Plan Review Comments Response

MacKay-Lyons Sweetapple Architects Limited

> 2188 Gottingen Street Halifax, Nova Scotia Canada B3K 3B4 t 902.429.1867 f 902.429.6276

www.mlsarchitects.ca

Date: 2016.11.16

Summit Powder Mountain Bldg. 3
Project No: Footing & Foundation Only

Total pages: 1 of 6

The following is a formal response to the Plan Review Comments completed by Alexa Nielsen (Code) and Joe Bingham (Structural), checked by George Williams.

Oct. 31, 2016. (Received Nov. 01, 2016)

CODE REVIEW COMMENTS:

This building has been requested to be completed under a Phased Permit, as indicated by Weber County. A detailed scope of work outlining exactly what portion of work is being proposed such as site work, underground work (electrical, mechanical, plumbing), footings, foundation walls, P.T. slab, etc.) needs to be provided.

Please see accompanying letter from Summit Powder Mountain.

A. Because a phased approval is being sought for this project, the owner must submit a letter to the building official stating that they understand that they will be proceeding at their own risk in accordance with IBC 107.3.3. Please include a detailed scope of work outlining exactly what portions of the work will be included in this permit, such as site work, utilities, underground plumbing, etc.

Please see accompanying letter from Summit Powder Mountain.

- A1. Sheet 1.02: Please address the following:
 - A. Please clearly identify the Building or Buildings to be built under this permit, as this sheet does not make it clear. Identify with bold line work, hatching or leader arrows the specific building associated with this permit. Otherwise it is assumed this permit is for a single building (Bldg. 3) as indicated in the permit application.

This permit is for a single building (Bldg. 3). Please see supplemental civil drawings specific to Buildings 3 and 4.

B. Please provide information on the Parking Facilities provided to this project. Please clarify the location of such parking, the number of parking stalls provided, and the number of accessible and van accessible parking stalls in compliance with IBC Section 1106.1 and 1106.5. This is applicable if common buildings and or spaces are provided.

Common buildings and or spaces are not provided.

I If more than one parking facility is provided on the site, which is what appears to be the case, the number of parking stalls required to be provided to be accessible shall be calculated separately for each parking facility.

Please see response to Comment C for more information. Complete information relating to parking facilities will be provided as part of the documentation for Building Permit.

C. Please provide the following Details and Information concerning the accessible parking provided:

Building 3 is an individually owned single dwelling unit residential project classified under the 2015 IBC as R3 Occupancy. As per 1107.6.3 and 1106.5 accessible parking is not required.

I. Please identify the number and location of accessible parking stalls.

Not applicable. See above.

II. Please identify the location of the van accessible parking. Per IBC 1106.5 at least one (1) van accessible stall shall be provided for every 6 or fraction of 6 parking stalls.

Not applicable. See above.

III. Please ensure that all accessible parking is dispersed to be near all accessible entrances, in compliance with IBC 1106.6.

Not applicable. See above.

IV. Please indicate the width of the accessible and van accessible parking stalls per Section 502.2 of ICC A117.1-09. Car parking spaces shall be 8 feet minimum in width and van parking shall be a minimum of 11 feet. (Van parking is also permitted to be 8 feet wide where adjoining an 8 foot wide access aisle.)

Not applicable. See above.

- V. Section 502.4 of ICC A117.1 requires that an access aisle be provided adjacent to all accessible parking stalls. (Two parking stalls shall be permitted to share the same access aisle.) Please address the following:
 - a. The access aisle shall not overlap the vehicular way and shall be located on an accessible route.

Not applicable. See above.

b. The minimum width of the access aisle is 5 feet.

Not applicable. See above.

c. The access aisle is required to be marked to discourage parking in them

Not applicable. See above.

VI. Provide signage as required by IBC 1111.1 and Section 502.7 of ICC A117.1-09 for the accessible parking. Signs shall be located a minimum of 60 inches above the surface of the parking.

Not applicable. See above.

A In addition to the International Symbol of Accessibility, stalls for vans shall be marked "Van Accessible".

Not applicable. See above.

A2. Sheet A100: Please address the following:

A. Please provide complete construction details and information for the boardwalks provided, as not information on the construction of such boardwalks has been provided.

We will comply and complete information relating to boardwalks will be provided as part of the documentation for Building Permit.

- Please provide complete details on what appears to be stairs within the boardwalk, in compliance with Section 1011.
 - a. Please provide information on the stair treads and risers.

See above.

b. Handrails provided.

See above.

c. Stairway landings.

See above.

 Please provide complete information and details on any ramps provided, in compliance with Section 1012.

We will comply and complete information relating ramps will be provided as part of the documentation for Building Permit.

a. Ramp slope and cross slope.

See above.

b. Vertical Rise

See above.

c. Landings for the ramps

See above.

d. Length of the ramp.

See above.

e. Any changes in direction.

See above.

A3. Sheet A101: Please address the following:

General Note: Building 3 is designated as individually owned single dwelling units classified under the 2015 IBC as R3 Occupancy. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16 has been revised.

A. Chapter 5 - Building Heights and Areas:

Please revise the Allowable Area Calculations, as it appears that the 2012 IBC was used for the calculations. Please revise to reflect the 2015 IBC Standard.

 Please clarify the construction type, as it is shown as I-A and V-A, but was indicated to be V-B. Please address.

Revised. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

- II. Please note, per Table 506.2 of the 2015 IBC, the allowable area for an R-3 Occupancy with V-B construction is unlimited.
 - a. Please clarify where the value of 7,000 sf was found.

Revised. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

- III. Please note that per Table 504.3 of the 2015 IBC, the allowable height of an R-3, Non-sprinklered building is 50 feet.
 - a. Please clarify where the value of 55 feet was found.

Revised. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

 Please note that the allowable height of a building with an NFPA-13R system is 60 feet

Revised. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

IV. Please clarify the S-2 Occupancy, as it is listed that the building(s) are single occupancy buildings.

Removed. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

V. Please clarify the listing for the R-1 Occupancy, as both R-2 and R-3 are indicated above in other sections.

Cabin 3 is designated as R-3 Occupancy. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

VI. Please note that per Table 506.2 of the 2015 IBC, the allowable are of a V-B, R-2 Occupancy with an NFPA-13R sprinkler system is 7,000 sf.

 Please revise the area calculations to reflect the correct Construction Type, per Chapter 6 of the 2015 IBC.

Revised. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

b. Please revise the allowable area calculations to reflect the correct Use Group, in compliance with Chapter 3 of the 2015 IBC.

Revised. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

c. Please note, per 2015 IBC Section 506, there is no sprinkler increase with an NFPA-13R system. Please remove this increase from the calculations.

i. If the sprinkler increase is desired, an NFPA-13 system must be provided for the building.

Removed. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

VII. Please graphically indicate the areas used for frontage, incompliance with IBC Section 506.3.

a. It appears that a frontage increase is not needed. Please remove this calculation from the allowable building calculations.

Removed. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

VIII. Chapter 7 – Fire-Resistance Rated Construction:

- a. Please revise the 718 Concealed Spaces notes, as an NFPA-13R system appears to be provided to the building.
 - i. Draftstopping, in compliance with Section 718.3.2, will be required in floors, as the exception does not comply.

Building 3 is an individually owned single dwelling unit residential project classified under the 2015 IBC as R3 Occupancy. As per 718.3.2 draftstopping in floors is not required. This article removed from Sheet A101.

ii. Draftstopping, in compliance with Section 718.4, will be required in the attic, as the exception does not comply.

Revised. See Sheet A101 - Issued for FDN Permit Revision 2, 2016.11.16.

MECHANICAL REVIEW COMMENTS:

M1. Not a part of this phase.

Correct.

PLUMBING REVIEW COMMENTS:

P1. Not a part of this phase.

Correct.

ELECTRICAL REVIEW COMMENTS:

E1. Please clarify whether this review includes site utilities. Some electrical drawings have been provided; however, they don't appear to be related to the individual buildings. Is the intent of this review to include an electrical review of what has been provided?

Please see supplemental civil drawings specific to Buildings 3 and 4 for site utilities.

ENERGY REVIEW COMMENTS:

N1. Not a part of this phase.

Correct.

STRUCTURAL COMMENTS:

General:

S1. Because a footing/foundation only permit is sought at this time only those items associated with the foundation have been reviewed. Once the design and drawings are complete the project will need to be submitted for a complete review of the entire structural system.

We understand that only the information pertaining to the foundations has been reviewed at this time. We will submit a complete structural drawing and calculation package for review with the superstructure permit submission.

S2. Because a phased approval is being sought for this project, the owner must submit a letter to the building official stating that they understand that they will be proceeding at their own risk in accordance with IBC 107.3.3.

Please refer to the Owner's letter referenced in Comment A.

S3. A soils report was not provided for this project. Because the project is located within Seismic Design Category 'D', a soils report must be provided complying with the requirements of IBC 1803.6. Prior to submitting the report, please ensure that all construction documents accurately represent the requirements of the soils report so as to avoid any future delays in obtaining a building permit.

Please refer to the soils report by Intermountain GeoEnvironmental Services, Inc., dated August 3rd, 2016.

Structural Drawings:

S4. The plans must provide a "Statement of Special Inspections" per IBC 1704.2.3 and as defined in IBC 1704.3. Not only should this list all special inspection and structural testing items that are required by the IBC, but detail the extent and frequency of the inspections/tests. Please address.

Statement of Special Inspections has been added on drawing S-002.

- S5. Sheet S-100: Please address the following:
 - A. The foundation wall along Grid B has not been specified. Please clarify.

Please refer to the revised foundation plan on S-100.

B. Footing FTG1 does not meet the minimum reinforcement requirements of Section 24.4.3 of ACI 318-14).

Please refer to the revised FTG1 on S-100.

- S6. Sheet S-400: Please address the following:
 - A. Please review the lateral tie requirements for the pier shown in detail 1. Vertical bars should be tied in such a fashion as to ensure the maximum distance between laterally tied bars is less than or equal to 6-inches (see ACI 318-14 Section 25.7.2.3).

Please refer to the revised pier reinforcing detail 1/S-400.

B. Please confirm the footing reinforcing shown in Detail 4. The bars depicted in the detail do not appear to match what is specified in the foundation schedule.

Please refer to the revised detail 4/S-400 and the revised description of FTG2 on S-100.

Structural Calculations:

S7. Structural calculations were not provided. Please provide calculations showing the designs of all foundation elements and anchorage of the superstructure to the foundation. Complete gravity and lateral load paths must be shown. Additional comments may be made upon review.

Please refer to the Structural Calculation Package for the 1500SF Unit (Revision 1).

S8. The roof snow load is listed as 192 psf. Please confirm that a percentage of the snow was considered in the seismic weight of the structure as required by Section 1605.3.1 and 1605.3.2 of the Utah Amended Code.

The seismic weight of the structure has been calculated using 29.6 per cent of the snow load, in accordance with the Utah Amended IBC. The Calculation Package and drawings have been updated accordingly.

November 16, 2016

Re-issued for FDN Permit

MacKay-Lyons Sweetapple

Architects Limited 2188 Gottingen Street Halifax, Nova Scotia Canada B3K 3B4 ph: (902) 429-1867 fax: (902) 429-6276

Blackwell

Structural Engineers 19 Duncan Street, Suite 405 Toronto, Ontario Canada M5H 3H1 ph: (416) 593-5300 fax: (416) 593-4840

Salmon Electrical Contractors

Electrical Engineers 1778 West 1180 South Woods Cross, Utah, United States 84087 ph: (801) 292-3444

Layton Construction Company

Construction Management 9090 South Sandy Parkway Sandy, Utah, United States, 84070 ph: (801) 568-9090

Mechanical Systems and Service Inc.

Mechanical Engineers 1055 South 700 West Salt Lake City, Utah, United States 84104 ph: (801) 255-9333 fax: (801) 924-8583

Langvardt Design Group

Landscape 328 200 South Salt Lake City, Utah, United States 84101 ph: (801) 583-1295

NV5

Civil Engineers 5217 S State St #200 Murray, Utah, United States 84107 ph: (801) 743-1300

CIVIL

C1.00

C1.01

C1.02

C2.00

C2.01

C3.00

C3.01

C4.00

C6.00

C6.01

C6.02

C6.03

C6.04

E-01

GE-01

E-02

ARCHITECTURAL

A000 Specifications (not incl.) S-001 Keyplan General Notes, Key Notes and A001 Abbreviations, Key Plan & S-002 **Partition Types** S-003 Legend Site Plan S-010 Overall Key Map A100 A101 Code Review, Fire Separation Site and Utility Plan - West Site and Utility Plan - East Plan & Finish Schedule A200 Grading and Drainage Plan Lower & Upper Level Plans A201 Lower & Upper Level Reflected S-103 West Grading and Drainage Plan -Ceiling Plans (not incl.) **Exterior Elevations** A300 **Erosion Control Plan Overall** A301 **Exterior Elevations** S-400 **Building Sections** A400 **Building Sections** A401 **Booster Pump Details** S-403 **Booster Pump Details** A500 Plan Details (not incl.) A510 Section Details (not incl.) **Sewer Ejector Details** Section Details (not incl.) A511 **Details** Flashing and Membrane A520 Legends, Notes, and Details (not incl.) **Schedules** Millwork (not incl.) A600 **Electrical Details** A601 Power One-Line Diagram Millwork (not incl.) A602 Millwork (not incl.)

A603

A610

A700

A900

Millwork Details (not incl.)

Window/Door Schedule (not incl.)

Stair (not incl.)

Bridge (not incl.)

STRUCTURAL

MECHANICAL (not incl.) **General Notes Statement of Special Inspections Typical Details Foundations** Site Plan **Foundation Plan Lower Level Framing Plan Upper Level Framing Plan Roof Framing Plan** Column Schedule **Steel Elevations Foundation Details Lower Floor Framing Sections Upper Floor Framing Sections Roof Framing Sections**

ELECTRICAL (not incl.)

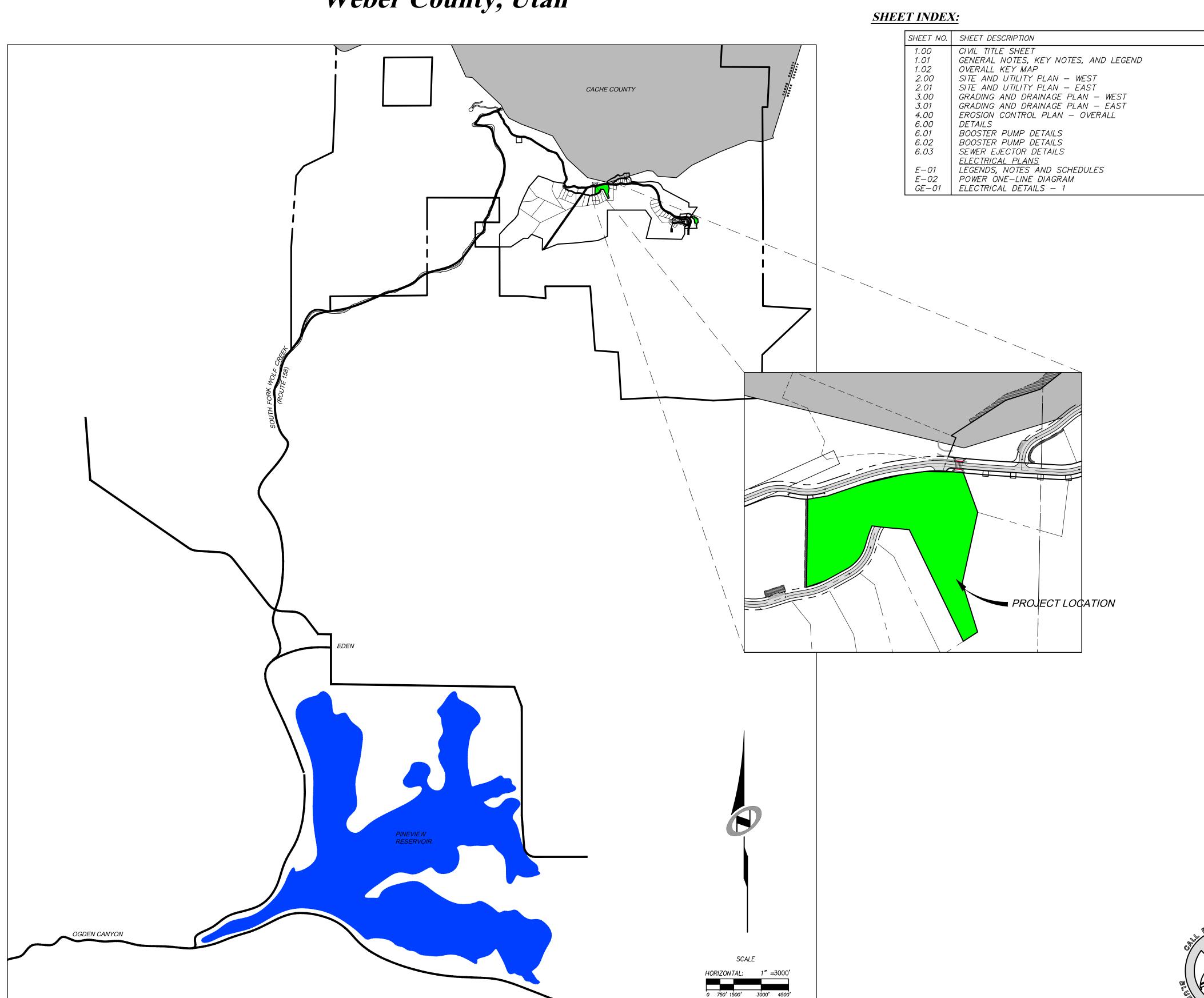
Horizon Neighborhood Cabins 1500 SF Cabin

Summit Powder Mountain, Eden UT

HORIZON NEIGHBORHOOD PRUD AT SUMMIT POWDER MOUNTAIN

CONSTRUCTION DRAWINGS





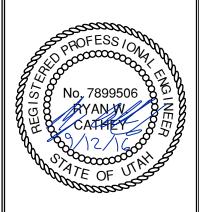
The engineer preparing these plans will not for, or liable for, unauthorized changes to the plans mill and must be approved by the preparer or

TED: 09-12-2016

ON NEIGHBORHOOD
CIVIL TITLE SHEET

AY, UT 84107

1217 SOUTH STATE STREET, S 101.743.1300 TEL 801.743.030(



SHEET NUMBER
1.00

SCALE

VERTICAL: 1"= N/A

HORIZONTAL: 1"= 3000'

CONTRACTOR TO STRICTLY FOLLOW GEOTECHNICAL RECOMMENDATIONS FOR THIS PROJECT. ALL GRADING INCLUDING BUT NOT LIMITED TO CUT, FILL, COMPACTION, ASPHALT SECTION, SUBBASE, TRENCH EXCAVATION/BACKFILL, SITE GRUBBING, RETAINING WALLS AND FOOTINGS MUST BE COORDINATED DIRECTLY WITH THE PROJECT GEOTECHNICAL ENGINEER.

TRAFFIC CONTROL, STRIPING & SIGNAGE TO CONFORM TO CURRENT UDOT TRANSPORTATION ENGINEER'S MANUAL AND MANUAL OF UNIFORM TRAFFIC CONTROL

DEVICES. 4. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.

5. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING CONSTRUCTION.

AT ALL LOCATIONS WHERE EXISTING PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE

OF THE EXISTING PAVEMENT SHALL BE SAWCUT TO A CLEAN, SMOOTH EDGE. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MOST

RECENT, ADOPTED EDITION OF ADA ACCESSIBILITY GUIDELINES. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED THOROUGHLY REVIEWED PLANS AND OTHER DOCUMENTS APPROVED BY ALL

OF THE PERMITTING AUTHORITIES. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING AND NOTIFYING ENGINEER OR INSPECTING AUTHORITY 48 HOURS IN ADVANCE OF COVERING UP ANY PHASE OF CONSTRUCTION REQUIRING OBSERVATION.

10. ANY WORK IN THE PUBLIC RIGHT-OF-WAY WILL REQUIRE PERMITS FROM THE APPROPRIATE, CITY, COUNTY OR STATE AGENCY CONTROLLING THE ROAD, INCLUDING

OBTAINING REQUIRED INSPECTIONS. 11. ALL DIMENSIONS, GRADES & UTILITY DESIGNS SHOWN ON THE PLANS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES.

12. CONTRACTOR MUST VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING AND BRING UP ANY QUESTIONS BEFOREHAND. 13. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH BY THE GEOTECHNICAL

14. CATCH SLOPES SHALL BE GRADED AS SPECIFIED ON GRADING PLANS.

15. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FLAGGING, CAUTION SIGNS. LIGHTS. BARRICADES, FLAGMEN, AND ALL OTHER DEVICES NECESSARY FOR PUBLIC SAFETY. 16. CONTRACTOR SHALL, AT THE TIME OF BIDDING AND THROUGHOUT THE PERIOD OF THE CONTRACT, BE LICENSED IN THE STATE OF UTAH AND SHALL BE BONDABLE FOR AN AMOUNT EQUAL TO OR GREATER THAN THE AMOUNT BID AND TO DO THE TYPE OF WORK CONTEMPLATED IN THE PLANS AND SPECIFICATIONS. CONTRACTOR SHALL BE SKILLED AND REGULARLY ENGAGED IN THE GENERAL CLASS AND TYPE OF WORK

CALLED FOR IN THE PLANS AND SPECIFICATIONS. 17. CONTRACTOR SHALL INSPECT THE SITE OF THE WORK PRIOR TO BIDDING TO SATISFY HIMSELF BY PERSONAL EXAMINATION OR BY SUCH OTHER MEANS AS HE MAY PREFER OF THE LOCATION OF THE PROPOSED WORK AND OF THE ACTUAL CONDITIONS OF AND AT THE SITE OF WORK. IF, DURING THE COURSE OF HIS EXAMINATION, A BIDDER FINDS FACTS OR CONDITIONS WHICH APPEAR TO HIM TO BE IN CONFLICT WITH THE LETTER OR SPIRIT OF THE PROJECT PLANS AND SPECIFICATIONS, HE SHALL CONTACT THE ENGINEER FOR ADDITIONAL INFORMATION AND EXPLANATION BEFORE SUBMITTING HIS BID. SUBMISSION OF A BID BY THE CONTRACTOR SHALL CONSTITUTE ACKNOWLEDGMENT THAT, IF AWARDED THE CONTRACT, HE HAS RELIED AND IS RELYING ON HIS OWN EXAMINATION OF (1) THE SITE OF THE WORK, (2) ACCESS TO THE SITE, AND (3) ALL OTHER DATA AND MATTERS REQUISITE TO THE FULFILLMENT OF THE WORK AND ON HIS OWN KNOWLEDGE OF EXISTING FACILITIES ON AND IN THE VICINITY OF THE SITE OF THE WORK TO BE CONSTRUCTED UNDER THIS CONTRACT. THE INFORMATION PROVIDED BY THE ENGINEER IS NOT INTENDED TO BE A SUBSTITUTE FOR. OR A SUPPLEMENT TO, THE INDEPENDENT VERIFICATION BY THE CONTRACTOR TO THE EXTENT SUCH INDEPENDENT INVESTIGATION OF SITE CONDITIONS IS DEFMED NECESSARY OR DESIRABLE BY THE CONTRACTOR. CONTRACTOR SHALL ACKNOWLEDGE THAT HE HAS NOT RELIED SOLELY UPON OWNER- OR

SUBMITTING HIS BID. 18. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ALL WATER. POWER. SANITARY FACILITIES AND TELEPHONE SERVICES AS REQUIRED FOR THE CONTRACTOR'S USE DURING CONSTRUCTION.

ENGINEER-FURNISHED INFORMATION REGARDING SITE CONDITIONS IN PREPARING AND

19. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE OWNER, ENGINEER, AND/OR GOVERNING AGENCIES.

20. CONTRACTOR SHALL EXERCISE DUE CAUTION AND SHALL CAREFULLY PRESERVE BENCH MARKS, CONTROL POINTS, REFERENCE POINTS AND ALL SURVEY STAKES, AND SHALL BEAR ALL EXPENSES FOR REPLACEMENT AND/OR ERRORS CAUSED BY THEIR UNNECESSARY LOSS OR DISTURBANCE.

21. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

22. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY SCHEDULING INSPECTION AND TESTING OF ALL FACILITIES CONSTRUCTED UNDER THIS CONTRACT. ALL TESTING SHALL CONFORM TO THE REGULATORY AGENCY'S STANDARD SPECIFICATIONS. ALL TESTING AND INSPECTION SHALL BE PAID FOR BY THE OWNER; ALL RE—TESTING AND/OR RE-INSPECTION SHALL BE PAID FOR BY THE CONTRACTOR.

23. IF EXISTING IMPROVEMENTS NEED TO BE DISTURBED AND/OR REMOVED FOR THE PROPER PLACEMENT OF IMPROVEMENTS TO BE CONSTRUCTED BY THESE PLANS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING IMPROVEMENTS FROM DAMAGE. COST OF REPLACING OR REPAIRING EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS REQUIRING REMOVAL AND/OR REPLACEMENT. THERE WILL BE NO EXTRA COST DUE TO THE CONTRACTOR FOR REPLACING OR REPAIRING EXISTING IMPROVEMENTS.

24. WHENEVER EXISTING FACILITIES ARE REMOVED, DAMAGED, BROKEN, OR CUT IN THE INSTALLATION OF THE WORK COVERED BY THESE PLANS OR SPECIFICATIONS, SAID FACILITIES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE WITH MATERIALS EQUAL TO OR BETTER THAN THE MATERIALS USED IN THE ORIGINAL EXISTING FACILITIES. THE FINISHED PRODUCT SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER, THE ENGINEER, AND THE RESPECTIVE REGULATORY AGENCY.

25. CONTRACTOR SHALL MAINTAIN A NEATLY MARKED SET OF FULL—SIZE AS—BUILT RECORD DRAWINGS SHOWING THE FINAL LOCATION AND LAYOUT OF ALL STRUCTURES AND OTHER FACILITIES. AS-BUILT RECORD DRAWINGS SHALL REFLECT CHANGE ORDERS, ACCOMMODATIONS, AND ADJUSTMENTS TO ALL IMPROVEMENTS CONSTRUCTED. WHERE NECESSARY. SUPPLEMENTAL DRAWINGS SHALL BE PREPARED AND SUBMITTED BY THE CONTRACTOR. PRIOR TO ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL DELIVER TO THE ENGINEER ONE SET OF NEATLY MARKED AS-BUILT RECORD DRAWINGS SHOWING THE INFORMATION REQUIRED ABOVE. AS-BUILT RECORD DRAWINGS SHALL BE REVIEWED AND THE COMPLETE AS—BUILT RECORD DRAWING SET SHALL BE CURRENT WITH ALL CHANGES AND DEVIATIONS REDLINED AS A PRECONDITION TO THE FINAL PROGRESS PAYMENT APPROVAL AND/OR FINAL ACCEPTANCE.

26. WHERE THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.

GENERAL NOTES CONT.

27. CONTRACTOR SHALL BE SKILLED AND REGULARLY ENGAGED IN THE GENERAL CLASS AND TYPE OF WORK CALLED FOR IN THE PROJECT PLANS AND SPECIFICATIONS. THEREFORE, THE OWNER IS RELYING UPON THE EXPERIENCE AND EXPERTISE OF THE CONTRACTOR. PRICES PROVIDED WITHIN THE CONTRACT DOCUMENTS SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATED AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH THE TRUE INTENT AND PURPOSE OF THESE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL BE COMPETENT, KNOWLEDGEABLE AND HAVE SPECIAL SKILLS IN THE NATURE, EXTENT AND INHERENT CONDITIONS OF THE WORK TO BE PERFORMED. CONTRACTOR SHALL ALSO ACKNOWLEDGE THAT THERE ARE CERTAIN PECULIAR AND INHERENT CONDITIONS EXISTENT IN THE CONSTRUCTION OF THE PARTICULAR FACILITIES WHICH MAY CREATE, DURING THE CONSTRUCTION PROGRAM, UNUSUAL OR UNSAFE CONDITIONS HAZARDOUS TO PERSONS, PROPERTY AND THE ENVIRONMENT. CONTRACTOR SHALL BE AWARE OF SUCH PECULIAR RISKS AND HAVE THE SKILL AND EXPERIENCE TO FORESEE AND TO ADOPT PROTECTIVE MEASURES TO ADEQUATELY AND SAFELY PERFORM THE CONSTRUCTION WORK WITH RESPECT TO SUCH HAZARDS.

28. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL STRIPING AND/OR PAVEMENT MARKINGS NECESSARY TO TIE EXISTING STRIPING INTO FUTURE STRIPING. METHOD OF REMOVAL SHALL BE BY GRINDING OR SANDBLASTING.

29. CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, SLOPING OR OTHER PROVISIONS NECESSARY TO PROTECT WORKMEN FOR ALL AREAS TO BE EXCAVATED TO A DEPTH OF 4' OR MORE. FOR EXCAVATIONS 4 FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL COMPLY WITH INDUSTRIAL COMMISSION OF UTAH SAFETY ORDERS SECTION 68 - EXCAVATIONS, AND SECTION 69 -TRENCHES, ALONG WITH ANY LOCAL CODES OR ORDINANCES.

30. ALL EXISTING GATES AND FENCES TO REMAIN UNLESS OTHERWISE NOTED ON PLANS. PROTECT ALL GATES AND FENCES FROM DAMAGE.

UTILITY NOTES

1. CONTRACTOR SHALL COORDINATE LOCATION OF NEW "DRY UTILITIES" WITH THE APPROPRIATE UTILITY COMPANY, INCLUDING BUT NOT LIMITED TO: TELEPHONE SERVICE, GAS SERVICE, CABLE, POWER. INTERNET.

2. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING A COMBINATION OF ON-SITE SURVEYS (BY OTHERS). PRIOR TO COMMENCING ANY WORK, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE EACH UTILITY COMPANY LOCATE, IN THE FIELD, THEIR MAIN AND SERVICE LINES. THE CONTRACTOR SHALL NOTIFY BLUE STAKES AT 1-800-662-4111 48 HOURS IN ADVANCE OF PERFORMING ANY EXCAVATION WORK. THE CONTRACTOR SHALL RECORD THE BLUE STAKES ORDER NUMBER AND FURNISH ORDER NUMBER TO OWNER AND ENGINEER PRIOR TO ANY EXCAVATION. IT WILL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO DIRECTLY CONTACT ANY OTHER UTILITY COMPANIES THAT ARE NOT MEMBERS OF BLUE STAKES. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROTECT ALL EXISTING UTILITIES SO THAT NO DAMAGE RESULTS TO THEM DURING THE PERFORMANCE OF THIS CONTRACT. ANY REPAIRS NECESSARY TO DAMAGED UTILITIES SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL BE REQUIRED TO COOPERATE WITH OTHER CONTRACTORS AND UTILITY COMPANIES

INSTALLING NEW STRUCTURES, UTILITIES AND SERVICE TO THE PROJECT. CONTRACTOR SHALL POT HOLE ALL UTILITIES TO DETERMINE IF CONFLICTS EXIST PRIOR TO BEGINNING ANY EXCAVATION. NOTIFY ENGINEER OF ANY CONFLICTS. CONTRACTOR SHALL VERIFY LOCATION AND INVERTS OF EXISTING UTILITIES TO WHICH NEW UTILITIES WILL BE CONNECTED. PRIOR TO COMMENCING ANY EXCAVATION WORK THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES IN

ACCORDANCE WITH THE REQUIRED PROCEDURES. CARE SHOULD BE TAKEN IN ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES. EXCAVATION REQUIRED WITHIN PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT HIS EXPENSE.

ALL VALVES AND MANHOLE COVERS SHALL BE RAISED OR LOWERED TO MEET

CONTRACTOR SHALL CUT PIPES OFF FLUSH WITH THE INSIDE WALL OF THE BOX

OR MANHOLE. CONTRACTOR SHALL GROUT AT CONNECTION OF PIPE TO BOX WITH NON-SHRINKING GROUT, INCLUDING PIPE VOIDS LEFT BY CUTTING PROCESS, TO A SMOOTH FINISH.

8. CONTRACTOR SHALL GROUT WITH NON-SHRINK GROUT BETWEEN GRADE RINGS AND BETWEEN BOTTOM OF INLET LID FRAME AND TOP OF CONCRETE BOX. 9. SILT AND DEBRIS IS TO BE CLEANED OUT OF ALL STORM DRAIN BOXES. CATCH

BASINS ARE TO BE MAINTAINED IN A CLEANED CONDITION AS NEEDED UNTIL AFTER THE FINAL BOND RELEASE INSPECTION.

10. CONTRACTOR SHALL CLEAN ASPHALT, TAR OR OTHER ADHESIVES OFF OF ALL MANHOLE LIDS AND INLET GRATES TO ALLOW ACCESS.

11. EACH TRENCH SHALL BE EXCAVATED SO THAT THE PIPE CAN BE LAID TO THE ALIGNMENT AND GRADE AS REQUIRED. THE TRENCH WALL SHALL BE SO BRACED THAT THE WORKMEN MAY WORK SAFELY AND EFFICIENTLY. ALL TRENCHES SHALL BE DRAINED SO THE PIPE LAYING MAY TAKE PLACE IN DEWATERED CONDITIONS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF DEWATERING AND NO COST CHANGE WILL BE PROVIDED.

12. CONTRACTOR SHALL PROVIDE AND MAINTAIN AT ALL TIMES AMPLE MEANS AND DEVICES WITH WHICH TO REMOVE PROMPTLY AND TO PROPERLY DISPOSE OF ALL WATER ENTERING THE TRENCH EXCAVATION.

13. MAINTAIN A MINIMUM 18" VERTICAL SEPARATION DISTANCE BETWEEN ALL UTILITY CROSSINGS.

14. CONTRACTOR SHALL START INSTALLATION AT LOW POINT OF ALL NEW GRAVITY UTILITY LINES.

15. ALL BOLTED FITTINGS MUST BE GREASED AND WRAPPED.

PIPE BELOW FINISHED GRADE.

THE TRENCH

16. UNLESS SPECIFICALLY NOTED OTHERWISE, MAINTAIN AT LEAST 2 FEET OF COVER OVER ALL STORM DRAIN LINES AT ALL TIMES (INCLUDING DURING CONSTRUCTION). 17. ALL WATER LINES SHALL BE INSTALLED A MINIMUM OF 60" OF COVER TO TOP OF

18. ALL SEWER LINES AND SEWER SERVICES SHALL HAVE A MINIMUM SEPARATION OF 10 FEET, PIPE EDGE TO PIPE EDGE, FROM THE WATER LINES.

19. CONTRACTOR SHALL INSTALL THRUST BLOCKING AT ALL WATERLINE ANGLE POINTS AND TEES.

20. ALL UNDERGROUND UTILITIES SHALL BE IN PLACE PRIOR TO INSTALLATION OF CURB. GUTTER, SIDEWALK AND STREET PAVING.

21. CONTRACTOR SHALL INSTALL MAGNETIC LOCATING TAPE CONTINUOUSLY OVER ALL NONMETALLIC PIPE. 22. THE CONTRACTOR SHALL NOTIFY NOLTE ASSOCIATES, INC. IN WRITING AT LEAST

48 HOURS PRIOR TO BACKFILLING OF ANY PIPE WHICH STUBS TO A FUTURE PHASE OF CONSTRUCTION FOR INVERT VERIFICATION. TOLERANCE SHALL BE IN ACCORDANCE WITH THE REGULATORY AGENCY STANDARD SPECIFICATIONS. 23. UNDER NO CIRCUMSTANCE SHALL THE PIPE OR ACCESSORIES BE DROPPED INTO

EROSION CONTROL GENERAL NOTES:

THE CONTRACTOR TO USE BEST MANAGEMENT PRACTICES FOR PROVIDING EROSION CONTROL FOR CONSTRUCTION OF THIS PROJECT. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO WEBER COUNTY ORDINANCES AND ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE COUNTIES. ALSO, INSPECTORS WILL HAVE THE RIGHT TO CHANGE THE FACILITIES AS NEEDED.

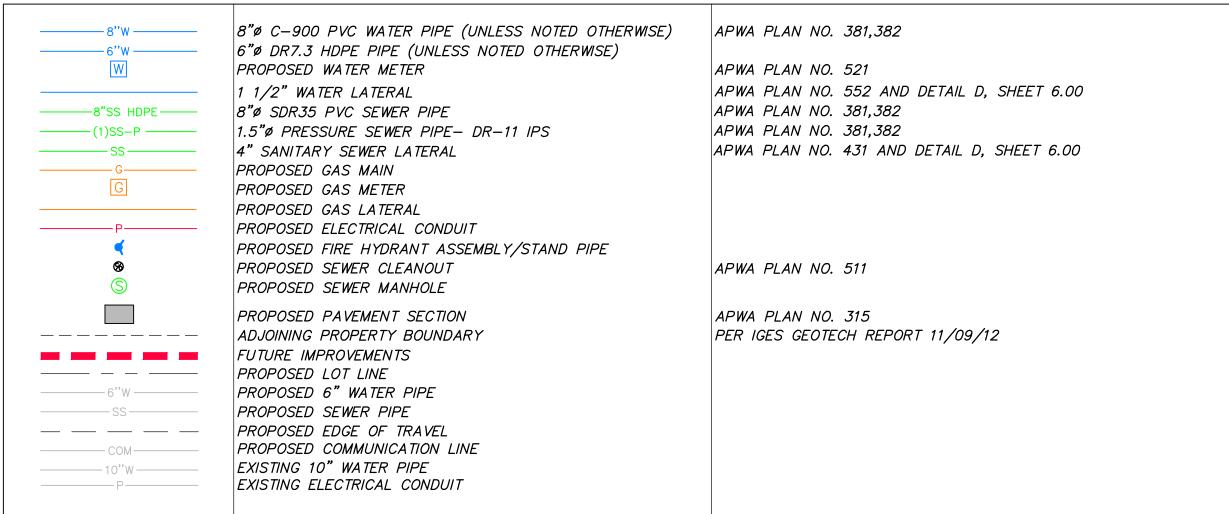
CONTRACTOR SHALL KEEP THE SITE WATERED TO CONTROL DUST. CONTRACTOR TO LOCATE A NEARBY HYDRANT FOR USE AND TO INSTALL TEMPORARY METER. CONSTRUCTION WATER COST TO BE INCLUDED IN BID.

WHEN GRADING OPERATIONS ARE COMPLETED AND THE DISTURBED GROUND IS LEFT "OPEN" FOR 14 DAYS OR MORE, THE AREA SHALL BE FURROWED PARALLEL TO THE CONTOURS.

THE CONTRACTOR SHALL MODIFY EROSION CONTROL MEASURES TO ACCOMMODATE PROJECT PLANNING.

LEGEND:

SYMBOL / LINETYPE DESCRIPTION DETAIL



NOTE: LEGEND MAY CONTAIN SYMBOLS THAT ARE NOT USED IN PLAN SET.

EROSION CONTROL GENERAL NOTES:

THE CONTRACTOR TO USE BEST MANAGEMENT PRACTICES FOR PROVIDING EROSION CONTROL FOR CONSTRUCTION OF THIS PROJECT. ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO WEBER COUNTY ORDINANCES AND ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE COUNTIES. ALSO, INSPECTORS WILL HAVE THE RIGHT TO CHANGE THE FACILITIES AS NEEDED.

CONTRACTOR SHALL KEEP THE SITE WATERED TO CONTROL DUST. CONTRACTOR TO LOCATE A NEARBY HYDRANT FOR USE AND TO INSTALL TEMPORARY METER. CONSTRUCTION WATER COST TO BE INCLUDED IN BID.

WHEN GRADING OPERATIONS ARE COMPLETED AND THE DISTURBED GROUND IS LEFT "OPEN" FOR 14 DAYS OR MORE, THE AREA SHALL BE FURROWED PARALLEL TO THE CONTOURS.

THE CONTRACTOR SHALL MODIFY EROSION CONTROL MEASURES TO ACCOMMODATE PROJECT PLANNING.

ALL ACCESS TO PROPERTY WILL BE FROM PUBLIC RIGHT-OF-WAYS.

THE CONTRACTOR IS REQUIRED BY STATE AND FEDERAL REGULATIONS TO PREPARE A STORM WATER POLLUTION PREVENTION PLAN AND FILE A "NOTICE OF INTENT" WITH THE UTAH DIVISION OF WATER QUALITY.

ALL BEST MANAGEMENT PRACTICES (BMP'S) SHOWN ON THIS PLAN MUST BE MAINTAINED AT ALL TIMES UNTIL VEGETATION IS RE-ESTABLISHED.

THE CONTRACTOR'S RESPONSIBILITY SHALL INCLUDE MAKING BI-WEEKLY CHECKS ON ALL FROSION CONTROL MEASURES TO DETERMINE IF REPAIR OR SEDIMENT REMOVAL IS NECESSARY. CHECKS SHALL BE DOCUMENTED AND COPIES OF THE INSPECTIONS KEPT ON SITE.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER FACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF BARRIER.

SEDIMENT TRACKED ONTO PAVED ROADS MUST BE CLEANED UP AS SOON AS PRACTICAL, BUT IN NO CASE LATER THAN THE END OF THE NORMAL WORK DAY. THE CLEAN UP WILL INCLUDE SWEEPING OF THE TRACKED MATERIAL, PICKING IT UP, AND DEPOSITING IT TO A CONTAINED AREA.

ANY EXPOSED SLOPE THAT WILL REMAIN UNTOUCHED FOR LONGER THAN 14 DAYS MUST BE STABILIZED BY ONE OR MORE OF THE FOLLOWING METHODS:

A) SPRAYING DISTURBED AREAS WITH A TACKIFIER VIA HYDROSEED

B) TRACKING STRAW PERPENDICULAR TO SLOPES C) INSTALLING A LIGHT-WEIGHT. TEMPORARY EROSION CONTROL BLANKET

* SEED MIXTURE FOR REVEGITATION

a. MEADOW BROME (RIGOR) 14lb/ac b. ORCHARD GRASS 10lb/ac 4lb/ac c. ALFALFA (ADAK)

WEBER COUNTY

2380 WASHINGTON BLVD. #240 OGDEN, UT 84401 (801) 399-8374

ROCKY MOUNTIAN POWER

1438 WEST 2550 SOUTH OGDEN, UT 84401 (801) 629-4429

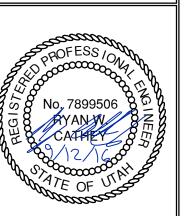
POWDER MOUNTAIN WATER & SEWER DISTRICT

PO BOX 270 EDEN, UT 84310 (801) 745-0912

T O 0 HB **5** Z

NOITUAC

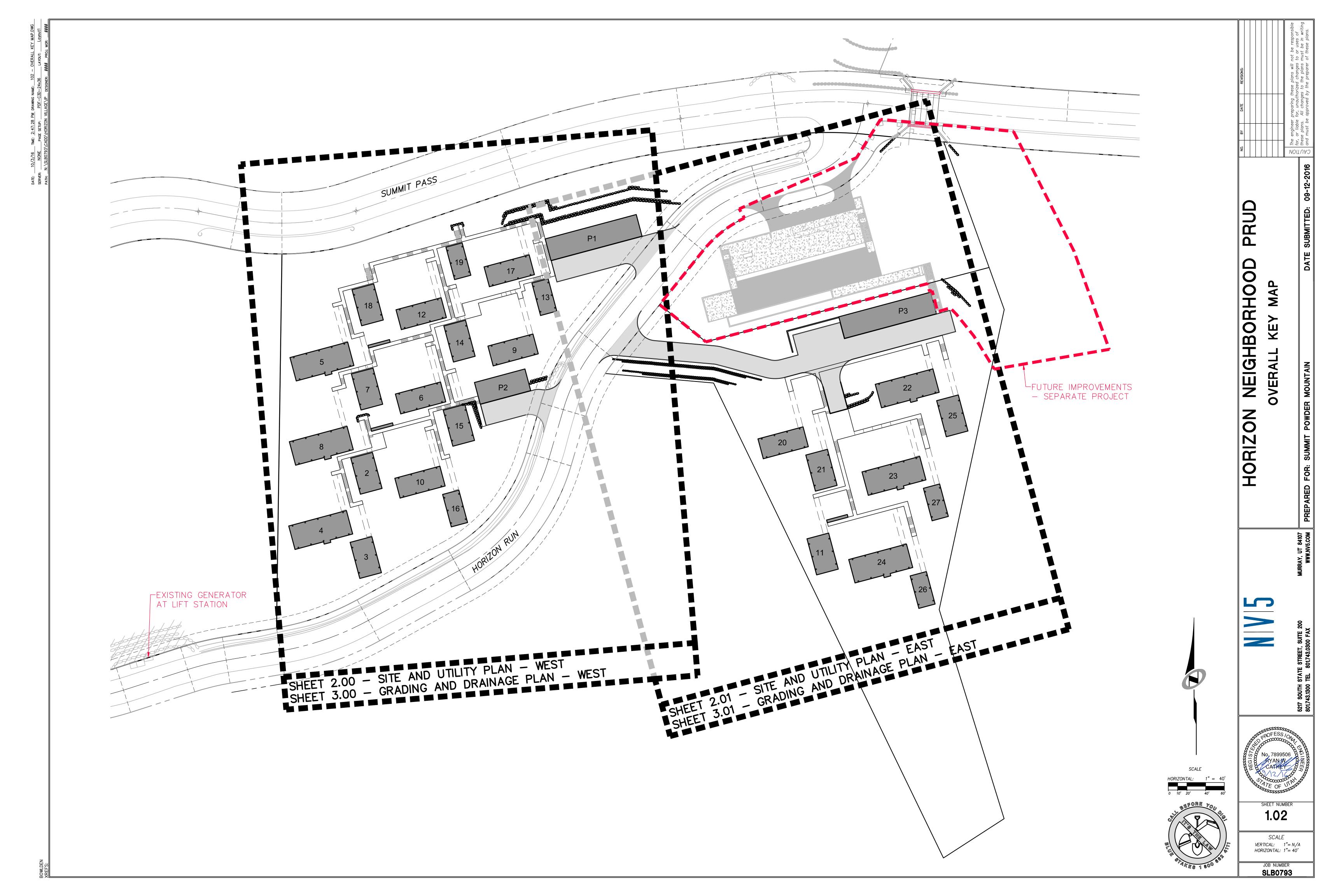
(5

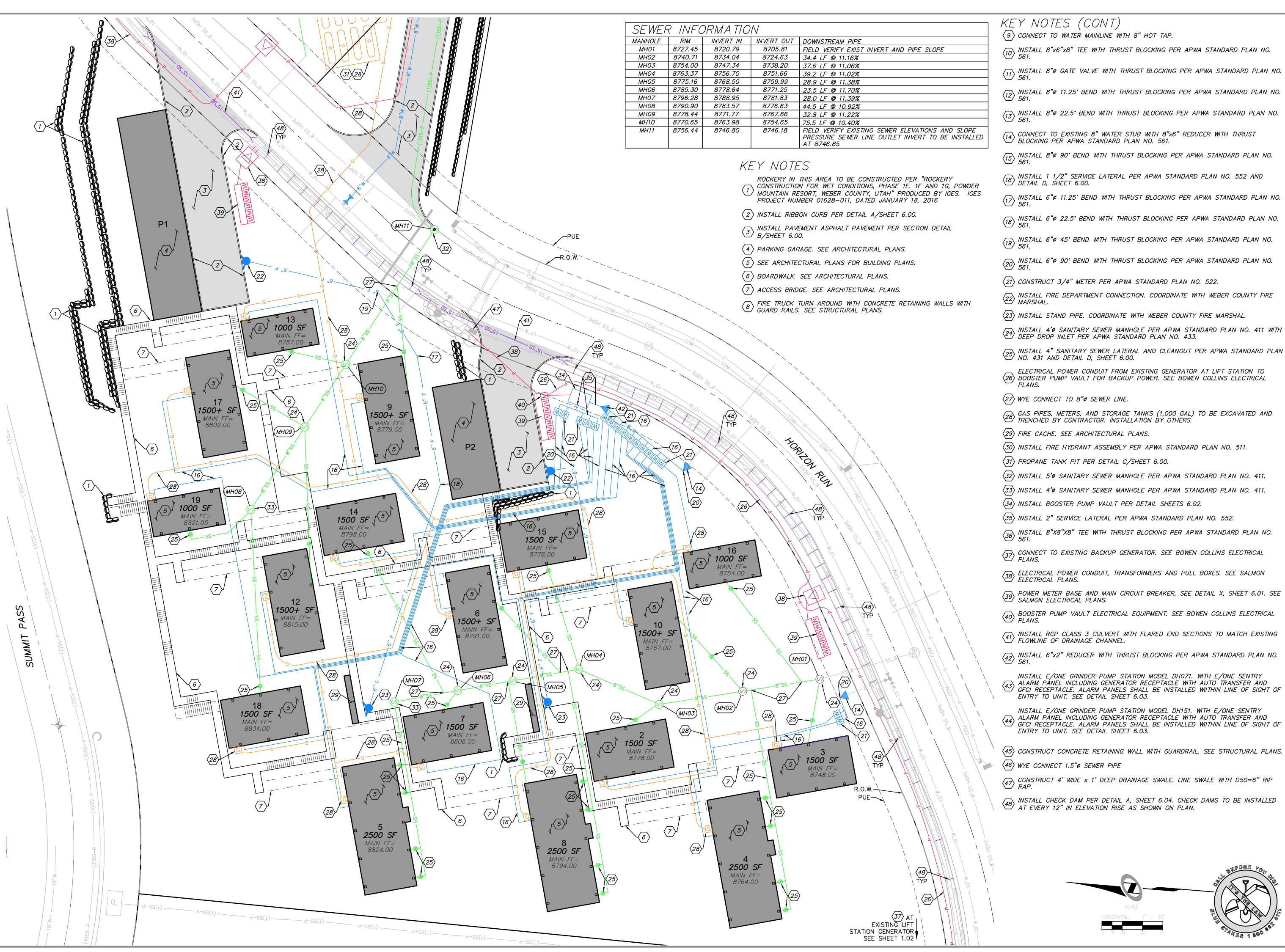


SHEET NUMBER

SCALE VERTICAL: 1"=N/AHORIZONTAL: 1"= N/A JOB NUMBER

SLB0793





10 INSTALL 8"x6"x8" TEE WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

11) INSTALL 8"Ø GATE VALVE WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

12 INSTALL 8"ø 11.25° BEND WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

13 INSTALL 8"ø 22.5° BEND WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

CONNECT TO EXISTING 8" WATER STUB WITH 8"x6" REDUCER WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

(15) INSTALL 8"Ø 90° BEND WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

16) INSTALL 1 1/2" SERVICE LATERAL PER APWA STANDARD PLAN NO. 552 AND DETAIL D, SHEET 6.00.

18 INSTALL 6"ø 22.5° BEND WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

19 INSTALL 6"Ø 45' BEND WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

22) INSTALL FIRE DEPARTMENT CONNECTION. COORDINATE WITH WEBER COUNTY FIRE MARSHAL.

(23) INSTALL STAND PIPE. COORDINATE WITH WEBER COUNTY FIRE MARSHAL.

INSTALL 4'Ø SANITARY SEWER MANHOLE PER APWA STANDARD PLAN NO. 411 WITH DEEP DROP INLET PER APWA STANDARD PLAN NO. 433.

INSTALL 4" SANITARY SEWER LATERAL AND CLEANOUT PER APWA STANDARD PLAN NO. 431 AND DETAIL D, SHEET 6.00.

ELECTRICAL POWER CONDUIT FROM EXISTING GENERATOR AT LIFT STATION TO 26 BOOSTER PUMP VAULT FOR BACKUP POWER. SEE BOWEN COLLINS ELECTRICAL PLANS.

GAS PIPES, METERS, AND STORAGE TANKS (1,000 GAL) TO BE EXCAVATED AND TRENCHED BY CONTRACTOR. INSTALLATION BY OTHERS.

(30) INSTALL FIRE HYDRANT ASSEMBLY PER APWA STANDARD PLAN NO. 511.

31) PROPANE TANK PIT PER DETAIL C/SHEET 6.00.

(32) INSTALL 5'Ø SANITARY SEWER MANHOLE PER APWA STANDARD PLAN NO. 411.

33 INSTALL 4'Ø SANITARY SEWER MANHOLE PER APWA STANDARD PLAN NO. 411.

(34) INSTALL BOOSTER PUMP VAULT PER DETAIL SHEETS 6.02.

(35) INSTALL 2" SERVICE LATERAL PER APWA STANDARD PLAN NO. 552.

(36) INSTALL 8"X8"X8" TEE WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

CONNECT TO EXISTING BACKUP GENERATOR. SEE BOWEN COLLINS ELECTRICAL PLANS.

38 ELECTRICAL POWER CONDUIT, TRANSFORMERS AND PULL BOXES. SEE SALMON ELECTRICAL PLANS.

POWER METER BASE AND MAIN CIRCUIT BREAKER, SEE DETAIL X, SHEET 6.01. SEE SALMON ELECTRICAL PLANS.

BOOSTER PUMP VAULT ELECTRICAL EQUIPMENT. SEE BOWEN COLLINS ELECTRICAL PLANS.

(42) INSTALL 6"x2" REDUCER WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

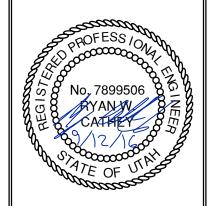
INSTALL E/ONE GRINDER PUMP STATION MODEL DH071. WITH E/ONE SENTRY ALARM PANEL INCLUDING GENERATOR RECEPTACLE WITH AUTO TRANSFER AND GFCI RECEPTACLE. ALARM PANELS SHALL BE INSTALLED WITHIN LINE OF SIGHT OF ENTRY TO UNIT. SEE DETAIL SHEET 6.03.

INSTALL E/ONE GRINDER PUMP STATION MODEL DH151. WITH E/ONE SENTRY ALARM PANEL INCLUDING GENERATOR RECEPTACLE WITH AUTO TRANSFER AND GFCI RECEPTACLE. ALARM PANELS SHALL BE INSTALLED WIITHIN LINE OF SIGHT OF

(45) CONSTRUCT CONCRETE RETAINING WALL WITH GUARDRAIL. SEE STRUCTURAL PLANS.

CONSTRUCT 4' WIDE \times 1' DEEP DRAINAGE SWALE. LINE SWALE WITH D50=6" RIP RAP.

(48) INSTALL CHECK DAM PER DETAIL A, SHEET 6.04. CHECK DAMS TO BE INSTALLED AT EVERY 12" IN ELEVATION RISE AS SHOWN ON PLAN.

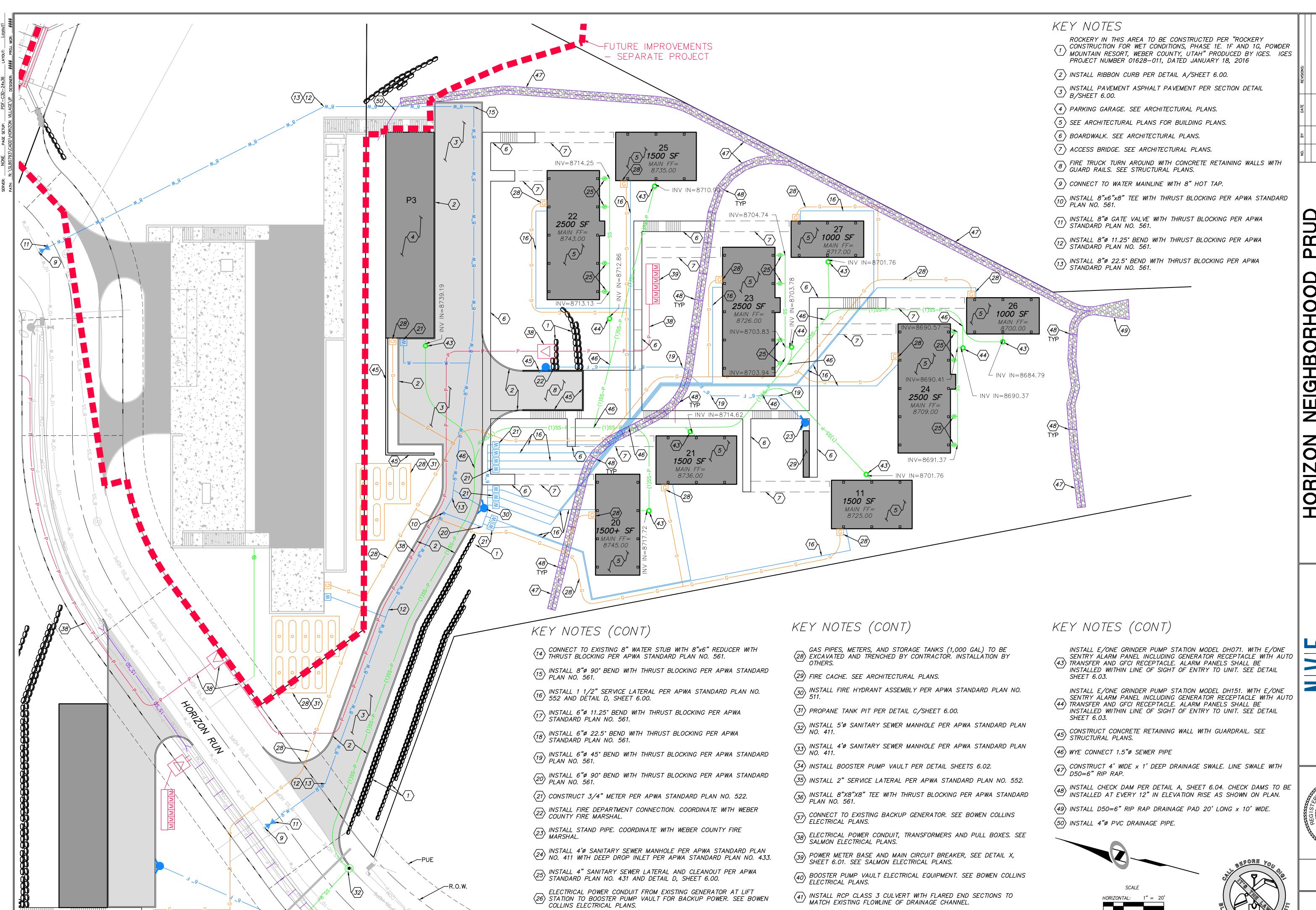


NOITUAC

2.00

SCALE VERTICAL: 1"=N/AHORIZONTAL: 1"= 20'

JOB NUMBER **SLB0793**



 $\langle 27 \rangle$ WYE CONNECT TO 8"Ø SEWER LINE.

(42) INSTALL 6"x2" REDUCER WITH THRUST BLOCKING PER APWA STANDARD PLAN NO. 561.

