintenance include, but are not limited to, water penetration maintenance such as caulking, sealants, and flashing, maintenance of roof surfaces such as sloped roofs, flat roofs, or waterproof decks, if applicable, and interior maintenance of systems that reduce moisture and possibility of mold formation such as HVAC systems, operable windows, exhaust fans, etc.

15. SNOW AND ICE MAINTENANCE REQUIREMENT: The Owner and General Contractor are advised that due to harsh winter conditions, roof and deck surfaces must be maintained reasonably free of ice and snow to ensure minimal problems with these surfaces. If applicable, the Owner and General Contractor agree to notify any purchasers of this requirement.

B. BIDDING REQUIREMENTS AND CONTRACT FORMS

Each Contractor or Subcontractor will supply to the Owner original liability and workers compensation insurance forms as a condition of a bid award. No work will start without appropriate insurance.

A lien release will be provided by each supplier and contractor as a condition of partial and/or final payment for supplier provided and work performed.

The contract forms listed below are strongly recommended by the Architect. Alternate forms for contract may be used if approved by Owner's legal counsel.

Items listed below are to be prepared separately by the General Contractor from these specifications but shall form a part of the Contract Documents for the work:

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR (AIA - A117 - 1987 Edition). (Cost of the work plus a fee with a guaranteed maximum price). Copies are available from the Architect. (This contract contains general conditions for construction)

SUPPLEMENTARY CONDITIONS TO THE AGREEMENT BETWEEN OWNER AND CONTRACTOR (Supplementary conditions will be as included by the Architect and the Owner). Preliminary Supplementary conditions have been included with the Instruction to Bidders.

CERTIFICATE OF INSURANCE AIA G705, 1987 Edition Certificate of Insurance Form.

A. SUMMARY OF WORK AND SCOPE OF WORK

The general provisions of the Contract, including General and Supplementary Conditions and other General Requirements sections apply to the work specified in this section and all other sections of the specifications.

The intent and meaning of the Contract Documents are that each Contractor, under the terms of his Contract, shall take such actions as necessary and/or required to provide labor, materials, supplies, equipment, transportation, facilities, and appurtenances thereto which are indicated or reasonably implied by each Drawing and each section of the Specifications, all of which are collectively necessary and required for the execution of the work, identified and described by the Contract Documents.

Certain items of equipment and other work are indicated as Not in Contract, "N.I.C." work. The following work shall not be furnished under this Contract and are "N.I.C.":

Furnishings and Window and Wall Coverings  
Building Permit Fee - Paid by Owner (coordinated by General Contractor).  
Xcel Energy Fees - Paid by Owner (coordinated by General Contractor).  
Tap fees and other typical soft costs will be paid directly by the Owner.  
Stereo components, televisions, and satellite dishes. Wiring and built-in components should be coordinated by General Contractor.  
Other items as designated by Owner.

B. ALTERNATES

Work included: To enable the Owner to compare total costs where alternate materials and methods might be used, Alternatives have been established as described on the Drawings.

If the Owner elects to proceed on the basis of one or more of the described alternatives, make all modifications to the work required in furnishing and installing the selected alternative or alternatives to the approval of the Architect and at no additional cost to the Owner other than as proposed for each alternate.

Immediately after award of the Contract, or as soon thereafter as the Owner has made decisions on which, if any, alternatives will be selected, thoroughly and clearly advise all necessary personnel and suppliers as to the nature and extent of alternatives selected by the Owner. Use all means necessary to alert those personnel and suppliers involved as to all changes in the work caused by the Owner's selection or rejection of alternatives.

Provide pricing for the following deduct or add Alternates as described below:

ALTERNATE NO. 1 - ALTERNATE INSULATION SYSTEMS- Provide additional cost for complete Closed Cell Insulation Systems in walls, roofs, cantilevered floors and underslab. Provide submittal and breakdown of proposed alternate.

ALTERNATE NO. 2 - INSULATION UPGRADE - Provide cost for insulation at roofs and exterior walls to be of closed cell foam throughout.

ALTERNATE NO. 3 - FOUNDATION WALL WATERPROOFING - If recommended by the Soils Engineer, provide upgraded waterproofing (Bituthene 3000 System and waffle drain). Provide cost for all concrete walls.

ALTERNATE NO. 4 - SEALANT PACKAGE UPGRADE - Provide cost to add "Knauf" Eco-seal™ sealant package to home prior to insulation work. Install water-based elastomeric sealant system in strict accordance with manufacturer's requirements.

ALTERNATE NO. 5 - COPPER PIPING/ PEX PIPING - Provide cost for domestic hot water and domestic cold water piping for both materials for owner consideration. (Pex piping requires written owner approval. Pex domestic water piping is not recommended by Architect).

ALTERNATE NO. 6 - WOOD CEILING OPTIONS - Provide additional alternates for Owner consideration as deemed appropriate by the General Contractor. Verify scope with Owner.

ALTERNATE NO. 7- UNDER SLAB INSULATION - Provide bid alternate for closed cell foam under all ground slabs for the project (vapor barrier is not needed).

ALTERNATE NO. 8 - EPOXY FLOOR - Provide cost to apply epoxy paint coating, as selected by Owner, at garage floor. Heavy duty latex to be in base bid.

ALTERNATE NO. 9 - EMERGENCY WATER SHUTOFF CONTROL - Provide additional cost for adding a self-contained, wireless leak detection and automatic water shutoff system. Provide a "Water Cop" valve and (3) "Water Hound" wireless shutoff sensors by Smart Home Products, www.smarthometalog.com.

ALTERNATE NO. 10 - ERV/HRV SYSTEM - Provide cost savings for deletion of HRV system in lieu of continuously running fan. Coordinate location with Owner and Architect.

ALTERNATE NO. 11 - MAKE UP AIR UNIT - Provide options for reduction or deletion of makeup air unit for range hood. Provide submittal.

ALTERNATE NO. 12 - CAMERA SYSTEM - Provide added cost for camera system to be integrated with security system.

ALTERNATE NO. 13 - WIRELESS SATELLITE DISH - Provide additional cost for providing satellite dish, internet and television with all related equipment.

ALTERNATE NO. 14 - MOTORIZED WINDOW SHADES - Provide additional cost for motorized window shades enclosed in wood valance for great room window walls.

ALTERNATE NO. 15 - ENVIRONMENTAL PRODUCTS - Provide additional cost for substitution of environmental, sustainable or non-toxic building products.

ACQ - Low Toxic - Pressure Treated Lumber  
Cotton Insulation/ recycled content Insulation  
Solvent free adhesives Low VOC construction and subfloor adhesives  
Wheat board composite particle board - Industrial-grade particleboard for cabinets, countertops, shelving, closets, and underlayment.  
UV resistant composite exterior decking 'Timber Tek'  
Recycled content tiles and composite counter tops  
Recycled content carpets PET & low VOC  
VOC free paint and wood finish  
Rapidly Renewable materials locally manufactured and distributed

Provide additional alternates for Owner consideration as deemed appropriate by the General Contractor.

A. CASH ALLOWANCES

Cash allowances for purchase net or gross of certain materials are specified hereinafter. The net amounts stated shall be included as a part of the Contractor's Base Bid. The amount stated shall be considered as a net amount including costs for purchase of specified materials and any sales tax in conjunction therewith.

All cash allowance sums are net, and in addition thereto, Contractor shall also include in Base Bid such expenses and profit as he desires for his work and services in connection with the item the cash allowance is to cover, together with all costs for insurance, mark up, freight, delivery to the job site, bonds, overhead and other usual Contractor's costs. Even if the cash allowance is exceeded, no allowance or extra will be authorized for additional Contractor costs related to overhead profit or supervision after Contract is awarded in connection with items covered by cash allowance. All allowances shall be converted to dollar amounts in the final budget for the project. All allowances shall be grouped together in the final project budget to allow them to be analyzed separately from other bid items.

Contractor shall purchase or award subcontracts on items covered by cash allowances to such firms and for such sums as are directed by Architect; provided, however, that Architect will not require that purchases or awards be made to firms against whom Contractor has stated a reasonable objection.

After items covered by cash allowance have been purchased or awarded or negotiated with Contractor, Contract sum shall be adjusted to reflect actual net cost paid by Contractor for such items; if actual cost of items is less than cash allowance, Contract sum shall be reduced by difference between actual cost and Contract; if actual cost is more than allowance, Contract Sum shall be likewise increased.

Except for cash allowances that stipulate that they are to include both "purchase and installation," the Contractor shall include in his base bid all costs for installation of the materials that are purchased under the cash allowance.

Provide cash allowances for the following items:

Hardware: Allow the sum of \$\_\_\_\_\_ for the purchase of finish hardware and cabinet hardware. Installation of all hardware is to be in the base bid.

Bath Accessories: Allow the sum of \$\_\_\_\_\_ for purchase of toilet accessories. Installation of all of these items shall be in the base bid for the project. Provide blocking as required as part of the base bid.

Carpet: Allow the sum of \$\_\_\_\_\_ per sq. yd. for purchase and installation of carpet and pad for the project. The General Contractor shall include in his contract the quantity of carpet anticipated to be provided in the project.

Entry Door: Allow the sum of \$\_\_\_\_\_ for purchase of entry door and frame transom and sidelights.

Bath/Kitchen Fixtures: Allow the net sum of \$\_\_\_\_\_ for purchase only of bath and kitchen faucets and fittings. All other incidental materials and piping and installation shall be in contractor's base bid. Provide submittal for Owner and Architect approval.

Interior Cabinetry: Allow the net sum of \$\_\_\_\_\_ for the purchase and delivery to the job site of the kitchen, bath, and other interior cabinetry excluding all countertops. Installation and any other incidental work related to millwork shall be in the base bid. Tile work will be performed under cash allowance above.

Granite/Countertops: Allow the sum of \$\_\_\_\_\_ per sq. ft. for the purchase and installation of granite countertops w/ edge detail as approved by Owner. (Tile tops are under tile allowance.) The total cost of this allowance will be determined prior to contract signing.

Wall Tile / Floor Tile: Allow the net sum of \$\_\_\_\_\_ per sq. ft. for the purchase and installation of ceramic wall tile and floor tile. Grout, mastic, backing materials and other related incidental materials shall be included in base bid. The General Contractor shall include in his contract the quantity of wall and floor tile anticipated to be provided in the project. The total cost of this allowance will be determined prior to contract signing.

Electrical Fixtures: Allow the sum of \$\_\_\_\_\_ for the purchase only of all electrical fixtures in the project to include both interior and exterior fixtures. Recessed housing trim and surface mounted fixtures are also to be included. Recessed housings are to be provided by the General Contractor in the base bid. Bulbs are part of the electrical allowance.

Mirrors and Shower Doors: Allow the net sum of \$\_\_\_\_\_ for purchase and delivery of frameless glass products. Installation any other incidental work shall be in the base bid.

Appliances: Allow the gross sum of \$\_\_\_\_\_ for the purchase and delivery to site. Installation to be in the base bid.

Stereo System: Allow the sum of \$\_\_\_\_\_ for supply and installation of wireless stereo system in areas selected by Owner only. Provide submittals.

Security System: Allow the gross sum of \$\_\_\_\_\_ for the supply and installation of monitored security and alarm system, compatible with Crestron Home Automation System, as coordinated by Owner with the General Contractor. All doors and windows to be hardwired Individually. Provide submittal.

Plumbing Fixtures: Allow the net sum of \$\_\_\_\_\_ for the purchase and delivery to the job site of the plumbing fixtures. Installation and any other incidental work related to the plumbing fixtures shall be in the base bid.

Closet Systems: Allow the gross sum of \$\_\_\_\_\_ for supply and installation of closet shelving, drawers, and rods per Owner's requirements.

A. PROJECT COORDINATION

All Contractors and/or Subcontractors responsible for work defined by individual sections of the specifications shall, jointly and separately, coordinate their various sections of work as to scheduling, installation procedures, shop drawings, and, finally, installation of all related materials.

Before starting a section of work, the responsible Contractor and/or his Subcontractor shall carefully examine all preparatory work that has been executed to receive his work. He shall check carefully, by whatever means are required, to ensure that his work and adjacent related work will finish to proper contours, planes, and levels. He shall promptly notify the General Contractor of any defects or imperfections in preparatory work that will in any way affect satisfactory completion of his work. Absence of such notification will be construed as an acceptance of preparatory work, and later claims of defects therein will not be recognized.

Under no condition shall work proceed prior to preparatory work having been completed, cured, dried, and/or otherwise made satisfactory to receive such related work. Responsibility for timely installation of all materials rests solely with the General Contractor who will maintain coordination at all times.

B. PROJECT MEETINGS

The General Contractor shall be responsible for scheduling project meetings on a regular basis to ensure uninterrupted progression of the work. The General Contractor shall issue minutes of the meetings indicating persons responsible for various action items. Project meetings shall address, but not be limited to, the following general items:

- a. Meeting attendees
- b. Schedule review
- c. Old business
- d. New business
- e. Pending change orders

To the greatest extent possible the project meetings will be held at the project site.

H. CONSTRUCTION SCHEDULES

The General Contractor shall be responsible for all construction scheduling, and shall be responsible to see that the work is done in a timely manner. A progress schedule shall be prepared and submitted to the Owner/Architect for review within 10 days of start of work. The General Contractor shall notify the Architect of any changes in the construction schedule.

The General Contractor shall not allow or direct materials of any trade to be installed prematurely, when such materials may be damaged by subsequent work of other trades. When recognized construction procedures or design requirements prescribe that materials be installed before execution of other work which may damage or defect such completed work, the General Contractor shall then take such steps as are necessary to protect such completed work, except when such work is expressly specified to be protected by the Contractor or Sub-Contractor installing the work.

The Contractor shall also obtain approval of any work that may affect the normal operations of the overall projects function prior to beginning any work.

SUBMITTALS

The General Contractor shall prepare a submittal checklist for the initial preconstruction meeting. A copy of a sample checklist is available from the Architect. Checklist shall include:

- scheduled submission date for each submittal
- lead times (when applicable)
- any additional information that the General Contractor needs to prepare all submittals and order all materials.

The General Contractor is responsible for submitting product information for Owner/Architect review and approval, as set forth below. Owner/Architect shall have authority to reject submittal if not in conformance with Contract Documents. See specifications and drawings for submittals required. Submittals are required for, but are not limited to, the following:

- \*Steel fabrication shop drawings to include loose steel lintels and masonry angles.
- \*Heating system calculations and component literature, including hot water storage sizing and warranty information (within thirty days of award of Contract - see Division XV.).
- \*Plumbing riser diagrams and any equipment (steam generator, etc.) information, if required (within thirty days of award of Contract - see Division XV.).
- \*Plumbing fixture and fittings catalog cuts and installation diagrams. Provide purchase costs.
- Alternate insulation systems if selected by Owner.
- Window and patio door list (include size, operation, and options, including purchase cost).
- Stone veneer sample panel/exterior mockup panel for all exterior finishes.
- Timber shop drawings finish sample and joinery details.
- \*Truss shop drawings.

Fireplace submittal.  
Stain/paint color samples and literature (interior and exterior).  
Front door submittal and shop drawings.  
Garage door submittal.

Door hardware schedule, with purchase cost.  
Drywall sample texture panel.  
Tile layout submittals and shop drawings including tile pan submittal and certification documents.  
Interior cabinetry shop drawings (plans and elevations at 3/8" scale), with purchase cost.  
Closet systems.  
Appliance catalog cuts, with purchase cost.  
Toilet and bath accessories.  
Bath and laundry exhaust fans.  
Radon Test  
Electrical fixture catalog cuts, with purchase cost.  
Electrical service diagram and panel schedule (within thirty days of award of Contract - see Division XVI.)

- 27. Programmable lighting system
- 28. Audio/video/computer/security systems submittal.
- 29. Telephone/Cable TV/Satellite/Communication System submittal including wireless internet.
- 30. Any material or product substitutions requested by General Contractor (see spec section below).
- 31. \*Snowmelt system (if applicable)

NOTE: Submittals marked with \* are critical for review by the Architect.

J. TEMPORARY FACILITIES

Make required arrangements, secure, and pay for all water, gas, telephone, and other utilities needed during progress of construction. Temporary tie-in for electricity shall be provided by the Contractor. If power is not yet available through Xcel Energy, a temporary generator shall be supplied by the Contractor.

Provide such temporary sheds, sanitary facilities, enclosures, dust control methods, barricades, canopies, and fencing as are required for safe and proper completion of the work and as shown on the drawings. Provide job site fire extinguisher and first aid kit.

The drawings do not include the necessary requirements for construction safety. The General Contractor shall provide all required aspects of construction for safe completion of the work.

Maintain temporary facilities and controls as long as needed for safe and proper completion of the work. Remove such temporary facilities and controls as rapidly as progress of the work will permit, or as directed by the Owner.

Dogs are not allowed on the construction site.

Use of tobacco products is not allowed on this construction site.

Fencing requirements shall be reviewed on site and approved by the Owner/Architect.

K. SUBSTITUTIONS

The Contract shall be based on the standards of quality established in the Contract Documents. Substitutions will be considered only when listed at time of bidding and when substantiated by the Contractor's submittal of required data within 21 calendar days after award of the Contract.

The following products do not require further approval except for interface within the work:

Products specified by reference to standard specifications such as ASTM and similar standards.

Products specified by manufacturer's name and catalog model number.

Do not substitute materials, equipment, or methods unless such substitution has been specifically approved in writing for this work by the Architect.

Where the phrase "or equal" or "or equal as approved by the Architect" occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved for this work by the Architect.

L. PROJECT CLOSEOUT

Closeout is hereby defined to include the general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of the Contract, occupancy by the Owner, and similar actions evidencing completion of the work.

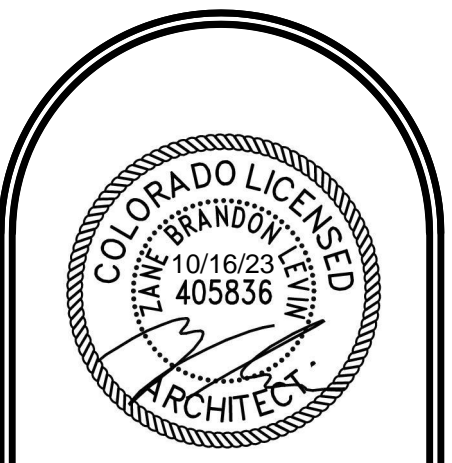
All warranties and guarantees shall begin on the date of the Architects Issuance of Certificate of Substantial Completion unless otherwise specified in writing and approved by the Architect.

Prior to requesting Architect's inspection for certification of substantial completion, complete the following, and list known exceptions in the General Contractors request for Substantial Completion:

- 1. Submit last progress-payment request, with sworn statement showing 100% completion of the work, complete with associated releases, consents, and supports.
- 2. Submit statement showing final accounting of changes to the Contract Sum. Account for all allowance items.
- 3. Advise Owner of pending insurance change-over requirements.
- 4. Complete start up of all systems.
- 5. Submit special guarantees, warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
- 6. Obtain and submit certificate of occupancy.
- 7. Discontinue (or change over) and remove from the project site temporary facilities and services, along with construction tools and facilities.
- 8. Submit record drawing.
- 9. Complete the final cleaning.
- 10. Complete changeover of locks and transmit keys to the Owner.
- 11. Touch-up and otherwise repair and restore marred exposed finishes. Submit General Contractors complete punch list of work remaining.
- 12. Submit operations, maintenance and warranty information manual in a three ring binder for Architect review.
- 13. Building Information Manual: Submit the following items in a three-ring binder for Architect review:
  - a) Copy of Certificate of Occupancy
  - b) Submit special guarantees, warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
  - c) All applicable operations, maintenance, and warranty information for project.

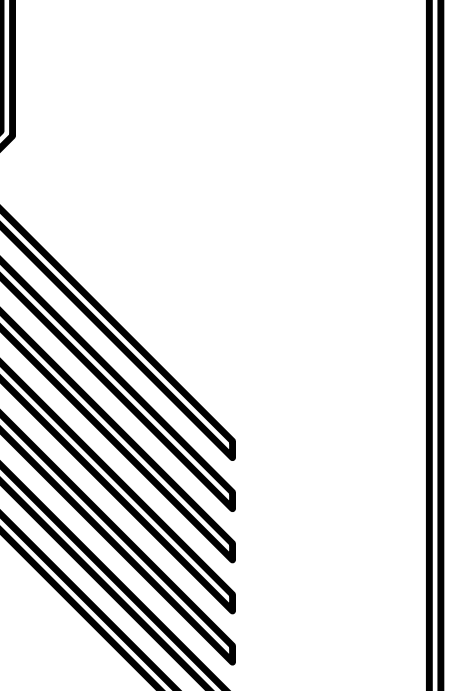
Prior to requesting Architect's final inspection for certification of final acceptance and final payment, complete the following and list known exceptions (if any) in the inspection request:

- 1. Submit final payment request with final releases and supports not previously submitted and accepted. Include Certificates of Insurance for products and completed operations.
- 2. Submit updated final statement, accounting for any additional changes to the Contract sum.
- 3. Submit certified copy of the Architect's or Engineer's final punch list of itemized work to be completed or corrected stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the Architect or Engineer.
- 4. Finalize operations, maintenance and warranty manual and deliver two copies to the Owner.



REVISIONS:  
JOB NO: 12315.0  
DATE: 10.16.23  
DRAWN BY: T. SHAFFER  
CHECKED BY: Z. LEVIN  
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ISSUED FOR CONSTRUCTION: 10.16.23



Closeout is hereby defined to include the general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of the Contract, occupancy by the Owner, and similar actions evidencing completion of the work.

bh Partners of COLORADO  
560 ADAMS AVENUE SILVER THORNE, CO 80498 (970) 510-1000  
**HOLOMBO RESIDENCE**  
0039 LODGESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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SHEET NUMBER:  
**A-5.1**  
OUTLINE SPECIFICATIONS



**II. SITEWORK:**

**NOTE:** The Grading information shown in these plans is diagrammatic and shall be verified and reviewed by a licensed Colorado Engineer. Provide stamped letter and plan revisions required to Owner and to Architect prior to any concrete work from the engineer. See Item F below.

**A. SOILS REPORT** – An open hole inspection will be done at time of excavation. Upon completion of excavation to final depth, contact Soils Engineer, to arrange for site observation prior to the forming of any footings. The Soils Engineer is to provide written recommendations for Owner/Architect review. The recommendations of the Soils Engineer will then be incorporated into the work and the work will be modified accordingly if required. The cost of this work is to be paid by the Owner.

**B. CONSTRUCTION STAGING** – Construction staging shall be indicated on the site plan by the general contractor. Provide additional construction staging information in compliance with all requirements of Town of Blue River and Summit County.

**C. SITE CLEARING & TOPSOIL** - Flag all trees to be removed as indicated on plans, and receive Owner/Architect/ARB approval prior to cutting. Remove all stumps and organic material and dispose of legally off site. Retain boulders from excavation for reuse as directed by architect and as shown on plans. Strip and stockpile topsoil prior to construction.

**D. EXCAVATION/BACKFILL** - Extent of excavation shall be as shown on the drawings. Backfill for the project shall be of soil containing stones or rocks less than 6" in diameter. Install lifts and compact to minimum proctor density as recommended by Soils Engineer. Compact soils disturbed below footing bearing elevations or remove loose soils and fill with lean concrete. Backfill to be brought up equally on both sides of subgrade foundation walls where applicable. The foundation is designed to be supported from the top by floor construction. Do not backfill until these items have been completed. Slope finish grade away from building per Soils Engineer recommendations and IBC requirements (6" in 10'). Consult the Architect, Soils Engineer, and Structural Engineer for additional information.

**F. DRAINAGE STRUCTURES** – Provide drainage as shown on the drawings. Install all drainage per industry standards. Provide pit run gravel fill where shown on the drawings. Provide copy of soils engineer design/letter to Owner and Architect.

**G. LANDSCAPING** – Contractor to final grade the site.  
**TOPSOIL** - 4" of clean, clay free topsoil.  
**SEEDING** - At all disturbed areas.  
 Provide short grass mix as approved per Town of Silverthorne guidelines.  
**PLANTINGS** - See landscape plan.  
 Provide 18 month written warranty for all planting materials to cover labor & materials. The landscape contractor shall provide a maintenance schedule for owner/maintenance requirements and also a maintenance agreement proposal for owner review. Install all plantings in strict accordance with American Nursery Association Standards.

**H. LANDSCAPE IRRIGATION SYSTEM** – Provide for irrigation system by others. Provide water rough-in as required. Coordinate system installation and stub outs with owner prior to topsoil.

**I. DRIVE PAVING** - Provide 3" of asphalt paving over 6" of type 6 road base per Town of Blue River Engineering Department standards. Prior to work, confirm design in writing with Soils Engineer. Road base is in the General Contractor's contract.

**J. SITE UTILITIES** - Coordinate site utility installation with Division XV. work. Restore all excavations and trenches to existing conditions. Provide compaction per Town of Blue River standards. Utilities have been stubbed to lot line by others and are N.I.C. Utility work onsite is by General Contractor. Sewer line to be verified as appropriate for gravity drain system.

**EROSION CONTROL AND DRAINAGE FEATURES** - Provide snow fencing to protect all trees to remain and areas to be left undisturbed. Provide erosion control and project fencing as required by Town of Blue River. See Item F above.

**III. CONCRETE:** Provide written soils engineer approval for all waterproofing / dampproofing and for all subgrade work prior to any concrete work.

**A. FOUNDATIONS:** See structural notes on the drawings. See structural details.

Footings: Concrete - See Plans

Foundation Walls: Concrete - See Plans

Int. Footing Pads: Concrete - See Plans

Retaining Walls: Natural Board-Formed – Random Width – Rough Sawn Concrete – See Plans

**B. FINISHED SLABS:** Provide finish concrete slabs at garage and lower level with toled control joints as shown. (Do not saw cut joints.) See structural notes. Verify finish with Owner.

**C. SILLS:** Redwood or ACQ treated lumber at areas in contact with concrete. Provide fiberglass sill sealer under all exterior wood sills in contact with concrete. See Division VI. and VII. Provide 1 layer of roof membrane under all wood columns in contact with concrete.

**E. FOUNDATION DRAINAGE:** Rigid perforated PVC pipe in 3/4" washed rock and slope to drywell. Provide elbow and tee fittings as required. Installation to be per code.

**F. RADON PROTECTION:** Rigid perforated PVC piping around the perimeter of crawl space. Set piping in 6" gravel or fill and stub to central standpipe in an accessible location and vent through the roof. Provide an electrical outlet for future power. Upon closure of home, provide radon test and review results with Architect and Owner. If radon is present at that time, an in-line fan can be installed to vent the gases to the exterior.

**G. DAMPROOFING:** Dissco Mastic 520. Provide sealant at all joints and hot asphaltic dampproofing at all walls below finish grade to extend over edge of footing. Cove base at wall and footing juncture. Dampproofing may be upgraded at suggestion of soils engineer. See code.

**H. WATERPROOFING BID ALTERNATE:** Parge wall to cover all imperfections and prime walls with W.R. Grace approved primer. Install Bituthene 3000 waterproof membrane sheets (roll stock) as recommended by manufacturer. Prior to backfill, obtain W.R. Grace approval letter of installation and provide copy to Owner and Architect. Provide waffle drain over Bituthene 3000 if recommended by soils engineer.

**I. INTERIOR SLAB INSULATION:** Provide 1-1/2" rigid insulation (R-10) below all concrete slabs. Provide 6 mil polyfilm vapor barrier over insulation. At Contractor option, if approved by Building official, provide closed cell spray foam insulation. Tape all tears and ensure that insulation/vapor barrier is continuous and completely unbroken.

**J. EXTERIOR SLABS:** See structural notes. Provide 6" granular gravel fill under all slabs on grade. Slope slabs to drains as shown. Provide hand tooled control joints to 1/3 of slab depth as shown on the plans. Provide air entrained concrete at all exterior slabs.

**K. FOUNDATION WALL INSULATION:** 2" (Styrofoam) insulation over mastic from top to footing to grade. This is to be coordinated with Waterproofing System is selected. Provide flashing over foam at areas above grade.

**II. MASONRY:**

**A. STONE VENEER:** Gallegos Stone Company, pattern: 'Courtland Lowrise' stone veneer, dry stacked. Provide 3'-0" x 3'-0" sample panel for Architect and Owner approval prior to work. Install all stone with corrugated fasteners @ 16" o.c. Provide weep holes @ 12" o.c. at lowest course above grade.

**B. STEEL ANGLE SUPPORT** – Provide steel angle at base of all interior stone work to include hearth and wall stone areas.

**C. STONE BACKING** – Prior to stone veneer installation, install Tyvek of 15# felt and waffle drain, perforated backer board to ensure adequate drainage plane, air-space behind stone veneer. Provide Keene Driwall Rainscreen 020-1. www.keenebuilding.com

**D. SANDSTONE CAPS** - Provide and install snapped sandstone caps and hearths at areas indicated on the drawings. Clean and seal all sandstone immediately after installation per stone sealer specifications.

**E. FLASHING** - Composition or sheet metal of size and configuration shown on the drawings. Provide step flashing at roof to masonry fireplace junctures.

**F. MORTAR:** Type S mortar ASTM Standard C270 - Natural grey mortar color. Provide type M mortar below grade.

**G. MASONRY ANCHORS:** 7/8" X 6" corrugated corrosion resistant metal ties at 16" O.C. each way unless noted otherwise.

**H. THROUGH WALL FLASHING:** Noblesal 20 mil chlorinated polyethylene membrane, manufactured by the Noble Company, P. O. Box 332. Grand Haven, Michigan 49417, (616) 842-7844, or approved equal.

**I. MASONRY SEALER:** Provide sealant to all stone products as required and recommended by the manufacturer and supplier. "Stone Glamour" or equal, matte finish. See Division VII. All sealers to be non-glossy matte finish.

**J. CONCRETE SEALER** - See Division VII., K. Sealant & Caulking

**Note:** Installation and components to be per manufacturer's recommendations and code (R703.7).

**V. METALS:**

**A. METAL FABRICATIONS:** Provide shop drawings for all items such as structural steel beams, structural steel columns, loose lintels, steel lintels (galvanized for stone veneer), concrete embed plates, steel connector plates, etc.

**B. BOLTS AND CONNECTORS:** Provide galvanized bolts, nuts, and washers as indicated on the drawings. Square headed bolts and bridge washes to be utilized at visible locations.

**C. STEEL LINTELS / STEEL ANGLES:** Steel shop primed of size and configuration as shown on the drawings. Provide submittal.

**D. METAL CAP FLASHINGS:** Provide prefinished cap flashing on top of chimney cap.

**VI. WOOD AND PLASTICS:**

**A. ROUGH CARPENTRY:** Prior to building any exterior or interior walls, all framing dimension strings should be checked by the framing contractor and the general contractor to identify any potential framing discrepancies in dimensions. Any discrepancy should be brought to the attention of the Architect prior to beginning framing work.

Coordinate framing work with insulation contractor to provide for continuous air barrier at all insulation areas. Do not frame dropped ceilings, soffits, or fireplaces until air barrier is installed at all thermal envelope locations.

**1. Exterior Wall Framing** - As shown on the plans and structural notes - Insulate all exterior corners and concealed spaces (headers, etc.) during framing. Provide wall studs at 16" on center or as shown on plans. Install redwood or treated base plates at all areas in contact with slabs or foundation walls. If ACQ treated materials are used provide double galvanized or stainless steel connectors as recommended by ACQ manufacturer.

Prior to building any exterior or interior walls, all framing dimension strings should be checked by the Framing Contractor and the General Contractor to identify any potential framing discrepancies in dimension.

All walls to be framed square, straight, and plumb for rough carpentry. Provide blocking at all locations as shown on plans for any wall mounted handrails, towel bars, and shelving.

Fire Blocking - At walls greater than 10'-0" height, stairs, etc. per code requirements.

Draft Stopping – Install draft stops as required by IRC.

Wall Sheathing – 1/2" CDX plywood sheathing. Attach sheathing per notes on structural plans.

Housewrap - Tyvek or equal at all exterior walls under wood siding and stone veneer. Install per code. Wrap all window and door rough openings with Housewrap prior to window or door installation. Install at window heads per manufacturer recommendations. (Cut in additional strip over nail flange and tuck into slit above window or door openings.) 15-lb building felt may be provided in lieu of Tyvek at contractor option. Install in strict accordance with manufacturer's requirements.

Provide and install sill sealer insulation per Division VII., Section A.

**Siding:** Install all exterior siding in workman like manner and in compliance with industry standards. Insure that all siding is provided with minimum 6" clearance

from finish grade and 2" minimum clearance at roof, concrete or patio surfaces.

**Vertical Siding:** Species: Fiber Cement board  
 Manufacturer: James Hardie  
 Size - rustic Hardie battens over .312"x48"x96"  
 Hardie panel vertical siding board

Pattern – board and batten  
 Nailing - Hot dipped galvanized (double dipped) box nails or siding nails. Pre-drill if within 2" of saw cut.  
 Installation - Comply with all recommended installation procedures per industry standards.

**Note:** Pre-stain all siding and exterior trim with one coat of Sherwin Williams, Olympic or equal stain as specified. Second coat to be installed after siding installation.

**1. Partition Framing** - See drawings

**Material:** Species - Hem Fir  
 Grade - Construction  
 Spacing - 16" o.c. unless otherwise noted.

Fireblocking - Per code.

Hardware Backing – Provide 2x blocking at all hand railings, grab bars, toilet accessories, and specialty hangings, as required.

**2. Ceiling Framing** -

**Material:** Species - Hem Fir  
 Grade - #2 or better  
 Spacing - 16" o.c. unless otherwise noted.

Bridging: Stiff back if spans exceed 10' 0".

**3. Roof Framing** - See drawings. Install roof framing to allow for air flow over all valley and hip beams to ensure effective ventilation to soffit vents. (Drop hip and valley beams). Drill 1 1/2" diameter holes 1" from top of rafters at areas that are blocked to provide air ventilation path.

**Material:** Species - See structural notes and plans.  
 Spacing - Per plans  
 Blocking - At spans in excess of 12'0" at mid-span, and at manufacturer's recommendations.

Sheathing - 5/8" APA Rated Sheathing, Exposure 1 Plywood, ID 32/16, glue and nail per structural notes and plans.

**4. Timber Beams** – All exposed interior and exterior timber beams to have wire brushed finish. Provide architectural grade beams at all exposed conditions. Provide Douglas fir timbers as approved by Owner. Provide submittal.

**5. Exterior Trim and Detail** -

Soffits – Vented Cedar mill Hardie soffit panels.

Fascias – 5/4"x11.25" Hardie trim board

Corner Trim – 5/4"x5.5" Hardie trim board

Window and Door Trim – 5/4"x3.5" Hardie trim board.

Exterior/Interior Handrail – Ski cable profile rail with capped ends. See details.

Stone Cap - See Division IV for Sandstone caps.

Ridge Vent – Cor-a-vent or equal as shown on the drawings. Provide shingles to match roofing. Install in strict accordance with manufacturer's requirements.

**Note:** Pre-stain all siding and exterior trim with one coat Sherwin Williams, Olympic or equal stain as specified. Second coat to be installed after siding installation.

**6. Exterior Decking** – 2X6 'Fiberon' composite decking. Provide manufacturer's recommended fasteners at all exterior decks. Framing within 18" of grade shall be acq treated lumber or redwood lumber. Deck boards spaced at 5 3/4" o.c.

**I. FINISH CARPENTRY** - All interior woodwork to have stained finish (one coat stain where required plus two coats clear sealer as approved by Architect). Interior finish carpentry to be reviewed prior to beginning work with Architect. Millwork trim and finish to match. All interior finish carpentry shall be of stock material milled to profiles shown. Ease all edges. See Details.

Finish carpentry at all areas to be as follows:

**1. Door & Window Casings** – Drywall wrap. Provide head trim at doors and sill trim at windows. Verify wood species with Owner. See drawings.

**2. Base Trim** – Verify wood species with Owner. 5/8 x 5 1/2 base trim.

**3. Interior Shelving** - 3/4" enamelled particle board with 1x 2 alder edge.

**4. Closet Shelving** - 3/4" enamelled particle board with alder nosing. Provide fir closet rods stained finish. Coordinate design with interior designer and owner. Provide submittal. Provide low hanging and shelving at master closet.

See interior elevations and drawings for additional information.

**C. ARCHITECTURAL WOODWORK** - If applicable, all countertops and backsplashes are to be provided by the General Contractor. Installation for all of the above materials is a part of the contract. The supplier of the kitchen cabinets shall submit a complete layout with descriptions of functions and materials upon final selections by the Owner. The extent of this work is shown on the drawings. In the event of damage, immediately make known to Owner and make all repairs and replacements necessary at no additional cost to Owner. Make adjustments for installation at tile, wood and concrete floors where shown. See Cash Allowances. Provide the following:

Cabinetry - Provide hardwood panel (alder or equal) cabinetry. Manufacturer at Owner option. Provide submittal. See drawings. Provide solid surface countertops with square, eased edges. Verify materials with Owner. All countertops to be ADA Accessible. Provide 36" wide work station at kitchen island, open below countertop.

**2. Built-In Cabinetry** – Hardwood alder cabinetry. Coordinate with electrical for built-in lighting as required.

**VII. THERMAL AND MOISTURE PROTECTION:**

**A. INSULATION:** - (See division III for foundation wall insulation/protection board). All spaces around windows, mechanical electrical outlets, and other penetrations should be sealed with low expansion closed cell foam insulation. Any fiber insulation to include a fully aligned air barrier provided by sheet material at least equal to the material utilized in formulating the listed rating of the insulation. Install vapor barriers behind all beams and ledgers in contact with thermal envelope walls. Provide appropriate sealant at all such junctures. (See Bid Alternates for water-based elastomeric sealant and other insulation options).

For owner's consideration, provide Eco-Seal system by "Knauf" Products <http://www.knaufinsulation.us/> Insulation shall be by manufacturer certified technicians in strict accordance with manufacturer requirements.

Exterior Walls Above Grade: Material – Blown in batt insulation  
 Thickness – 5 1/2" (R-23) or 3 1/2" (R-13)  
 Installation – Blown in  
 Vapor Barrier - 4 mil polyfilm at inside face of stud at exterior wall only. Seal and/or tape all penetrations tightly. Polyfilm to be continuous over all wall and ceiling spaces.

Roof/Ceiling: Material – Blown-in batt insulation / spray foam  
 Thickness -10-inch high density (R-49)  
 Installation – Blown in under spray foam  
 Vapor Barrier - 4 mil polyfilm - Seal and/or tape all penetrations tightly.

Underslab Insulation: Polystyrene 1 1/2" or 2" thick for under slab use or closed cell spray foam insulation at contractor option (Obtain building department approval). Tape all joints and penetrations per manufacturer recommendations. For heated slabs on grade; minimum R-10 (2" thick) required along perimeter; minimum R-5 for interior portions per IRC. (Verify with Building official.) Provide vapor barriers under all slabs.

Vapor Barrier at Slab: Provide minimum 6 mil. polyfilm under the floor slab (Insultarp or Astrofoil can act as the vapor barrier). Install as dictated and require per code.

Slab Edge: Provide 2" Polystyrene (R-10) thick rigid insulation.

Sills: Fiberglass sill sealer at all concrete to wood plate junctures. Sill sealer to be part of rough carpentry package.

Insulation Baffle: 1/4" cardboard corrugated insulation baffles to maintain cold roof flow, where shown on drawings. (Baffles to be compatible with spray foam urethane closed cell insulation where used.)

Interior Wall Sound Insulation: Provide R-11 Batt insulation at all interior walls as indicated on plans and stairs for sound control.

**B. ROOFING UNDERLAYMENT:** Under all roofing provide Vycor™ Ice and Water Shield. Install in strict compliance with manufacturers specifications and recommendations. Do not install membrane within 3'-0" of ridge lines (use 15# felt). Prime area 6'-0" each side of valleys and 6' up from edge of roof overhang with Bituthene primer P-3000. Provide membrane under and around all roof junctures to fascias prior to fascia trim installation. Upon completion of roofing underlayment work and prior to the installation of any roof material, schedule and notify the Architect of the W.R. Grace manufacturer representative review meeting on site. Provide manufacturer letter to the Owner and to the Architect stating that the roofing underlayment was installed in accordance with manufacturer's requirements. If metal roof is provided, install Vycor™ ultra membrane under all metal roofs.

**C. SHINGLE ROOFING** – Manufacturer: 'GAF' Style: Timberline Prestique composition shingles. Color: Charcoal. Install roofing system in strict accordance with manufacturer specifications and recommendations using manufacturers standard methods and materials of constructions. Provide manufacturers standard 50 year warranty. See Division VI and drawings for cold roof venting details.

**D. SHOWER PAN LINING** - Chloraloy 240 monolithic polyethylene membrane, manufactured by the Nobel Company, 614 Monroe St., Grand Haven, Michigan 49456, (616) 842-7844, or approved equal. Provide submittal on membrane for approval. A 24 hour flood test will be required to verify water tightness of installation. Install membrane per details on the drawings.

Schlüter system may be provided if approved by Architect as available through Daltile (735 South Huron, Denver CO 80223, 800/999-1743, [www.schluter.com](http://www.schluter.com)) – provide submittal. Provide submittal to include KERDI matting membrane information, KERDI-BAND, grout specification, and curb waterproofing, in coordination with all tile work.

**E. FLASHING** – Material: Install all flashing to divert water to the exterior of the building envelope. Install all flashing per standards of the industry and in compliance with SMACNA recommendations. 26 ga. Galvanized Iron Finish - Pre-finish flashing at all visible areas. All exposed sheet metal to be prefinished or painted. Provide kick out flashings with all roof wall junctures.

**F. SEALANT & CAULKING:**

Joint Fillers: Closed cell expanded polyethylene, open cell polyurethane foam or as recommended by the sealant manufacturer.

Exterior Sealant at Horizontal Concrete Expansion Joints: Grey color one part urethane sealant PRC 6006 self leveling sealant as available through C.R. Lawrence, Inc. 1-800-421-6144.

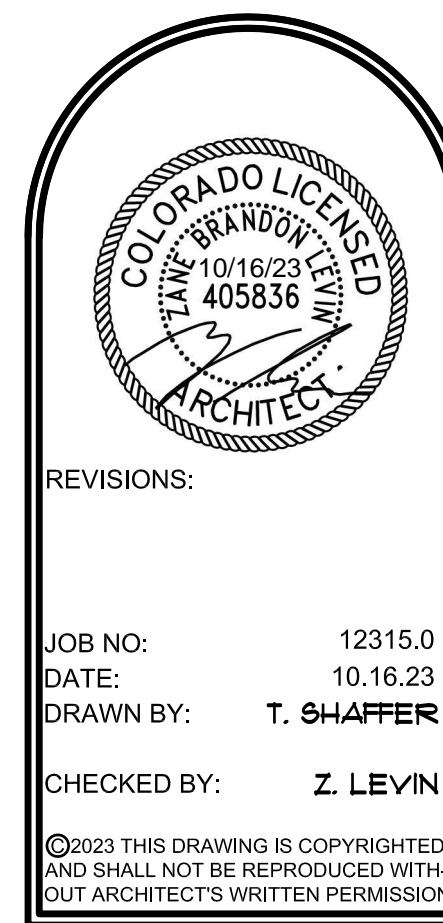
Exterior Sealant at Wood, Stone and Vertical Concrete: Color to match adjacent surface as approved by Architect. Work Site U60 Unilcrylic sealant or Tremco Mono 1 part acrylic terpolymer sealant as available through C.R. Lawrence, Inc. (800) 421-6144.

Interior Caulking at Latex Painted Area: Color to match adjacent surface as approved by Architect. Work Site 800 acrylic latex caulk as available through C.R. Lawrence, Inc. (800) 421-6144. Caulk between all baseboard trim and wall junctures and between all standing and running trim and wall junctures.

Interior Caulking at Oil Base Painted Areas: Color to match adjacent surfaces as approved by Architect. D.A.P. architectural grade caulking compound as available through C.R. Lawrence, Inc. (800) 421-6144.

Fire Barrier Sealant: At all piping and mechanical penetrations of rated walls, floors and ceilings. "Flame Seal" as manufactured by Nelson Co. or approved equal such as 3M Fire Barrier or Dow Corning System 2000.

**G. MASONRY SEALER:** Provide matt finish masonry sealer (Stone Glamour or equal) at all sandstone hearths and stone caps.



