

Proudly Serving Rural Routt County \* City of Steamboat Springs \* Town of Hayden \* Town of Oak Creek \* Town of Yampa \* Routt County School Districts

Date: 03/24/2021

Subject Property Address: 2305 Mount Werner Circle

PIN: 211077001

Permit Number: TB-21-204 Permit Applicant Name: ESA

#### **Design information:**

Occupancy Classification: U-Occupancy/Miscellaneous and Incidental: Boiler Room/Elevator Building

Number of Stories: 2

Type of Construction: VA for Elevator/Boiler Room

Occupant Load: N/A Fire Sprinklers: No

Dear Owner/Applicant,

The following items below will require additional information or a re-submittal prior to the Permit being Approved and Issued. Please feel free to contact us by phone or email with any questions or concerns.

- 1. **RCRBD** is responsible for reviewing and permitting the following portions of this Project:
  - A. Redi-Rock Retaining Walls around the perimeter of the Gondola Terminal
  - B. Electrical Work
  - C. Plumbing Work
  - D. Mechanical Work
  - E. Boiler Room and Elevator Room
  - F. Platform Area and Stairs and Ramps
  - G. Burgess Creek Bridge

**Special Notes:** RCRBD is not responsible for the Gondola Terminal or the Operators Cabin as these are reviewed and approved by the State. Letter to be provided by applicant stating the permitting and review process will be done by others. Our Local Codes, Amendments and Deletions including Seismic Category C Amendment do not apply to portions of this project we are not responsible for reviewing, specifically they do not apply to the Gondola Terminal nor the Controller Cabin. The Authority Having Jurisdiction over these items is responsible for reviewing, approving, permitting, and all required inspections and final approval.

- 2. **Deferred Submittal:** Please provide RCRBD a copy of the Permits obtained from the State of Colorado for all work that is associated with the project that RCRBD will not be permitting in terms of items related to the Gondola Terminal relocation. Upon completion, a copy of the Final Approval Letter for these structures and buildings.
- 3. **Re-Submittal or Re-Calculation Requested:** On Sheet AG002 you provided an estimated Platform Occupant Load of 440 Occupants, this number was derived by using an Airport Terminal waiting area which utilizes 15 SQ FT per occupant as the dividing factor. RCRBD believes this is an inaccurate way to calculate true Occupant Load based on past experiences working with the Ski Corp in the existing Gondola Building maze area. In the past maze area occupant load has been calculated by using Standing Space out of table 1004.5 of the IBC which uses 5 SQ FT per Occupant. RCRBD believes this is a true and accurate number to be used for Ski operations related to occupants waiting in line. Please review this request, and if you object please provide us with a diagram of how the Ski Corp will utilize business practices to maintain spacing between occupants to adhere to 15 SQ FT per occupant under normal business operations not considering public health conditions that may create greater spacing. Please note this may affect your Code Analysis related Section 1005.3.25 on sheet AG002.
- 4. **Deferred Submittal:** Please provide us with Door Hardware for the boiler room access doors.
- 5. **Deferred Submittal:** Submit copy of NWCOGG Elevator Permit to RCRBD. Elevator Hoistway Beam to be reviewed and approved by NWCOGG and resubmitted for our records once approved.
- 6. **Spray Applied Fire Resistant Materials Special Inspection Reports: Required Deferred Submittals:** All special inspection reports shall be furnished to RCRBD for review and verification prior to work moving beyond the point of confirmation of the approved special inspection.
- 7. **Special Inspection Reports:** All special inspection reports shall be furnished to RCRBD for review and verification prior to work moving beyond the point of confirmation of the approved special inspection, per Chapter 17 and/or by Request of the Engineer or Architect per the approved plans.

✓ Items noted below do not require a response or comment back during the Plan Review in order for us to approve this permit. The Items below are required and will be checked by field inspectors or will need to be submitted to the Building Department. Please take time to review these items in advance of starting any work to ensure your project is ready for inspection.

- 1. Separate Electrical Plumbing Permits must be applied for and obtained prior to any work being done within these trades. Note Electrical and Plumbing trades are protected by the State, Licensed Contractors must apply and perform this work on all Commercial Properties, and additionally their employees working on these projects must be registered or licensed with the State of Colorado and work directly under Licensed Individual managing the project. On Residential Properties owners are allowed to apply for the permit and perform their own Electrical and Plumbing work if this is their primary residence and they sign and complete our Home Owner Agreement form.
- 2. All Boilers that exceed 200,000 BTU's within Commercial Buildings must also be permitted, inspected, and approved by the State of Colorado, this is the Permit Applicants responsibility to contact CDLE the Division of Oil and Public Safety at (303-318-8484) or visit their website to obtain the permit application form. <a href="https://www.colorado.gov/pacific/ops/BoilerForms">https://www.colorado.gov/pacific/ops/BoilerForms</a>

Reviewed by: Todd Carr Date: 03/24/2021

# 2018 INTERNATIONAL CODE REVIEW

# **CHAPTER 3 OCCUPANCY CLASSIFICATION & USE**

SECTION 312: ELEVATOR / BOILER BLDG

U (UTILITY AND MISCELLANEOUS)

# **CHAPTER 5 GENERAL BLDG HEIGHT & AREA:**

Area, Building: The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above. (from Commentary - the area measured within the perimeter formed by the inside surface of the exterior walls.)

(CONSTRUCTION WILL BE ALL NON-COMBUSTIBLE, 1-HR RATED)

HEIGHT (TABLE 504.3): TYPE VA ALLOWED HEIGHT = 50' PROPOSED HEIGHT = 25'

TABLE 506.2 ALLOWABLE AREA FACTOR IN SF: TYPE VA, U OCCUPANCY ALLOWABLE AREA = 9,000 SF PROPOSED AREA = 425 SF

ROOMS WITH BOILERS WHERE THE LARGEST PIECE OF EQUIPMENT IS OVER 15 PSI AND 10 HORSEPOWER

SEPARATION AND/OR PROTECTION = 1 HOUR OR PROVIDE AUTOMATIC SPRINKLER SYSTEM 1 HOUR RATED SEPARATION WILL BE PROVIDED AT BOILER ROOM.

#### **CHAPTER 6 TYPES OF CONSTRUCTION:**

TYPE VA STRUCTURE **BEARING WALL** 

**EXTERIOR** INTERIOR **NON-BEARING** 

**EXTERIOR** 1-HR FOR 5<X<10 SEPARATIONS 0-HR FOR X>30 SEPARATIONS

INTERIOR FLOORS 1-HR ROOFS 1-HR

## **CHAPTER 7 FIRE RESISTANCE CONSTRUCTION:**

SECTION 713.4 FIRE RESISTANCE RATING

SHAFT ENCLOSURES SHALL HAVE A FIRE RESISTIVE RATING OF NOT LESS THAN 1-HOUR WHERE CONNECTING LESS THAN FOUR STORIES. ELEVATOR SHAFT AND MACHINE ROOM TO HAVE 1-HR SEPARATION OF ADJACENT SPACES.

### CHAPTER 9 FIRE PROTECTION SYSTEMS:

TABLE 903.2.11.6 ADDITIONAL REQUIRED SUPPRESSION SYSTEMS: INCIDENTAL USE AREA SEE SECTION 509.4

## **CHAPTER 10 MEANS OF EGRESS:**

TABLE 1004.5 MAX FLOOR AREA ALLOWANCES PER OCCUPANT: BOILER/ELEVATOR

425 SF / 300 SF PER OCC = 2 OCCUPANTS

USING QUEUING OCCUPANT LOAD FROM SSRC PER REVIEW WITH TODD CARR ON 3/24/2021 = 510 OCCUPANTS (MAX)

#### **SECTION 1005.3.1 STAIRWAYS:** PLATFORM

510 OCC X .3" = 153" OF STAIR EGRESS REQUIRED

**SECTION 1005.3.25 OTHER EGRESS COMPONENTS:** 

BOILER/ELEVATOR EXIT AT LOWER LEVEL DIRECTLY OUTSIDE

510 OCC X .2" = 102" OF OTHER EGRESS REQUIRED

# UMMER OCCUPANCY

TABLE 1004.5 MAX FLOOR AREA ALLOWANCES PER OCCUPANT:

BOILER/ELEVATOR 425 SF / 300 SF PER OCC = 2 OCCUPANTS

USING QUEUING OCCUPANT LOAD OF 20 SF PER OCCUPANT PER REVIEW WITH TODD CARR ON 3/25/2021 4425 SF / 20 SF PER OCC = 222 OCCUPANTS

# **SECTION 1005.3.1 STAIRWAYS:**

PLATFORM 222 OCC X .3" = 67" OF STAIR EGRESS REQUIRED

**SECTION 1005.3.25 OTHER EGRESS COMPONENTS:** 

BOILER/ELEVATOR EXIT AT LOWER LEVEL DIRECTLY OUTSIDE

222 OCC X .2" = 45" OF OTHER EGRESS REQUIRED

# **CHAPTER 11 - ACCESSIBILITY:**

THE ELEVATOR HAS BEEN PROVIDED FOR ACCESSIBLE ACCESS TO THE PLATFORM. NEW SNOW MELTED CONCRETE PATH FROM THE ELEVATOR TO THE EXISTING PROMENADE WILL HAVE A SLOPE OF 5% MAX.

A PHONE WILL BE PROVIDED AT THE ELEVATOR (ON BOTH LEVELS) TO CONTACT SSRC SECURITY. OWNER WILL HAVE PROCEDURE IN PLACE TO EVACUATE GUESTS FROM PLATFORM IN THE CASE OF AN ISSUE WITH THE ELEVATOR.

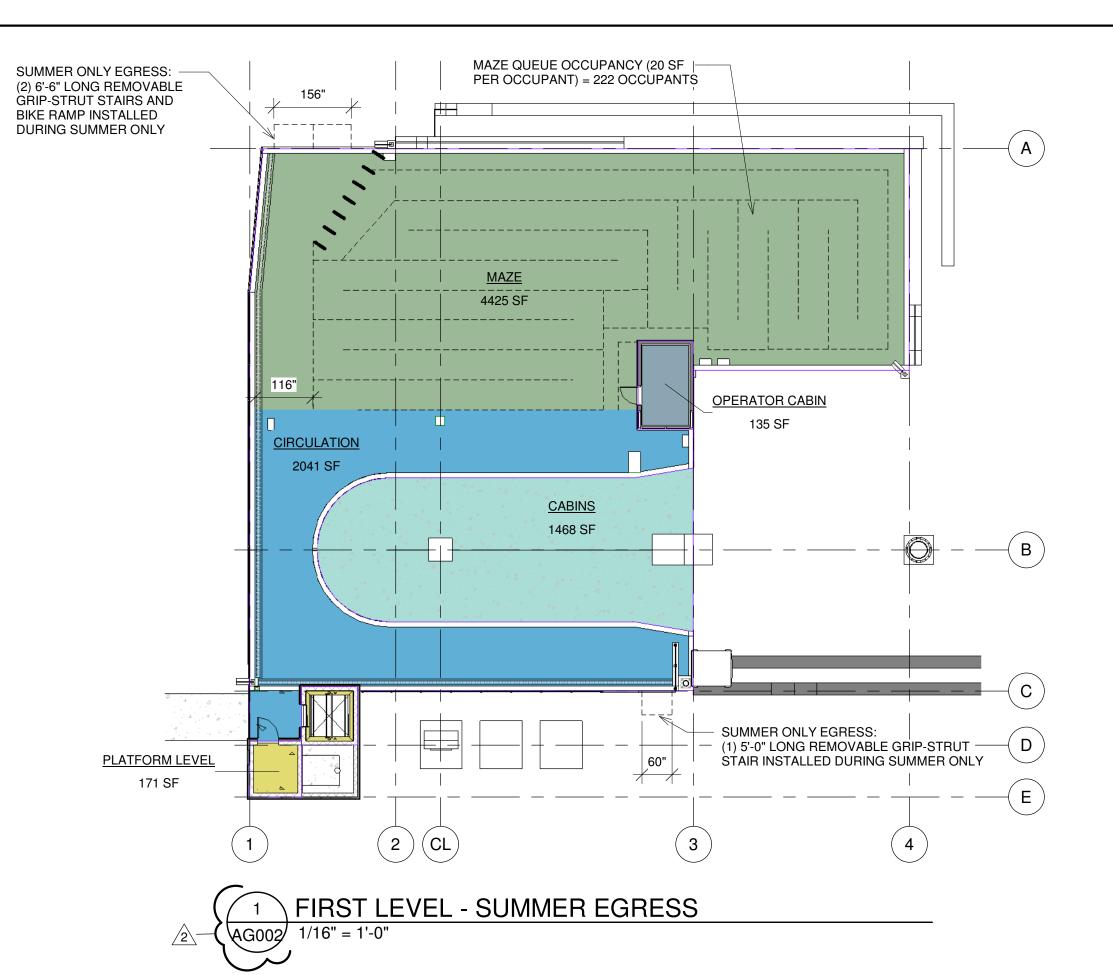
SIGNAGE TO BE PROVIDED PER SECTION 1111. VERIFY ALL LOCATION OF SIGNAGE WITH OWNER IN FIELD. SIGNAGE TO MEET ALL REQUIREMENTS OF 2018 IBC, ANSI A117, ADA AND CDC.

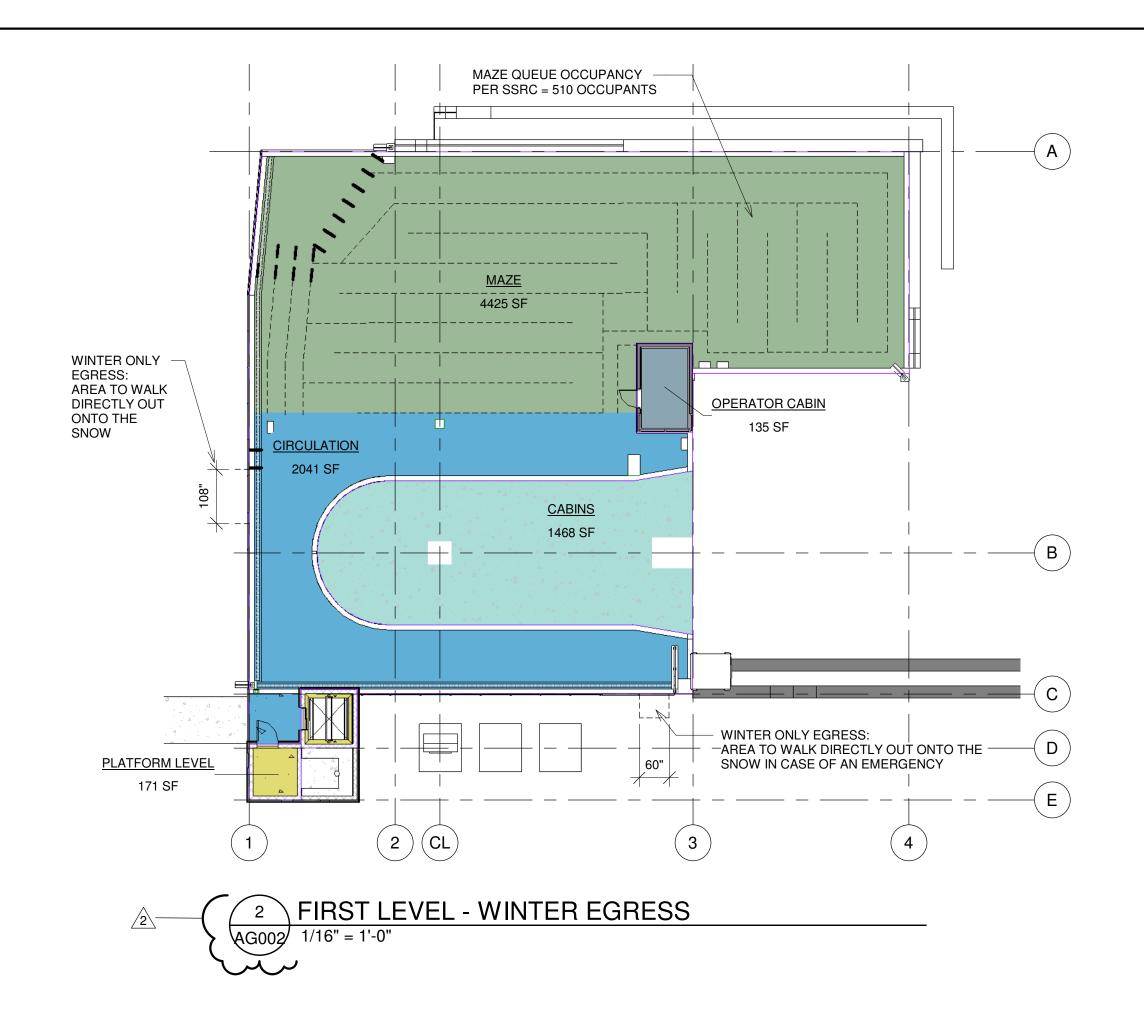
# **CHAPTER 17 - SPECIAL INSPECTIONS:**

1704.2 General - Where application is made to the Building Official for construction as specified in section 105, the Owner or the owner's authorized agent, other than the contractor, shall employ one or more approved agencies to provide special inspections and tests during construction on the types of work specified in Section 1705 and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by the building official that are identified in Section 110.

**1705.14 Spray fire-resistant materials.** See section 1705.14 for required verification and inspection of spray fire-resistant materials applied to structural

See more information on Special Inspection requirements on S0.01





## **PROJECT GENERAL NOTES:**

SUBCONTRACTORS, ETC.

1. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSION AND CONDITIONS IN FIELD. DISCREPANCIES IN DIMENSIONS, EXISTING CONDITIONS AND FIELD MEASUREMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE COMMENCEMENT OF THE WORK.

2. THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION MEETS OR EXCEEDS APPLICABLE CODES AND STANDARD PRACTICES, INCLUDING ALL FEDERAL, STATE AND LOCAL BUILDING REQUIREMENTS.

3. CONTRACTOR TO VERIFY TEMPERED GLAZING PROVIDED AT NEW DOORS AND WINDOWS PER CODE.

4. CONTRACTOR TO VERIFY MANUFACTURES INSTRUCTIONS AND

PROCEDURES FOR INSTALLATION OF ALL MATERIALS & EQUIPMENT. 5. THROUGH-PENETRATION OR MEMBRANE PENETRATION

FIRESTOPPING OF ALL FIRE-RESISTANT ASSEMBLIES REQUIRED PER IBC SECTION 713. 6. ALL WORK CONNECTED WITH THIS PROJECT BY ANY TRADE INVOLVED SHALL BE DONE IN A WORKMANSHIP TYPE MANNER IN

ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE.

7. CONTRACTOR SHALL PROVIDE JOB SITE CLEAN UP. SORT AND RECYCLE JOBSITE DEBRIS TO THE FULLEST EXTENT POSSIBLE INCLUDING CARDBOARD, STEEL, WOOD, ACOUSTICAL TILE, GLASS AND GYPSUM BD. CLEAN AND REMOVE CONSTRUCTION DEBRIS FROM THE SITE ON A DAILY BASIS. UPON JOB COMPLETION, LEAVE THE SITE IN A NEAT AND ORDERLY CONDITION. PROVIDE TRASH REMOVAL FOR PROJECT RELATED WORK BY

8. COORDINATE PROJECT WORK WITH OWNER, LIFT PROVIDER AND BASE VILLAGE PROJECT. ACTIVITIES AND ACCESS TO AND AROUND THE PROJECT SITE WILL BE REQUIRED AT THE MOUNTAIN AND AT THE BASE VILLAGE DURING CONSTRUCTION.

9. ALL PERMITS (OCCUPANCY, ELECTRICAL, PLUMBING AND ALL OTHERS) REQUIRED BY STATE AND LOCAL CODES, EXCEPT THOSE ACQUIRED BY SUBCONTRACTORS, ARE TO BE SECURED BY THE GENERAL CONTRACTOR WITH COPIES TO OWNER WITHOUT EXTRA CHARGE. ALL PERMITS ACQUIRED BY SUBCONTRACTORS SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR FOR RECORD.

10.EACH TRADE SHALL VERIFY ALL REQUIREMENTS PERTAINING TO WORK PERFORMED IN THE PROJECT AND ANY REQUIRED PERMITS. ALL SUBCONTRACTORS SHALL DIRECT QUESTIONS, CHANGES OR REQUESTS THROUGH THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL SUBMIT ALL REQUESTS, CHANGES OR QUESTIONS TO THE ARCHITECT IN WRITING.

11.NO UTILITY, TELECOMM, LOW VOLTAGE, DATA SERVICE, ETC. MAY BE DISCONNECTED WITHOUT FIRST CONTACTING THE FACILITY MANAGER IN ADVANCE FOR AUTHORIZATION. THERE SHOULD BE NO INTERRUPTION OF EXISTING SYSTEMS.

12.ALL EGRESS PATHS SHALL REMAIN OPEN AND AVAILABLE TO OWNER AND GUESTS.

13.IF UNANTICIPATED MECHANICAL, PLUMBING, ELECTRICAL, STRUCTURAL ELEMENTS OR ANY OTHER CONDITIONS ARE ENCOUNTERED WHICH MIGHT CONFLICT WITH THE INTENDED FUNCTION OF THE RENOVATION CONTACT THE ARCHITECT IMMEDIATELY FOR CLARIFICATION. COORDINATE ACTIVITIES WITH THE FACILITY MANAGER IN ADVANCE OF DOING WORK.

14. COORDINATE WORK OF DISCIPLINES, (ARCH., STRUCT., ELEC., MECH., PIPING, I.T., ETC.) WITH EXISTING CONDITIONS, SPECIAL REQUIREMENTS AND CONSTRUCTION SCHEDULE.

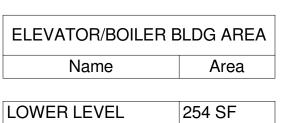
15.CONTRACTOR SHALL COMPLY WITH OWNER'S REQUIREMENTS FOR STORAGE, REMOVALS, NOISE LEVELS, VENTILATION AND LIMITATIONS OF ACCESS TO SITE. COORDINATE WITH FACILITY MANAGER FOR CLARIFICATION. NO CHANGE ORDERS WILL BE PERMITTED FOR FAILURE TO BE AWARE OF OWNER'S REQUIREMENTS.

16.PROVIDE, ERECT AND MAINTAIN TEMPORARY WORK AS MAY BE REQUIRED FOR PROTECTION OF THOSE IN OR ABOUT THE BUILDING.

17.PROVIDE BARRICADES, PLASTIC COVERS, DUST BARRIERS, WARNING SIGNS, FIRE EXTINGUISHERS AND OTHER NECESSARY EQUIPMENT FOR THE PROTECTION AND SAFETY OF PERSONNEL, MATERIALS AND EQUIPMENT IN THE AREA.

18.EACH CONTRACTOR SHALL INCLUDE COST OF MATERIAL AND LABOR NECESSARY TO PROVIDE ALL REQUIRED SUPPORTS, BEAMS, ANGLES, HANGERS, RODS, BASES, BRACES, CHANNELS, ETC. TO PROPERLY SUPPORT THEIR CONTRACT WORK.

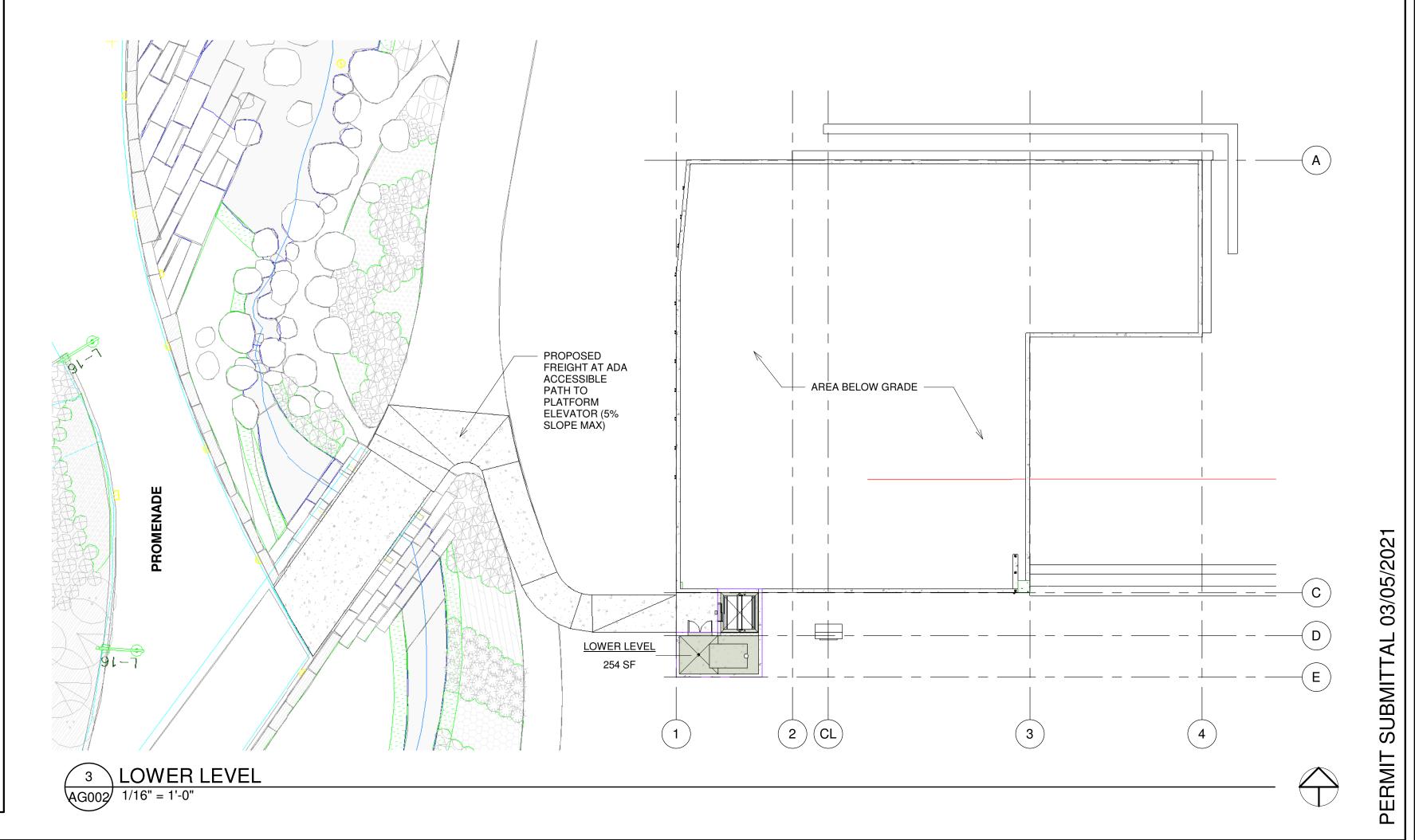
19.PROVIDE ADEQUATE SUPPORTING BLOCKING WHERE REQUIRED.



171 SF

425 SF

PLATFORM LEVEL





NOTICE: DUTY OF COOPERATION Release of these plans contemplates further

cooperation among the owner, his contractor and the architect. Design and construction are complex.
Although the architect and his consultants have

performed their services with due care and diligence they cannot guarantee perfection. Communication is

imperfect and every contingency cannot be anticipated.
Any ambiguity or discrepancy discovered by the use of

these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs.

failure to cooperate by a simple notice to the architect

shall relieve the architect from responsibility for the consequences. Changes made from the plans without

consent of the architect are unauthorized and shall

relieve the architect of responsibility for all

consequences arriving out of such changes.

All design, documents and data prepared by Eric

Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C.

and shall not be copied, changed or disclosed in any

form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C.

Eric Smith Associates, P.

REVISIONS

3-26-2021

Description

Addendum #2



Author Drawn By: Checked By: Checker **Project Phase** DESIGN DEVELOPMENT

**Sheet Title** ODE REVIEW

**Sheet Number** 

AND ELEVATIONS SHALL BE CONFIRMED AND CORRELATED AT THE JOB SITE.

- 1. TOPOGRAPHIC AND EXISTING CONDITIONS MAPPED BY LANDMARK CONSULTANTS, INC. 2. CITY OF STEAMBOAT SPRINGS PLAN REVIEW AND APPROVAL IS ONLY FOR GENERAL CONFORMANCE WITH CITY DESIGN CRITERIA AND THE CITY CODE. THE CITY IS NOT RESPONSIBLE FOR THE COMPLETENESS, ACCURACY AND ADEQUACY OF THE DRAWINGS. DESIGN, DIMENSIONS,
- 3. ONE COPY OF THE APPROVED CONSTRUCTION PLANS AND SPECIFICATIONS SHALL BE KEPT ON THE JOB SITE AT ALL TIMES. PRIOR TO THE START OF CONSTRUCTION, VERIFY WITH PROJECT ENGINEER THE LATEST REVISION DATE OF THE APPROVED CONSTRUCTION PLANS.
- 4. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS SET FORTH IN THE CITY OF STEAMBOAT SPRINGS TECHNICAL SPECIFICATIONS (MARCH, 2018 EDITION), THE "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" BY THE COLORADO DEPARTMENT OF TRANSPORTATION. (2017 EDITION). AND APPLICABLE STATE AND FEDERAL REGULATIONS. WHERE THERE IS A DIRECT CONFLICT BETWEEN THESE PLANS AND THE SPECIFICATIONS, OR ANY APPLICABLE STANDARDS, THE MOST RESTRICTIVE STANDARD SHALL APPLY.
- 5. ALL WATER AND SANITARY SEWER CONSTRUCTION AND RELATED WORK SHALL CONFORM TO THE MOUNT WERNER WATER STANDARD SPECIFICATIONS FOR WATER AND WASTEWATER UTILITIES, CURRENT EDITION.
- 6. ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AS REQUIRED MUST BE OBTAINED IN ORDER TO PERFORM THE WORK. THIS INCLUDES, BUT IS NOT LIMITED TO, RIGHT-OF-WAY PERMIT, GRADING AND EXCAVATION PERMIT, CONSTRUCTION DEWATERING PERMIT. STORM WATER QUALITY PERMIT. ARMY CORP OF ENGINEER PERMIT. ETC. IT IS THE APPLICABLE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COPY OF ALL APPLICABLE CODES, LICENSES, SPECIFICATIONS, AND STANDARDS NECESSARY TO PERFORM THE WORK, AND BE FAMILIAR WITH THEIR CONTENTS PRIOR TO COMMENCING ANY WORK.
- 7. PRIOR TO ANY WORK IN THE CITY RIGHT-OF-WAY INCLUDING STREET CUTS, CONTACT THE CITY OF STEAMBOAT SPRINGS STREET DEPARTMENT AT 970.879.1807 FOR PERMIT REQUIREMENTS. NO WORK SHALL OCCUR IN THE ROW BETWEEN NOVEMBER 1 - APRIL 1 UNLESS A WRITTEN VARIANCE HAS BEEN APPROVED AND ISSUED BY THE CITY PUBLIC WORKS DIRECTOR.
- 8. PRIOR TO CLOSURE OF ANY STREET OR PART OF STREET, AN APPROVED OBSTRUCTION PERMIT MUST BE ISSUED BY CITY CONSTRUCTION SERVICES FOREMAN
- 9. PRIOR TO START OF CONSTRUCTION A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE APPROPRIATE CONTRACTORS. ENGINEER, SURVEYOR, TESTING COMPANY, AFFECTED AGENCIES AND KEY SUBCONTRACTORS A MINIMUM OF 48-HOURS PRIOR TO THE START
- 10. THE LOCAL ENTITY AND ENGINEER SHALL BE NOTIFIED AT LEAST 2 WORKING DAYS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITY. OR CONSTRUCTION ON ANY AND ALL PUBLIC IMPROVEMENTS. THE LOCAL ENTITY RESERVES THE RIGHT NOT TO ACCEPT THE IMPROVEMENTS IF SUBSEQUENT TESTING REVEALS AN IMPROPER INSTALLATION.
- 11. COORDINATE WITH THE PROJECT ENGINEER TO IDENTIFY PROJECT INSPECTION AND TESTING REQUIREMENTS. PROVIDE FOR INSPECTIONS AND TESTING AT AN ADEQUATE FREQUENCY FOR THE PROJECT ENGINEER TO DOCUMENT THAT PROJECT IS CONSTRUCTED IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. PRIOR TO MAKING ANY CHANGES TO THE APPROVED PLANS, IT IS THE

APPROPRIATE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE PROJECT ENGINEER.

- 12. PROVIDE THE OWNER, ENGINEER, THEIR CONSULTANTS, INDEPENDENT TESTING LABORATORIES, ANY GOVERNMENTAL AGENCIES WITH JURISDICTIONAL INTERESTS, OTHER REPRESENTATIVES AND PERSONNEL ACCESS TO THE SITE AND THE WORK AT REASONABLE TIMES FOR THEIR OBSERVATION. INSPECTING. AND TESTING. PROVIDE THEM PROPER AND SAFE CONDITIONS FOR SUCH ACCESS AND ADVISE THEM OF THE DEVELOPER'S SITE SAFETY PROCEDURES AND PROGRAMS SO THAT THEY MAY COMPLY THEREWITH AS IS APPLICABLE. COORDINATE WITH THE PROJECT ENGINEER SO THAT INSPECTING AND TESTING ARE PROVIDED AT AN ADEQUATE FREQUENCY FOR THE PROJECT ENGINEER TO AFFIRM THAT WORK WAS COMPLETED IN SUBSTANTIAL CONFORMANCE WITH THESE APPROVED PLANS.
- 13. NO WORK MAY COMMENCE WITHIN ANY IMPROVED PUBLIC RIGHT-OF-WAY UNTIL A RIGHT-OF-WAY PERMIT OR APPROPRIATE CONSTRUCTION PERMIT IS OBTAINED, IF APPLICABLE. SUBMIT A CONSTRUCTION TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH MUTCD, TO THE APPROPRIATE RIGHT-OF-WAY AUTHORITY, (LOCAL ENTITY, COUNTY OR STATE), FOR APPROVAL, PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN, OR AFFECTING, THE RIGHT-OF-WAY. PROVIDE ANY AND ALL TRAFFIC CONTROL DEVICES AS MAY BE REQUIRED BY THE CONSTRUCTION
- 14. SUBMIT A CONSTRUCTION SITE MANAGEMENT PLAN (CSMP) FOR REVIEW AND APPROVAL BY THE CITY CONSTRUCTION SERVICES FOREMAN PRIOR TO START OF CONSTRUCTION. THE CSMP MUST BE MAINTAINED ON-SITE AND UPDATED AS NEEDED TO REFLECT CURRENT CONDITIONS.
- 15. ALL CONTRACTORS ARE SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES, AS SHOWN ON THESE PLANS, IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO UNCC) AT 1-800-922-1987, AT LEAST 2 WORKING DAYS PRIOR TO BEGINNING EXCAVATION OR GRADING, TO HAVE ALL REGISTERED UTILITY LOCATIONS MARKED. OTHER UNREGISTERED UTILITY ENTITIES (I.E. DITCH / IRRIGATION COMPANY) ARE TO BE LOCATED BY CONTACTING THE RESPECTIVE REPRESENTATIVE. UTILITY SERVICE LATERALS ARE ALSO TO BE LOCATED PRIOR TO BEGINNING EXCAVATION OR GRADING. THE TYPE. SIZE. LOCATION AND NUMBER OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THE DRAWINGS. VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK BEFORE COMMENCING NEW CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.
- 16. FIELD LOCATE AND VERIFY ELEVATIONS OF ALL EXISTING SEWER MAINS, WATER MAINS, CURBS, GUTTERS AND OTHER UTILITIES AT THE POINTS OF CONNECTION SHOWN ON THE PLANS, AND AT ANY UTILITY CROSSINGS PRIOR TO INSTALLING ANY OF THE NEW IMPROVEMENTS. IF A CONFLICT EXISTS AND/OR A DESIGN MODIFICATION IS REQUIRED, COORDINATE WITH THE ENGINEER TO MODIFY THE DESIGN. DESIGN MODIFICATION(S) MUST BE APPROVED BY THE LOCAL ENTITY PRIOR TO BEGINNING CONSTRUCTION.
- 17. ALL UTILITY INSTALLATIONS WITHIN OR ACROSS THE ROADBED OR OTHER PAVED AREAS MUST BE COMPLETED PRIOR TO THE FINAL STAGES OF ROAD CONSTRUCTION. FOR THE PURPOSES OF THESE STANDARDS, ANY WORK INCLUDING, GRAVELS, PAVEMENTS, CURB AND GUTTER ABOVE THE SUBGRADE IS CONSIDERED FINAL STAGE WORK. ALL SERVICE LINES MUST BE STUBBED BEYOND THE ROAD PLATFORM OR TO THE PROPERTY LINES AND MARKED SO AS TO REDUCE THE EXCAVATION NECESSARY FOR BUILDING CONNECTIONS.
- 18. COORDINATE AND COOPERATE WITH THE LOCAL ENTITY, AND ALL UTILITY COMPANIES INVOLVED, WITH REGARD TO RELOCATIONS ADJUSTMENTS, EXTENSIONS AND REARRANGEMENTS OF EXISTING UTILITIES DURING CONSTRUCTION, AND TO ASSURE THAT THE WORK IS ACCOMPLISHED IN A TIMELY FASHION AND WITH A MINIMUM DISRUPTION OF SERVICE. CONTACT, IN ADVANCE, ALL PARTIES AFFECTED BY ANY DISRUPTION OF ANY UTILITY SERVICE AS WELL AS THE UTILITY COMPANIES.
- 19. NO WORK MAY COMMENCE WITHIN ANY PUBLIC STORM WATER, SANITARY SEWER OR POTABLE WATER SYSTEM UNTIL THE UTILITY PROVIDERS ARE NOTIFIED NOTIFICATION SHALL BE A MINIMUM OF TWO (2) WORKING DAYS PRIOR TO COMMENCEMENT OF ANY WORK AT THE DISCRETION OF THE WATER UTILITY PROVIDER, A PRE-CONSTRUCTION MEETING MAY BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORK.
- 20. PROTECT ALL UTILITIES DURING CONSTRUCTION AND FOR COORDINATE WITH THE APPROPRIATE UTILITY COMPANY FOR ANY UTILITY CROSSINGS REQUIRED
- 21. WHEN APPLICABLE, THE DEVELOPER AND/OR CONTRACTOR SHALL HAVE ONSITE AT ALL TIMES, EACH OF THE FOLLOWING:
- BEST MANAGEMENT PRACTICES (BMP) MAINTENANCE FOLDER • UP TO DATE STORMWATER MANAGEMENT PLAN (SWMP) THAT ACCURATELY REPRESENTS CURRENT FIELD CONDITIONS
- ONE (1) SIGNED COPY OF THE APPROVED PLANS
- ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS
- A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB.
- 23. IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, CONTACT THE DESIGNER AND THE LOCAL ENTITY ENGINEER IMMEDIATELY.
- 24. ALL REFERENCES TO ANY PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE
- 25. PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE INTENDED IMPROVEMENTS SHOWN ON THESE DRAWINGS, OR DESIGNATED TO BE PROVIDED, INSTALLED, OR CONSTRUCTED, UNLESS SPECIFICALLY NOTED OTHERWISE.
- 26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING AS-BUILT INFORMATION ON A SET OF RECORD DRAWINGS KEPT ON THE CONSTRUCTION SITE, AND AVAILABLE TO THE LOCAL ENTITY'S INSPECTOR AT ALL TIMES.
- 27. DIMENSIONS FOR LAYOUT AND CONSTRUCTION ARE NOT TO BE SCALED FROM ANY DRAWING. IF PERTINENT DIMENSIONS OR ELEVATIONS ARE NOT SHOWN, CONTACT THE DESIGNER FOR CLARIFICATION, AND ANNOTATE THE PROVIDED DIMENSION ON THE AS-BUILT RECORD DRAWINGS. CONTOURS ARE NOT SUITABLE FOR CONSTRUCTION LAYOUT.
- 28. SEQUENCE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO MINIMIZE POTENTIAL UTILITY CONFLICTS. IN GENERAL, GRADE RESTRICTED UTILITIES SUCH AS STORM SEWER AND SANITARY SEWER, SHOULD BE CONSTRUCTED PRIOR TO INSTALLATION OF THE WATER LINES AND DRY
- 29. EXISTING FENCES, TREES, STREETS, SIDEWALKS, CURBS AND GUTTERS, LANDSCAPING, STRUCTURES, AND IMPROVEMENTS DESTROYED, DAMAGED OR REMOVED DUE TO CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED OR RESTORED IN LIKE KIND AT THE CONTRACTOR'S EXPENSE, UNLESS OTHERWISE INDICATED ON THESE PLANS.
- 30. THESE CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF THREE YEARS FROM THE DATE OF APPROVAL BY THE AHJ. USE OF THESE PLANS AFTER THE EXPIRATION DATE WILL REQUIRE A NEW REVIEW AND APPROVAL PROCESS BY THE LOCAL ENTITY PRIOR TO COMMENCEMENT OF ANY WORK SHOWN IN THESE PLANS.
- 31. ALL CONSTRUCTION IN AREAS DESIGNATED AS WILD FIRE HAZARD AREAS SHALL BE DONE IN ACCORDANCE WITH THE CONSTRUCTION CRITERIA AS ESTABLISHED IN THE WILD FIRE HAZARD AREA MITIGATION REGULATIONS IN FORCE AT THE TIME OF CONSTRUCTION.
- 32. THE CONTRACTOR AGREES THAT BY COMMENCING CONSTRUCTION THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT. INCLUDING. BUT NOT LIMITED TO THE SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD TITHE ENGINEER, AND THE GOVERNING AGENCIES AND THE OFFICERS, DIRECTORS, PARTNERS, EMPLOYEES, AGENTS AND OTHER CONSULTANTS OF EACH AND ANY OF THEM HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE NEGLIGENCE OF THE OWNER, THE ENGINEER, OR THE GOVERNING AGENCIES.
- 33. NOTIFY THE ENGINEER IMMEDIATELY UPON DISCOVERING ANY CONFLICTS OR OTHER PROBLEMS IN CONFORMING TO THE APPROVED CONSTRUCTION DRAWINGS, SPECIFICATIONS OR DETAILS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENTS PRIOR TO PROCEEDING WITH ITS CONSTRUCTION.
- 34. COORDINATE THE INSTALLATION OR RELOCATION OF THE DRY UTILITY COMPANY'S FACILITIES. COST OF THE DRY UTILITY WORK SHALL BE BORNE BY THE OWNER, EXCEPT AS INDICATED IN THE PLANS AND SPECIFICATIONS.
- 35. PRESERVE PRIVATE AND PUBLIC PROPERTY AND PROTECT IT FROM DAMAGE THAT MAY RESULT FROM CONSTRUCTING THESE PROPOSED IMPROVEMENTS.

- 36. ACCESS TO ALL ADJACENT PROPERTIES AND FACILITIES SHALL BE MAINTAINED AT ALL TIMES. REQUIRED INTERRUPTION OF ACCESS SHALL BE COORDINATED WITH THE PROPERTY AND PROJECT OWNERS.
- 37. IF HAZARDOUS MATERIAL OR SUSPECT MATERIAL IS ENCOUNTERED NOTIFY THE OWNER AND ENGINEER BEFORE CONTINUING WORK. HAZARDOUS MATERIALS SHALL BE REMOVED AS REQUIRED
- 38. THE APPROPRIATE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SOURCE OF CONSTRUCTION WATER FOR USE ON THIS PROJECT.
- 39. EXCESS MATERIAL SHALL BE REMOVED FROM SITE AND HANDLED IN ACCORDANCE TO ALL RULES AND REQUIREMENTS. A SEPARATE PERMIT MAY BE REQUIRED AND SHALL BE COORDINATED WITH THE AUTHORITY HAVING JURISDICTION.
- 40. OFFSITE AND ADJACENT SITE DATA IS FOR REFERENCE PURPOSES ONLY.
- 41. ALL LANDSCAPING, REVEGETATION AND WETLANDS REQUIREMENTS DESIGN BY OTHERS. ALL DISTURBED AREAS ARE TO BE REVEGETATED UNLESS OTHERWISE NOTED.
- 42. ENSURE THAT WORK FOR THIS PROJECT BE PERFORMED BY CONTRACTORS (INCLUDING CONTRACTOR'S EMPLOYEES AND AGENTS) POSSESSING THE SKILLS, EXPERTISE AND UNDERSTANDING OF ALL APPLICABLE CODES, SPECIFICATIONS, STANDARDS AND MANUFACTURER REQUIREMENTS. BY COMMENCING WORK, THE CONTRACTORS REPRESENT THAT THEY UNDERSTAND AND ACCEPT THIS REQUIREMENT.
- 43. ALL CONSTRUCTION ACTIVITIES AND DISTURBANCES SHALL OCCUR WITHIN THE PROPERTY LIMITS. WHERE OFF-SITE WORK IS APPROVED. WRITTEN PERMISSION OF THE ADJACENT PROPERTY OWNER MUST BE OBTAINED PRIOR TO ANY OFF-SITE GRADING OR CONSTRUCTION.

#### **CONSTRUCTION NOTES**

#### A. GRADING AND DRAINAGE

- 44. NO WORK SHALL OCCUR IN WETLANDS OR FLOODPLAINS WITHOUT PERMITS. ANY WORK SHALL BE IN ACCORDANCE WITH ISSUED PERMITS.
- 45. VEGETATED SLOPES GREATER THAN 3:1 REQUIRE SOIL STABILIZATION.
- 46. CLEAN ALL INSTALLED CULVERTS AND STORM SEWERS PRIOR TO SUBSTANTIAL COMPLETION INSPECTIONS.
- 47. LENGTHS SHOWN ON PLANS ARE HORIZONTAL LENGTHS FROM CENTER OF MANHOLE TO CENTER OF MANHOLE OR TO THE END OF THE FLARED END SECTIONS, ACTUAL LENGTHS MAY VARY.
- 48. SLOPES ARE CALCULATED FROM INSIDE EDGE OF MANHOLE/STRUCTURE TO INSIDE EDGE OF MANHOLE/STRUCTURE.
- 49. IMPERVIOUS CLAY DAMS ARE REQUIRED IN TRENCH AT 50-FT INTERVALS AND AT CHANGES IN PIPE DIRECTION AND/OR AT PIPE JUNCTIONS FOR ALL DRAINAGE STRUCTURES.
- 50. MINIMUM RECOMMENDATIONS (TO BE CONFIRMED OR REPLACED BY GEOTECHNICAL ENGINEER): PROPOSED FILL AREAS WHERE PAVEMENT OR SITE CONCRETE IS ANTICIPATED SHOULD BE PREPARED BY STRIPPING EXISTING TOPSOIL AND ORGANIC MATERIALS, SCARIFICATION TO A DEPTH OF AT LEAST 8 INCHES AND COMPACTION TO MINIMUM VALUES GIVEN BELOW. MOISTURE CONDITIONING MAY BE REQUIRED TO ATTAIN STABILITY AND MINIMUM COMPACTION.

SITE FILLS AND TRENCH BACKFILL SHOULD CONSIST OF APPROVED ON-SITE OR IMPORTED MATERIALS. FILLS SHOULD BE UNIFORMLY PLACED AND COMPACTED IN 6 TO 8 INCH LOOSE LIFTS TO AT LEAST 95 PERCENT OF THE MAXIMUM STANDARD PROCTOR DENSITY AND WITHIN 2 PERCENT OF THE OPTIMUM MOISTURE CONTENT (ASTM D698). MOISTURE CONDITIONING OF FILL MATERIALS MAY BE REQUIRED TO ATTAIN MINIMUM COMPACTION AND STABILITY REQUIREMENTS.

51. A GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED UNDER THE TITLE OF "SUBSOIL AND FOUNDATION INVESTIGATION, PROPOSED GONDOLA BASE TERMINAL RELOCATION, STEAMBOAT SKI RESORT, STEAMBOAT SPRINGS, COLORADO" BY NWCC DATED DECEMBER 9, 2020, AND THEIR RECOMMENDATIONS ARE HEREBY INCORPORATED HEREIN. IF A CONFLICT OR DISCREPANCY OCCURS, NOTIFY THE ENGINEER IMMEDIATELY UPON DISCOVERY

#### B. CONSTRUCTION SITE AND STORMWATER MANAGEMENT

- 52. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SITE MANAGEMENT PLAN TO THE CITY FOR APPROVAL PRIOR TO BUILDING PERMIT ISSUANCE
- 53. WHEN REQUIRED THE CONTRACTOR SHALL PREPARE A STORMWATER MANAGEMENT PLAN. THE STORMWATER MANAGEMENT PLAN SHALL BE PREPARED BY A QUALIFIED INDIVIDUAL WITH KNOWLEDGE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROL AND POLLUTION PREVENTION. THIS INDIVIDUAL SHOULD BE RESPONSIBLE FOR DEVELOPING. IMPLEMENTING. MAINTAINING. AND REVISING THE STORMWATER MANAGEMENT PLAN FOR THE DURATION OF THE PROJECT.
- 54. THE STORMWATER MANAGEMENT PLAN SHOULD ADDRESS INSTALLATION, INSPECTION AND MAINTENANCE OF ALL NECESSARY EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION AND REMOVE EROSION CONTROL WHEN PROJECT IS COMPLETE AND VEGETATION IS ESTABLISHED. WHEN TEMPORARY EROSION CONTROL MEASURES ARE REMOVED, CLEAN UP AND REMOVE ALL SEDIMENT AND DEBRIS FROM ALL DRAINAGE INFRASTRUCTURE AND OTHER PUBLIC FACILITIES.
- 55. ALL REQUIRED PERIMETER SILT AND CONSTRUCTION FENCING SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITY (STOCKPILING. STRIPPING, GRADING, ETC). ALL OTHER REQUIRED EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE APPROPRIATE TIME IN THE CONSTRUCTION SEQUENCE AS INDICATED IN THE APPROVED PROJECT SCHEDULE, CONSTRUCTION PLANS, AND STORMWATER MANAGEMENT
- 56. ENSURE THAT NO MUD OR DEBRIS SHALL BE TRACKED ONTO THE EXISTING PUBLIC STREET SYSTEM. MUD AND DEBRIS MUST BE REMOVED BY THE END OF EACH WORKING DAY BY AN APPROPRIATE MECHANICAL METHOD (I.E. MACHINE BROOM SWEEP, LIGHT DUTY FRONT-END LOADER, ETC.) OR AS APPROVED BY THE LOCAL ENTITY STREET INSPECTOR.
- 57. ALL STRUCTURAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT THE LIMITS OF CONSTRUCTION AND AT AREAS WITH DISTURBED SOIL, ON- OR OFF-SITE, PRIOR TO ANY OTHER GROUND-DISTURBING ACTIVITY. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN GOOD REPAIR, UNTIL SUCH TIME AS THE ENTIRE DISTURBED AREAS IS STABILIZED WITH HARD SURFACE OR LANDSCAPING. TO MITIGATE EROSION, UTILIZE STANDARD EROSION CONTROL TECHNIQUES DESCRIBED IN THE URBAN STORM DRAINAGE CRITERIA MANUAL, VOLUME 3 -BEST MANAGEMENT PRACTICES, AS PUBLISHED BY THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT (UDFCD).
- 58. PRE-DISTURBANCE VEGETATION SHALL BE PROTECTED AND RETAINED WHEREVER POSSIBLE. REMOVAL OR DISTURBANCE OF EXISTING VEGETATION SHALL BE LIMITED TO THE AREA(S) REQUIRED FOR IMMEDIATE CONSTRUCTION OPERATIONS, AND FOR THE SHORTEST
- 59. IMMEDIATELY CLEAN UP ANY CONSTRUCTION MATERIALS INADVERTENTLY DEPOSITED ON EXISTING STREETS, SIDEWALKS, OR OTHER PUBLIC RIGHTS OF WAY, AND MAKE SURE STREETS AND WALKWAYS ARE CLEANED AT THE END OF EACH WORKING DAY.
- 60. ALL RETAINED SEDIMENTS, PARTICULARLY THOSE ON PAVED ROADWAY SURFACES, SHALL BE REMOVED AND DISPOSED OF IN A MANNER AND LOCATION SO AS NOT TO CAUSE THEIR RELEASE INTO ANY WATERS OF THE UNITED STATES.
- 61. THE STORMWATER VOLUME CAPACITY OF DETENTION PONDS WILL BE RESTORED AND STORM SEWER LINES WILL BE CLEANED UPON
- 62. THE COLORADO DISCHARGE PERMIT SYSTEM (CDPS) REQUIREMENTS MAKE IT UNLAWFUL TO DISCHARGE OR ALLOW THE DISCHARGE OF ANY POLLUTANT OR CONTAMINATED WATER FROM CONSTRUCTION SITES. POLLUTANTS INCLUDE, BUT ARE NOT LIMITED TO DISCARDED BUILDING MATERIALS, CONCRETE TRUCK WASHOUT, CHEMICALS, OIL AND GAS PRODUCTS, LITTER, AND SANITARY WASTE. TAKE WHATEVER MEASURES ARE NECESSARY TO ASSURE THE PROPER CONTAINMENT AND DISPOSAL OF POLLUTANTS ON THE SITE IN ACCORDANCE WITH ANY AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
- 63. THE DRAINAGE REPORT SHALL BE REFERENCED WHEN PREPARING THE PROJECT'S STORMWATER MANAGEMENT PLAN. A DRAINAGE REPORT FOR THIS PROJECT WAS COMPLETED BY LANDMARK CONSULTANTS TITLED "TBD" AND IS DATED "TBD".

# C. PAVING

COMPLETION OF THE PROJECT.

# 64. UNLESS NOTED OTHERWISE, THE PAVEMENT SECTION SHALL CONSIST OF:

- A. 8-INCH THICK AGGREGATE SUBBASE COURSE: MODIFIED CDOT STANDARD CLASS 3 BASE AGGREGATE OR WELL GRADED PIT RUN CONFORMING TO CDOT STANDARD SPECIFICATION SECTION 703 FOR AGGREGATES.
- B. 4-INCH THICK AGGREGATE BASE COURSE: CDOT STANDARD SPECIFICATIONS SECTION 703.03 FOR CLASS 6 AGGREGATE BASE COURSE; C. 4-INCH THICK ASPHALT PAVEMENT: CDOT STANDARD SPECIFICATIONS, LATEST EDITION, WITH TYPE SX GRADATION AND PG58-28 BINDER. TACK COATS SHALL BE SS-1H AND CONFORM TO AASHTO M140.PAVING OF PUBLIC STREETS SHALL NOT START UNTIL SUBGRADE COMPACTION AND MATERIAL TESTS ARE TAKEN AND ACCEPTED BY THE PUBLIC WORKS DIRECTOR.
- 65. EXISTING ASPHALT PAVEMENT SHALL BE STRAIGHT SAW CUT A MINIMUM DISTANCE OF 12 INCHES FROM THE EXISTING EDGE, TO CREATE A CLEAN CONSTRUCTION JOINT. REMOVE EXISTING PAVEMENT TO A DISTANCE WHERE A CLEAN CONSTRUCTION JOINT CAN BE MADE. TACK COAT SHALL BE APPLIED TO ALL EXPOSED SURFACES INCLUDING SAW CUTS, POTHOLES, TRENCHES, AND ASPHALT OVERLAY. ASPHALT PATCHES IN THE RIGHT-OF-WAY SHALL BE PER CITY SPECIFICATIONS.
- 66. CONTACT CITY STREETS SUPERINTENDENT AT (970) 879-1807 TO SCHEDULE INSTALLATION OF PUBLIC STREET SIGNS. ALL OTHER TRAFFIC CONTROL SIGNS ARE THE RESPONSIBILITY OF THE DEVELOPER.
- 67. NO BASE MATERIAL SHALL BE LAID UNTIL THE SUBGRADE HAS BEEN INSPECTED AND APPROVED BY THE ENGINEER.
- 68. VALVE BOXES, CLEANOUTS AND MANHOLES ARE TO BE BROUGHT UP TO GRADE AT THE TIME OF PAVEMENT PLACEMENT OR OVERLAY. VALVE **BOX ADJUSTING**
- 69. WHEN AN EXISTING ASPHALT STREET MUST BE CUT, THE STREET MUST BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. THE EXISTING STREET CONDITION SHALL BE DOCUMENTED BY THE ENGINEER BEFORE ANY CUTS ARE MADE. THE FINISHED PATCH SHALL BLEND SMOOTHLY INTO THE EXISTING SURFACE.
- 70. PERFORM A GUTTER WATER FLOW TEST IN THE PRESENCE OF THE ENGINEER AND PRIOR TO INSTALLATION OF ASPHALT, GUTTERS THAT

HOLD MORE THAN 1/4

INCH DEEP OR 5 FEET LONGITUDINALLY, OF WATER, SHALL BE COMPLETELY REMOVED AND RECONSTRUCTED TO DRAIN PROPERLY.

71. PRIOR TO PLACEMENT OF H.B.P. OR CONCRETE WITHIN THE STREET AND AFTER MOISTURE/DENSITY TESTS HAVE BEEN TAKEN ON THE SUBGRADE MATERIAL (WHEN A FULL DEPTH SECTION IS PROPOSED) OR ON THE SUBGRADE AND BASE MATERIAL (WHEN A COMPOSITE SECTION IS PROPOSED), A MECHANICAL "PROOF ROLL" WILL BE REQUIRED. THE ENTIRE SUBGRADE AND/OR BASE MATERIAL SHALL BE ROLLED WITH A HEAVILY LOADED VEHICLE HAVING A TOTAL GVW OF NOT LESS THAN 50,000 LBS. AND A SINGLE AXLE WEIGHT OF AT LEAST 18,000 LBS. WITH PNEUMATIC TIRES INFLATED TO NOT LESS THAT 90 P.S.I.G. "PROOF ROLL" VEHICLES SHALL NOT TRAVEL AT SPEEDS GREATER THAN 3 M.P.H. ANY PORTION OF THE SUBGRADE OR BASE MATERIAL WHICH EXHIBITS EXCESSIVE PUMPING OR DEFORMATION. AS DETERMINED BY THE ENGINEER, SHALL BE REWORKED, REPLACED OR OTHERWISE MODIFIED TO FORM A SMOOTH, NON-YIELDING SURFACE. THE ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO THE "PROOF ROLL." ALL "PROOF ROLLS" SHALL BE PREFORMED IN THE PRESENCE OF AN

72. NO UNDERMINING OF EXISTING PAVEMENT SHALL BE ALLOWED. IF UNDERMINING IS EVIDENT, PAVEMENT SHALL BE CUT BACK ACCORDINGLY. NO ADDITIONAL PAYMENT SHALL BE PROVIDED.

#### D. WATER AND SEWER NOTES

- 79. ALL WATER AND SEWER CONSTRUCTION SHALL BE PER MT. WERNER WATER STANDARD SPECIFICATIONS, LATEST EDITION, AS APPLICABLE.
- 80. MAINTAIN 10' HORIZONTAL AND 18" VERTICAL MINIMUM SEPARATION BETWEEN ALL SANITARY SEWER MAINS, WATER MAINS & SERVICES.
- 81. MANHOLES LOCATED OUTSIDE OF THE ROADWAY SHALL PROTRUDE 1' ABOVE EXISTING GRADE TO REDUCE INFILTRATION. GRADE SURFACE TO DRAIN AROUND/AWAY FROM MANHOLE RIMS.
- 82. ALL MANHOLES LOCATED IN THE ROADWAY SHALL HAVE RIM ELEVATIONS ADJUSTED TO 1/4" BELOW FINISHED GRADE. IF NECESSARY, CONE ECTIONS SHALL BE ROTATED TO PREVENT LIDS BEING LOCATED WITHIN VEHICLE OR BICYCLE WHEEL PATHS.
- 83. SEWER SERVICE SHALL HAVE A MINIMUM OF 4-FT OF COVER.
- 84. WATER SERVICE SHALL HAVE A MINIMUM OF 7-FT OF COVER.
- 85. ALL WATER PIPE SHALL BE INSTALLED WITH A #10 SOLID COPPER WIRE COATED WITH 45 MIL POLYETHYLENE FOR LOCATING PURPOSES "GLENN TEST STATIONS" BY VALVCO, INC TRACER WIRE TEST STATIONS SHALL BE INSTALLED ADJACENT TO ALL FIRE HYDRANTS. ADDITIONAL
- 86. THE PARTICLE SIZE OF BEDDING AND SHADING MATERIAL SHALL BE 3/4 INCH WASHED OR SCREENED ROCK (NOT ROAD BASE OR CLASS 6) AND SHALL EXTEND THE FULL WIDTH OF THE TRENCH.
- 87. ALL MATERIALS USED FOR BACKFILL SHALL BE FREE FROM REFUSE ORGANIC MATERIAL, COBBLES, BOULDERS, LARGE ROCKS OR STONES OR
- 88. ALL TRENCHES SHALL BE COMPACTED TO 95% AS DETERMINED BY ASTM D698 (STANDARD PROCTOR) OR AS SPECIFIED BY GEOTECHNICAL ENGINEER.

### **PROJECT NOTES:**

- 89. AN AUTOCAD COMPATIBLE FILE WILL BE PROVIDED FOR CONSTRUCTION STAKING PURPOSES, UPON ACCEPTANCE OF LANDMARK'S CAD
- 90. IF THESE DRAWINGS ARE PRESENTED IN A FORMAT OTHER THAN 24" X 36", THE GRAPHIC SCALE SHOULD NOT BE USED.
- 91. THE CONTRACTOR ACKNOWLEDGES AND UNDERSTANDS THAT THE CONTRACT DOCUMENTS MAY REPRESENT IMPERFECT DATA AND MAY CONTAIN ERRORS, OMISSIONS, CONFLICTS, INCONSISTENCIES, CODE VIOLATIONS AND IMPROPER USE OF MATERIALS. SUCH DEFICIENCIES WILL BE CORRECTED WHEN IDENTIFIED. THE CONTRACTOR AGREES TO CAREFULLY STUDY AND COMPARE THE INDIVIDUAL CONTRACT DOCUMENTS AND REPORT AT ONCE IN WRITING T THE OWNER ANY DEFICIENCIES THE CONTRACTOR MAY DISCOVER. THE CONTRACTOR FURTHER AGREES TO REQUIRE EACH SUBCONTRACTOR TO LIKEWISE STUDY THE DOCUMENTS AND REPORT AT ONCE ANY DEFICIENCIES

THE CONTRACTOR SHALL RESOLVE ALL REPORTED APPLICABLE DEFICIENCIES WITH LANDMARK PRIOR TO AWARDING ANY SUBCONTRACTS OR STARTING ANY WORK WITH THE CONTRACTOR'S OWN EMPLOYEES. IF ANY DEFICIENCIES CANNOT BE RESOLVED BY THE CONTRACTOR WITHOUT ADDITIONAL TIME OR ADDITIONAL EXPENSES. THE CONTRACTOR SHALL SO INFORM THE OWNER IN WRITING, ANY SUCH ADDITIONAL WORK PERFORMED PRIOR TO RECEIPT OF INSTRUCTIONS FROM THE OWNER WILL BE DONE AT THE CONTRACTOR'S RISK.

### **CONSTRUCTION PHASE SERVICES:**

IT IS UNDERSTOOD AND AGREED THAT LANDMARK DOES NOT HAVE AN OBLIGATION TO CONDUCT CONSTRUCTION OBSERVATION OR REVIEW OF THE CONTRACTOR'S PERFORMANCE OR ANY OTHER CONSTRUCTION PHASE SERVICES, AND THAT SUCH SERVICES WILL BE PROVIDED FOR BY THE OWNER AS MAY BE REQUIRED BY THE AUTHORITY HAVING JURISDICTION/CITY OF STEAMBOAT SPRINGS. THE OWNER ASSUMES ALL RESPONSIBILITY FOR INTERPRETATION OF THESE CONSTRUCTION DOCUMENTS AND FOR CONSTRUCTION OBSERVATION AND THE OWNER WAIVES ANY CLAIMS AGAINST LANDMARK THAT MAY BE IN ANY WAY CONNECTED THERETO.

IN ADDITION, THE OWNER AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LANDMARK, ITS OFFICERS, DIRECTORS, EMPLOYEES AND SUBCONSULTANTS (COLLECTIVELY LANDMARK) AGAINST ALL DAMAGES, LIABILITIES OR COSTS INCLUDING REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PERFORMANCE OF SUCH SERVICES BY OTHER PERSONS OR ENTITIES AND FROM ANY AND ALL CLAIMS ARISING FROM MODIFICATIONS, CLARIFICATIONS, INTERPRETATIONS, ADJUSTMENTS OR CHANGES MADE TO THESE CONSTRUCTION DOCUMENTS TO REFLECT CHANGED FIELD OR OTHER CONDITIONS, EXCEPT FOR CLAIMS ARISING FROM THE SOLE NEGLIGENCE OR WILLFUL MISCONDUCT OF LANDMARK.

AMERICAN'S WITH DISABILITIES ACT ADA APPROXIMATE APR BEST MANAGEMENT PRACTICE BOTTOM **BVCS** BEGIN VERTICAL CURVE STATION **BVCE** BEGIN VERTICAL CURVE ELEVATION BW OR BOW BOTTOM OF WALL C&C CUT & CAPPED

CAP CORRUGATED ALUMINUM PIPE CIP CAST-IN-PLACE CENTERLINE CMP CORRUGATED METAL PIPE C.O. CLEAN OUT

CONCRETE PIPE CSP CORRUGATED STEEL PIPE DIA DIAMETER DUCTILE IRON PIPE EXISTING GROUND FI EVATION

EOA OR EA

INV

MAX

NAP OR N.A.P.

EOC EDGE OF CONCRETE EOP EDGE OF PAVEMENT **EVCE** END VERTICAL CURVE ELEVATION

EDGE OF ASPHALT

END VERTICAL CURVE STATION **EVCS** EXISTING F&G FRAME & GRATE F&C FRAME & COVER FLARED END SECTION FES

FFE FINISH FLOOR ELEVATION FIRE HYDRANT FLOW LINE

FINISH GRADE FINISH GRADE AT BOTTOM OF WALL

GB GRADE BREAK **GFFE** GARAGE FINISH FLOOR ELEVATION GTD GRADE TO DRAIN HDPE HIGH DENSITY POLYETHYLENE PIPE

INVERT

LBS POUNDS LIMITS OF DISTURBANCE LOD M/E/P MECHANICAL, ELECTRIC, AND PLUMBING

MAXIMUM

NOT A PART (NOT INCLUDED IN SCOPE)

MATCH EXISTING MANHOLE MIN MINIMUM MECHANICAL JOINT

NOT TO SCALE NTS OFF OFFSET POINT OF CURVE POINT OF INTERSECTION

POINT OF CONCAVE CURVE PLDP POROUS LANDSCAPE DETENTION POND POINT OF REVERSE CURVE POINT OF TANGENT PVC POINT OF VERTICAL CURVE

POLYVINYL CHLORIDE PIPE PVC POINT OF VERTICAL INTERSECTION PVT POINT OF VERTICAL TANGENT

REINFORCED CONCRETE PIPE REQ REQUIRED ROW RIGHT OF WAY STA STATION THRUST BLOCK TOP BACK OF CURE TO BE REMOVED TOP OF GRATE TOP OF PIPE

> TAPERED TO GRADE TW OR TOW TOP OF WALL TYP TYPICAL VCP VITRIFIED CLAY PIPE VOL VOLUME

> > WITH

CALL UTILITY NOTIFICATION CENTER OF

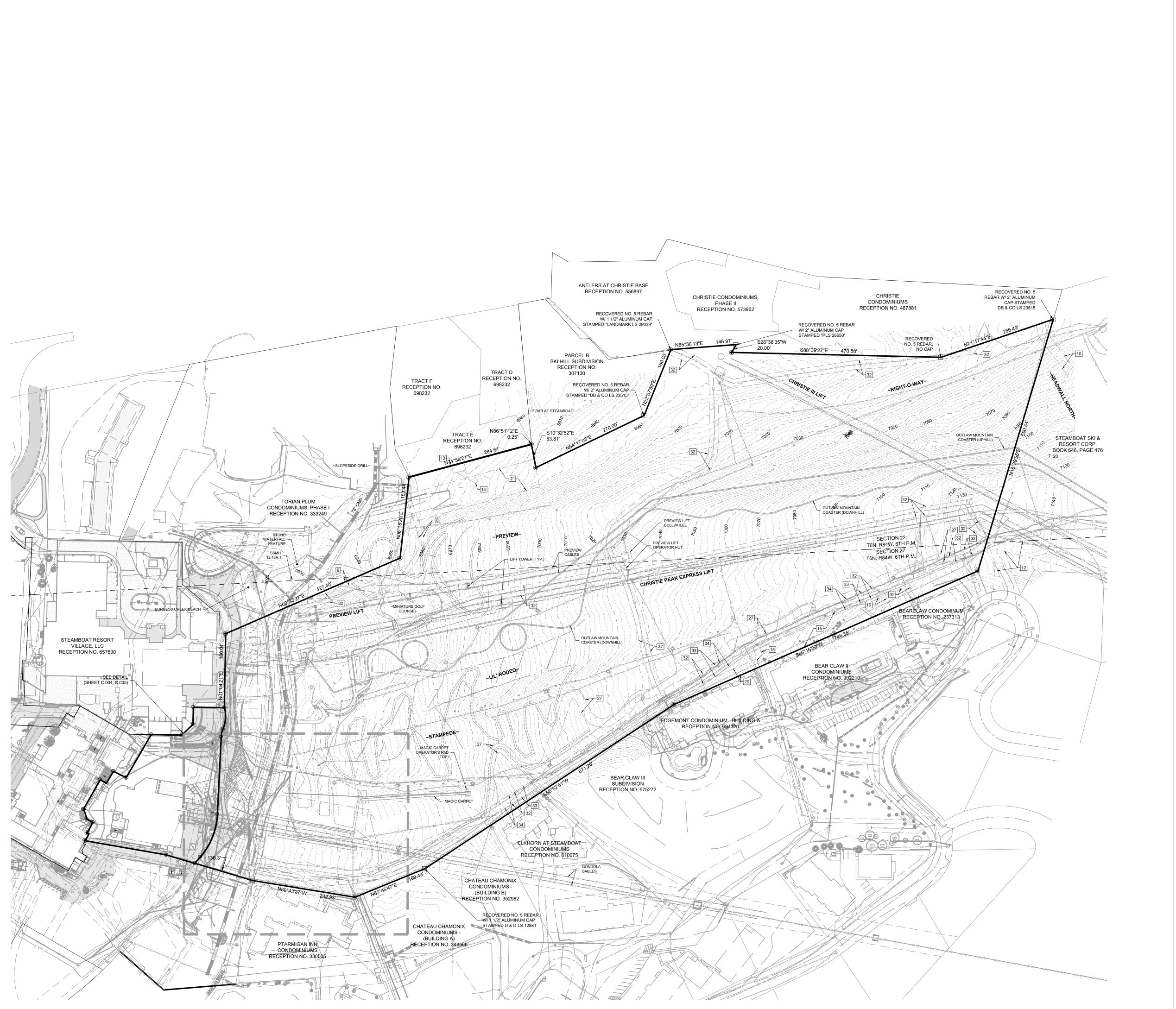
Know what's **below**...