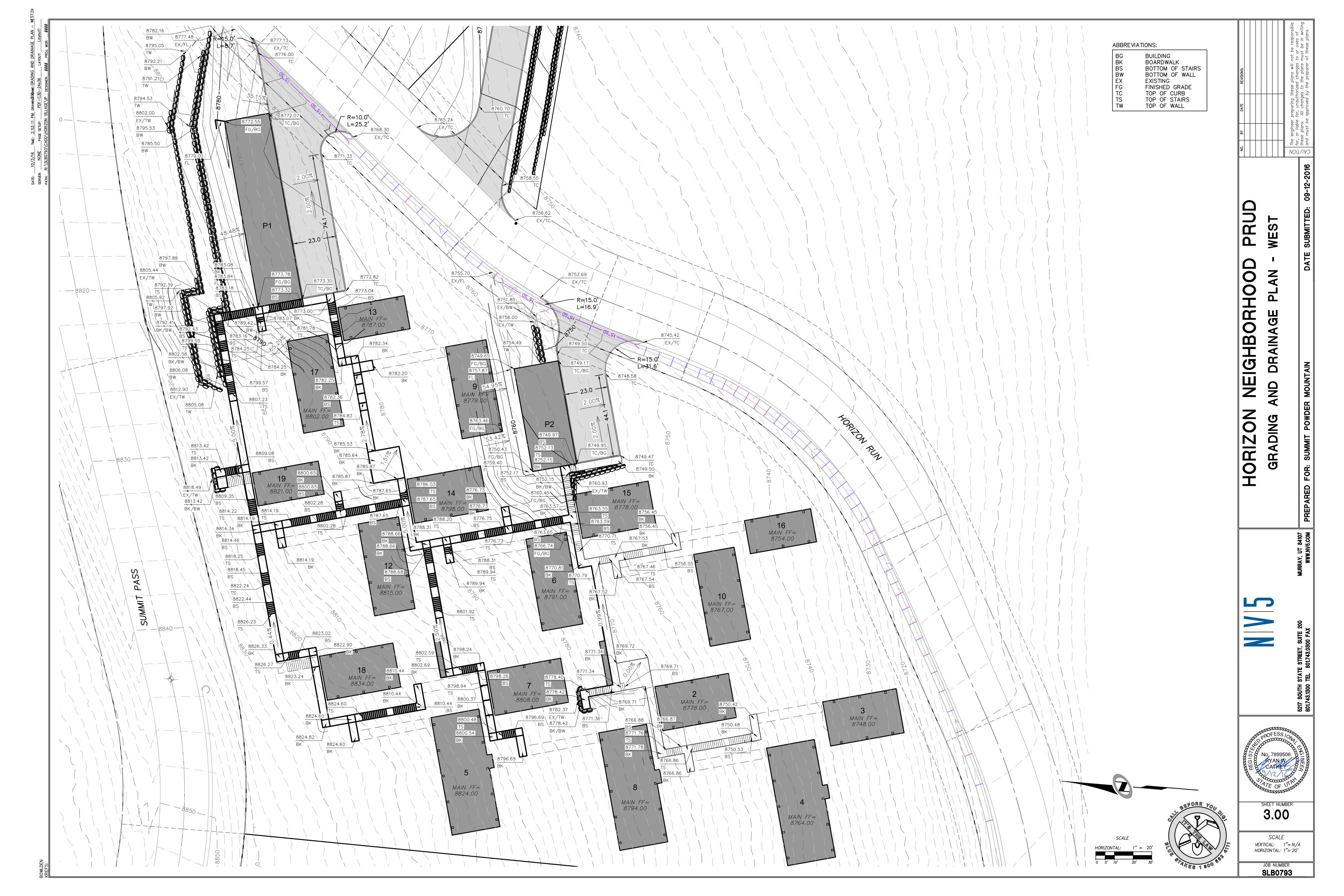
NEIGHB

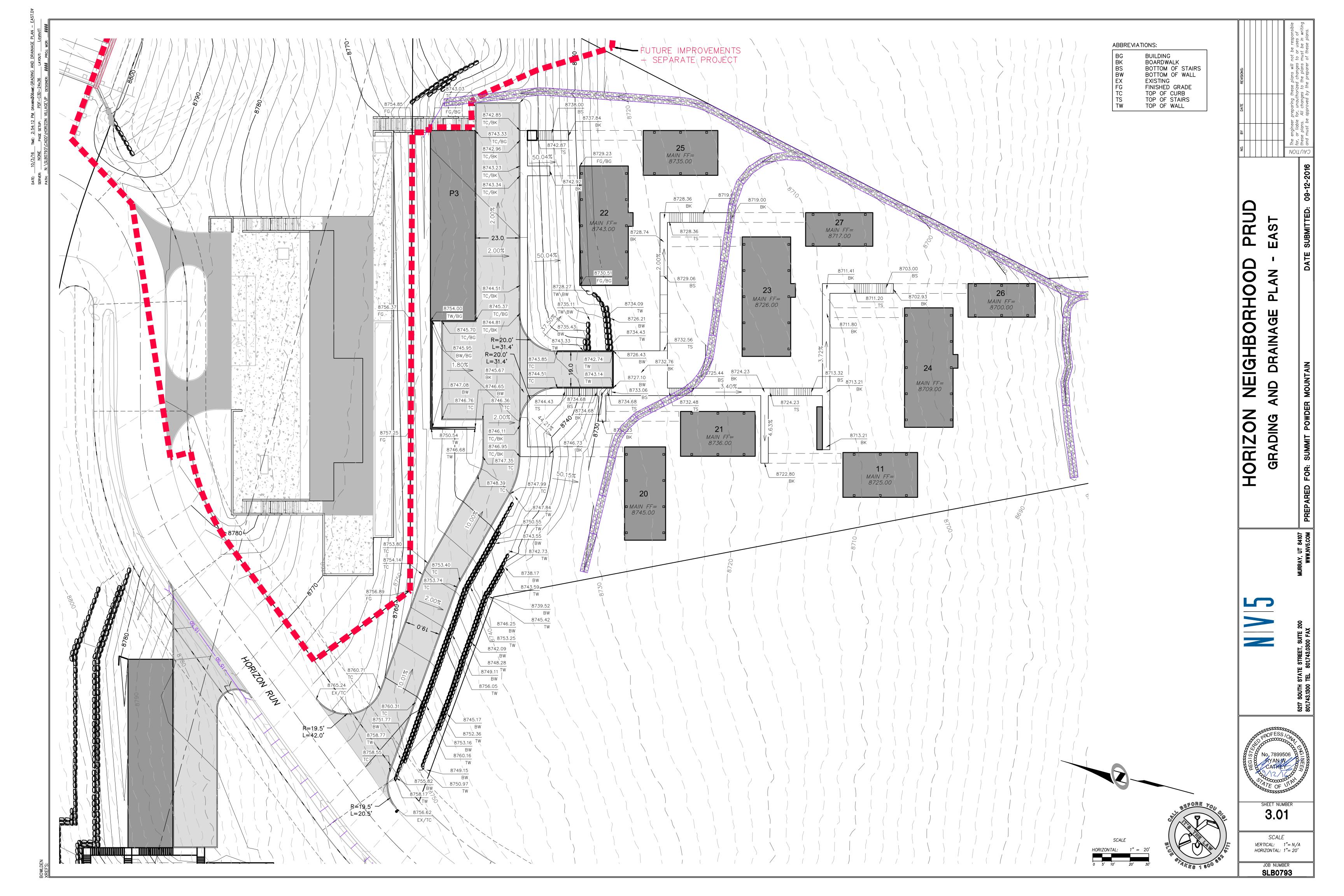
NOITUAC

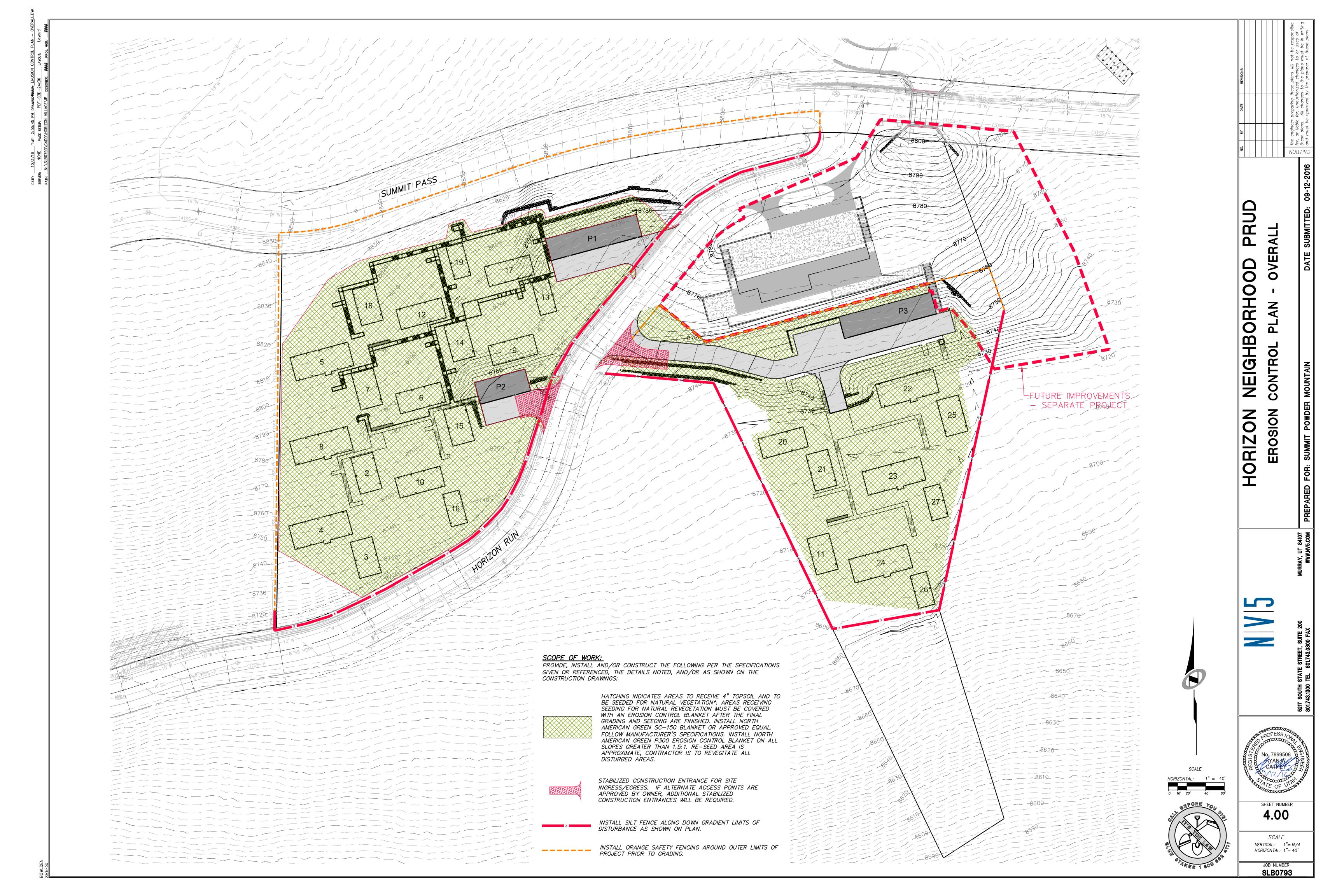
2.01

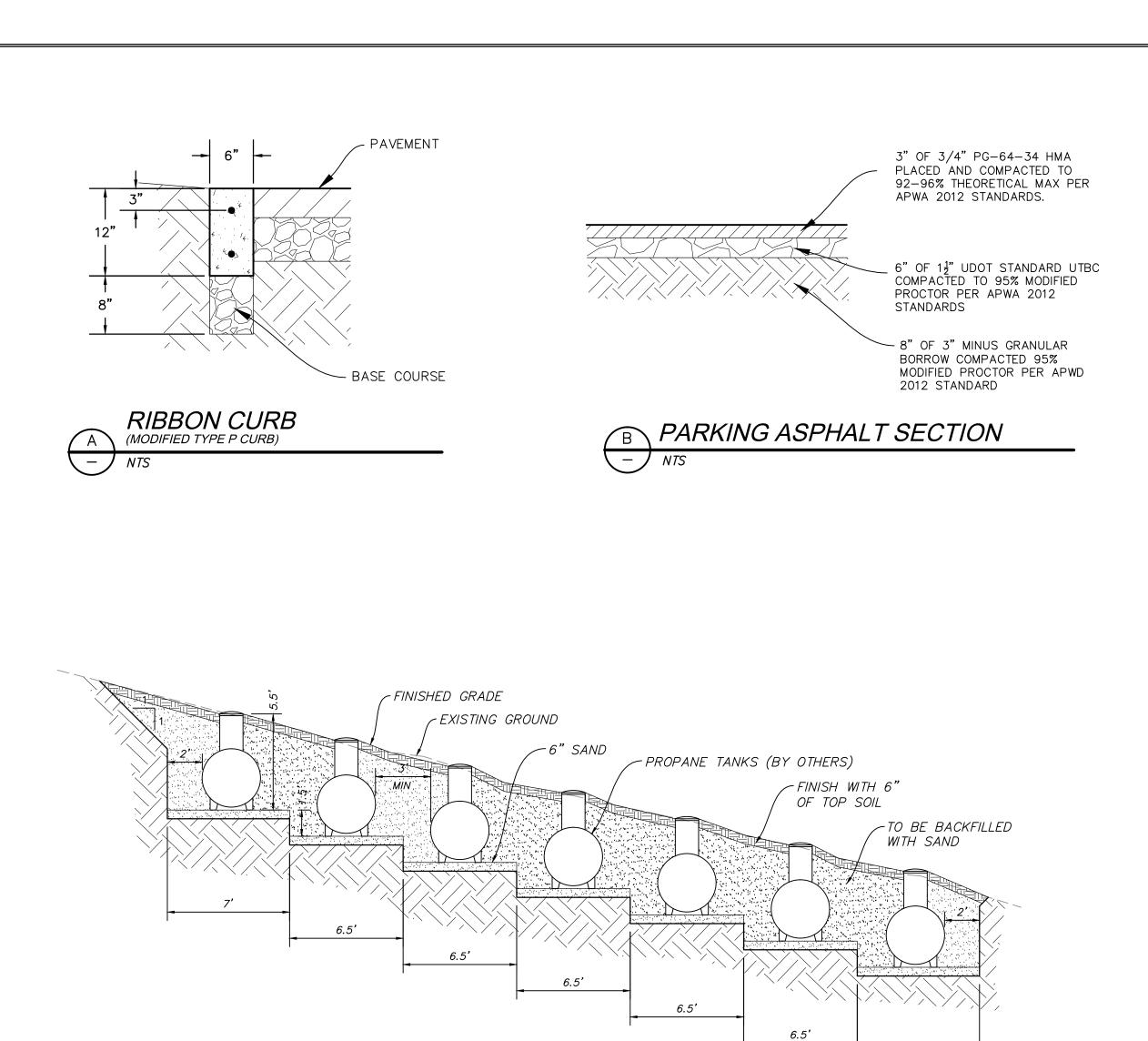
SCALE VERTICAL: 1"=N/AHORIZONTAL: 1"= 20'

> JOB NUMBER **SLB0793**



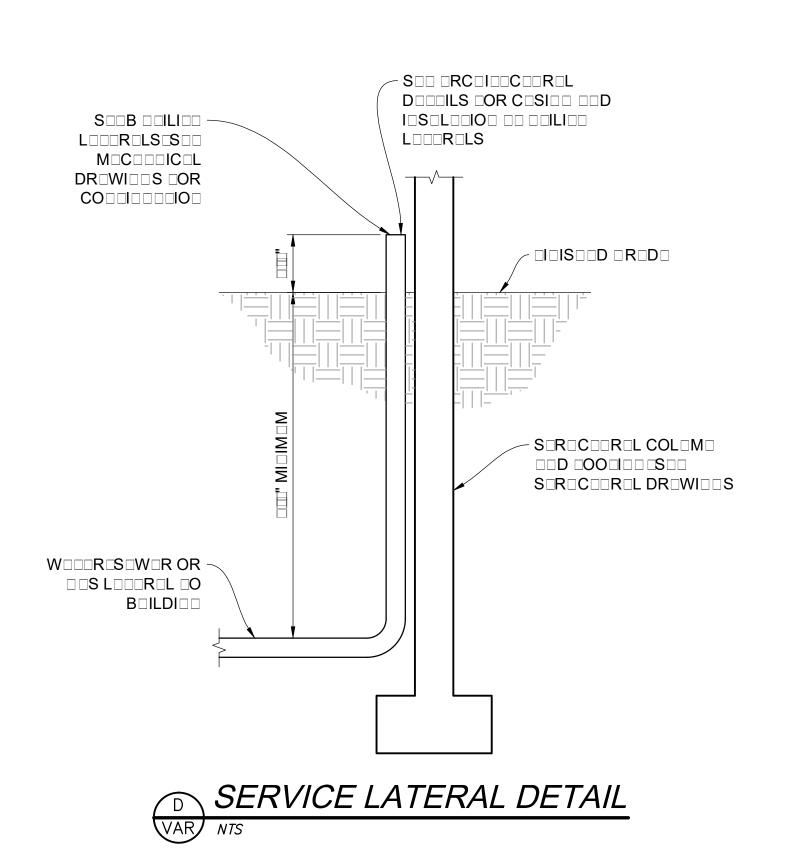


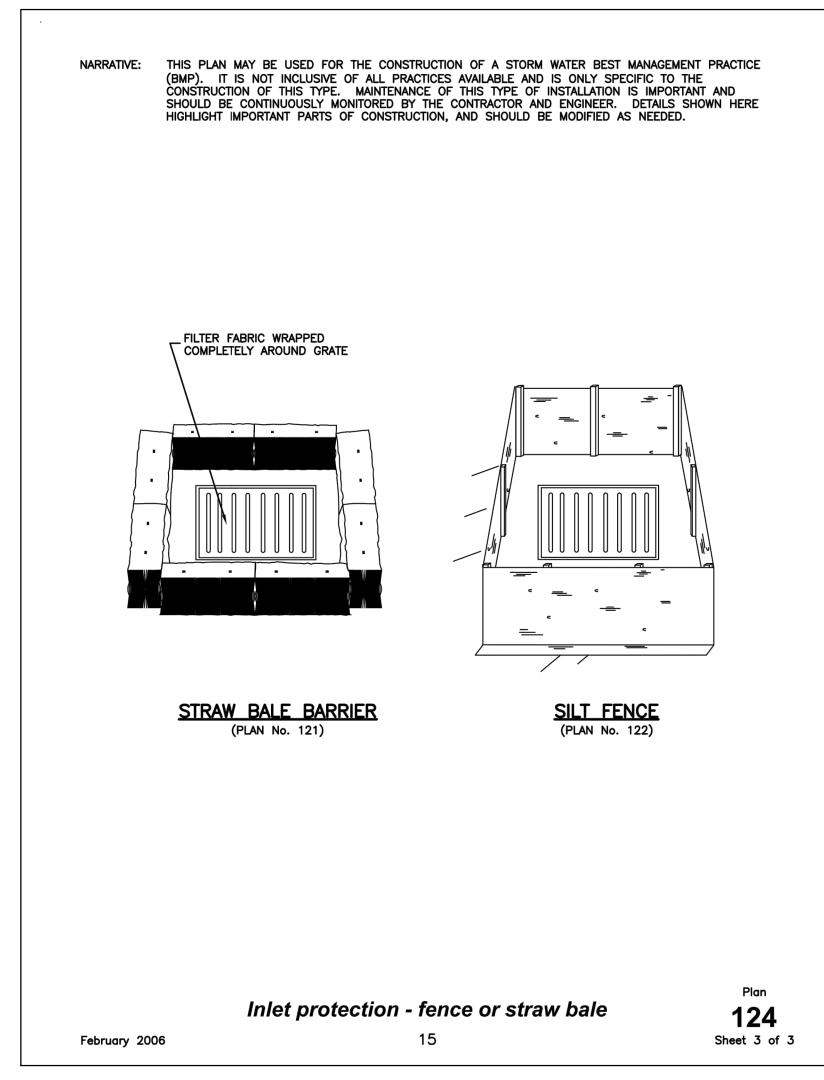


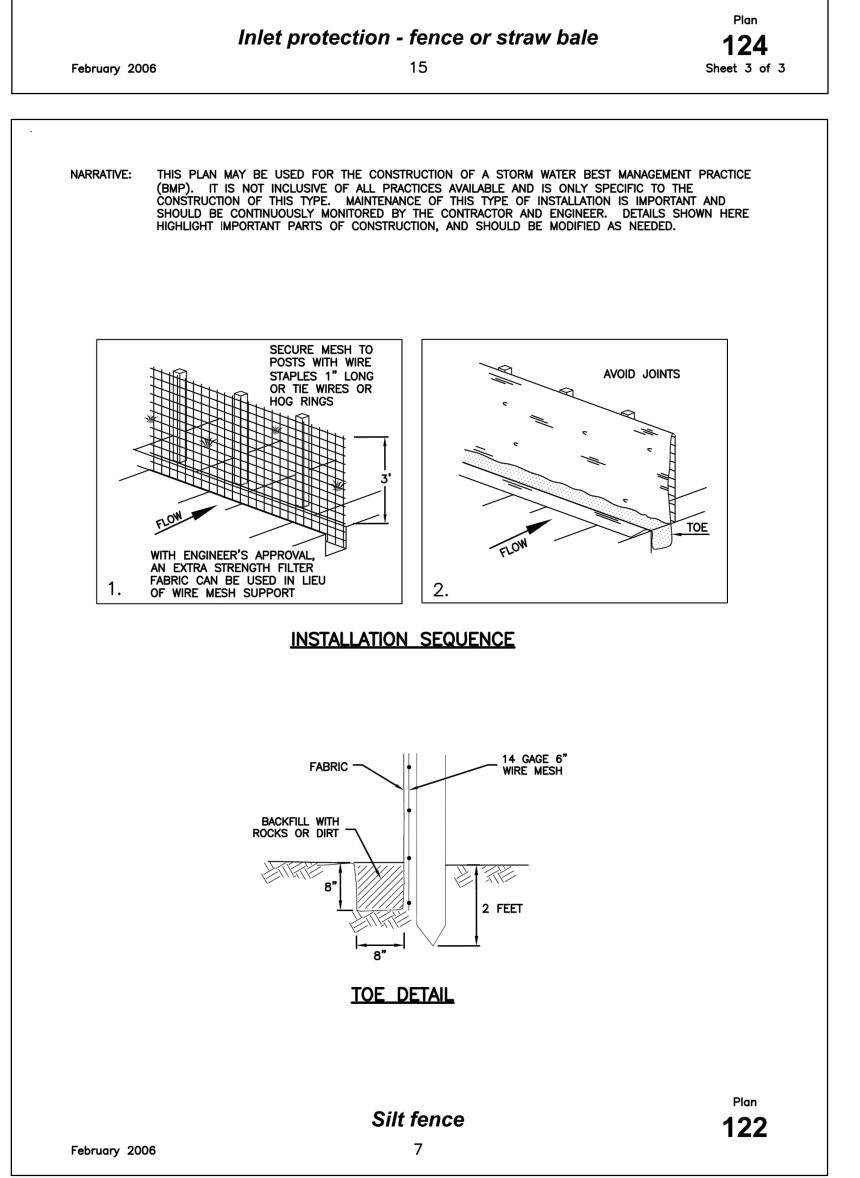


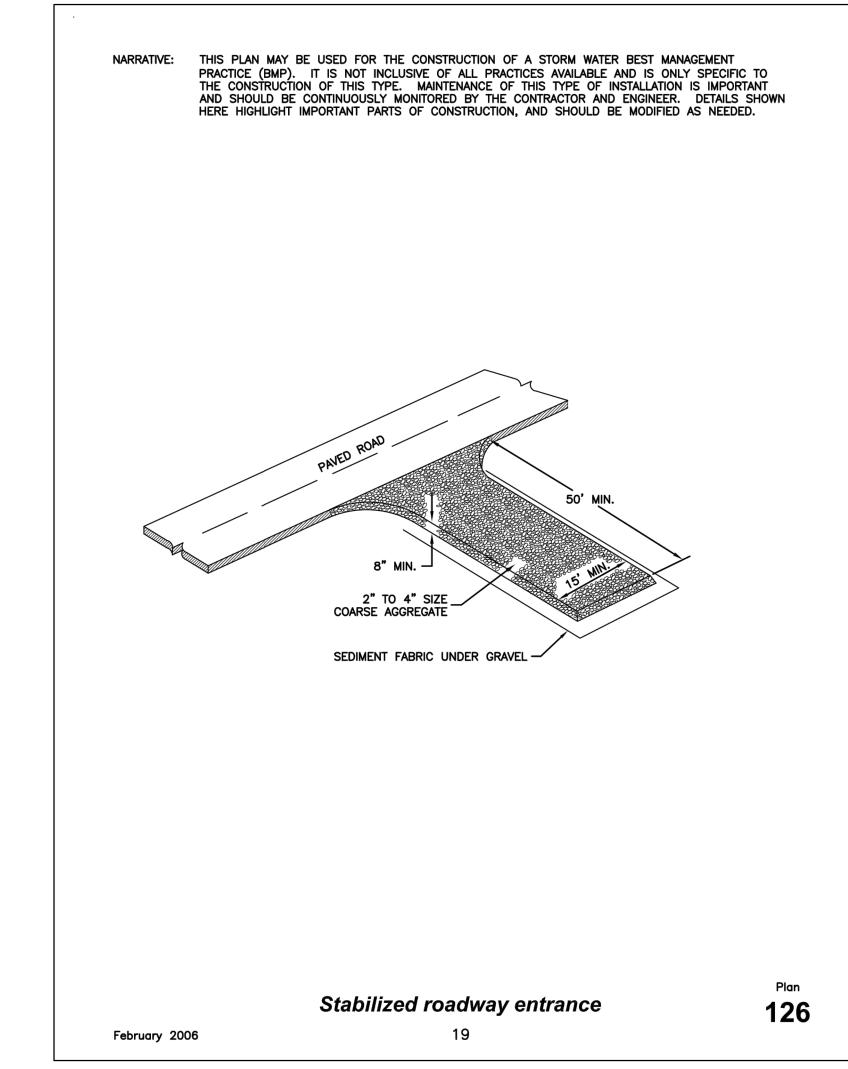


<u>SECTION A-A</u>



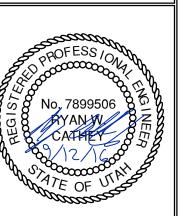








6217 SOUTH STATE STREET, S 801.743.1300 TEL 801.743.0300



SHEET NUMBER
6.00

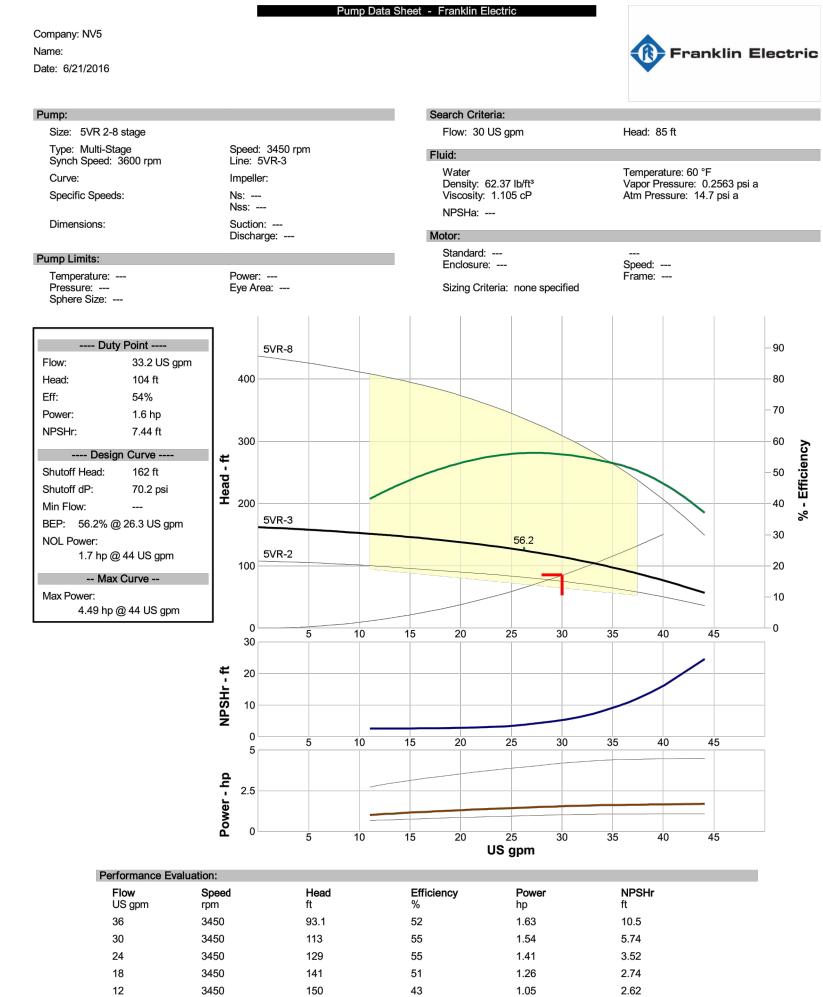
SCALE

VERTICAL: 1"= N/A

HORIZONTAL: 1"= N/A

JOB NUMBER

SLB0793



Selected from catalog: FECentrifugal.60 Vers: 1.3

136875

135460

136876

132662

132663

133517

FLINT & WALLING Zoeller Family of Water Solutions™

0616 AIR-E-TAINER® **WELL SYSTEM TANKS**

•	Inline tanks pre-charged for
	30-50 pressure switch -
	Vertical tanks pre-charged
	for either 30 - 50 or 40 - 60
	Pressure switch

100 PSI maximum working pressure

MUULO

SCALE: 1:14

DO NOT SCALE DRAWING

SHEET 2 OF 2

- Powder-coated exterior and interior
- Butyl rubber parabolic diaphragm
- 5 year Limited Warranty



AIR-E-TAINER® PRE-PRESSURIZED WELL SYSTEM TANKS

art No.	Total Tank	Fotal Tank by PSI Settings***		The state of the s		Ship Wt NPT Size/ Lbs MTL		Max Working Pressure (PSI)	Max Working Temp		
	voi. Gallons	20/40	20/40 30/50 40/60		Dia X III	LDS WITE		PSIG	Fressure (FSI)	Temp	
131009	2	0.7	0.6		8-1/4 x 10-1/5	5	3/4" M	28	100	140	
132477	4.6	1.6	1.4		11 x 14-3/4	9	3/4" M	28	100	140	
132661	14	5.2	4.3	3.7	15-3/8 x 24-3/4	25.5	1″ F	38	100	200	
132662	20	7.4	6.2	5.4	15-3/8 x 32-1/4	30	1″ F	38	100	200	
132663	36	13.3	11.1	9.7	20 x 38-5/8	45	1″ F	38	100	200	
133517	52	19.2	16.1	14	23-3/8 x 38-5/8	77	1-1/4" F	38	100	200	
136875	65	23.9	20	17.5	23-3/8 x 46-3/5	87	1-1/4" F	38	100	200	
135460	86	31.8	26.7	23.2	23-3/8 x 59	105	1-1/4" F	38	100	200	
136876	119.5	44	37	32	26 x 61-1/4	165	1-1/4" F	38	100	200	

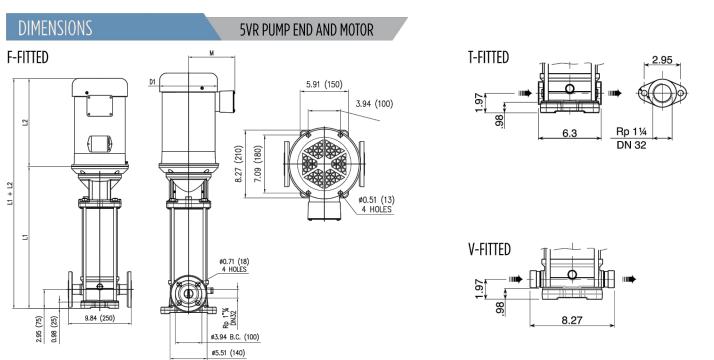
***In keeping with current industry standards, drawdown factors are based on Boyle's law. Actual drawdowns will vary depending upon system variables, including the accuracy and operation of the pressure switch and gauage and operating temperature of the system. Caution: install a pressure relief valve on any installation where the pump pressure can exceed the tank's maximum working pressure. NOTE: Precharged tanks cannot ship via air freight.

NOTE: Pre-charged tanks cannot ship via air freight.

MULTI-STAGE PUMPS VERTICAL VR SERIES







	i vimens	ions (in)		Pu	mp End	Dimens	ions (in)	F-Fitted*: Round flanges on body type PN25—pump is sup
НР	L1 'F"	Model No.		Stages	HP	L1 'F"	Model No.	joints, bolts, and counter flanges.
1	13.49	5VR2-60 N		9	5	20.14	5VR9-60 N	
1.5	14.44	5VR3-60 N		10	5	21.08	5VR10-60 N	T-Fitted: Oval flanges on body type PN16—pump is supplie
2	14.99	5VR4-60 N		11	7.5	21.54	5VR11-60 N	counter flanges for pipe to be screwed, joints, and bolts.
3	15.93	5VR5-60 N		12	7.5	22.48	5VR12-60 N	a control managed for pripe to be offered, joined, and bottom
3	17.29	5VR6-60 N		13	7.5	23.43	5VR13-60 N	V. Final Consulting Street Lifetimes and Grant P. All
5	18.25	5VR7-60 N		14	7.5	24.37	5VR14-60 N	V-Fitted: Connections with rapid fittings type "Victaulic®"—
5	19.19	5VR8-60 N		15	7.5	25.31	5VR15-60 N	supplied without collars.
	1	1 13.49 1.5 14.44 2 14.99 3 15.93 3 17.29 5 18.25	1 13.49 5VR2-60 N 1.5 14.44 5VR3-60 N 2 14.99 5VR4-60 N 3 15.93 5VR5-60 N 3 17.29 5VR6-60 N 5 18.25 5VR7-60 N	1 13.49 5VR2-60 N 1.5 14.44 5VR3-60 N 2 14.99 5VR4-60 N 3 15.93 5VR5-60 N 3 17.29 5VR6-60 N 5 18.25 5VR7-60 N	1 13.49 5VR2-60 N 9 1.5 14.44 5VR3-60 N 10 2 14.99 5VR4-60 N 11 3 15.93 5VR5-60 N 12 3 17.29 5VR6-60 N 13 5 18.25 5VR7-60 N 14	1 13.49 5VR2-60 N 9 5 1.5 14.44 5VR3-60 N 10 5 2 14.99 5VR4-60 N 11 7.5 3 15.93 5VR5-60 N 12 7.5 3 17.29 5VR6-60 N 13 7.5 5 18.25 5VR7-60 N 14 7.5	1 13.49 5VR2-60 N 9 5 20.14 1.5 14.44 5VR3-60 N 10 5 21.08 2 14.99 5VR4-60 N 11 7.5 21.54 3 15.93 5VR5-60 N 12 7.5 22.48 3 17.29 5VR6-60 N 13 7.5 23.43 5 18.25 5VR7-60 N 14 7.5 24.37	1 13.49 5VR2-60 N 9 5 20.14 5VR9-60 N 1.5 14.44 5VR3-60 N 10 5 21.08 5VR10-60 N 2 14.99 5VR4-60 N 11 7.5 21.54 5VR11-60 N 3 15.93 5VR5-60 N 12 7.5 22.48 5VR12-60 N 3 17.29 5VR6-60 N 13 7.5 23.43 5VR13-60 N 5 18.25 5VR7-60 N 14 7.5 24.37 5VR14-60 N

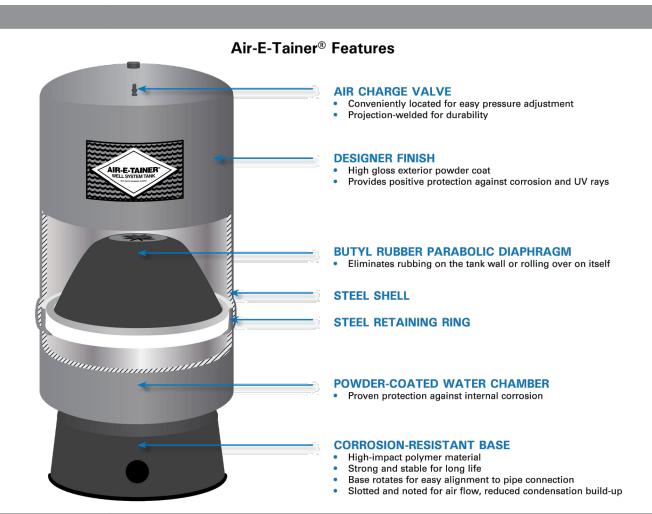
: Round flanges on body type PN25—pump is supplied without oolts, and counter flanges. Oval flanges on body type PN16—pump is supplied without oval

Connections with rapid fittings type "Victaulic®"—pump is without collars.

								Motor	Dimen	sions	(in)								
Phase	HP	Framo	Standard E	fficien	cy ODP		Premium E	fficien	cy ODP		Phase	Standard E	fficiend	y TEFO		Standard	Efficien	cy TEFO	
Pilase		Frame	Volts	L2	М	D1	Volt	L2	М	D1	Pilase	Volts	L2	М	D1	Volt	L2	М	D1
	1	56C		11.22	5.06	6.19							11.35	5.19	6.19		11.35	5.19	6.19
	1.5	56C		12.72	5.06	6.2	NI/A	NI/A	NI/A	NI/A			11.97	5.19	6.19	F7F	11.97	5.19	6.19
7	2	56C	200 270/460	13.22	5.06	6.2	N/A	N/A	N/A	N/A	7	200 270/460	12.85	5.19	6.19	3/3	12.85	5.19	6.19
3	3	560	200 230/400	13.24	5.62	7.16						200 230/400	13.23	5.74	7.19		13.23	5.74	7.19
	5	182/4TC		16.55	5.61	8.92	208-230/460	13.62	6.75	8.5			16.55	6.87	8.5	N/A	N/A	N/A	N/A
	7.5	182/4TC		16.55	6.87	8.6	208-230/460	15	6.75	8.5			18.05	6.87	8.5	N/A	INJA	IN/A	IN/A
Dhasa	HD	France	Premium E	fficien	cy TEFC		Premium E	fficien	cy TEFC		Dhasa	Standard E	fficien	cy ODP		Standard	Efficien	y TEFO	
Phase	HP	Frame	Volt	L2	М	D1	Volts	L2	М	D1	Phase	Volts	L2	М	D1	Volt	L2	М	D1
	1	56C											12.72	5.06	6.19		12.25	5.55	7.19
	1.5	56C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		115/230	12.73	5.06	6.2	115/230	13.25	5.74	7.19
7	2	56C	N/A	IN/A	IN/A	N/A	N/A	IN/A	N/A	N/A	1		13.24	5.61	7.19		14.12	6.62	7.19
3	3	56C									'	230	12.94	5.73	6.62	230	14.12	5.79	7.19
	5	182/4TC	575	16.55	6.87	8.5	208-230/460	16.55	6.87	8.5		N/A	N/A	N/A	N/A	230	18.05	6.87	8.6
		182/4TC	575	18.05	6.87	8.6	208-230/460	18.05	6.87	8.6		IN/A	IN/A	IN/A	IN/A	N/A	N/A	N/A	N/A

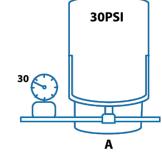
AIR-E-TAINER® **WELL SYSTEM TANKS**



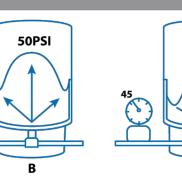




These illustrations show the operation of the Air-E-Tainer® tank in a typical 30/50 pressure range.



 A. Tank is pre-pressurized with air at the factory.



B. When pump starts, water enters the reservoir. At 50 psig, system is filled. Pump shuts off.

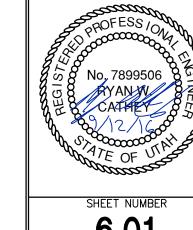
C. When water is demanded, pressure in the air chamber forces water into the system. Pump turns

 D. When pressure in tank drops to pressure switch cut-in point (30 psig) pump refills the tank as in Illustration B.

Flint & Walling | 95 North Oak Street | Kendallville, IN 46755 800-345-9422 | www.flintandwalling.com

Copyright © 2016 Flint & Walling





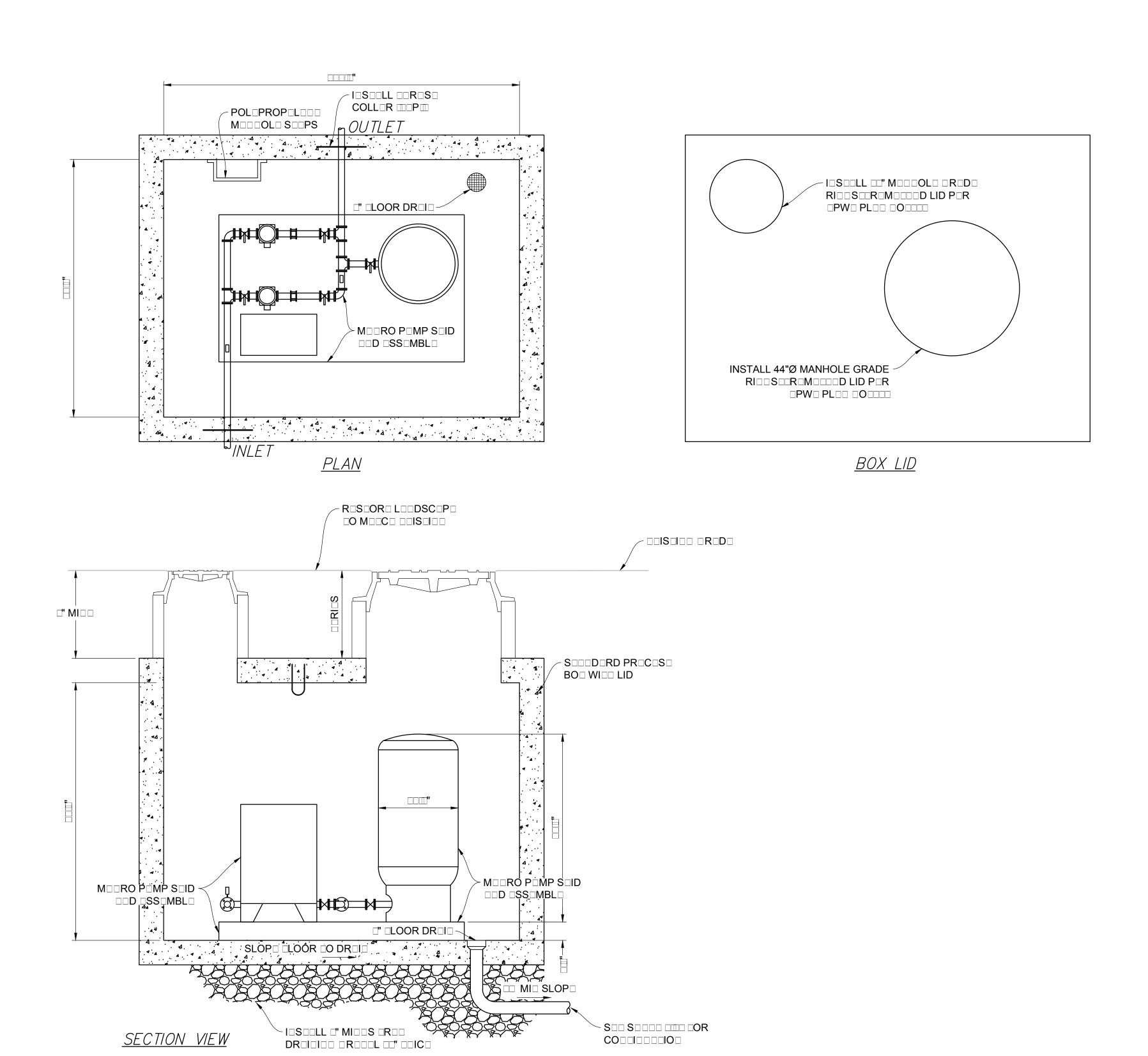
NEIGHBORHOOD

HORIZ

6.01

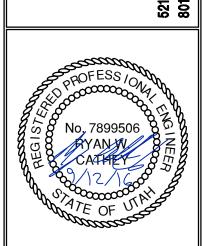
SCALE VERTICAL: 1"= N/A HORIZONTAL: 1"= N/A JOB NUMBER

SLB0793





7 SOUTH STATE STREET, SUITE 200 .743.1300 TEL 801.743.0300 FAX



SHEET NUMBER
6.02

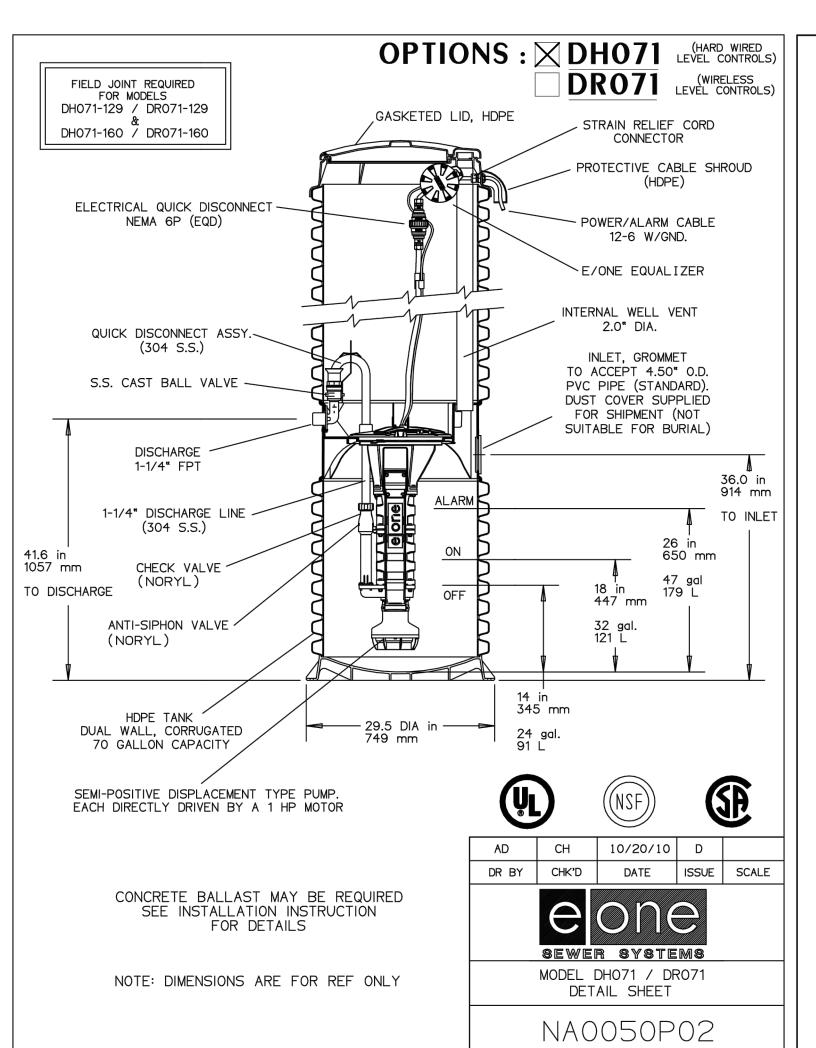
SCALE

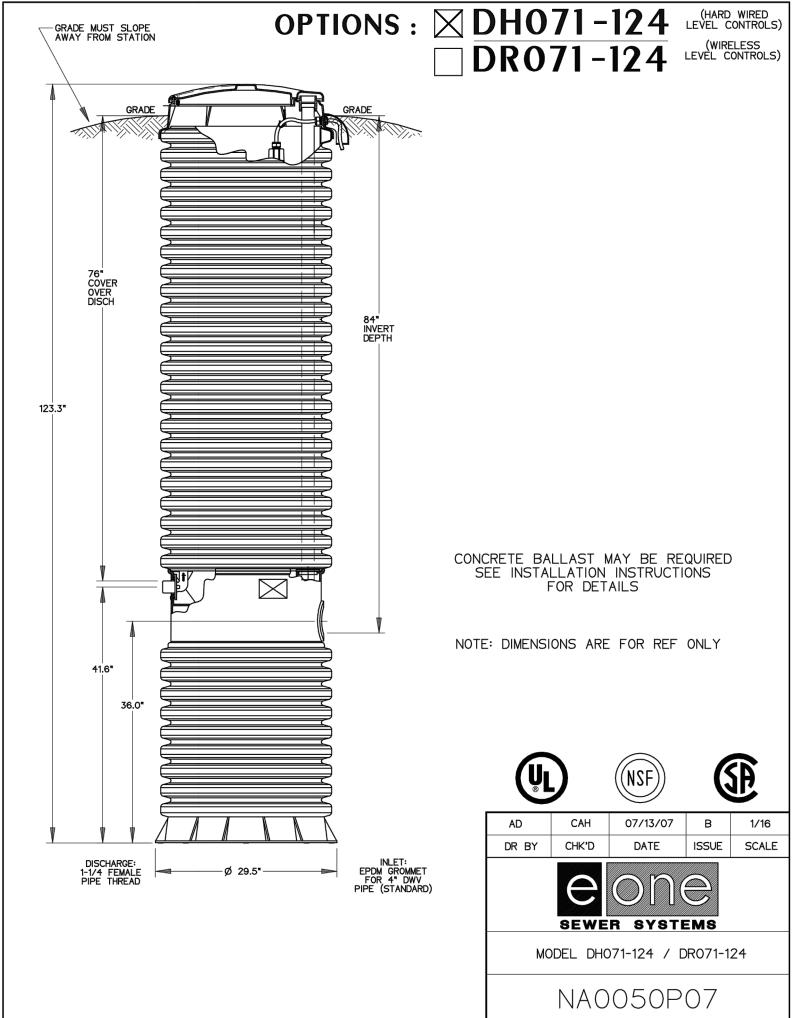
VERTICAL: 1"= N/A

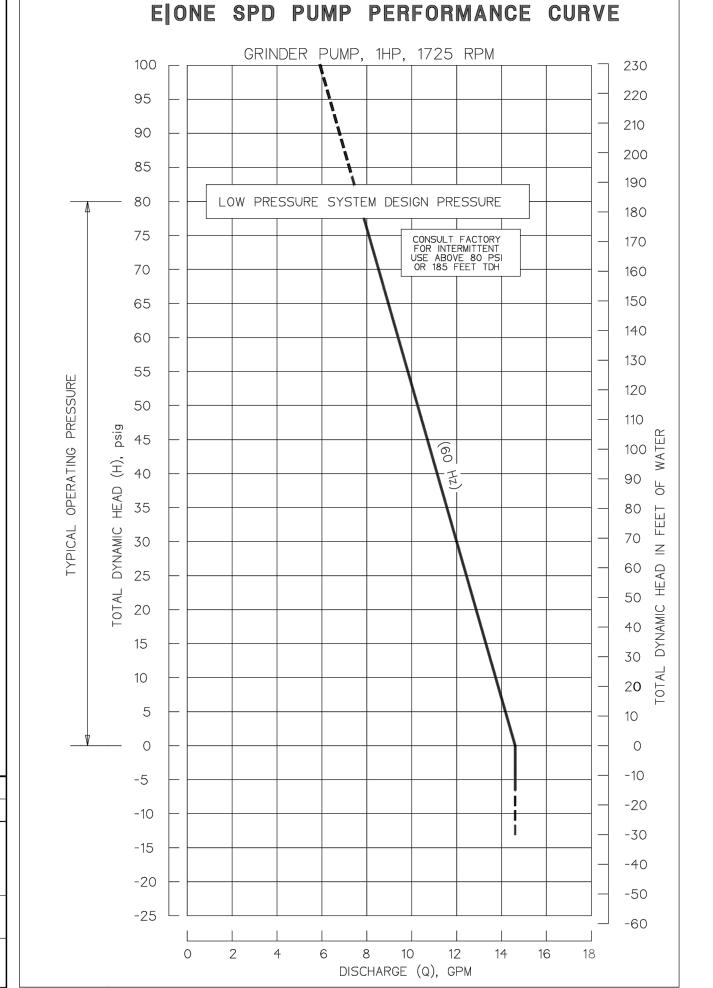
HORIZONTAL: 1"= N/A

JOB NUMBER

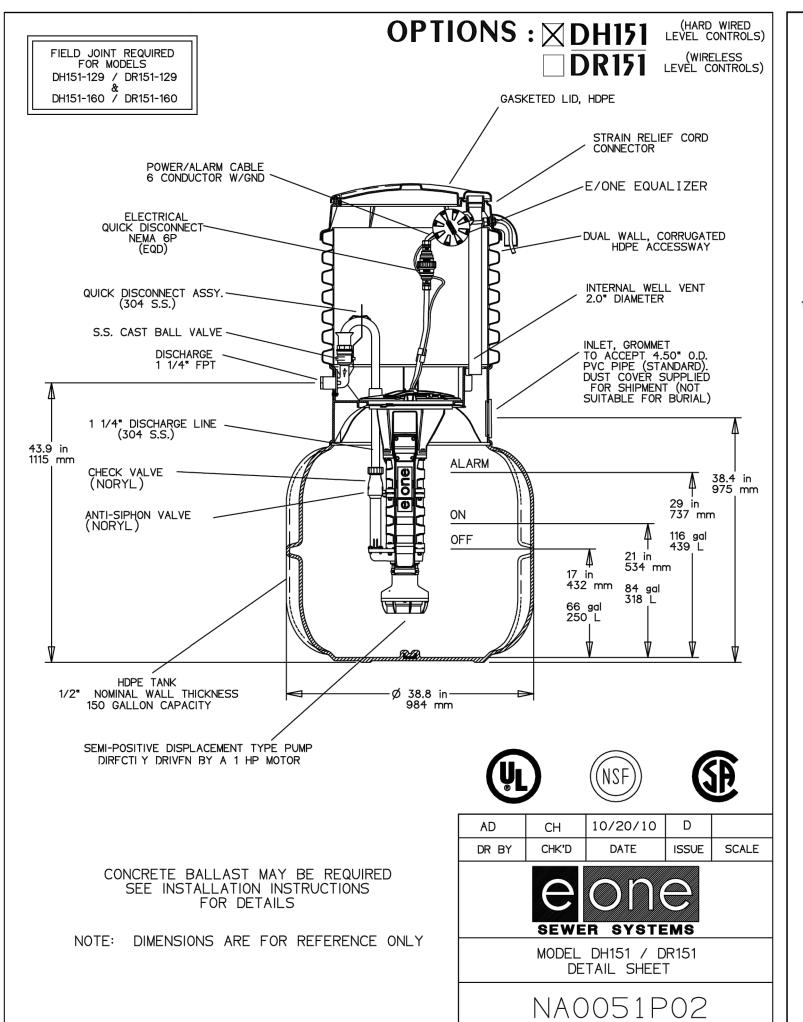
SLB0793

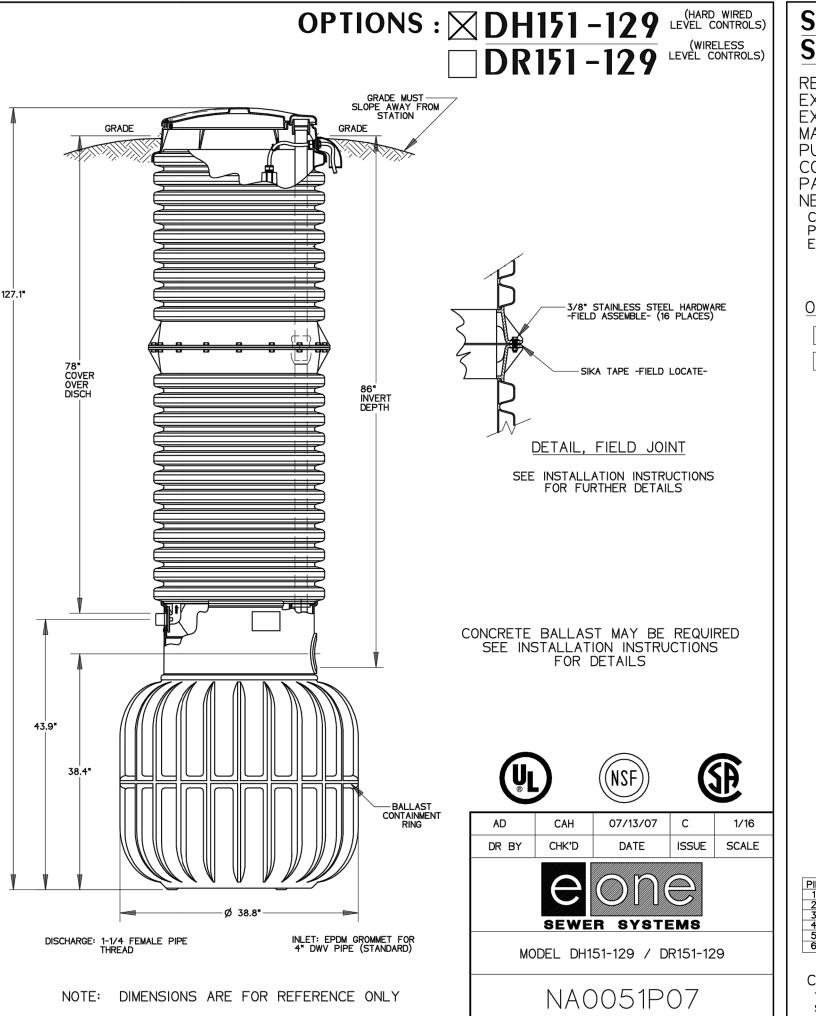


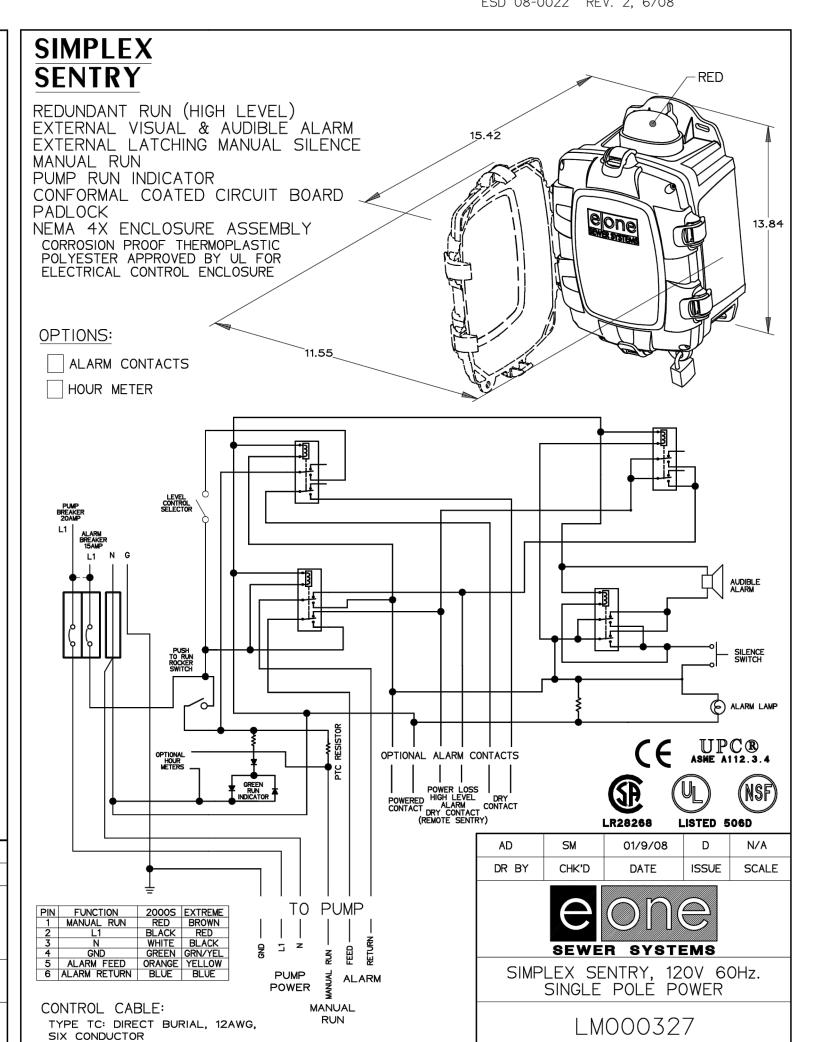


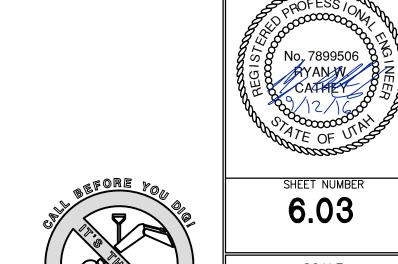


ESD 08-0022 REV. 2, 6/08





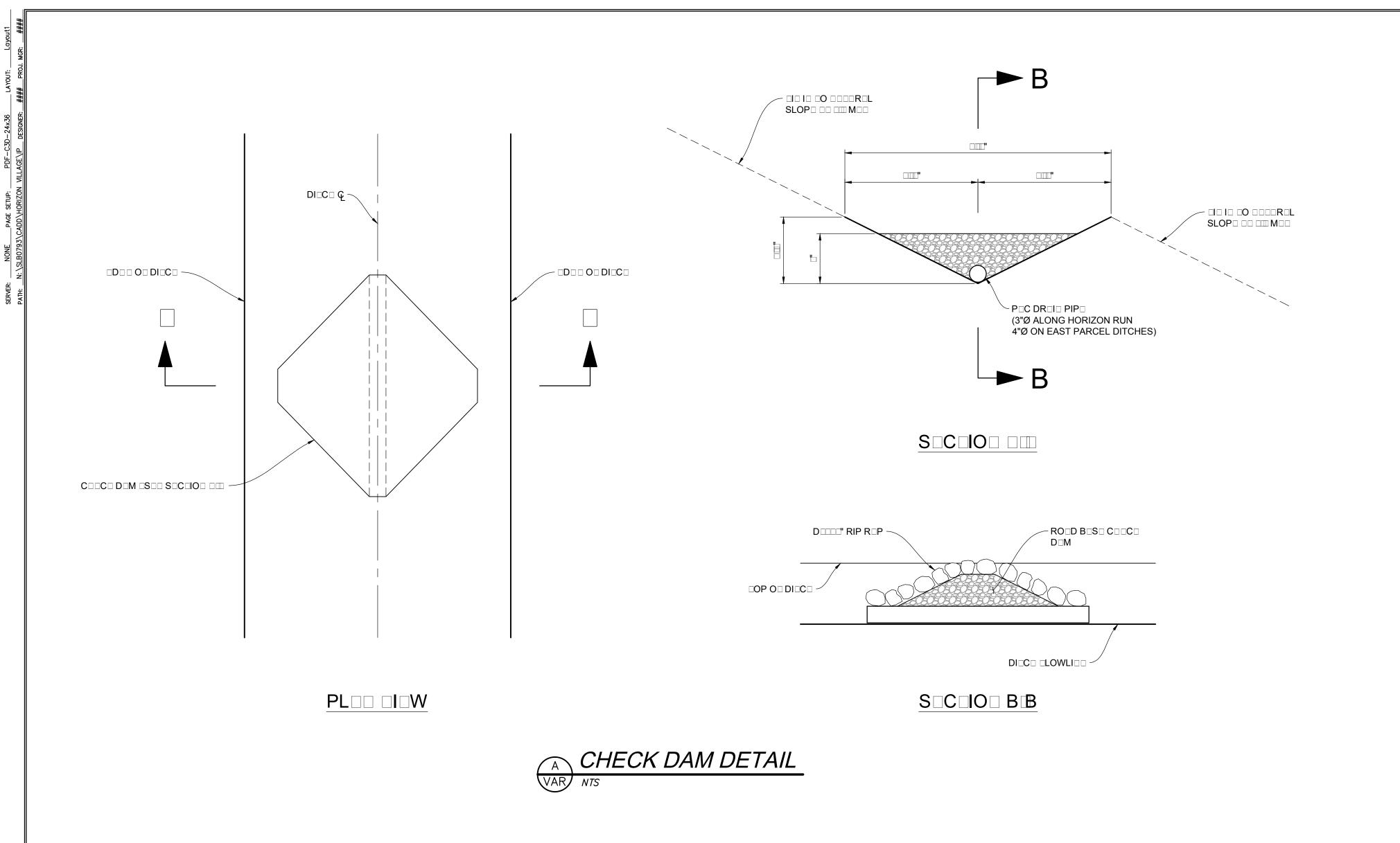




SCALE VERTICAL: 1"= N/A HORIZONTAL: 1"= N/A

NEIGHBORHOOD

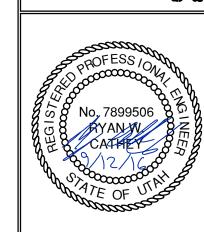
JOB NUMBER SLB0793



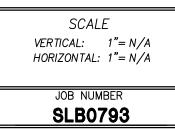
HORIZON NEIGHBORHOOD PRUD
DETAILS

JRRAY, UT 84107
WWW.NV5.COM

SOUTH STATE STREET, SUITE 200 43.1300 TEL 801.743.0300 FAX



SHEET NUMBER
6.04



	IFGFND
SYMBOL	LIGHTING
	LAY-IN OR RECESSED FIXTURE, SIZE ON PLANS WALL MOUNT FIXTURE, SIZE ON PLANS SURFACE MOUNT FIXTURE, SIZE ON PLANS PENDANT OR SURFACE MOUNTED LIGHT FIXTURE, SIZE ON PLANS SHADED FIXTURE INDICATES EMERGENCY/EGRESS RECESSED FLUORESCENT FIXTURE WALL MOUNTED HID FIXTURE POLE MOUNTED FIXTURE, EXTERIOR CEILING MOUNT EXIT LIGHT (W/DIRECTIONAL ARROWS) WALL MOUNT EXIT LIGHT (W/ DIRECTIONAL ARROWS)
SYMBOL	DEVICES & POWER
\$ _{xx}	SWITCH - SPST 3 THREE WAY 4 FOUR WAY WP WEATHER PROOF D DIMMER OS OCCUPANCY SENSOR EXP EXPLOSION PROOF K KEYED SWITCH M MANUAL MOTOR DISCONNECT/STARTER COMMUNICATION ANTENNA
→	RECEPTACLE — SIMPLEX
⇒ GFI WP	RECEPTACLE — DUPLEX GFI GROUND FAULT INTERRUPT
=₩	WP WEATHERPROOF RECEPTACLE — DOUBLE DUPLEX SAME INDICATORS AS SHOWN FOR DUPLEX
<u>о</u> ю	J-BOX, J-BOX WALL MOUNTED, 4"x4"x2 1/8" DEEP UNLESS NOTED OTHERWISE
- ⊕	THERMOSTAT, SUPPLIED AND INSTALLED BY M.C.
	PUSHBUTTON SWITCH EMERGENCY PUSHBUTTON RELAY PHOTOCELL
PNL	SPECIAL PURPOSE CONNECTION, BOX INDICATES FLOOR MOUNTING, WORK AS NOTED PANELBOARD, SURFACE MOUNTED EMERGENCY WALL LIGHT, SINGLE EMERGENCY WALL LIGHT, DOUBLE PANELBOARD, ON ONE-LINE
VFD ⊠h¾x □h¾x ⊠ ¾x	VARIABLE FREQUENCY DRIVE COMBINATION STARTER DISCONNECT SWITCH CONTACTOR
60	CIRCUIT BREAKER
HF	HARMONIC FILTER
10	MOTOR (10 HORSEPOWER NOTED)
	TRANSFORMER, DRY-TYPE TRANSFORMER, PAD MOUNTED