ISSUED FOR CONSTRUCTION:  
10.16.23

**bh** Partners of COLORADO  
560 ADAMS AVENUE SILVERTHORNE, CO 80498 (970) 515-1000

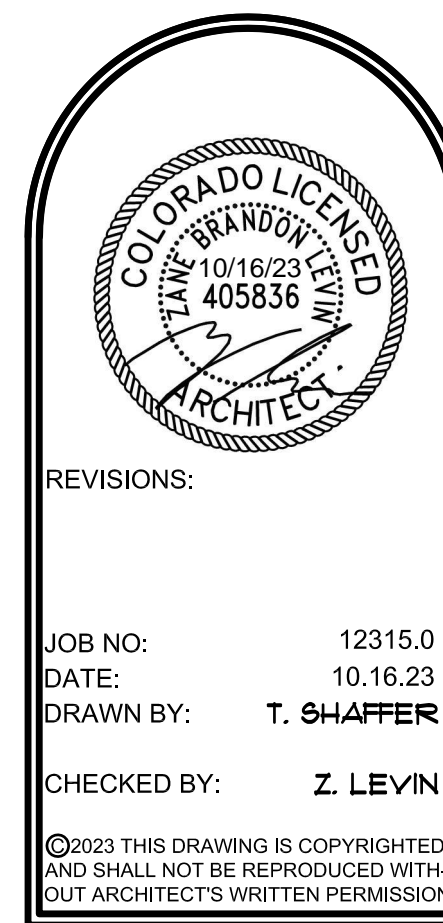
**HOLOMBO RESIDENCE**  
0039 LODESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

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SHEET NUMBER:

**A-5.2**  
OUTLINE SPECIFICATIONS

<p><b>VIII. DOORS AND WINDOWS</b></p> <p><b>A. ENTRY DOOR:</b> Entry door as approved by Owner. See Cash Allowances. Provide submittal.</p> <p><b>B. EXTERIOR DOORS:</b> Provide weather stripping and thresholds at all exterior doors as a part of the base bid for the work. All doors shall carry manufacturer's standard warranty and shall be installed in strict accordance with manufacturer's recommendations. Provide wood doors with wood frames. Provide submittal.</p> <p>Provide 'Weathershield', 'Sierra-Pacific' or approved equal clad wood patio doors in size and configuration as shown on the drawings. Provide wood frames with integral stops and thresholds. Stain and seal doors per work in Division IX. Exterior patio doors to be clad to match windows.</p> <p><b>C. INTERIOR DOORS:</b> Verify species with Owner. Provide solid hardwood doors in sizes as shown and style as Selected by Owner. Provide flush panel doors. Paint grade. Install in strict accordance with manufacturers recommendations. Provide solid core door with threshold at interior garage door. Provide threshold at mechanical room door. Provide submittal for all doors.</p> <p><b>D. HARDWARE:</b> See Section I.E. for Cash Allowance. Installation of all hardware shall be in the base bid. Provide finish throughout and submittal of hardware with cut sheets for Architect review and approval. Approved manufacturers include Schlage, Russwin, Yale, Baldwin and Sargent.</p> <p><b>E. WINDOWS:</b> 'Weathershield', 'Sierra Pacific' or approved equal clad wood windows. Provide casement, awning and fixed as shown on the drawings. Provide detailed submittal for Architect approval prior to ordering windows. Provide color clad frames per color sample. Do not provide Brick Mould. Provide Low E glass at all window and patio door locations. Coordinate window coverings with Owner, Architect and Designer.</p> <p><b>F. INSULATED GARAGE DOOR:</b> Insulated Masonite Doors clad with vertical CVG cedar wood siding per plans with 3" standard heavy-duty track, weather-stripped and with automatic opener. Provide upper panel glazing as shown on plans. Provide submittal for Owner/Architect approval. Stain to match siding. Provide submittal. Provide track as noted above.</p> <p><b>G. ATTIC ACCESS LADDER</b> – Provide cost for providing 22"x30" attic pull-down ladder, as selected by the owner.</p> <p><b>IX. FINISHES:</b></p> <p><b>A. DRYWALL:</b> Material – 1/2" type "X" drywall or 1/2" standard drywall throughout the project as noted on the drawings. Texture sample is required prior to work for Owner and Architect approval. Hand trowel texture throughout. Provide three coat finish, prime walls and then refinish as required for smooth or textured finish, then re-prime wall as required. Provide smooth finish at wall paper areas. Coordinate corner profile with Owner.</p> <p><b>B. DRYWALL CEILINGS:</b> Material – 1/2" standard drywall as noted. Textured finish to match wall texture.</p> <p><b>C. TILE:</b> Provide tile isolation underlayment (Schluter or equal) at concrete slabs to receive tile as shown on plans. Provide 1/2" cement board (wonder board or durorock) behind all areas to receive wall and ceiling tile. Provide fiberglass tape and screw cement board to framing with galvanized screws. Provide durorock underlayment under all tile countertops.</p> <p>Tile materials are per Cash Allowance. All tile is to be installed by contractor and per manufacturers approved methods and in compliance with Tile Council of America recommended installation methods. See plan for scope of tile work. Provide sealant at all tile horizontal and vertical junctures.</p> <p>Provide shop drawings for all tile layouts to be approved by Owner and Architect prior to beginning work. In general, all layout work should be centered and positioned in a logical and workmanlike manner. If recessed areas in wet areas are shown, such as shower niches, provide Bituthene 3000 waterproof membrane by W. R. Grace prior to cement underlayment installation.</p> <p>Provide Schluter Systems shower pan assembly to include compatible drain system, mortar beds, Kerdi-Band and Kerdi-Matting. Install in strict compliance with manufacturer's recommendations. Installer to be certified by Schluter Systems. Provide certificate of certification to Architect prior to any tile work.</p> <p><b>D. GRANITE COUNTERTOPS</b> - Provide and install 3/4" thick stone and facing at each countertop (square, eased edges) as selected by Owner and indicated on the drawings. Install in strict accordance with supplier's requirements and recommendations. (Provide substrate and adhesive as approved.)</p> <p><b>E. WOOD FLOORING:</b> Provide and install a complete finished wood strip flooring in areas shown on the drawings. Use select grade, as selected by Owner, with tongue and groove edges.</p> <p>Field finish by sanding to level using successively finer sandpaper. Filler: Benjamin Moore Benwood Paste wood filler or approved equal. Natural finish: Stain and three coats Benjamin Moore Urethane as approved by Owner. Prefinished flooring may be provided at Owner option.</p> <p>Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. All flooring materials to be stocked on site for a period not less than four weeks prior to installation.</p> <p>Provide pre-finished or field finish by sanding to level using successively finer sandpaper. Filler: Benjamin Moore Benwood Paste wood filler or approved equal. Natural finish: Stain and three coats Benjamin Moore Urethane as approved by Owner. (Pre-finished floor may be provided if approved by Owner and Architect).</p> <p><b>F. TRANSITION STRIPS:</b> Provide submittal for transition strip to be used at junction or edge of all dissimilar flooring materials.</p> <p><b>G. EXTERIOR PAINTING:</b> Exterior siding and trim - 2 coats semi-transparent stain. Three colors to be used as approved by Owner and Architect. Provide the first coat to siding and trim prior to installation. Exterior metal surfaces - 2 coats oil base paint as approved by Owner and Architect. Provide sample for owner and architect approval. Exterior flashings – prefinished flashing.</p> <p><b>H. CAULKING:</b> Provide caulking at all baseboard trim and wall junctures and between all standing and running trim and wall junctures.</p> <p><b>I. INTERIOR PAINTING:</b> All colors and finishes to be approved by Owner and Architect. Refer to room finish schedule for locations of colors.</p>	<p>Drywall (dry areas) - Two coats eggshell finish latex paint. Colors as selected by Owner.</p> <p>Drywall (wet area) - Two coats semi-gloss latex enamel (washable)</p> <p>Wood doors and trim - Stain and two coats sealer.</p> <p>Exposed Beams and Timbers - Stain and two coats sealer.</p> <p>Windows and Jamb Extensions - Stain and two coats sealer to match trim.</p> <p>Interior Metal - Polish and clear seal.</p> <p><b>X. SPECIALTIES:</b></p> <p><b>GAS STOVE AT LIVING ROOM</b> – 'Napoleon' 28" Havelock direct vent gas heating stove. Provide natural gas logs and remote controller. Provide all related equipment as required by Building Department. See details. Provide combustion air kit. Coordinate all options with Owner. Install all in strict accordance with manufacturer's recommendations.</p> <p><b>B. TOILET &amp; BATH ACCESSORIES</b> – Provided backing blocking as required for toilet and bath accessory installation. See Cash Allowances. Provide submittal. Coordinate with interior design, dark bronze rustic accessories. Verify with Owner.</p> <p><b>C. MIRRORS</b> – 1/4" polished plate glass w/ detailed wood trim. Coordinate frames at all interior vanity mirrors with Owner.</p> <p><b>XI. EQUIPMENT:</b></p> <p><b>A. APPLIANCES</b> - Appliances are to be selected and verified with the Owner. See Cash Allowances. General Contractor to supply pricing information to Owner so that it may be decided who will purchase appliances. Installation shall be by General Contractor. Verify the appliance requirements with Owner prior to rough-in requirements for appliance work. Provide submittal for information to the Architect.</p> <p><b>KITCHEN / LAUNDRY:</b> (Verify all finishes and details for appliances)</p> <p>(1) 36" Refrigerator with icemaker</p> <p>(1) 48" Range</p> <p>(1) 24" Dishwasher</p> <p>(1) 30" Microwave</p> <p>(1) Garbage disposal</p> <p><b>LAUNDRY:</b></p> <p>(1) Front load Washer</p> <p>(1) Front load Dryer</p> <p><b>XII. FURNISHINGS:</b> - None - N.I.C. by Owner.</p> <p><b>XIII. SPECIAL CONSTRUCTION:</b></p> <p><b>A. STEAM SHOWERS</b> - Provide prefab 'Aquaapeutics' or equal at (2) showers, 60"x40" install in strict accordance with manufacturer's requirements. Provide submittal.</p> <p><b>B. SPA (HOT TUB)</b> - Provide 8'x8' prefab as selected by Owner. Provide 220V 50 amp dedicated circuit on exterior wall adjacent to hot tub. Provide lockable 'Tip Top' cover per code requirements. Provide submittal.</p> <p><b>XIV. CONVEYING SYSTEMS:</b> None</p> <p><b>XV. MECHANICAL:</b> (See DMCE plans for more detailed information)</p> <p><b>A. PLUMBING</b></p> <p>1. General: Provide submittal for all plumbing work as outlined below prior to any plumbing work.</p> <p>Pex domestic water piping by Rehau may be provided as an alternate if approved in writing by the Owner. Provide copy of approval to Architect.</p> <p>Pex piping may introduce harmful chemicals into domestic water. Copper piping is recommended for cold water supply to kitchen sinks and bathroom lavatories</p> <p>2. Water Supply - Domestic well Individual water well as approved by the State of Colorado and Summit County. Provide wellness check for well casing, submersible pump, pitless adapter, 1 1/4" soft copper piping to mechanical room and pressure tank. Provide complete and operational system. Verify water quality with written water quality report for review by Owner and Architect. All connections, labor and materials to be paid for by General Contractor. Provide Bid Alternate for 'Water Cop' motorized safety shut-off water.</p> <p>3. Domestic Cold Water Piping: Provide Type "L" copper piping throughout. Provide plumbing riser diagrams for Architect approval. Insulate cold water pipes with 1 1/2" Armaflex insulation to protect from heat gain from warm water piping. Provide for landscape irrigation system.</p> <p>Domestic Hot Water Piping: Provide "Type L" copper piping throughout. Provide plumbing riser diagrams for Architect approval. Provide 1/2" Armaflex insulation on hot water piping. Provide hot water recirculating pump with aquastat timer control for hot water circulation. Provide air hammer arrestors as required.</p> <p>5. Gas Piping: Provide threaded black pipe natural gas piping or code approved plastic piping to mechanical room and other areas as indicated on the drawings per code and Xcel Energy requirements. Provide gas meter per the location indicated on the drawings. Provide outlets as shown on the drawings.</p> <p>6. Sanitary Sewage: Septic System - Provide complete septic system per detailed drawings as approved by Summit County Environmental Health Department and as provided by septic engineer. Locate field to protect trees as directed by Architect). See septic engineering design by Littlehorn Engineering. Copies available from Architect.</p> <p>7. Plumbing Fixtures/Fittings: Provide complete submittal prior to any plumbing work. All plumbing fixtures and fittings are to have submittal reviewed by Owner before final ordering. Fittings to be per Cash Allowances. Colors from Kohler standard colors. See plans for fixtures and fittings to be provided.</p> <p>Note: Verify with Owner all options, accessories, and finishes prior to ordering. See room finish schedule for additional information.</p> <p>8. Wall Hydrants: Freeze proof Woodford #25CP 24" length wall hydrants as shown on the plans, with separate shut-off valve with access panels. Provide independent shut-off valve for all wall hydrants located in an accessible area such as under cabinet. Provide flush access panel if appropriate. In other areas provide access with appropriate access panel finished to match adjacent surface.</p>	<p>9. Floor Drains: Provide Wade, Zurn, or Josam (or equal) floor drains as shown on plans. (route to daylight). Provide submittal.</p> <p><b>B. HEATING SYSTEM</b> (See DMCE plans for more information)</p> <p><b>UNDER-FLOOR RADIANT:</b></p> <p>1. Provide submittals and complete shop drawing information for radiant staple-up heating system, as indicated on the drawing, to include the following:</p> <p>a. Building heat loss calculations.</p> <p>b. Heat transfer piping layouts and specifications.</p> <p>c. Supplemental heat specifications as required.</p> <p>d. Unit sizes/model numbers/manufacturer for boiler with specifications.</p> <p>e. Pump information and specifications.</p> <p>f. Zone valve information and specifications.</p> <p>g. Intake air and exhaust requirements.</p> <p>h. Boiler piping locations/layout and control specifications.</p> <p>i. Thermostat submittals and specifications.</p> <p>j. Flue size/requirements.</p> <p>k. Gas pipe size/requirements.</p> <p>l. High recovery hot water storage tank specifications.</p> <p>m. Other pertinent information.</p> <p>Provide complete submittal information, including manufacturer's cut sheets, and obtain Architects approval PRIOR TO ANY WORK.</p> <p>2. Equipment – Manufacturer – Viessmann, Laars/Buderus, Triangle Tube or approved equal. Direct-vent high-efficiency, Hot water boiler(s) natural gas with direct vent flue venting system. Size and number of units in accordance with manufacturer specification and sizing information. Contractor shall submit proposed equipment layout and verify space and clearance requirements with manufacturer prior to framing work by General Contractor. Install in strict accordance with manufacturer's recommended details. Submit complete spec data PRIOR TO ANY WORK.</p> <p>3. Controls - Manufacturer - Provide all necessary controls for a complete and operational system. Locate thermostats on interior walls above switch plates.</p> <p>4. Zones - Locate thermostats on interior walls above switch plates. Provide heating zones for each floor as shown on the drawings. Provide hot water heater "sidearm" zone. Verify locations with Owner/Architect prior to installation. Install shut off valve on each side of each zone valve.</p> <p>5. Other Mechanical Equipment – Provide 80-gallon gas fired hot water heater. Include in the shop drawings. Provide optional hot water circulating pump with disconnect switch for recirculating system. Install pumps to minimize vibration through structure. Provide submittal.</p> <p>6. Piping - Copper piping for hot water supply to Vanguard or equal cross-linked, polyethylene tubing and recommended fittings and components.</p> <p>7. Range Hood and Make-Up Air System – see bid alternates. (Verify with Owner) Provide variable speed CFM range hood, as selected by Owner, vented to exterior per manufacturer recommendations. Provide Variable CFM Make Up Air unit with controls integrated with range hood control. Provide exterior air intake with weighted damper and heating coil. Duct 2/3 of makeup air to hood location and 1/3 to floor or side wall grill under/behind refrigerator. Provide Submittal. Provide Make-Up Air unit per code.</p> <p>8. Additional Information - Boilers to be installed by certified installer in accordance with manufacturer's recommendations. Insulate all hot water supply and return lines with 1/2" Armaflex insulation or equal.</p> <p>9. Ductwork - Provide ductwork for dryer and range vent hood. Provide duct work for bathroom and laundry exhaust fans to exterior. Provide duct work as required for combustion air to fireplace. All ducts to be metal. Provide submittals as required.</p> <p>10. Ventilation System – (Verify with Owner) Provide ERV and/or HRV system by Venmar AVS in size appropriate for size of home. Provide submittal. See plans. Provide remote control wiring and push button wall control. System to include cleanable filters, intelligent flow dampers and exterior vent louvers. Coordinate fan coil connection with boiler system. Locate unit centrally and not in mechanical room or garage. Provide well distributed small duct supply via horizontal unit with plenum duct systems and 2" sound attenuated tubing system. Install in strict accordance with manufacturer's requirements.</p> <p>11. Additional Ductwork – Provide ductwork for hoods, equipment, exhaust fans and dryer vents to exterior. Coordinate locations with Architect prior to installation. Provide ductwork as required for combustion air to stove. All ducts to be metal. Provide back draft dampers at all exterior locations.</p> <p><b>XVI. ELECTRICAL:</b> (See DMCE plans for more detailed information)</p> <p><b>A. GENERAL</b> - The electrical contractor shall provide PRIOR TO ANY WORK electrical load calculations including service one line diagram for Architect approval. In addition, the electrical contractor shall provide panel schedules, equipment information, and complete electrical submittals for the Architect within 30 days of the awarding of the Contract.</p> <p><b>B. ELECTRIC SERVICE</b> - Provide 120/240 single phase power as approved by Xcel Energy of Colorado. The Contractor shall coordinate this work and pay for the cost of all work from the transformer to the house. The electrical contractor shall pay for electrical permit fee and other required fees and permits, if any. The electrical contractor shall be responsible for running the power from the transformer to the building as approved by the utility company. Provide aluminum service wiring and copper circuit wiring throughout. One electric meter shall be provided. Provide 14 KW generator with automatic transfer switch (coordinate scope with owner).</p> <p><b>C. ELECTRICAL FIXTURES</b> - Provide outlets, switches and plate covers throughout the project of "Decora" design, with built-in dimmers where shown. Install fixtures per manufacturer's requirements and locate fixtures to illuminate all spaces and all stairways per code requirements. (Verify color with Owner and Interior Designer.) Provide new lamps for all fixtures. Provide cut sheets and detailed submittal for Architect approval prior to ordering any materials. Provide ceiling fans as shown and as verified with Owner. See cash allowances.</p> <p>All recessed cans within thermal envelope to be flush LED "PUCK" lights halo SLD4xWH series, or Juno Basics Series surface mounted LED fixture (www.junolightinggroup.com). Verify size and color with owner.</p> <p>See room finish schedules for additional information.</p> <p><b>D. HOME AUTOMATION SYSTEM</b> – Consult with Owner to provide submittal for scope of Crestron Home Automation System.</p>	<p><b>E. TELEPHONE SYSTEM</b> – Provide for three separate incoming lines (one dedicated line for computer modem/fax machine). Provide separate line from each telephone to central system control panel. Verify with Owner. Per Qwest representative (970) 940-4530. Confirm before installing. Provide structured bundled cable for all telephone and T.V. outlet locations. (See F. below.) All phones to home run to phone/TV panel.</p> <p><b>F. CABLE TV</b> – Install as shown on plans and per local Cable Company requirements. Provide structural bundled cable to each T.V. outlet. Structural cable shall include (2) CATV runs and (2) RG6 coaxial cables. Installation to be complete and ready for turn on by Cable T.V. operator at request of Owner. All cable to home run to phone/TV panel.</p> <p><b>G. HOME ENTERTAINMENT/SOUND/INTERCOM/STEREO SYSTEM</b> - Provide submittal for Architect's review from Owner's selection of pre-wire as available through contractor approved by Owner. Supplier to meet with Owner prior to submittal. Coordinate with telephone and cable T.V. systems.</p> <p><b>H. WIRELESS INTERNET</b> – Verify with Owner. As approved by Owner, provide complete wireless internet system for entire home. Provide submittal. Provide conduit for satellite dish installation from south roof area to telephone/T.V. control board.</p> <p><b>I. OTHER EQUIPMENT</b> – Special Outlets – see drawings Door Bells – see drawings Smoke Detectors/Carbon Monoxide - Shall be installed in all sleeping rooms and all other locations as indicated on drawings and per code requirements. Equipment shall be wired into building electrical system and also contain battery backup per code requirements. Install batteries and test all detectors prior to project completion. Smoke detection system engineered and designed by electrical subcontractor and approved by local jurisdiction.</p> <p><b>J. SECURITY, FIRE, and LOW TEMPERATURE PROTECTION</b> - Provide submittal for Architect's review from Owner's selection of security system with motion detectors and integrated low temperature alarm and heat detected fire monitoring system. Coordinate with "Water Cop" motorized water valve system if included in project.</p> <p><b>K. SATELLITE DISH</b> – Verify with Owner. Owner shall coordinate installation requirements with Contractor. Contractor to provide in his base bid PVC conduit from dish location to A/V equipment location at central control panel. See roof plan for location.</p> <p><b>L. BATH &amp; LAUNDRY EXHAUST FANS</b> – Panasonic "Whisper Lite" ceiling mounted fan or fan/light combination. Some rating to 1.5 or less. Provide submittal along with other electrical fixtures.</p> <p><b>M. WATERPROOF OUTLETS</b> – Provide GFI protected exterior electrical outlets in soffits or roof headwalls and at all downspout nozzles as shown on the plans for future heat tape installation.</p> <p><b>N. HEAT CABLE</b> – If provided, provide "Sno-Trace" No. RGS-1 by Thermon, (800) 730-4328, or equal, to be coordinated for installation with gutters, and thermostatically controlled downspouts, as located on the plans.</p> <p><b>O. ADDITIONAL INFORMATION</b> - Installation of all electrical work shall comply with all local codes, rules and regulations and the latest edition of the National Electrical Code. Install site cable TV and telephone per Xcel Energy shared utility trench agreement.</p> <p><b>END OF SPECIFICATIONS</b></p>
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ISSUED FOR CONSTRUCTION:  
10.16.23

**bhh** Partners of COLORADO  
560 ADAMS AVENUE SILVERTHORNE, CO 80498 (970) 515-1000

**HOLOMBO RESIDENCE**  
0039 LODESTONE TRAIL, BLUE RIVER, COLORADO 80424 (LOT 532, THE CROWN SUBDIVISION)

© 2023

SHEET NUMBER:

**A-5.3**  
OUTLINE SPECIFICATIONS

GENERAL

- DESIGN LIVE LOADS: Snow=100psf, Floor=40psf, Wind 115mph (3 Second Gust) Exposure C, Seismic Zone B
- RESPONSIBILITY: The contractor is responsible for cross referencing all plans and inspecting work placement at the site to assure that no omissions or discrepancies exist that might adversely affect construction or the integrity of the finished product. Job site and construction safety are not addressed in these plans and are the responsibility of the contractor. These responsibilities are industry standard.
- These plans are intended to be in accordance with 2018 IBC and IRC codes. All construction to be in conformance with these codes.

FOUNDATION

- Foundation designed in accordance with an ASSUMED Maximum allowable soil bearing pressure = 2500 psf, 0 min. Proper authorization of these assumptions are the responsibility of the owner.
- We recommend a soils engineer verify during excavation (and before construction of any part of the foundation) that soils types and conditions match those assumed above.
- Remove topsoils, organic material, and any questionable material below pads and footers. All pads and footings exposed to frost must maintain the required 48" frost depth. Minimum pad thickness = 12". The footing elevations of this design are indicated in economical relation to architectural elements. Proper soil bearing and/or the soil report may require lower footings.
- Drainage and grading details to divert surface drainage at least 10' away from the structure. Do not backfill against any foundation or retaining wall until all supporting floor and slab systems are in place and securely anchored, or other adequate wall support is provided.
- Where exterior backfill rises above any adjacent floor, use granular free draining backfill from drain tile up. Exterior backfill may be native inorganic material where final grade is below lowest floor (UNO). Before placing finish topsoil, we recommend capping backfill with a Mirafi fabric under 12"-24" of water impermeable material (e.g. clay).
- Provide 4" diameter perforated PVC drain tile in a 12" by 12" gravel envelope at lowest levels of and perimeter of excavation sloped a minimum of 1/8" per foot to an adequate daylighting drain. Provide cleanouts and screen end. Mirafi or other filter barriers will help prevent drain clogging. Test drain tile before and after backfilling.
- All construction and materials to conform with ACI 318.
- Reinforcing bar to be deformed 60 ksi steel (per ASTM A-615). Lap all rebar splices and corners 38 bar diameters minimum.
- Concrete supplier to provide mixes that replace 20% of portland cement with recycled fly ash from local coal burning power plants.
- Minimum concrete 28 day compressive strength = 3500psi for walls, footers, and pads, and 4000psi for slabs.
- Concrete cover: Concrete cast against and permanently exposed to earth: footing, pad = 3". Concrete exposed to earth or weather: walls, slabs = 1.5"
- Consolidate concrete per ACI 309. Cast in place concrete shall be poured continuously so as to prevent cold joints.
- Provide 1/2" diameter by 10" min anchor bolts at 24" on center with an embedment of 7" to connect framing to foundation (UNO). Anchor bolts to be located not more than 12" from foundation corner (TYP). Use galvanized anchor bolts with pressure treated plates. Finish all concrete wall tops to within 1/8" of specified elevations.
- Foundation insulation and waterproofing to be specified and installed in accordance with the above mentioned soils report, IRC, local codes, and accepted construction practice.
- Do not use foam form systems without approval of Engineer.
- Provide slab shrinkage reinforcement of 6x6xW1.4 welded wire mesh with 2" laps. Exterior slabs to be 5" minimum thickness with #3 rebar at 12" on center each way as reinforcement.
- Slab surfaces to be left free from trowel marks, uniform in appearance, and with a surface plane tolerance not exceeding 1/8" in 10'0" when tested with a 10' straightedge.
- Provide 1" deep tooled (or cut) control joints at approximately 10' on center in each direction.
- Provide 1/2" expansion joint material at all slab to wall, footing, or column interfaces. Provide a 6 mil poly barrier under all interior slabs for moisture protection and as a bond breaker. Provide an approved hardener and sealer to the surface of all slabs.
- If foundation is to sit through winter without complete framing, we recommend the building achieve enough backfill, framing, and floor sheathing to protect foundation bearing soils from moisture accumulation and frost heave.

- TYPICAL ABBREVIATIONS**
- BOGB = bottom of grade beam
  - BRG = bearing
  - CL = center line
  - E.E. = each end
  - E.M. = each member
  - E.S. = each side
  - E.W. = each way
  - GL = Glulam
  - HDR = header
  - LVL = Laminated veneer lumber
  - oc = on center
  - OF = overframe
  - OH = overhang
  - OPP SIM = opposite similar
  - PL = plate
  - PT = pressure treated
  - PSL = parallel
  - R.O. = Rough opening
  - SOG = slab on grade
  - STR = Structural
  - T.O. = top of
  - TOBL = top of brick ledge
  - TOF = top of footing
  - TOGB = top of grade beam
  - TOS = top of slab
  - TOSB = top of steel beam
  - TOW = top of wall
  - TYP = Typical
  - UNO = Unless noted otherwise
  - WS = steel web stiffeners

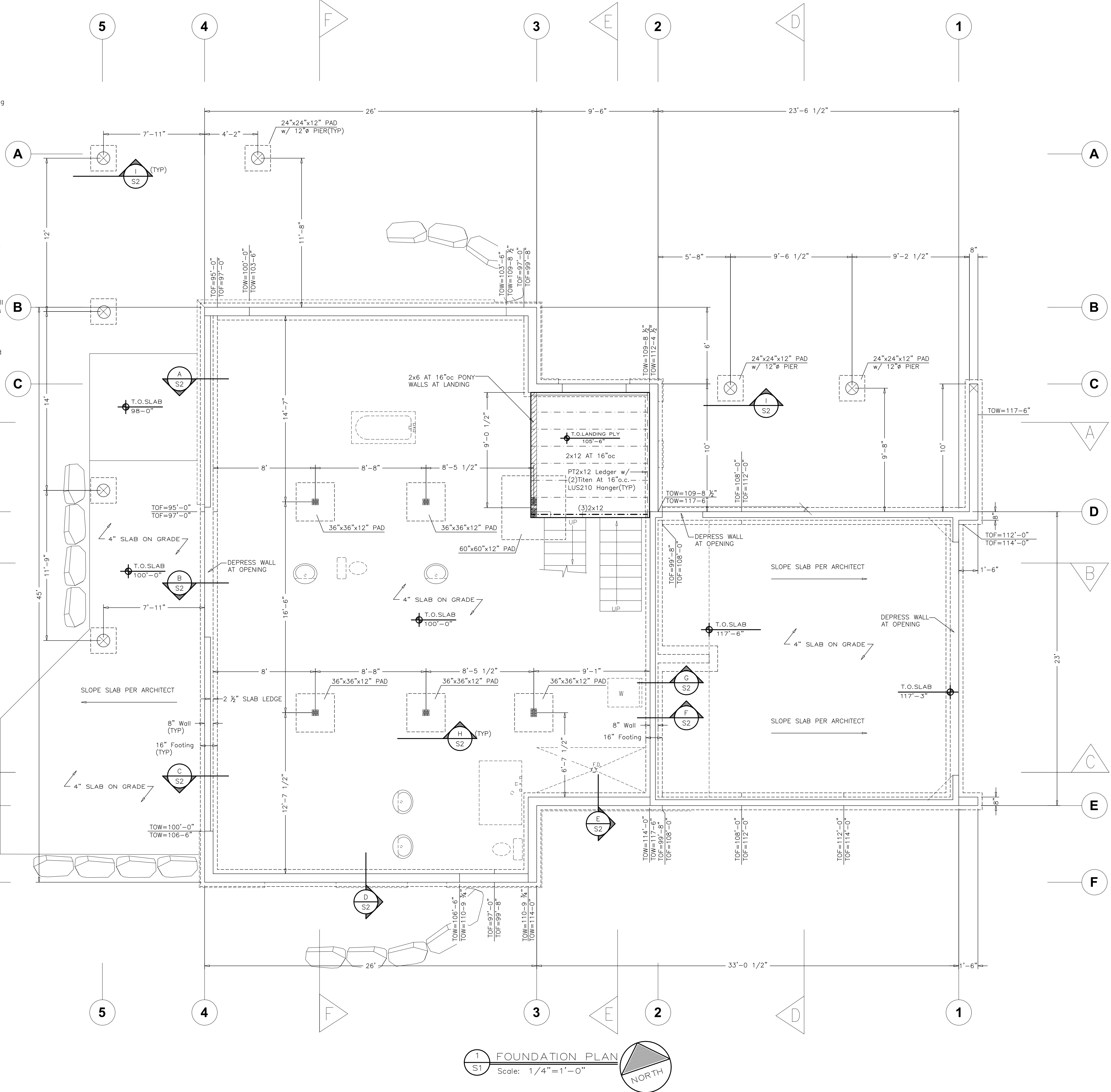
STRUCTURAL STEEL

- All structural steel shall conform to ASTM specifications A36 except pipe columns which shall conform to ASTM A53 Grade B, and steel tube columns which shall conform to ASTM A500 Grade B. Steel to steel member connection bolts shall be A325 steel and miscellaneous wood embedded items shall be A36 steel.
- Steel column base plates shall bear evenly to concrete below via 4000 psi non shrink grout.
- Minimum welds to be per AISC and/or AWS, but not less than 3/16" continuous fillet unless otherwise noted. Welding quality control shall be per AWS. All welders shall have evidence of passing the American Welding Society Woodwork Qualifications Test as detailed in AWS D1.1.

WOOD FRAMING

- Framing plans show structural requirements only. Additional members may be required for blocking, nailers and code requirements.
- Use Douglas Fir or Hem Fir "stud grade" (S4S) 2x6 for all wall studs(UNO). Use DF#2 (S4S) or better for all multi-stud posts, joists, rafters, headers, posts, beams and plates. 2x6 & 2x4 at 16"oc. Framing(TYP)
- Sill plates and any other lumber in direct contact with concrete- California Foundation Grade Redwood or Species Group B Pressure Treated Lumber. Use galvanized anchor bolts with pressure treated plates.
- Glulams (GL)- 24F-V8 manufactured in accordance with AITC 117-84, fb=2400psi. OK to use 24F-V4 for simple span applications only. All Glulams used in exterior applications must be sealed and protected from moisture with an appropriate preservative.
- Laminated Veneer Lumber (LVL)- manufactured in accordance with APA criteria. fb=2600psi.
- Timbers- Douglas Fir (DF) Grade specified on plan- #1 Fb>1300psi, #2 Fb>850psi.
- Exterior Wall Ply- 7/16" OSB APA rated 24/16 min with 8d's @6"oc edge, 12" oc field. Manufactured in conformance with APA PS 1-83. Floor Ply- 3/4" T&G OSB APA rated 24/0 minimum, 8d's @6"oc edge, 10"oc field. Glue to joists. Roof Ply - 5/8" OSB APA rated 40/20 minimum, 8d's @6"oc edge, 12"oc field.
- Roof Trusses- 100 psf snow load, 24"oc. Truss design and fabrication by others. No drop top gable truss adjacent to scissor truss without approval of Engineer.
- Maintain 6" clearance between untreated wood or siding and soils at finish grade.
- 1/2" Plywood sheath 100% all exterior frame. Ply to lap floor rim, top plates and sill plate.
- All floor and roof plywood place with 8' dimension perpendicular to framing with end joints staggered.
- All load bearing headers in 2x6 wall (2)9.5" LVL insulated header; in 2x4 wall (2)2x10, (UNO).
- Provide 2 studs under each end of all load bearing beams or headers >38"(UNO). (1)King stud min.(UNO)
- Multiple stud posts anticipate 2" min wall sections preventing buckling. Verify new adjacent openings with engineer.
- Studs removed for doors and windows shall be placed equally at the end of headers, up to (2)king (full height) studs each end.
- Posts to stack over equal below (UNO). Trusses spanning >18' to stack over studs below (UNO). Provide end joint where studs above do not stack over studs below.
- Solid block all bearing walls and posts for continuity to foundation.
- Block all trusses, outlookers, rafters and joists at all bearing points.
- Where full height foundation wall parallel to joists, block 1st joist space @24"oc.
- Wall studs to be continuous from floor to floor, or floor to roof. Balloon frame all gable walls. Provide firestop blocking at 10' max intervals in any wall with studs over 10' height.
- Connect joists to blocking with a minimum of (2)10d nails and connect joists to plate or beam below with a minimum of (3)10d toenails. Connect rim to plate below with 10d toenails @6"oc.
- Nail exterior wall sole plate to joists below with (3)10d and to blocking, rim or end joist with 10d's @4"oc.

- Connect all BCI rafters to blocking with (3)10d nails, and to plate or beam below with (4)10d nails. Provide beveled bearing plate at interior bearing, birdsmouth cut at exterior bearing. Provide beveled web stiffeners at birdsmouth and regular web stiffeners at interior bearing. Strap BCI rafters across ridge with LSTA 18. Connect blocking to plate below with (3)16d toenails minimum. Refer to BCI Specifiers Guide roof details.
- Connect all 2x rafters to blocking with (3)10d nails, and to plate or beam below with (4)10d nails. Provide birdsmouth or seat cut bearing at all beams and wall plates UNO.
- Connect common trusses to all bearing points with Simpson H2.5 connectors (UNO). Scissor trusses connect one end with Simpson TC26. Connect to blocking with (3)16d nails
- Ventilate roof framing per local codes.
- Nailing, blocking, and all other construction details per 2018 IBC and IRC, such as Table R602.3(1). (UNO)
- All connector callouts to be Simpson Strong-Tie or equal by Simpson Strong-Tie Company, Inc. Install per manufacturer's instructions.
- TJ and MicroLam (ML) are products by Trus Joist MacMillan. Install per manufacturer's instructions. Multiple ML's glue and nail together with (2) rows 16d @12"oc (UNO).
- Steel beams pook out per detail where noted. Where not otherwise noted, provide 2x full width nailer on top with 1/2" Thru bolt at 24"oc staggered side to side of beam web. Where frame wall pocket prevents beam rolling, connect steel beam base to post or beam below with (2)5/8" Lags. Otherwise connect beam to bearing via welded "ears" i.e., flanges similar to Simpson CC. Provide 1/4" fitted web stiffeners at steel beam point loads and bearing points (UNO).
- Ply shear wall sheath both sides fully with 1/2" CD ply with 8d's at 4"oc edge, 12"oc field (i.e. block edges). Frame from floor ply to roof ply or floor ply to floor ply (or provide sleeper or blocking in rafter/joist level). Double studs at each end of shear wall connect to adjacent walls with (4)5/8" Lag bolt. At ply above connect to shear wall top plate with 10d's @4"oc. Connect bottom plate to floor ply with 8d's at 3"oc and glue. See plans for any holdown requirements.
- 5/8" Gyp shear wall sheath each side fully with drywall nails at 4"oc edges and field, block edges.
- If slab on grade is placed on expansive soils (i.e. minimum soil bearing required, see foundation note 1 above) all partition walls framed on slab to be slip jointed per soils report.



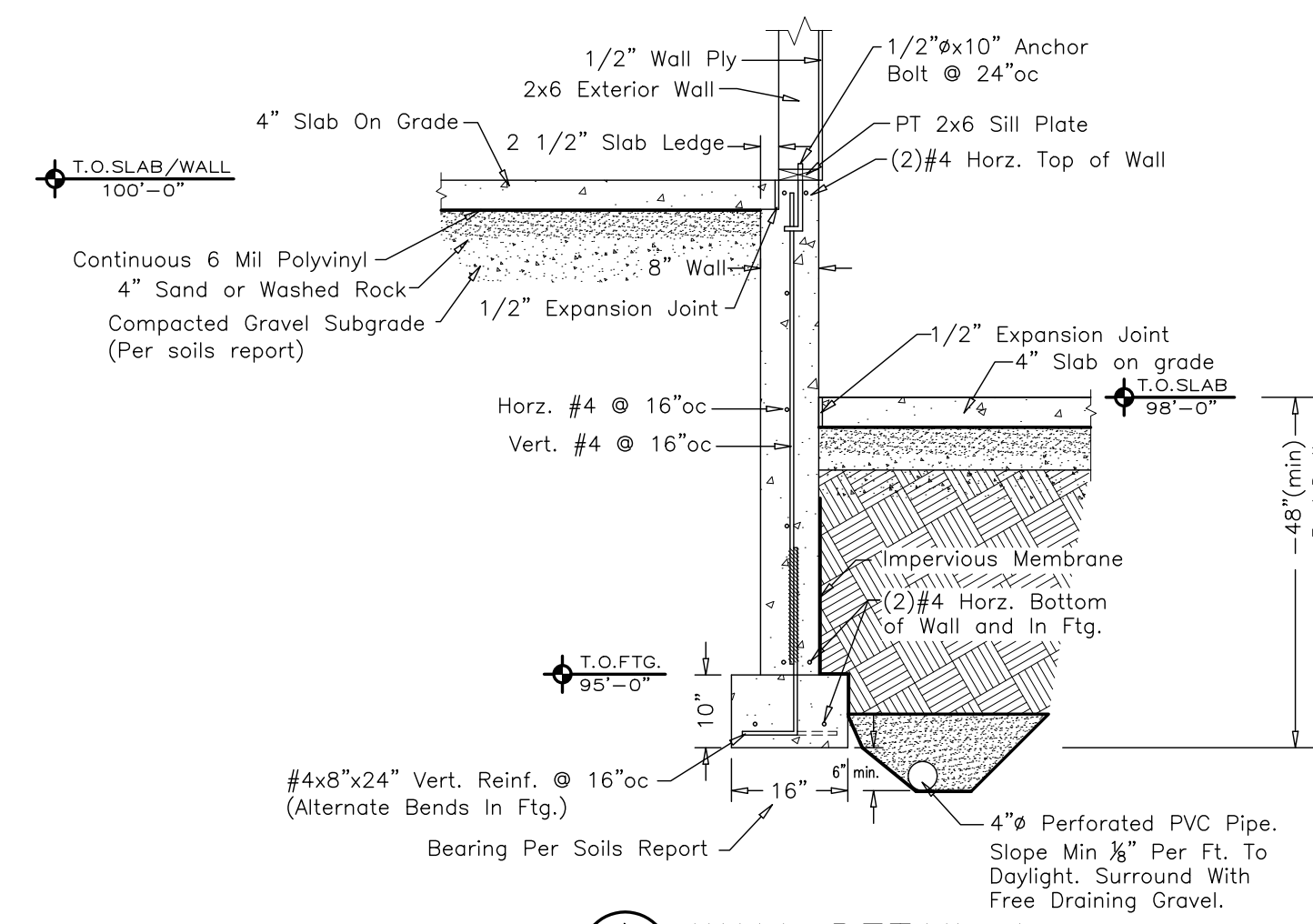
**ENGINEERING DESIGNWORKS, INC.**  
 1855 S. Tees Square, Unit E2C  
 Steamboat Springs, CO 80487  
 P.O. Box 775729  
 Steamboat Springs, CO 80477  
 info@engineeringdesignworks.com  
 PHONE: (970)879-4890

DATE: 10-16-23  
 JOB #: 2377  
 DRAWN: EDW  
 ENG: CW  
 REVISIONS: ---  
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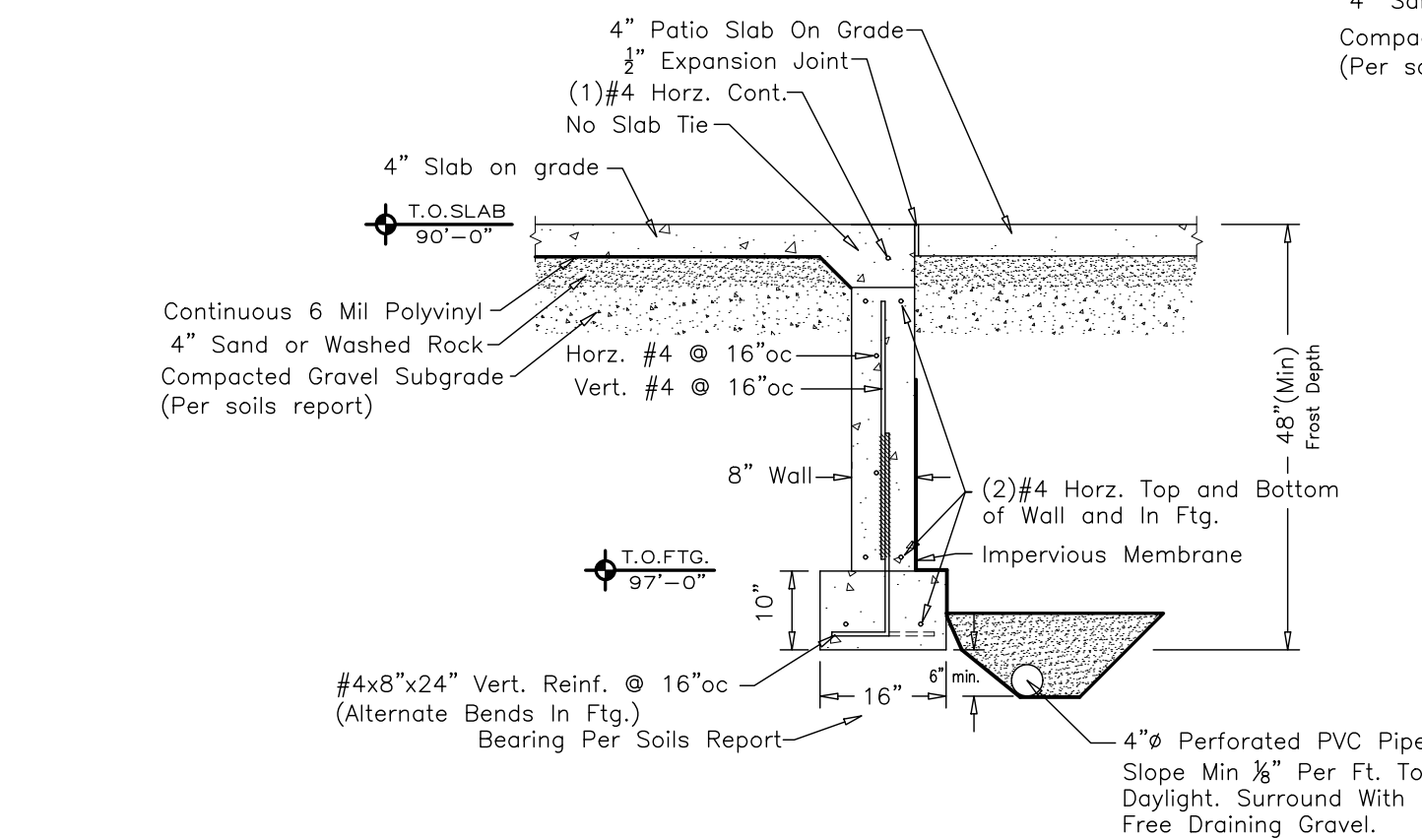
ISSUE: IFC

FOUNDATION PLAN for the proposed:  
**HOLOMBO RESIDENCE**  
 0839 LODGESTONE TRAIL  
 BLUE RIVER, COLORADO

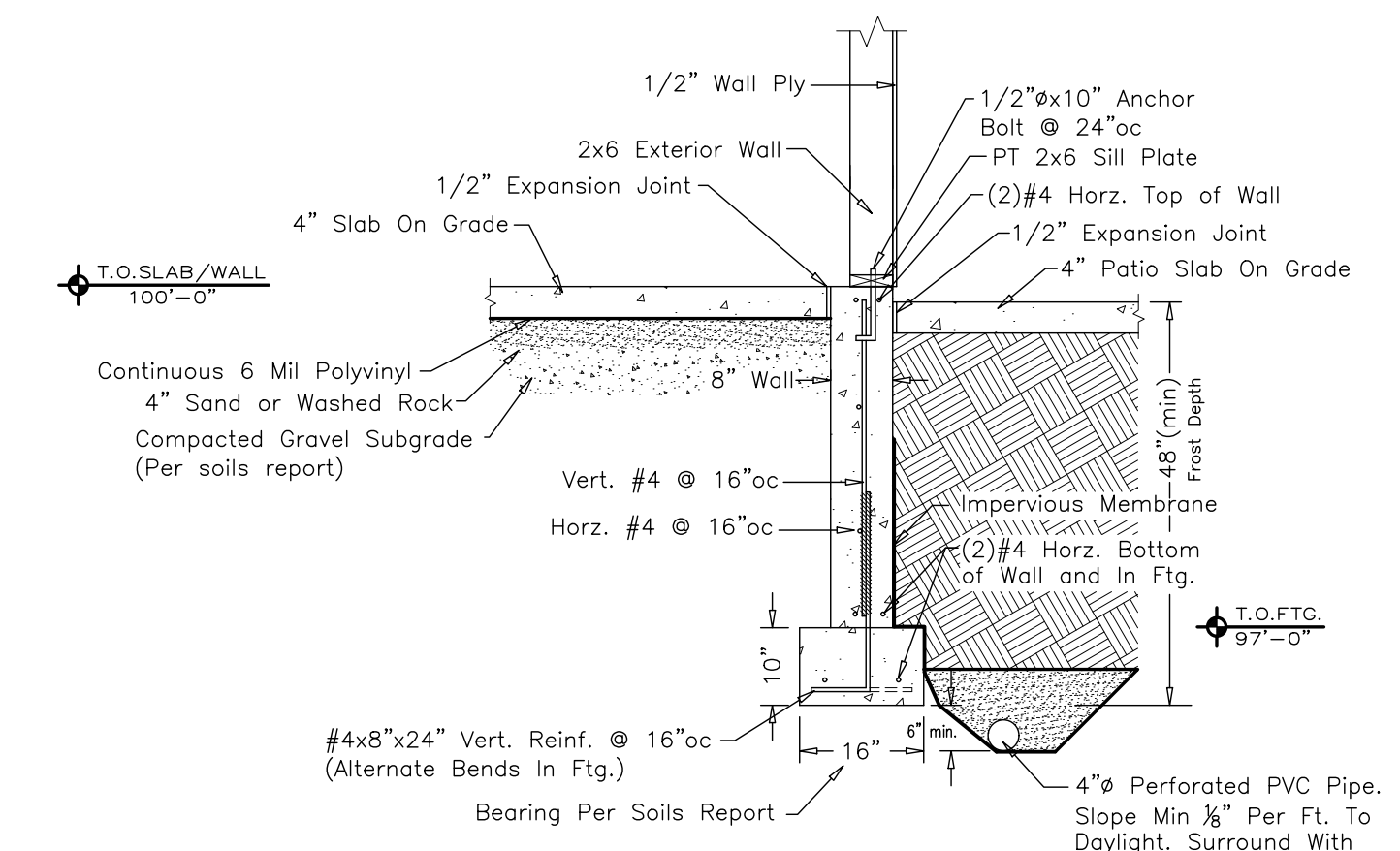
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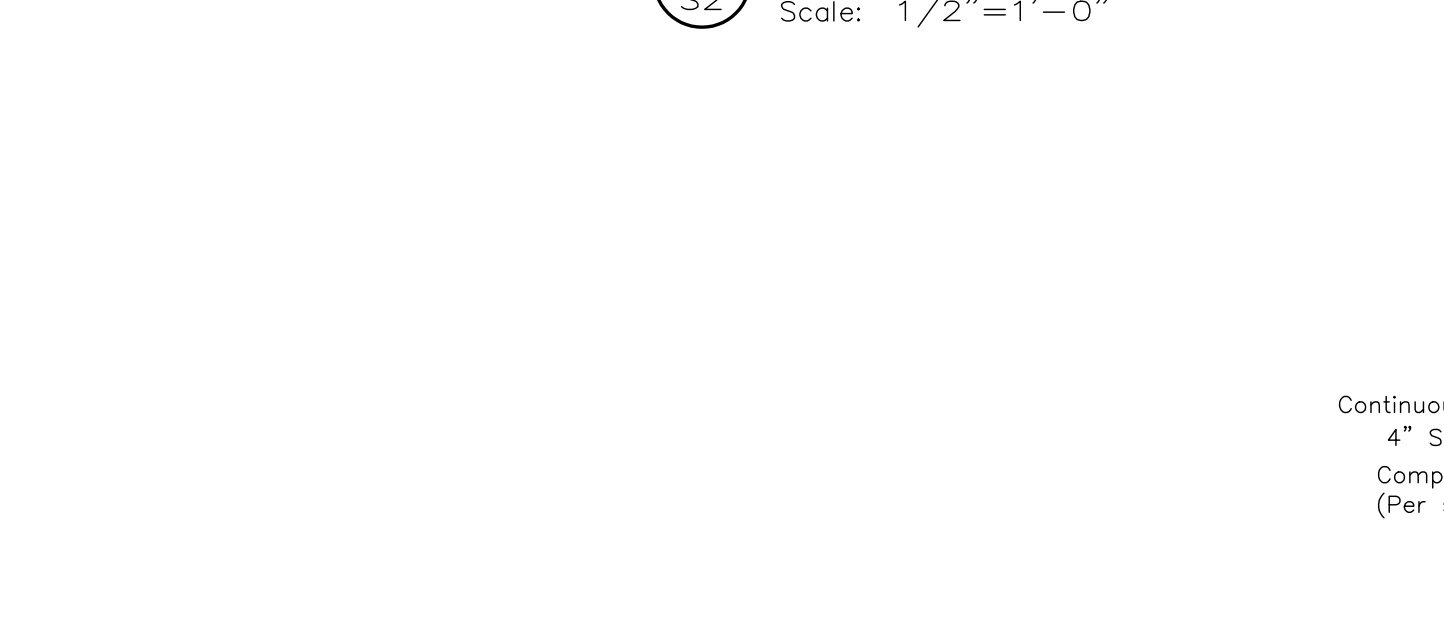
**A WALL DETAIL A**  
S2 Scale: 1/2"=1'-0"



**B WALL DETAIL B**  
S2 Scale: 1/2"=1'-0"



**C WALL DETAIL C**  
S2 Scale: 1/2"=1'-0"



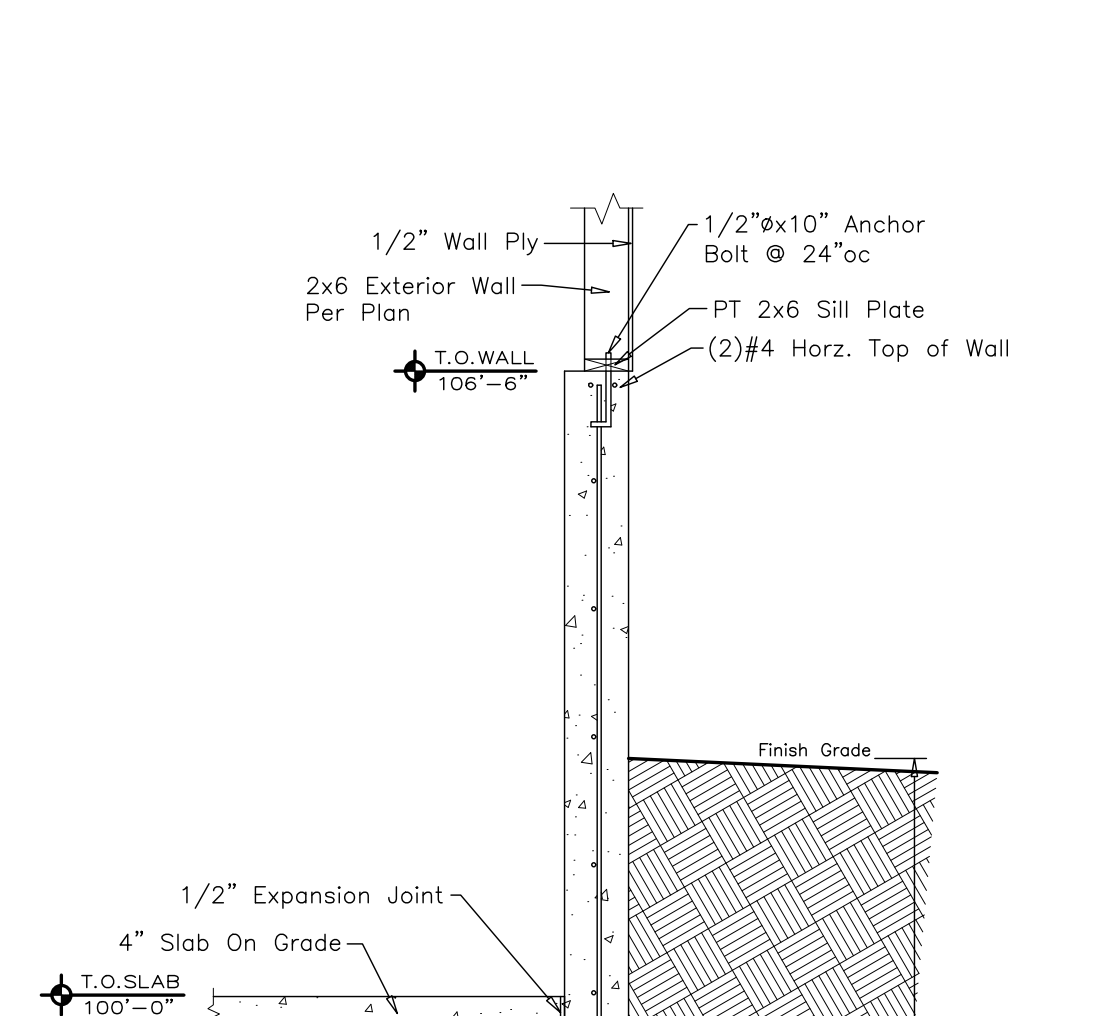
**D WALL DETAIL D**  
S2 Scale: 1/2"=1'-0"