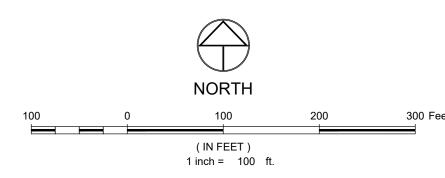
DIG. GRADE, OR EXCAVATE FOR THE MARKING OF

**ABBREVIATIONS** 

NOT VALID WITHOUT ORIGINAL SIGNATURE AND DATE

Call before you dig. LL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU





BUILDING ROOF LINE/OVERHANG DECK WALL FENCE \_\_\_\_ x \_\_\_\_ x \_\_\_\_ x \_\_\_\_ x \_\_\_\_ MAJOR CONTOUR \_\_\_\_\_ MINOR CONTOUR ASPHALT CONCRETE GRAVEL WOOD DECKING SANITARY SEWER LINE MARKER MANHOLE AND CLEANOUT SEPTIC TANK LID AND VENT PIPE WATER LINE MAKER, FIRE HYDRANT GATE VALVE, CURB STOP & BLOWOFF FIRE DEPT. CONNECTION, YARD HYDRANT, VENT PIPE, WATER MANHOLE AND WELL GAS LINE MARKER, VALVE,  $\forall$  XG  $\Rightarrow$  XG  $\Rightarrow$  XG  $\Rightarrow$  XG  $\Rightarrow$  XG MANHILE/VAULT AND METER CABLE LINE MARKER, VAULT AND PEDESTAL FIBER OPTIC LINE MARKER, VAULT & PEDESTAL SATELLITE DISH TELEPHONE LINE MARKER, VAULT, PEDESTAL AND MANHOLE ELECTRIC LINE MARKER, TRANSFORMER, METER AND SECONDARY PEDESTAL SNOW MELT DISTRIBUTION LINE AND VAULT SNOW MAKING WATER MAIN ELECTRIC MANHOLE, OUTLET, GEN EJ GENERATOR AND JUNCTION BOX LIGHT POLE AND LIGHT POLE W/ MAST **♦** ★ PROPOSED DITCH / SWALE UTILITY POLE, GUY POLE & GUY WIRE EXIST #" STORM/CULVERT, END SECTION WITH RIPRAP

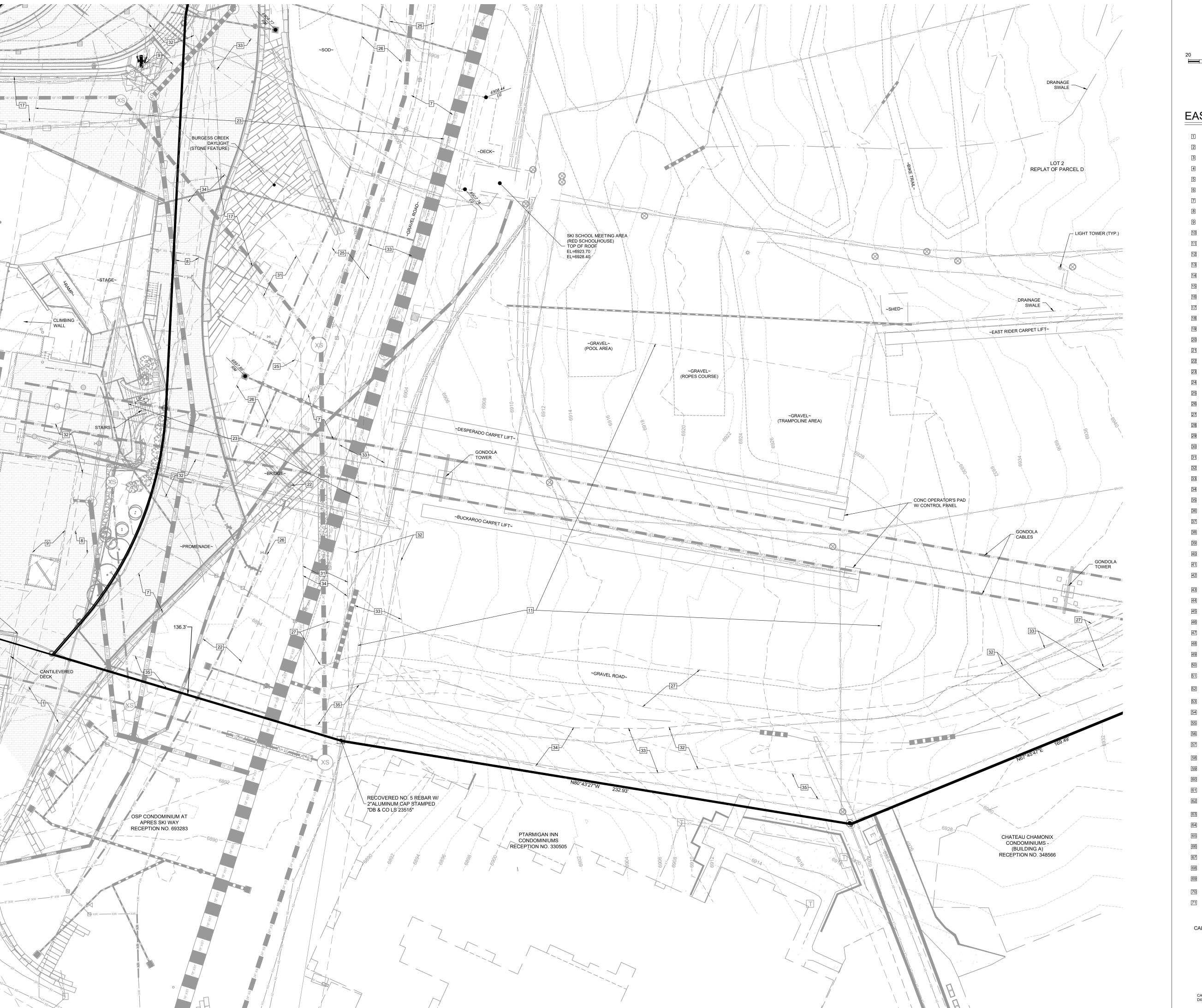
- ALL REFERENCES HEREON TO BOOKS, PAGES, FILES, RECEPTION NUMBERS AND FILE NUMBERS ARE TO PUBLIC DOCUMENTS FILED IN THE RECORDS OF ROUTT COUNTY,
- EASEMENTS AND PUBLIC DOCUMENTS SHOWN OR NOTED HEREON WERE EXAMINED AS TO LOCATION AND PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS,
- CONDITIONS, OBLIGATIONS, TERMS, OR AS TO THE RIGHT TO GRANT THE SAME. UTILITIES ARE SHOWN PER APPARENT SURFACE EVIDENCE TOGETHER WITH RECORD INFORMATION. IF MORE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES ARE REQUIRED,

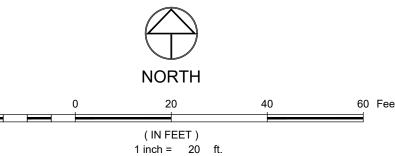
THE UTILITY WILL HAVE TO BE VERIFIED BY FIELD POTHOLING. LANDMARK CONSULTANTS, INC. AND THE SURVEYOR OF RECORD SHALL NOT BE LIABLE FOR THE LOCATION OF OR THE

- FAILURE TO NOTE THE LOCATION OF NON-VISIBLE UTILITIES. BASIS OF BEARINGS: THE WEST LINE OF THE NW1/4 SECTION 27, T6N, R84W, 6TH P.M., BEING MONUMENTED AS SHOWN HEREON AND BEING ASSUMED TO BEAR S01°46'00"W. BEARINGS
- SHOWN HEREON HAVE BEEN ROTATED 00°01'53" COUNTER CLOCKWISE FROM RECORD
- ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR PURSUANT TO STATE STATUTE 18-4-508, C.R.S.
- THIS SITE CONTAINS A CALCULATED AREA OF 28.18 ACRES. THE MEASURED DISTANCES SHOWN HEREON ARE IN U.S. SURVEY FEET.
- ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.
- LOT 2, PARCEL D, SKI HILL SUBDIVISION, TOWN OF STEAMBOAT SPRINGS, ROUTT COUNTY, COLORADO PER FILE #14469 IN ROUTT COUNTY RECORDS.

CALL UTILITY NOTIFICATION CENTER OF







# EASE

MENT LEG	YEND:
IVIENT LEC	
RECEPTION NO. 693016:	20' ACCESS EASEMENT EAST HOTEL ACROSS OSP
BOOK 729, PAGE 339, RECE	EPTION NO. 746875: BUDDY'S RUN DECK ENCROACHMENT EASEMENT
RECEPTION NO. 693287:	INTERFACE EASEMENT
RECEPTION NO. 693287:	INTERFACE EASEMENT, REVOCABLE PORTION
BOOK 532, PAGE 820:	10' SANITARY SEWER EASEMENT
RECEPTION NO. 693286:	PARKING, ACCESS & MAINTENANCE EASEMENT
BOOK 729, PAGE 338, RECE AS AMENDED BY RECEPTION	EPTION NO. 687253, RECEPTION NO. 705974: EAST HOTEL ACCESS EASEMENT DN NO
BOOK 634, PAGE 49:	10' PEDESTRIAN AND BICYCLE PATH EASEMENT
RECEPTION NO. 307130, FI	LE NO 8823: 12' PEDESTRIAN EASEMENT
BOOK 374, PAGE 345, BOOK	C 376, PAGE 318, RECEPTION NO. 770696: 20' WATER LINE EASEMENT
BOOK 337, PAGE 337:	PERPETUAL VISUAL EASEMENT
BOOK 393, PAGE 509 & BOO	DK 395, PAGE 376: ROAD EASEMENT
BOOK 412, PAGE 341:	ENTRYWAY EASEMENT
BOOK 412, PAGE 343:	ACCESS EASEMENT
BOOK 580, PAGE 70, RECEI EASEMENT (BEAR CLAW II)	PTION NO. 727257, RECEPTION NO. 727903: LANDSCAPING AND ACCESS
BOOK 745, PAGE 286:	20' SEWER EASEMENT
RECEPTION NO. 673610, RE	ECEPTION NO. 705975, RECEPTION NO. 789275: SEWER EASEMENT
RECEPTION NO.s 673610 &	705975: SEWER EASEMENT RELOCATION AREA
RECEPTION NO. 789275:	SEWER ENCROACHMENT AREA
RECEPTION NO. 678035:	FIRE SEPARATION EASEMENT
RECEPTION NO. 692162:	SKI EASEMENT
RECEPTION NO. 693153:	WATER MAINS EASEMENT
RECEPTION NO. 699297, REPUBLIC IMPROVEMENTS EA	ECEPTION NO. 749729, RECEPTION NO. 702319, RECEPTION NO. 713742: ASEMENT (HATCHED)
RECEPTION NO. 699297, RE	ECEPTION NO. 713742: PUBLIC IMPROVEMENTS EASEMENT (BOILER HOUSE)
DECEDION NO. 000700.	CENTED MAINIC FACEMENT

RECEPTION NO. 699721: WATER MAINS EASEMENT RECEPTION NO. 718939, RECEPTION NO. 733617: PUBLIC IMPROVEMENTS EASEMENT (LITTLE P RECEPTION NO. 728342: ACCESS AND LANDSCAPE EASEMENT

BOOK 583, PAGE 238 & RECEPTION NO. 693278: ACCESS EASEMENT (1ST AMENDMENT EAST HOTEL RECEPTION NO. 699296: STORM SEWER & ACCESS AND MAINTENANCE EASEMENT

RECEPTION NO. 693152: SANITARY SEWER EASEMENT RECEPTION NO. \_\_\_\_\_: ELECTRIC EASEMENT RECEPTION NO. \_\_\_\_\_: GAS EASEMENT

BOOK 532, PAGE 756: TELEPHONE EASEMENT BOOK 601, PAGE 648: 10' BICYCLE AND PEDESTRIAN EASEMENT

RECEPTION NO. 789276: DECK EASEMENT AGREEMENT

RECEPTION NO. 699720: SEWER MAINS EASEMENT

BOOK 629, PAGE 832: PEDESTRIAN ACCESS EASEMENT BOOK 532, PAGE 820, BOOK 532, PAGE 774: 10' SANITARY SEWER EASEMENT

BOOK 760, PAGE 976: BUILDING ENCROACHMENT EASEMENT

RECEPTION NO. 513746 (FILE NO. 12770); RECEPTION NO. 307130 (FILE NO. 8823): STORM SEWER BOOK 532, PAGE 758: 16' TELEPHONE EASEMENT

BOOK 596, PAGE 1611: EXCLUSIVE PARKING SPACES; ENTRANCE FROM ACCESS ROUTE NO. 1; ENTRANCE FROM ACCESS ROUTE NO.2; VEHICULAR AND PEDESTRIAN INGRESS AND EGRESS ACCESS EASEMENT (ACCESS ROUTE 2); STORAGE, CLOSET, ELEVATOR & STAIRWAY BOOK 532, PAGE 774: 10' ELECTRIC EASEMENT

BOOK 729, PAGE 342: HOTEL ACCESS EASEMENT RECEPTION NO. 307130: ACCESS EASEMENT SKI HILL SUBDIVISION BOOK 559, PAGE 98: TRUCK TURNAROUND LICENSE AGREEMENT

RECEPTION NO. 693288: INTERFACE EASEMENT RECEPTION NO. 693289: NO BUILD EASEMENT

BOOK 596, PAGE 1487, EX A: BUILDING IMPROVEMENT EASEMENT RECEPTION NO. 600980: AERIAL TRAMWAY EASEMENT

RECEPTION NO. 680175: SHORING EASEMENT AGREEMENT (MULTIPLE EXHIBITS), GONDOLA SQUARE ACCESS EASEMENT, WEST SIDE DRAINAGE EASEMENT, ETC.

RECEPTION NO. 693280: SANITARY SEWER EASEMENT

RECEPTION NO. 693283: PEDESTRIAN ACCESS EASEMENT OSP

BOOK 532, PAGE 802: 10' WATERLINE EASEMENT RECEPTION NO. 693285: PATIO EASEMENT, DOORWAY EASEMENT, ENTRY EASEMENTS

RECEPTION NO. 693283: EMERGENCY ACCESS EASEMENT OSP RECEPTION NO. 693290: SKI AREA EASEMENT, STORM SEWER & DRAINAGE EASEMENT, RECIPROCAL UTILITY EASEMENT, GONDOLA SQUARE ACCESS EASEMENT

RECEPTION NO. 693016, BOOK 729, PAGE 338: AGREEMENT (ACCESS TO EASTERN SIDE RECEPTION NO. 693278: DECLARATION OF EASEMENT

RECEPTION NO. 600979: ACCESS EASEMENT BOOK 596, PAGE 1487, EX C-7: WALKWAY EASEMENT

RECEPTION NO. 596269, BOOK 596, PAGE 1487, EX C-8 AND C-9: STORM SEWER LINE EASEMENT AND STORM LINE EASEMENT

BOOK 358, PAGE 473: PRIVATE RIGHT-OF-WAY RECEPTION NO. 661066: OSP EASEMENT AREA

RECEPTION NO. 693018: RIGHT OF WAY EASEMENT (ELECTRIC)

RECEPTION NO. 693279: SNOWMAKING LINE EASEMENT BOOK 583, PAGE 238: 30' ACCESS EASEMENT

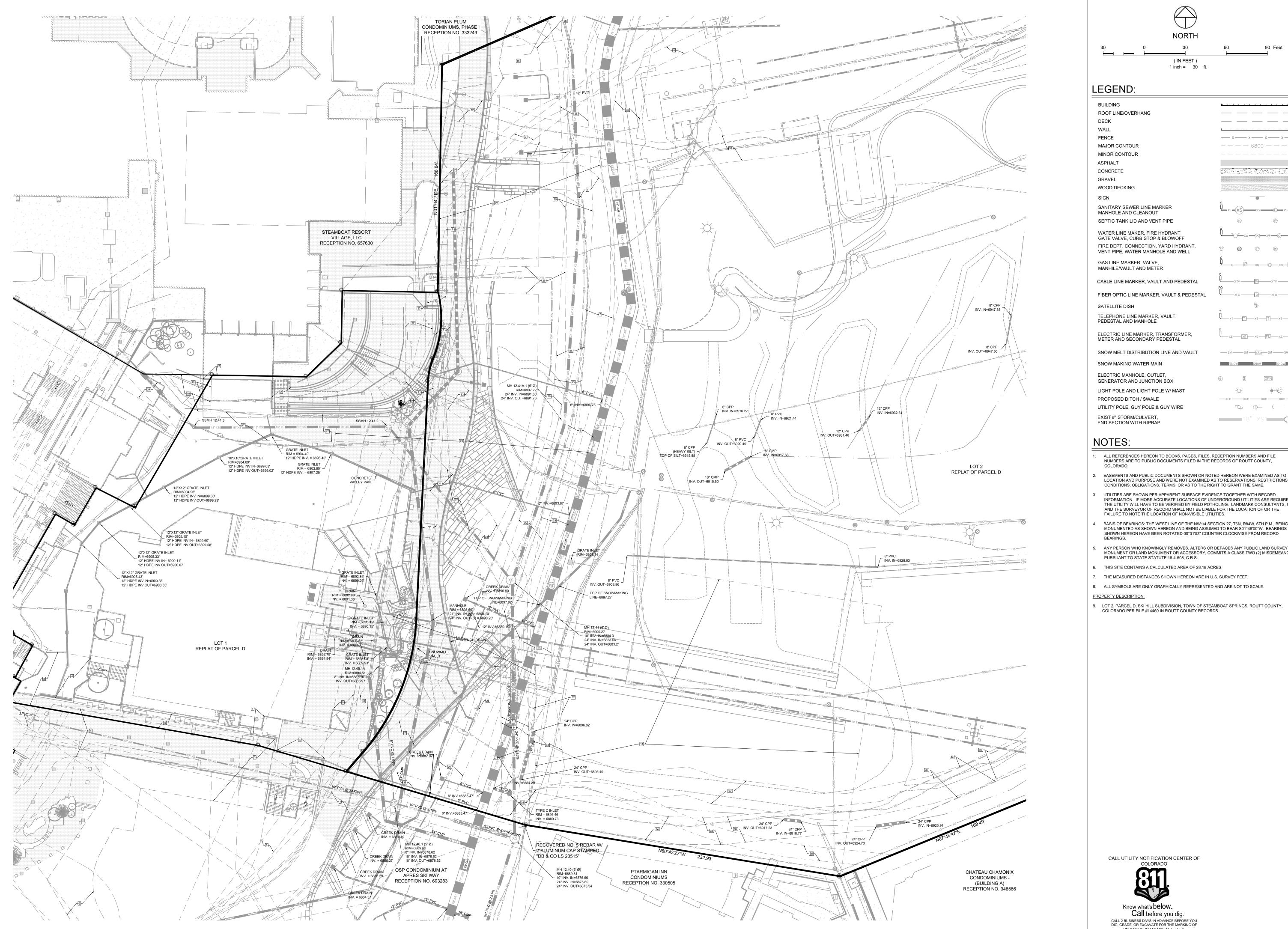
BOOK 519, PAGE 577: 10' TELEPHONE EASEMENT BOOK 729, PAGE 343: HOTEL BRIDGE ACCESS, PEDESTRIAN AND EMERGENCY AND

MAINTENANCE VEHICLE ACCESS BOOK 532, PAGE 782: ELECTRIC EASEMENT

# CALL UTILITY NOTIFICATION CENTER OF



Know what's **below.** Call before you dig. CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF

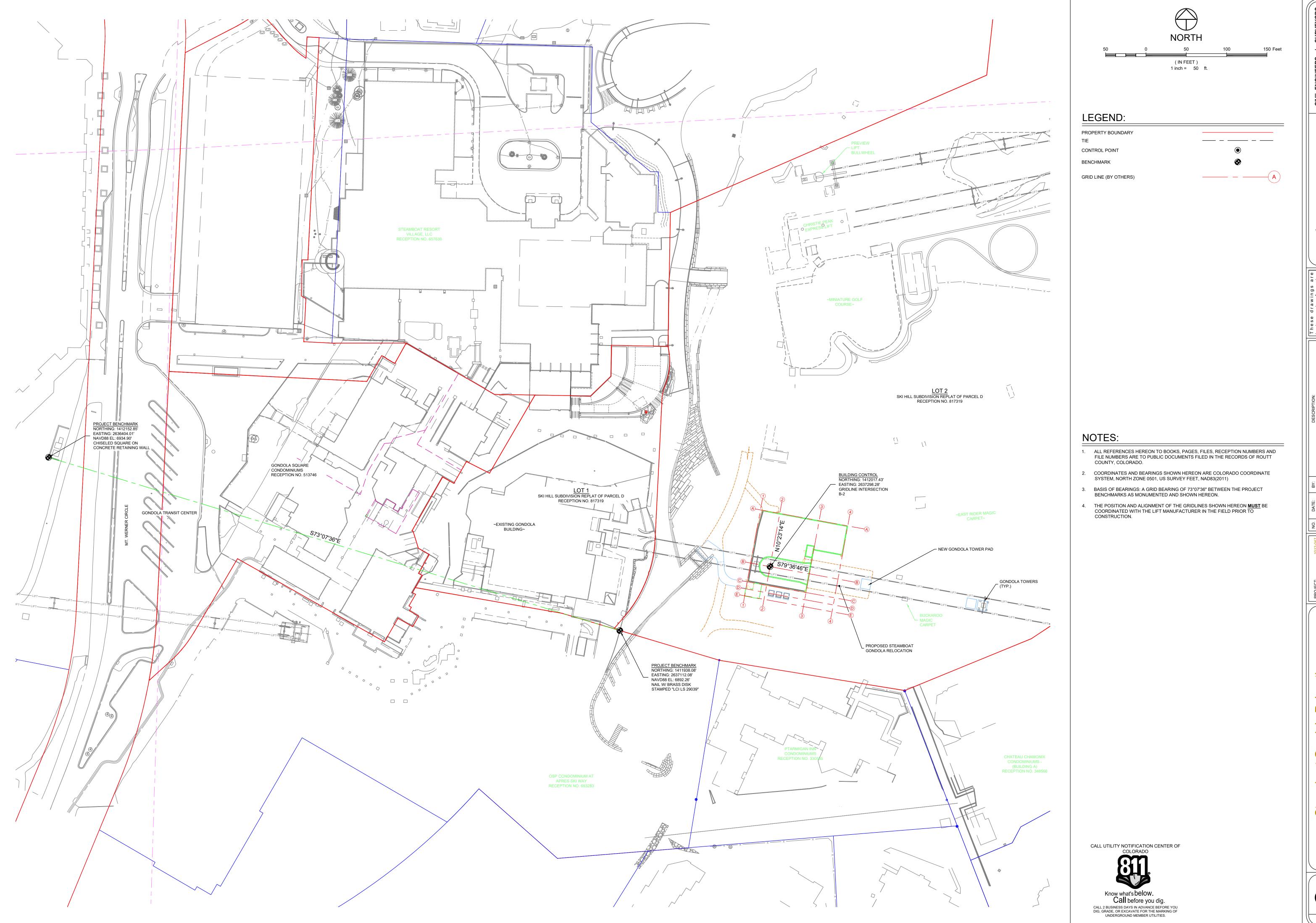


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- ALL REFERENCES HEREON TO BOOKS, PAGES, FILES, RECEPTION NUMBERS AND FILE NUMBERS ARE TO PUBLIC DOCUMENTS FILED IN THE RECORDS OF ROUTT COUNTY,
- LOCATION AND PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS,

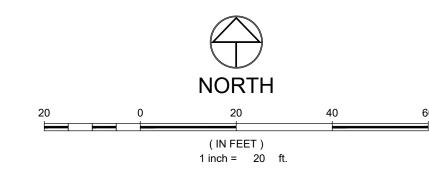
18" XST

- UTILITIES ARE SHOWN PER APPARENT SURFACE EVIDENCE TOGETHER WITH RECORD INFORMATION. IF MORE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES ARE REQUIRED, THE UTILITY WILL HAVE TO BE VERIFIED BY FIELD POTHOLING. LANDMARK CONSULTANTS, INC.
- BASIS OF BEARINGS: THE WEST LINE OF THE NW1/4 SECTION 27, T6N, R84W, 6TH P.M., BEING MONUMENTED AS SHOWN HEREON AND BEING ASSUMED TO BEAR S01°46'00"W. BEARINGS SHOWN HEREON HAVE BEEN ROTATED 00°01'53" COUNTER CLOCKWISE FROM RECORD
- ANY PERSON WHO KNOWINGLY REMOVES, ALTERS OR DEFACES ANY PUBLIC LAND SURVEY MONUMENT OR LAND MONUMENT OR ACCESSORY, COMMITS A CLASS TWO (2) MISDEMEANOR
- THIS SITE CONTAINS A CALCULATED AREA OF 28.18 ACRES.
- ALL SYMBOLS ARE ONLY GRAPHICALLY REPRESENTED AND ARE NOT TO SCALE.



ondola Relo Control Steamboat Gor Horizontal





PROPERTY BOUNDARY ADJACENT PROPERTY BOUNDARY MAJOR CONTOUR — — — 6805 — — — — MINOR CONTOUR **PAVERS** CONCRETE HEATED CONCRETE (SNOWMELT) GRAVEL, CRUSHER FINES PROPOSED STORM/CULVERT, INLET, MH, ST END SECTION WITH RIPRAP EXIST #" STORM/CULVERT, INLET, MH, END SECTION WITH RIPRAP PROPOSED CONDUIT/DUCT BANK SANITARY SEWER LINE MARKER MANHOLE AND CLEANOUT WATER LINE MAKER, FIRE HYDRANT GATE VALVE, CURB STOP & BLOWOFF FIRE DEPT. CONNECTION, YARD HYDRANT, VENT PIPE, WATER MANHOLE AND WELL GAS LINE MARKER, VALVE, ---  $\times$ G ---MANHILE/VAULT AND METER CABLE LINE MARKER, VAULT AND PEDESTAL FIBER OPTIC LINE MARKER, VAULT & PEDESTAL SATELLITE DISH TELEPHONE LINE MARKER, VAULT, PEDESTAL AND MANHOLE ELECTRIC LINE MARKER, TRANSFORMER, METER AND SECONDARY PEDESTAL XE—XE—XE—EM—XE— SNOW MELT DISTRIBUTION LINE AND VAULT 

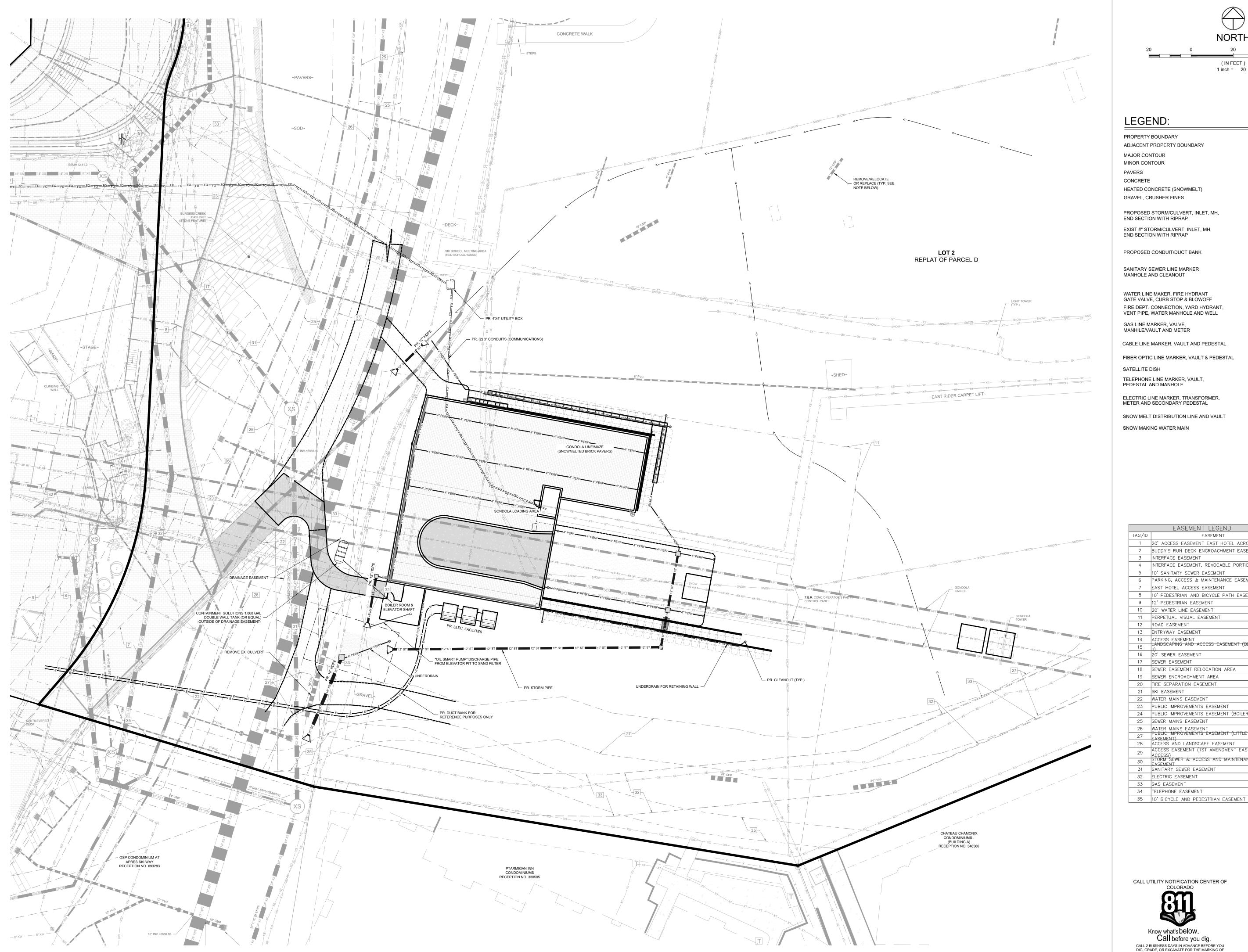
	EASEMENT LEGEND
TAG/ID	EASEMENT
1	20' ACCESS EASEMENT EAST HOTEL ACROSS OSP
2	BUDDY'S RUN DECK ENCROACHMENT EASEMENT
3	INTERFACE EASEMENT
4	INTERFACE EASEMENT, REVOCABLE PORTION
5	10' SANITARY SEWER EASEMENT
6	PARKING, ACCESS & MAINTENANCE EASEMENT
7	EAST HOTEL ACCESS EASEMENT
8	10' PEDESTRIAN AND BICYCLE PATH EASEMENT
9	12' PEDESTRIAN EASEMENT
10	20' WATER LINE EASEMENT
11	PERPETUAL VISUAL EASEMENT
12	ROAD EASEMENT
13	ENTRYWAY EASEMENT
14	ACCESS EASEMENT
15	LANDSCAPING AND ACCESS EASEMENT (BEAR CLAW-
16	20' SEWER EASEMENT
17	SEWER EASEMENT
18	SEWER EASEMENT RELOCATION AREA
19	SEWER ENCROACHMENT AREA
20	FIRE SEPARATION EASEMENT
21	SKI EASEMENT
22	WATER MAINS EASEMENT
23	PUBLIC IMPROVEMENTS EASEMENT
24	PUBLIC IMPROVEMENTS EASEMENT (BOILER HOUSE)
25	SEWER MAINS EASEMENT
26	WATER MAINS EASEMENT
27	PUBLIC IMPROVEMENTS EASEMENT (LITTLE P   LEASEMENT)
28	ACCESS AND LANDSCAPE EASEMENT
29	ACCESS EASEMENT (1ST AMENDMENT EAST HOTEL ACCESS)
30	STORM SEWER & ACCESS AND MAINTENANCE LEASEMENT
31	SANITARY SEWER EASEMENT
32	ELECTRIC EASEMENT
33	GAS EASEMENT
34	TELEPHONE EASEMENT
35	10' BICYCLE AND PEDESTRIAN EASEMENT

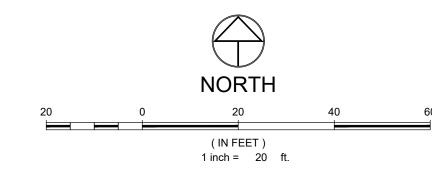
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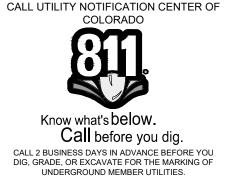




LEGEND: PROPERTY BOUNDARY ADJACENT PROPERTY BOUNDARY MAJOR CONTOUR — — — 6805 — — — — MINOR CONTOUR HEATED CONCRETE (SNOWMELT) GRAVEL, CRUSHER FINES PROPOSED STORM/CULVERT, INLET, MH, END SECTION WITH RIPRAP ST EXIST #" STORM/CULVERT, INLET, MH, END SECTION WITH RIPRAP 18" (ST) PROPOSED CONDUIT/DUCT BANK SANITARY SEWER LINE MARKER XS—XS——XS——©—XS— MANHOLE AND CLEANOUT WATER LINE MAKER, FIRE HYDRANT GATE VALVE, CURB STOP & BLOWOFF FIRE DEPT. CONNECTION, YARD HYDRANT, VENT PIPE, WATER MANHOLE AND WELL GAS LINE MARKER, VALVE, -- xg -- G -- xg -- GMANHILE/VAULT AND METER CABLE LINE MARKER, VAULT AND PEDESTAL FIBER OPTIC LINE MARKER, VAULT & PEDESTAL SATELLITE DISH TELEPHONE LINE MARKER, VAULT, PEDESTAL AND MANHOLE ELECTRIC LINE MARKER, TRANSFORMER, METER AND SECONDARY PEDESTAL XE—XE—XE—EM—XE— SNOW MELT DISTRIBUTION LINE AND VAULT 

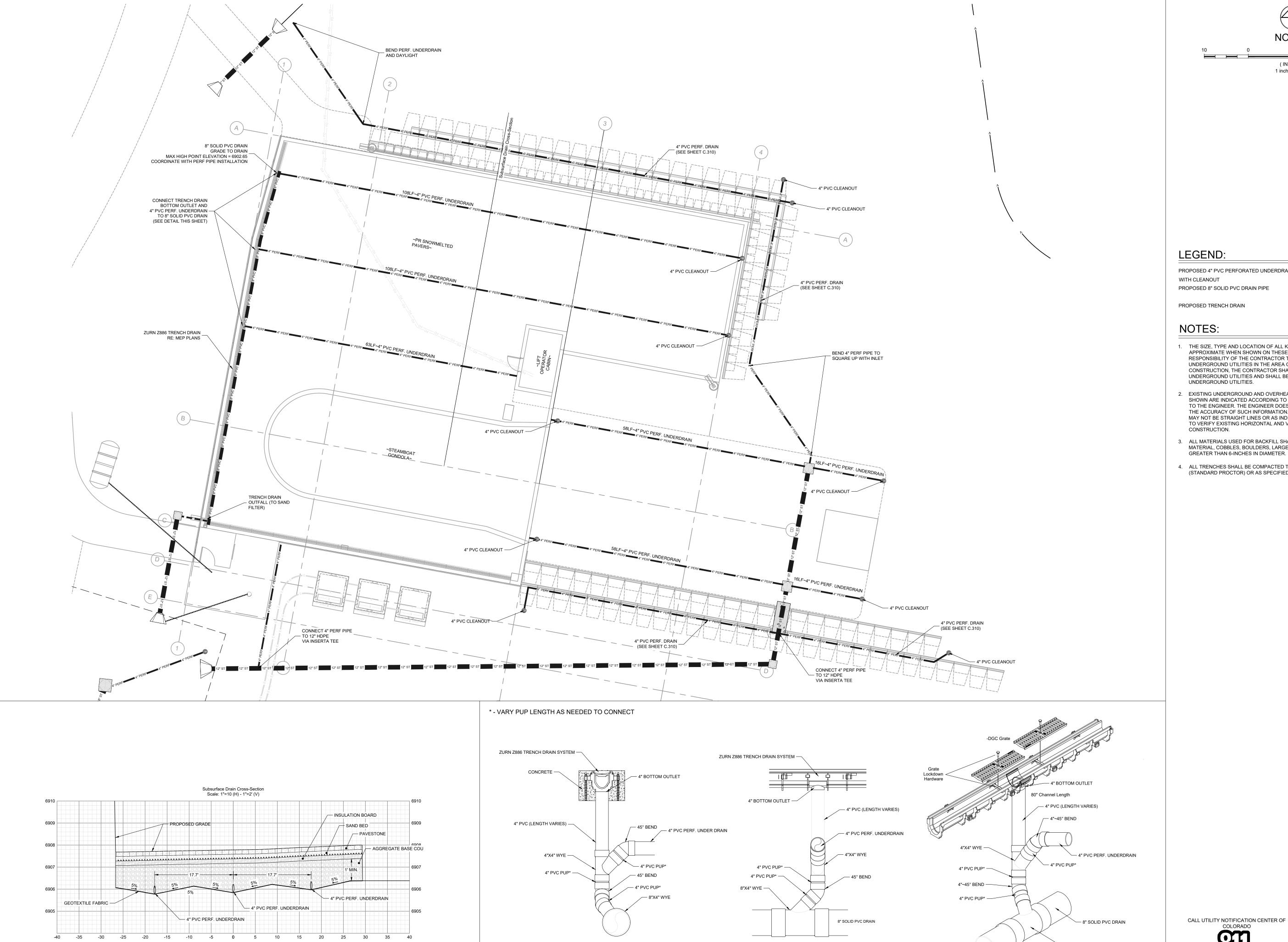
	EASEMENT LEGEND
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31	SANITARY SEWER EASEMENT
32	ELECTRIC EASEMENT
33	GAS EASEMENT
34	TELEPHONE EASEMENT

CALL UTILITY NOTIFICATION CENTER OF





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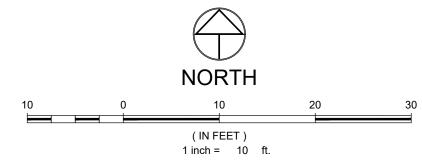


8" SOLID PVC DRAIN CONNECTION DETAIL

FRONT VIEW - N.T.S.

8" SOLID PVC DRAIN CONNECTION DETAIL

SIDE VIEW - N.T.S.



PROPOSED 4" PVC PERFORATED UNDERDRAIN 4" PERF 4" PERF 4" PERF

PROPOSED TRENCH DRAIN

- 1. THE SIZE, TYPE AND LOCATION OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THESE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL UNDERGROUND UTILITIES IN THE AREA OF THE WORK. BEFORE COMMENCING NEW CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES AND SHALL BE RESPONSIBLE FOR ALL UNKNOWN UNDERGROUND UTILITIES.
- 2. EXISTING UNDERGROUND AND OVERHEAD PUBLIC AND PRIVATE UTILITIES AS SHOWN ARE INDICATED ACCORDING TO THE BEST INFORMATION MADE AVAILABLE TO THE ENGINEER. THE ENGINEER DOES NOT GUARANTEE NOR IS RESPONSIBLE FOR THE ACCURACY OF SUCH INFORMATION. EXISTING UTILITY MAINS AND SERVICES MAY NOT BE STRAIGHT LINES OR AS INDICATED ON THESE DRAWINGS. CONTRACTOR TO VERIFY EXISTING HORIZONTAL AND VERTICAL LOCATIONS PRIOR TO CONSTRUCTION.
- 3. ALL MATERIALS USED FOR BACKFILL SHALL BE FREE FROM REFUSE ORGANIC MATERIAL, COBBLES, BOULDERS, LARGE ROCKS OR STONES OR FROZEN SOILS GREATER THAN 6-INCHES IN DIAMETER.
- 4. ALL TRENCHES SHALL BE COMPACTED TO 95% AS DETERMINED BY ASTM D698 (STANDARD PROCTOR) OR AS SPECIFIED BY GEOTECHNICAL ENGINEER.

Steamboat Subsurfa

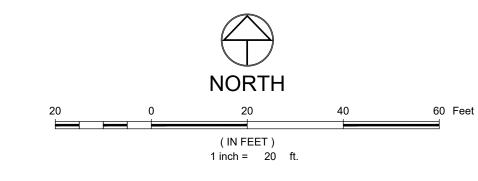


Know what's below. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

8" SOLID PVC DRAIN CONNECTION DETAIL

PERSPECTIVE VIEW - N.T.S.

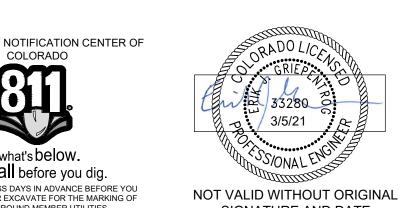


EXISTING STORM SEWER PROPOSED STORM SEWER PROPOSED STORM INLET (CURB & AREA) PROPOSED MAJOR CONTOUR PROPOSED MINOR CONTOUR EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR PROPOSED SWALE PROPOSED CURB & GUTTER PROPERTY BOUNDARY PROPOSED LOT LINE EXISTING RIGHT OF WAY FLOOD HAZARD LIMITS 00.10 PROPOSED SPOT ELEVATION EXISTING SPOT ELEVATION 00.10 X PROPOSED OVERLAND FLOW DIRECTION W/SLOPE PROPOSED CHANNELIZED FLOW DIRECTION W/ SLOPE  $\Leftrightarrow$ EXISTING CHANNELIZED FLOW DIRECTION

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- 3. ELEVATIONS FOR IMPROVEMENTS THAT ARE CONTROLLED BY ADJACENT EXISTING FACILITIES (SUCH AS PROPOSED GUTTERS ALONG EXISTING ASPHALT) MAY REQUIRE ADJUSTMENT BASED ON ACTUAL CONDITIONS. COORDINATE WITH ENGINEER TO ENSURE A CONSISTENT SECTION WITH SMOOTH TRANSITIONS WHERE NECESSARY.
- AND RECOMMENDATIONS.
- 5. ALL CURB SPOTS SHOWN ARE FLOWLINE ELEVATIONS, UNLESS NOTED OTHERWISE. ALL OTHER SPOTS ARE FINISHED GRADE ELEVATIONS.

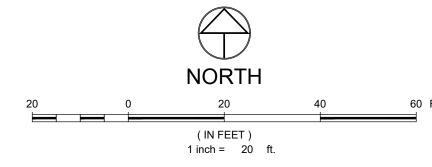
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CALL UTILITY NOTIFICATION CENTER OF Know what's below.
Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES. SIGNATURE AND DATE





EXISTING STORM SEWER PROPOSED STORM SEWER . . . . . . . . . PROPOSED STORM INLET (CURB & AREA) PROPOSED MAJOR CONTOUR PROPOSED MINOR CONTOUR EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR PROPOSED SWALE PROPOSED CURB & GUTTER PROPERTY BOUNDARY PROPOSED LOT LINE EXISTING RIGHT OF WAY FLOOD HAZARD LIMITS 00.10 PROPOSED SPOT ELEVATION EXISTING SPOT ELEVATION 00.10 X PROPOSED OVERLAND FLOW DIRECTION W/SLOPE PROPOSED CHANNELIZED FLOW DIRECTION W/ SLOPE  $\Leftrightarrow$ 

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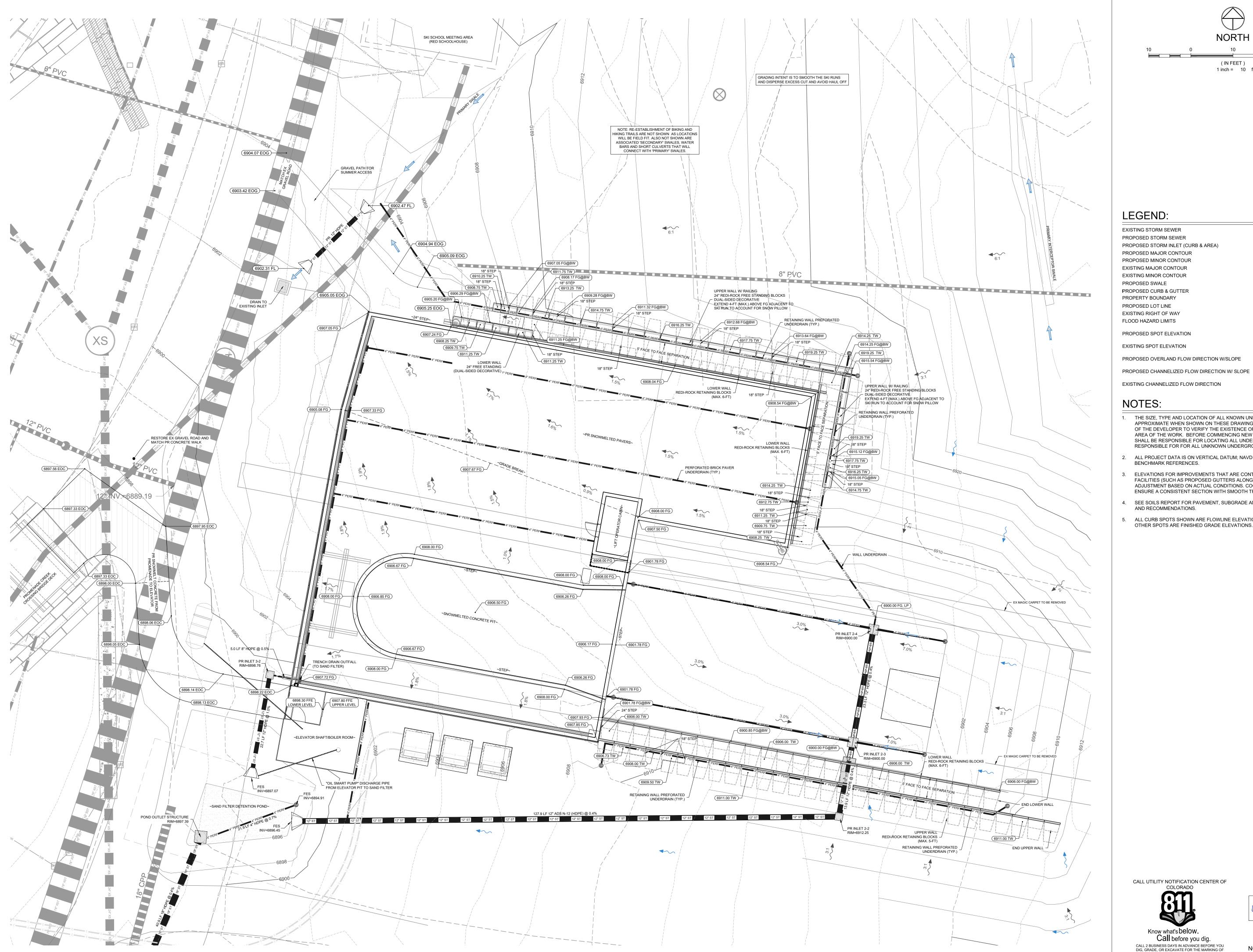
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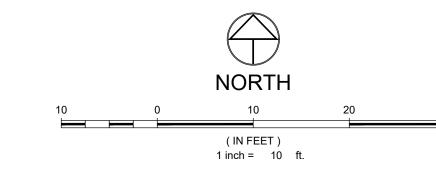
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Know what's below. Call before you dig.





EXISTING STORM SEWER . . . . . . . . . . . PROPOSED STORM SEWER . . . . . . . . . . PROPOSED STORM INLET (CURB & AREA) PROPOSED MAJOR CONTOUR PROPOSED MINOR CONTOUR \_\_\_ \_\_ \_\_ 6805 \_ \_\_ \_ \_ \_ \_ EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR PROPOSED SWALE PROPOSED CURB & GUTTER PROPERTY BOUNDARY PROPOSED LOT LINE EXISTING RIGHT OF WAY 

00.10 PROPOSED SPOT ELEVATION EXISTING SPOT ELEVATION PROPOSED OVERLAND FLOW DIRECTION W/SLOPE

EXISTING CHANNELIZED FLOW DIRECTION

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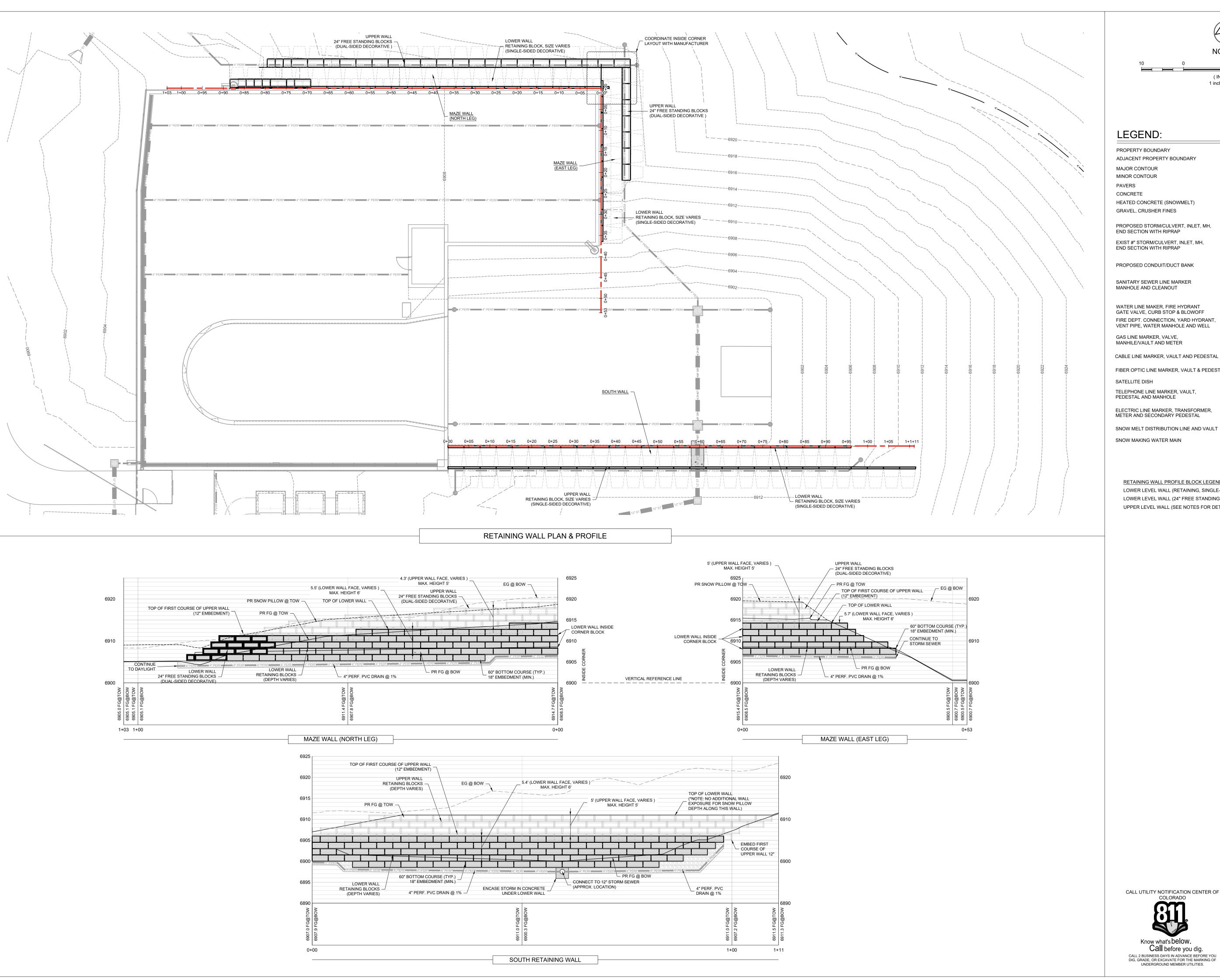
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Know what's below. Call before you dig. CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF



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NORTH (IN FEET) 1 inch = 10 ft.

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SNOW SNOW SNOW

EXIST #" STORM/CULVERT, INLET, MH,

WATER LINE MAKER, FIRE HYDRANT GATE VALVE, CURB STOP & BLOWOFF FIRE DEPT. CONNECTION, YARD HYDRANT, VENT PIPE, WATER MANHOLE AND WELL

CABLE LINE MARKER, VAULT AND PEDESTAL

FIBER OPTIC LINE MARKER, VAULT & PEDESTAL

ELECTRIC LINE MARKER, TRANSFORMER, METER AND SECONDARY PEDESTAL

SNOW MELT DISTRIBUTION LINE AND VAULT

RETAINING WALL PROFILE BLOCK LEGEND LOWER LEVEL WALL (RETAINING, SINGLE-SIDED DECORATIVE) LOWER LEVEL WALL (24" FREE STANDING, DUAL-SIDED DECORATIVE) UPPER LEVEL WALL (SEE NOTES FOR DETAIL)



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SHEET C.310

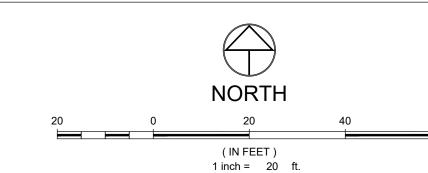
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SIGNATURE AND DATE

STORM SEWER PROFILE

CENTERLINE

SCALE: 1" = 20' (H) 1" = 2' (V)



# LEGEND:

EXISTING STORM SEWER PROPOSED STORM SEWER PROPOSED STORM INLET (CURB & AREA) PROPOSED MAJOR CONTOUR PROPOSED MINOR CONTOUR EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR PROPOSED SWALE PROPOSED CURB & GUTTER PROPERTY BOUNDARY PROPOSED LOT LINE EXISTING RIGHT OF WAY FLOOD HAZARD LIMITS

00.10

PROPOSED OVERLAND FLOW DIRECTION W/SLOPE PROPOSED CHANNELIZED FLOW DIRECTION W/ SLOPE

EXISTING CHANNELIZED FLOW DIRECTION

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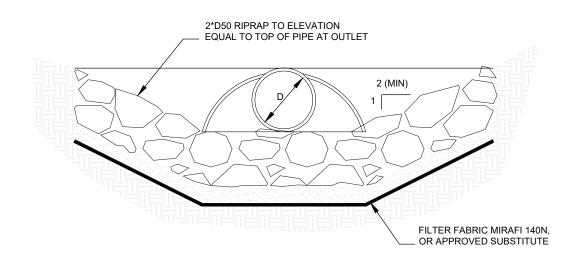
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PROPOSED GRADE (UPPER WALL) EXISTING GRADE PROPOSED GRADE (LOWER WALL) FINISHED GRADE (SAND FILTER DETENTION POND) CONCRETE ENCASEMENT UNDER WALL 13.9 LF 12" ADS N-12 (HDPE) @ 0.4% — 127.9 LF 12" ADS N-12 (HDPE) @ 0.4% 23.3 LF 12" ADS N-12 (HDPE) @ 0.4% PR 4" INSERTA TEE STA. 0+18.7 (2) PR 4" INSERTA TEE INV = 6896.84STA. 1+42.5 INV = 6897.33

CALL UTILITY NOTIFICATION CENTER OF Know what's below. Call before you dig. CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.



U.N.O. ALL RIP RAP SHALL BE D50= 9-INCHES

RIP RAP OUTFALL

(G.T.D.) 2% MAX. DAYLIGHT GRAVELS AT SUBGRADE FOR DRAINAGE (TYP.) SNOWMELT TUBING (RE: MEP) -FOAM INSULATION (RE: MEP) GRAVEL OR SAND LEVELLING COURSE AS APPROPRIATE 5" MIN. (OR 6" MIN. FOR AREAS THAT INCLUDE SNOWMELT SYSTEM) CLASS D CONCRETE WITH FIBER REINFORCMENT. APPLY BROOM FINISH PERPENDICULAR TO WALKING DIRECTION. - BACKFILL EDGE W/ TOPSOIL. FINISH GRADE TO BE FLUSH W/ TRAIL EDGE & SEEDED PER LANDSCAPE PLANS.
 29 MAXIMUM CROSS SLOPE.
 AT A MINIMUM, SUBGRADE PREPARATION SHOULD CONSIST OF SCARIFICATION TO APPROXIMATELY 8 INCHES AND THEN WATERING AND COMPACTION.
 COMPACT ALL FILL AREAS TO 95% STANDARD PROCTOR @ ±2% OPTIMUM. REMOVE ALL TOPSOIL PRIOR TO SUBGRADE PREPARATION. CONCRETE PATH DETAIL FOAM INSULATION (RE: MEP) GRAVEL OR SAND LEVELLING COURSE AS APPROPRIATE 7" MIN. (OR 8" MIN. FOR AREAS THAT INCLUDE SNOWMELT SYSTEM) CLASS D CONCRETE WITH FIBER REINFORCMENT. APPLY BROOM FINISH PERPENDICULAR TO WALKING DIRECTION. -BACKFILL EDGE W/ TOPSOIL. FINISH GRADE TO BE FLUSH W/ TRAIL EDGE & SEEDED PER LANDSCAPE PLANS.
 AMAXIMUM CROSS SLOPE.
 AT A MINIMUM, SUBGRADE PREPARATION SHOULD CONSIST OF SCARIFICATION TO APPROXIMATELY 8 INCHES AND THEN WATERING AND COMPACTION.

HEAVY VEHICLE CONCRETE PATH DETAIL

# STORM SEWER NOTES

- 1. ADEQUATE COVER SHALL BE PROVIDED DURING CONSTRUCTION TO PROTECT THE STRUCTURE FROM DAMAGE.
- 2. PIPE SHALL BE PLACED WITH LONGITUDINAL SEAMS AT THE SIDES OR QUARTER
- POINTS BUT NOT ALONG TOP OF VERTICAL AXIS.

  3. STRUCTURAL PLATE PIPES OF EQUAL OR GREATER DIAMETER, CONFORMING TO THE SPECIFICATIONS, MAY BE USED WITH PERMISSION OF THE ENGINEER.
- 4. WHEN A CULVERT IS TO BE EXTENDED WITH PIPE OF A DIFFERENT MATERIAL, THE CONNECTION SHALL CONFORM TO THE DETAILS ON THE PLANS OR BE APPROVED.
- 5. EXTENSIONS FOR CMP ARCH CULVERT SHALL MATCH THE CORRUGATIONS AND THE SPAN AND RISE DIMENSIONS OF THE CULVERT TO BE EXTENDED.
- 6. MINIMUM COVER FOR METAL AND PLASTIC PIPE IS THE DISTANCE FROM THE TOP OF THE PIPE TO THE TOP OF RIGID PAVEMENT OR TO THE TOP OF SUBGRADE FOR FLEXIBLE PAVEMENT.
- 7. ALL FOUNDATION, BEDDING AND BACKFILL SHALL BE COMPACTED TO NO LESS THAN 95% DENSITY AND WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT OF THE
- STANDARD PROCTOR.

  8. ADDITIONAL TRENCH EXCAVATION OR MEASURES MAY BE REQUIRED FOR UNANTICIPATED SOIL CONDITIONS.

  9. LENGTHS ARE MEASURED HORIZONTALLY FROM END OF END SECTION TO END OF
- END SECTION OR CENTER OF MANHOLE. 10. TRACER WIRE SHALL MEET THE CITY OF STEAMBOAT SPRINGS UTILITIES STANDARDS AND SPECIFICATIONS. TRACER WIRE SHALL BE #10 SOLID COPPER WIRE COATED

INDICATED ON THE PLANS. MODEL "GLENN TEST STATION" BY VALVCO, INC.

WITH 45 MIL POLYETHYLENE. THHN WIRE IS NOT ACCEPTABLE AS TRACER WIRE.

11. TRACER WIRE TEST STATION SHALL MEET THE CITY OF STEAMBOAT SPRINGS
UTILITIES STANDARDS AND SPECIFICATIONS. REQUIRED ALONG STORM SEWER AS

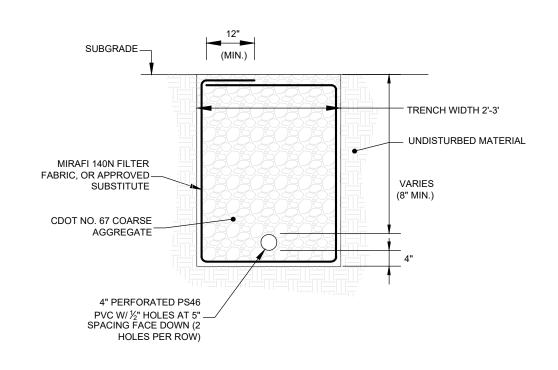
		PIPE SPAN	BEDDING DEPTH, D	MAX. SI CLEARAI		
		15" OR LESS	3"	SPAN	I	
		18" TO 30"	4"	18"		
\ □	1	36" TO 60"	6"	SPAN/	2	
AISH.			,			
E M		SIDE	SPAN	SIDE	4	
L TC		CLEARANCE		CLEARANCE		
BACKFILL TO FIXISHED GRADE						
6" MIN.						- TRACER WIRE
RISE					A	ER ADS REQUIREMENTS: ASHTO M43 (#5 AND #56) OR AS APPROVED BY CITY
4" MIN.						

STORM PIPE TRENCH DETAIL

# METAL END SECTION NOTES

- 1. DIMENSIONS OF END SECTIONS MAY VARY SLIGHTLY FROM THOSE SHOWN ON THE TABLES DUE TO DIFFERENT MANUFACTURER'S
- VARIATIONS.
   END SECTIONS FOR CMP ARCH CULVERT SHALL MATCH THE DIMENSIONS OF THE CULVERT SHOWN ON THE PLANS.
   GALVANIZED TOE PLATE, AS SHOWN, REQUIRED ON END SECTIONS FOR ALL THIN WALL PIPE AND SHALL BE THE SAME THICKNESS AS END SECTIONS. TOE PLATE SHALL BE FIELD-BOLTED TO END SECTION WITH 3/8" GALVANIZED BOLTS, NUTS AND WASHERS.
   GALVANIZED STEEL SHALL BE IN CONFORMANCE WITH AASHTO M 111, M 218 OR M 232.

	Ţ	HIN-WALL R	OUND F	PIPE					
	PIPE	THICK.		D	IMENSI	ONS			DIAMETER OR SPAN
	DIA.	1111014.	Α	В	Н	L	W	Т	
	12	0.064	6	(inche	s) 6	21	24	34	₩ O \ 70 O \
-	18 21	0.064 0.064	8	10 12	6	31 36	36 42	46 52	B _ B
	24 30	0.064 0.079	10 12	13 16	6 8	41 51	48	58 70	
	36	0.079	14	19	9	60	72	94	
	42 48	0.109 0.109	16 18	22 27	11 12	69 78	84 90	106 112	
	54 60	0.109 0.109	18 18	30 33	12 12	84 87	102 114	124 136	
-	66 72	0.109 0.109	18 18	36 39	12 12	87 87	120 126	142	
	78 84	0.109 0.109 0.109	18 18	42 45	12 12 12	87 87	132	154 160	
L	04		1 .0				1.00	1.00	PLAN — HORIZONTAL & VERTICA CONTROL POINT
WITH ANNU	THRU 24 I JILAR COR D ON HEL SS RECOR	YPE 1 N. ROUND PRUGATIONS ICALLYO FO RRUGATED  DIA DIA DIA RRISE	LUG	QUIV. NNECT FOR WIT NOT HEL	30 IN. H ANNU TO BE ICALLY ORRUG	JLGAR ( USED ( -FORMI GATED.	36 IN. F CORRU ON ED PIPE	ROUND GATION	IS.
END SEC	TION AND	CONNECTI	ON DET	All S EC	D THIN	ι \Λ/ΔΙ Ι	DIDE CI	II VEDT	e e



COMPACTION.
4. COMPACT ALL FILL AREAS TO 95% STANDARD PROCTOR @ ±2% OPTIMUM. REMOVE ALL TOPSOIL PRIOR TO SUBGRADE PREPARATION.

TYPE 1 UNDERDRAIN DETAIL N.T.S

> Know what's **below**. Call before you dig.

CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

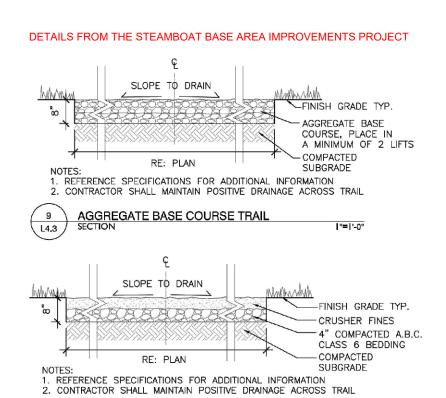


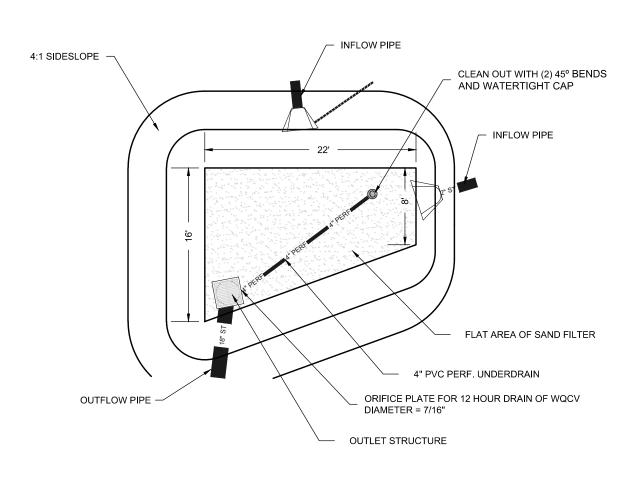
Table SF-1. Gradation specifications for CDOT Class B or C filter material (Source: CDOT Table 703-7)
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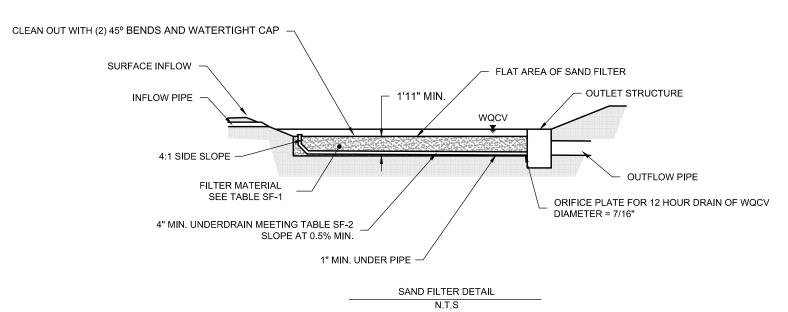
	CDOT Class B filter material	CDOT Class C filter material
eve Size	Mass Percent Passin	g Square Mesh Sieves
.5 mm (1.5")	100	
.0 mm (0.75")		100
5 mm (No.4)	20-60	60-100
8 um (No. 16)	10-30	
0 um (No. 50)	0-10	10-30
0 um (No. 100)		0-10
um (No. 200)	0-3	0-3

Table SF-2	2. Dimensions for S	lotted Pipe <sup>1</sup>	
	The second of th	1000000	0

	Pipe Size	Slot Length	Maximum Slot Width	Slot Centers	Open Area (per foot)	
	4"	1-1/16"	0.032"	0.413"	1.90 in <sup>2</sup>	
	6"	1-3/8"	0.032"	0.516"	1.98 in <sup>2</sup>	
splitti	ng, cracking, or b	reaking when t	of ASTM designation the pipe is tested per 4 section 8.5. Conte	ASTM test me	ethod D2412 in acco	rdanc









QUOTE Invoice Date: 15-Jun-20

Phone Number: 970-871-5604

Invoice Number: 3-47767 (please show this invoice number on all payments)

Project: New Mountain Mix

Sold To: Steamboat Ski Resort 2305 Mt. Werner Steamboat Springs, CO 80487

Stip 13. Steamboat Ski Resort 3150 Burgess Creek Road Steamboat Springs, CO 80487

Customer Number: CO155663

						107 107 107 107 107 107	
Shipper:	UPS	Freig	ht: Prepaid/Collect Prepaid	FOB: Origin	Sales Rep: Miranda McCutchen	Date Shipped:	
	Quantity Sh	nipped					
Pricing	PLS	Bulk	Description		Variety	Price	Tot
*** MIX # 2	07563 New M	1ountain N	Mix ***				
PLS#	2.50	2.75	Poa sandbergii Bluegrass, Sandberg	3	High Plains		
PLS#	1.00	1.00	Koeleria macrantha Prairie junegrass		UP Sims Mesa		
PLS#	11.00	11.00	Elymus elymoides Bottlebrush squirrelta	ail	Pueblo		
PLS#	20.00	20.00	Pascopyrum smithii Western wheatgrass		Arriba		
PLS#	15.50	15.50	Pseudoroegneria spi Bluebunch wheatgra		Columbia		
PLS#	40.00	40.00	Triticum aestivum x S Triticale	Secale cereale	Quickguard		

CALL UTILITY NOTIFICATION CENTER OF COLORADO Know what's below. Call before you dig. CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES. NOT VALID WITHOUT ORIGINAL SIGNATURE AND DATE

REVEGETATION SEED MIX

t Gondola I Details

March 5, 2021

Steamboat Ski & Resort Corporation Lance Miles 2305 Mt. Werner Circle Steamboat Springs, CO 80487 Job Number: 20-12047

Subject: Stacked Concrete Block Retaining Wall Recommendations Proposed Gondola Base Terminal Relocation, Steamboat Ski Resort Steamboat Springs, Colorado.

Lance,

As requested, NWCC, Inc. (NWCC) has prepared this report that presents our Stacked Block Retaining Wall Recommendations for the proposed Gondola Base Terminal Relocation at the Steamboat Ski Resort in Steamboat Springs, Colorado. NWCC previously completed a Subsoil and Foundation Investigation report for Buildings 3 and 4 under this job number in a report dated December 18, 2020.

**Proposed Construction:** Based on our discussions with the client and review of the construction plans prepared by Landmark Consultants, Inc. (Landmark), NWCC understands the proposed stacked concrete block retaining walls will consist of three sections ranging from approximately 40 to 100 feet in length.

The construction plans for the proposed stacked concrete block retaining walls estimate each wall will consist of terraced wall with the height of the stacked blocks approximately 6 feet above the finished ground surface for the lower portion of the wall and approximately 5 feet above finished grade at the top of the lower wall to the top of the upper wall. A free standing wall will be constructed on the north leg of the maze wall. The free standing portion of the wall will have a maximum of 4 feet of snow placed on the uphill side of the wall during winter operations. The remaining walls will have a 2 (horizontal) to 1 (vertical) slope above the upper walls.

Subsurface Conditions: The soil conditions encountered in the Subsoil and Foundation Investigation generally consisted of a layer of topsoil and organics overlying natural clays or sands, gravels, cobbles and boulders

> (970) 879-7888 • Fax (970) 879-7891 2580 Copper Ridge Drive • Steamboat Springs, CO 80487

Stacked Concrete Block Retaining Wall Recommendations Gondola Terminal Relocation Job No.: 20-12047

March 5, 2021 Page 2 of 4

Stacked Concrete Block Retaining Wall Recommendations: Based on the soil conditions observed at the site, our analysis and discussions with our Landmark, NWCC has developed the following recommendations for the design and construction of the proposed stacked concrete block walls to be constructed for the Gondola Terminal.

Lower Walls: The proposed lower retaining walls can be constructed using a combination of 28, 41 and 60 inch blocks with a crushed stone backfill. For the lower portion of each wall not greater than 6 feet above the final grade, the wall should be constructed with one 60-inch base block, two 60-inch mid blocks, one 41-inch mid-block and one 28 inch top block. For any portion of the wall that is constructed to a point 4.5 feet or less above the final grade, the wall can be constructed with the same section, only removing one of the 60-inch mid-blocks. It should be noted that this report does not address the elevation and layout of the blocks for the retaining wall. The elevation and wall layout will be completed by Landmark.

The retaining wall systems outlined above will require a leveling pad, consisting of a layer of free draining gravels 12 inches in thickness placed at the base of the wall and keyed into the natural clays or sands and gravels. The bearing soils must be evaluated at the time of excavation by NWCC. The free draining gravels placed for the leveling pad and wall backfill should be uniformly placed and compacted in 6 to 8-inch maximum loose lifts to at least 80% of the maximum relative density in accordance with ASTM D4353/4354.

The excavations and lower walls should be drained by the placement of a 4-inch diameter perforated PVC pipe surrounded with at least 12 inches of free draining gravel. The drain should be located behind the wall and at the base of the gravels placed for the leveling pad. The drain should be uniformly graded to a daylighted outfall with at least a 1 percent slope.

A minimum bury depth of the bottom blocks of the lower retaining walls is 18 inches below the base of the wall. Any backfill materials placed at the base of the wall should be uniformly placed and compacted in 6 to 12 inch loose lifts and be compacted to at least 95% of the maximum standard Proctor density and within 3 percent of the optimum moisture content determined in accordance with ASTM D698.

The lower walls must be backfilled with crushed free-draining gravels approved by NWCC. The free-draining gravel backfill must be constructed at a 1 (horizontal) to 1 (vertical) slope from the base of the wall.

<u>Upper Walls 2:1 Slope Retainage:</u> The proposed upper retaining walls that will retain a 2:1 uphill slope can be constructed using a combination of 28, 41 and 60 inch blocks with a crushed stone backfill. For the upper portion of each wall not greater than 5 feet above the final grade, the wall should be constructed with one 60-inch base block, one 60-inch mid-block, one 41-inch midblock and one 28 inch top block. For any portion of the wall that is constructed to a point 3.5 feet or less above the final grade, the wall can be constructed with the same section, only removing

NWCC, Inc

Stacked Concrete Block Retaining Wall Recommendations Gondola Terminal Relocation Job No.: 20-12047

March 5, 2021 Page 3 of 4

one of the 60-inch mid-blocks. It should be noted that this report does not address the elevation and layout of the blocks for the retaining wall. The elevation and wall layout will be completed by Landmark.

The retaining wall systems outlined above can be placed on the free-draining backfill materials for the lower walls. The bearing soils must be evaluated at the time of excavation by NWCC. The free draining gravels placed for the wall backfill should be uniformly placed and compacted in 6 to 8-inch maximum loose lifts to at least 80% of the maximum relative density in accordance with ASTM D4353/4354.

A minimum bury depth of the bottom blocks of the upper retaining walls is 12 inches below the base of the wall. Any backfill materials placed at the base of the wall should be uniformly placed and compacted in 6 to 12 inch loose lifts and be compacted to at least 95% of the maximum standard Proctor density and within 3 percent of the optimum moisture content determined in accordance with ASTM D698 or 80% of the maximum relative density in accordance with ASTM D4353/4354.

<u>Upper Walls-Free Standing</u>: The proposed upper retaining walls that will have a free standing wall can be constructed using a combination of 24 and 41 inch blocks. For the upper portion of each wall not greater than 5 feet above the final grade, the wall should be constructed with one 41-inch base block and three 24-inch free standing blocks. For any portion of the wall that is constructed to a point 3.5 feet or less above the final grade, the wall can be constructed with the same section, only removing one 24-inch free standing block. It should be noted that this report does not address the elevation and layout of the blocks for the retaining wall. The elevation and wall layout will be completed by Landmark.

The retaining wall systems outlined above can be placed on the free-draining backfill materials for the lower walls. The bearing soils must be evaluated at the time of excavation by NWCC. The free draining gravels placed for the wall backfill should be uniformly placed and compacted in 6 to 8-inch maximum loose lifts to at least 80% of the maximum relative density in accordance with ASTM D4353/4354.

A minimum bury depth of the bottom blocks of the upper retaining walls is 12 inches below the base of the wall. Any backfill materials placed at the base of the wall should be uniformly placed and compacted in 6 to 12 inch loose lifts and be compacted to at least 95% of the maximum standard Proctor density and within 3 percent of the optimum moisture content determined in accordance with ASTM D698 or 80% of the maximum relative density in accordance with ASTM D4353/4354.

The bottom block of the upper walls must be backfilled with crushed free-draining gravels approved by NWCC. The free-draining gravel backfill must be constructed at a 1 (horizontal) to 1 (vertical) slope from the base of the wall.

> A A A

NWCC, Inc.

Stacked Concrete Block Retaining Wall Recommendations Gondola Terminal Relocation

ob No.: 20-12047

March 5, 2021 Page 4 of 4

The final grading should consist of a maximum of 3 inches of topsoil materials which must be vegetated. A maximum of 9 inches of compacted clay can be placed over the free-draining backfill materials. A separation fabric (Mirani 140N) should be placed over the free-draining gravels prior to placement of the compacted clay materials. A swale should be created at the top of each wall for surface drainage around each wall section.

The design for the staked block retaining wall for variable heights utilizing 24, 28, 41 and 60-inch deep Reid-Rock wall units with 1:1 crushed stone backfill is shown in the typical sections provided in Figure #1.

Inspections of the stacked block walls, as they are constructed, will most likely be required as a special inspection by the Routt County Regional Building Department. Therefore, NWCC must be retained by the client to observe the construction of the stacked block walls to verify that they are being constructed in accordance with details provided in this report and the typical sections provided in Figure #1. Contractor must be made aware of these special inspections and contact NWCC when the construction of the walls is started.

If you have any questions regarding this report or if we may be of further service, please do not hesitate to contact us.

Sincerely, NWCC, INC.

Unreinforced Wall Sections "NOT-TO-SCALE" -24" Free Fence/Gaurd-Finished Ground Surface— Standing Rail by others with Vegetation (Max. 3" topsoil). Create swale for Blocks surface drainage around wall.\ Max. Upper Wall Height 5' — above finished surface Max. Upper Wall— Height 5' above finished surface 5 Feet Minimum Max. 4 Feet 5 Feet <u>Minimum</u> Finished Ground Surface-Finished Ground Surfacewith Vegetation (Max. 3" topsoil). Create swale for Snow Pillow with Vegetation (Max. 3" topsoil). Create swale for -Non-expansive, freesurface drainage around wall. surface drainage around wall. draining gravel (Approved by NWCC) Max. Lower Wall Height 6' above finished surface Max. Lower Wall Height 6' above finished surface Finished Grade-Compacted Road Finished Grade-Compacted Road 60" Mid Non-expansive, free-Base or Pavers Base or Pavers draining gravel 60" Bottom (Approved by NWCC) -4-inch diameter 4-inch diameter Peforated PVC/Pipe Perforated PVC Pipe sloped minimum 1% to daylight sloped minimum Free draining gravel leveling pad Free draining gravel leveling pad-1% to daylight constructed over suitable natural soils constructed over suitable natural soils approved by NWCC prior to placement. approved by NWCC prior to placement. 2:1 Upslope Free Standing Wall \*\* NWCC must be retained by client and notified by contractor to inspect the stacked block walls as they are constructed.

NOTE:

Unreinforced Wall Sections

Job No.: 20-12047 Date: 2/23/2021 FIGURE: #1

"Gondola Terminal

Steamboat Ski Resort, Steamboat Springs,

THE INFORMATION INCLUDED ON THIS PAGE IS FOR CONVENIENCE ONLY. CONFIRM THAT REVISIONS HAVE NOT BEEN MADE PRIOR TO PROCUREMENT AND CONSTRUCTION.

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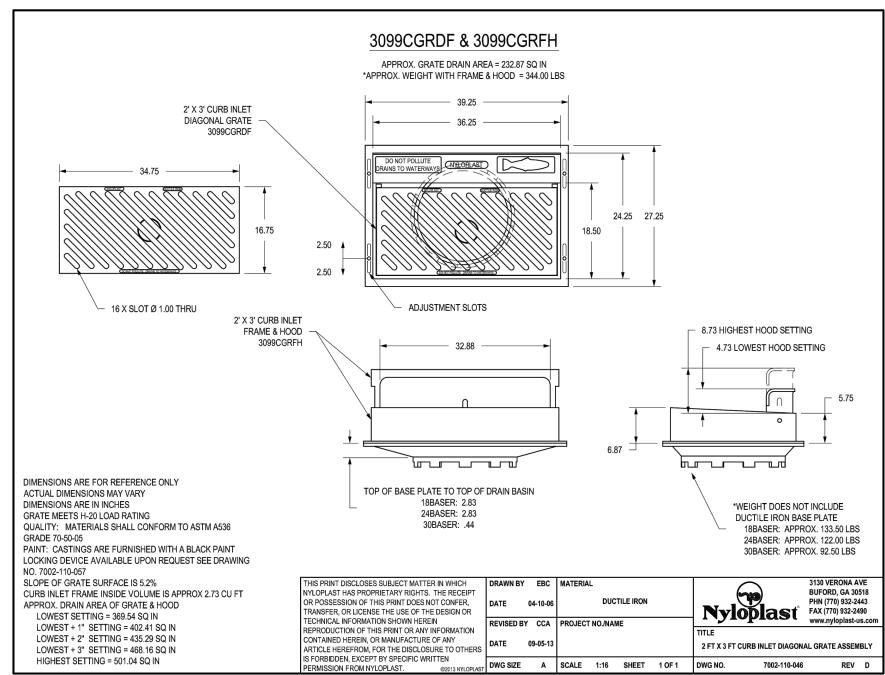


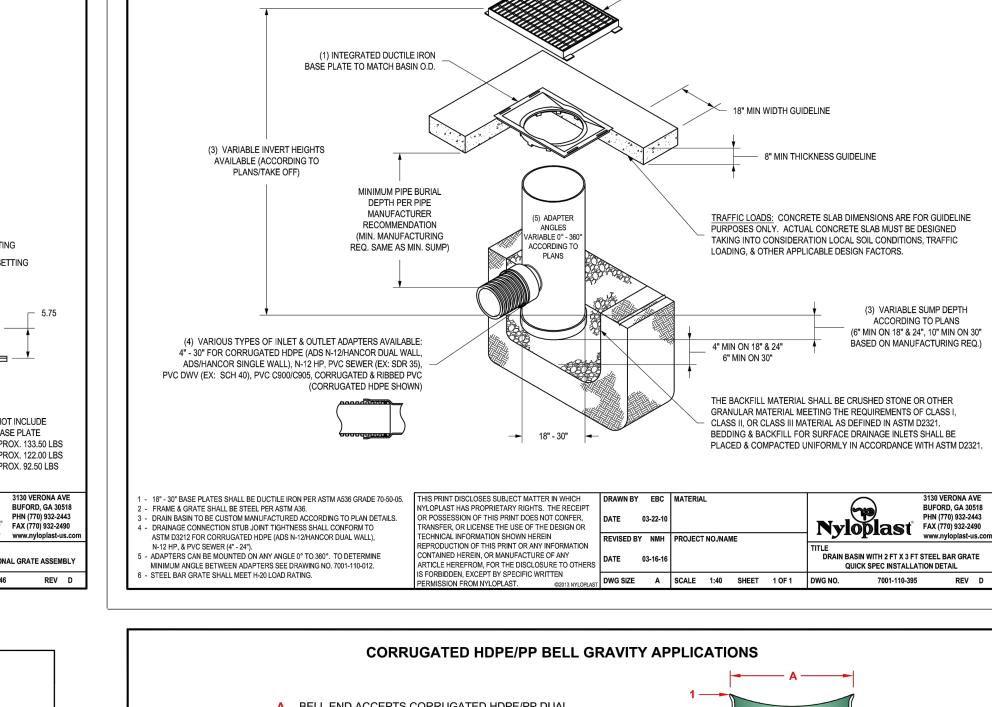
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NWCC, Inc.

Gondola

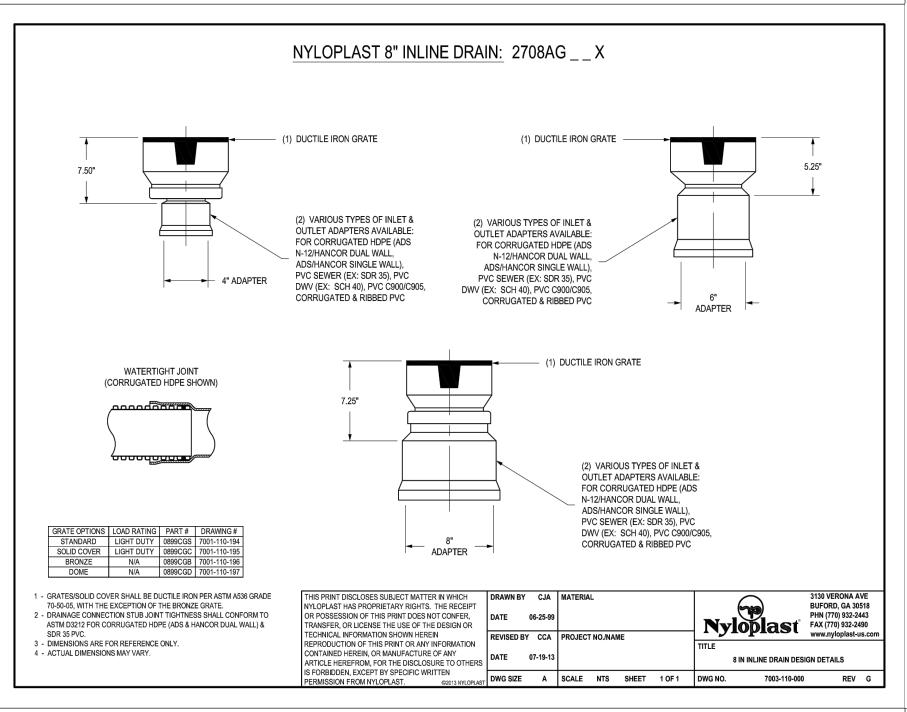
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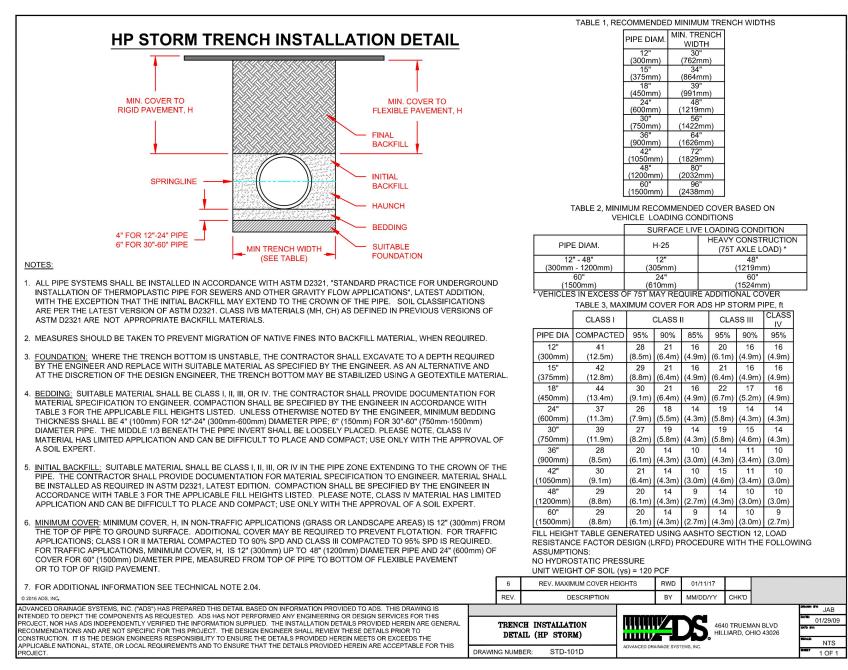


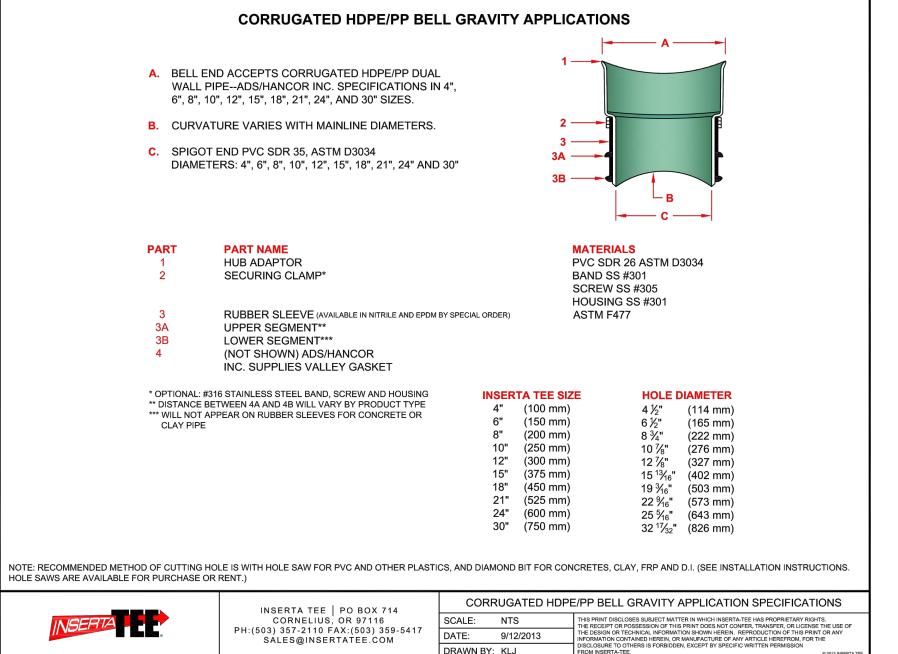


NYLOPLAST DRAIN BASIN WITH 2 FT X 3 FT STEEL BAR GRATE

(2) STEEL BAR FRAME & GRATE







# SECTION 2723

# ENGINEERED SURFACE DRAINAGE PRODUCTS

# PVC

PVC SURFACE DRAINAGE INLETS SHALL BE OF THE CURB INLET STRUCTURE TYPE AS INDICATED ON THE CONTRACT DRAWINGS AND REFERENCED WITHIN THE CONTRACT SPECIFICATIONS. THE **DUCTILE IRON FRAME**, **GRATE AND HOOD** FOR EACH OF THESE STRUCTURES ARE TO BE CONSIDERED AN INTEGRAL PART OF THE SURFACE DRAINAGE INLET AND SHALL BE FURNISHED BY THE SAME MANUFACTURER. THE CURB INLET STRUCTURE SHALL BE AS MANUFACTURED BY NYLOPLAST A DIVISION OF ADVANCED DRAINAGE SYSTEMS, INC. OR PRIOR APPROVED EQUAL.

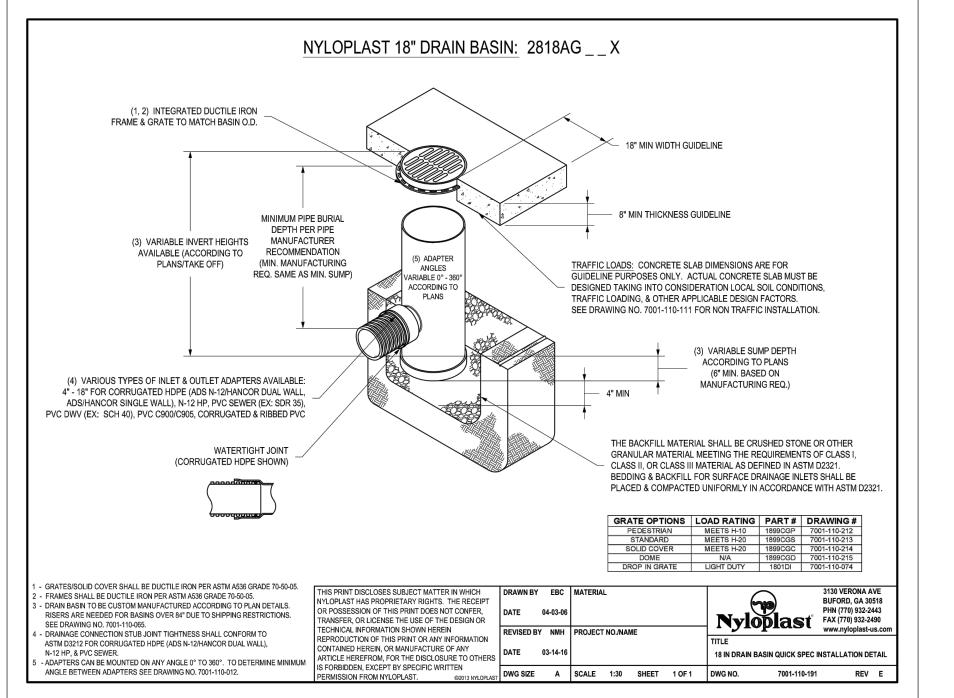
#### MATERIALS THE CURB

THE CURB INLET STRUCTURE REQUIRED FOR THIS CONTRACT SHALL BE MANUFACTURED FROM PVC PIPE STOCK, UTILIZING A THERMO-MOLDING PROCESS TO REFORM THE PIPE STOCK TO THE SPECIFIED CONFIGURATION. THE DRAINAGE PIPE CONNECTION STUBS SHALL BE MANUFACTURED FORM PVC PIPE STOCK AND FORMED TO PROVIDE A WATERTIGHT CONNECTION WITH THE SPECIFIED PIPE SYSTEM. THIS JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR JOINTS FOR DRAIN AND SEWER PLASTIC PIPE USING FLEXIBLE ELASTOMERIC SEALS. THE FLEXIBLE ELASTOMERIC SEALS SHALL CONFORM TO ASTM F477. THE PIPE BELL SPIGOT SHALL BE JOINED TO THE MAIN BODY OF THE STRUCTURE. THE RAW MATERIAL USED TO MANUFACTURE THE PIPE STOCK THAT IS USED TO MANUFACTURE THE MAIN BODY AND PIPE STUBS OF THE SURFACE DRAINAGE INLETS SHALL CONFORM TO ASTM D1784 CELL CLASS 12454.

THE GRATE, FRAME AND HOOD FOR ALL CURB INLET STRUCTURES SHALL BE DUCTILE IRON AND SHALL BE MADE SPECIFICALLY FOR EACH SO AS TO PROVIDE A ROUND BOTTOM FLANGE THAT CLOSELY MATCHES THE DIAMETER OF THE PVC STRUCTURE BODY. THE GRATE, FRAME AND HOOD SHALL BE CAPABLE OF SUPPORTING H-20 WHEEL LOADING FOR TRAFFIC AREAS. THE HOOD SECTION WILL HAVE A SOLID BACK AND BE ADJUSTABLE BY USE OF THREE (3) LOCKING HEX HEAD BOLTS. THE METAL USED IN THE MANUFACTURE OF THE CASTINGS SHALL CONFORM TO ASTM A536 GRADE 70-50-05 FOR DUCTILE IRON.

## INSTALLA

THE SPECIFIED PVC SURFACE DRAINAGE INLET SHALL BE INSTALLED USING CONVENTIONAL FLEXIBLE PIPE BACKFILL MATERIALS AND PROCEDURES. THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS 1, CLASS 2, OR CLASS 3 MATERIAL AS DEFINED IN <u>ASTM D2321</u>. BEDDING AND BACKFILL FOR THE CURB INLET STRUCTURE SHALL BE PLACED AND COMPACTED UNIFORMLY IN ACCORDANCE WITH <u>ASTM D2321</u>. THE CURB INLET STRUCTURE BODY WILL BE CUT AT THE TIME OF THE FINAL GRADE. NO BRICK, STONE OR CONCRETE BLOCK WILL BE REQUIRED TO SET THE GRATE TO THE FINAL GRADE HEIGHT. FOR H-20 LOAD RATED INSTALLATIONS, A CONCRETE RING WILL BE POURED UNDER THE FRAME, GRATE, AND HOOD. THE CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, AND OTHER APPLICABLE DESIGN FACTORS. FOR OTHER INSTALLATION CONSIDERATIONS SUCH AS MIGRATION OF FINES, GROUND WATER, AND SOFT FOUNDATIONS REFER TO <u>ASTM D2321</u> GUIDELINES.



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ENGINEE RSC | SCRVEYOR | STRUCT | STRUC

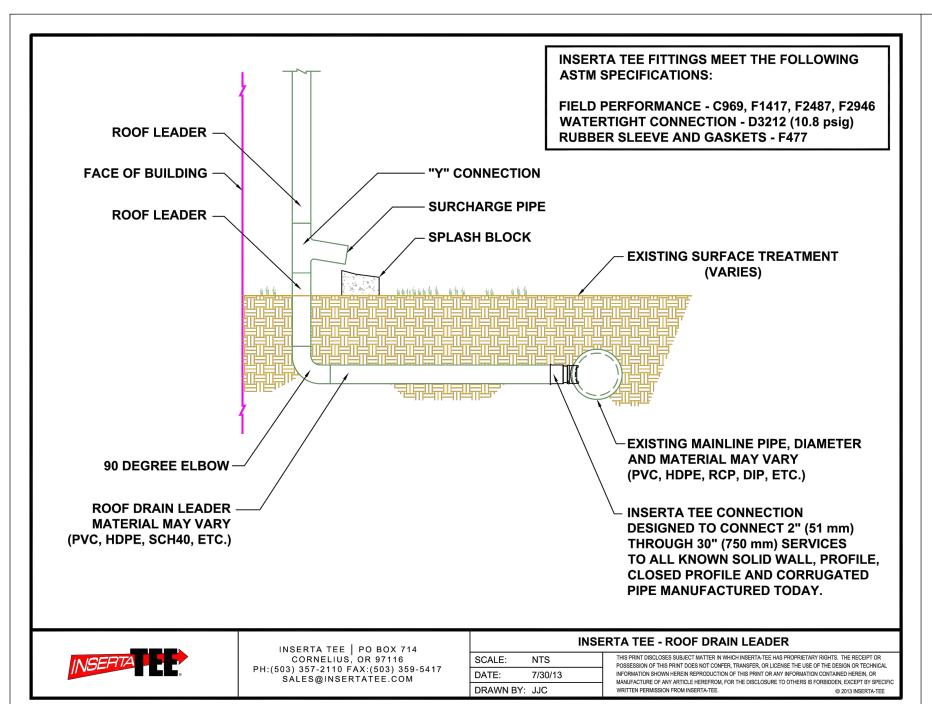
CIVIL ENGINE

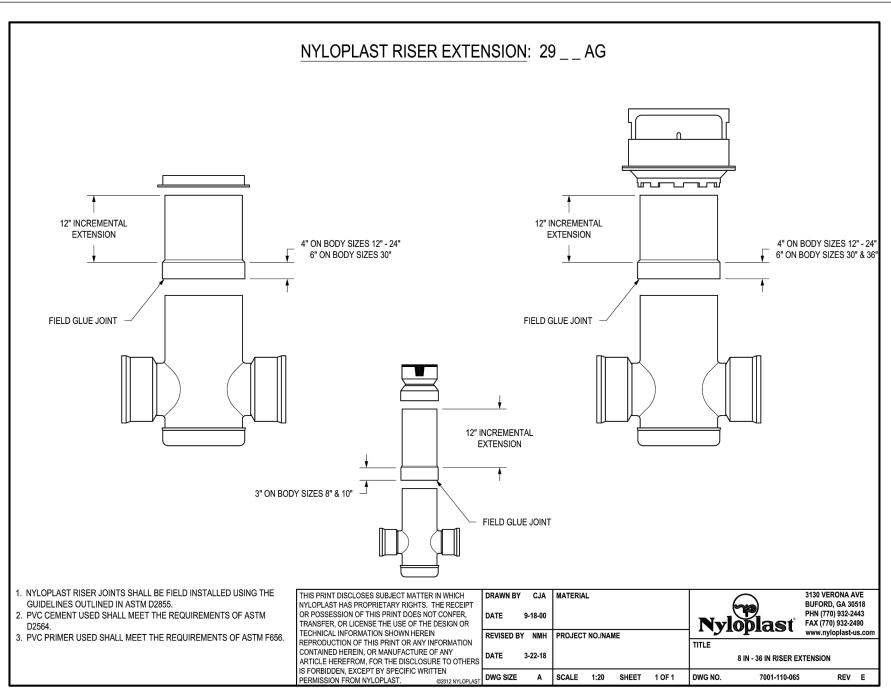
LANDIMARK
CONSULTANTS, INC

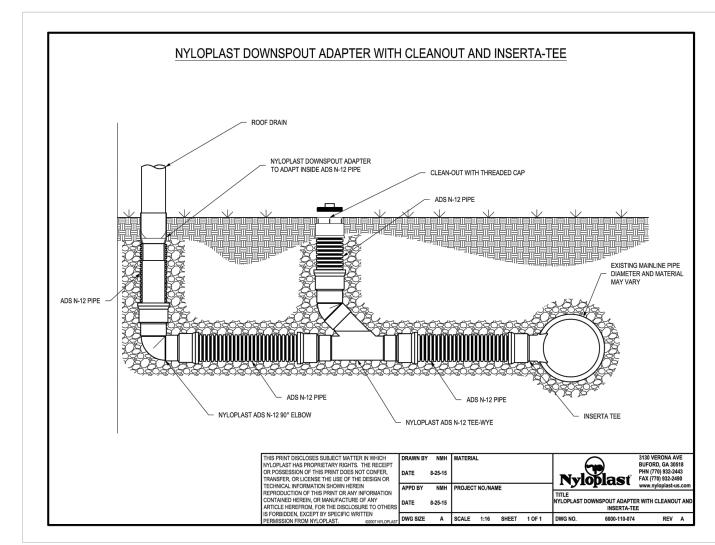
These drawings are instruments of service provided by Landmark Consultants, Inc. and are not to be used for any type of construction or contracting unless signed and sealed by a Professional Engineer in the employ of Landmark

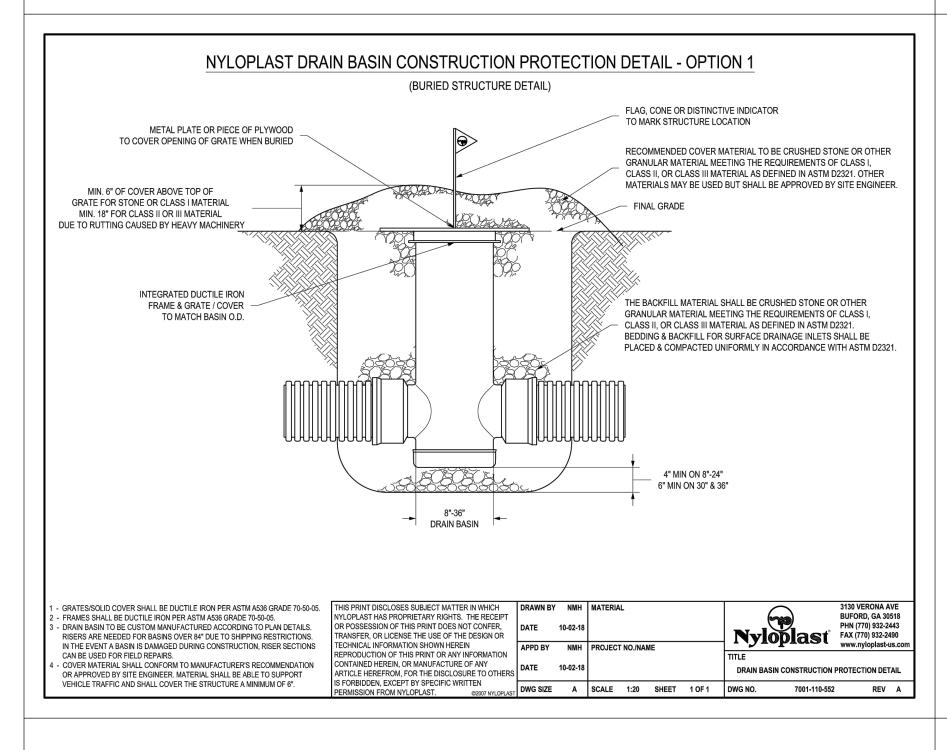
PROJECT: 1012-0
DATE: 3/520
CONTACT: Erik Griepentr
EMAIL: erikg@landmark-co.oo

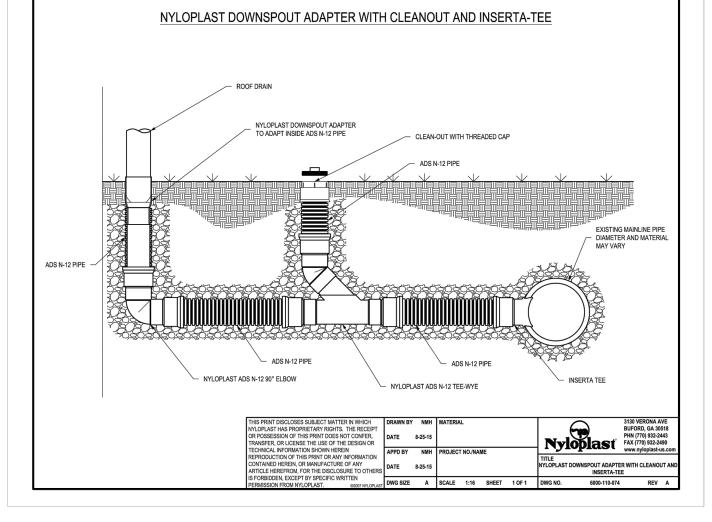
boat Gondola Reloc Details Nyloplast

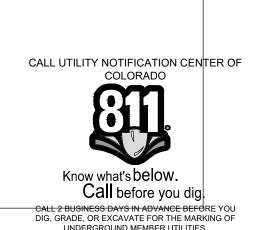




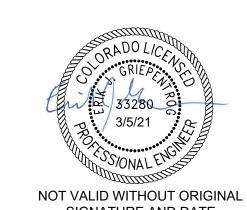












## **ZONING DISTRICT:**

OR (OPEN SPACE AND RECREATION)

# **CLIMATE ZONE:**

**OCCUPANCY CLASSIFICATION:** UTILITY AND MISCELLANEOUS GROUP U

# **CONSTRUCTION TYPE:**

(CONSTRUCTION WILL BE ALL NON-COMBUSTIBLE, 1-HR RATED, NON-SPRINKLERED)

ZONE DISTRICT REQUIREMENTS

OR - OPEN SPACE AND RECREATION

424 SF

21'-0"

+/- 120 FT

+/- 84 FT

+/- 1,576 FT

**PROPOSED** 

1,227,460 SF +/-

SQUARE FOOTAGE # OF UNITS

VARIANCE?

(YES/NO)

NO

NO

NO

425 SF

**DESCRIPTION** 

**ZONE DISTRICT** 

**REQUIREMENTS** 

2,500 SF MIN.

NO MAX

NO MAX

NO MAX

34' MAX.

22' MAX.

25' MIN

25' MIN

20' MIN

N/A

N/A

N/A

N/A

SKI AREA

AMUSEMENT, OUTDOOR

## **APPLICABLE CODES:**

2018 IBC

2018 IECC 2018 IMC

CITY OF STEAMBOAT CDC ICC/ANSI A117.1 (2009)

PROJECT SUMMARY TABLE

ZONING (EXIST & PROPOSED)

**GROSS FLOOR AREA** 

UNIT SIZE (GROSS) NUMBER OF UNITS

**USE BREAKDOWN** 

ACCESSORY USE

LOT COVERAGE

FRONT SETBACK

SIDE SETBACK

REAR SETBACK

SNOW STORAGE

PARKING

FLOOR AREA RATIO

**OVERALL BUILDING HEIGHT** 

**AVERAGE PLATE HEIGHT** 

FRONTAGE AREA HEIGHT

UPPER STORY SETBACK

SECOND STORY INTENSITY

PRINCIPAL USE

**STANDARDS** 

**LOT AREA** 

FRONTAGE

ADAAG 2010

# BID / PERMIT SET

FOR:

LEGAL DESCRIPTION:

LOT 2 SKI HILL SUBDIVISION REPLAT OF PARCEL D

# **ALSO KNOWN AS:**

# STEAMBOAT GONDOLA RELOCATION



SHEET INDEX

AG001	PROJECT COVER SHEET
AG002	CODE REVIEW
AG003	SPECIFICATIONS
AG004	SPECIFICATIONS
CIVIL	
C.002	CIVIL NOTES
C.003	EXISTING CONDITIONS PLAN - OVERALL
C.004	EXISTING CONDITIONS PLAN - DETAILED
C.005	EXISTING CONDITIONS PLAN - UTILITY DETAIL
C.090	HORIZONTAL CONTROL PLAN
C.100	CIVIL SITE PLAN - SURFACE REFERENCE
C.101	CIVIL SITE PLAN - UTILITY REFERENCE
C.210	SUBSURFACE DRAIN PLAN
C.300	GRADING & DRAINAGE PLAN - OVERALL WITH AERIAL IMA
C.301	GRADING & DRAINAGE PLAN - OVERALL
C.302	GRADING & DRAINAGE PLAN - DETAILED
C.310	RETAINING WALL PLAN & PROFILE
C.320	STORM SEWER PLAN & PROFILE
C.500	DETAILS
C.501	DETAILS
C.502	DETAILS
C.510	DETAILS
C.511	DETAILS

ARCHITECTUR AS001	ARCHITECTURAL SITE PLAN
A101	LOWER LEVEL PLAN
A111	FIRST LEVEL PLAN
A112	LOWER LEVEL CONNECTION TO PROMENADE
A181	ROOF LEVEL PLAN
A201	EXTERIOR ELEVATIONS
A202	EXTERIOR ELEVATIONS
A203	EXTERIOR ELEVATIONS & BLDG SECTIONS
A301	SITE SECTIONS
A302	BUILDING AND WALL SECTIONS
A401	FLOOR AND CEILING PLANS
A500	FIRE RATED ASSEMBLIES
A501	FIRE RATED ASSEMBLIES & WALLTYPES
A502	ASSEMBLY DETAILS
A901	3D BUILDING VIEWS

STRUCTURAL	
S 0.01	STRUCTURAL COVER SHEET
S 0.02	SPECIAL INSPECITONS
S 1.01	FOUNDATION PLAN
S 1.02	MAIN AND ROOF LEVEL FRAMING PLANS
S 1.03	BURGESS CREEK BRIDGE PLAN
S 5.01	TYPICAL DETAILS
S 5.02	DETAILS
S 5.03	DETAILS AND SCHEDULES

MECHANICAL	
MP001	MECHANICAL/PLUMBING COVER SHEET
M101	LOWER LEVEL HVAC PLAN
M111	FIRST LEVEL HVAC PLAN
M300	HVAC SCHEDULES
M400	HVAC DETAILS AND CONTROL DRAWINGS
PLUMBING	
P100	PLUMBING SITE PLAN

P101	LOWER LEVEL PLUMBING PLAN
P301	PLUMBING SCHEDULES AND DETAILS
ELECTRICAL	
E000	ELECTRICAL COVER SHEET
E010	ELECTRICAL SITE PLAN
E101	ELECTRICAL LOWER LEVEL POWER PLAN
E111	ELECTRICAL FIRST LEVEL POWER PLAN
E201	ELECTRICAL LOWER LEVEL LIGHTING PLAN
E211	ELECTRICAL FIRST FLOOR LIGHTING PLAN
E500	ELECTRICAL ONE LINE DIAGRAM

**ELECTRICAL DIAGRAMS** 

ELECTRICAL SCHEDULES

**ELECTRICAL LIGHTING SCHEDULES** 

VICINITY MAP

ELECTRICAL LIGHTING COMPLIANCE

# PROJECT TEAM

TRAFFIC ENGINEER:

McDOWELL ENGINEERING 1099 CAPITOL STREET, SUITE 208

EMAIL: kari@mcdowelleng.com

CONTACT: KÁRI McDOWELL SCHROEDER

PO BOX 4259

EAGLE, CO 81631 PHONE: (970) 623-0788

# OWNER:

STEAMBOAT SKI & RESORT CORPORATION 2305 MT WERNER CIRCLE STEAMBOAT SPRINGS, CO 80487 PHONE: (970) 871-5381 CONTACT: JÍM SCHNEIDER EMAIL: JSCHNEIDER@STEAMBOAT.COM

# ARCHITECT:

ERIC SMITH ASSOCIATES, P.C. 1919 7TH STREET BOULDER, CO 80302 PHONE: (303) 442-5458 CONTACT: KATE LEGGETT, ARCHITECT KATE@ESAPC.COM

# MECHANICAL / PLUMBING ENGINEER:

THE BALLARD GROUP 2525 SOUTH WADSWORTH BLVD, STE 200 LAKEWOOD, CO 80227 PHONE: (303) 988-4514 CONTACT: TÍM HARRIS (PLUMBING) ERIC BAALMAN (HVAC) EMAIL: THARRIS@THEBALLARDGROUP.COM EBAALMAN@THEBALLARDGROUP.COM

### **CIVIL ENGINEER:** LANDMARK CONSULTANTS, INC

141 9TH STREET PO BOX 774943 STEAMBOAT SPRINGS, CO 80477 PHONE: (970) 871-9494 CONTACT: ERIK GRIEPENTROG EMAIL: ERIKG@LANDMARK-CO.COM

# STRUCTURAL ENGINEER:

ANTHEM STRUCTURAL ENGINEERS 430 YAMPA STREET STEAMBOAT SPRINGS, CO 80487 PHONE: (303) 300-3338 CONTACT: CHARLIE ROOS EMAIL: CROOS@ANTHEMSTRUCTURAL.COM

# **ELECTRICAL ENGINEER: AE DESIGN**

1900 WAZEE STREET #205 DENVER, CO 80202 PHONE: (303) 601-1743 CONTACT: JÓN BROOKS EMAIL: JBROOKS@AEDESIGN-INC.COM

PJ4680-1

**Fire Preventio** 

In: 03/17/2021

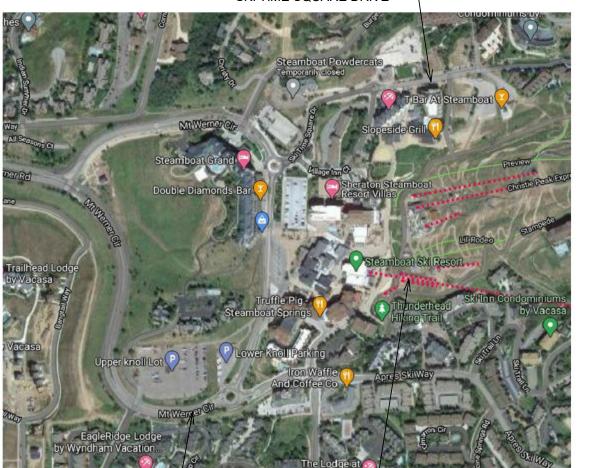
Out: 03/18/2021

E700

E800

E900

# SKI TIME SQUARE DRIVE —



MT WERNER CIRCLE

PROJECT SITE -

PROJECT COVER SHEET

**Sheet Number** 

Job Number: 20034

Checked By: Checker

**Project Phase** 

**Sheet Title** 

DESIGN DEVELOPMENT

Drawn By:

12/30/20

NOTICE: DUTY OF COOPERATION

Release of these plans contemplates further

performed their services with due care and diligence

these plans shall be reported immediately to the

shall relieve the architect from responsibility for the

consequences arriving out of such changes.

written consent of Eric Smith Associates, P.C.

**REVISIONS** 

## **CHAPTER 5 GENERAL BLDG HEIGHT & AREA:**

Area, Building: The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above. (from Commentary - the area measured within the perimeter formed by the inside surface of the exterior walls.)

#### **CONSTRUCTION TYPE:**

(CONSTRUCTION WILL BE ALL NON-COMBUSTIBLE, 1-HR RATED)

HEIGHT (TABLE 504.3): TYPE VA ALLOWED HEIGHT = 50' PROPOSED HEIGHT = 25'

TABLE 506.2 ALLOWABLE AREA FACTOR IN SF: TYPE VA, U OCCUPANCY ALLOWABLE AREA = 9,000 SF PROPOSED AREA = 425 SF

### **TABLE 509 INCIDENTAL USES:**

ROOMS WITH BOILERS WHERE THE LARGEST PIECE OF EQUIPMENT IS OVER 15 PSI AND 10 HORSEPOWER

SEPARATION AND/OR PROTECTION = 1 HOUR OR PROVIDE AUTOMATIC SPRINKLER SYSTEM 1 HOUR RATED SEPARATION WILL BE PROVIDED AT BOILER ROOM.

## **CHAPTER 6 TYPES OF CONSTRUCTION:**

TYPE VA STRUCTURE **BEARING WALL** EXTERIOR 1-HR

INTERIOR **NON-BEARING** 1-HR FOR 5<X<10 SEPARATIONS EXTERIOR 0-HR FOR X>30 SEPARATIONS

INTERIOR FLOORS 1-HR ROOFS

## **CHAPTER 7 FIRE RESISTANCE CONSTRUCTION:**

**SECTION 713.4 FIRE RESISTANCE RATING** SHAFT ENCLOSURES SHALL HAVE A FIRE RESISTIVE RATING OF NOT LESS THAN 1-HOUR WHERE CONNECTING LESS THAN FOUR STORIES. ELEVATOR SHAFT AND MACHINE ROOM TO HAVE 1-HR SEPARATION OF ADJACENT SPACES.

#### **CHAPTER 9 FIRE PROTECTION SYSTEMS:**

TABLE 903.2.11.6 ADDITIONAL REQUIRED SUPPRESSION SYSTEMS: INCIDENTAL USE AREA SEE SECTION 509.4

## **CHAPTER 10 MEANS OF EGRESS:**

TABLE 1004.5 MAX FLOOR AREA ALLOWANCES PER OCCUPANT: BOILER/ELEVATOR

425 SF / 300 SF PER OCC = 2 OCCUPANTS PLATFORM

USING AIRPORT TERMINAL WAITING AREAS @ 15 SF PER OCC GROSS PLATFORM/ OP CABIN 6.600 SF / 15 SF PER OCC = 440 OCCUPANTS

# **SECTION 1005.3.1 STAIRWAYS:**

**BOILER/ELEVATOR & PLATFORM** 442 OCC X .3" = 132.6" OF STAIR EGRESS REQUIRED DURING THE SUMMER GRIP-STRUT STAIRS WILL BE PROVIDED AT THE

# SECTION 1005.3.25 OTHER EGRESS COMPONENTS:

PLATFORM EDGE FOR EGRESS (133" MIN IN WIDTH)

442 OCC X .2" = 88.4" OF OTHER EGRESS OCCUPANCY DURING THE WINTER OCCUPANTS CAN WALK DIRECTLY OFF OF THE PLATFORM. 89" MIN OF EGRESS WILL BE PROVIDED.

# **SECTION 1111 SIGNAGE:**

SIGNAGE TO BE PROVIDED PER SECTION 1111. VERIFY ALL LOCATION OF SIGNAGE WITH OWNER IN FIELD. SIGNAGE TO MEET ALL REQUIREMENTS OF 2018 IBC, ANSI A117, ADA AND CDC.

# **CHAPTER 11 - ACCESSIBILITY:**

THE ELEVATOR HAS BEEN PROVIDED FOR ACCESSIBLE ACCESS TO THE PLATFORM. NEW SNOW MELTED CONCRETE PATH FROM THE ELEVATOR TO THE EXISTING PROMENADE WILL HAVE A SLOPE OF 5% MAX.

A PHONE WILL BE PROVIDED AT THE ELEVATOR (ON BOTH LEVELS) TO CONTACT SSRC SECURITY. OWNER WILL HAVE PROCEDURE IN PLACE TO EVACUATE GUESTS FROM PLATFORM IN THE CASE OF AN ISSUE WITH THE ELEVATOR.

### **CHAPTER 17 - SPECIAL INSPECTIONS:**

the building official that are identified in Section 110.

1704.2 General - Where application is made to the Building Official for construction as specified in section 105, the Owner or the owner's authorized agent, other than the contractor, shall employ one or more approved agencies to provide special inspections and tests during construction on the types of work specified in Section 1705 and identify the approved agencies to the building official. These special inspections and tests are in addition to the inspections by

**1705.14 Spray fire-resistant materials.** See section 1705.14 for required verification and inspection of spray fire-resistant materials applied to structural

See more information on Special Inspection requirements on S0.01

Please submit all Special Inspections to RCRBD in a timely manner per item and no work shall proceed beyond the point of

#### **PROJECT GENERAL NOTES:**

1. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSION AND CONDITIONS IN FIELD. DISCREPANCIES IN DIMENSIONS. EXISTING CONDITIONS AND FIELD MEASUREMENTS ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE COMMENCEMENT OF THE WORK.

2. THE GENERAL CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION MEETS OR EXCEEDS APPLICABLE CODES AND STANDARD PRACTICES, INCLUDING ALL FEDERAL, STATE AND LOCAL BUILDING REQUIREMENTS.

3. CONTRACTOR TO VERIFY TEMPERED GLAZING PROVIDED AT NEW DOORS AND WINDOWS PER CODE.

4. CONTRACTOR TO VERIFY MANUFACTURES INSTRUCTIONS AND PROCEDURES FOR INSTALLATION OF ALL MATERIALS & EQUIPMENT.

5. THROUGH-PENETRATION OR MEMBRANE PENETRATION FIRESTOPPING OF ALL FIRE-RESISTANT ASSEMBLIES REQUIRED PER IBC SECTION 713.

6. ALL WORK CONNECTED WITH THIS PROJECT BY ANY TRADE INVOLVED SHALL BE DONE IN A WORKMANSHIP TYPE MANNER IN ACCORDANCE WITH THE BEST PRACTICE OF THE TRADE.

7. CONTRACTOR SHALL PROVIDE JOB SITE CLEAN UP. SORT AND RECYCLE JOBSITE DEBRIS TO THE FULLEST EXTENT POSSIBLE INCLUDING CARDBOARD, STEEL, WOOD, ACOUSTICAL TILE, GLASS

AND GYPSUM BD. CLEAN AND REMOVE CONSTRUCTION DEBRIS FROM THE SITE ON A DAILY BASIS. UPON JOB COMPLETION, LEAVE THE SITE IN A NEAT AND ORDERLY CONDITION. PROVIDE TRASH REMOVAL FOR PROJECT RELATED WORK BY SUBCONTRACTORS, ETC.

8. COORDINATE PROJECT WORK WITH OWNER, LIFT PROVIDER AND BASE VILLAGE PROJECT. ACTIVITIES AND ACCESS TO AND AROUND THE PROJECT SITE WILL BE REQUIRED AT THE MOUNTAIN AND AT THE BASE VILLAGE DURING CONSTRUCTION.

9.ALL PERMITS (OCCUPANCY, ELECTRICAL, PLUMBING AND ALL OTHERS) REQUIRED BY STATE AND LOCAL CODES, EXCEPT THOSE ACQUIRED BY SUBCONTRACTORS, ARE TO BE SECURED BY THE GENERAL CONTRACTOR WITH COPIES TO OWNER WITHOUT EXTRA CHARGE. ALL PERMITS ACQUIRED BY SUBCONTRACTORS SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR FOR RECORD.

10.EACH TRADE SHALL VERIFY ALL REQUIREMENTS PERTAINING TO WORK PERFORMED IN THE PROJECT AND ANY REQUIRED PERMITS. ALL SUBCONTRACTORS SHALL DIRECT QUESTIONS, CHANGES OR REQUESTS THROUGH THE GENERAL CONTRACTOR. THE GENERAL CONTRACTOR SHALL SUBMIT ALL REQUESTS, CHANGES OR QUESTIONS TO THE

11.NO UTILITY, TELECOMM, LOW VOLTAGE, DATA SERVICE, ETC. MAY BE DISCONNECTED WITHOUT FIRST CONTACTING THE FACILITY MANAGER IN ADVANCE FOR AUTHORIZATION. THERE SHOULD BE NO INTERRUPTION OF EXISTING SYSTEMS

12.ALL EGRESS PATHS SHALL REMAIN OPEN AND AVAILABLE TO OWNER AND GUESTS.

13.IF UNANTICIPATED MECHANICAL, PLUMBING, ELECTRICAL, STRUCTURAL ELEMENTS OR ANY OTHER CONDITIONS ARE ENCOUNTERED WHICH MIGHT CONFLICT WITH THE INTENDED FUNCTION OF THE RENOVATION CONTACT THE ARCHITECT IMMEDIATELY FOR CLARIFICATION. COORDINATE ACTIVITIES WITH THE FACILITY MANAGER IN ADVANCE OF DOING WORK.

14.COORDINATE WORK OF DISCIPLINES, (ARCH., STRUCT., ELEC., MECH., PIPING, I.T., ETC.) WITH EXISTING CONDITIONS, SPECIAL REQUIREMENTS AND CONSTRUCTION

15.CONTRACTOR SHALL COMPLY WITH OWNER'S REQUIREMENTS FOR STORAGE, REMOVALS, NOISE LEVELS, VENTILATION AND LIMITATIONS OF ACCESS TO SITE. COORDINATE WITH FACILITY MANAGER FOR CLARIFICATION. NO CHANGE ORDERS WILL BE PERMITTED FOR FAILURE TO BE AWARE OF OWNER'S REQUIREMENTS.

16.PROVIDE, ERECT AND MAINTAIN TEMPORARY WORK AS MAY BE REQUIRED FOR PROTECTION OF THOSE IN OR ABOUT THE BUILDING.

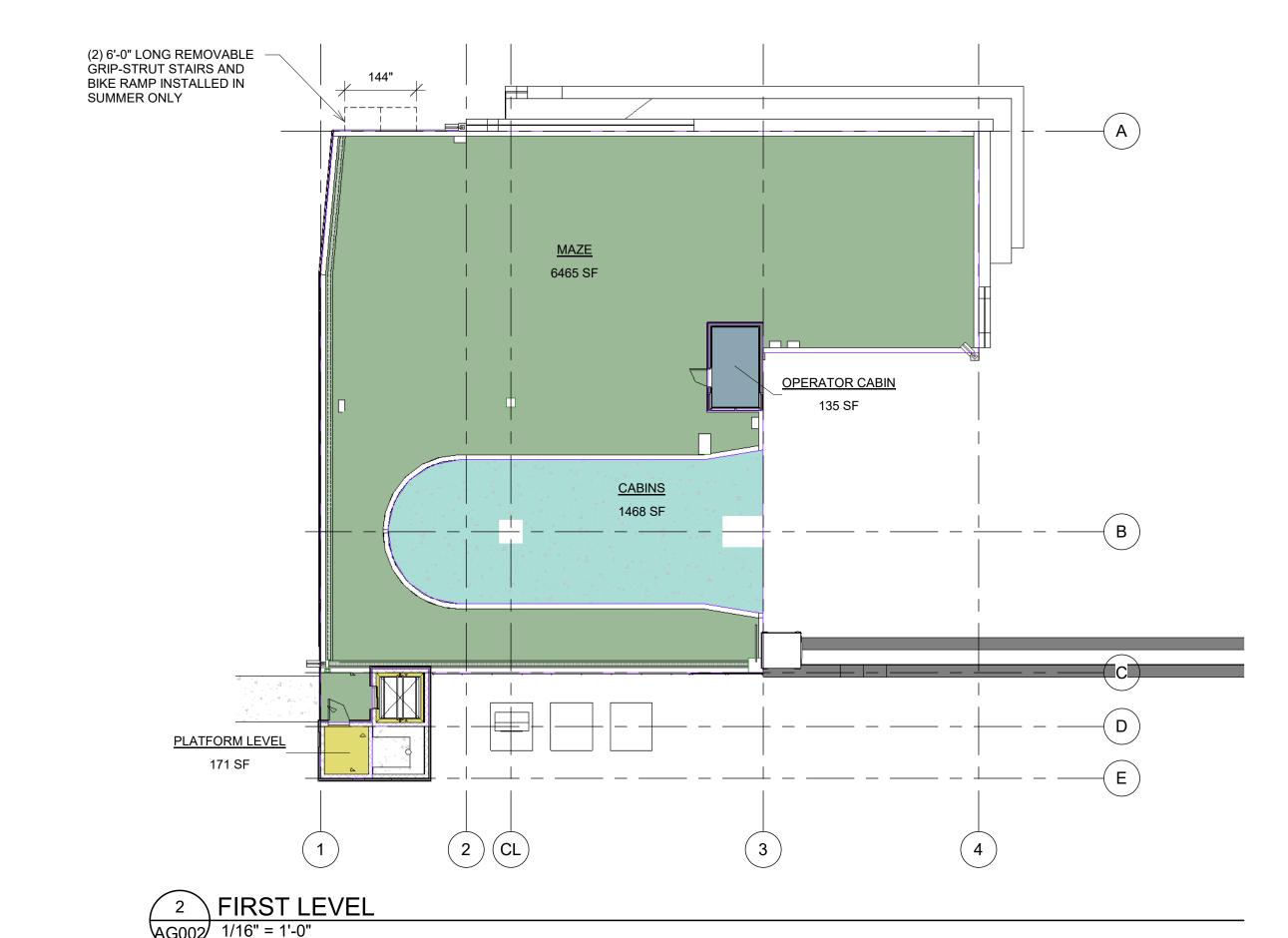
17 PROVIDE BARRICADES, PLASTIC COVERS, DUST BARRIERS, WARNING SIGNS, FIRE EXTINGUISHERS AND OTHER NECESSARY EQUIPMENT FOR THE PROTECTION AND SAFETY OF PERSONNEL, MATERIALS AND EQUIPMENT IN THE AREA.

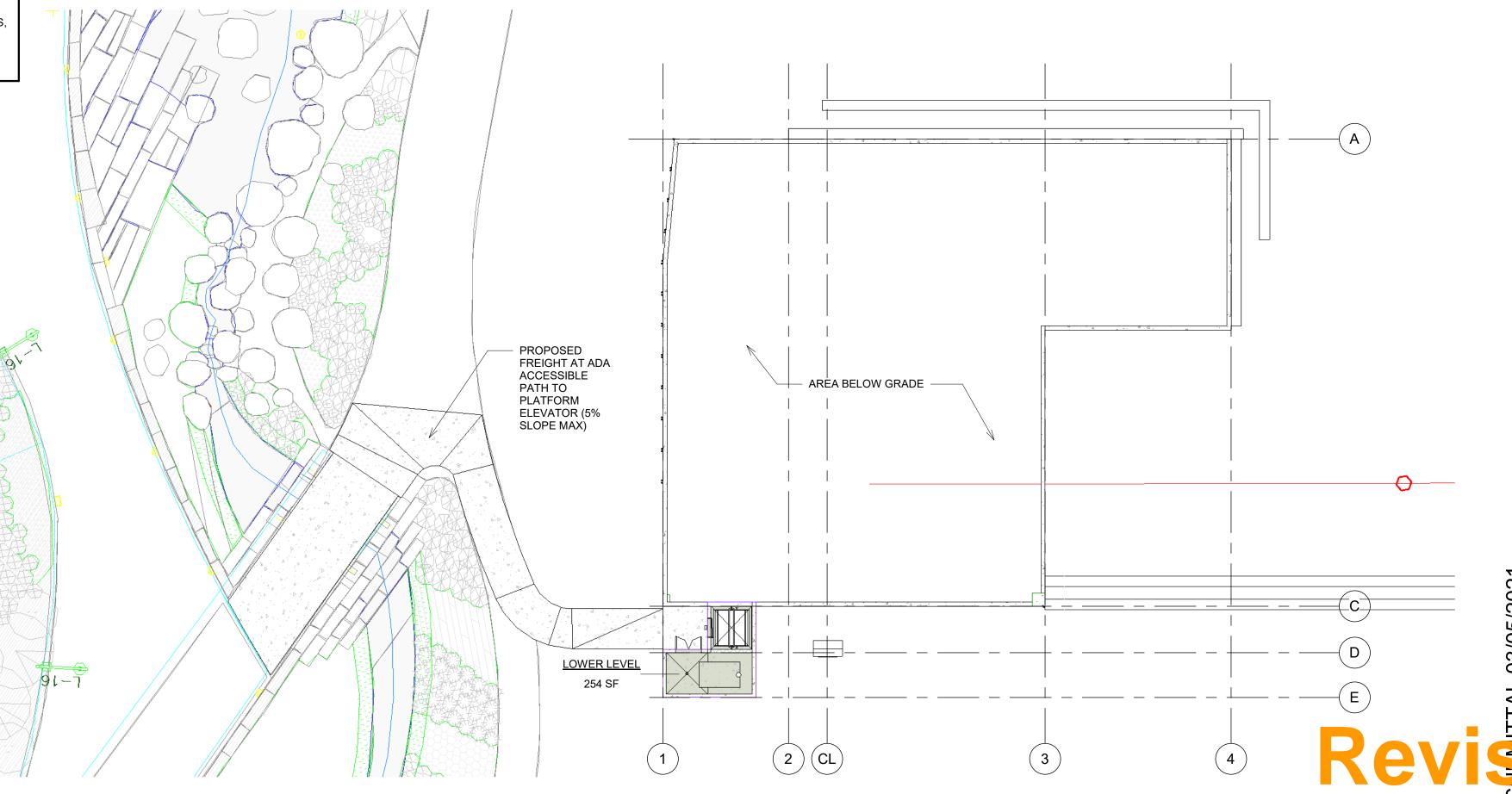
18.EACH CONTRACTOR SHALL INCLUDE COST OF MATERIAL AND LABOR NECESSARY TO PROVIDE ALL REQUIRED SUPPORTS, BEAMS, ANGLES, HANGERS, RODS, BASES, BRACES, CHANNELS, ETC. TO PROPERLY SUPPORT THEIR CONTRACT WORK.

19.PROVIDE ADEQUATE SUPPORTING BLOCKING WHERE REQUIRED.

**ELEVATOR/BOILER BLDG AREA** Area Name

LOWER LEVEL 254 SF PLATFORM LEVEL 171 SF 425 SF





LOWER LEVEL

SMITH

NOTICE: DUTY OF COOPERATION Release of these plans contemplates further cooperation among the owner, his contractor and the architect Design and construction are complex Although the architect and his consultants have performed their services with due care and diligence. they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the consequences. Changes made from the plans without consent of the architect are unauthorized and shall relieve the architect of responsibility for all

consequences arriving out of such changes. All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C. Eric Smith Associates, P.C

REVISIONS Description

**Job Number:** | 20034 12/30/20 Drawn By: Author Checked By: Checker

**Project Phase** DESIGN DEVELOPMENT

04/02/2021 3:38 04 PM Number

when special inspections are due to RCRBD.

## **DIVISION 02 - EXISTING CONDITIONS**

MAINTENANCE OF EXISTING CONDITIONS:

DO NOT DISTURB THE SITE BEYOND LIMITS OF NECESSARY ACTIVITY FOR

EXECUTION OF THE CONTRACT DOCUMENTS.

Hazardous Material found during Construction: If the Contractor becomes aware of the presence of hazardous materials in any form at the Project site including, but

limited to, asbestos, asbestos containing materials, polychlorinated biphenyl (PCB), lead based paints or other toxic substances he shall, prior to commencement of any portion of the Work, provide notice to the Owner of the presence, location, and condition of any known or suspected materials that are discovered. Such notice shall be in writing and

submitted no more than twenty-four (24) hours after such materials are discovered.

In the event of such discovery, the Contractor shall not proceed with the Work until he has received written authorization from

the Owner. If the Contractor proceeds with the Work without said authorization, he does so at his own risk.

In the event such materials are identified or encountered during the course of the Project, the Owner, at its expense, shall take all reasonable actions to properly and safely deal with such materials

The Contractor and subcontractors must comply with all applicable environmental federal, state, local environmental,

safety laws and regulations.

### **DIVISION 03 - CONCRETE**

03 00 00 CONCRETE
CONTRACTOR TO COORDINATE AND PROVIDE SPECIAL INSPECTIONS AS REQUIRED BY BUILDING DEPARTMENT OR STRUCTURAL ENGINEER.

REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ALL CONCRETE WORK INCLUDING STEEL REINFORCING, TOPPING AND STRUCTURAL SLAB DESIGN AND PATCHING.

PROVIDE TOOLED CONTROL JOINTS AND CONSTRUCTION JOINTS AT FLATWORK TO MATCH EXISTING ADJACENT JOINT PATTERNS. CONSTRUCTION JOINTS TO BE PROVIDED AT EXTERIOR SLABS AT 4'-0" OC MAX IN EACH DIRECTION AND WHERE NECESSARY DUE TO PROJECT CONDITIONS. VERIFY IF EXPANSION JOINTS ARE REQUIRED.

EXTERIOR (VERTICAL AND HORIZONTAL CONCRETE AND MASONRY) INTRAGUARD PENETRATING, WATER REPELLENT, SILANE/SILOXANE SEALING COMPOUND BY WR

MEADOWS OR EQUAL.

INTERIOR SLAB **BROOM FINISH WITH** 

APPLY "SEALTIGHT VOCOMP 20" CONCRETE SEALER BY WR MEADOWS (OR EQUAL) PER MANUFACTURES RECOMMENDATIONS AT ALL INTERIOR SLABS.

#### **DIVISION 04 - MASONRY**

<u>04 20 00 CONCRETE UNIT MASONRY</u> CONTRACTOR TO COORDINATE AND PROVIDE SPECIAL INSPECTIONS AS REQUIRED BY BUILDING DEPARTMENT OR STRUCTURAL ENGINEER.

CONCRETE MASONRY UNITS SHALL COMPLY WITH ASTM STANDARDS. PATTERN AND SIZE PER DRAWINGS.

ELEVATOR AND BOILER ROOM WALLS AT PLATFORM LEVEL

CONSTRUCTION OF CMU SHALL TAKE PLACE WITHIN TEMPERATURE RANGE AS SPECIFIED BY MORTAR MANUFACTURER. CURING TEMPERATURES TO BE MAINTAINED FOR DURATION OF TIME AS SPECIFIED BY MORTAR MANUFACTURER. REMOVE EXCESS MORTAR AND PROVIDE TOLLED JOINTS.

SEE STRUCTURAL FOR MORE INFORMATION.

# **DIVISION 05 - METAL**

REFER TO AND COMPLY WITH ALL STRUCTURAL DRAWINGS AND SPECIFICATIONS.

STRUCTURAL ENGINEER SHALL REVIEW ALL STRUCTURAL STEEL UNLESS NOTED OTHERWISE ON THE DRAWINGS. PROVIDE SHOP DRAWINGS FOR STRUCTURAL STEEL BEAMS, COLUMNS, LOOSE STEEL LINTELS, CONCRETE EMBED PLATES, ETC. SHOP PRIME ALL EXPOSED AND CONCEALED METAL COMPONENTS, ALL SHOP DRAWINGS SHALL BE CHECKED BY SUPPLIER AND REVIEWED BY CONTRACTOR PRIOR TO SUBMITTAL TO ARCHITECT.

DO NOT CUT HOLES THROUGH STEEL FOR PENETRATIONS OF PLUMBING ETC. WITHOUT PRIOR APPROVAL FROM STRUCTURAL ENGINEER.

FURNISH AND INSTALL ALL HANGERS, HURRICANE RAFTER CLIPS, WALL BRACKETS, END CLOSURES, FLANGES MISCELLANEOUS FITTINGS, SLEEVES, INSERTS AND ANCHORS INCLUDING FOR INTERCONNECTIONS OF PIPE AND ATTACHMENTS OF RAILINGS AND HANDRAILS TO OTHER WORK. BRACKETS, COLUMNS, LINTELS, ETC.

<u>05 41 00 STRUCTURAL METAL STUD FRAMING</u>

PRIOR TO BUILDING ANY EXTERIOR OR INTERIOR WALLS, ALL FRAMING DIMENSIONS SHOULD BE VERIFIED BY THE CONTRACTOR. NOTIFY THE ARCHITECT OR ANY DISCREPANCIES.

SEE STRUCTURAL FOR METAL STUD SPECIFICATION.

# 05 52 00 METAL RAILINGS

EXTERIOR RAILINGS AT PERIMETER OF PLATFORM AND ON RETAINING WALLS.

SUBMIT SHOP DRAWINGS OF METAL FABRICATIONS AND PREFABRICATED ITEMS.

GRIND EXPOSED EDGES AND WELDS SMOOTH AND FLUSH. NO TACK WELDS ALLOWED AS FINISHED PRODUCT.

FABRICATE ANCHORS AND RELATED COMPONENTS FOR METAL FABRICATIONS OF SAME MATERIAL AND FINISH UNLESS OTHERWISE SPECIFIED.

REFERENCES: American Society for Testing of Materials (ASTM): ASTM A36 - Standard Specification for Carbon Structural Steel.

ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and

ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.

Product Data: Manufacturer's data sheets for products and assemblies specified.

Preparation instructions and recommendations.

Storage and handling requirements and recommendations. Cleaning methods.

Indicate profiles, sizes, connections, size and type of fasteners, accessories. Show location of rails and guardrails including plans, details of components and anchor details. Field Verified Measurements: Verify dimensions indicated on Drawings.

Verification Samples: For each finish specified, two samples representing actual colors specified.

INSTALL PER ADA AND IBC CODE REQUIREMENTS FOR DESIGN CLEARANCES, HEIGHT AND ATTACHMENT.

EXTERIOR EXPOSURE - PRE-FINISH KYNAR FINISH COLOR BLACK (OR APPROVED EQUAL)

#### DIVISION 07 - THERMAL AND MOISTURE PROTECTION

07 13 26 SELF-ADHERING SHEET WATERPROOFING LOCATION: Foundation vertical walls.

MANUFACTURER: Carlisle Coatings and Waterproofing Incorporated or equal.

CCW MiraDRI Carlisle 860/861 - a self-adhesive membrane of not less than 60 mils thickness, consisting of a 56 mil rubberized-asphalt membrane laminated to 4 mil cross-laminated polyyetheylene film, and shall meet or exceed the

following requirements:

1. Thickness: 60 mils, ASTM D 3767

2. Tensile Strength (Membrane): 325 psi, ASTM D 412 3. Tensile Strength (Film): 5000 psi. ASTM D 882 4. Elongation: 350% minimum, ASTM D 412

5. Permeance: 0.05 Perm maximum, ASTM E 96 6. Flexibility, 180° bend over 1 in. mandrel at -45°F: Unaffected, ASTM D 1970

7. Crack Cycling at -25°F (100 cycles): Unaffected, ASTM C 836 8. Peel Strength: 10.0 lb/in, ASTM D 903 9. Lap Adhesion: 19.0 lb/in, ASTM D 1876

10. Puncture Resistance: 60 lb (min), ASTM E 154 11. Soil Burial 16 weeks: No Effect, GSA-PBS 07121 12. Water Absorption: 0.1% by wt., ASTM D 570 13. Hydrostatic Head: 230 ft., ASTM D 5385

For application temperatures between 25°F and 65°F, use CCW-861 Sheet Membrane and CCW-702, CCW-702LV, or CCW-715. For application temperatures above 40°F use CCW

MiraDRI 860 sheet membrane and CCW-702, CCW-702LV, CCW-702WB, CCW-715, CCWAWP,

or Cav-Grip.

**ACCESSORY PRODUCTS:** A. Surface Primer: Shall be CCW-702, CCW-702LV, CCW-715, CCW-702WB, CCW-AWP or Cav-Grip.

B. Mastic: Shall be CCW-704 Mastic. C. Sealants: Shall be CCW-703 Vertical Grade Liquiseal Membrane, CCW-LM-800XL, CCW-201 two-component Polyurethane Sealant or approved sealant by CCW.

D. Backer Rod: Shall be closed-cell polyethylene foam rod. E. Protection Course: Shall be CCW-Protection Board-H or HS, CCW-300HV for horizontal surfaces or CCW-Protection Board-V or CCW-200V for vertical surfaces. F. Drainage Composite: Shall be CCW MiraDRAIN as recommended by the manufacturer for each

G. Perimeter Drainage System: Where required shall be CCW MiraDRAIN HC.

Install per manufacturers recommendations. Installation to be done by trained and certified installers.

Upon completion and acceptance of the work required by this section, the manufacturer will issue a warranty agreeing to promptly replace defective materials installed by an approved applicator for a period of 5 years.

Provide foundation perimeter drainage system per Soils Report. Provide clean-outs at all corners.

**07 21 00 THERMAL INSULATION:**PROVIDE INSULATING MATERIALS AS NOTED BELOW AND IN THE DRAWINGS. SEE FLOOR AND WALL TYPE DRAWINGS FOR MORE INFORMATION.

Basis of Design - "UNFACED CertainTeed Fiber Glass Building Insulation". No kraft facing allowed on insulation. Thermal Batts to be un-faced and friction fit into studs. Flame spread index of 25 or less for use in non-combustible

construction. - Exterior metal stud cavity = 3 1/2" (R-15)

- Tapered polyisocyanurate tapered ISO 1 board roof insulation above roof structure. Coordinate insulation type with roofing mfr recommendations.

6" thickness min (R-30)

Basis of Design - Owens Corning FOAMULAR & FOAMULAR NGX 400 and 600 XPS Insulation or equal

- 25 PSI minimum under platform pavers with snowmelt - 60 PSI minimum under concrete slab on grade with snowmelt

CLOSED CELL SPRAY INSULATION

Basis of Design - CertainTeed Certa-Spray Closed Cell Foam or equal - 2" CLOSED CELL SPRAY FOAM LOCATED BELOW METAL DECK AT PLATFORM LEVEL CONCRETE FLOOR SYSTEM FOR SNOWMELT LOCATED IN CONCRETE FLOOR IN THAT AREA. PROVIDE EXTERIOR GYP BD ENCLOSURE FOR SOFFIT BELOW TO PROVIDE 15 MINUTE THERMAL BARRIER.

Provide R-19 batt wrap around all exhaust vent duct lines that penetrate the exterior wall or that extend in and through the attic or floor systems.

Provide preformed foam insulation wrap around all plumbing lines that penetrate or set within 36" of exterior walls or in attic spaces. Verify all plumbing and HVAC insulation with Mechanical and Plumbing drawings and Specs.

SILL SEALER

Provide sill sealer at top of concrete slabs, entire length. Manufacturer: Dow "Weathermate" or approved equal.

Expandable foamed-in-place insulation at all window/door shim spaces and at any other voids and or gaps in exterior walls using care to avoid bowing frames from overfilling.

Provide manufactures warranty on all insulation products.

ARCHITECT OR OWNER TO INSPECT ALL INSULATION PRIOR TO CONCEALMENT.

# 07 25 00 WEATHER BARRIERS:

At new exterior metal stud walls. Verify weather barrier is compatible with wall system per Metal Siding manufacturers' requirements.

Basis of Design:

DuPont Tyvek "CommercialWrap". Install as per manufactures recommendations. Tape lapped joints with "Tyvek

Note: Provide extended 10 years on standard warranty by having site observations performed by Tyvek.

Door and window sills, jambs and heads: Flash all door and window edges with 9" minimum width DuPont™ StraightFlash™ flashing, manufactured by DuPont. Lap flashing over nailing fins after door and window installation is completed per Manufacturers recommendations.

07 46 00 SIDING

Metal wall siding at exterior of Elevator/Boiler Room Building.

MBCI Exposed Fastening System PBD. System based on metal siding at Operator Cabin as specified by lift provider.

Product Specifications • Applications: Roof and Wall • Coverage Width: 32"

• Rib Spacing: 2.67" on Center Rib Height: <sup>5</sup>/<sub>8</sub>"

• Minimum Slope: 3:12 • Panel Attachment: Exposed Fastening System • Gauges: 26 (standard) • Finishes: Smooth (standard)

• Coatings: Signature® 200 FINISH TO BE CHARCOAL GRAY. VERIFY WITH OWNER AND LIFT PROVIDER BEFORE ORDERING AS METAL SIDING IS TO MATCH OPERATOR CABIN METAL SIDING COLOR.

SAMPLES: PROVIDE WALL PANEL AND COLOR SAMPLES TO OWNER FOR THEIR RECORDS.

PROVIDE MANUFACTURERS STANDARD WARRANTY

## DIVISION 07 - THERMAL AND MOISTURE PROTECTION

# 07 50 00 MEMBRANE ROOFING

SINGLE - PLY MEMBRANE ROOFING SYSTEM

Location - Elevator/Boiler Room Building Roof

Compatibility: Provide products recommended by manufacturers to be fully compatible with indicated substrates. Provide separation of materials as required to eliminate contact between incompatible materials.

General: Ethylene propylene diene monomers formed into uniform, flexible sheets complying with ASTM D 4637, Type 1. Class A: Minimum Provide fully adhered 60 mil SPM-60W EPDM.

Exposed Face Color: White Fully adhered with mechanically attached insulation (or as required by roofing manufacturer)

**MANUFACTURERS** 

Subject to compliance with requirements, provide products of one of the following: CARLISLE SYNTEC (or approved equal)

Sheet Seaming System: Manufacturer's standard materials for sealing lapped joints, including edge sealer to cover exposed spliced edges as recommended by membrane manufacturer.

Cant Strips, Tapered Edge Strips and Flashing Accessories: Types recommended by membrane manufacturer,

including adhesive tapes, flashing cements and sealants. Flashing Material: Manufacturer's standard system compatible with single-ply membrane.

with taper of 1/4" to 1/2" per foot, unless otherwise indicated. See also Thermal Insulation in Division 7

Slip Sheet: Type recommended by membrane manufacturer for protecting membrane from incompatible substrates.

Pipe Boot: Provide EPDM type pipe boot(s). Roof manufacturer's standard. Pipe boots to be used for all vent and pipe roof

Pressure Sensitive Walking Pads: Molded walkway pads with Factory-Applied SecurTAPE for EPDM membrane protection

in walking areas around roof. Equipment Pad: Provide each condensing unit with separate equipment pad. On the roof, each equipment pad is to sit on a

pressure sensitive walking pad to protect the roof system below. Insulating Materials: Provide Tapered Polyisocyanurate Tapered ISO 1 Board Roof Insulation sloping to drain. Fabricate

Mechanical Anchors: Corrosion-resistant type as recommended by insulation manufacturer and approved by membrane manufacturer for deck type and complying with fire and insurance wind-uplift rating requirements.

Warranty - Provide 20 – year total roof system warranty.

Submit product data installation instructions and general recommendations from manufacturer of single-ply membrane system for types of roofing required. Include data substantiating that materials comply with requirements

Samples of finished roofing sheets, including T-shaped side/end-lap seam.

Certification that materials comply with local VOC limitations

# 07 60 00 FLASHING AND SHEET METAL

SHEET METAL FLASHING AND TRIM Summary: Roof flashing, drip edge, fascia, metal cap flashing, counter flashing, base flashing, roof to wall connections,

Basis of Design:

Prefinished Metal Pac-Clad flashing and trim by Petersen Aluminum or approved equal

over door and window heads, at wall penetrations, miscellaneous sheet metal accessories, etc.

Provide all exposed flashing and trim pieces (drip edges, fascias, flashing, etc.) with Pac-Clad Petersen Aluminum galvanized steel finish with Pac-Clad Kynar 500 top finish and polyester wash coat bottom finish in 22-GA steel.

Pac-Clad flashing and trim in Kynar 500 custom colors to be selected by Owner/Architect from standard colors.

Sheet Metal Flashing and Trim Materials: Zinc-coated steel: commercial quality with 0.20 percent copper, G90 hot-dip galvanized, mill phosphatized field painted, 20-GA, except as noted otherwise.

Metal Soffit: https://www.mbci.com/products/roof/soffits/artisan-/ Coverage Width - 12" Panel

Gauge - 24 (standard); 26, 22 (optional) Finishes - Smooth (standard) Coatings - Signature® 200

Attachment - Concealed Fastening System

Length - 4'-0" to 10'-0" Inquire about longer lengths FINISH TO BE CHARCOAL GRAY. VERIFY WITH OWNER AND LIFT PROVIDER BEFORE ORDERING AS METAL

SIDING IS TO MATCH OPERATOR CABIN METAL SIDING COLOR. SAMPLES: PROVIDE WALL PANEL AND COLOR SAMPLES TO OWNER FOR THEIR RECORDS.

Install all flashing and sheet metal in strict accordance with SMACNA requirements, manufacturer's recommendations and

Basis-of-Design: 40 mil."Air-Shield Thru-Wall Flashing" by WR Meadows

PROVIDE MANUFACTURERS STANDARD WARRANTY.

in accordance with requirements of adjacent materials and systems. Plastic Sheet Flashing and Self-Adhering Sheet Flashing:

Manufactures to include WR Meadows, Fortifiber Building Products, Protecto Wrap Company or approved equal.

07 80 00 FIRE AND SMOKE PROTECTION

**CONCEALED SPRAYED-ON FIREPROOFING MATERIALS** General: for concealed applications of sprayed-on fire proofing provided manufacturer's standard products complying

<u>Material Composition:</u> Cementitious fireproofing consisting of factory-mixed, dry formulation of gypsum or Portland cement binders and lightweight mineral or synthetic aggregates mixed with water at Project site to form a slurry or mortar

with the requirements indicated in this article for material composition and physical properties representative of installed

Products:
Basis of Design: ISOLATEK INTERNATIONAL — Type 280 per UL D902 THE FIREPROOFING MATERIALS LISTED ARE PER THE UNDERWRITERS LABORATORIES. INC. SEE THE FIRE RATED ASSEMBLIES IN THE DOCUMENTS AND THE UL DESIGN PUBLISHED DIRECTORY FOR THE COMPLETE

PROVIDE product certificates from fireproofing manufacturers that each sprayed-on fireproofing product indicated for

Project complies with specified requirements including those for fire-test-response characteristics and compatibility with

adhesives, primers, and other surface coatings on substrates indicated to receive fireproofing.

ASSEMBLIES AND REQUIREMENTS.

AUXILIARY FIREPROOFING MATERIALS General: Provide auxiliary fireproofing materials that are compatible with sprayed-on fireproofing products and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in the fire-resistive designs indicated.

07 84 13 PENETRATION FIRESTOPPING

PENETRATED.

Contractor to submit UL fire assemblies for review for scope of penetrations as listed below.

THIS SECTION INCLUDES FIRESTOPPING FOR THE FOLLOWING PENETRATIONS:

THIS SECTION INCLUDES FIRESTOPPING AT THE FOLLOWING SYSTEMS: - THROUGH ROOF AND WALLS (60-MIN RATED)

- Sealant joints in fire-resistance-rated construction. Basis of Design: Hilti or 3M firestop systems and 3M firesafe products or approved equal. FIRESTOP SYSTEM INSTALLATION MUST MEET REQUIREMENTS OF ASTM E 814, UL 1479 OR UL 2079 TESTED ASSEMBLIES THAT PROVIDE A FIRE RATING EQUAL TO THAT OF THE CONSTRUCTION BEING

- Both empty openings and openings containing cables, pipes, ducts, conduits and other penetrating items.

**DIVISION 07 - THERMAL AND MOISTURE PROTECTION (cont)** 

## 07 84 13 PENETRATION FIRESTOPPING (CONT):

SUBMITTALS: PRODUCT DATA - MANUFACTURER'S SPECIFICATIONS AND TECHNICAL DATA FOR EACH MATERIAL INCLUDING THE COMPOSITION AND LIMITATIONS, DOCUMENTATION OF QUALIFIED FIRESTOP SYSTEMS TO BE USED AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. ALL FIRE STOP PENETRATIONS THAT ARE PROPOSED BY THE CONTRACTOR PER FIELD VERIFICATION ARE TO PROVIDE A UL LISTED ASSEMBLY DETAIL THAT APPLIES TO THE PROPOSED LOCATION REQUIREMENTS.

CERTIFICATION BY FIRESTOPPING MFR THAT PRODUCTS SUPPLIED COMPLY WITH LOCAL REGULATIONS FOR USE OF LOW VOLATILE ORGANIC COMPOUNDS (VOCs) AND ARE NONTOXIC TO BUILDING OCCUPANTS.

INSTALLER QUALIFICATIONS - ENGAGE A EXPERIENCED INSTALLER WHO HAS COMPLETED FIRESTOPPING THAT IS SIMILAR IN MATERIAL, DESIGN AND EXTENT TO THAT INDICATED FOR PROJECT AND HAS PERFORMED SUCCESSFULLY.

PROVIDE FIRESTOPPING COMPOSED OF COMPONENTS THAT ARE COMPATIBLE WITH EACH OTHER. THE SUBSTRATES FORMING OPENINGS, AND THE ITEMS, IF ANY PENETRATING THE FIRESTOPPING UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY THE FIRESTOPPING MANUFACTURER BASED ON TESTING AND FIELD EXPERIENCE.

#### PRODUCTS:

Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

components specified by the firestopping manufacturer and approved by the qualified testing and inspecting

Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only

agency for the designated fire-resistance-rated systems. Applications: Provide firestopping systems composed of materials specified in this Section that comply with

system performance and other requirements. FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

Ceramic-Fiber Sealant: Single-component formulation of ceramic fibers and inorganic binders.

Endothermic, Latex Sealant: Single-component, endothermic, latex formulation. Intumescent, Latex Sealant: Single-component, intumescent, latex formulation.

Intumescent Putty: Nonhardening, dielectric, water-resistant putty containing no solvents, inorganic fibers or silicone compounds.

Intumescent Wrap Strips: Single-component, elastomeric sheet with aluminum foil on one side.

Job-Mixed Vinyl Compound: Prepackaged vinyl-based powder product for mixing with water a Project site to produce a paintable compound, passing ASTM E 136, with flame-spread and smoke-developed ratings of zero per

Silicone Sealant: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealant of grade indicated below: Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag

formulation for openings in vertical and other surfaces requiring a nonslumping/gunnable sealant, unless indicated

firestop system limits use to nonsag grade for both opening conditions. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work

include, but are not limited to, the following: Ceramic-Fiber Sealant:

Metacaulk 525, The RectorSeal Corporation. Endothermic, Latex Sealant:

Fyre-Shield, Tremco, Inc.

Intumescent Latex Sealant: Metacaulk 950, The RectorSeal Corporation.

Pensil 500 Intumescent Putty, General Electric Company.

FS611A Intumescent Firestop Sealant, Hilti Construction Chemicals, Inc.

Flame-Safe FSP1000 Putty, International Protective Coatings Corporation. Intumescent Wrap Strips:

CS2420 Intumescent Wrap, Hilti Construction Chemicals, Inc. Job-Mixed Vinyl Compound:

USG Firecode Compound, United States Gypsum Company. FS635 Trowelable Firestop Compound, Hilti Construction Chemical, Inc

Pensil 100 Firestop Sealant, General Electric Company

CS240 Firestop Sealant, Hilti Construction Chemicals, Inc. Metacaulk 835, The RectorSeal Corporation. Metacaulk 880, The RectorSeal Corporation.

Fyre-Sil, Tremco, Inc. Fyre-Sil S/L, Tremco, Inc.

INSTALL FIRESTOP MATERIALS IN ACCORDANCE WITH UL FIRE RESISTANCE DIRECTORY. COMPLY WITH

MANUFACTURER INSTRUCTIONS FOR INSTALLATION FOR ALL FIRESTOPPING MATERIALS.

07 90 00 JOINT PROTECTION PROVIDE THE FOLLOWING SEALANT TYPES WHERE INDICATED ON THE DRAWINGS AND AT OTHER TYPICAL LOCATION, INCLUDING BUT NOT LIMITED TO: - Exterior joints in vertical surfaces including perimeter joints and around dissimilar materials.

- Exterior joints in horizontal traffic surfaces including control, expansion and isolation joint in cast-in-place concrete slabs for floors and decks. - Interior joints in horizontal traffic surfaces including perimeter joints of exterior openings, tile control and expansion joints, perimeter joints b/w interior wall surfaces and frames of interior doors, windows and elevator entrances, perimeter joints of toilet fixtures and hardware, interior trim locations.

- Interior joints in horizontal traffic surfaces including control and expansion joints in cast-in-place concrete slabs. - At all dissimilar material intersections.

MULTI-PART POURABLE URETHANE SEALANT

PROVIDE JOINT SEALERS. JOINT FILLERS AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY SEALANT MANUFACTURER BASED ON TESTING AND FIELD

EXTERIOR AND INTERIOR:

REQUIRED.

REQUIREMENTS.

- DAP 50 YEAR "ALEX ULTRA 230 PREMIUM INDOOR/OUTDOOR SEALANT WITH MICROPBAN ANTIMICROBIAL PRODUCT PROTECTION" OR APPROVED EQUAL.

- POLYURETHANE COMPLYING WITH USE AT HORIZONTAL JOINTS IN CONCRETE FLATWORK.

"VULKEM 245 MAMECO WATERPROOFING SEALANT" AND "PECORA CORPORATION - NR-200

URESPAN" OR APPROVED EQUAL. LATEX JOINT SEALANT - INTERIOR TINTED/COLORED CAULK: - SPECTRUM MFG. CORP. "SPECTRUM 2000", TEC "ACCUCOLOR" OR APPROVED EQUAL

SILICONIZED ACRYLIC LATEX CAULK. JOINT SEALANT BACKING: - POLYETHYLENE FOAM COMPRESSIVE ROD STOCK. PROVIDE BACKER ROD AT ALL JOINTS AS

ALL PIPING, CONDUIT, PHONE/DATA LINES AND OTHER WIRING PENETRATIONS AT FIRE RATED ASSEMBLIES SHALL BE SEALED PER REQUIRED UL ASSEMBLIES.

PROVIDE APPROPRIATE TYPE OF SEALANT FOR GIVEN APPLICATION. INSTALL PER MANUFACTURER

COLORS TO MATCH ADJACENT MATERIALS, SUBMIT COLOR SAMPLES FOR FINAL SELECTION.

ERICI P SMITH MAR 05 2021 SED ARCY

NOTICE: DUTY OF COOPERATION Release of these plans contemplates further cooperation among the owner, his contractor and the architect. Design and construction are complex.

Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated.

Any ambiguity or discrepancy discovered by the use of

these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the consequences. Changes made from the plans without consent of the architect are unauthorized and shall relieve the architect of responsibility for all consequences arriving out of such changes.

All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express

written consent of Eric Smith Associates, P.C. Eric Smith Associates, P.C.

**REVISIONS** Date Description

RING

.Iob Number: 20034 12/30/20 Date: Drawn By: Author Checked By: Checker **Project Phase** 

DESIGN DEVELOPMENT **Sheet Title** SPECIFICATIONS

**Sheet Number** 

BASIS-OF-DESIGN FOR HOLLOW METAL DOORS & FRAMES CECO DOOR (ASSA ABLOY) OR APPROVED EQUAL www.cecordoor.com 888-264-7474

PRODUCT:

FIRE RATED AND NON FIRE RATED STEEL FRAMES SERIES SU STEEL FRAMES (UNEQUAL RABBET) FOR 1 3/4" THICK DOORS

STANDARD WALL APPLICATION, HANDED KNOCK DOWN CORNER AT EXISTING WALLS, WELDED CORNERS AT NEW WALLS 16 GA STEEL. FACTORY PRIMED.

SUBMITTALS:

PRODUCT DATA: DOOR MANUFACTURER'S TECHNICAL DATA FOR EACH TYPE OF FRAME. - SHOP DRAWINGS: SUBMIT SHOP DRAWINGS INDICATING LOCATION AND SIZE OF EACH DOOR, FRAME, ELEVATION OF EACH KIND OF DOOR, HAND OF EACH COMPONENT, DETAILS OF CONSTRUCTION, LOCATION AND EXTENT OF HARDWARE BLOCKING, FIRE RATINGS, REQUIREMENTS FOR FACTORY FINISHING AND OTHER PERTINENT DATA.

WARRANTY

LIFETIME LIMITED.

08 13 00 METAL DOORS:

888-264-7474

DOOR LOCATION IS INDICATED ON DRAWINGS AND IN SCHEDULE

BASIS-OF-DESIGN FOR HOLLOW METAL DOORS & FRAMES CECO DOOR (ASSA ABLOY) OR APPROVED EQUAL www.cecordoor.com

FIRE RATED AND NON FIRE RATED METAL DOORS REGENT (RI) OR OMEGA (OI) HONEYCOMB CORE DOORS (FLUSH AND EMBOSSED PANEL STEEL DOORS, BEVELED LOCK EDGE) SIZE: 1 3/4" THICK 18 GA STEEL DOOR PANEL FACE, FACTORY PRIME.

PREP DOOR FOR HARDWARE

**EXTERIOR METAL DOOR** VERSADOOR (VU) POLYURETHANE FOAM CORE (FLUSH AND EMBOSSED PANEL STEEL DOORS, NON-HANDED) 18 GA STEEL DOOR PANEL FACE, FACTORY PRIME.

PREP DOOR FOR HARDWARE

- PRODUCT DATA: DOOR MANUFACTURER'S TECHNICAL DATA FOR EACH TYPE OF DOOR.

INCLUDING DETAILS OF CORE AND EDGE CONSTRUCTION, TRIM FOR OPENINGS AND FACTORY FINISHING SPECIFICATIONS. - SHOP DRAWINGS: SUBMIT SHOP DRAWINGS INDICATING LOCATION AND SIZE OF EACH DOOR, ELEVATION OF EACH KIND OF DOOR, HAND OF EACH COMPONENT, DETAILS OF CONSTRUCTION, LOCATION AND EXTENT OF HARDWARE BLOCKING, FIRE RATINGS, REQUIREMENTS FOR FACTORY FINISHING AND OTHER PERTINENT DATA.

Provide tempered glass as required by code, and all weather-stripping, jamb extensions, adjustable thresholds, nailing fins, drip caps, etc. Attach door units as recommended by manufacturer. Doors shall be hung and shimmed, plumb and square, providing smooth operation and even closing.

WARRANTY LIFETIME LIMITED.

08 31 00 ACCESS DOORS AND PANELS Basis of Design - The Williams Brothers Corporation of America (www.wbdoors.com)

WB-FR 800 Series Standard Insulated Metal Fire Rated Access Door:

2-hour rated for floor/ceiling, 1-1/2 hour rated for wall assembly. Size as appropriate. Keep size as small as

Paint all doors to match adjacent surface

WB-DW 400 Series for Drywall Access Door:

Non-Rated Wall Assembly: size as appropriate. Keep size as small as possible. Paint all doors to match adjacent

Accessories, connectors, and related materials shall be as per manufacturer's instructions and building code requirements. Install per manufacturers recommendations.

08 70 00 DOOR HARDWARE: WORK INCLUDED:

The work in this section shall include furnishing of all items of finish hardware as hereinafter specified or obviously necessary to complete the building, except those items, which are specifically excluded from this section of the specification.

RELATED WORK SPECIFIED ELSEWHERE: Metal Frames: Section 08 12 00

Metal Doors: Section 08 13 00

REFERENCES: A. ANSI/NFPA 80 - Fire Doors and Windows B. AWI - Architectural Woodwork Institute C. BHMA - Builders' Hardware Manufacturers Association

D. DHI - Door and Hardware Institute E. NAAMM - National Association of Architectural Metal Manufacturers

F. NFPA 101 - Life Safety Code G. ANSI/BHMA A156.17

**DESCRIPTION OF WORK:** 

Furnish material to complete hardware work indicated, as specified herein, or as may be required by actual conditions at building. Include all necessary screws, bolts, expansion shield, other devices, if necessary as required for proper hardware application. The hardware supplier shall assume all responsibility for correct quantities.

All hardware shall meet the requirements of Federal, State, and Local codes and laws having jurisdiction over this project, notwithstanding any real or apparent conflict therewith in these specifications.

Fire-Rated Openings

Provide hardware for fire-rated openings in compliance with NFPA 80 and NFPA Standards No. 101. This requirement takes precedence over other requirements for such hardware. Provide hardware that has been tested and listed by UL for the types and sizes of doors required and complies with the requirements of the door and door frame labels.

Hardware as furnished shall conform to published template generally prepared for machine screw installation. Furnish each item complete with all screws required for installation. Typically, all exposed screw installation. Insofar as practical, furnish concealed type fasteners for hardware that is exposed. Screws shall be furnished with Phillips flat head, finished to match adjacent hardware.

Door closures and exit devices to be installed on wood or composite fire doors shall be attached with closed head through bolts (hex bolts).

Prior to ordering hardware, prepare and submit for review of hardware schedule covering all items required for entire job. Schedule to identify manufacturer of each item and shall give type numbers and finish symbols; including catalog cuts for each item. No horizontal schedule will be accepted. Review of the hardware schedule shall not relieve contractor from furnishing all necessary hardware specified in this section.

Furnish suitable templates, together with finish hardware schedule to contractor, for distribution to necessary trades. Furnish three sets of operating and maintenance manuals for all hardware.

Submit samples as requested of any items of hardware to be furnished for the project for final review. Architect-Engineer is sole judge of equality.

Submit keying schedule as directed by Owner or Architect/Engineer.

General Contractor to Submit copy of final approved hardware schedule to Building Department.

**DIVISION 08 - OPENINGS** 

08 70 00 DOOR HARDWARE (CONT):

General Contractor to Submit copy of final approved hardware schedule to Building Department.

Basis of Design hardware products for door hardware listed below (or equal): Products: Manufacturer: Hinges (MC) McKinney / Sargent / Ives Cylinders (CR) Corbin/Russwin Locks/Latches (CR) Corbin/Russwin

Exit Devices (CR) Corbin/Russwin Electronic Door Locks (AA) Assa Abloy VingCard Flex Closers (AA) Assa Abloy

Exit Devices (AA) Assa Abloy Overhead Stop/Holders (RW) Rockwood Miscellaneous Door Trim (RW) Rockwood (Silencers, door stops, etc.) Weatherstripping (PE) Pemco Overlapping Astragal (PE) Pemco

Electric Strikes (AR) Adams Rite Magnetic Holders (RI) Rixson Furnish all items in US26D Brushed Satin Chrome except as indicated in the Hardware Schedule.

Use 2 pair of hinges or 2 each intermediate pivots at doors 7'-6" high and over. Use 5" x 4-1/2" hinges at doors 3'-6" wide and over. Furnish glass bead kits at exit devices where required.

Fasten all exit devices and closers with SNB's. Furnish all brackets required to mount closers, as required by frame or door details.

QUALITY ASSURANCE

Hardware furnished in connection with doors and frames requiring fire rated labels shall be approved for such use and have such labels as required.

Hardware shall meet the requirements of all applicable labeling authorities and shall complement the NFPA 80 and NFPA 101 requirements of Division 8.

Items not specifically listed, but incidental to or required for completion of project, shall be provided and shall conform in class, quality, and type as required for particular use or as specified in like and similar locations. All fastenings, templates, and all accessory items scheduled and/or required to complete project shall be provided.

A. Manufacturers: Companies specializing in manufacturing door hardware with minimum ten years experience. B. Hardware Supplier: Company specializing in supplying commercial door hardware who has maintained an office and has been furnishing hardware in the project's vicinity for a period of at least ten (10) years. Hardware supplier must be an authorized distributor of the products specified.

Hardware supplier shall have in his employment, at least one experienced Architectural Hardware Consultant (AHC) who is available at reasonable times during business hours for consultation about project's hardware and requirements to Owner, Architect and Contractor.

WARRANTY:

All items, except overhead closers, shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a period of one (5) years commencing on the Date of Final Completion and Acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the Owner.

Closers shall be warranted in writing by the manufacturer against failure due to defective materials and workmanship for a period of ten (10) years commencing on the Date of Final completion and Acceptance. In the event of product failure, promptly repair or replace item with no additional cost to the Owner.

A. Architectural Hardware Consultant shall inspect complete installation and certify that hardware has been furnished and installed in accordance with manufacturer's instructions and as specified herein.

B. Provide two copies of certifications to Architect Return to project one month after occupancy and adjust hardware for proper operation and function.

# **DIVISION 09 - FINISHES**

SECTION 09 22 16 NON-STRUCTURAL MEAL FRAMING Framing Members: Comply with ASTM C 754 for conditions indicated.

Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated. Protective Coating: Coating with equivalent corrosion resistance of ASTM A 653/A 653M, G40 (Z120). hot-dip galvanized, unless otherwise indicated.

Studs: Manufacturer's standard profile for repetitive members, corner and end members, and fireresistance-rated assembly indicated on drawings.

Runner Tracks: Manufacturer's standard J-profile track with long-leg length as standard with Auxiliary Material.

Furring Channels (Furring Members): Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch (22.2 mm) deep.

Minimum Requirements: 25 gauge, hemmed edge detail required on all 25 gauge furring channel. Meets or exceeds SSMA requirements.

Width Bottom: 2-1/2 inch wide minimum. Width Top: 1-1/4 inch wide

Depth: 7/8 inch

Steel Drill Screws: ASTM C 1002, unless otherwise indicated.

Track Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on assemblies without exceeding allowable design stress of track, fasteners, or structural substrates in which anchors are

Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load, as determined by testing per ASTM E 1190 conducted by a qualified testing agency.

Products: Subject to compliance with requirements, provide the following: Dietrich Metal Framing or approved equal.

Studs to be designed by manufacturer. Submit shop drawings for review and approval.

Install per manufacturers recommendations.

<u>09 29 00 GYPSUM BOARD</u>

YPE-X gypsum board - "USG 5/8" Sheetrock" fire code "X" or (approved equal) Refer to sound isolation and noise reducing assemblies for additional requirements. Seal all penetrations with approved

Exterior Sheathing - 5/8" Georgia-Pacific DensGlass GOLD Sheathing or equal. Verify sheathing system with exterior

Exterior Soffit - 5/8" USG Sheetrock Exterior Gypsum Ceiling Board with Firecode C Core at fire rated soffits with soffit finish (board or other finish) over the top.

Shaft Walls: 1" gypsum board shaft liner - "USG Sheetrock Brand Gypsum Liner Panels" or approved equal. Refer to fire

rated assembly details for more information. Joint Treatment: "USG Durabond 90" joint compound

Panel Fastening Method: Screw all walls and ceilings at required spacing. Provide non-corrosive fasteners at all wet

Accessories: "USG" metal square corner beads (26 GA, Zinc Coated), casing beads, tape and reinforcement, unless shown otherwise in drawings.

Finish: GYPSUM BOARD WALLS AND CEILING FINISHES ARE TO BE LEVEL 4.

Provide a sample (3'-0" x 3'-0") for Owner review and approval before construction.

# **DIVISION 09 - FINISHES (CONT)**

09 91 13 EXTERIOR PAINTING

Provide the following paint systems for the various substrates, as indicated. The systems are based on Benjamin Moore and Co. and ICI, unless noted.

Provide pre-finished Kynar Finish (Or Approved Equal) on metal railings. Color: Black.

Exterior Metal Finish - Benjamin Moore

(i.e. flashing, exposed piping, louvers, vents, steel lintels, etc. Any non-pre finished exposed metal locations) (A) PRIMER: "BENJAMIN MOORE" IRONCLAD RETARDO RUST INHIBITIVE PAINT (163) (B) 1ST COAT: "BENJAMIN MOORE" MOORE'S SEMI-GLOSS EXTERIOR LATEX HOUSE PAINT (105) (C) 2ND COAT: SAME AS FIRST COAT"

Submit product literature and color selections, color to be similar to adjacent wall material.

Sand and prep all interior and exterior metal receiving field finish prior to applying finishes to produce a very smooth

Install per manufacture's requirements

09 91 23 INTERIOR PAINTING:

PROVIDE THE FOLLOWING PAINT SYSTEMS FOR THE VARIOUS SUBSTRATES, AS INDICATED. THE SYSTEMS ARE BASED ON BENJAMIN MOORE AND CO, AND ICI, UNLESS NOTED.

GYPSUM BOARD OR CONCRETE TYPICAL PAINT

(A) PRIOR TO DRYWALL TEXTURE (IF USED) APPLY ONE COAT OF "HAMILTON PREP COAT PLUS". PAINTER TO APPLY THIS COAT AS REQUIRED. PATCH CONCRETE AS REQUIRED.

(B) PRIMER: "BENJAMIN MOORE" REGAL CLASSIC PREMIUM INTERIOR LATEX PRIMER (N216). DRY FILM THICKNESS OF NOMINAL 1.5-1.6 MILS (0.038 mm - 0.040 mm) (C) 1ST COAT: "BENJAMIN MOORE" REGAL CLASSIC PREMIUM INTERIOR 100% ACRYLIC EGGSHELL FINISH (N319). DRY FILM THICKNESS OF NOMINAL 1.2-1.5 MILS (0.030 mm - 0.038 mm).

(D) 2ND COAT: SAME AS FIRST COAT

EXPOSED BRICK OR CMU PAINT (A) PRIOR TO PRIMER: "BENJAMIN MOORE" SUPER SPEC MASONRY INTERIOR/EXTERIOR HI-BUILD BLOCK FILLER (206) AS NEEDED FOR PITS IN EXISTING MASONRY. PAINTER TO APPLY THIS COAT AS REQUIRED. (B) PRIMER (MINIMUM TWO COATS PRIMER, DRY FILM THICKNESS OF NOMINAL 8-12 MILS (0.20mm - 0.30

"BENJAMIN MOORE" REGAL CLASSIC PREMIUM INTERIOR LATEX PRIMER (N216) (C) 1ST COAT: "BENJAMIN MOORE" REGAL CLASSIC PREMIUM INTERIOR 100% ACRYLIC EGGSHELL FINISH

DRY FILM THICKNESS OF NOMINAL 1.2 - 1.5 MILS (0.030 mm - 0.038 mm) (D) 2ND COAT: SAME AS FIRST COAT

INTERIOR EXPOSED METAL/FERROUS (A) PRIMER: "BENJAMIN MOORE" SUPER SPEC HP ACRYLIC METAL PRIMER (P04) OR SUPER SPEC HP ALKYL

PRIMER (P06) (B) 1ST COAT: 1ST COAT: "BENJAMIN MOORE" REGAL CLASSIC PREMIUM INTERIOR 100% ACRYLIC **EGGSHELL FINISH** 

(C) 2ND COAT: SAME AS FIRST COAT

PAINT COLOR SELECTIONS: PAINT COLORS PER OWNER.

CONCRETE SLAB SEALANT:

BASIS OF DESIGN: WR MEADOWS SEALTIGHT. VOCOMP-30, WATER-BASED, ACRYLIC, CONCRETE CURING AND SEALING COMPOUND. INSTALL PER MANUFACTURES RECOMMENDATIONS.

PROVIDE SAMPLES AS NOTED UNDER SUBMITTALS BELOW FOR REVIEW BY OWNER AND ARCHITECT BEFORE PROVIDING ALL PAINT FOR PROJECT.

09 91 23 INTERIOR PAINTING (CONT)

Patch as needed, fill cracks and nail holes and correct any defects in substrate.

Examine surfaces to receive paint/stain and report any deficiencies that might impair the performance of the installation. Work indicates acceptance of substrate.

Remove all hardware, fixtures and accessories from surfaces to receive finish

Caulk/fill all interior trim work to walls.

Paint black all framing and exposed materials behind screened vent openings and grills including soffit vents and ventilation chimney locations.

Samples at the site of all exterior and all interior colors and finishes shall be provided for approval by Owners/Architect prior to any ordering or staining or painting of any of the materials. Follow manufacturer's directions for proper spreading rate, thickness and acceptable temperature and humidity range.

Finishes must be applied evenly; sags, runs and uneven finishes will not be accepted. Set all nail heads and fill holes with filler to match material. Filler to be compatible with finish. Paint all interior piping and mechanical and electrical equipment which is not prefinished and is exposed in finished spaces. Paint miscellaneous

texture is obtained; simulate finished lighting conditions for review of in place work.

vents. louvers, trim to match adjacent wall color or material.

Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use. Samples: Submit samples for Architect's review and color and texture only. Provide a listing of material and application

for each coat of each finish sample. On 4" x 8" hardboard, provide two samples of each color and material, with texture to simulate actual conditions. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.

On concrete masonry, provide two 4" x 8" samples of masonry for each type of finish and color, defining filler, prime and finish coat.

On actual wall surfaces and other exterior and interior building components, duplicate painted finishes of prepared

samples. On at least 100 sq. ft. of surface as directed, provide full coat finish samples until required sheen, color and

### **DIVISION 10 - SPECIALTIES**

10 14 00 SIGNAGE:

SIGNAGE IS TO BE PROVIDED PER IBC 2018, ANSI A117.1 AND IN ACCORDANCE WITH ADA 2010 SECTION

216 AND SHALL COMPLY WITH ADA 2010 SECTION 703.

LOCATION: SIGNAGE TO BE PROVIDE FOR BUT IS NOT LIMITED TO THESE LOCATIONS: DIRECTIONAL SIGNAGE

**EGRESS SIGNAGE** MISCELLANEOUS IDENTIFICATION SIGNAGE FIRE EXTINGUISHER, FIRE ALARM RELATED SIGNAGE

PROVIDE AN ALLOWANCE OF FIVE THOUSAND DOLLARS (\$5,000,00) FOR SIGNAGE.

SIGNAGE PACKAGE TO BE PROVIDED BY CONTRACTOR FOR REVIEW BY OWNER AND ARCHITECT.

10 44 16 FIRE PROTECTION SPECIALTIES FIRE EXTINGUISHERS AND CABINETS

Provide fire extinguishers, cabinets, accessories manufactured by FIRE END & CROKER CORPORATION (www.croker.com) or approved equal.

LOCATIONS: Boiler Room

Actual locations and types of extinguishers to be determined/approved by local Fire Department.

INSTALL PER MANUFACTURERS REQUIREMENTS

# **DIVISION 14 - CONVEYING EQUIPMENT**

HYDRAULIC PASSENGER ELEVATOR

RATED LOAD - 3500 LB RATED SPEED - 100 TO 150 FPM DOORS - 3'-6" WIDE X 7'-0" HIGH HOISTWAY - 8'-4" WIDE X 6'-11" DEEP PIT DEPTH - 4'-0"

TOTAL TRAVEL DISTANCE: 9'-0" LANDINGS - 2 FRONT OPENING

OPERATION SYSTEM - AUTOMATIC OPERATION AS DEFINED IN ASME A17.1 **AUXILIARY OPERATIONS - BATTER-POWERED LOWERING** 

SUMP PIT - REQUIRED

IN ADDITION TO LOCAL GOVERNING REGULATIONS AND INTERNATIONAL BUILDING CODE 2018. COMPLY WITH APPLICABLE PROVISIONS OF ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS AND AMERICANS WITH DISABILITIES ACT (ADA), ACCESSIBILITY GUIDELINES (ADAAG).

<u>FINISHES:</u> CEILING - EXPOSED FRAME WITH LAY-IN PANELS

DOORS AND FRAMES - STAINLESS STEEL

LIGHTING - COMPACT FLUORESCENT DOWNLIGHTS HANDRAILS - STAINLESS STEEL (PROVIDE ON 3 WALLS OF CAB) CAB - DECORATIVE WALLS PANELS TO BE PLASTIC LAMINATE, CAB WALLS TO BE STEEL (PAINT)

SILL - EXTRUDED METAL WITH GROOVED SURFACE ON NONSHRINK, NONMETALLIC GROUT.

PROVIDE INSPECTION CERTIFICATE MOUNTED UNDER ACRYLIC OVER WITH STAIN STAINLESS-STEEL PROVIDE PROTECTIVE BLANKET HOOKS AND TWO COMPLETE SETS OF FULL-HEIGHT BLANKETS. PROVIDE ALL CODE REQUIRED COMMUNICATION AND SIGNAL EQUIPMENT INCLUDING BUT NOT LIMITED TO: CAR CONTROL STATIONS, EMERGENCY COMMUNICATIONS SYSTEM, FIRE DEPARTMENT

COMMUNICATION SYSTEM, CAR POSITION INDICATOR WITH TRAVEL DIRECTION ARROWS, HALL PUSH-

BUTTON STATIONS, HALL LANTERNS, ETC.

**ELEVATOR MACHINE ROOM:** 

OTIS ELEVATOR CO

(OR EQUAL)

MINIMAL HEAT AND COOLING TO BE PROVIDED TO THE ELEVATOR MACHINE ROOM AND ELEVATOR HOISTWAY. MANUFACTURER TO PROVIDE MAX HEAT LOAD OF MACHINERY AND ALLOWABLE TEMPERATURE RANGES FOR MACHINE ROOM AND HOISTWAY TO USE FOR DESIGN OF HEATING/COOLING

FREIGHT: VERIFY THAT ELEVATOR CAN ACCOMMODATE FREIGHT AS WELL AS PASSENGERS. FREIGHT CARTS ARE 52" X 24" WIDE AND WEIGH +/- 600 LBS WHEN LOADED. EXPECT (2) CARTS AND (2) STAFF MEMBERS IN THE LIFT AT ONE TIME.

PROVIDE SEPARATE ELEVATOR MACHINE ROOM (NO MACHINE ROOM-LESS APPLICATIONS DUE TO

WEATHER RESTRICTIONS). AVAILABLE MANUFACTURERS: SCHINDLER ELEVATOR CORP (BASIS OF DESIGN)

THYSSEN-KRUPP ELEVATOR GROUP OF NORTH AMERICA

**DIVISION 22 - PLUMBING** 

Plumbing specifications per Plumbing Engineer.

DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING HVAC specifications per Mechanical Engineer.

**DIVISION 26 - ELECTRICAL** 

Electrical specifications per Electrical Engineer

**DIVISION 26 - COMMUNICATIONS** 

Communications, Audio-Video, etc. specifications per Owner.

ERID P. SMITH MAR 05 2021

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REVISIONS Description Date

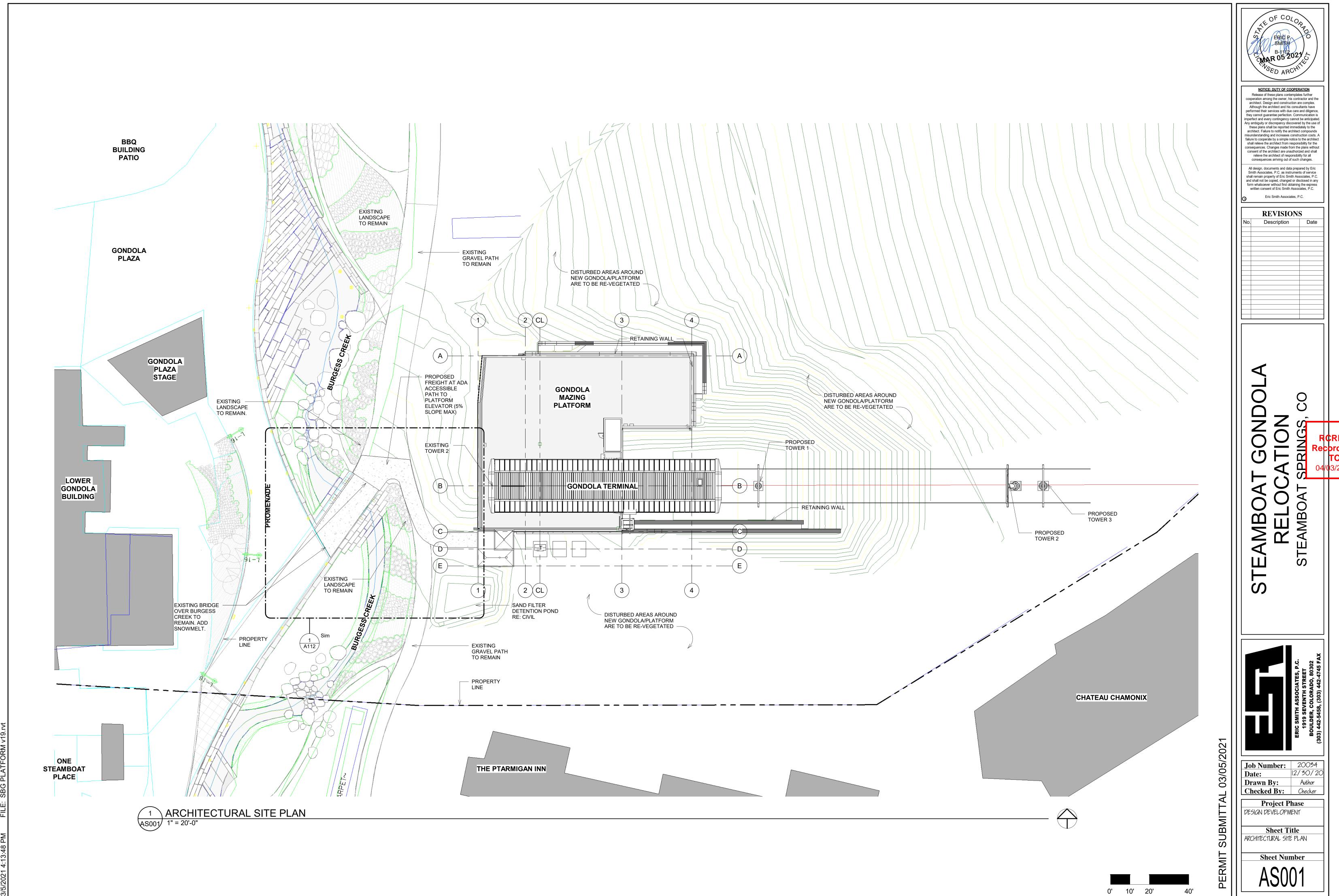
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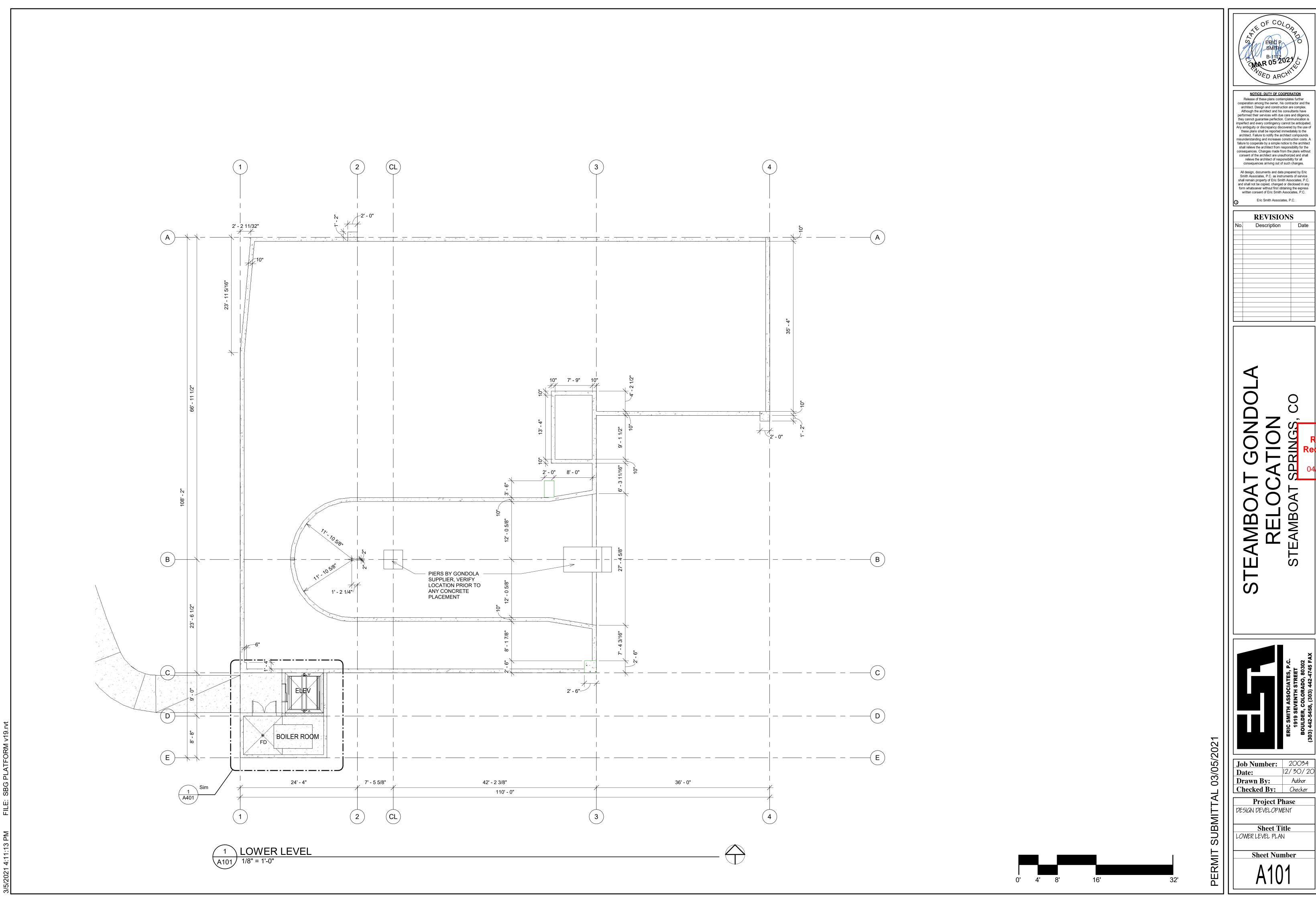
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12/30/20 Date: Author Drawn By: Checked By: Checker **Project Phase** DESIGN DEVELOPMENT

**Job Number:** 20034

**Sheet Title** SPECIFICATIONS **Sheet Number** 





NOTICE: DUTY OF COOPERATION

Eric Smith Associates, P.C.

**REVISIONS** 

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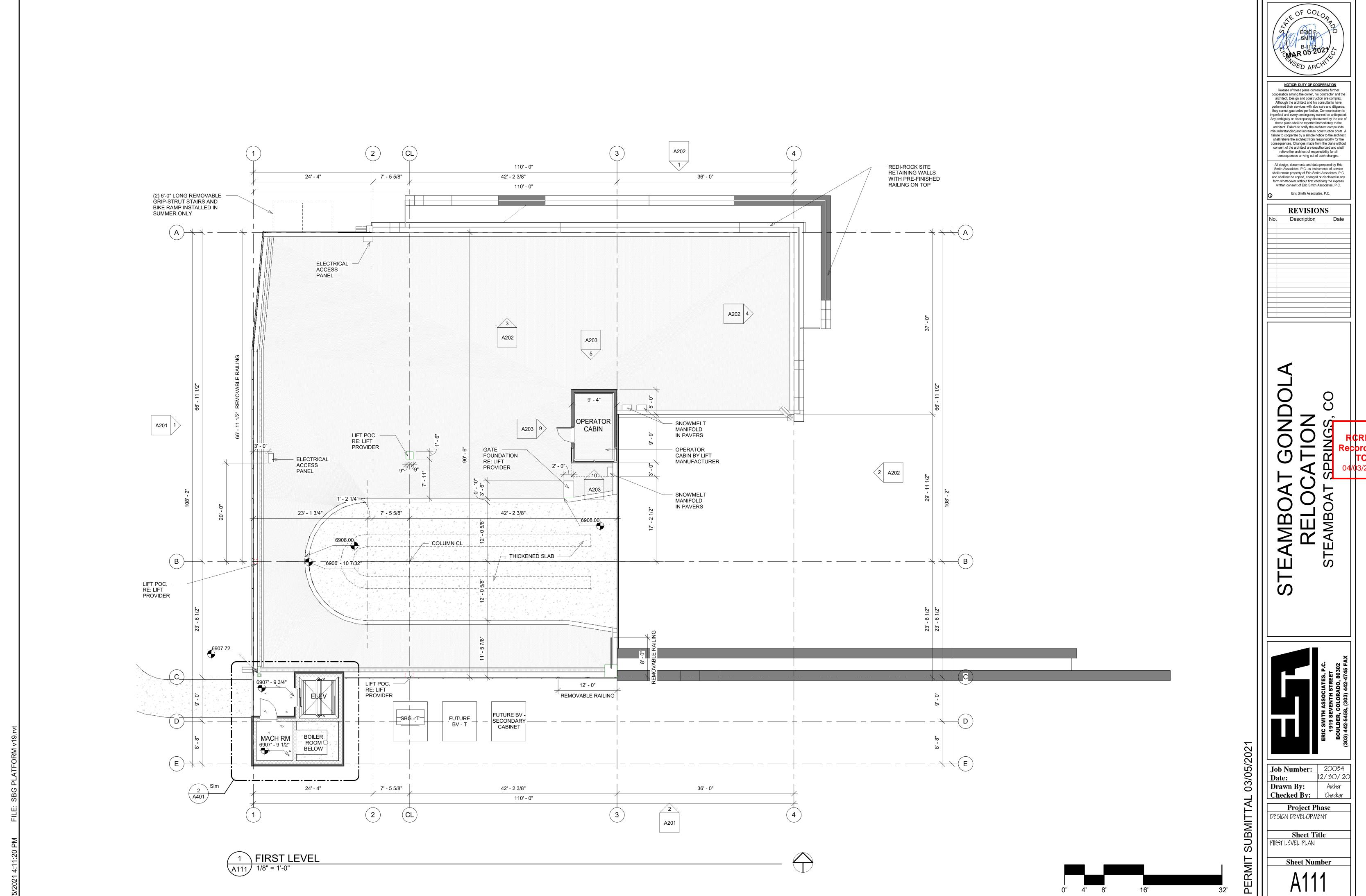
 
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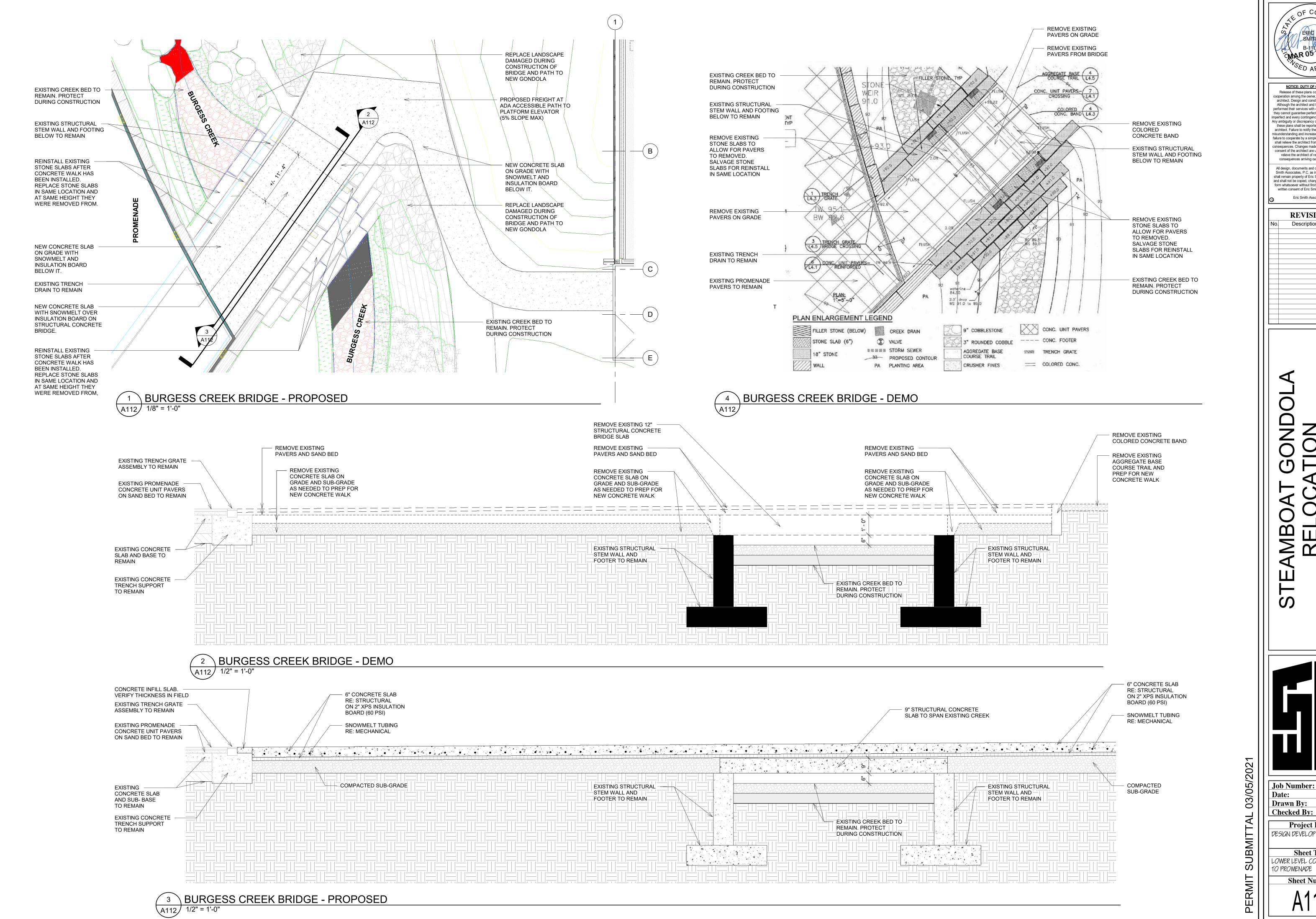
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**Project Phase** DESIGN DEVELOPMENT