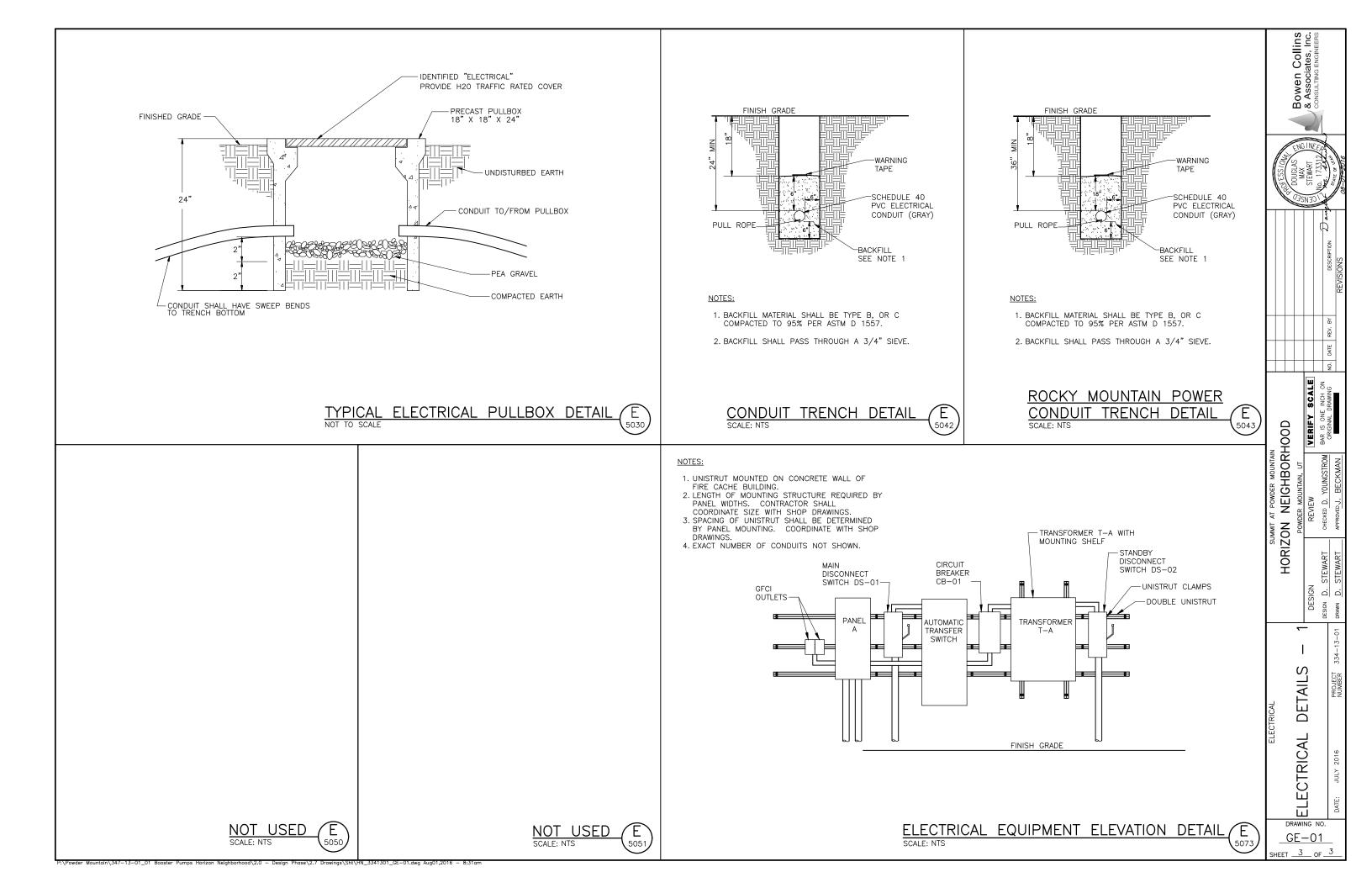
_										
	SYMBOL	ABBREVIATIONS AND MISCELLANEOUS								
	ATS	AUTOMACTIC TRANSFER SWITCH								
	EC MC	ELECTRICAL CONTRACTOR MECHANICAL CONTRACTOR								
	GC GC	GENERAL CONTRACTOR								
	c	CONDUIT								
	GND	GROUND								
	BOD	BOTTOM OF DEVICE								
	COD	CENTER OF DEVICE								
	AFF	ABOVE FINISHED FLOOR								
	AFG	ABOVE FINISHED GRADE								
	BLG	BELOW GRADE								
	AC BC	ABOVE COUNTER, 4" ABOVE BACK SPLASH								
		BELOW COUNTER, 4" BELOW COUNTER TOP WITH								
	W/ a,b,c	SWITCH DESIGNATION								
	SF	SURFACE								
	UG	UNDERGROUND								
	WP	WEATHER PROOF								
	1/E5.2	INDICATES DETAIL 1 ON SHEET E5.2								
	<u> </u>	SHEET WORK NOTE.								
	(x-x-xxxx)	EQUIPMENT TAG NUMBER								
	XX,XXX	FAULT CURRENT VALUE								
L	XXX	GENERAL ELECTRICAL TAG								
Γ		GROUNDING SYMBOLS								
Γ										
	(6)	GROUND ROD								
	Ü									
		GROUND ROD IN GROUND WELL								
	0	GROUND RISER FROM THE GROUND PLATE								
		(REBAR) BOLTED AND WELDED GROUND CONNECTIONS.								
		RESPECTIVELY								
- [GROUND CABLE:								
- [EMBEDDED IN CONCRETE BURIED IN EARTH								
- [EXPOSED								
_										

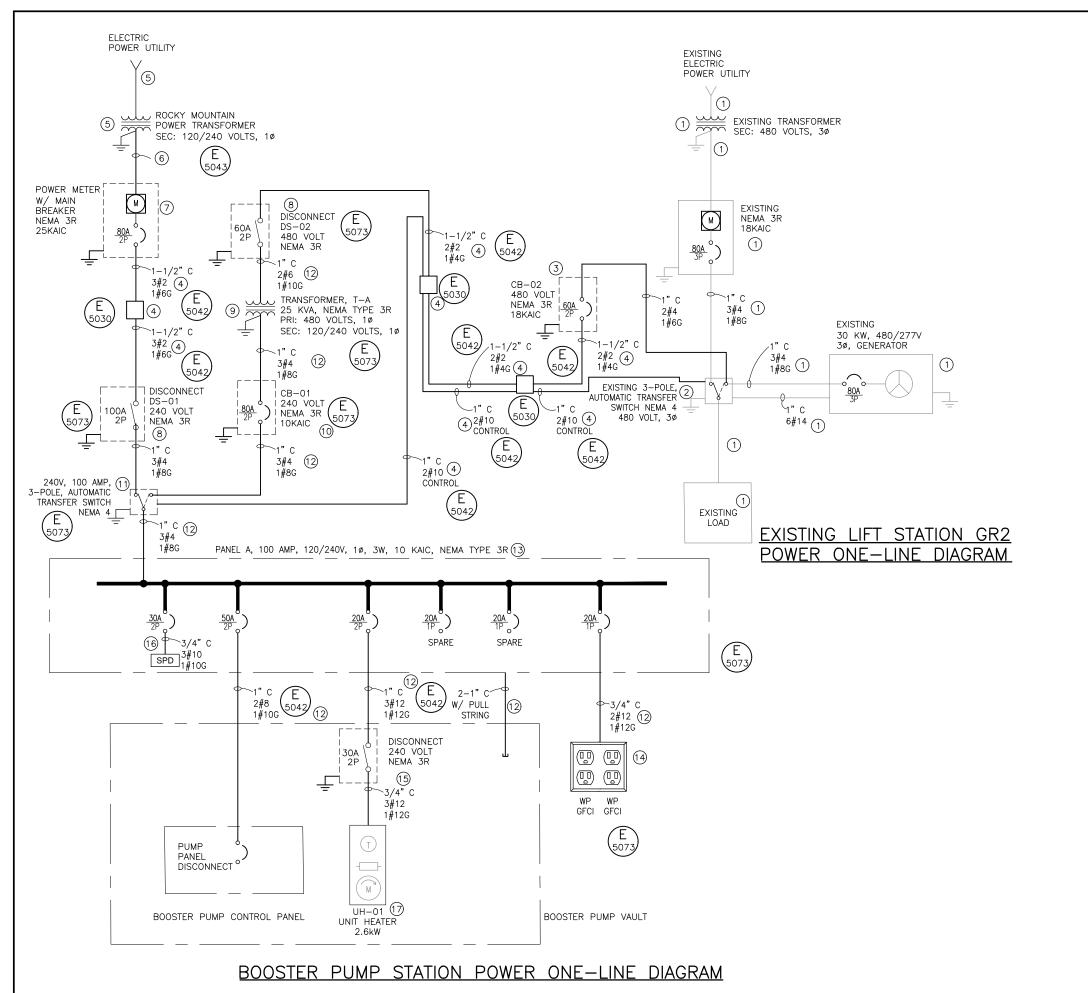
GENERAL NOTES

- A. VERIFY ALL EQUIPMENT DIMENSIONS AND LOCATIONS BEFORE BEGINNING ROUGH—IN. CONSULT ALL APPLICABLE CONTRACT DRAWINGS AND SHOP DRAWINGS TO ENSURE NEC CODE CLEARANCE REQUIRED AROUND ALL ELECTRICAL EQUIPMENT.
- B. CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED BEFORE BEGINNING ROUGH-IN
- C. SEE APPLICABLE SHOP DRAWINGS FOR ROUGH-IN LOCATION OF ALL EQUIPMENT, WIRING DEVICES, ETC.
- D. THE ELECTRICAL CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE MECHANICAL CONTRACTOR SUCH THAT NO PIPING, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH ELECTRICAL ROOMS OR SPACES; OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN THE OTHER AREAS.
- E. ALL PENETRATIONS OF FLOORS, WALLS AND CEILINGS SHALL BE SEALED WITH APPROVED MATERIAL.
- F. FOR PACKAGE EQUIPMENT PROVIDED ON THE PROJECT, SOME CONDUITS AND WIRES ARE SHOWN ON THE DRAWINGS, BUT IT IS EXPECTED THAT SOME ADDITIONAL CONDUITS AND WIRES MAY BE REQUIRED BY EQUIPMENT MANUFACTURERS TO COMPLETE INSTALLATION. IT IS INCUMBENT UPON THE GENERAL CONTRACTOR TO COORDINATE THIS REQUIREMENT WITH HIS SUBCONTRACTORS TO MAKE SURE THAT EQUIPMENT SUPPLIER PROVIDED ALL NECESSARY ELECTRICAL INFORMATION TO ELECTRICAL SUBCONTRACTOR FOR INCLUSION WHETHER SHOWN OR NOT SHOWN ON THE DRAWINGS.
- G. IF OTHER THAN FIRST NAMED EQUIPMENT IS USED, IT SHALL BE CAREFULLY CHECKED FOR ELECTRICAL REQUIREMENTS AND CONTROL REQUIREMENTS OF ALTERNATE EQUIPMENT. SHOULD CHANGES OR ADDITIONS OCCUR IN ELECTRICAL WORK, OR THE WORK OF OTHER CONTRACTORS BE REVISED BY THE ALTERNATE EQUIPMENT, THE COST OF ALL CHANGES SHALL BE BORNE BY THE ELECTRICAL CONTRACTOR.
- H. IT IS THE ELECTRICAL SUBCONTRACTOR'S RESPONSIBILITY TO DELIVER THE COMPLETE SET OF PLANS IN ORDER TO INSURE THAT ALL ITEMS RELATED TO ELECTRICAL POWER AND CONTROL SYSTEMS ARE COMPLETELY ACCOUNTED FOR.
- ALL EQUIPMENT DIMENSIONS SHOWN ON PLANS AND ELEVATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL USE THE SHOP DRAWINGS FOR PROPER LAYOUT, FOUNDATION AND PAD, ETC. FOR FINAL INSTALLATION WITHOUT ANY ADDITIONAL COST TO THE OWNER.
- J. THE DRAWINGS DIAGRAMMATICALLY INDICATE THE DESIRED LOCATION AND ARRANGEMENT OF OUTLETS, CONDUIT RUNS, EQUIPMENT AND OTHERS ITEMS. DETERMINE EXACT LOCATIONS IN THE FIELD BASED ON PHYSICAL SIZE AND ARRANGEMENT OF EQUIPMENT, FINISHED ELEVATIONS, AND OTHERS OBSTRUCTIONS. LOCATIONS SHOWN ON THE DRAWINGS, HOWEVER, SHALL BE ADHERED TO AS CLOSELY AS POSSIBLE.
- K. THE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE CURRENT VERSION OF THE NEC, LOCAL, AND STATE CODES.



SHEET __1__ 0F__3



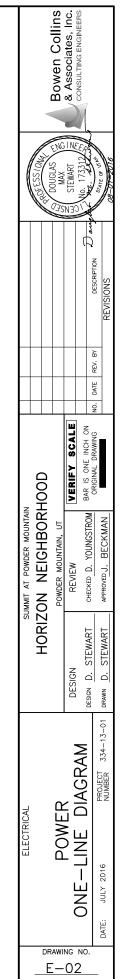


GENERAL NOTES:

- 1. REFER TO CIVIL DRAWING 2.00 FOR EQUIPMENT LOCATION.
- 2. NEW ELECTRICAL EQUIPMENT SHOWN IN DETAIL E-5073 SHALL BE INSTALLED ON THE SIDE OF THE FIRE CACHE BUILDING.
- 3. ALL ELECTRICAL ENCLOSURES SHALL BE VANDAL PROOF AND LOCKABLE.
- PROVIDE AND INSTALL WEATHER PROOF HUBS FOR ALL OUTDOOR CONDUITS.

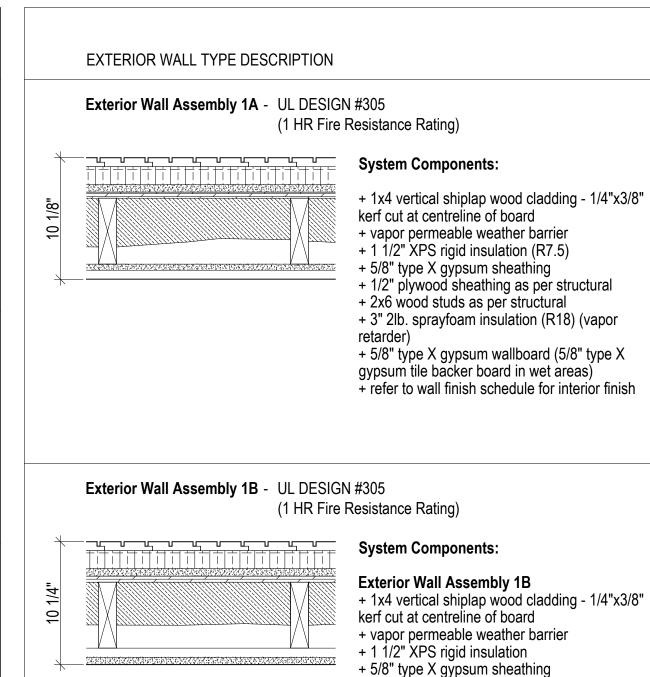
KEY NOTES: (#)

- 1. EXISTING ELECTRICAL POWER SERVICE, GENERATOR AND EQUIPMENT AT LIFT STATION GR2.
- 2. EXISTING AUTOMATIC TRANSFER SWITCH AT LIFT STATION GR2. PROVIDE AND INSTALL SPLICE KIT TO CONNECT GENERATOR POWER TO THE BOOSTER PUMP STATION. PROVIDE AND INSTALL SPLICE KIT TO CONNECT THE GENERATOR START/STOP SIGNAL FROM THE AUTOMATIC TRANSFER SWITCH AT THE BOOSTER PUMP IN PARALLEL WITH EXISTING START/STOP SIGNAL.
- 3. PROVIDE AND INSTALL CIRCUIT BREAKER ON RACK WITH EXISTING ELECTRICAL EQUIPMENT AT LIFT STATION GR2. CIRCUIT BREAKER SHALL BE LOCKABLE IN THE OFF POSITION,
- 4. PROVIDE AND INSTALL CONDUIT, CONDUCTORS AND PULL BOXES. PROVIDE AND INSTALL ADDITIONAL PULL BOXES IF NEEDED. REFER TO DRAWING REFERENCED IN GENERAL NOTE #1 FOR LOCATIONS. CONDUCTORS HAVE BEEN SIZED TO PREVENT EXCESSIVE VOLTAGE DROP.
- 5. ROCKY MOUNTAIN POWER PRIMARY POWER FEED AND TRANSFORMER.
- 6. DEVELOPER TO PROVIDE AND INSTALL CONDUIT. CONDUCTORS SHALL BE INSTALLED BY ROCKY MOUNTAIN POWER.
- 7. GROUP METERING PROVIDE AND INSTALL MAIN CIRCUIT BREAKER. POWER METER SHALL BE INSTALLED BY ROCKY MOUNTAIN POWER.
- 8. PROVIDE AND INSTALL LOCKABLE DISCONNECT SWITCHES.
- PROVIDE AND INSTALL SINGLE PHASE TRANSFORMER WITH COPPER WINDINGS AND MOUNTING SHELF, WITH BOTTOM OF TRANSFORMER APPROXIMATELY 3.5' ABOVE FINISHED GRADE. PROVIDE TRANSFORMER WITH WEATHER SHIELDS AND RODENT SCREENS. REFER TO SPECIFICATION.
- 10. PROVIDE AND INSTALL CIRCUIT BREAKER AS SHOWN.
- 11. PROVIDE AND INSTALL AUTOMATIC TRANSFER SWITCH WITH LOCKABLE ENCLOSURE AND VANDAL PROOF COVERS TO PROTECT CONTROLS. REFER TO SPECIFICATION. L1, L2, AND THE NEUTRAL WILL ALL BE SWITCHED.
- 12. PROVIDE AND INSTALL CONDUITS AND CONDUCTORS TO ELECTRICAL EQUIPMENT MOUNTED ABOVE GROUND AND IN VAULT. PROVIDE AND INSTALL TWO SPARE CONDUITS FROM PANEL TO VAULT, CAPPED WITH PULL STRINGS AS SHOWN.
- 13. PROVIDE AND INSTALL PANEL WITH LOCKABLE ENCLOSURE, AND COPPER BUS. REFER TO SPECIFICATION.
- 14. GFCI, 20 AMP, OUTLETS IN TWO GANG WEATHERPROOF BOX WITH HUBBLE EXTRA-DUTY METALLIC WHILE-IN-USE COVER, P/N WP262E, OR EQUAL.
- 15. PROVIDE AND INSTALL LOCKABLE DISCONNECT IN VAULT CLOSE TO ELECTRIC UNIT HEATER.
- 16. PROVIDE AND INSTALL SINGLE PHASE, 120/240 VOLT, SURGE PROTECTIVE DEVICE. RATED 160 KA PER PHASE AND 80 KA PER MODE.
- 17. CHROMALOX SINGLE PHASE, 240 VOLT, 2.6 KW, 11.4 AMPS, P/N LUH-02-21-34, WITH INTEGRAL THERMOSTAT AND WALL MOUNTING BRACKET FOR WALL IN VAULT.



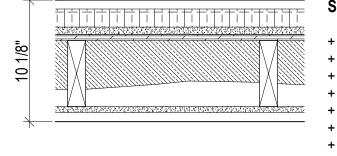
SHEET _2_ OF _3

TYPE	INTERIOR WALL T	YPE DESCRIPTION	TYPE	INTERIOR WALL TYP	E DESCRIPTION	TYPE		NTERIOR WALL TYP	E DESCRIPTION		EXTERIOR WALL TYPE DESCRIPTION
P1	9112"	+ 1/2" GWB, PTD (TBD) + 2x6 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)	P10	# 1/18	+ 1/2" GWB, PTD (TBD) + 2x8 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)	P19	9 1/2"		+ tile as per spec + 5/8" tile backer board + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + steel bracing as per structural + 5/8" tile backer board + tile as per spec	10 1/8"	Exterior Wall Assembly 1A - UL DESIGN #305 (1 HR Fire Resistance) System + 1x4 v kerf cu + vapo + 1 1/2" + 5/8" t + 1/2" + 2x6 v
P2	9 1/2 ₁	+ 1/2" GWB, PTD (TBD) + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" GWB, PTD (TBD)	P11	141.8	+ 1/2" GWB, PTD (TBD) + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" GWB, PTD (TBD)	P20	10 1/4"		+ 1x4 vertical shiplap wood cladding - 1/4"x1/4" kerf cut at centerline of board + 1x2 horizontal wood strapping as required + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 2 3/4" blocking + 1/2" GWB, PTD (TBD)		+ 3" 2lk retarde + 5/8" t gypsun + refer Exterior Wall Assembly 1B - UL DESIGN #305
P3	7 112"	+ 1x4 vertical shiplap wood cladding - 1/4"x1/4" kerf cut at centerline of board + 1x2 horizontal wood strapping as required + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" GWB, PTD (TBD)	P12	9 1/8	+ 1x4 horizontal spf shiplap cladding + 2x8 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)	P21	10"		+ 1x4 horizontal shiplap wood cladding + blocking + 2x8 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)	10 1/4"	(1 HR Fire Resistand System Exterior + 1x4 v kerf cut + vapot + 1 1/2 + 5/8" t + 1/2" p + 2x6 v + 3" 2lt retarde
P4	11/8"	+ tile as per spec + 5/8" tile backer board + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" GWB, PTD (TBD)	P13	9 1/4"	+ 1x4 vertical shiplap wood cladding - 1/4"x1/4" kerf cut at centerline of board + 1x2 horizontal wood strapping as required + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" GWB, PTD (TBD)	P22	1:-1 3/4"		+ 1/2" GWB, PTD (TBD) + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 2x6 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)		+ 1x4 v + 5/8" t gypsun + refer Exterior Wall Assembly 1C - UL DESIGN #305 (1 HR Fire Resistance) System
P5	7 3/4"	+ tile as per spec + 5/8" tile backer board + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 5/8" tile backer board + tile as per spec	P14		+ 1x4 vertical shiplap wood cladding - 1/4"x1/4" kerf cut at centerline of board + 2x4 sideway studs @ 16" o.c. horizontally blocked to support vertical wood cladding + 5" cavity for sliding doors + 2x4 sideway studs @ 16" o.c. + 1/2" GWB, PTD	P23	1.2 3/8"		+ tile as per spec + 5/8" tile backer board + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 2x6 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)	101/8"	+ 1x4 h + vapor + 1 1/2 + 5/8" t + 1/2" p + 2x6 v + 3" 2lk retarde + 5/8" t + 1x4 h
P6	6 1/2"	+ 1/2" GWB, PTD (TBD) + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" MRGWB, PTD (TBD)	P15	8 1/4"	+ 1/2" GWB, PTD (TBD) + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + steel bracing as per structural + 1/2" GWB, PTD (TBD)	P24	1'-1 3/4"		+ 1/2" GWB, PTD (TBD) + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + steel bracing as per structural + 2x6 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)	10 1/4"	Exterior Wall Assembly 2 - UL DESIGN #305 (1 HR Fire Resistance) System + 1x4 v kerf cut + vapot + 1 1/2" + 5/8" t + 1/2" p + 2x6 v
P7	71/8"	+ tile as per spec + 5/8" tile backer board + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" MRGWB, PTD (TBD)	P16	8 1/2	+ 1x4 horizontal shiplap wood cladding + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + steel bracing as per structural + 1/2" GWB, PTD (TBD)	P25	1.2"		+ 1x4 horizontal shiplap wood cladding + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + steel bracing as per structural + 2x6 studs @ 16" o.c. + 1/2" GWB, PTD (TBD)		+ 5/8" t + vapor + 1x4 v kerf cut
P8	6 3/4"	+ 1x4 horizontal shiplap wood cladding + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 1/2" GWB, PTD (TBD)	P17	8 1/8	+ 1/2" GWB, PTD (TBD) + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + steel bracing as per structural + 1/2" GWB, PTD (TBD) + 5/8" tile backer board + tile as per spec	P26	3 3/4"		+ tile as per spec + 5/8" tile backer board + 2x6 studs on the flat + 5/8" tile backer board + tile as per spe	9 1/2"	+ 3/4" x gaps (s + 2x4 h + 2x8 s
P9	8 1/4"	+ 1x4 vertical shiplap wood cladding - 1/4"x1/4" kerf cut at centerline of board + 1x2 horizontal wood strapping + 2x6 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + 5/8" tile backer board + tile as per spec	P18	9 1/8"	+ 1x4 horizontal shiplap wood cladding + 2x8 studs @ 16" o.c. + 5 1/2" acoustic batt in cavity + steel bracing as per structural + 1/2" GWB, PTD (TBD) + 5/8" tile backer board + tile as per spec						



+ 1/2" plywood sheathing as per structural + 2x6 wood studs as per structural + 3" 2lb. sprayfoam insulation (R18) (vapour retarder) + 1x4 wood strapping @ 16" o.c. + 5/8" type X gypsum wallboard (5/8" type X gypsum tile backer board in wet areas) + refer to wall finish schedule for interior finish

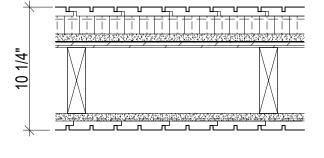
(1 HR Fire Resistance Rating) **System Components:**



+ 1x4 horizontal shiplap wood cladding + vapor permeable weather barrier + 1 1/2" XPS rigid insulation (R7.5) + 5/8" type X gypsum sheathing + 1/2" plywood sheathing as per structural + 2x6 wood studs as per structural

+ 3" 2lb. sprayfoam insulation (R18) (vapor retarder) + 5/8" type X gypsum wallboard + 1x4 horizontal shiplap wood cladding

Exterior Wall Assembly 2 - UL DESIGN #305 (1 HR Fire Resistance Rating)



System Components + 1x4 vertical shiplap wood cladding - 1/4"x3/8" kerf cut at centreline of board + vapor permeable weather barrier

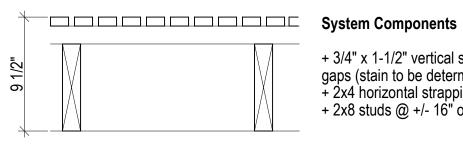
+ 1 1/2" XPS rigid insulation (R7.5) + 5/8" type X gypsum sheathing + 1/2" plywood sheathing as per structural + 2x6 wood studs @ 16" o.c. + 5/8" type X gypsum sheathing

+ 1x4 vertical shiplap wood cladding - 1/4"x3/8"

+ vapor retarder weather barrier

kerf cut at centreline of board

Exterior Wall Assembly 3



+ 3/4" x 1-1/2" vertical spf boards w/ 1/2" gaps (stain to be determined by architect) + 2x4 horizontal strapping @ 16" o/c + 2x8 studs @ +/- 16" o/c



OC

OH

ΟZ

PT

RD

RM

TO

TOS

TP

T/D

TYP

UON

U/S

VIF

VP

TYP

VIF

W/

WD

Key Plan

AD

CJ

CT

DN

DR

EA

HC

HP

HVAC

ILO

INT

MAX

MO

MIN

MECH

MEMBR

LO

INSUL

Scale 1/128" = 1'-0" AREA DRAIN ADJ **ADJACENT** ABOVE FINISHED FLOOR ALUM ALUMINUM ANOD ANODIZED **BSMT BASEMENT BYOND** BEYOND BOT BOTTOM B/W BETWEEN CHNL CHANNEL CONTROL JOINT CLG CEILING CLR CLEAR CONCRETE MASONRY UNIT CMU COF CENTERLINE OF WOOD FRAMING COL COLUMN CONC CONCRETE CONT CONTINUOUS CPT CARPET **CERAMIC TILE** DBL DOUBLE DIA DIAMETER DIMS DIMENSIONS DOWN DOOR DWG DRAWING EACH ELEVATION ELEC **ELECTRICAL** ELEV ELEVATOR / ELEVATION EQ EQUAL FOF FACE OF WOOD FRAMING FDN FOUNDATION GA GAUGE GALV GALVANIZED **GWB** GYPSUM WALL BOARD HOLLOW CORE **HOLLOW METAL** HIGH POINT

HEATING, VENTILATING,

MASONRY OPENING

IN LIEU OF

INTERIOR

MAXIMUM

MECHANICAL

MEMBRANE

MINIMUM

LOW

INSULATED

AND AIR CONDITIONING

GYPSUM WALL BOARD METAL NIC NOT IN CONTRACT NOM NOMINAL ON CENTER OPPOSITE HAND OUNCE PCC PRE-CAST CONCRETE PLYD PLYWOOD PRESSURE TREATED PTD PAINTED PVC POLYVINYL CHLORIDE RCP REFLECTED CEILING PLAN ROOF DRAIN REQD REQUIRED REV REVERSE ROOM SIM SIMILAR SPEC SPECIFIED OR SPECIFICATION SPK SPRINKLER ST STL STAINLESS STEEL STC SOUND TRANSMISSION COEFFICIENT STL STEEL STRUCT STRUCTURAL TELE TELEPHONE TLT TOILET TOP OF TOC TOP OF CONCRETE

TOP OF STEEL

TYPICAL

TYPICAL

WITH

WOOD

UNDERSIDE

VERIFY IN FIELD

VERIFY IN FIELD

VISION PANEL

TELEPHONE/DATA

TOILET PAPER DISPENSER

UNLESS OTHERWISE NOTED

MOISTURE-RESISTANT

MacKay-Lyons **Architects** Limited 2188 Gottingen St. Halifax, Nova Scotia Canada B3K 3B4 ph: (902) 429.1867 fax: (902) 429.6276 Brian MacKay-Lyoi Etim Makad-you No. 9809836

> No. Description Date NOTES: COPYRIGHT RELATED TO THE USE OF THIS

Issued for FDN Permit 14.10.2016

TFOR CONSTRUCTION

07

The use of this drawing shall be governed by standard copyright law as generally accepted in architectural ARCHITECT'S REQUIREMENTS AND APPROVALS:

It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Architect.

ENGINEER'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Engineer.

AUTHORITIES' REQUIREMENTS AND APPROVALS: All materials and workmanship must comply with the requirements of all authorities having jurisdication over the work. It is the Builder's responsibility to gain necessary approval from all relevant Authorities.

DIMENSIONS: All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to

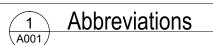
comply with the National Building Code of Canada. SHOP DRAWINGS: Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

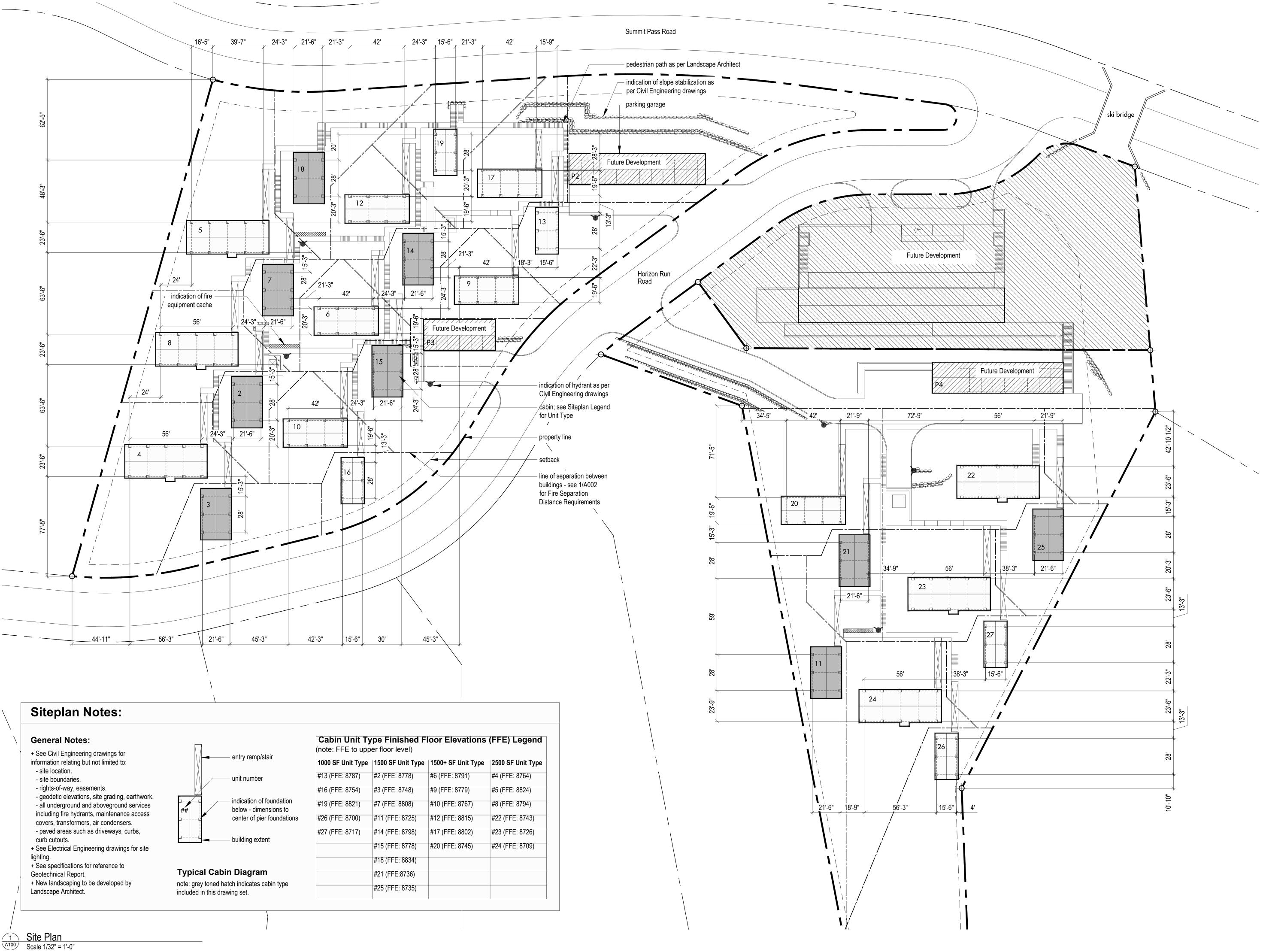
Cabin 1500

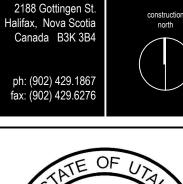
Abbreviations, Key Plan & Partition Types

scale: varies date: 16-07-18 drawn: MJ/JL

chk'd: BML











NOTES:

COPYRIGHT RELATED TO THE USE OF THIS

Issued for FDN Permit 14.10.2016

The use of this drawing shall be governed by standard copyright law as generally accepted in architectural

ARCHITECT'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Architect.

ENGINEER'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Engineer.

AUTHORITIES' REQUIREMENTS AND APPROVALS: All materials and workmanship must comply with the requirements of all authorities having jurisdication over the work. It is the Builder's responsibility to gain necessary approval from all relevant Authorities.

DIMENSIONS:

All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to

comply with the National Building Code of Canada.

SHOP DRAWINGS:

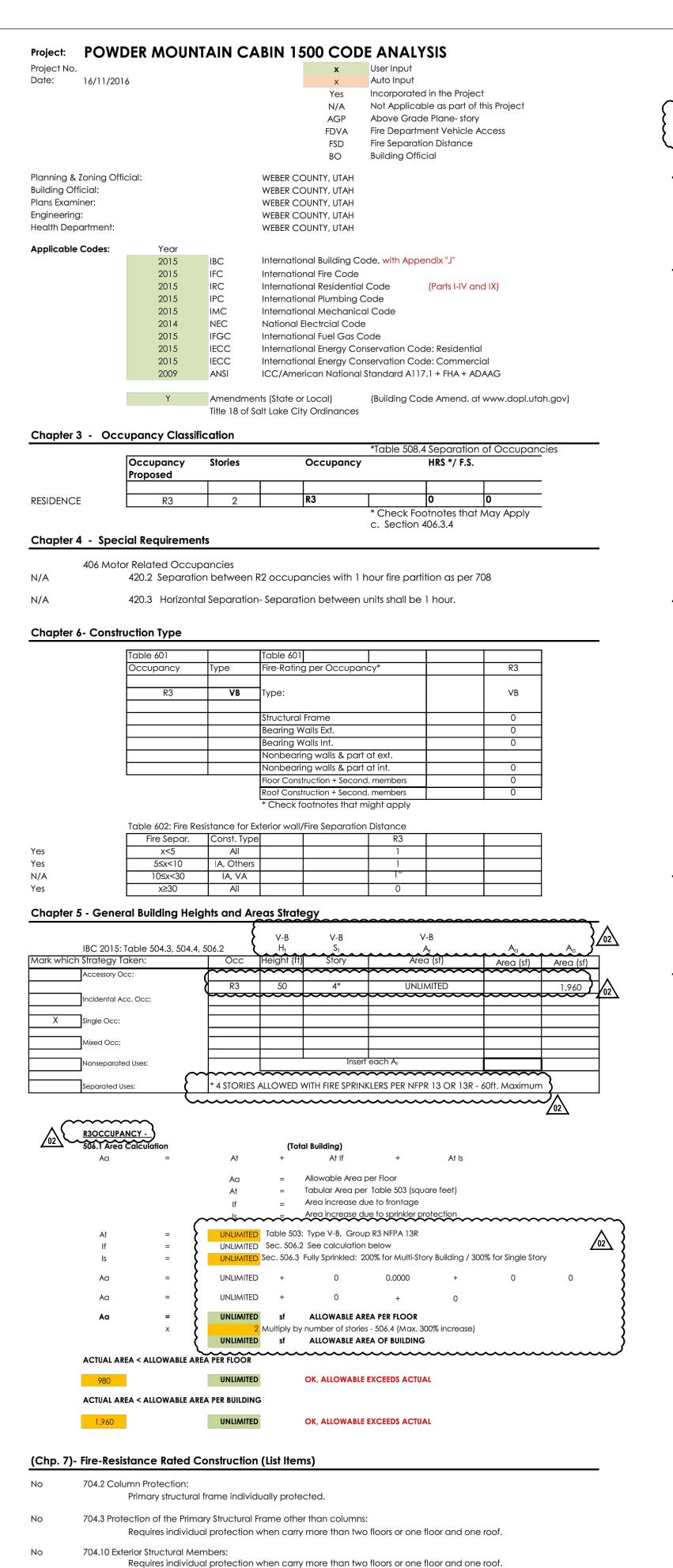
Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

Cabin 1500 Site Plan

scale: 1/32" = 1'-0"

drawn: DP

chk'd: BML



	712 Verti	ical Openings:			
No		712.1.2 Two-story	openings: Allo	wed within individual dwe	elling unit
	718 Con	cealed Spaces:	~~~~		
Yes		718.4 Draftstoppir	ng in Attics - Re	equired. $\frac{\sqrt{02}}{4}$	
·····				······································	
Chapte	r 8 - Finish	ies			
	Table 80	3.9 Interior Wall and	Ceiling Finish	Requirements by Occupo	ıncy: sprink
	Group	Exiting Elements	Corridors	Rooms & enclosed Spaces	

Chapter 9 - Fire Protection Systems

903.2 Automatic Sprinkler Systems Where Required:

R3 Required.

903.3.1 FS Standards: Install FS as per 903.3.1.1, 903.3.1.2 or 903.3.1.3:

YES 903.3.1.2 NFPA 13R sprinkler systems: Group R when ≤ 4 stories in height,
903.3.1.2.1 Balconies and decks: Provide FS when bldg is of Type V const.

903.3.2 Quick-response and residential sprinklers: Install FS as per 903.3.1 in Group R dwelling units.

906.1 Portable Fire Extinguishers where required:

Class A, Ordinary Hazard:

Rated: 2-A

Required per Dwelling Unit- 1-A:10-B:C

Max flr area/unit of A: 1,500

Max fir area/unit of A: 1,500 sf Max travel distance: 75 ft.

907.2 Fire Alarm and Detection Systems- Where required: Installed as per IBC and NFPA 72

R3 907.2.8: Not required, but exception 2 must be met

Chapter 10 - Means of Egress

R3

Table 1004.1 - Occupant Load: See 'G' Sheets for floor plans showing occupant loads per space.

1005 Egress Width: 0.3 x OL for stairs and 0.2 x OL for other egress components- See 'G' Sheets for floor plans showing stairs and egress components and width required and provided.

1007 Accessible means of Egress

1007.1 Need (1) accessible means of egress/space or (2) per when two exits required.

1007.3 Stairways: Need clear width of 48" between handrails and incorporate 'area of refugees'.

es Exception #2 & #3: 48" and 'Area of Refugees' not required when NFPA 13 installed.

Table 1017.2 - Exit access travel distance R3 = 200' (NFPA 13R)

= 400' (NFPA 13)

1016.1 - Unenclosed Stairs: exception #3- travel distance shall be measured from the most remote point in the building to an exit discharge.

1022 Interior exit stairways and ramps:
1- 1022.2: 1-Hr fire barrier when ≤ 4 stories.

2- Construct as per 1022.2 - 1020.10.

(Chp. 11) Accessibility

1103 Scope:

1103.2.3 Detached One and Two Family dwellings are exempt from Chapter 11

1107.7 General Exceptions

1107.2.2 Multi-story units without elevator service are not required to have Type B, and are exempt

(Chp 12) Interior Environment

Yes 1207 Sound Transmission:

1207.3 Structure-borne Sound: Dwelling unit must be separated with a floor/celing assemblies that have an STC rating \geq 50 (45 if field tested).

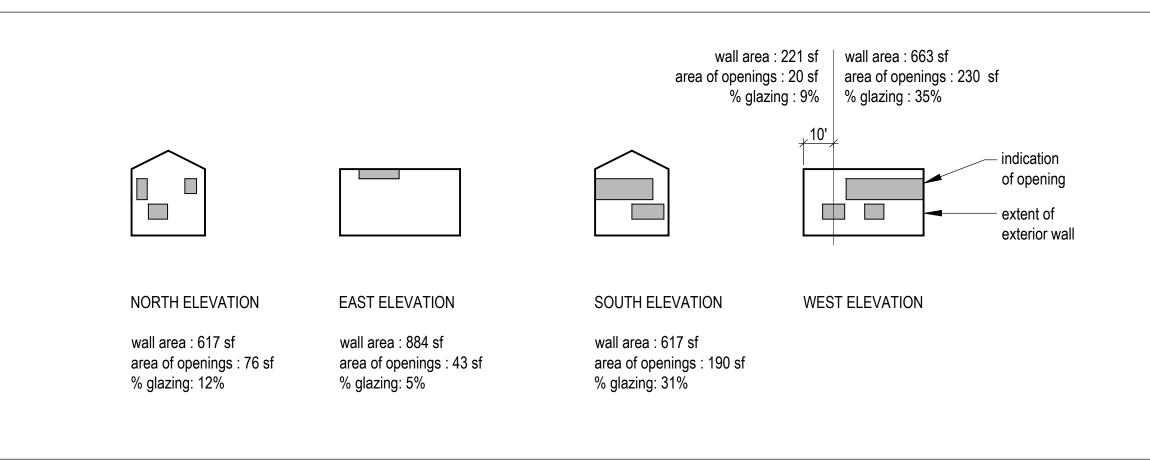
1207.2 Air-borne Sound: Dwelling unit must be separated with walls, partitions and floor/celing

assemblies that have an IIC rating \geq 50 (45 if field tested).

building number	northwest corner natural grade elevation	northeast corner natural grade elevation	southwest corner natural grade elevation	southeast corner natural grade elevation	upper level floor elevation	height to building ridge	average building hei (less than 35')
2	8770.65	8767.8	8756.00	8753.85	8778.00	8794.50	32.25
3	8739.90	8738.85	8725.45	8724.30	8748.00	8764.50	32.4
7	8798.05	8796.2	8784.00	8782.10	8808.00	8824.50	34.425
11	8711.50	8711.4	8703.55	8702.80	8725.00	8741.50	34.35
14	8786.85	8782.95	8775.30	8772.70	8798.00	8814.50	34.725
15	8766.30	8762.4	8753.75	8753.55	8778.00	8794.50	34.575
18	8823.15	8818.45	8810.15	8808.65	8834.00	8850.50	34.6
21	8723.35	8723.1	8718.25	8718.00	8736.00	8752.50	31.825
25	8720.05	8719.25	8714.65	8713.55	8735.00	8751.50	34.7

Height Restriction Chart

Scale 1/32" = 1'-0"

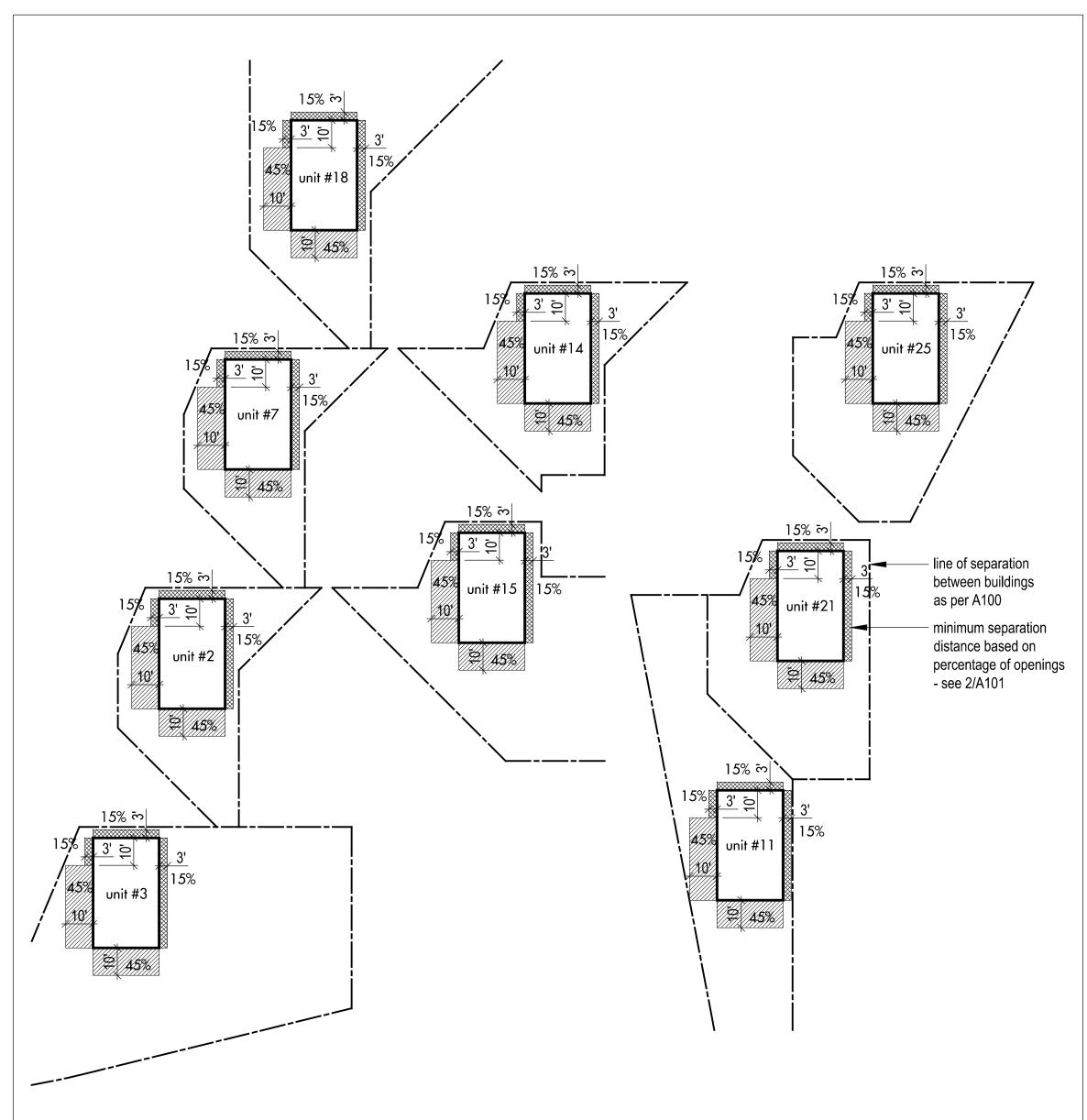


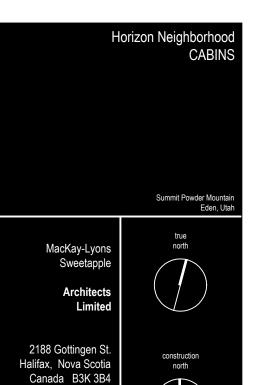
Percentage of Openings Elevation Diagrams

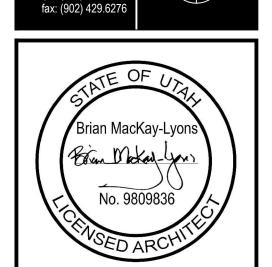
Separation Distance Plan Diagrams

Scale 1/32" = 1'-0"

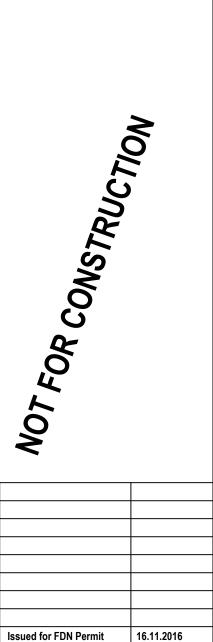
O1 Scale 1/32" = 1'-0"







ph: (902) 429.1867



NOTES:

COPYRIGHT RELATED TO THE USE OF THIS

DRAWING:
The use of this drawing shall be governed by standard copyright law as generally accepted in architectural practice.

ARCHITECT'S REQUIREMENTS AND APPROVALS:

Issued for FDN Permit 14.10.2016

It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Architect.

ENGINEER'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Engineer.

AUTHORITIES' REQUIREMENTS AND APPROVALS
All materials and workmanship must comply with the
requirements of all authorities having jurisdication over
the work. It is the Builder's responsibility to gain
necessary approval from all relevant Authorities.

DIMENSIONS:All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist,

absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to comply with the National Building Code of Canada.

SHOP DRAWINGS:
Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

Cabin 1500 -Code Review

> scale: varies date: 16-07-04 drawn: DP

A10

705 Exterior Walls:

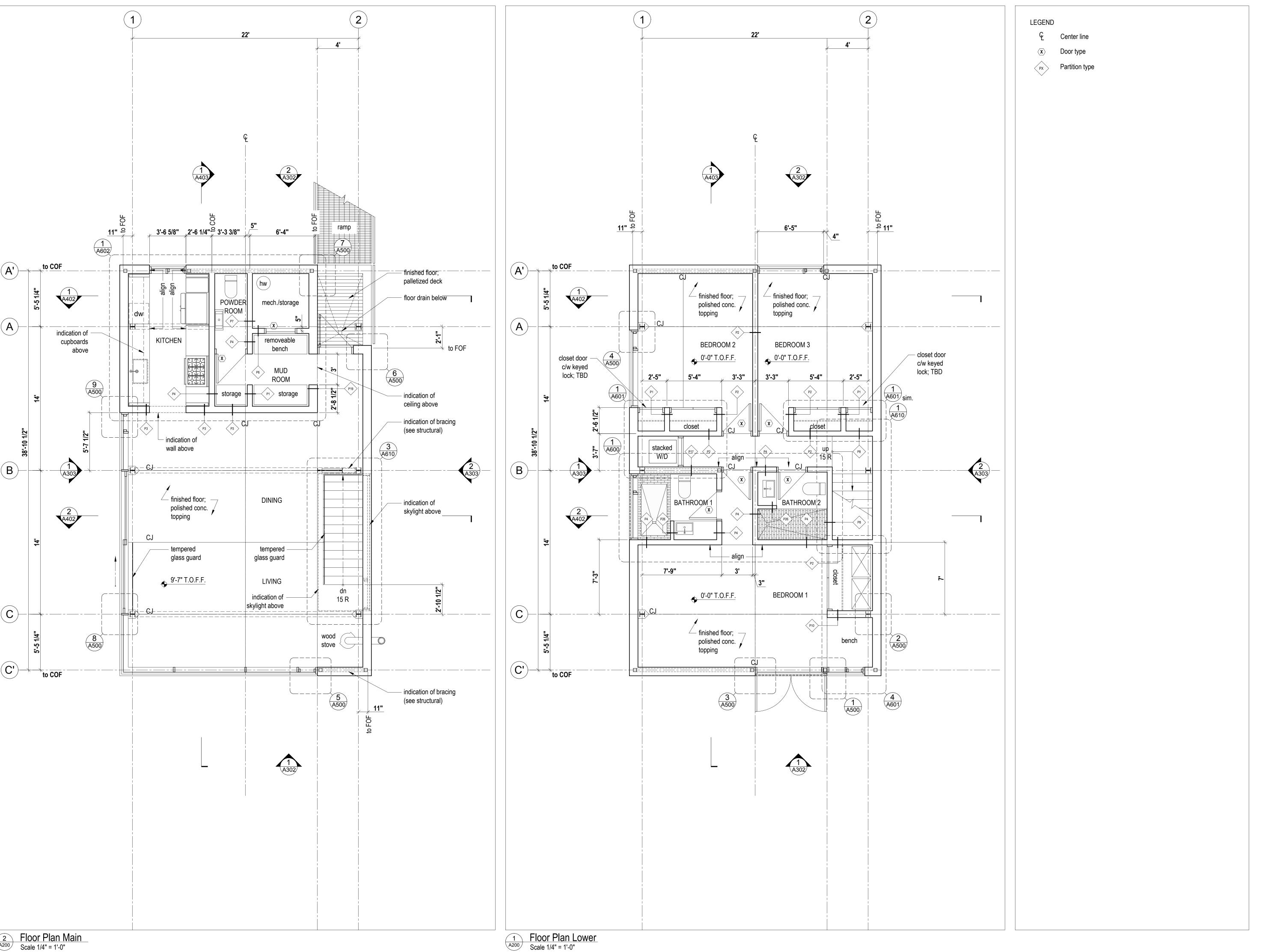
705.2 Projections: Shall not extend closer to FSD than Table 705.2.

705.2.3 Combustible projections either: 1-hr rated construction, type V-B construction,

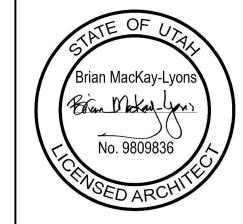
> 10 ft. exterior wall rated for exposure from inside only
 ≤ 10 ft. exterior wall rated for exposure from both sides

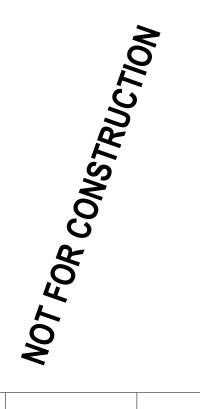
705.2.2 Type V-B of any approved material

705.5 Fire-resistance ratinas:



2188 Gottingen St. Halifax, Nova Scotia Canada B3K 3B4 ph: (902) 429.1867 fax: (902) 429.6276





1 Issued for FDN Permit 14.10.2016

NOTES:

COPYRIGHT RELATED TO THE USE OF THIS The use of this drawing shall be governed by standard

copyright law as generally accepted in architectural

approval for materials and workmanship which deviates

ARCHITECT'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written

from instructions provided by the Architect. ENGINEER'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates

from instructions provided by the Engineer. **AUTHORITIES' REQUIREMENTS AND APPROVALS:** All materials and workmanship must comply with the requirements of all authorities having jurisdication over the work. It is the Builder's responsibility to gain

DIMENSIONS:

All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to comply with the National Building Code of Canada.

necessary approval from all relevant Authorities.

SHOP DRAWINGS: Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

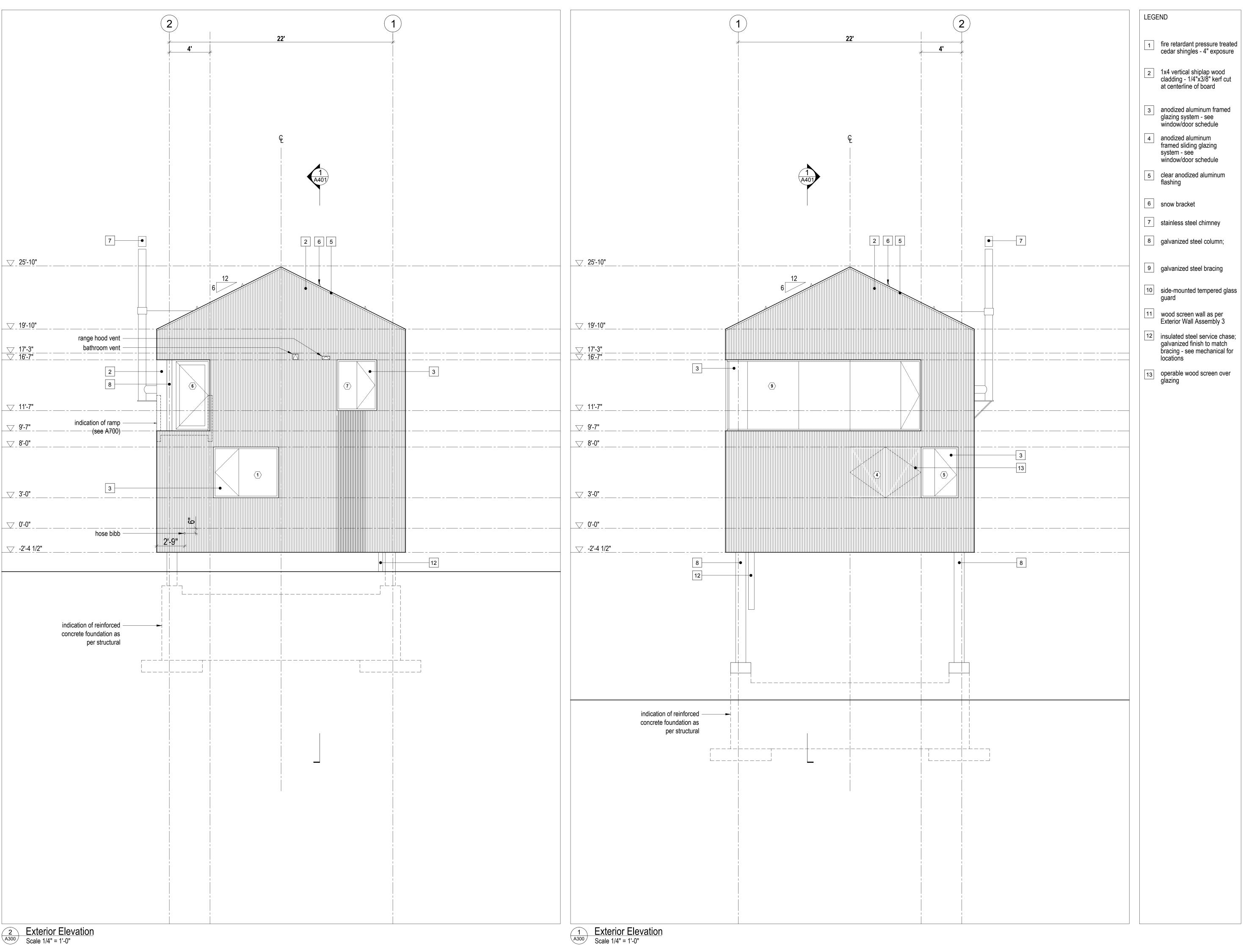


Floor Plans

scale: 1/4"=1-0"

drawn: MJ/JL

chk'd: BML



Horizon Neighborhood CABINS

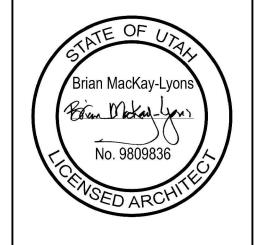
Summit Powder Mountain Eden, Utah

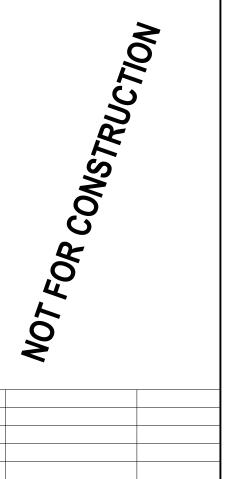
MacKay-Lyons Sweetapple

Architects Limited

2188 Gottingen St. Halifax, Nova Scotia Canada B3K 3B4

ph: (902) 429.1867 fax: (902) 429.6276





NOTES:

COPYRIGHT RELATED TO THE USE OF THIS

1 Issued for FDN Permit 14.10.2016

The use of this drawing shall be governed by standard copyright law as generally accepted in architectural practice.

ARCHITECT'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Architect.

ENGINEER'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Engineer.

AUTHORITIES' REQUIREMENTS AND APPROVALS:
All materials and workmanship must comply with the requirements of all authorities having jurisdiction over the work. It is the Builder's responsibility to gain

necessary approval from all relevant Authorities.

DIMENSIONS:

All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to comply with the National Building Code of Canada.

comply with the National Building Code of Canada.

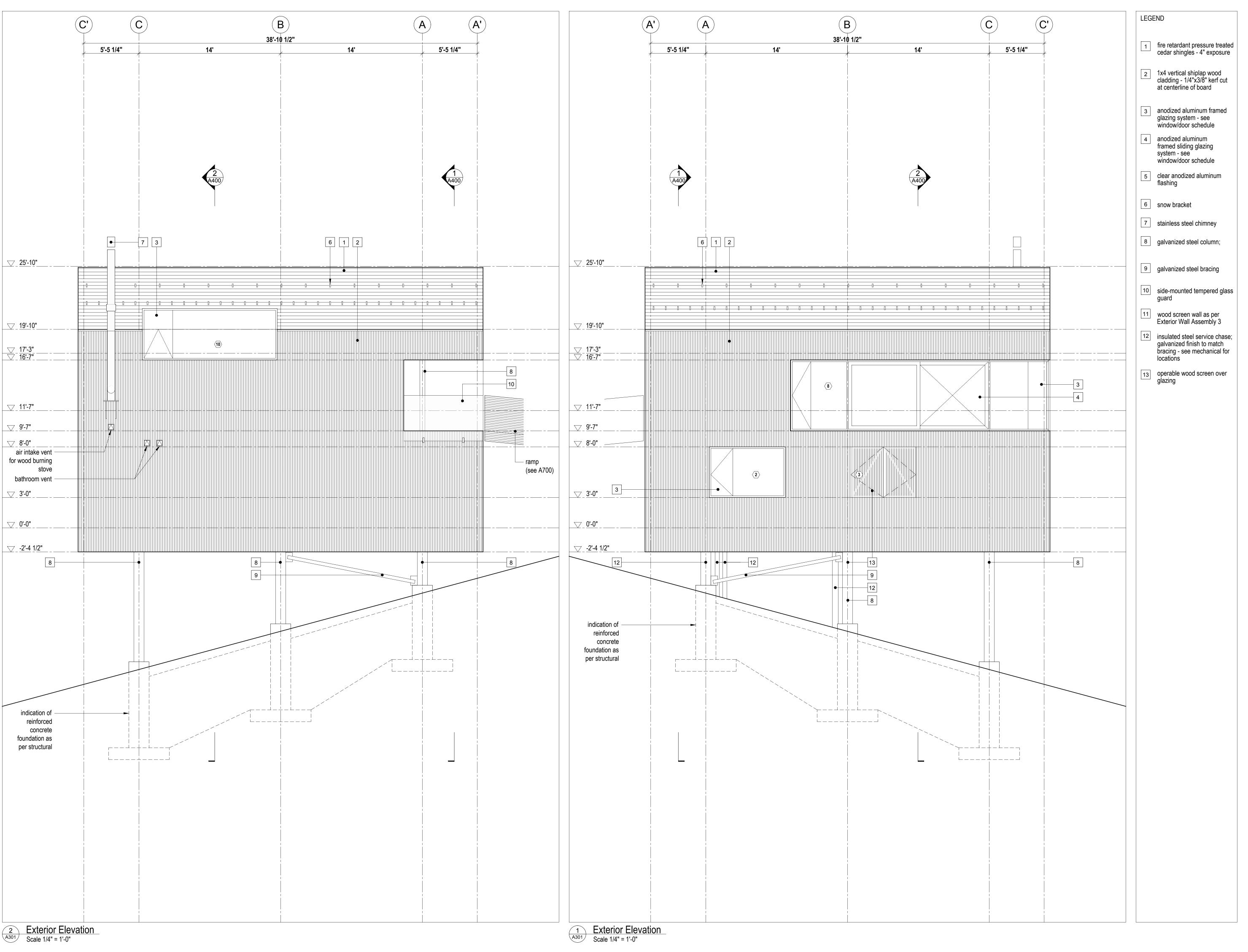
SHOP DRAWINGS:
Submit shop drawings to the Architect and Engineer for

Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

Cabin 1500 -Exterior Elevations

scale: 1/4" = 1'-0" date: 16-04-20 drawn: MJ/JL

A300



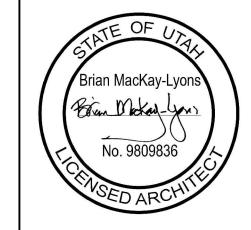
Horizon Neighborhood
CABINS

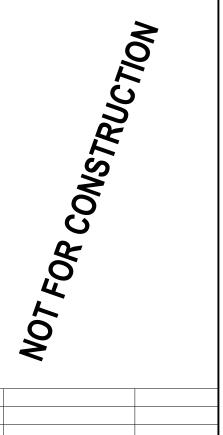
Summit Powder Mountain
Eden, Utah

MacKay-Lyons
Sweetapple
Architects
Limited

2188 Gottingen St.
Halifax, Nova Scotia
Canada B3K 3B4

ph: (902) 429.1867
fax: (902) 429.6276





NOTES:

COPYRIGHT RELATED TO THE USE OF THIS

1 Issued for FDN Permit 14.10.2016

DRAWING:
The use of this drawing shall be governed by standard copyright law as generally accepted in architectural

ARCHITECT'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Architect.