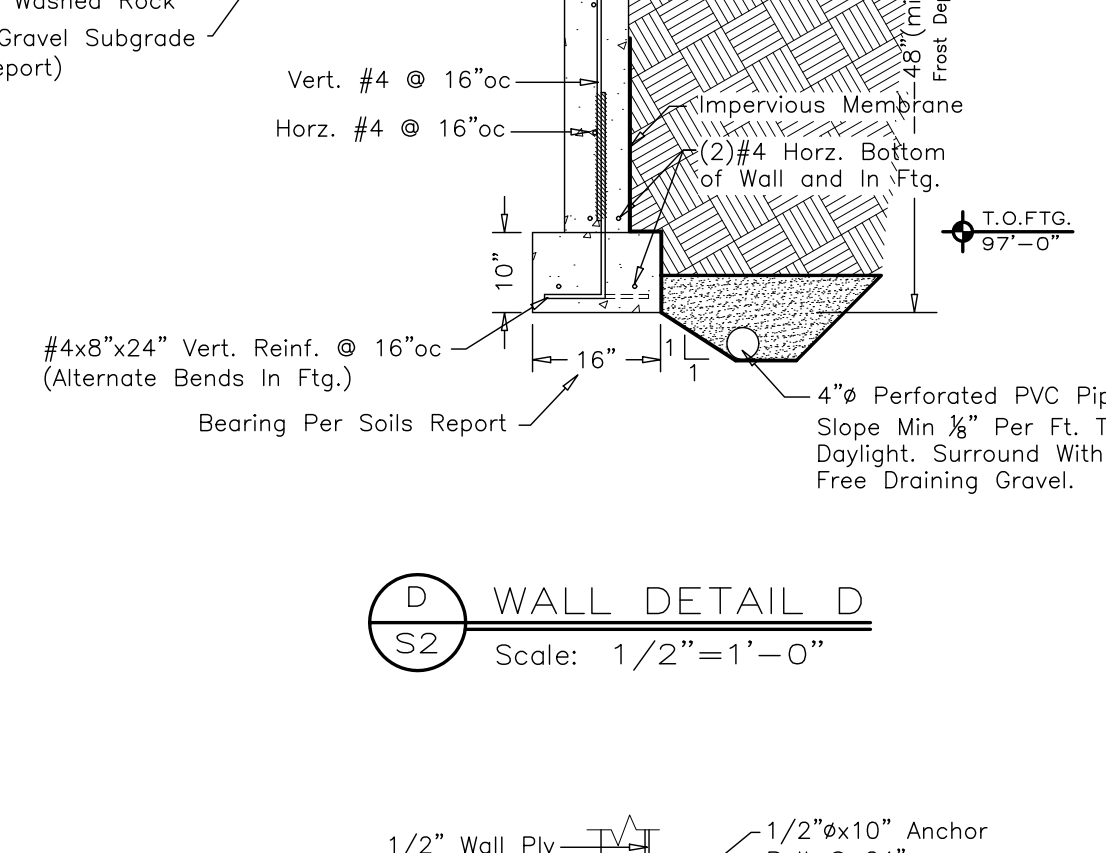
**E WALL DETAIL E**  
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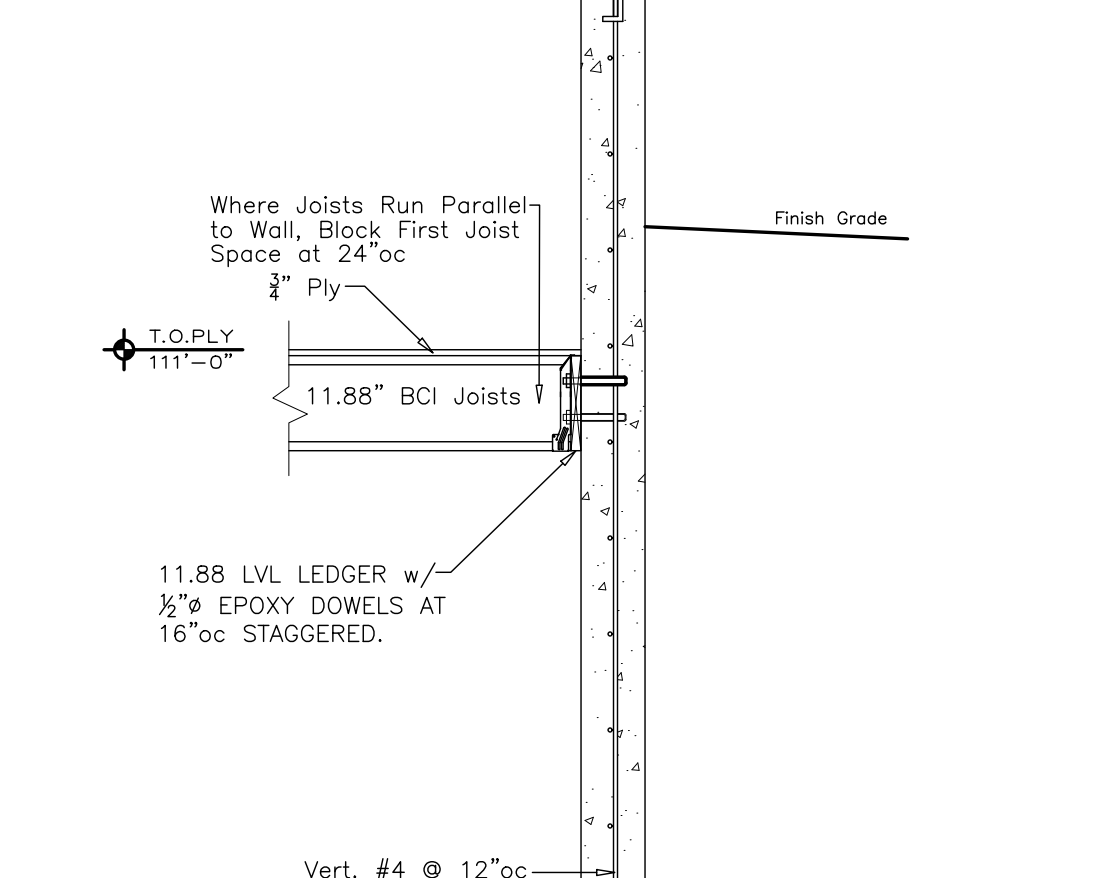
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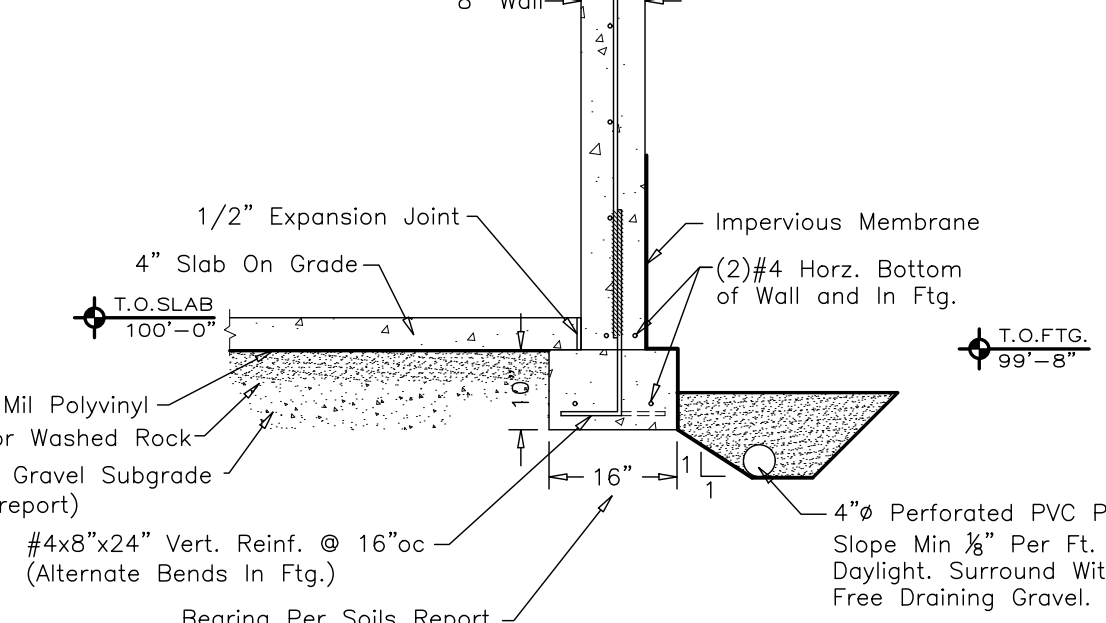
**G WALL DETAIL G**  
S2 Scale: 1/2"=1'-0"



**H WALL DETAIL H**  
S2 Scale: 1/2"=1'-0"



**I WALL DETAIL I**  
S2 Scale: 1/2"=1'-0"



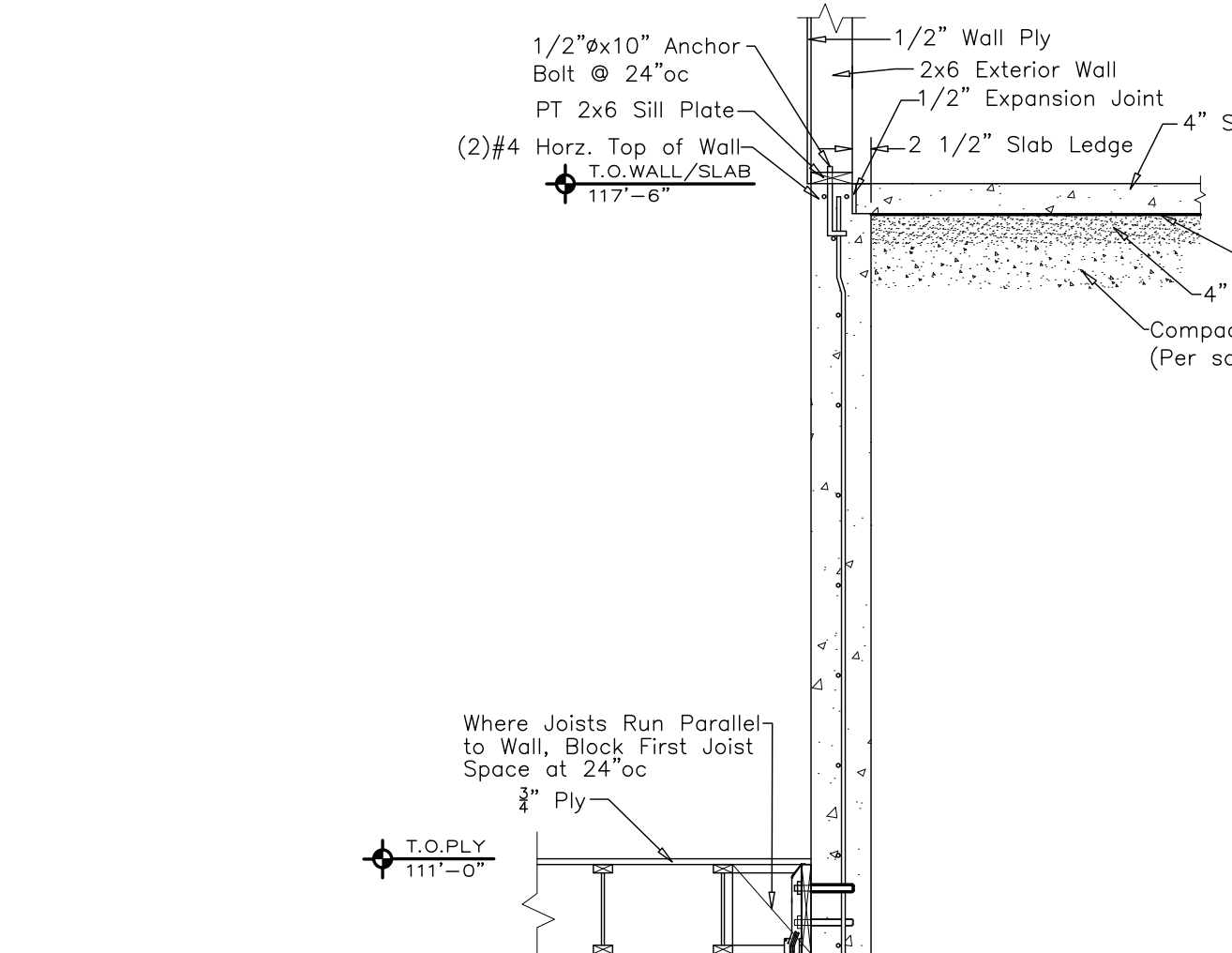
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S2 Scale: 1/2"=1'-0"



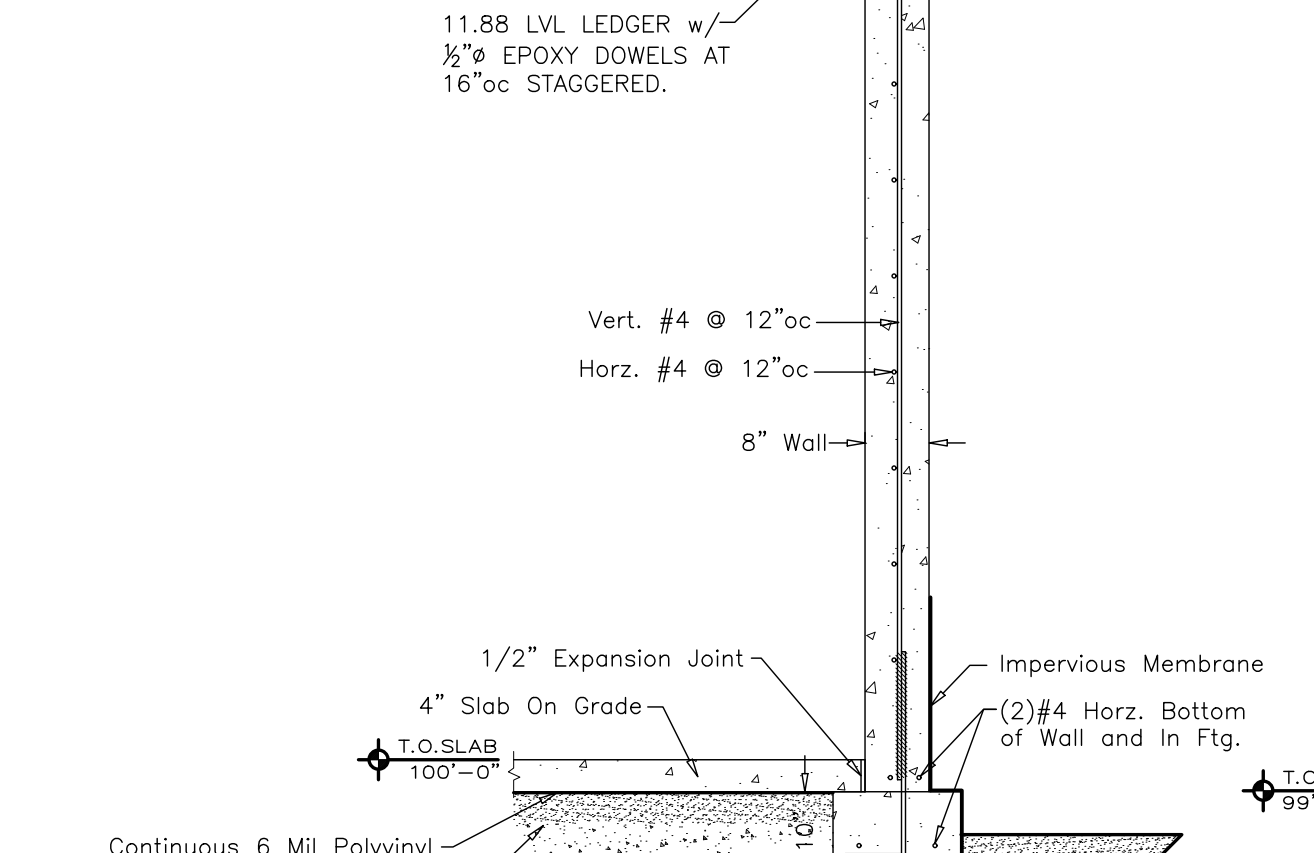
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S2 Scale: 1/2"=1'-0"



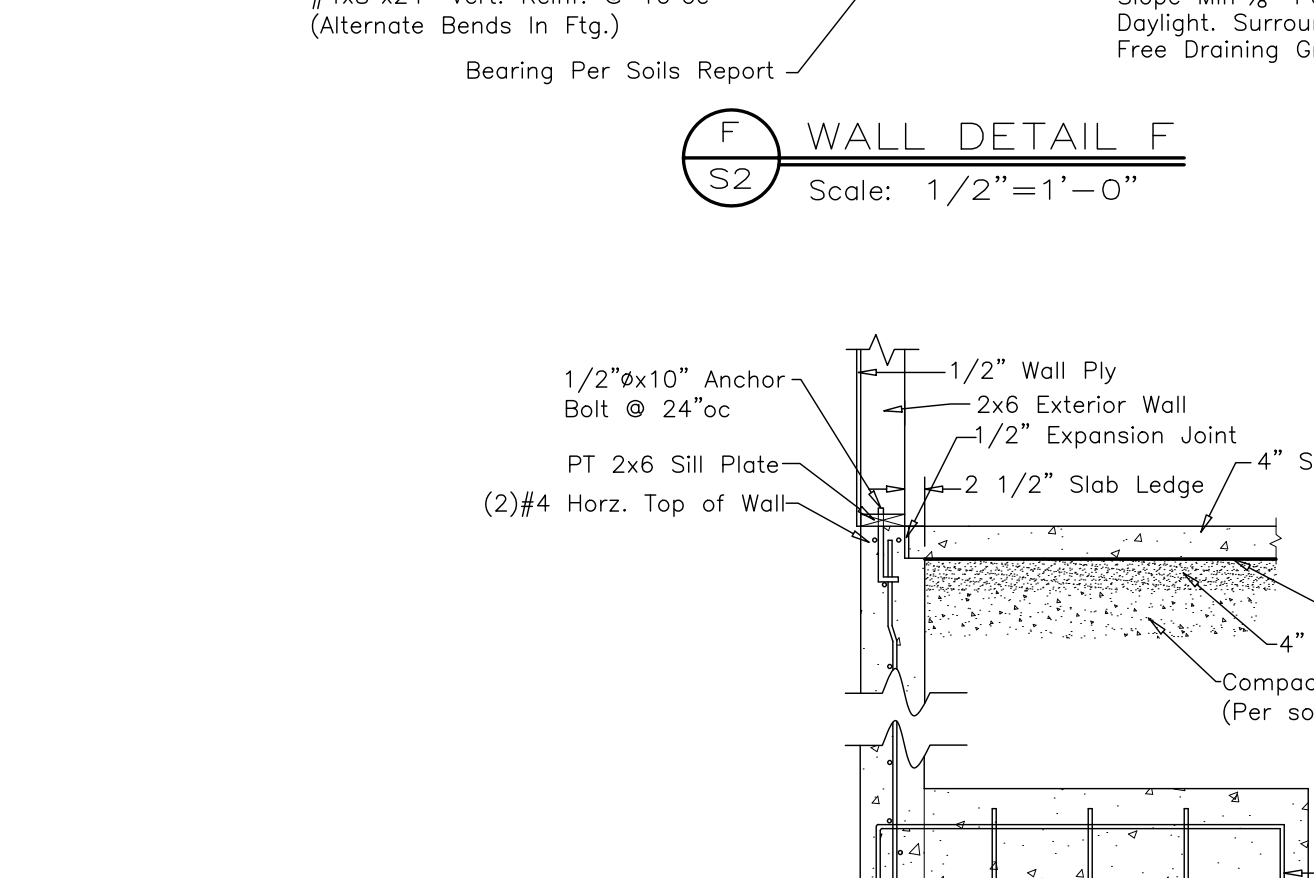
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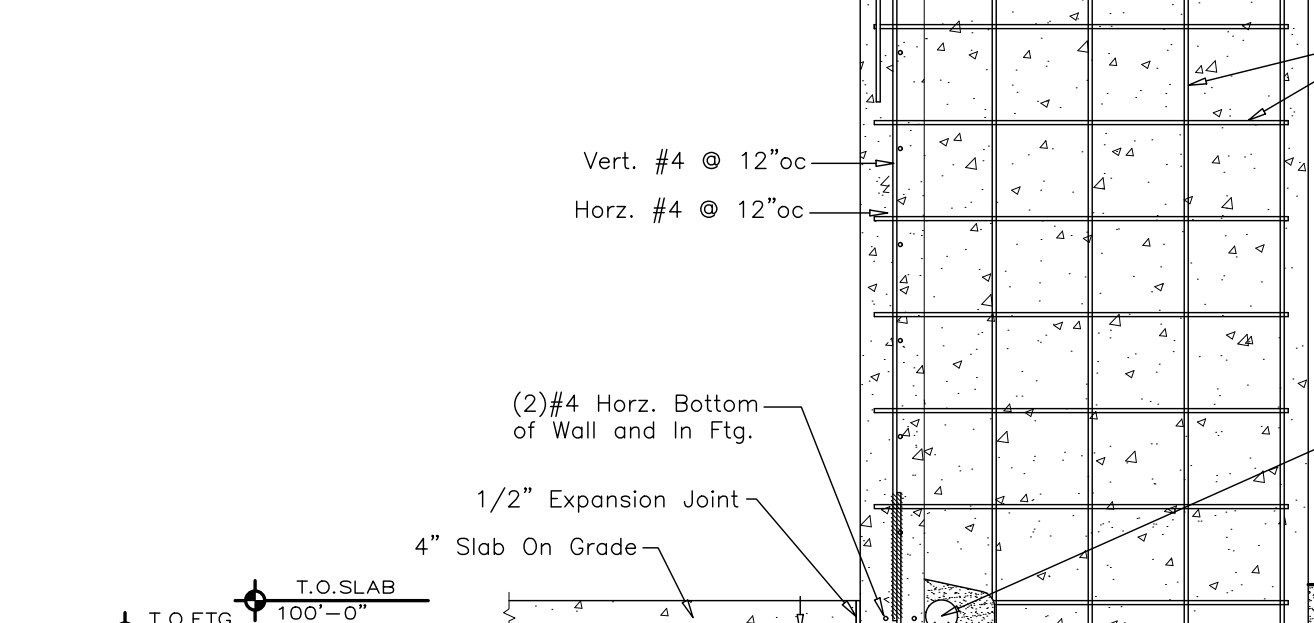
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S2 Scale: 1/2"=1'-0"



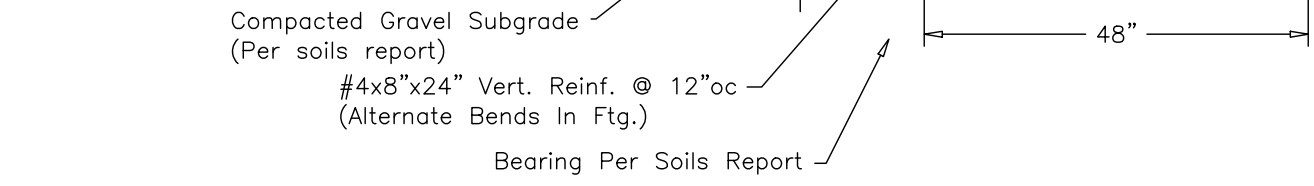
**N FOUNDATION DETAIL N**  
S2 Scale: 1/2"=1'-0"



**O FOUNDATION DETAIL O**  
S2 Scale: 1/2"=1'-0"



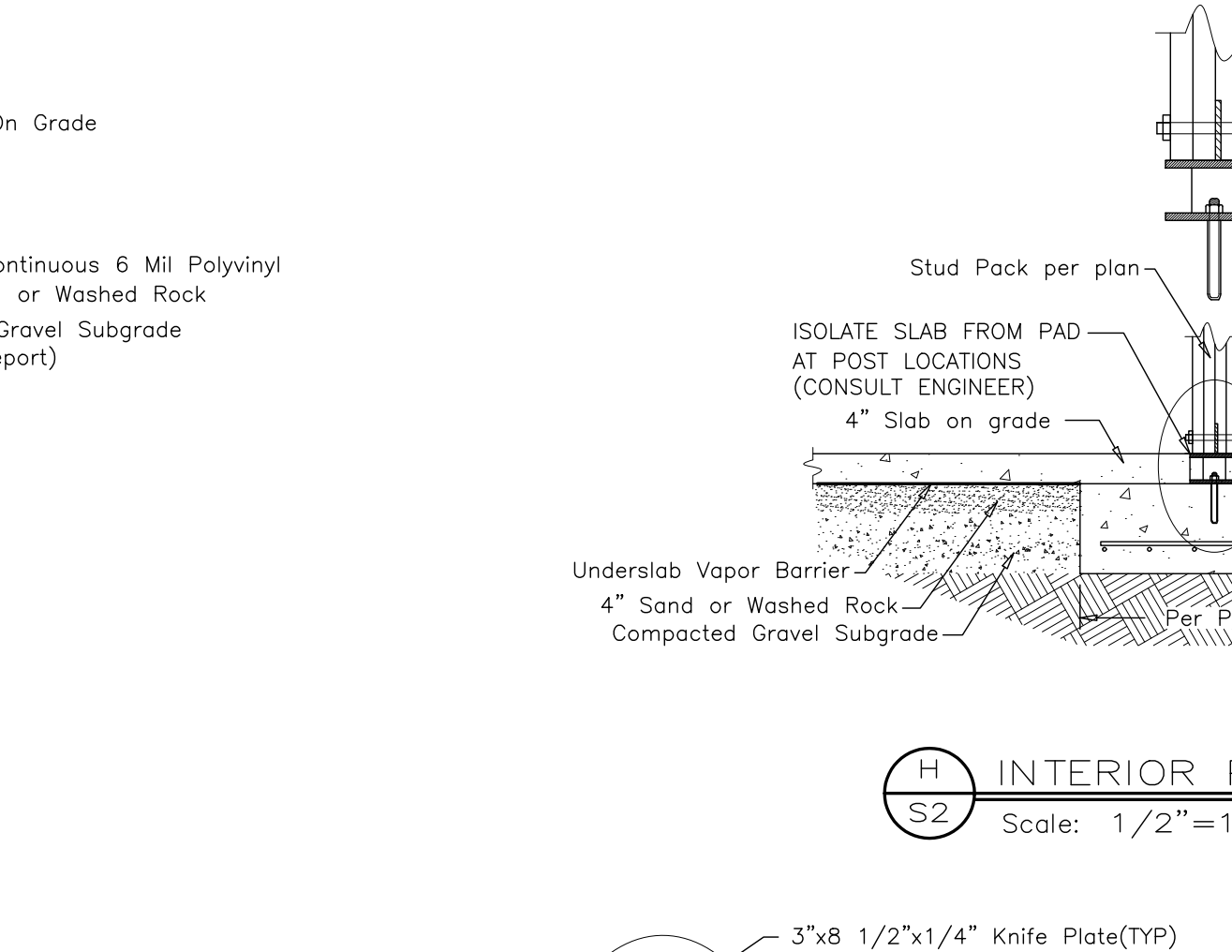
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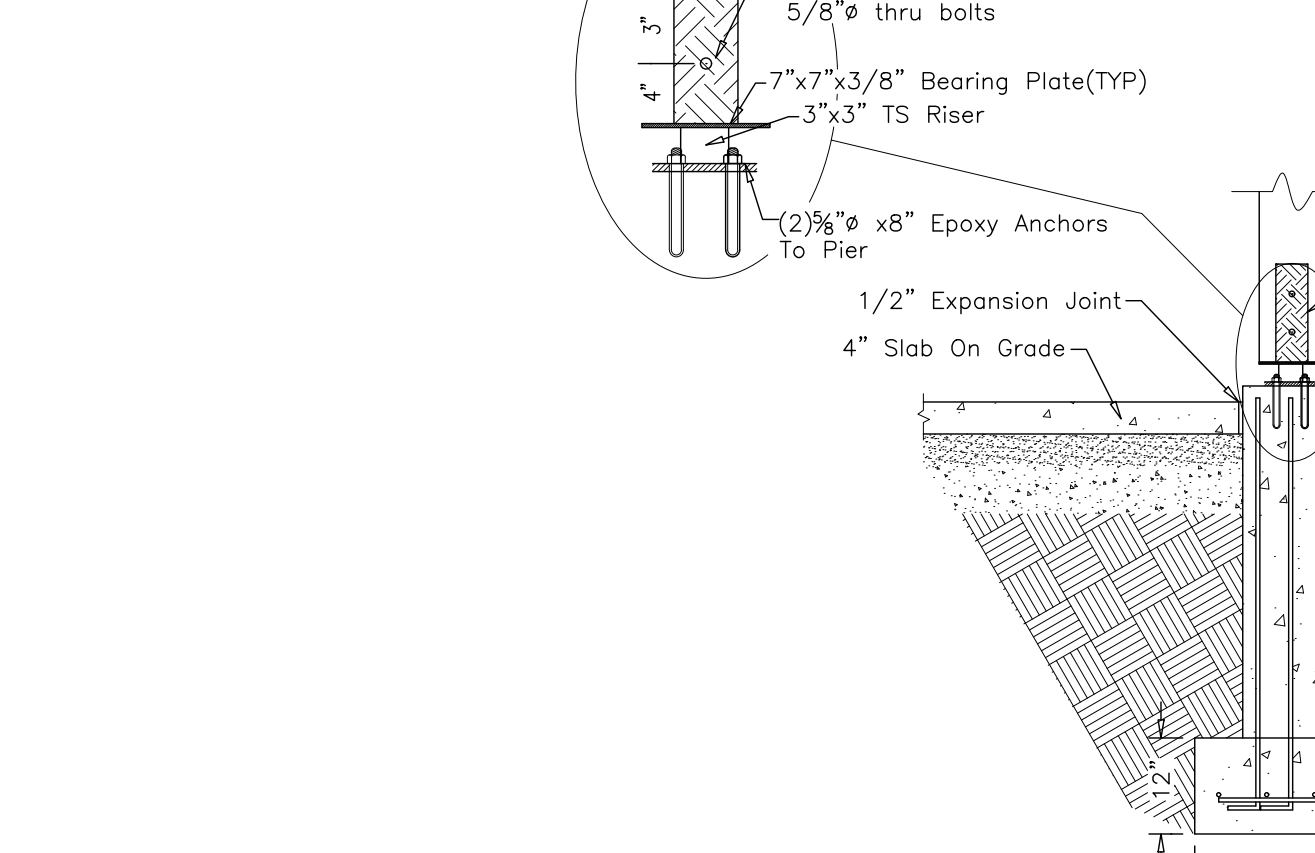
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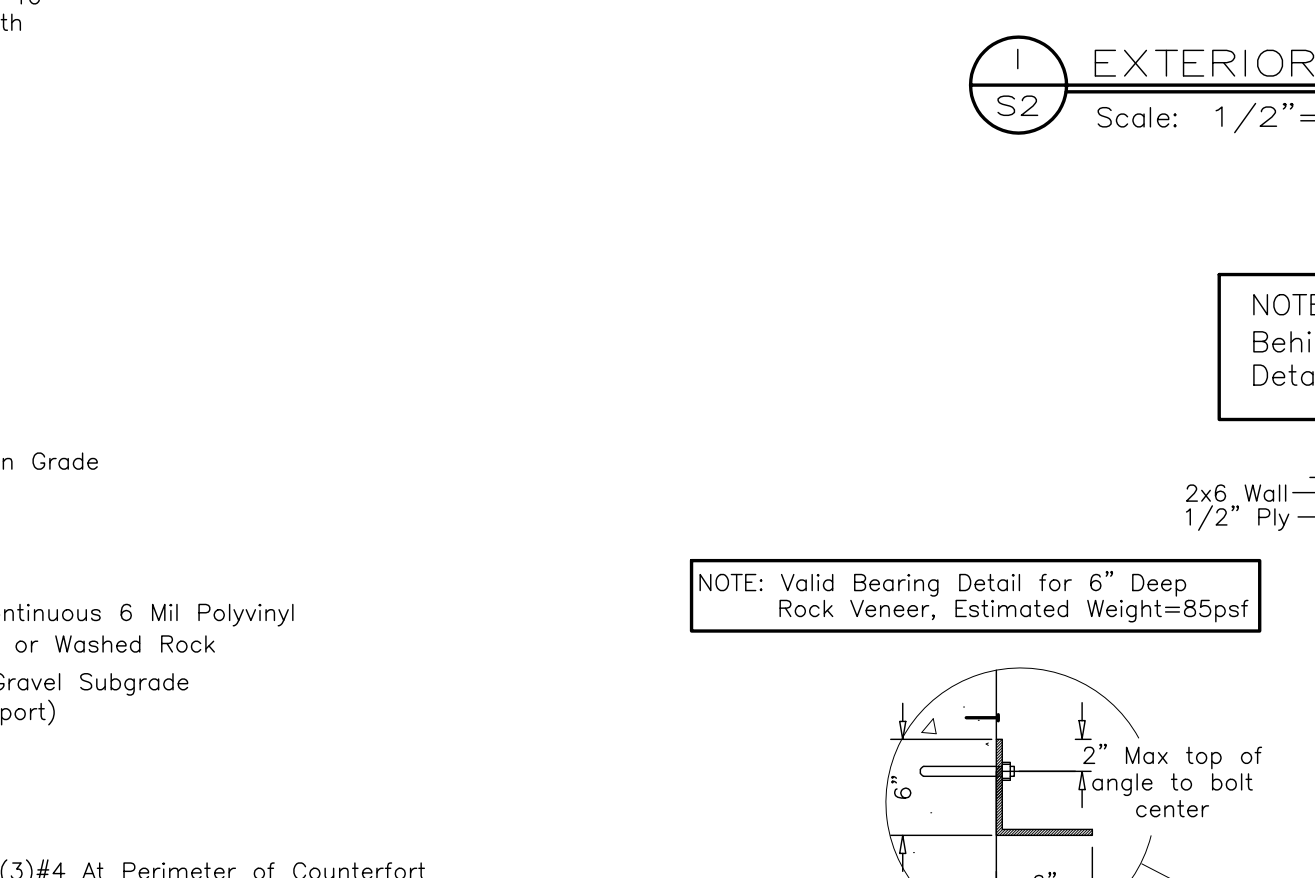
**R FOUNDATION DETAIL R**  
S2 Scale: 1/2"=1'-0"



**S FOUNDATION DETAIL S**  
S2 Scale: 1/2"=1'-0"



**T FOUNDATION DETAIL T**  
S2 Scale: 1/2"=1'-0"



**U FOUNDATION DETAIL U**  
S2 Scale: 1/2"=1'-0"



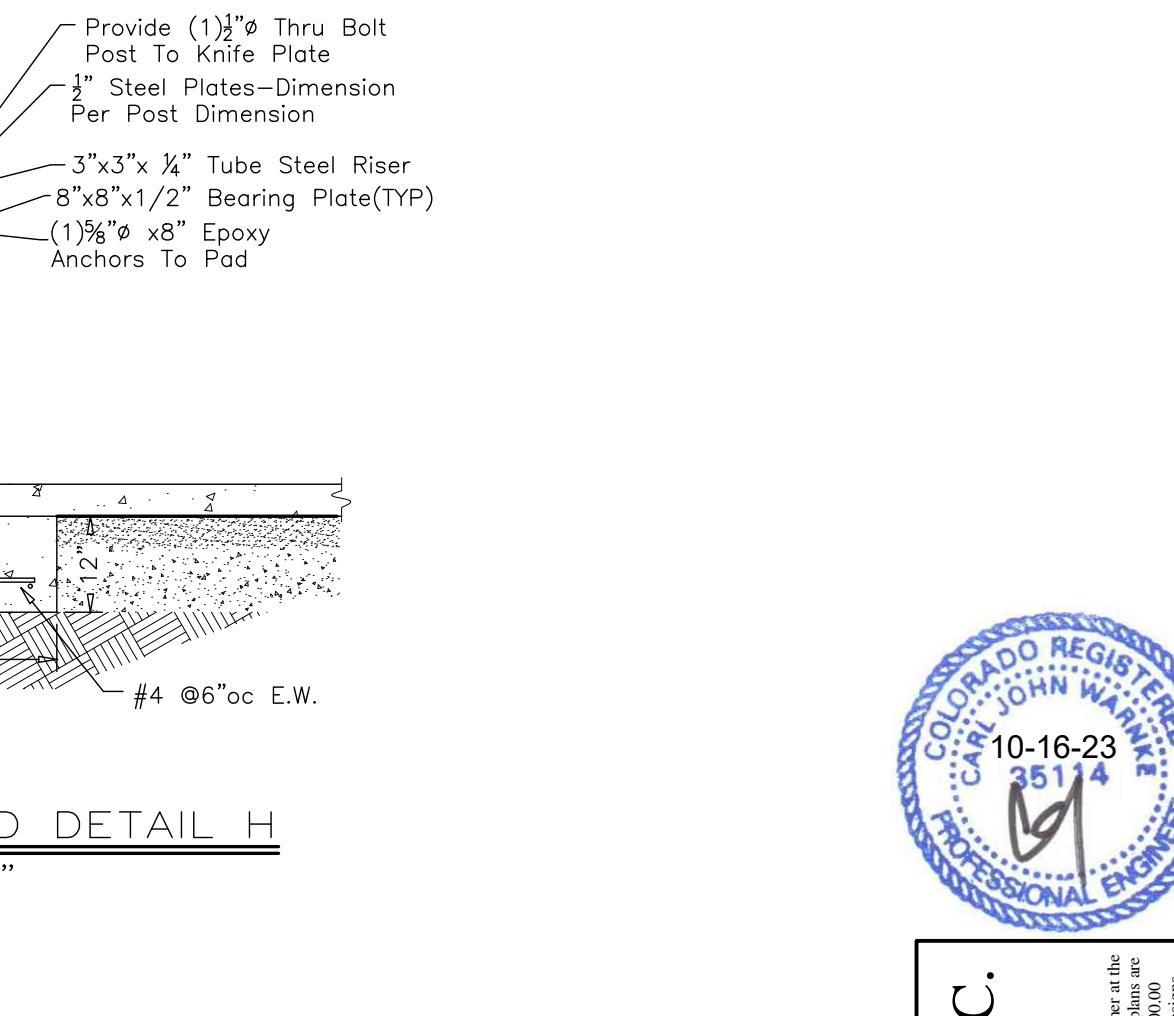
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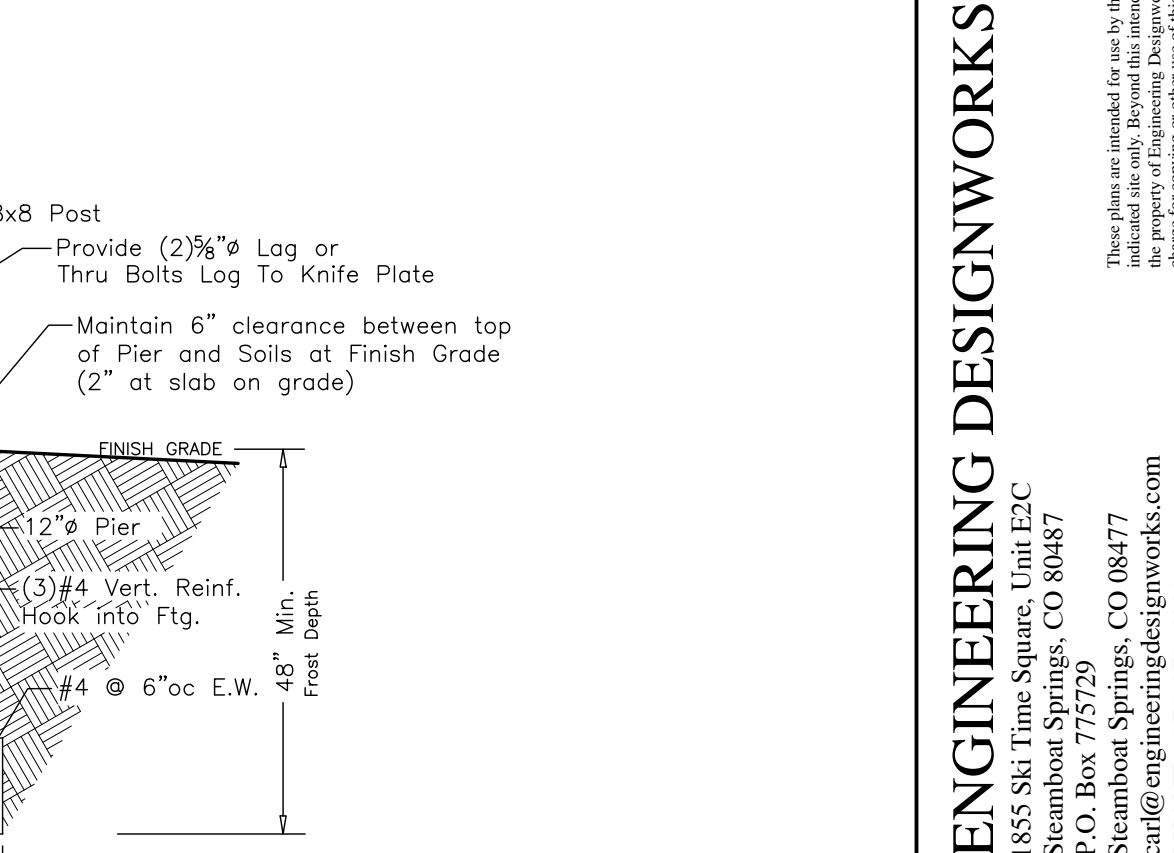
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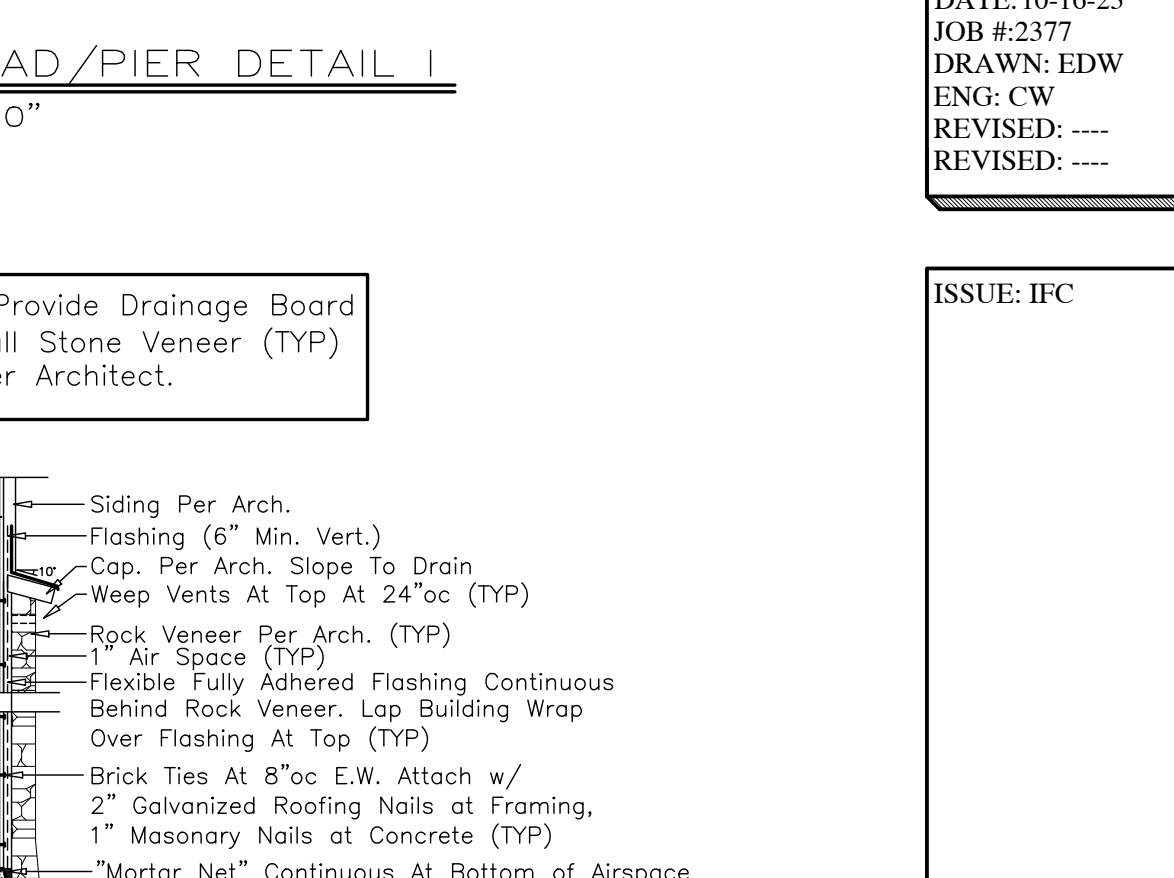
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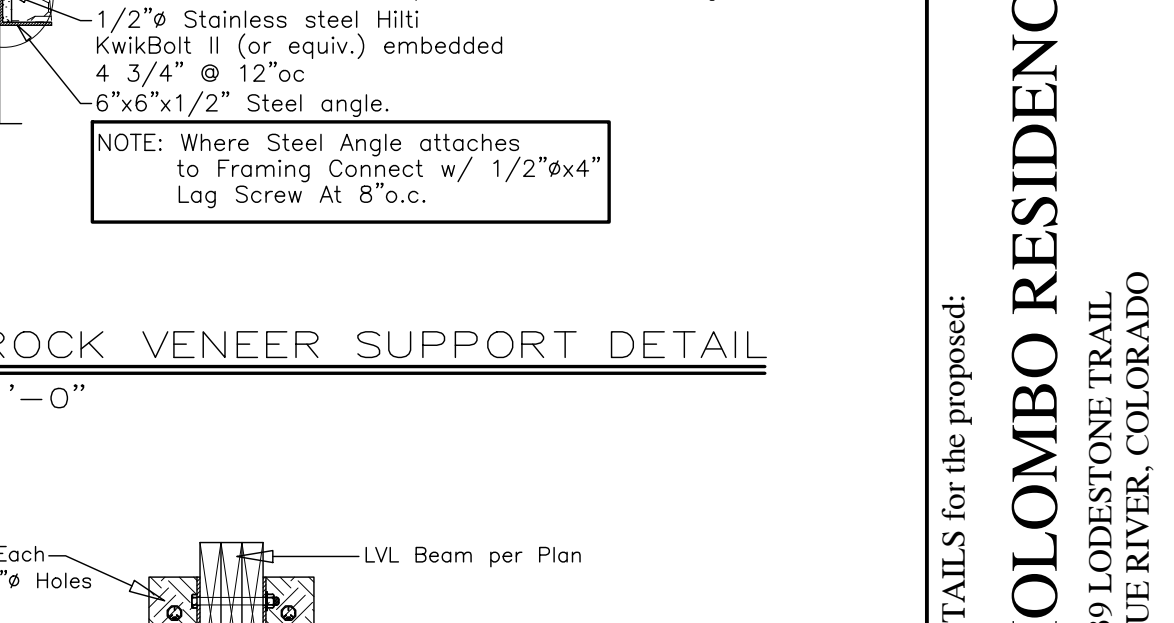
**H INTERIOR PAD DETAIL H**  
S2 Scale: 1/2"=1'-0"



**I EXTERIOR PAD/PIER DETAIL I**  
S2 Scale: 1/2"=1'-0"



**RV TYPICAL ROCK VENEER SUPPORT DETAIL**  
S2 Scale: 1/2"=1'-0"



**BOBP BOLT ON BEAM POCKET DETAIL**  
S2 Scale: 3/4"=1'-0"



**ENGINEERING DESIGNWORKS, INC.**  
1855 Sky Tower Square, Unit E2C  
Steamboat Springs, CO 80487  
P.O. Box 775729  
Steamboat Springs, CO 80477  
enr@engineeringdesignworks.com  
PHONE: (970)879-4890

DATE: 10-16-23  
JOB #: 2377  
DRAWN: EDW  
ENG: CW  
REVISED: ----  
REVISED: ----

ISSUE: IFC

DETAILS for the proposed:  
**HOLOMBO RESIDENCE**  
0839 LODGESTONE TRAIL  
BLUE RIVER, COLORADO

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**S2**  
#2377 of 4



**GENERAL ROOF FRAMING NOTES**

- Engineer to review and approve truss manufacturers shop drawings prior to ordering trusses. Truss Mfg. to provide matching tails.
- Block all trusses, outlookers, and rafters at all bearing points.
- Wall studs to be continuous from floor to roof. Balloon frame all gable walls. Provide firestop blocking at 10' max intervals. Wall studs over 12' vertical height to be 1 3/4"x5 1/2" LVL (UNO)
- Ⓛ**K** LADDER RAFTERS: 2x10 At 24"o.c. w/ Full 2x10 Blocking LUS210 Hanger Where Shown, (4)10d End Nails E.E. of Ladder Rafter. 2x10 (Min.) Subfascia
- Roof Attic System Designed to be cross ventilated with a minimum Area of 1/150 of the Area of the Space Ventilated. The net free Cross Ventilation Area may be reduced to 1/300 when an approved Vapor Barrier is installed on the Warm Side of the Ceiling.
- Connect all 2x10 rafters to blocking with (3)10d nails, and to plate or beam below with (4)10d nails. Birdsmouth Bear 2x10 at ridge and eave UNO.

**GENERAL TIMBER FRAMING NOTES**

- All Timber Beams/Columns Doug Fir Graded Per Plan
- All Timber Beams Dimensions are Nominal. (i.e. 10x12 measures 9.5"x11.5")
- Provide 30 Square Inches of Bearing Minimum at Timber Bearing Points
- (2)5/8"ø Lag Screws w/ 8" Min Penetration at Timber to Timber Connections UNO
- (2)5/8"ø Lag Screws with 6" Embedment At Bearing on 2x6 Framing

**TYPICAL ROOF OVER FRAME NOTES**

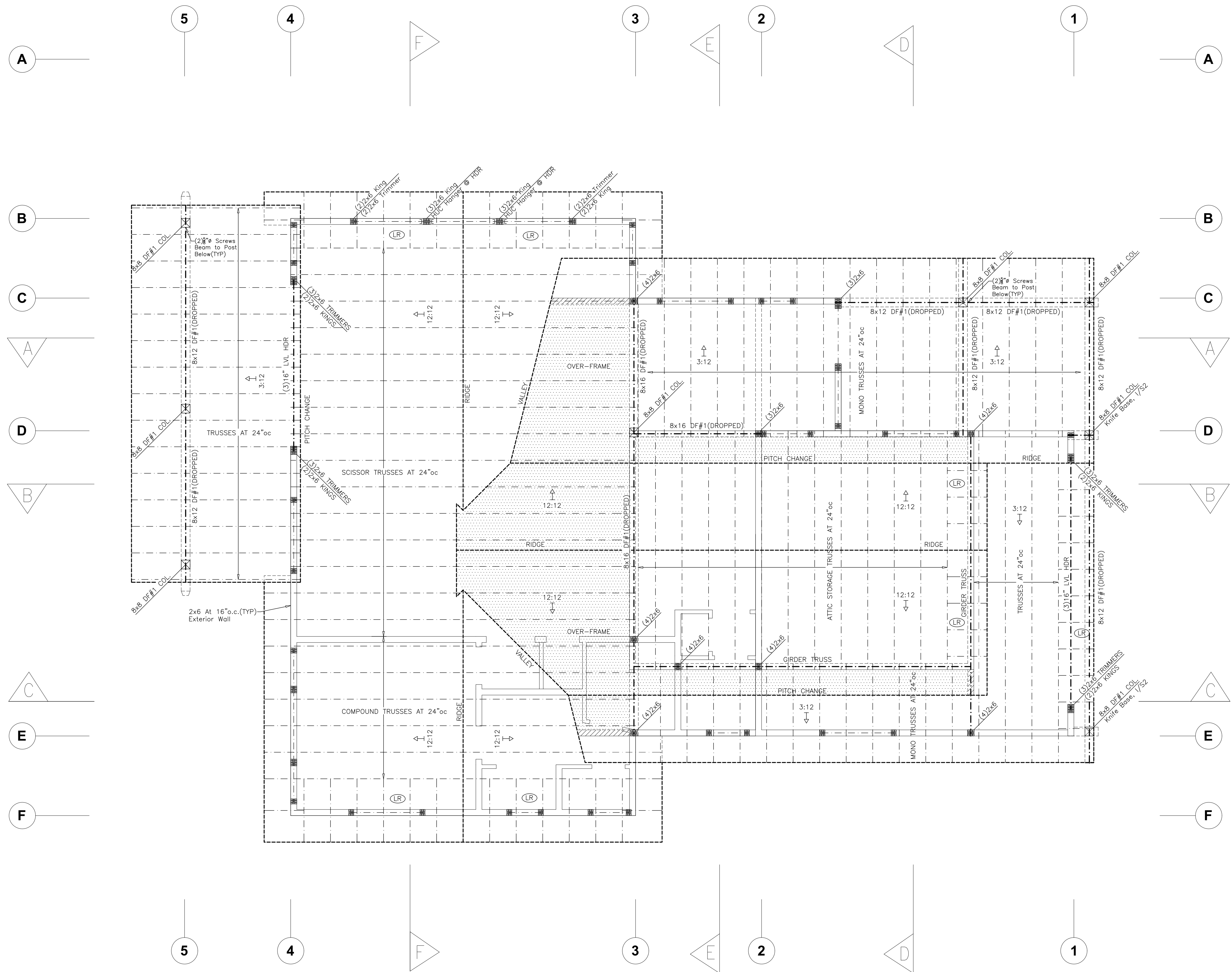
- OverFrame
- 2x8 At 24"oc Rafters to stack Over Rafters/Trusses Below
- Provide Intermediate 2x4 bearing walls at 6'-0" maximum
- Provide 2x10 Valley Plates

**MULTIPLE LVL CONNECTIONS**

- (2) Single LVL Beams to Each Other: Glue & (2)LedgerLok At 16"o.c.
- (3) Single LVL Beams to Each Other: Glue & (3)LedgerLok At 16"o.c.
- (4) Single LVL Beams to Each Other: Glue & (2)5/8"ø Thru Bolts At 24"o.c.
- (5) Single LVL Beams to Each Other: Glue & (2)5/8"ø Thru Bolts At 16"o.c.