Sheet Title LOWER LEVEL PLAN

**Sheet Number** 





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Eric Smith Associates, P.C

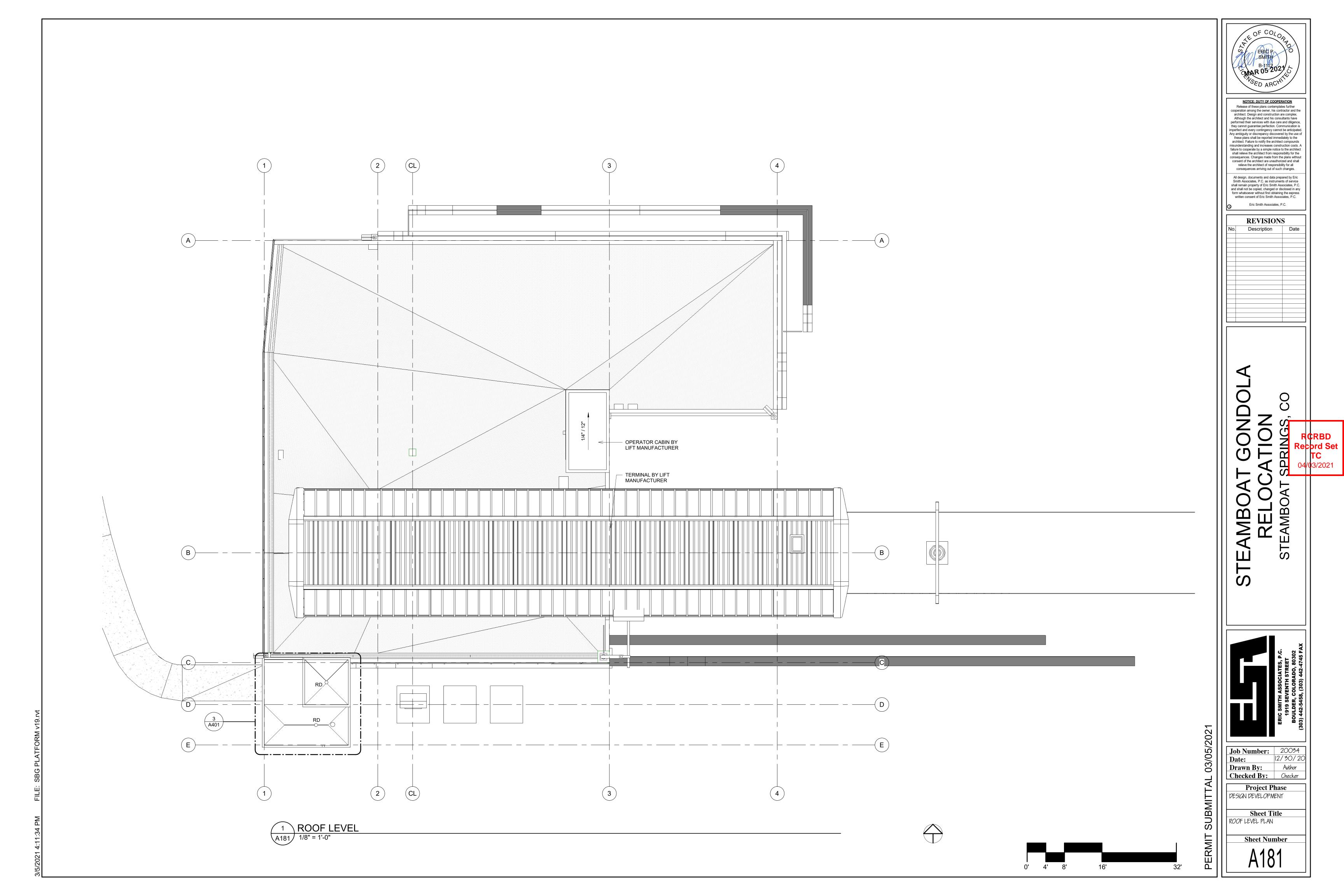
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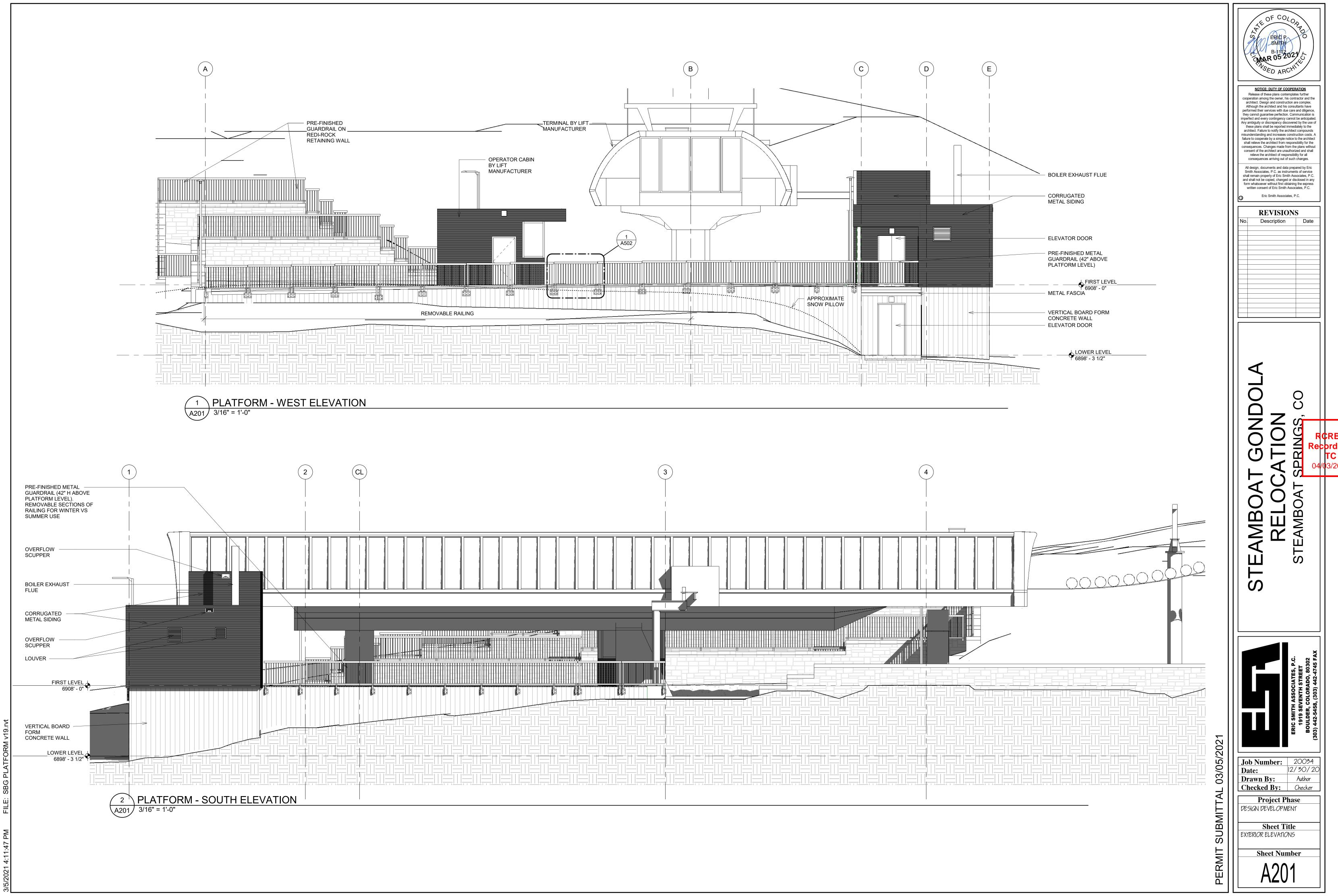
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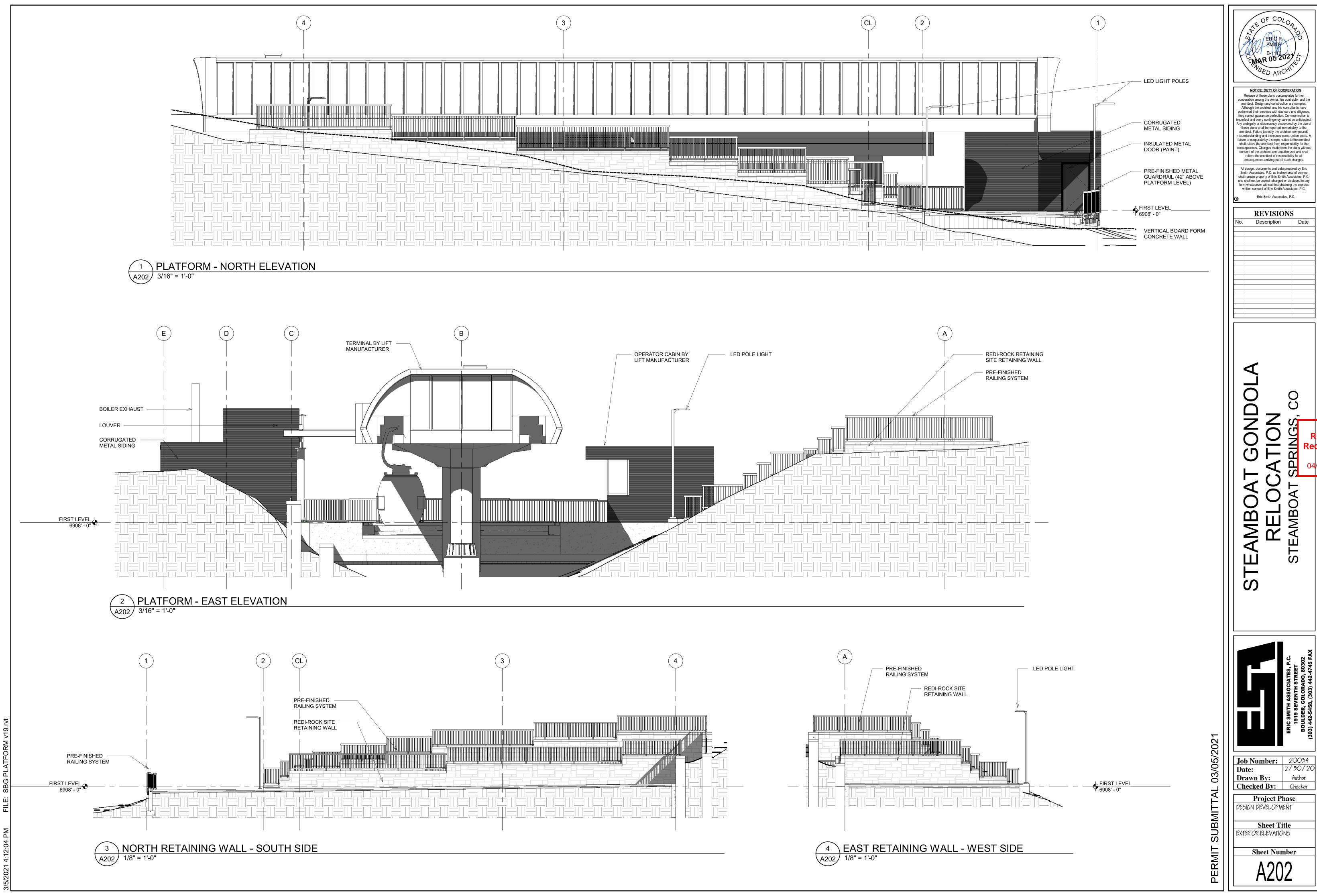
12/30/20 Checked By: Checker **Project Phase** 

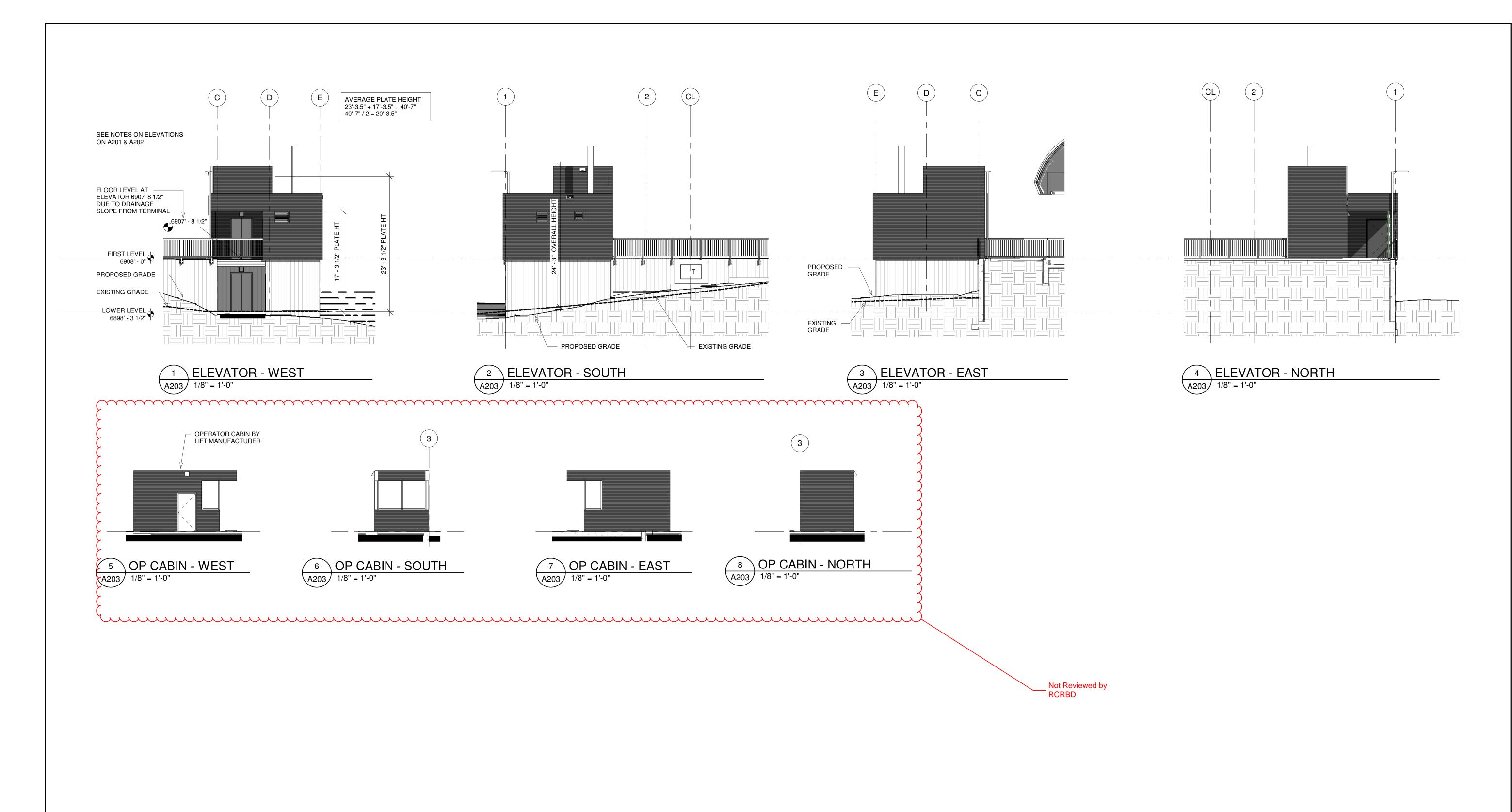
DESIGN DEVELOPMENT

**Sheet Title** LOWER LEVEL CONNECTION **Sheet Number** 









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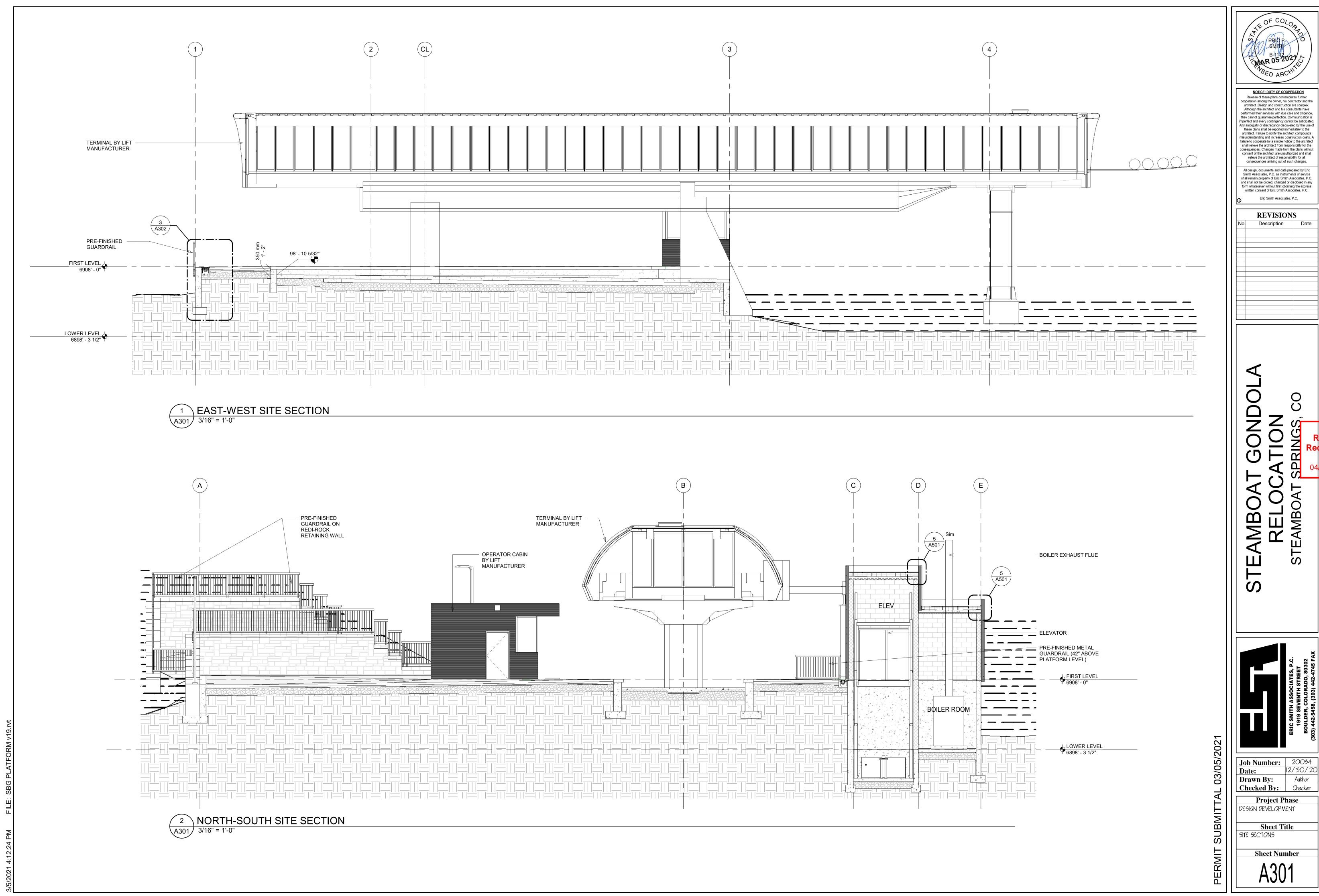
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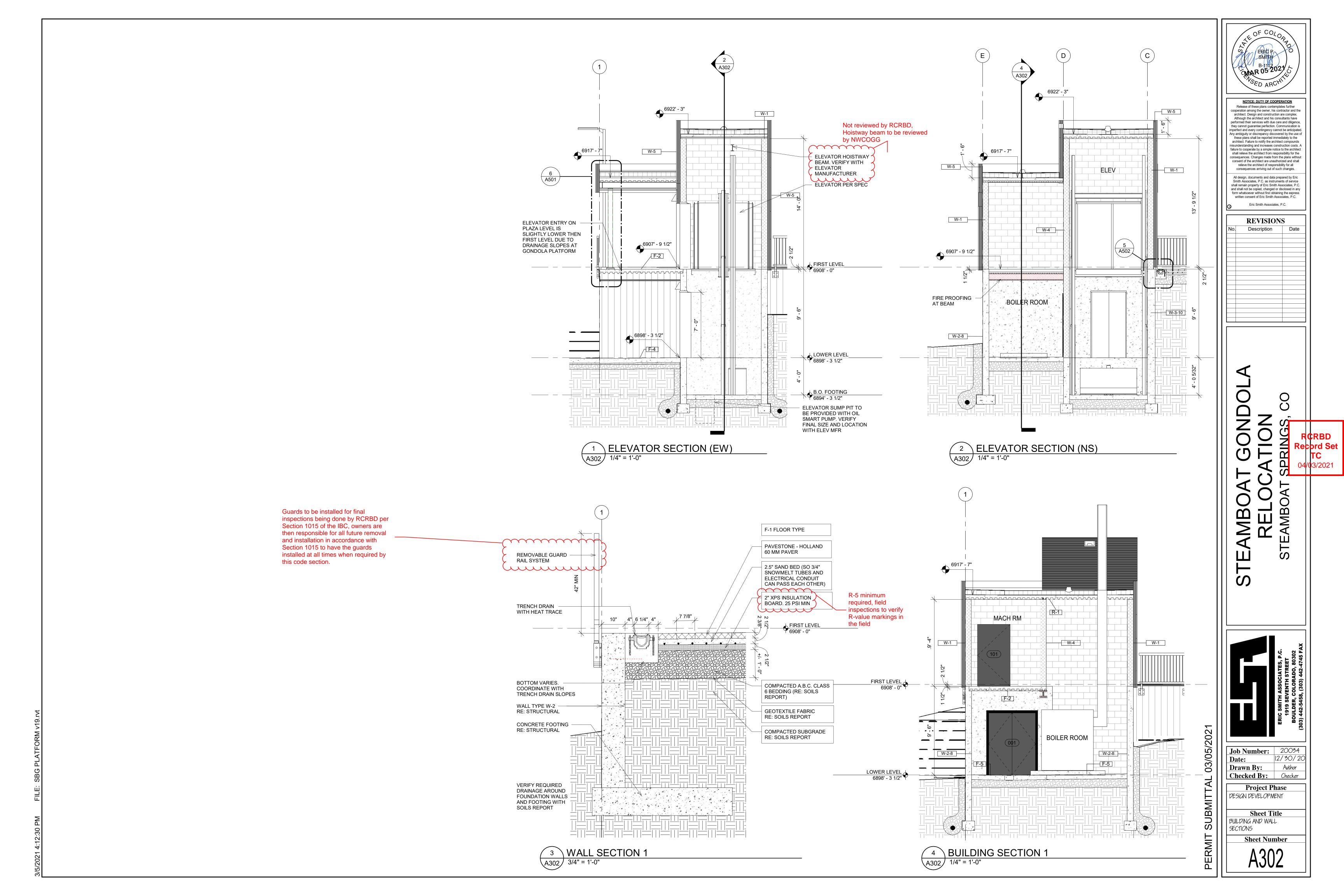
12/30/20 Author **Drawn By:** Checked By: Checker

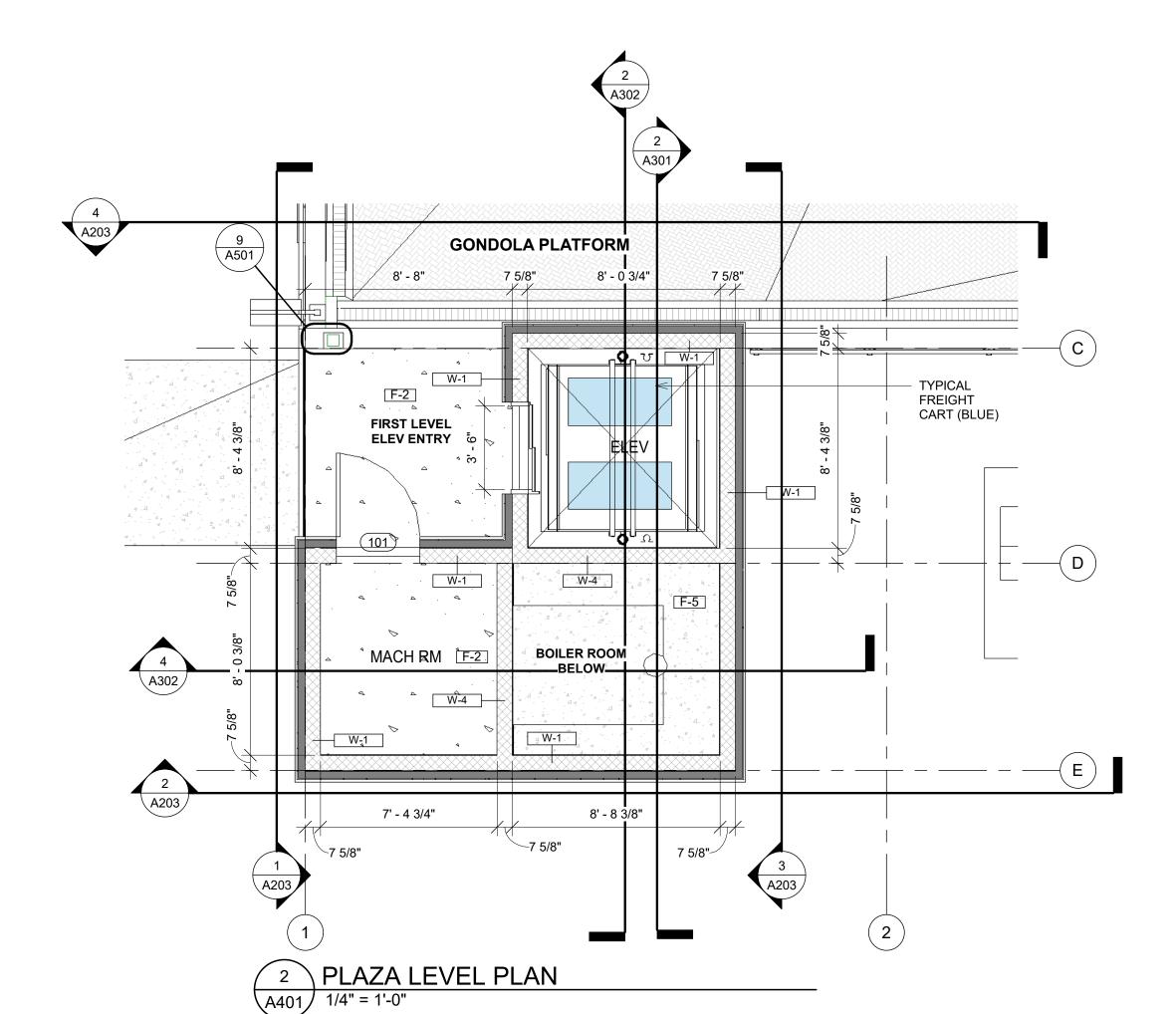
**Project Phase** DESIGN DEVELOPMENT

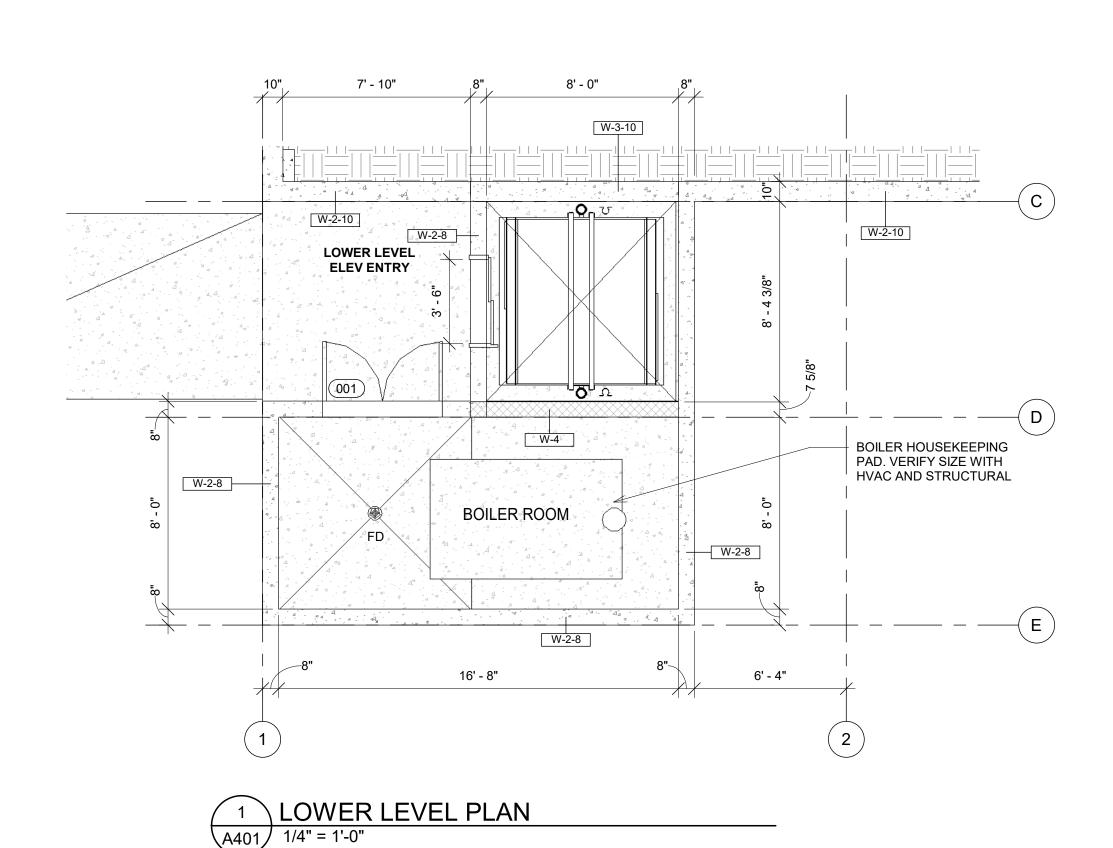
Sheet Title EXTERIOR ELEVATIONS & BLDG SECTIONS

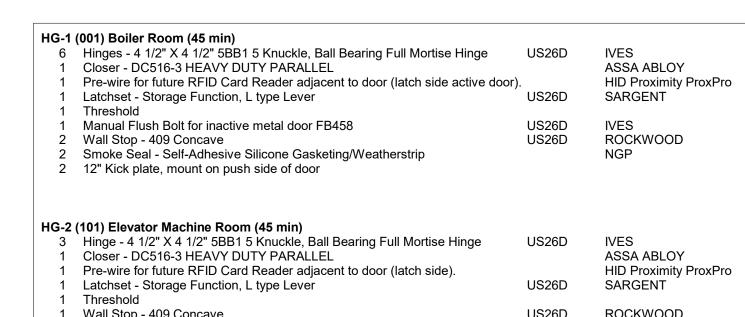


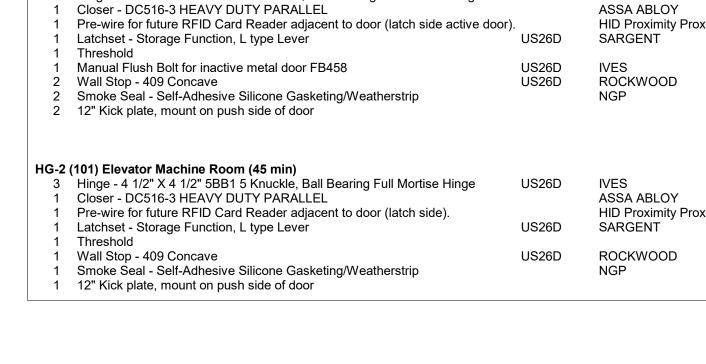
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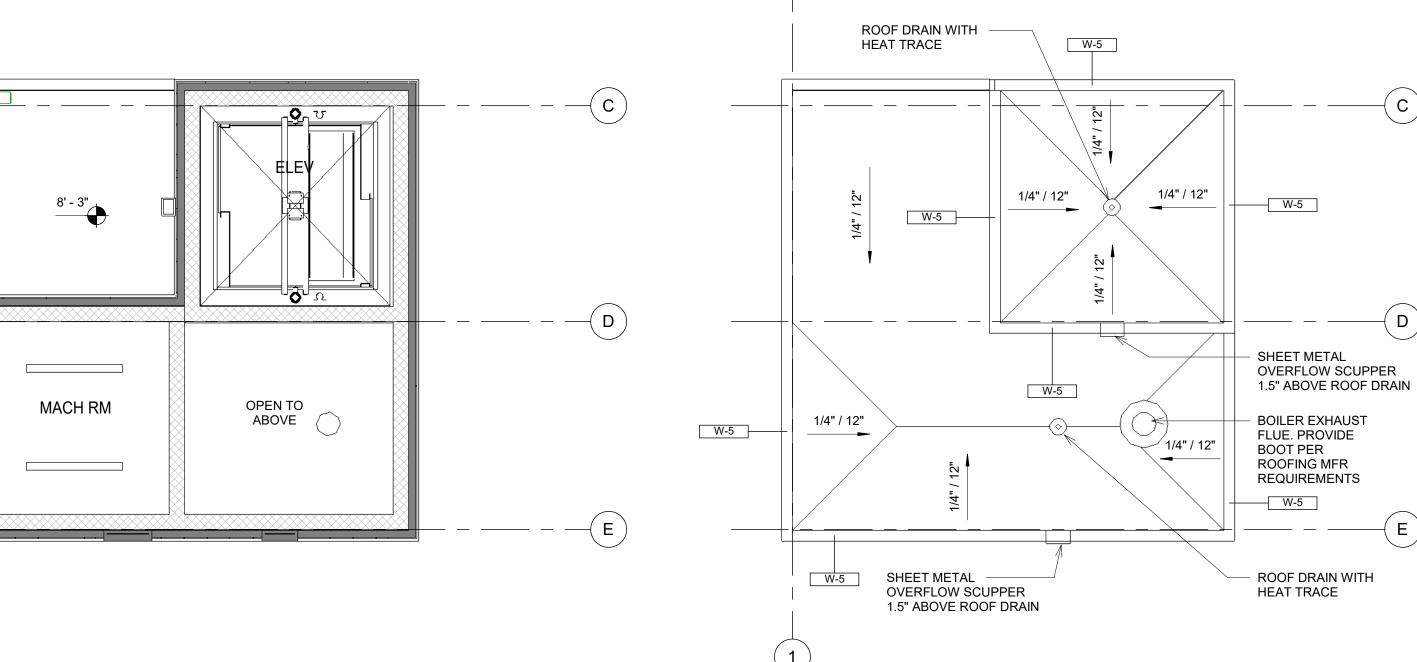


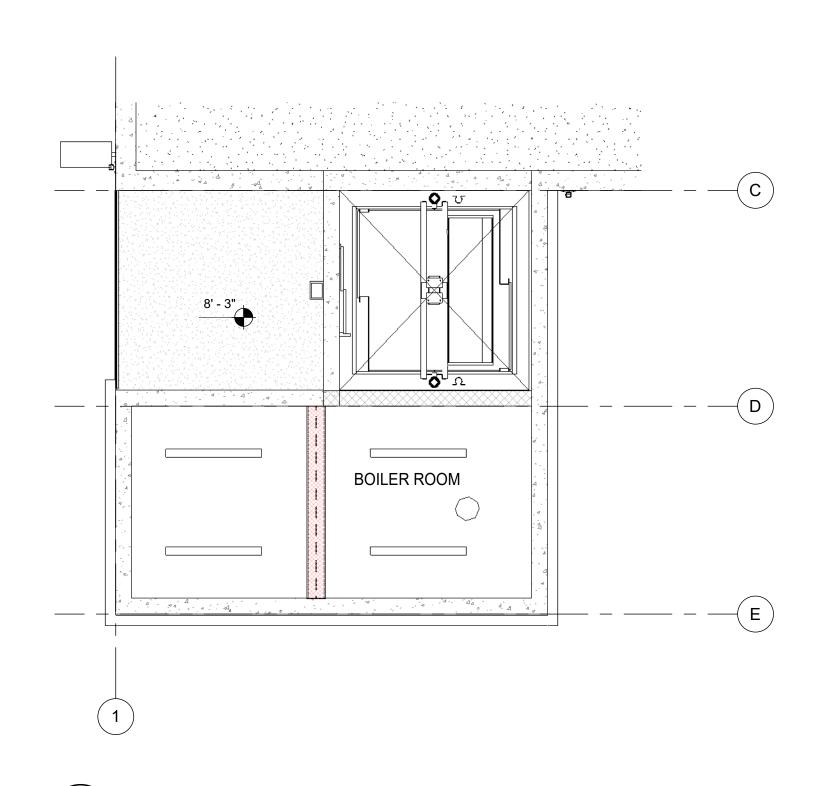












LOWER LEVEL R.C.P. A401 1/4" = 1'-0"

PLAZA LEVEL R.C.P.

A401 1/4" = 1'-0"

DOOR AND HARDWARE SCHEDULE NOTES:

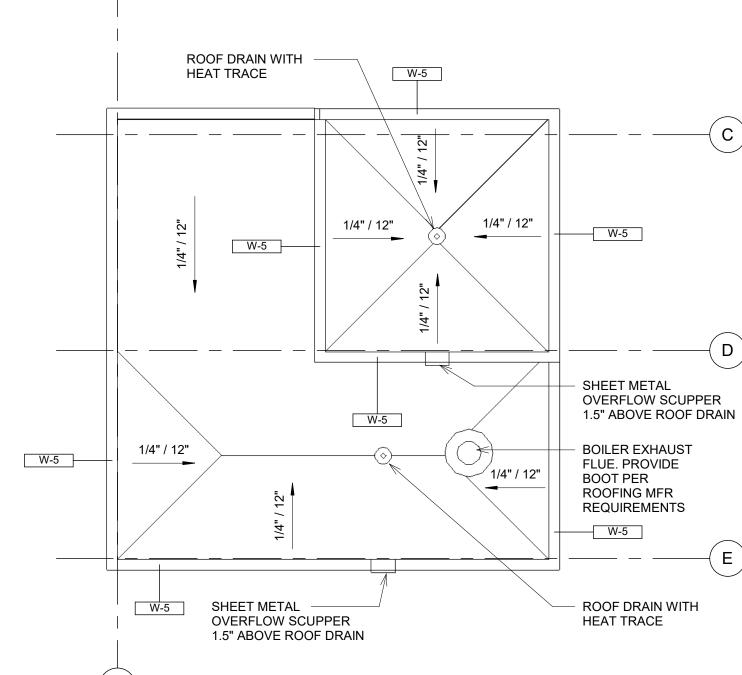
1. GENERAL CONTRACTOR TO COORDINATE THE NUMBER OF DOORS, SWING AND THE NUMBER OF ITEMS WITHIN EACH HARDWARE GROUP WITH EACH SPECIFIC DOOR AT TIME OF DOOR AND HARDWARE SUBMITTAL.

2. DOOR HARDWARE IS BASIS-OF-DESIGN PER SPECIFICATIONS. REVIEW HARDWARE WITH OWNER, INCLUDING FUTURE RFID REQUIREMENTS.

3. DOOR OPENING PRESSURE: THE OPENING DOOR FORCE REQUIRES TO BE 5 LBF MAX. ALTERNATIVELY, PROVIDE AN AUTOMATIC DOOR

OPENER WITH STANDBY POWER TO OPERATE DOOR. 2010 ADA (404.2.9)1.

4. COORDINATE ALL KEYING WITH OWNER. CORBIN RUSSWIN RU46.



ROOF PLAN

A401 1/4" = 1'-0"

ERIC P.

MAR 05 2021

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Eric Smith Associates, P.C.

**REVISIONS** 

Description

Job Number: 20034 12/30/20 Drawn By: Checked By: Checker

**Project Phase** DESIGN DEVELOPMENT

**Sheet Title** FLOOR AND CEILING PLANS

encountered in the field. • When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide

Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.

• Only products which bear UL's Mark are considered Certified.

Allowable Variances

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and

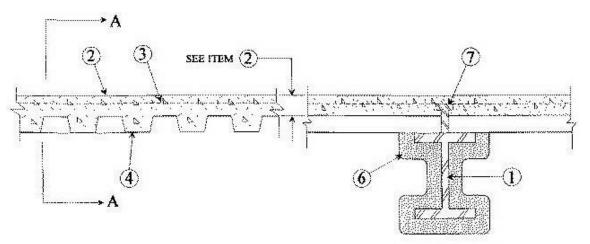
#### Design No. D902 February 21, 2019

#### Restrained Assembly Ratings — 1, 1-1/2, 2 and 3 Hr.

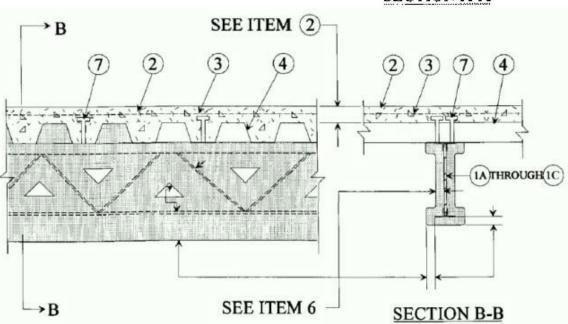
Unrestrained Assembly Ratings — 0, 1, 1-1/2, 2 or 3 Hr. (See Items 4 & 6) Unrestrained Beam Ratings — 1, 1-1/2, 2 and 3 Hr.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

\* Indicates such products shall bear the UL or CUL Certification Mark for jurisdictions employing the UL or CUL Certification (such as Canada), respectively.



SECTION A-A



1. Beam — W8X28, W8x24 or W6x12, min size, see Items 6A through 6E.

1A. Steel Joists — (Not Shown) — As an alternate to Item 1 — Composite or non-composite min 8k1 or min depth and weight shall be 8 in. and 4.9 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30, 000 psi (30 ksi). Welded or bolted to end supports. The top chords shall consist of two angles measuring 1-1/4 by 1-1/4 by 0.127 in. thick. Bottom chords shall consist of two round bars measuring 0.566 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. Bearing plates shall consist of two angles measuring 1-1/2 by 2 by 0.188 in. thick and 5-1/16 in. long. Web members shall consist of 0.565 in. diam bars.

1B. Steel Joists — (Not Shown) — As an alternate to Item 1 — Composite or non-composite min 12k5 or min depth and weight shall be 12 in. and 7.1 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30, 000 psi (30 ksi). Welded or bolted to end supports. Top chords shall consist of two angles measuring 1-1/2 by 1-1/2 by 0.156 in. thick. Bottom chords shall consist of two round bars measuring 0.675 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. Bearing plates shall consist of two angles measuring 2 by 2 by 0.192 in. thick and shall be min 4-15/16 in long. The second web member at each end shall consist of 0.654 in. diam round bar. All remaining web members, including the end web members, shall consist of 0.774 in. diam round bars. Bridging per S.J.I. specifications is required when non-composite joists are used.

1C. Steel Joists — (Not Shown) — As an alternate to Item 1 — Composite or non-composite min 12k5 or min depth and weight shall be 12 in. and 7.1 lb/ft respectively. May be uncoated or provided with a shop coat of paint. Designed per S.J.I. specifications for a max design stress of 30, 000 psi (30 ksi). Welded or bolted to end supports. Top chords shall consist of two angles measuring 1-1/2 by 1-1/2 by 0.156 in. thick. Bottom chord shall consist of two round bars measuring 0.675 in. in diam. or two angles measuring 1 by 1 by 0.125 in. thick. The

second web member at each end shall consist of 0.654 in. diam round bar. All remaining web members, including the end web members, shall consist of 0.774 in. diam round bars. Bridging per S.J.I. specifications is required when non-composite joists are used. Note: Additional beams or joists from the N series designs may be substituted for the listed beam (item 1) or joist

(item 1A) respectively. When joists are substituted, the restrained rating of the joist must be equal to or greater than the restrained rating of the assembly.

Additional beam and joist substitution requirements are in the front of the Fire Resistance Directory - III. FLOOR-CEILINGS AND ROOF- CEILING, item 7 -Steel Joist or IV. BEAMS.

2. Normal Weight or Light Weight Concrete — Normal weight concrete, carbonate or siliceous aggregate, 3500 psi compressive strength, vibrated. Lightweight concrete, expanded shale or slate aggregate by rotary-kiln method or expanded clay aggregate by rotary- kiln or sintered-grate method, or pelletized expanded blast furnace slag aggregate, 3000 psi compressive strength, vibrated, 4 to 7 per cent entrained air.

Assembly Rating Hr	(Type)	Weight pcf	<u>Thkns</u> In.
ĭ	Normal Weight	147-153	3-1/2
1-1/2	Normal Weight	147-153	4
2	Normal Weight	147-153	4-1/2
3	Normal Weight	147-153	5-1/4
1	Light Weight	107-113	2-1/2
1	Light Weight	107-120	2-5/8
1-1/2	Light Weight	107-113	3
2	Light Weight	107-113	3-1/4
2	Light Weight	107-116	3-1/4*
2	Light Weight	114-120	3-1/2
3	Light Weight	107-113	4-3/16
3	Light Weight	114-120	4-7/16

\* With 2 and 3 in, deep steel floor units only.

1. Welded Wire Fabric — 6x6 - W1.4xW1.4.

3A. Negative Reinforcement — (Optional, Not Shown) Used in lieu of Item 3 and with Items 3B or 3C. For floor spans with concrete cast continuous over the supporting beams. Deformed bars designed to resist the support moments of the concrete slab in accordance with the latest ACI Building Code Specifications.

3B. Fiber Reinforcement\* — (Not Shown) — Required with Item 3A. Engineered synthetic fibers added to concrete mix to control shrinkage cracks in concrete. Fibers added to concrete mix at rate of 1 lb of fiber for each cubic yard **PROPEX OPERATING COMPANY L L C** — Fibermesh 150 and Fibermesh 300.

3C. Fiber Reinforcement\* — (Not Shown) — Required with Item 3A. Any fiber reinforcement bearing the UL Classification Marking for Fire Resistance, Classified for use in lieu of welded wire fabric. See Fiber Reinforcement (CBXQ) Category for names of manufacturers.

2. Steel Floor and Form Units\* — Composite 1-1/2, 1-5/8, 2 or 3 in. deep galv units or 4-1/2 in. deep noncomposite galv units. Fluted units may be phos/ptd. Min gauges are 22 MSG for fluted and 20/20 for cellular and partial cellular units. The following combinations of units may be used: 1. All 24, 26, 28 or 36 in. wide cellular or partial cellular.

3. One or two 3 in. deep, 12 in. wide, 18/18 MSG min cellular alternating with 3 in. deep fluted or other cellular.

(4) Any blend of fluted and 24, 26, 28 or 36 in. wide cellular or partial cellular. (5) Corrugated, nom 1-5/16 or 2 in. deep, 30 in. wide, 24 MSG min galv units with shear wires factory welded to deck corrugations. Welded to supports 12 in. OC through welding washers. For shear wire spacing of 8 in. or less the steel deck stress shall not exceed 20 KSI. For shear wire spacing greater than 8 in. OC but less than or equal to

12 in. OC steel deck stress shall not exceed 12 KSI. ASC STEEL DECK, DIV OF ASC PROFILES L L C — 32 in. wide Types NH-32, NHN-32, NHF-32; 36 in. wide, Types BH-36, BHN-36, BHN-35- 1/4, BHF-36, BHF-36A, 2WHS-36, 2WHF-36, 2WHF-36A, 3WxH-36, 3WxHF-36, 3WxHF-36A, 3WH-36, 3WHF-36, 3WHF-36A, 3W-

36, 3WF-36, DG3W-36, DG3WF-36. All units may be galvanized or Prime Shield. Non-cellular decks may be vented designated with a "V" suffix to the product name. Cellular deck top and bottom sections may be riveted together (designated with "Fr") vs. arc spot welded, "F"

CANAM STEEL CORP — 24 in. wide Type P-2432 composite or 36 in. wide Type P-3623, P-3606, P-3615 and 24 in wide Type P-2432 composite, Type P-3606 and P-3615 non-composite

CANAM STEEL CORP — 12 or 24 in. wide, Types 1-1/2, 2, or 3 in. LOK-Floor and LOK-Floor Cell; 36 in. wide, Types 2 or 3 in. LOK-Floor and LOK-Floor Cell; 24, 30 or 36 in. wide, Type 1-1/2 in. B-LOK and B-LOK Cell; 24 in. wide, Types N-LOK and N-LOK Cell

CENTRIA, A DIVISION OF NCI GROUP, INC — QL Types, 24 in, wide, 3 or 3 inverted, UKX, 21 or 21 inverted, 2 in. 99, 121, AKX, NKX, TKX; 24 or 30 in. wide GKX, GKXH, GKX-A; 36 in. wide 2 in. 99, AKX, WKX; 12 in. wide NKC, TKC; 12 in. wide non-composite Sec 12. Side joints of 99, 121, TKC, TKX, WKX may be welded together 60 in. OC. Side joints of 99, AKX, WKX, GKX, GKX-A, TKX may be fastened together with min 1 in. long No. 12x14 selfdrilling, self-tapping steel screws 36 in. OC

CHIA TEH CONSTRUCTION MATERIAL CO LTD — 24 or 36 in. wide Mac-Lok 3; 24 in. wide CFD-3

DECK WEST INC — 36 in. wide Type B-DW, Inverted B-DW, BA-DW, Inverted BA-DW, 2-DW or 3-DW. Side joints of Type 2-DW and 3-DW may be fastened together with min 1 in. long No. 12 x 14 self-drilling, self-tapping steel screws 36 in. OC

**DESIGN ASSISTANCE CONSTRUCTION SYSTEMS INC** — 36 in. wide Type DACS1.5CD, or 24 in. wide Type DACS2.0CD, or DACS3.0CD

EPIC METALS CORP — 24 in. wide Types EC150, EC150 inverted, EC300, EC366, ECP150, ECP300, ECP366,

KAM INDUSTRIES LTD, DBA CORDECK — 24 in. wide, Types 2 or 3 in. WDR

ECA; 30 in. wide Types ECB150, ECBR150; 36 in. wide Types EC156, EC266, ECP266

MARLYN STEEL DECKS INC — Type 1.5 CF, 2.0 CF or 3.0 CF

respectively; or Types PLN3-CD, N3-CD, PLN3, N3.

Strength 1.5 SBN; Units may be phos/ptd

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 or 36 in. wide Types Mac-Lok 2, Mac-Lok 3; 24 in. wide Types B2C, B2FC, NC, NFC; 30 in. wide, Type B3C; 12 in. wide Mac-Way Cellular 45 MDW, 2-633 MTWA, 3-633 MTWA+. 30 in. wide, Mac-Cor Types 1 and 2

NEW MILLENNIUM BUILDING SYSTEMS L L C — 24 or 36 in. wide Types 2.0CD, 3.0CD, 2.0CFD, 3.0CFD,

Types 1.5CD, 1.5CDI, 1.5CDR, 1.5CFD. Fluted units may be phos/painted or galvanized. ROOF DECK INC — 36 in. wide Types LOK-1-1/2, LOK-1-1/2R; 24 in. wide Types LOK-2, LOK-3

VALLEY JOIST, SUB OF EBSCO INDUSTRIES INC — 24 or 36 in. wide Types WVC 1-1/2 or WVC 2

VERCO DECKING INC - A NUCOR CO — FORMLOK™ deck types PLB, B, BR, PLN3, N3, PLN, N, PLW2, W2, PLW3, W3, Units are min 24 in. wide and may be galvanized, phos./ptd., or mill finish. Units may be cellular or acoustical cellular, with the suffix "CD" or "CD-AC" added to the product name, respectively. All non-cellular deck may be vented or non-vented. 12 in. wide PLW2, W2, PLW3 or W3 units may be blended with 24 or 36 in. wide PLW2, W2, PLW3 or W3 units,

VULCRAFT, DIV OF NUCOR CORP — 24, 30 or 36 in. wide Types 1.5VL, 1.5VLI, 1.5PLVLI, 1.5VLP, 1.5 VLR, 1.5PLVLP; 24 or 36 in. wide Types 1.5VLPA, 1.5PLVLPA, 2VLI, 2.0PLVLI, 2VLJ, 3VLI, 3.0PLVLI, 3VLJ, 2VLP, 2.0PLVLP, 3VLP, 3.0PLVLP, 2VLPA, 2.0PLVLPA, 3VLPA, 3.0PLVLPA. Types 1.5VL, 1.5VLI, 1.5PLVLI, 1.5 VLR, 1.5VLPA, 1.5PLVLPA, 2VLI, 2.0PLVLI, 2VLJ, 3VLI, 3.0PLVLI, 3VLJ units may be phos/ptd. 24 or 36 in. wide

Spacing of welds attaching units to supports shall be 12 in. OC for 12, 24, 36 in. wide units, four welds per sheet for 30 in. wide units. 6 in. OC for 18 in. wide and Sec. 12 units. Unless specified otherwise for specific units types, adjacent units button-punched or welded together 36 in. OC along side joints. For 3 Hr Rating, units with

Types 2VLJ, 3VLJ units ++ may be used for max 2 hr Restrained Assembly Rating. 36 in. wide Types 1.5 SB, 1.5

SBR; 24 or 36 in wide Types 2.0 SB, 3.0 SB, 36 in. wide Type High Strength 1.5 SBI, 36 in. wide Type High

overlapping type side joints welded together 24 in. OC max. When a superimposed load of 250 PSF is desired the spacing of welds or button-punches shall not exceed 24 in. OC along side joints.

+ 12 in. wide, 1-1/2 in. deep Mac-Way units may be blended with 24 in. wide B2C or 30 in wide B3C units in a blend of one cell to one or more fluted units. 12 in. wide, 2 in. deep Mac-Way units may be blended with 24 or 36 in. wide Mac-Lock units in a blend of one cell to one or more fluted units. 12 in. wide, 3 in. deep Mac-Way units may be blended with 24 or 36 in. wide Mac-Lock 3 units in a blend of one cell to one or more fluted units. The side edge of the fluted units is placed on the top of the side edge of the Mac-Way unit and the two are welded together with welding washers spaced a max. of 32 in. OC for Mac-Lock 2 or 3 units and a max of 24 in. OC for the B2C or B3C

++ Side joints of Types 2VLJ or 3VLJ units may be fastened together with No. 8-3/4 in. long self-drilling Tek screws driven diagonally from the top side through the joint of the units at 36 in. O. C. max. Alternate Construction — Non-composite units of the same type listed above may be used provided allowable loading is calculated on the basis of non-composite design. The Unrestrained Assembly Rating is equal to the Unrestrained Beam Rating (See Item 6) for a max 3 Hr and is

limited to the following units and limitations:

a. 1-1/2, 2 and 3 in. deep, 24 or 36 in. wide, 22 MSG or thicker fluted with clear spans not more than 7 ft, 8 in.

(b) 1-1/2, 2 and 3 in. deep, 24 or 36 in. wide, 20 MSG or thicker fluted with clear spans not more than 8 ft, 8 in. (c) 1-1/2 and 2 in. deep, 24 or 36 in. wide, 16 MSG or thicker fluted and 18/18 MSG or thicker cellular with clear spans not more than 9 ft, 11 in.

(d)3 in. deep, 36 in. wide, 18 MSG or thicker fluted and 24 in. wide, 20/18 MSG or thicker cellular with clear spans not more than 13 ft, 2 in.

For assemblies utilizing 3-1/4 in. light weight concrete topping with a max Restrained Assembly Rating of 2 Hr, the Unrestrained Assembly Rating is equal to the Unrestrained Beam Rating (See Item 6) and is limited to the following floor units and spans:

(a) 1-1/2, 2 and 3 in. deep, 24 or 36 in. wide, 22 MSG fluted and 20/20 MSG cellular with clear spans not more than 9 ft, 6 in.

(b) 2 and 3 in. deep, 24 or 36 in. wide, 20 MSG fluted and 20/20 MSG cellular with clear spans not more than 10 ft. 0 in. (c) 3 in. deep, 24 in. wide, 20 MSG fluted and 20/20 MSG cellular with clear spans not more than 13 ft, 2 in.

4A. Steel Floor and Form Units\* — As an alternate to Item 4, for use only when top of steel beam (Item 1) is filled solid with concrete for the full width of bearing from top of steel beam to top of concrete (Item 2): BAILEY METAL PRODUCTS LTD — Type COMSLAB™ 210 and COMSLAB™ 225, Steel End Closure Flashing

**5. Joint Cover** — (Use with fluted units optional — Not Shown) — 2 in. wide cloth adhesive tape applied following the contour of the units.

**6. Spray-Applied Fire Resistive Materials\*** — Applied by spraying with water to the final thicknesses shown below. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular of blended units, the area between the steel deck and the top flange of the steel beam shall be plugged. Beam surfaces must be clean and free of dirt, loose scale, and oil. Min average density of 13 pcf with min. individual density of 11 pcf for Types II, II HS, or DC/F. Min average and min individual densities of 22 pcf and 19 pcf, respectively, for type HP. For method of density determination, refer to Design Information Section. The thickness of the Spray-Applied Fire Resistive Materials on the Structural Members (Item 1, 1A, or 1B) shall be as follows:

Min Thkns Spray Applied Resistive Mtl. In

Restrained

Unrestrained

Concrete

ting	Rating	Type				
	112		W8x28 When Deck Is All Fluted	W8x28 When Deck Is Blend or All Cellular	Joist Item 1A When Deck Is Fluted Cellular or Blend	Joist Item 1B When Deck Is Fluted Cellular or Blend
1	1	NW	3/8,5/8*	3/8,11/16*	1+	<u></u>
1-1/2	1	NW	3/8,5/8*	3/8,11/16*	1-9/16	
2	1	NW	3/8,5/8*	3/8,11/16*	2-1/16	=
2	2	NW	3/4	13/16	2-1/16	_
2	3	NW	1-3/16	1-5/16	27-50	3-1/4
3	1-1/2	NW	1/2	1/2	-	3-1/4
3	2	NW	3/4	13/16		3-1/4
3	3	NW	1-3/16	1-5/16	3 <del>2 - 4</del> 3	3-1/4
1	1	rw.	3/8,5/8*	7/16,11/16*	1-1/8+	===
1-1/2	1	LW.	3/8,5/8*	7/16,11/16*	1-3/4	
2	1	LW	3/8,5/8*	7/16,11/16*	2-1/4	_
2	2	LW	1	1	2-1/4	=
2	3	LW	1-9/16	1-5/8	8 <del>1 - 1</del> 8	3-1/4
3	1-1/2	LW	5/8	11/16		3-1/4
3	2	LW.	1	Ĩ.		3-1/4
3	3	LW.	1-9/16	1-5/8	A <u></u> Bi	3-1/4

\* This thickness applies when optional Item 12 or 13 are used over 3-1/4 in. light weight concrete topping. \*\* This thickness applies when optional Item 12 or 13 are used over 3-1/4 in. light weight concrete topping. + When bottom chords consist of 1 by 1 by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased by 1/4 in. on the bottom chord only.

ISOLATEK INTERNATIONAL — Type D-C/F, HP, II or Type II HS. Investigated for exterior use. Type EBS or Type X adhesive/surface sealer optional.

6A. Spray-Applied Fire Resistive Materials\* — Alternate to Item 6. See table below for appropriate thicknesses. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular or blended units, the area between the steel deck and the top flange of the steel beam shall be plugged. Prepared by mixing with water and spray-applied in one or more coats to beam surfaces which must be clean and free of dirt. loose scale and oil. Min average density of 17.5 pcf with min individual value of 17.0 pcf. For method of density determination, see Design Information Section, Sprayed Material.

Restrained Assembly	Unrestrained Beam	Min Thkns Applied Resistive Mtl, In				
Rating Rating Hr Hr		W8x28 When Deck Is All Fluted	W8x28 When Deck Is Blend or All Cellular			
1, 1-1/2, 2	1	5/16, 7/16*	5/16, 7/16*			
2	2	11/16	13/16			
2	3	1-1/16	1-5/16			
3	1-1/2	1/2	9/16			
3	2	11/16	13/16			
3	3	1-1/16	1-5/16			

\* This thickness applies when optional Items 12, 13 are used over 3-1/4 in. light weight concrete **ISOLATEK INTERNATIONAL** — Type 280

6B. Spray-Applied Fire Resistive Materials\* — Alternate to Items 6 and 6A. Prepared by mixing with water. Spray-applied in one or more coats to beam surfaces to a min final thickness as shown in the tables below. Beam surfaces must be clean and free of dirt, loose scale and oil. When fluted steel deck is used and the fire protection thickness selected is based on all fluted deck, the area between the steel deck and the top flange of the steel beam shall be filled. When fluted steel deck is used and the steel beam is sprayed with the thicknesses applicable to cellular or blended units, the area between the steel deck and the top flange of the steel beam shall be plugged.

Min average and min individual density of 15 pcf and 14 pcf respectively for Types 300, 300AC, 300 ES, 300 HS, 300 N, 3000, 3000ES, and SB. For Types 400, 400 AC and 400 ES min average and min individual density of 22 pcf and 19 pcf respectively. Min avg density of 44 pcf with min ind value of 40 pcf for Types M-II and TG. Min avg density of 47 pcf, with min individual value of 43 pcf for Type M-II/P. The thickness of the material on the Structural Members (Item 1 and 1C) shall be as follows:

Min Thkns Spray Applied Resistive Mtl, In

Restrained Assembly Rating Hr	Unrestrained Beam Rating Hr	W8x28 When Deck Is All Fluted	W8x28 When Deck Is Blend or All Cellular	Joist (Item 1Ć) When Deck Is Fluted Cellular or Blend
1	1	5/16, 7/16*	5/16, 7/16*	9/16+
1-1/2	1	5/16, 7/16*	5/16, 7/16*	1
2	1	5/16, 7/16*	5/16, 7/16*	1-3/8
2	2	11/16	13/16	1-3/8
2	3	1-1/16	1-5/16	2-1/4
3	1-1/2	1/2	9/16	2-1/4
3	2	11/16	13/16	2-1/4
3	3	1-1/16	1-5/16	2-1/4

\* This thickness applies when optional Item 12 or 13 are used over 3-1/4 in, light weight concrete topping. + When bottom chords consist of 1 in. by 1 in. by 0.125 in. thick steel angles, the thickness of spray-applied fire resistive material shall be increased by 1/4 in. on the bottom chord only. BERLIN CO LTD — Types 300, 300ES, 300N, SB, or 400; Type M-II, TG and M-II/P

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Types 300, 300AC, 400, or 400AC; Type M-II, TG and M-II/P ISOLATEK INTERNATIONAL — Types 300, 300AC 300ES, 300HS, 300N, SB, 400, 400AC, 400ES, 3000 or 3000ES; Type M-II, TG and M-II/P **NEWKEM PRODUCTS CORP** — Types 300, 300ES, 300N, 400, or SB; Type M-II, TG and M-II/P

6C. Mastic and Intumescent Coatings\* — As an alternate to Items 6 through 6B. For use with fluted steel floor and form units only. Min. size W8x24 or W6x12 beams shall be primed with a phenolic modified alkyd primer, a metal alkyd primer, an acrylic primer or an epoxy primer at a nominal thickness of 2 mil. Coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the primer thickness. Flutes above beam to be completely filled with minimum 6 pcf mineral wool insulation, or the top flange of the beam to be protected with the same thickness of coating as required on the

linimum Dry hickness mils	Minimum Dry Thickness mm	Beam Size	Unrestrained Beam Rating Hr	Restrained Assembly Rating Hr
53	1.34	W8x24	1	2
95	2.41	W8x24	1-1/2	3
73	1.83	W6x12	Î	2
123	3.10	W6x12	1-1/2	3

BERLIN CO LTD — Type WB 3. Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB4, Investigated for Exterior Use with top coat as described in Item 6E

GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C — Type WB 3. Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB4, Investigated for Exterior Use with top coat as described in Item 6E

**ISOLATEK INTERNATIONAL** — Type SprayFilm-WB 3 and Type WB 3. Investigated for Interior General Purpose. Type SprayFilm-WB 4 and Type WB 4, Investigated for Interior General Purpose. Type SprayFilm-WB 4 and Type WB4, Investigated for Exterior Use with top coat as described in Item 6E

**NEWKEM PRODUCTS CORP** — Type WB 3. Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB4, Investigated for Exterior Use with top coat as described in Item 6E

6D. Mastic and Intumescent Coatings\* — As an alternate to Items 6 through 6C. For use with normal weight concrete. Min. size W8x28 beams shall be primed with a phenolic modified alkyd primer a metal alkyd primer, an acrylic primer or an epoxy primer at a nominal thickness of 2 mil. Coating spray or brush applied in accordance with the manufacturer's instructions at the min dry thickness as shown in the table below. The thickness shown below includes the primer thickness. The top surface of the top flange where fluted units are used must be protected with the coating material at the same min dry thickness at a min distance of 1 in. (25 mm) inward from the flange tip on both sides of the beam. Mineral wool insulation optional above top surface of the beam.

Minimum Dry Thickness mils	Minimum Dr Thickness m	-	Unrestrained Beam Rating Hr	Restrained Assembly Rating Hr
103	2.62	Fluted or Cellular	1-1/2	2
179	4.55	Cellular	1-1/2	3
341	8.67	Cellular	2	3

BERLIN CO LTD — Type WB 3. Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB 4, Investigated for Exterior Use with top coat as described in Item 6E

**GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C** — Type WB 3, Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB 4, Investigated for Exterior Use with top coat as described in Item 6E

**ISOLATEK INTERNATIONAL** — Type SprayFilm-WB 3 and Type WB 3. Investigated for Interior General Purpose, Type SprayFilm-WB 4 and Type WB 4, Investigated for Interior General Purpose, Type SprayFilm-WB 4 and Type WB 4, Investigated for Exterior Use with top coat as described in Item 6E

**NEWKEM PRODUCTS CORP** — Type WB 3. Investigated for Interior General Purpose. Type WB 4, Investigated for Interior General Purpose. Type WB4, Investigated for Exterior Use with top coat as described

6E. **Top Coat** — Type SprayFilm — TOPSEAL and Type TOPSEAL required for Exterior Use, applied at a minimum dry thickness of 14 mils (0.34 mm) over the intumescent material. See Classification information in the **Mastic and Intumescent Coating** (CDWZ) category, Isolatek International, for mixing requirements.

6F. **Mastic and Intumescent Coatings\*** — As an alternate to Items 6 through 6D. For use with normal weight or light weight concrete and fluted steel floor and form units only. Min size W8x24 beams shall be primed with a phenolic modified alkyd primer at a thickness of 2 mils or a epoxy primer at a nominal thickness of 1 mil. Coating spray or brush applied in accordance with the manufacturer's instructions at the thicknesses shown below. The thickness includes the thickness of primer. The top surface of the top flange where fluted units are used must be protected with the coating material at the same min dry thickness or filled with nominal 4 pcf

Minimum Dry Thickness mils	Minimum Dry Thickness mm	Beam Size	Unrestrained Beam Rating Hr	Restrained Assembly Rating Hr
35	0.88	W8x24	1	2
66	1.68	W8x24	1-1/2	3

**GREENTECH THERMAL INSULATION PRODUCTS MFG CO L L C** — Type WB-5. Investigated for Interior General Purpose

**ISOLATEK INTERNATIONAL** — Type WB-5. Investigated for Interior General Purpose

7. Shear Connector Studs — (Optional) — Studs, 3/4 in. diam by 3 in. long, for 1-1/2 in. deep form units to 5-1/4 in. long for 3 in. deep form units, headed type or equivalent per AISC specifications. Welded to the top flange of the beam through the steel form units.

8.Lath Hanger — (Optional, Not Shown) For use in caged beams with Items 6, 6A or 6B Galv steel 6 SWG min diam spaced 27 in. O. C.

9.Clips — (Optional, Not Shown) For use in caged beams with Items 6, 6A or 6B No. 24 MSG spring steel pushed on to top and bottom flanges of beam spaced 6 in. O. C. max.

**10. Metal Lath** — (Optional, Not Shown) — For use in caged beams with Items 6, 6A or 6B 3/8 in. diamond mesh or rib lath, 3.4 lbs per sq yd expanded steel attached to beam with clips spaced 6 in. OC max; or tied to lath hangers with 18 SWG galv steel wire spaced 6 in. OC max.

11 . Electrical Inserts\* — (Not Shown) — Classified as "Outlet Boxes and Fittings Classified for Fire Resistance".

**12. Mineral and Fiberboards\*** — (Optional, Not Shown) — Applied over concrete floor with no restriction on board thickness. When mineral and fiber boards are used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr. See Mineral and Fiber Board (CERZ) category for names of manufacturers.

**13. Foamed Plastic\*** — (Optional, Not Shown) — Consisting of polyisocyanurate or urethane roof insulations. Applied over concrete floor with no restrictions on thickness. When polyisocyanurate or urethane insulation is used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr. See Foamed Plastic (CCVW) for list of manufacturers.

14. Insulating Concrete — (Optional, Not Shown) — Various types of insulating concrete prepared and applied A. Vermiculite Concrete - Blend 6 to 8 cu ft of Vermiculite Aggregate\* to 94 lb Portland cement and air entraining agent. Min thickness of 2 in. as measured to the top surface of the structural concrete or foamed

plastic (Item 15) when it is used. See Vermiculite Aggregate (CJZZ) category for names of Classified B. Cellular Concrete-Roof Topping Mixture\* - Concentrate mixed with water and Portland cement per manufacturer's specifications. Min. thickness of 2-in. as measured to the top surface of the structural concrete or foamed plastic (Item 15 and 15A) when used. Cast dry density and 28-day min compressive strength of 190

psi as determined with ASTM C495-66.

ERIN P. SMITH WAR 05 202),

NOTICE: DUTY OF COOPERATION Release of these plans contemplates further cooperation among the owner, his contractor and the architect. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A

consequences. Changes made from the plans without consent of the architect are unauthorized and shall relieve the architect of responsibility for all consequences arriving out of such changes. All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C.

failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the

Eric Smith Associates, P.C **REVISIONS** Description Date

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Job Number: 20034 12/30/20 Date: Author Drawn By: Checked By: Checker **Project Phase** 

DESIGN DEVELOPMENT **Sheet Title** FIRE RATED ASSEMBLIES

ELASTIZELL CORP OF AMERICA — Type II, with a cast dry density of 39 (+ or - 3.0) pcf

SIPLAST INC — Mix #1, Cast dry density of 32 (+ or -) 3 pcf

SIPLAST INC — Mix #2, Cast dry density of 36 (+ or -) 3 pcf

C. Cellular Concrete-Roof Topping Mixture\* - Foam concentrate mixed with water, Portland cement and UL Classified Vermiculite Aggregate per manufacture's application instructions. Cast dry density of 33 (+ or -) 3 pcf and 28 day compressive strength of min 250 psi as determined in accordance with ASTM **AERIX INDUSTRIES** — Mix #3

ELASTIZELL CORP OF AMERICA — Type II. Mix #1 of cast dry density 39 (+ or -) 3.0 pcf, Mix #2 of cast dry density 40 (+ or -) 3.0 pcf, Mix #3 of cast dry density 47 (+ or -) 3.0 pcf

**SIPLAST INC** — Mix #3

D. Perlite Concrete - 6 cu ft of **Perlite Aggregate\*** to 94 lb of Portland Cement and 1-1/2 pt air entraining agent. Min thickness 2 in. as measured to the top surface of structural concrete or foamed plastic (Item 15A) when it is used. See Perlite Aggregate (CFFX) in Fire Resistance Directory for names of Classified companies.

**15. Foamed Plastic\*** — (Optional, Not Shown) — For use only with vermiculite (Item 14A) or cellular (Item 14B) concretes-Rigid polystyrene foamed plastic insulation having slots and/or holes sandwiched between vermiculite concrete slurry which is applied to the normal or light weight concrete surface and vermiculite concrete topping (Item 14A). See Foamed Plastic\* (BRYX) category in Building Materials Directory or Foamed Plastic\* (CCVW) Category in Fire Resistance Directory for list of Classified companies.

15A. Foamed Plastic\* — (Not Shown) — For use only with cellular or perlite concrete. Nominal 24 by 48 in. polystyrene foamed plastic insulation boards having a density of 1.0 (+ or - 0.1) pcf, encapsulated within concrete topping. Each insulation board shall contain six nominal 3 in. diameter holes oriented in two rows of three holes each with the holes spaced 12 in, OC transversely and 16 in, OC longitudinally. See Foamed Plastic\* (BRYX) category in Building Materials Directory or Foamed Plastic\* (CCYW) category in Fire Resistance Directory for list of Classified companies.

**16.** Roof Covering Materials\* — (Optional, Not Shown) — Consisting of materials compatible with insulations described herein which provide Class A, B or C coverings. See Built-Up Roof Covering Materials in Building Materials Directory.

17. Insulated Concrete — (Optional, Not Shown) — various types of insulated concrete prepared and applied in the thickness indicated.

A. Vermiculite Concrete — Mix consists of 6 cu ft of Vermiculite Aggregate\*, 94 lbs of Portland cement and 6 ox of air entraining agent. Thickness to be 2 in min from the top plane of steel roof deck. **ELASTIZELL CORP OF AMERICA** — Types MS16-U, MSV 200.