ENGINEER'S REQUIREMENTS AND APPROVALS:
It is the Builder's responsibility to notify MacKay-Lyons
Sweetapple Architects Ltd. and to seek prior written
approval for materials and workmanship which deviates
from instructions provided by the Engineer.

AUTHORITIES' REQUIREMENTS AND APPROVALS:
All materials and workmanship must comply with the requirements of all authorities having jurisdication over the work. It is the Builder's responsibility to gain

the work. It is the Builder's responsibility to gain necessary approval from all relevant Authorities.

DIMENSIONS:

All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to

comply with the National Building Code of Canada.

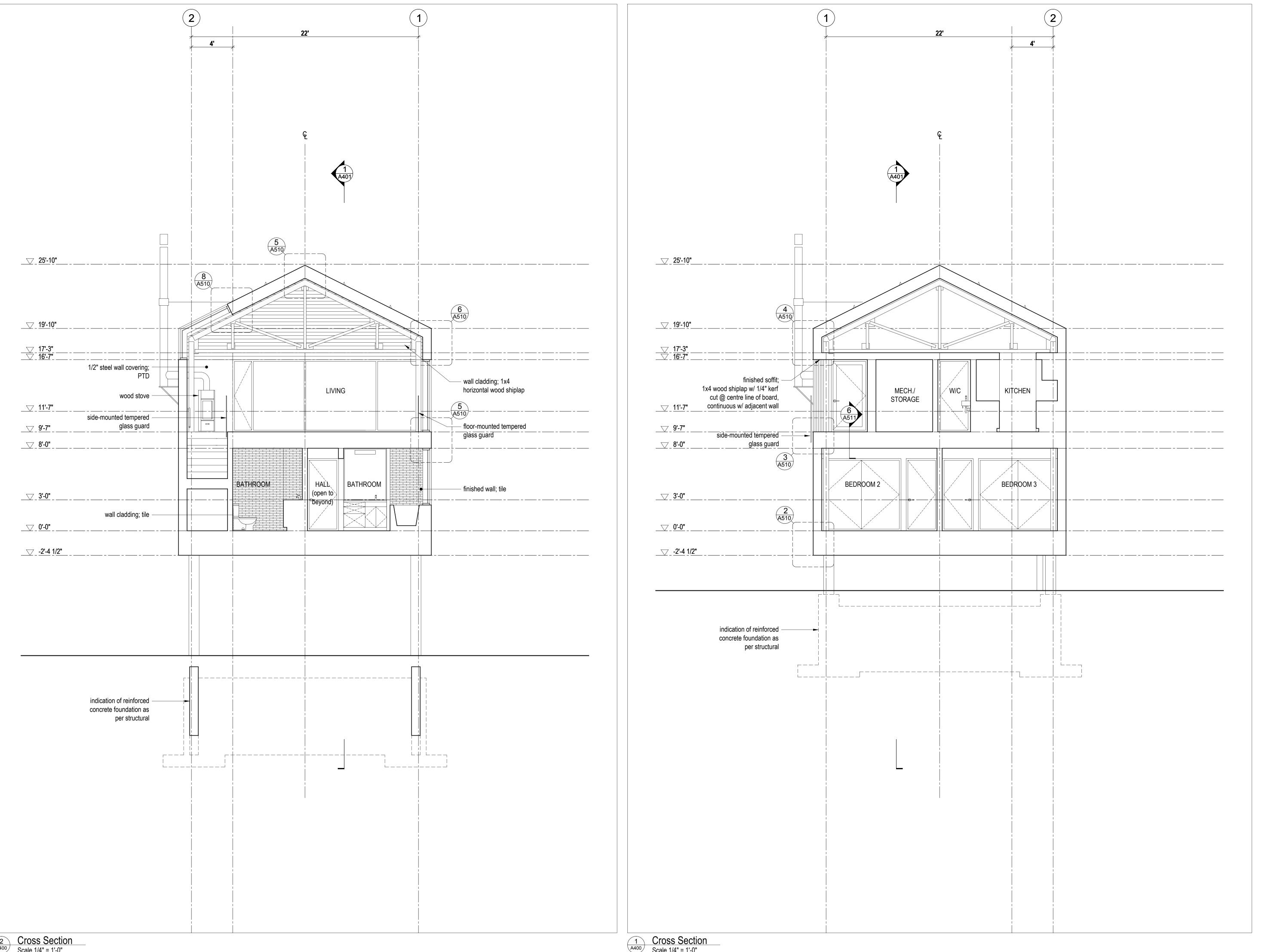
SHOP DRAWINGS:
Submit shop drawings to the Architect and Engineer for

Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

Cabin 1500 -Exterior Elevations

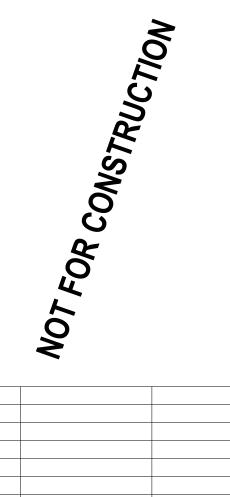
scale: 1/4" = 1'-0" date: 16-04-20 drawn: MJ/JL

A301



MacKay-Lyons Sweetapple 2188 Gottingen St. Halifax, Nova Scotia Canada B3K 3B4 ph: (902) 429.1867 fax: (902) 429.6276





COPYRIGHT RELATED TO THE USE OF THIS

11 Issued for FDN Permit 14.10.2016

The use of this drawing shall be governed by standard copyright law as generally accepted in architectural

ARCHITECT'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Architect.

ENGINEER'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Engineer.

AUTHORITIES' REQUIREMENTS AND APPROVALS: All materials and workmanship must comply with the requirements of all authorities having jurisdication over the work. It is the Builder's responsibility to gain necessary approval from all relevant Authorities.

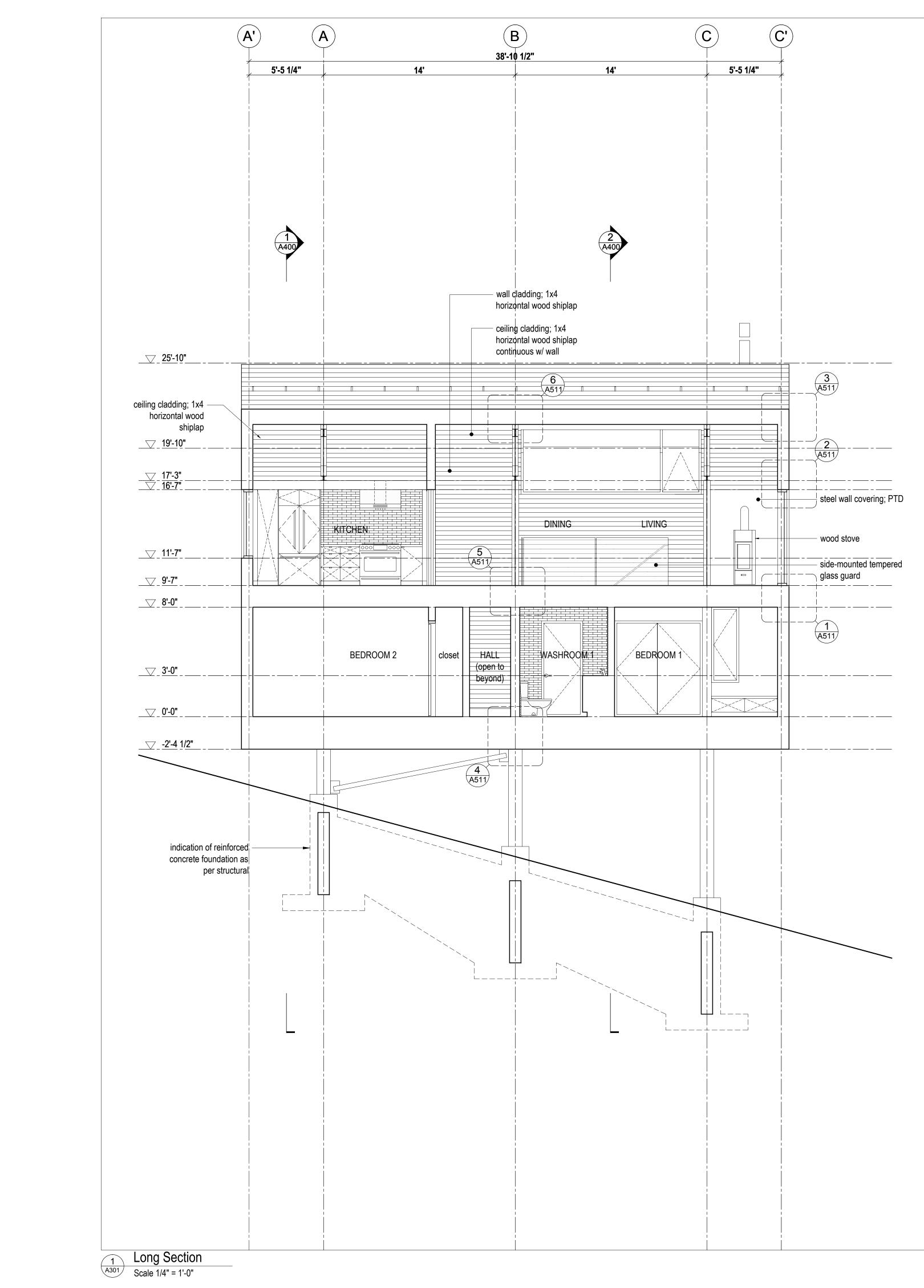
DIMENSIONS:

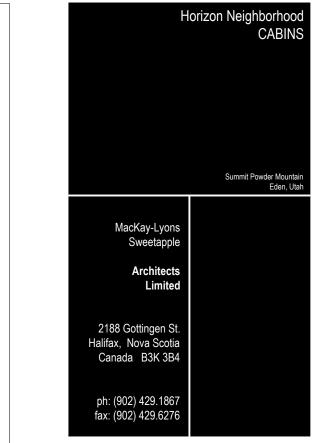
All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to comply with the National Building Code of Canada.

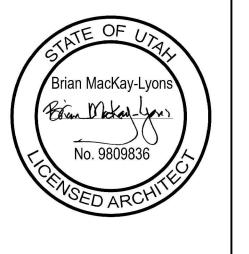
SHOP DRAWINGS:
Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

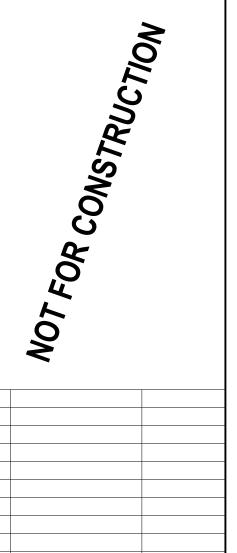
Cabin 1500

scale: 1/4" = 1'-0" drawn: MJ/JL









NOTES:

COPYRIGHT RELATED TO THE USE OF THIS

11 Issued for FDN Permit 14.10.2016

The use of this drawing shall be governed by standard copyright law as generally accepted in architectural

practice. ARCHITECT'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates from instructions provided by the Architect.

ENGINEER'S REQUIREMENTS AND APPROVALS: It is the Builder's responsibility to notify MacKay-Lyons Sweetapple Architects Ltd. and to seek prior written approval for materials and workmanship which deviates

from instructions provided by the Engineer. AUTHORITIES' REQUIREMENTS AND APPROVALS: All materials and workmanship must comply with the requirements of all authorities having jurisdication over the work. It is the Builder's responsibility to gain

necessary approval from all relevant Authorities.

DIMENSIONS: All dimensions must be verified on site. Do not scale off drawings. Plans take precedent over elevations. In the absence of dimensions, or if discrepancies exist, consult Architect. All minimum dimensions are to comply with the National Building Code of Canada.

SHOP DRAWINGS:
Submit shop drawings to the Architect and Engineer for approval prior to manufacture of prefabricated elements of the building.

Cabin 1500 Section

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

drawn: MJ/JL

010000 GENERAL

- CONFORM TO THE REQUIREMENTS OF THE BUILDING CODE OF IBC 2015, LATEST EDITION, AND ALL OTHER APPLICABLE LOCAL CODES AND REGULATIONS OF AGENCIES HAVING
- JURISDICTION READ STRUCTURAL DRAWINGS IN CONJUNCTION WITH THE SPECIFICATIONS AND ALL OTHER
- CONTRACT DOCUMENTS. BEFORE PROCEEDING WITH WORK, CHECK ALL THE DIMENSIONS SHOWN ON THE
- STRUCTURAL DRAWINGS WITH THE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND REPORT DISCREPANCIES TO THE CONSULTANT.
- REFER TO THE ARCHITECTURAL AND OTHER DRAWINGS FOR LOCATIONS AND DIMENSIONING OF OPENINGS AND SLEEVES NOT SHOWN ON THE STRUCTURAL DRAWINGS. HOWEVER, OBTAIN THE CONSULTANT'S PRIOR APPROVAL BEFORE INSTALLING OPENINGS, SLEEVES, ETC.
- WHICH ARE NOT SHOWN ON STRUCTURAL DRAWINGS. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS OF PITS, BASES, SUMPS, TRENCHES, DEPRESSIONS, GROOVES, CURBS, CHAMFERS AND SLOPES NOT
- SHOWN ON STRUCTURAL DRAWINGS. HORIZONTAL AND VERTICAL DESIGN LOADS ARE NOTED. THEY SHALL NOT BE EXCEEDED
- DURING CONSTRUCTION. TYPICAL STRUCTURAL DETAILS SHALL GOVERN THE WORK. IF DETAILS DIFFER ON THE
- DRAWINGS, THE MOST STRINGENT SHALL GOVERN. ALL TEMPORARY WORKS INCLUDING SHORING ARE TO BE PROVIDED BY THE CONTRACTOR. SEE SPECIFICATIONS FOR DETAILED REQUIREMENTS.

010001 DESIGN NOTES

- ALL REINFORCED CONCRETE ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH ACI BUILDING CODE, ACI 318-14.
- ALL STRUCTURAL STEEL ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH AISC 'SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS' - LATEST EDITION AND ALL CURRENT SUPPLEMENTS.
- ALL STRUCTURAL TIMBER ELEMENTS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING SPECIFICATIONS AND THE CODES, RULES, AND REGULATIONS OF THE STATE OF UTAH:
- AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC).
- NATIONAL FOREST PRODUCTS ASSOCIATION "DESIGN SPECIFICATIONS FOR STRESS GRADE LUMBER"
- U.S. DEPT. OF COMMERCE STANDARD CS 253.
- AMERICAN PLYWOOD ASSOCIATION.
- LATERAL FORCES ON STRUCTURAL FRAME
- A. THE LATERAL FORCES ARE RESISTED BY THE WOOD FRAME SHEARWALLS, MOMENT FRAMES, STEEL BRACING, AND CONCRETE FOUNDATION WALLS.
- THE FRAME IS NOT STABLE UNTIL THE LATERAL LOAD RESISTING SYSTEM IS IN PLACE.
- I) THE DESIGN OF THE STRUCTURE FOR WIND IS BASED ON A BASIC WIND SPEED (3 SECOND GUST) OF 115 MPH.
- THE IMPORTANCE FACTOR, IW, FOR WIND DESIGN IS 1.
- WIND EXPOSURE: C IV) THE DESIGN WIND FORCES HAVE BEEN CALCULATED IN ACCORDANCE WITH THE
- SIMPLIFIED WIND LOAD METHOD BY SECTION 1609.6 OF IBC 2015. D. EARTHQUAKE
- THE DESIGN OF THE STRUCTURE FOR EARTHQUAKE IS BASED ON:
 - IF = 1.0SEISMIC RISK CATEGORY = 2 SS = .898
 - S1 = .304SITE CLASS = D
 - SDS = 0.683
 - SD1 = 0.363SEISMIC DESIGN CATEGORY = D
- RESPONSE MODIFICATION FACTOR, R = 3.25
- THE DESIGN EARTHQUAKE FORCES HAVE BEEN CALCULATED USING THE SIMPLIFIED PROCEDURE BY SECTION 1617.5 OF IBC 2015.
- LATERAL FORCES ON FOUNDATION WALLS A. WALLS RETAINING EARTH ARE DESIGNED TO SAFELY WITHSTAND A HORIZONTAL
- PRESSURE AT ANY DEPTH (H) GIVEN BY THE EXPRESSION: P = K (G H + Q), WHERE
 - P IS THE PRESSURE EXERTED HORIZONTALLY H IS THE DEPTH BELOW GRADE
 - G IS THE UNIT WEIGHT OF SOIL Q IS THE SURCHARGE ON THE GROUND SURFACE
 - FOUNDATION AND OTHER WALLS RETAINING EARTH HAVE BEEN DESIGNED FOR
- SURCHARGE OF 100PSF THE WALLS HAVE BEEN DESIGNED ASSUMING THAT THERE IS FREE-DRAINING BACKFILL,
- OR THAT OTHER PROVISIONS HAVE BEEN MADE, SUCH THAT THE WALLS ARE NOT SUBJECT TO HYDROSTATIC PRESSURE.
- SNOW LOADS ON ROOFS
- THE ROOFS HAVE BEEN DESIGNED FOR A ROOF SNOW LOAD OF 192PSF. ADDITIONAL SNOW ACCUMULATIONS ADJACENT TO HIGHER WALLS, ROOFS AND
- MECHANICAL UNITS ARE INDICATED ON THE DRAWINGS. WIND UPLIFT OF ROOFS
- A. ALL ROOF ELEMENTS, AND ITS CONNECTION TO THE STRUCTURE ARE TO BE DESIGNED FOR AN UPWARD SUCTION OF 20 psf. DUE TO WIND.
- LIVE AND OTHER LOADS A. SEE NOTES BELOW FLOOR PLANS.
- FUTURE EXTENSIONS THE STRUCTURE HAS NOT BEEN DESIGNED FOR ANY FUTURE EXTENSIONS

030000 CONCRETE

- MATERIALS A. CONCRETE
 - CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE AND ACI 318 AND THE FOLLOWING FOR STRENGTH, WATER-TO-CEMENTING MATERIALS CONTENT AND AIR CONTENT
 - NOMINAL MAXIMUM SIZE OF AGGREGATE SHALL BE 3/4 in. USE SMALLER AGGREGATES AS APPROPRIATE IN AREAS OF CONGESTED REINFORCING STEEL OR TO IMPROVE WORKABILITY. MODIFY MIX DESIGNS TO SUIT.
- CATEGORY DESCRIPTION FOUNDATION 3500 FOOTINGS AND CAPS SLAB ON 3000 3 1/8 SLABS ON GRADE GRADE MIX **COLUMN AND** 4500 3 1/8 CONCRETE COLUMNS AND WALLS NOT WALL MIX **EXPOSED TO FREEZE** THAW OR DE-ICING CHEMICALS 3000 1 1/2 CM 5 TOPPING MIX TOPPINGS ON CONCRETE. 3000 COMPOSITE 2 3/8 SLABS ON METAL DECK DECK MIX 5000 3 1/8 0.40 FOUNDATION WALLS PARKING SLAB AND ADJACENT TO PAVING BEAM MIX FRAMED SLABS AND BEAMS EXPOSED TO DE-ICING CHEMICALS PAVING MIX C-2 4700 2 3/8 0.45 EXTERIOR PAVING AND 8% SIDWALKS EXTERIOR 3500 3 1/8 0.55 4%-FOUNDATION WALLS AND OTHER WALLS WALL MIX EXPOSED TO FREEZE THAW BUT NOT EXPOSED TO DE-ICING CHEMICALS 4-6% UNSHRINKABLE FILL CM 12 LEAN MIX 6 max.⁴ 6-8 (FXTF RIOR ONLY) CM 13 4500 SLUMP CONSOLIDATI FLOW

1. TOLERANCE FOR SLUMP SHALL BE +/- 3/" FOR SPECIFIED SLUMP 3 1/8" OR LESS, AND +/- 1 1/4" FOR SPECIFIED SLUMP BETWEEN 3 1/8" AND 6 5/8"

2. WHERE AGGREGATES SMALLER THAN 9/16 in ARE USED, INCREASE AIR CONTENT BY 1 % 3. CONCRETE EXPOSED TO DE-ICING CHEMICALS TO HAVE DCI CORROSION INHIBITOR @ 11L/cu.m. (0.31L/cu.f.) DOSAGE OR APPROVED EQUIVALENT 4. MAX 25kg CEMENT/cu.m.

- B. REINFORCEMENT: CONFORM TO THE REQUIREMENTS OF ASTM A615, AND ASTM A706 IF WELDABLE
- REINFORCEMENT IS USED. REINFORCING BARS SHALL BE MINIMUM ASTM A615 GRADE 60, AND WELDED WIRE FABRIC SHALL BE MINIMUM ASTM A185, SUPPLY IN FLAT SHEETS.
- EXECUTION A. SLAB ON GRADE
 - PLACE SLABS ON GRADE ON MATERIAL CAPABLE OF SUSTAINING 500psf WITHOUT SETTLEMENT RELATIVE TO THE BUILDING FOOTINGS. BEFORE PLACING SLAB, PLACE MINIMUM 6 INCHES OF 3/4 INCH MAXIMUM SIZE CLEAR CRUSHED STONE OVER THE SUB GRADE. THOROUGHLY ROLL AND
- CONSOLIDATE TO THE LINES AND LEVELS REQUIRED. B. CONCRETE AND REINFORCEMENT PROVIDE DOWELS TO WALLS AND COLUMNS SIMILAR IN NUMBER, SIZE, AND
- SPACING TO THE VERTICAL STEEL IN THE WALL OR COLUMN EXCEPT WHEN NOTED
- ii) CONSTRUCTION JOINTS: PROVIDE 1.5 in x 3.5 in KEYS AT CONSTRUCTION JOINTS UNLESS NOTED
- CONCRETE COVER TO REINFORCEMENT: CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE AND ACI 318 AND THE FOLLOWING FOR COVER TO REINFORCEMENT (in):

	EXPOSURE							
REINFORCING	NOT EXPOSED	EARTH OR WEATHER	CHLORIDES					
CAST AGAINST & PERMANENTLY EXPOSED TO EARTH		3	3					
SLABS, WALLS	3/4	2	2½					

CONCRETE PROTECTED BY A WATERPROOFING MEMBRANE IS NOT TO BE CONSIDERED EXPOSED TO CHLORIDES BUT MAY BE CONSIDERED EXPOSED TO WEATHER.

- iv) SECURELY TIE IN PLACE AND ADEQUATELY SUPPORT ALL REINFORCEMENT. LAP
- ALL BARS MARKED "CONTINUOUS" (CONT.) 40 BAR DIAMETERS. WHERE EXPANSION ANCHORS ARE REQUIRED, USE 5/8" DIA. X 6" HILTI KB II OR APPROVED EQUAL.
- vi) WHERE CHEMICAL ANCHORS ARE REQUIRED, USE HILTI HY 150 EPOXY, OR APPROVED EQUAL.

310000 FOUNDATIONS

- A SOIL INVESTIGATION HAS BEEN DONE BY IGES AS REPORTED IN THER SOIL REPORT "GEOTECHNICAL AND GEOLOGIC HAZARD INVESTIGATION - HORIZON NEIGHBOURHOOD DEVELOPMENT, SUMMIT POWDER MOUNTAIN RESORT" DATED AUGUST 3RD 2016. READ THIS
- REPORT, AND BE THOROUGHLY FAMILIARIZED WITH THEIR FINDINGS. FOUND ALL FOOTINGS ON ENGINEERED FILL CAPABLE OF SAFELY SUSTAINING AN ALLOWABLE BEARING VALUE OF 2600 PSF.
- FOUND FOOTINGS EXPOSED TO FREEZING BELOW THE LEVEL AT WHICH POTENTIAL DAMAGE RESULTING FROM FROST ACTION CAN OCCUR, BUT A MINIMUM OF 40 INCHES BELOW FINISHED GRADE IF NOT NOTED TO BE FOUNDED LOWER.
- THE LINE OF SLOPE BETWEEN ADJACENT FOOTINGS OR EXCAVATIONS OR ALONG STEPPED FOOTINGS SHALL NOT EXCEED A RISE OF 7 IN A RUN OF 10.
- DO NOT PLACE BACKFILL AGAINST WALLS RETAINING EARTH (OTHER THAN CANTILEVER WALLS) UNTIL THE FLOOR CONSTRUCTION AT TOP AND BOTTOM OF THE WALLS IS POURED AND HAS ATTAINED 70% OF ITS SPECIFIED STRENGTH.
- CARRY OUT BACKFILLING AGAINST FOUNDATION WALLS WHERE THERE IS GRADE ON BOTH SIDES IN SUCH A MANNER THAT THE LEVEL OF BACKFILLING ON ONE SIDE OF THE WALL IS NEVER MORE THAN 1'-8" DIFFERENT FROM THE LEVEL ON THE OTHER SIDE OF THE WALL.

050000 STRUCTURAL STEEL:

- CONFORM TO THE REQUIREMENTS OF THE AISC "SPECIFICATIONS FOR STRUCTURAL STEEL FOR BUILDINGS" - LATEST EDITION AND ALL CURRENT SUPPLEMENTS.
- MATERIALS
- CHANNEL AND WIDE FLANGE SHAPES CONFORM TO THE REQUIREMENTS OF ASTM A992
- TUBE MEMBERS CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE B BOLTS, NUTS AND WASHERS - A325
- ALL OTHER CONFORM TO THE REQUIREMENTS OF ASTM A36 METAL DECK: - CONFORM TO THE REQUIREMENTS OF AISC 325 AND AISC 360. DESIGN
- ALL ELEMENTS WITH THE LATEST PUBLISHED VERSION OF APPLICABLE CODES. ALL WELDING ELECTRODES ARE E70XX, LOW HYDROGEN.
- G. ALL STRUCTURAL STEEL EXPOSED TO VIEW SHALL BE DESIGNATED AS ARCHITECTURALLY EXPOSED AESS CATEGORY 1
- EXECUTION A. PROVIDE A MINIMUM BEARING OF 8 INCHES FOR ALL STEEL BEAMS BEARING ON
- MASONRY AND A MINIMUM OF 4 INCHES ON STRUCTURAL STEEL, UNLESS NOTED
- CENTRE BEARING PLATES UNDER BEAMS, OR AS NOTED. BEARING PLATE DIMENSION GIVEN FIRST INDICATES SIDE PARALLEL TO BEAM WEB. NO STRUCTURAL STEEL SHALL BE CUT WITHOUT THE PERMISSION OF THE CONSULTANT.
- WHERE COLUMNS ARE STABILIZED BY WALLS PROVIDE COLUMN ANCHORS AT ABUTTING WALLS. PROVIDE TEMPORARY BRACING UNTIL WALLS ARE BUILT TIGHT TO COLUMNS. PROVIDE FULL HEIGHT WEB STIFFENERS AT ALL BEAMS BEARING ON COLUMNS AND ALL BEAMS SUPPORTING COLUMNS. WEB STIFFENERS SHALL BE OF THE SAME SIZE AND THICKNESS AS THE COLUMN FLANGES AND SHALL ALIGN WITH THE FLANGES OF THE SUPPORTING COLUMN.
- G. ALL WELDING WORK BY AWS CERTIFIED WELDERS, CONFORM TO THE AMERICAN
- WELDING SOCIETY CODE AWS D1.1 ALL FIELD WELDING BY THE MANUAL SHIELDED ARC WELDING METHOD. PROVIDE A MINIMUM OF FOUR 3/4" DIAMETER ASTM A325 BOLTS PER CONNECTION, IN
- BEARING TYPE CONNECTION. WHERE A WELD IS REQUIRED, AND NO WELD IS SHOWN ON THE DRAWINGS, PROVIDE A 1/4" FILLET WELD ALL AROUND, UNLESS A LARGER WELD SIZE IS REQUIRED AS A MINIMUM WELD SIZE BY AISC.
- K. USE AWS PRE-QUALIFIED COMPLETE JOINT PENETRATION GROOVE WELDS FOR ALL GROOVE WELDS.

060000 WOOD

- ALL LUMBER WORK AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING SPECIFICATIONS AND THE CODES, RULES, AND REGULATIONS OF THE STATE OF
- a) AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC)
- NATIONAL FOREST PRODUCTS ASSOC. "DESIGN SPECIFICATIONS FOR STRESS GRADE

LUMBER FOR ALL INTERIOR STRUCTURAL FRAMING, INCLUDING ROOF FRAMING, JOISTS, POSTS,

- c) U.S. DEPT. OF COMMERCE STANDARD CS 253. d) AMERICAN PLYWOOD ASSOCIATION.
- STUDS, SILLS, CAP PLATES, WOOD BEARING PLATES, AND BLOCKING, SHALL BE SURFACE DRY AND USED AT MAXIMUM 19% MOISTURE CONTENT WITH THE FOLLOWING MINIMUM BASE DESIGN VALUES FOR VISUALLY GRADED DIMENSION LUMBER: BENDING: Fb = 850 psi
- HORIZONTAL SHEAR: Fv = 95 psi
- COMP. PERPENDICULAR TO GRAIN: Fc = 625 psi
- COMP PARALLEL TO GRAIN: Fc = 1300 psi MODULUS OF ELASTICITY: E = 1600000 psi
- ALL VALUES SHALL BE ADJUSTED WITH APPROPRIATE ADJUSTMENT FACTORS AS PER THE NDS SUPPLEMENT.
- USE DOUBLE MEMBERS AT ALL JAMBS AND HEADS OF ALL OPENINGS. USE DOUBLE JOISTS (MIN.) BELOW ALL NON-BEARING STUD WALLS PARALLEL TO SPANS AND PROVIDE SOLID BLOCKING BETWEEN JOISTS BELOW ALL NON-BEARING STUD WALLS PERPENDICULAR TO JOIST SPANS. USE DOUBLE SILLS AND CAP PLATES FOR ALL BEARING WALLS.
- 4. SAWN LUMBER SPECIES - SPRUCE-PINE-FIR
- ii) GRADE No.1/No.2
- PLYWOOD SHEATHING i) FLOOR AND ROOF SHEATHING TO BE TONGUE AND GROOVE ii) EXTERIOR SHEATHING SHALL CONSIST OF ½" EXPOSURE 1 GRADE PLYWOOD FASTENED TO
- STUDS WITH 8d NAILS AT 6" O/C MAX. 6. CONNECTIONS i) ALL WOOD TO WOOD CONNECTIONS OR WOOD TO STEEL CONNECTIONS UNLESS OTHERWISE NOTED ARE TO BE THE APPROPRIATE SIMPSON STRONG-TIE HANGER OR
 - APPROVED OTHERWISE.
 - NAILS ARE TO CONFORM TO THE REQUIREMENTS OF ASTM F 1667. LAG SCREWS ARE TO CONFORM TO THE REQUIREMENTS OF ASTM B18.2.1 WOOD SCREWS ARE TO CONFORM TO THE REQUIREMENTS OF ASTM B18.6.1.
 - ALL LAG BOLTS, THRU BOLTS AND OTHER HARDWARE TO BE HOT DIPPED GALVANIZED. ALL LAG BOLTS SHALL HAVE SHARP THREADS FOR AT LEAST ONE-HALF THE TOTAL BOLT LENGTH, UP TO 152 mm (6") THREADED LENGTH. LAG BOLT WITH DULL THREADS, OR INSUFFICIENT THREADED LENGTH, WILL BE REJECTED OUTRIGHT.
 - vii) UNLESS OTHERWISE APPROVED BY THE CONSULTANT, ALL NAILS ARE TO HAVE FULL ROUND HEADS; CLIPPED HEAD NAILS ARE NOT ACCEPTABLE.

- EXECUTION PROTECT ALL WOOD PRODUCTS FROM DAMAGE AND STAINING DUE TO WETTING AND
- MOISTURE. PROTECT INSTALLED DECKING AND SHEATHING FROM EXCESSIVE MOISTURE UNTIL FINAL WATERPROOFING IS COMPLETE. ENSURE SURFACES THAT ARE TO RECEIVE FINISHES MEET MANUFACTURERS REQUIREMENTS FOR MAXIMUM MOISTURE CONTENT FOR THE FINISH
- SPECIFIED. DIMENSION LUMBER WITH SMALLER NOMINAL DIMENSION OF 2 INCHES ("2-BY-") PRESERVATIVE TREATED FOR EXTERIOR APPLICATIONS SHALL NOT BE INCISED. IF INCISED LUMBER IS TO BE USED, CONFIRM MEMBER SIZES WITH THE ENGINEER PRIOR TO
- CONSTRUCTION. ALL JOISTS, LINTELS AND BUILT-UP BEAMS COMPRISED OF "2-BY- " SAWN LUMBER MUST BEAR FULLY 38mm MINIMUM ON THE SUPPORT SURFACE. IF HANGERS ARE USED, THEY MUST ADEQUATELY SUPPORT THE FULL SHEAR CAPACITY OF THE MEMBER, UNLESS NOTED
- OTHERWISE.
- THE WOOD TRUSS SUPPLIER IS RESPONSIBLE FOR THE DESIGN OF ALL TEMPORARY AND
- PERMANENT BRACING REQUIRED FOR THE STABILITY OF THE TRUSSES. ERECT TRUSSES IN CONFORMANCE WITH THE GUIDELINES PRODUCED BY TPIC IN THE
- DOCUMENT "HANDLING, ERECTION AND BRACING OF WOOD TRUSSES" BRACING OF TRUSSES FOR STABILITY MUST BE TERMINATED IN A DIAPHRAGM OR SHEAR WALL. BRACING IS NOT TO BE TIED INTO MID-HEIGHT OF A WALL OR IN ANY LOCATION THAT RESULTS IN BENDING OF STRUCTURAL MEMBERS

010003 NOTABLE SUBMITTALS

- 1. GENERAL REVIEW BY COMPONENT ENGINEERS A. COMPONENT ENGINEERS ARE RESPONSIBLE FOR GENERAL REVIEW OF CONSTRUCTION FOR THE PORTION OF THE WORK PREPARED UNDER THEIR
 - PROFESSIONAL SEALS. THEY SHALL PROVIDE; REPORTS FOR EACH SITE VISIT
- A PROJECT COMPLETION NOTICE B. ENGINEERED COMPONENTS INCLUDE; *PRECAST CONCRETE, *OPEN WEB STEEL JOISTS. *METAL DECK. *STEEL CONNECTIONS. *WOOD CONNECTIONS. *PRE-ENGINEERED STEEL BUILDINGS, *DEEP FOUNDATIONS, *MISCELLANEOUS METALS, *STRUCTURAL GLASS, *WIND BEARING METAL STUD WALLS, *LOAD BEARING METAL STUD WALLS, *ROD AND CABLE SYSTEMS, *HELICAL PIERS,

010004 SUBMITTALS

- GEOMETRY SUBMIT SURVEY RECORDS CONFIRMING THAT THE BUILT GEOMETRY MATCHES
- THE DESIGN GEOMETRY. 2. CONCRETE AND REINFORCEMENT
- SUBMIT REINFORCING PLACING DRAWINGS AND BAR LISTS FOR REVIEW BY THE CONSULTANT
- PROVIDE TEST CYLINDERS IN ACCORDANCE WITH APPLICABLE ASTM STANDARDS

*GEOPIERS. *MICROPILES.

- 3. STRUCTURAL STEEL DESIGN DETAILS, CONNECTIONS, AND THE LIKE IN ACCORDANCE WITH THE IBC
- AND AISC FOR THE FORCES SHOWN ON THE DRAWINGS. SUBMIT SKETCHES AND DESIGN CALCULATIONS STAMPED AND SIGNED BY QUALIFIED PROFESSIONAL ENGINEER LICENSED IN PROVINCE OF ONTARIO FOR
- NON STANDARD CONNECTIONS. SUBMIT SHOP, ERECTION, AND SETTING DRAWINGS FOR REVIEW BY THE
- CONSULTANT. ENSURE FABRICATOR DRAWINGS SHOWING DESIGNED ASSEMBLIES, COMPONENTS AND CONNECTIONS ARE STAMPED AND SIGNED BY QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF UTAH.

THIS DRAWING IS THE PROPERTY OF BLACKWELL AND MAY NOT BE REPRODUCED OR USED WITHOUT THE EXPRESSED CONSENT OF BLACKWELL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPENCIES TO BLACKWELL AND OBTAIN CLARIFICATION PRIOR TO COMMENCING WORK.

REVIEWED AND SEALED BY:



SULLAWAY ENGINEERING 0815 RANCHO BERNARDO ROAD

SUITE 210 SAN DIEGO, CA 92127 (858) 312-5150 www.sullawayeng.com

2016.11.15 FOUNDATIONS PERMIT REV. 2016.10.14 | FOUNDATIONS ONLY PERMIT DESCRIPTION MARK DATE ISSUE: Project Name **SUMMIT CABINS**

1500SF UNIT

Address

EDEN

UTAH

AUTOCAD Checked by AVB N/A AS NOTED 160063

Sheet Title **GENERAL NOTES**

SCHEDULE OF SPECIAL INSPECTIONS

SCHEDULE OF SPECIAL INSPECTIONS			
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	DETAILED INSTRUCTIONS AND FREQUENCIES
REINFORCED CONCRETE (IBC 1705.3 & 1705.12.1)			
REINFORCING STEEL		X	VERIFY PRIOR TO PLACING CONCRETE THAT REINFORCING IS OF SPECIFIED TYPE, GRADE AND SIZE; THAT IT IS FREE OF OIL, DIRT AND RUST; THAT IT IS LOCATED AND SPACED PROPERLY; THAT HOOKS, BENDS, TIES, STIRRUPS, AND SUPPLEMENTAL REINFORCEMENT ARE PLACED CORRECTLY; THAT TAP LENGTHS, STAGGER AND OFFSETS ARE PROVIDED; AND THAT ALL MECHANICAL CONNECTIONS ARE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND/OR EVALUATION REPORT.
ANCHORAGE		Х	INSPECTION OF ANCHORS CAST IN CONCRET
USE OF REQUIRED MIX DESIGN		Х	VERIFY THAT ALL MIXTURES USED COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS; ACI 318: Ch. 4, 5.2-5.4; AND IBC 1904.3, 1913.2, 1913.3.
CONCRETE SAMPLING FOR STRENGTH TESTS, SLUMP, AIR CONTENT, AND TEMPERATURE	Х		
CONCRETE PLACEMENT	Х		
CURING TEMPERATURE AND TECHNIQUES		X	VERIFY THAT AMBIENT TEMPERATURE FOR CONCRETE IS KEPT > 50°F FOR AT LEAST 7 DAYS AFTER PLACEMENT. HIGH-EARLY-STRENGTH CONCRETE SHALL BE KEPT > 50°F FOR AT LEAST 3 DAYS. ACCELERATED CURING METHODS MAY BE USED (SEE ACI 318:5.11.3). ALL CONCRETE MATERIALS, REINFORCEMENT, FORMS, FILLERS, AND GROUND SHALL BE FREE FROM FROST. IN HOT WEATHER CONDITIONS ENSUF THAT APPROPRIATE MEASURES ARE TAKEN TAYOID PLASTIC SHRINKAGE CRACKING AND THAT THE SPECIFIED WATER/CEMENT RATIO NOT EXCEEDED.
STRENGTH VERIFICATION		Х	VERIFY THAT ADEQUATE STRENGTH HAS BEE ACHIEVED PRIOR TO THE REMOVAL OF FORM
FORMWORK		X	VERIFY THAT FORMS ARE PLACED PLUMB AND CONFORM TO THE SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE APPROVED CONSTRUCTION DOCUMENTS.
STRUCTURAL STEEL - PRIOR TO WELDING (TABLE N5.4-1, AISC 360-10)			
VERIFY WELDING PROCEDURES (WPS) AND CONSUMABLE CERTIFICATES	X		
MATERIAL IDENTIFICATION		X	VERIFY TYPE AND GRADE OF MATERIAL.
WELDER IDENTIFICATION		X	A SYSTEM SHALL BE MAINTAINED BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED.
FIT-UP GROOVE WELDS		Х	VERIFY JOINT PENETRATION, DIMENSIONS, CLEANLINESS, TACKING, AND BACKING.
ACCESS HOLES		Х	VERIFY CONFIGURATION AND FINISH.
FIT-UP FILLET WELDS		Х	VERIFY ALIGNMENT, GAPS AT ROOT, CLEANLINESS OF STEEL SURFACES, AND TAC WELD QUALITY AND LOCATION.
STRUCTURAL STEEL - DURING WELDING (TABLE N5.4-2, AISC 360-10)			
USE OF QUALIFIED WELDERS		Х	VERIFY THAT WELDERS ARE APPROPRIATELY QUALIFIED.
CONTROL AND HANDLING OF WELDING CONSUMABLES		Х	VERIFY PACKAGING AND EXPOSURE CONTRO
CRACKED TACK WELDS		Х	VERIFY THAT WELDING DOES NOT OCCUR OVER CRACKED TACK WELDING.
ENVIRONMENTAL CONDITIONS		Х	VERIFY THAT WIND SPEED, PRECIPITATION, AND TEMPERATURE ARE WITHIN LIMITS.
WPS FOLLOWED		X	VERIFY ITEMS SUCH AS SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RAT PREHEAT APPLIED, INTERPASS TEMPERATUR MAINTAINED, AND PROPER POSITION.
WPS FOLLOWED		Х	VERIFY ITEMS SUCH AS SETTINGS ON WELDI EQUIPMENT, TRAVEL SPEED, WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RAT PREHEAT APPLIED, INTERPASS TEMPERATUR MAINTAINED, AND PROPER POSITION.
WELDING TECHNIQUES		Х	VERIFY INTERPASS AND FINAL CLEANING, EAPASS IS WITHIN PROFILE LIMITATIONS, AND QUALITY OF EACH PASS.
STRUCTURAL STEEL - AFTER WELDING (TABLE N5.4-3, AISC 360-10)			
WELDS CLEANED		Х	VERIFY THAT WELDS HAVE BEEN PROPERLY CLEANED.
SIZE, LENGTH, AND LOCATION OF WELDS	Х		
WELDS MEET VISUAL ACCEPTANCE CRITERIA	Х		
ARC STRIKES	Х		
K-AREA	X		
BACKING AND WELD TABS REMOVED	X		
REPAIR ACTIVITIES	X		
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT/MEMBER	X		

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	DETAILED INSTRUCTIONS AND FREQUENCIES
NON-DISTRUCTIVE TESTING (SECTION N5.5, AISC 360-10)			
CJP WELDS		X	ULTRASONIC TESTING SHALL BE PERFORMED ON 10% OF CJP GROOVE WELDS IN BUTT, TAND CORNER JOINTS SUBJECTED TO TRANSVERSELY APPLIED TENSION LOADING MATERIALS 5/16" THICK OR GREATER. TESTIN RATE MUST BE INCREASED IF >5% OF WELDS TESTED HAVE UNACCEPTABLE DEFECTS.
ACCESS HOLES (FLANGE > 2")	х		
WELD JOINTS SUBJECT TO FATIGUE	Х		
OTHER STEEL INSPECTIONS (SECTION N5.7, AISC 360-10; TABLES J8-1 & J10-1, AISC 341-10)			
STRUCTURAL STEEL DETAILS		X	ALL FABRICATED STEEL OR STEEL FRAMES SHALL BE INSPECTED TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN IN THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS, AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL		Х	SHALL BE ON THE PREMISES DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS. VERIFY THE DIAMETER, GRADE TYPE, AND LENGTH OF THE ANCHOR ROD OF EMBEDMENT ITEM, AND THE EXTENT OR DEPOF EMBEDMENT PRIOR TO PLACEMENT OF CONCRETE.
WOOD CONSTRUCTION (IBC 1705.10.1 & 1705.11.2)			
HIGH-LOAD DIAPHRAGMS		X	VERIFY THICKNESS AND GRADE OF SHEATHING, SIZE OF FRAMING MEMBERS AT PANEL EDGES, NAIL/STAPLE DIAMETERS AND LENGTH, AND THE NUMBER OF FASTENER LINES AND FASTENER SPACING PER APPROVED PLANS. PERFORMED BY CODE INSPECTION FIRM.
STRUCTURAL WOOD		X	WHERE FASTENER SPACING IS < 4" o.c.: VERI PROPER NAILING, BOLTING, ANCHORING, ANI OTHER FASTENING OF SHEAR WALLS, DIAPHRAGMS, BRACES, AND HOLDOWNS. PERFORMED BY CODE INSPECTION FIRM.
SOILS (IBC 1705.6)			
VERIFY SUBGRADE IS ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY		Х	PROIR TO PLACEMENT OF CONCRETE.
VERIFY EXCAVATIONS EXTEND TO PROPER DEPTH AND MATERIAL		Х	PROIR TO PLACEMENT OF COMPACTED FILL CONCRETE.
VERIFY THAT SUBGRADE HAS BEEN APPROPRIATELY PREPARED PRIOR TO PLACING COMPACTED FILL		Х	PROIR TO PLACEMENT OF COMPACTED FILL.
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X	ALL MATERIALS SHALL BE CHECKED AT EACH LIFT FOR PROPER CLASSIFICATIONS AND GRADATIONS NOT LESS THAN ONCE FOR EACH 10,000 SQ.FT. OF SURFACE AREA.
VERIFY PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION.	Х		ALL MATERIALS SHALL BE CHECKED AT EACH LIFT FOR PROPER CLASSIFICATIONS AND GRADATIONS NOT LESS THAN ONCE FOR EA 10,000 SQ.FT. OF SURFACE AREA.

- SPECIAL INSPECTORS SHALL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO PERFORMING ANY DUTIES.
 SPECIAL INSPECTORS SHALL PROVIDE PROOF OF LICENSURE BY THE STATE OF UTAH FOR EACH TYPE OF INSPECTION.
 SPECIAL INSPECTIONS AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS,
- THIS STATEMENT, AND THE IBC SECTIONS 1704 AND 1705. 4. INSPECTION REPORTS WILL BE SUBMITTED TO THE CODE CONSULTANT, THE ARCHITECT, AND THE STATE OF UTAH BUILDING
- OFFICIAL WITHIN 48 HOURS OF PERFORMING INSPECTIONS.
- 5. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS, TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS AND A STATEMENT INDICATING THAT THE STRUCTURE IS IN COMPLIANCE WITH THE APPROVED CONSTRUCTION
- DOCUMENTS AND APPLICABLE CODES SHALL BE SUBMITTED.

Blackwell

THIS DRAWING IS THE PROPERTY OF BLACKWELL AND MAY NOT BE REPRODUCED OR USED WITHOUT THE EXPRESSED CONSENT OF BLACKWELL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPENCIES TO BLACKWELL AND OBTAIN CLARIFICATION PRIOR TO COMMENCING WORK.

REVIEWED AND SEALED BY:



SULLAWAY ENGINEERING

10815 RANCHO BERNARDO ROAD SUITE 210 SAN DIEGO, CA 92127 (858) 312-5150 www.sullawayeng.com

2016.11.15 FOUNDATIONS PERMIT REV. 1 2016.10.14 FOUNDATIONS ONLY PERMIT MARK DATE DESCRIPTION ISSUE: Project Name

SUMMIT CABINS 1500SF UNIT

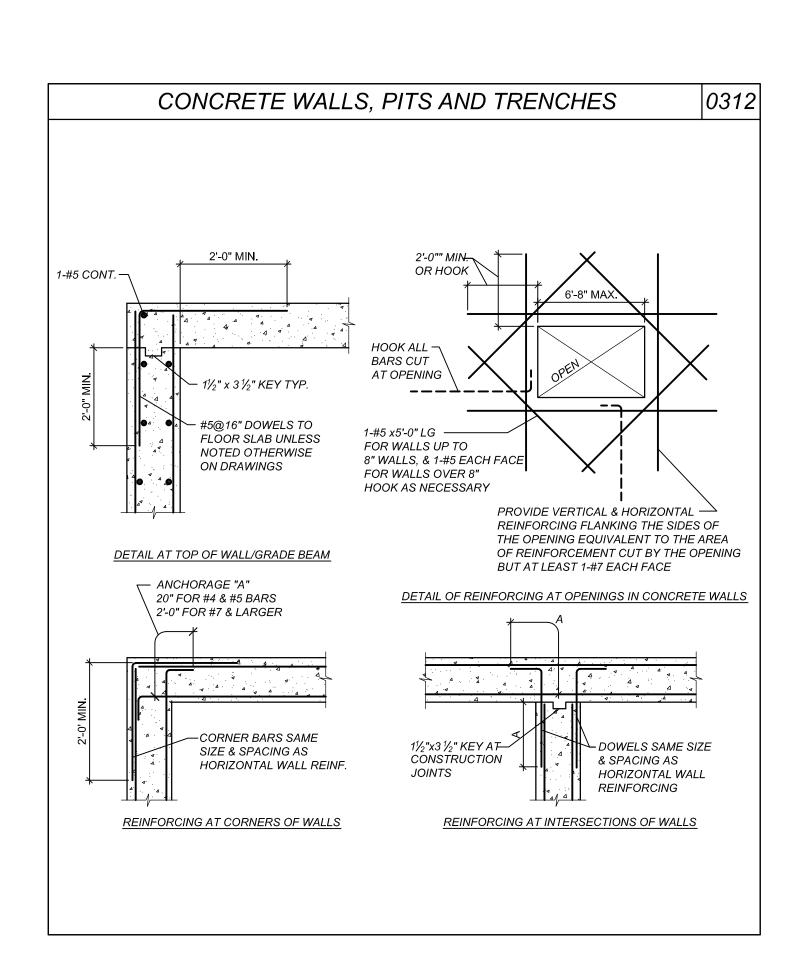
Address EDEN UTAH

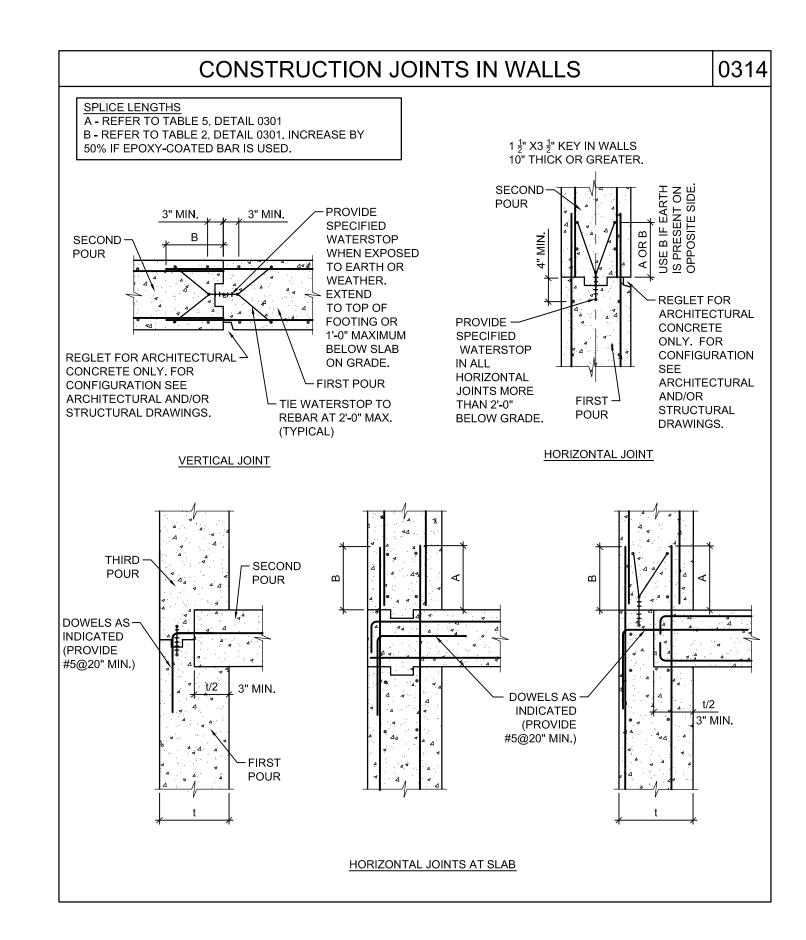
File Name	CAD/BIM Program AUTOCAD				
Drawn by AVB	Checked by N/A				
Scale AS NOTED	Project # 160063				

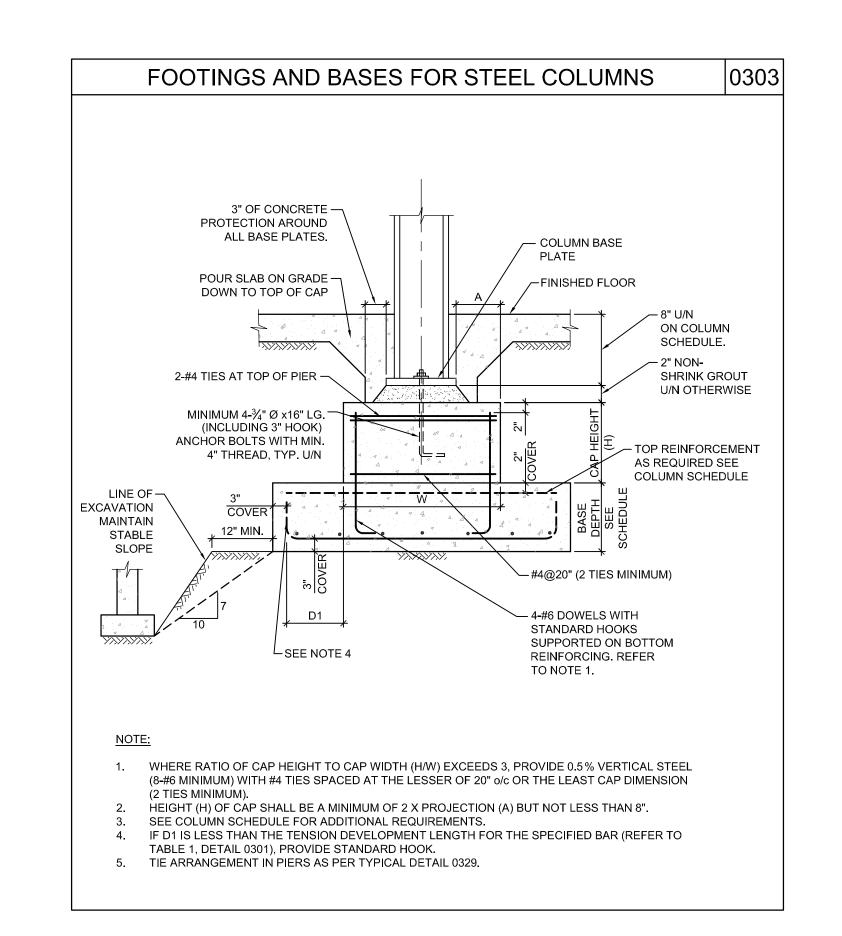
Sheet Title STATEMENT OF SPECIAL INSPECTIONS

		ABBREVI	ATIONS			00
A.BOLT	=	ANCHOR BOLT	kN	=	KILONEWTON	1
ADJ	=	ADJUSTABLE	kg	=	KILOGRAM	
ALT.	=	ALTERNATE	k Ň. m	=	KILONEWTON METRES	
ARCH.	=	ARCHITECTURAL	kN/sq.m	=	KILONEWTON PER SQUARE MET	RE
			k N /m	=	KILONEWTON PER METRE	
B BLL	=	BOTTOM BOTTOM LOWER LAYER	L.L.	=	LIVE LOAD	
BUL	=	BOTTOM UPPER LAYER	LG.	=	LONG	
BLDG.	=	BUILDING	LLV. LLH.	=	LONG LEG VERTICAL LONG LEG HORIZONTAL	
BM.	=	BEAM	LLN.		LONG LEG HORIZONTAL	
BPL BSMT.	=	BASE OR BEARING PLATE BASEMENT	N 4 A X/		N 4 A 3/18 41 18 4	
DOWIT.		BAGEMENT	MAX. MECH.	=	MAXIMUM MECHANICAL	
CA	=	COLUMN ABOVE	MEZZ.	=	MEZZANINE	
C/C	=	CENTRE TO CENTRE	MIN.	=	MINIMUM	
Œ.	=	CENTRE LINE	MISC.	=	MISCELLANEOUS	
CANT.	=	CANTILEVER	ML mm	=	MIDDLE LAYER MILLIMETRE	
COL CONC	=	COLUMN CONCRETE	MOM.	=	MOMENT	
CONC. CONSTR.	=	CONSTRUCTION	m	=	METRIC,METRE	
CONT.	=	CONTINUOUS	MPa	=	MEGAPASCAL	
c/w	=	COMPLETE WITH	Mf	=	FACTORED MOMENT	
			N	=	NEWTONS	
DET.	=	DETAIL	N.F. N-S	=	NEAR FACE NORTH-SOUTH	
DIAG.	=	DIAGONAL	NTS.	=	NOT TO SCALE	
DIA.	=	DIAMETER			NOT TO GONEE	
Ø	=	DIAMETER, BAR DIAMETER	OWSJ	=	OPEN WEB STEEL JOISTS	
DIM. D.J.	=	DIMENSION DOUBLE JOIST	OPEN	=	OPEN WEB STEEL JOISTS OPENING	
DO.	=	DITTO			51 <u>2111115</u>	
D.L.	=	DEAD LOAD	PL.	=	PLATE	
DWG.	=	DRAWING	P.C.	=	PRECAST	
DWL.	=	DOWEL	PROJ.	=	PROJECTION	
EA.	=	EACH	R	=	REACTION	
EA.F.	=	EACH FACE	RAD REF.	=	RADIUS	
EA.W. EL.	=	EACH WAY ELEVATION	REINF	=	REFERENCE REINFORCING, REINFORCEMENT	-
ELECT.	=	ELECTRICAL	REQ'D	=	REQUIRED	
ELEV.	=	ELEVATOR	REV.	=	REVISION, REVISED	
E-W	=	EAST-WEST	r/w	=	REINFORCED WITH	
EQ.	=	EQUAL	SECT.	=	SECTION	
EXIST. EXP.J.	=	EXISTING EXPANSION JOINT	SDF	=	STEP DOWN FOOTING	
EXT	=	EXTERIOR	SL.	=	SLAB	
			SPEC'S. STD.	=	SPECIFICATIONS STANDARD	
			SQ.	=	SQUARE	
F.F.	=	FAR FACE	STRUCT.	=	STRUCTURAL	
FDN.	=	FOUNDATION				
FIN. FL.	=	FINISHED FLOOR	Т	=	TOP	
FTG.	=	FOOTING	T.J.	=	TIE JOIST	
			TLL TUL	=	TOP LOWER LAYER TOP UPPER LAYER	
C A		CALICE	TEMP.	=	TEMPERATURE	
GA GALV	=	GAUGE GALVA NI ZED	TYP	=	TYPICAL	
GEN.	=	GENERAL	U/N	=	UNLESS OTHERWISE NOTED	
			U/N U/S	=	UNDERSIDE	
H. HOR.	=	HORIZONTAL				
 	=	HOOKED EACH END	Vf	=	FACTORED SHEAR FORCE	
NIT	_	INTERIOR	V. VERT.	=	VERTICAL	
NT.	=	INTERIOR	WWF	=	WELDED WIRE FABRIC	
			w/	=	WITH	_
JT.	=	JOINT	wD; wL	=	UNIFORMLY DISTRIBUTED LOAD	S

F	REIN	FOR	CEM	1EN7	L DE	LOP	ME	ENT	LENC	STH:	S	
						_						
TABLI	E 1 - TEN	SION DE	VELOPN (in)	IENT LEI	NGTH			E 2 - TEN TH (in)	ISION LAF	SPLICE	E (CLAS	SB)
BAR			f'c			<u> </u>	BAR			f'c		
SIZE	2900psi	3626psi	4352psi	5077psi	5802psi		SIZE	2900psi	3626psi	4352psi	5077ps	5802ps
4	12.6	11.8	11.8	11.8	11.8		4	16.5	15.0	13.4	12.4	11.8
5 6	18.9 25.2	16.9 22.8	15.4 20.9	14.6 19.3	13.4 18.1		5 6	24.8 33.1	22.0 29.7	20.1 27.2	19.1 25.2	17.5 23.6
8	39.8	35.4	32.3	29.9	28.0		8	51.8	46.1	42.1	39.0	36.4
9	47.6	42.5	39.0	35.8	33.5		9	54.1	55.3	50.8	46.5	43.5
11 14	55.5 71.7	49.6 63.8	45.3 58.3	41.7 53.9	39.4 50.8	\vdash	11 14	72.4	64.6	58.9	55.3	51.2
18	87.4	78.0	71.3	66.1	61.8		18	LAI	P SPLICE	S NOT P	PERMITT	ED
BAR	STANDAF		f'c			В	NGTH AR	f'c=290	Opsi fo	=3626ps	si I	f'c≥
SIZE	2900psi	3626psi	<u> </u>				IZE				4:	352psi
4 5	6.1 9.4	5.9 8.3	5.9 7.5	5.9 6.9	5.9 6.7		4 5	8.3 12.6		7.9 11.4		7.9 10.2
6	12.4	11.0	10.2	9.4	8.9		6	16.9)	15.0		13.8
8	15.4	13.8	12.6	11.6	11.0		8 9	21.3 25.2		18.9 22.8		17.3 20.9
9 11	18.5 21.7	16.5 16.9	15.2 17.7	14.2 16.3	13.0 15.2		11	29.5		26.4		24.4
14	38.5	34.4	31.4	29.1	27.2		14	38.2		33.9		31.1
18	49.6	44.4	40.6	37.5	35.1	1	18	46.5	<u> </u>	41.7		38.2
TABLI	= 5 - CON	ADDESSI	ONLAD	SDIJCE			K REI	STANDAI INFORCI 400R OR		1	SION FC	
	= 5 - CON TH (in)	IFRESSI	ON LAP	SPLICE		BAR	an° i	HOOK 18	30° HOOK	(90° H	20K 18	0° HOOF
BAR SIZE		USUAL C	CONFINE	MENT		SIZE	(ir	٦)	(in)	(in)		(in)
4			11.8			4 5		.1	5.5 7.1	7.1		5.1 6.7
5	17.3				6		2.2	8.7	11.8		7.9	
6 8			22.8 28.7			8	15	5.7	11.0	15.	7	11.0
9			34.6			9 11		0.1 1.0	15.7 18.9	19.3		13.8 16.9
11			40.2			14		1.1	26.8	30.		24.4
NOTE	: #14 ANI	D #18 BA	RS SHAI	L BE		18		0.6	35.4	39.		32.7
NOTE: #14 AND #18 BARS SHALL BE SPLICED WITH MECHANICAL CONNECTORS								RCING STICE FOR				









THIS DRAWING IS THE PROPERTY OF
BLACKWELL AND MAY NOT BE REPRODUCED
OR USED WITHOUT THE EXPRESSED CONSENT
OF BLACKWELL. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR CHECKING AND VERIFYING
ALL LEVELS AND DIMENSIONS AND SHALL
REPORT ALL DISCREPENCIES TO BLACKWELL
AND OBTAIN CLARIFICATION PRIOR TO
COMMENCING WORK.