**ROOF RAFTER NOTES**

- 2x10 At 24"o.c. Spans <=9'-0"
- 11.25 LVL At 24"o.c. Spans <=12'-0"
- (2)11.25 LVL At 24"o.c. Spans <=15'-0"



1  
S4 ROOF FRAMING PLAN  
Scale: 1/4"=1'-0"  
NORTH



**ENGINEERING DESIGNWORKS, INC.**  
1855 Skyline Square, Unit 152C  
Steamboat Springs, CO 80487  
P.O. Box 775729  
Steamboat Springs, CO 80477  
info@engineeringdesignworks.com  
PHONE: (970)879-4890

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ISSUE: IFC

ROOF FRAMING PLAN for the proposed:  
**HOLOMBO RESIDENCE**  
0039 LODGESTONE TRAIL  
BLUE RIVER, COLORADO

PAGE  
**S4**  
#2377 of 4

**SEQUENCE OF OPERATION**  
**CONTRACTOR SHALL PROVIDE ALL COMPONENTS NECESSARY TO ACHIEVE THE SEQUENCE OF CONTROL LISTED BELOW. COMPONENTS INCLUDE BUT ARE NOT LIMITED TO CONTROLLERS, SENSORS, RELAYS, WIRING, ETC.**

**BOILER:**

**B-1**  
 BOILER B-1 SHALL PROVIDE HOT WATER FOR THE RADIANT FLOOR MANIFOLDS HEAT. UNLESS OTHERWISE REQUIRED, FACTORY BOILER CONTROLS SHALL BE USED TO CASCADE BOILER OPERATION VIA THE STANDARD BOILER SEQUENCE OF CONTROL. SEQUENCE SHALL BE PROGRAMMED TO MAINTAIN A SUPPLY WATER TEMPERATURE OF 180 DEG F (+/- 3 DEG F) IN THE MAIN/PRIMARY HOT WATER LOOP. FLOW SWITCH SHALL SENSE ADEQUATE FLOW THROUGH BOILER PRIOR TO BOILER FIRING. BOILER B-1 IS THE DOMESTIC PRIORITY BOILER. SEE INDIRECT WATER HEATER (IWH). DURING DOMESTIC PRIORITY MODE, BOILER SHALL OPERATE TO SUPPLY 180 DEG F WATER TO INDIRECT WATER HEATER.

**PUMPS:**

**P-1 (BOILER CIRCULATOR)**

CIRCULATOR SHALL OPERATE WHENEVER THE CIRCULATOR'S BOILER IS ENERGIZED.

**P-2 (MAIN/PRIMARY LOOP CIRCULATION)**

PUMP SHALL OPERATE WHENEVER THERE IS A CALL FOR HEAT FROM THE SYSTEM (I.E. THERMOSTATS OR CONTROLLERS) AND OR OUTDOOR SENSOR (FIELD LOCATED) SENSES TEMPERATURES LOWER THAN 55 DEG F.

**P-3 (INDIRECT WATER HEATER CIRCULATION)**

PUMP SHALL OPERATE TO MAINTAIN DOMESTIC WATER SET POINT OF 140 DEG F (+/- 3 DEG F). DURING DOMESTIC PRIORITY MODE, THE HOUSE OR FACTORY BOILER SHALL SHUT DOWN BOILER CIRCULATOR P-1 AND ENERGIZE P-3.

**ENERGY RECOVERY VENTILATOR (ERV-1)**

GENERAL OPERATION: POWER UP: WHEN THE UNIT MAIN DISCONNECT IS CLOSED A DELAY OF 10 SECONDS (ADJ.) OCCURS FOR THE CONTROLLER TO COME ONLINE.  
 SUPPLY FAN OPERATION: THE SUPPLY FAN WILL OPERATE CONTINUOUSLY.  
 EXHAUST FAN OPERATION: THE EXHAUST FAN WILL OPERATE CONTINUOUSLY.

**GENERAL NOTES**

- FOLLOW ALL APPLICABLE CODES AND ORDINANCES. PAY ALL FEES AND PERMITS AND ATTAIN THE SAME.
- ALL EQUIPMENT, INSULATION, AND CONTROLS TO MEET LOCAL JURISDICTIONAL AUTHORITY'S ADOPTED ENERGY CODE.
- VISIT SITE AND ASCERTAIN EXISTING CONDITIONS PRIOR TO BID.
- THE INFORMATION PRESENTED ON THIS DRAWING IS DIAGRAMMATIC AND IS NOT TO BE SCALED. IT DOES NOT NECESSARILY REPRESENT ALL ELBOWS, DUCT EXTENSIONS, OFFSETS, HANGERS, ETC. REQUIRED FOR A COMPLETE WORKING SYSTEM.
- SHOP DRAWINGS SHALL BE SUBMITTED ON ALL VALVES, FIXTURES, INSULATION, G.R.D.'S AND EQUIPMENT FOR RESPONSE PRIOR TO ORDERING. PROVIDE ELECTRONIC COPY OF SUBMITTAL DATA WITH SUBMITTAL ITEMS OF SIMILAR TYPES GROUPED TOGETHER WHENEVER POSSIBLE. CLEARLY NOTE ANY DEVIATION BETWEEN SUBMITTED ITEMS AND SPECIFIED ITEMS ON THE COVER SHEET OF THE SUBMITTAL. FAILURE TO SUBMIT MAY CAUSE SPECIFIED ITEMS TO BE REJECTED AND REPLACED AT CONTRACTOR'S EXPENSE.
- EXTRA COSTS OR CHANGES ALLOWED ONLY IF APPROVED IN WRITING BY ARCHITECT/OWNER WITH DOLLAR AMOUNT PRIOR TO ORDERING. NO EXTENSIONS OF COMPLETION TIME ALLOWED WITHOUT WRITTEN AUTHORIZATION.
- THIS CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL FIELD CONDITIONS PRIOR TO THE PURCHASE OF ANY MATERIALS AND THE COMMENCEMENT OF ANY WORK AND IS TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES FOR RESOLUTION.
- PROVIDE OWNER WITH 3 SETS OF TYPEWRITTEN AND BOUND "OPERATING INSTRUCTIONS" FOR ALL SYSTEMS AND EQUIPMENT, INCLUDING MANUFACTURER'S MAINTENANCE MANUALS. INCLUDE APPROVED EQUIPMENT SUBMITTALS, EQUIPMENT START-UP REPORTS, LUBRICATION, FILTER TYPES AND SIZES, BALANCE REPORT, STARTING AND STOPPING PROCEDURES, AND LIST SERVICE CONTRACTOR'S 24 HOUR TELEPHONE NUMBERS.
- CONCEAL ALL WORK IN FINISHED AREAS.
- CUT AND PATCH TO MATCH ADJACENT AREAS. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED WITHOUT STRUCTURAL ENGINEER'S WRITTEN APPROVAL.
- GUARANTEE ALL LABOR AND EQUIPMENT FOR ONE YEAR FROM THE DATE OF ACCEPTANCE BY OWNER.
- PROVIDE FACTORY AUTHORIZED START-UPS AND WRITTEN START-UP REPORTS ON ALL EQUIPMENT.
- PROVIDE NICKEL-PLATED FLOOR, WALL, AND CEILING ESCUTCHEONS OF ADJUSTABLE TYPE ON ALL PIPES PASSING THROUGH WALLS, PARTITIONS, AND FLOORS AFTER PAINTING IS COMPLETED.

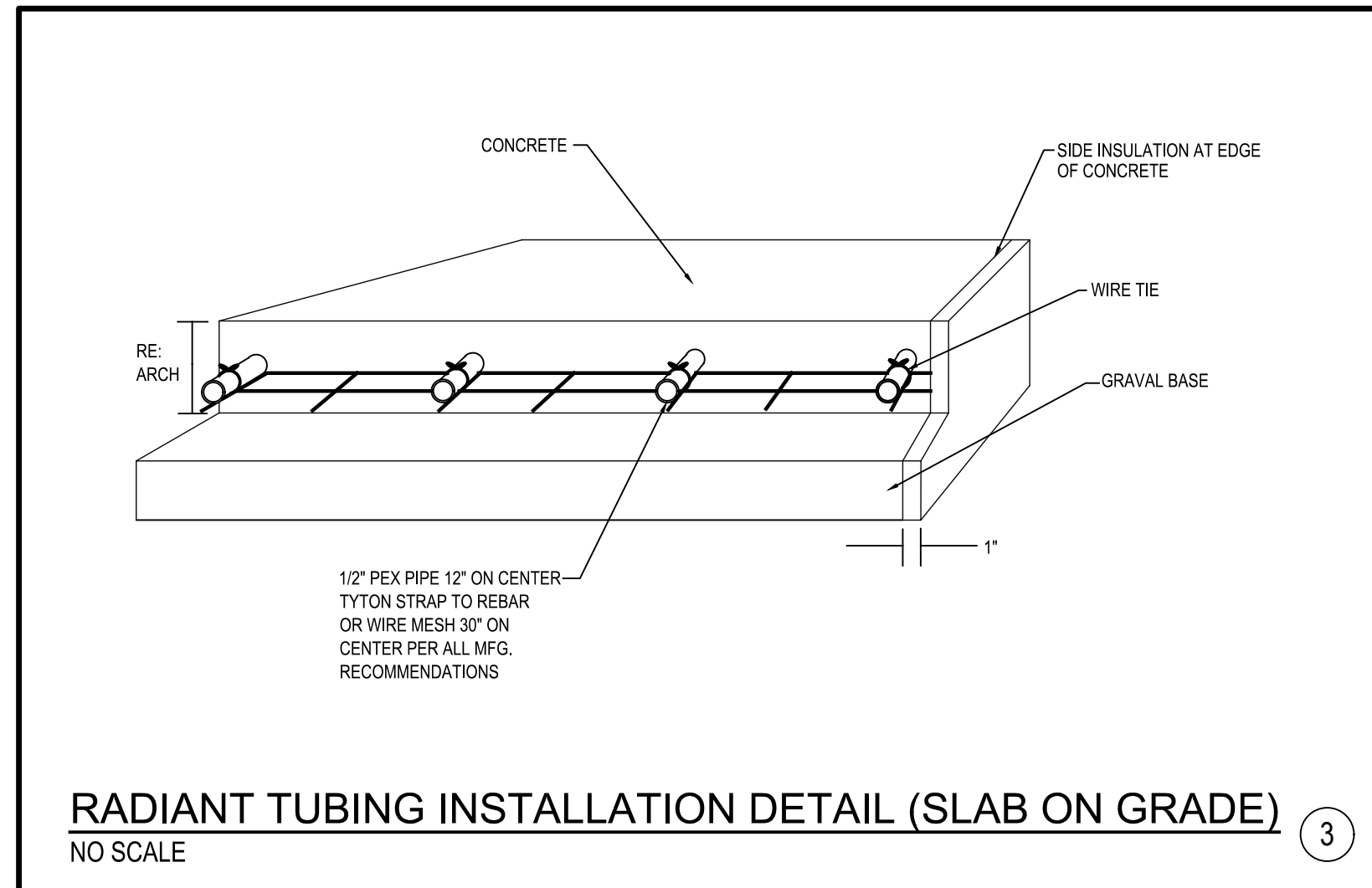
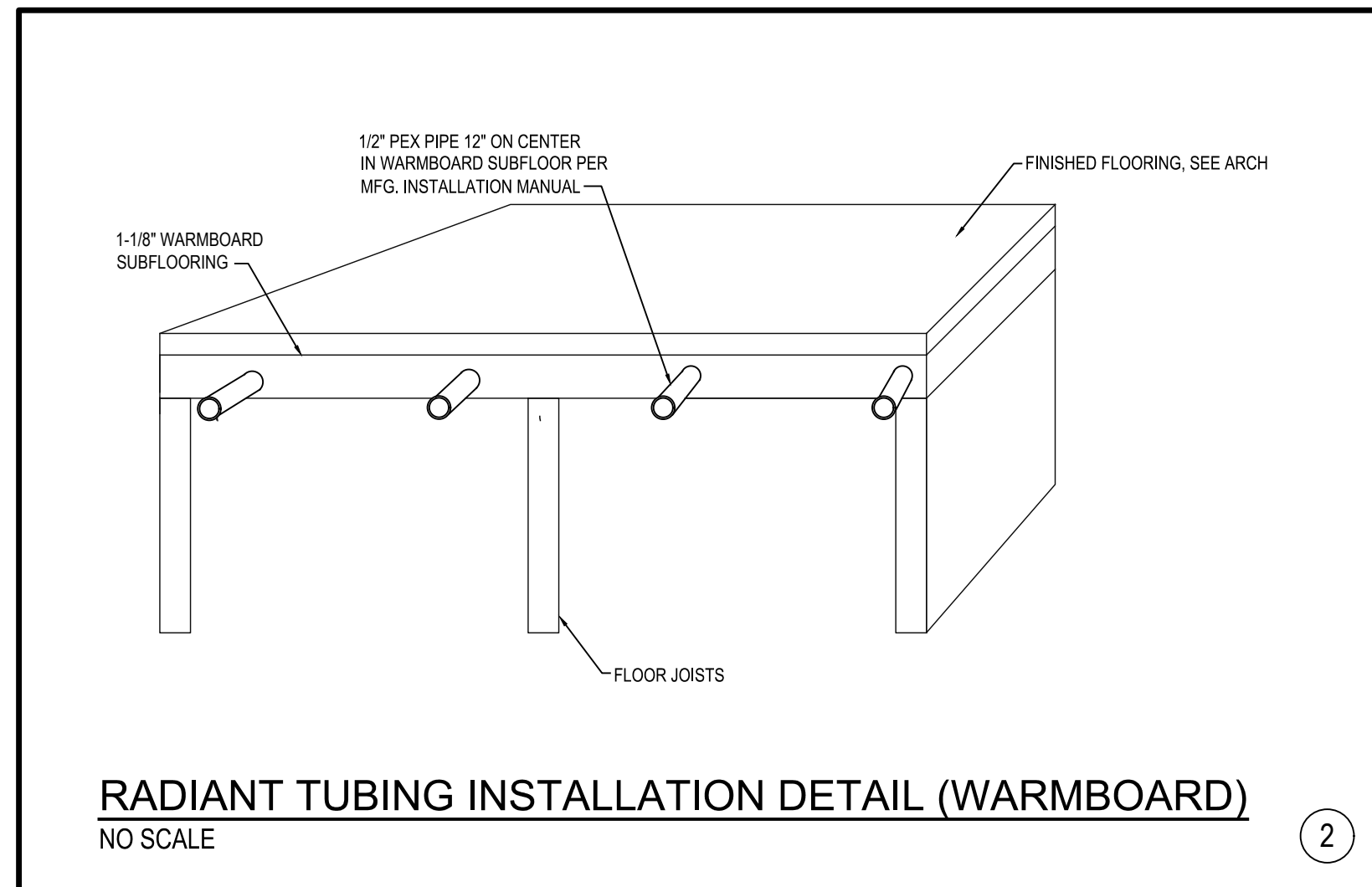
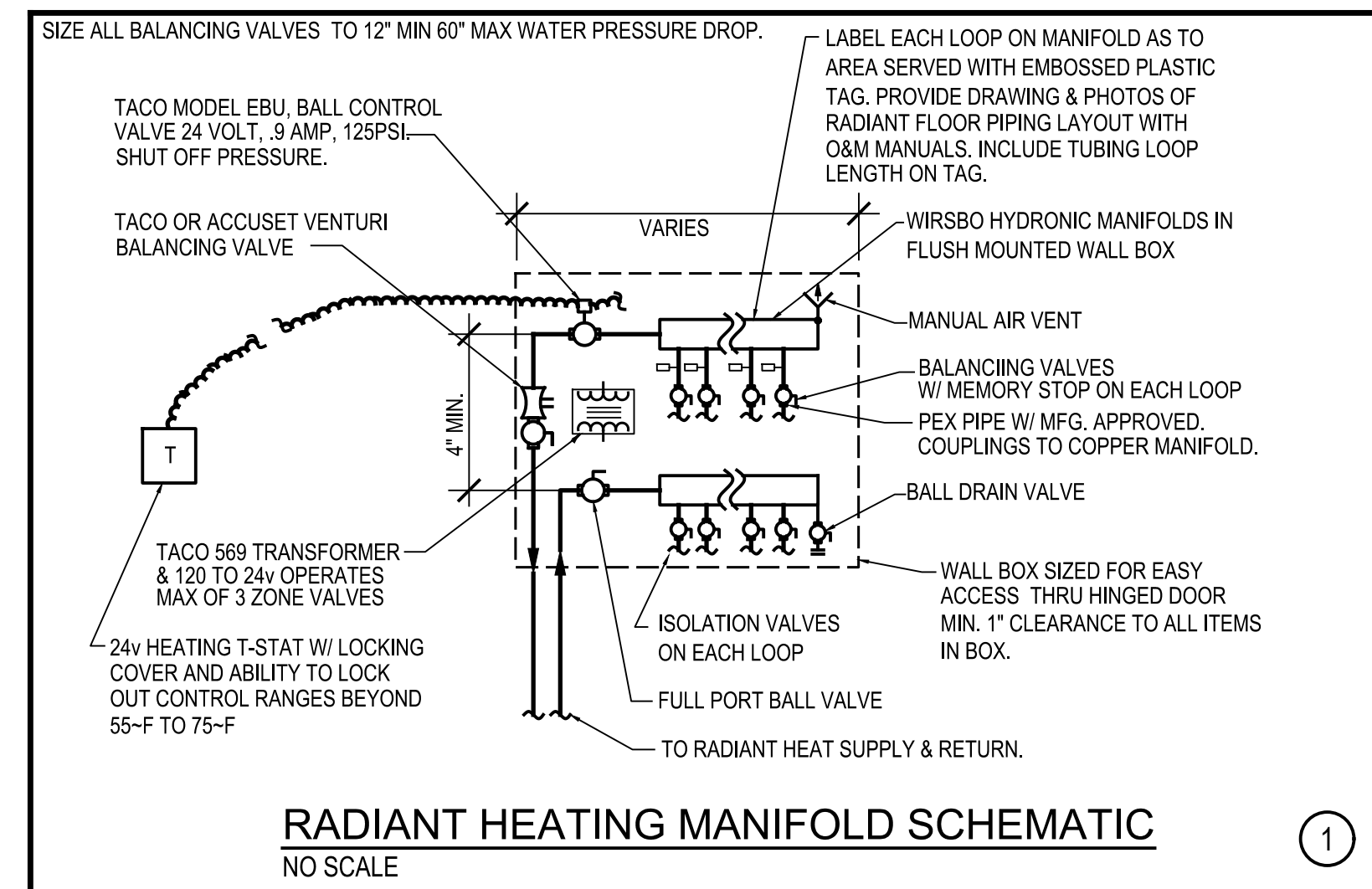
**HYDRONIC HEATING PIPING**

- THE HYDRONIC SYSTEM PIPING, INSULATION, ETC., SHALL BE BY THE PLUMBING/MECHANICAL CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- ALL PIPING AND INSULATION SHALL BE IN ACCORDANCE WITH THE LOCAL PLUMBING CODES AND/OR ORDINANCES, INCLUDING BUT NOT LIMITED TO PIPE SIZES.
- HYDRONIC HEATING PIPING SHALL BE TYPE "L" HARD DRAWN COPPER WITH WROUGHT COPPER SWEAT FITTINGS. USE ONLY CANFIELD 100% WATER SAFE SOLDER (95% TIN, 4% COPPER, 1% SILVER) OR APPROVED EQUAL. DO NOT USE LEAD OR ANTIMONY SOLDERS. AT CONTRACTOR'S OPTION HYDRONIC HEATING/COOLING PIPE 2" AND BELOW MAY BE CPVC PIPE. USE ONLY FLOWGUARD GOLD PIPE WITH FLOWGUARD GOLD ONE STEP CEMENT ON PIPES 1/2" THROUGH 2". NO CPVC SUBSTITUTIONS ARE ALLOWED. PROVIDE CSA APPROVED HARDENED STRIKER PLATES LISTED FOR CSST AND CPVC SYSTEMS AT ALL LOCATIONS WHERE TUBING IS CONCEALED AND PUNCTURE FROM NAILS OR SCREWS IS A POSSIBLE THREAT. SUPPORT ALL PIPE PER DETAILS, BUILDING CODE, AND MANUFACTURER REQUIREMENTS. ALL PIPING 2-1/2" ABOVE AT CONTRACTOR'S OPTION MAY BE EITHER CORZAN CPVC OR SCHEDULE 40 STEEL PIPE. TYPE A53 WITH TYPE 77 WCTAULIC COUPLINGS. ALL VALVING SHALL MATCH THE TYPE OF PIPE BEING INSTALLED. ON 2-1/2" AND ABOVE USE BUTTERFLY VALVES FOR BALANCING AND SHUTOFF WITH VICTAULIC OR UNION FLANGE CONNECTIONS.
- COPPER TUBING INSTALLED WITHIN A BUILDING AND IN OR UNDER A CONCRETE FLOOR SHALL BE TYPE "K" COPPER AND INSTALLED WITHOUT JOINTS. WHERE JOINTS ARE PERMITTED, THEY SHALL BE BRAZED AND FITTINGS SHALL BE WROUGHT COPPER.
- INSULATE ALL PIPING, VALVES AND FITTINGS FOR CHILLED WATER WITH 1" PREFORMED FIBERGLASS WITH "K" FACTOR OF 0.23 MAXIMUM AT 75-DEG F MEAN TEMPERATURE. INSULATE HYDRONIC HEATING PIPING WITH 1-1/2" THICK PREFORMED FIBERGLASS WITH "K" FACTOR OF 0.23 MAXIMUM AT 75 DEG F MEAN TEMPERATURE UP THROUGH 1-1/2" PIPE AND 2" THICK ON ALL LARGER SIZES. JACKET SHALL BE ASU WITH ZESTON FITTINGS AND WITH VAPOR BARRIER ON ALL COLD SURFACE PIPES. ALL INSULATION MATERIALS SHALL CONFORM TO ASTM 84, NFPA 50A AND 255, AND UL 723 NOT TO EXCEED RATINGS OF 25 FLAME SPREAD AND 50 SMOKE DEVELOPED. ALL INSTALLED INSULATION SHALL MEET OR EXCEED CURRENT ASHRAE 90.1 STANDARDS.
- ALL MATERIALS AND EQUIPMENT PROVIDED AND INSTALLED UNDER THIS SECTION SHALL BE NEW AND IN CLEAN AND BRIGHT CONDITION. THE CONTRACTOR SHALL TAKE ANY MEASURE NECESSARY TO ENSURE AND MAINTAIN THE QUALITY OF THE INSTALLATION. ALL PIPING SHALL BE FLUSHED WITH CLEAN WATER PRIOR TO BEING PLACED INTO SERVICE TO ENSURE THAT ANY RESIDUAL CUTTING OIL, SLAG, THREAD TAPE, FLUX OR DIRT HAS BEEN PURGED.
- ELECTRIC HEAT TRACE TAPE SHALL BE PROVIDED WHERE REQUIRED FOR FREEZE PROTECTION OF WATER PIPES WITHIN VESTIBULES, CRAWL SPACES AND OTHER UNHEATED SPACES OR HYDRONIC HEATING COILS SUBJECT TO ANY AIR TEMPERATURES BELOW 35 F. PIPING REQUIRING FREEZE PROTECTION SHALL ALSO BE INSULATED WITH A MINIMUM 1" INSULATION.
- ALL PIPING, EQUIPMENT, ETC. SHALL BE IDENTIFIED. ALL PIPING IS TO BE TESTED IN ACCORDANCE WITH ACCEPTED CODES AND STANDARD OF CARE PRACTICES.
- PROVIDE CHEMICAL WATER TREATMENT FOR ALL HYDRONIC SYSTEMS AT START-UP AND CHECK WATER CONDITIONS WHEN EQUIPMENT IS SERVICED. AT OWNER'S OPTION PROVIDE CHEMICAL BYPASS FEEDER FOR ALL BOILER SYSTEMS.
- ALL SAFETY RELIEF VALVES SHALL BE VENTED TO ATMOSPHERE OR PIPED FULL SIZE TO NEAREST FLOOR DRAIN. BACKFLOW PREVENTERS OF APPROPRIATE TYPE SHALL BE INSTALLED WHERE REQUIRED BY CODE, PROVIDED WITH A CATCH FUNNEL PIPED TO THE NEAREST FLOOR DRAIN OR SINK, AND LOCATED BETWEEN 18" AND 60" AFF WITH MINIMUM OF 30" CLEAR IN FRONT OF VALVE FOR SERVICING.
- ALL CONDENSATE NEUTRALIZER MEDIA TO BE MAGNESIUM OXIDE. LIMESTONE MEDIA NEUTRALIZERS WILL NOT BE ACCEPTED.
- LABEL ALL PIPING IN ACCESSIBLE AREAS. MEDIUM PRESSURE GAS (2 PSI AND ABOVE) TO BE MARKED EVERY 6 FEET.
- ALL PIPING TO BE HUNG ON ADJUSTABLE SPLIT RING HANGERS OR UNISTRUT SUPPORTS WITH CLAMPS OF SIMILAR MATERIAL AS THE PIPE UNLESS OTHERWISE NOTED. PIPE HANGER SPACING IN FEET TO BE AS FOLLOWS:

PIPE TYPE/SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
COPPER	6	6	6	6	10	10
STEEL (SCREWED PIPE-IPS)	12	12	12	12	12	12
POLYPROPYLENE & CPVC	4	4	4	4	4	4.5

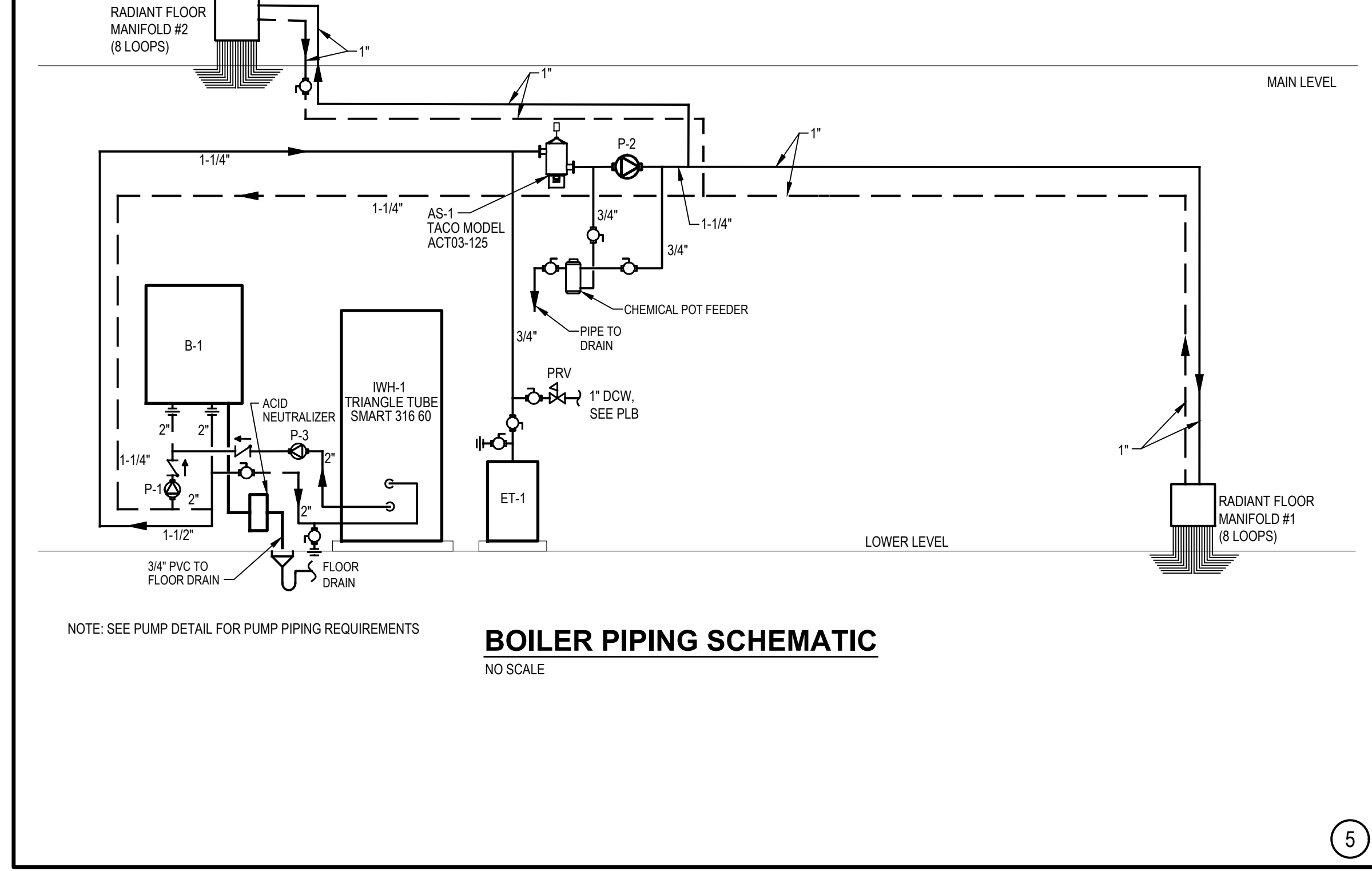
**BALANCING NOTES**

- THE BALANCING AGENCY SHALL PERFORM THE TESTS TO BALANCE ALL WATER DISTRIBUTION SYSTEMS.
- TEST AND ADJUST WHERE APPROPRIATE THE RPM AND SIZE OF ALL PUMPS. STIPULATE EXISTING IMPELLER SIZE. DETERMINE ACTUAL SYSTEM CURVE WITH CONTROL AND BALANCE VALVES WIDE OPEN. TRIM IMPELLER TO REQUIRED DIAMETER PLUS 10%.
- TEST AND RECORD PUMPS AND MOTORS AMPERAGE AFTER ABOVE ADJUSTMENTS.
- RECORD PRESSURE DIFFERENTIAL ACROSS ALL PUMPS AT APPROPRIATE P AND T PORTS.
- TEST AND RECORD THE TEMPERATURE AND PRESSURE DROPS AND GPM FLOW RATES ACROSS ALL COMPONENTS IN THE WATER DISTRIBUTION SYSTEMS INCLUDING: BOILERS AND PUMPS.
- IN COOPERATION WITH CONTROL MANUFACTURER'S REPRESENTATIVE, VERIFY CORRECT OPERATION IN BOTH HEATING AND COOLING MODE OF ALL CONTROL VALVES.
- VERIFY THAT ALL STRAINERS AND PIPING SYSTEMS HAVE BEEN CLEANED AND FLUSHED AND THAT ALL AIR HAS BEEN ELIMINATED FROM THE SYSTEM BEFORE THE PERFORMANCE OF THE HYDRONIC BALANCE.
- BALANCE ALL RECIRCULATED DOMESTIC HOT WATER SYSTEMS AND PROVIDE WRITTEN REPORT.



LEGEND SPECIFICATION LIST		NOTE: NOT ALL VALVES ON THIS LIST ARE NECESSARILY USED ON THIS PROJECT	
SYMBOL	DESCRIPTION	SPECIFIED MANUFACTURER / MODEL	EQUALS BY
[Symbol]	GATE VALVE	MILWAUKEE / 105 or 115	NBCO
[Symbol]	GATE VALVE IN GROUND BOX	MILWAUKEE / 105 or 115	NBCO
[Symbol]	CLOSE VALVE	MILWAUKEE / 1907 or 1907F	NBCO
[Symbol]	CHECK VALVE	MILWAUKEE / 6907, 10907, F2370(M)AL, 548, or 1400 SERIES	NBCO
[Symbol]	AUTO FLOW CONTROL VALVE	FLOWSET / 1YR	GRSWOLD
[Symbol]	PLUG VALVE	KEYSTONE / SERIES 500	DEZURK
[Symbol]	BUTTERFLY VALVE	MILWAUKEE / CL 223 or CL 323	KEYSTONE
[Symbol]	STOPDRAN VALVE	WATTS / B-3000 or B-3001 1/2" - 3"	-
[Symbol]	BALL VALVE	MILWAUKEE / BA-100 or BA-150	NBCO
[Symbol]	ESCUCHON VALVE	FLOWSET / ACCUSETTER	GERAND
[Symbol]	TEMP CONTROL - 2WAY	BY T.C. CONTRACTOR	-
[Symbol]	TEMP CONTROL - 3WAY	BY T.C. CONTRACTOR	-
[Symbol]	TEMPERING VALVE	LEONARD	LAWLER
[Symbol]	PRESSURE REDUCING VALVE	WATTS / ADV 115	-
[Symbol]	SOLENOID VALVE	ASCO / RED HAT	SKINNER
[Symbol]	WAFER BALANCE VALVE	FLOWSET / 1W	GERAND
[Symbol]	VENTURI	FLOWSET / 1VW	GERAND
[Symbol]	REDUCED PRESSURE BACKFLOW PREVENTOR	WATTS / 8901S	-
[Symbol]	GAS COCK	MAXITROL / B/37 or B/94	-
[Symbol]	STRAINER	WATTS / SERIES 775 for 1/2" thru 2-1/2"	CONBRACO
[Symbol]	STRAINER W/ BLOWOFF VALVE	WATTS / SERIES 775 with B-6081 VALVE	CONBRACO
[Symbol]	PRESSURE/TEMP. RELIEF	WATTS / SERIES 40, 140, 240, or 340	-
[Symbol]	MANUAL AIR VENT	FLOWSET / AV	-
[Symbol]	P-T TAP	FLOWSET / SUPERSEAL	UNIVERSAL / 4PT-N
[Symbol]	BOILER DRAIN VALVE	MILWAUKEE / BA 100 H	NBCO
[Symbol]	THERMOMETER	TREXICE / EXH1403 1/2	WEKSLER / AA8H
[Symbol]	TEMPERATURE GAUGE	TREXICE / 80732	WEKSLER / HA3A
[Symbol]	PRESSURE GAUGE	TREXICE / 600C	WEKSLER / EA14
[Symbol]	FIRE DAMPER	POTTRUFF / VFD-10	-
[Symbol]	FIRE & SMOKE DAMPER	POTTRUFF / FSD-142	-
[Symbol]	SMOKE DAMPER	POTTRUFF / SD-142	-
[Symbol]	FLEXIBLE PIPE CONNECTION	METRALLEX / METRASPHERE EPDM	MASON / M/FNC EPDM
[Symbol]	AUTOMATIC AIR VENT	AMTROL 705	HOFFMAN
[Symbol]	GAS PRESSURE REGULATOR	SCHLUMBERGER / VARIES	-
[Symbol]	AIR ADMITTANCE VALVE	STUODR VENT	-
[Symbol]	BALL DRAIN W/ HOSE END CONNECTION	APOLLO / FB-103-1 1/2" N.P.T. BY HOSE	NBCO

MECHANICAL LEGEND		NOTE: ALL DASHED PLUMBING LINES INDICATE BELOW FLOOR ELEVATION UNLESS OTHERWISE NOTED ON DRAWINGS				
SYMBOL	ABBREV	DESCRIPTION	SYMBOL	ABBREV	DESCRIPTION	
[Symbol]	CWS	CONDENSER WATER SUPPLY	[Symbol]	MOTORIZED GATE VALVE	[Symbol]	ACCESS DOOR IN CEILING
[Symbol]	CWR	CONDENSER WATER RETURN	[Symbol]	WATER BALANCE VALVE	[Symbol]	DATE INDICATING SHEET METAL DIMENSIONS, FIRST NUMBER WIDTH & SECOND IS DEPTH.
[Symbol]	CWS	CHILLED WATER SUPPLY	[Symbol]	VENTURI	[Symbol]	DUCT ELBOW W/ TURNING VANES
[Symbol]	CWR	CHILLED WATER RETURN	[Symbol]	REDUCED PRESSURE BACKFLOW PREVENTOR	[Symbol]	DUCT TEE W/ TURNING VANES
[Symbol]	RS	REFRIGERANT SUCTON	[Symbol]	GAS COCK	[Symbol]	MANUAL DAMPER W/ LOCKING QUADRANT
[Symbol]	RL	REFRIGERANT LIQUID	[Symbol]	UNION	[Symbol]	MOTORIZED DAMPER
[Symbol]	RH	REFRIGERANT HOT GAS	[Symbol]	PIPE REDUCER	[Symbol]	FLEXIBLE DUCT CONNECTOR
[Symbol]	HWS	HEATING WATER SUPPLY	[Symbol]	STRAINER	[Symbol]	SPRIN-FITTING W/ DAMPER 45° DUCT TAKE-OFF
[Symbol]	HWR	HEATING WATER RETURN	[Symbol]	STRAINER W/ BLOWOFF VALVE	[Symbol]	DOOR UNDERCUT
[Symbol]	HPS	HIGH PRESSURE STEAM	[Symbol]	FLOOR DRAIN	[Symbol]	FIRE DAMPER
[Symbol]	HPSR	HIGH PRESSURE STEAM RETURN	[Symbol]	EQUIPMENT ROOM DRAIN	[Symbol]	FIRE & SMOKE DAMPER
[Symbol]	LPS	LOW PRESSURE STEAM	[Symbol]	FLOOR SINK - HALF GRATE	[Symbol]	SMOKE DAMPER
[Symbol]	LPSR	LOW PRESSURE STEAM RETURN	[Symbol]	FLOOR SINK - 1/4 GRATE	[Symbol]	EXISTING FIRE DAMPER
[Symbol]	VAC	VACUUM	[Symbol]	DRAIN ABOVE	[Symbol]	RETURN GRILLE
[Symbol]	AR	AIR	[Symbol]	ROOF DRAIN	[Symbol]	CONNECTION NEW TO EXISTING
[Symbol]	N	NITROGEN	[Symbol]	ROOF DRAIN - OVERFLOW	[Symbol]	FLEXIBLE PIPE CONNECTION
[Symbol]	F	FIRE	[Symbol]	DOWNPOUT NOZZLE	[Symbol]	THERMOSTAT
[Symbol]	DCW	COLD WATER	[Symbol]	CLEANOUT - VERTICAL	[Symbol]	REMOTE SENSOR
[Symbol]	DHW	HOT WATER	[Symbol]	CLEANOUT - HORIZONTAL	[Symbol]	CARBON DIOXIDE SENSOR
[Symbol]	DHC	HOT WATER RECIRCULATE	[Symbol]	PIPE CAP	[Symbol]	CARBON MONOXIDE SENSOR
[Symbol]	W	WASTE PIPE	[Symbol]	BREAK - MISC	[Symbol]	HANDSTAT
[Symbol]	V	VENT PIPE	[Symbol]	VENT THRU ROOF	[Symbol]	DOWNSIDE METER OR DOW / GAS SUB-METER
[Symbol]	ST	STORM PIPE	[Symbol]	WALL HYDRANT	[Symbol]	EXISTING ITEM LINE WEIGHT
[Symbol]	ST	OVERFLOW PIPE	[Symbol]	HOSE BBS	[Symbol]	DEMO ITEM LINE WEIGHT
[Symbol]	OD	GREASE WASTE	[Symbol]	PUMP	[Symbol]	NEW ITEM LINE WEIGHTS
[Symbol]	SO	SAND OIL WASTE	[Symbol]	PRESSURE/TEMP. RELIEF	[Symbol]	
[Symbol]	G	GAS	[Symbol]	AR VENT	[Symbol]	
[Symbol]			[Symbol]	P-T TAP	[Symbol]	
[Symbol]			[Symbol]	PIPE GUIDE (SLEEVES)	[Symbol]	
[Symbol]			[Symbol]	PIPE EXPANSION JOINT	[Symbol]	
[Symbol]			[Symbol]	PIPE ANCHOR	[Symbol]	
[Symbol]			[Symbol]	SMOKE DETECTOR	[Symbol]	
[Symbol]			[Symbol]	BOILER DRAIN VALVE	[Symbol]	
[Symbol]			[Symbol]	BALL DRAIN W/ HOSE END CONNECTION	[Symbol]	
[Symbol]			[Symbol]	NEW	[Symbol]	
[Symbol]			[Symbol]	EXISTING	[Symbol]	
[Symbol]			[Symbol]	RELOCATED	[Symbol]	
[Symbol]			[Symbol]	FUTURE	[Symbol]	
[Symbol]			[Symbol]	VACUUM BREAKER	[Symbol]	
[Symbol]			[Symbol]	THERMOMETER	[Symbol]	
[Symbol]			[Symbol]	TEMPERATURE GAUGE W/ THERMOWELL	[Symbol]	



**MECHANICAL SHEET LIST**

SHEET NUMBER	SHEET TITLE
M-0.1	MECHANICAL COVER SHEET
M-0.2	MECHANICAL SCHEDULE SHEET
M-1.1	LOWER LEVEL MECHANICAL PLAN
M-1.2	MAIN LEVEL MECHANICAL PLAN

**DESIGN CODES:**

- 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2018 INTERNATIONAL MECHANICAL CODE (IMC)
- 2018 INTERNATIONAL PLUMBING CODE (IPC)
- 2020 NATIONAL ELECTRICAL CODE (NEC)
- 2018 INTERNATIONAL FIRE CODE (IFC)
- 2018 INTERNATIONAL FUEL GAS CODE (IFGC)

**INLINE PUMP PIPING DETAIL AND ISOLATION**

**MECHANICAL NARRATIVE:**  
 RESIDENCE UTILIZING BOILER SYSTEM FOR HEATING AND DOMESTIC HOT WATER. NEW ENERGY RECOVERY VENTILATOR SYSTEM FOR EXHAUST.

**DCE**  
 DYNAMIC MEP CONSULTING ENGINEERS  
 1480 HOYT ST. STE. 200  
 LAKEWOOD, CO. 80215  
 303.421.3208

PROFESSIONAL ENGINEER  
 10/12/23  
 61793

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**HOLOMBO RESIDENCE**  
 0039 LODGESTONE TRAIL  
 BLUE RIVER, COLORADO 80424

**BHH PARTNERS**  
 660 ADAMS AVE  
 SILVER THORNE, CO 80498

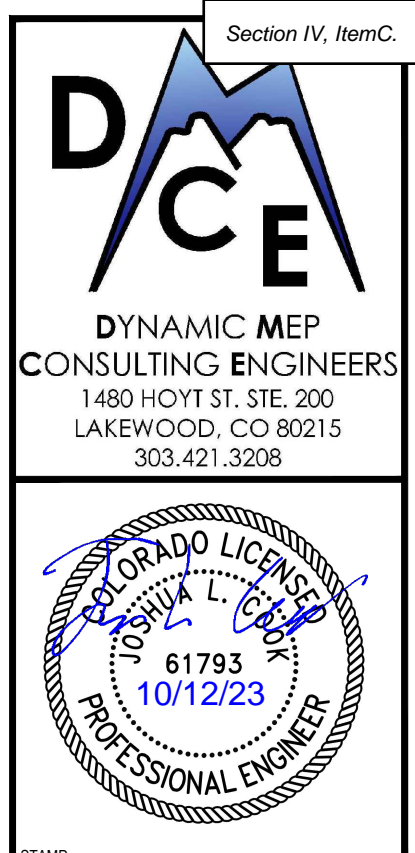
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**HOLOMBO RESIDENCE**  
 0039 LODESTONE TRAIL  
 BLUE RIVER, COLORADO 80424  
**BHH PARTNERS**  
 660 ADAMS AVE  
 SILVER THORNE, CO 80498

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TAG	MANUFACTURER MODEL	OUTSIDE AIR CFM	ESP	HP	WINTER CONDITIONS					SUMMER CONDITIONS					ELECTRICAL					WEIGHT	COMMENTS			
					OUTSIDE AIR/FRESH		BLDG	OUTSIDE AIR/FRESH AIR		BLDG RETURN	EN HX		LVG HX	ENT HX	VOLT	PHASE	FLA	MOCP						
					ENT HX	LVG HX	ENT HX	ENT HX	ENT HX	ENT HX	ENT HX	ENT HX												
ERV-1	RENEWAIRE EV 300	250	0.50	0.2	69%	-30	-31	39	25	70	50	55%	85	58	80	56	75	54	120	1	3.3	15	115	1,2,3,4,5

NOTES:  
 1. STATIC POLYESTER ENTHALPY MEDIA. 3. PROVIDE BACKDRAFT DAMPERS. 5. PROVIDE MANUFACTURER'S VV12x8 LOUVERS (2).  
 2. PERCENTAGE TIMER CONTROL. 4. MERV 8 FILTER.

TAG	MANUFACTURER	MODEL	SERVES	BTUH	CFM	KW	EAT	LAT	STAGES	ELECTRICAL		DIMENSIONS		FPM	ADDITIONAL FEATURES REQUIRED
										AMPS	VOLTS/PHASE	W	H		
EHC-1	INDEECO	QUA	ERV FRESH AIR	9566	250	2.8	39	81.5	2	24	120 / 1	10	8	450	1,2,3,4

FEATURES:  
 1. THERMOSTAT LOCATED IN DUCT UPSTREAM OF COIL, SET AT 70°F (ADJ.) 4. AIRFLOW SWITCH.  
 2. HIGH TEMPERATURE CUTOFF.  
 3. NON-FUSED DISCONNECT SWITCH.

TAG	TRIANGLE TUBE MODEL	TYPE	CAPACITY (MBH)		AFUE	WORK PRESS PSIG	OPER PRESS PSIG	GPM*	TEMP.		FLUE & COMB AIR					OPER WT. LBS.	ELECTRICAL REQ			ADDITIONAL FEATURES REQ.
			S.L. INPUT	ALT. OUTPUT 10000 FT					EWT (°F)	LWT (°F)	VENT SIZE	TYPE	CA SIZE	TYPE	MAX EQ FT EA		VOLT / PH	FLA	MOCP	
B-1	SOLO 250	CONDENSING	250	171.0	95	30	30	17.1	130	150	3"Ø	CPVC SCH 40	3"Ø	PVC SCH 40	60	175	120 / 1	2.0	15	1,2,3,4,5,6,7,8,9,10,11

FEATURES:  
 1. PID CONTROL LOGIC MODULATION (25% TO 100%) 8. FLUE TYPE: (F1) - C.A VENT SCHEDULE 40 PVC \* FLOWS BASED ON HIGH SPEED PUMP W/MAX 4 FT PIPING P.D.  
 2. ELECTRONIC INTERMITTANT IGNITION (F2) - FLUE VENT SCHEDULE 40 CPVC. EQUALS BY: TRIANGLE TUBE  
 3. LOW FLOW LOCKOUT VILO ARMSTRONG  
 4. 439 STAINLESS STEEL HEAT EXCHANGER 9. PROVIDE TEKMAR 265 MULTI BOILER RESET CONTROL W/BOILER INTERFACE MODULES TACO  
 5. 0% PROPYLENE GLYCOL (PROVIDE FOR ENTIRE SYSTEM) 10. HIGH WATER & FLUE TEMPERATURE MANUAL RESET CONTROL  
 6. LOW WATER PRESSURE CUT OFF 11. NEUTRALIZER KIT FOR CONDENSATE  
 7. OUTDOOR RESET CONTROL W/ DOMESTIC WATER PRIORITY (B-1C).

TAG	MANUFACTURER MODEL	LOCATION DUTY	SERIES TYPE	FLOW (GPM)	HEAD (FT)	RPM	MAX. WATTS	ELECT (VOLT/PH)	REMARKS & FEATURES REQ'D
P-1	GRUNDFOS UPS 40-80/4 F	BOILER CIRC. PUMP	CIRC	18	10	1750	565	120/1	1,2
P-2	GRUNDFOS UPS 26-99FC	RADIANT FLOOR SYSTEM PUMP	CIRC	7.5	30	1750	197	120/1	1,2,3
P-3	GRUNDFOS UPS 26-99FC	DOMESTIC WATER PUMP	CIRC	23	10	1750	197	120/1	1,3

FEATURES:  
 1. NON-OVERLOADING MOTOR. 2. SUITABLE AND SELECTED FOR 0% SOLUTION OF INHIBITED PROPYLENE GLYCOL. PROVIDE THIS SOLUTION IN ALL SYSTEMS INDICATED ABOVE. 3. INTERCONNECT WITH TEKMAR 263 BOILER CONTROLLER.

EQUALS BY:  
 VILO ARMSTRONG  
 TACO

TAG	MANUFACTURER MODEL	LOCATION	SERVICE	TYPE	ACCEPTANCE VOLUME (GALLONS)	TOTAL VOLUME (GALLONS)	ADDITIONAL FEATURES
ET-1	AMTROL AX-20V	MECHANICAL ROOM	BOILER SYSTEM	BLADDER	2	10.9	1,2,3

FEATURES:  
 1. 0% GLYCOL. 2. NON FERROUS FOR DOMESTIC APPLICATIONS. 3. ASME CONSTRUCTION.

DWELLING UNIT DESCRIPTION	HVAC SYSTEMS	DWELLING UNIT FLOOR AREA SQ. FT.	NO. BEDROOMS	CONT. WHOLE-HOUSE VENT. AIR FLOW - MINIMUM CFM	COMMENTS
HOLUMBO RESIDENCE	ERV-1	2933	4	75	

NOTES:  
 1. ABOVE IS BASED ON 2018 IMC CHAPTER 4.

MANIFOLD TAG	ZONE TAG	DESCR	SUB LOOP NET RADIANT AREA	BTU/SF @ 100 DEG F EWT	TOTAL BTU	NO LOOPS	GPM	LOOP SPACING
1	1	LOWER LEVEL BEDROOM 1	152	20	3040	1	0.4	12" O.C.
1	2	LOWER LEVEL BEDROOM 2	182	20	3640	2	0.5	12" O.C.
1	3	LOWER LEVEL FAMILY ROOM	665	20	13300	4	1.9	12" O.C.
1	4	LOWER LEVEL MASTER BEDROOM/BATH	308	20	6160	2	0.9	12" O.C.
2	5	MAIN LEVEL LIVING/KITCHEN/DINING	1042	20	20840	7	2.9	12" O.C.
2	6	MAIN LEVEL MASTER BEDROOM/BATH	338	20	6760	2	0.9	12" O.C.
TOTAL			2687		53740		7.5	

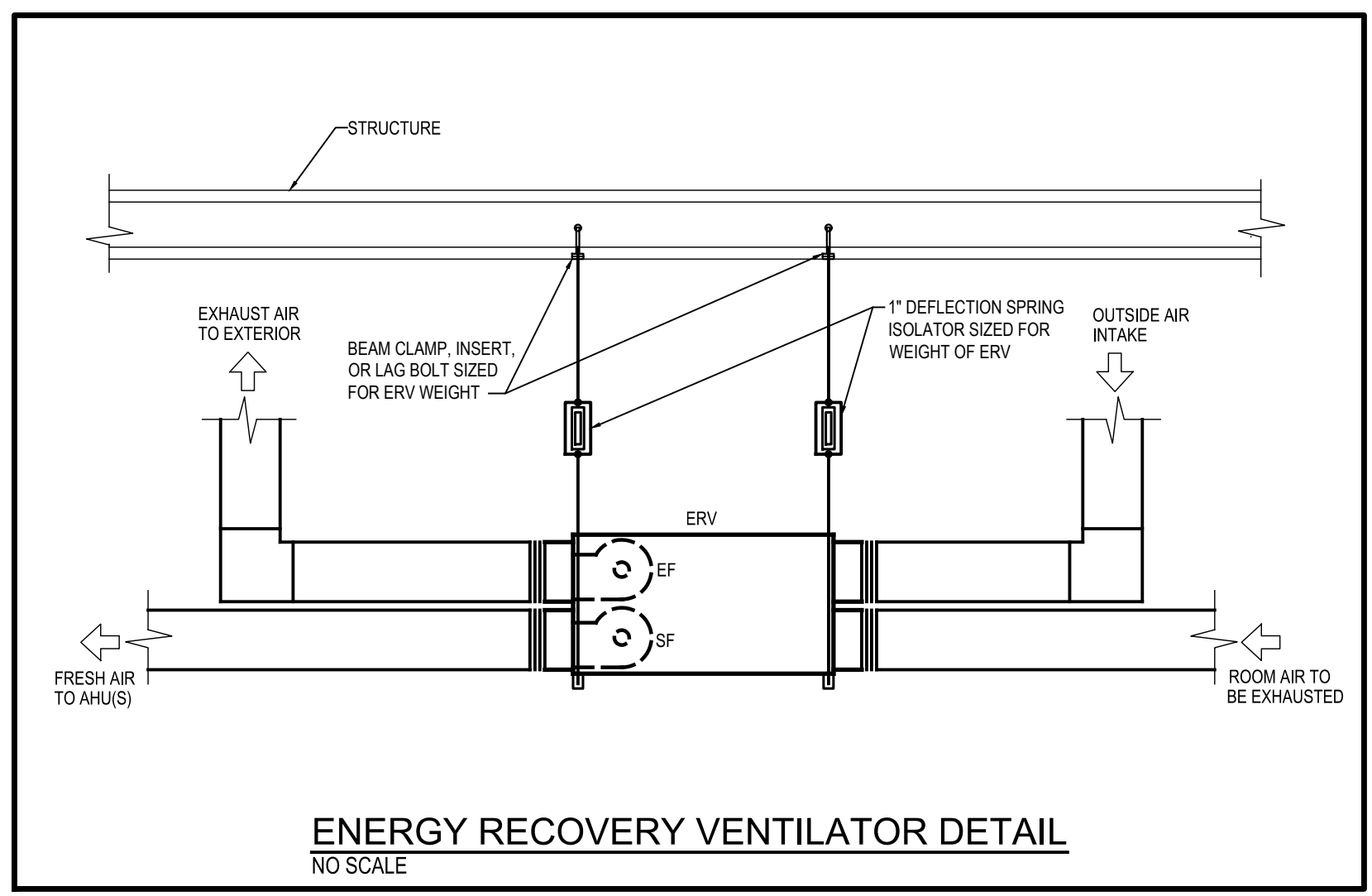
GENERAL NOTES:  
 1. ALL LOOPS TO BE 1/2" PEX  
 2. ALL LOOPS TO SUPPLY ONLY GENERAL SUBLOOP AREA DESCRIBED.  
 3. MAXIMUM LOOP LENGTH IS 200 FEET.  
 4. SECURE PEX TO FLOOR 30 INCHES ON CENTER AND RADIUS OF ALL 90 AND 180 DEGREE BENDS.  
 5. MARK ALL HEADERS WITH EACH LOOP AREA SERVED.  
 6. ALL TUBING TO BE 12 INCHES ON CENTER EXCEPT WHERE SHOWN DIFFERENT ON DRAWINGS OR SCHEDULE.