B. Perlite Concrete — Mix consists of 6.2 cu ft Perlite Aggregate\* to 94 lbs of Portland cement and 1-1/2 pt air entraining agent. Compressive strength 80 psi min. See Perlite Aggregate (CFFX) category for names of Classified companies.

18. Wall and Partition Facings and Accessories — (Optional, Not Shown) Sound barrier for use with items 19 and 20: Acoustic Sleeper Pads stapled or adhered to the underside of the subflooring panels spaced 24 in. OC. STC ARCHITECTURAL PRODUCTS L L C DBA STC SOUND CONTROL — Acoustic Sleeper

19. Structural Cement Fiber Units\* — (Optional, Not Shown) - (For use with item 18) - Min 3/4 in. thick tongue and groove non- combustible structural cement fiber board loosely laid over concrete. **ECTEK INTERNATIONAL INC** — Armoroc Panel

**UNITED STATES GYPSUM CO** — USG Structural Panel

**EASI BUILDING PRODUCTS, INC.** — Versaroc

**20.** Building Units\* — (Optional, Not Shown) - (For use with item 18) - Panels loosely laid over concrete. **DRAGONBOARD USA L L C** — Type DragonBoard, DragonBoard Flooring

**EXTREMEGREEN BUILDING PRODUCTS LLC** — Type 3/4 in. Shiplap Edge Extremegreen™ Board, 5/8 in. Tapered Edge Extremegreen™ Board, 1/2 in. Tapered Edge Extremegreen™ Board.

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

included in the equation. If an equation is not provided in the particular UL design being referenced, the IBC equation with the appropriate material constants should be used. The values for the material related constants should be verified with the material supplier.

VI.8.9 Concrete-Filled HSS Columns. Concrete-filled Hollow Structural Sections (HSS) can effectively sustain load during a fire exposure without benefit of external protection. The concrete mass provides an increased capacity for absorbing the heat caused by the fire and thereby extends the duration for load resistance. Research conducted at the National Research Council of Canada provided a basis for establishing an empirical equation to predict the fire resistance of concrete-filled round and square HSS sections<sup>12,13,14</sup>. The equation is presented in ASCE/SFPE 29-99<sup>15</sup> as follows:

R =Fire Resistance Rating (hours) a =Shape and material parameter 0.07 - circular section with

siliceous aggregate concrete fill 0.08 - circular section with carbonate aggregate concrete fill 0.06 - square or rectangular section with siliceous aggregate fill

0.07 - square or rectangular section with

carbonate aggregate concrete fill = 28 day concrete compressive strength (ksi) KL =Column effective length (ft)

 Outside diameter of circular HSS (in.) Outside dimension of square HSS (in.) Least outside dimension of rectangular HSS = Column compressive force due to unfactored

dead load and live load (kips)

The fire performance of a concrete-filled HSS column improves when heat absorption occurs as the moisture in the concrete is converted to steam. The heat absorbed during this phase change is significant, however the resulting steam must be released to prevent the adverse effects of an internal pressure build-up. Thus, vent holes need to be provided in the steel section. Two ½ in.(12.7 mm) diameter holes should be placed opposite each other

should be rotated 90° relative to the top holes.

at the top and bottom of the column. The bottom holes

The application of the formula is limited. Since it is based on actual column tests, the application must fit within the range of the parameters considered in the testing. The following restrictions are placed on the use of the equation:

resistance rating of 2 hours or less. 2. The 28 day compressive strength of the fill concrete

1. The calculation is limited to columns requiring a fire

must be between  $f_c$  '=2.9 ksi (20 MPa) and  $f_c$  '= 5.8 ksi

3. The column effective length must be between 6.5 ft

4. Round sections must have a D between 5½ in. (140 mm) and 16 in. (406 mm).

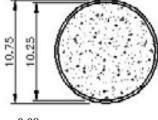
Square and rectangular sections must have a D between 51/2 in. (140 mm) and 12 in. (305 mm).

6. Compressive force C shall not exceed the design strength of the concrete core at ambient temperatures determined in accordance with the AISC LRFD Specification for Structural Steel Buildings.

7. Vent holes must be provided at the top and bottom of the column section to relieve steam pressure.

### VI.8.9.1 EXAMPLE VI-4

Determine the fire resistance rating of a round concretefilled HSS 10.75 x 0.25 having an effective length (KL) of 10 ft (3.05 m) subjected to an unfactored dead load of 45 kips (200 kN) and an unfactored live load of 35 kips (156 kN). Carbonate coarse aggregate is used in the concrete fill that has a 28 day compressive strength of 4,000 psi (27.6 MPa).



 $f_c' = 4,000 \text{ psi}$ KL = 10 ft D = 10.75 in. C = 45 + 35 = 80 kips

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#### **TABLE 722.2.1.1** MINIMUM EQUIVALENT THICKNESS OF CAST-IN-PLACE OR PRECAST CONCRETE WALLS, LOAD-BEARING OR NONLOAD-BEARING

CONCRETE TYPE	MINIMUM SLAB THICKNESS (inches) FOR FIRE-RESISTANCE RATING OF										
	1 hour	1 <sup>1</sup> / <sub>2</sub> hours	2 hours	3 hours	4 hours						
Siliceous	3.5	4.3	5.0	6.2	7.0						
Carbonate	3.2	4.0	4.6	5.7	6.6						
Sand- lightweight	2.7	3.3	3.8	4.6	5.4						
Lightweight	2.5	3.1	3.6	4.4	5.1						

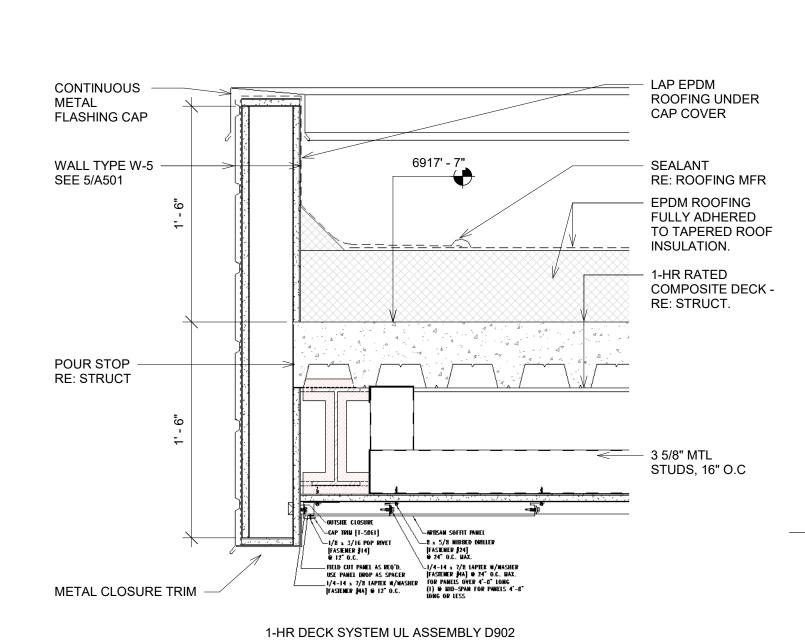
For SI: 1 inch = 25.4 mm.

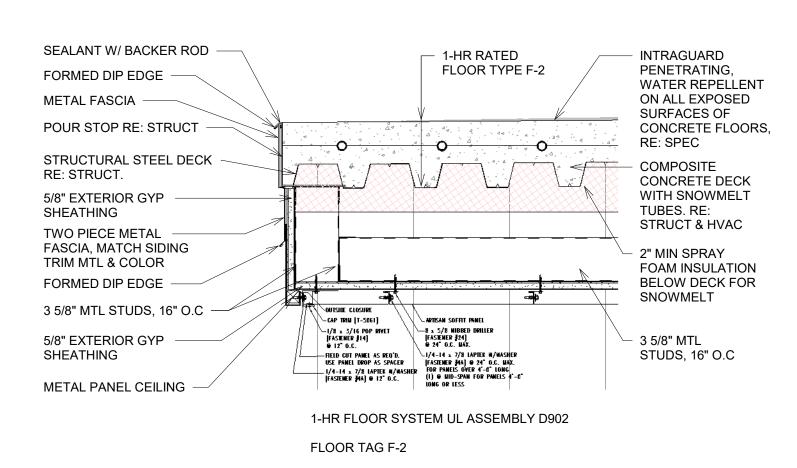
Aggregate type in the Minimum required equivalent thickness, in. (mm), for fire resistance rating, hours A, B									SA, B						
concrete masonry unit <sup>C</sup>	4	33/4	31/2	31/4	3	23/4	21/2	21/4	2	13/4	11/2	11/4	1	3/4	1/2
Calcareous or siliceous gravel	6.2	6.0	5.8	5.5	5.3	5.0	4.8	4.5	4.2	3.9	3.6	3.2	2.8	2.4	2.0
Limestone, cinders or unexpanded slag	5.9	5.7	5.5	5.2	5.0	4.8	4.5	4.3	4.0	3.7	3.4	3.1	2.7	2.3	1.9
Expanded clay, shale, or slate	5.1	4.9	4.8	4.6	4.4	4.2	4.0	3.8	3.6	3.4	3.3	2.9	2.6	2.2	1.8
Expanded slag or pumice	4.7	4.5	4.4	4.2	4.0	3.8	3.6	3.4	3.2	3.0	2.7	2.5	2.1	1.9	1.5

Fire resistance rating between the hourly fire resistance rating periods listed may be determined by linear interpolation based on the equivalent thickness value of the concrete masonry unit. The requirements of ASTM C55, ASTM C73, ASTM C90 or ASTM C744 (refs. 13, 14, 6, 15) shall apply. Include equivalent thickness of finishes where applicable: see section "Effects of Finishes on Fire Resistance Ratings." Where combustible members are framed into the wall, the thickness of solid material between the end of each member and opposite wall face, or

between members set in from opposite sides, must be at least 93% of thickness shown. Minimum required equivalent thickness corresponding to the hourly fire resistance rating for units made with a combination of aggregates shall be determined by linear interpolation based on the percent by volume of each aggregate used in the manufacture.

Ref: https://ncma.org/resource/fire-resistance-ratings-of-concrete-masonry-assemblies/





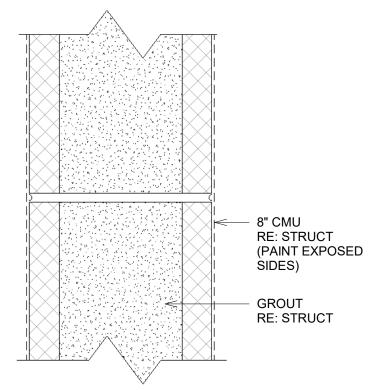
**ROOF TAG R-1** 

SLAB EDGE / FASCIA DETAIL (F-2 & R-1)

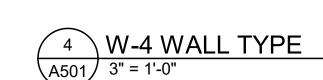
METAL SIDING (MATCH OPERATOR CABIN FINISH) TYVEK COMMERCIAL WRAP 1-LAYER 5/8" DENSGLASS SHEATHING 3-1/2" BATT INSULATION METAL STUDS 1/2" AIR SPACE 8" CMU - RE: STRUCT (PAINT) **GROUT RE: STRUCT** 

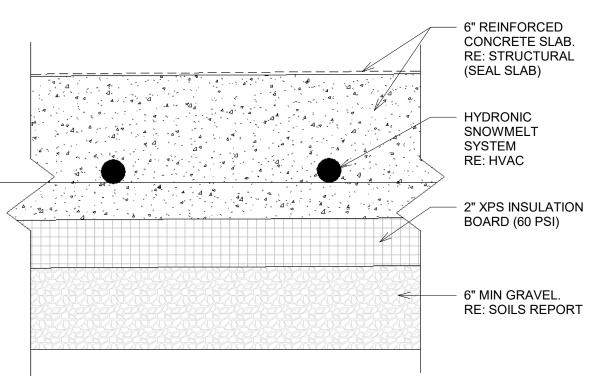
1-HOUR FIRE RATED ASSEMBLY BASED NCMA TABLE

WALL TAG: W-1

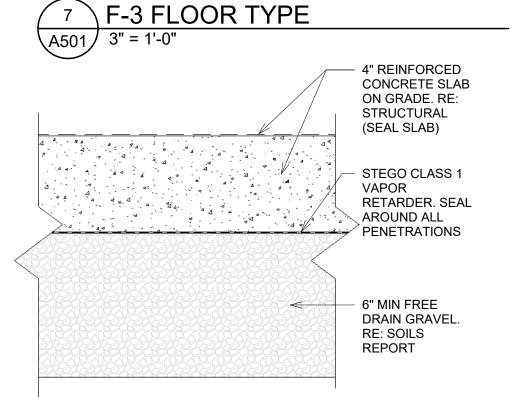


1-HOUR FIRE RATED ASSEMBLY BASED NCMA TABLE 1 WALL TAG: W-4



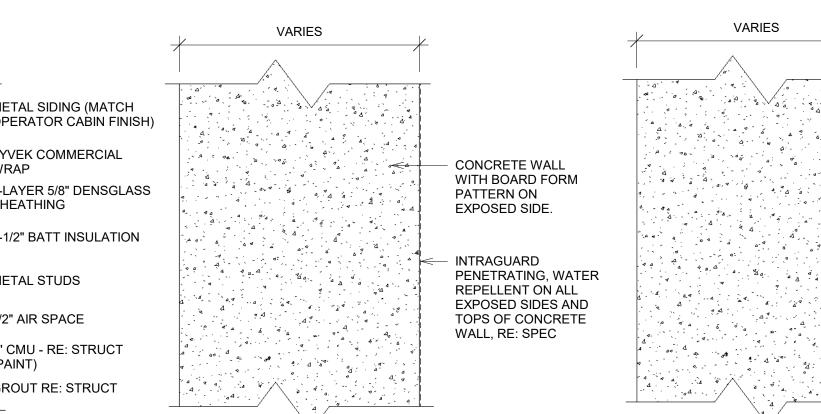


FLOOR TAG: F-3



FLOOR TAG: F-4

8 F-4 FLOOR TYPE



1-HR FIRE RATED ASSEMBLY PER IBC 2018 TABLE 722.2.1.1

WALL TAG: W-2-10 = 10" CONCRETE WALL W-2-8 = 8" CONCRETE WALL

W-2 WALL TYPE

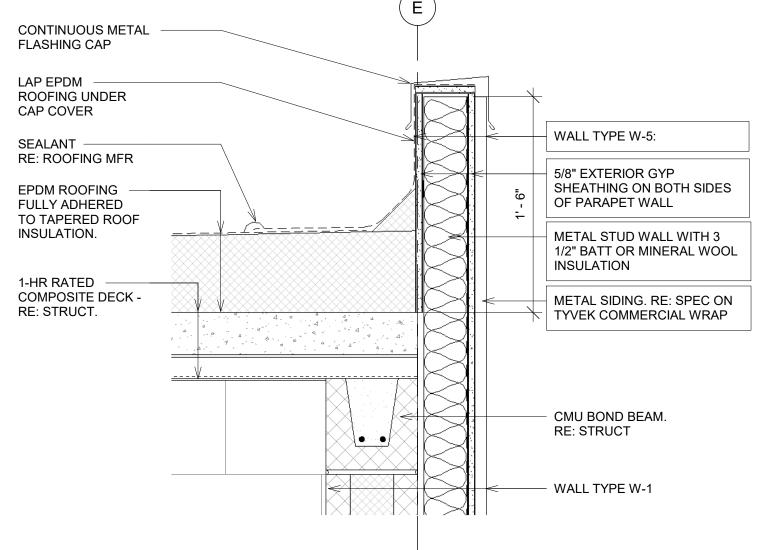
1-HR FIRE RATED ASSEMBLY PER IBC 2018 TABLE 722.2.1.1

**VARIES** 

WALL TAG: W-3-10 = 10" CONCRETE WALL W-3-8 = 8" CONCRETE WALL

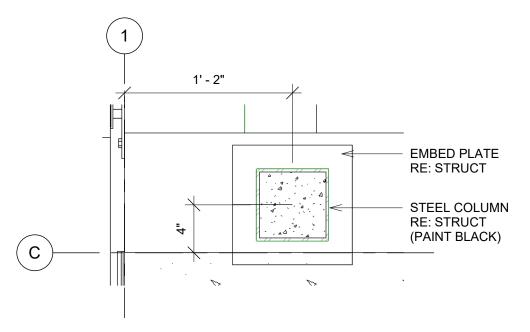
W-3 WALL TYPE

and the same



WALL TYPE W-5 PARAPET WALL

PARAPET DETAIL - W-5 WALL TYPE 1 1/2" = 1'-0"



1-HR RATED CONCRETE FILLED STEEL COLUMN SEE SECTION VI.8.9 (THIS SHEET)

**COLUMN DETAIL** A501 / 1 1/2" = 1'-0"

> F-1 FLOOR TYPE **SEE A302**

- CONCRETE WALL

INTRAGUARD

PENETRATING, WATER

REPELLENT ON ALL

EXPOSED SIDES AND

TOPS OF CONCRETE

WALL, RE: SPEC

NOTICE: DUTY OF COOPERATION Release of these plans contemplates further cooperation among the owner, his contractor and the architect. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence. they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the consequences. Changes made from the plans without consent of the architect are unauthorized and shall relieve the architect of responsibility for all consequences arriving out of such changes. All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any

form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C. Eric Smith Associates, P.C.

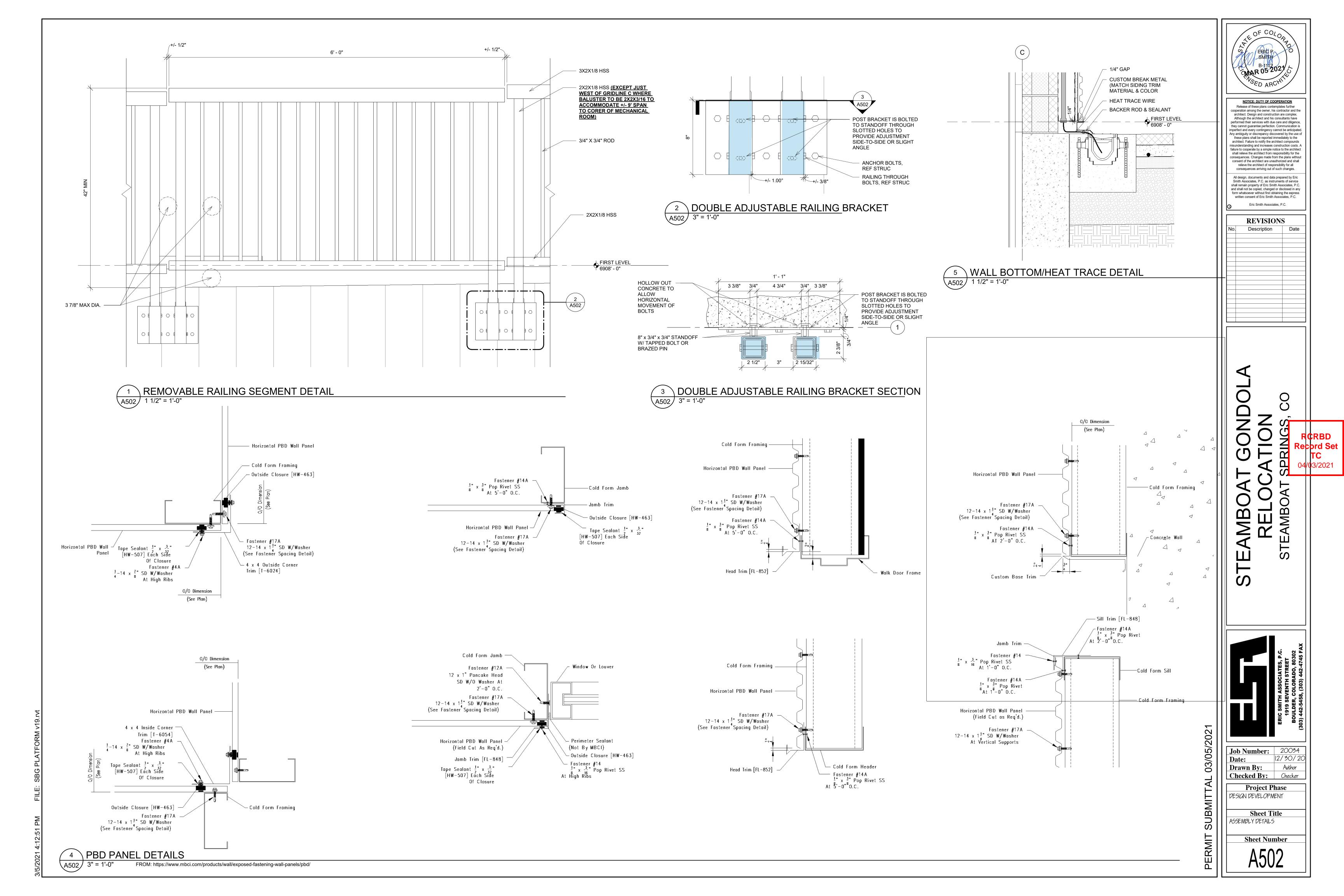
**REVISIONS** Description

**Job Number:** 20034 12/30/20 Date: Author Checked By: Checker

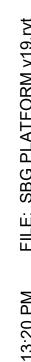
Drawn By: **Project Phase** 

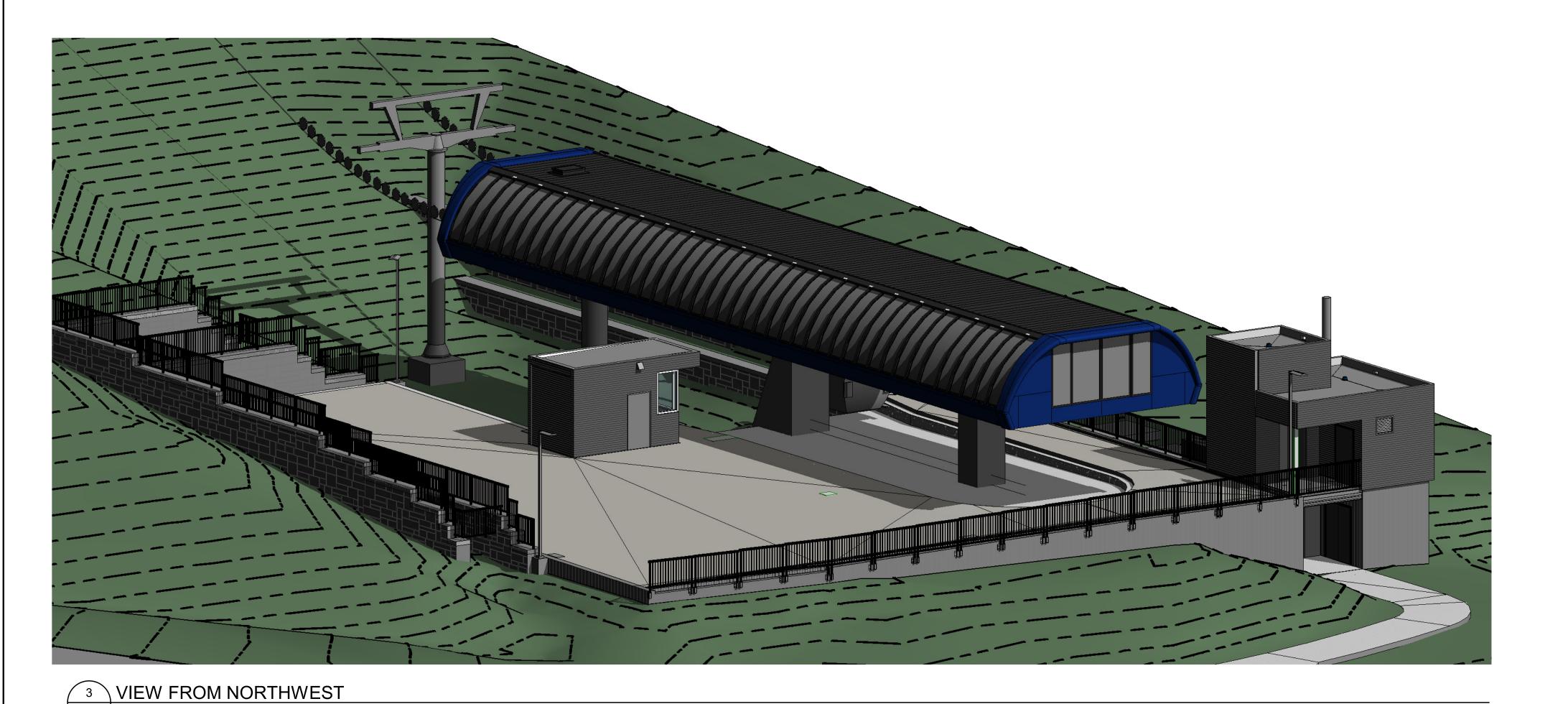
DESIGN DEVELOPMENT **Sheet Title** FIRE RATED ASSEMBLIES &

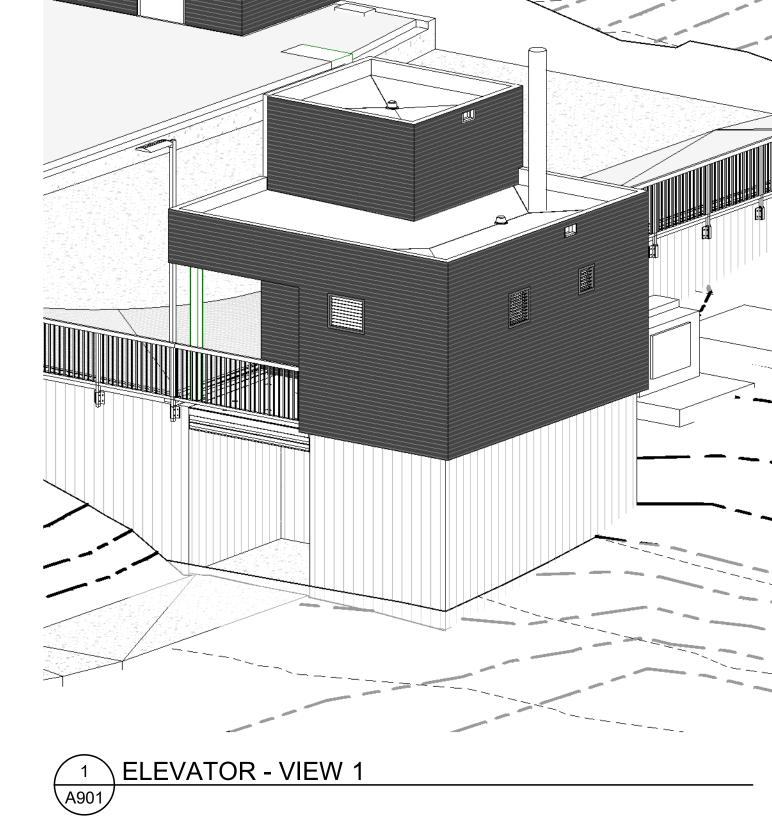
WALLTYPES **Sheet Number** 

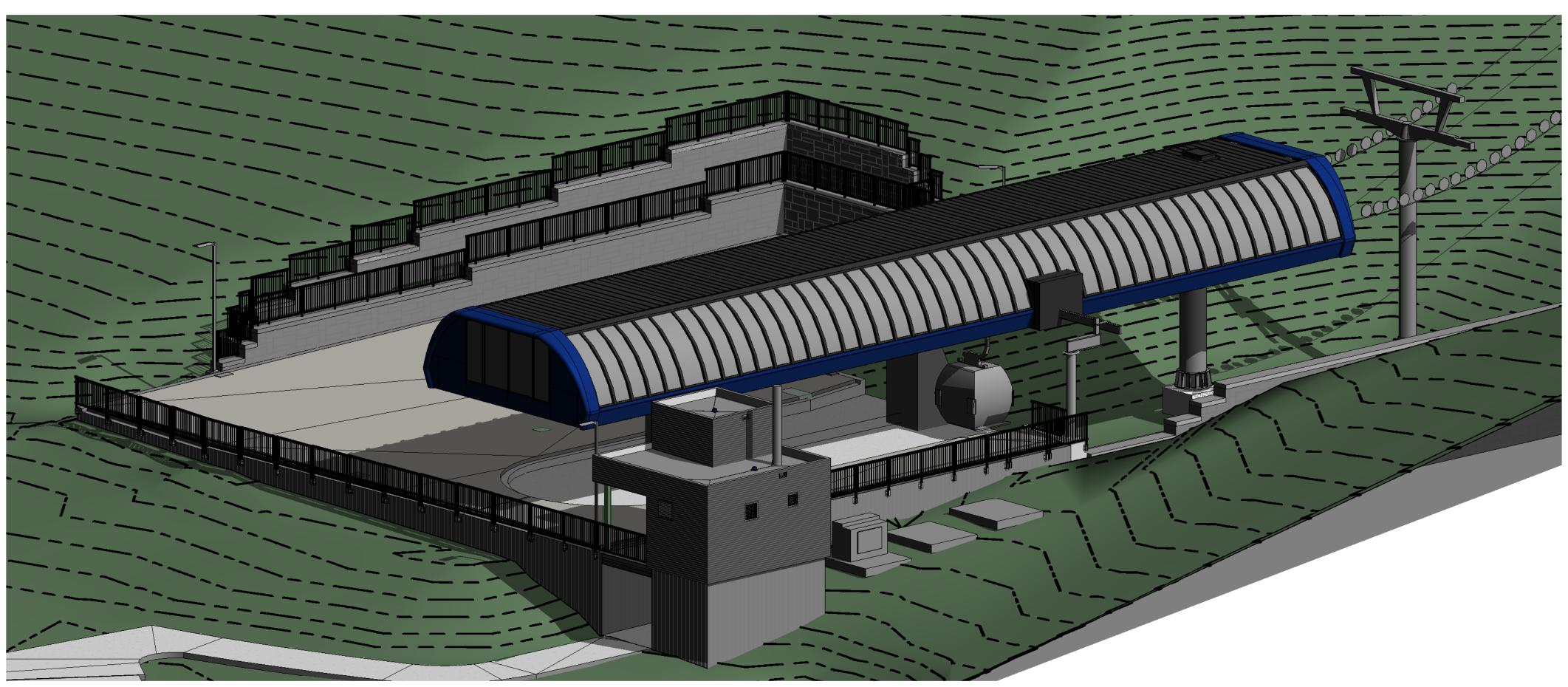


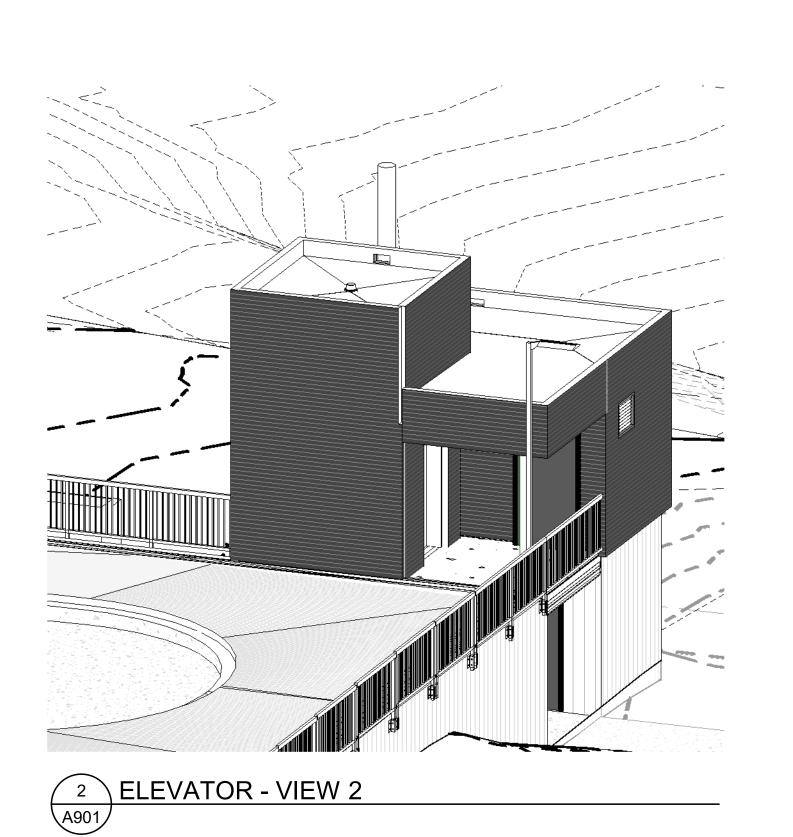
4 VIEW FROM SOUTHWEST











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Eric Smith Associates, P.C

**REVISIONS** Description

Project Phase
DESIGN DEVELOPMENT

reinforcing which is required to be welded shall conform to ASTM A706.

Unless otherwise noted on the structural drawings, lap bars 50 diameters (50" Bar Diameter minimum). Epoxy coated reinforcing bars shall conform to ASTM A775.

Zinc coated (galvanized) reinforcing bars shall conform to ASTM A767.

Unless otherwise noted on the structural drawings, lap bars per lap splice schedule.

Reinforcing at all abutting concrete (including footings) shall be continuous through or around all corners and intersections OR use matching

corner bars of equal size and spacing to reinforcing in the abutting members. Install 2-#5 bars (minimum) around all sides of all openings in concrete and extend 2'-0" past edges of openings, unless otherwise noted. In continuous members, splice top bars at mid-span between supports and splice bottom bars over supports.

Form intermittent shear keys at all construction joints and as shown on the structural drawings. Unless otherwise noted on the drawings, minimum concrete cover over reinforcing shall be as follows:

Unformed surface cast against and permanently exposed to earth: 3" Formed surface exposed to earth or weather: #6 through #18 bars #5 bar, w31 or d31 wire, and smaller 1-1/2"

Formed surface not exposed to weather or in contact with ground: Slabs, walls, joists: #11 bars and smaller 3/4"

Beams and columns: Primary reinforcement 1-1/2" Stirrups, ties, spirals

Install chairs, bolsters, additional reinforcement, and accessories necessary to support reinforcement at position shown on drawings. Support of reinforcement on wood, brick, or other unacceptable materials shall not be permitted. Keep reinforcement clean and free of dirt and oil. Oil forms prior to placing reinforcement.

Fiber admixture shall be 100% virgin polypropylene, fibrillated fibers, type 111 4.1.3, performance level one, per ASTM C1116. Properly place, accurately position and maintain securely in place all embedded items prior to and during concrete placement. Anchor bolts and rods for beam and column-bearing plates shall be placed with setting templates

Unless otherwise shown in the architectural drawings, provide 3/4" chamfers at all column, wall, slab or beam edges that are exposed to view in the finished structure.

STRUCTURAL STEEL: tructural steel shall be detailed, fabricated and erected in accordance with the "Specification for Structural Steel Buildings" (AISC 360) and the Interior architectural finish detailing must accommodate the relative differential movements of supporting structural elements.

"Code of Standard Practice for Steel Buildings and Bridges" (AISC 303) by the American Institute of Steel Construction (AISC). All structural steel shall conform to the ASTM Standards and grades indicated below, unless noted otherwise on the drawings or details.

Structural steel wide flange beams and WTs: ASTM A992, 50 ksi yield ASTM A786, Commercial grade Rolled steel floor plates Other rolled shapes, including plates, channels, and angles: ASTM A36, 36 ksi yield. Hollow structural section (HSS) rectangular shapes: ASTM A500, Grade B, 46 ksi yield HSS round shapes: ASTM A500, Grade B, 42 ksi yield ASTM A53, Grade B, 35 ksi yield. Pipe shapes:

Adjustable pipe columns: 3" diameter 11 gauge, shall be certified by the manufacturer for a safe load capacity of 13,500 lbs at 7'-6".

3" diameter "Heavy Duty" schedule 40 shall be certified for a safe load capacity of 28,000 lbs at 7'-6". Unless otherwise noted, framed beam connections shall be bearing-type with 3/4" diameter, snug tight, ASTM F3125, Grade A325 bolts, detailed in conformance with the structural drawings and the "Steel Construction Manual" by the AISC, 14th edition. Install bolts in accordance with AISC's "Specification for Structural Joints Using High-Strength Bolts".

All beams shall have full depth web stiffeners each side of webs above and below columns (1/4" plate or as noted). Anchor rods shall conform to ASTM F1554, Grade 55 as noted on the structural drawings with weldability supplement S1. Headed anchor studs (HAS) shall conform to ASTM A108 and shall be connected to structural steel with equipment approved by the stud manufacturer according to the stud manufacturer's recommendations.

Welding shall be done by a certified welder in accordance with the AISC documents listed above, the American Welding Society (AWS) D1.1 2010 Structural Welding Code, and the recommendations for use of E70XX electrodes. Where not specifically noted, minimum weld shall be 3/16" fillet by length of contact edge.

All post-installed anchors shall have current International Code Council Evaluation Service (ICC-ES) reports and shall be installed in accordance with the manufacturer's requirements. Expansion anchors shall be approved "wedge" type unless specifically noted to be "sleeve" type as noted on the structural drawings.

Chemical anchors shall be approved epoxy or similar adhesive type as appropriate for installation in solid and non-solid base materials.

non-shrink, non-metallic, and tested in accordance with ASTM C1107. See S0.02 for Special Inspection requirements. QA inspections are permitted to be waived if steel fabricator or erector is AISC certified or the Authority Having Jurisdiction approves. At completion of fabrication, fabricator shall submit certificate of compliance stating materials supplied and work performed is in accordance to the Construction Documents.

**STEEL DECKING:** Steel roof, non-composite floor (or 'form'), and composite floor deck shall be manufactured and erected in accordance with the standard deck specifications and the "Manual of Construction with Steel Deck" (SDI No. MOC1) as prepared by the Steel Deck Institute (SDI). Roof deck shall be connected to supporting members and interconnected to develop the diaphragm shears and net uplift pressures due to

Non-composite and composite floor deck shall be connected to supporting members and interconnected as required to satisfy SDI minimum requirements except as noted on the structural drawings.

The structural drawings are copyrighted and shall not be copied for use as erection plans or shop details. Use of Anthem's electronic files as the basis for shop drawings requires prior approval by Anthem, a signed release of liability by the general contractor and/or his subcontractors, and deletion of Anthem's name and logo from all sheets so used.

The general contractor shall submit in writing any requests to modify the structural drawings or project specifications. All shop and erection drawings shall be checked and stamped (after having been checked) by the general contractor prior to submission for structural engineer's review; shop drawing submittals not checked by the general contractor prior to submission to the structural engineer will be returned without review. Furnish two (2) prints of shop and erection drawings to the structural engineer for review prior to fabrication for: reinforcing steel,

structural steel. steel form, floor, and roof deck,

CMU product data, unit strength testing,

lateral forces as noted on the structural drawings.

Submit in a timely manner to permit 10 working days for review by the structural engineer.

Welding patterns, screw patterns, and details shall be indicated on the deck supplier's shop drawings.

Shop drawings submitted for review do not constitute "request for change in writing" unless specific suggested changes are clearly marked, in any event, changes made by means of the shop drawing submittal process become the responsibility of the one initiating the change.

FIELD VERIFICATION OF EXISTING CONDITIONS: The general contractor shall thoroughly inspect and survey the existing structure to verify conditions that affect the work shown on the

The general contractor shall report any variations or discrepancies to the architect and structural engineer before proceeding.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS:

The structural drawings illustrate and describe the completed structure with elements in their final positions, properly supported, connected The structural drawings illustrate typical and representative details to assist the general contractor. Details shown apply at all similar

conditions unless otherwise indicated. Although due diligence has been applied to make the drawings as complete as possible, not every detail is illustrated and not every exceptional condition is addressed. All proprietary connections and elements shall be installed in accordance with the manufacturers' recommendations.

All work shall be accomplished in a workmanlike manner and in accordance with the applicable codes and local ordinances. The general contractor is responsible for coordination of all work, including layout and dimension verification, materials coordination, shop drawing review, and the work of subcontractors. Any discrepancies or omissions discovered in the course of the work shall be immediately reported to the architect and structural engineer for resolution. Continuation of work without notification of discrepancies relieves the architect and structural engineer from all consequences.

Unless otherwise specifically indicated, the structural drawings do not describe methods of construction.

The general contractor, in the proper sequence, shall perform or supervise all work necessary to achieve the final completed structure, and to protect the structure, workmen, and others during construction. Such work shall include, but not be limited to temporary bracing, shoring for construction equipment, shoring for excavation, formwork, scaffolding, safety devices and programs of all kinds, support and bracing for cranes and other erection equipment.

Do not backfill against basement or retaining walls until supporting slabs and floor framing are in place and securely anchored, unless adequate temporary bracing is installed. Temporary bracing shall remain in place until all floors, walls, roofs and any other supporting elements are in place.

The architect and structural engineer bear no responsibility for the above items, and observation visits to the site do not in any way include inspections of these items.

These plans have been engineered for construction at one specific building site. Builder assumes ALL responsibility for use of these plans at ANY OTHER building site. Plans shall not be used for construction at any other building site without specific review by the engineer.

Design is based on ACI 530/ASCE 5/TMS 402, "Building Code Requirements for Masonry Structures,"

Masonry work shall conform to ACI 530.1/ASCE 6/TMS 602 "Specification for Masonry Structures". Compressive strength of masonry assembly used for design is 2000 psi (fm = 2000 psi), based on net-bedded area. Except at masonry lintels using standard lintel units, bond beam units shall be produced from standard vertically voided units with pre-cut knockout cross walls.

Hollow load-bearing concrete masonry units (CMU) shall be lightweight, 85 to 105 pcf density, conforming to ASTM C90, with a minimum compressive strength of 2,800 psi based on average net area. Facing brick shall conform to ASTM C216 Grade SW.

Building brick shall conform to ASTM C62-04 Grade SW. Hollow brick shall conform to ASTM C652 Grade SW.

Mortar shall be type "S" conforming to ASTM C270. Mortar SHALL NOT be substituted for grout.

Masonry cement shall not be used unless part of a pre-packaged mortar or grout mix approved by the structural engineer. Provide full shoved mortar in all head and bed joints. Admixtures shall not be used unless approved by the architect and/or structural engineer.

Grout used in masonry walls and block cells shall be coarse grout, as defined by ASTM C476, with a minimum cube strength = 2,000 psi or 3,000 psi concrete using 3/8" diameter aggregate and placed by vibrating unless an approved self-consolidating mix is used. 'Low-Lift' grouting shall not exceed 5 feet in height unless ACI 530.1 'high-lift' grouting procedures are reviewed and approved by the architect

and structural engineer. Vertically space continuous horizontal joint reinforcing at 16" maximum in all CMU walls. Joint reinforcing shall be welded type with 9 gage side rods and 9 gage trussed or ladder cross rods.

In exterior walls, joint reinforcement shall be stainless steel or hot-dip galvanized. All other joint reinforcement shall be mill galvanized, hot-dip galvanized, or stainless steel. Horizontal joint reinforcing shall be lapped no less than 6" all splices.

Wire ties for veneer shall be 9 gage diameter for cavity widths 2" or less. Where nominal cavity width exceeds 2 inches, veneer ties shall be 1/4" diameter. Ties shall be spaced a maximum of 16" in each direction. Reinforcing bars shall be as for reinforced concrete except as noted.

Unless otherwise noted on the structural drawings, lap bars 50 diameters (50\*Bar Diameter minimum) at splices. Reinforcement shall be secured against displacement prior to grouting by wire bar locators or other suitable devices at intervals not exceeding

200 bar diameters or 10 feet. Reinforce and fully grout vertical cells at corners, ends of walls, jambs of openings, each side of vertical control joints, and at spacing shown on

Vertical reinforcing bars shall have a minimum clearance of 3/4" from masonry. Foundation dowels shall match vertical reinforcing, unless otherwise noted on the drawings.

Where noted on the drawings, provide clearance between masonry and structural elements, or wrap steel with polyethylene film. Locate vertical control joints in all masonry walls as shown on the architectural drawings, structural drawings, or spaced horizontally at 25'-0" maximum spacing where not shown. Cold weather construction shall conform to guide specifications from the International Masonry Industry All-Weather Council (IMIAWC), latest

**LOOSE LINTELS:** 

Inless noted otherwise, provide loose lintels as follows: (one angle for each 4" of wall thickness to bear 4" minimum each end)

0'-8" to 4'-0" L3 1/2x3 1/2x1/4 4'-1" to 5'-4" L5x3 1/2x1/4 (LLV) 5'-5" to 10'-0" L6x3 1/2x5/16 (LLV) PRECAUTIONARY NOTES ON STRUCTURAL BEHAVIOR:

Where the roof framing element spans are long, applied loading will naturally cause substantial deflection. Interior elements hung from the roof

structure will deflect with the roof. The floor is a floating concrete slab-on-grade and may experience movements independent of the structural foundations. Interior elements supported on the slab-on-grade floor will move with the floor. Interior elements supported on foundations and columns will not experience similar or measurable movements

Exterior/perimeter wall assemblies hung from the edge of the building structure will be directly affected (to some degree) by changes in external temperature and floor deflection. Exterior/perimeter and interior architectural finish details should allow for relative movements between elements with different support

The foundation design shown assumes that the owner/builder is aware of the presence of expansive soils, and that he has read the previously referenced soils report. Use of these plans is indication that the owner/builder accepts the risks associated with building on this site, especially those related to slab on grade construction in finished areas. Anthem, LLC will not be held liable for damages caused by slab movement.

**DEFERRED SUBMITTALS:** Portions of the structure have elements of proprietary design and fabrication, which shall be submitted by the supplier for approval after award

These items shall conform to the load, capacity, size, geometry, connection, and support criteria noted on the structural drawings. Shop drawings and calculations shall be prepared by an engineer registered in the State of Colorado. Final shop drawing submittals shall be

Submittals will be reviewed by the structural engineer of record for compliance with the specified design requirements, stamped as "Reviewed," and forwarded to the local building authority for review as required.

Final issue of the building permit may, at the approval authority's option, be contingent on its approval of the deferred submittal documents. Deferred submittal items shall not be installed until their design calculations and drawings have been reviewed by the architect, structural engineer, and/or local building authority as required.

Grout beneath column base and beam bearing plates shall have a minimum 28-day, compressive strength of <7,500><5,000> psi and shall be LETTERS OF CONSTRUCTION COMPLIANCE:

> The general contractor shall determine from the local building authority, at the time the building permit is obtained, whether any letters of construction compliance will be requested from the structural engineer. The contractor shall notify the structural engineer of all such requirements in writing prior to the start of construction.

SPECIAL INSPECTIONS (valid for IBC 2018):

The following Special Inspections and Testing shall be performed by a qualified Special Inspector, retained by the Owner, in accordance with the following sections of IBC Chapter 17:

The general contractor shall provide copies of all third-party testing and inspection reports to the architect and structural engineer a minimum of

Section 1704 1704.2.5 Special inspections of fabricated items and fabricators

one week prior to the date that the compliance letter is needed.

Section 1705 Special inspections and the following sub-sections: 1705.2 Steel Construction including 1705.2.1 Structural Steel, 1705.2.2 Cold-formed steel deck 1705.3 Concrete Construction including 1705.3.1 Welding of reinforcing bars, 1705.3.2 Material tests

Two day advance notice shall be given when requesting site visits necessary as the basis for the compliance letter.

1705.6 Soils 1705.10 Fabricated items

1705.4 Masonry Construction, level B

Section 1705.12 Special Inspections for seismic resistance with the following sub-sections:

1705.12.1 Structural Steel 1705.12.1.1 Seismic force-resisting system 1705.12.1.2 Structural steel elements (struts, collector, chords and foundation elements) 1705.12.4 Designated seismic systems

1705.12.5 Architectural components 1705.12.6 Plumbing, mechanical and electrical components

Section 1705.13 Structural Testing for Seismic Resistance and the following sub-sections: 1705.13.1 Structural Steel 1705.13.1.1 Seismic force-resisting systems

1705.13.1.2 Structural steel elements (struts, collectors, chords and foundation elements) 1705.13.2 Nonstructural components

1705.13.3 Designated seismic systems Section 1706 Design Strengths of Materials Section 1707 Alternative Test Procedures

Section 1708 In-Situ Load Tests Section 1709 Preconstruction Load Tests

The Special Inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the building official, for inspection of the particular type of construction or operation requiring special inspection. Duties and responsibilities of the Special Inspector shall be to inspect and/or test the work outlined above and within the Statement of Special

Inspections in accordance with Chapter 17 of the IBC for conformance with the approved construction documents. All discrepancies shall be brought to the immediate attention of the contractor for correction Per section 1704.2.4 the Special Inspector shall furnish regular reports to the building official and the structural engineer. Progress reports for continuous inspection shall be furnished weekly. Individual reports of periodic inspections shall be furnished within one week of inspection

dates. The reports shall note uncorrected deficiencies, correction of previously reported deficiencies, and changes to the approved construction documents authorized by the Structural Engineer of Record. The Special Inspector shall submit a final signed report within 10 days of the final special inspection stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved construction documents and the applicable

workmanship provisions of the IBC. Work not in conformance shall be noted in the report The contractor shall submit a statement of responsibility to the building official and the owner prior to the commencement of work on a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the Statement of

Special Inspections per section 1704.5. Except as noted, the special inspections outlined above are in addition to, and beyond the scope of, periodic Structural Observations as defined in section 1704.6. Structural Observations are included in the structural engineering design and construction administration services provided by the structural engineer.

RCRBD Notes to Professionals and Inspectors:

RCRBD is responsible for reviewing and permitting the following portions of the Gondola Terminal Re-Location:

A. Redi-Rock Retaining Walls around the perimeter of the Gondola Terminal B. Electrical Work

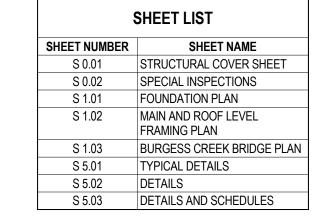
C. Plumbing Work

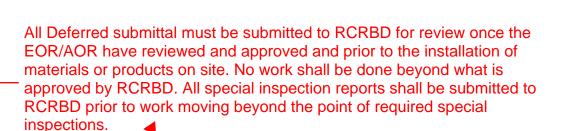
D. Mechanical Work E. Boiler Room and Elevator Room

F. Platform Area and Stairs and Ramps

G. Burgess Creek Bridge

Special Notes: RCRBD is not responsible for the Gondola Terminal or the Operators Cabin as these are reviewed and approved by the State. Letter to be provided by applicant stating the permitting and review process will be done by others. Our Local Codes, Amendments and Deletions including Seismic Category C Amendment do not apply to portions of this project we are not responsible for reviewing, specifically they do not apply to the Gondola Terminal nor the Controller Cabin. The Authority Having Jurisdiction over these items is responsible for reviewing, approving, permitting, and all required inspections and final approval.







Double Extra Strong

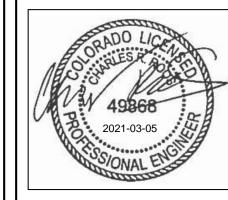
			ABBREVI	ATIONS	KEY		
AB	Anchor Rod (Folt)	E-E	End to End	LVL	Laminated Veneer Lumber (generic)	RMO	Rough Masonry Opening
ADDL	Additional	EF	Each Face	LW	Light Weight	RO	Rough Opening
AFF	Above Finished Floor	EJ	Expansion Joint	MASY	Masonry	SC	Slip Critical
ALT	Alternative	EL	Elevation	MATL	Material	SCH	Schedule
AMT	Amount	EN	Edge Nailing	MAX	Maximum	SDST	Self Drilling Self Tapping
APPROX	App/oximate	ENGR	Engineer	MECH	Mechanical	SECT	Section
ARCH	Architect, Architectural	EQ	Equal	MEZZ	Mezzanine	SF	Square Feet
ASD	Allowable Stress Design	EQUIP	Equipment	MFR	Manufacture, -er, -rd	SHT	Sheet
AVG /	Average	EQUIV	Equivalent	MIN	Minimum	SHTG	Sheathing
BC /	Bottom of Concrete	ES	Each Side	MTL	Metal	SIM	Similar
BL /	Brick Ledge	EST	Estimate	<n></n>	"New"	SL	Sloped
BLK/	Block	E-W	East to West	NIC	Not In Contract	SOG	Slab On Grade
BLKG	Blocking	EXC	Excavate	N-S	North to South	SP	Space,-s
₿M	Beam	EXP	Expansion	NTS	Not to Scale	SPEC	Specifications
ВОТ	Bottom	EXT	Exterior	OD	Outside Diameter	SQ	Square
BRG	Bearing	FDN	Foundation	OF	Outside Face	STD	Standard
CANT	Cantilever	FF	Finished Floor	ОН	Opposite Hand	STL	Steel
CF	Cubic Foot	FIG	Figure	OPNG	Opening	STIFF	Stiffener
CFS	Cold Form Steel	FL	Flush	OPP	Opposite	STRUCT	Structure (Structural)
CIP	Cast In Place	FLR	Floor	OSB	Oriented Strand Board	SY	Square Yard
CJ	Construction Joint (Control Joint)	FP	Full Penetration	PAF	Powder Actuated Fastener	SYM	Symmetrical
CLG	Ceiling	FTG	Footing	PC	Precast	T&B	Top and Bottom
CLR	Clear	GA	Gage (Gauge)	PE	Pre-engineered (trusses)	T&G	Tongue and Groove
CMU	Concrete Masonry Unit	GALV	Galvanized	PEN	Penetration	TB	Top of Beam
COL	Column	GC	General Contractor	PERP	Perpendicular	TC	Top of Concrete
COM	Common	GEN	General	PKT	Pocket	TJ	Top of Joist
CONC	Concrete	GL	Glue Laminated (Glu-lam)	PL	Property Line	TL	Total Load, Top of Ledge
CONN	Connection	GR	Grade	PLF	Pounds per Linear Foot	TM	Top of Masonry
CONT	Continue (Continuous)	GT	Girder Truss	PSF	Pounds per Square Foot	T.O	Top of
CONSTR	Construction	GYP BD	Gypsum Board	PSI	Pounds per Square Inch	TRANS	Transverse
COORD	Coordinate, Coordination	HAS	Headed Anchor Stud	PSL	Parallel Strand Lumber (generic)	TYP	Typical
CS	Countersink	HNGR	Hanger	PT	Pressure Treated	ULT	Ultimate
CTR	Center	HORIZ	Horizontal	P.T	Post Tensioned	UNO	Unless Noted Otherwise
CY	Cubic Yard	HT	Height or Heavy Timber	PV	Photovoltaic	VERT	Vertical
DAB	Deformed Anchor Bar	ID	Inside Diameter	QTY	Quantity	VIF	Verify In Field
DIAG	Diagonal	INT	Interior	<r></r>	To be Removed	WA	Wedge Anchor
DIM	Dimension	K	Kip (1,000 lbs)	R	Radius	WF	Wide Flange
DL	Dead Load	LGS	Light Gage Stud	RE	Reference (refer to)	WP	Work Point
DN	Down	LL	Live Load	RECT	Rectangle	WT	Weight
DP	Drilled Pier	LLH	Long Leg Horizontal	REINF	Reinforcement	WWF	Welded Wire Fabric
DWG	Drawing	LLV	Long Leg Vertical	REQ	Required	XS	Extra Strong
<e></e>	Existing	LSH	Long Side Horizontal	REQMT	Requirement	XSECT	Cross Section

Long Side Vertical

Eccentric

Retaining Wall

	LEG	END	
□ XK, YT	"X" King studs, "Y" Trimmer studs, studs to match wall thickness		CMU
□ C	Indicates column continuous through level shown	4 4 4	Concrete
□ B	Indicates bottom of column at level shown, see next level framing plan for size; install squash blocking in floor cavity of equal size and equal column size below to foundation - unless noted otherwise		Earth fill
□ XXXX, STUB	Indicates top of column and type <u>below</u> framing level STUB indicates shorter column that extends vertically between beams		Porous fill (i.e. gravel)
XX'-XX"	Indicates top of concrete slab or wood subfloor elevation		Interior wood bearing wall below framing
777	Indicates step in floor elevation	<b>7</b> ////	Wood shear wall below framing
SLOPE	Indicates direction of slope	[]]	Structural wall above framing
O FD	Indicates floor drain	WXXXX	Indicates Wood Stud wall type, see schedule
(XX'-XX") {XX'-XX"}	Indicates top of footing or pier elevation Indicates minimum pier penetration into bedrock	BWX	Indicates Building Wall type, see schedule
FXX	Continuous spread footing. See schedule for size and reinforcing	SWX	Indicates shear wall. See schedule for sheathing type and nailing
FX.X	Isolated pad footing. See schedule for size and reinforcing	HDX	Indicates holdown. See schedule for description
TC=XX'-XX" BC=XX'-XX"	Indicates top of concrete elevation Indicates bottom of concrete elevation		Joist, or Truss bears on wall or beam below
STEP BC	Indicates step in bottom of concrete elevation	<u>L</u>	Beam, Joist, or Truss connected to support with metal hanger
TL=XX'-XX"	Indicates top of concrete ledge elevation	E	Beam, Joist, or Truss connected to support with concealed hanger
PKT XxYxZ XX'-XX"	Indicates beam pocket in concrete wall (X=width, Y=height, Z= ledge depth in inches) with bottom of pocket elevation		Indicates steel deck or concrete slab span direction
4 4 4	Indicates step in top of concrete wall or ledge elevation.  Arrow points toward lower elevation	[XX'-XX"]	Indicates top of steel beam elevation
$\Box$	Indicates shoring		Indicates location of bend in bent beam
(E)	Indicates 'existing'	(BX)	Indicates braced frame
(N)	Indicates 'new'	, , ,	Indicates brace location
(R)	Indicates 'to be removed'	MFX	Indicates rigid frame
/— BPX	Indicates Baseplate	<b>→□</b>	Moment connection



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Eric Smith Associates, P.C **REVISIONS** Description Date

Job Number: 20034 3/5/2021 KLMDrawn By: CRR Checked By: Project Phase

**Sheet Title** STRUCTURAL COVER SHEET

SPECIAL NSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	CONTINUOUS SPECIAL INSPECTIONS	SPECIAL	IBC REFERENC
	1. STRUCTURAL STEEL:			
N	a. STRUCTURAL WELDING REQUIRED BY AISC 341	X		1707.2
N	2. STRUCTURAL WOOD:			
N	a. FIELD GLUING OPERATIONS OF ELEMENTS IN THE SEISMIC-FORCE-RESISTING SYSTEM.	X		1707.3
N	b. NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS WITHIN THE SEISMIC-FORCE-RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, AND HOLDOWNS. (ENGINEERS NOTE: SEE SECTIONS 1707.3 AND 1705.3 EXCEPTION.)		Х	1707.3
	3. COLD - FORMED STEEL FRAMING:			
Υ	a. WELDING OF ELEMENTS IN SEISMIC-FORCE RESISTANCE		X	1707.4
Y	b. SCREW ATTACHMENTS, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS WITHIN THE SEISMIC-FORCE-RESISTING SYSTEM.		X	1707.4
	4. PIER FOUNDATIONS:			
N	a. PLACEMENT OF REINFORCING STEEL		X	1707.5
N	b. PLACEMENT OF CONCRETE	Х		
	5. STORAGE RACKS AND ACCESS FLOORS:			
N	a. ANCHORAGE		Х	1707.6

	SI 2018 - REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONC	KEIE CONS	STRUCTION	V	
SPECIAL INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
Y	1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT		Х	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
	2. REINFORCING BAR WELDING:				
N	a. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706		Х	AWS D1.4; ACI 318: 26.6.4	
N	b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND		Х	AWS D1.4; ACI 318: 26.6.4	
N	c. INSPECT ALL OTHER WELDS X			AWS D1.4; ACI 318: 26.6.4	
Υ	3. INSPECT ANCHORS CAST IN CONCRETE		X	ACI 318: 17.8.2	
	4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS				
Y	a. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	Х		ACI 318: 17.8.2.4	
Y	b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.		Х	ACI 318: 17.8.2	
Y	5. VERIFY USE OF REQUIRED DESIGN MIX		Х	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2 1908.2, 1908.3
Y	6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	X		ASTM C172, ASTM C31; ACI 318: 26.4, 26.12	1908.10
Υ	7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	Х		ACI 318: 26.5	1908.6-1908.8
Υ	8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		Х	ACI 318: 26.5.3-26.5.5	1908.9
	9. INSPECT PRESTRESSED CONCRETE FOR:				
N	a. APPLICATION OF PRESTRESSING FORCES; AND	Х		ACI 318: 26.10	
N	b. GROUTING OF BONDED PRESTRESSING TENDONS	Х		ACI 318: 26.10	
N	10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS		Х	ACI 318: CH 26.9	
N	11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS		Х	ACI 318: 26.11.2	
N	12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		Х	ACI 318: 26.11.1.2(b)	
	13. WELDING OF REINFORCING BARS			, ,	
N	a. INSPECTION OF WELDING AND QUALIFICATIONS OF SPECIAL INSPECTORS SHALL BE IN ACCORDANCE WITH AWS D.1.4 FOR SPECIAL INSPECTION AND AWS D1.4 FOR SPECIAL INSPECTOR QUALIFICATION			AWS D1.4	1705.3.1
	14. MATERIAL TESTS				
N	a. IN THE ABSENCE OF SUFFICIENT DATA OR DOCUMENTATION PROVIDING EVIDENCE OF CONFORMANCE TO QUALITY STANDARDS FOR MATERIALS IN CHPT. 19 AND 20 OF ACI 318-14, TESTING SHALL BE DONE OF MATERIALS IN ACCORDANCE WITH THE APPROPRIATE STANDARDS AND CRITERIA FOR THE MATERIAL IN CHAPTERS 19 AND 20 OF ACI 318-14			ACI318: CH 19, 20	1705.3.2

		Q	С	QA	
SPECIAL INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	CONTINUOUS SPECIAL INSPECTIONS	PERIODIC SPECIAL INSPECTIONS	CONTINUOU S SPECIAL INSPECTION S	PERIODIC SPECIAL INSPECTIONS
	1. INSPECTION TASK PRIOR TO DECK PLACEMENT				
Y	a. VERIFY COMPLIANCE OF MATERIALS (DECK AND ALL DECK ACCESSORIES) WITH CONSTRUCTION DOCUMENTS, INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS			Х	
Υ	b. DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	Х		Х	
	2. INSPECTION TASK AFTER DECK PLACEMENT				
Y	a. VERIFY COMPLIANCE OF DECK AND ALL DECK ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS	Х		Х	
Y	b. VERIFY DECK MATERIALS ARE REPRESENTED BY THE MILL CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS			Х	
Υ	c. DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND DECK ACCESSORIES	Х		Х	
	3. INSPECTION TASK PRIOR TO WELDING				
Υ	a. WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE		Х		Х
Υ	b. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE		Х		Х
Υ	c. MATERIAL IDENTIFICAITON (TYPE/GRADE)		Х		Х
Υ	d. CHECK WELDING EQUIPMENT		Х		Х
	4. INSPECTION TASK DURING WELDING				
Υ	a. USE OF QUALIFIED WELDERS		Х		Х
Υ	b. CONTROL AND HANDLING OF WELDING CONSUMABLES		Х		Х
Υ	c. ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)		Х		Х
Υ	d. WPS FOLLOWED		Х		Х
	5. INSPECTION TASK AFTER WELDING				
Υ	a. VERIFY SIZE AND LOCATION OF WELDS, INCLUDING SUPPORT, SIDELAP, AND PERIMETER WELDS	Х		Х	
Υ	b. WELDS MEET VISUAL ACCEPTANCE CRITERIA	Х		Х	
Υ	c. VERIFY REPAIR ACTIVITIES	X		Х	
Υ	d. DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	X		X	
	6. INSPECTION TASK PRIOR TO MECHANICAL FASTENING				
Υ	a. MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS		X		X
Υ	b. PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION		X		X
Υ	c. PROPER STORAGE OF MECHANICAL FASTENERS		X		X
	7. INSPECTION TASK DURING MECHANICAL FASTENING				
Υ	a. FASTENERS ARE POSITIONED AS REQUIRED		X		X
Υ	b. FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURES INSTRUCTIONS		X		X
	8. INSPECTION TASK AFTER MECHANICAL FASTENING				
Υ	a. CHECK SPACING, TYPE, AND INSTALLATION OF SUPPORT FASTENERS	X		Х	
Υ	b. CHECK SPACING, TYPE, AND INSTALLATION OF SIDELAP FASTENERS	X		Х	
Υ	c. CHECK SPACING, TYPE, AND INSTALLATION OF PERIMETER FASTENERS	X		Χ	
Υ	d. VERIFY REPAIR ACTIVITIES	X		Χ	
Υ	e. DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	X		Х	

SI 2018 - SPECIAL INSPECTION AND VERIFICATION OF COLD FORM STEEL DECK PER SDI QA/QC - 2017

SPECIAL		FREQUE INSPE		REFERENCE	FOR CRITERIA	
INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED		TMS 402	TMS 602	
<u> </u>	MINIMUM VERIFICATION			1	1	
	1. PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS	-	-	-	ART. 1.5	
	2. PRIOR TO CONSTRUCTION, VERIFICATION OF fm AND faac, EXCEPT WHERE SPECIFICALLY EXEMPTED BY CODE	-	-	-	ART. 1.4B	
	3. DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE	-	-	-	ART. 1.5, 1.6.	
	INSPECTION TASK					
	1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE					
Υ	a. PROPORTIONS OF SITE-PREPARED MORTAR	-	Х		ART. 2.1, 2.6, 2.6C	
N	b. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	-	X	-	ART. 2.4B, 2.4	
Y	c. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	-	Х	-	ART. 3.4, 3.6	
N	d. PRESTRESSING TECHNIQUE	-	X	-	ART. 3.6B	
N	e. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	X	-	-	ART. 2.1C.	
Υ	f. SAMPLE PANEL CONSTRUCTION	-	X	-	ART. 1.6D	
	2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE					
Υ	a. GROUT SPACE IS CLEAN	-	Х	-	ART. 3.2D, 3.	
N	b. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	-	Х	SEC. 10.8, 10.9	ART. 2.4, 3.6	
Υ	c. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	-	Х	SEC. 6.1, 6.3.1, 6.3.6,	ART. 3.2E, 3	
Υ	d. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X	-	ART. 2.6B, 2.4G.1.b	
	3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION					
Υ	a. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	-	Χ	-	ART. 1.5	
Υ	b. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	-	Х	-	ART. 3.3B	
Υ	c. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	-	Х	-	ART. 3.3 F	
Y	d. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMEBERS, FRAMES, OR OTHER CONSTRUCTION	-	Х	SEC. 1.2.1(e), 6.2.1, 6.3.1	-	
N	e. WELDING OF REINFORCEMENT	X	-	SEC.6.1.6.1.2	-	
Υ	f. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMERATURE ABOVE 90°F)	-	Х	-	ART. 1.8C, 1.	
N	g. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	X	-	-	ART. 3.6B	
N	h. PLACEMENT OF GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS IS IN COMPLIANCE	X	-	-	ART. 3.5, 3.6	
N	i. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	X	-	-	ART. 3.3B.9 3.3F.1.b	
Y	4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		Х	-	ART. 1.4B.2.a 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3, 1.4B.	