REVIEWED AND SEALED BY:

STATE OF UTAL

ENGINEER ING

10815 RANCHO BERNARDO ROAD
SUITE 210
SAN DIEGO, CA 92127
(858) 312-5150
www.sullawayeng.com

2016.11.15 FOUNDATION PERMIT REV 1
2016.10.14 FOUNDATIONS ONLY PERMIT
MARK DATE DESCRIPTION

ISSUE:

Project Name

SUMMIT CABINS 1500SF UNIT

Address
EDEN
UTAH

File Name

CAD/BIM Program
AUTOCAD

Drawn by
AVB

Scale
AS NOTED

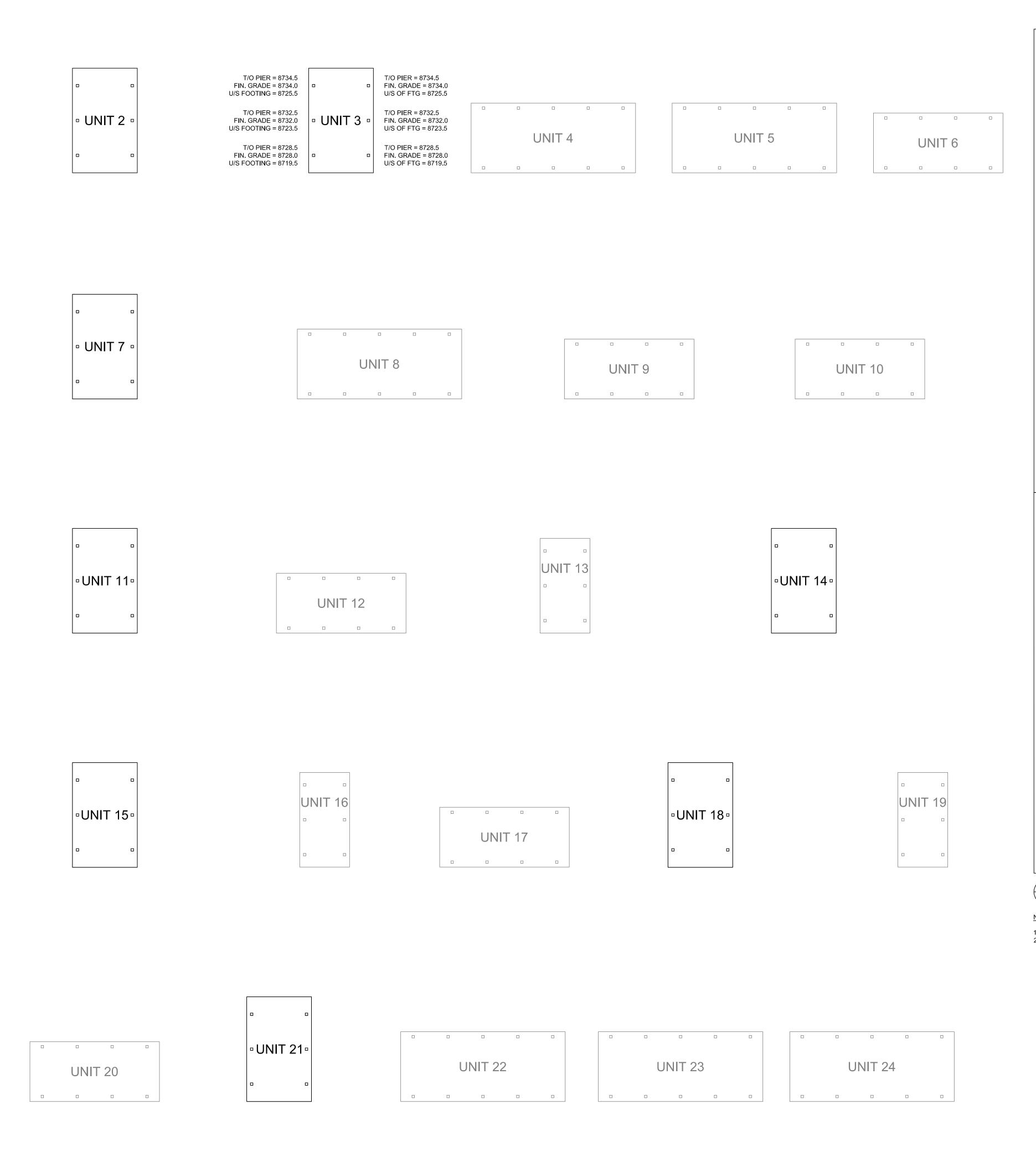
Checked by
N/A

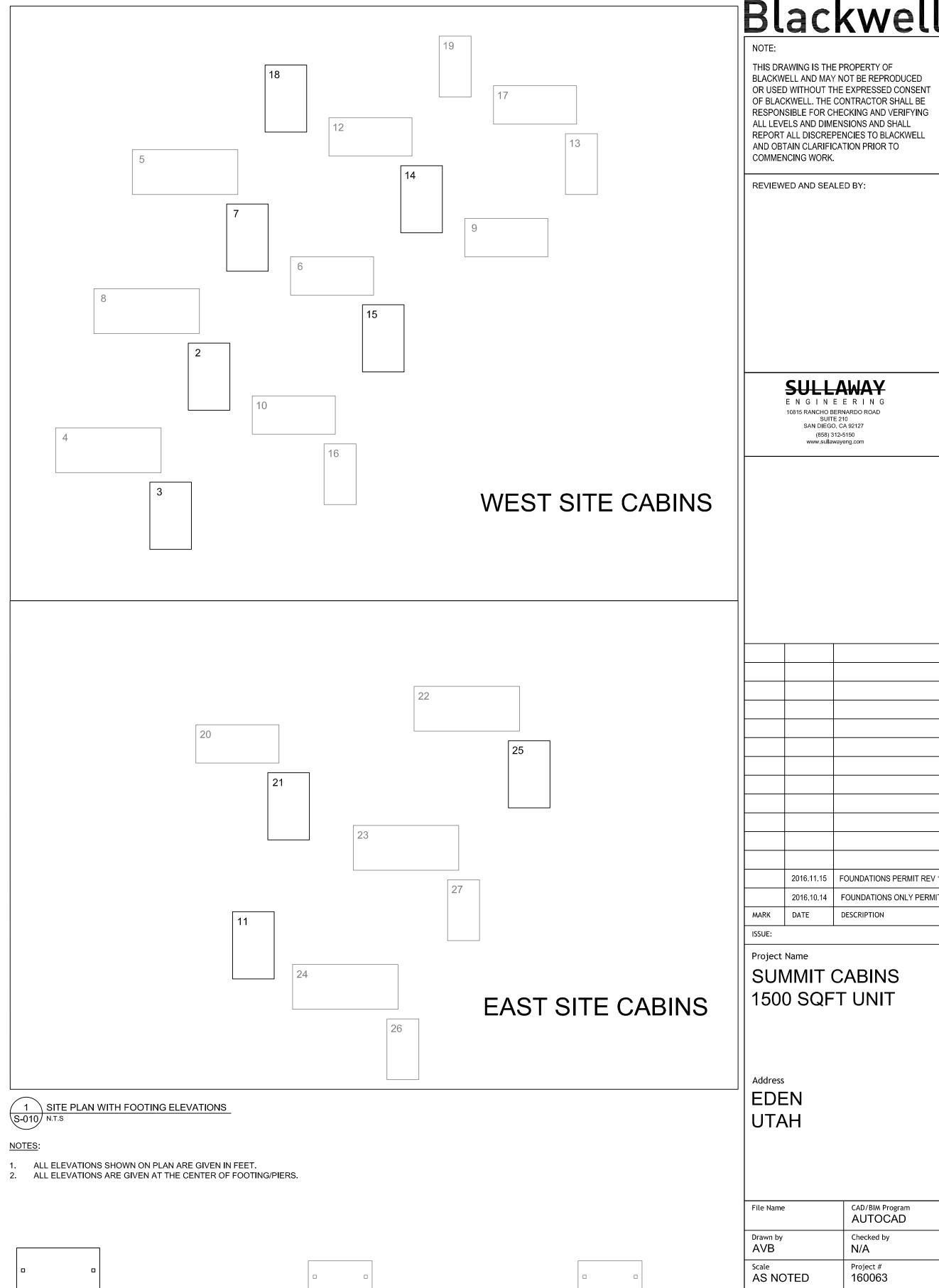
Project #
160063

Sheet Title

TYPICAL DETAILS
FOUNDATIONS

S-003





UNIT 26

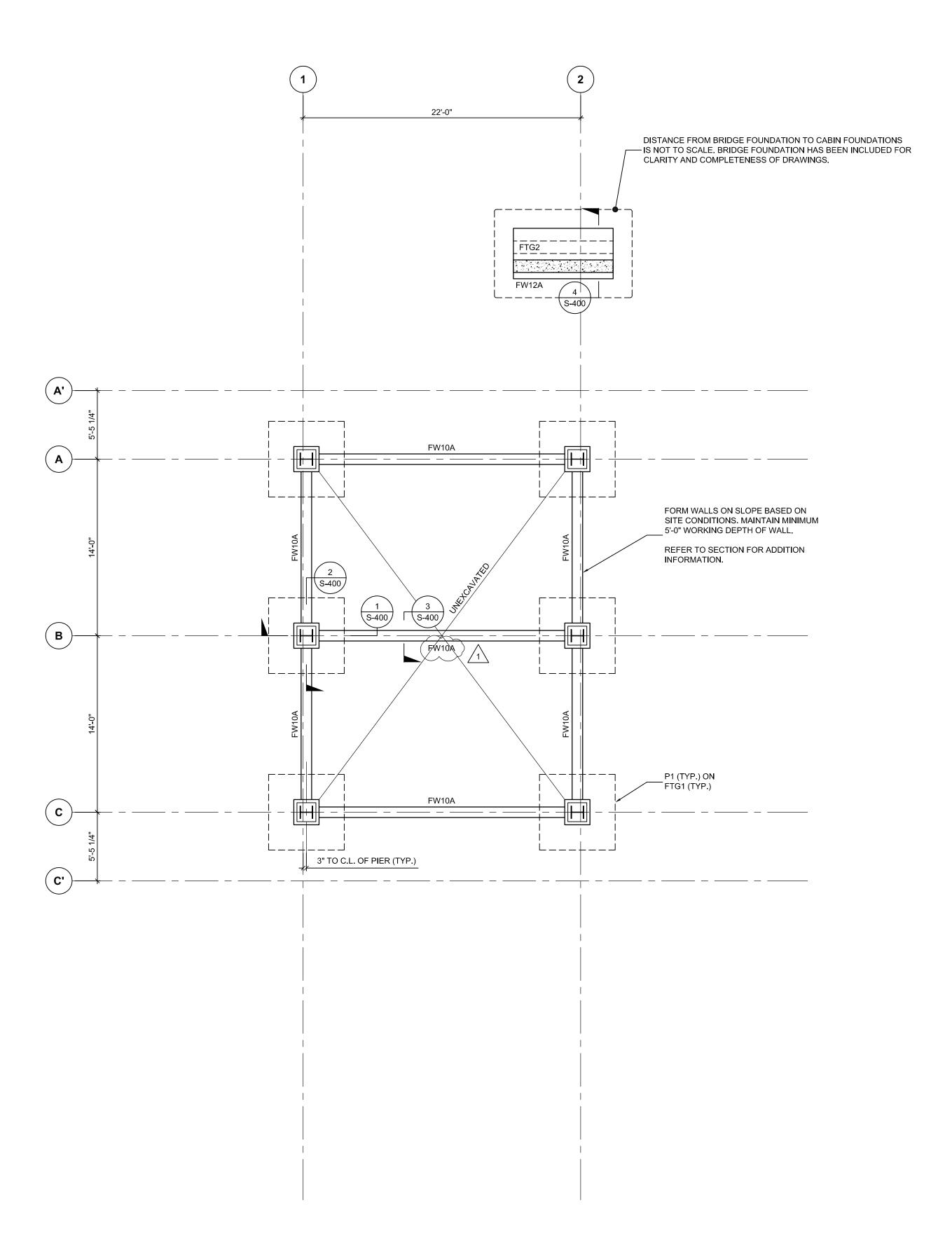
□UNIT 25□

S-010

Sheet Title

SITE PLAN

UNIT 27





REFER TO GENERAL NOTES AND TYPICAL DETAILS FOR ADDITIONAL INFORMATION

- A GEOTECHNICAL REPORT HAS BEEN PREPARED BY IGES INC. CONTRACTOR IS TO READ THE REPORT AND BECOME FRAMILIAR WITH ITS CONTENTS.
 SHALLOW FOUNDATIONS HAVE BEEN DESIGNED WITH AN ALLOWABLE BEARING CAPACITY OF 2,600psf AS PER IGES RECCOMENDATIONS
- IN AREAS OF CREEP SUSCEPTIBLE SOIL, STRIP SITE AND REMEDIATE AS PER GEOTECHNICAL RECCOMENDATIONS. NO FOOTINGS ARE TO BE CAST WITHOUT PRIOR APPROVAL FROM THE GEOTCHNICAL CONSULTANT.

FOUNDATION MEMBER SCHEDULE								
MEMBER MARK	MEMBER DESCRIPTION	REMARKS						
FW10A	10" CONCRETE FOUNDATION WALL	r/w #5 BARS @ 12" c/c EACH WAY EACH FACE. HOOK TOPS AND BOTTOMS OF VERTICAL BARS. CONSTRUCT WALLS ON SLOPE.						
FW12A	12" CONCRETE FOUNDATION WALL	r/w #5 BARS @ 10" c/c EACH WAY EACH FACE. PROVIDE 1'-0" x 3'-0" HOOKED DOWELS FROM OUTSIDE FACE OF WALL TO FOOTING BELOW.						
FTG1	6'-0" x 6'-0" x 1'-2" CONC. PAD FOOTING	r/w 8 #5 BOTTOM BARS EACH WAY.						
FTG2	8'-0" x 4'-0" x 1'-0" CONC. PAD FOOTING	r/w #5 BARS @ 9" c/c EACH WAY TOP +2 #5 BARS BOTTOM BARS TO TIE HOOKS. REFER TO SECTION DETAIL.						
P1	2'-0" x 2'-0" CONC. PIER	r/w 12 #7 BARS AND #3 STIRRUPS AT 12" c/c						

NOTES:

PROVIDE CONSULTANT WITH REINFORCING SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

THIS DRAWING IS THE PROPERTY OF BLACKWELL AND MAY NOT BE REPRODUCED OR USED WITHOUT THE EXPRESSED CONSENT OF BLACKWELL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPENCIES TO BLACKWELL AND OBTAIN CLARIFICATION PRIOR TO COMMENCING WORK.

REVIEWED AND SEALED BY:



ENGINEERING 10815 RANCHO BERNARDO ROAD SUITE 210 SAN DIEGO, CA 92127

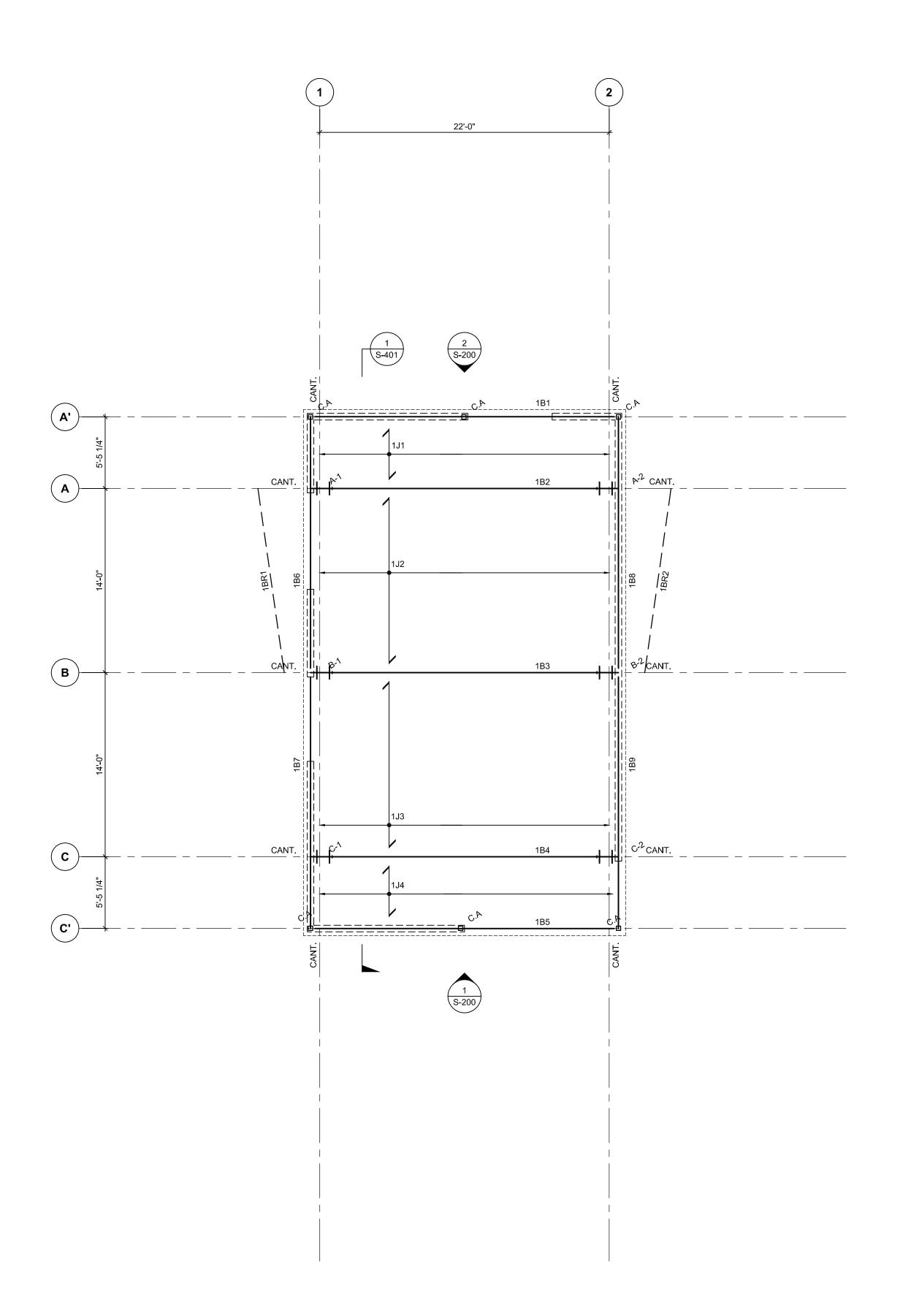
(858) 312-5150 www.sullawayeng.com

2016.11.15 FOUNDATION PERMIT REV 2016.10.14 FOUNDATIONS ONLY PERMIT MARK DATE DESCRIPTION ISSUE: Project Name SUMMIT CABINS 1500 SQFT UNIT

Address EDEN UTAH

File Name	CAD/BIM Program AUTOCAD				
Drawn by AVB	Checked by N/A				
Scale AS NOTED	Project # 160063				

FOUNDATION PLAN



	LOWER FLOOR MEMBER SCHEDULE									
MEMBER	MEMBER	REAC	TIONS	REMARKS						
MARK	DESCRIPTION	LEFT END	RIGHT END	REWARKS						
1J1	2 x 10 @ 12" c/c									
1J2	2 x 10 @ 12" c/c									
1J3	2 x 10 @ 12" c/c									
1J4	2 x 10 @ 12" c/c									
1B1	W12x26									
1B2	W12x50									
1B3	W12x50									
1B4	W12x50									
1B5	W12x26									
1B6	W12x26									
1B7	W12x26									
1B8	W12x26									
1B9	W12x26									
1BR1	HSS 4"x4"x¼"									
1BR2	HSS 4"x4"x¼"									

 LOADS USED IN DESIGN: LIVE LOAD: 40psf DEAD LOAD: 40psf (AREAS OF 2" TOPPING)

2. ALL FLOOR SHEATHING TO BE $\frac{1}{2}$ " SHEATHING T&G GLUED AND SCREWED TO TOP OF FLOOR JOISTS. THE LOWER LEVEL FRAMING DATUM IS TAKEN AS T/O FINISHED FLOOR @ 0'-0". TOP OF STEEL BEAMS ARE

AT -1'-1½" UNLESS NOTED OTHERWISE.
4. REFER TO GENERAL NOTES AND TYPICAL DETAILS FOR ADDITIONAL INFORMATION

DRAWING PROVIDED FOR CONTEXT ONLY. SUPERSTRUCTURE PERMIT PACKAGE TO FOLLOW.

Blackwell

THIS DRAWING IS THE PROPERTY OF BLACKWELL AND MAY NOT BE REPRODUCED OR USED WITHOUT THE EXPRESSED CONSENT OF BLACKWELL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPENCIES TO BLACKWELL AND OBTAIN CLARIFICATION PRIOR TO COMMENCING WORK.

REVIEWED AND SEALED BY:

ENGINEERING

10815 RANCHO BERNARDO ROAD
SUITE 210
SAN DIEGO, CA 92127

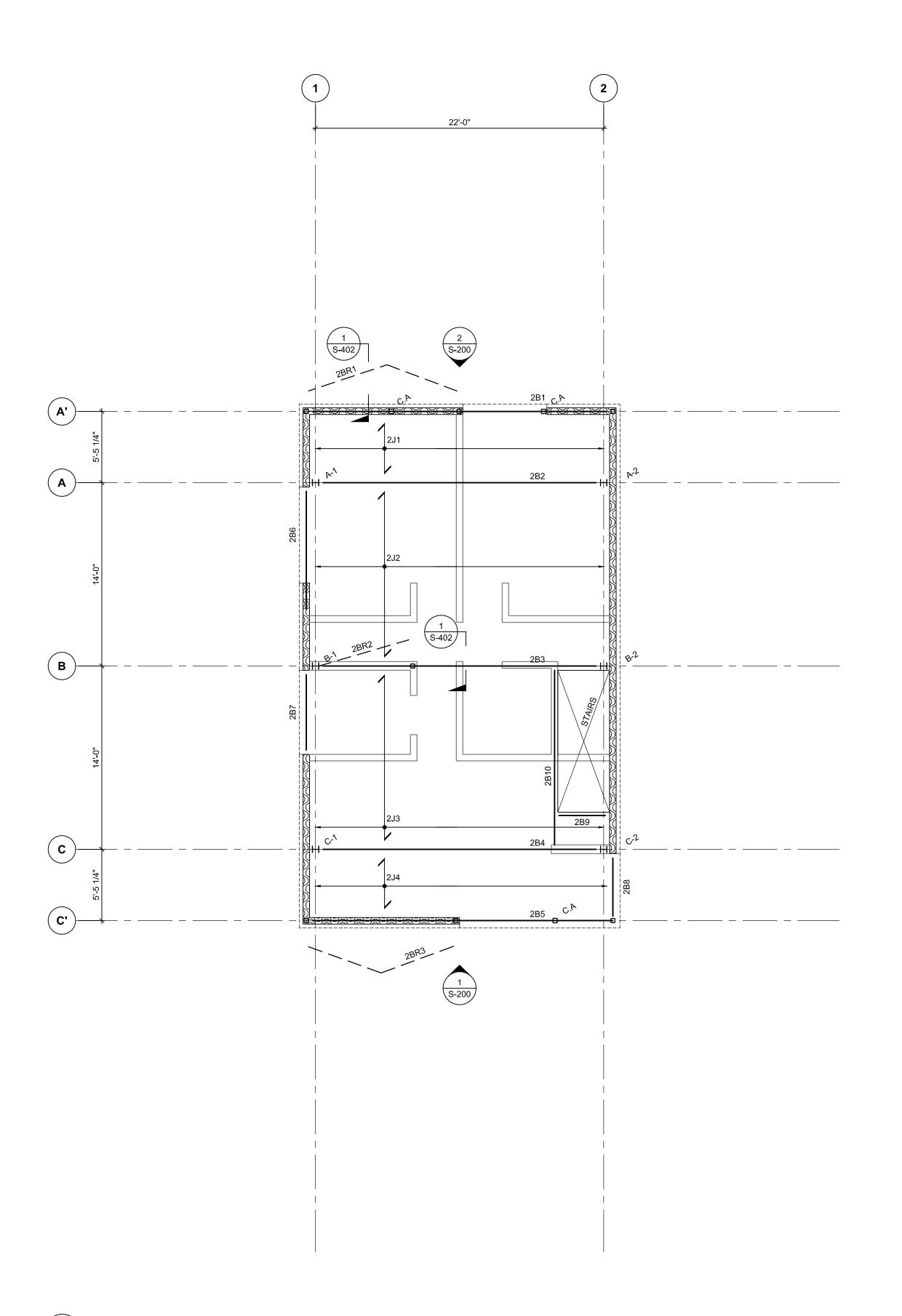
2016.10.14 FOUNDATIONS ONLY PERMIT

Project Name **SUMMIT CABINS** 1500 SQFT UNIT

EDEN UTAH

File Name	CAD/BIM Program AUTOCAD
Drawn by AVB	Checked by N/A
Scale AS NOTED	Project # 160063

LOWER FLOOR FRAMING PLAN



	UPPER	FLOOR MEM	BER SCHED	ULE
MEMBER	MEMBER	REAC	TIONS	REMARKS
MARK	DESCRIPTION	LEFT END	RIGHT END	KLIVIAINO
2J1	2 x 10 @ 12" c/c OR 2x12 @ 16" c/c			
2J2	2 x 10 @ 12" c/c OR 2x12 @ 16" c/c			
2J3	2 x 10 @ 12" c/c OR 2x12 @ 16" c/c			
2J4	2 x 10 @ 12" c/c OR 2x12 @ 16" c/c			
2B1	W12x22			
2B2	W12x26			
2B3	W12x26			
2B4	W12x26			
2B5	W12x22			
2B6	3-2x12			EXTEND BEYOND BEARING LOCATION TO GRID B + 2'-0"
2B7	3-2x12			
2B8	3-2x12			
2B9	2-2x12			
2B10	3-2x12			
2BR1	HSS 4"x3"x½"			
2BR2	HSS 4"x3"x1/4"			
2BR3	HSS 4"x3"x¼"			

1 LOWER LEVEL SHOWING UPPER FLOOR FRAMING
S-102 3/16" = 1'-0"

NOTES:

1. LOADS USED IN DESIGN: LIVE LOAD: 40psf
DEAD LOAD: 40psf (AREAS OF 2" TOPPING)
20psf (EXTERIOR DECK)

SNOW LOAD: 192psf (EXTERIOR DECK)
2. ALL FLOOR SHEATHING TO BE $\frac{3}{4}$ " SHEATHING T&G GLUED AND SCREWED TO TOP OF FLOOR JOISTS.
3. THE UPPER LEVEL FRAMING DATUM IS TAKEN AS T/O FINISHED FLOOR @ 9'-7" ABOVE THE LOWER LEVEL

FINISHED FLOOR ELEVATION. TOP OF STEEL BEAMS ARE AT $-4\frac{1}{4}$ " UNLESS NOTED OTHERWISE. 4. REFER TO GENERAL NOTES AND TYPICAL DETAILS FOR ADDITIONAL INFORMATION DRAWING PROVIDED FOR CONTEXT ONLY. SUPERSTRUCTURE PERMIT PACKAGE TO FOLLOW.

Blackwell

| NO

THIS DRAWING IS THE PROPERTY OF
BLACKWELL AND MAY NOT BE REPRODUCED
OR USED WITHOUT THE EXPRESSED CONSENT
OF BLACKWELL. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR CHECKING AND VERIFYING
ALL LEVELS AND DIMENSIONS AND SHALL
REPORT ALL DISCREPENCIES TO BLACKWELL
AND OBTAIN CLARIFICATION PRIOR TO
COMMENCING WORK.

REVIEWED AND SEALED BY:

ENGINEERING

10815 RANCHO BERNARDO ROAD
SUITE 210
SAN DIEGO, CA 92127

2016.11.15 FOUNDATIONS PERMIT RE

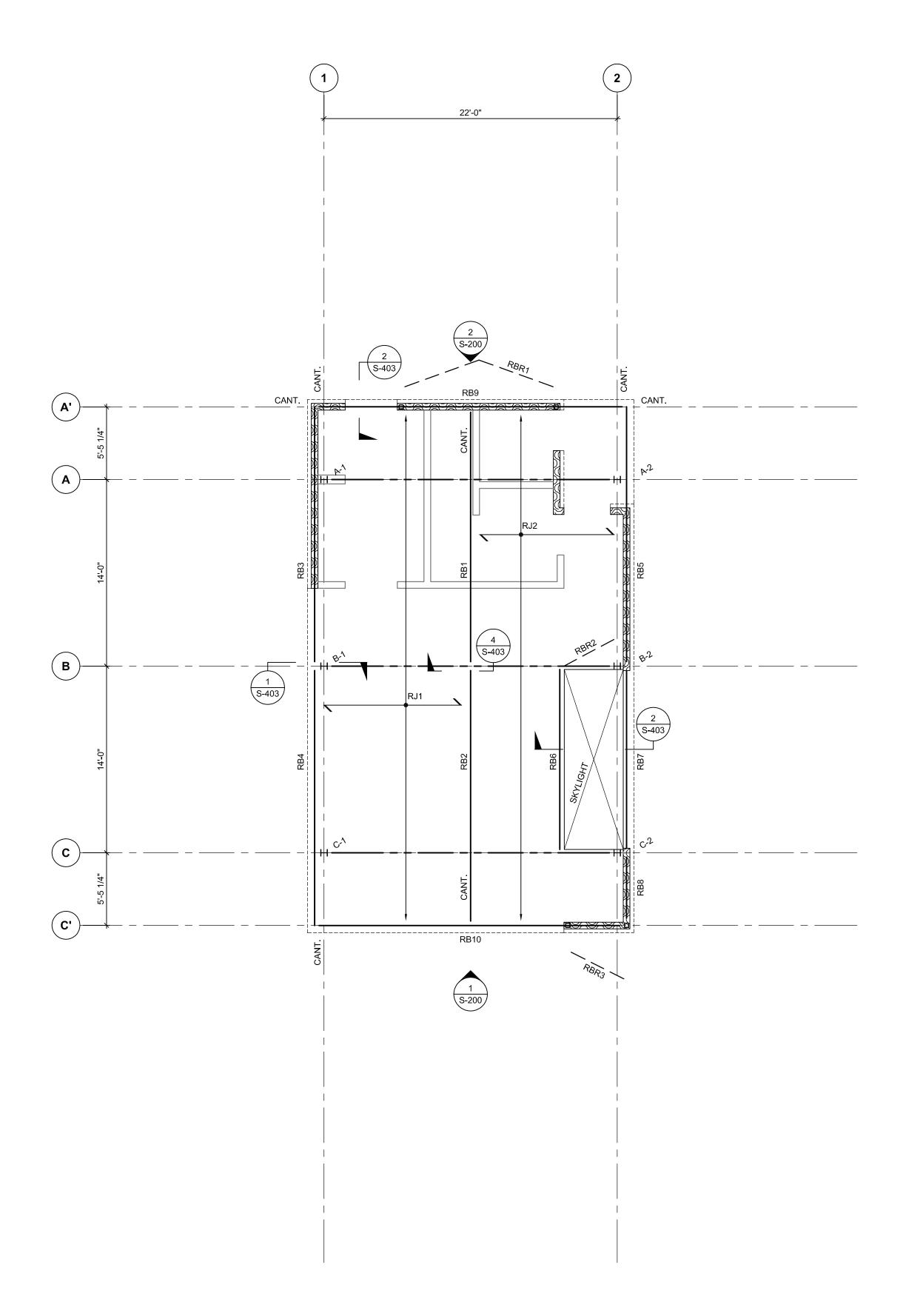
2016.10.14 FOUNDATIONS ONLY PERMIT

SUMMIT CABINS 1500 SQFT UNIT

EDEN UTAH

File Name	CAD/BIM Program AUTOCAD
Drawn by AVB	Checked by N/A
Scale AS NOTED	Project # 160063

Sheet Title
UPPER FLOOR
FRAMING PLAN



	RO	OF MEMBER	SCHEDULE	
MEMBER	MEMBER	REAC	TIONS	DEMARKS
MARK	DESCRIPTION	LEFT END	RIGHT END	REMARKS
RJ1	2 - 2 x 10 @ 12" c/c			
RJ2	2 - 2 x 10 @ 12" c/c			
RB1	W8x48			
RB2	W8x48			
RB3	HSS 10"x6"x5√6" LLV			
RB4	HSS 10"x6"x ⁵ ∕/ ₆ " LLV			
RB5	HSS 10"x6"x5∕16" LLV			
RB6	HSS 10"x6"x ⁵ ∕₁ ₆ " LLV			
RB7	HSS 10"x6"x ⁵ ∕₁ ₆ " LLV			
RB8	HSS 10"x6"x ⁵ ∕16" LLV			
RB9	HSS 10"x6"x ⁵ ∕₁ ₆ " LLV			
RB10	HSS 10"x6"x5/16" LLV			
RBR1	HSS 4"x3"x¼" CHEVRON BRACE			
RBR2	2-L3½"x2½"x¾6" ANGLES BACK-TO-BACK			
RBR3	HSS 4"x3"x¼" ANGLE BRACE			

NOTE

- 1. ALL WOOD CONNECTORS ARE TO BE BY SIMPSON STRONG TIE. PROVIDE CONSULTANT WITH FULL SPEC. OF ALTERNATE HANGERS FOR APPROVAL PRIOR TO USE.
- ALL LOADS HAVE BEEN FACTORED IN ACCORDANCE WITH IBC 2016 LOAD CASES.
 PROVIDE 3" MINUMUM BEARING FOR ALL WOOD BEAMS ON WOOD FRAMED WALLS
- UNLESS NOTED OTHERWISE.

	DRAWING LEGEND
BEAM MEMBERS	
TRUSS ELEMENTS	
COLUMNS (CHANNELS & I BEAMS)	н
REPEAT FRAMING ELEMENTS (SPAN)	•
REPEAT FRAMING ELEMENTS (EXTENT)	-
COLUMN (HSS)	
WOOD STUD WALLS/ SHEARWALLS	
WALLS (NON-LOAD BEARING)	
COLUMN (WOOD)	
COLUMN ABOVE (WITHIN BEAM SPAN)	C. P
STUD WALLS ABOVE	
LATERAL BRACING	
BEAM CANTILEVERS	CANT.
MOMENT CONNECTIONS	•
WOOD SHEARWALL (EXTENTS)	* SW *
EXTENT OF FINISHES	

1 UPPER LEVEL SHOWING ROOF FRAMING S-103) 3/16" = 1'-0"

NOTES:

- 1. LOADS USED IN DESIGN: SNOW LOAD: 192psf
 DEAD LOAD: 15psf + SELF WEIGHT OF COMPONENTS
- 2. ALL ROOF SHEATHING TO BE $\frac{3}{4}$ " SHEATHING T&G GLUED AND SCREWED TO TOP OF FLOOR JOISTS.
 3. THE ROOF FRAMING DATUM IS TAKEN AS THE U/S OF FLAT CEILING FRAMING @ 16'-6" ABOVE THE LOWER
- LEVEL FINISHED FLOOR ELEVATION. TOP OF STEEL BEAMS ARE AT +11½" UNLESS NOTED OTHERWISE.

 4. REFER TO GENERAL NOTES AND TYPICAL DETAILS FOR ADDITIONAL INFORMATION

DRAWING PROVIDED FOR CONTEXT ONLY. SUPERSTRUCTURE PERMIT PACKAGE TO FOLLOW.

Blackwell

NO

THIS DRAWING IS THE PROPERTY OF
BLACKWELL AND MAY NOT BE REPRODUCED
OR USED WITHOUT THE EXPRESSED CONSENT
OF BLACKWELL. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR CHECKING AND VERIFYING
ALL LEVELS AND DIMENSIONS AND SHALL
REPORT ALL DISCREPENCIES TO BLACKWELL
AND OBTAIN CLARIFICATION PRIOR TO
COMMENCING WORK.

REVIEWED AND SEALED BY:

ENGINEERING

10815 RANCHO BERNARDO ROAD
SUITE 210
SAN DIEGO, CA 92127

(858) 312-5150 www.sullawayeng.com

2016.11.15 FOUNDATIONS PERMIT RE
2016.10.14 FOUNDATIONS ONLY PERMIT
MARK DATE DESCRIPTION
ISSUE:

SUMMIT CABINS

1500 SQFT UNIT

Address

EDEN

UTAH

Project Name

File Name

CAD/BIM Program
AUTOCAD

Drawn by
Checked by
N/A

Scale
Project #
AS NOTED

CAD/BIM Program
AUTOCAD

Project #
160063

ROOF FRAMING

																											 1
COLUMN AND F	OOTING SCHEDL	JLE																									
COLUMN DATA	A'-1(+5'-9½")	A' - 1(-4'-7")	A - 1		A - 2	B - 1	B - 2		C - 1	C - 2	C' - 2(-3'-8½")	C' - 2(-3'-8½")	C' - 2(+8½")	A' - 1(-8½")	A' - 1(+10	O-11½") A' - 2(+	3½")	B - 1(7'-5")	C' - 1('-8½"	') C' - 1(+10'-8½")	C' - 2(+8½")						
			1/2"		 	1/2"	1/2"		1/2"	1/2"																	
TOP OF STEEL			6			6	6		, o -	6																	
(17'-5½") Mf (Kip-ft)	l •	* 4					 																				
Cf (Kip)	XX	XX 4x/	xx	XX	×	«×	xx	xx		xx	XX	XX 4×4×/	XX 4x4														
Mf (Kip-ft)	HSS	HSS	16.3		16.3	16.3	16.3		16.3	16.3	H SS	HSS	HSS														
(FF: 9'-6") Mf (Kip-ft)		 _	X 		- 	- ————————————————————————————————————	× - × - × - × - × - × - × - × - × -		— — — — — — — — — — — — — — — — — — —			† —— -					$\frac{1}{1}$			_ +		_					
Cf (Kip)			XX	XX	~ ×	«Χ	XX	XX	2	XX				XX	XX	XX	XX	4×4×/ ₄	XX	XX	XX						
Mf (Kip-ft) LOWER FLOOR (FF: 0'-0") Mf (Kip-ft)														HSS		SH	2	HSS	HSS	HSS	HSS						
(FF: 0'-0") Mf (Kip-ft)			 xx	XX	- 	-	XX	+	— <u> </u> -			†	 				+ -	l	 	- 	 			 		 	
Cf (Kip)			XX 052	XX) (X20	(X	XX	xx	2x50	xx 55																	
Mf (Kip-ft)			W12	[2]	W12	W12	× × × × × × × × × × × × × × × × × × ×	5 5	W12	W15	٧																
T/O PIER (VARIES)			<u> </u>		- ' -			' +	1 +		* 	 							 	_ +			 	 		 	
U/S BASEPLATE FROM T/O PIER																											
BASEPLATE																											

NOTES:

CENTRE COLUMNS CAPS AND FOOTINGS ON GRIDS UNLESS NOTED OTHERWISE
 UNLESS OTHERWISE NOTED, BASEPLATE DIMENSION GIVEN FIRST IS PARALLEL TO THE

COLUMN WEB.

THIS DRAWING IS THE PROPERTY OF
BLACKWELL AND MAY NOT BE REPRODUCED
OR USED WITHOUT THE EXPRESSED CONSENT
OF BLACKWELL. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR CHECKING AND VERIFYING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPENCIES TO BLACKWELL AND OBTAIN CLARIFICATION PRIOR TO

REVIEWED AND SEALED BY:

COMMENCING WORK.

ENGINEERING

10815 RANCHO BERNARDO ROAD
SUITE 210
SAN DIEGO, CA 92127
(858) 312-5150
www.sullawayeng.com

2016.11.15 FOUNDATIONS PERMIT REV 1 2016.10.14 FOUNDATIONS ONLY PERMIT

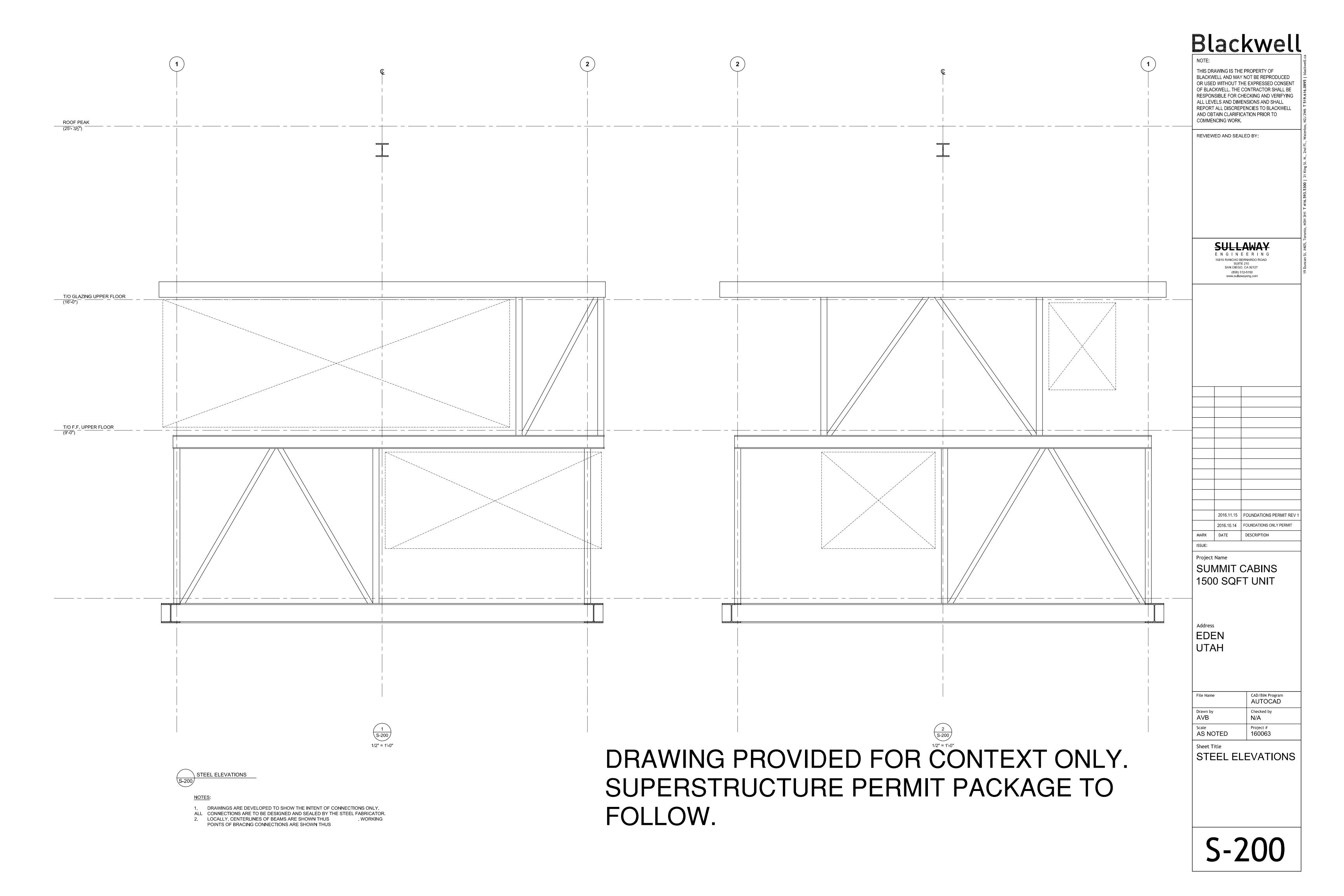
Project Name SUMMIT CABINS 1500 SQFT UNIT

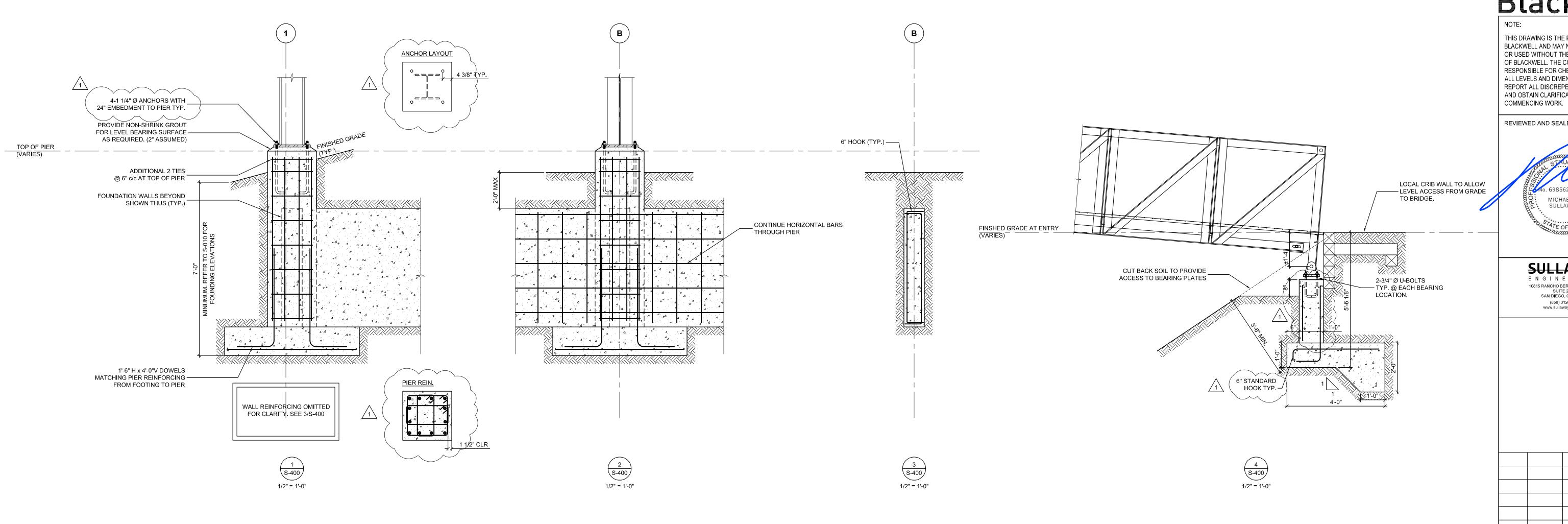
MARK DATE DESCRIPTION

EDEN UTAH

CAD/BIM Program
AUTOCAD Drawn by AVB Checked by N/A Project # 160063 Scale AS NOTED

Sheet Title
COLUMN SCHEDULE





THIS DRAWING IS THE PROPERTY OF BLACKWELL AND MAY NOT BE REPRODUCED

OR USED WITHOUT THE EXPRESSED CONSENT OF BLACKWELL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING AND VERIFYING ALL LEVELS AND DIMENSIONS AND SHALL REPORT ALL DISCREPENCIES TO BLACKWELL AND OBTAIN CLARIFICATION PRIOR TO

REVIEWED AND SEALED BY:



ENGINEERING

10815 RANCHO BERNARDO ROAD
SUITE 210
SAN DIEGO, CA 92127

(858) 312-5150 www.sullawayeng.com

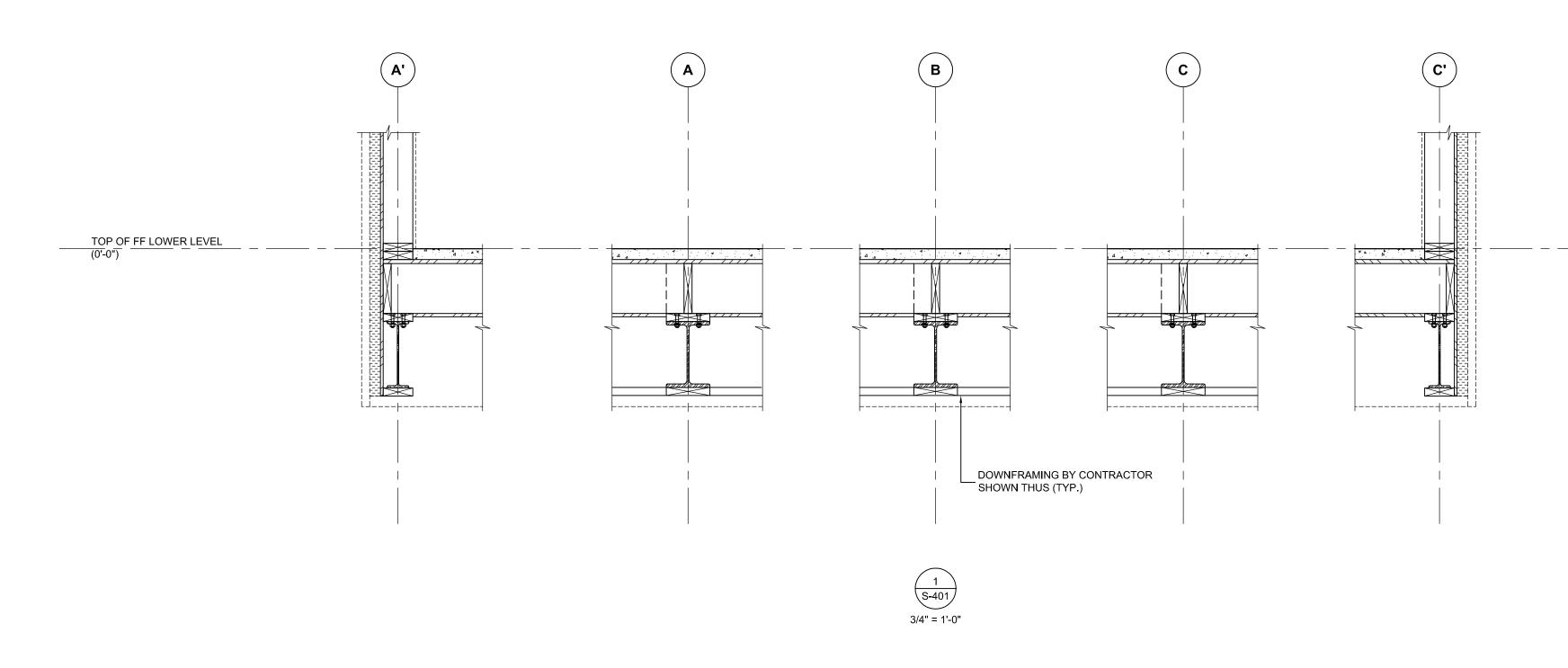
2016.11.15 FOUNDATION PERMIT REV 1 2016.10.14 FOUNDATIONS ONLY PERMIT MARK DATE

Project Name SUMMIT CABINS 1500 SQFT UNIT

Address EDEN UTAH

File Name	CAD/BIM Program AUTOCAD
Drawn by AVB	Checked by N/A
Scale AS NOTED	Project # 160063

Sheet Title
FOUNDATION SECTIONS



DRAWING PROVIDED FOR CONTEXT ONLY. SUPERSTRUCTURE PERMIT PACKAGE TO FOLLOW.

Blackwell

NOTE

THIS DRAWING IS THE PROPERTY OF
BLACKWELL AND MAY NOT BE REPRODUCED
OR USED WITHOUT THE EXPRESSED CONSENT
OF BLACKWELL. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR CHECKING AND VERIFYING
ALL LEVELS AND DIMENSIONS AND SHALL
REPORT ALL DISCREPENCIES TO BLACKWELL
AND OBTAIN CLARIFICATION PRIOR TO
COMMENCING WORK.

REVIEWED AND SEALED BY:

SULLAWAY ENGINEERING

10815 RANCHO BERNARDO ROAD SUITE 210 SAN DIEGO, CA 92127 (858) 312-5150 www.sullawayeng.com

2016.11.15 FOUNDATIONS PERMIT REV 1

2016.10.14 FOUNDATIONS ONLY PERMARK DATE DESCRIPTION

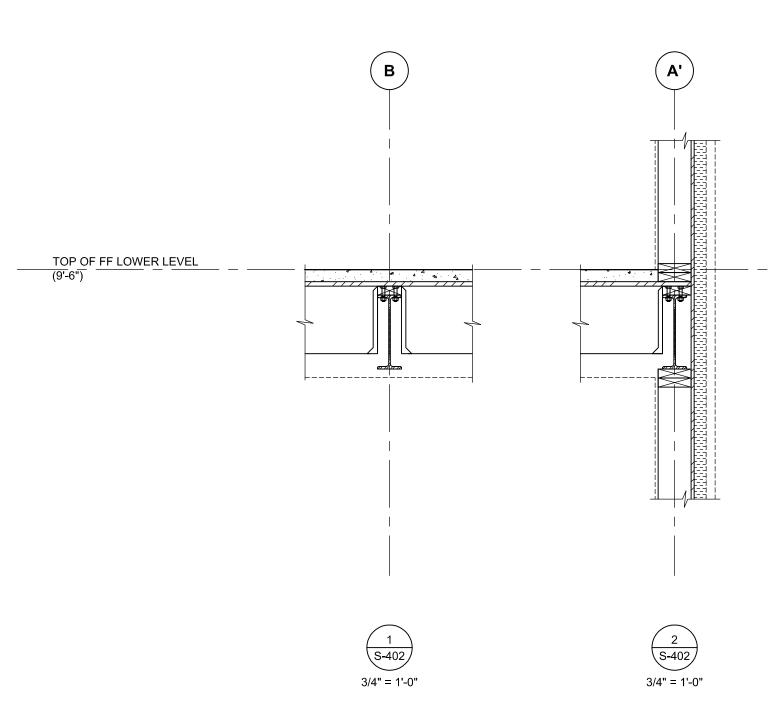
Project Name

SUMMIT CABINS 1500 SQFT UNIT

EDEN UTAH

File Name	CAD/BIM Program AUTOCAD
Drawn by AVB	Checked by N/A
Scale AS NOTED	Project # 160063

LOWER FLOOR
FRAMING
SECTIONS



NOTE

THIS DRAWING IS THE PROPERTY OF
BLACKWELL AND MAY NOT BE REPRODUCED
OR USED WITHOUT THE EXPRESSED CONSENT
OF BLACKWELL. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR CHECKING AND VERIFYING
ALL LEVELS AND DIMENSIONS AND SHALL
REPORT ALL DISCREPENCIES TO BLACKWELL
AND OBTAIN CLARIFICATION PRIOR TO
COMMENCING WORK.

REVIEWED AND SEALED BY:

SULLAWAY ENGINEERING

10815 RANCHO BERNARDO ROAD SUITE 210 SAN DIEGO, CA 92127 (858) 312-5150 www.sullawayeng.com

2016.11.15 FOUNDATIONS PERMIT REV

2016.10.14 FOUNDATIONS ONLY PERMIT

Project Name
SUMMIT CABINS

1500 SQFT UNIT

EDEN UTAH

File Name

CAD/BIM Program
AUTOCAD

Drawn by
AVB

Scale
AS NOTED

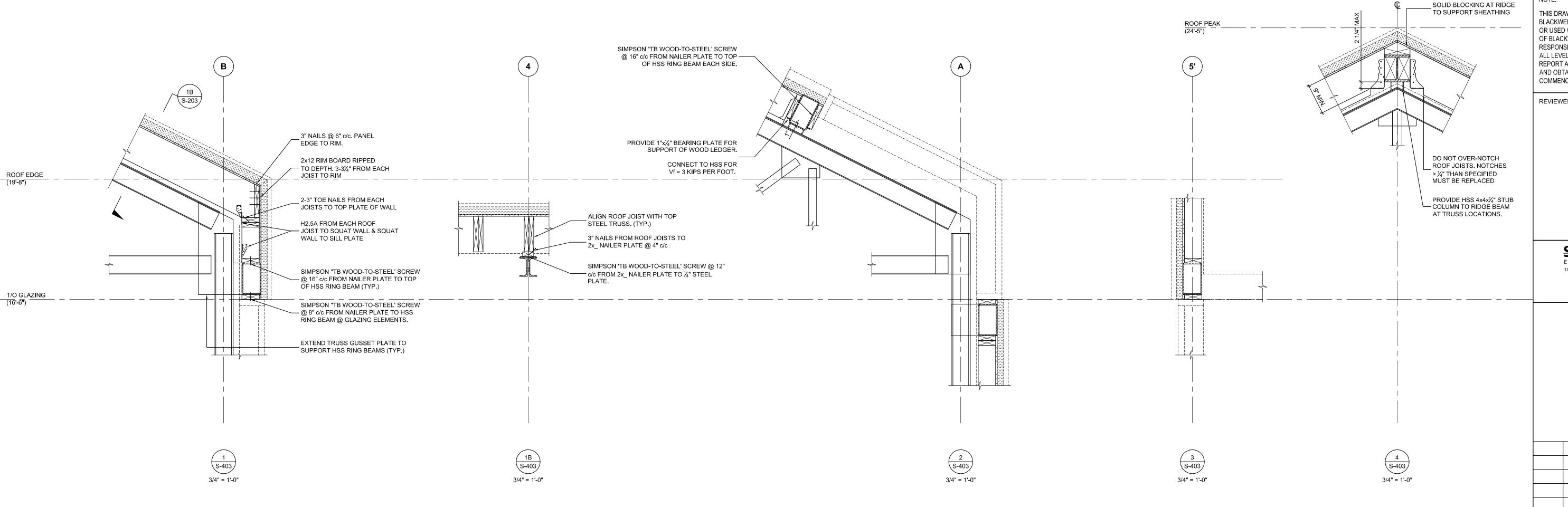
Checked by
N/A

Project #
160063

Sheet Title
UPPER FLOOR
FRAMING
SECTIONS

S-402

DRAWING PROVIDED FOR CONTEXT ONLY. SUPERSTRUCTURE PERMIT PACKAGE TO FOLLOW.



THIS DRAWING IS THE PROPERTY OF
BLACKWELL AND MAY NOT BE REPRODUCED
OR USED WITHOUT THE EXPRESSED CONSENT
OF BLACKWELL. THE CONTRACTOR SHALL BE
RESPONSIBLE FOR CHECKING AND VERIFYING
ALL LEVELS AND DIMENSIONS AND SHALL
REPORT ALL DISCREPENCIES TO BLACKWELL
AND OBTAIN CLARIFICATION PRIOR TO
COMMENCING WORK.

REVIEWED AND SEALED BY:

SULLAWAY

E N G I N E E R I N G 10815 RANCHO BERNARDO ROAD SUITE 210 SAN DIEGO, CA 92127 (858) 312-5150 www.sullawayeng.com

2016.11.15 FOUNDATIONS PERMIT REV
2016.10.14 FOUNDATIONS ONLY PERMIT
MARK DATE DESCRIPTION

Project Name
SUMMIT CABINS
1500 SQFT UNIT

EDEN UTAH

File Name	CAD/BIM Program AUTOCAD
Drawn by AVB	Checked by N/A
Scale AS NOTED	Project # 160063

ROOF FRAMING SECTIONS

S-403

DRAWING PROVIDED FOR CONTEXT ONLY. SUPERSTRUCTURE PERMIT PACKAGE TO FOLLOW.



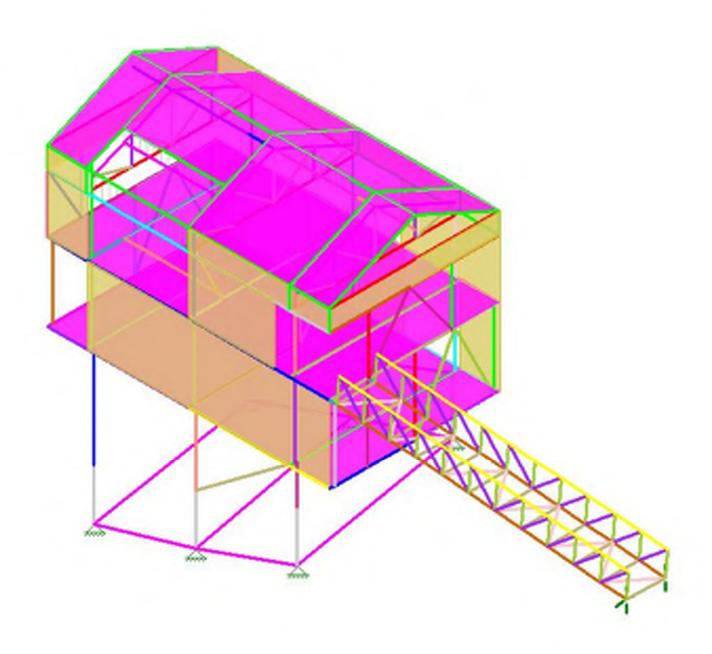
SUMMIT HORIZON NEIGHBORHOOD 1500 SF UNIT

Our Project - 160063

Foundation Design Calculation Package

REVISION 1





REVISION 1

COLUMNS HAVE BEEN RELEASED FOR BENDING IN BOTH DIRECTIONS @ TOP OF PIERS, RESULTING IN MORE ECONOMICAL ANCHORAGE.

WEIGHT OF FOOTINGS AND SOIL HAVE BEEN ADDED TO THE ANALYSIS MODEL (AS POINT LOADS AT SUPPORTS) TO RESIST OVERTURNING.

Table of Contents

Footing Design	4
Sliding Check	12
Pier Design	15
Anchor Bolt Design	18
Frost Wall Design	25
APPENDIX A – Load Cases	28
APPENDIX B – Pier Design Forces	33
APPENDIX C – Column Forces	36
APPENDIX D – Frost Wall Design Forces	39
APPENDIX E – Reaction Forces	42
APPENDIX F – Loading Report	55



Footing Design

Project Summit Horizon	Job Ref. 160063				
Section Pad Footings		Sheet no./rev.			
Calc. by	Date 11/8/2016	Chk'd by JDB	Date	App'd by	Date

SQUARE FOOTING SIZE – INDIVIDUAL COLUMN (AXIAL LOAD ONLY)

Tedds calculation version 1.0.02

Column details

Column width, x $a_c = 24.000$ in Column width, y $b_c = 24.000$ in

Loading details

Column axial dead load P_{dl} = 19.220 kips Column axial live load P_{ll} = 55.950 kips

Total column load (unfactored) $P_n = P_{dl} + P_{ll} = 75.170 \text{ kips}$

Axial load acting downward - OK

ALLOWABLE BEARING = 3.46 ksf

FOR SEISMIC AND WIND.