TAG	MFG / MODEL	FIRE DMPR	OBD	MAX N.C.	ADDITIONAL FEATURES REQUIREMENTS
D	PRICE 520S	SIDEWALL SUPPLY	--	YES 30	ALL STEEL, DOUBLE DEFLECTION 3/4" SPACING
E	PRICE 530L	SIDEWALL RETURN	--	YES 30	ALL STEEL 35° DEFLECTION, 3/4" SPACING

FEATURES:  
 A. USE LAY-IN FRAME STYLE 3P ON ALL T-BAR CEILINGS. \*USE OBD IN ALL NON ACCESSIBLE CEILING AREAS  
 B. USE FRAME STYLE 1 ON ALL HARD SURFACE CEILINGS. ONLY WHERE SPINDAMPER CAN NOT BE SERVICED.  
 C. USE MAX 6FT. OF CODE APPROVED INSULATED FLEX DUCT.  
 D. MAXIMUM S.P. DROP = 0.15" W.C. UNLESS OTHERWISE NOTED.  
 E. ALL CEILING DIFFUSERS TO HAVE 4-WAY DEFLECTION UNLESS SHOWN WITH THROW BLOCKING.  
 F. OBD MAY BE OMITTED IF ONLY ONE RETURN INLET PER SYSTEM IS USED.  
 OR RETURN SYSTEM IS NON-DUCTED.  
 G. USE SPIN-IN FITTINGS WITH LOCKING BUTTERFLY DAMPER IN ACCESSIBLE LAY-IN CEILINGS. IN LIEU OF OBD. USE OBD IN ALL NON ACCESSIBLE CEILING AREAS ONLY WHERE SPINDAMPER CAN NOT BE SERVICED.  
 H. USE SPIN-IN FITTINGS WITH LOCKING BUTTERFLY DAMPER IN ACCESSIBLE LAY-IN CEILINGS.  
 I. IN LIEU OF OBD. USE OBD IN ALL NON ACCESSIBLE CEILING AREAS ONLY WHERE SPINDAMPER CAN NOT BE SERVICED.  
 EQUALS BY: GRD - TITUS, KRUEGER, NAILOR, METALARE, ANEMOSTAT, TUTTLE AND BAILEY  
 LOUVERS - RUSKIN, ARROW, UNITED ENERTECH, POTTORFF, NCA  
 NOTE: PROVIDE A ROOM-BY-ROOM AIR DISTRIBUTION SCHEDULE WITH THE DIFFUSER AND GRILLE SUBMITTAL. INCLUDE TAG #, ROOM #, MANUFACTURER, MODEL #, NECK SIZE, BORDER SIZE, COLOR, OBD, QUANTITY, CFM AND N.C. THROW @ 150 FPM.

MAX AIR FLOW @ DUCT & FLEX 0.15" PER 100'

SIZE	CFM	SIZE	CFM
6"	130	12"	800
7"	200	14"	1200
8"	300	16"	1800
10"	500	18"	2400







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**HOLMBO RESIDENCE**  
 0039 LODGESTONE TRAIL  
 BLUE RIVER, COLORADO 80424

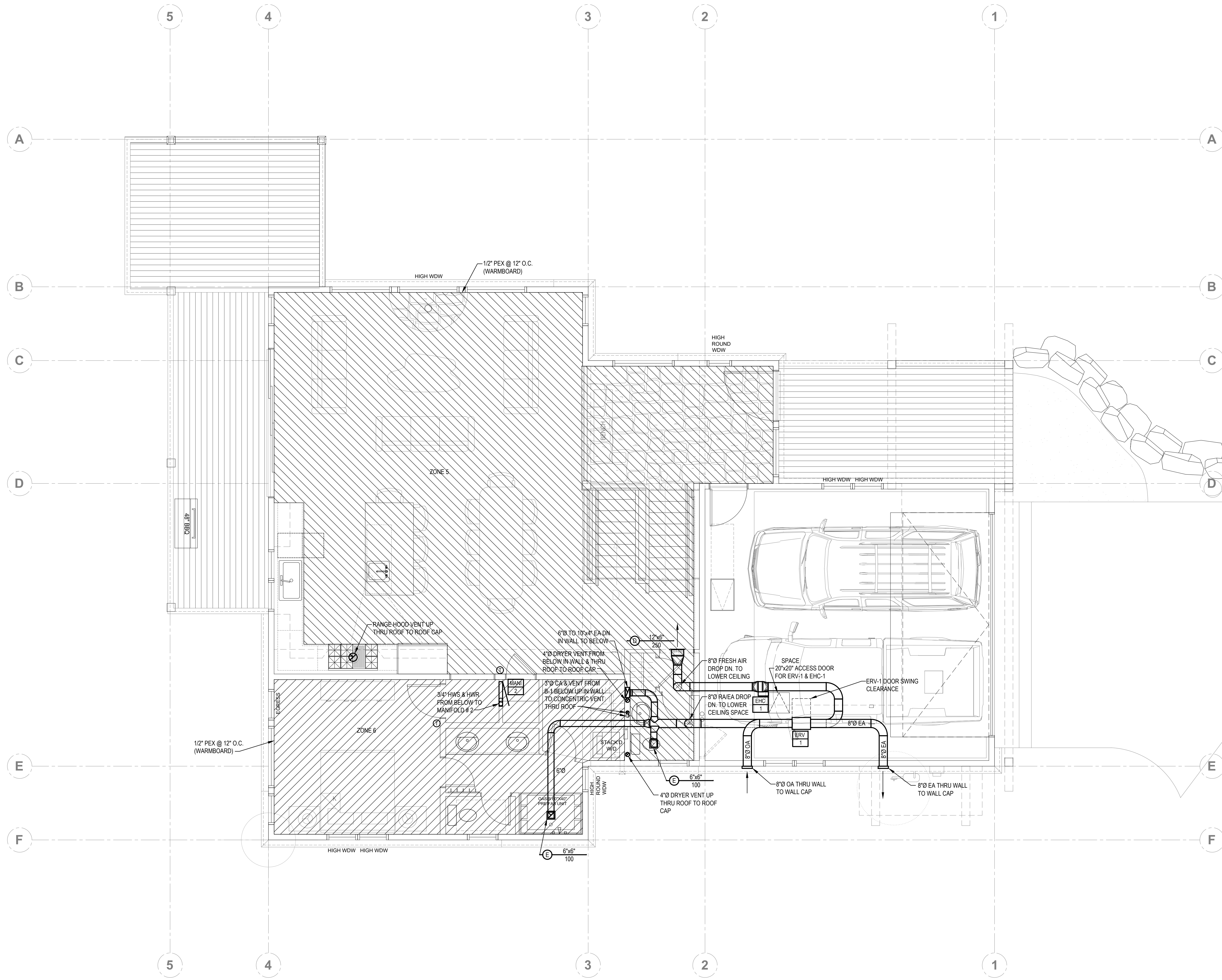
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**M-1.2**



**1 MAIN LEVEL MECHANICAL PLAN**  
 SCALE: 1/4" = 1'-0"

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**HOLOMBO RESIDENCE**  
0039 LODESTONE TRAIL  
BLUE RIVER, COLORADO 80424

**BHH PARTNERS**  
660 ADAMS AVE  
SILVER THORNE, CO 80498

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**GENERAL PROJECT NOTES**

NOTE: SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL CONSTRUCTION REQUIREMENTS

- THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL NECESSARY FOR A COMPLETE, OPERATIONAL AND PROPERLY FUNCTIONING ELECTRICAL SYSTEM
- MATERIALS AND INSTALLATION SHALL COMPLY WITH CODES, LAWS AND ORDINANCES OF FEDERAL, STATE AND LOCAL GOVERNING BODIES HAVING JURISDICTION.
- MATERIALS AND EQUIPMENT SHALL BE LISTED AND/OR LABELED BY U.L., ETL, CSA OR ANOTHER RECOGNIZED TESTING LAB. ALL MATERIAL, EQUIPMENT, WIRING DEVICES, ETC. SHALL BE NEW, UNLESS SPECIFICALLY INDICATED AS EXISTING TO BE REUSED.
- THE CONTRACTOR SHALL PREPARE AND SUBMIT TO GOVERNMENTAL AGENCIES AND UTILITY COMPANIES SHOP DRAWINGS REQUIRED BY THESE AGENCIES OR APPROVAL. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES, TAXES AND LICENSES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE ELECTRICAL WORK. THIS CONTRACTOR SHALL SECURE AND PAY ALL FEES AND PERMITS PERTAINING TO THIS CONTRACT, SHALL BE RESPONSIBLE FOR WORKER'S IDENTIFICATION AND BADGING, SAFETY, AND LIABILITY INSURANCE. PROVIDE BARRICADES, WARNING SIGNS, AND TRASH REMOVAL FOR THE SAFETY OF THE WORKERS UNDER THIS CONTRACTOR'S EMPLOY.
- THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER/OWNER OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF LAWS, ORDINANCES, RULES OR REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL PREPARE THE DOCUMENTS, INCLUDING DRAWINGS, REQUIRED TO OBTAIN APPROVAL OF THE EQUIPMENT AND LOCATIONS OF THE DEVICES THAT COMPRISE THE BUILDING FIRE ALARM LIFE SAFETY SYSTEM. THE DRAWINGS AND CUT SHEETS SHALL BE PROVIDED TO A PROFESSIONAL ENGINEER FOR REVIEW AND APPROVAL. THE APPROVED DRAWINGS WILL BE STAMPED, SIGNED AND RETURNED TO E.C. TO SUBMIT TO THE BUILDING DEPARTMENT.
- THE CONTRACTOR SHALL CAREFULLY EXAMINE THE CONTRACT DOCUMENTS, VISIT THE SITE, AND THOROUGHLY BECOME FAMILIAR WITH THE BUILDING STANDARDS, LOCAL JURISDICTIONAL CODES AND REQUIREMENTS, AND LOCAL CONDITIONS RELATING TO THE WORK. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT. SUBMISSION OF PROPOSAL IN CONNECTION WITH THIS WORK SHALL IMPLY THAT THE BIDDER HAS EXAMINED THE JOB SITE. NO EXTRA CHARGE WILL BE ALLOWED FOR CHANGES AS A RESULT FROM FAILURE TO EXAMINE THE JOB SITE.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY POWER AND WIRING FOR THE PERFORMANCE OF ALL TRADES, FOR THE ENTIRE PERIOD OF CONSTRUCTION AND SHALL REMOVE ALL TEMPORARY WIRING AT THE COMPLETION OF CONSTRUCTION.
- ALL MATERIALS AND EQUIPMENT SHALL BE ERRECTED, INSTALLED, CONNECTED, CLEANED, ADJUSTED, TESTED, CONDITIONED, AND PLACED IN SERVICE IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS.
- ALL CUTTING, DRILLING AND PATCHING OF MASONRY, STEEL OR IRON WORK BELONGING TO THE BUILDING MUST BE DONE BY THIS CONTRACTOR IN ORDER THAT HIS WORK MAY BE PROPERLY INSTALLED, BUT UNDER NO CONDITIONS MAY STRUCTURAL WORK BE CUT, EXCEPT AT THE DIRECTION OF THE ARCHITECT-DESIGNER OR THEIR REPRESENTATIVE.
- ALL WORK REQUIRED FOR THE INSTALLATION AS SHOWN ON DRAWINGS INCLUDING LABOR, EQUIPMENT AND MATERIALS SHALL BE IN STRICT COMPLIANCE WITH THE BUILDING STANDARDS.
- ALL FEEDER CONDUCTORS SHALL BE COPPER WITH DEDUCT ALTERNATE PRICING FOR ALUMINUM. BRANCH CIRCUIT CONDUCTORS TO BE COPPER. CABLES WITH TYPE THHN-THWN INSULATION WILL BE USED FOR FEEDERS AND ALL BRANCH CIRCUIT CONDUCTORS.
- PROVIDE COMPLETE METAL RACEWAY SYSTEMS AND ENCLOSURES FOR ALL WIRING THROUGHOUT THE EXTENT OF THE REQUIRED SYSTEM. PROVIDE THE FOLLOWING TYPE OF PRODUCT IN SPECIFIED APPLICATIONS:
  - EXTERIOR LOCATIONS:
    - EXPOSED RACEWAY: IMC OR RMC
    - CONCEALED RACEWAY, ABOVEGROUND: IMC OR RMC
    - UNDERGROUND CONDUIT: RNC
    - CONNECTIONS ON VIBRATING EQUIPMENT: LFMC
    - BOXES, ABOVE GROUND: NEMA TYPE 3R OR TYPE 4. BOXES AND FITTINGS SHALL BE CAST TYPE
    - TRANSITION FROM UNDERGROUND TO ABOVE SLAB: RNC ELBOWS.
  - INTERIOR LOCATIONS:
    - EXPOSED, NOT SUBJECT TO PHYSICAL DAMAGE: EMT
    - EXPOSED, SUBJECT TO PHYSICAL DAMAGE: RMC
    - WOOD-FRAME CONSTRUCTION, AS PERMITTED BY AHJ: NMC
    - DAMP OR WET LOCATIONS: RMC
    - CONCEALED: EMT OR MC (WHERE PERMITTED BY OWNER)
    - CONNECTIONS TO VIBRATING EQUIPMENT, DRY LOCATIONS: FMC
    - CONNECTIONS TO VIBRATING EQUIPMENT, WET LOCATIONS: LFMC
    - BOXES, DRY LOCATION: NEMA 250, TYPE 1
    - BOXES, DAMP AND WET LOCATIONS: NEMA 250, TYPE 4 STAINLESS STEEL
  - FITTINGS: SET SCREW, GALVANIZED STEEL OR MALLEABLE IRON FOR EMT.
- WIRING DEVICES WILL BE SPECIFICATION GRADE, SIDE AND BACK WIRING TYPE. ANY WIRE CONNECTION SHALL BE SCREW-CLAMP TYPE. RECEPTACLES SHALL HAVE A NEMA 5-20R CONFIGURATION RATED FOR 20 AMPS. STANDARD TOGGLE SWITCHES WILL BE RATED FOR 120/277 VOLTS AND 20 AMPS. WIRING DEVICE AND FACEPLATE FINISHES SHALL BE WHITE IN FINISHED SPACES, STAINLESS STEEL/BLACK IN FITNESS AND UNFINISHED SPACES. OUTDOOR DEVICES SHALL BE RATED WET LOCATION WHILE IN USE.
- ALL BRANCH CIRCUITS TO BE FED WITH #12, #12G, 3/4", UNLESS OTHERWISE NOTED.
- ALL TELE/ DATA BOXES SHALL BE PROVIDED WITH A 1/2" CONDUIT AND BUSHING WITH PULL STRING RUN 6" ABOVE FINISHED CEILING OR CEILING GRID. ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED FOR ALL WALL OUTLETS & TELEPHONE WIRING RUNNING BELOW RAISED FLOOR OR ABOVE HARD CEILINGS.
- ALL RECEPTACLES NOTED AS ISOLATED GROUND (IG) OR DEDICATED OR CIRCUITED AS DEDICATED SHALL BE PROVIDED WITH A DEDICATED GROUND AND NEUTRA
- MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS OTHERWISE INDICATED. CONDUITS LARGER THAN 2" DIAMETER OR CONDUITS OF ANY SIZE ROUTED OUTDOORS SHALL BE INTERMEDIATE METAL CONDUIT (IMC).
- FLEXIBLE CONDUIT CONNECTIONS TO RECESSED LIGHTING FIXTURES SHALL BE MADE WITH FLEXIBLE STEEL CONDUIT, 3/8 INCH MINIMUM.
- FINAL CONNECTIONS TO MOTORS SHALL BE MADE WITH LIQUID TIGHT FLEXIBLE STEEL CONDUIT, 1/2 INCH MINIMUM.
- WIRE NO. 8 AND SMALLER INSTALLED IN DRY LOCATIONS SHALL BE TYPE THWN OR THHN THERMOPLASTIC 600V INSULATED COPPER CONDUCTORS. NO WIRE SMALLER THAN NO.12 SHALL BE USED FOR LIGHTING OR POWER WIRING. WIRE NO. 8 AND LARGER SHALL BE STRANDED. ALL CONDUCTORS INSTALLED IN EXTERIOR OR WET LOCATIONS SHALL BE TYPE THWN 600V INSULATED COPPER CONDUCTORS.
- ALL NEW CIRCUIT BREAKERS FOR NEW PANELBOARDS SHALL MATCH NEW BUILDING STANDARD PANELBOARD MANUFACTURER AND BREAKER TYPE. THE CONTRACTOR SHALL PROVIDE NEW ACCURATE AND DETAILED TYPE WRITTEN PANEL DIRECTORIES PER NEC 408.4 FOR ALL NEW PANELS. NUMBERED CIRCUITS ARE FOR CONVENIENCE OF DESIGN ONLY. E.C. TO FIELD VERIFY ACTUAL CIRCUIT NUMBERS USED AND CORRECTLY INDICATE ON AS-BUILT DRAWINGS. THE E.C. SHALL REMOVE ALL ABANDONED CIRCUITS.
- PROVIDE #10 FOR BRANCH CIRCUITS OVER 75' AT 120V AND OVER 150' AT 277V. E.C. TO FIELD VERIFY BRANCH CIRCUIT LENGTHS AND SIZE CONDUCTORS FOR VOLTAGE DROP PER NEC.
- EACH SWITCH, LIGHT, RECEPTACLE AND ALL OTHER DEVICES SHALL BE PROVIDED AND INSTALLED WITH A GALVANIZED OR SHERARDIZED PRESSED STEEL JUNCTION BOX OF NOT LESS THAN NO. 14 U.S. GAUGE STEEL. CONDUITS SHALL BE FASTENED WITH LOCKNUTS AND BUSHINGS AND ALL UNUSED KNOCKOUTS MUST BE LEFT SEALED. THERE MUST BE SUFFICIENT ROOM FOR WIRES AND BUSHINGS AND DEEP BOXES SHALL BE INSTALLED WHERE REQUIRED. BOXES SHALL BE SECURELY AND ADEQUATELY SUPPORTED.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SPECIAL OUTLET BOXES THAT MAY BE REQUIRED TO ENCLOSE RECEPTACLES.
- IN SUSPENDED CEILINGS SUPPORT CONDUIT AND JUNCTION BOXES DIRECT FROM THE STRUCTURAL SLAB, DECK, OR FRAMING PROVIDED FOR THAT PURPOSE. LIGHTING BRANCH CIRCUIT CONDUITS SHALL NOT BE CLIPPED TO THE CEILING SUPPORT WIRES OR SPLINE UNLESS THE CEILING SYSTEM HAS BEEN SPECIFICALLY DESIGNED FOR THAT PURPOSE.
- PROVIDE LOCAL DISCONNECT SWITCHES FOR ALL MOTORS (PLENUM APPROVED WHERE REQUIRED).
- THE E.C. SHALL INCLUDE IN HIS COST THE REMOVAL OF ALL EXISTING ELECTRICAL DEVICES, CONDUITS, FIXTURES AND EQUIPMENT THAT IS NOT TO BE REUSED. DISCARD ALL EQUIPMENT AS REQUIRED. E.C. SHALL BE RESPONSIBLE FOR DISCONNECTING PRIMARY SERVICE AND TEMPORARY POWER.
- PROVIDE WARRANTY GUARANTEED FOR A PERIOD OF ONE YEAR AFTER COMPLETION AND ACCEPTANCE. REPLACE ALL DEFECTIVE WORKMANSHIP, EQUIPMENT AND MATERIALS WITHOUT ADDITIONAL CHARGES.
- THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFEKEEPING OF HIS/HER OWN PROPERTY ON THE JOB SITE. THE OWNER OR TENANT ASSUMES NO RESPONSIBILITY FOR PROTECTION OF THIS CONTRACTOR'S PROPERTY AGAINST FIRE, THEFT, OR ENVIRONMENTAL CONDITIONS.
- WHERE CONDUIT, CABLES, DUCTWORK OR PIPING PASSES THROUGH FIRE RATED FLOORS, WALLS, OR PARTITIONS, THE SLEEVES SHALL BE COMPLETELY SEALED WITH A FIRE STOP MATERIAL THAT IS U.L. LISTED (EQUAL TO DOW CORNING) AND ACCEPTED BY THE BUILDING DEPARTMENT AND FIRE DEPARTMENT AS BEING SUITABLE FOR THE SERVICE. THIS MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS IN ORDER TO MAINTAIN THE FIRE RATINGS OF THE PENETRATED WALL, FLOOR, OR PARTITION. INSTALLATION SHALL BE A THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLED AS TESTED IN ACCORDANCE WITH ASTM AND UL. THE FIRE RATING SHALL MATCH THE RATING OF THE BARRIER BEING PENETRATED.
- SUBMIT AN ELECTRONIC COPY OF SHOP DRAWINGS, CONTROL DIAGRAMS, AND EQUIPMENT CUTS TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING RELATED WORK. SHOP DRAWINGS SHALL INCLUDE MANUFACTURER'S NAMES, CATALOG NUMBERS, CUTS, DIAGRAMS AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED TO IDENTIFY AND REVIEW THE EQUIPMENT. SUBMITTALS SHALL BE IN LOGICAL GROUPS, PARTIAL SUBMITTALS WILL NOT BE REVIEWED.
- UPON COMPLETION OF CONSTRUCTION, SUPPLY THE OWNER AND ENGINEER WITH ONE COMPLETE SET OF FULL SIZE AS-BUILT DRAWINGS. PROVIDE THE OWNER WITH THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS FOR EACH TYPE OF EQUIPMENT INSTALLED.
- THIS CONTRACTOR SHALL ASSUME ALL ADDED EXPENSES TO ALL TRADES ASSOCIATED WITH THE INSTALLATION OF SUBMITTED AND APPROVED ALTERNATE EQUIPMENT.
- THE CONTRACTOR SHALL COORDINATE THE LAYOUT OF THE FIRE ROOM WITH ALL OTHER DISCIPLINES, ESPECIALLY THE FIRE ALARM AND FIRE PROTECTION DESIGN-BUILD CONTRACTORS PRIOR TO ANY WORK.
- IF ANY CHANGES ARE MADE TO ACCOMMODATE FIELD CONDITIONS NOTIFY THE ENGINEER IMMEDIATELY OF WHAT THE CHANGES WERE, THE REASON FOR THE CHANGES, AND THE COST IMPACTS.
- LOCATE ALL ELECTRICAL SWITCHBOARDS, PANELBOARDS AND ELECTRICAL DISTRIBUTION EQUIPMENT IN DEDICATED SPACES AND PROTECTED FROM DAMAGE WITH ADEQUATE WORKING CLEARANCE IN ACCORDANCE WITH NEC 110 REQUIREMENTS. PROVIDE PROTECTION FROM ANY FOREIGN SYSTEM INSTALLED ABOVE THE DEDICATED EQUIPMENT SPACE PER NEC 110.26(E).
- LIGHTING AND CONTROLS TO COMPLY WITH IECC 2018. PROVIDE RELAY PANELS WITH ASTRONOMICAL TIMECLOCK AND PHOTOCELL WITH LOW VOLTAGE SWITCHES, DIMMING AND MULTI-ZONE, AS INDICATED. PROVIDE OCCUPANCY SENSOR SWITCHES AS INDICATED. PROVIDE CEILING-MOUNT DUAL-TECHNOLOGY (PIRV) WITH LOW-VOLTAGE WALL SWITCHES WHERE INDICATED.

ELECTRICAL SHEET LIST	
Sheet Number	Sheet Title
E-0.1	COVER SHEET
E-0.2	ONELINE & SCHEDULES
E-1.1	LOWER LEVEL ELECTRICAL PLAN
E-1.2	MAIN LEVEL ELECTRICAL PLAN
E-1.3	UPPER LEVEL ELECTRICAL
E-1.4	ROOF ELECTRICAL PLAN

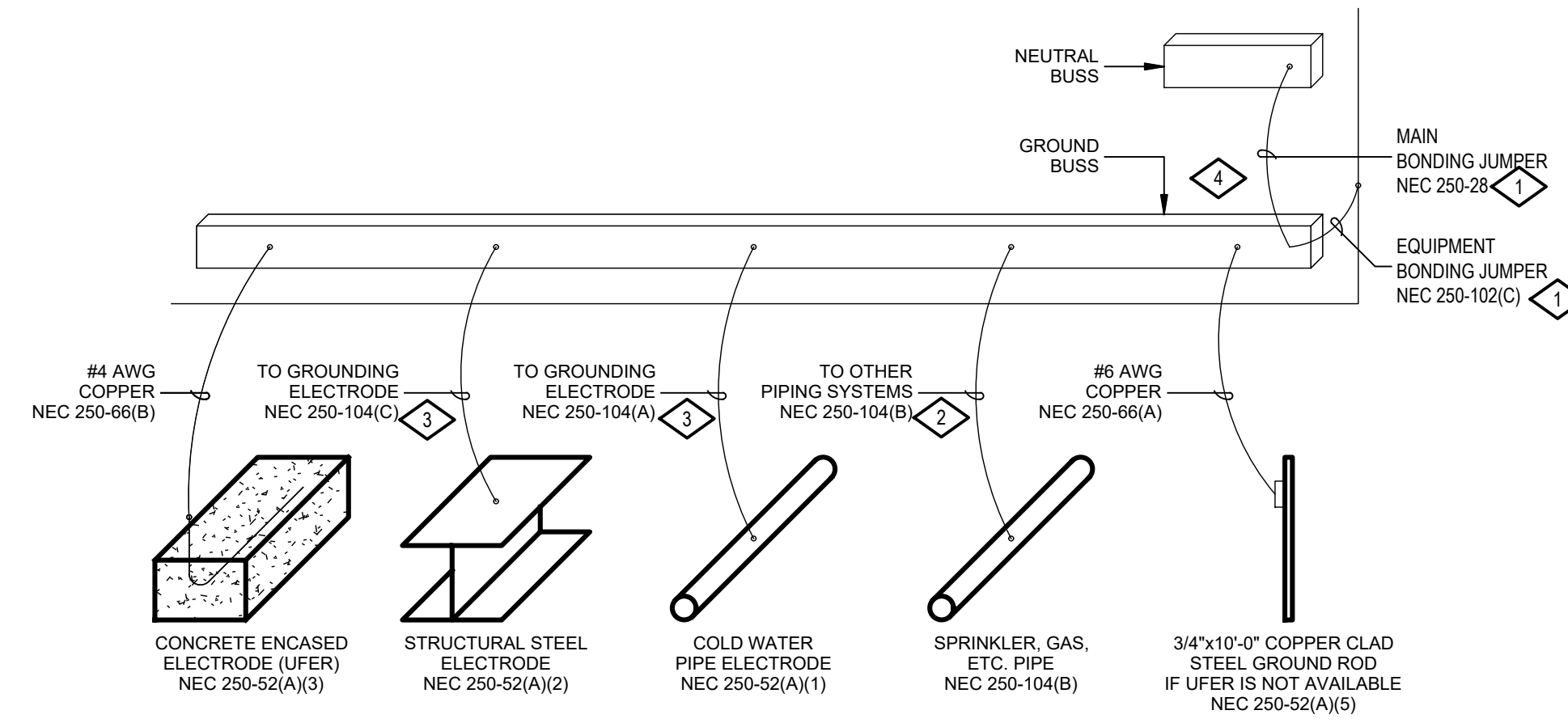
- DESIGN CODES:**
- 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
  - 2018 INTERNATIONAL MECHANICAL CODE (IMC)
  - 2018 INTERNATIONAL PLUMBING CODE (IPC)
  - 2020 NATIONAL ELECTRICAL CODE (NEC)
  - 2018 INTERNATIONAL FIRE CODE (IFC)
  - 2018 INTERNATIONAL FUEL GAS CODE (IFGC)

ELECTRICAL LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DOWN LIGHT		WALL-COAXIAL CABLE OUTLET MTD 18" AFF. UON
	WALL WASHER		WALL-COMBINATION DUAL DATA COAXIAL OUTLET MTD 18", UON
	WALL MOUNTED FIXTURE		OCCUPANCY SENSOR
	TRACK LIGHTING		PHOTOELECTRIC SENSOR
	SURFACE FIXTURE		SINGLE POLE SWITCH, MTD 46" AFF. UON
	RECESSED FIXTURE		TWO-POLE SWITCH
	SHADING INDICATES EMERGENCY FIXTURE		THREE-WAY SWITCH
	CEILING MOUNTED EXIT SIGNS, SHADING INDICATES FACE(S) (ARROW(S) AS INDICATED)		FOUR-WAY SWITCH
	WALL MOUNTED EXIT SIGNS, SHADING INDICATES FACE(S) (ARROW(S) AS INDICATED)		DIMMER SWITCH
	EMERGENCY LIGHTING UNIT		PILOT LIGHT SWITCH
	COMBINATION EXIT SIGN / EMERGENCY LIGHTING UNIT		KEY OPERATED SWITCH
	POLE MOUNTED FIXTURE		LOW VOLTAGE SWITCH
	BOLLARD TYPE FIXTURE		MOTOR SWITCH
	FIRE ALARM		MOMENTARY CONTACT SWITCH
	SMOKE - CO DETECTOR		OCCUPANCY SENSOR SWITCH
	ELECTROMAGNETIC DOOR HOLD OPEN		THERMAL OVERLOAD SWITCH
	SMOKE DETECTOR		DISTRIBUTION / RACEWAY
	THERMAL DETECTOR		SWITCHGEAR / SWITCHBOARD
	FIRE/SMOKE DAMPER		BRANCH CIRCUIT PANELBOARD
	FIRE DAMPER		TRANSFORMER
	SMOKE DAMPER		ONE-LINE DIAGRAM
	DEVICES		TRANSFORMER (# = kVA)
	JUNCTION BOX		TRANSFORMER WITH GROUND SECONDARY, KVA SIZE & VOLTAGE RATIO AS NOTED
	MOTOR		DISCONNECT SWITCH
	WALL-DUPLEX RECEPTACLE MTD 18" AFF. UON; GF1 = GROUND FAULT INTERRUPTING; AFC1 = ARC FAULT INTERRUPTING; USB = USB PORT		FUSED DISCONNECT SWITCH, 3-POLE, 400 AMPERE RATED SWITCH WITH 350 AMPERE RATED FUSE
	FLOOR-DUPLEX RECEPTACLE; GF1 = GROUND FAULT INTERRUPTING; AFC1 = ARC FAULT INTERRUPTING		AUTOMATIC TRANSFER SWITCH
	CEILING-DUPLEX RECEPTACLE; GF1 = GROUND FAULT INTERRUPTING; AFC1 = ARC FAULT INTERRUPTING		UTILITY METER
	WALL-CONVENIENCE RECEPTACLE, SPLIT WIRED		GROUND
	FLOOR-CONVENIENCE RECEPTACLE, SPLIT WIRED		GENERATOR
	WALL-TWO DUPLEX RECEPTACLES IN TWO GANG BOX		EQUIPMENT ENCLOSURE
	FLOOR-TWO DUPLEX RECEPTACLES IN TWO GANG BOX		SERVICE WEATHERHEAD
	CEILING-TWO DUPLEX RECEPTACLES IN TWO GANG BOX		SHORT CIRCUIT CURRENT AVAILABLE AT POINT INDICATED
	WALL-SPECIAL PURPOSE RECEPTACLE, CONFIGURATION NOTED		TRANSIENT VOLTAGE SURGE SUPPRESSOR
	FLOOR MOUNTED COMBO POWER / DUAL DATA OUTLET		FEEDER SCHEDULE
	WALL - DATA OUTLET MTD 18" AFF. UON		LOAD CENTER
	WALL - DUAL DATA, MTD 18" AFF. UON		LINE TYPES
	DASHED LINES INDICATE EXISTING EQUIPMENT TO REMAIN		BOLD LINES INDICATE NEW OR RELOCATED EQUIPMENT. RELOCATED EQUIPMENT MAY INCLUDE "RL"
	DOTTED LINES INDICATE REMOVED		SCREENED LINES INDICATE EXISTING EQUIPMENT TO REMAIN
			WORK NOTE REFERENCE
			MECHANICAL EQUIPMENT REFERENCE
			NOTE: 1 NOT ALL SYMBOLS ON THIS LEGEND ARE NECESSARILY USED ON THIS PROJECT 2 ELEVATIONS INDICATED ON LEGEND ARE TO CENTER, UON

LUMINAIRE SCHEDULE										
TYPE	DESCRIPTION	MFR	MODEL	DIMMING	VOLTS	CCT	LUMENS	WATTS	MOUNTING	NOTES
C1	18" LINEAR SURFACE MOUNT AREA LIGHT	DMF	(DRDH-N-JO)-(DRDSS-4-L-15-9-30)	TRIAC	120	3000K	1500	17	SURFACE	
CF1	52" CEILING FAN	PEACOCK	TERN	TRIAC	120	3000K	1600	39	SURFACE	
CF2	72" CEILING FAN	PEACOCK	MESOS-72-30-SN (MESOS-6WC)	-	120	3000K	1600	55	SURFACE	
D1	4" LED RECESSED ROUND GIMBAL	PORTOR	PT-DLG-R-4I-12W-3CCT	TRIAC	120	3000K	800	12	RECESSED	
D2	3" LED RECESSED ROUND GIMBAL	PORTOR	PT-DLG-R-3I-8W-3CCT	TRIAC	120	3000K	600	8	RECESSED	
D3	ECO 3" DOWNLIGHT	CSL	ED3-NC-30-90-50-12-S2-ED3-R-F-WL-BK	TRIAC	120	3000K	773	11.3	RECESSED	
P1	COMPASS 24" LED LARGE PENDANT	BLACK JACK	COM-24P-WH-27U-30K	TRIAC	120	3000K	2100	35	PENDANT	
P2	CANDLE 1" LIGHT SMALL PENDANT	BLACK JACK	SP-LGD-CA-01-WH-30K-3W-SP5	TRIAC	120	3000K	133	3	PENDANT	
P3	STARBURST 29" CHANDELIER	BLACK JACK	STB-29C-SN-27U-30K	TRIAC	120	3000K	2018	30	PENDANT	
S1	4FT LED LINEAR STRIP LIGHT	PORTOR	PT-LS1-4F-3CP	-	120	4000K	3350	25	SURFACE	
S2	4FT LED LINEAR STRIP LIGHT	PORTOR	PT-LS1-4F-3CP	-	120	4000K	5360	40	SURFACE	
UC	LIGHTBAR SLIM LINEAR UNDER CABINET LIGHT	LUTRON KETRA	HW-LS0-JUL250-WH-24	-	120	3000K	500	11	UNDER CABINET	
V1	SABRE BANITY LIGHT	DUNTON HOUSE	SABRE-24-30-BN	TRIAC	120	3000K	1320	22	WALL	
WS1	ROUND WALL CYLINDER	CANDELA	RWC-ADA-FS-BK	-	120	3000K	585	9	WALL	

**GENERAL NOTES:**

- PROVIDE LED LAMP WITH WATTAGE NO GREATER THAN LISTED WATTAGE IN LAMPING COLUMN.
- ALL LAMPS SHALL BE LED TO COMPLY WITH CURRENT ENERGY CODE.
- PROVIDE IC RATED FIXTURE IF REQUIRED AT MOUNTING LOCATION.
- REFERENCE ARCHITECTURAL PLANS FOR EXACT MOUNTING HEIGHTS FOR ALL PENDANTS, SUSPENDED FIXTURES, POLE LUMINAIRES AND WALL SCONCES.
- REFER TO ARCHITECT OR OWNER FOR FINISH.



- GENERAL NOTES - GROUNDING DETAIL:**
- THE GROUNDING ELECTRODE CONDUCTOR CONNECTION POINT IS NOT NECESSARILY A PHYSICAL CONNECTION. IT IS PROVIDED TO ILLUSTRATE THE INTERCONNECTION OF THE GROUNDING ELECTRODE SYSTEM. IT COULD, FOR EXAMPLE, BE THE WATER PIPE.
  - NEC REFERENCES ARE FROM 2017 NATIONAL ELECTRIC CODE.
  - BONDS SHALL BE MECHANICAL TYPE. INTERIOR BONDS MAY BE EXOTHERMIC.
  - BOND SIZE SHALL MATCH CONDUCTORS SHOWN ON FEEDER SCHEDULE.
  - GROUND CONDUCTORS SHALL BE STRANDED COPPER INSULATED CABLE, U.N.O.

- DETAIL NOTES - GROUNDING DETAIL:**
- SIZE PER TABLE 250-66 UP TO 1100 KCMIL. SIZE TO 12.5% OF FEEDERS WHEN OVER 1100 KCMIL. MAIN BONDING JUMPER FOR SERVICES GREATER THAN 1000A, PROVIDED WITH SERVICE ENTRANCE SWITCHGEAR ARE ACCEPTABLE.
  - SIZE PER TABLE 250-122. ASSUMES MAIN DEVICE RATING IS EQUAL TO FEEDER SIZE.
  - SIZE PER TABLE 250-66.

### GROUNDING DETAIL

SCALE: NONE

BONDING CONDUCTOR SIZE					
SES SIZE	MB/UEBJ	PIPING	GE	ISB	
100A	6	8	6	4	4
200A	4	6	4	4	4
400A	1/0	3	1/0	6	6
600A	2/0	1	2/0	6	6
800A	2/0	1/0	2/0	6	6
1000A	3/0	2/0	3/0	6	6
1200A	4/0	3/0	3/0	6	6
1600A	250 KCMIL	4/0	3/0	6	6
2000A	300 KCMIL	250 KCMIL	3/0	6	6
2500A	500 KCMIL	350 KCMIL	3/0	6	6
3000A	500 KCMIL	400 KCMIL	3/0	6	6

FAULT CURRENT AND VOLTAGE DROP CALCULATION TABLE																					
POINT	LOCATION DESCRIPTION	LENGTH (ft)	LOAD ON FEEDER (Amps)	POWER FACTOR (%)	VOLTAGE (E <sub>L</sub> )	PHASE	WIRE SIZE	CONDUCTOR MATERIAL	CONDUCTOR TYPE	CONDUIT MATERIAL	VOLTAGE CLASS	CONDUCTOR VOLT LOSS	C VALUE	# OF PARALLEL RUNS	I <sub>sc</sub> AVAILABLE UPSTREAM (SEE NOTE 5)	I <sub>sc</sub> AT EQUIP (I <sub>sc</sub> ) OR (I <sub>sc</sub> )	% OF VOLTAGE DROP	VOLTAGE AT START (V <sub>L1</sub> )	VOLTAGE AT END (V <sub>L2</sub> )	TOTAL % VD	
F0	XFLMR	--	--	--	--	--	--	--	--	--	--	--	--	--	--	14,800	0.9%	240	--	--	F0
F1	DISCONNECT	60	400	90%	240	1	3X	COPPER	THREE SINGLE CONDUCTORS	NONMAGNETIC	600V	175	13923	2	14,800	11,693	0.9%	240	238	0.9%	F1
F2	PANEL A	35	400	90%	240	1	3X	COPPER	THREE SINGLE CONDUCTORS	STEEL	600V	187	12843	2	11,693	10,322	0.5%	238	237	1.4%	F2

**NOTES:**

- ALL CALCULATIONS WERE DONE USING BUSSMAN "POINT-TO-POINT" METHOD.
- REFER TO PLANS FOR ASSUMED UTILITY TRANSFORMER SIZE UTILIZED FOR CALCULATIONS.
- TRANSFORMER IMPEDANCES USED IN THE CALCULATIONS WERE TAKEN FROM EATON'S PUBLISHED IMPEDANCES FOR DOE 2016 DRY-TYPE TRANSFORMERS.
- CONDUCTOR LENGTHS INDICATED IN THIS SCHEDULE ARE FOR THE PURPOSES OF FAULT CURRENT CALCULATIONS ONLY. THESE LENGTHS ASSUME WORST CASE SHORTEST DISTANCE CONDITIONS AND SHOULD NOT BE UTILIZED BY THE ELECTRICAL CONTRACTOR FOR BIDDING PURPOSES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ESTIMATING AND MEASURING ACTUAL FIELD CONDITION LENGTHS AS PART OF THE BID PROCESS.

**PANEL 'A'**

VOLTAGE L-L: 240  
 VOLTAGE L-N: 120  
 TYPE: 1PH/3W  
 MOUNTING: SURFACE  
 NOTES: NEW PANEL

LOCATION: GARAGE  
 BUS RATING: 400 AMPS  
 MAIN CB: 400 A/2P  
 FED FROM:  
 AIC RATING: FULLY RATED AT LEAST EQUAL TO: 10K AIC

CIR. NO.	CCT	LOAD VA	LOAD DESCRIPTION (NOTE #)	CIRCUIT BREAKER POLE	TRIP	BUS TYPE	CIRCUIT BREAKER TYPE	TRIP	POLE	LOAD DESCRIPTION (NOTE #)	LOAD VA	CCT	CIR. NO.	
1	R	900	ENTRY RECEPTACLES	1	20	A				DRYER	2500	E	2	
3	R	1080	GARAGE RECEPTACLES	1	20	GFCI	B	/	/	/	2500	E	4	
5	R	1176	GARAGE DOOR OPENER	1	20	GFCI	A	GFCI	20	1	1500	E	6	
7	R	1260	STAIR/BATH/DINING/LIVING RECEPT	1	20	B	GFCI	20	2	MAIN LEVEL STEAM SHOWER	1775	E	8	
9	L	1450	LIGHTING	1	20	GFCI	A	GFCI	/	/	1775	E	10	
11	EV	4800	EV CHARGER (EVC)	2	50	B				MASTER BATH RECEPTACLES	360	R	12	
13	EV	4800	/	/	/	A				MASTER BEDROOM RECEPTACLES	1080	R	14	
15	M	396	ERV	1	20	GFCI	B	GFCI	30	1	ELECTRIC HEATING COIL	2880	E	16
17	E	1176	GARBAGE DISPOSAL	1	20	GFCI	A	GFCI	20	1	ATTIC RECEPTACLES	540	R	18
19	E	240	BOILER	1	20	GFCI	B	GFCI	20	1	DISHWASHER	1500	E	20
21	E	180	RANGE	1	20	GFCI	A	GFCI	20	1	REFRIGERATOR	1200	E	22
23	E	1176	GARBAGE DISPOSAL	1	20	GFCI	B	GFCI	20	1	HOOD	800	E	24
25	R	720	KITCHEN RECEPTACLES	1	20	GFCI	A	GFCI	20	1	KITCHEN ISLAND RECEPTACLES	500	R	26
27	R	1500	SMALL APPLIANCE RECEPTACLE	1	20	GFCI	B	GFCI	20	1	SMALL APPLIANCE RECEPTACLE	1500	R	28
29	R	1080	LIVING ROOM RECEPTACLE	1	20	A				LOWER LEVEL DRYER	2500	E	30	
31	R	360	UPPER DECK RECEPTACLES	1	20	GFCI	B	/	/	/	2500	E	32	
33	R	540	LAUNDRY / MECH RECEPTACLES	1	20	GFCI	A	A	20	1	LOWER BEDROOM RECEPTACLE	900	R	34
35	M	565	PUMP P-1	1	20	GFCI	B	A	20	1	LOWER LEVEL WASHER	1500	E	36
37	M	197	PUMP P-2	1	20	GFCI	A	GFCI	20	1	SUMP PUMP SP-1	1656	M	38
39	M	197	PUMP P-3	1	20	GFCI	B	GFCI	20	2	STEAM SHOWER ST-1	1775	E	40
41	R	360	EXTERIOR RECEPT / FIRE PIT	1	20	GFCI	A	GFCI	/	/	/	1775	E	42
43	E	4800	HOT TUB	2	50	GFCI	B	GFCI	20	1	HEAT TRACE	600	E	44
45	E	4800	/	/	/	GFCI	A	/	/	/	900	R	46	
47	LM	2500	WELL PUMP	2	30	GFCI	B	A	20	1	OFFICE RECEPTACLE	540	R	48
49	LM	2500	/	/	/	GFCI	A	GFCI	20	1	HEAT TRACE	600	E	50
51	R	540	BATH RECEPTACLE	1	20	GFCI	B	A	20	1	LOWER FLOOR LIVING RM RECEPTACLE	1080	R	52
53	R	900	BUNK ROOM RECEPTACLES	1	20	A				BUNK ROOM RECEPTACLES	900	R	54	
55			SPARE	1	20	B				SPACE			56	
57			SPARE	1	20	A	GFCI	20	1	HEAT TRACE	600	E	58	
59			SPARE	1	20	B	GFCI	20	1	ROOF RECEPTACLES	540	R	60	
61			SPACE			A				SPACE			62	
63			SPACE			B				SPACE			64	
65			SPACE			B				SPACE			66	
67			SPACE			B				SPACE			68	
69			SPACE			A				SPACE			70	
71			SPACE			B				SPACE			72	
73			SPACE			A				SPACE			74	
75			SPACE			B				SPACE			76	
77			SPACE			A				SPACE			78	
79			SPACE			B				SPACE			80	
81			SPACE			A				SPACE			82	
83			SPACE			B				SPACE			84	

**CCT TYPE:** L=LIGHTING, R=RECEPTACLE, M=MOTOR, LM=LARGEST MOTOR, E=EQUIPMENT, KE=KITCHEN EQUIPMENT, S=SUBFEED PANEL, EV=EV CHARGER  
**CB TYPE:** GFCI=5mA GROUND FAULT CIRCUIT INTERRUPTER, GFEP=30mA GROUND FAULT PROTECTION FOR EQUIPMENT, AFCI=ARC FAULT CIRCUIT INTERRUPTER  
 CAFCI=COMBINATION ARC FAULT & 5mA GROUND FAULT CIRCUIT INTERRUPTER, ST=SHUNT TRIP, HT#HANDLE TIE WITH GROUPING #  
 HACR = HEATING AIR CONDITIONING REFRIGERATION, ITrip=INSTANTANEOUS TRIP, ITIME=INVERSE TIME TRIP  
 HC=HANDLE CLAMP FOR LOCKING IN ON/OFF POSITION, LOCK=PERMANENTLY LOCKABLE BREAKER

CCT TYPE:	LOAD	MULT	DEMAND LOAD	1813 VA
LIGHTING:	1450	1.25		1813 VA
RECEPTACLE:	10000	1.0		10000 VA
OVER 10K:	9256	0.5		4628 VA
MOTOR:	3011	1.0		3011 VA
LGST MOTOR:	5000	1.25		6250 VA
EQUIPMENT:	40652	1.0		40652 VA
KITCH EQUIP:	0	0		0 VA
SUBFEED PNL:	0	1.0		0 VA
EV CHARGERS:	9600	1.25		12000 VA

TOTAL CONNECTED LOADS		
VA	A	B
39705		39264
<b>TOTAL DEMANDED LOADS</b>		
VA	A	B
39370		38984
AMPS	328	325
<b>TOTAL ON PANEL:</b>		
		78 KVA
		326 AMPS

**NOTES:**

- EXISTING LOAD ON EXISTING CIRCUIT BREAKER.
- NEW LOAD ON EXISTING CIRCUIT BREAKER.
- NEW LOAD ON NEW CIRCUIT BREAKER. CIRCUIT BREAKER TYPE AND AIC RATING TO MATCH EXISTING.

**WORK NOTES:**

- EC TO VERIFY FAULT CURRENT, IF THIS DIFFERENT CONTACT ENGINEER IMMEDIATELY FOR REDESIGN.

### POWER ONE-LINE DIAGRAM

SCALE: NTS

Section IV, Item C.