SPECIAL		Q	С	Q	A
INPSECTION REQUIRED		CONTINUOUS SPECIAL	PERIODIC SPECIAL	CONTINUOUS SPECIAL	PERIODIC SPECIAL
Y/N	VERIFICATION AND INSPECTION TASK	INPSECTION	INSPECTIONS		INSPECTION
	1. INSPECTION TASKS PRIOR TO WELDING - TABLE N5.4-1 / AWS D1.1				
Y	a. WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	X		.,	X
Y	b. WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	X		X	
Y	c. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	X		X	
Y	d. MATERIAL IDENTIFICATION (TYPE/GRADE)		X		X
Υ	e. WELDER IDENTIFICATION SYSTEM		X		X
Υ	f. FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) f.1. JOINT PREPERATION, DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOF FACE, BEVEL),		X		Х
ı	CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION), BACKING TYPE AND FIT (IF APPLICABLE)		^		^
	g. FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WIHTOUT BACKING (INCLUDING JOINT GEOMETRY)				
Υ	g.1. JOINT PREPERATION, DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOF FACE, BEVEL), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION)	X	V		X
Υ	h. CONFIGURATION AND FINISH OF ACCESS HOLES		Х		X
Υ	i. FIT UP OF FILLET WELDS		X		X
Y Y	i.1. DIMENSIONS (ALIGNMENT, GAPS AND ROOT), CLEANLINESS (CONDITION OF STEEL SURFACES), TACKING (TACK WELD QUALITY AND LOCATION) j. CHECK WELDING EQUIPMENT		X		
	2. INSPECTION TASKS DURING WELDING - TABLE N5.4-2 / AWS D1.1		Λ		
	a. CONTROL AND HANDLING OF WELDING CONSUMABLES				
Υ	a.1. PACKAGING, EXPOSURE CONTROL		X		Х
Y	b. NO WELDING OVER CRACKED TACK WELDS		X		X
	c. ENVIRONMENTAL CONDITIONS				
Υ	c.1. WIND SPEED WITHIN LIMITS, PERCIPITATION AND TEMPERATURE		Х		Χ
	d. WPS FOLLOWED				
Y	d.1. SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, SELECTED WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PERHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.), PROPER POSTION (F,V,H,OH)		Х		Х
Y	e. WELDING TECHNIQUES e.1 INTERPASS AND FINIAL CLEANING, EACH PASS WITHIN PROFILE LIMITATION, EACH PASS MEETS		X		X
Υ	QUALITY REQUIREMENTS  f. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	X		X	
	3. INSPECTION TASKS AFTER WELDING - TABLE N5.4-3 / AWS D1.1				
Y	a. WELDS CLEANED		Х		X
Y	b. SIZE, LENGTH AND LOCATION OF WELDS	X		X	
Υ	c. WELDS MEET VISUAL ACCEPTANCE CRITERIA c.1. CRACK PROHIBITION, WELD/BASE-METAL FUSION, CRATER CROSS SECTION, WELD PROFILES, WELD SIZE, UNDERCUT, POROSITY	X		X	
Υ	d. ARC STRIKES	X		Х	
<u>·</u> Y	e. K-AREA	X		X	
Y	f. WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES	X		X	
Y	g. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	X		X	
Υ	h. REPAIR ACTIVITIES	Х		Х	
Υ	i. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	Х		Х	
Y	j. NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR		X		X
	4. INSPECTION TASKS PRIOR TO BOLTING - TABLE 5.6-1				
Y	a. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS		X	X	.,
Y	b. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS		X		X
Υ	c. CORRECT FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCULDED FROM SHEAR PLANE)		X		Χ
Υ	d. CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL		X		X
Y	e. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE		X		X
Y	PREPERATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS  f. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND	X	-		X
Υ	DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED g. PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER		X		X
	COMPONENTS  5. INSPECTION TASKS DURING BOLTING - TABLE 5.6-2				
Y	a. FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED		X		X
Y	b. JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION		X		X
Y	c. FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING		X		X
Y	d. FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES 6. INSPECTION TASKS AFTER BOLTING - TABLE 5.6-3		X		Х
Υ	a. DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	X		V	
Ī	a. DOGUNIENT ACCEPTANCE OF REJECTION OF BOLLED CONNECTIONS	۸		X	



	SI 2018- SPECIAL INSPECTION AND VERIFICATION OF SC	DILS		
SPECIAL INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	IBC REFERENC
Y	1. VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		Х	1705.6
Y	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		Х	1705.6
Y	3. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.		Х	1705.6
Y	4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X		1705.6
Y	5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		Х	1705.6

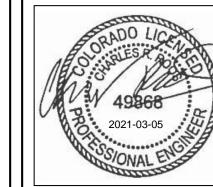
INSPECTION TASKS PRIOR TO WELDING	QC	QA	
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	Р	0	
WPS AVAILABLE	Р	Р	
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	Р	Р	
MATERIAL IDENTIFICATION (TYPE/GRADE)	0	0	
WELDER IDENTIFICATION SYSTEM	0	0	
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY)			
JOINT PREPARATIONS	0	0	
DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	0	0	
CLEANLINESS (CONDITON OF STEEL SURFACES)	0	0	
TACKING (TACK WELD QUALITY AND LOCATION)	0	0	
BACKING TYPE AND FIT (IF APPLICABLE)	0	0	
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY)			
JOINT PREPARATIONS	Р	0	
DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)	Р	0	
CLEANLINESS ( CONDITION OF STEEL SURFACES)	Р	0	
TACKING (TACK WELD QUALITY AND LOCATION	Р	0	
CONFIGURATION AND FINISH OF ACCESS HOLES	0	0	
FIT-UP OF FILLET WELDS			
DIMENSIONS (ALIGNMENT, GAPS AT ROOT	0	0	
CLEANLINESS ( CONDITON OF STEEL SURFACES)	0	0	
TACKING (TACK WELD QUALITY AND LOCATION)	0	0	
CHECK WELDING EQUIPMENT	0	-	

#### SI TABLE N5.4-2 INSPECTION TASKS DURING WELDING

INSPECTION TASKS DURING WELDING	QC	QA
CONTROL AND HANDLING OF WELDING CONSUMABLES		
PACKAGING	0	0
XPOSURE CONTROL	0	0
O WELDING OVER CRACKED TACK WELDS	0	0
NVIRONMENTAL CONDITIONS		
/IND SPEED WITHIN LIMITS	0	0
RECIPITATION AND TEMPERATURE	0	0
/PS FOLLOWED		
ETTINGS ON WELDING EQUIPMENT	0	0
RAVEL SPEED	0	0
ELECTED WELDING MATERIALS	0	0
HIELDING GAS TYPE/FLOW RATE	0	0
REHEAT APPLIED	0	0
ITERPASS TEMPERATURE MAINTAINED //IN/MAX)	0	0
ROPER POSITION (F,V,H,OH)	0	0
ELDING TECHNIQUES		
TERPASS AND FINAL CLEANING	0	0
ACH PASS WITHIN PROFILE LIMITATIONS	0	0
ACH PASS MEETS QUALITY REQUIREMENTS	0	0
LACEMENT AND INSTALLTION OF STEEL EADED STUD ANCHORS	Р	Р

INSPECTION TASKS AFTER WELDING	QC	QA
WELDS CLEANED	0	0
SIZE, LENGTH AND LOCATION OF WELDS	Р	Р
WELDS MEET VISUAL ACCEPTANCE CRITERIA		
CRACK PROHIBITION	Р	Р
WELD/BASE-METAL FUSION	Р	Р
CRATER CROSS SECTION	Р	Р
WELD PROFILES	Р	Р
WELD SIZE	Р	Р
UNDERCUT	Р	Р
POROSITY	Р	Р
ARC STRIKES	Р	Р
K-AREA	Р	Р
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES	Р	Р
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	Р	Р
REPAIR ACTIVITES	Р	Р
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	Р	Р
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	0	0

INSPECTION TASKS PRIOR TO BOLTING	QC	QA
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	0	Р
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	0	0
CORRECT FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	0	0
CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	0	0
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	0	0
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	Р	0
PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	0	0
NSPECTION TASKS DURING BOLTING	QC	QA
FASTENER ASSEMBLIES PLACED IN ALL HOLES AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED	0	0
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	0	0
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	0	0
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	0	0
NSPECTION TASKS AFTER BOLTING		
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	0	0



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**Project Phase** 

**Sheet Title** SPECIAL INSPECTIONS



FOUNDATION PLAN NOTES:

1. SEE S0.01 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND LEGEND

2. SEE S5.01 FOR TYPICAL DETAILS

3. SEE S5.03 FOR SCHEDULES

4. CONCRETE FOUNDATION GRADE WALL (UNO): 8" THICK CONCRETE WALLS REINFORCED WITH #5 @ 18" EACH WAY CENTERED IN WALL. ALSO INSTALL (2) #5 BARS TOP AND BOTTOM.

 10" RETAINING WALLS, SEE SCHEDULE AND 8/S5.01 FOR WALL REINFORCING. 5. CONCRETE SLAB ON GRADE: 5" THICK CONCRETE SLAB ON

PREPARED SUB-GRADE PER SOILS REPORT. REINFORCE WITH #4 @18" EA WAY PLACED AT MID-DEPTH. SAWCUT OR TOOLED 1/8"x1" CONTROL JOINTS @ 10'-0" MAX EACH WAY. INSTALL (3) #4 x 5'-0" DIAGONAL BARS AT MID-DEPTH OF SLAB AT ALL RE-ENTRANT

6. INDICATES MODULAR BLOCK RETAINING WALL TO BE

SLAB SLOPES, AND OTHER INFORMATION NOT SHOWN.

DESIGNED BY OTHERS, SEE ARCH 7. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF RAMPS,

FOUNDATION PLAN KEYNOTES

DESCRIPTION 1 10" WIDE x 24" DEEP CONCRETE BORDER WALL. REINFORCE W/#4 BARS @ 12" EACH WAY CENTERED IN WALL. PLACE WALL TIGHT TO MODULAR 2 PROVIDE HORIZONTAL CORNER BARS AT 6" OC CENTERED IN WALL AT

THIS CORNER. EXTEND EACH LEG OF CORNER BAR MINIMUM OF 4'-0" EACH WAY. 3 24"x24" CONCRETE PIER FOR LIGHT POLE CAST INTEGRAL W/ WALL W/ (8)

#6 VERTICALS; #4 TIES AT 12",(3) TIES @ 3" TOP. SEE ELECTRICAL FOR ANCHOR BOLTS AND CONDUIT LAYOUT

4 30"x30" CONCRETE PIER FOR SPUR RAIL SUPPORT CAST INTEGRAL W/

WALL W/ (12) #8 VERTICALS; #4 TIES AND CROSSTIES AT 12" ,(3) TIES @ 3" TOP. SEE DOPPELMAYR FOR ANCHOR BOLT LAYOUT 5 24" WALL FOR PARKING RAIL SUPPORT W/ #5 @ 12" VERT. AND HORIZ. EACH FACE. SEE DOPPELMAYR FOR EMBED IN TOP

6 MIN 12"x12" CONCRETE PIER W/(4)-#5 VERT AND #3 TIES @ 12"; (3) TIES @3" TOP. COORDINATE LOCATION WITH DOPPELMAYER. MIN DEPTH =

CONCRETE FOOTING SCHEDULE (CONT)

MARK	WIDTH	THICKNESS	REINFORCEME
F16	1'-4"	1'-0"	(2) #5's BOT
F30	2'-6"	1'-0"	SEE 8/S5.01
F42	3'-6"	1'-0"	SEE 8/S5.01
F60	5'-0"	1'-0"	SEE 8/S5.01
F84	7'-0"	1'-0"	SEE 8/S5.01

(5) #5 EA WAY

CONCRETE FOOTING SCHEDULE (ISOLATED PADS) MARK LENGTH WIDTH THICKNESS TOP REINFORCEMENT BOTTOM REINFORCEMENT

F4.0 4'-0" 4'-0" 1'-0"

970-300-3338

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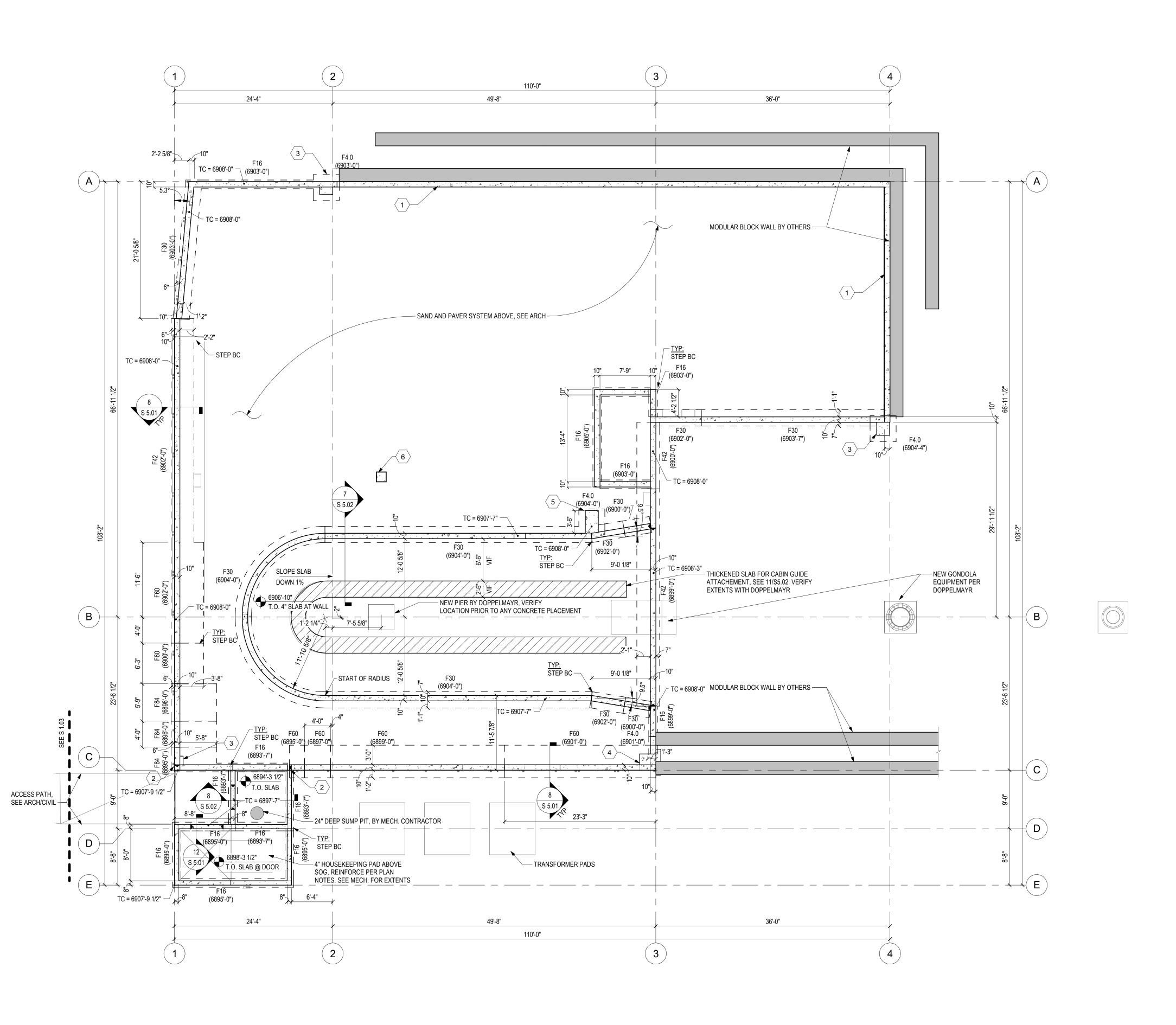
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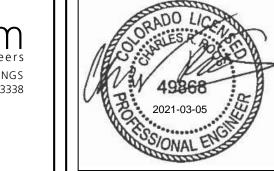
**Sheet Title** FOUNDATION PLAN

**Sheet Number** 



FOUNDATION PLAN





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ROOF FRAMING PLAN KEYNOTES

MAIN LEVEL FRAMING PLAN KEYNOTES

1 2"x18GA COMPOSITE STEEL DECK (VULCRAFT VLI OR EQUIV) W/3-1/2"

NORMAL WEIGHT CONCRETE TOPPING (5-1/2" TOTAL THICKNESS). REINFORCE WITH 4LBS/CUBIC YARD MACRO FIBER REINFORCING OR #4

BARS @18" EACH WAY CENTERED IN SLAB. WELD DECK TO STEEL SUPPORT WITH 5/8" PUDDLE WELD AT 36/4 PATTERN. FASTEN SIDE LAPS

2 10"x1/2"x0'-10" EMBED PLATE W/(4)-1/2"Øx5"HEADED STUDS @ 8" GAGE

3 PROVIDE EMBED PLATE IN CONCRETE WALL PER 11/S5.01 FOR BEAM

W/ 3/16" FILLET ALL AROUND.

CONNECTION.

W/#10 TEK SCREWS @ 18". SEE DETAILS FOR CONNECTION TO WALLS.

CAST INTO TOP OF CONCRETE WALL. WELD COLUMN TO EMBED PLATE

DESCRIPTION

DESCRIPTION

1 2"x18GA COMPOSITE STEEL DECK (VULCRAFT VLI OR EQUIV) W/3-1/2" NORMAL WEIGHT CONCRETE TOPPING (5-1/2" TOTAL THICKNESS). REINFORCE WITH 4LBS/CUBIC YARD MACRO FIBER REINFORCING OR #4 BARS @18" EACH WAY CENTERED IN SLAB. WELD DECK TO STEEL SUPPORT WITH 5/8" PUDDLE WELD AT 36/4 PATTERN. FASTEN SIDE LAPS W/#10 TEK SCREWS @ 18". SEE DETAILS FOR CONNECTION TO

SEE 1/S5.02 FOR BEAM BEARING PLATE REQUIREMENTS IN CMU WALL 3 MIN. W8x15 ELEVATOR HOIST BEAM. COORDINATE LOCATION AND

-(D)

ROOF PLAN NOTES:

1. SEE S0.01 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND LEGEND

2. SEE S5.01 FOR TYPICAL DETAILS AND S5.03 FOR CMU WALL, PIER AND LINTEL SCHEDULES 3. AT ROOF DRAINS, ACCEPTABLE TO CORE DRILL MAXIMUM 8" HOLE THROUGH COMPOSITE ROOF DECK.

NOTIFY ANTHEM IF LARGER OPENING IS REQUIRED PRIOR TO POURING DECK. 4. LOCATE MECHANICAL OPENINGS IN WALLS MIN. 1'-4" FROM BEAM BEARING LOCATIONS. PROVIDE 'L1'

LINTEL OVER MECHANICAL OPENINGS UP TO 6'-0" IN LENGTH. 5. UNLESS NOTED OTHERWISE, TYPICAL T/SLAB = 6917'-6 3/4".

ROOF FRAMING PLAN PLAN NORTH

TYP ALL CMU WALLS

- T.O. CONC AT DOOR INTO ELEVATOR: 6907'-9 1/2"

S 5.01 / END 24'-4"

EMBED PLATES IN TOP OF PIER BY OTHERS —

MAIN LEVEL PLAN NOTES:

1. SEE S0.01 FOR GENERAL STRUCTURAL NOTES, ABBREVIATIONS AND LEGEND 2. SEE S5.01 FOR TYPICAL DETAILS AND S5.03 FOR CMU WALL, PIER AND LINTEL SCHEDULES

3. SEE S1.01 FOR TOP OF FOUNDATION WALL ELEVATION.

MAIN LEVEL FRAMING PLAN

30" ABOVE TOP OF FOUNDATION WALL.

5. UNLESS NOTED OTHERWISE, TYPICAL TOP OF SLAB = 6907'-9 1/2"

Project Phase Sheet Title MAIN AND ROOF LEVEL FRAMING **Sheet Number** 

Job Number:

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20034

3/5/2021

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CRR

ELEVATION WITH ELEVATOR SUPPLIER. ROOF SLAB ROOF SLAB

S 5.01

1'-2" HSS6X6X1/4 FILLED

E

EMBED PLATES IN TOP OF FOUNDATION WALL

BY OTHERS —

# PLAN NORTH

- SAND AND PAVER SYSTEM, SEE ARCH -

EMBED PLATES IN TOP OF FOUNDATION WALL

BY OTHERS FOR POC

49'-8"

OPERATOR CABIN

STRUCTURE BY

OTHERS -

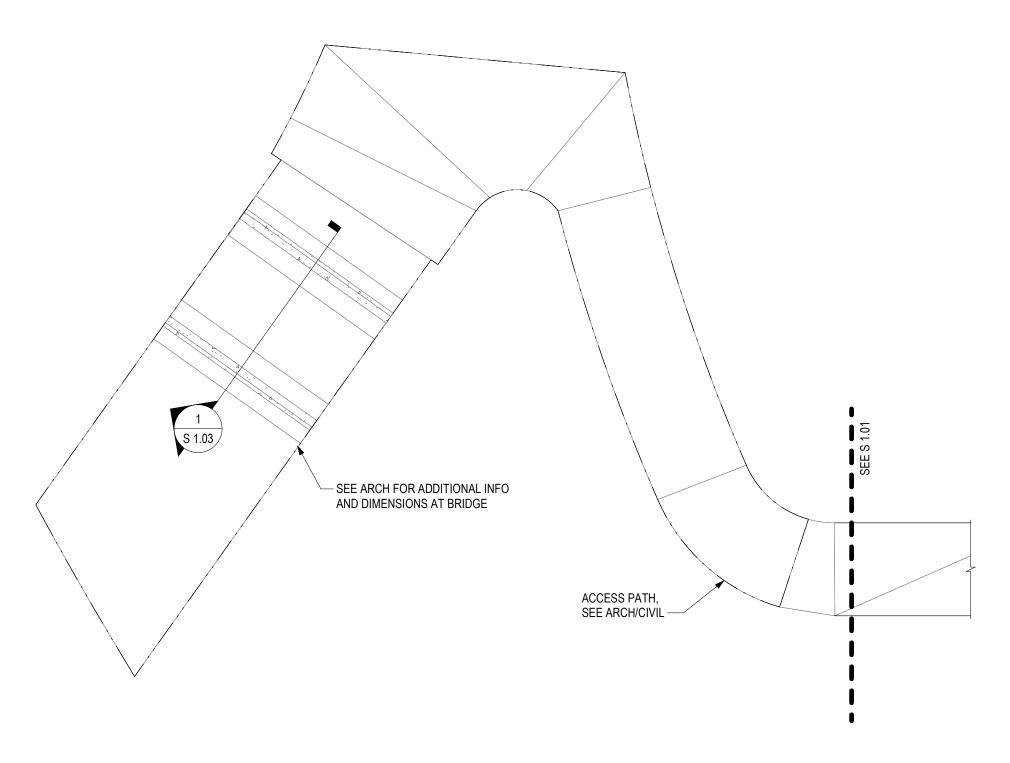
EMBED PLATES IN TOP

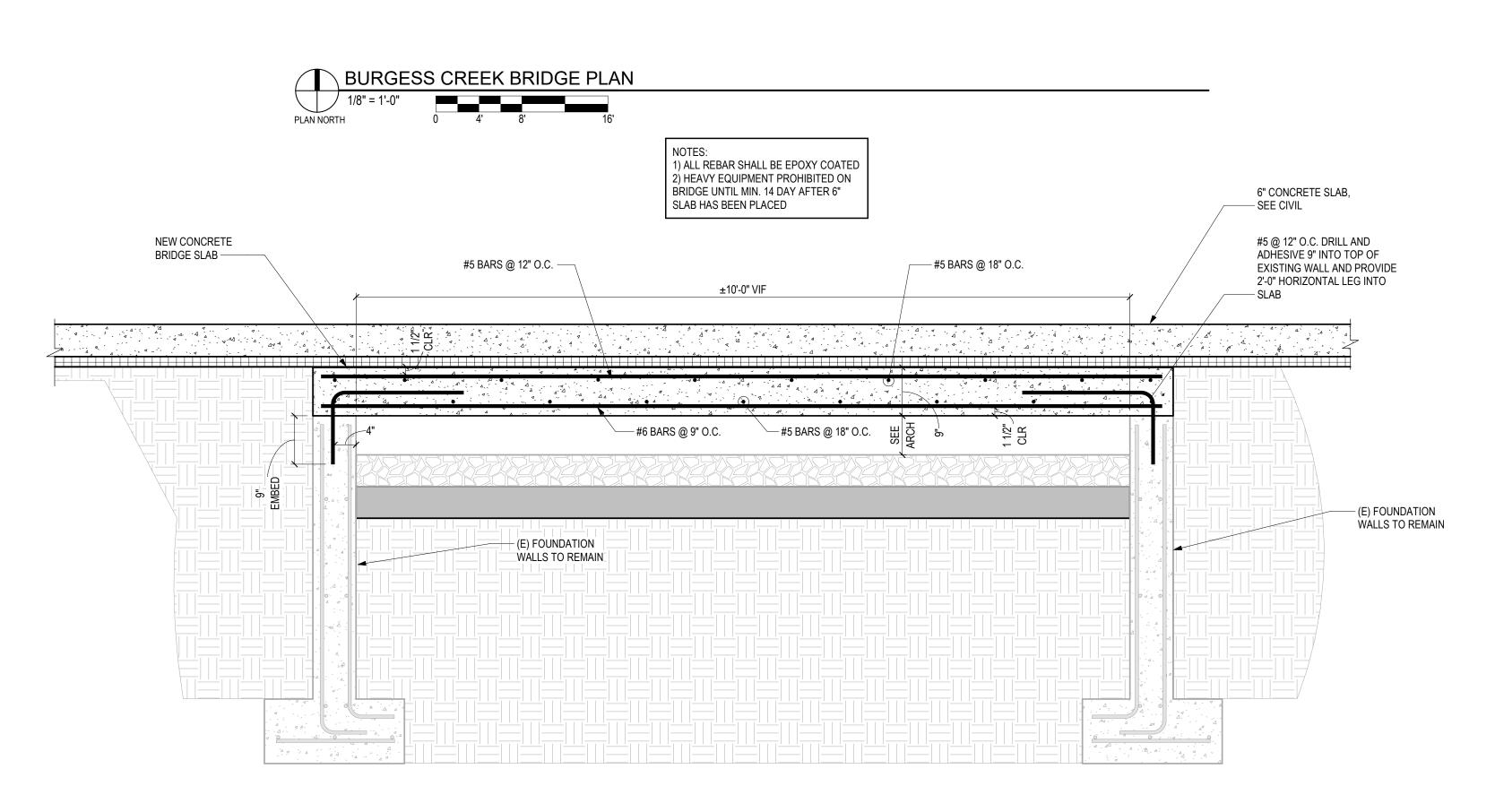
OF FOUNDATION WALL

BY OTHERS

4. TYPICAL CMU WALL IS 8" CMU WITH 'MW1' REINFORCING PER S5.03. PROVIDE 5'-0" DOWELS AT TOP OF CONCRETE FOUNDATION WALL TO MATCH MASONRY WALL REINFORCING SIZE AND SPACING. PROJECT







BURGESS CREEK BRIDGE

NOT TO SCALE



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ERIC SMITH ASSOCIATES, P.C.

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 20034

 Date:
 3/5/2021

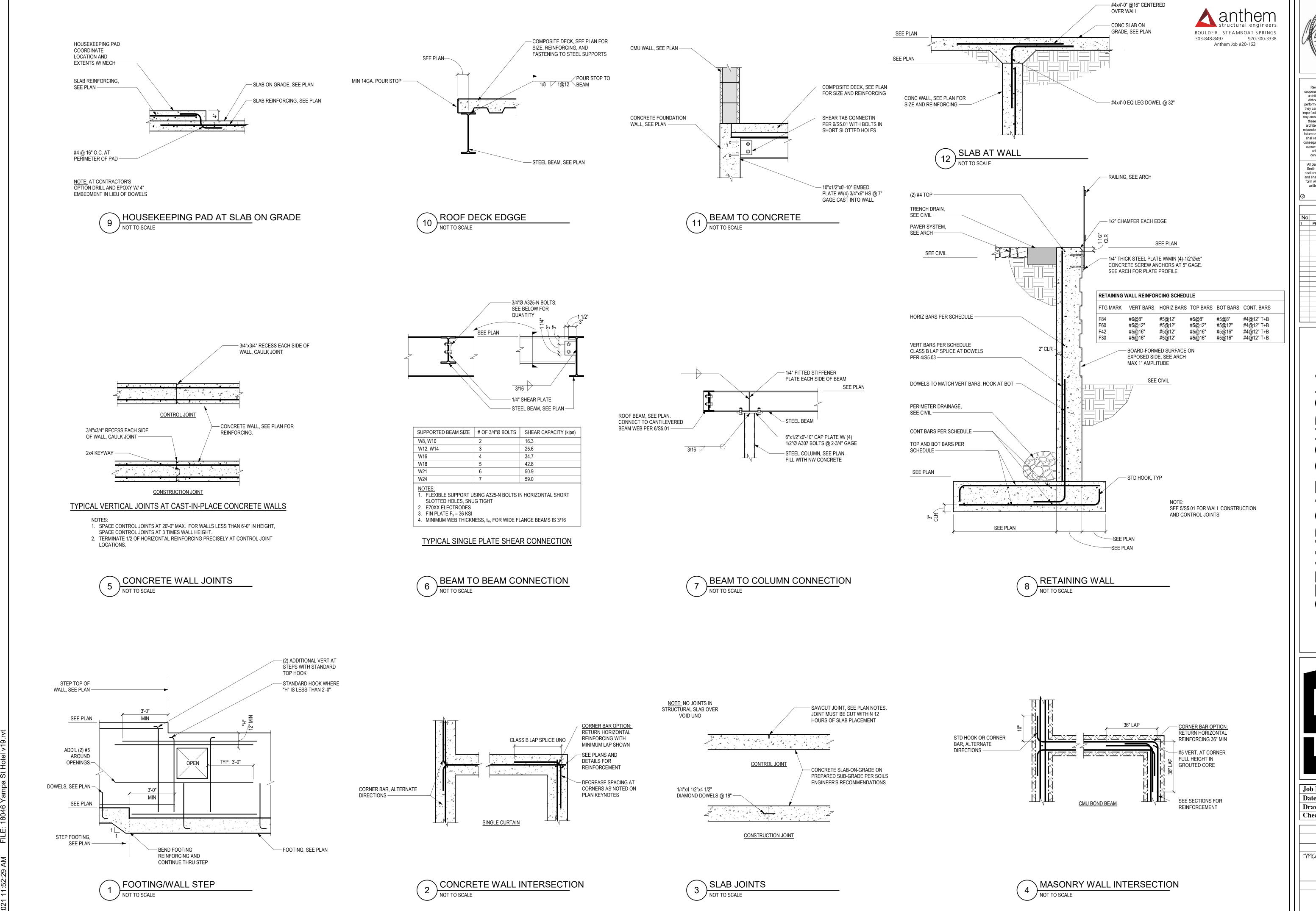
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Project Phase

Sheet Title
BURGESS CREEK BRIDGE PLAN

Sheet Number
S 1.03



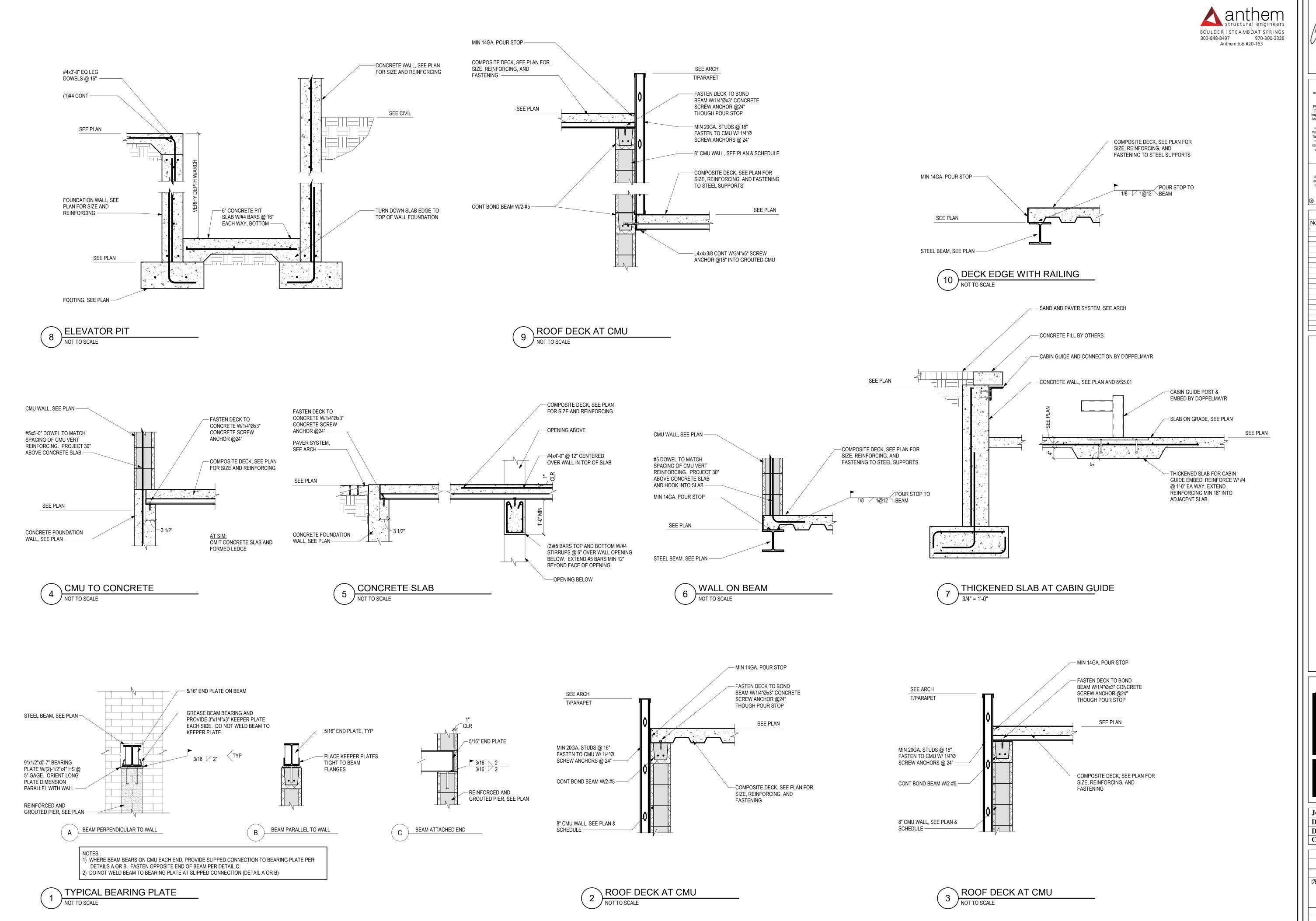
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**Sheet Title** TYPICAL DETAILS





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Eric Smith Associates, P.C.

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STEAMBOAT GON RELOCATION STEAMBOAT BPRINGS

ERIC SMITH ASSOCIATES, P.C.
1919 SEVENTH STREET
BOULDER, COLORADO, 80302
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 Job Number:
 20034

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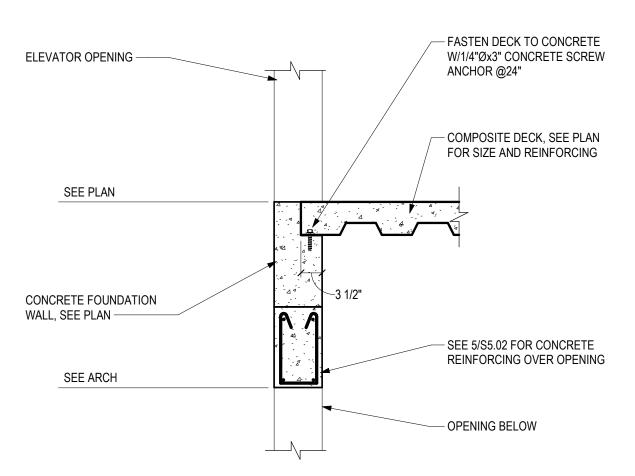
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Sheet Title DETAILS AND SCHEDULES

**Sheet Number** 

970-300-3338 Anthem Job #20-163



\ FLOOR AT ELEV

	MAS	SONRY WALL AS	SEMBLIES/SC	HEDULE	
	VERTICAL	REINFORCING	HORIZONTAL REINFORCING		
	Q EQ .	2" CLR 2" CLF  EACH FACE	B	2" CLR 2" CLR SEE PLAN OND BEAM LEVATION 2 BARS	
		SCH	IEDULE		
TYPE	WIDTH	VERT REINF	HORIZ REINF	COMMENTS	
MW1	7 5/8"	#5 @ 16" CENTERED	9GA LADDER @ 16"		

. WHERE REINFORCING IS NOT NOTED ON PLAN, PROVIDE MW1 REINFORCING IN WALL. PROVIDE DOWELS FROM FOOTING INTO WALL TO MATCH WALL REINFORCING SIZE AND SPACING, CENTER IN WALL UNLESS NOTED OTHERWISE. PROVIDE STANDARD HOOK AT BOTTOM OF DOWELS AND EXTEND A MINIMUM OF 48 BAR DIAMETERS INTO WALL. . AT OPENINGS IN WALL, SEE DETAIL 3/S5.02 FOR ADDITIONAL INFORMATION. PROVIDE WALL REINFORCING FROM FOOTING TO 2" CLEAR TOP OF WALL. 5. PROVIDE CONTINUOUS BOND BEAM WITH (2) #5 BARS AT TOP OF WALL. 6. ALL MASONRY SHALL BE RUNNING BOND.

MASONRY WALL SCHEDULE

	MASONR	Y PIER SCHEDULE	
MARK	SIZE	REINFORCING	COMMENTS
PA	16"x WALL WIDTH	(1) #5 VERT @ 8"	CENTER BAR IN CELL

UNLESS NOTED OTHERWISE: 1. PROVIDE HOOKED DOWELS INTO FOOTING TO MATCH SIZE AND SPACING OF VERTICAL

REINFORCING. 2. SEE DETAIL 3/S5.02 FOR REINFORCING LAYOUT AT JAMBS AND INTERACTION WITH

3. EXTEND REINFORCING SHOWN AT LOWEST LEVEL TO WITHIN 2" CLEAR TOP OF

PIER/WALL. 4. PROVIDE PIER 'PA' IF PIER IS NOT TAGGED ON PLAN.

MASONRY PIER SCHEDULE

#### MASONRY LINTEL SCHEDULE COMMENTS REINFORCING 16" DEEP X WALL WIDTH 2 - #5 BOTTOM

UNLESS NOTED OTHERWISE: 1. PROVIDE VERTICAL CONTROL JOINTS IN CMU WALLS AT 20'-0" MAX ON CENTER. PROVIDE (1)#5 BAR VERTICAL IN BLOCK CORE EACH SIDE OF CONTROL JOINT AND GROUT SOLID. DO NOT PLACE CONTROL JOINTS WITHIN MASONRY PIER OR WITHIN 24" EACH SIDE OF OPENING. SUBMIT CONTROL JOINT LAYOUT TO

ARCH PRIOR TO CONSTRUCTION. 2. IF A BOND BEAM IS LOCATED AT SAME ELEVATION AS REINFORCED LINTEL BLOCK, THE BOND BEAM REINFORCING IS NOT REQUIRED IN ADDITION TO THE LONGITUDINAL REINFORCING PER STRUCTURAL GENERAL NOTES (EXCEPT IF THERE IS A CONTROL JOINT PRESENT). THE LONGITUDINAL REINFORCING SHALL BE CONTINUOUS OVER THE LINTEL AS SHOWN ABOVE.

3. USE CMU LINTEL BLOCK FOR ALL LINTELS. 4. PROVIDE MIN. (1) #5 HORIZONTAL IN COURSE BENEATH OPENING, EXTENT REINFORCING MIN. 24" BEYOND

EDGE OF OPENING.		
SHEAR STEEL PER SCHEDULE WITH STD		CONTROL JOINT
180° HOOK EACH END	<u>OR:</u>	2'-0" MIN
MASONRY PIER SEE PLAN SO BA	ONGITUDINAL BARS IN BOTTOM COURSE. SEE CHEDULE IF REQ'D IN TOP COURSE. EXTEND ARS MIN. 24" BEYOND EDGE OF OPENING  VERTICAL BARS IN EACH CMU CELL  OF PIER WIDTH. SEE PIER SCHEDULE	2'-0" MIN  MASONRY PIER  SEE PLAN
F	FOR BAR SIZE, NUMBER & LOC'N	
	ROUGH OPENING, SEE ARCH	

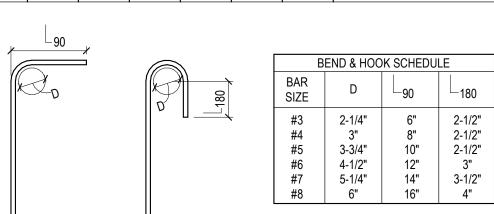
### TYPICAL MASONRY LINTEL & CONTROL JOINTS SCHEMATIC

MASONRY LINTEL SCHEDULE

LAP SPLICE LENGTH A. LAP SPLICES

			LAI	P SPLICE S	SCHEDULE	<u> </u>		NOTES:	
BAR	LAP		f'c OF NO	RMAL WE	IGHT CON	CRETE			.,
SIZE	CLASS	3000 PSI	3500 PSI	4000 PSI	4500 PSI	5000 PSI	5500 PSI	6000 PSI	1. ALL SPLICE LENGTHS ARE FOR ASTM A615 GRADE 60 STEEL
#3	Α	17"	16"	15"	14"	13"	13"	12"	1. ALL SPLICE LENGTHS ARE FOR ASTM A013 GRADE 00 STEEL.  2. USE CLASS B LAP SPLICE UNLESS SPECIFICALLY NOTED.
#3	В	22"	20"	19"	18"	17"	16"	16"	3. INCREASE LAP LENGTHS BY 1.3x FOR HORIZONTAL BARS WI
#4	Α	22"	21"	19"	18"	17"	17"	16"	MORE THAN 12" OF FRESH CONCRETE PLACED BELOW BARS.
#4	В	29"	27"	25"	24"	23"	21"	21"	4. INCREASE LAP LENGTHS BY 1.5x FOR BARS WITH EPOXY CO.
#5	Α	29"	26"	24"	23"	22"	21"	20"	AND CLEAR COVER LESS THAN 3x BAR DIAMETER OR CLEAR SI
#3	В	36"	33"	31"	30"	28"	27"	26"	LESS THAN 6x BAR DIAMETER. INCREASE BY 1.2x FOR ALL OTH
#6	Α	33"	31"	29"	27"	26"	25"	24"	EPOXY COATED BARS.
π0	В	43"	40"	37"	35"	34"	32"	31"	5. ALL LAP LENGTHS ARE FOR NORMAL WEIGHT CONCRETE.
#7	Α	48"	45"	42"	40"	38"	36"	34"	CONTACT ANTHEM IF LIGHTWEIGHT CONCRETE IS TO BE USED
πι	В	63"	58"	54"	51"	49"	47"	45"	6. WHEN SPLICING DIFFERENT SIZE BARS, USE LAP LENGTH OF
#8	Α	55"	51"	48"	45"	43"	41"	39"	LARGER BAR.
πΟ	В	72"	66"	62"	59"	56"	53"	51"	

BEND & HOOK SCHEDULE



B. BENDS AND HOOKS TYPICAL REINFORCING FOR CONCRETE (UNO)

LAP SPLICE SCHEDULE

	PLUMBING LEGEND											
ABBV.	SYMBOL	DESCRIPTION										
TS		TRAP SEAL										
SP		SUMP PUMP										
G	G	NATURAL GAS										
W		SANITARY WASTE BELOW FLOOR										
W		SANITARY WASTE ABOVE FLOOR										
V		SANITARY VENT										
RDL	RDL	ROOF DRAIN ABOVE FLOOR OR GRADE										
SD		STORM DRAIN BELOW FLOOR OR GRADE										
GCO	——————————————————————————————————————	GRADE CLEANOUT										
WCO		WALL CLEANOUT										
		PLUG VALVE										
	<b>→</b>	GAS COCK										
VTR	_الـ	VENT THRU ROOF										
FD		FLOOR DRAIN										
RD/OD	©	ROOF DRAIN/OVERFLOW DRAIN										
DSN	<b>→</b>	DOWNSPOUT NOZZLE										
		SPLASH BLOCK										
	→ <u>&gt;</u>	SPLASH BLOCK WITH DOWNSPOUT NOZZLE										

ABBV.	SYMBOL	DESCRIPTION
G.C.		GENERAL CONTRACTOR
M.C.		MECHANICAL CONTRACTOR
P.C.		PLUMBING CONTRACTOR
E.C.		ELECTRICAL CONTRACTOR
T.C.C.		TEMPERATURE CONTROL CONTRACTOR
A.F.F.		ABOVE FINISHED FLOOR
A.F.G.		ABOVE FINISHED GRADE
B.F.F.		BELOW FINISHED FLOOR
B.F.G.		BELOW FINISHED GRADE
N.C.		NORMALLY CLOSED
N.O.		NORMALLY OPEN
(N)		NEW
SF		SQUARE FOOTAGE
_		CONTROL WIRING
		DIRECTION OF FLOW IN PIPE
		PITCH PIPE DOWN IN DIRECTION OF ARROW
	E	PIPE CAP
-	9	- GAUGE
-	<u> </u>	PRESSURE GAUGE WITH COCK
-	<b>₽</b>	- FLOW METER FITTING
-	-	- PIPE UNION
-		- FLEXIBLE PIPE CONNECTION
-	<b>X</b>	STRAINER WITH BLOWDOWN VALVE
-	<del>\</del>	- STRAINER
cv -	N	- CHECK VALVE
BV —	$\bigcirc$	- BALANCING VALVE
-		- BALL VALVE
-	<u>-</u>	- BUTTERFLY VALVE
-	<u> </u>	- MANUAL AIR VENT
-	<u></u>	- AUTOMATIC AIR VENT
	<u>}</u>	PRESSURE RELIEF VALVE
P/T —	T	PRESSURE/TEMPERATURE TEST PLUG
	CI .	PIPE ELBOW DOWN
		PIPE ELBOW UP
_	181	TEE OFF BOTTOM OF PIPE
	+O+	TEE OFF TOP OF PIPE

#### **SPECIFICATION (PLUMBING)**

PIPING:

WASTE, VENT, AND STORM PIPING SHALL BE SCHEDULE 40 PVC "SOLID CORE" WITH SOLVENT WELDED

STORM PIPING INSULATION SHALL BE 1".

B. WATER PIPING INSULATION BE 1" THICK & EQUAL TO .21 TO .28 BTU· IN/h· FT2/· °F CONDUCTIVITY. EQUIPMENT:

CLEANOUT PLUG. STAINLESS STEEL COVER INCLUDING SCREWS. ZURN OR EQUAL.

GRADE CLEANOUT (GCO): CAST IRON BODY & FRAME, CLEANOUT PLUG, ADJUSTABLE, ROUND, CAST IRON TOP, H2O RATED ZURN OR EQUAL

WALL CLEANOUT (WCO): CAST IRON BODY ADAPTABLE TO PIPE W/ CAST BRONZE OR CAST BRASS

VALVES:

GAS PLUG VALVE: 2" AND SMALLER: 150 PSI, CAST-IRON BODY, STRAIGHTAWAY PATTERN, SQUARE BRONZE HEAD, THREADED ENDS. HOMESTEAD: 611.

GAS COCKS: GAS COCKS 3" AND SMALLER: 250 PSI NON-SHOCK CWP, BRONZE BALL VALVE WITH CHROME PLATED BALL, THREADED ENDS, UL LISTED. 1) NIBCO, INC. T-580-70-UL-842. 2) APOLLO 80-100.

GAS PRESSURE REGULATORS: PRESSURE REGULATORS (SERVICE OR LINE): "NATURAL GAS" COMPLY WITH ANSI Z21.80. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE AS INDICATED ON THE DRAWINGS. END CONNECTIONS: THREADED FOR REGULATORS 2" AND SMALLER; FLANGED FOR REGULATORS 2-1/2" AND LARGER.

BODY AND DIAPHRAGM CASE: CAST IRON OR DIE-CAST ALUMINUM. SPRINGS: ZINC-PLATED STEEL; INTERCHANGEABLE. DIAPHRAGM PLATE: ZINC-PLATED STEEL

SEAT DISC: NITRILE RUBBER RESISTANT TO GAS IMPURITIES, ABRASION, AND

DEFORMATION AT THE VALVE PORT. ORIFICE: ALUMINUM; INTERCHANGEABLE.

SEAL PLUG: ULTRAVIOLET-STABILIZED, MINERAL-FILLED NYLON. SINGLE-PORT, SELF-CONTAINED REGULATOR WITH ORIFICE NO LARGER THAN REQUIRED AT MAXIMUM PRESSURE INLET. AND NO PRESSURE SENSING PIPING

EXTERNAL TO THE REGULATOR. PRESSURE REGULATOR SHALL MAINTAIN DISCHARGE PRESSURE SETTING DOWNSTREAM, AND NOT EXCEED 150 PERCENT OF DESIGN DISCHARGE PRESSURE AT

ATMOSPHERIC VENT: FACTORY- OR FIFT D-INSTALLED, STAINLESS STEEL SCREEN IN OPENING IF NOT CONNECTED TO VENT PIPING. REGULATOR MAY INCLUDE VENT LIMITING DEVICE INSTEAD OF VENT CONNECTION IF APPROVED BY AUTHORITIES HAVING JURISDICTION

MAXIMUM INLET PRESSURE: SEE DRAWINGS. OUTLET PRESSURE: SEE DRAWINGS AND EQUIPMENT SCHEDULES.

APPROVED MANUFACTURERS: i. AMERICAN METER COMPANY ii. FISHER CONTROL VALVES AND REGULATORS; DIVISION OF EMERSON

PROCESS MANAGEMENT.

iii. TRON. INC.

# **HVAC LEGEND**

ABBV.	SYMBOL	DESCRIPTION
SMS	SMS	SNOW MELT SUPPLY
SMR		SNOW MELT RETURN
SMS-HT	— — SMS-HT — — —	SNOW MELT SUPPLY HIGH TEMPERATURE
SMS-LT	— — — SMS-LT — — —	SNOW MELT SUPPLY LOW TEMPERATURE
MCD	(6)	MOTORIZED CONTROL DAMPER
	(B)	BACKDRAFT DAMPER
	(T)	THERMOSTAT
	VFD	VARIABLE FREQUENCY DRIVE
	<del>///</del> #	ANALOG OUTPUT
	<del>-//-(#</del> )	ANALOG INPUT
	# #	DIGITAL OUTPUT
	##	DIGITAL INPUT
		ROUND SUPPLY DUCT UP & DOWN
		STANDARD RADIUS ELBOW
	10x8	NEW RECTANGULAR DUCTWORK - WIDTH x DEPTH
UH		UNIT HEATER
Р		PUMP
В		BOILER
AS		AIR SEPARATOR
		EXPANSION TANK
ET		

#### **PLUMBING GENERAL NOTES**

- FIELD VERIFY EXACT LOCATION OF ALL CONNECTIONS PRIOR TO CONSTRUCTION.
- ROUGH-IN AND FINAL CONNECT ALL FIXTURES, EQUIPMENT, ETC.
- CONTRACTOR SHALL INSPECT SITE TO THOROUGHLY FAMILIARIZE HIMSELF WITH THE AREA OF WORK. ANY DISCREPANCES BETWEEN THESE DOCUMENTS AND ACTUAL CONDITIONS SHALL BE REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION PRIOR TO BID PRICING. NO EXTRAS WILL BE ALLOWED DUE TO LACK OF KNOWLEDGE OF EXISTING CONDITIONS.
- ALL WORK SHALL BE PER LOCAL BUILDING AND HEALTH DEPARTMENT REQUIREMENTS.
- REFERENCE HVAC DRAWINGS FOR EXACT LOCATION OF ALL HVAC EQUIPMENT REQUIRING PLUMBING CONNECTIONS. COORDINATE WITH HVAC CONTRACTOR EXACT PLUMBING CONNECTION REQUIREMENTS PRIOR TO COMMENCING WORK.
- ALL STORM DRAINAGE PIPING WITHIN THE BOUNDARIES OF THE BUILDING SHALL BE SLOPED AT 1/8" PER FOOT UNLESS OTHERWISE NOTED.
- ALL VENTS THROUGH THE ROOF (VTR) SHALL BE POSITIONED A MINIMUM OF 15'-0" FROM ANY OUTSIDE AIR INTAKE.
- REFERENCE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL FIRE RATED WALLS. ALL PIPE PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE SEALED IN ACCORDANCE WITH THE BUILDING
- OFFSET ALL PIPING AS REQUIRED TO AVOID STRUCTURAL MEMBERS, CANTS, FLASHING, MECHANICAL
- PROVIDE CHROME PLATED SET SCREW TYPE ESCUTCHEONS AT ALL EXPOSED PIPE PENETRATIONS THROUGH WALLS AND CASEWORK.
- PORTIONS OF THIS BUILDING WILL BE OCCUPIED DURING THIS CONSTRUCTION PROJECT. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE SCHEDULING OF THEIR WORK WITH THE GENERAL CONTRACTOR CLEAN UP AT THE END OF EACH DAY
- PROVIDE EQUIPMENT LABELS FOR ALL MAJOR EQUIPMENT, INCLUDING WATER HEATERS, PUMPS, CONTROL PANELS, ETC. LABELS SHALL BE AFFIXED OR ADHERED DIRECTLY TO EQUIPMENT. EQUIPMENT TO BE LABELED WITH ENGRAVED PLASTIC LAMINATE SIGNS.
- SUBMIT TO THE ARCHITECT/ENGINEER ELECTRONIC PDF FILES OF MECHANICAL SUBMITTALS FOR REVIEW OF ALL MAJOR EQUIPMENT AS LISTED ON DRAWING EQUIPMENT SCHEDULES, AS WELL AS PRODUCTS SHOWN IN SPECIFICATIONS. ENGINEER ASSUMED NO RESPONSIBILITY FOR EQUIPMENT OR INSTALLATION COORDINATION THAT HAS NOT BEEN SUBMITTED FOR REVIEW.
- CONTRACTOR SHALL WARRANTY WORK, EQUIPMENT, FIXTURES, MATERIALS, AND PROPER OPERATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF BUILDING BY OWNER. THIS GUARANTEE SHALL NOT INCLUDE NORMAL MAINTENANCE REQUIRED BY THE OWNER AS DESCRIBED IN THE OPERATION AND MAINTENANCE MANUALS.
- PROVIDE TWO SETS OF OPERATION AND MAINTENANCE (O&M) MANUALS FOR OWNER AT COMPLETION OF PROJECT TO THE ARCHITECT/ENGINEER FOR REVIEW. MANUALS TO INCLUDE INSTALLATION INSTRUCTIONS, REPLACEMENT PART LISTS, AND MAINTENANCE INFORMATION ON ALL MECHANICAL EQUIPMENT, FIXTURES, ETC. SUBMITTED.
- CONTRACTOR SHALL MAINTAIN A COMPLETE AND ACCURATE SET OF RECORD DRAWINGS SHOWING ACTUAL INSTALLED LOCATIONS OF WORK. SUBMIT THESE DRAWINGS AS PART OF THE OPERATION AND MAINTENANCE MANUALS AT COMPLETION OF PROJECT.

#### RADIANT HEAT GENERAL NOTES

- FURNISH ALL LABOR, MATERIALS TRANSPORTATION, EQUIPMENT, AND SERVICES TO INSTALL A HYDRONIC RADIANT HEAT SYSTEM WHERE INDICATED ON THE DRAWINGS.
- SHOP DRAWINGS, OR DESCRIPTIONS OF MATERIALS, AND DETAILS OF INSTALLATION SHALL BE SUBMITTED FOR APPROVAL. NO FABRICATION SHALL BE PERFORMED UNTIL APPROVAL IS OBTAINED.
- TUBE SHALL CARRY A 25-YEAR NON-PRORATED WARRANTY AGAINST FAILURE DUE TO DEFECT IN
- MATERIAL AND/OR WORKMANSHIP TUBE SHALL BE CROSS-LINKED POLYETHYLENE WITH AN OXYGEN DIFFUSION BARRIER, RATED AT 180°F
- MANUFACTURED IN ACCORDANCE WITH ASTM STANDARD SPECIFICATION F 876. TUBING LAYOUT SHALL BE BY THE TUBING MANUFACTURER'S APPROVED REPRESENTATIVE. TUBING

MAXIMUM WORKING TEMPERATURE, AND 100 PSI WORKING PRESSURE, THE TUBE SHALL BE

- MANUFACTURER'S REPRESENTATIVE SHALL PROVIDE A WRITTEN STATEMENT THAT THE TUBING LAYOUT WILL OPERATE CORRECTLY WITH THE SPECIFIED PUMP AND CONTROL SYSTEM. WHEN THE TUBING LAYOUT DOES NOT WORK WITH THE SPECIFIED PUMP, THE MANUFACTURER'S REPRESENTATIVE SHALL SELECT AND SUBMIT ON THE CORRECT PUMP. SUBMIT TUBE FLOW AND PRESSURE DROP DATA FOR
- THE TUBE DIMENSIONS SHALL BE: 3/4" NOMINAL DIAMETER UNLESS SCHEDULED OTHERWISE.
- THE MINIMUM BEND RADIUS FOR COLD BENDING OF THE TUBE SHALL NOT BE LESS THAN SIX TIMES THE OUTSIDE DIAMETER. BENDS WITH A RADIUS LESS THAN STATED SHALL REQUIRE THE USE OF A BEND SUPPORT AS SUPPLIED BY THE TUBE MANUFACTURER.
- MANIFOLDS: MANIFOLDS SHALL BE OF CAST BRASS OR COPPER CONSTRUCTION, MANIFOLDS SHALL HAVE INTEGRAL CIRCUIT BALANCING VALVES. MANIFOLDS SHALL BE ABLE TO VENT AIR AND DRAIN WATER FROM THE SYSTEM MANIFOLDS SHALL BE PROVIDED WITH SUPPORT BRACKETS AND TUBE BEND SUPPORT. MANIFOLDS SHALL BE ISOLATED FROM SUPPLY AND RETURN TUBING WITH VALVES THAT ARE SUITABLE FOR ISOLATION AND BALANCING.
- FITTINGS SHALL BE MANUFACTURED OF DEZINCIFICATION RESISTANT BRASS. THESE FITTINGS MUST BE SUPPLIED BY THE TUBE MANUFACTURER. THE FITTINGS SHALL CONSIST OF A BARBED INSERT, A COMPRESSION RING, AND A COMPRESSION NUT.
- INSTALL MANIFOLDS IN UPONOR WALL CABINETS OR YARD BOXES. WHERE POSSIBLE COMBINE MANIFOLDS INTO ONE CABINET, AT THE LOCATIONS AS SHOWN. COORDINATE WALL CABINET LOCATIONS, SIZES AND FRAMING REQUIREMENTS WITH THE GENERAL CONTRACTOR.
- 11. ACCEPTABLE MANUFACTURERS: REHAU AND UPONOR.

### **HVAC PIPING NOTES AND SPECIFICATIONS**

- PROVIDE SCHEDULE 40 PVC PIPING SLEEVES AT ALL WALL PENETRATIONS.
- SNOWMELT PIPE SIZE 2 1/2" AND LARGER: BLACK STEEL PIPE; ASTM A-53; SCHEDULE 40; 150 WROUGHT-STEEL BUTTWELDING FITTINGS WITH WELDED JOINTS.
- SNOWMELT PIPE SIZE 2" AND SMALLER: COPPER PIPE; ASTM B-88, TYPE L, HARD-DRAWN TEMPER; WROUGHT-COPPER FITTINGS WITH SOLDERED JOINTS.
- DIRECT BURIED PIPING (ALL SIZES): PEX-A SERVICE TUBING PRE-INSULATED WITH HDPE SEAMLESS
- CORRUGATED OUTER JACKET. UPONOR ECOFLEX OR EQUIVALENT
- PROVIDE ALL PIPE HANGERS WITH THERMAL HANGER SHIELDS AND HIGH DENSITY INSERTS MSS TYPE 40: CONSTRUCTED OF AN INSERT OF HIGH DENSITY, 100 PSI, WATER-PROOFED CALCIUM SILICATE MEETING, ASTM C-533 TYPE 1. ENCASE INSERT IN A GALVANIZED SHEET METAL SHIELD. HIGH DENSITY INSERT AND SHIELD SHALL SURROUND THE BOTTOM 180° OF THE SUPPORTED PIPE AT A MINIMUM WITH TOP 180° VOID SPACE FILED WITH SEGMENTS OF INSULATION.
- CLEANING, FLUSHING AND INSPECTING GENERAL: CLEAN EXTERIOR SURFACES OF SUPERFLUOUS MATERIALS, AND PREPARE FOR APPLICATION OF SPECIFIED COATINGS (IF ANY). FLUSH OUT SYSTEMS WITH CLEAN WATER BEFORE PROCEEDING WITH REQUIRED TESTS. INSPECT EACH RUN OF EACH SYSTEM FOR COMPLETION OF JOINTS, SUPPORTS AND ACCESSORY ITEMS. INSPECT PRESSURE PIPING IN ACCORDANCE WITH PROCEDURES OF ASME B31. PROVIDE A PRE-START UP LIQUID ALKALINE DISPERSANT CLEANER FOR ALL THE FLUSHING AND CLEANING OF ALL HVAC WATER SYSTEMS.
- PIPING TESTS TEST PRESSURE PIPING IN ACCORDANCE WITH ASME B31. GENERAL: PROVIDE TEMPORARY EQUIPMENT FOR TESTING, INCLUDING PUMP AND GAUGES. TEST PIPING SYSTEM BEFORE INSULATION IS INSTALLED WHEREVER FEASIBLE AND REMOVE CONTROL DEVICES BEFORE TESTING TEST FACH NATURAL SECTION OF EACH PIPING SYSTEM INDEPENDENTLY BUT DO NOT USE PIPING SYSTEM VALVES TO ISOLATE SECTIONS WHERE TEST PRESSURE EXCEEDS VALVE PRESSURE RATING. FILL EACH SECTION WITH WATER AND PRESSURIZE FOR INDICATED PRESSURE AND TIME. AIR MAY BE USED IF ALLOWED BY CODE. AIR CANNOT BE USED FOR PLASTIC PIPING.
  - REQUIRED TEST PERIOD IS 8 HOURS. TEST EACH PIPING SYSTEM AT 150% OF OPERATING PRESSURE INDICATED, BUT NOT
  - TEST FORCE DRAINAGE (PUMPED) PIPING AT 50 PSI. OBSERVE EACH TEST SECTION FOR LEAKAGE AT END OF TEST PERIOD. TEST FAILS IF
- LEAKAGE IS OBSERVED OR IF PRESSURE DROP EXCEEDS 5% OF TEST PRESSURE.

REPAIR PIPING SYSTEMS SECTIONS WHICH FAIL REQUIRED PIPING TEST, BY DISASSEMBLY AND RE-INSTALLATION, USING NEW MATERIALS TO EXTENT REQUIRED TO OVERCOME LEAKAGE. DO NOT USE CHEMICALS, STOP-LEAK COMPOUNDS, MASTICS, OR OTHER TEMPORARY REPAIR METHODS, DRAIN TEST WATER FROM PIPING SYSTEMS AFTER TESTING AND REPAIR WORK HAS BEEN COMPLETED.

### SHEET INDEX

SHEET NUMBER	MECHANICAL & PLUMBING SHEET TITLE	SHEET SCALE
MP000	MECHANICAL COVER SHEET	NONE
M101	LOWER LEVEL HVAC PLAN	VARIES
M111	FIRST LEVEL HVAC PLAN	1/8"=1'-0"
M300	HVAC SCHEDULES	NONE
M400	HVAC DETAILS AND CONTROL DRAWINGS	NONE
P100	PLUMBING SITE PLAN	1/8"=1'-0"
P101	LOWER LEVEL PLUMBING PLAN	VARIES
P301	PLUMBING SCHEDULES & DETAILS	NONE

#### MECHANICAL GENERAL NOTES AND SPECIFICATIONS

- THESE DOCUMENTS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE UTILIZED AS SHOP DRAWINGS NOR NECESSARILY SCALED FOR EXACT MEASUREMENTS. ANY DISCREPANCIES BETWEEN THESE DOCUMENTS AND THE ACTUAL CONDITIONS SHALL BE REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION PRIOR TO INSTALLATION.
- MECHANICAL WORK SHALL COMPLY WITH ALL APPLICABLE CODES. VERIFY ALL REQUIREMENTS PRIOR TO SUBMITTING BID OR COMMENCING WORK.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COORDINATION OR MODIFICATIONS THAT MAY BE REQUIRED DUE TO THE USE OR INSTALLATION OF EQUIPMENT OTHER THAN THAT OF THE BASIS OF DESIGN MANUFACTURERS LISTED ON THE DRAWINGS.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES PRIOR TO AND DURING CONSTRUCTION. THE MECHANICAL SYSTEMS SHOWN SHALL BE RUN AS HIGH AS POSSIBLE UNLESS
- REFER TO THE ARCHITECTURAL DRAWINGS FOR ROOFING DETAILS SPECIFIC TO THIS PROJECT.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE THERMOSTAT, SENSOR, AND SWITCH LOCATIONS WITH ARCHITECT/ENGINEER PRIOR TO INSTALLATION. ALL THERMOSTATS, SENSORS, AND SWITCHES SHALL BE LOCATED 48" AFF UNLESS INDICATED OTHERWISE. WHERE EXISTING CONDITIONS REQUIRE EXPOSED CONTROL WIRING, SUCH WIRING SHALL BE CONCEALED WITH WIRE MOLD. WIRE MOLD COLOR SHALL BE SELECTED BY THE ARCHITECT.
- PROVIDE EQUIPMENT LABELS FOR ALL MAJOR EQUIPMENT, INCLUDING BUT NOT LIMITED TO AIR HANDLING SYSTEMS, FANS, CONTROLS, AND DAMPERS. LABELS SHALL BE AFFIXED OR ADHERED
- PROVIDE PIPE MARKER IDENTIFICATION INCLUDING ARROWS TO INDICATE DIRECTION OF FLOW. LOCATE PIPE MARKER AND ARROWS WHEREVER PIPING IS EXPOSED TO VIEW IN OCCUPIED SPACES, MECHANICAL ROOMS AND ACCESSIBLE MAINTENANCE AREAS (SHAFTS TUNNELS PLENUMS) MARKERS SHALL BE SNAP-ON TYPE OR PRESSURE-SENSITIVE TYPE AT INSTALLER'S OPTION. COLORS TO COMPLY WITH ANSI A13.1

DIRECTLY TO EQUIPMENT. EQUIPMENT TO BE LABELED WITH ENGRAVED PLASTIC LAMINATE SIGNS.

- PROVIDE VALVE TAGS ON EVERY VALVE, AND CONTROL DEVICE IN EACH PIPING SYSTEM. LIST EACH TAGGED VALVE IN VALVE SCHEDULE FOR EACH PIPING SYSTEM. MOUNTED FRAMED VALVE SCHEDULE IN MAIN MECHANICAL ROOM. VALVE TAGS 1-1/2" DIAMETER OF PLASTIC LAMINATE OR BRASS WITH PIPING SYSTEM ABBREVIATION IN 1/4" HIGH LETTERS AND SEQUENCED VALVE NUMBERS IN 1'2" HIGH LETTERS.
- BALANCE HYRONIC SYSTEMS TO THE QUANTITIES SHOWN AND SUBMIT BALANCE REPORT TO THE ARCHITECT/ENGINEER FOR REVIEW. FAN AND PUMP SYSTEMS TO BE BALANCED WITHIN PLUS 10 PERCENT OR MINUS 5 PERCENT OF LISTED VALUES. AIR INLETS AND OUTLETS TO BE BALANCED WITH PLUS 10 PERCENT TO MINUS 5 PERCENT OF LISTED VALUES.
- SUBMIT TO THE ARCHITECT/ENGINEER ELECTRONIC PDF FILES OF MECHANICAL SUBMITTALS FOR REVIEW OF ALL MAJOR FOUIPMENT AS LISTED ON DRAWING FOUIPMENT SCHEDULES. AS WELL AS DUCTWORK ACCESSORIES AND CONTROLS, ENGINEER ASSUMES NO RESPONSIBILITY FOR EQUIPMENT OR INSTALLATION COORDINATION THAT HAS NOT BEEN SUBMITTED FOR REVIEW.
- CONTRACTOR SHALL WARRANTY WORK, EQUIPMENT, MATERIALS, AND PROPER OPERATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF BUILDING BY OWNER. THIS GUARANTEE SHALL NOT INCLUDE NORMAL MAINTENANCE REQUIRED BY THE OWNER AS DESCRIBED IN O&M
- PROVIDE TWO SETS OF OPERATION AND MAINTENANCE (O&M) MANUALS FOR OWNER AT COMPLETION OF PROJECT TO THE ARCHITECT/ENGINEER FOR REVIEW. DOCUMENTATION SHALL CONSIST OF MANUFACTURER'S INFORMATION, SPECIFICATIONS AND RECOMMENDATIONS, PROGRAMMING PROCEDURES AND DATA POINTS, NARRATIVES, AND OTHER MEANS OF ILLUSTRATING TO THE OWNER HOW THE BUILDING, EQUIPMENT, AND SYSTEMS ARE INTENDED TO BE INSTALLED, MAINTAINED, AND OPERATED. REQUIRED REGULAR MAINTENANCE ACTIONS FOR EQUIPMENT AND SYSTEMS SHALL BE CLEARLY STATED ON A READILY VISIBLE LABEL. THE LABEL SHALL INCLUDE THE TITLE OR PUBLICATION NUMBER FOR THE OPERATION AND MAINTENANCE MANUAL FOR THAT PERTICULAR MODEL AND TYPE OF
- CONTRACTOR SHALL MAINTAIN A COMPLETE AND ACCURATE SET OF RECORD DRAWINGS SHOWING ACTUAL INSTALLED LOCATIONS OF WORK. SUBMIT THESE DRAWINGS AS PART OF THE OPERATION AND MAINTENANCE MANUALS AT COMPLETION OF PROJECT.