Soil details

The allowable increase in bearing pressure $q_a = 2.600 \text{ ksf}$

Depth of soil above top of footing $D_s = 6.000 \text{ ft}$

Density of soil $\rho_s = 120 \text{ lb/ft}^3$

Footing details

Thickness of footing $t_{ftg} = 12.000 \text{ in}$ Concrete density $\rho_c = 150 \text{ lb/ft}^3$

Increase in pressure due to weight of footing $q_{ftg} = (\rho_c - \rho_s) \times t_{ftg} = 0.030 \text{ ksf}$

Materials

Yield strength of tension reinforcement $f_y = 60 \text{ ksi}$ Concrete strength $f_c = 3.600 \text{ ksi}$

Footing size

Available net increase in bearing pressure $q_s = q_a - q_{ftg} = 2.570 \text{ ksf}$

Footing size regd $L_x = L_y = \sqrt{(P_n / q_s)} = 5.408 \text{ ft}$

Say footing size $\underline{}$ 6.000 ft \times 6.000 ft \times 12.000 in

Footing area OK

SQUARE FOOTING USD DESIGN FORCES - INDIVIDUAL COLUMN (AXIAL LOAD ONLY)

Footing details

Thickness of footing t_{ftg} = 12.000 in Concrete cover d_c = 3.000 in Trial bar diameter d_{bar} = 0.625 in

Structural depth to reinforcement

Project Summit Horizor	n Neighborhood	Job Ref. 160063			
Section Section Pad Footings			Sheet no./rev.		
Calc. by	Date 11/8/2016	Chk'd by JDB	Date	App'd by	Date

$$d_b = t_{ftg} - d_c - d_{bar}/2 = 8.688$$
 in

$$d_{bx} = d_{b}$$

$$d_{by} = d_{bx} - d_{bar} = 8.063$$
 in

Design forces

Column service loads

Column axial dead load P_{dl} = **19.220** kips

Column axial live load P_{II} = **55.950** kips

Total column load (unfactored)

$$P_n = P_{dl} + P_{ll} = 75.170 \text{ kips}$$

Total column load (factored)

$$P_u = 1.2 \times P_{dl} + 1.6 \times P_{ll} = 112.584 \text{ kips}$$

Axial load acting downward - OK

Actual soil pressure under base

Ultimate net design bearing pressure

$$q_u = P_u/L_x^2 + 1.2 \times q_{ftq} = 3.163 \text{ ksf}$$

Assume the base is a cantilevered slab with uniform load $q_{\mbox{\tiny u}}$ ksf

Ultimate moment at column face, x direction

ACI 15.4.2a

Column width,
$$x$$
 $a_c = 24.000$ in

$$M_{ux} = q_u \times L_x \times (L_x/2 - a_c/2)^2/2 = 38.0 \text{ kip_ft}$$

Ultimate moment at column face, y direction

Column width, y
$$b_c = 24.000$$
 in

$$M_{uy} = q_u \times L_x \times (L_x/2 - b_c/2)^2/2 = 38.0 \text{ kip_ft}$$

One-way (beam) shear

$$x_d = max((L_x/2 - a_c/2 - d_b), 0 in) = 15.313 in$$

$$V_{ux}$$
 = $q_u \times L_x \times x_d$ = **24.2** kips

$$y_d = max((L_x/2 - b_c/2 - d_b + d_{bar}), 0 in) = 15.938 in$$

$$V_{uy} = q_u \times L_x \times y_d = 25.2 \text{ kips}$$

Two-way shear at d/2 from column face

ACI 11.12.1.2

Area within ftg - OK

Perimeter at d/2

$$b_0 = 2 \times (a_c + b_c + 2 \times d_b) = 130.750$$
 in

Project Summit Horizon Neighborhood 1500SF Unit				Job Ref. 160063	
Section Pad Footings			Sheet no./rev.		
Calc. by RML	Date 11/8/2016	Chk'd by JDB	Date	App'd by	Date

$$V_{up} = q_u \times (L_x^2 - (a_c + d_b) \times (b_c + d_b)) = 90.408 \text{ kips}$$

Note - it is assumed that edge distances permit this to be a valid failure mechanism

Footing reinforcement - along X axis

Depth to tension steel along X axis

 d_{bx} = **8.688** in

Ultimate moment at column face

 $M_{ux} = 37.960 \text{ kip ft}$

Area of reinforcement required

$$\beta_1$$
 = if(f'_c < 4 ksi, 0.85, max(.65, 0.85 - 0.05 × (f'_c - 4 ksi) / 1 ksi)) = **0.850**

$$\omega_t = 0.319 \times \beta_1 = 0.271$$

$$R_u = \omega_t \times (1 - 0.588 \times \omega_t) = 0.228$$

$$R_{reqdx} = M_{ux} / (f'_{c} \times d_{bx}^{2}) / L_{y} = 0.023285$$

Section dimensions are OK to be tension-controlled

FOOTING REQUIRING TENSION STEEL ONLY - BARS IN X DIRECTION

$$J_x = sqrt(max(.25 - R_{reqdx} / 0.85 / 2.,0)) + .5 = 0.9861$$

Area of tension steel required

$$A_{sx_reqd} = M_{ux} / (0.90 \times f_y \times J_x \times d_{bx} \times L_y) = 0.16 in^2 / ft$$

Minimum ratio of tension reinforcement for temperature and shrinkage

ACI 7.12.2

$$\rho_{min} = 0.001800$$

Thickness of footing

$$t_{ftq} = 12.000 in$$

Total area of concrete per foot width

$$A_c = t_{ftg} \times 12 \text{ in } / 1 \text{ ft} = 144.000 \text{ in}^2/\text{ft}$$

ACI 10.5.1

$$A_{s_minx} = \rho_{min} \times A_c = \textbf{0.26} \text{ in}^2/\text{ft}$$

ACI 15.4.4.2

$$\beta_{bx} = if(L_y/L_x>1, 2/(L_y/L_x + 1) \times L_y/L_x, 1) = 1.000$$

$$A_{sx_req} = max(A_{sx_reqd} \times \beta_{bx}, A_{s_minx}) = 0.26 in^2 / ft$$

Tension steel provided

Provide Size #5 @ 10 in centers

 $A_{sx} = 0.37 \text{ in}^2/\text{ft}$

$$d_{bar} = 0.625 in$$

$$a_x = A_{sx} \times f_y / (0.85 \times f_c) = 0.602$$
 in

Project Summit Horizon Neighborhood 1500SF Unit				Job Ref. 160063	
Section Pad Footings				Sheet no./rev.	
Calc. by RML	Date 11/8/2016	Chk'd by JDB	Date	App'd by	Date

$$c_x = a_x / \beta_1 = 0.059$$

$$\varepsilon_{ty} = 0.003 \times ((d_{bx} - c_x) / c_x) = 0.034$$

Pass - Ductility OK at ultimate strength.

Area of tension steel provided sufficient

Check maximum spacing

ACI 7.6.5

Spacing of bars - OK

Check minimum area of steel

Area of steel > min - OK

Check of nominal cover and thickness of footing

Effective depth to bottom outer tension reinforcement

$$d_{bx} = 8.7 in$$

AI 15.7

Footing thickness > minimum - OK

Cover to outer tension reinforcement

$$d_{cov} = t_{ftq} - d_{bx} - d_{bar} / 2 = 3.0 in$$

Permissible minimum nominal cover to all reinforcement

ACI 7.7.1(a)

 $c_{min} = 3.000 in$

Cover over outer steel - OK

Footing reinforcement - along Y axis

Depth to tension steel along Y axis

 $d_{by} = 8.063 in$

Ultimate moment at column face

Muy = 37.960 kip_ft

Area of reinforcement required

$$\beta_1$$
 = if(f_c < 4 ksi, 0.85, max(.65, 0.85 - 0.05 × (f_c - 4 ksi) / 1 ksi)) = **0.850**

$$\omega_t = 0.319 \times \beta_1 = 0.271$$

$$R_u = \omega_t \times (1 - 0.588 \times \omega_t) = 0.228$$

$$R_{reqdy} = M_{uy} / (f'_c \times d_{by}^2) / L_x = 0.027035$$

Section dimensions are OK to be tension-controlled

FOOTING REQUIRING TENSION STEEL ONLY - BARS IN Y DIRECTION

$$J_y = sqrt(max(.25 - R_{reqdy} / 0.85 / 2.,0)) + .5 = 0.9838$$

Area of tension steel required

$$A_{sy_reqd} = M_{uy} / (0.90 \times f_y \times J_y \times d_{by} \times L_x) = 0.18 \text{ in}^2 / \text{ft}$$

Minimum ratio of tension reinforcement for temperature and shrinkage

ACI 7.12.1

 $\rho_{min} = 0.001800$

Thickness of footing

Project Summit Horizon	n Neighborhood	Job Ref. 160063			
Section Pad Footings				Sheet no./rev.	
Calc. by RML	Date 11/8/2016	Chk'd by JDB	Date	App'd by	Date

 t_{ftg} = **12.000** in

Total area of concrete per foot width

$$A_c = t_{ftg} \times 12 \text{ in } / 1 \text{ ft} = 144.000 \text{ in}^2/\text{ft}$$

ACI 10.5.1

$$A_{s_miny} = \rho_{min} \times A_c = 0.26 \text{ in}^2/\text{ft}$$

ACI 15.4.4.2

$$\beta_{by} = if(L_x/L_y>1, 2/(L_x/L_y + 1) \times L_x/L_y, 1) = 1.000$$

$$A_{\text{sy_req}} = \text{max}(A_{\text{sy_reqd}} \times \beta_{\text{by}}, A_{\text{s_miny}}) = 0.26 \text{ in}^2 / \text{ft}$$

Tension steel provided

Provide Size #5 @ 10 in centers

 $A_{sy} = 0.37 \text{ in}^2/\text{ft}$

 $d_{bar} = 0.625 in$

$$a_y = A_{sy} \times f_y / (0.85 \times f_c) = 0.602$$
 in

 $c_y = a_y / \beta_1 = 0.059$

$$\varepsilon_{ty} = 0.003 \times ((d_{by} - c_y) / c_y) = 0.031$$

Pass - Ductility OK at ultimate strength. Area of tension steel provided sufficient

Check maximum spacing

ACI 7.6.5

Spacing of bars - OK

Check minimum area of steel

Area of steel > min - OK

Check of nominal cover and thickness of footing

Effective depth to bottom outer tension reinforcement

 $d_{by} = 8.1 in$

ACI 15.7

Footing thickness > minimum - OK

Cover to outer tension reinforcement

$$d_{cov} = t_{ftg} - d_{by} - d_{bar} / 2 = 3.6 in$$

Permissible minimum nominal cover to all reinforcement

ACI 7.7.1(a)

 $c_{min} = 3.000 in$

Cover over outer steel OK

ONE-WAY (BEAM) SHEAR RESISTANCE OF FOOTING - X AXIS (ACI 11.12, 15.5)

Transverse width of footing

 $L_v = 6.000 \text{ ft}$

Depth to tension steel

 d_{bx} = **8.688** in

Design ultimate shear forces

Project Summit Horizor	n Neighborhood	Job Ref. 160063			
			Sheet no./rev.		
Calc. by RML	Date 11/8/2016	Chk'd by JDB	Date	App'd by	Date

Ultimate shear at 'd' from column face $V_{ux} = 24.219$ kips

Concrete strength $f'_c = 3.600 \text{ ksi}$

Shear capacity of concrete

$$V_{cx} = 2 \times \sqrt{(f'_c)} \times L_y \times d_{bx} = 75.060 \text{ kips}$$

 $V_{sx} = 0 \text{ kips}$

$$\phi V_{nx} = 0.75 \times (V_{cx} + V_{sx}) =$$
56.295 kips

One-way shear capacity - OK

ONE-WAY (BEAM) SHEAR RESISTANCE OF FOOTING - Y AXIS (ACI 11.12, 15.5)

Longitudinal length of footing $L_x = 6.000 \text{ ft}$

Depth to tension steel $d_{by} = 8.063$ in

Design ultimate shear forces

Ultimate shear at 'd' from column face V_{uy} = 25.208 kips

Concrete strength $f_c = 3.600 \text{ ksi}$

Shear capacity of concrete

$$V_{cy} = 2 \times \sqrt{f'_c} \times L_x \times d_{by} = 69.660 \text{ kips}$$

 $V_{sy} = 0$ kips

 $\phi V_{ny} = 0.75 \times (V_{cy} + V_{sy}) = 52.245 \text{ kips}$

One-way shear capacity - OK

TWO-WAY (PUNCHING) SHEAR CHECK (ACI 11.12.2)

Tension steel resisting bending

Total length of shear perimeter at d/2 from column face

 $b_0 = 130.750 \text{ in}$

Depth to tension steel $d_b = 8.688$ in

Max punching shear force $V_{up} = 90.408 \text{ kips}$

Concrete strength $f_c = 3.600 \text{ ksi}$

Shear capacity of concrete

$$\beta_c = \max(a_c/b_c, b_c/a_c) = 1.000$$

 $\alpha_s = 40$

factor = min(4, $\alpha_s \times d_b / b_o + 2$, 2 + 4/ β_c) = 4.000

 V_{cp} = factor $\times \sqrt{(f'_c)} \times b_o \times d_b$ = 272.614 kips

 $V_{sp} = 0 \text{ kips}$

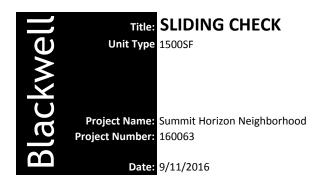
 $\phi V_{np} = 0.75 \times (V_{cp} + V_{sp}) = 204.460 \text{ kips}$

Section	Project Summit Horizon	Project Summit Horizon Neighborhood 1500SF Unit				Job Ref. 160063	
					Sheet no./rev.		
	,		1	Date	App'd by	Date	

!	1		
		Two way about	it. OK
		Two-way shear	capacity - ON



Sliding Check



Coefficient of Friction $\mu = 0.35$

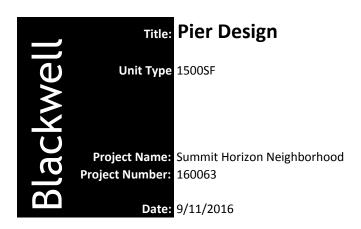
l C	V (I-)	V (I-)	7 (1-)	Fuintion (Is)	CLIDING
LC 103	X (k)	Y (k)	Z (k)	Friction (k)	
102	0	243.719	0	85.3	NO
103	0.004	338.16	0	118.4	NO
104	0	243.719	0	85.3	NO
105	0.007	464.576	0	162.6	NO
106	0.008	480.193	0	168.1	NO
107	0.001	241.94	-16.856	84.7	NO
108	0	241.94	16.772	84.7	NO
109	0.001	236.291	-16.772	82.7	NO
110	0	236.35	13.617	82.7	NO
111	0.001	232.848	-15.208	81.5	NO
112	0	232.806	15.227	81.5	NO
113	-10.365	238.539	0	83.5	NO
114	10.353	238.539	0	83.5	NO
115	-10.293	232.799	0.012	81.5	NO
116	10.245	232.799	0.012	81.5	NO
117	0.003	313.216	-12.642	109.6	NO
118	0.003	313.216	12.579	109.6	NO
119	0.003	308.979	-12.579	108.1	NO
120	0.003	309.023	10.213	108.2	NO
121	0.003	306.397	-11.406	107.2	NO
122	0.003	306.365	11.421	107.2	NO
123	-7.771	310.666	0	108.7	NO
124	7.767	310.666	0	108.7	NO
125	-7.717	306.36	0.009	107.2	NO
126	7.686	306.36	0.009	107.2	NO
127	0.008	478.859	-12.642	167.6	NO
128	0.008	478.859	12.579	167.6	NO
129	0.008	474.623	-12.579	166.1	NO
130	0.008	474.667	10.213	166.1	NO
131	0.008	472.04	-11.406	165.2	NO
132	0.008	472.008	11.421	165.2	NO
133	-7.766	476.309	0	166.7	NO
134	7.772	476.309	0	166.7	NO
135	-7.712	472.003	0.009	165.2	NO
136	7.691	472.003	0.009	165.2	NO
137	0	144.453	-16.856	50.6	NO
138	0	144.453	16.772	50.6	NO
139	0	138.804	-16.772	48.6	NO
140	0	138.862	13.617	48.6	NO
141	0	135.36	-15.208	47.4	NO
142	0	135.318	15.227	47.4	NO
143	-10.365	141.052	0	49.4	NO
144	10.353	141.052	0	49.4	NO
145	-10.293	135.311	0.012	47.4	NO

REVISISON 1 WEIGHT OF FOOTINGS AND SOIL ADDED TO ANALYSIS MODEL. NO SLIDING OBSERVED.

LC	X (k)	Y (k)	Z (k)	Friction (k)	
146	10.244	135.311	0.012	47.4	NO
147	-29.561	267.023	0	93.5	NO
148	-29.561	267.023	0	93.5	NO
149	-29.561	267.023	0	93.5	NO
150	0.002	267.023	-29.585	93.5	NO
151	0.002	267.023	-29.585	93.5	NO
152	0.002	267.023	-29.585	93.5	NO
153	29.562	267.023	0	93.5	NO
154	29.562	267.023	0	93.5	NO
155	29.562	267.023	0	93.5	NO
156	0	267.023	29.585	93.5	NO
157	0	267.023	29.585	93.5	NO
158	0	267.023	29.585	93.5	NO
159	-22.168	332.028	0	116.2	NO
160	-22.168	332.028	0	116.2	NO
161	-22.168	332.028	0	116.2	NO
162	0.004	332.028	-22.189	116.2	NO
163	0.004	332.028	-22.188	116.2	NO
164	0.004	332.028	-22.189	116.2	NO
165	22.174	332.028	0	116.2	NO
166	22.174	332.028	0	116.2	NO
167	22.174	332.028	0	116.2	NO
168	0.002	332.028	22.189	116.2	NO
169	0.002	332.028	22.189	116.2	NO
170	0.002	332.028	22.189	116.2	NO
171	-22.163	497.671	0	174.2	NO
172	-22.163	497.671	0	174.2	NO
173	-22.163	497.671	0	174.2	NO
174	0.009	497.671	-22.189	174.2	NO
175	0.009	497.671	-22.188	174.2	NO
176	0.009	497.671	-22.189	174.2	NO
177	22.179	497.671	0	174.2	NO
178	22.179	497.671	0	174.2	NO
179	22.179	497.671	0	174.2	NO
180	0.007	497.671	22.189	174.2	NO
181	0.007	497.671	22.189	174.2	NO
182	0.007	497.671	22.189	174.2	NO
183	-29.561	122.927	0	43.0	NO
184	-29.561	122.927	0	43.0	NO
185	-29.561	122.927	0	43.0	NO
186	0.001	122.927	-29.585	43.0	NO
187	0.001	122.927	-29.585	43.0	NO
188	0.001	122.927	-29.585	43.0	NO
189	29.562	122.927	0	43.0	NO
190	29.562	122.927	0	43.0	NO
191	29.562	122.927	0	43.0	NO
192	0	122.927	29.585	43.0	NO
193	0	122.927	29.585	43.0	NO
194	0	122.927	29.585	43.0	NO
134	U	166.361	∠3.303	+3.0	NO



Pier Design



STRUCTUREPOINT - spColumn v4.81 (TM) Page Licensed to: Blackwell. License ID: 64625-1049829-4-17BA0-22D23 11/09/ ${\tt C:\Dropbox\ (BSE)\label{lem:colline} Colling Normal Powder\ Mountain\Design\Colling SPColumn\label{lem:colline} 1500SF\ Pier\ R1.colline R$ 10:20

General Information:

File Name: C:\Dropbox (BSE)\160063 Summit Powder Mountain\Design\Cottag...\160063 1500SF Pier R1.col

Project: 160063 Column: Pier Code: ACI 318-11 Engineer: RML

Code: Units: English

Run Option: Design Slenderness: Not considered Run Axis: Biaxial Column Type: Structural

Material Properties:

f'c = 3 ksi Ec = 3122.02 ksi fy = 60 ksi Es = 29000 ksi

Ultimate strain = 0.003 in/in Beta1 = 0.85

Section:

Rectangular: Width = 24 in Depth = 24 in

Gross section area, Ag = 576 in^2

 $Ix = 27648 in^4$ rx = 6.9282 in $Iy = 27648 in^4$ ry = 6.9282 in Yo = 0 in Xo = 0 in

Reinforcement:

Bar Set: ASTM A615

Size Diar	m (in) Area	a (in^2)	Size Di	am (in) Are	a (in^2)	Size Dia	am (in) Are	a (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Bar selection: Minimum number of bars

 $Asmin = 0.01 * Ag = 5.76 in^2$, $Asmax = 0.08 * Ag = 46.08 in^2$

Confinement: Tied; #3 ties with #10 bars, #4 with larger bars. phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Lavout: Rectangular

Pattern: All Sides Equal (Cover to transverse reinforcement)

Total steel area: As = 7.20 in^2 at rho = 1.25% Minimum clear spacing = 5.25 in

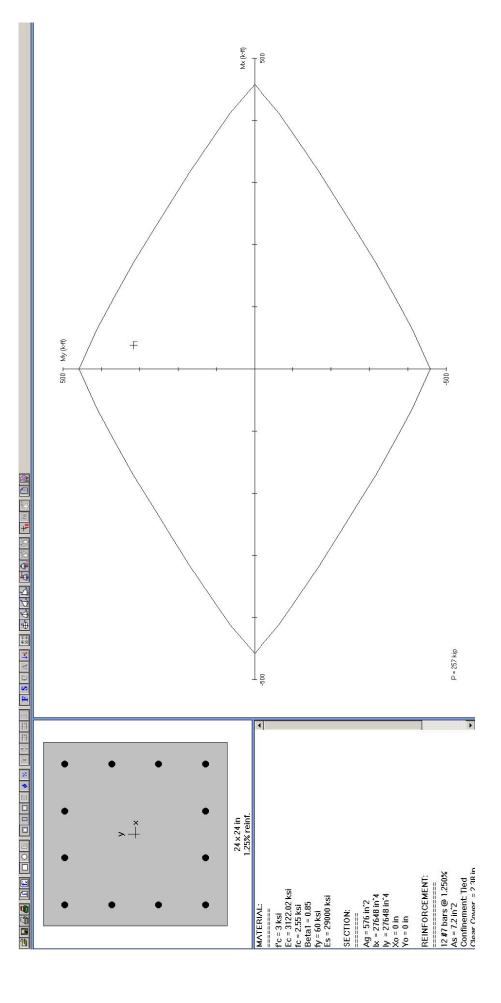
12 #7 Cover = 2 in

Factored Loads and Moments with Corresponding Capacities:

Design/Required ratio PhiMn/Mu >= 1.00

No.	Pu kip	Mux k-ft	Muy k-ft	PhiMnx k-ft	PhiMny k-ft	PhiMn/Mu NA	A depth D in	t depth in	eps_t	Phi
1	256.60	38.10	316.70	50.69	421.34	1.330	9.77	23.85	0.00438	0.847
2	-77.40	4.30	0.00	256.57	0.00	59.667	3.35	21.19	0.01595	0.900
3	473.00	0.00	23.20	-0.00	375.05	16.166	13.35	21.19	0.00176	0.650

*** End of output ***





Anchor Bolt Design

Project Summit Horizon	n Neighborhood	Job Ref. 160063			
Section Anchor Bolts		Sheet no./rev.			
Calc. by RML	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date

ANCHOR BOLT DESIGN

In accordance with ACI318-11

Tedds calculation version 2.0.17

REVISION 1 -

IN ACCORDANCE

WITH ACI 318-14

SEISMIC LOADS HAVE

BEEN MULIPLIED BY

Cl. 17.2.3.4.3 d,

2016.11.07

 $\Omega_0 = 2.0.$

Anchor bolt geometry

Type of anchor bolt Cast-in hooked end bolt anchor

 $\begin{array}{ll} \mbox{Diameter of anchor bolt} & \mbox{d}_a = \mbox{1.125 in} \\ \mbox{Number of bolts in x direction} & \mbox{N}_{boltx} = \mbox{2} \\ \mbox{Number of bolts in y direction} & \mbox{N}_{bolty} = \mbox{2} \\ \end{array}$

Total number of bolts $n_{total} = (N_{boltx} \times 2) + (N_{bolty} - 2) \times 2 = 4$ Total number of bolts in tension $n_{tens} = (N_{boltx} \times 2) + (N_{bolty} - 2) \times 2 = 4$

Spacing of bolts in x direction $s_{boltx} = 15$ in Spacing of bolts in y direction $s_{bolty} = 15$ in

Number of threads per inch $n_t = 7$

Effective cross-sectional area of anchor $A_{se} = \pi / 4 \times (d_a - 0.9743 \text{ in } / \text{ nt})^2 = 0.763 \text{ in}^2$

Embedded depth of each anchor bolt $h_{ef} = 24$ in

Foundation geometry

Member thickness h_a = 24 inDist center of baseplate to left edge foundation x_{ce1} = 12 inDist center of baseplate to right edge foundation x_{ce2} = 12 inDist center of baseplate to bot. edge foundation y_{ce1} = 12 inDist center of baseplate to top edge foundation y_{ce2} = 12 in

Material details

Minimum yield strength of steel $f_{ya} = 36$ ksi Nominal tensile strength of steel $f_{uta} = 58$ ksi Compressive strength of concrete $f'_c = 3$ ksi Concrete modification factor $\lambda = 1.00$

Modification factor for cast-in anchor concrete failure

 $\lambda_a = 1.0 \times \lambda = 1.00$

Strength reduction factors

Tension of steel element $\phi_{t,s} = \textbf{0.75}$ Shear of steel element $\phi_{v,s} = \textbf{0.65}$ Concrete tension $\phi_{t,c} = \textbf{0.75}$ Concrete shear $\phi_{v,c} = \textbf{0.75}$ Concrete tension for pullout $\phi_{t,cB} = \textbf{0.70}$ Concrete shear for pryout $\phi_{v,cB} = \textbf{0.70}$

NOTE:

CONCRETE FAILURE MODES DO NOT GOVERN SINCE ANCHOR BOLTS ARE LAPPED WITH PIER REINFORCING STEEL.

REFER TO ACI 318-14 Cl. 17.4.2.9

Seismic requirements

Seismic category

. Anchor strengths associated with concrete failure modes will be taken to be 0.75 times the calculated strength.

Anchor forces

Number of bolt rows in tension $N_{boltN} = 2$ Axial force in bolts for row 1 $N_1 = 16.10$ kips Axial force in bolts for row 2 $N_2 = 16.10$ kips

Project Summit Horizon Neighborhood				Job Ref. 160063	
Section Anchor Bolts				Sheet no./rev.	
Calc. by RML	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date

Total axial force on bolt group $N_R = 32.20 \text{ kips}$ Maximum axial force to single bolt $N_{\text{max,s}} = 8.05 \text{ kips}$ Eccentricity of axial load (from bolt group centroid) $e'_N = 0.00 \text{ in}$ Shear force applied to bolt group V = 48.20 kips

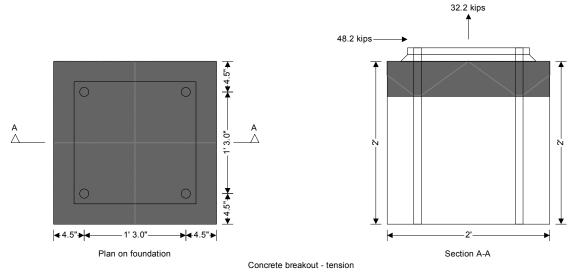
Steel strength of anchor in tension (D.5.1)

Nominal strength of anchor in tension $N_{sa} = A_{se} \times f_{uta} = 44.27 \text{ kips}$ Steel strength of anchor in tension $\phi N_{sa} = \phi_{t.s} \times N_{sa} = 33.20 \text{ kips}$

PASS - Steel strength of anchor exceeds max tension in single bolt

Check concrete breakout strength of anchor bolt in tension (D.5.2)

The spacing and embedded depth of the bolts/anchors are such that the projected area of all the anchors do not overlap. The concrete breakout strength of the anchors will therefore be based on a single anchor with the maximum axial force to a single anchor



Single anchor

Applied axial force $N_s = N_{max,s} = 8.05 \text{ kips}$

Eccentricity $e'_N = 0$ in

The anchors are located at less than $1.5h_{ef}$ from 4 edges. Therefore the effective embedded depth has to be limited to 5.00" in accordance with D.5.2.3

Limiting embedded depth $h_{ef,lim} = 5.00$ in

Coeff for basic breakout strength in tension $k_c = 24$

Breakout strength for single anchor in tension $N_b = k_c \times \lambda_a \times \sqrt{(f_c \times 1 \text{ psi})} \times h_{ef,lim}^{1.5} \times 1 \text{ in}^{0.5} = 14.70 \text{ kips}$

Projected area for groups of anchors $A_{Nc} = 144 \text{ in}^2$

Projected area of a single anchor $A_{Nco} = 9 \times h_{ef,lim}^2 = 225 \text{ in}^2$

Min dist center of anchor to edge of concrete $c_{a,min} = 4.5$ in

Mod factor for groups loaded eccentrically $\psi_{\text{ec,N}} = \min(1 \ / \ (1 + ((2 \times e'_{\text{N}}) \ / \ (3 \times h_{\text{ef,lim}}))), \ 1) = \textbf{1.000}$

Modification factor for edge effects $\psi_{ed,N} = 0.7 + 0.3 \times (c_{a,min} / (1.5 \times h_{ef,lim})) = 0.880$

Modification factor for no cracking at service loads $\psi_{c,N}$ = **1.000** Modification factor for cracked concrete $\psi_{cp,N}$ = **1.000**

Nominal concrete breakout strength $N_{cb} = A_{Nc} / A_{Nco} \times \psi_{ed,N} \times \psi_{c,N} \times \psi_{cp,N} \times N_b = 8.28 \text{ kips}$

Project Summit Horizon	n Neighborhood	Job Ref. 160063			
Section Anchor Bolts		Sheet no./rev.			
Calc. by RML	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date

Concrete breakout strength

 $\phi N_{cb} = 0.75 \times \phi_{t,c} \times N_{cb} = 4.66 \text{ kips}$

-FAIL - Tension in bolts exceed breakout strength-

Pullout strength (D.5.3)

Net bearing area of the head of anchor $A_{brg} = 1.5 \text{ in}^2$ Mod factor for no cracking at service loads $\psi_{c,P} = 1.000$

Pullout strength for single anchor $N_p = 0.9 \times f'_c \times e_h \times d_a = 12.15$ kips

Nominal pullout strength of single anchor $N_{pn} = \psi_{c,P} \times N_p = 12.15$ kips

Pullout strength of single anchor $\phi N_{pn} = 0.75 \times \phi_{t,cB} \times N_{pn} = 6.38$ kips

-FAIL - Maximum axial force in a single bolt exceeds pullout strength of single anchor

Side face blowout strength (D.5.4)

The sideface blowout will be checked in the x and y directions as the edge distances for the bolts in both directions are less than $h_{\rm ef}$ / 2.5

Check x direction

Axial force in group of anchors $N_{sfb} = (N_1) = 16.10 \text{ kips}$

Edge distance $c_{a1} = 4.50$ in $c_{a2} = 4.50$ in

Side face blowout strength for single anchor $N_{\text{sb}} = (160 \times c_{\text{a1}} \times \sqrt{(A_{\text{brg}})} \times \lambda_{\text{a}} \times \sqrt{(f'_{\text{c}} \times 1 \text{psi})}) = \textbf{48.30 kips}$

Distance between outer anchors along the edge $s = (N_{bolty}-1) \times s_{bolty} = 15$ in

Nom side face blowout strength multiple anchors $N_{sbg} = (1 + s / (6 \times c_{a1})) \times N_{sb} = 75.13$ kips Side face blowout strength for multiple anchors $\phi N_{sbg} = 0.75 \times \phi_{t,c} \times N_{sbg} = 42.26$ kips

-PASS - Sideface blowout strength exceeds tension in bolts

Check y direction

Axial force in group of anchors $N_{sfb} = N_1 / N_{bolty} + N_2 / N_{bolty} = 16.10 \text{ kips}$

Edge distance $c_{a1} = 4.50$ in $c_{a2} = 4.50$ in

Ca2 - 4.30

Side face blowout strength for single anchor $N_{sb} = (160 \times c_{a1} \times \sqrt{(A_{brg})} \times \lambda_a \times \sqrt{(f_c \times 1psi)}) = 48.30 \text{ kips}$

Distance between outer anchors along the edge $s = (N_{boltN}-1) \times s_{boltx} = 15$ in

Nom side face blowout strength multiple anchors N_{sbg} = (1 + s / (6 × c_{a1})) × N_{sb} = **75.13** kips

Side face blowout strength for multiple anchors $\phi N_{sbg} = 0.75 \times \phi_{t,c} \times N_{sbg} = 42.26$ kips

PASS - Sideface blowout strength exceeds tension in bolts

Steel strength of anchor in shear (D.6.1)

Built-up grout pads are used so nominal strength will be multiplied by 0.8 (D.6.1.3)

Effective number of anchors in shear $N_{boltV} = 4$

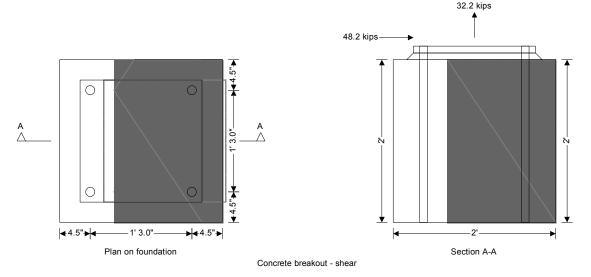
Nom strength of anchor in shear $V_{sa} = 0.8 \times N_{boltV} \times 0.6 \times A_{se} \times f_{uta} = 85.00$ kips

Steel strength of anchor in shear $\phi V_{sa} = \phi_{v,s} \times V_{sa} = 55.25$ kips

PASS - Steel strength of anchor exceeds shear in bolts

Project Summit Horizon	n Neighborhood	Job Ref. 160063				
Section Anchor Bolts						
Calc. by RML	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date	

Concrete breakout strength in shear perpendicular to edge - Case 2. All shear resisted by rear bolts (D.6.2)



The anchors are influenced by three or more edges where any edge distance is less than 1.5ca1 so value of ca1 is limited to c'a1

Bolt offset for limiting shear $x_{V,r} = 3.50 in$ Limiting edge distance $C'_{a1} = 16$ in

Applied shear $V_{app} = V = 48.20 \text{ kips}$

Edge distance x for shear near corner $c_{a1} = 19.5$ in

Edge distance y for shear near corner $c_{a2} = min(y_{ce1}, y_{ce2}) - (((N_{bolty} - 1)/2) \times s_{bolty}) = 4.5 in$

Load bearing length of anchor $I_e = min(h_{ef}, 8 \times d_a) = 9$ in

 $V_{b1} = 7 \times (I_e / d_a)^{0.2} \times \sqrt{(d_a)} \times \lambda_a \times \sqrt{(f_c \times 1psi)} \times (c_{a1}')^{1.5} = 39.45 \text{ kips}$ Basic concrete breakout strength

 $V_{b2} = 9 \times \lambda_a \times \sqrt{(f'_c \times 1psi \times 1 in) \times (c'_{a1})^{1.5}} = 31.55 kips$

Basic concrete breakout strength $V_b = Min(V_{b1}, V_{b2}) = 31.55 \text{ kips}$

 $A_{Vco} = 4.5 \times c'_{a1}^2 = 1152 in^2$ Projected area of a single anchor

Projected area of a group of anchors $A_{Vc} = 576 \text{ in}^2$

Mod factor for edge effect $\psi_{\text{ed.V}}$ = 0.7 + 0.3 × c_{a2} / (1.5 × c'_{a1}) = **0.756**

 $e'_{V} = 0$ in Eccentricity of loading

Modification factor of eccentric loading $\psi_{ec,V} = min(1, 1 / (1 + ((2 \times e'_{V}) / (3 \times c'_{a1})))) = 1.000$

Modification factor for cracking $\psi_{c,V} = 1.400$ Modification factor for edge distance $\psi_{h,V} = 1.0 = 1.000$

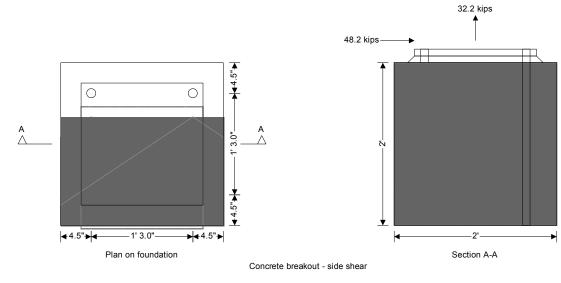
Nominal concrete break out strength in shear $V_{cbg} = A_{Vc} / A_{Vco} \times \psi_{ec,V} \times \psi_{ed,V} \times \psi_{c,V} \times \psi_{h,V} \times V_b = 16.70 \text{ kips}$

Concrete break out strength in shear $\phi V_{cbg} = 0.75 \times \phi_{v,c} \times V_{cbg} = 9.39 \text{ kips}$

FAIL - Shear in bolts exceeds shear breakout perpendicular to edge strength

Project Summit Horizon	n Neighborhood	Job Ref. 160063			
Section Anchor Bolts			Sheet no./rev. 5		
Calc. by RML	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date

Concrete breakout strength in shear parallel to edge - Case 2. All shear resisted by rear bolts (D.6.2)



The anchors are influenced by three or more edges where any edge distance is less than $1.5c_{a1,p}$ so value of $c_{a1,p}$ is limited to c'a1.p

Bolt offset for limiting shear $y_{V,r,p} = 3.50 in$ Limiting edge distance $C'_{a1.0} = 16 in$

 $V_{app} = V = 48.20 \text{ kips}$ Applied shear

Edge distance x for shear near corner $c_{a1,p} = 19.5 in$

Edge distance y for shear near corner $c_{a2,p} = min(x_{ce1}, x_{ce2}) - (((N_{boltx} - 1)/2) \times s_{boltx}) = 4.5 in$

 $I_e = min(h_{ef}, 8 \times d_a) = 9 in$ Load bearing length of anchor

 $V_{b,p1} = 7 \times (I_e / d_a)^{0.2} \times \sqrt{(d_a)} \times \lambda_a \times \sqrt{(f'_c \times 1psi)} \times (c'_{a1,p})^{1.5} = 39.45 \text{ kips}$ Basic concrete breakout strength

 $V_{b,p2} = 9 \times \lambda_a \times \sqrt{(f'_c \times 1psi \times 1in)} \times (c'_{a1,p})^{1.5} = 31.55 \text{ kips}$

Basic concrete breakout strength $V_{b,p} = Min(V_{b,p1}, V_{b,p2}) = 31.55 \text{ kips}$

 $A_{Vco,p} = 4.5 \times c'_{a1,p}^2 = 1152 in^2$ Projected area of a single anchor

Projected area of a group of anchors $A_{Vc,p} = 576 \text{ in}^2$

Mod factor for edge effect $\psi_{ed,V,p} = 1.000$

Eccentricity of loading $e'_{V,p} = 0$ in

Modification factor of eccentric loading $\psi_{ec,V,p} = min(1, 1 / (1 + ((2 \times e'_{V,p}) / (3 \times c'_{a1,p})))) = 1.000$

Modification factor for cracking $\psi_{c,V} = 1.400$

 $\psi_{h,V,p} = 1.0 = 1.000$

Nominal concrete break out strength in shear $V_{\text{cbg,p}} = 2 \times A_{\text{Vc,p}} / A_{\text{Vco,p}} \times \psi_{\text{ec,V,p}} \times \psi_{\text{ed,V,p}} \times \psi_{\text{c,V}} \times \psi_{\text{h,V,p}} \times V_{\text{b,p}} = 44.17 \text{ kips}$

Concrete break out strength in shear $\phi V_{cbg,p} = 0.75 \times \phi_{v,c} \times V_{cbg,p} = 24.84 \text{ kips}$

FAIL - Shear in bolts exceeds shear breakout parallel to edge strength

Pryout strength of anchor in shear (D.6.3)

Modification factor for edge distance

 $k_{cp} = 2.0$ Coefficient of pryout strength

 $V_{cpg} = k_{cp} \times N_{cb} = 16.55 \text{ kips}$ Nominal pryout strength of anchor in shear

Pryout strength of anchor in shear $\phi V_{cpg} = 0.75 \times \phi_{v,cB} \times V_{cpg} = 8.69 \text{ kips}$

FAIL - Shear in bolts exceeds Pryout strength of anchor

Project Summit Horizo	n Neighborhood		Job Ref. 160063		
Section Anchor Bolts		Sheet no./rev.			
Calc. by RML	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date

Interaction of tensile and shear forces

 $N_{ua} / \phi N_n = 1.729$

Critical design strength in shear $\phi V_n = \phi V_{cpg} = \textbf{8.69 kips}$ Critical applied shear force $V_{ua} = abs(V) = \textbf{48.20 kips}$

 $V_{ua} / \phi V_n = 5.546$

 $V_{ua} / \phi V_n > 0.2$ and $N_{ua} / \phi N_n > 0.2$,

Interaction check in accordance is with D.7.3 required

Interaction $I_b = N_{ua} / \phi N_n + V_{ua} / \phi V_n = 7.275$

-FAIL - interaction of forces is greater than 1.2

$$\begin{split} \Phi N_{a} &= 32.2 \text{ kips} \\ N_{ua} &= 8.1 \text{ kips} \\ \Phi V_{a} &= 55.3 \text{ kips} \\ V_{ua} &= 48.2 \text{ kips} \\ V_{ua}/\Phi V_{n} &= 0.87 \\ N_{ua}/\Phi N_{n} &= 0.25 \\ V_{ua}/\Phi V_{n} &+ N_{ua}/\Phi N_{n} &= 1.12 < 1.2 \\ O.K. \end{split}$$



Frost Wall Design

Project Summit Horizo	n Neighborhood		Job Ref. 160063		
Section Frost Walls		Sheet no./rev.			
Calc. by	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date

RC BEAM DESIGN (ACI318-11)

TEDDS calculation version 2.2.13

Rectangular section details

Section width b = 10 in Section depth h = 60 in

Concrete details

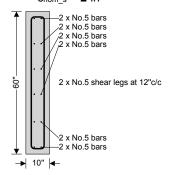
Compressive strength of concrete $f_c = 4000$ psi Modulus of elasticity of concrete E = 3834254 psi

Reinforcement details

Yield strength of reinforcement $f_y = 60000 \text{ psi}$

Nominal cover to reinforcement

Cover to top reinforcement $c_{nom_t} = 2$ in Cover to bottom reinforcement $c_{nom_b} = 2$ in Cover to side reinforcement $c_{nom_s} = 2$ in



Multiple layers of bottom reinforcement

Reinforcement provided - layer 1 $2 \times \text{No. 5 bars}$ Area of reinforcement provided - layer 1 $A_{s_L1} = 0.614 \text{ in}^2$ Depth to layer 1 $d_{L1} = 57.063 \text{ in}$ Reinforcement provided - layer 2 $2 \times \text{No. 5 bars}$

Area of reinforcement provided - layer 2 $A_{s_L2} = 0.614 \text{ in}^2$ Depth to layer 2 $d_{L2} = 46.438 \text{ in}$

Total area of reinforcement $A_{s,prov} = A_{s_L1} + A_{s_L2} = 1.227 \text{ in}^2$

Centroid of reinforcement $d_{bot} = (A_{s_L1} \times d_{L1} + A_{s_L2} \times d_{L2}) / A_{s,prov} = 51.75 \text{ in}$

Multiple layers of top reinforcement

Reinforcement provided - layer 1 $2 \times \text{No. 5 bars}$ Area of reinforcement provided - layer 1 $A_{s_L1} = 0.614 \text{ in}^2$ Depth to layer 1 $d_{L1} = 2.938 \text{ in}$ Reinforcement provided - layer 2 $2 \times \text{No. 5 bars}$ Area of reinforcement provided - layer 2 $A_{s_L2} = 0.614 \text{ in}^2$ Depth to layer 2 $d_{L2} = 13.562 \text{ in}$ Reinforcement provided - layer 3 $2 \times \text{No. 5 bars}$

Reinforcement provided - layer 3 $2 \times \text{No. 5 bars}$ Area of reinforcement provided - layer 3 $A_{\text{s_L3}} = 0.614 \text{ in}^2$ Depth to layer 3 $d_{\text{L3}} = 24.187 \text{ in}$

Project Summit Horizon	Project Summit Horizon Neighborhood Cabins				Job Ref. 160063	
Section Frost Walls		Sheet no./rev.				
Calc. by RML	Date 11/9/2016	Chk'd by JDB	Date	App'd by	Date	

Reinforcement provided - layer 4 $2 \times \text{No. 5 bars}$ Area of reinforcement provided - layer 4 $A_{s_L4} = \textbf{0.614} \text{ in}^2$ Depth to layer 4 $d_{L4} = \textbf{34.813} \text{ in}$

Total area of reinforcement $A'_{s,prov} = A_{s_L1} + A_{s_L2} + A_{s_L3} + A_{s_L4} = 2.454 \text{ in}^2$

Centroid of reinforcement $d_{top} = (A_{s} L_1 \times d_{L1} + A_{s} L_2 \times d_{L2} + A_{s} L_3 \times d_{L3} + A_{s} L_4 \times d_{L4}) / A'_{s,prov} = 18.875 \text{ in}$

Rectangular section in flexure (Chapter 10) - Positive moment

Factored bending moment at section Mu = 259.800 kip ft

Depth to tension reinforcement $d = getvar("d_{bot}", h - 2 in) = 51.75 in$ Tension reinforcement provided $2 \times No. 5 bars + 2 \times No. 5 bars$

Area of tension reinforcement provided $A_{s,prov} = 1.227 \text{ in}^2 \text{ A}_{s,min} = 1.2 \text{ in}^2 \text{ for wall. OK.}$

Minimum area of reinforcement (exp.10-3) $A_{s,min} = max(3 psi \times \sqrt{(f'_c / 1 psi)}, 200 psi) \times b \times d / f_y = 1.725 in^2$

-FAIL - Area of reinforcement provided is less than minimum area of reinforcement required

Stress block depth factor (cl.10.2.7.3) $\beta_1 = \min(\max(0.85 - 0.05 \times (f_c - 4 \text{ ksi}) / 1 \text{ ksi}, 0.65), 0.85) = \textbf{0.85}$

Depth of equivalent rectangular stress block $a = A_{s,prov} \times f_y / (0.85 \times f_c \times b) = 2.166$ in

Depth to neutral axis $c = a / \beta_1 = 2.548$ in

Net tensile strain in extreme tension fibers $\epsilon_t = 0.003 \times (d - c) / c = 0.05794$

Net tensile strain in tension controlled zone

Strength reduction factor (cl.9.3.2) $\phi_f = \min(\max(0.65 + (\epsilon_t - 0.002) \times (250 / 3), 0.65), 0.9) = 0.90$

Nominal moment strength $M_n = A_{s,prov} \times f_y \times (d - a / 2) = 310.890 \text{ kip_ft}$

Required nominal moment strength $M_u / \phi_f = 288.667$ kip ft

PASS - Nominal moment strength exceeds required nominal moment strength

Minimum allowable top bar spacing $s_{top,min} = max(\phi_{top,L1}, 1in) = 1.000$ in

Actual top bar spacing $s_{bar_top,min} = (b - 2 \times c_{nom_s} - 2 \times \phi_v - N_{top,L1} \times \phi_{top,L1}) / (N_{top,L1} - 1) = 3.500 \text{ in}$

PASS - Actual bar spacing exceeds minimum allowable

Center to center spacing of reinforcement $s_{bar_bot} = (b - 2 \times c_{nom_s} - 2 \times \phi_{v} - \phi_{bot,L1}) / (N_{bot,L1} - 1) = 4.125 \text{ in}$

Service load stress in reinforcement (cl. 10.6.4) $f_s = 2/3 \times f_y = 40000 \text{ psi}$ Distance from surface of reinf. to tension face $c_c = c_{\text{nom_b}} + \phi_v = 2.625 \text{ in}$

Maximum allowable bot bar spacing (exp 10-4) $s_{max} = min(15in \times 40000psi / f_s - 2.5 \times c_c, 12in \times 40000psi / f_s) = 8.438 in$

PASS - Maximum allowable tension reinforcement spacing exceeds actual spacing

Rectangular section in shear (Chapter 11)

Design shear force $V_u = 11.000 \text{ kips}$

Concrete weight modification factor $\lambda = 1.00$

Nominal concrete shear strength (exp.11-3) $V_c = \lambda \times 2 \text{ psi} \times \sqrt{(f_c / 1 \text{ psi})} \times b \times d = \textbf{65.459} \text{ kips}$

Nominal reinforcement shear strength (exp.11-2) $V_s = max(V_u / \phi_s - V_c, 0 \text{ kips}) = 0.000 \text{ kips}$

Maximum reinforcement shear strength $V_{s,max} = 8 \text{ psi} \times \sqrt{(f'_c / 1 \text{ psi})} \times b \times d = 261.837 \text{ kips}$ Area of shear reinforcement required (exp.11-15) $A_{sv,req} = V_s / [min(f_y, 60000 \text{ psi}) \times d] = 0.000 \text{ in}^2/\text{ft}$

Shear reinforcement provided $2 \times \text{No.5}$ legs at 12 in c/c

Area of shear reinforcement provided $A_{sv,prov} = 0.614 \text{ in}^2/\text{ft}$

 $\label{eq:minimum} \text{Minimum area of shear reinforcement (exp.11-13)} \quad A_{\text{sv,min}} = \max(50 \text{ psi}, \ 0.75 \text{ psi} \times \sqrt{(f_{\text{c}} \ / \ 1 \text{ psi}))} \times \text{b} \ / \ \min(f_{\text{y}}, \ 60000 \text{ psi})$

 $A_{sv,min} = 0.100 \text{ in}^2/\text{ft}$

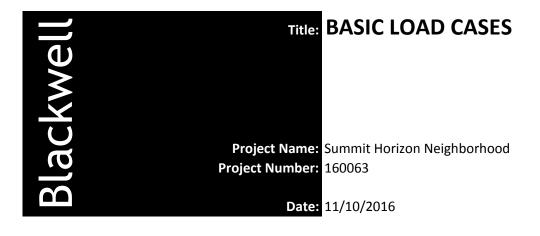
PASS - Area of shear reinforcement provided exceeds area of shear reinforcement required

Maximum longitudinal spacing (cl.11.4.5) $s_{vl,max} = min(d/2, 24 in) = 24 in$

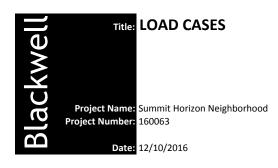
PASS - Longitudinal spacing of shear reinforcement provided is less than maximum



APPENDIX A Load Cases



BLC	DESCRIPTION	CATEGORY
1	Dead	DL
2	Live	LL
3	Snow	SL
4	Wind +Z -CGpi	WL
5	Wind -Z -CGpi	WL
6	Wind +Z +CGpi	WL
7	Wind -Z +CGpi	WL
8	Wind +Z +CGpi min Cp	WL
9	Wind -Z +CGpi min Cp	WL
10	Wind +X -CGpi	WL
11	Wind -X -CGpi	WL
12	Wind +X +CGpi	WL
13	Wind -X +CGpi	WL
14	Earthquake Load Z	ELZ
15	Earthquake Load X	ELX
16	Earthquake Load Z Plus X Eccentric	ELZ+X
17	Earthquake Load Z Minus X Eccentric	ELZ-X
18	Earthquake Load X Plus Z Eccentric	ELX+Z
19	Earthquake Load X Minus Z Eccentric	ELX-Z
20	Ramp Snow	SL
21	Ramp Live	LL
22	Deck Snow	SL



	DECORIDE	81.6	54.6T0.D	DI O	FACTOR	81.6	FACTOR	DIG FACTOR	
LC	DESCRIPTION	BLC	FACTOR	BLC	FACTOR	BLC	FACTOR	BLC FACTOR	BLC FACTOR
24	ASCE Strength 1	DL	1.4						
25	ASCE Strength 2	DL	1.2	LL	1.6				
26	ASCE Strength 2	DL	1.2	LL	1.6	SL	0.5		
27	ASCE Strength 3	DL	1.2	SL	1.6	LL	0.5	REVISION 1 -	2016/11/07
28	ASCE Strength 3	DL	1.2	4	0.5			IN ACCORDA	NCE WITH IBC
29	ASCE Strength 3	DL	1.2	5	0.5				MENDED CODE,
30	ASCE Strength 3	DL	1.2	6	0.5				
31	ASCE Strength 3	DL	1.2	7	0.5				ADS AND LOAD
32	ASCE Strength 3	DL	1.2	8	0.5				NS HAVE BEEN
33	ASCE Strength 3	DL	1.2	9	0.5			REVISED IN A	NALYSIS
34	ASCE Strength 3	DL	1.2	10	0.5			MODEL.	
35	ASCE Strength 3	DL	1.2	11	0.5				
36	ASCE Strength 3	DL	1.2	12	-0.5				
37	ASCE Strength 3	DL	1.2	13	-0.5				
38	ASCE Strength 3	DL	1.2	SL	1.6	4	0.5		
39	ASCE Strength 3	DL	1.2	SL	1.6	5	0.5		
40	ASCE Strength 3	DL	1.2	SL	1.6	6	0.5		
41	ASCE Strength 3	DL	1.2	SL	1.6	7	0.5		
42	ASCE Strength 3	DL	1.2	SL	1.6	8	0.5		
43	ASCE Strength 3	DL	1.2	SL	1.6	9	0.5		
44	ASCE Strength 3	DL	1.2	SL	1.6	10	0.5		
45	ASCE Strength 3	DL	1.2	SL	1.6	11	0.5		
46	ASCE Strength 3	DL	1.2	SL	1.6	12	0.5		
47	ASCE Strength 3	DL	1.2	SL	1.6	13	0.5		
47	•	DL	1.2	3L 4	1.6	LL	0.5		
	ASCE Strength 4								
49	ASCE Strength 4	DL	1.2	5 6	1	LL	0.5		
50	ASCE Strength 4	DL	1.2		-1	LL	0.5		
51	ASCE Strength 4	DL	1.2	7	-1	LL	0.5		
52	ASCE Strength 4	DL	1.2	8	-1	LL	0.5		
53	ASCE Strength 4	DL	1.2	9	-1	LL	0.5		
54	ASCE Strength 4	DL	1.2	10	-1	LL	0.5		
55	ASCE Strength 4	DL	1.2	11	-1	LL	0.5		
56	ASCE Strength 4	DL	1.2	12	-1	LL	0.5		
57	ASCE Strength 4	DL	1.2	13	-1	LL	0.5		
58	ASCE Strength 4	DL	1.2	4	1	LL	0.5	SL 0.5	
59	ASCE Strength 4	DL	1.2	5	1	LL	0.5	SL 0.5	
60	ASCE Strength 4	DL	1.2	6	1	LL	0.5	SL 0.5	
61	ASCE Strength 4	DL	1.2	7	1	LL	0.5	SL 0.5	
62	ASCE Strength 4	DL	1.2	8	1	LL	0.5	SL 0.5	
63	ASCE Strength 4	DL	1.2	9	1	LL	0.5	SL 0.5	
64	ASCE Strength 4	DL	1.2	10	1	LL	0.5	SL 0.5	
65	ASCE Strength 4	DL	1.2	11	1	LL	0.5	SL 0.5	
66	ASCE Strength 4	DL	1.2	12	1	LL	0.5	SL 0.5	
67	ASCE Strength 4	DL	1.2	13	1	LL	0.5	SL 0.5	
68	ASCE Strength 6	DL	0.9	4	1				
69	ASCE Strength 6	DL	0.9	5	1				
70	ASCE Strength 6	DL	0.9	6	1				
71	ASCE Strength 6	DL	0.9	7	1				
72	ASCE Strength 6	DL	0.9	8	1				
73	ASCE Strength 6	DL	0.9	9	1				
74	ASCE Strength 6	DL	0.9	10	1				
75	ASCE Strength 6	DL	0.9	11	1				
76	ASCE Strength 6	DL	0.9	12	-1				
77	ASCE Strength 6	DL	0.9	13	-1				
• •			2.3	0	-				

LC	DESCRIPTION	BLC	FACTOR	BLC	FACTOR	BLC	FACTOR	BLC	FACTOR	BLC	FACTOR
78	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELX	1	LL	0.5	SL	0.2
79	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELX+Z	1	LL	0.5	SL	0.2
80	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELX-Z	1	LL	0.5	SL	0.2
81	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELZ	1	LL	0.5	SL	0.2
82	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELZ+X	1	LL	0.5	SL	0.2
83	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELZ-X	1	LL	0.5	SL	0.2
84	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELX	-1	LL	0.5	SL	0.2
85	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELX+Z	-1	LL	0.5	SL	0.2
86	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELX-Z	-1	LL	0.5	SL	0.2
87	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELZ	-1	LL	0.5	SL	0.2
88	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELZ+X	-1	LL	0.5	SL	0.2
89	ASCE Strength 5	DL	1.2	Sds*DL	0.2	Rho*ELZ-X	-1	LL	0.5	SL	0.2
90	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELX	1				
91	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELX+Z	1				
92	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELX-Z	1				
93	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELZ	1				
94	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELZ+X	1				
95	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELZ-X	1				
96	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELX	-1				
97	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELX+Z	-1				
98	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELX-Z	-1				
99	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELZ	-1				
100	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELZ+X	-1				
101	ASCE Strength 7	DL	0.9	Sds*DL	-0.2	Rho*ELZ-X	-1				
102	ASCE ASD 1	DL	1								
103	ASCE ASD 2	DL	1	LL	1						
104	ASCE ASD 3	DL	1								
105	ASCE ASD 3	DL	1	SL	1						
106	ASCE ASD 4	DL	1	LL	0.75	SL	0.75				
107	ASCE ASD 5	DL	1	4	0.6						
108	ASCE ASD 5	DL	1	5	0.6						
109	ASCE ASD 5	DL	1	6	0.6						
110	ASCE ASD 5	DL	1	7	0.6						
111	ASCE ASD 5	DL	1	8	0.6						
112	ASCE ASD 5	DL	1	9	0.6						
113	ASCE ASD 5	DL	1	10	0.6						
114	ASCE ASD 5	DL	1	11	0.6						
115	ASCE ASD 5	DL	1	12	0.6						
116 117	ASCE ASD 5 ASCE ASD 6	DL DL	1 1	13 4	0.6	LL	0.75				
117		DL	1	5	0.45 0.45	LL	0.75				
119	ASCE ASD 6	DL	1	6	0.45	LL					
120	ASCE ASD 6 ASCE ASD 6	DL	1	7	0.45	LL	0.75 0.75				
121	ASCE ASD 6	DL	1	8	0.45	LL	0.75				
121	ASCE ASD 6	DL	1	9	0.45	LL	0.75				
123	ASCE ASD 6	DL	1	10	0.45	LL	0.75				
123	ASCE ASD 6	DL	1	10	0.45	LL	0.75				
125	ASCE ASD 6	DL	1	12	0.45	LL	0.75				
126	ASCE ASD 6	DL	1	13	0.45	LL	0.75				
127	ASCE ASD 6	DL	1	4	0.45	LL	0.75	SL	0.75		
128	ASCE ASD 6	DL	1	5	0.45	LL	0.75	SL	0.75		
129	ASCE ASD 6	DL	1	6	0.45	LL	0.75	SL	0.75		
130	ASCE ASD 6	DL	1	7	0.45	LL	0.75	SL	0.75		
131	ASCE ASD 6	DL	1	8	0.45	LL	0.75	SL	0.75		
132	ASCE ASD 6	DL	1	9	0.45	LL	0.75	SL	0.75		
133	ASCE ASD 6	DL	1	10	0.45	LL	0.75	SL	0.75		
134	ASCE ASD 6	DL	1	11	0.45	LL	0.75	SL	0.75		
135	ASCE ASD 6	DL	1	12	0.45	LL	0.75	SL	0.75		
136	ASCE ASD 6	DL	1	13	0.45	LL	0.75	SL	0.75		
137	ASCE ASD 7	DL	0.6	4	0.6		-	- •			
138	ASCE ASD 7	DL	0.6	5	0.6						
139	ASCE ASD 7	DL	0.6	6	0.6						
140	ASCE ASD 7	DL	0.6	7	0.6						
141	ASCE ASD 7	DL	0.6	8	0.6						
142	ASCE ASD 7	DL	0.6	9	0.6						
143	ASCE ASD 7	DL	0.6	10	0.6						
144	ASCE ASD 7	DL	0.6	11	0.6						

LC	DESCRIPTION	BLC	FACTOR	BLC	FACTOR	BLC	FACTOR	BLC	FACTOR	BLC	FACTOR
145	ASCE ASD 7	DL	0.6	12	0.6	DEC	TAGIGN	520	TACTOR	525	TACTOR
146	ASCE ASD 7	DL	0.6	13	0.6						
147	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELX	0.7				
148	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELX+Z	0.7				
149	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELX-Z	0.7				
150	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELZ	0.7				
151	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELZ+X	0.7				
152	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELZ-X	0.7				
153	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELX	-0.7				
154	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELX+Z	-0.7				
155	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELX-Z	-0.7				
156	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELZ	-0.7				
157	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELZ+X	-0.7				
158	ASCE ASD 5	DL	1	Sds*DL	0.14	Rho*ELZ-X	-0.7				
159	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX	0.525	LL	0.75		
160	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX+Z	0.525	LL	0.75		
161	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX-Z	0.525	LL	0.75		
162	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ	0.525	LL	0.75		
163	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ+X	0.525	LL	0.75		
164	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ-X	0.525	LL	0.75		
165	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX	-0.525	LL	0.75		
166	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX+Z	-0.525	LL	0.75		
167	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX-Z	-0.525	LL	0.75		
168	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ	-0.525	LL	0.75		
169	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ+X	-0.525	LL	0.75		
170	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ-X	-0.525	LL	0.75		
171	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX	0.525	LL	0.75	SL	0.75
172	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX+Z	0.525	LL	0.75	SL	0.75
173	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX-Z	0.525	LL	0.75	SL	0.75
174	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ	0.525	LL	0.75	SL	0.75
175	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ+X	0.525	LL	0.75	SL	0.75
176	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ-X	0.525	LL	0.75	SL	0.75
177	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX	-0.525	LL	0.75	SL	0.75
178	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX+Z	-0.525	LL	0.75	SL	0.75
179	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELX-Z	-0.525	LL	0.75	SL	0.75
180	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ	-0.525	LL	0.75	SL	0.75
181	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ+X	-0.525	LL	0.75	SL	0.75
182	ASCE ASD 6	DL	1	Sds*DL	0.105	Rho*ELZ-X	-0.525	LL	0.75	SL	0.75
183	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELX	0.7		0.75	02	0.75
184	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELX+Z	0.7				
185	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELX-Z	0.7				
186	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELZ	0.7				
187	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELZ+X	0.7				
188	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELZ-X	0.7				
189	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELX	-0.7				
190	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELX+Z	-0.7				
191	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELX-Z	-0.7				
192	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELZ	-0.7				
193	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELZ+X	-0.7				
194	ASCE ASD 8	DL	0.6	Sds*DL	-0.14	Rho*ELZ-X	-0.7				
137	. 1302 / 132 0		0.0	343 DE	0.1-	O LLL X	0.,				



APPENDIX B Pier Forces

Unit Type 1500SF Project Name: Summit Horizon Neighborhood Project Number: 160063 Date: 9/11/2016