**DCE**  
 DYNAMIC MEP  
 CONSULTING ENGINEERS  
 1480 HOYT ST., STE. 200  
 LAKEWOOD, CO 80215  
 303.421.3208

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**HOLOMBO RESIDENCE**  
 0039 LODESTONE TRAIL  
 BLUE RIVER, COLORADO 80424

**BHH PARTNERS**  
 660 ADAMS AVE  
 SILVER THORNE, CO 80498

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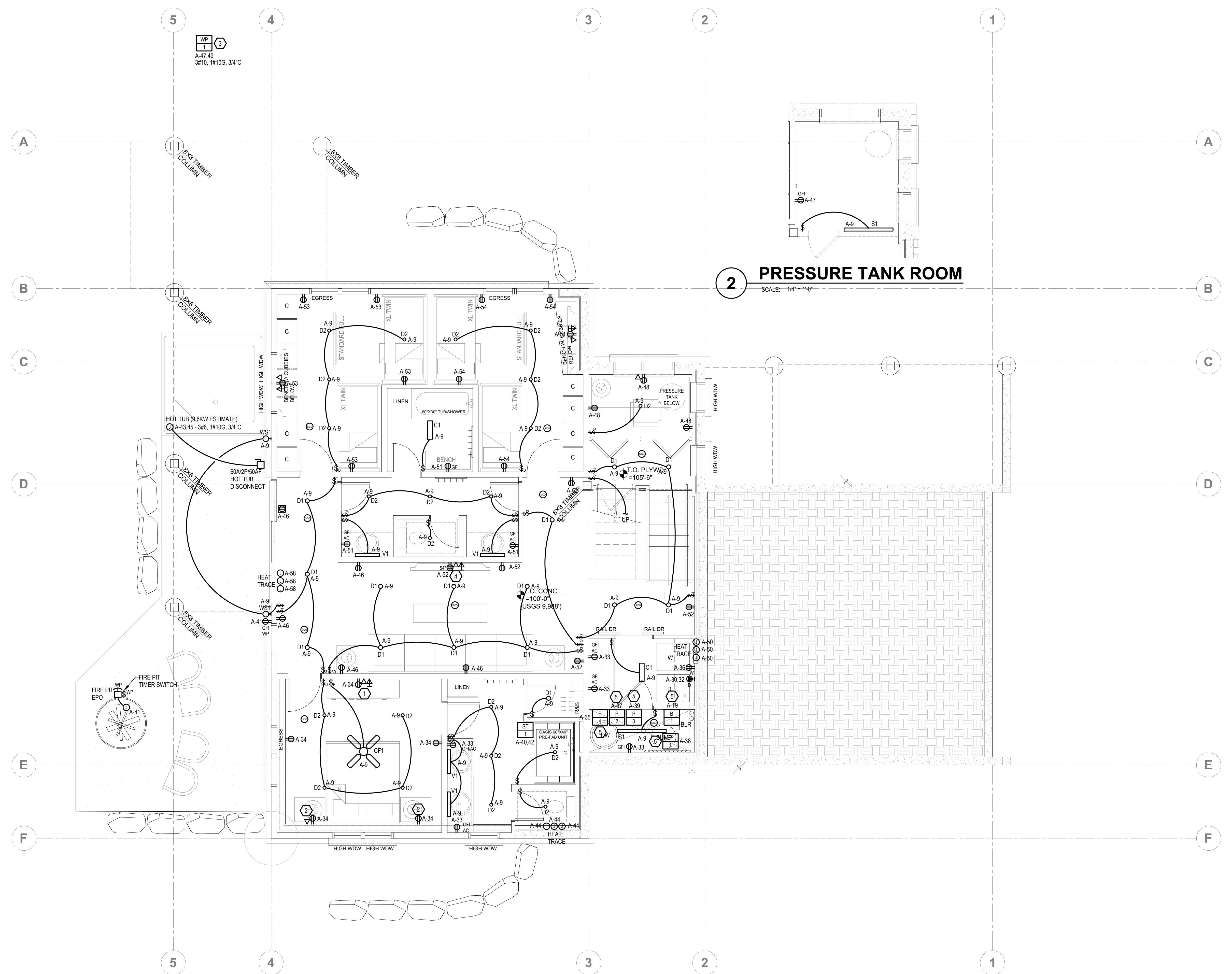
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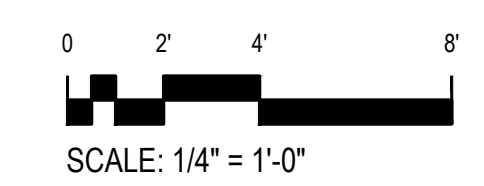
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- GENERAL NOTES:**
- MINIMUM SIZE FOR BRANCH CIRCUIT CONDUITS SHALL BE 3/4". MC MAY BE USED AS AND ALTERNATE IN CONCEALED SPACES.
  - UNITS INDICATED ARE TYPICAL. COORDINATE RECEPTACLE LOCATIONS WITH ACTUAL FIELD MEASUREMENTS TO COMPLY WITH NEC SPACING REQUIREMENTS. VERIFY KITCHEN APPLIANCE LOCATIONS WITH OWNER AND ADJUST ACCORDINGLY.
  - PROVIDE 'AFCI' TYPE CIRCUIT BREAKER OR DEVICE (WHERE NEUTRALS ARE SHARED) FOR ALL 120 VOLT, SINGLE PHASE 15- AND 20-AMPERE BRANCH CIRCUITS AS REQUIRED BY NEC.
  - PROVIDE 'GFCI' TYPE RECEPTACLES FOR ALL 120 VOLT, SINGLE PHASE 15- AND 20-AMPERE RECEPTACLES PER NEC 210.8, PROVIDE 'GFCI' TYPE RECEPTACLES FOR ALL RECEPTACLES INSTALLED WITHIN 6'-0" OF WATER, PER NEC 210.8.A.9.
  - PROVIDE TAMPER RESISTANT RECEPTACLES PER NEC 406.12.
  - MINIMUM SIZE FOR BRANCH CIRCUIT WIRING SHALL BE #12 AWG FOR 20 AMP AND 15 AMP CIRCUITS.
  - COORDINATE FINAL DEVICE AND FIXTURE ROUGH-IN LOCATIONS WITH OWNER. ANY INSTALLATION DEVIATION BETWEEN DRAWINGS AND ACTUAL LOCATIONS SHALL BE COORDINATED WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
  - ALL KITCHEN RECEPTACLES SHALL BE GFI TYPE PER NEC 210.8.
  - VERIFY RECEPTACLE MOUNTING HEIGHTS WITH FINAL CASEWORK AND UNIT FINISH DRAWINGS.
  - VERIFY FINAL LOCATION OF WASHER/DRYER PRIOR TO ROUGH-IN. COORDINATE WITH GENERAL CONTRACTOR AND MECHANICAL CONTRACTOR.
  - GANG ADJACENT DEVICES WHERE POSSIBLE.
  - DO NOT MOUNT DEVICES BACK-TO-BACK.
  - SMOKE DETECTORS SHALL NOT BE INSTALLED WITHIN 36" OF AN CEILING FAN, HVAC DIFFUSER OR RETURN AIR GRILLE PER NFPA 72.
  - APPLIANCES AND DEVICES SPECIFIC, BUT NOT LIMITED TO: THERMOSTATS, RANGEHOODS, AND MECHANICAL UNITS TO BE SELECTED PER THE DEVELOPER AGREEMENT LETTER WITH THE TOWN OF BLUE RIVER.
  - REFER TO SHEET E-1.2 FOR LUMINAIRE SCHEDULE.

- WORK NOTES:**
- PROVIDE TWO-GANG TV MEDIA BOX WITH DUPLEX RECEPTACLE, COAX AND ETHERNET CONNECTION. COORDINATE EXACT MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
  - PROVIDE DUPLEX RECEPTACLE WITH 2 USB PORTS. RECEPTACLE TO HAVE (1) USB TYP A AND (1) USB TYPE C PORT.
  - COORDINATE EXACT LOCATION OF WELL PUMP WP-1 WITH CIVIL. SKW MAX, IF THIS EXCEEDS CONTACT ENGINEER IMMEDIATELY FOR REDESIGN.
  - PROVIDE TV MEDIA BOX WITH DOUBLE DUPLEX RECEPTACLE, COAX AND ETHERNET CONNECTION. COORDINATE EXACT MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
  - PROVIDE 2#12, #12G, 3/4"C WIRE AND THERMAL OVERLOAD SWITCH.



**1 LOWER LEVEL ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"



**HOLOMBO RESIDENCE**  
0039 LODESTONE TRAIL  
BLUE RIVER, COLORADO 80424

**BHH PARTNERS**  
660 ADAMS AVE  
SILVER THORNE, CO 80498

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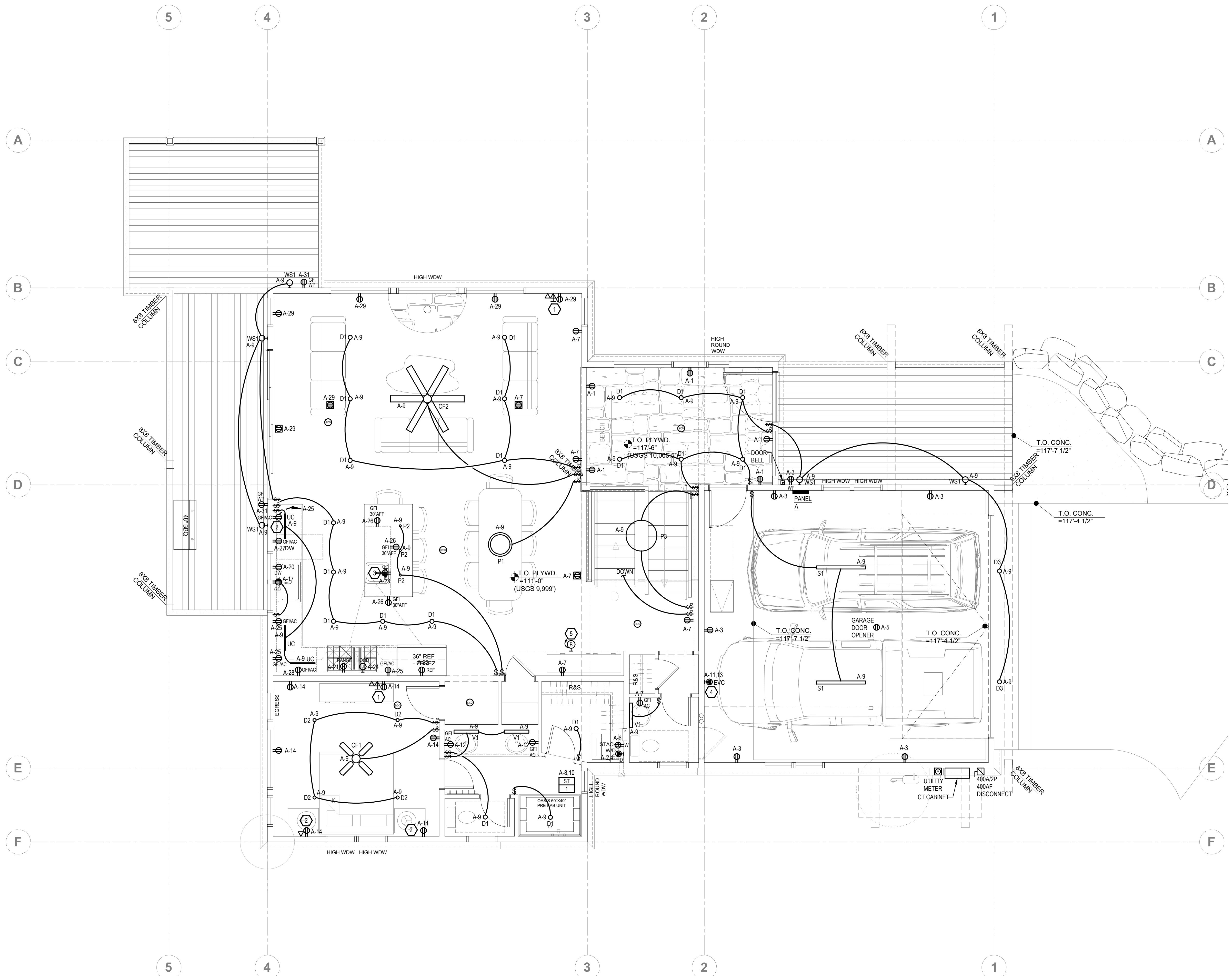
SHEET NO.  
**E-1.2**

**GENERAL NOTES:**

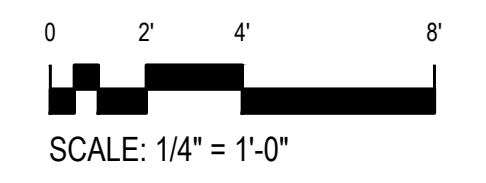
- MINIMUM SIZE FOR BRANCH CIRCUIT CONDUITS SHALL BE 3/4". MC MAY BE USED AS AND ALTERNATE IN CONCEALED SPACES.
- UNITS INDICATED ARE TYPICAL. COORDINATE RECEPTACLE LOCATIONS WITH ACTUAL FIELD MEASUREMENTS TO COMPLY WITH NEC SPACING REQUIREMENTS. VERIFY KITCHEN APPLIANCE LOCATIONS WITH OWNER AND ADJUST ACCORDINGLY.
- PROVIDE "AFCI" TYPE CIRCUIT BREAKER OR DEVICE (WHERE NEUTRALS ARE SHARED) FOR ALL 120 VOLT, SINGLE PHASE 15- AND 20-AMPERE BRANCH CIRCUITS AS REQUIRED BY NEC.
- PROVIDE "GFCI" TYPE RECEPTACLES FOR ALL 120 VOLT, SINGLE PHASE, 15- AND 20-AMPERE RECEPTACLES PER NEC 210.8. PROVIDE "GFCI" TYPE RECEPTACLES FOR ALL RECEPTACLES INSTALLED WITHIN 6'-0" OF WATER, PER NEC 210.8.A.9.
- PROVIDE TAMPER RESISTANT RECEPTACLES PER NEC 406.12.
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- VERIFY RECEPTACLE MOUNTING HEIGHTS WITH FINAL CASEWORK AND UNIT FINISH DRAWINGS.
- VERIFY FINAL LOCATION OF WASHER/DRYER PRIOR TO ROUGH-IN. COORDINATE WITH GENERAL CONTRACTOR AND MECHANICAL CONTRACTOR.
- GANG ADJACENT DEVICES WHERE POSSIBLE.
- DO NOT MOUNT DEVICES BACK-TO-BACK.
- SMOKE DETECTORS SHALL NOT BE INSTALLED WITHIN 36" OF AN CEILING FAN, HVAC DIFFUSER OR RETURN AIR GRILLE PER NFPA 72.
- APPLIANCES AND DEVICES SPECIFIC, BUT NOT LIMITED TO: THERMOSTATS, RANGEHOODS, AND MECHANICAL UNITS TO BE SELECTED PER THE DEVELOPER AGREEMENT LETTER WITH THE TOWN OF BLUE RIVER.
- REFER TO SHEET E-1.2 FOR LUMINAIRE SCHEDULE.

**WORK NOTES:**

- PROVIDE TWO-GANG TV MEDIA BOX WITH DUPLEX RECEPTACLE, COAX AND ETHERNET CONNECTION. COORDINATE EXACT MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN.
- PROVIDE DUPLEX RECEPTACLE WITH 2 USB PORTS. RECEPTACLE TO HAVE (1) USB TYPE A AND (1) USB TYPE C PORT.
- PROVIDE A COUNTER MOUNTED AIR SWITCH FOR GARBAGE DISPOSAL.
- PROVIDE EMPORIA LEVEL 2, 9.6kW EV CHARGER. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. 3#6, 1#10G, 3/4"C.
- FOR DOOR BELL CHIME, PROVIDE 3/4" CONDUIT WITH PULL STRINGS HIGH ON SOFFIT. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.



**1 MAIN LEVEL ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"



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BLUE RIVER, COLORADO 80424

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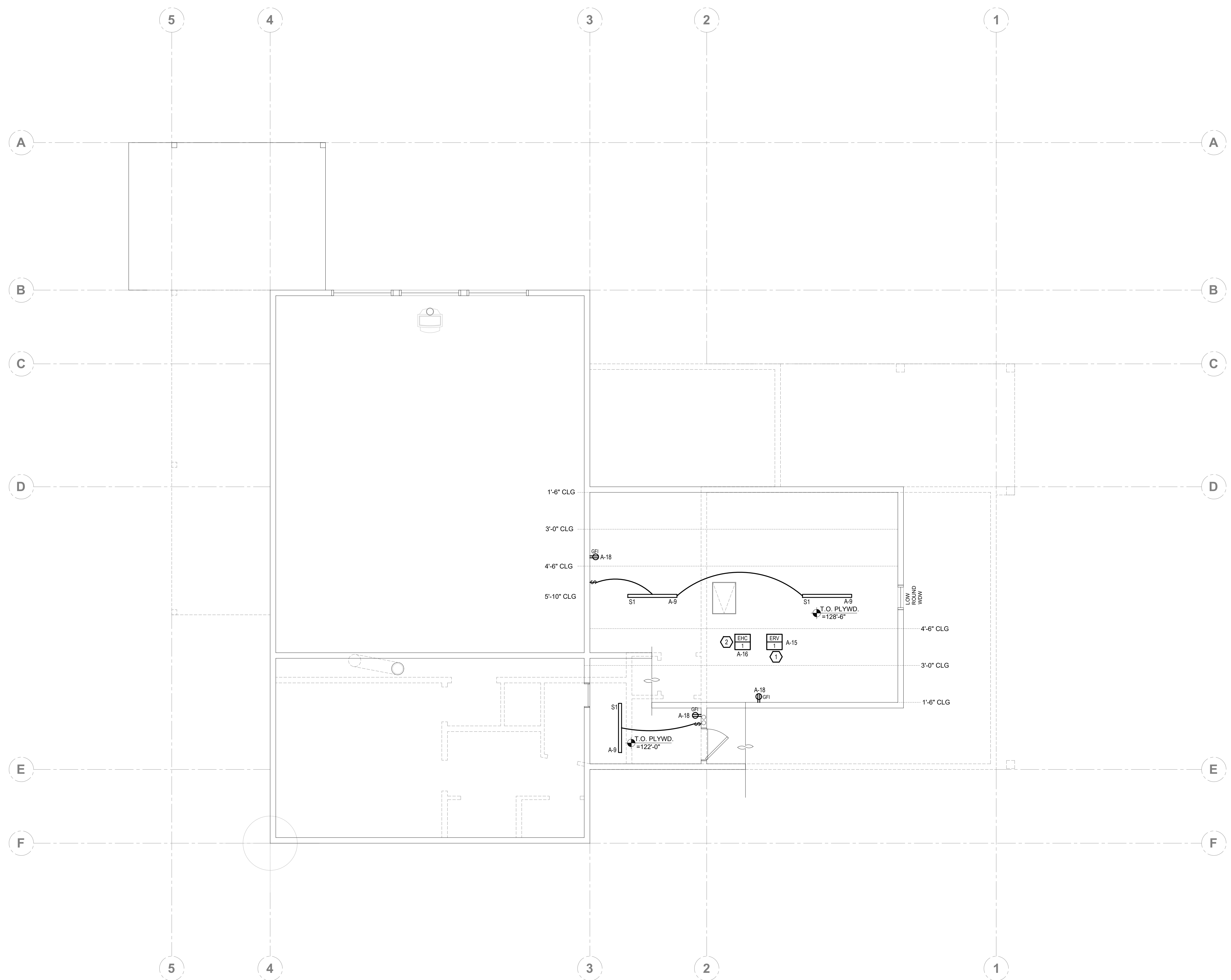
SHEET NO.  
**E-1.3**

**GENERAL NOTES:**

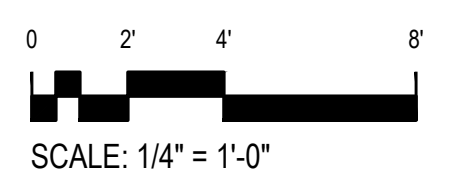
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- PROVIDE TAMPER RESISTANT RECEPTACLES PER NEC 408.12.
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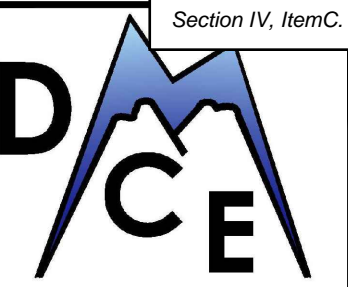
**WORK NOTES:**

- PROVIDE 2#12, 1#12G, 3/4"C WIRE AND THERMAL OVERLOAD SWITCH.
- PROVIDE 2#10, 1#10G, 3/4"C WIRE.

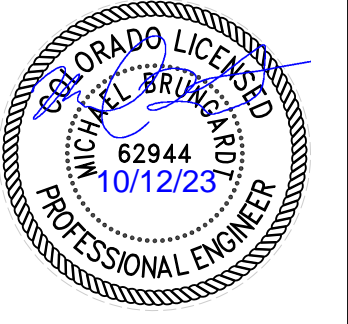


**1 UPPER LEVEL ELECTRICAL PLAN**  
SCALE: 1/4" = 1'-0"

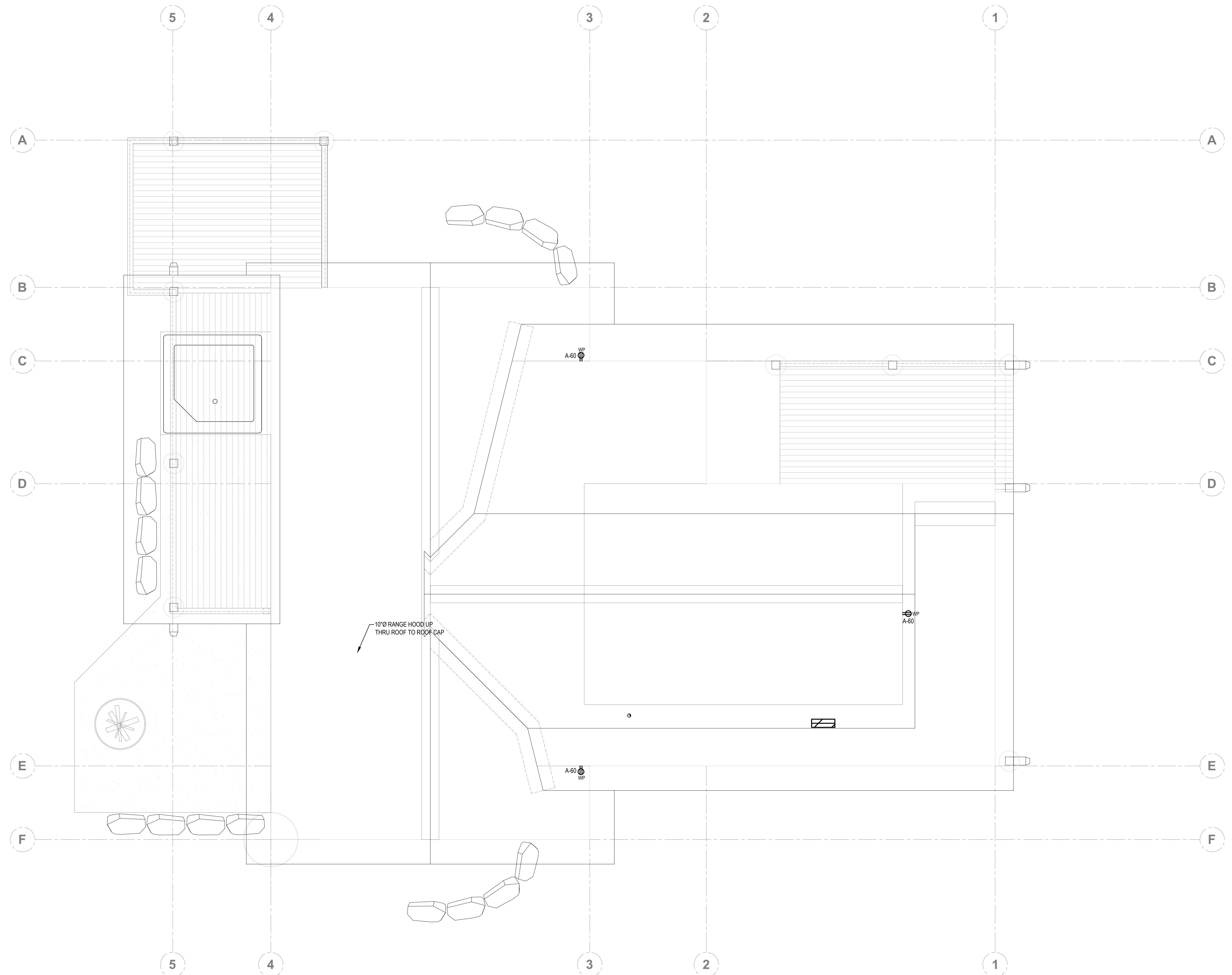




DYNAMIC MEP  
CONSULTING ENGINEERS  
1480 HOYT ST., STE. 200  
LAKEWOOD, CO 80215  
303.421.3208



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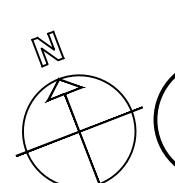


10'x10' RANGE HOOD UP THRU ROOF TO ROOF CAP

WP A-60

WP A-60

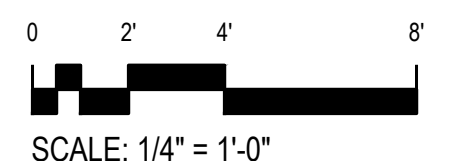
WP A-60



# ELECTRICAL ROOF PLAN

1

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



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

**HOLMBO RESIDENCE**  
0039 LODESTONE TRAIL  
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**E-1.4**



# PLUMBING NOTES

- ALL DRAWINGS AND NOTES MUST BE READ, REVIEWED & UNDERSTOOD BY THE CONTRACTOR PRIOR TO ORDERING AND/OR INSTALLATION OF ANY AND ALL PLUMBING SYSTEMS.
- THE PLUMBING SYSTEM WITH FIXTURES, WATER HEATER, DRAINS, VENTS, WATER PIPING, INSULATION, GAS PIPING, ETC., SHALL BE BY THE PLUMBING CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- THIS SET OF PLUMBING DRAWINGS HAS BEEN DESIGNED UNDER THE 2018 INTERNATIONAL PLUMBING CODE (IPC), THE 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AND NFPA 99C.
- ALL PLUMBING LINES, PLUMBING PENETRATIONS, PLUMBING EQUIPMENT, ETC., ARE APPROXIMATE LOCATIONS. PIPING IS SPACED AND SHOWN A CERTAIN DISTANCE FROM WALLS, EQUIPMENT, ETC., FOR CLARITY AND COORDINATION. FIELD VERIFY ALL PLUMBING LINE ROUTING, PLUMBING PENETRATION LOCATIONS, PLUMBING EQUIPMENT, ETC., WITH ALL OTHER TRADES, AS WELL AS THE OWNER/ARCHITECT, PRIOR TO INSTALLATION AS DESIGN DRAWINGS MAY DIFFER FROM ACTUAL INSTALLATION CONDITIONS. VERIFY ALL PLUMBING WITH STRUCTURAL, MECHANICAL AND ELECTRICAL, INTERIOR DESIGNER CONTRACTORS, LANDSCAPE/IRRIGATION CONTRACTORS, KITCHEN EQUIPMENT CONTRACTORS, ETC. PRIOR TO INSTALLATION OF ANY AND ALL PLUMBING SYSTEMS.
- ALL SANITARY WASTE VENTS, TO BE A MINIMUM OF 10" FROM ANY AND ALL OPERABLE WINDOWS AND AIR INTAKES INTO THE BUILDING AND TO MECHANICAL EQUIPMENT OR HAVE THE TERMINATION LOCATION A MINIMUM OF 3'-0" ABOVE THE HIGHEST POINT OF THE WINDOW OR AIR INTAKE INTO THE BUILDING OR MECHANICAL EQUIPMENT.
- PLUMBING CONTRACTOR TO FIELD VERIFY ALL NEW & EXISTING PLUMBING CONDITIONS INCLUDING, BUT NOT LIMITED TO, EQUIPMENT, LOCATIONS, PIPING, SIZING, FLOW OF DIRECTION, INVERT ELEVATIONS, UTILITIES, VENTS THROUGH ROOF, ETC. PRIOR TO ORDERING, INSTALLATION AND ANY WORK BEING DONE. NOTIFY ENGINEER IN WRITING FOR ANY DESIGN/DRAWING DISCREPANCIES.
- USE ONLY BALL VALVES. NO GATE VALVES ALLOWED ON PROJECT.
- HOT WATER MAIN LINES TO GO DOWN IN WALL TO WITHIN 2 FEET MAXIMUM OF THE HOT WATER SUPPLY TO ALL PUBLIC LAVATORIES, PER ICC TABLE C404.6.1 AND THEN BACK UP IN WALL TO ABOVE THE CEILING AND THEN ROUTED TOWARDS THE REMAINING HOT WATER PLUMBING FIXTURES WITH A HOT WATER RECIRCULATION LINE FROM THE FURTHEST HOT WATER PLUMBING FIXTURE BACK TO RCP1 & THE HOT WATER HEATER.
- ALL PLUMBING SHALL BE IN ACCORDANCE WITH THE LOCAL PLUMBING CODES AND/OR ORDINANCES, INCLUDING BUT NOT LIMITED TO PIPE SIZES.
- ALL ACCESS PANELS TO BE LOCATED EITHER IN THE CEILING OR CONCEALED WITHIN A CABINET. NO ACCESS PANELS TO BE LOCATED ON WALLS WHERE IT CONFLICTS WITH THE AESTHETIC OF THE ROOM WALLS. ALL ACCESS PANEL LOCATIONS TO BE VERIFIED WITH OWNER/ARCHITECT PRIOR TO INSTALLATION.
- PROVIDE 1/4 TURN SHUTOFFS AT ALL PLUMBING FIXTURES. PROVIDE ISOLATION VALVES AT RISERS, BRANCHES AND ALL EQUIPMENT.
- DOMESTIC WATER PIPING SHALL BE TYPE "L" HARD DRAWN COPPER WITH WROUGHT COPPER SWEAT FITTINGS. USE ONLY CANFIELD 100% WATER SAFE SOLDER (95% TIN, 4% COPPER, 1% SILVER) OR APPROVED EQUAL. DO NOT USE LEAD OR ANTI-SWEAT SOLDER. AT CONNECTIONS OPTION DOMESTIC WATER ABOVE AND BELOW AFTER WATER ENTRY ASSEMBLY MAY BE CPVC PIPE IF APPROVED BY THE LOCAL AHJ, OWNER AND CODE. NOTIFY ENGINEER IN WRITING IF ANY MATERIAL OTHER THAN COPPER IS GOING TO BE USED FOR POSSIBLE RESIZING OF WATER LINES, PUMP HEAD LOSS, EXPANSION LOOPS, INSULATION, ETC. USE ONLY FLOWGUARD COLD PIPE WITH FLOWGUARD GOLD ONE STEP THROUGHOUT ON PIPES 1/2" THROUGHOUT 2". NO CPVC SUBSTITUTIONS ARE ALLOWED. PROVIDE CSA APPROVED HARDENED STRIKER PLATES LISTED FOR CSST AND CPVC SYSTEMS AT ALL LOCATIONS WHERE TUBING IS CONCEALED AND PUNCTURE FROM NAILS OR SCREWS IS A POSSIBLE THREAT. SUPPORT ALL PIPE PER DETAILS, BUILDING CODE, AND MANUFACTURER REQUIREMENTS.]
- COPPER TUBING INSTALLED WITHIN A BUILDING AND IN OR UNDER A CONCRETE FLOOR SHALL BE TYPE "K" COPPER AND INSTALLED WITH WROUGHT COPPER JOINTS. WHERE JOINTS ARE PERMITTED, THEY SHALL BE BRAZED AND FITTINGS SHALL BE WROUGHT COPPER.
- INTERIOR SOIL AND WASTE PIPING ABOVE GRADE SHALL BE SERVICE WEIGHT IRON SOIL PIPE AND NO-HUB FITTINGS. APPROVED PIPE MANUFACTURERS AB&I FOUNDRY, CHARLOTTE PIPE, AND TYLER PIPE BEARING THE TRADEMARK OF CISPI. NO HUB COUPLINGS SHALL BE NSF CERTIFIED, MEET CISPI 310 STANDARD MANUFACTURED BY TYLER, ANMO, IDEAL, AND MISSION. INSTALL PER THE CISPI 301 STANDARD LATEST VERSION. NO ABS PIPE OR PVC FOAMCORE PIPE ALLOWED ON THE PROJECT. [PVC SCHEDULE-40 SOLID CORE PLASTIC PIPE AND FITTINGS MAY BE USED WHERE APPROVED BY OWNER AND ALLOWED BY THE BUILDING DEPARTMENT. INSTALL ALL PVC PIPE PER ASTM D2321 REQUIREMENTS AND RECOMMENDATIONS. NO FOAM CORE ALLOWED. NO PVC PIPING LOCATED IN RETURN AIR FLENUMS. COORDINATE ALL PIPING ROUTING AND MATERIAL WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION AND ORDERING.]
- EXTERIOR SOIL AND WASTE PIPING BELOW GRADE SHALL BE SERVICE WEIGHT CAST IRON HUB AND SPIGOT SOIL PIPE AND FITTINGS WITH NEPRENE GASKETS APPROVED MANUFACTURERS AB&I FOUNDRY, CHARLOTTE PIPE, AND TYLER PIPE BEARING THE TRADEMARK OF CISPI. INSTALL PER THE CISPI 301 STANDARD LATEST VERSION. NO ABS PIPE OR PVC FOAMCORE PIPE ALLOWED ON THE PROJECT. [PVC SCHEDULE-40 SOLID CORE PLASTIC PIPE AND FITTINGS MAY BE USED WHERE ALLOWED BY THE BUILDING DEPARTMENT. INSTALL ALL PVC PIPE PER ASTM D2321 REQUIREMENTS AND RECOMMENDATIONS. NO FOAM CORE ALLOWED. NO PVC PIPING LOCATED IN RETURN AIR FLENUMS. COORDINATE ALL PIPING ROUTING AND MATERIAL WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION AND ORDERING.]
- SANITARY WASTE LINES TO GRAVITY DRAIN AT 1/4" SLOPE/FOOT FOR ALL PIPING 2" AND SMALLER. SANITARY WASTE LINES TO GRAVITY DRAIN AT 1/8" SLOPE/FOOT FOR ALL PIPING 3" AND LARGER, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.
- WATER-HEATING EQUIPMENT NOT SUPPLIED WITH INTEGRAL HEAT TRAPS AND SERVING NON-CIRCULATED SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING ASSOCIATED WITH THE EQUIPMENT.
- PROVIDE A VACUUM BREAKER AT THE TOP OF THE COLD WATER SUPPLY LINE, TO THE HOT WATER HEATER. FOR ALL BOTTOM-ED COLD WATER SUPPLY HOT WATER HEATERS. PROVIDE WATTS N360 (OR EQUAL) VACUUM BREAKER/RELIEF VALVE.
- MOUNT LAVATORY AT REQUIRED ELEVATION FOR HANDICAP USAGE WHERE REQUIRED. INSULATE ALL EXPOSED PIPING SUPPLIES AND DRAINS PER ADA REQUIREMENTS AND DRAWING SPECIFICATIONS.
- WEATHERPROOF ALL PLUMBING ROOF PENETRATIONS PER CODES AND ROOFING MANUFACTURER RECOMMENDATIONS. LOCATE ALL PLUMBING VENTS THROUGH PITCHED ROOFS WITHIN 5' OF ROOF RIDGE. PLUMBING VENT PENETRATIONS SHALL BE CAST IRON AND ONE SIZE LARGER THAN REQUIRED VENT SIZE.
- ALL SANITARY WASTE VENT RISERS TO BE LOCATED IN SAME WALL, AND NEXT TO, SANITARY WASTE RISERS, WHERE APPLICABLE AND POSSIBLE.
- WATER HAMMER SHOCK-ARRESTER SHALL BE PROVIDED AND INSTALLED ON ALL QUICK CLOSING VALVES INCLUDING DISH AND CLOTHES WASHER TO PREVENT PIPING SHOCK OR HAMMER. SIZE ARRESTER PER INDUSTRY STANDARDS.
- ALL MATERIALS AND EQUIPMENT PROVIDED AND INSTALLED UNDER THIS SECTION SHALL BE NEW AND IN CLEAN AND BRIGHT CONDITION. THE CONTRACTOR SHALL TAKE ANY MEASURE NECESSARY TO ENSURE AND MAINTAIN THE QUALITY OF THE INSTALLATION. ALL PIPING SHALL BE FLUSHED WITH CLEAN WATER PRIOR TO BEING PLACED INTO SERVICE TO ENSURE THAT ANY RESIDUAL CUTTING OIL, SLAG, THREAD TAPE, FLUX OR DIRT HAS BEEN PURGED. IN ADDITION TO FLUSHING, THE DOMESTIC WATER PIPING SHALL BE STERILIZED TO ELIMINATE ANY CONTAMINATION IN ACCORDANCE WITH CURRENT IPC RECOMMENDATIONS.
- ALL PIPING EQUIPMENT, ETC., SHALL BE IDENTIFIED. ALL PIPING IS TO BE TESTED IN ACCORDANCE WITH ACCEPTED CODES AND STANDARD OF CARE PRACTICES.
- ALL SAFETY RELIEF VALVES SHALL BE VENTED TO ATMOSPHERE OR PIPED FULL SIZE TO NEAREST FLOOR DRAIN. BACKFLOW PREVENTERS OF APPROPRIATE TYPE SHALL BE INSTALLED ON ALL WATER SERVICE CODE, PROVIDED WITH A CATCH FUNNEL PIPED TO THE NEAREST FLOOR DRAIN OR SINK, AND LOCATED BETWEEN 18" AND 60" AFF WITH MINIMUM OF 30" CLEAR IN FRONT OF VALVE FOR SERVICING. PROVIDE BACKFLOW DEVICE TEST FOR FIRE SERVICE AND DOMESTIC SERVICE PRIOR TO FINAL BUILDING INSPECTION.
- CLEANOUTS SHALL BE INSTALLED AT EACH CHANGE OF DIRECTION GREATER THAN 45 DEGREES IN THE BUILDING SEWER, BUILDING DRAIN AND HORIZONTAL WASTE, SOIL OR STORM LINES. WHERE MORE THAN ONE CHANGE OCCURS IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED FOR EACH 40 FEET OF DEVELOPED LENGTH OF THE DRAINAGE PIPING. (IPC 708.3.3 & 1101.6)
- DOMESTIC CW, HW AND HWC TO BE INSULATED. REFER TO PIPE INSULATION SCHEDULE, THIS SHEET.
- PROVIDE SURESEAL IN-LINE FLOOR DRAIN TRAP SEALER FOR ALL FLOOR DRAINS, TRENCH DRAINS AND FLOOR SINKS THAT ARE 4" PIPE SIZE AND SMALLER. SURESEAL PROVIDES A MAXIMUM OF 4" PIPE IN-LINE FLOOR DRAIN TRAP SEALER. PROVIDE TP1 FOR LARGER THAN 4" DIAMETER DRAINS.
- LABEL ALL PIPING IN ACCESSIBLE AREAS.
- ALL PIPING TO BE HUNG ON ADJUSTABLE SPLIT RING HANGERS OR UNISTRUT SUPPORTS WITH CLAMPS OF SIMILAR MATERIAL AS THE PIPE UNLESS OTHERWISE NOTED. PIPE HANGER SPACING IN FEET TO BE AS FOLLOWS

- ANY PLUMBING PIPING THRU A FIRE RATED FLOOR OR WALL PENETRATION TO BE ADDRESSED WITH FIRE CALKING. ALL FIRE RATINGS ARE TO BE MAINTAINED.
- ELECTRIC HEAT TRACE TAPE SHALL BE PROVIDED WHERE REQUIRED FOR FREEZE PROTECTION OF WATER PIPES (SANITARY/SAND-OIL/GREASE WASTE, STORM, OVERFLOW, HOT WATER, COLD WATER, RECIRC. WATER, ETC.) WITHIN VESTIBULES, CRAWL SPACES OR OTHER UNHEATED SPACES. PROVIDE (2) 5 WATTS PER FOOT SELF REGULATING HEAT TRACE CABLES @ 120V FOR PLASTIC PIPING (CPVC, PVC, PEK, ETC.). PROVIDE (1) 10 WATTS PER FOOT CABLE @ 120V FOR METAL PIPING (COPPER, STEEL, CAST-IRON, ETC.). HEAT TRACE SUPPLIER TO CONFIRM EXACT POWER REQUIREMENTS TO PREVENT PIPE CONTENTS FROM FREEZING. ALL HEAT TRACED PIPING SHALL BE INSULATED WITH A MIN R-6 PIPE INSULATION. INSULATION JACKET SHALL BE REMOVABLE TO ALLOW HEAT TRACE CABLE TO BE SERVICE
- INSTALL EXTERNAL HEAT TRACING AT 5 WATTS PER LINEAR FOOT SELF LIMITING. SET CONTROLLER FOR 40 DEG F ON AND 104 DEG F OFF AND SHALL TURN OFF WHEN THERE IS NO DEMAND FOR HOT WATER. INSTALL ON HOT WATER SUPPLY PIPING PER 2012IECC C404.6.2 APPROXIMATELY 75 LF OF HOT WATER PIPING. COORDINATE FIELD WIRING AND CONTROLLER WIRING WITH E.C.
- COORDINATE WITH ELECTRICAL CONTRACTOR, IF REQUIRED. FIELD VERIFY WITH OWNER/ARCHITECT LOCATION OF JUNCTION BOXES. VERIFY WITH OWNER/ARCHITECT FOR PROVIDING A LEAK DETECTION SYSTEM WHEREVER HEAT TRACE IS REQUIRED. HEAT TRACE SYSTEM SHALL COMPLY WITH SECTION IECC C404.6.3.

PLUMBING & MECHANICAL LEGEND				*NOTE: ALL DASHED PLUMBING LINES INDICATE BELOW FLOOR ELEVATION UNLESS OTHERWISE NOTED ON DRAWINGS.				
SYMBOL	ABBREV.	DESCRIPTION	SYMBOL	ABBREV.	DESCRIPTION	SYMBOL	ABBREV.	DESCRIPTION
	CWS	CONDENSER WATER SUPPLY			MOTORIZED GATE VALVE			ACCESS DOOR IN CEILING
	CWR	CONDENSER WATER RETURN			WATER BALANCE VALVE			DUCT TEE W TURNING VANES
	CHS	CHILLED WATER SUPPLY			VENTURI			MAIN LEVEL PLUMBING PLAN
	CHR	CHILLED WATER RETURN		RPBP	REDUCED PRESSURE BACKFLOW PREVENTER			UPPER LEVEL PLUMBING PLAN
	RS	REFRIGERANT SUCTION			GAS COOK			MOTORIZED DAMPER
	RL	REFRIGERANT LIQUID			HEATING WATER SUPPLY			FLEXIBLE DUCT CONNECTOR
	RHG	REFRIGERANT HOT GAS			HIGH PRESSURE STEAM			SPIN-IN FITTING W/ DAMPER
	HWR	HEATING WATER RETURN			LOW PRESSURE STEAM			45° DUCT TAKE-OFF
	HPSR	HIGH PRESSURE STEAM RETURN		F.D.	FLOOR DRAIN			DOOR UNDERCUT
	LPSR	LOW PRESSURE STEAM RETURN		E.R.D.	EQUIPMENT ROOM DRAIN			FIRE DAMPER
	VAC	VACUUM		F.S.	FLOOR SINK - HALF GRATE			FIRE & SMOKE DAMPER
	CA	COMPRESSED AIR		F.S.	FLOOR SINK - 14 GRATE			SMOKE DAMPER
	NOD	NODULOID DUCT		CW	COLD WATER			EXISTING FIRE DAMPER
	FIRE	FIRE		HW	HOT WATER			RETURN GRILLE
	DHC	HOT WATER RECIRCULATE		W.H.	WALL HYDRANT			CONNECTION NEW TO EXISTING
	W	WASTE PIPE		H.B.	GATE VALVE			FLEXIBLE PIPE CONNECTION
	VENT	VENT PIPE		GV	GLOBE VALVE			THERMOSTAT
	ST	STORM PIPE		CV	CHECK VALVE			REMOTE SENSOR
	GW	GREASE WASTE		BV	BALL VALVE			CARBON DIOXIDE SENSOR
	SO	SAND OIL WASTE		BV	BUTTERFLY VALVE			CARBON MONOXIDE SENSOR
	GAS	GAS PIPE		FV	FLUID VALVE			HUMIDISTAT
	FIRE UP	FIRE UP		GR	GAS PRESSURE REGULATOR			EXISTING ITEM LINE WEIGHT
	P.T.D.	PIPE TEE DOWN		GU	GAS COCK AND UNION			DEMOLITION LINE WEIGHT
	P.T.U.	PIPE TEE UP		SDV	STOP & DRAIN VALVE			NEW ITEM LINE WEIGHT
	H.B.	GATE VALVE		AFCV	AUTO FLOW CONTROL VALVE			DIFFUSER FLEX
	GV	GLOBE VALVE		BV	BALANCING VALVE			DIFFUSER NECK SIZE
	CV	CHECK VALVE		TC-2W	TEMP. CONTROL - 2-WAY			DIFFUSER FLEX SIZE
	BV	BALL VALVE		TC-3W	TEMP. CONTROL - 3-WAY			DIFFUSER FLEX ID
	BV	BUTTERFLY VALVE		PRV	PRESSURE REDUCING VALVE			RIGID DUCT
	FV	FLUID VALVE		SV	SOLENOID VALVE			NECK SIZE
	GR	GAS PRESSURE REGULATOR		PG	PRESSURE GAUGE			DIFFUSER ID
	GU	GAS COCK AND UNION		FS	FLOW SENSOR			NOTE: NOT ALL SYMBOLS ON THIS LEGEND ARE NECESSARILY USED ON THIS PROJECT.

PIPING INSULATION SCHEDULE (PER IECC 2018 SECTION C403.12.3)			
FLUID TYPE	CONDUCTIVITY	NOMINAL PIPE SIZE (IN)	
		< 1	1 TO < 1-1/2
		1	1
			1-1/2 TO < 4
			1.5
HOT WATER 105-140	0.21-0.28	1	1
COLD WATER 40-60	0.21-0.27	0.5	0.5

COLD WATER SIZING							
PIPE SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
GPM	3	8	16	30	44	77	117
WSFU	3	11	23	60	104	260	474
BASED ON PRESSURE LOSS 8.0 PSI PER 100 FT.							
MAXIMUM VELOCITY = 8.0 FPS							

HOT WATER SIZING							
PIPE SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
GPM	3	7	13.5	22	30	48	74
WSFU	3	9	16	33	54	120	246
BASED ON PRESSURE LOSS 8.0 PSI PER 100 FT.							
MAXIMUM VELOCITY = 5.0 FPS							

SHOCK ABSORBER SCHEDULE				
TAG	MANUFACTURER	TYPE NO.	P.D.I SIZE	FIXTURE UNITS
SA-1	JOSAM	75001-S	A	1-11
SA-2	JOSAM	75002-S	B	12-32

PIPE HANGER SPACING (IN FEET)					
TYPE	SIZE				
	1/2"	3/4"	1"	1-1/4"	1-1/2"
COPPER	6	6	6	6	10
PLASTIC - WASTE & VENT	4	4	4	4	4
AQUAPEX - DOMESTIC WATER	2.7	2.7	2.7	4	4

RECIRCULATION PUMP SCHEDULE							
TAG	MANUFACTURER	LOCATION DUTY	FLOW (GPM)	HEAD (FT)	AMPS	HP	REMARKS & FEATURES REQ'D
DCP-1	TACO #007-SF5	WATER HEATER	5	10	0.52	1/25	115/1
FEATURES REQUIRED:							
1. ALL STAINLESS STEEL, FOR DOMESTIC WATER USE.							
2. PUMP CONTROLLED BY PIPE MOUNTED AQUASTAT, #563-2.							
3. SYSTEM TIMER, #265-3 TO MAINTAIN THE RETURN WATER BETWEEN 105 DEG F AND 110 DEG F (ADJUSTABLE).							
4. INTEGRAL FLOW CHECK VALVE INCLUDED.							
5. PROVIDE FLANGE #110251SF							
6. PUMP POWER TO BE CONNECTED TO WATER SOLENOID VALVE.							

PLUMBING FIXTURE LIST									
SYMBOL	DESCRIPTION	MANUFACTURER	MODEL NO.	ROUGH-IN CONNECTION				NOTES	
				W	V	CW	HW		
WC-1	Water Closet-PA,FS(Restrooms)	Kohler	#K-3493-SS-0	4"	2"	1/2"	-	Color: #01 White	
L-1	Guest Lav-Undermount	Kohler	#K-2214-0	2"	2"	1/2"	1/2"	20-7/8"L x 14-3/8"W x 8-1/8"D;Color: #01 White; Faucet: Brizo Litze #65035LF-PC	
L-2	Spa Lav - Undermount	Kohler	#K-2214-0	2"	2"	1/2"	1/2"	20-7/8"L x 14-3/8"W x 8-1/8"D;Color: #01 White; Faucet: Brizo Litze #65035LF-PC	
L-3	Master Lav-Undermount	Kohler	#K-2214-0	2"	2"	1/2"	1/2"	20-7/8"L x 14-3/8"W x 8-1/8"D;Color: #01 White; Faucet: Brizo Virage #65330LF-PC	
L-4	Powder room Lav	Kohler	#K-77767-1-0	2"	2"	1/2"	1/2"	21-11/16"L x 17-3/4"W x 8-1/8"D;Color: #01 White; Faucet: Brizo Litze #65035LF-PC	
S-1	Kitchen sink	eModern	WSRT-4222-BLK	2"	2"	1/2"	1/2"	Color: Nano Black 16 Ga. St/St; Faucet Brizo Artesio #63025LF-PC; Soap Brizo #RP75675-PC	
S-2	Kitchen Island Sink	Wesliv	WES121610BARSH	2"	2"	1/2"	1/2"	Color: Black 16 Ga. St/St; Faucet Brizo Artesio #63925LF-PC; Soap Brizo #RP75675-PC	
SH-1	Guest Shower	Aquapeutics	Oasis-Alcove	2"	2"	3/4"	3/4"	60"L x 40"W x 88"H; 240V, 60 HZ, 16 Amp	
SH-2	Spa Tub/Shower	Aquatic	#26033-CTM,RHD	2"	2"	3/4"	3/4"	Valve,Head,Handshower,Spout: Brizo T75P535-LHP, HL75P33; 87435,RP81434,88735;RP81437	
SH-3	Master Shower	Aquapeutics	Oasis-Alcove	2"	2"	3/4"	3/4"	60"L x 40"W x 88"H; 240V, 60 HZ, 16 Amp	
GD-1	Garbage Disposer	ISE	PRO-750	2"	-	-	-	120v, 3/4 HP	
WWB-1	Washer Wall Box	Guy Gray	#WB200HA	2"	2"	-	-	With water hammer arrester	
FD-1	Floor Drain	Josam	30000-5A-SS	2"	2"	-	-	Provide with st/st strainer, Proset Trappguard	
IMB-1	Ice Maker Box	Guy Gray	#W-9700HA	-	-	1/2"	-	With water hammer arrester	
WCO	Wall Clean Out	JR Smith	4710-U	4"	2"	-	-		
SC-1	Sillcock	Woodford	B67	-	-	3/4"	-		
HB-1	Hose bibb	Woodford	24	-	-	1/2"	-	with integral vacuum breaker	
BV-1	Balancing Valve	Bell and Gossett	LFGB-3/4	-	-	3/4"	-	set at .5 gpm	
RPBFP-1	Reduced Pressure Backflow Preventer	Watts	LF009-3/4"	-	-	3/4"	-	provide with strainer	

1. PLUMBING CONTRACTOR IS RESPONSIBLE FOR VERIFYING SITE CONDITIONS.

2. FIELD VERIFY BEST LOCATIONS FOR SHUT-OFF VALVES WITH OWNER/ARCHITECT PRIOR TO INSTALLATION. PROVIDE ACCESS DOORS IN WALL OR CEILING IF NECESSARY AND AS WHERE REQUIRED FOR ACCESS TO VALVES.

3. ALL FIXTURES TO BE INSTALLED PER MANUFACTURER AND LOCAL ADOPTED CODE.

4. CONFIRM PLUMBING FIXTURE FINISH WITH ARCHITECTURAL PLANS PRIOR TO ORDER.

GENERAL REQUIREMENTS:

1. ALL TOILET ROOM FIXTURES SHALL BE WHITE. VITREOUS CHINA UNLESS DESIGNATED OTHERWISE IN SCHEDULE.

2. PROVIDE SUITABLE REINFORCEMENTS FOR WALL HANGERS & SUPPORTS.

3. DEARBORN, CS&B, BRASS-CRAFT, MAGUIRE (P-TRAP & TRAP ARM, ESCUTCHEON)

4. ALL MUST BE 1/4 TURN BALL VALVE TYPE. ALL BRASS CONSTRUCTION BY DEARBORN, CS&B, BRASS-CRAFT, OR MAGUIRE.

5. RESTROOM FIXTURES MUST COMPLY WITH ALL BUILDING DEPARTMENT CRITERIA FOR WATER CONSERVATION.

6. ALL FIXTURES TO BE APPROVED BY ENGINEER AND OWNER/ARCHITECT PRIOR TO ORDERING AND INSTALLATION.

7. VERIFY LEFT/RIGHT HAND LEVER LOCATION ON ALL WATER CLOSETS PER ADA REQUIREMENTS AND INSTALL FLUSH HANDLE ON OPEN SIDE OF ADA STALL. FAILURE TO COMPLY WILL REQUIRE FIELD CORRECTION.

8. ALL WATER CLOSETS MUST MEET A MINIMUM MAPP RATING OF 800 AS TESTED BY AN INDEPENDENT AND ACCREDITED LABORATORY. NO PROFLO BRAND NAMED PRODUCTS ARE ALLOWED UNLESS OTHERWISE NOTED AND APPROVED BY OWNERSHIP.

Sheet List Table	
Sheet Number	Sheet Title
P-0.1	PLUMBING COVER SHEET
P-0.2	PLUMBING DETAILS
P-0.3	PLUMBING ISOMETRICS
P-1.1	LOWER LEVEL PLUMBING PLAN
P-1.2	MAIN LEVEL PLUMBING PLAN
P-1.3	UPPER LEVEL PLUMBING PLAN

**PLUMBING NARRATIVE:**  
NEW RESIDENTIAL CONSTRUCTION WITH PLUMBING FIXTURES, WATER HEATER, DOMESTIC COLD AND HOT WATER PIPING, SANITARY AND VENT PIPING AND LP PIPING.

**DESIGN CODES:**

- 2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2018 INTERNATIONAL MECHANICAL CODE (IMC)
- 2018 INTERNATIONAL PLUMBING CODE (IPC)
- 2018 INTERNATIONAL FUEL GAS CODE (IFGC)
- 2018 INTERNATIONAL RESIDENTIAL CODE(IRC)

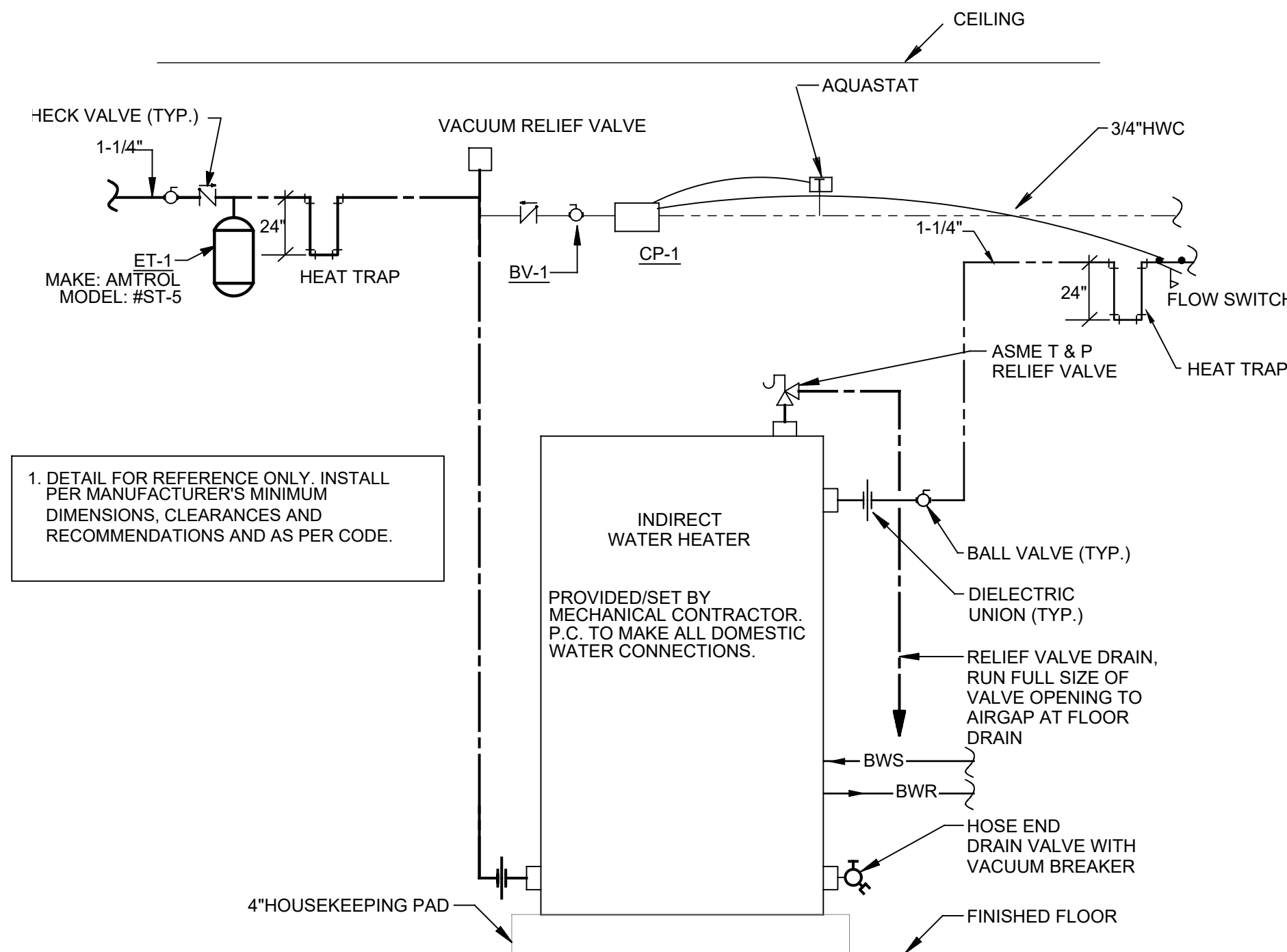
Section IV, Item C.

**DYNAMIC MEP CONSULTING ENGINEERS**  
1480 HOYT ST., STE. 200  
LAKEWOOD, CO 80215  
303.421.3208

PROFESSIONAL ENGINEER  
161793  
10/12/23

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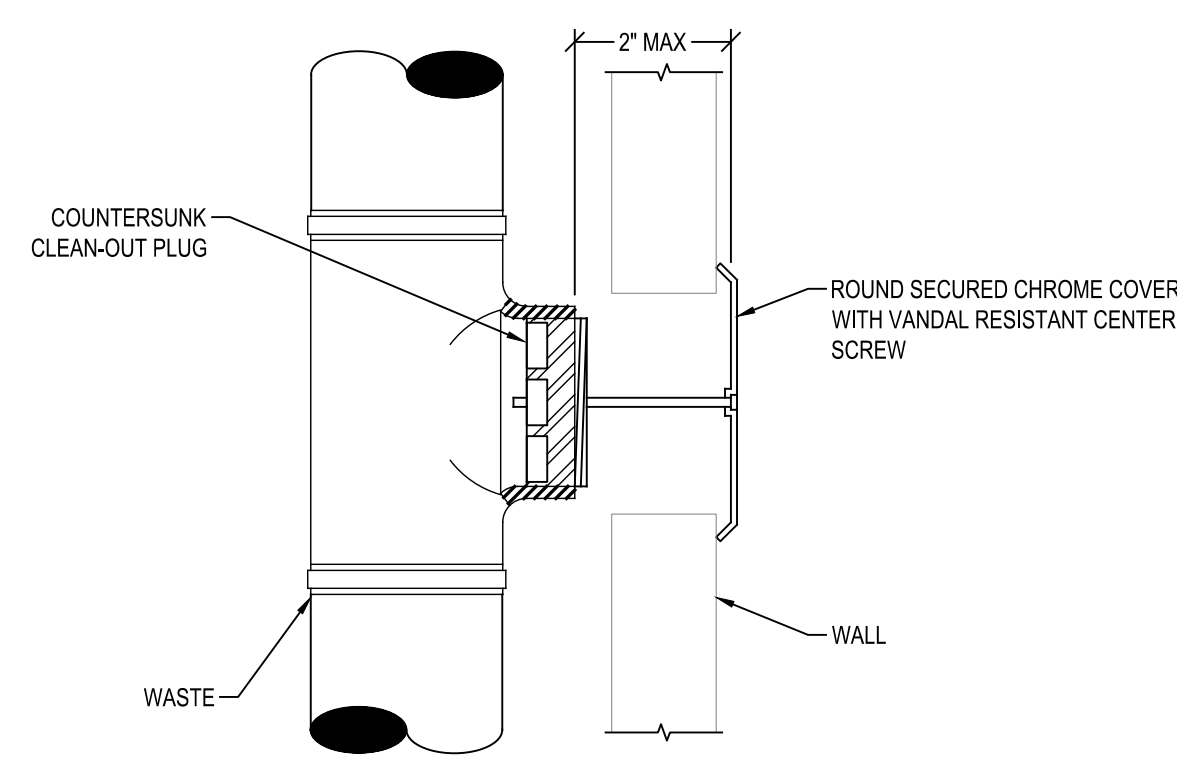
1. DETAIL FOR REFERENCE ONLY. INSTALL PER MANUFACTURER'S MINIMUM DIMENSIONS, CLEARANCES AND RECOMMENDATIONS AND AS PER CODE.

RECIRCULATION SYSTEM SEQUENCE OF OPERATION INSTALLED PER 2018 IECC.

1. PUMP SHALL START UPON RECEIVING SIGNAL FROM FLOW SWITCH SENSING THE FLOW OF HOT WATER TO A FIXTURE.
2. FLOW SWITCH ACTIVATES RECIRCULATION PUMP.
3. HOT WATER IS TURNED OFF, BUT FLOW FROM PUMP KEEPS FLOW SWITCH AND PUMP ON.
4. AQUASTAT DETECTS SYSTEM IS "AT-TEMP" AND TURNS OFF. THIS TURNS OFF THE PUMP AND THE FLOW SWITCH TURNS OFF.
5. AQUASTAT DETECTS SYSTEM COOLED OFF AND TURNS BACK ON; ALLOWING START OF NEXT CYCLE.

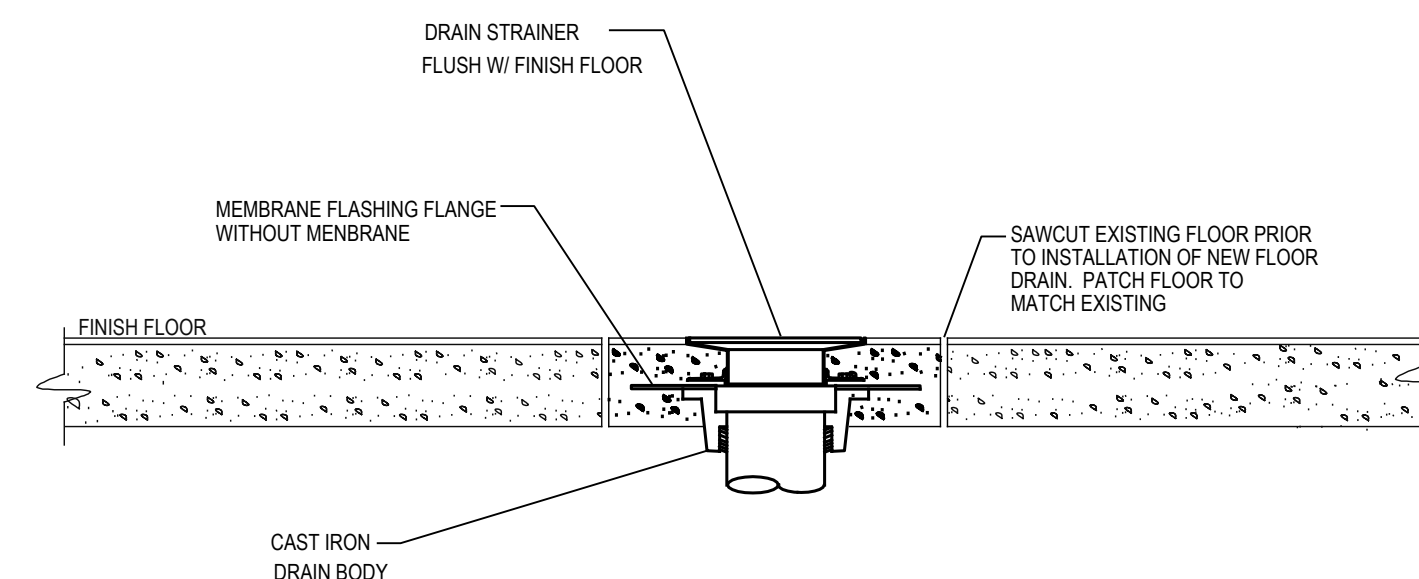
NOTE: THE AQUASTAT SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD WATER PIPING TO 104 DEGREES F.

**7 INDIRECT WATER HEATER DETAIL**  
SCALE: NOT TO SCALE

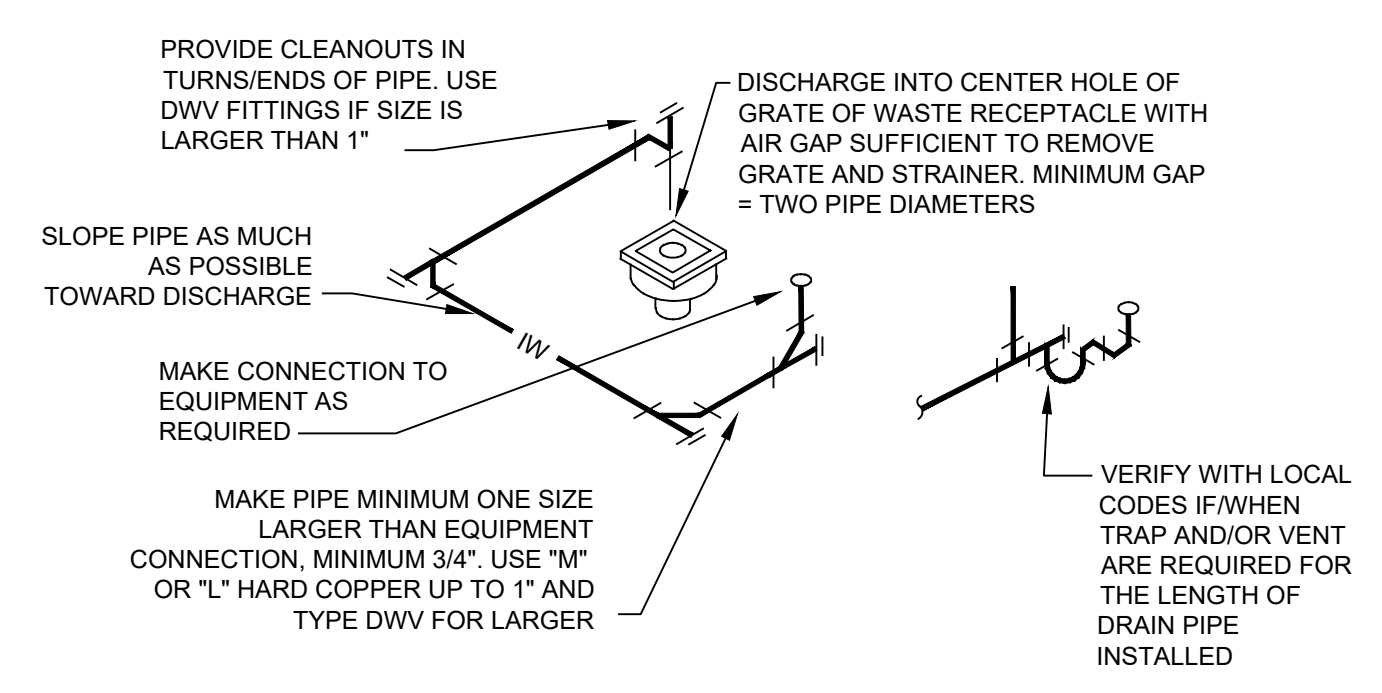


**1 WASHER WALL BOX DETAIL**  
SCALE: NOT TO SCALE

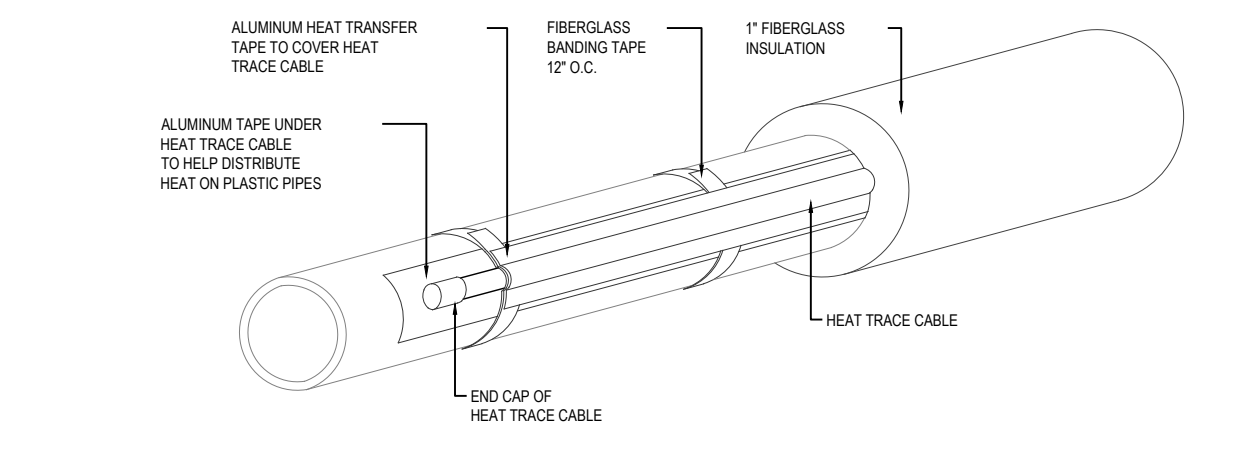
**4 WALL CLEANOUT DETAIL**  
SCALE: NOT TO SCALE



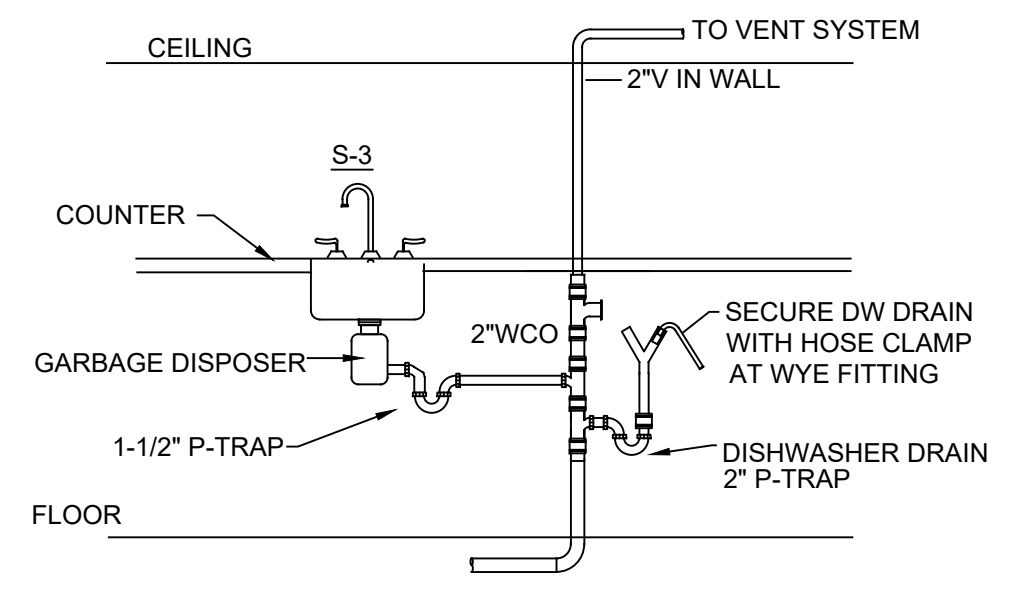
**5 FLOOR DRAIN FLASHING DETAIL**  
SCALE: NOT TO SCALE



**2 INDIRECT DRAIN DETAIL**  
SCALE: NOT TO SCALE



**6 HEAT TRACE DETAIL**  
SCALE: NOT TO SCALE



**3 DISHWASHER AIRGAP DETAIL**  
SCALE: NOT TO SCALE

Section IV, Item C.

**D M C E**

**DYNAMIC MEP CONSULTING ENGINEERS**  
1480 HOYT ST., STE. 200  
LAKEWOOD, CO 80215  
303.421.3208

PROFESSIONAL ENGINEER  
61793  
10/12/23

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0039 LODESTONE TRAIL  
BLUE RIVER, COLORADO 80424

**BHH PARTNERS**  
660 ADAMS AVE  
SILVER THORNE, CO 80498

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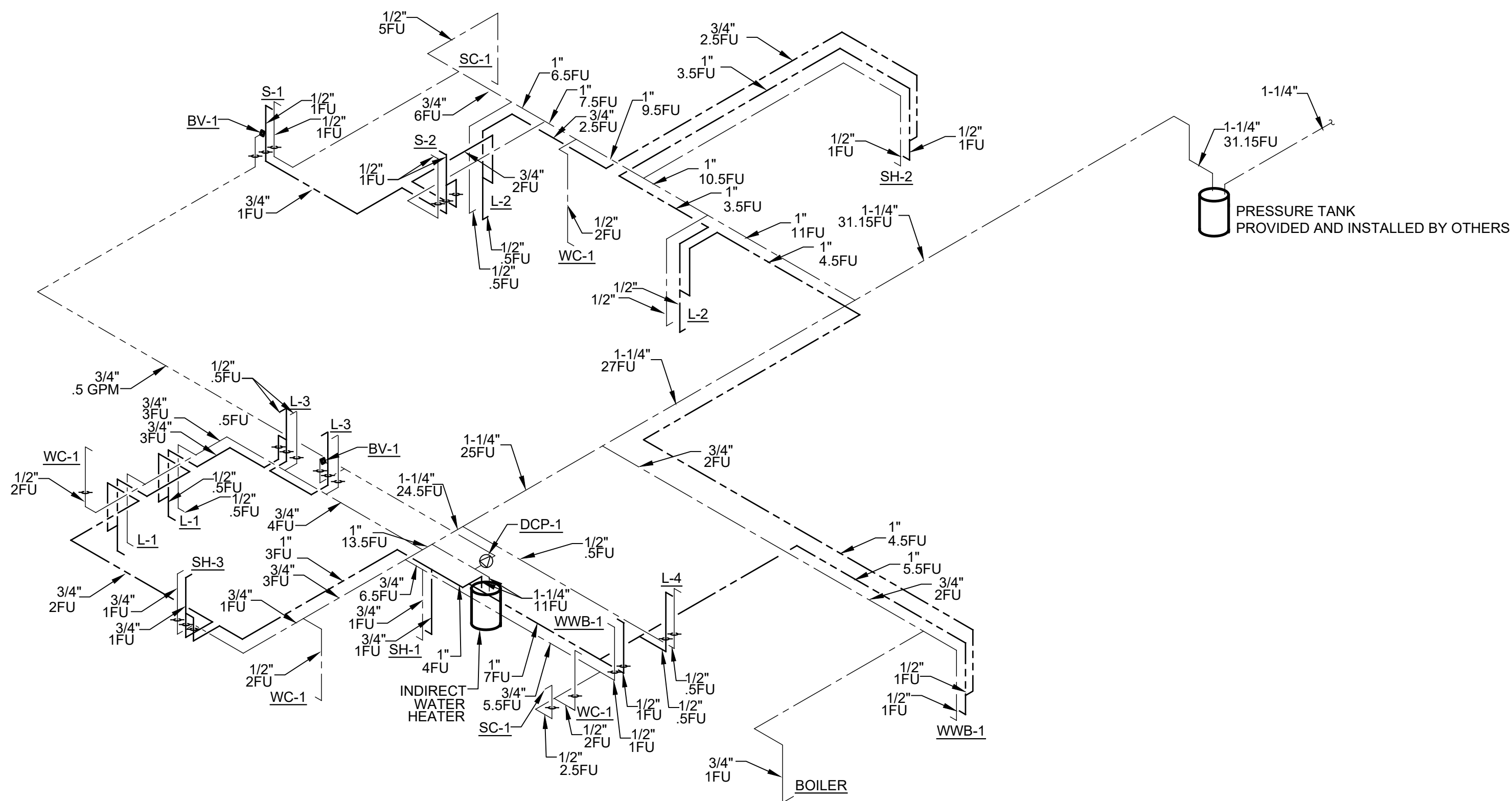
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JOB # 23068

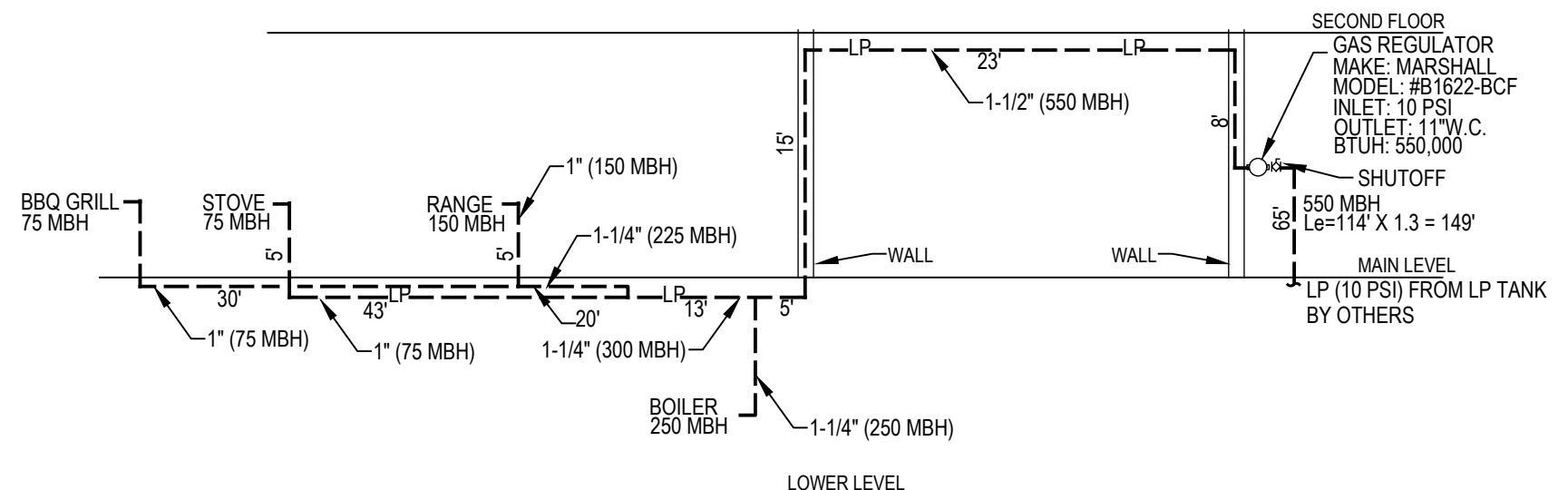
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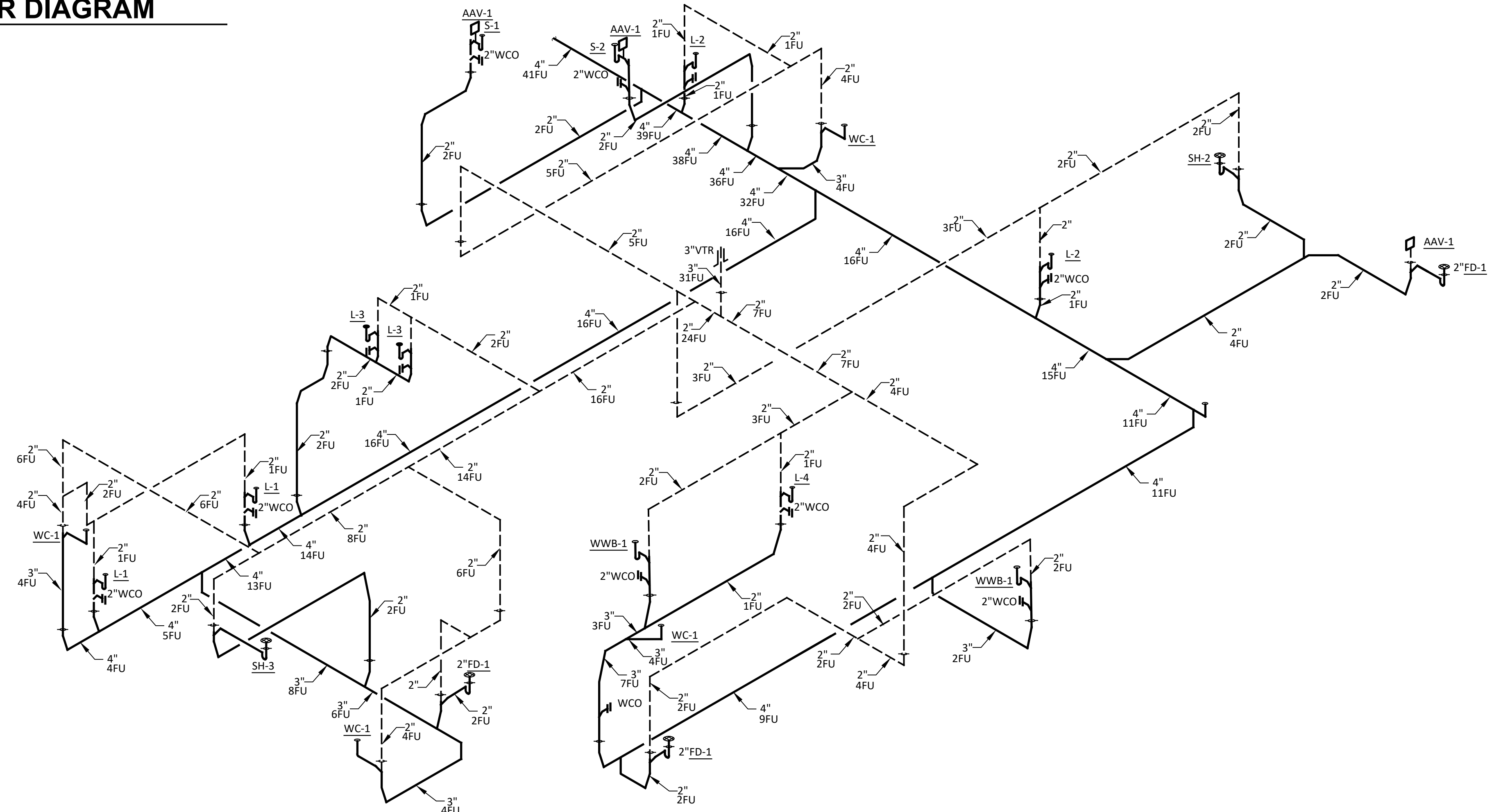
**2 WATER RISER DIAGRAM**  
SCALE: NOT TO SCALE



**1 LP GAS PIPING SCHEMATIC**  
SCALE: NOT TO SCALE

GAS CONNECTION SCHEDULE-LIQUIFIED PROPANE					
EQUIPMENT	SUPPLIED BY	LOCATION	INPUT MBH AT S.L.	QUANTITY	TOTAL
STOVE	BY OTHERS	LIVING ROOM	75.0	1	75.0
RANGE	BY OTHERS	KITCHEN	150.0	1	150.0
BOILER	MECHANICAL CONTRACTOR	MECHANICAL ROOM	250.0	1	250.0
BBQ GRILL	BY OTHERS	PATIO	75.0	1	75.0
				TOTAL INPUT MBH (AT S.L.)	550.0
				CFH (AT ALT.)	691.1

GAS LINE BASED ON 11"WC, 149 EQUIVALENT LINEAR FEET AT 550 MBH  
2ND STAGE REGULATOR LOCATED @ EXTERIOR ENTRANCE TO RESIDENCE  
(IFGC TABLE 402.4 (37), 0.5" WC PSI PRESSURE DROP)



**3 WASTE AND VENT ISOMETRIC**  
SCALE: NOT TO SCALE

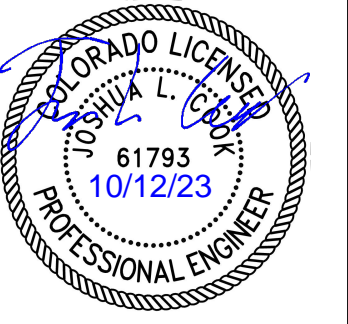
**HOLMBO RESIDENCE**  
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BLUE RIVER, COLORADO 80424  
BHH PARTNERS  
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**HOLOMBO RESIDENCE**  
 0039 LODGESTONE TRAIL  
 BLUE RIVER, COLORADO 80424  
**BHH PARTNERS**  
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 SILVER THORNE, CO 80498

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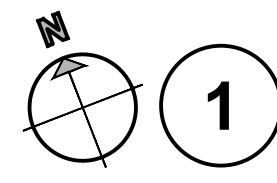
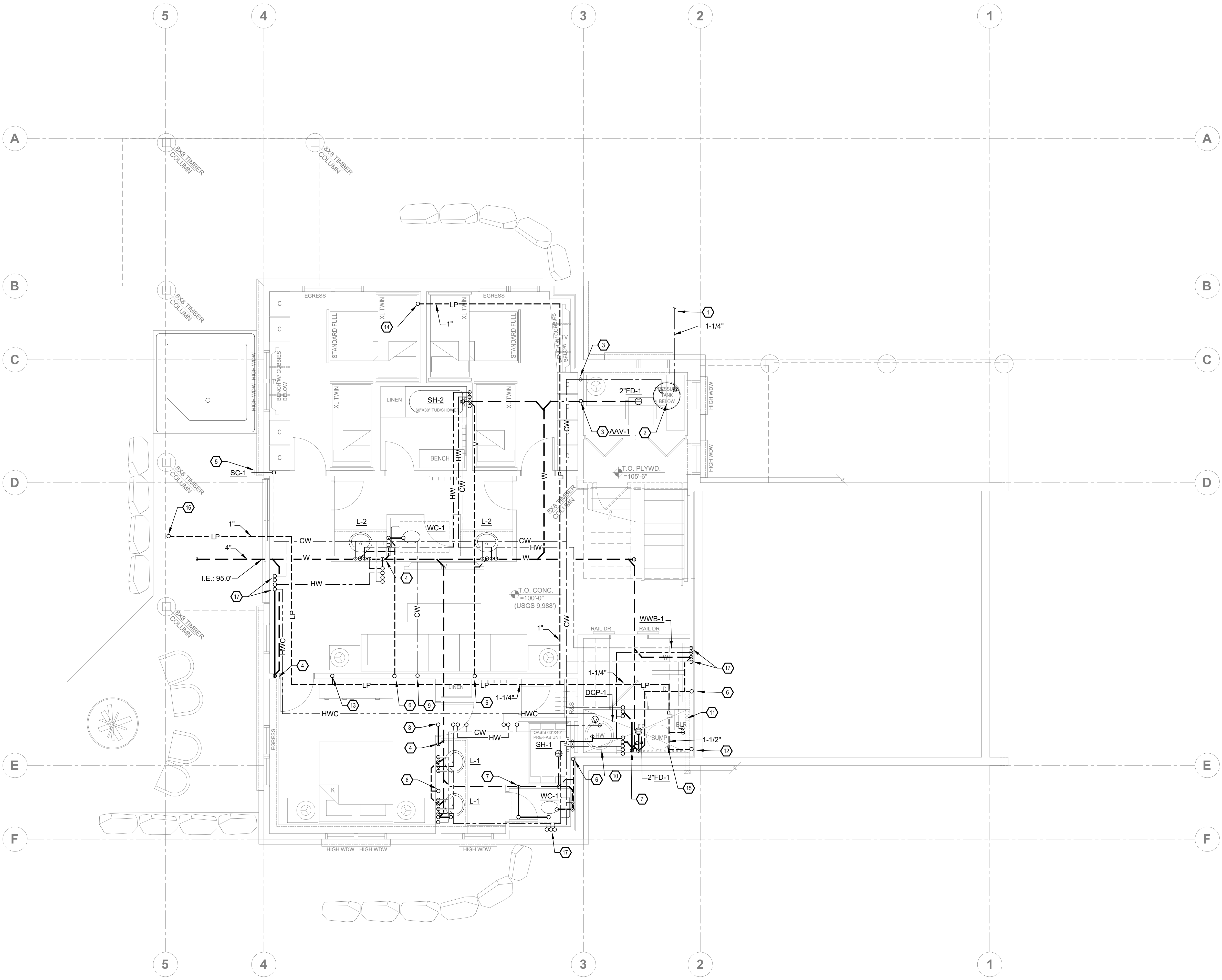
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**P1.1**

**GENERAL NOTES:**

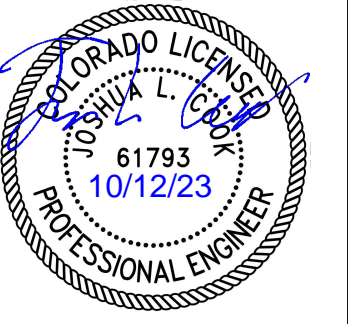
- FIELD COORDINATE ROUTING OF ALL PIPING WITH OTHER TRADES PRIOR TO INSTALLATION.
- PROVIDE ACCESS PANELS AS REQUIRED. FIELD COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.

**KEYED NOTES:**

- 1-1/4" CW FROM DOMESTIC WELL ROUTED TO BUILDING IN SITE UTILITIES PORTION OF THE WORK.
- DOMESTIC WELL PRESSURE TANK PROVIDED AND INSTALLED BY OTHERS. CONNECT 1-1/4" CW TO PRESSURE TANK DISCHARGE PER MANUFACTURER AND LOCAL CODE. OFFSET 1-1/4" CW AND ROUTE IN LOWER LEVEL CEILING.
- PROVIDE AND INSTALL AIR ADMITTANCE VALVE IN WALL WITH ACCESS PANEL PER MANUFACTURER AND LOCAL CODE.
- 2"W DOWN IN WALL TO BELOW FLOOR.
- CONNECT 3/4" CW TO SILLCOCK. PROVIDE AND INSTALL STOP AND DRAIN VALVE IN AN ACCESSIBLE LOCATION.
- 2"V UP THRU FLOOR ABOVE.
- 4"W DOWN IN WALL TO BELOW FLOOR.
- 2"W UP THRU FLOOR ABOVE.
- 1/2" CW UP THRU FLOOR ABOVE.
- CONNECT 1-1/4" CW, 1-1/4" HW, 3/4" HWC TO INDIRECT WATER HEATER. REFER TO INDIRECT WATER HEATER DETAIL AND MECHANICAL DRAWINGS. WATER HEATER TO BE PROVIDED BY MECHANICAL CONTRACTOR AND INSTALLED BY MC AND PC AS REQUIRED FOR A COMPLETE AND OPERATIONAL WATER HEATER.
- CONNECT 3/4" CW TO BOILER MAKEUP REDUCED PRESSURE BACKFLOW PREVENTER. EXTEND 3/4" CW BACKFLOW DISCHARGE AND CONNECT 3/4" CW AND 1-1/4" LP TO BOILER PER MANUFACTURER AND CODE. REFER TO BOILER MAKEUP DETAIL AND GAS CONNECTION DETAIL. TOTAL CONNECTED LOAD: 250 MBH AT S.L.
- 1-1/2" LP UP THRU FLOOR ABOVE.
- 1" LP UP THRU FLOOR ABOVE TO RANGE.
- 1" LP UP THRU FLOOR ABOVE TO FIREPLACE.
- SUMP AND BUILDING UNDERDRAIN BY OTHERS. LOCATION SHOWN FOR COORDINATION PURPOSES ONLY.
- 1" UP THRU DECK TO BBQ GRILL.
- PROVIDE AND INSTALL INSULATION & 5 WATTS/L.F. HEAT TRACE (TWO TOTAL) ON ALL DOMESTIC WATER PIPING AT EXTERIOR WALL. TOTAL CONNECTED LOAD: 120 WATTS MAX. REFER TO HEAT TRACE DETAIL.



**1 LOWER LEVEL PLUMBING PLAN**  
 SCALE: SCALE: 1/4" = 1'-0"



STAMP:  
 ATT: THESE MATERIALS ARE OWNED AND COPYRIGHTED BY DMCE AND CONTAIN TECHNICAL DESIGN AND CONFIDENTIAL INFORMATION WHICH ARE TRADE SECRETS AS DEFINED BY STAT. LAW. ACCESS TO THESE MATERIALS IS GIVEN ONLY TO APPROVED CONTRACTORS AND MATERIAL MEN AND ONLY FOR USE IN THE BIDDING AND CONSTRUCTION OF THE PROJECT SPECIFIED BY THESE MATERIALS. ANY USE OF THIS INFORMATION FOR PURPOSE BEYOND THOSE EXPRESSLY PERMITTED BY DMCE IS A VIOLATION OF STATE AND FEDERAL LAW AND MAY SUBJECT THE USER TO CIVIL AND CRIMINAL PENALTIES.

**HOLOMBO RESIDENCE**  
 0039 LODESTONE TRAIL  
 BLUE RIVER, COLORADO 80424  
**BHH PARTNERS**  
 660 ADAMS AVE  
 SILVER THORNE, CO 80498

These documents are prepared for exclusive use by

NO.	DATE	DESCRIPTION	PERMIT SET
	10/12/2023		

DRAWN BY: SJP  
 CHECKED BY: JLC  
 ISSUE DATE: 10/13/2023

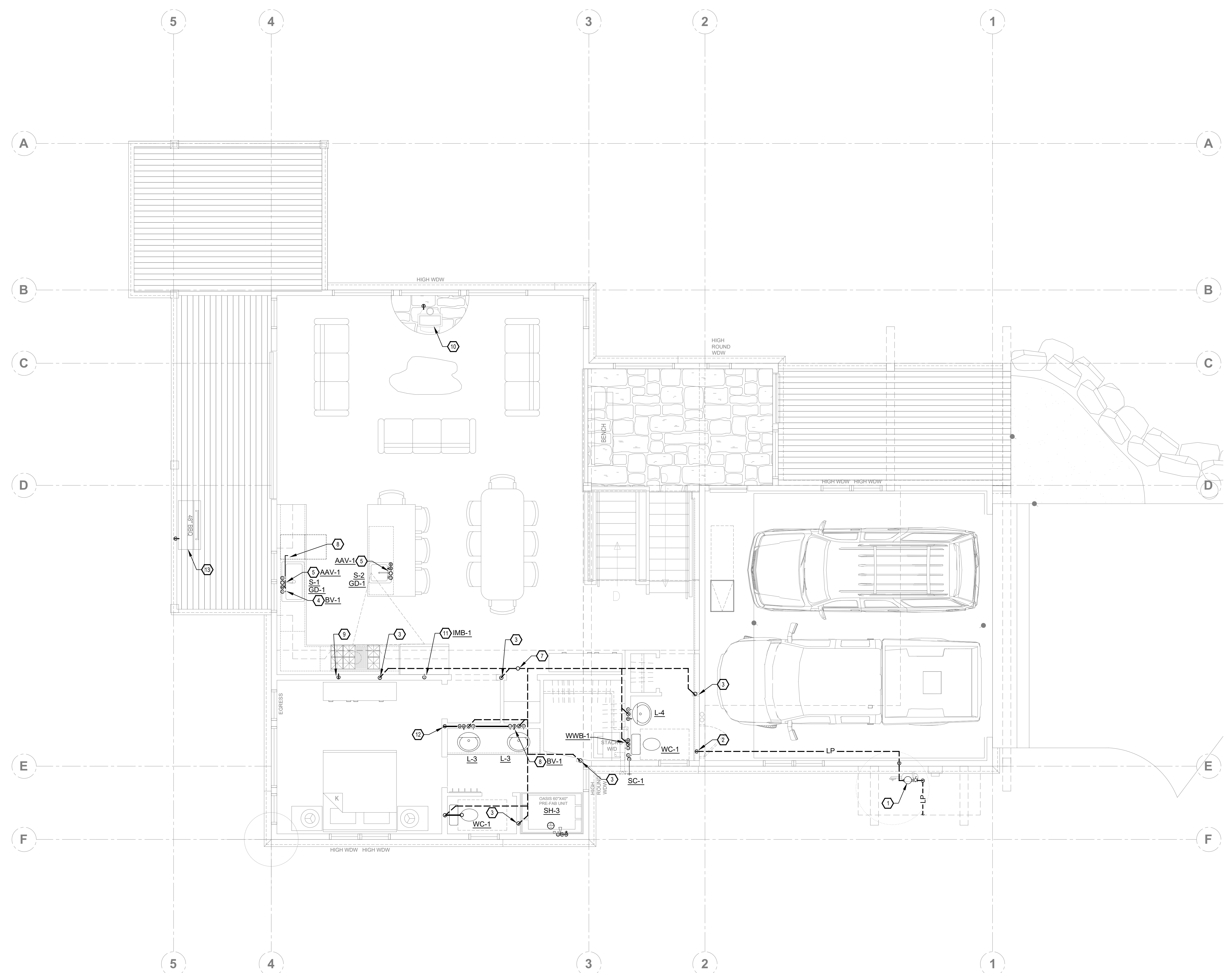
SHEET NO.  
**P1.2**

**GENERAL NOTES:**

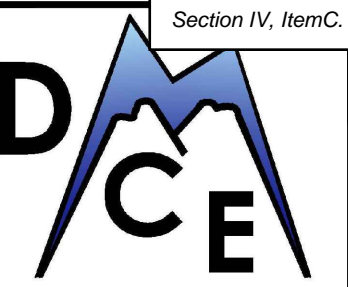
- FIELD COORDINATE ROUTING OF ALL PIPING WITH OTHER TRADES PRIOR TO INSTALLATION.
- PROVIDE ACCESS PANELS AS REQUIRED. FIELD COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.

**KEYED NOTES:**

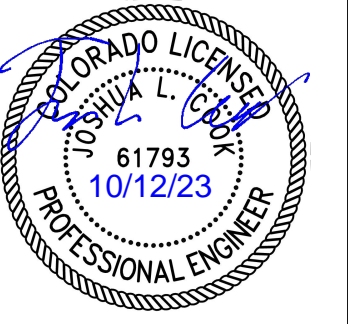
- BUILDING LP GAS SERVICE, PROVIDED AND INSTALLED BY SITE UTILITIES CONTRACTOR, UP FROM BELOW GRADE. PROVIDE AND INSTALL ACCESSIBLE GAS SHUTOFF VALVE AND GAS REGULATOR AT 24" A.F.G. OFFSET 1-1/2" LP GAS AND ROUTE UP IN WALL. OFFSET AND ROUTE IN GARAGE CEILING. LP TANK AND BUILDING SERVICE BY SITE UTILITIES CONTRACTOR. FIELD COORDINATE WITH SITE UTILITIES CONTRACTOR.
- 1-1/2" GAS DOWN IN WALL TO BELOW FLOOR. REFER TO P1.1 FOR CONTINUATION.
- 2" V UP FROM BELOW FLOOR. EXTEND UP TO ABOVE CEILING.
- 3/4" HW UP FROM BELOW FLOOR. OFFSET 1/2" HW AND CONNECT TO SINK AND DISHWASHER AS REQUIRED. EXTEND 3/4" HW TO BALANCING VALVE, MOUNTED TIGHT TO BACK OF CABINET. ROUTE 3/4" HWC VALVE DISCHARGE DOWN TO BELOW FLOOR.
- PROVIDE AND INSTALL AIR ADMITTANCE VALVE, IN AN ACCESSIBLE LOCATION, PER MANUFACTURER AND LOCAL CODE.
- 3/4" HW UP FROM BELOW FLOOR. OFFSET 1/2" HW AND CONNECT TO LAV AS REQUIRED. EXTEND 3/4" HW TO BALANCING VALVE, MOUNTED TIGHT TO BACK OF CABINET. OFFSET AND ROUTE 3/4" HWC VALVE DISCHARGE DOWN IN WALL TO BELOW FLOOR.
- 3" V UP TO 3" VTR ABOVE.
- CONNECT 1/2" HW TO DISHWASHER WITH 1/2" NOM X 3/8" OD WHEEL HANDLE CHROME COMP STOP. ROUTE FULL SIZE DRAIN TO SINK AND DISCHARGE WITH AIRGAP AT STANDPIPE. REFER TO DISHWASHER AIRGAP DETAIL.
- 1" LP UP FROM BELOW FLOOR IN WALL. PENETRATE WALL AND CONNECT TO LP RANGE. PROVIDE ACCESSIBLE SHUTOFF VALVE PRIOR TO CONNECTION. TOTAL CONNECTED LOAD: 150 MBH AT S.L.
- 1" LP UP FROM BELOW FLOOR. CONNECT TO LP STOVE. PROVIDE AND INSTALL ACCESSIBLE SHUTOFF VALVE PRIOR TO CONNECTION. TOTAL CONNECTED LOAD: 75 MBH AT S.L.
- 1/2" CW UP FROM BELOW FLOOR TO ICE MAKER BOX. EXTEND SOFT COPPER TUBING AND CONNECT TO REFRIGERATOR AS REQUIRED.
- 2" W DOWN IN WALL TO BELOW FLOOR.
- 1" LP UP FROM BELOW DECK. VALVE AND CAP FOR CONNECTION TO LP BBQ. (GRILL BY OTHERS) TOTAL CONNECTED LOAD: 75 MBH AT S.L.



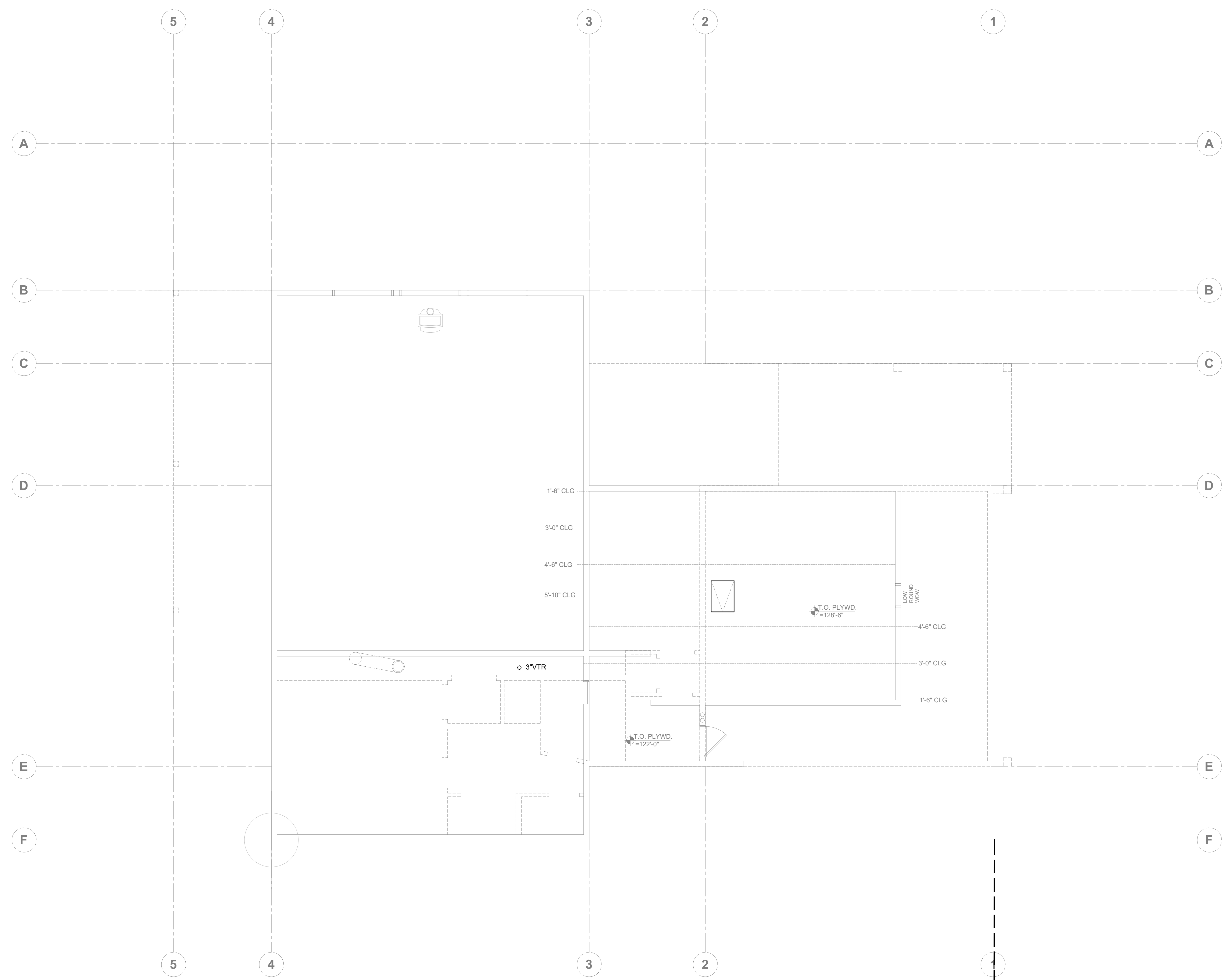
**1 MAIN LEVEL PLUMBING PLAN**  
 SCALE: 1/4" = 1'-0"



DYNAMIC MEP  
CONSULTING ENGINEERS  
1480 HOYT ST., STE. 200  
LAKEWOOD, CO 80215  
303.421.3208



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**HOLMBO RESIDENCE**  
0039 LODESTONE TRAIL  
BLUE RIVER, COLORADO 80424

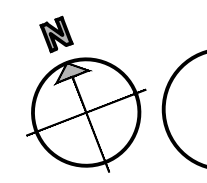
**BHH PARTNERS**  
660 ADAMS AVE  
SILVER THORNE, CO 80498

These documents are prepared for exclusive use by

NO.	DATE	DESCRIPTION	PERMIT SET
	10/13/2023		

DRAWN BY: SJP  
CHECKED BY: JLC  
ISSUE DATE: 10/13/2023

SHEET NO.  
**P1.3**



1

**UPPER LEVEL PLUMBING PLAN**

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





**97 – 97 Circle Blue River**

**Color Board**



Horizontal Siding – Rough sawn Spruce 1x8 V-groove shiplap with Benjamin Moore – Arbor coat – Semi solid stain Color “Dragons Breath”



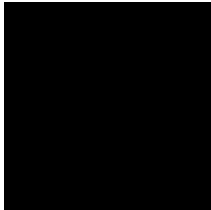
Vertical Siding – Wire brush 1x6 Nickel Gap spruce siding, With Benjamin Moore – Arbor coat – Semi transparent color “Normandy”



Trim and Fascia – Rough sawn spruce 1x Trim and fascia per plan Benjamin Moore – Arbor coat – Semi solid – “black”



GAF – Asphalt shingles Timberline UHDZ – “Charcoal”



Aluminum Clad windows and Metal Standing seam to be Black





WELL PERMIT NUMBER 266269-  
 RECEIPT NUMBER 0544126

**ORIGINAL PERMIT APPLICANT(S)**

MARK E. COLEMAN

**APPROVED WELL LOCATION**

Water Division: 5      Water District: 36  
 Designated Basin:    N/A  
 Management District: N/A  
 County:                SUMMIT  
 Parcel Name:         N/A  
 Physical Address:    97 97 CIRCLE BLUE RIVER, CO 80424  
 NW 1/4 NW 1/4 Section 30 Township 7.0 S Range 77.0 W Sixth P.M.