Member	Section		Axial (k)	LC	Y Shear (k)	LC	Z Shear (k)	LC	Torque (k*ft)	LC	My (k*ft)	LC	Mz (k*ft)	LC
C2	1	max	68.177	27	0.058	38	0.803	101	0.008	101	0	24	0	24
CZ	1	min	-10.186	101	-0.043	85	-2.275	83	-0.011	83	0	24	0	24
	2		68.177	27	0.058	38	0.803	101	0.001	101	0.602	101	0.032	85
	2	max min	-10.186	101	-0.043	85	-2.275	83	-0.011	83	-1.706	83	-0.043	38
	3		68.177	27	0.058	38	0.803	101	0.001	101	1.205	101	0.064	85
	3	max min	-10.186	101	-0.043	85	-2.275	83	-0.011	83	-3.412	83	-0.086	38
	4	max	68.177	27	0.058	38	0.803	101	0.0011	101	1.807	101	0.096	85
	4	min	-10.186	101	-0.043	85	-2.275	83	-0.011	83	-5.118	83	-0.13	38
	5		68.177	27	0.058	38	0.803	101	0.001	101	2.41	101	0.128	85
	5	max min	-10.186	101	-0.043	85	-2.275	83	-0.011	83	-6.825	83	-0.173	38
В2	1		80.569	27	19.204	101	1.709	101	0.057	101	0.062	101	0.173	24
DZ.	1	max min	1.885		-23.511	83	-5.92	83	-0.061	83	-0.066	38	0	24
	2		80.569	100 27	19.204	101	1.709	101	0.057	101	1.344	101	17.633	83
	2	max	1.885			83				83		83		05 101
	3	min	80.569	100 27	-23.511 19.204	65 101	-5.92 1.700	83	-0.061 0.057	65 101	-4.503	03 101	-14.403 35.266	83
	3	max	1.885			83	1.709 -5.92	101 83	-0.061	83	2.625 -8.942	83	-28.806	03 101
	4	min	80.569	100 27	-23.511 19.204	65 101	-5.92 1.709	65 101	0.057		-8.942 3.907	03 101	52.899	83
	4	max min	1.885	100	-23.511	83	-5.92	83	-0.061	101 83	-13.382	83	-43.21	101
	5		80.569	27	19.204		1.709	101	0.057	101	5.188	101	70.532	83
	3	max min	1.885		-23.511	101 83	-5.92	83	-0.061		-17.821	83	-57.613	101
A2	1		106.246	100 27	0.08	83	-3.92 7.399	39	0.022	83 101	0	24	-37.013	24
AZ	1	max min	-11.872	27 97	-0.049	39	-5.302	48	-0.022	83	0	24	0	24
	2		106.246	27	0.049	83	7.399	39	0.023	101	5.549	39	0.037	39
	2	max	-11.872	27 97	-0.049	39		48	-0.022	83	-3.977	39 48	-0.06	
	3	min	106.246		0.049	83	-5.302 7.399	46 39	0.029	101	-3.977 11.098	46 39	0.073	83 39
	3	max min	-11.872	27 97	-0.049	39	-5.302	48	-0.029	83	-7.954	48	-0.119	83
	4		106.246	27	0.049	83	-5.302 7.399	46 39	0.029	101	-7.954 16.647	46 39	0.119	39
	4	max	-11.872	97	-0.049	39	-5.302	48	-0.029	83	-11.93	48	-0.179	83
	5	min max	106.246	27	0.049	83	7.399	39	0.023	101	22.196	39	0.146	39
	5	min	-11.872	97	-0.049	39	-5.302	48	-0.029	83	-15.907	48	-0.239	83
A1	1	max	86.628	27	0.23	80	31.528	100	0.11	101	-13.907	24	0.239	24
AI	1	min	-2.469	98	-0.289	38	-30.783	82	-0.154	83	0	24	0	24
	2	max	86.628	27	0.23	80	31.528	100	0.134	101	23.646	100	0.217	38
	-	min	-2.469	98	-0.289	38	-30.783	82	-0.154	83	-23.087	82	-0.172	80
	3	max	86.628	27	0.23	80	31.528	100	0.134	101	47.293	100	0.434	38
	3	min	-2.469	98	-0.289	38	-30.783	82	-0.154	83	-46.175	82	-0.344	80
	4	max	86.628	27	0.23	80	31.528	100	0.11	101	70.939	100	0.651	38
	7	min	-2.469	98	-0.289	38	-30.783	82	-0.154	83	-69.262	82	-0.517	80
	5	max	86.628	27	0.23	80	31.528	100	0.11	101	94.585	100	0.868	38
	3	min	-2.469	98	-0.289	38	-30.783	82	-0.154	83	-92.35	82	-0.689	80
B1	1	max	78.068	27	8.569	85	23.308	92	0.043	101	0	24	0.159	82
DI	-	min	5.751	97	-0.746	91	-27.376	86	-0.084	83	0	24	-0.085	39
	2	max	78.068	27	8.569	85	23.308	92	0.043	101	17.481	92	0.583	91
	_	min	5.751	97	-0.746	91	-27.376	86	-0.084	83	-20.532	86	-6.366	85
	3	max	78.068	27	8.569	85	23.308	92	0.043	101	34.962	92	1.142	91
	J	min	5.751	97	-0.746	91	-27.376	86	-0.084	83	-41.064	86	-12.793	85
	4	max	78.068	27	8.569	85	23.308	92	0.043	101	52.443	92	1.702	91
	·	min	5.751	97	-0.746	91	-27.376	86	-0.084	83	-61.596	86	-19.22	85
	5	max	78.068	27	8.569	85	23.308	92	0.043	101	69.924	92	2.261	91
	J	min	5.751	97	-0.746	91	-27.376	86	-0.084	83	-82.128	86	-25.648	85
C1	1	max	54.626	89	0.037	89	2.153	89	0.009	101	0	24	0	24
	=	min	-17.388	95	-0.048	86	-1.074	95	-0.013	83	0	24	0	24
	2	max	54.626	89	0.037	89	2.153	89	0.015	101	1.615	89	0.036	86
	-	min	-17.388	95	-0.048	86	-1.074	95	-0.013	83	-0.805	95	-0.027	89
	3	max	54.626	89	0.037	89	2.153	89	0.015	101	3.229	89	0.072	86
	<u> </u>	min	-17.388	95	-0.048	86	-1.074	95	-0.013	83	-1.611	95	-0.055	89
	4	max	54.626	89	0.037	89	2.153	89	0.015	101	4.844	89	0.108	86
	*	min	-17.388	95	-0.048	86	-1.074	95	-0.013	83	-2.416	95	-0.082	89
	5	max	54.626	89	0.037	89	2.153	89	0.009	101	6.459	89	0.144	86

Member	Section		Axial (k)	LC	Y Shear (k)	LC	Z Shear (k)	LC	Torque (k*ft)	LC	My (k*ft)	LC	Mz (k*ft)	LC
Wember	Section	min	-17.388	95	-0.048	86	-1.074	95	-0.013	83	-3.221	95	-0.11	89
C2	1	max	73.011	27	27.544	80	18.365	82	0	24	66.568	100	110.175	80
		min	-1.297	91	-21.454	98	-16.642	100	0	24	-73.458	82	-85.816	98
	2	max	73.011	27	27.544	80	18.365	82	0	24	49.926	100	82.631	80
		min	-1.297	91	-21.454	98	-16.642	100	0	24	-55.094	82	-64.362	98
	3	max	73.011	27	27.544	80	18.365	82	0	24	33.284	100	55.087	80
		min	-1.297	91	-21.454	98	-16.642	100	0	24	-36.729	82	-42.908	98
	4	max	73.011	27	27.544	80	18.365	82	0	24	16.642	100	27.544	80
	_	min	-1.297	91	-21.454	98	-16.642	100	0	24	-18.365	82	-21.454	98
	5	max	73.011	27	27.544	80	18.365	82	0	24	0	24	0	24
D2	1	min	-1.297	91	-21.454	98	-16.642	100	0	24	0	24	0	24
B2	1	max	80.94 -2.227	27	10.029 -6.074	27 98	25.828	82	0 0	24 24	80.843 -103.312	100 82	40.116 -24.295	27
	2	min max	-2.227 80.94	101 27	10.029	96 27	-20.211 25.828	100 82	0	24	60.632	100	30.087	98 27
	2	min	-2.227	101	-6.074	98	-20.211	100	0	24	-77.484	82	-18.221	98
	3	max	80.94	27	10.029	27	25.828	82	0	24	40.421	100	20.058	27
	3	min	-2.227	101	-6.074	98	-20.211	100	0	24	-51.656	82	-12.148	98
	4	max	80.94	27	10.029	27	25.828	82	0	24	20.211	100	10.029	27
	•	min	-2.227	101	-6.074	98	-20.211	100	0	24	-25.828	82	-6.074	98
	5	max	80.94	27	10.029	27	25.828	82	0	24	0	24	0	24
	_	min	-2.227	101	-6.074	98	-20.211	100	0	24	0	24	0	24
C1	1	max	64.436	27	31.004	79	18.265	101	0	24	81.507	83	124.017	79
		min	-2.086	95	-21.362	97	-20.377	83	0	24	-73.059	101	-85.448	97
	2	max	64.436	27	31.004	79	18.265	101	0	24	61.13	83	93.013	79
		min	-2.086	95	-21.362	97	-20.377	83	0	24	-54.794	101	-64.086	97
	3	max	64.436	27	31.004	79	18.265	101	0	24	40.754	83	62.008	79
		min	-2.086	95	-21.362	97	-20.377	83	0	24	-36.529	101	-42.724	97
	4	max	64.436	27	31.004	79	18.265	101	0	24	20.377	83	31.004	79
		min	-2.086	95	-21.362	97	-20.377	83	0	24	-18.265	101	-21.362	97
	5	max	64.436	27	31.004	79	18.265	101	0	24	0	24	0	24
		min	-2.086	95	-21.362	97	-20.377	83	0	24	0	24	0	24
A2	1	max	95.859	27	44.976	97	9.429	83	0	24	25.384	101	179.906	97
		min	-6.02	101	-58.397	79	-6.346	101	0	24	-37.717	83	-233.589	79
	2	max	95.859	27	44.976	97	9.429	83	0	24	19.038	101	134.929	97
		min	-6.02	101	-58.397	79	-6.346	101	0	24	-28.288	83	-175.192	79
	3	max	95.859	27	44.976	97	9.429	83	0	24	12.692	101	89.953	97
	_	min	-6.02	101	-58.397	79	-6.346	101	0	24	-18.859	83	-116.794	79
	4	max	95.859	27	44.976	97	9.429	83	0	24	6.346	101	44.976	97
	_	min	-6.02	101	-58.397	79	-6.346	101	0	24	-9.429	83	-58.397	79
	5	max	95.859	27	44.976	97	9.429	83	0	24	0	24	0	24
D4	1	min	-6.02	101	-58.397	79 101	-6.346	101	0 0	24	0	24	0	24
B1	1	max	71.777 -2.077	27 95	26.521 -28.889	101 83	2.267 -5.342	101 38	0	24 24	21.368 -9.067	38 101	106.086 -115.558	101 83
	2	min max	71.777	27	26.521	101	2.267	101	0	24	16.026	38	79.564	101
	2	min	-2.077	95	-28.889	83	-5.342	38	0	24	-6.801	101	-86.668	83
	3	max	71.777	27	26.521	101	2.267	101	0	24	10.684	38	53.043	101
	3	min	-2.077	95	-28.889	83	-5.342	38	0	24	-4.534	101	-57.779	83
	4	max	71.777	27	26.521	101	2.267	101	0	24	5.342	38	26.521	101
		min	-2.077	95	-28.889	83	-5.342	38	0	24	-2.267	101	-28.889	83
	5	max	71.777	27	26.521	101	2.267	101	0	24	0	24	0	24
	-	min	-2.077	95	-28.889	83	-5.342	38	0	24	0	24	0	24
A1	1	max	83.309	27	44.76	98	39.313	101	0	24	177.325	83	179.039	98
		min	-4.89	95	-53.187	80	-44.331	83	0	24	-157.254	101	-212.748	80
	2	max	83.309	27	44.76	98	39.313	101	0	24	132.994	83	134.279	98
		min	-4.89	95	-53.187	80	-44.331	83	0	24	-117.94	101	-159.561	80
	3	max	83.309	27	44.76	98	39.313	101	0	24	88.663	83	89.519	98
		min	-4.89	95	-53.187	80	-44.331	83	0	24	-78.627	101	-106.374	80
									0					98
	4	max	83.309	27	44.76	98	39.313	101	U	24	44.331	83	44.76	50
	4	max min	83.309 -4.89	27 95	44.76 -53.187	98 80	-44.331	83	0	24	-39.313	101	-53.187	80
	4 5													



APPENDIX C Column Forces (For Anchor Bolt Design)

Title: **Unit Type**

LRFD Column Forces (GND-LOWER)

Project Name: Summit Horizon Neighborhood Project Number: 160063

Date: 9/11/2016 **REVISION 1**

IN ACCORDANCE WITH ACI 318-14 CI. 17.2.3.4.3 d), MULTIPLY SEISMIC LOADS BY BY $\Omega 0 = 2.0$ FOR ANCHORAGE

DESIGN.

WORST CASE TENSION

 $N_u = 32.1 \text{ kips}$

 $V_u = 48.2 \text{ kips}$

Member	Section		Axial (k)	LC	Y Shear (k)	LC	Z Shear (k)	LC	Torque (k*ft)	LC	My (k*ft)	LC	Mz (k*ft)	LC
B1	1	max	76.617	27	8.565	85	0	24	0.016	101	0	24	45.906	85
		min	-3.4	98	-0.772	91	0	24	-0.023	83	0	24	-4.136	91
	2	max	76.617	27	8.565	85	0	24	0.016	101	0	24	34.429	85
		min	-3.4	98	-0.772	91	0	24	-0.023	83	0	24	-3.102	91
	3	max	76.617	27	8.565	85	0	24	0.016	101	0	24	22.953	85
		min	-3.4	98	-0.772	91	0	24	-0.023	83	0	24	-2.068	91
	4	max	76.617	27	8.565	85	0	24	0.016	101	0	24	11.476	85
		min	-3.4	98	-0.772	91	0	24	-0.023	83	0	24	-1.034	91
	5	max	76.617	27	8.565	85	0	24	0.016	101	0	24	0	24
		min	-3.4	98	-0.772	91	0	24	-0.023	83	0	24	0	24
C1	1	max	54.626	89	2.236	89	0	24	0.009	101	0	24	23.169	89
		min	-17.388	95	-1.092	38	0	24	-0.013	83	0	24	-11.313	38
	2	max	54.626	89	2.236	89	0	24	0.009	101	0	24	17.377	89
		min	-17.388	95	-1.092	38	0	24	-0.013	83	0	24	-8.484	38
	3	max	54.626	89	2.236	89	0	24	0.009	101	0	24	11.584	89
		min	-17.388	95	-1.092	38	0	24	-0.013	83	0	24	-5.656	38
	4	max	54.626	89	2.236	89	0	24	0.009	101	0	24	5.792	89
	_	min	-17.388	95	-1.092	38	0	24	-0.013	83	0	24	-2.828	38
	5	max	54.626	89	2.236	89	0	24	0.009	101	0	24	0	24
63	4	min	-17.388	95	-1.092	38	0	24	-0.013	83	0	24	0	24
C2	1	max	68.177	27	0.784	101	0	24	0.008	101	0	24	11.257	101
	2	min	-10.186	101	-2.414	83	0	24	-0.011	83	0	24	-34.668	83
	2	max	68.177	27	0.784	101	0	24	0.008	101	0	24	8.443	101
	2	min	-10.186 68.177	101 27	-2.414 0.784	83 101	0 0	24 24	-0.011 0.008	83 101	0 0	24 24	-26.001 5.628	83 101
	3	max min	-10.186	101	-2.414	83	0	24	-0.011	83	0	24	-17.334	83
	4	max	68.177	27	0.784	101	0	24	0.001	101	0	24	2.814	101
	4	min	-10.186	101	-2.414	83	0	24	-0.011	83	0	24	-8.667	83
	5	max	68.177	27	0.784	101	0	24	0.008	101	0	24	0.007	24
	J	min	-10.186	101	-2.414	83	0	24	-0.011	83	0	24	0	24
B2	1	max	83.533	27	1.699	101	0	24	0.011	101	0	24	17.6	101
		min	-10.682	101	-6.049	83	0	24	-0.015	83	0	24	-62.667	83
	2	max	83.533	27	1.699	101	0	24	0.011	101	0	24	13.2	101
		min	-10.682	101	-6.049	83	0	24	-0.015	83	0	24	-47	83
	3	max	83.533	27	1.699	101	0	24	0.011	101	0	24	8.8	101
		min	-10.682	101	-6.049	83	0	24	-0.015	83	0	24	-31.333	83
	4	max	83.533	27	1.699	101	0	24	0.011	101	0	24	4.4	101
		min	-10.682	101	-6.049	83	0	24	-0.015	83	0	24	-15.667	83
	5	max	83.533	27	1.699	101	0	24	0.011	101	0	24	0	24
		min	-10.682	101	-6.049	83	0	24	-0.015	83	0	24	0	24
A2	1	max	106.246	27	7.407	39	0	24	0.022	101	0	24	39.7	39
		min	-11.872	97	-5.336	82	0	24	-0.029	83	0	24	-28.599	82
	2	max	106.246	27	7.407	39	0	24	0.022	101	0	24	29.775	39
		min	-11.872	97	-5.336	82	0	24	-0.029	83	0	24	-21.449	82
	3	max	106.246	27	7.407	39	0	24	0.022	101	0	24	19.85	39
		min	-11.872	97	-5.336	82	0	24	-0.029	83	0	24	-14.299	82
	4	max	106.246	27	7.407	39	0	24	0.022	101	0	24	9.925	39
	_	min	-11.872	97	-5.336	82	0	24	-0.029	83	0	24	-7.15	82
	5	max	106.246	27	7.407	39	0	24	0.022	101	0	24	0	24

Member	Section		Axial (k)	LC	Y Shear (k)	LC	Z Shear (k)	LC	Torque (k*ft)	LC	My (k*ft)	LC	Mz (k*ft)	LC
		min	-11.872	97	-5.336	82	0	24	-0.029	83	0	24	0	24
A1	1	max	86.628	27	31.555	100	0	24	0.11	101	0	24	27.137	100
		min	-2.469	98	-30.854	82	0	24	-0.154	83	0	24	-26.535	82
	2	max	86.628	27	31.555	100	0	24	0.11	101	0	24	20.353	100
		min	-2.469	98	-30.854	82	0	24	-0.154	83	0	24	-19.901	82
	3	max	86.628	27	31.555	100	0	24	0.11	101	0	24	13.569	100
		min	-2.469	98	-30.854	82	0	24	-0.154	83	0	24	-13.267	82
	4	max	86.628	27	31.555	100	0	24	0.11	101	0	24	6.784	100
		min	-2.469	98	-30.854	82	0	24	-0.154	83	0	24	-6.634	82
	5	max	86.628	27	31.555	100	0	24	0.11	101	0	24	0	24
		min	-2.469	98	-30.854	82	0	24	-0.154	83	0	24	0	24



APPENDIX D Frost Wall (Grade Beam) Forces

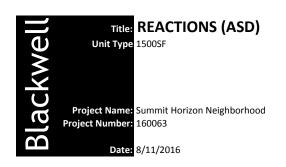
Title: Grade Beam Forces (LFRD) 1500SF Project Name: Summit Horizon Neighborhood Project Number: 160063 Date: 9/11/2016

Member	Section		Axial (k)	LC	Y Shear (k)	LC	Z Shear (k)	LC	Torque (k*ft)	LC	My (k*ft)	LC	Mz (k*ft)	LC
M448A	1	max	17.068	101	0.729	101	0.318	100	0.757	83	4.117	82	79.818	101
		min	-20.27	83	-0.851	83	-0.32	82	-0.573	101	-4.066	100	-84.761	83
	2	max	17.068	101	0.729	101	0.318	100	0.757	83	2.37	82	75.84	101
		min	-20.27	83	-0.851	83	-0.32	82	-0.573	101	-2.333	100	-80.118	83
	3	max	17.068	101	0.729	101	0.318	100	0.757	83	0.647	83	71.862	101
		min	-20.27	83	-0.851	83	-0.32	82	-0.573	101	-0.623	101	-75.476	83
	4	max	17.068	101	0.729	101	0.318	100	0.757	83	1.135	88	68.37	100
		min	-20.27	83	-0.851	83	-0.32	82	-0.573	101	-1.122	82	-71.256	82
	5	max	17.068	101	0.729	101	0.318	100	0.757	83	2.865	100	65.616	100
		min	-20.27	83	-0.851	83	-0.32	82	-0.573	101	-2.869	82	-67.843	82
M449A	1	max	28.593	80	5.732	101	0.372	82	0.277	101	2.956	100	110.835	80
	_	min	-22.456	98	-6.492	83	-0.369	100	-0.459	83	-2.94	82	-86.322	98
	2	max	28.593	80	5.732	101	0.372	82	0.277	101	1.612	100	109.974	79
	_	min	-22.456	98	-6.492	83	-0.369	100	-0.459	83	-1.588	82	-82.861	97
	3	max	28.593	80	5.732	101	0.372	82	0.277	101	0.283	101	110.566	79
		min	-22.456	98	-6.492	83	-0.369	100	-0.459	83	-0.249	83	-80.853	97
	4	max	28.593	80	5.732	101	0.372	82	0.277	101	1.117	82	111.158	79
	-	min	-22.456	98	-6.492	83	-0.369	100	-0.459	83	-1.076	88	-78.846	97
	5	max	28.593	80	5.732	101	0.372	82	0.277	101	2.469	82	111.75	79
N4450A	1	min	-22.456	98	-6.492	83	-0.369	100	-0.459	83	-2.418	100	-76.839	97
M450A	1	max	58.873	79	9.032	97	0.298	97	3.218	101	2.558	79	98.295	27
	2	min	-44.812	97	-10.056	79	-0.436	79	-4.018	83	-1.609	97	-45.544	98
	2	max	58.873	79	9.032	97 79	0.298	97	3.218 -4.018	101	0.941	80	118.28 -77.838	79 97
	3	min	-44.812 58.873	97 79	-10.056 9.032		-0.436 0.298	79 97	3.218	83	-0.505 0.808	98	155.652	79
	3	max min	-44.812	79 97	-10.056	97 79	-0.436	79	-4.018	101 83	-0.888	94 88	-111.406	97
	4	max	58.873	79	9.032	97	0.298	97	3.218	101	1.718	97	193.024	79
	4	min	-44.812	97	-10.056	79	-0.436	79	-4.018	83	-2.307	79	-144.974	97
	5	max	58.873	79	9.032	97	0.298	97	3.218	101	2.827	97	230.396	79
	3	min	-44.812	97	-10.056	79	-0.436	79	-4.018	83	-3.929	79	-178.543	97
M451A	1	max	6.795	101	10.030	82	0.406	79	6.166	83	3.04	97	24.827	97
WHOIA	•	min	-12.781	83	-10.386	100	-0.266	97	-4.849	101	-4.635	79	-51.986	44
	2	max	6.795	101	10.973	82	0.406	79	6.166	83	1.58	97	77.235	101
	-	min	-12.781	83	-10.386	100	-0.266	97	-4.849	101	-2.41	79	-84.131	83
	3	max	6.795	101	10.973	82	0.406	79	6.166	83	1.041	101	132.023	101
		min	-12.781	83	-10.386	100	-0.266	97	-4.849	101	-1.111	83	-142.152	83
	4	max	6.795	101	10.973	82	0.406	79	6.166	83	2.038	79	186.812	101
		min	-12.781	83	-10.386	100	-0.266	97	-4.849	101	-1.34	97	-200.174	83
	5	max	6.795	101	10.973	82	0.406	79	6.166	83	4.263	79	243.321	100
		min	-12.781	83	-10.386	100	-0.266	97	-4.849	101	-2.8	97	-259.842	82
M452A	1	max	51.585	80	12.6	80	0.305	97	6.259	101	4.227	79	213.042	80
		min	-42.974	98	-11.715	98	-0.497	79	-8	83	-2.946	97	-179.086	98
	2	max	51.585	80	12.6	80	0.305	97	6.259	101	2.439	88	166.718	80
		min	-42.974	98	-11.715	98	-0.497	79	-8	83	-1.865	94	-136.017	98
	3	max	51.585	80	12.6	80	0.305	97	6.259	101	1.307	100	120.874	79
		min	-42.974	98	-11.715	98	-0.497	79	-8	83	-1.449	82	-93.367	97
	4	max	51.585	80	12.6	80	0.305	97	6.259	101	0.512	101	75.961	79
		min	-42.974	98	-11.715	98	-0.497	79	-8	83	-1.352	83	-51.722	97
	5	max	51.585	80	12.6	80	0.305	97	6.259	101	1.535	97	49.812	27
		min	-42.974	98	-11.715	98	-0.497	79	-8	83	-3.077	79	-24.139	94
M453A	1	max	33.92	79	7.786	101	0.45	82	2.637	89	3.234	100	90.038	80
		min	-22.757	97	-10.385	83	-0.44	100	-2.383	83	-3.291	82	-89.327	98
	2	max	33.92	79	7.786	101	0.45	82	2.637	89	1.601	100	97.859	80
		min	-22.757	97	-10.385	83	-0.44	100	-2.383	83	-1.618	82	-87.749	98
	3	max	33.92	79	7.786	101	0.45	82	2.637	89	0.111	39	105.681	80
		min	-22.757	97	-10.385	83	-0.44	100	-2.383	83	-0.067	91	-86.17	98
	4	max	33.92	79	7.786	101	0.45	82	2.637	89	1.727	82	114.388	79
		min	-22.757	97	-10.385	83	-0.44	100	-2.383	83	-1.667	100	-85.484	97
	5	max	33.92	79	7.786	101	0.45	82	2.637	89	3.4	82	123.789	79
		min	-22.757	97	-10.385	83	-0.44	100	-2.383	83	-3.301	100	-85.481	97

Member	Section		Axial (k)	LC	Y Shear (k)	LC	Z Shear (k)	LC	Torque (k*ft)	LC	My (k*ft)	LC	Mz (k*ft)	LC
M454A	1	max	22.061	100	2.586	89	0.411	88	3.189	83	4.659	94	122.207	101
		min	-32.52	82	-1.674	95	-0.344	94	-2.593	101	-5.348	88	-110.804	83
	2	max	22.061	100	2.586	89	0.411	88	3.189	83	2.764	94	109.692	101
		min	-32.52	82	-1.674	95	-0.344	94	-2.593	101	-3.083	88	-103.387	83
	3	max	22.061	100	2.586	89	0.411	88	3.189	83	0.984	83	97.176	101
		min	-32.52	82	-1.674	95	-0.344	94	-2.593	101	-0.918	101	-95.97	83
	4	max	22.061	100	2.586	89	0.411	88	3.189	83	1.847	79	84.66	101
		min	-32.52	82	-1.674	95	-0.344	94	-2.593	101	-1.419	97	-88.553	83
	5	max	22.061	100	2.586	89	0.411	88	3.189	83	3.714	88	74.422	100
		min	-32.52	82	-1.674	95	-0.344	94	-2.593	101	-2.923	94	-83.337	82



APPENDIX E Reaction Forces (For Footing Design)



LC	LOCATION	X (k)	Y (k)	Z (k)
102	A1	-0.813	40.593	-1.28
103	A1	-6.679	55.556	-4.448
104	A1	-0.813	40.593	-1.28
105	A1	-16.445	76.125	-5.9
106	A1	-16.943	78.46	-7.15
107	A1	3.421	35.486	-17.642
108	A1	-5.022	45.085	14.986
109	A1	3.41	34.574	-17.567
110	A1	-4.207	43.214	11.869
111	A1	3.019	34.466	-16.042
112	A1	-4.609	43.101	13.434
113	A1	-11.472	42.131	-1.143
114	A1	9.85	37.327	-1.452
115	A1	-11.37	41.155	-1.153
116	A1	9.754	36.396	-1.46
117	A1	-2.028	47.978	-15.948
118	A1	-8.375	55.193	8.57
119	A1	-2.035	47.294	-15.891
120	A1	-7.762	53.788	6.23
121	A1	-2.329	47.213	-14.745
122	A1	-8.065	53.705	7.407
123	A1	-13.218	52.973	-3.55
124	A1	2.798	49.363	-3.78
125	A1	-13.141	52.241	-3.556
126	A1	2.727	48.666	-3.784
127	A1	-13.737	74.59	-19.533
128	A1	-20.127	81.869	5.16
129	A1	-13.743	73.906	-19.475
130	A1	-19.509	80.457	2.801
131	A1	-14.039	73.83	-18.318
132	A1	-19.813	80.378	3.989
133	A1	-24.998	79.63	-7.05
134	A1	-8.882	75.995	-7.273
135	A1	-24.919	78.899	-7.055
136	A1	-8.953	75.298	-7.276
137	A1	3.738	19.257	-17.106
138	A1	-4.69	28.842	15.48
139	A1	3.727	18.345	-17.031
140	A1	-3.876	26.973	12.367
141	A1	3.337	18.236	-15.509
142	A1	-4.277	26.859	13.93
143	A1	-11.139	25.893	-0.626
144	A1	10.166	21.093	-0.938
145	A1	-11.037	24.917	-0.637
146	A1	10.07	20.162	-0.947
147	A1	-36.141	52.712	-0.958
148	A1	-35.904	52.668	-1.055
149	A1	-36.378	52.757	-0.86
150	A1	5.927	33.986	-34.716
151	A1	5.351	34.097	-34.473
152	A1	6.502	33.875	-34.959
153	A1	34.312	36.247	-1.844
154	A1	34.074	36.292	-1.745
155	A1	34.55	36.203	-1.944
156	A1	-7.738	54.98	31.93

REVISION 1
THE WEIGHT OF THE FOOTINGS AND SOIL HAS BEEN ADDED TO THE ANALYSIS MODEL TO RESIST OVERTURNING. NO UPLIFT WAS OBSERVED.

LC	LOCATION	X (k)	Y (k)	Z (k)
157	A1	-7.159	54.869	31.686
158	A1	-8.317 21.741	55.091	32.174
159 160	A1 A1	-31.741	60.913	-3.417
160 161	A1	-31.563 -31.919	60.88 60.947	-3.491 -3.343
162	A1	-0.143	46.844	-3.343 -28.775
163	A1	-0.576	46.928	-28.591
164	A1	0.29	46.761	-28.958
165	A1	21.174	48.546	-4.075
166	A1	20.996	48.579	-4.001
167	A1	21.353	48.512	-4.15
168	A1	-10.414	62.619	21.292
169	A1	-9.979	62.535	21.108
170	A1	-10.849	62.702	21.476
171	A1	-43.642	87.603	-6.929
172	A1	-43.463	87.569	-7.005
173	A1	-43.822	87.636	-6.854
174	A1	-11.837	73.42	-32.451
175	A1	-12.272	73.505	-32.264
176	A1	-11.401	73.335	-32.639
177	A1	9.612	75.144	-7.565
178	A1	9.433	75.178	-7.488
179	A1	9.792	75.11	-7.641
180	A1	-22.183	89.331	17.967
181	A1	-21.746	89.246	17.779
182	A1	-22.621	89.416	18.155
183	A1	-35.619	28.703	-0.189
184	A1	-35.383	28.66	-0.286
185	A1	-35.856	28.747	-0.093
186 187	A1	6.387	10.007	-33.897
187 188	A1 A1	5.813 6.961	10.117 9.897	-33.656 -34.138
189	A1	34.751	12.259	-1.088
190	A1	34.513	12.304	-0.99
191	A1	34.988	12.215	-1.186
192	A1	-7.238	30.962	32.636
193	A1	-6.661	30.852	32.395
194	A1	-7.816	31.073	32.878
102	A2	-2.473	40.933	0.341
103	A2	-11.426	58.378	3.111
104	A2	-2.473	40.933	0.341
105	A2	-21.444	82.545	6.163
106	A2	-23.452	85.244	6.797
107	A2	-9.448	46.004	3.385
108	A2	4.464	35.299	-2.667
109	A2	-9.419	45.032	3.388
110	A2	3.117	35.392	-1.97
111	A2	-8.766	43.951	3.073
112	A2	3.788	34.282	-2.292
113	A2	-13.31	42.775	1.236
114	A2	8.328	37.368	-0.495
115	A2	-13.224	41.793	1.258
116 117	A2	8.21	36.437	-0.456 4.706
117	A2	-14.431	57.828 40.779	4.706 0.153
118 119	A2 A2	-3.965 -14.408	49.778 57.099	0.153 4.709
119	AZ A2	-14.408 -4.976	49.849	4.709 0.677
120	A2 A2	-4.976 -13.916	56.288	0.677 4.471
121	A2 A2	-13.916 -4.47	49.015	0.433
123	A2 A2	-4.47	55.4	3.088
124	A2	-17.525	51.336	1.787
125	A2	-17.258	54.662	3.104
126	A2	-17.256	50.637	1.816
127	A2	-28.745	89.097	9.132
128	A2	-18.186	80.968	4.49
129	A2	-28.72	88.367	9.133
130	A2	-19.204	81.047	5.024

LC	LOCATION	X (k)	Y (k)	Z (k)
131	A2	-28.222	87.55	8.889
132	A2	-18.693	80.208	4.775
133 134	A2 A2	-31.645 -15.281	86.646 82.547	7.473 6.163
135	A2 A2	-13.281	85.908	7.488
136	A2	-15.366	81.847	6.19
137	A2	-8.442	29.62	3.241
138	A2	5.442	18.933	-2.799
139	A2	-8.414	28.648	3.244
140	A2	4.097	19.025	-2.103
141	A2	-7.761	27.569	2.93
142	A2	4.766	17.916	-2.424
143	A2	-12.309	26.397	1.097
144 145	A2 A2	9.309 -12.223	20.997 25.415	-0.632 1.119
146	A2	9.191	20.066	-0.593
147	A2	-39.534	54.19	3.297
148	A2	-39.952	54.292	3.565
149	A2	-39.117	54.088	3.03
150	A2	-13.951	56.056	9.309
151	A2	-12.931	55.806	8.651
152	A2	-14.97	56.306	9.967
153	A2	34.093	35.514	-2.548
154 155	A2 A2	34.512 33.674	35.412 35.617	-2.815 -2.28
156	A2 A2	8.548	33.621	-2.28 -8.579
157	A2	7.528	33.871	-7.923
158	A2	9.569	33.372	-9.236
159	A2	-37.019	63.972	4.639
160	A2	-37.333	64.048	4.84
161	A2	-36.705	63.895	4.438
162	A2	-17.821	65.379	9.157
163	A2	-17.055	65.191	8.664
164 165	A2 A2	-18.587 18.281	65.567 49.936	9.651 0.246
166	A2	18.595	49.859	0.045
167	A2	17.966	50.013	0.447
168	A2	-0.895	48.514	-4.284
169	A2	-1.662	48.702	-3.791
170	A2	-0.129	48.326	-4.776
171	A2	-51.482	95.265	9.037
172	A2	-51.797	95.343	9.238
173 174	A2 A2	-51.167 -32.176	95.187 96.69	8.836 13.639
175	A2	-32.170	96.501	13.145
176	A2	-32.945	96.88	14.134
177	A2	4.199	81.107	4.613
178	A2	4.515	81.029	4.411
179	A2	3.883	81.184	4.814
180	A2	-15.084	79.666	0
181	A2	-15.854	79.855	0.493
182 183	A2 A2	-14.314 -38.019	79.476 29.97	-0.495 3.088
184	A2 A2	-38.435	30.072	3.356
185	A2	-37.602	29.869	2.821
186	A2	-12.447	31.827	9.086
187	A2	-11.429	31.579	8.429
188	A2	-13.465	32.076	9.743
189	A2	35.509	11.327	-2.747
190	A2	35.928	11.225	-3.015
191	A2	35.091	11.43	-2.479 9.764
192 193	A2 A2	9.976 8.957	9.443 9.692	-8.764 -8.108
193	AZ A2	10.995	9.692	-8.108 -9.421
102	B1	0.549	40.198	0.046
103	B1	2.098	53.021	-1.996
104	B1	0.549	40.198	0.046

← WORST CASE COMPRESSION

LC	LOCATION	X (k)	Y (k)	Z (k)
105	B1	3.482	70.432	-5.817
106	B1	3.913	72.483	-5.895
107	B1	1.689	36.174	-10.185
108	B1	-0.575 1.688	43.609	10.222 -10.13
109 110	B1 B1	1.688 -0.413	35.255 41.98	-10.13 8.27
111	B1	1.61	35.027	-9.169
112	B1	-0.493	41.745	9.258
113	B1	0.221	38.911	-0.33
114	B1	0.866	39.762	0.413
115	B1	0.223	37.961	-0.326
116	B1	0.865	38.804	0.41
117	B1	2.564	46.791	-9.166
118	B1	0.87	52.381	6.157
119	B1	2.563	46.103	-9.125
120	B1	0.991	51.159	4.693
121 122	B1 B1	2.505 0.931	45.932 50.983	-8.403 5.435
123	B1	1.468	48.851	-1.765
124	B1	1.945	49.49	-1.207
125	B1	1.47	48.139	-1.761
126	B1	1.944	48.772	-1.21
127	B1	4.76	69.432	-13.627
128	B1	3.078	75.074	1.794
129	B1	4.759	68.744	-13.584
130	B1	3.198	73.846	0.319
131	B1	4.702	68.577	-12.856
132	B1	3.139	73.674	1.068
133	B1	3.683	71.516	-6.176
134	B1	4.135	72.16	-5.617
135 136	B1 B1	3.684 4.134	70.804 71.442	-6.172 -5.618
137	B1	1.47	20.101	-10.193
138	B1	-0.795	27.525	10.197
139	B1	1.469	19.182	-10.138
140	B1	-0.633	25.898	8.247
141	B1	1.391	18.953	-9.178
142	B1	-0.713	25.661	9.233
143	B1	-0.001	22.834	-0.346
144	B1	0.65	23.683	0.397
145	B1	0	21.883	-0.343
146	B1	0.649	22.725	0.393
147 148	B1 B1	0.643 0.813	42.556 42.52	-1.306 -1.452
148	B1	0.813	42.52	-1.452
150	B1	1.838	35.642	-22.174
151	B1	1.422	35.731	-21.808
152	B1	2.254	35.553	-22.539
153	B1	0.564	45.527	1.414
154	B1	0.392	45.562	1.561
155	B1	0.735	45.491	1.267
156	B1	-0.633	52.456	22.313
157	B1	-0.219	52.368	21.947
158	B1	-1.048	52.545	22.679
159 160	B1 B1	1.791 1.919	51.582 51.555	-2.499 2.600
160 161	B1	1.663	51.609	-2.609 -2.39
162	B1	2.674	46.386	-2.39
163	B1	2.363	46.453	-17.895
164	B1	2.986	46.319	-18.444
165	B1	1.712	53.815	-0.46
166	B1	1.583	53.842	-0.35
167	B1	1.84	53.788	-0.57
168	B1	0.827	59.02	15.229
169	B1	1.138	58.953	14.954
170	B1	0.516	59.087	15.503
171	B1	4.034	74.238	-6.915

LC	LOCATION	X (k)	Y (k)	Z (k)
172	B1	4.161	74.211	-7.025
173	B1	3.906	74.265	-6.805
174	B1	4.866	68.996	-22.69
175 176	B1	4.556	69.064	-22.414
176 177	B1 B1	5.177 3.875	68.928 76.49	-22.966 -4.87
177 178	B1	3.747	76.518	-4.87 -4.759
178	B1	4.003	76.463	-4.73 9 -4.98
180	B1	3.041	81.741	10.924
181	B1	3.35	81.673	10.647
182	B1	2.731	81.809	11.2
183	B1	0.305	18.793	-1.33
184	B1	0.476	18.757	-1.476
185	B1	0.135	18.828	-1.185
186	B1	1.514	11.892	-22.173
187	B1	1.098	11.98	-21.808
188	B1	1.93	11.804	-22.538
189	B1	0.253	21.759	1.389
190	B1	0.081	21.794	1.536
191	B1	0.425	21.723	1.243
192	B1	-0.958	28.676	22.264
193	B1	-0.543	28.587	21.899
194	B1	-1.373	28.764	22.629
102	B2	0.436	40.166	1.284
103	B2	3.144	54.539	4.413
104	B2	0.436	40.166	1.284
105	B2	6.917	75.115	6.795
106	B2	7.333	77.164	7.79
107	B2	-0.156	43.576	9.101
108	B2	1.034	36.18	-6.49
109	B2	-0.149	42.61	9.045
110	B2	0.92	35.953	-5.039
111	B2	-0.089	41.685	8.32
112	B2	0.982	35.003	-5.782
113	B2	2.022	38.943	0.925
114	B2	-1.15	39.66	1.629
115	B2	2.009	37.985	0.917
116	B2	-1.131	38.696	1.615
117	B2	2.026	53.508	9.508
118	B2	2.912	47.95	-2.221
119 120	B2 B2	2.03 2.827	52.784 47.78	9.466 -1.131
121	B2	2.075	52.09	8.92
122	B2	2.873	47.066	-1.691
123	B2	3.661	50.027	3.357
124	B2	1.272	50.566	3.885
125	B2	3.651	49.309	3.35
126	B2	1.286	49.843	3.873
127	B2	6.898	79.754	13.745
128	В2	7.772	74.144	1.867
129	В2	6.902	79.029	13.701
130	В2	7.688	73.98	2.973
131	B2	6.946	78.331	13.146
132	B2	7.733	73.263	2.404
133	B2	8.547	76.244	7.52
134	B2	6.119	76.787	8.046
135	B2	8.536	75.525	7.512
136	B2	6.132	76.063	8.033
137	B2	-0.331	27.503	8.57
138	B2	0.861	20.118	-6.992
130	B2	-0.325	26.537	8.514
139	DZ			
	B2 B2	0.747	19.89	-5.544
139		0.747 -0.265	19.89 25.613	-5.544 7.791
139 140 141 142	B2 B2 B2			7.791 -6.285
139 140 141 142 143	B2 B2 B2 B2	-0.265 0.809 1.844	25.613 18.94 22.876	7.791 -6.285 0.408
139 140 141 142	B2 B2 B2	-0.265 0.809	25.613 18.94	7.791 -6.285

LC	LOCATION	X (k)	Y (k)	Z (k)
146	B2	-1.302	22.629	1.099
147	B2	6.414	42.837	0.36
148	B2	6.321	42.861	0.325
149	B2	6.507	42.814	0.395
150	B2	-0.301	52.467	20.32
151	B2	-0.066	52.406	20.409
152	B2	-0.535	52.528	20.23
153	B2	-5.449	45.174	2.465
154	B2	-5.356	45.15	2.5
155	B2	-5.543	45.197	2.429
156	B2	1.267	35.532	-17.526
157	B2	1.031	35.593	-17.616
158	B2	1.502	35.471	-17.436
159	B2	6.965	52.948	2.937
160	B2	6.895	52.966	2.911
161	B2	7.035	52.93	2.963
162	B2	1.919	60.184	17.941
163	B2	2.094	60.138	18.007
164	B2	1.743	60.23	17.874
165	B2	-1.964	54.703	4.512
166	B2	-1.894	54.685	4.539
167	B2	-2.034	54.721	4.486
168	B2	3.084	47.46	-10.509
169	B2	2.907	47.506	-10.576
170	B2	3.26	47.414	-10.442
171	B2	11.898	79.162	7.105
172	B2	11.829	79.18	7.08
173	B2	11.967	79.144	7.13
174	B2	6.796	86.459	22.258
175	B2	6.971	86.413	22.322
176	B2	6.622	86.506	22.194
177	B2	2.838	80.93	8.676
178	B2	2.907	80.912	8.701
179	B2	2.768	80.948	8.651
180	B2	7.941	73.625	-6.495
181	B2	7.765	73.671	-6.56
182	B2	8.116	73.578	-6.431
183	B2	6.138	19.09	-0.405
184	B2	6.045	19.113	-0.441
185	B2	6.231	19.067	-0.37
186	B2	-0.561	28.703	19.515
187	B2	-0.326	28.642	19.605
188	B2	-0.796	28.763	19.424
189	B2	-5.689	21.423	1.702
190	B2	-5.595	21.4	1.738
191	B2	-5.783	21.447	1.666
192	B2	1.012	11.798	-18.249
193	B2	0.776	11.858	-18.34
194	B2	1.248	11.737	-18.157
102	C1	1.63	39.923	-0.114
103	C1	7.564	51.409	-1.667
104	C1	1.63	39.923	-0.114
105	C1	15.057	66.874	-4.392
106	C1	16.177	68.739	-4.497
107	C1	4.854	36.066	-6.955
108	C1	-1.6	43.169	6.691
109	C1	4.813	35.15	-6.911
110	C1	-0.917	41.57	5.399
111	C1	4.454	34.911	-6.267
112	C1	-1.286	41.322	6.06
113	C1	6.61	36.894	-0.292
114	C1	-3.36	41.231	0.071
114	C1	-5.50 6.541	35.962	-0.284
116	C1			
1.10		-3.332	40.258	0.076
	C1			
117	C1	8.503 3.646	45.64 50.08	-6.414 2.821
	C1 C1 C1	8.503 3.646 8.472	50.98 44.953	-6.414 3.831 -6.381

120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151	C1 C	X (k) 4.159 8.201 3.881 9.821 2.324 9.769 2.344 18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434 20.013	49.78 44.775 49.596 46.265 49.524 45.566 48.795 65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288 36.258	2 (k) 2.861 -5.897 3.359 -1.411 -1.139 -1.404 -1.134 -9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122 -0.763
121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	8.201 3.881 9.821 2.324 9.769 2.344 18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	44.775 49.596 46.265 49.524 45.566 48.795 65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-5.897 3.359 -1.411 -1.139 -1.404 -1.134 -9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	3.881 9.821 2.324 9.769 2.344 18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	49.596 46.265 49.524 45.566 48.795 65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	3.359 -1.411 -1.139 -1.404 -1.134 -9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	9.821 2.324 9.769 2.344 18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	46.265 49.524 45.566 48.795 65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-1.411 -1.139 -1.404 -1.134 -9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	2.324 9.769 2.344 18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	49.524 45.566 48.795 65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-1.139 -1.404 -1.134 -9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	9.769 2.344 18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	45.566 48.795 65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-1.404 -1.134 -9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	2.344 18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	48.795 65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-1.134 -9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	18.628 13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	65.814 71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-9.666 0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	13.718 18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	71.207 65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	0.645 -9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	18.595 14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	65.128 70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-9.632 -0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	14.235 18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	70.002 64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-0.333 -9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	18.321 13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	64.953 69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-9.143 0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	13.953 19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	69.821 66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	0.169 -4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	19.958 12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	66.453 69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-4.63 -4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	12.383 19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	69.738 65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-4.357 -4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237
135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C	19.903 12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	65.755 69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-4.623 -4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
136 137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1	12.403 4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	69.01 20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-4.352 -6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
137 138 139 140 141 142 143 144 145 146 147 148 149 150	C1 C1 C1 C1 C1 C1 C1 C1 C1 C1 C1	4.194 -2.248 4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	20.103 27.195 19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-6.905 6.734 -6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
139 140 141 142 143 144 145 146 147 148 149 150	C1 C1 C1 C1 C1 C1 C1 C1 C1 C1	4.154 -1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	19.187 25.597 18.947 25.349 20.928 25.261 19.996 24.288	-6.861 5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
140 141 142 143 144 145 146 147 148 149 150	C1 C1 C1 C1 C1 C1 C1 C1 C1	-1.565 3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	25.597 18.947 25.349 20.928 25.261 19.996 24.288	5.443 -6.217 6.104 -0.246 0.117 -0.237 0.122
141 142 143 144 145 146 147 148 149	C1 C1 C1 C1 C1 C1 C1 C1	3.795 -1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	25.597 18.947 25.349 20.928 25.261 19.996 24.288	-6.217 6.104 -0.246 0.117 -0.237 0.122
142 143 144 145 146 147 148 149 150	C1 C1 C1 C1 C1 C1 C1 C1	-1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	25.349 20.928 25.261 19.996 24.288	6.104 -0.246 0.117 -0.237 0.122
143 144 145 146 147 148 149 150	C1 C1 C1 C1 C1 C1 C1	-1.934 5.95 -4.007 5.881 -3.978 20.224 20.434	25.349 20.928 25.261 19.996 24.288	-0.246 0.117 -0.237 0.122
144 145 146 147 148 149 150	C1 C1 C1 C1 C1 C1	-4.007 5.881 -3.978 20.224 20.434	25.261 19.996 24.288	0.117 -0.237 0.122
145 146 147 148 149 150	C1 C1 C1 C1 C1	5.881 -3.978 20.224 20.434	19.996 24.288	-0.237 0.122
146 147 148 149 150	C1 C1 C1 C1	-3.978 20.224 20.434	24.288	0.122
147 148 149 150	C1 C1 C1	20.224 20.434		
148 149 150	C1 C1	20.434	36.258	-0.763
149 150	C1			
150		20 012	36.223	-0.831
	C1	20.013	36.292	-0.696
151	C1	7.238	35.62	-15.563
	C1	6.717	35.706	-15.395
152	C1	7.758	35.533	-15.731
153	C1	-16.62	51.211	0.502
154	C1	-16.83	51.246	0.568
155	C1	-16.409	51.177	0.436
156	C1	-3.663	51.872	15.328
157	C1	-3.143	51.786	15.16
158	C1	-4.183	51.958	15.495
159	C1	20.05	45.781	-1.766
160	C1	20.208	45.755	-1.816
161	C1	19.892	45.807	-1.716 12.877
162	C1	10.298	45.298	-12.877
163 164	C1	9.907	45.364	-12.751
	C1	10.689	45.233	-13.003
165 166	C1 C1	-7.641 -7.799	57.016 57.042	-0.814 -0.764
167	C1	-7.7 9 9 -7.483	56.99	-0.764
168	C1	2.095	57.511	10.312
169	C1	2.485	57.446	10.312
170	C1	1.705	57.576	10.437
171	C1	30.286	65.934	-4.987
172	C1	30.444	65.908	-5.038
173	C1	30.127	65.961	-4.937
174	C1	20.45	65.442	-16.172
175	C1	20.058	65.508	-16.046
176	C1	20.842	65.375	-16.298
177	C1	2.327	77.26	-4.033
178	C1	2.169	77.287	-3.983
179	C1	2.486	77.234	-4.083
180	C1	12.146	77.766	7.166
181	C1	12.537	77.699	7.041
182	C1	11.755	77.832	7.292
183	C1	19.224	12.667	-0.695
184	C1	19.434	12.633	-0.762
185	C1	19.013	12.702	-0.627
186	C1	6.253	12.032	-15.483

LC	LOCATION	X (k)	Y (k)	Z (k)
187	C1	5.733	12.119	-15.315
188	C1	6.774	11.946	-15.651
189	C1	-17.553	27.598	0.572
190	C1	-17.764	27.632	0.638
191 192	C1 C1	-17.343	27.563 28.255	0.505 15.386
193	C1	-4.612 -4.092	28.255	15.218
194	C1	-4.032 -5.131	28.109	15.553
102	C2	0.672	39.8	0.014
103	C2	5.302	52.593	1.401
104	C2	0.672	39.8	0.014
105	C2	12.44	71.177	4.039
106	C2	12.98	72.928	4.087
107	C2	-0.359	42.529	5.924
108	C2	1.699	36.491	-5.869
109	C2	-0.342	41.564	5.885
110	C2	1.5	36.133	-4.742
111	C2	-0.227	40.701	5.326
112	C2	1.618	35.246	-5.316
113	C2	5.564	36.779	-0.092
114	C2	-4.18	41.084	0.115
115	C2	5.528	35.835	-0.096
116	C2	-4.121	40.1	0.109
117	C2	3.369	51.445	5.498
118	C2	4.914	46.909	-3.372
119	C2	3.382	50.722	5.468
120	C2	4.764	46.641	-2.526
121	C2	3.468	50.074	5.047
122	C2	4.853	45.975	-2.958
123	C2	7.819	47.125	0.972
124	C2	0.497	50.361	1.127
125	C2	7.792	46.418	0.968
126	C2	0.541	49.622	1.122
127	C2	12.203	74.999	8.586
128	C2	13.752	70.423	-0.391
129	C2	12.215	74.275	8.554
130	C2	13.6	70.16	0.467
131	C2	12.301	73.625	8.127
132	C2	13.688	69.491	0.028
133	C2	16.688	70.646	4.006
134	C2	9.298	73.907	4.161
135	C2	16.66	69.938	4.001
136	C2	9.341	73.169	4.154
137	C2	-0.627	26.605	5.905
138	C2	1.429	20.574	-5.866
139	C2	-0.61	25.64	5.865
140	C2	1.23	20.215	-4.741
141	C2	-0.495	24.778	5.308
142	C2	1.348	19.328	-5.313
143	C2	5.289	20.861	-0.1
144	C2	-4.444	25.161	0.107
145	C2	5.254	19.917	-0.104
146	C2	-4.385	24.177	0.101
147	C2	18.834	36.161	-0.382
148	C2	18.727	36.15	-0.41
149	C2	18.942	36.172	-0.353
150	C2	-0.75	50.946	14.603
151	C2	-0.492	50.97	14.664
152	C2	-1.007	50.922	14.542
167	C2	-17.338	51.041	0.405
153	C2	-17.23	51.053	0.432
154		4		0.270
154 155	C2	-17.445	51.03	0.378
154 155 156	C2 C2	2.219	36.252	-14.609
154 155 156 157	C2 C2 C2	2.219 1.962	36.252 36.228	-14.609 -14.668
154 155 156 157 158	C2 C2 C2 C2	2.219 1.962 2.476	36.252 36.228 36.277	-14.609 -14.668 -14.55
154 155 156 157	C2 C2 C2	2.219 1.962	36.252 36.228	-14.609 -14.668

LC 161	LOCATION	X (k)	Y (k)	Z (k)
161 162	C2 C2	17.867 3.077	46.665 57.763	0.778 12.021
163	C2	3.27	57.782	12.066
164	C2	2.883	57.745	11.975
165	C2	-9.388	57.836	1.348
166	C2	-9.307	57.845	1.368
167	C2	-9.469	57.828	1.327
168	C2	5.306	46.727	-9.932
169	C2	5.113	46.709	-9.977
170	C2	5.499	46.746	-9.888
171 172	C2	26.744 26.663	70.145	3.793 3.773
172	C2 C2	26.825	70.136 70.153	3.773
174	C2	11.909	81.342	15.169
175	C2	12.102	81.36	15.211
176	C2	11.716	81.324	15.126
177	C2	-0.672	81.415	4.384
178	C2	-0.591	81.424	4.403
179	C2	-0.753	81.407	4.364
180	C2	14.147	70.215	-7.008
181	C2	13.954	70.197	-7.05
182	C2 C2	14.34	70.233	-6.967
183 184	C2	18.41 18.303	12.64 12.629	-0.395 -0.424
185	C2	18.517	12.652	-0.424
186	C2	-1.145	27.403	14.559
187	C2	-0.887	27.428	14.622
188	C2	-1.403	27.379	14.497
189	C2	-17.709	27.498	0.394
190	C2	-17.601	27.509	0.422
191	C2	-17.816	27.486	0.367
192	C2	1.819	12.731	-14.588
193 194	C2 C2	1.563 2.076	12.706 12.756	-14.649 -14.528
102	BRIDGE 1	0	1.05	-0.291
103	BRIDGE 1	0	6.33	-0.812
104	BRIDGE 1	0	1.05	-0.291
105	BRIDGE 1	0	11.154	-0.887
106	BRIDGE 1	0	12.588	-1.132
107	BRIDGE 1	0	1.05	-0.484
108	BRIDGE 1	0	1.05	-0.099
109	BRIDGE 1	0 0	1.05	-0.482
110 111	BRIDGE 1 BRIDGE 1	0	1.05 1.05	-0.169 -0.448
112	BRIDGE 1	0	1.05	-0.134
113	BRIDGE 1	0	1.05	-0.304
114	BRIDGE 1	0	1.05	-0.281
115	BRIDGE 1	0	1.05	-0.304
116	BRIDGE 1	0	1.05	-0.28
117	BRIDGE 1	0	5.01	-0.826
118	BRIDGE 1	0	5.01	-0.538
119	BRIDGE 1 BRIDGE 1	0 0	5.01	-0.825
120 121	BRIDGE 1	0	5.01 5.01	-0.59 -0.799
122	BRIDGE 1	0	5.01	-0.564
123	BRIDGE 1	0	5.01	-0.692
124	BRIDGE 1	0	5.01	-0.673
125	BRIDGE 1	0	5.01	-0.691
126	BRIDGE 1	0	5.01	-0.673
127	BRIDGE 1	0	12.587	-1.278
128	BRIDGE 1	0	12.589	-0.985
129	BRIDGE 1	0	12.587	-1.276 1.029
130 131	BRIDGE 1 BRIDGE 1	0 0	12.588 12.587	-1.038 -1.251
131	BRIDGE 1	0	12.587	-1.251 -1.012
133	BRIDGE 1	0	12.588	-1.142
134	BRIDGE 1	0	12.588	-1.122

		(1)		- (1)
LC 125	LOCATION	X (k)	Y (k)	Z (k)
135 136	BRIDGE 1 BRIDGE 1	0	12.588	-1.142 -1.122
	BRIDGE 1	0	12.588	
137	BRIDGE 1	0 0	0.63	-0.367
138			0.63	0.018
139	BRIDGE 1	0	0.63	-0.366
140	BRIDGE 1	0	0.63	-0.052
141	BRIDGE 1	0	0.63	-0.332
142	BRIDGE 1	0	0.63	-0.017
143	BRIDGE 1	0	0.63	-0.187
144	BRIDGE 1	0	0.63	-0.164
145	BRIDGE 1	0	0.63	-0.187
146	BRIDGE 1	0	0.63	-0.164
147	BRIDGE 1	0	1.151	-0.247
148	BRIDGE 1	0	1.151	-0.141
149	BRIDGE 1	0	1.151	-0.354
150	BRIDGE 1	0	1.149	-1.364
151	BRIDGE 1	0	1.149	-1.634
152	BRIDGE 1	0	1.15	-1.094
153	BRIDGE 1	0	1.151	-0.393
154	BRIDGE 1	0	1.15	-0.5
155	BRIDGE 1	0	1.151	-0.286
156	BRIDGE 1	0	1.152	0.728
157	BRIDGE 1	0	1.152	0.998
158	BRIDGE 1	0	1.151	0.458
159	BRIDGE 1	0	5.085	-0.65
160	BRIDGE 1	0	5.086	-0.57
161	BRIDGE 1	0	5.085	-0.73
162	BRIDGE 1	0	5.083	-1.486
163	BRIDGE 1	0	5.082	-1.688
164	BRIDGE 1	0	5.083	-1.283
165	BRIDGE 1	0	5.085	-0.757
166	BRIDGE 1	0	5.085	-0.837
167	BRIDGE 1	0	5.085	-0.677
168	BRIDGE 1	0	5.087	0.082
169	BRIDGE 1	0	5.088	0.284
170	BRIDGE 1	0	5.087	-0.12
171	BRIDGE 1	0	12.663	-1.102
172	BRIDGE 1	0	12.664	-1.022
173	BRIDGE 1	0	12.663	-1.182
174	BRIDGE 1	0	12.658	-1.941
175	BRIDGE 1	0	12.657	-2.143
176	BRIDGE 1	0	12.659	-1.739
177	BRIDGE 1	0	12.663	-1.205
178	BRIDGE 1	0	12.662	-1.285
	BRIDGE 1	0		
179		0	12.663	-1.125 -0.363
180	BRIDGE 1		12.668	
181	BRIDGE 1	0	12.669	-0.161
182	BRIDGE 1	0	12.666	-0.565
183	BRIDGE 1	0	0.53	-0.074
184	BRIDGE 1	0	0.53	0.033
185	BRIDGE 1	0	0.53	-0.18
186	BRIDGE 1	0	0.529	-1.191
187	BRIDGE 1	0	0.528	-1.461
188	BRIDGE 1	0	0.529	-0.922
189	BRIDGE 1	0	0.53	-0.222
190	BRIDGE 1	0	0.53	-0.328
191	BRIDGE 1	0	0.53	-0.115
192	BRIDGE 1	0	0.53	0.901
193	BRIDGE 1	0	0.53	1.17
194	BRIDGE 1	0	0.53	0.631
102	BRIDGE 2	0	1.057	0
103	BRIDGE 2	0	6.334	0
104	BRIDGE 2	0	1.057	0
	BRIDGE 2	0	11.154	0
105				
105 106	BRIDGE 2	0	12.586	0
	BRIDGE 2 BRIDGE 2	0 0	12.586 1.057	0 0

LC	LOCATION	X (k)	Y (k)	Z (k)
109	BRIDGE 2	0	1.057	0
110	BRIDGE 2	0	1.057	0
111	BRIDGE 2	0	1.057	0
112	BRIDGE 2	0	1.057	0
113	BRIDGE 2	0	1.057	0
114	BRIDGE 2	0	1.057	0
115	BRIDGE 2	0	1.057	0
116	BRIDGE 2	0	1.057	0
117	BRIDGE 2	0	5.015	0
118	BRIDGE 2	0	5.015	0
119	BRIDGE 2	0	5.015	0
120	BRIDGE 2	0	5.015	0
121	BRIDGE 2	0	5.015	0
122	BRIDGE 2	0	5.015	0
123	BRIDGE 2	0	5.015	0
124	BRIDGE 2	0	5.015	0
125	BRIDGE 2	0	5.015	0
126	BRIDGE 2	0	5.015	0
127	BRIDGE 2	0	12.586	0
128	BRIDGE 2	0	12.586	0
129	BRIDGE 2	0	12.586	0
130	BRIDGE 2	0	12.586	0
131	BRIDGE 2	0	12.586	0
132	BRIDGE 2	0	12.586	0
133	BRIDGE 2	0	12.586	0
134	BRIDGE 2	0	12.586	0
135	BRIDGE 2	0	12.586	0
136	BRIDGE 2	0	12.586	0
137	BRIDGE 2	0	0.634	0
138	BRIDGE 2	0	0.634	0
139	BRIDGE 2	0	0.634	0
140	BRIDGE 2	0	0.634	0
141	BRIDGE 2	0	0.634	0
142	BRIDGE 2	0	0.634	0
143	BRIDGE 2	0	0.634	0
144	BRIDGE 2	0	0.634	0
145	BRIDGE 2	0	0.634	0
146	BRIDGE 2	0	0.634	0
147	BRIDGE 2	0	1.158	0
148	BRIDGE 2	0	1.158	0
149	BRIDGE 2	0	1.158	0
150	BRIDGE 2	0	1.158	0
151	BRIDGE 2	0	1.158	0
152	BRIDGE 2	0	1.158	0
153	BRIDGE 2	0	1.158	0
154	BRIDGE 2	0	1.158	0
155	BRIDGE 2	0	1.158	0
156	BRIDGE 2	0	1.158	0
157	BRIDGE 2	0	1.158	0
158	BRIDGE 2	0	1.158	0
159	BRIDGE 2	0	5.091	0
160	BRIDGE 2	0	5.091	0
161	BRIDGE 2	0	5.091	0
162	BRIDGE 2	0	5.091	0
163	BRIDGE 2	0	5.091	0
164	BRIDGE 2	0	5.091	0
165	BRIDGE 2	0	5.091	0
166	BRIDGE 2	0	5.091	0
167	BRIDGE 2	0	5.091	0
168	BRIDGE 2	0	5.091	0
169	BRIDGE 2	0	5.091	0
170	BRIDGE 2	0	5.091	0
171	BRIDGE 2	0	12.662	0
172	BRIDGE 2	0	12.662	0
173	BRIDGE 2	0	12.662	0
174	BRIDGE 2	0	12.663	0

LC	LOCATION	X (k)	Y (k)	Z (k)
176	BRIDGE 2	0	12.663	0
177	BRIDGE 2	0	12.662	0
178	BRIDGE 2	0	12.662	0
179	BRIDGE 2	0	12.662	0
180	BRIDGE 2	0	12.661	0
181	BRIDGE 2	0	12.661	0
182	BRIDGE 2	0	12.661	0
183	BRIDGE 2	0	0.533	0
184	BRIDGE 2	0	0.533	0
185	BRIDGE 2	0	0.533	0
186	BRIDGE 2	0	0.533	0
187	BRIDGE 2	0	0.533	0
188	BRIDGE 2	0	0.533	0
189	BRIDGE 2	0	0.533	0
190	BRIDGE 2	0	0.533	0
191	BRIDGE 2	0	0.533	0
192	BRIDGE 2	0	0.533	0
193	BRIDGE 2	0	0.533	0
194	BRIDGE 2	0	0.533	0



APPENDIX F Loading Report



10815 Rancho Bernardo RD., SD, CA 92127 projectmanager@sullawayeng.com Phone: 858-312-5150 Fax: 858-777-3534

Design Loads

for The Cabins

Summit Horizon Neighborhood Eden, UT

Project # 10972

date; 7/11/2016



10815 Rancho Bernardo RD., SD, CA 92127 projectmanager@sullawayeng.com Phone: 858-312-5150 Fax: 858-777-3534

PROJECT: Summit Horizon DATE: 3/25/2016

PROJ. NO.: 10972 ENGINEER: mfs
CLIENT: Blackwell

building code; IBC 2012 units; pounds, feet unless noted otherwise

Seismic Analysis- Building Structure

Design Force	9			(ASCE 1	2)
	Latitude		41.3007		
I	Longitude	-	111.8127		
S ₁ =	0.304	(from	n USGS)	l=	1.0
S _{DS} =	0.683			Risk Cat	egory II
S _{D1} =	0.363			Seismic	Design Cat. D
Ss=	0.898				
F _a =	1.14				
$F_v =$	1.80				
R	Ω	Cd	ASCE Table	12.2-1 B.3. "Steel o	ordinary concentrically braced frame"
3.25	2	3.25			
$V=C_sW$				$C_s = S_{DS}/(R/I)$	C _s = 0.21

Vertical Seismic Loads

 $E_v=0.2S_{DS}DL$

Live Loads

Typical Reduction	L _o =	40	psf	Roof	20	psf
	L=L _o (0.25-	+15/sqrt	$(K_{LL}A_T))$	R1=	0.6	
	K _{LL} =	1		R2=	0.6	
	$A_T =$	1000		$L_r = L_o R_1 R_2 =$	7.20	psf
	A _T (sf)	L (psf)				
•	1000	28.97				
	1500	25.49				
	2000	23.42				
	2500	22.00				

Loads for parking structure

Truck- 250 psf or 16 kip point load (one wheel load)

HS0-44 (aashto TRUCK) 40 kip truck, with; 8 kip on front axil

32 kip on back axil

Note- I put in a call to the fire marshal to get fire truck loads.



building code; IBC 2012

10815 Rancho Bernardo RD., SD, CA 92127 projectmanager@sullawayeng.com Phone: 858-312-5150 Fax: 858-777-3534

PROJECT: Summit Horizon DATE: 3/25/2016

PROJ. NO.: 10972 ENGINEER: mfs

CLIENT: Blackwell

units; pounds, feet unless noted otherwise

Snow Load

ASCE Chap. 7

Exposure Factor:	C _e =	=[1.0	
Thermal Factor:	$C_t =$	=	1.0	
Importance Factor:	I =	=[1.0	
Roof Slope Factor:	C _s =	=	1.00	
Ground Snow Load:	$p_g =$	=	274.3	psf
Flat Roof Snow Load:	$p_f =$	0.7 * Ce * Ct * I * pg =	192	psf
Sloped Roof Snow Load:	p _s =	Cs * pf =	192	psf
Snow Drift:			0.0	
Roof Slope:	S=		2.0	

Drift - Courtyard note- No snow drift on roof

 $I_u = 13.3 \text{ ft}$ $h_d = .43*(I_u)^0.33*(p_g+10)^0.25 -1.5 = 2.7$ ft leeward $h_d = 4.6$ ft windward $w=4h_d=18.4$ ft $h_c = 15.6 - h_d = 11.0$ ft γ =0.13p_q+14 <30 = 30 pcf $h_b = 6.4$ ft drift load = $p_d = h_d \gamma = 138$ psf

p_d = 0 at a distance of 'w' from wall

Frost Depth

40 inches

EUSGS Design Maps Summar verte port

User-Specified Input

Report Title Summit Horizon, Eden, UT

Fri March 25, 2016 18:16:11 UTC

Building Code Reference Document 2012 International Building Code

(which utilizes USGS hazard data available in 2008)

Site Coordinates 41.3007°N, 111.8127°W

Site Soil Classification Site Class D - "Stiff Soil"

Risk Category I/II/III



USGS-Provided Output

$$S_s = 0.898 g$$

$$S_{MS} = 1.025 c$$

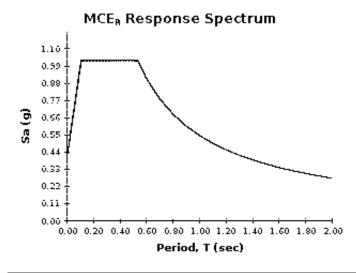
$$\mathbf{S}_{s} = 0.898 \text{ g}$$
 $\mathbf{S}_{MS} = 1.025 \text{ g}$ $\mathbf{S}_{DS} = 0.683 \text{ g}$

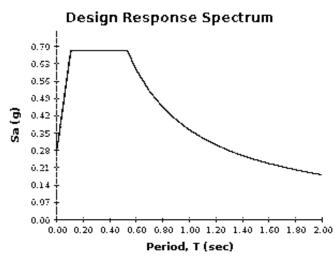
$$S_1 = 0.304 g$$

$$S_{M1} = 0.545 g$$

$$S_{D1} = 0.363 g$$

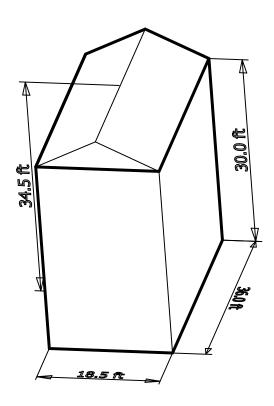
For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.