**UTM COORDINATES (Meters, Zone:13, NAD83)**

Easting:      409967.5      Northing:      4363421.4

ISSUANCE OF THIS PERMIT DOES NOT CONFER A WATER RIGHT  
CONDITIONS OF APPROVAL

- 1) This well shall be used in such a way as to cause no material injury to existing water rights. The issuance of this permit does not assure the applicant that no injury will occur to another vested water right or preclude another owner of a vested water right from seeking relief in a civil court action.
- 2) The construction of this well shall be in compliance with the Water Well Construction Rules 2 CCR 402-2, unless approval of a variance has been granted by the State Board of Examiners of Water Well Construction and Pump Installation Contractors in accordance with Rule 18.
- 3) Approved pursuant to CRS 37-92-602(3)(b)(II)(A) as the only well on a residential site of 0.60 acre(s) described as lot 402, '97 Subdivision, Summit County.
- 4) The use of ground water from this well is limited to ordinary household purposes inside one single family dwelling. The ground water shall not be used for irrigation or other purposes.
- 5) The maximum pumping rate of this well shall not exceed 15 GPM.
- 6) The return flow from the use of this well must be through an individual waste water disposal system of the non-evaporative type where the water is returned to the same stream system in which the well is located.
- 7) This well shall be constructed not more than 200 feet from the location specified on this permit.

NOTE: Expired permit no. 238260 was previously issued for this lot.

See Original Permit

Date Issued: 10/27/2005

Issued By \_\_\_\_\_

Expiration Date: 10/27/2007

**PERMIT HISTORY**

01-04-2024 CHANGE IN OWNER NAME/MAILING ADDRESS. CHANGED TO ASPECT MOUNTAIN HOMES, LLC (SHANE LACY)

LANDSCAPE NOTES		LANDSCAPE LEGEND			
1)	SEED ALL DISTURBED AREAS W/ SUMMIT COUNTY GRASS SEED MIX AND 4" TOPSOIL. RAKE AS REQUIRED.	KEY	NAME	NO.	SIZE
2)	LOCATE PLANTINGS TO AVOID SNOW AND ICE SLIDE AREAS.		QUAKING ASPEN (POPULUS TREMULOIDES)	4	2" MIN. CAL. 50% MULTI-STEM
3)	TREES THAT ARE TO REMAIN SHALL BE PROTECTED WITH FENCING TO REDUCE COMPACTION AROUND TREE BASE AND GRADE CHANGES. FENCING TO BE LOCATED AT TREE DRIPLINE.		COLORADO BLUE SPRUCE (PICEA PUNGENS)	2	(1) 4'-0" (1) 8'-0"
4)	COBBLE ROCK TO BE USED AS A GROUND COVER IN ROOF DRIPLINE AREAS.		SHRUBS -PEKING COTONEASTER, SILVER BUFF BERRY, TUNBERRY HONEYSUCKLE -SHUBERT CHOKECHERRY, REDTIG DOGWOOD, NATIVE REDBERRY ELDER	4	5 GAL.
5)	ALL PLANT MATERIALS SHALL BE BACK FILLED WITH EQUAL PARTS OF ORGANIC AMENDMENTS AND NATIVE SOIL.		TREES TO BE REMOVED	0	-
6)	ALL SHRUB AND TREE WELLS SHALL RECEIVE 3 INCHES SHREDDED BARK MULCH.		EXISTING TREES	1+	-
7)	ALL NEWLY PLANTED TREES SHALL BE ROOT RED AT THE TIME OF INSTALLATION.				
8)	GENERAL CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS AS SPECIFIED ON SITE PLAN.				

**BLUESKY**  
ARCHITECTURE, P.C.

PO BOX 65  
FRISCO, CO 80443  
970-333-1210  
BLUESKYARCHITECTURE.NET

**97 CIRCLE RESIDENCE**  
LOT 402, THE 97 SUBDIVISION, BLUE RIVER ESTATES  
BLUE RIVER, COLORADO

TITLE

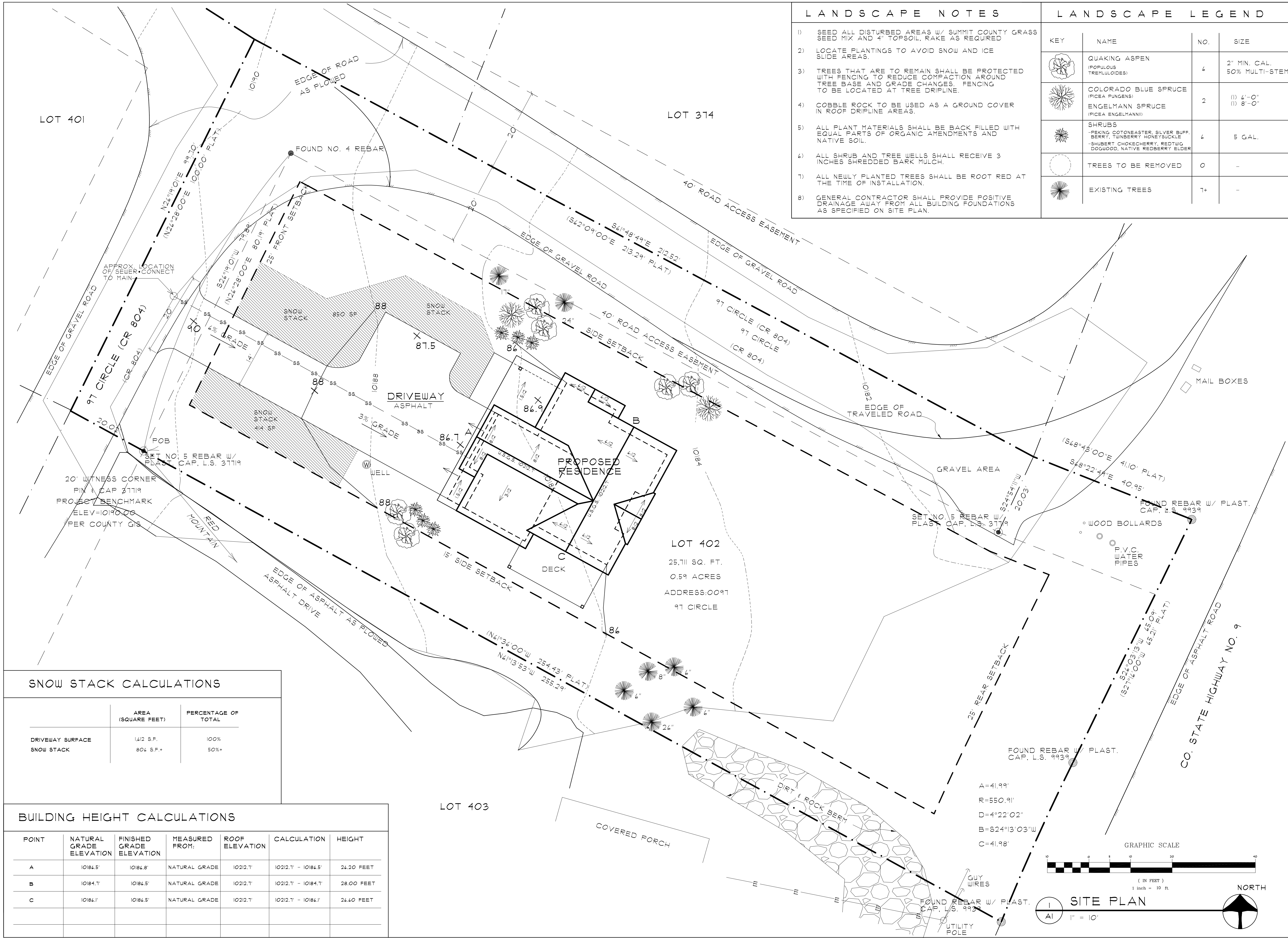
**SITE PLAN**

ISSUE	DATE
PRELIM.	3/5/24

GRAPHIC SCALE  
(IN FEET)  
1 inch = 10 ft.

**SITE PLAN**  
1" = 10'

CF 5



**SNOW STACK CALCULATIONS**

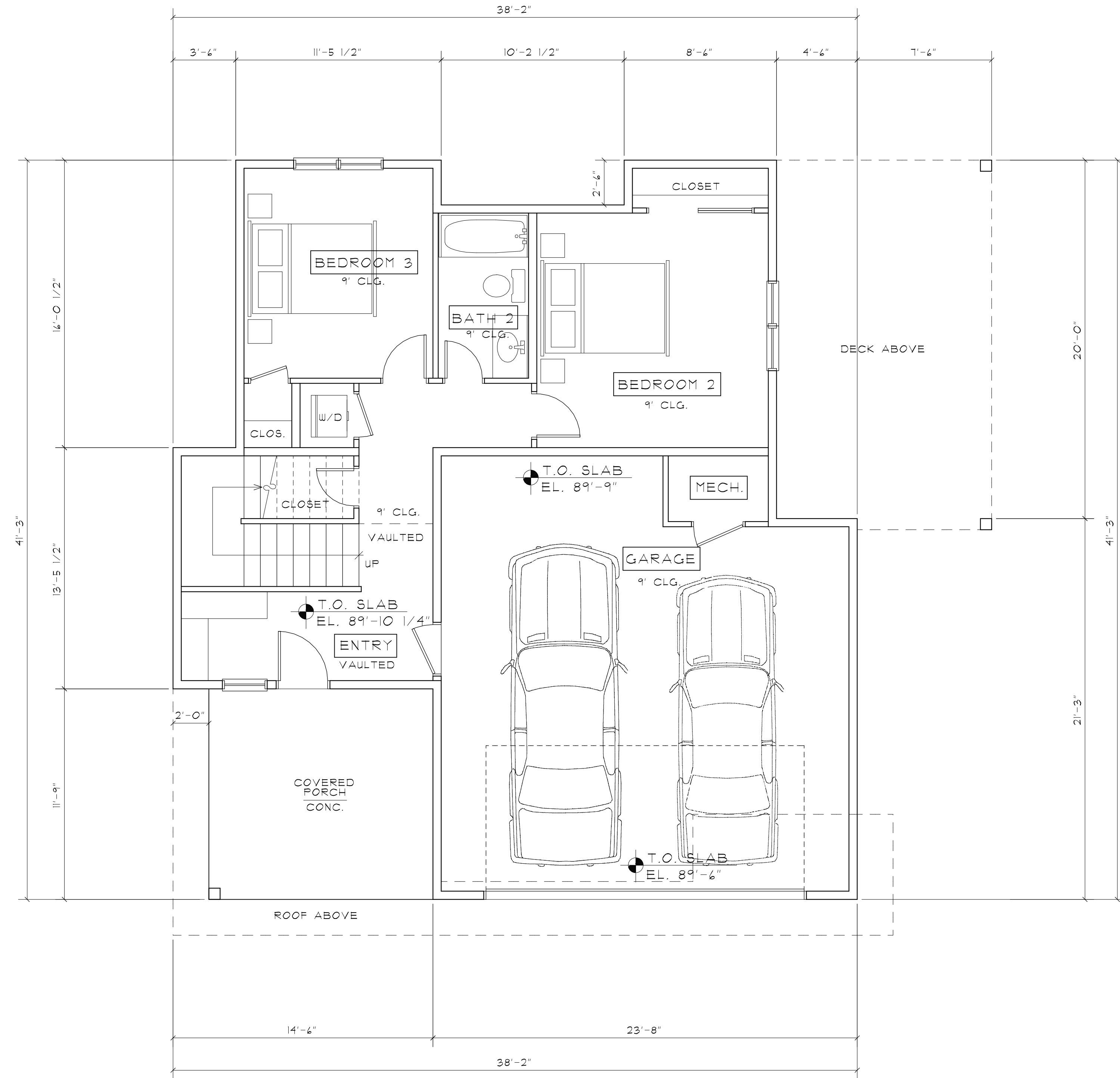
	AREA (SQUARE FEET)	PERCENTAGE OF TOTAL
DRIVEWAY SURFACE	1,412 S.F.	100%
SNOW STACK	804 S.F.+	50%+

**BUILDING HEIGHT CALCULATIONS**

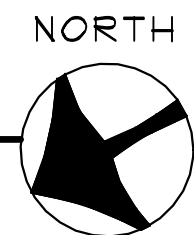
POINT	NATURAL GRADE ELEVATION	FINISHED GRADE ELEVATION	MEASURED FROM:	ROOF ELEVATION	CALCULATION	HEIGHT
A	10184.5'	10184.8'	NATURAL GRADE	10212.1'	10212.1' - 10184.5'	24.20 FEET
B	10184.1'	10184.5'	NATURAL GRADE	10212.1'	10212.1' - 10184.1'	28.00 FEET
C	10184.1'	10184.5'	NATURAL GRADE	10212.1'	10212.1' - 10184.1'	24.60 FEET

BUILDING AREA CALCULATIONS

	FINISHED	UNFINISHED	TOTAL
MAIN FLOOR	996	0	996 S.F.
LOWER FLOOR	454	578	1,232 S.F.
TOTAL	1,450	578	2,228 S.F.



1  
A2 LOWER FLOOR PLAN  
1/4" = 1'-0"  
454 SF FINISHED  
578 SF GARAGE/MECH.



PO BOX 65  
FRISCO, CO 80443  
970-333-1210  
BLUESKYARCHITECTURE.NET

97 CIRCLE RESIDENCE

LOT 402, THE 97 SUBDIVISION, BLUE RIVER ESTATES  
BLUE RIVER, COLORADO

TITLE

FLOOR  
PLANS

ISSUE	DATE
PRELIM.	3/5/24

A2



PO BOX 65  
FRISCO, CO 80443  
970-333-1210  
BLUESKYARCHITECTURE.NET

# 97 CIRCLE RESIDENCE

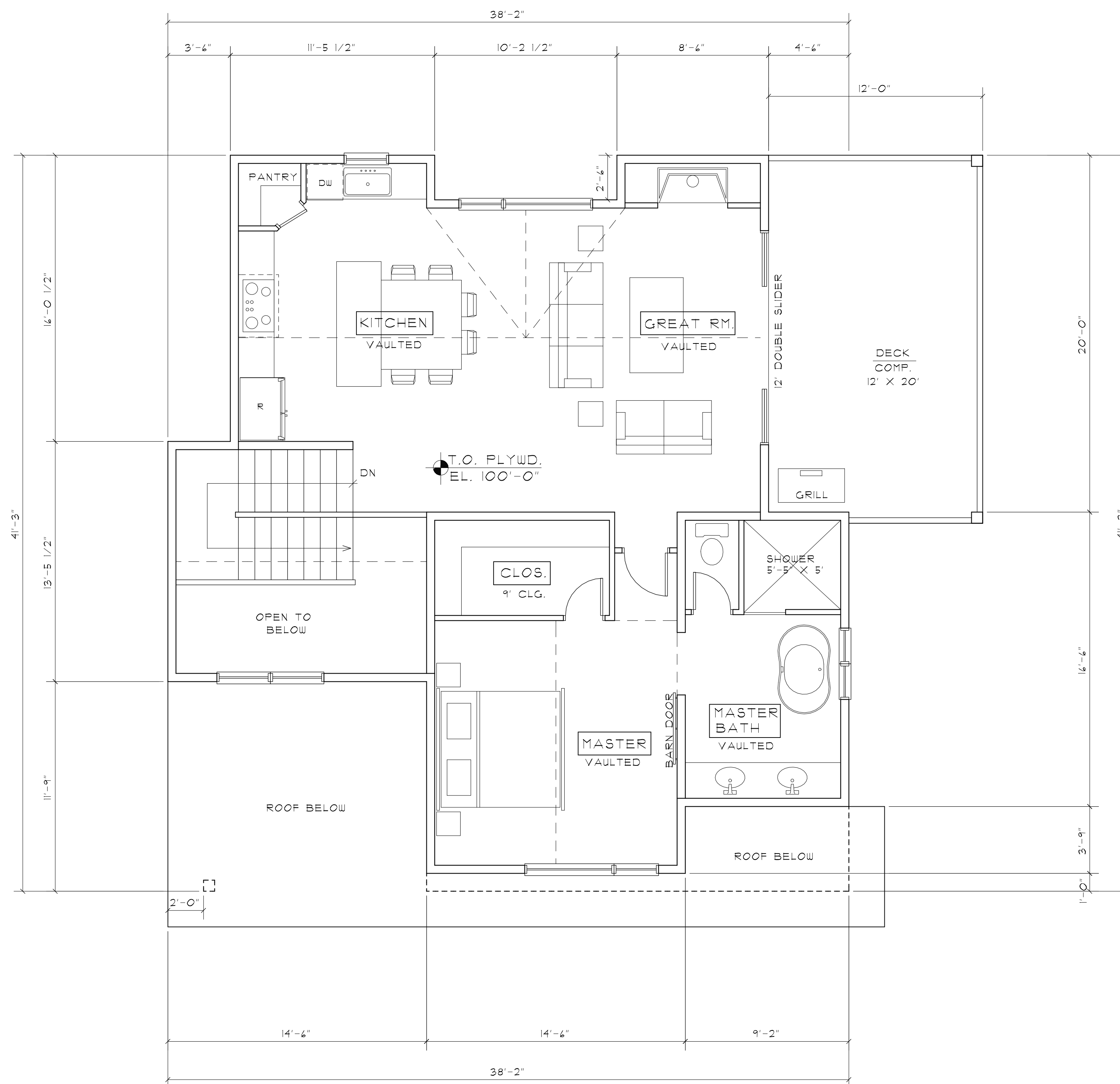
LOT 402, THE 97 SUBDIVISION, BLUE RIVER ESTATES  
BLUE RIVER, COLORADO

TITLE

FLOOR  
PLANS

ISSUE	DATE
PRELIM.	3/5/24

A3

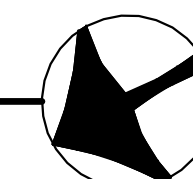


1 MAIN FLOOR PLAN

A3 1/4" = 1'-0"

996 SF FINISHED

NORTH





PO BOX 65  
FRISCO, CO 80443  
970-333-1210  
BLUESKYARCHITECTURE.NET

# 97 CIRCLE RESIDENCE

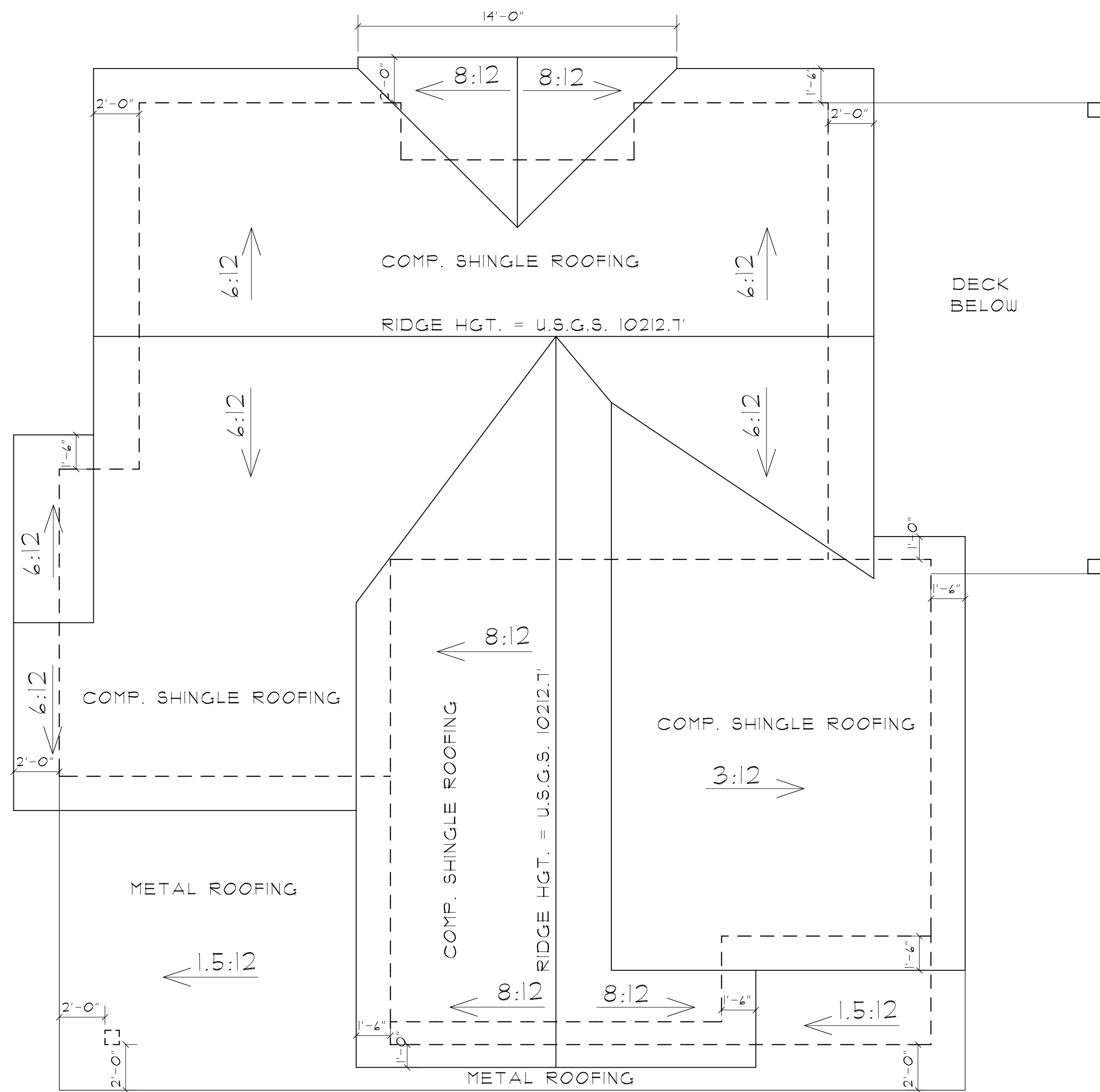
LOT 402, THE 97 SUBDIVISION, BLUE RIVER ESTATES  
BLUE RIVER, COLORADO

TITLE

## ROOF PLAN

ISSUE	DATE
PRELIM.	3/5/24

# A4



1 ROOF PLAN  
A4 1/4" = 1'-0"



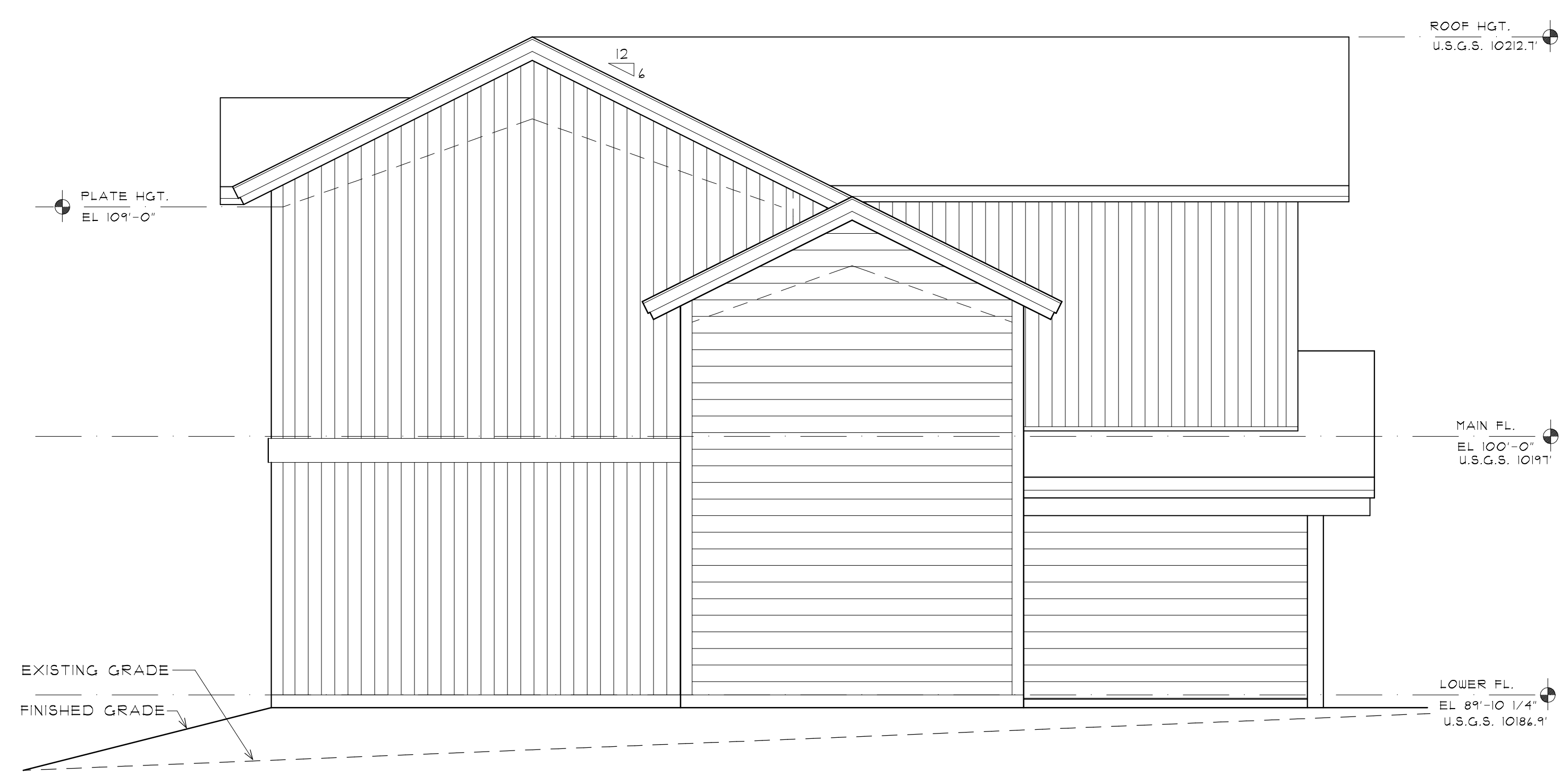
PO BOX 65  
FRISCO, CO 80443  
970-333-1210  
BLUESKYARCHITECTURE.NET

**97 CIRCLE RESIDENCE**  
 LOT 402, THE 91 SUBDIVISION, BLUE RIVER ESTATES  
 BLUE RIVER, COLORADO

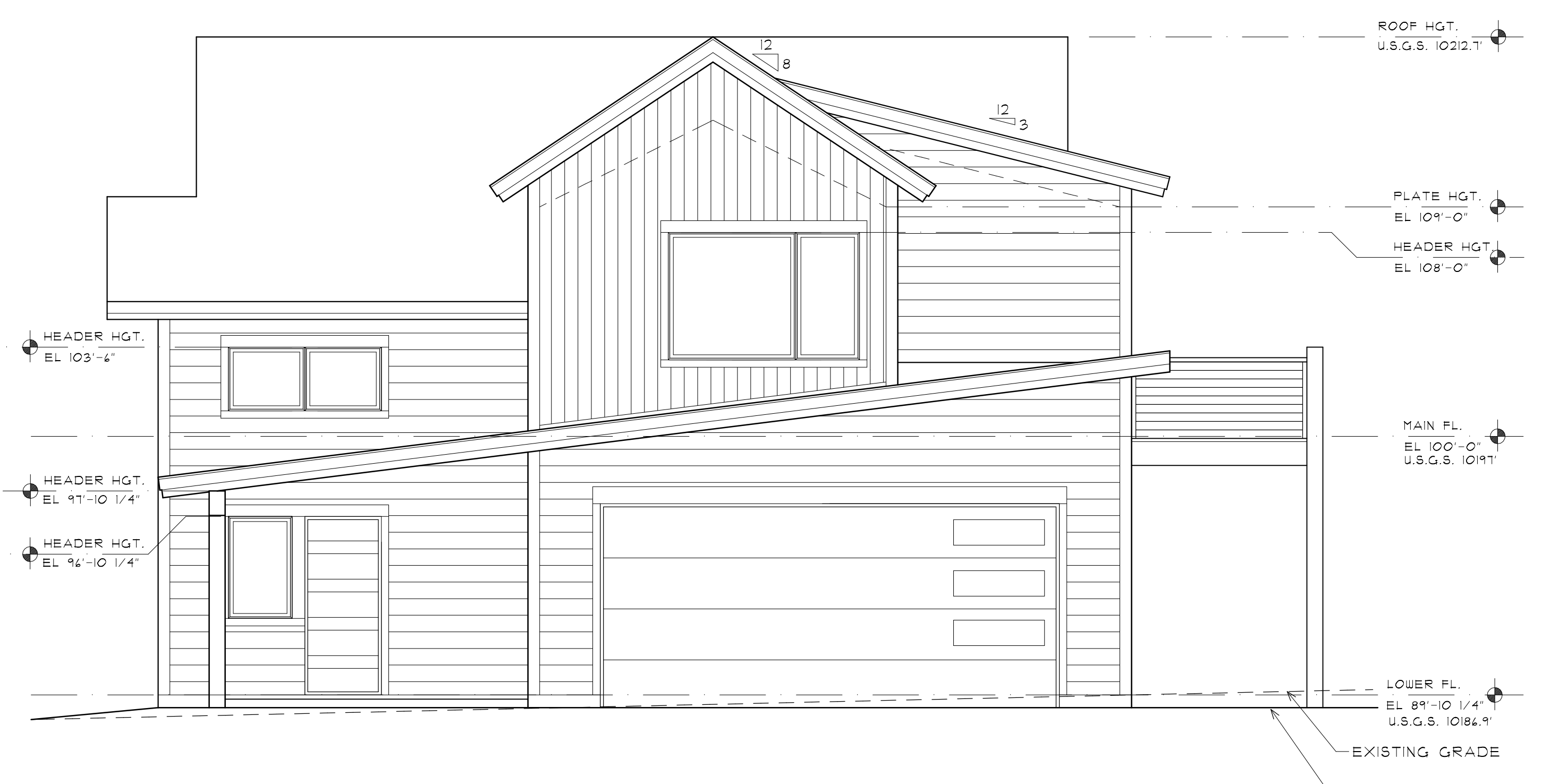
TITLE  
**BUILDING ELEVATIONS**

ISSUE	DATE
PRELIM.	3/5/24

**A5**



**2 NORTH ELEVATION**  
A5 1/4" = 1'-0"

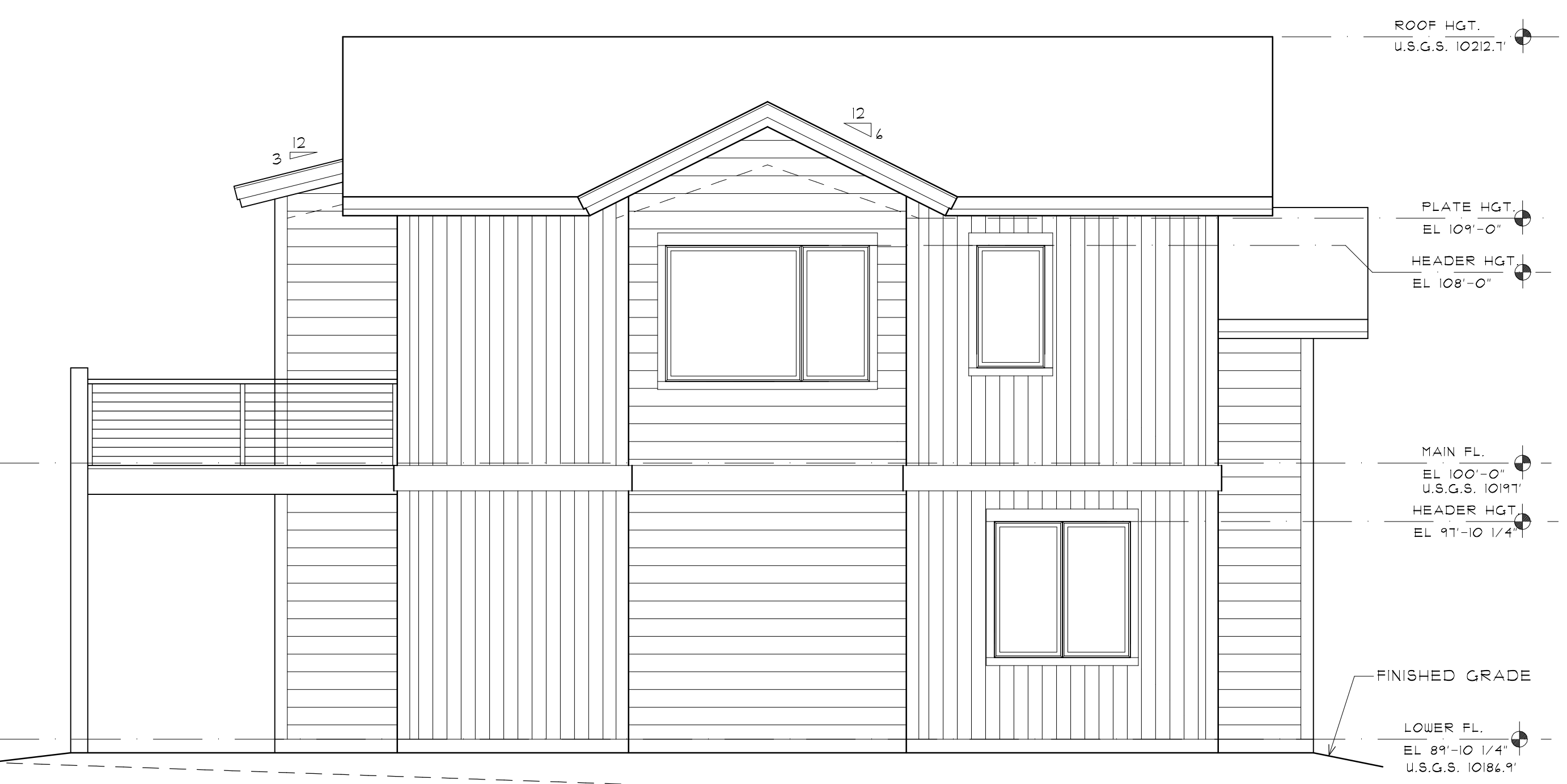


**1 WEST ELEVATION**  
A5 1/4" = 1'-0"

ITEM	MATERIAL	COLOR
ROOF:	COMP. SHINGLE	SEE COLOR BOARD
EAVE/RAKE:	STANDING BEAM METAL	
HORIZ. SIDING:	1/4 x 1X10, MTL/DRIP EDGE	
ACCENT SIDING:	1X8 WOOD SHIP-LAP SIDING	
DOORS/WINDOWS:	1X8 VERTICAL WOOD SIDING	
DOOR/WINDOW TRIM:	ALUM. CLAD WOOD	
OUTSIDE CORNER TRIM:	2X4 HEADER 2X4 JAMB & SILL	
INSIDE CORNER TRIM:	2X4	
DECKS/RAILS:	2X4	
EXPOSED BEAMS/COL:	BLACK METAL RAILINGS, COMPOSITE DECKING	
	DOUG FIR TIMBERS	



**4 SOUTH ELEVATION**  
A5 1/4" = 1'-0"



**3 EAST ELEVATION**  
A5 1/4" = 1'-0"



## Submittal Requirements

**\*\*ALL Submittals Must be Electronic\*\***

**Emailed to: [info@townofblueriver.org](mailto:info@townofblueriver.org)**

### Planning & Zoning Review Submittal Requirements

**\*\*Please indicate via check box item included as well as page number in submitted packet.**

Completed <input checked="" type="checkbox"/>	Item	Description	Page #
	<b>Site Plan</b>	Scale: 1" = 10'; May appear on a single sight plan. IF on a separate page, please indicate the page.	A1
		Property Boundaries	A1
		Building Envelope with setbacks	A1
		Proposed Buildings	A1
		Structures (existing & proposed)	A1
		Driveway & Grades	A1
		A wetlands delineation & Stream crossing structures where applicable.	N/A
		Topographic survey, prepared and stamped by a licensed surveyor, indicating site contours at 2' intervals, easements, and significant natural features such as rock outcroppings, drainages and mature tree stands.	A1
		Transformer & vault location (if installed by owner or existing)	A1
		Well location; septic if applicable	A1
		Snow storage areas and calculations	A1
		Major site improvements	A1
		Existing & proposed grading & drainage	A1
	<b>Landscaping Plan</b>	<b>*May be included in the site plan**</b>	A1
		Landscaping must indicate tree removal for defensible space requirement; any trees 6" or more primarily noting the removal of any ponderosa pines or large trees. Clear cutting of a site is not allowed.	A1
		Indicate the percentage of trees removed and revegetation to be conducted.	A1
		Upon completion of the construction project, all land must be raked and	



		reseeded with native seed prior to issuance of CO. in cases of completion during snow coverage and/or winter, CO may be issued with conditions for completions within 60 days of the last snow and a deposit.	
		Any major structures (retaining walls; fences; landscaping rocks) must be indicated in detail on plans in conformance with the design regulations.	NA
		Indicating building walls, floors and roof relative to the site, including existing and proposed grades, retaining wall and proposed site improvements.	A1
	<b>Floor Plans</b>	<i>Scale 1/8" = 1'</i>	
		Indicate the general layout of all rooms, approximate size, and total square footage of enclosed space for each floor level.	A2/A3
	<b>Exterior Elevations</b>	<i>Scale same as floor plans</i>	
		Detail to indicate the architectural character of the residence, fenestration and existing and proposed grades. Elevations must include a description of exterior materials and colors.	A5
	<b>Roof Plan</b>	<i>Scale same as floor plans</i>	
		Indicate the proposed roof pitch, overhang lengths, flue locations, roofing materials and elevations of major ridge lines and all eave lines.	A4
	<b>Materials Sheet</b>	Display materials to be used. Color renderings are suggested as well. In cases of additions, if matching the existing structure, photos of current home.	A5 AND ATTACHED

**After Approval and BEFORE Permit is Issued:**

**ELECTRONIC COPY Stamped set.**

- All of the above mentioned plus items below in one plan set.

Completed <input checked="" type="checkbox"/>	Item	Page #
	Soils report if applicable	
	Electrical, plumbing and mechanical plans.	
	Construction Management Plan. Please refer to the Town Code and Architectural Guidelines for all requirements.	
	Stamped structural plan	
	Current Summit County Septic System Permit (including system plot plan), or evidence of full payment of tap fees to Upper Blue Sanitary District.	
	Current Colorado Well Permit or evidence of full payment of tap fees to Timber Creek Water District	
	Colorado Department of Transportation Hwy Access Permit	
	Designation of General Contractor, except for bona fide homeowner contractor	
	For Manufactured Homes the following additional information is required	
	<ul style="list-style-type: none"> <li>• State of Colorado Division of Housing Approved Plans</li> </ul>	
	<ul style="list-style-type: none"> <li>• State of Colorado Division of Housing Registered Installer Certificate</li> </ul>	

## Blue River Plan Submittal Requirements for Residential Plan Review

- ❖ When designing the structure, refer to the Blue River Municipal Town Code, Chapter 16 for zoning information and allowable uses/construction. The Building Code information is available under Chapter 18. <https://townofblueriver.colorado.gov>.
- ❖ Building Codes Adopted:
  - International Residential Code 2018
  - The Electrical Code is the current code adopted by the State of Colorado: 2020

**Note: Applicable codes are required to be notated on plans.**

- ❖ Snow loads:
  - Roofs shall be designed in accordance with accepted engineering practice based upon a ground snow load of 100 psf.
  - Balconies/decks-125 psf.
  - No reductions for duration.
- ❖ Frost line depth:
  - Foundation footing minimum depth below grade-40 inches.
  - Uncovered deck piers may be set at 24 inches.
- ❖ Roof underlayment 100% Ice & Water shield.
- ❖ Roof may be metal; 30-year minimum architectural grade, composition fiberglass (dark brown, dark gray, dark green, weathered wood or black only); or class-A #1 cedar shakes.
- ❖ Wind speed: 90 mph, exposure “B”. Seismic design category: “B”.
- ❖ Propane gas alarm/shutoff system required.
- ❖ Wood burning stoves: Required to meet Colorado Dept. of Health, Regulation No. 4.
- ❖ The building height limit in the Town is 35 feet. Refer to the Architectural Guidelines for additional information.
- ❖ Locally re-settable GFCI breakers are required in bathrooms.
- ❖ Compliance with the International Energy Conservation Code is required.
- ❖ Any application that would create an accessory apartment must meet zoning regulations and will not be processed without prior approval of the Town Board of Trustees.
- ❖ Note that Hwy 9 access permits may require 3-4 months and well permits 5-6 weeks.
- ❖ Planning & Zoning Commission approvals become void if the building permit is not issued within eighteen (18) months.
- ❖ Building permits become void if construction is discontinued for more than 180 days.

In order for your permit application to be reviewed and processed properly, the following construction information must be provided. **Note:** "Preliminary" and/or plans shown as "Not for Construction" or similar are unacceptable. ***Hardcopy submittals will not be accepted.***

***Note: Items below are not all inclusive of the requirements. Please review the Building Application Packet, design guidelines, building and land use codes for complete information.***

### **Soils Report**

Must be sealed and signed by a licensed Colorado Engineer.

- Provide an engineer's soil investigation report indicating type of soil and recommended foundation design. include any required shoring.

### **Improvement Survey Plat**

- Provide an Improvement Survey Plat (ISP) following Colorado Revised Statutes for new principal structures, substantial expansions (25% or more) to principal structures and new accessory dwelling units (ADU's).
- Provide a permanent reference to spot elevation (benchmark) that will not be disturbed during construction.
- Provide existing spot elevations at property corners and at midpoints of the side property lines.
- Must be stamped and signed by a Professional Land Surveyor (PLS) licensed by the state of Colorado.

### **Site Plan**

- Provide site plan that shows dimensions reflecting the distances to property lines
- Indicate all public or private easements
- Show location of all proposed and existing structures with dimensions
- Prove type of construction for all structures on site
- Provide landscaping plan.
- Show permanent reference spot elevation (benchmark), existing spot elevations at property corners and at midpoints of the side property lines.
- Indicate roof drainage on site plan with arrows showing the direction of the gutter downspouts. Roof drainage shall flow towards the road and away from all structures.

### **Structural Plans**

Plans must be sealed and signed by a Colorado Structural Engineer or Architect

- Indicate size, location and method of reinforcement for all proposed footings, column pads, piers, caissons, grad beams, foundation walls, decks, guardrails, guardrail posts. Specify location of reinforcing steel and anchor bolts.

- Provide complete and clearly dimensioned floor framing plan for each level and roof framing plan which indicates the materials, types, sizes and location of all structural elements.
- Provide complete structural design criteria including but not limited to required design loads, material specifications and structural construction requirements.
- Provide complete structural calculations for each structure.

### **Architectural Plans**

- Provide complete and dimensioned floor layout at each level which identifies the use of each room.
- Provide Complete and dimensioned roof plan and indicate all roof slopes.
- Provide complete and dimensioned reflected ceiling plan.
- Provide exterior elevations for each side of the building which contains an overall building height and floor-to-floor heights and indicate location, size and types of all doors and glazed openings including hazardous glazing and fall protection locations.
- Provide a bulk plane diagram on front and rear exterior elevations relative to the base plane elevation. The base plan for the bulk plane is establishing by taking the average of the existing grades of the midpoints of the two side property lines.
- Provide building and wall sections which clearly identify the required type and location of all materials for construction of beams, columns, floors, walls, ceilings, roofs.
- Provide stair geometry. Include rise and run, handrail and guardrail heights.
- Provide one major section through the exterior wall from footings to the highest part of the roof (min. scale 1/4"=1')
- Provide square foot area breakdown per floor level.

### **Electrical Plans**

Provide electrical plans showing the location and capacity of the service equipment and electrical panels, the location of all smoke detectors, carbons monoxide detectors, electrical receptacles, switches, and lighting fixtures.

### **Mechanical Plans**

- Provide mechanical plans and indicate the location of all heating, ventilating and air conditioning equipment. Show the location of the condensing unit. Detail the equipment access and working clearances.
- Show dryer exhaust termination location and clearances, environmental exhaust termination locations and clearances.
- Provide Manual J and Manual D calculations. Must be legible. No exceptions.
- Provide all fireplace specifications, rated separation details, direct vent termination details when applicable, hearth extensions when required, chimney clearances, shutoff and control access.

### **Plumbing Plans**

- Provide plumbing plans and indicate the location of all plumbing fixtures and appliances (Isometric may be required per the discretion of the plans examiner.)
- Provide the supply line size and main discharge size. Note the water supply inlet location.
- Indicate whether appliances are gas-operated, electric, or otherwise. List types of material to be used for all water supply, drainage and vent piping. Provide fixture max flow rates and insulation values.
- Gas load calculations and piping diagram is required.

### **Energy Conservation Plans**

Provide verification that the project meets the requirements of the IECC, or provide a simulated energy performance analysis such as RES-check. Provide all required information per 2012 IECC R103.2.

### **Resubmittal Requirements**

- Provide a written response addressing each correction.
- Provide revision clouds for each correction made.
- Provide updated information in the revision section of the title block.
- Provide complete plan packs per discipline requiring corrections. Example: If you are resubmitting for Civil corrections, provide a complete revised plan pack.

TO: Michelle Eddy, CMC/CPM - Town Manager/Clerk  
FROM: Kyle Parag, Plan Reviewer - CAA  
DATE: March 26, 2024  
RE: Planning/Zoning/Architectural Guidelines review – 0097 97 CIR

Below please find staff’s analysis that outlines the review with the Town’s Zoning regulations and adopted Architectural Design Guidelines for the structure proposed

**Zoning Regulation analysis –**

Proposal: A new single-family residence with an attached garage. The proposed 3 story, 3 bedroom, 4.5 bath home, includes 3,708 s.f. of living space and an attached 774 s.f., 3 vehicle garage for a combined 4,4482 square feet.

Zoning district: R

Lot Size: ~ 25,000 sq. ft.  
80,000 sq. ft. Required– Existing Non-Conforming

Lot Width: ~ 100’  
100 ft. Required - Complies

Setbacks: Proposed principal residence complies with required setbacks based upon submitted docs. **The side setback is not indicated correctly, however, the overhang is over 15’ from the easement, and the side setback complies with Town of Blue River regulations**

Height: Complies with required height limitations. The height at the highest roof ridge is proposed at 28’

Garage Stds: The proposed garage is ~511 sq. ft. and complies with the standards for structures less than 5,000 sq. ft. in habitable size.

Parking Stds: Parking requirements will be met through the proposed garage and exterior parking.

**Architectural Design Guideline analysis -**

Please note the following key to the interpretation of the analysis table:

Y	Element is in substantial compliance with the design guidelines
N	Does not comply with the design guidelines
PC	Subject to Planning Commission Specific approval
	Requires additional information from applicant
N/A	Not Applicable to the application

STANDARD	NOTES/REMARKS	SUBSTANTIAL COMPLIANCE
<b>DEVELOPMENT STANDARD</b>		
Article 3: Easements	Easements are indicated, and the structure does not appear to conflict with any easements.	Y
Article 4: Buildable Area/setbacks	Side and front setbacks are not indicated correctly, Building review will require revisions. The proposed structure does not conflict with Town distance requirements for setbacks.	
<b>Article 5 Building Design Standards</b>		
Article 5-20 Building Height	Building height is indicated and scaled to 28'.	Y
Article 5-60 Foundation	Foundation is not clearly addressed. Elevations show the finish materials to the ground level with minimal exposed foundation.	Y
Article 5-70 Roofs	Roof design is gable, with architectural features, and shows general compliance	Y
Article 5-80 Garages	Attached garage is scaled to 511 square feet and complies with requirements. Shows general conformance	Y



Article 5-90 Window and door design	Shows general conformance with standards.	Y
Article 5-100 Balconies and railings	Railing is indicated as a horizontal guard and shows general conformance	Y
Article 5-110 Chimney and Roof Penetrations	Fireplace is indicated on the floor plan, but no exterior chimney or venting is indicated.	
<b>Article 6 Building Materials and Colors</b>		
Article 6-20 Materials	Siding is indicated as a shiplap with semi-solid stain. Shows general conformance	Y
Article 6-30 Colors	Colors indicated are browns and greys with black roofing systems	Y
<b>Article 7 Accessory Improvements</b>		
Article 7-(20-40, 110) Berms, Garages, sheds and Gazebos	Shows general conformance	Y
Article 7-50 Driveways	Driveway is indicated at 14'. Which exceeds the values in (4)	N
Article 7-60 Parking Areas	Parking is provided with the attached garage and exterior parking	Y
Article 7-100 Decks	Deck is indicated on south side the home, and shows general conformance.	Y
Article 7-120 Hot Tubs	None indicated	N/A
Article 7-140 Fences	None indicated	N/A
Article 7-150 Retaining walls	None indicated	N/A

<b>Article 8 Signs</b>		
Article 8 Signs	None Indicated	N/A
<b>Article 9 Lighting</b>		
Article 9 Lighting	Details of exterior lighting are not provided, Project will require compliant lighting to be installed.	
<b>Article 13 Environmental Regulations</b>		
Article 13-20 Wetlands	None indicated	N/A