1000 sqft Cabin



MecaWind Pro v2.2.6.1 per ASCE 7-10

Developed by MECA Enterprises, Inc. Copyright www.mecaenterprises.com

```
: 7/12/2016
                                                Project No.
                                                              : JobNo
Date
                                                Designed By : Engineer
Description : Description
Company Name : True
Address : Address
City
             : City
                                                Customer Name : Customer
                                                Proj Location : Location
            : State
State
File Location: S:\Projects\10900-10999\10972\Cabins\1000 sqft\mecawind 1000sf.wnd
```

Input Parameters: Directional Procedure All Heights Building (Ch 27 Part 1)

Basic Wind Speed(V)	=	115.00 mph			
Structural Category	=	II	Exposure Category	=	C
Natural Frequency	=	N/A	Flexible Structure	=	No
Importance Factor	=	1.00	Kd Directional Factor	=	0.85
Alpha	=	9.50	Zg	=	900.00 ft
At	=	0.11	Bt	=	1.00
Am	=	0.15	Bm	=	0.65
Cc	=	0.20	1	=	500.00 ft
Epsilon	=	0.20	Zmin	=	15.00 ft
Slope of Roof	=	5.837838 : 12	Slope of Roof(Theta)	=	25.94 Deg
h: Mean Roof Ht	=	32.25 ft	Type of Roof	=	GABLED
RHt: Ridge Ht	=	34.50 ft	Eht: Eave Height	=	30.00 ft
OH: Roof Overhang at Eav	e=	.00 ft	Overhead Type	=	No Overhang
Bldg Length Along Ridge	=	36.00 ft	Bldg Width Across Ridg	e=	18.50 ft

Gust Factor Calculations

```
Gust Factor Category I Rigid Structures - Simplified Method
Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85
                                                            = 0.85
```

Gust	Factor	Category	ΙI	Rigid	Structures	-	Complete	Analysis
7.m:	0.6*1	##						

Cabc	raccor cacegory is Rigia belaceareb complete imarybib			
Zm:	0.6*Ht	=	19.35	ft
lzm:	Cc*(33/Zm)^0.167	=	0.22	
Lzm:	1*(Zm/33)^Epsilon	=	449.37	ft
Q:	(1/(1+0.63*((B+Ht)/Lzm)^0.63))^0.5	=	0.93	
Gust	2: 0.925*((1+1.7*lzm*3.4*Q)/(1+1.7*3.4*lzm))	=	0.89	

Gust Factor Summary

Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCPi : Internal Pressure Coefficient = +/-0.18

Wind Pressurs Main Wind Force Resisting System (MWFRS) - Ref Figure 27.4-1

```
1.00
Kh: 2.01*(Ht/Zg)^(2/Alpha)
Kht: Topographic Factor (Figure 6-4)
                                                                1.00
Qh: .00256*(V)^2*I*Kh*Kht*Kd
                                                            = 28.70 psf
Cpww: Windward Wall Cp(Ref Fig 6-6)
                                                               0.80
Roof Area
                                                               740.63 ft^2
Reduction Factor based on Roof Area
```

MWFRS-Wall Pressures for Wind Normal to 36 ft Wall (Normal to Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Ср	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall Side Walls	-0.50 -0.70	-17.36 -22.24	-7.03 -11.91

Wall	Elev ft	Kz	Kzt	Ср 	qz psf	Press +GCpi		Total +/-GCpi
Windward						14.06		31.42
Windward	20.00	0.90	1.00	0.80	25.95	12.48	22.81	29.85
Windward	10.00	0.85	1.00	0.80	24.43	11.45	21.78	28.81

Roof Location	Ср	Pressure +GCpi(psf)	
Windward - Min Cp	-0.46	-4.19	-6.06
Windward - Max Cp	0.04		6.14
Leeward Norm to Ridge	-0.60		-9.47

Normal to Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.36	1080	.00	18.75	.00	281.3	.0	.0
Side Wall	-22.24	555	-12.34	.00	.00	.0	185.2	.0
Side Wall	-22.24	555	12.34	.00	.00	.0	-185.2	.0
Windward Wall	14.06	360	.00	5.06	.00	126.5	.0	.0
Windward Wall	12.48	360	.00	4.49	.00	67.4	.0	.0
Windward Wall	11.45	360	.00	4.12	.00	20.6	.0	.0
Roof Windward	-16.39	370	.00	-2.65	5.46	-60.4	.0	.0
Roof Leeward	-19.80	370	.00	3.21	6.59	73.0	.0	.0
Side Wall	-22.24	42	-0.93	.00	.00	.0	29.2	.0
Side Wall	-22.24	42	0.93	.00	.00	.0	-29.2	.0
Total	.00	4094	.00	32.98	12.05	508.4	.0	.0

Normal to Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.36	1080	.00	18.75	.00	281.3	.0	.0
Side Wall	-22.24	555	-12.34	.00	.00	.0	185.2	.0
Side Wall	-22.24	555	12.34	.00	.00	.0	-185.2	.0
Windward Wall	14.06	360	.00	5.06	.00	126.5	.0	.0
Windward Wall	12.48	360	.00	4.49	.00	67.4	.0	.0
Windward Wall	11.45	360	.00	4.12	.00	20.6	.0	.0
Side Wall	-22.24	42	-0.93	.00	.00	.0	29.2	.0
Side Wall	-22.24	42	0.93	.00	.00	.0	-29.2	.0
Total	.00	3353	.00	32.43	.00	495.8	.0	. 0

Normal to Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.03	1080	.00	7.59	.00	113.9	.0	.0
Side Wall	-11.91	555	-6.61	.00	.00	.0	99.2	.0
Side Wall	-11.91	555	6.61	.00	.00	.0	-99.2	.0
Windward Wall	24.39	360	.00	8.78	.00	219.5	.0	.0
Windward Wall	22.81	360	.00	8.21	.00	123.2	.0	.0
Windward Wall	21.78	360	.00	7.84	.00	39.2	.0	.0
Roof Windward	6.14	370	.00	0.99	-2.05	22.6	.0	.0
Roof Leeward	-9.47	370	.00	1.53	3.15	34.9	.0	.0
Side Wall	-11.91	42	-0.50	.00	.00	.0	15.6	.0
Side Wall	-11.91	42	0.50	.00	.00	.0	-15.6	.0
Total	.00	4094	.00	34.96	1.11	553.3	.0	.0

Normal to Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.03	1080	.00	7.59	.00	113.9	.0	.0
Side Wall	-11.91	555	-6.61	.00	.00	.0	99.2	.0
Side Wall	-11.91	555	6.61	.00	.00	.0	-99.2	.0
Windward Wall	24.39	360	.00	8.78	.00	219.5	.0	.0
Windward Wall	22.81	360	.00	8.21	.00	123.2	.0	.0
Windward Wall	21.78	360	.00	7.84	.00	39.2	.0	.0
Side Wall	-11.91	42	-0.50	.00	.00	.0	15.6	.0
Side Wall	-11.91	42	0.50	.00	.00	.0	-15.6	.0
Total	.00	3353	.00	32.43	.00	495.8	.0	.0

Normal to Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall Windward Wall	16.00 16.00	360 360	.00	5.76 5.76	.00	144.0 86.4	.0	.0
Windward Wall	16.00	360	.00	5.76	.00	28.8	.0	.0

Roof Windward	8.00	162	.00	1.30	.00	41.8	.0	.0
Roof Leeward	8.00	162	.00	1.30	.00	41.8	.0	.0
Total	.00	1404	.00	19.87	.00	342.8	. 0	. 0

Notes - Normal to Ridge

- Note (1) Per Fig 27.4-1 Note 7, Since Theta > 10 Deg base calcs on Mean Ht Note (2) Wall & Roof Pressures = Qh*(G*Cp GCPi)
- Note (3) +GCpi = Positive Internal Bldg Press, -GCPi = Negative Internal Bldg Press Note (4) Total Pressure = Leeward Press + Windward Press (For + or GCPi)
- Note (5) Ref Fig 27.4-1, Normal to Ridge (Theta>=10), Theta= 25.9 Deg, h/l=0.90
- Note (6) X= Along Building ridge, Y= Normal to Building Ridge, Z= Vertical
- Note (7) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf Note (8) Area* = Area of the surface projected onto a vertical plane normal to wind.

MWFRS-Wall Pressures for Wind Normal to 18.5 ft wall (Along Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Ср	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.31	-12.75	-2.42
Side Walls	-0.70	-22.24	-11.91

Wall	Elev ft	Kz	Kzt	Ср	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward Windward Windward Windward	30.00	0.98	1.00	0.80	28.27 25.95	14.63 14.06 12.48 11.45	24.39	27.38 26.80 25.23 24.19

ROOI - DIST From Windward Edge		ressure P Cpi(psf)-G 	
Roof: 0.0 ft to 16.1 ft	-1.05	-30.69	-20.36
Roof: 16.1 ft to 32.3 ft	-0.74	-23.26	-12.93
Roof: 32.3 ft to 36.0 ft	-0.66	-21.23	-10.89

Along Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-12.75	555	7.08	.00	.00	.0	-106.1	.0
Side Wall	-22.24	1080	.00	24.02	.00	360.3	.0	.0
Side Wall	-22.24	1080	.00	-24.02	.00	-360.3	.0	.0
Windward Wall	14.06	185	2.60	.00	.00	.0	-65.0	.0
Windward Wall	12.48	185	2.31	.00	.00	.0	-34.6	.0
Windward Wall	11.45	185	2.12	.00	.00	.0	-10.6	.0
Roof $(0 to h/2)$	-30.69	166	.00	-2.23	4.58	-50.7	-45.5	-22.1
Roof $(0 to h/2)$	-30.69	166	.00	2.23	4.58	50.7	-45.5	22.1
Roof (h/2 to h)	-23.26	166	.00	-1.69	3.47	-38.4	21.5	10.4
Roof (h/2 to h)	-23.26	166	.00	1.69	3.47	38.4	21.5	-10.4
Roof (h to 2h)	-21.23	39	.00	-0.36	0.74	-8.1	11.9	5.8
Roof (h to 2h)	-21.23	39	.00	0.36	0.74	8.1	11.9	-5.8
Leeward Wall	-12.75	42	0.53	.00	.00	.0	-16.7	.0
Windward Wall	14.63	42	0.61	.00	.00	.0	-19.2	.0
Total	.00	4094	15.24	.00	17.57	.0	-276.6	.0

Along Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-12.75	555	7.08	.00	.00	.0	-106.1	.0
Side Wall	-22.24	1080	.00	24.02	.00	360.3	.0	.0
Side Wall	-22.24	1080	.00	-24.02	.00	-360.3	.0	.0
Windward Wall	14.06	185	2.60	.00	.00	.0	-65.0	.0
Windward Wall	12.48	185	2.31	.00	.00	.0	-34.6	.0
Windward Wall	11.45	185	2.12	.00	.00	.0	-10.6	.0
Leeward Wall	-12.75	42	0.53	.00	.00	.0	-16.7	.0
Windward Wall	14.63	42	0.61	.00	.00	.0	-19.2	.0
Total	.00	3353	15.24	.00	.00	.0	-252.3	.0

Along Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-2.42	555	1.34	.00	.00	.0	-20.1	.0
Side Wall	-11.91	1080	.00	12.86	.00	193.0	.0	.0
Side Wall	-11.91	1080	.00	-12.86	.00	-193.0	.0	.0
Windward Wall	24.39	185	4.51	.00	.00	.0	-112.8	.0
Windward Wall	22.81	185	4.22	.00	.00	.0	-63.3	.0
Windward Wall	21.78	185	4.03	.00	.00	.0	-20.1	.0
Roof $(0 to h/2)$	-20.36	166	.00	-1.48	3.04	-33.6	-30.2	-14.7
Roof $(0 to h/2)$	-20.36	166	.00	1.48	3.04	33.6	-30.2	14.7
Roof (h/2 to h)	-12.93	166	.00	-0.94	1.93	-21.3	11.9	5.8
Roof (h/2 to h)	-12.93	166	.00	0.94	1.93	21.3	11.9	-5.8
Roof (h to 2h)	-10.89	39	.00	-0.18	0.38	-4.2	6.1	3.0
Roof (h to 2h)	-10.89	39	.00	0.18	0.38	4.2	6.1	-3.0
Leeward Wall	-2.42	42	0.10	.00	.00	.0	-3.2	.0
Windward Wall	24.96	42	1.04	.00	.00	.0	-32.7	.0
Total	.00	4094	15.24	.00	10.69	.0	-276.6	.0

Along Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-2.42	555	1.34	.00	.00	.0	-20.1	.0
Side Wall	-11.91	1080	.00	12.86	.00	193.0	.0	.0
Side Wall	-11.91	1080	.00	-12.86	.00	-193.0	.0	.0
Windward Wall	24.39	185	4.51	.00	.00	.0	-112.8	.0
Windward Wall	22.81	185	4.22	.00	.00	.0	-63.3	.0
Windward Wall	21.78	185	4.03	.00	.00	.0	-20.1	.0
Leeward Wall	-2.42	42	0.10	.00	.00	.0	-3.2	.0
Windward Wall	24.96	42	1.04	.00	.00	.0	-32.7	.0
Total	.00	3353	15.24	.00	.00	.0	-252.3	.0

Along Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall Windward Wall Windward Wall Windward Wall	16.00 16.00 16.00 16.00	185 185 185 42	2.96 2.96 2.96 0.67	.00	.00 .00 .00	.0.0	-74.0 -44.4 -14.8 -21.0	.0.0
Total	.00	597	9.55	.00	.00	.0	-154.2	. 0

Notes - Along Ridge

- Note (1) Ref Fig 27.4-1, Parallel to Ridge (All), h/l= 0.90

 Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

 Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf

 Note (4) Area* = Area of the surface projected onto a vertical plane normal to wind.

Total Base Reaction Summary

Description	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Normal to Ridge Walls+Roof +GCpi	.0	33.0	12.1	508.4	. 0	.0
Normal to Ridge Walls Only +GCpi	.0	32.4	.0	495.8	.0	.0
Normal to Ridge Walls+Roof -GCpi	.0	35.0	1.1	553.3	.0	.0
Normal to Ridge Walls Only -GCpi	.0	32.4	.0	495.8	.0	.0
Normal to Ridge Walls+Roof MIN	.0	19.9	.0	342.8	.0	.0
Along Ridge Walls+Roof +GCpi	15.2	.0	17.6	.0	-276.6	.0
Along Ridge Walls Only +GCpi	15.2	.0	.0	.0	-252.3	.0
Along Ridge Walls+Roof -GCpi	15.2	.0	10.7	.0	-276.6	.0
Along Ridge Walls Only -GCpi	15.2	.0	.0	.0	-252.3	.0
Along Ridge Walls+Roof MIN	9.5	.0	.0	.0	-154.2	.0

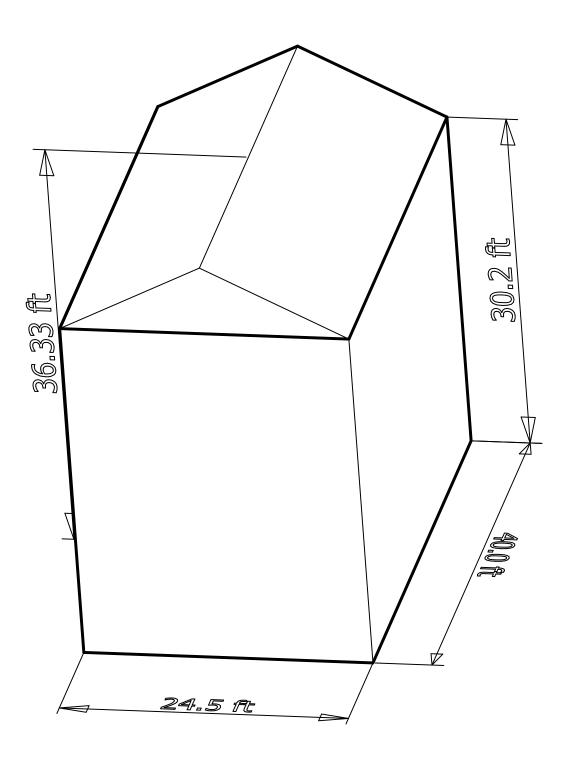
Notes Applying to MWFRS Reactions:

Note (1) Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof. Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

Page 10 of 25

- Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf Note (4) MIN area is the area of the surface onto a vertical plane normal to wind. Note (5) Total Roof Area (incl OH Top) = 740.63 sq. ft

1500 sqft Cabin



Gust Factor Calculations

Gust Factor Category I Rigid Structures - Simplified Method Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm: 0.6*Ht = 19.96 ftlzm: Cc*(33/Zm)^0.167 0.22 Lzm: 1*(Zm/33)^Epsilon = 452.16 ft (1/(1+0.63*((B+Ht)/Lzm)^0.63))^0.5 = 0.92 = 0.89 Q:

Gust2: 0.925*((1+1.7*lzm*3.4*Q)/(1+1.7*3.4*lzm))

Gust Factor Summary

Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCPi : Internal Pressure Coefficient

Wind Pressurs Main Wind Force Resisting System (MWFRS) - Ref Figure 27.4-1

Kh: $2.01*(Ht/Zg)^(2/Alpha)$ Kht: Topographic Factor (Figure 6-4) 1.00 = 28.89 psf Qh: .00256*(V)^2*I*Kh*Kht*Kd Cpww: Windward Wall Cp(Ref Fig 6-6) 0.80 = 1095.85 ft^2 Roof Area Reduction Factor based on Roof Area 0.80

MWFRS-Wall Pressures for Wind Normal to 40 ft Wall (Normal to Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of $\ 1$

Wall	Сp	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-17.48	-7.08
Side Walls	-0.70	-22.39	-11.99

Wall	Elev ft	Kz	Kzt	Ср	qz psf		Press -GCpi	Total +/-GCpi
Windward	30.20	0.98	1.00	0.80	28.31	14.05	24.45	31.53
Windward	20.20	0.90	1.00	0.80	26.01	12.49	22.89	29.96
Windward	10.20	0.85	1.00	0.80	24.43	11.41	21.81	28.89
Windward	0.20	0.85	1.00	0.80	24.43	11.41	21.81	28.89

Roof Location	Cp	Pressure +GCpi(psf)	
Windward - Min Cp Windward - Max Cp	-0.44 0.06	-16.00 -3.73	-5.60 6.67
Leeward Norm to Ridge	-0.60	-19.93	-9.53

Normal to Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.48	1208	.00	21.11	.00	318.8	.0	.0
Side Wall	-22.39	740	-16.57	.00	.00	.0	250.1	.0
Side Wall	-22.39	740	16.57	.00	.00	.0	-250.1	.0
Windward Wall	14.05	400	.00	5.62	.00	141.6	.0	.0
Windward Wall	12.49	400	.00	4.99	.00	75.9	.0	.0
Windward Wall	11.41	400	.00	4.56	.00	23.7	.0	.0
Windward Wall	11.41	8	.00	0.09	.00	0.0	.0	.0
Roof Windward	-16.00	548	.00	-3.92	7.84	-82.5	.0	.0
Roof Leeward	-19.93	548	.00	4.89	9.77	102.8	.0	.0
Side Wall	-22.39	75	-1.68	.00	.00	.0	54.2	.0
Side Wall	-22.39	75	1.68	.00	.00	.0	-54.2	.0
Total	.00	5142	.00	37.35	17.61	580.3	.0	.0

Normal to Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft	
Leeward Wall	-17.48	1208		21.11	.00	318.8	.0	.0	

Side Wall	-22.39	740	-16.57	.00	.00	.0	250.1	.0
Side Wall	-22.39	740	16.57	.00	.00	.0	-250.1	.0
Windward Wall	14.05	400	.00	5.62	.00	141.6	.0	.0
Windward Wall	12.49	400	.00	4.99	.00	75.9	.0	.0
Windward Wall	11.41	400	.00	4.56	.00	23.7	.0	.0
Windward Wall	11.41	8	.00	0.09	.00	0.0	.0	.0
Side Wall	-22.39	75	-1.68	.00	.00	.0	54.2	.0
Side Wall	-22.39	75	1.68	.00	.00	.0	-54.2	.0
m-+-1		4046		36.38		 		
Total	.00	4046	.00	30.38	.00	560.1	. 0	. 0

Normal to Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.08	1208	.00	8.55	.00	129.1	.0	. 0
Side Wall	-11.99	740	-8.87	.00	.00	.0	133.9	.0
Side Wall	-11.99	740	8.87	.00	.00	.0	-133.9	. 0
Windward Wall	24.45	400	.00	9.78	.00	246.4	.0	.0
Windward Wall	22.89	400	.00	9.15	.00	139.1	.0	.0
Windward Wall	21.81	400	.00	8.72	.00	45.4	.0	.0
Windward Wall	21.81	8	.00	0.17	.00	0.0	.0	.0
Roof Windward	6.67	548	.00	1.64	-3.27	34.4	.0	.0
Roof Leeward	-9.53	548	.00	2.34	4.67	49.1	.0	.0
Side Wall	-11.99	75	-0.90	.00	.00	.0	29.0	.0
Side Wall	-11.99	75	0.90	.00	.00	.0	-29.0	.0
Total	.00	5142	.00	40.36	1.40	643.6	.0	.0

Normal to Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.08	1208	.00	8.55	.00	129.1	.0	.0
Side Wall	-11.99	740	-8.87	.00	.00	.0	133.9	.0
Side Wall	-11.99	740	8.87	.00	.00	.0	-133.9	.0
Windward Wall	24.45	400	.00	9.78	.00	246.4	.0	.0
Windward Wall	22.89	400	.00	9.15	.00	139.1	.0	.0
Windward Wall	21.81	400	.00	8.72	.00	45.4	.0	.0
Windward Wall	21.81	8	.00	0.17	.00	0.0	.0	.0
Side Wall	-11.99	75	-0.90	.00	.00	.0	29.0	.0
Side Wall	-11.99	75	0.90	.00	.00	.0	-29.0	.0
Total	.00	4046	.00	36.38	.00	560.1	.0	.0

Normal to Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	400	.00	6.40	.00	161.3	.0	.0
Windward Wall	16.00	400	.00	6.40	.00	97.3	.0	.0
Windward Wall	16.00	400	.00	6.40	.00	33.3	.0	.0
Windward Wall	16.00	8	.00	0.13	.00	0.0	.0	.0
Roof Windward	8.00	245	.00	1.96	.00	65.3	.0	.0
Roof Leeward	8.00	245	.00	1.96	.00	65.3	.0	.0
Total	.00	1698	.00	23.25	.00	422.4	.0	.0

Notes - Normal to Ridge

- Note (1) Per Fig 27.4-1 Note 7, Since Theta > 10 Deg base calcs on Mean Ht Note (2) Wall & Roof Pressures = Qh*(G*Cp GCPi)
- Note (3) +GCpi = Positive Internal Bldg Press, -GCPi = Negative Internal Bldg Press
- Note (4) Total Pressure = Leeward Press + Windward Press (For + or GCPi)
- Note (5) Ref Fig 27.4-1, Normal to Ridge (Theta>=10), Theta= 26.6 Deg, h/l= 0.83
- Note (6) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical Note (7) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf
- Note (8) Area* = Area of the surface projected onto a vertical plane normal to wind.

MWFRS-Wall Pressures for Wind Normal to 24.5 ft wall (Along Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of $\,$ 1

Wall Ср Pressure Pressure +GCpi (psf) -GCpi (psf)

Leeward Wall	-0.37	-14.37	-3.97
Side Walls	-0.70	-22.39	-11.99

Wall	Elev ft	Kz	Kzt	Ср	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward	36.33	1.02	1.00	0.80	29.43	14.81	25.21	29.18
Windward	30.20	0.98	1.00	0.80	28.31	14.05	24.45	28.42
Windward	20.20	0.90	1.00	0.80	26.01	12.49	22.89	26.86
Windward	10.20	0.85	1.00	0.80	24.43	11.41	21.81	25.78
Windward	0.20	0.85	1.00	0.80	24.43	11.41	21.81	25.78

Roof - Dist from Windward Edge		ressure P Cpi(psf)-G	
Roof: 0.0 ft to 16.6 ft	-0.99	-29.58	-19.18
Roof: 16.6 ft to 33.3 ft	-0.77	-24.04	-13.64
Roof: 33.3 ft to 40.0 ft	-0.63	-20.73	-10.33

Along Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-14.37	740	10.63	.00	.00	.0	-160.6	.0
Side Wall	-22.39	1208	.00	27.05	.00	408.4	.0	.0
Side Wall	-22.39	1208	.00	-27.05	.00	-408.4	.0	.0
Windward Wall	14.05	245	3.44	.00	.00	.0	-86.7	.0
Windward Wall	12.49	245	3.06	.00	.00	.0	-46.5	.0
Windward Wall	11.41	245	2.80	.00	.00	.0	-14.5	.0
Windward Wall	11.41	5	0.06	.00	.00	.0	-0.0	.0
Roof (0 to $h/2$)	-29.58	228	.00	-3.02	6.03	-63.4	-70.4	-35.2
Roof $(0 to h/2)$	-29.58	228	.00	3.02	6.03	63.4	-70.4	35.2
Roof (h/2 to h)	-24.04	228	.00	-2.45	4.90	-51.5	24.2	12.1
Roof (h/2 to h)	-24.04	228	.00	2.45	4.90	51.5	24.2	-12.1
Roof (h to 2h)	-20.73	92	.00	-0.86	1.71	-18.0	28.5	14.2
Roof (h to 2h)	-20.73	92	.00	0.86	1.71	18.0	28.5	-14.2
Leeward Wall	-14.37	75	1.08	.00	.00	.0	-34.8	.0
Windward Wall	14.81	75	1.11	.00	.00	.0	-35.9	.0
Total	.00	5142	22.18	.00	25.27	.0	-414.4	.0

Along Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-14.37	740	10.63	.00	.00	.0	-160.6	.0
Side Wall	-22.39	1208	.00	27.05	.00	408.4	.0	.0
Side Wall	-22.39	1208	.00	-27.05	.00	-408.4	.0	.0
Windward Wall	14.05	245	3.44	.00	.00	.0	-86.7	.0
Windward Wall	12.49	245	3.06	.00	.00	.0	-46.5	.0
Windward Wall	11.41	245	2.80	.00	.00	.0	-14.5	.0
Windward Wall	11.41	5	0.06	.00	.00	.0	-0.0	.0
Leeward Wall	-14.37	75	1.08	.00	.00	.0	-34.8	.0
Windward Wall	14.81	75	1.11	.00	.00	.0	-35.9	.0
Total	.00	4046	22.18	.00	.00	.0	-379.0	.0

Along Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-3.97	740	2.94	.00	.00	.0	-44.4	.0
Side Wall	-11.99	1208	.00	14.48	.00	218.7	.0	.0
Side Wall	-11.99	1208	.00	-14.48	.00	-218.7	.0	.0
Windward Wall	24.45	245	5.99	.00	.00	.0	-150.9	.0
Windward Wall	22.89	245	5.61	.00	.00	.0	-85.2	.0
Windward Wall	21.81	245	5.34	.00	.00	.0	-27.8	.0
Windward Wall	21.81	5	0.11	.00	.00	.0	-0.0	.0
Roof $(0 to h/2)$	-19.18	228	.00	-1.96	3.91	-41.1	-45.7	-22.8
Roof $(0 to h/2)$	-19.18	228	.00	1.96	3.91	41.1	-45.7	22.8
Roof (h/2 to h)	-13.64	228	.00	-1.39	2.78	-29.2	13.8	6.9
Roof (h/2 to h)	-13.64	228	.00	1.39	2.78	29.2	13.8	-6.9
Roof (h to 2h)	-10.33	92	.00	-0.43	0.85	-9.0	14.2	7.1

Roof (h to 2h)	-10.33	92	.00	0.43	0.85	9.0	14.2	-7.1
Leeward Wall	-3.97	75	0.30	.00	.00	.0	-9.6	.0
Windward Wall	25.21	75	1.89	.00	.00	.0	-61.0	.0
Total	.00	5142	22.18	.00	15.08	.0	-414.4	.0

Along Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-3.97	740	2.94	.00	.00	.0	-44.4	.0
Side Wall	-11.99	1208	.00	14.48	.00	218.7	.0	.0
Side Wall	-11.99	1208	.00	-14.48	.00	-218.7	.0	.0
Windward Wall	24.45	245	5.99	.00	.00	.0	-150.9	.0
Windward Wall	22.89	245	5.61	.00	.00	.0	-85.2	.0
Windward Wall	21.81	245	5.34	.00	.00	.0	-27.8	.0
Windward Wall	21.81	5	0.11	.00	.00	.0	-0.0	.0
Leeward Wall	-3.97	75	0.30	.00	.00	.0	-9.6	.0
Windward Wall	25.21	75	1.89	.00	.00	.0	-61.0	.0
Total	.00	4046	22.18	.00	.00	.0	-379.0	.0

Along Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	245	3.92	.00	.00	.0	-98.8	.0
Windward Wall	16.00	245	3.92	.00	.00	.0	-59.6	.0
Windward Wall	16.00	245	3.92	.00	.00	.0	-20.4	.0
Windward Wall	16.00	5	0.08	.00	.00	.0	-0.0	.0
Windward Wall	16.00	75	1.20	.00	.00	.0	-38.7	.0
Total	.00	815	13.04	.00	.00	.0	-217.5	.0

Notes - Along Ridge

- Note (1) Ref Fig 27.4-1, Parallel to Ridge (All), h/l= 0.83

 Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

 Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf

 Note (4) Area* = Area of the surface projected onto a vertical plane normal to wind.

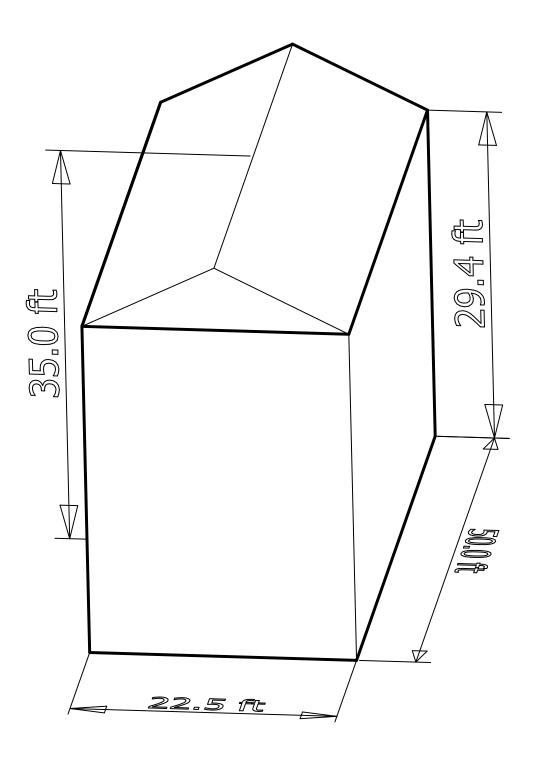
Total Base Reaction Summary

Description	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Normal to Ridge Walls+Roof +GCpi	.0	37.3	17.6	580.3	.0	.0
Normal to Ridge Walls Only +GCpi	.0	36.4	.0	560.1	.0	.0
Normal to Ridge Walls+Roof -GCpi	.0	40.4	1.4	643.6	.0	.0
Normal to Ridge Walls Only -GCpi	.0	36.4	.0	560.1	.0	.0
Normal to Ridge Walls+Roof MIN	.0	23.3	.0	422.4	.0	.0
Along Ridge Walls+Roof +GCpi	22.2	.0	25.3	.0	-414.4	.0
Along Ridge Walls Only +GCpi	22.2	.0	.0	.0	-379.0	.0
Along Ridge Walls+Roof -GCpi	22.2	.0	15.1	.0	-414.4	.0
Along Ridge Walls Only -GCpi	22.2	.0	.0	.0	-379.0	.0
Along Ridge Walls+Roof MIN	13.0	.0	.0	.0	-217.5	.0

Notes Applying to MWFRS Reactions:

- Note (1) Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof.
- Note (2) X= Along Building ridge, Y= Normal to Building Ridge, Z= Vertical
- Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf Note (4) MIN area is the area of the surface onto a vertical plane normal to wind. Note (5) Total Roof Area (incl OH Top) = 1095.85 sq. ft

1500+ sqft Cabin



Gust Factor Calculations

Gust Factor Category I Rigid Structures - Simplified Method Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85

= 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Zm: 0.6*Ht = 19.32 ftlzm: Cc*(33/Zm)^0.167 0.22 Lzm: l*(Zm/33)^Epsilon = 449.23 ft (1/(1+0.63*((B+Ht)/Lzm)^0.63))^0.5 Q: = 0.93 Gust2: 0.925*((1+1.7*1zm*3.4*Q)/(1+1.7*3.4*1zm)) 0.89

Gust Factor Summary

Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCPi : Internal Pressure Coefficient

Wind Pressurs Main Wind Force Resisting System (MWFRS) - Ref Figure 27.4-1

Kh: $2.01*(Ht/Zg)^(2/Alpha)$ Kht: Topographic Factor (Figure 6-4) 1.00 = 28.69 psf Qh: .00256*(V)^2*I*Kh*Kht*Kd Cpww: Windward Wall Cp(Ref Fig 6-6) 0.80 Roof Area = 1256.67 ft^2 Reduction Factor based on Roof Area 0.80

MWFRS-Wall Pressures for Wind Normal to 50 ft Wall (Normal to Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of $\ 1$

Wall	Ср	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-17.36	-7.03
Side Walls	-0.70	-22.24	-11.91

Wall	Elev ft	Kz	Kzt	Ср	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward Windward						13.98 12.37	24.30 22.70	31.33 29.73
Windward	9.40	0.85	1.00	0.80	24.43	11.45	21.78	28.81

Roof Location	Cp -	Pressure +GCpi(psf)-	
Windward - Min Cp Windward - Max Cp	-0.44 0.06	-15.89 -3.70	-5.57 6.63
Leeward Norm to Ridge	-0.60	-19.80	-9.47

Normal to Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.36	1470	.00	25.52	.00	375.1	.0	.0
Side Wall	-22.24	662	-14.71	.00	.00	.0	216.2	. 0
Side Wall	-22.24	662	14.71	.00	.00	.0	-216.2	.0
Windward Wall	13.98	500	.00	6.99	.00	170.5	.0	.0
Windward Wall	12.37	500	.00	6.19	.00	89.1	.0	.0
Windward Wall	11.45	470	.00	5.38	.00	25.3	.0	.0
Roof Windward	-15.89	628	.00	-4.45	8.94	-93.0	.0	.0
Roof Leeward	-19.80	628	.00	5.54	11.14	115.9	.0	.0
Side Wall	-22.24	63	-1.40	.00	.00	.0	43.8	.0
Side Wall	-22.24	63	1.40	.00	.00	.0	-43.8	.0
Total	.00	5646	.00	45.16	20.08	682.8	.0	.0

Normal to Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.36	1470	.00	25.52	.00	375.1	.0	.0
Side Wall	-22.24	662	-14.71	.00	.00	.0	216.2	.0
Side Wall	-22.24	662	14.71	.00	.00	.0	-216.2	. 0

Windward Wall	13.98	500	.00	6.99	.00	170.5	.0	.0
Windward Wall	12.37	500	.00	6.19	.00	89.1	.0	.0
Windward Wall	11.45	470	.00	5.38	.00	25.3	.0	.0
Side Wall	-22.24	63	-1.40	.00	.00	.0	43.8	.0
Side Wall	-22.24	63	1.40	.00	.00	.0	-43.8	.0
Total	.00	4389	.00	44.07	.00	660.0	. 0	.0

Normal to Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.03	1470	.00	10.33	.00	151.9	.0	.0
Side Wall	-11.91	662	-7.88	.00	.00	.0	115.8	.0
Side Wall	-11.91	662	7.88	.00	.00	.0	-115.8	.0
Windward Wall	24.30	500	.00	12.15	.00	296.5	.0	.0
Windward Wall	22.70	500	.00	11.35	.00	163.4	.0	.0
Windward Wall	21.78	470	.00	10.23	.00	48.1	.0	.0
Roof Windward	6.63	628	.00	1.86	-3.73	38.8	.0	.0
Roof Leeward	-9.47	628	.00	2.65	5.33	55.4	.0	.0
Side Wall	-11.91	63	-0.75	.00	.00	.0	23.5	.0
Side Wall	-11.91	63	0.75	.00	.00	.0	-23.5	.0
Total	.00	5646	.00	48.58	1.60	754.1	.0	.0

Normal to Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.03	1470	.00	10.33	.00	151.9	.0	.0
Side Wall	-11.91	662	-7.88	.00	.00	.0	115.8	.0
Side Wall	-11.91	662	7.88	.00	.00	.0	-115.8	.0
Windward Wall	24.30	500	.00	12.15	.00	296.5	.0	.0
Windward Wall	22.70	500	.00	11.35	.00	163.4	.0	.0
Windward Wall	21.78	470	.00	10.23	.00	48.1	.0	.0
Side Wall	-11.91	63	-0.75	.00	.00	.0	23.5	.0
Side Wall	-11.91	63	0.75	.00	.00	.0	-23.5	.0
Total	.00	4389	.00	44.07	.00	660.0	.0	.0

Normal to Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	500	.00	8.00	.00	195.2	.0	.0
Windward Wall	16.00	500	.00	8.00	.00	115.2	.0	.0
Windward Wall	16.00	470	.00	7.52	.00	35.3	.0	.0
Roof Windward	8.00	280	.00	2.24	.00	72.1	.0	.0
Roof Leeward	8.00	280	.00	2.24	.00	72.1	.0	.0
Total	.00	2030	.00	28.00	.00	490.0	.0	.0

Notes - Normal to Ridge

- Note (1) Per Fig 27.4-1 Note 7, Since Theta > 10 Deg base calcs on Mean Ht
 Note (2) Wall & Roof Pressures = Qh*(G*Cp GCPi)
 Note (3) +GCpi = Positive Internal Bldg Press, -GCPi = Negative Internal Bldg Press
- Note (4) Total Pressure = Leeward Press + Windward Press (For + or GCPi)
- Note (5) Ref Fig 27.4-1, Normal to Ridge (Theta>=10), Theta= 26.5 Deg, h/l= 0.64
- Note (6) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
- Note (7) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf Note (8) Area* = Area of the surface projected onto a vertical plane normal to wind.

MWFRS-Wall Pressures for Wind Normal to 22.5 ft wall (Along Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Ср	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall Side Walls	-0.29 -0.70	-12.21 -22.24	-1.88 -11.91

Wall Elev Kz Kzt Cp qzPress Press Total ft psf +GCpi -GCpi +/-GCpi

Windward	35.00	1.01	1.00	0.80	29.20	14.69	25.02	26.90
Windward	29.40	0.98	1.00	0.80	28.15	13.98	24.30	26.19
Windward	19.40	0.90	1.00	0.80	25.79	12.37	22.70	24.58
Windward	9.40	0.85	1.00	0.80	24.43	11.45	21.78	23.66

Roof - Dist from Windward Edge		ressure P Cpi(psf)-G	
Roof: 0.0 ft to 16.1 ft Roof: 16.1 ft to 32.2 ft	-0.94 -0.84	-28.10 -25.71	-17.77 -15.38
Roof: 32.2 ft to 50.0 ft	-0.56	-18.76	-8.43

Along Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-12.21	662	8.08	.00	.00	.0	-118.7	.0
Side Wall	-22.24	1470	.00	32.69	.00	480.5	.0	.0
Side Wall	-22.24	1470	.00	-32.69	.00	-480.5	.0	.0
Windward Wall	13.98	225	3.14	.00	.00	.0	-76.7	.0
Windward Wall	12.37	225	2.78	.00	.00	.0	-40.1	.0
Windward Wall	11.45	212	2.42	.00	.00	.0	-11.4	.0
Roof (0 to $h/2$)	-28.10	202	.00	-2.53	5.09	-52.9	-86.3	-42.9
Roof (0 to $h/2$)	-28.10	202	.00	2.53	5.09	52.9	-86.3	42.9
Roof (h/2 to h)	-25.71	202	.00	-2.32	4.66	-48.4	-4.0	-2.0
Roof $(h/2 to h)$	-25.71	202	.00	2.32	4.66	48.4	-4.0	2.0
Roof (h to 2h)	-18.76	224	.00	-1.87	3.76	-39.1	60.5	30.1
Roof (h to 2h)	-18.76	224	.00	1.87	3.76	39.1	60.5	-30.1
Leeward Wall	-12.21	63	0.77	.00	.00	.0	-24.1	.0
Windward Wall	14.69	63	0.93	.00	.00	.0	-28.9	.0
Total	.00	5646	18.12	.00	27.01	.0	-359.4	.0

Along Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-12.21	662	8.08	.00	.00	.0	-118.7	.0
Side Wall	-22.24	1470	.00	32.69	.00	480.5	.0	.0
Side Wall	-22.24	1470	.00	-32.69	.00	-480.5	.0	.0
Windward Wall	13.98	225	3.14	.00	.00	.0	-76.7	.0
Windward Wall	12.37	225	2.78	.00	.00	.0	-40.1	.0
Windward Wall	11.45	212	2.42	.00	.00	.0	-11.4	.0
Leeward Wall	-12.21	63	0.77	.00	.00	.0	-24.1	.0
Windward Wall	14.69	63	0.93	.00	.00	.0	-28.9	.0
Total	.00	4389	18.12	.00	.00	.0	-299.9	.0

Along Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-1.88	662	1.24	.00	.00	.0	-18.3	.0
Side Wall	-11.91	1470	.00	17.50	.00	257.3	.0	.0
Side Wall	-11.91	1470	.00	-17.50	.00	-257.3	.0	.0
Windward Wall	24.30	225	5.47	.00	.00	.0	-133.4	.0
Windward Wall	22.70	225	5.11	.00	.00	.0	-73.5	.0
Windward Wall	21.78	212	4.61	.00	.00	.0	-21.6	.0
Roof $(0 \text{ to } h/2)$	-17.77	202	.00	-1.60	3.22	-33.5	-54.5	-27.2
Roof $(0 \text{ to } h/2)$	-17.77	202	.00	1.60	3.22	33.5	-54.5	27.2
Roof (h/2 to h)	-15.38	202	.00	-1.39	2.79	-29.0	-2.4	-1.2
Roof (h/2 to h)	-15.38	202	.00	1.39	2.79	29.0	-2.4	1.2
Roof (h to 2h)	-8.43	224	.00	-0.84	1.69	-17.6	27.2	13.5
Roof (h to 2h)	-8.43	224	.00	0.84	1.69	17.6	27.2	-13.5
Leeward Wall	-1.88	63	0.12	.00	.00	.0	-3.7	.0
Windward Wall	25.02	63	1.58	.00	.00	.0	-49.3	.0
Total	.00	5646	18.12	.00	15.39	. 0	-359.4	.0

Along Ridge - Base Reactions - Walls Only -GCpi

Description Press Area Fx Fy Fz Mx My Mz

	psf	ft^2	Kip	Kip	Kip	K-ft	K-ft	K-ft
Leeward Wall	-1.88	662	1.24	.00	.00	.0	-18.3	.0
Side Wall	-11.91	1470	.00	17.50	.00	257.3	.0	.0
Side Wall	-11.91	1470	.00	-17.50	.00	-257.3	.0	.0
Windward Wall	24.30	225	5.47	.00	.00	.0	-133.4	.0
Windward Wall	22.70	225	5.11	.00	.00	. 0	-73.5	.0
Windward Wall	21.78	212	4.61	.00	.00	.0	-21.6	.0
Leeward Wall	-1.88	63	0.12	.00	.00	.0	-3.7	.0
Windward Wall	25.02	63	1.58	.00	.00	.0	-49.3	. 0
Total	.00	4389	18.12	.00	.00	.0	-299.9	.0

Along Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	225	3.60	.00	.00	.0	-87.8	.0
Windward Wall	16.00	225	3.60	.00	.00	.0	-51.8	.0
Windward Wall	16.00	212	3.38	.00	.00	.0	-15.9	.0
Windward Wall	16.00	63	1.01	.00	.00	.0	-31.5	.0
Total	.00	725	11.59	.00	.00	.0	-187.1	. 0

Notes - Along Ridge

- Note (1) Ref Fig 27.4-1, Parallel to Ridge (All), h/l= 0.64

 Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

 Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf

 Note (4) Area* = Area of the surface projected onto a vertical plane normal to wind.

Total Base Reaction Summary

Description	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Normal to Ridge Walls+Roof +GCpi	.0	45.2	20.1	682.8	.0	.0
Normal to Ridge Walls Only +GCpi	.0	44.1	.0	660.0	. 0	. 0
Normal to Ridge Walls+Roof -GCpi	.0	48.6	1.6	754.1	.0	.0
Normal to Ridge Walls Only -GCpi	.0	44.1	.0	660.0	.0	.0
Normal to Ridge Walls+Roof MIN	.0	28.0	.0	490.0	.0	.0
Along Ridge Walls+Roof +GCpi	18.1	.0	27.0	.0	-359.4	.0
Along Ridge Walls Only +GCpi	18.1	.0	.0	.0	-299.9	.0
Along Ridge Walls+Roof -GCpi	18.1	.0	15.4	.0	-359.4	.0
Along Ridge Walls Only -GCpi	18.1	.0	.0	.0	-299.9	.0
Along Ridge Walls+Roof MIN	11.6	.0	.0	.0	-187.1	.0

Notes Applying to MWFRS Reactions:

- Note (1) Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof.

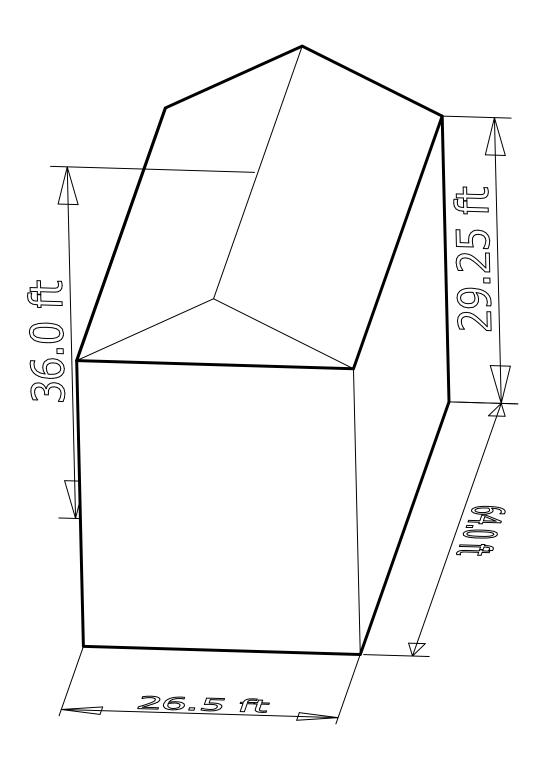
 Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

 Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf

 Note (4) MIN area is the area of the surface onto a vertical plane normal to wind.

 Note (5) Total Roof Area (incl OH Top) = 1256.67 sq. ft

2500 sqft Cabin



Gust Factor Calculations

Gust Factor Category I Rigid Structures - Simplified Method

Gust1: For Rigid Structures (Nat. Freq.>1 Hz) use 0.85 = 0.85

Gust Factor Category II Rigid Structures - Complete Analysis

Gust Factor Summary

Not a Flexible Structure use the Lessor of Gust1 or Gust2 = 0.85

Table 26.11-1 Internal Pressure Coefficients for Buildings, GCpi

GCPi : Internal Pressure Coefficient = +/-0.18

Wind Pressurs Main Wind Force Resisting System (MWFRS) - Ref Figure 27.4-1

Kh: $2.01*(Ht/Zg)^(2/Alpha)$ = 1.00 Kht: Topographic Factor (Figure 6-4) = 1.00 Qh: $.00256*(V)^2*I*Kh*Kht*Kd$ = 28.77 psf Cpww: Windward Wall Cp(Ref Fig 6-6) = 0.80 Roof Area = 1903.40 ft^2 Reduction Factor based on Roof Area = 0.80

MWFRS-Wall Pressures for Wind Normal to 64 ft Wall (Normal to Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of $\ 1$

Wall	Ср	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall	-0.50	-17.41	-7.05
Side Walls	-0.70	-22.30	-11.94

Wall	Elev ft	Kz	Kzt	Ср	qz psf	Press +GCpi	Press -GCpi	Total +/-GCpi
Windward Windward						13.94 12.33		31.33
Windward	9.25	0.85	1.00	0.80	24.43	11.43	21.79	28.84

Roof Location		ressure P: Cpi(psf)-G	
Windward - Min Cp Windward - Max Cp	-0.42 0.08	-15.45 -3.22	-5.09 7.14
Leeward Norm to Ridge	-0.60	-19.85	-9.49

Normal to Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.41	1872	.00	32.58	.00	476.5	.0	.0
Side Wall	-22.30	775	-17.28	.00	.00	.0	252.8	.0
Side Wall	-22.30	775	17.28	.00	.00	.0	-252.8	.0
Windward Wall	13.94	640	.00	8.92	.00	216.4	.0	.0
Windward Wall	12.33	640	.00	7.89	.00	112.4	.0	.0
Windward Wall	11.43	592	.00	6.77	.00	31.3	.0	.0
Roof Windward	-15.45	952	.00	-6.67	13.10	-131.0	.0	.0
Roof Leeward	-19.85	952	.00	8.58	16.83	168.3	.0	.0
Side Wall	-22.30	89	-1.99	.00	.00	.0	62.8	.0
Side Wall	-22.30	89	1.99	.00	.00	.0	-62.8	.0
Total	.00	7377	.00	58.07	29.94	874.0	.0	.0

Normal to Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-17.41	1872	.00	32.58	.00	476.5	.0	.0
Side Wall	-22.30	775	-17.28	.00	.00	.0	252.8	.0
Side Wall	-22.30	775	17.28	.00	.00	. 0	-252.8	.0

Windward Wall	13.94	640	.00	8.92	.00	216.4	.0	.0
Windward Wall	12.33	640	.00	7.89	.00	112.4	.0	.0
Windward Wall	11.43	592	.00	6.77	.00	31.3	.0	.0
Side Wall	-22.30	89	-1.99	.00	.00	.0	62.8	.0
Side Wall	-22.30	89	1.99	.00	.00	.0	-62.8	.0
Total	.00	5473	.00	56.16	.00	836.6	. 0	.0

Normal to Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.05	1872	.00	13.20	.00	193.0	.0	.0
Side Wall	-11.94	775	-9.25	.00	.00	.0	135.4	.0
Side Wall	-11.94	775	9.25	.00	.00	.0	-135.4	.0
Windward Wall	24.30	640	.00	15.55	.00	377.1	.0	.0
Windward Wall	22.69	640	.00	14.52	.00	206.9	.0	.0
Windward Wall	21.79	592	.00	12.90	.00	59.7	.0	.0
Roof Windward	7.14	952	.00	3.08	-6.05	60.5	.0	.0
Roof Leeward	-9.49	952	.00	4.10	8.05	80.5	.0	.0
Side Wall	-11.94	89	-1.07	.00	.00	.0	33.6	.0
Side Wall	-11.94	89	1.07	.00	.00	.0	-33.6	.0
Total	.00	7377	.00	63.35	2.00	977.6	.0	.0

Normal to Ridge - Base Reactions - Walls Only -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-7.05	1872	.00	13.20	.00	193.0	.0	.0
Side Wall	-11.94	775	-9.25	.00	.00	.0	135.4	.0
Side Wall	-11.94	775	9.25	.00	.00	.0	-135.4	.0
Windward Wall	24.30	640	.00	15.55	.00	377.1	.0	.0
Windward Wall	22.69	640	.00	14.52	.00	206.9	.0	.0
Windward Wall	21.79	592	.00	12.90	.00	59.7	.0	.0
Side Wall	-11.94	89	-1.07	.00	.00	.0	33.6	.0
Side Wall	-11.94	89	1.07	.00	.00	.0	-33.6	.0
Total	.00	5473	.00	56.16	.00	836.6	.0	.0

Normal to Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	640	.00	10.24	.00	248.3	.0	.0
Windward Wall	16.00	640	.00	10.24	.00	145.9	.0	.0
Windward Wall	16.00	592	.00	9.47	.00	43.8	.0	.0
Roof Windward	8.00	432	.00	3.46	.00	112.8	.0	.0
Roof Leeward	8.00	432	.00	3.46	.00	112.8	.0	.0
Total	.00	2736	.00	36.86	.00	663.6	.0	.0

Notes - Normal to Ridge

- Note (1) Per Fig 27.4-1 Note 7, Since Theta > 10 Deg base calcs on Mean Ht
 Note (2) Wall & Roof Pressures = Qh*(G*Cp GCPi)
 Note (3) +GCpi = Positive Internal Bldg Press, -GCPi = Negative Internal Bldg Press
- Note (4) Total Pressure = Leeward Press + Windward Press (For + or GCPi)
- Note (5) Ref Fig 27.4-1, Normal to Ridge (Theta>=10), Theta= 27.0 Deg, h/l= 0.51
- Note (6) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical
- Note (7) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf Note (8) Area* = Area of the surface projected onto a vertical plane normal to wind.

MWFRS-Wall Pressures for Wind Normal to 26.5 ft wall (Along Ridge)

All pressures shown are based upon STRENGTH Design, with a Load Factor of 1

Wall	Ср	Pressure +GCpi (psf)	Pressure -GCpi (psf)
Leeward Wall Side Walls	-0.28 -0.70	-12.01 -22.30	-1.65 -11.94

Wall Elev Kz Kzt Cp qzPress Press Total ft psf +GCpi -GCpi +/-GCpi

Windward	36.00	1.02	1.00	0.80	29.37	14.79	25.15	26.80
Windward	29.25	0.98	1.00	0.80	28.12	13.94	24.30	25.95
Windward	19.25	0.89	1.00	0.80	25.75	12.33	22.69	24.34
Windward	9.25	0.85	1.00	0.80	24.43	11.43	21.79	23.44

Roof - Dist from Windward Edge		ressure P Cpi(psf)-G	
Roof: 0.0 ft to 16.3 ft Roof: 16.3 ft to 32.6 ft	-0.90 -0.90	-27.25 -27.09	-16.90 -16.74
Roof: 32.6 ft to 64.0 ft	-0.50	-17.50	-7.14

Along Ridge - Base Reactions - Walls+Roof +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-12.01	775	9.31	.00	.00	.0	-136.1	.0
Side Wall	-22.30	1872	.00	41.74	.00	610.5	.0	.0
Side Wall	-22.30	1872	.00	-41.74	.00	-610.5	.0	.0
Windward Wall	13.94	265	3.69	.00	.00	.0	-89.6	.0
Windward Wall	12.33	265	3.27	.00	.00	.0	-46.6	.0
Windward Wall	11.43	245	2.80	.00	.00	.0	-13.0	.0
Roof (0 to $h/2$)	-27.25	243	.00	-3.00	5.89	-58.9	-140.5	-71.6
Roof (0 to $h/2$)	-27.25	243	.00	3.00	5.89	58.9	-140.5	71.6
Roof (h/2 to h)	-27.09	243	.00	-2.98	5.86	-58.5	-44.1	-22.5
Roof (h/2 to h)	-27.09	243	.00	2.98	5.86	58.5	-44.1	22.5
Roof (h to 2h)	-17.50	467	.00	-3.71	7.28	-72.7	118.7	60.5
Roof (h to 2h)	-17.50	467	.00	3.71	7.28	72.7	118.7	-60.5
Leeward Wall	-12.01	89	1.07	.00	.00	.0	-33.8	.0
Windward Wall	14.79	89	1.32	.00	.00	.0	-41.7	. 0
Total	.00	7377	21.47	.00	38.04	.0	-492.5	.0

Along Ridge - Base Reactions - Walls Only +GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-12.01	775	9.31	.00	.00	. 0	-136.1	.0
Side Wall	-22.30	1872	.00	41.74	.00	610.5	.0	.0
Side Wall	-22.30	1872	.00	-41.74	.00	-610.5	.0	.0
Windward Wall	13.94	265	3.69	.00	.00	.0	-89.6	.0
Windward Wall	12.33	265	3.27	.00	.00	.0	-46.6	.0
Windward Wall	11.43	245	2.80	.00	.00	.0	-13.0	.0
Leeward Wall	-12.01	89	1.07	.00	.00	.0	-33.8	.0
Windward Wall	14.79	89	1.32	.00	.00	.0	-41.7	.0
Total	.00	5473	21.47	.00	.00	. 0	-360.7	.0

Along Ridge - Base Reactions - Walls+Roof -GCpi

Description	Press psf	Area ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Leeward Wall	-1.65	775 1872	1.28	.00	.00	.0	-18.7	.0
Side Wall Side Wall	-11.94 -11.94	1872	.00	-22.35	.00	326.9 -326.9	.0	.0
Windward Wall	24.30	265	6.44	.00	.00	.0	-156.1	.0
Windward Wall	22.69	265	6.01	.00	.00	.0	-85.7	.0
Windward Wall	21.79	245	5.34	.00	.00	.0	-24.7	.0
Roof (0 to $h/2$)	-16.90	243	.00	-1.86	3.65	-36.5	-87.1	-44.4
Roof (0 to $h/2$)	-16.90	243	.00	1.86	3.65	36.5	-87.1	44.4
Roof (h/2 to h)	-16.74	243	.00	-1.84	3.62	-36.2	-27.2	-13.9
Roof (h/2 to h)	-16.74	243	.00	1.84	3.62	36.2	-27.2	13.9
Roof (h to 2h)	-7.14	467	.00	-1.51	2.97	-29.7	48.4	24.7
Roof (h to 2h)	-7.14	467	.00	1.51	2.97	29.7	48.4	-24.7
Leeward Wall	-1.65	89	0.15	.00	.00	.0	-4.6	.0
Windward Wall	25.15	89	2.25	.00	.00	.0	-70.9	.0
Total	.00	7377	21.47	.00	20.48	.0	-492.5	.0

Along Ridge - Base Reactions - Walls Only -GCpi

Description Press Area Fx Fy Fz Mx My Mz

	psf	ft^2	Kip	Kip	Kip	K-ft	K-ft	K-ft
Leeward Wall	-1.65	775	1.28	.00	.00	.0	-18.7	. 0
Side Wall	-11.94	1872	.00	22.35	.00	326.9	.0	.0
Side Wall	-11.94	1872	.00	-22.35	.00	-326.9	.0	.0
Windward Wall	24.30	265	6.44	.00	.00	.0	-156.1	.0
Windward Wall	22.69	265	6.01	.00	.00	.0	-85.7	.0
Windward Wall	21.79	245	5.34	.00	.00	.0	-24.7	.0
Leeward Wall	-1.65	89	0.15	.00	.00	.0	-4.6	.0
Windward Wall	25.15	89	2.25	.00	.00	.0	-70.9	.0
Total	.00	5473	21.47	.00	.00	. 0	-360.7	0

Along Ridge - Base Reactions - Walls+Roof MIN

Description	Press psf	Area* ft^2	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Windward Wall	16.00	265	4.24	.00	.00	.0	-102.8	.0
Windward Wall	16.00	265	4.24	.00	.00	.0	-60.4	.0
Windward Wall	16.00	245	3.92	.00	.00	.0	-18.1	.0
Windward Wall	16.00	89	1.43	.00	.00	.0	-45.1	.0
Total	.00	865	13.83	.00	.00	.0	-226.5	.0

Notes - Along Ridge

- Note (1) Ref Fig 27.4-1, Parallel to Ridge (All), h/l= 0.51

 Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

 Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf

 Note (4) Area* = Area of the surface projected onto a vertical plane normal to wind.

Total Base Reaction Summary

Description	Fx Kip	Fy Kip	Fz Kip	Mx K-ft	My K-ft	Mz K-ft
Normal to Ridge Walls+Roof +GCpi	.0	58.1	29.9	874.0	.0	.0
Normal to Ridge Walls Only +GCpi	.0	56.2	.0	836.6	. 0	.0
Normal to Ridge Walls+Roof -GCpi	.0	63.3	2.0	977.6	.0	.0
Normal to Ridge Walls Only -GCpi	.0	56.2	.0	836.6	.0	.0
Normal to Ridge Walls+Roof MIN	.0	36.9	.0	663.6	.0	.0
Along Ridge Walls+Roof +GCpi	21.5	.0	38.0	.0	-492.5	.0
Along Ridge Walls Only +GCpi	21.5	.0	.0	.0	-360.7	.0
Along Ridge Walls+Roof -GCpi	21.5	.0	20.5	.0	-492.5	.0
Along Ridge Walls Only -GCpi	21.5	.0	.0	.0	-360.7	.0
Along Ridge Walls+Roof MIN	13.8	.0	.0	.0	-226.5	.0

Notes Applying to MWFRS Reactions:

- Note (1) Per Fig 27.4-1, Note 9, Use greater of Shear calculated with or without roof.

 Note (2) X= Along Building ridge, Y = Normal to Building Ridge, Z = Vertical

 Note (3) MIN = Minimum pressures on Walls = 16 psf and Roof = 8 psf

 Note (4) MIN area is the area of the surface onto a vertical plane normal to wind.

 Note (5) Total Roof Area (incl OH Top) = 1903.40 sq. ft