### MECHANICAL HVAC INSULATION NOTES AND SPECIFICATIONS

- COMBUSTION AIR DUCTWORK SHALL BE WRAPPED WITH 2" DUCT WRAP WITH VAPOR BARRIER JACKET, MINIMUM R-8. NO DUCT LINER ALLOWED.
- ALL EXHAUST DUCTWORK SHALL NOT BE REQUIRED TO BE INSULATED, UNLESS NOTED OTHERWISE.
- INSULATE SNOWMELT WATER PIPING 1-1/2" AND SMALLER WITH 1-1/2" FIBERGLASS PIPE INSULATION WITH ALL SERVICE JACKET. INSULATE SNOWMELT WATER PIPING 2" AND LARGER WITH 2" PIPE

### MECHANICAL HVAC NOTES AND SPECIFICATIONS

INSULATION WITH ALL SERVICE JACKET.

- PROVIDE DUCT TRANSITIONS FROM EQUIPMENT CONNECTIONS TO DUCT SIZES INDICATED AS
- PROVIDE A FLEXIBLE CONNECTION TO THE INTAKE AND DISCHARGE OF ALL MECHANICAL EQUIPMENT HAVING ROTATING PARTS. FLEXIBLE CONNECTION SHALL COMPLY WITH ALL APPLICABLE CODES.
- MAINTAIN A MINIMUM OF 15'-0" FROM OUTSIDE AIR INTAKES TO PLUMBING VENTS.
- ALL ELBOWS, BOTH HORIZONTAL AND VERTICAL, SHALL BE LONG RADIUS ELBOWS WHEREVER POSSIBLE, OR SHALL HAVE TURNING VANES WHERE SHOWN. ALL JOB SITE DUCTWORK PRIOR TO INSTALLATION SHALL BE COVERED AND PROTECTED FROM DIRT.
- DUST, AND DAMAGE PER SMACNA STANDARDS. OPENINGS IN INSTALLED DUCTWORK DURING CONSTRUCTION SHALL BE SEALED CLOSED WITH PLASTIC TO PREVENT DUST AND DEBRIS INTRUSION INTO DUCTWORK SYSTEMS
- COORDINATE LOUVER, WALL CAP, AND AIR DEVICE PLACEMENT WITH BRICK OR BLOCK COURSING
- FLUES FOR BOILERS, SHALL BE ENGINEERED BY THE FLUE MANUFACTURER, BASED ON ACTUAL EQUIPMENT, AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- SNOWMELT CONTROLLERS AND DEVICES TO BE DISTECH INSTALLED BY LONG BUILDING ENVIRONMENTS. BASE BID: PROVIDED CONTROLLERS MUST BE CAPABLE OF OPERATING IN STAND-ALONE WITHOUT EXTERNAL BAS INTERFACE. ADJUSTABLE SET POINTS SHALL BE PROVIDED VIA LOCAL/TEMPORARY HARDWIRED CONNECTION ADD-ALTERNATE ETHERNET NETWORK CONNECTION PROVIDED BY OTHERS TCC TO PROVIDE A BAS COMPUTER GATEWAY AND INTEGRATE GRAPHICS AND CONTROL POINTS FROM SNOWMELT SYSTEM TO NIAGRA FRAMEWORK.



NOTICE: DUTY OF COOPERATION Release of these plans contemplates further cooperation among the owner, his contractor and the architect. Design and construction are complex. Although the architect and his consultants have performed their services with due care and diligence they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A

consequences arriving out of such changes. All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C.

Eric Smith Associates, P.C

failure to cooperate by a simple notice to the architect

consequences. Changes made from the plans without

consent of the architect are unauthorized and shall

relieve the architect of responsibility for all

shall relieve the architect from responsibility for the

	REVISION	S
No.	Description	Date

**Job Number:** | 20034

**Project Phase** 

**Sheet Title** MECHANICAL COVER SHEET

Sheet Number

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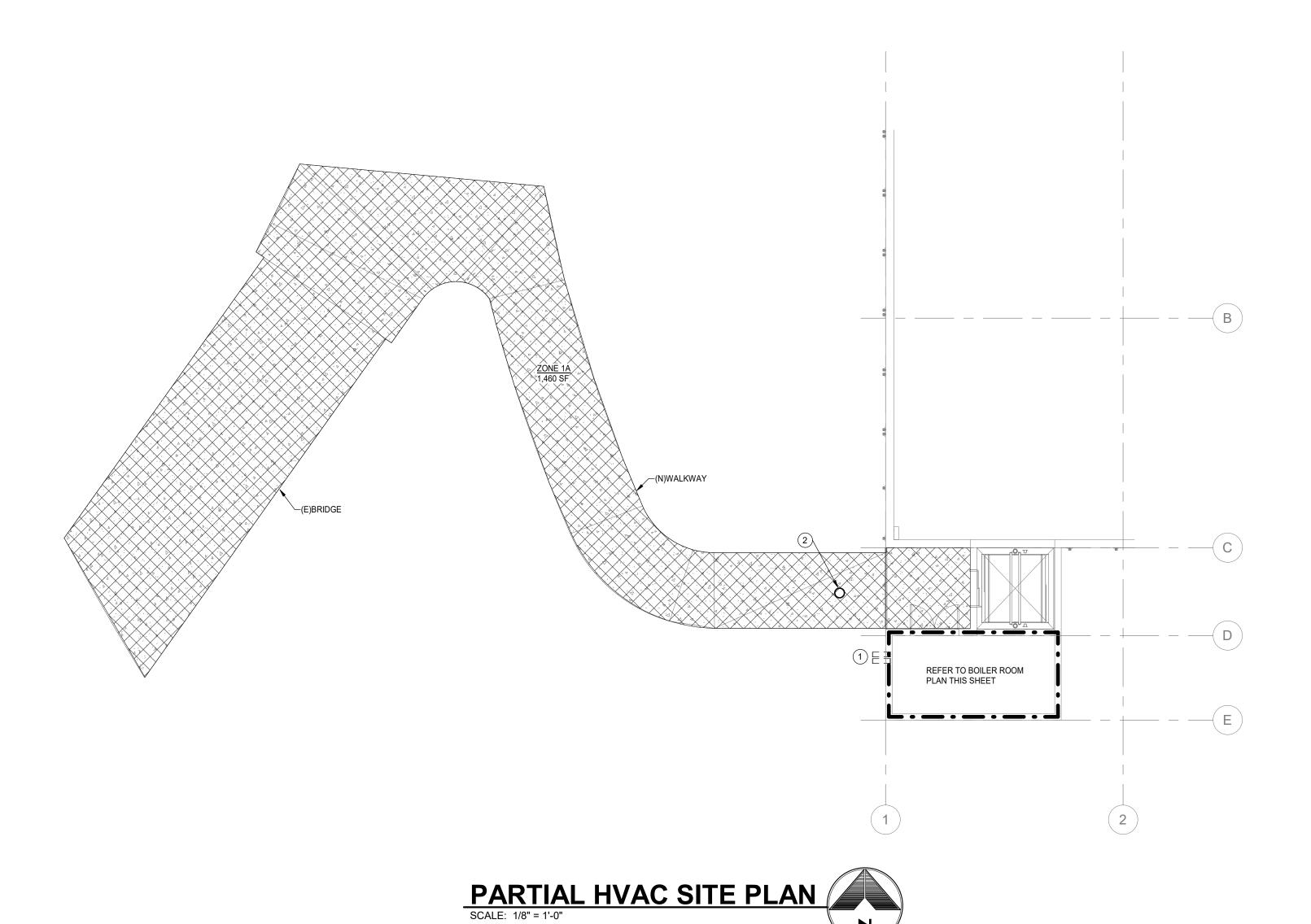
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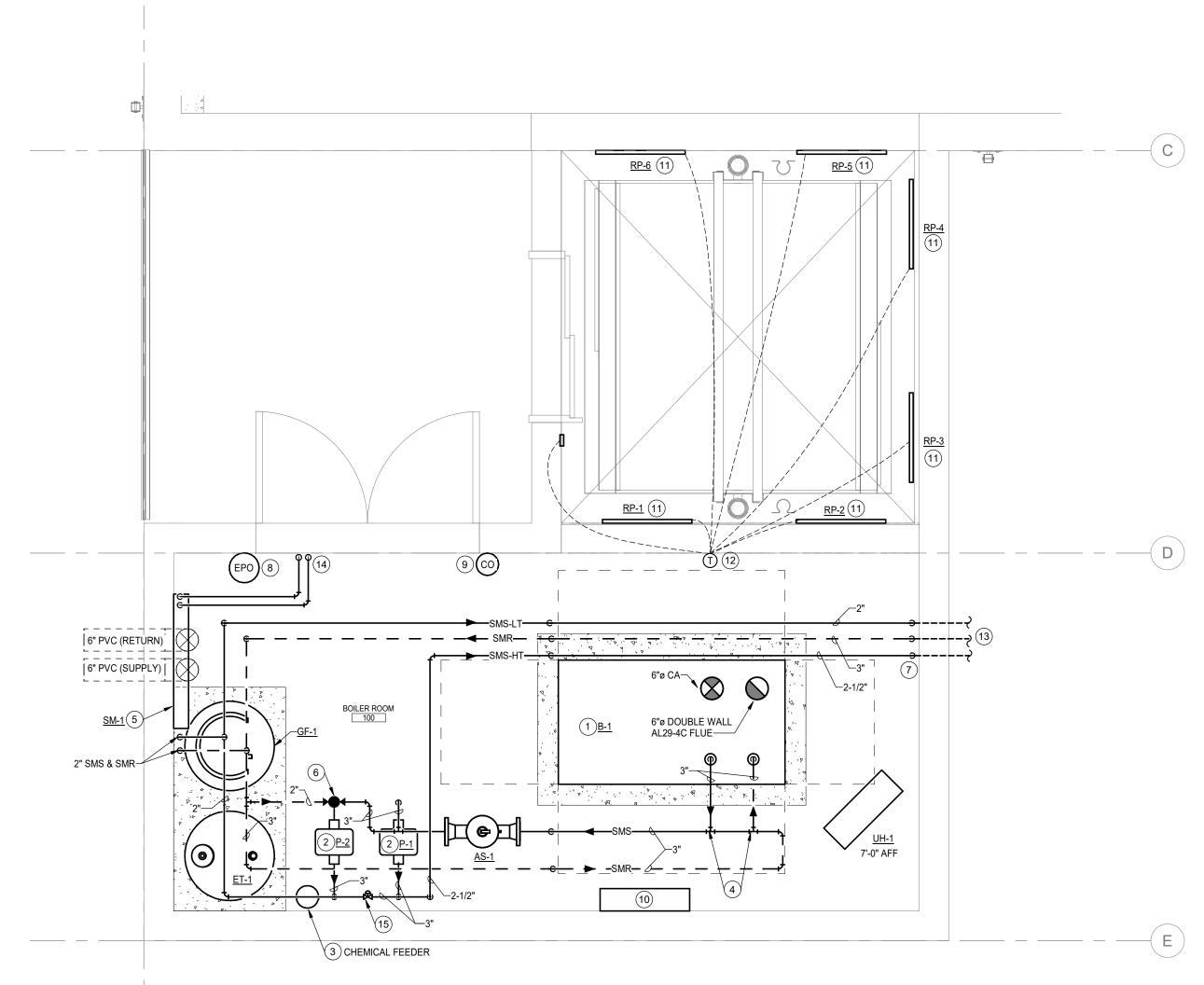
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### **HVAC KEYNOTES**:

- SMS & SMR LOOPS FROM PVC CONDUITS TO ZONE 1. REFER TO SNOWMELT TUBING SUBMITTAL DRAWINGS FOR LOOP ROUTING.
- 2 SNOWMELT SLAB TEMPERATURE AND MOISTURE SENSOR MOUNTED IN SLAB AND WIRED BY TO CONTROLLER IN BOILER ROOM. COORDINATE LOCATION WITH OWNER PRIOR TO INSTALLATION TO AVOID VEHICLE TRAFFIC.





### **HVAC KEYNOTES**:

- 1) MOUNT BOILER ON 4" CONCRETE PAD THAT IS 6" LARGER THAN BOILER FOOTPRINT IN ALL
- (2) MOUNT PUMPS ON SLAB WITH 6" TALL UNISTRUT MOUNTING STAND AND WAFFLE PAD.
- (3) CHEMICAL FEEDER MOUNTED ON WALL WITH MANUFACTURERS WALL BRACKET. PROVIDE AXIOM CBF-2 OR EQUIVALENT BY NEPTUNE.
- (4) TEE'S FOR PRIMARY SUPPLY AND RETURN CONNECTIONS TO BOILER TO BE SPACED BETWEEN 9" AND 15" APART.
- 5 SNOWMELT SUPPLY AND RETURN MANIFOLDS MOUNTED ON WALL APPROXIMATELY 4'-0" AFF. ROUTE SUPPLY AND RETURN LOOPS DOWN FROM MANIFOLD AND THROUGH SLAB IN 6" PVC CONDUITS (SUPPLY AND RETURN LOOPS IN SEPARATE CONDUIT). PROVIDE SPRAY FOAM TYPE SEALANT AROUND PIPING THROUGH PVC OPENING. CONDUITS TO EXTEND 36" BELOW GRADE AND ELBOW FOUNDATION WALL, REFER TO PARTIAL HVAC SITE PLAN THIS SHEET FOR CONTINUATION.
- (6) 1-1/2" THREE-WAY, MODULATING, 24V BALL TYPE CONTROL VALVE. COMMON PIPING DOWN, NORMALLY CLOSED TO SMR, NORMALLY OPEN TO SMS. SIZE FOR 108 GPM, MAX PRESSURE DROP 10 PSI. VALVE WILL NORMALLY OPERATE AT 38 GPM. PROVIDED BY TCC, MANUFACTURER TO BE BELIMO, HONEYWELL, OR GRISWOLD.
- (7) SMS-HT, SMS-LT, & SMR DOWN ON WALL TO APPROXIMATELY 1'-0" AFF. TRANSITION TO HDPE DIRECT BURIED PIPING AND ROUTE THROUGH WALL WITH LINK-SEAL AT EACH WALL PENETRATION.
- (8) 24V EPO PROVIDED AND WIRED TO BOILER SHUTDOWN CIRCUIT BY TCC. PILLA BSD120 OR EQUAL.
- 9) 24V CARBON MONOXIDE DETECTOR WITH AUDIBLE ALARM BY TCC.

REFER TO CONTROL DRAWINGS.

- 10 SNOWMELT CONTROLLER IN NEMA 1 PANEL ENCLOSURE, PROVIDE 120V POWER TO CONTROLLER.
- MOUNT RADIANT PANEL IN ELEVATOR SHAFT WITH BOTTOM OF PANEL AT 18" ABOVE BOTTOM OF PIT. CONFIRM ALL MOUNTING LOCATIONS WITH ELEVATOR INSTALLER.
- (12) 24V THERMOSTAT WITH REMOTE SENSOR BY TCC WIRED TO POWER RELAY TERMINAL AT RADIANT HEATERS. MOUNT SENSOR IN SHAFT AT 54" AFF.
- DIRECT BURIED SMS-HT, SMS-LT, & SMR (UPONOR ECOFLEX SINGLE OR EQUIVALENT). REFER TO FIRST LEVEL HVAC PLAN FOR CONTINUATION.
- (14) 3/4 SMS-LT & SMR LOOP FROM SNOWMELT MANIFOLD 1 UP INTO FIRST LEVEL SLAB AND NORTH TO ZONE 1B ABOVE.
- TWO-POSITION, LINE SIZE, NORMALLY CLOSED, BUTTERFLY TYPE CONTROL VALVE WITH 24V ACTUATOR. PROVIDED BY TCC, MANUFACTURER TO BE BELIMO, HONEYWELL, OR GRISWOLD.



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**REVISIONS** Description

Job Number: 20034 03/05/21 Date: EAB Drawn By: Checked By: 1V5

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**Sheet Number** 

LOWER LEVEL HVAC PLAN



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Eric Smith Associates, P.C.

**REVISIONS** Description

RAIL SYSTEM WITHIN THIS AREA IT WILL BE INSTALLED AFTER CONCRETE IS SET. (12) SNOWMELT LOOP UP IN FIRST FLOOR SLAB AND TO ZONE 1B.

2" SMS-LT & SMR UP FROM BELOW GRADE TO SM-2. MANIFOLDS TO BE MOUNTED IN YARD BOX MOUNTED IN SNOWMELT ZONE FLUSH WITH PAVERS. COORDINATE YARD BOX SIZE WITH SIZE OF MANIFOLD PROVIDED. ROUTE SNOWMELT TUBING FROM MANIFOLD TO BELOW GRADE AND INTO ZONE 2. YARD BOXES TO BE OLD CASTLE PRECAST POLYMER CONCRETE BOXES WITH LOCKABLE POLYMER COVER.

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Drawn By: Checked By: **Project Phase** 

PERMIT SUBMITTAL

**Sheet Title** FIRST LEVEL HVAC PLAN

NOTES:

INLET GAS PRESSURE TO BE BETWEEN 3.5" W.C. AND 14" W.C.

EACH BOILER MODULE PROVIDED WITH INTEGRAL CIRCULATION PUMP AND AUTOMATIC FLUE ISOLATION DAMPER.

MANUFACTURER PROVIDED 3" INLET STRAINER.

4. PROVIDE MANUFACTURER'S CONDENSATE NEUTRALIZATION KIT.

\*APPROVED ALTERNATE MANUFACTURER'S: PRIOR APPROVED

Р	UMP	SC	HED	ULE
				ELEC.

							ELECTRICAL			SIZE (IN)				
PLAN	MANUFACTURER	TYPE	SERVICE	GPM	TDH	%	HP	V/ø/Hz	RPM				WT.	REMARKS
CODE	& MODEL NO.				(FT)	EFF.	(BHP)			L	W	Н	(LBS)	
P-1	GRUNDFOS CRE 45-1	VERTICAL INLINE	SNOWMELT	110.0	90.0	82.0	7.5	460/3/60	3,600	15"	14"	38"	250	NOTE: 1,2,3,4
P-2	GRUNDFOS CRE 45-1	VERTICAL INLINE	SNOWMELT	110.0	90.0	82.0	7.5	460/3/60	3,600	15"	14"	38"	250	NOTE: 1,2,3,4

NOTES:

SNOWMELT SYSTEM UTILIZES 50% PROPYLENE GLYCOL.

PROVIDE MANUFACTUER'S INTEGRAL VFD.

PROVIDE MANUFACTUER'S SUCTION DIFFUSER SIZED FOR SYSTEM FLOW INDICATED.

SELECT PUMP FOR CONDITIONS INDICATED. REFER TO M400 FOR BALANCED FLOW RATES.

\*APPROVED ALTERNATE MANUFACTURER'S: ARMSTRONG

	AIR/DIRT SEPARATOR SCHEDULE											
PLAN	MANUFACTURER	SYSTEM	GPM	WPD	PIPE	MAX. PRESS.	DIME	DIMENSIONS (NOTE: 1)		OPER.	REMARKS	
CODE	& MODEL NO.			(FT)	CONN. SIZE	(PSI)	HEIGHT	DIA.	LENGTH	WEIGHT		
AS-1	SPIROTHERM VDN300	SNOWMELT	110	1.0	3"	150.0	32"	14"	22"	250	NOTE: 1,2	

NOTES:

LENGTH DIMENSION IS FLANGE TO FLANGE CONNECTION DISTANCE.

2. SYSTEM UTILIZES 50% PROPYLENE GLYCOL.

\*APPROVED ALTERNATE MANUFACTURER'S: NONE

	EXPANSION TANK SCHEDULE												
PLAN MANUFACTURER SERVICE TANK ACCEPT. SYSTEM FILL MAX. AVERAGE MIN. OPER. MAX. OPER. TANK SIZE OPI						OPER.							
CODE	& MODEL NO.		VOLUME	VOLUME	VOLUME	TEMPERATURE	TEMPERATURE	PRESSURE	PRESSURE	DIA.	DIA. HT.		REMARKS
ET-1	B&G B-300	SNOWMELT	80.0	80.0	1,000.0	40.0	170.0	20.0	45.0	24"	52"	1,000	NOTE: 1,2

SNOWMELT WATER SYSTEMS CONTAINS 50% PROPELYNE GLYCOL.

ASME PRESSURE RATING EQUALS 125 PSI.

\*APPROVED ALTERNATE MANUFACTURER'S: ARMSTRONG

### GLYCOL FEEDER SCHEDULE

										<u> </u>					
				S	YSTEM PUN	/IP	TANK	UNIT "ON"	UNIT "OFF"	SYSTEM	TANK			OPER.	
	PLAN	MANUFACTURER	SERVICE	FLOW	HEAD	MOTOR	SIZE	PRESSURE	PRESSURE	ELECTRICAL	P.G.	UNIT	SIZE	WT.	
	CODE	& MODEL NO.		(GPM)	(PSI)	HP	(GAL)	(PSI)	(PSI)	REQUIREMENTS	(%)	DIA.	HT.	(LBS)	REMARKS
	GF-1	AXIOM SF-100	SNOWMELT	1.3	25.0	50 W	55.0	12.0	15.0	NOTE: 1	50.0	24"	50"	160	NOTE: 1,2,3
ĺ															

NOTES:

PROVIDE A DEDICATED 120/1/60 20 AMP CIRCUIT WITH A GFI RECEPTACLE LOCATED WITHIN 3 FEET OF AND BEHIND UNIT.

PROVIDE FLOAT SWITCH FOR LOW LEVEL PUMP SHUTOFF AND ALARM TO THE DDC SYSTEM.

PROVIDE NEMA 4X UNIT CONTROL PANEL.

\*APPROVED ALTERNATE MANUFACTURER'S: NEPTUNE

### **FAN SCHEDULE**

				1 /	11 4 0		DOLL	_						
PLAN	MANUFACTURER				CFM	T.S.P.	RPM	МС	TOR	WT	VIB.	CONTROL	DAMPER	
CODE	& MODEL NO.	TYPE	SERVICE	SONES		@ 5,300'	@ 5,300'	W	V/ø/Hz	(LBS)	ISOL.		TYPE	REMARKS
EF-1	GREENHECK SP-A1550	INLINE	ELEVATOR MACHINE	10.0	1,500	0.15	1,610	818	120/1/60	70	NOTE: 4	NOTE: 3	NOTE: 2	NOTE: 1

NOTES:

PROVIDE MANUFACTURER'S ELECTRICAL DISCONNECT.

MANUFACTURER PROVIDED BACKDRAFT DAMPER AT FAN OUTLET. FAN CONTROLLED THROUGH REVERSE ACTING, LINE VOLTAGE THERMOSTAT.

PROVIDE SPRING ISOLATION HANGERS FOR FAN MOUNTING.

\*APPROVED ALTERNATE MANUFACTURER'S: PENN BARRY

### LOUVER SCHEDULE

					· · · ·						
PLAN MANUFACTURER SERVICE		FREE	CFM	VEL.	A.P.D.	MATERIALS		SIZE		REMARKS	
CODE	& MODEL NO.		AREA		(FPM)	(IN. W.C.)		(	(INCHES)		
			(SQ. FT.)					W	Н	D	
LVR-1	GREENHECK SED-501	ELEVATOR MACHINE INTAKE	2.2	1,500	670	0.09	ALUMINUM	24"	24"	5"	NOTE: 1,2,3,4
LVR-2	GREENHECK SED-501	ELEVATOR MACHINE EXHAUST	2.2	1,500	670	0.09	ALUMINUM	24"	24"	5"	NOTE: 1,2,3,4
LVR-3	GREENHECK SED-501	BOILER INTAKE	1.5	-	-	-	ALUMINUM	24"	16"	5"	NOTE: 1,2,3,4

NOTES:

PROVIDE SIGHTPROOF LOUVER WITH 5/8" BIRD SCREEN.

PROVIDE WITH A 70% PVDF (OR EQUIVALENT) FINISH.

COLOR SELECTION BY ARCHITECT. PROVIDE LOUVER WITH FLANGED FRAME.

\*APPROVED ALTERNATE MANUFACTURER'S: RUSKIN

## UNIT HEATER SCHEDULE (ELECTRIC)

						`					
PLAN	MANUFACTURER		CAP.		ELEMENT						
CODE	& MODEL NO.	SERVICE	(MBH)	KW	VOLTS	Ø	CFM	EAT	FLA	CONTROL	REMARKS
UH-1	BERKO MUH 07	BOILER ROOM	25.6	7.5	460	3	400	55.0	9.0	NOTE: 1	NOTE: 2,3,4
UH-2	BERKO MUH05	ELEVATOR MACHINE	17.1	5.0	460	3	400	55.0	6.0	NOTE: 1	NOTE: 2,3,4
RP-1,2,3,4,5,6	BERKO CP751F	ELEVATOR HOISTWAY	2.6	0.75	120	1	-	-	6.3	NOTE: 5	NOTE: 6

UNIT MOUNTED THERMOSTAT PROVIDED BY UNIT HEATER MANUFACTURER. FLA (FULL LOAD AMPS) INCLUDES HEATING ELEMENT AND MOTOR CURRENT REQUIREMENTS.

UNIT TO BE MOUNTED FROM CEILING.

PROVIDE WITH HORIZONTAL DISCHARGE. 24V THERMOSTAT BY TC, OUTPUT WIRED TO POWER RELAY AT HEATER.

48"x24" PANEL WITH SURFACE MOUNTING KIT.

\*APPROVED ALTERNATE MANUFACTURER'S: QMARK

# SNOWMELT ZONE MANIFOLD SCHEDULE

	ONO WINEET ZOINE IVI/ (INII OLD OOI ILDOLL											
PLAN	MANUFACTURER	EFFECTIVE	BTUH	TOTAL	EWT	LWT		TUBE	TUBE	NUMBER OF	P.D.	
CODE	& MODEL NO.	AREA (SF)	PER SF	BTUH	(°F)	(°F)	GPM	SIZE	CENTERS	LOOPS	(MAX)(FT)	REMARKS
SM-1	UPONOR - ZONES 1A,B	1,535	160	245,600	145	115	19.0	3/4"	9"	7	35.0	NOTE: 1,2,3,4
SM-2	UPONOR - ZONE 2	1,535	160	245,600	145	115	19.0	3/4"	9"	7	35.0	NOTE: 1,2,3,4
SM-3A	UPONOR - ZONE 3	1,933	160	309,280	170	140	24.0	3/4"	6"	9	35.0	NOTE: 1,2,3,4
SM-3B	UPONOR - ZONE 3	1,933	160	309,280	170	140	24.0	3/4"	6"	9	35.0	NOTE: 1,2,3,4
SM-3C	UPONOR - ZONE 3	1,933	160	309,280	170	140	24.0	3/4"	6"	9	35.0	NOTE: 1,2,3,4
TOTALS		8,869		1,419,040			110.0					

NOTES:

SNOWMELT SYSTEM CONTAINS 50% PROPYLENE GLYCOL.

MANIFOLD SELECTION TO PROVIDE REQUIRED NUMBER OF LOOPS AND BE INCLUDED IN PRESSURE LOSS CALCULATION BELOW MAX INDICATED.

MANIFOLD PROVIDED WITH BALL TYPE BALANCING/ISOLATION VALVE, MANUAL AIR VENT, PRESSURE GAUGES, AND FLOWRATE INDICATORS.

NUMBER OF LOOPS MAY VARY DEPENDING ON SPECIFIC MANUFACTURER TUBING LAYOUT.

\*APPROVED ALTERNATE MANUFACTURER'S: REHAU

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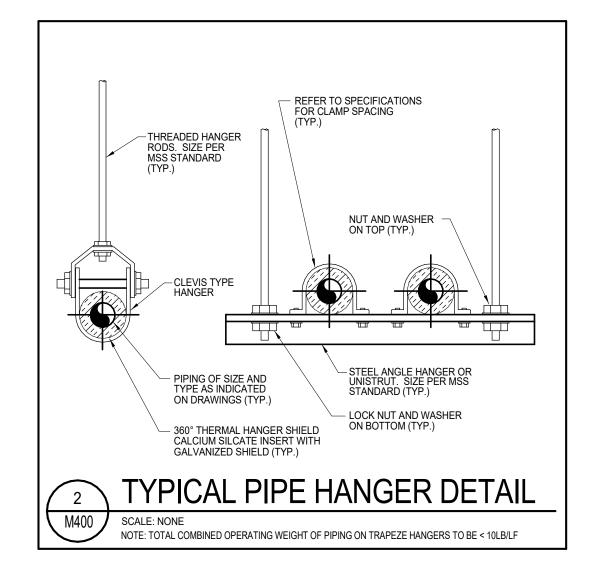
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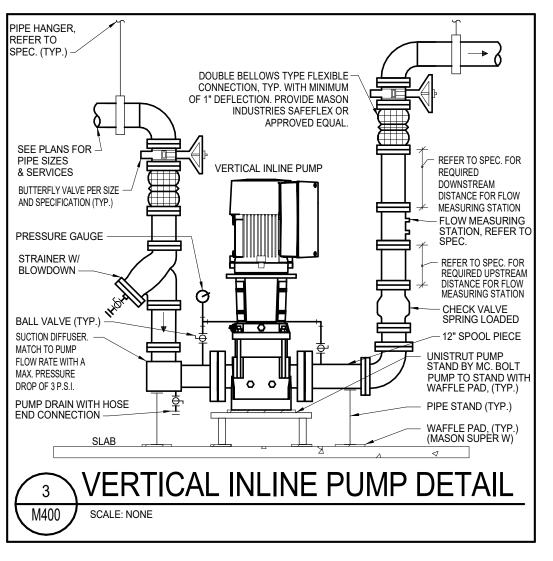
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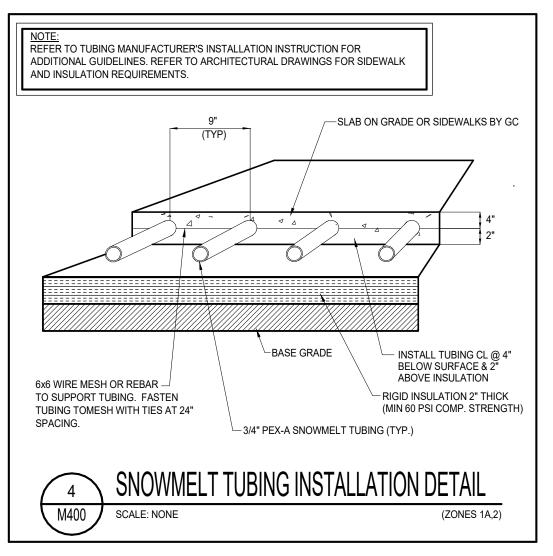
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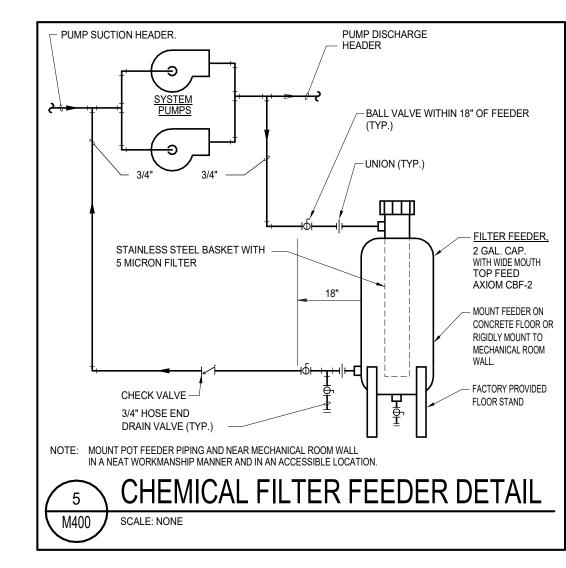
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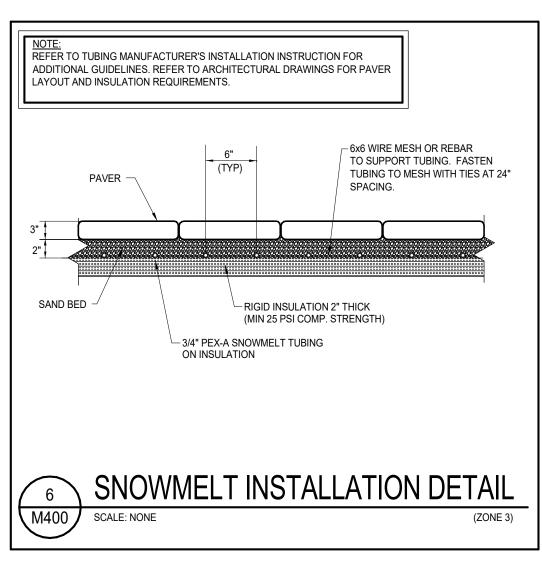
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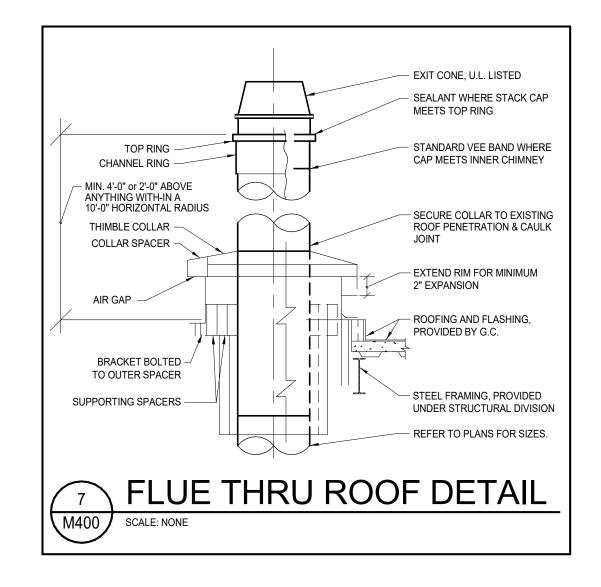


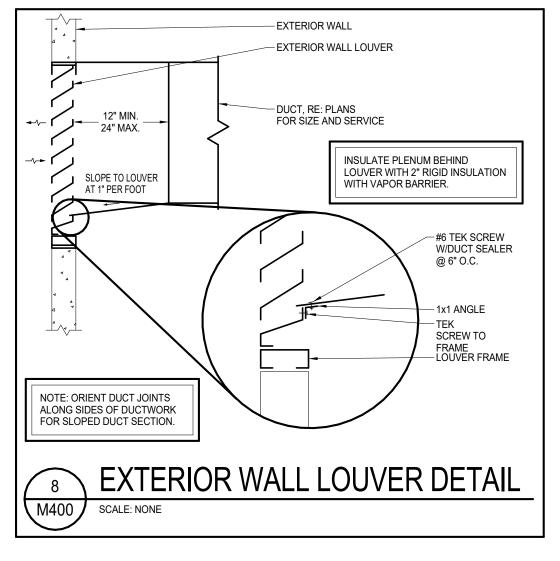


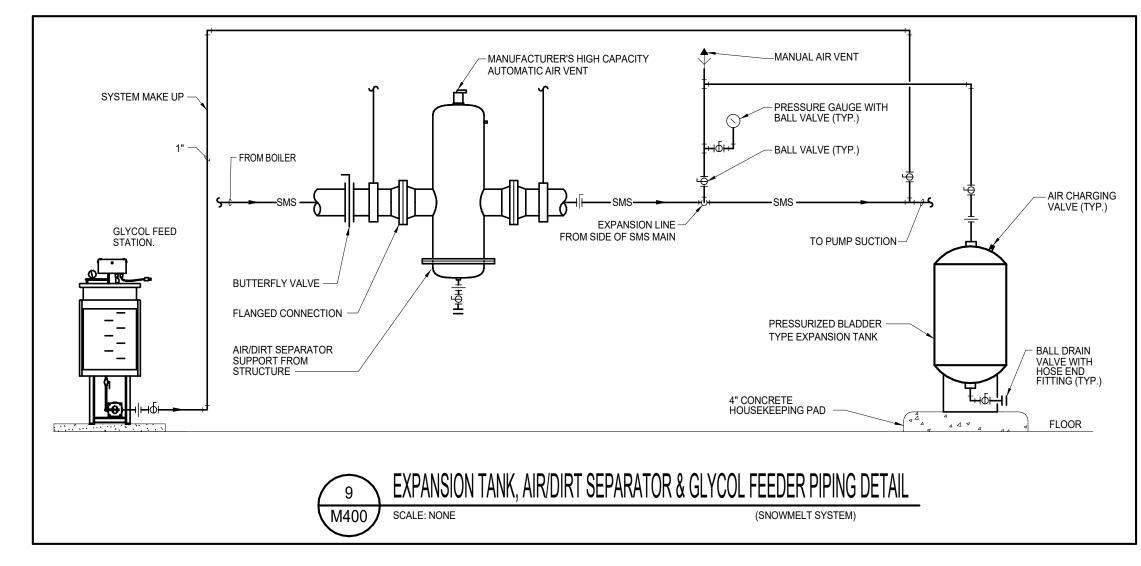


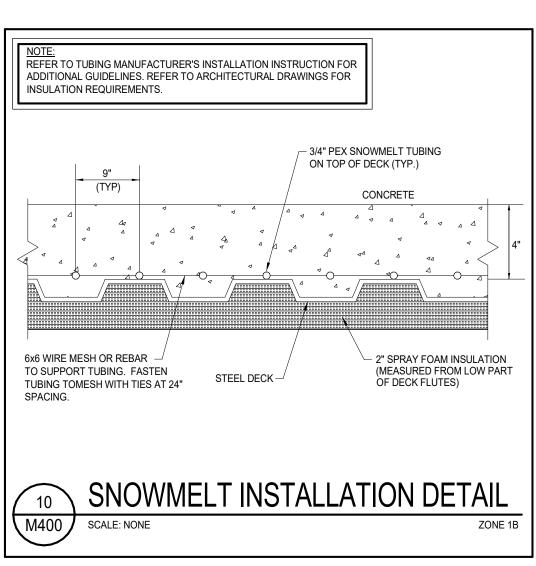


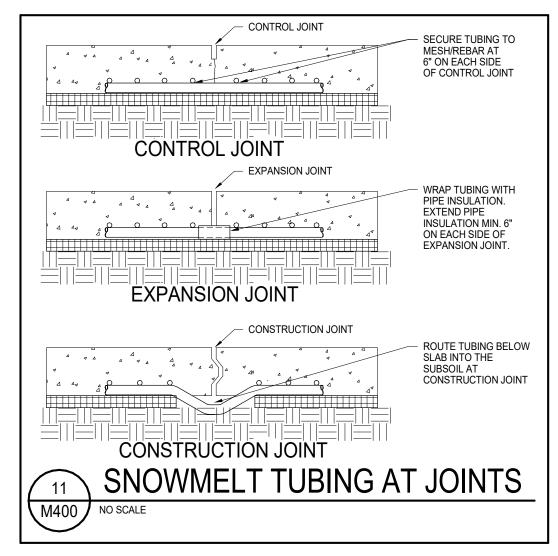


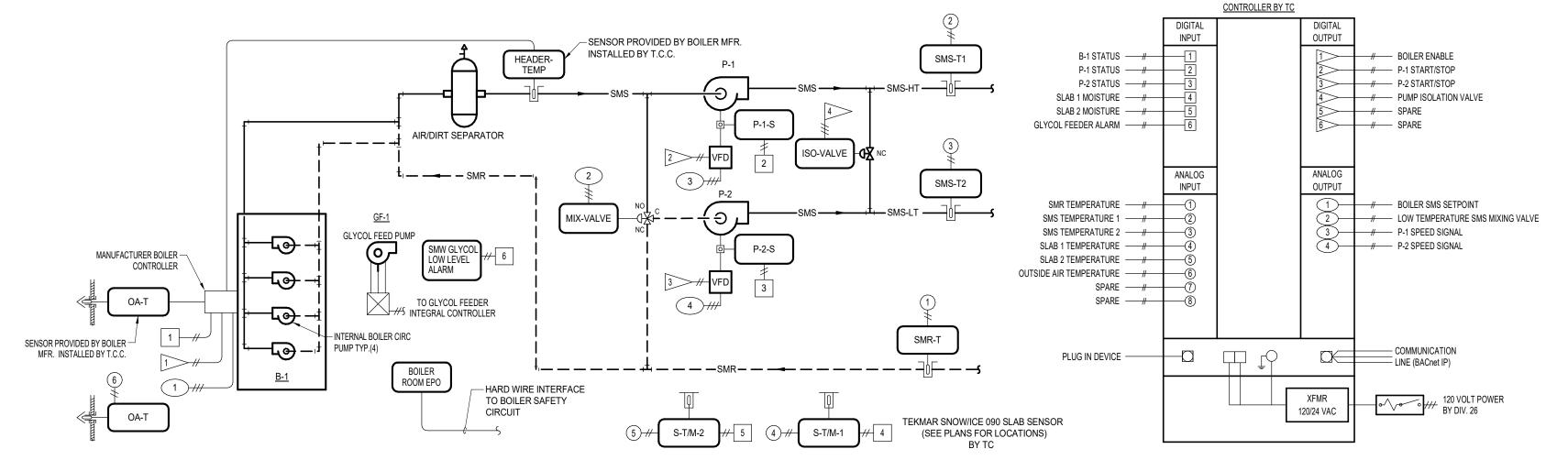












# SNOWMELT SYSTEM CONTROL DIAGRAM

### SNOWMELT SYSTEM CONTROL

- A. DESIGN INTENT: 1. CONTROLS SHALL BE FIELD PROVIDED AND INSTALLED, DO NOT PROVIDE FACTORY PACKAGED CONTROLS 2. PROVIDE A MINIMUM OF (3) OPERATION MODES: MELT, IDLE,
- 3. ALL SETPOINTS SHALL BE ADJUSTABLE. FIELD TUNE ALL **BOILER SMS TEMPERATURE** SETPOINTS TO PROVIDE OPTIMAL MELTING AND MINIMAL ENERGY USAGE. COORDINATE ALL SETPOINTS WITH SNOWMELT SYSTEM SUBMITTAL.
- 4. PUMP TEST AND BALANCE: BALANCE BOTH P-1 AND P-2 AT (2) DIFFERENT FLOW RATES AND REPORT CORRESPONDING SPEED SIGNAL TO TCC.

4.1. P-1 SHALL BE BALANCED AND TESTED AT 72 GPM (ONLY

- SERVING SM-3A,3B) AND TESTED AT 110 GPM (SERVING ALL ZONES WITH P-2 DISABLED, PUMP ISOLATION VALVE OPEN, AND MIXING VALVE AT NORMAL POSTIION). 4.2. P-2 SHALL BE TESTED AT 38 GPM (ONLY SERVING SM-1,2) AND TESTED AT 110 GPM (SERVING ALL ZONES
- WITH P-1 DISABLED AND PUMP ISOLATION VALVE OPEN) 1. THE DDC SHALL BE ENABLE THE BOILER WHEN THE SNOWMELT SYSTEM SHALL BE ENABLED WHEN THE SLAB TEMPERATURE FALLS BELOW 30°F OR THERE IS MOISTURE DETECTED ON EITHER SLAB. BOILER SHALL BE DISABLED
- MOISTURE ON SLAB. 2. THE SNOWMELT PUMPS P-1,2 SHALL BOTH ENERGIZE WHEN THE SNOWMELT SYSTEM IS ENERGIZED

WHEN THE SLAB TEMPERATURE IS ABOVE 40°F WITH NO

- 3. PROVIDE ALL ADJUSTABLE SETPOINTS AND OPERATION MODES ON FRONT END GRAPHICS.
- 4. THE BOILER SHALL MODULATE TO MAINTAIN THE SNOWMELT SUPPLY TEMPERATURE ACCORDING TO THE FOLLOWING RESET SCHEDULE:
- BOILER SMS TEMPERATURE: 170°F FOR OUTSIDE AIR TEMPERATURE BOILER SMS TEMPERATURE: 145°F FOR OUTSIDE AIR TEMPERATURE FROM 35°F AND ABOVE OR DURING IDLE MODE.
- 1. P-1 SERVES THE PAVER SNOWMELT AREAS REQUIRING 170°F SMS TEMPERATURE. P-2 SERVES THE CONCRETE IMBED SNOWMELT AREAS REQUIRING 145°F SMS
- TEMPERATURE. 2. ONCE THE SLAB SENSOR TEMPERATURE FALLS BELOW 30°F OR DETECTS MOISTURE, THE BOILER SHALL ENERGIZE AND MAINTAIN THE SNOWMELT SUPPLY TEMPERATURE SETPOINT AS INDICATED ABOVE.
- 3. THE THREE-WAY MIXING VALVE SERVING CONCRETE IMBED ZONES (SM-1,2) SHALL MODULATE TO MAINTAIN A 145°F SMS TEMPERATURE. 4. ONCE BOTH SLAB SENSORS NO LONGER DETECT MOISTURE AND SLAB TEMPERATURES ARE ABOVE 40°F. THE SNOWMELT SYSTEM SHALL BE DISABLED AFTER A TIME DELAY OF 30 MINUTES (ADJ.). THIS TIME DELAY SHALL BE ADJUSTED BASED ON MELTING CHARACTERISTICS OF THE SLAB, TO MINIMIZE RUN TIME.
- 5. SENSITIVITY OF THE MOISTURE SENSOR SHALL BE
- ADJUSTABLE THROUGH THE BAS. C. IDLE MODE: . ENERGIZE IDLE MODE IF OUTSIDE AIR TEMPERATURE FALLS BELOW 35°F AND NO MOISTURE IS DETECTED ON THE SLAB. 2. DURING IDLE MODE. THE SNOWMELT SYSTEM SHALL BE ENERGIZED TO PREHEAT THE SLAB. ONCE THE SLAB IS MAINTAINED ABOVE 35°F FOR 4 HOURS WITH NO MOISTURE
- DISABLE IDLE MODE. ALLOW IDLE ENABLE AGAIN AFTER A DISABLE PERIOD OF 2 HOURS UNLESS MELT IS ENABLED. ONCE THE SLAB SENSOR DETECTS MOISTURE OR SLAB TEMPERATURE IS BELOW 30°F, THE SYSTEM SHALL ENTER THE MELT MODE. ). WARM WEATHER SHUT DOWN:
- SLAB TEMPERATURES ARE ABOVE 40°F AND NO MOISTURE IS DETECTED ON THE SLAB. COLD WEATHER SHUT DOWN: THE SNOWMELT SYSTEM SHALL BE DISABLED IF THE OUTDOOR AIR TEMPERATURE FALLS BELOW -3°F (ADJ.) TO PREVENT MELTING AND ICING OF THE SNOWMELT AREA.

MODES ARE AVAILABLE FOR OPERATION.

I PUMP FAILURE a. UPON SENSING THE FAILURE OF AN ON LINE PUMP THROUGH A MISS MATCH OF THE PLIMP COMMANDED OUTPUT "ON" AND CURRENT SWITCH

ONCE OUTDOOR AIR TEMPERATURE RISES ABOVE THE COLD

WEATHER SHUTDOWN TEMPERATURE, THE MELT AND IDLE

- STATUS "OFF" FOR 15 CONTINUOUS SECONDS, THE FAILED PUMP SHALL BE DISABLED AND ALARMED. b. IF EITHER PUMP FAILS, OPEN THE TWO-POSITION PUMP ISOLATION VALVE RETURN THE MIXING VALVE TO NORMAL POSITION AND INCREASE THE SPEED OF THE ONLINE PUMP TO THE HIGHER REQUIRED SPEED
- SETTING (SEE PUMP BALANCING ABOVE), OVERRIDE BOILER SMS TEMPERATURE TO 145°F. 2. FAILURE OF SMS TEMPERATURE TRANSMITTER: a. UPON SENSING A FAILURE (END OF SCALE READING) WHICH IS REQUIRED FOR BOILER STAGING CONTROL THE FAILED TRANSMITTER SHALL BE ALARMED AT THE
- 3. SNOWMELT WATER SYSTEM TEMPERATURE ALARM: a. UPON SENSING A SNOWMELT WATER SUPPLY TEMPERATURE OF 10°F ABOVE OR BELOW SETPOINT FOR 15 MINUTES. PROVIDE ALARM TO THE BAS, ALARM SHALL BE INHIBITED IF PLANT IS DISABLED. a. PROVIDE MISCELLANEOUS INTERLOCKS TO THE GLYCOL

SHALL BE ALARMED UPON LOW LEVEL.

5. FAILURE OF TEMPERATURE/MOISTURE SENSOR:

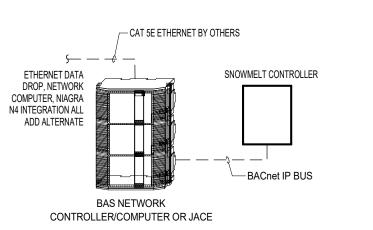
BAS WORKSTATION.

SLAB TEMPERATURE PROTECTION: a. THE TEMPERATURE DIFFERENTIAL BETWEEN THE SLAB AND SNOWMELT SUPPLY TEMPERATURE SHALL BE

FEEDER GENERAL ALARM CIRCUIT. THE DDC SYSTEM

#### LIMITED TO PREVENT CRACKING OF THE CONCRETE ONLY (NOT APPLICABLE TO PAVERS). INITIAL SETPOINT SHALL BE 115°F (ADJ.). H TRENDS: PROVIDE THE FOLLOWING TRENDS. CONFIRM TRENDING INTERVAL WITH OWNER DURING SUBMITTALS. a. PUMP STATUS

- b. SNOWMELT WATER SUPPLY TEMPERATURE (1 & 2) c. SNOWMELT WATER SUPPLY TEMPERATURE SETPOINT (1 d. OUTSIDE AIR TEMPERATURE e. SLAB SENSOR TEMPERATURE (1 & 2) SLAB SENSOR MOISTURE (1 & 2) . BOILER PERCENT OUTPUT
- BOILER LEAVING WATER TEMPERATURE BOILER RETURN WATER TEMPERATURE STATUS REPORT: THE BAS SHALL PROVIDE AN OPERATING STATUS SUMMARY OF THE FOLLOWING INFORMATION TO PROVIDE THE OPERATOR WITH CRITICAL UNIT OPERATING DATA. a. OPERATING MODE b. ACTIVE SMS TEMPERATURE SETPOINT
- f. OUTSIDE AIR TEMPERATURE PUMP STATUS (1&2) SLAB SENSOR TEMPERATURE (1 & 2 SLAB SENSOR MOISTURE (1 & 2) BOILER PERCENT OUTPUT h. BOILER LEAVING WATER TEMPERATURE BOILER RETURN WATER TEMPERATURE THE BAS SYSTEM SHALL BE ABLE TO ALARM FROM ALL SENSED POINTS FROM THE BOILER PLANT AND DIAGNOSTIC ALARMS SENSED BY THE LOCAL CONTROLLER. ALARM LIMITS SHALL BE DESIGNATED FOR ALL SENSED POINTS.



**BAS CONTROL DIAGRAM** SCALE: NONE

NOTICE: DUTY OF COOPERATION Release of these plans contemplates further architect. Design and construction are complex.

coperation among the owner, his contractor and the Although the architect and his consultants have performed their services with due care and diligence they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds nisunderstanding and increases construction costs. failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the consequences. Changes made from the plans withou consent of the architect are unauthorized and shall relieve the architect of responsibility for all consequences arriving out of such changes. All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C.

Eric Smith Associates, P. **REVISIONS** Description

S



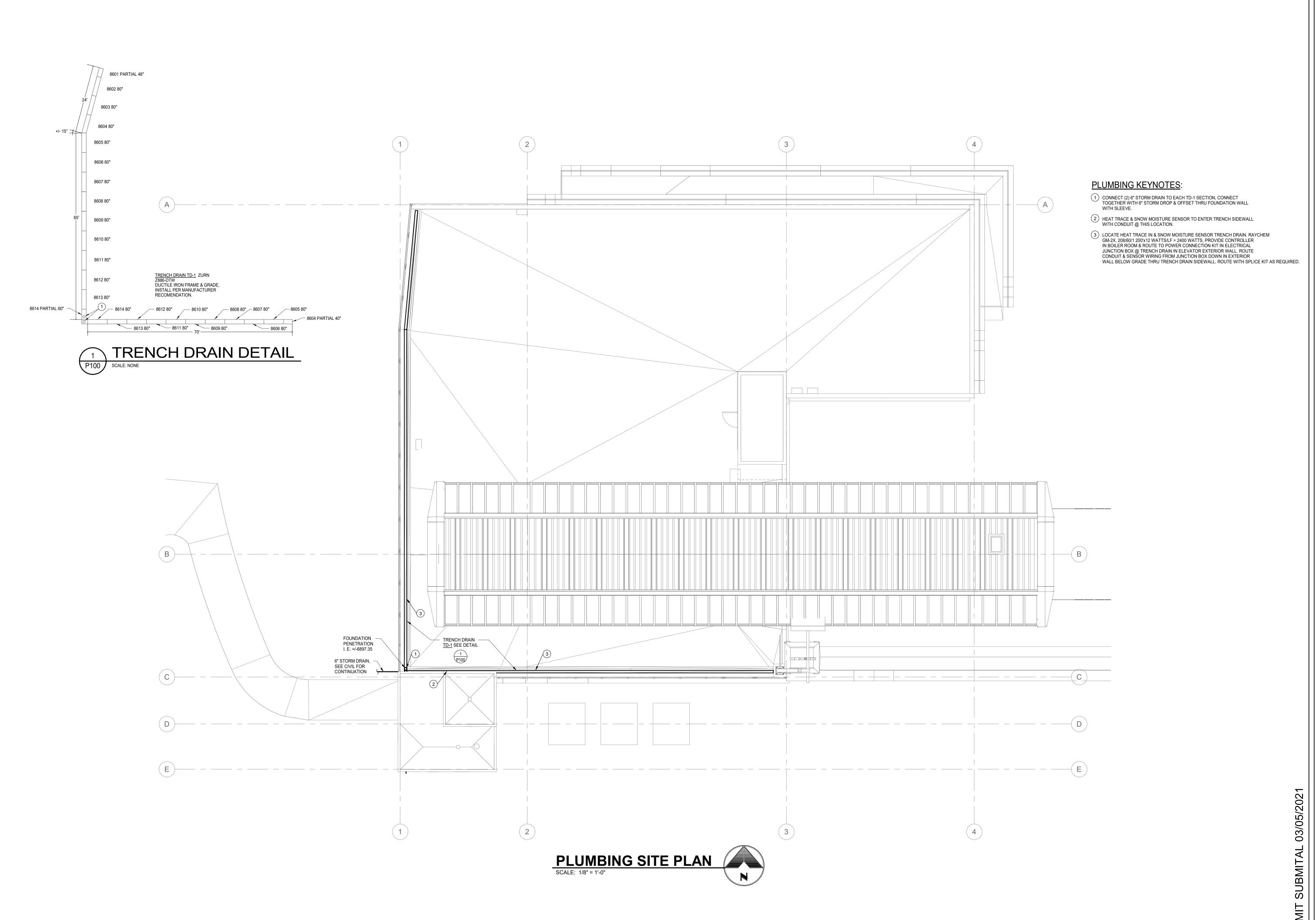
**Project Phase** PERMIT SUBMITTAL **Sheet Title** HVAC DETAILS AND CONTROL DRAWINGS

**Sheet Number** 

1. THE SNOWMELT SYSTEM SHALL BE DISABLED ONCE BOTH 4. GLYCOL MAKE-UP FEEDER

AT THE BAS WORKSTATION

a. UPON SENSING A FAILURE OF THE d. SMS-T2 TEMPERATURE/MOISTURE SENSOR, GENERAL AN ALARM





NOTICE: DUTY OF COOPERATION NOTICE: DUTY OF COOPERATION

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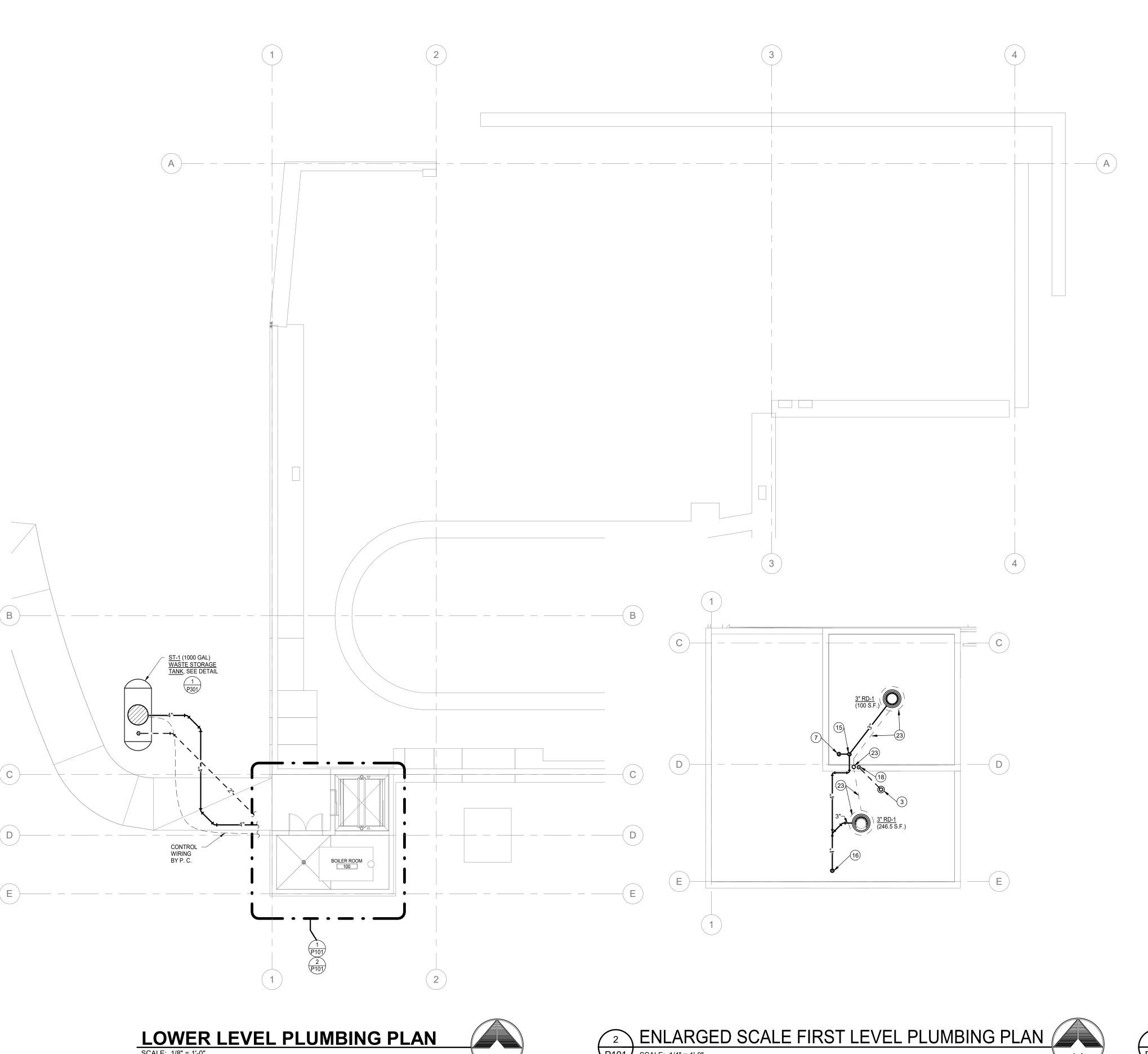
Description

STE/

**Job Number:** 20034 **Date:** 03/05/2 Drawn By: **Checked By:** 

**Project Phase** PERMIT SUBMITTAL

**Sheet Title** PLUMBING SITE PLAN

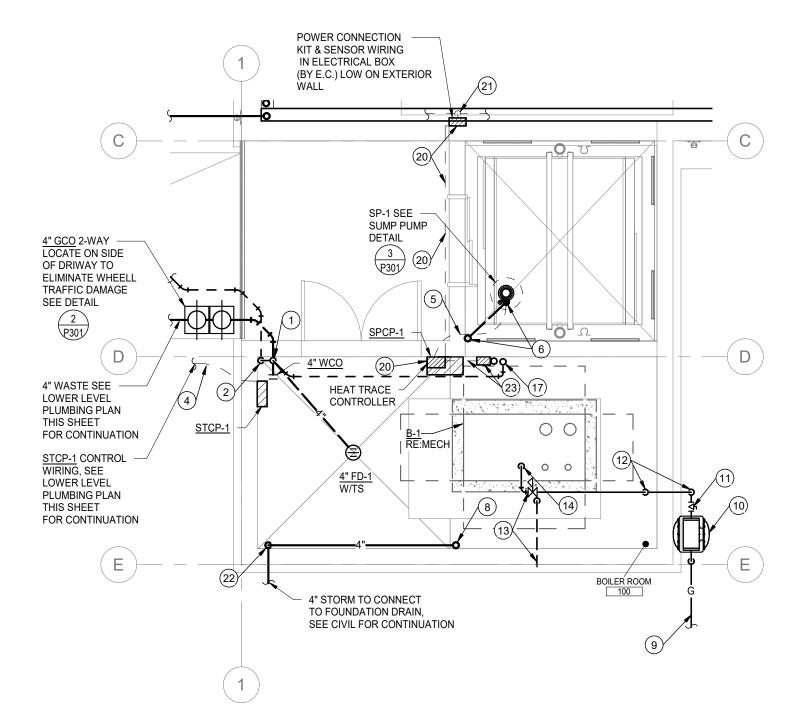




- 1) 4" WASTE DOWN, 2" VENT RISE.
- (2) 2" VENT RISE ON WALL & CONNECT TO (2) 2" VENT @12" ABOVE GRADE.
- 3 2" VENT RISE TO 3" VTR.
- (4) STCP-1 CONTROL WIRING TO ST-1.
- (5) SPCP-1 CONTROL WIRING.
- (6) 1-1/2" SUMP PUMP DISCHARGE RISE & CONNECT TO 4" RDL.
- (7) 1-1/2" SUMP PUMP DISCHARGE RISE ON WALL & OFFSET WITH 4" STORM LINE.
- (8) 4" STORM LINE DOWN ON WALL & OFFSET @ LOWER LEVEL STRUCTURE.
- (9) GAS SERVICE BY LOCAL GAS COMPANY.
- (10) GAS METER, REGULATOR, VALVES ETC BY LOCAL GAS COMPANY, SEE GAS LOAD SCHEDULE ON THIS SHEET.
- (11) 1-1/2" PLUG VALVE ON HOUSE SIDE OF METER.
- (12) 1-1/2" GAS THRU WALL & OFFSET @ STRUCTURE. (13) GAS PRV, 2000 MBH INPUT @ S. L., 2.0 PSI TO 10" WC. ROUTE RELIEF TO EXTERIOR.
- (14) CONNECT 2" GAS TO BOILER WITH GAS COCK & 6" DIRT LEG.
- (15) 3" RDL DOWN ON WALL & OFFSET THRU WALL TO BOILER ROOM WITH 4" RDL.
- (16) 4" RDL DOWN ON WALL, SEE LOWER LEVEL PLAN FOR CONTINUATION.
- (17) 2" VENT RISE ON WALL.
- (18) 2" VENT UP FROM BELOW & OFFSET @ STRUCTURE.
- (19) HEAT TRACE CONTROLLER, EC TO POWER WIRE TO CONTROLLER, 208/60/1, 2400 WATTS.
- (20) EC TO POWER & SENSOR CONTROL WIRE FROM CONTROLLER IN SOFFIT TO JUNCTION BOX IN EXTERIOR WALL, PROVIDE POWER CONNECTION IN CONDUIT IN ELECTRICAL BOX (BY E.C.) LOW ON EXTERIOR WALL, FLUSH.
- (21) HEAT CABLE OUT OF WALL BELOW PAVERS IN CONDUIT & ENTER TRENCH & SPLICE & OFFSET IN TRENCH BOTH DIRECTION.
- (22) 4" RDL DOWN ON WALL & OFFSET BELOW FLOOR.
- (23) PROVIDE HEAT TRACE POWER KIT ON WALL, ROUTE HEAT TRACE UP ON WALL TO RD.

### **GAS LOAD SCHEDULE**:

APPLIANCE:	LOAD:
BOILER (B-1)	2000.0 MBH
TOTAL GAS LOAD:	2000.0 INPUT REQUIRED AT S.I UTILIZING A 2 PSI SYSTEM. M.C COORDINATE LOAD WITH LOCA GAS COMPANY









1 ENLARGED SCALE LOWER LEVEL PLUMBING PLAN 🚄

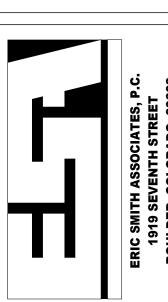


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Eric Smith Associates, P.C. **REVISIONS** Description

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 Job Number:
 20034

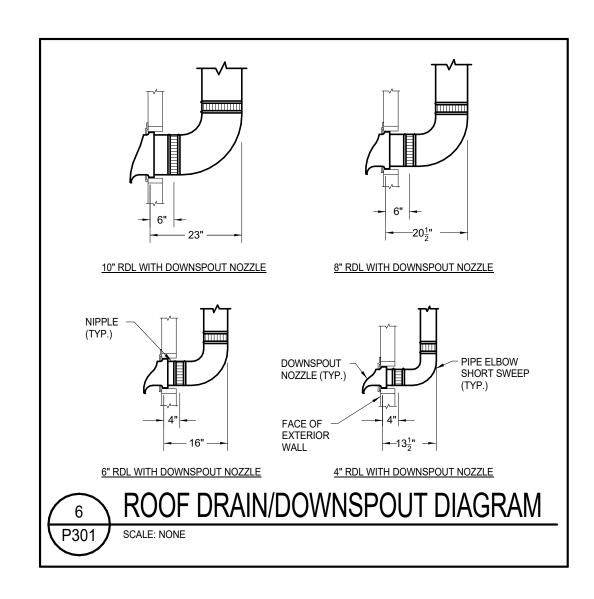
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 03/05/2|

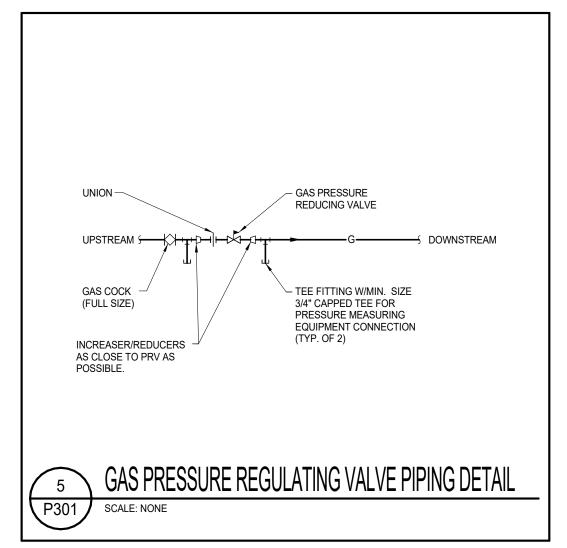
 Drawn By:
 1RH/5K

 Checked By:
 1RH

**Project Phase** PERMIT SUBMITTAL

**Sheet Title** LOWER LEVEL PLUMBING





	PLUMBING PUMP SCHEDULE														
				IMP.					ELECTR	RICAL					
PLAN	MANUFACTURER	TYPE	SERVICE	DIA.	GPM	HEAD	%	HP	VOLTS	PH	RPM	VIBRATION	CONTROL	WEIGHT	REMARKS
CODE	& MODEL NO.			(IN)			EFF.	(BHP)				ISOLATION		(LBS)	
SP-1	ZOELLER #940-0012	SUBMERSIBLE	ELEVATOR	-	50.0	16.5'	-	4/10	115	1		INTEGRAL	NOTE:1		NOTE: 1
<u>NOTES:</u> 1.	ES:  1. SIMPLEX OIL SMART CONTROL PANEL WITH LIGHT AND HORN AND BAS DRY CONTACT FOR TROUBLE.														

	MISCELLANEOUS PLUMBING FIXTURE SCHEDULE								
PLAN	DESCRIPTION	MANUFACTURER	MODEL	FINISH	REMARKS				
CODE									
ST-1	DOUBLE WALL STORAGE TANK	XERXES	DOUBLE WALL 1000 GALLON, 4' DIA X 11'-7-1/2"	FIBERGLASS	SEE DETAIL 1/P301				
STCP-1	STORAGE TANK CONTROL PANEL & ACCESSORIES	MORRISON BROTHERS	1218	WALL MOUNTED	NOTES:1,2,3,4,5				
FD-1	FLOOR DRAIN	ZURN	Z-415B	CAST IRON BODY	NICKEL BRONZE GRATE				
TS	TRAP SEAL	SURE SEAL							
RD-1	ROOF DRAIN	ZURN	ZC100-C-DE-R	CAST IRON BODY					
DSN-1	DOWNSPOUT NOZZLE	ZURN	Z199	NICKEL BRONZE	-				

1. TCC TO WIRE TO TANK, EC TO POWER WIRE TO PANEL

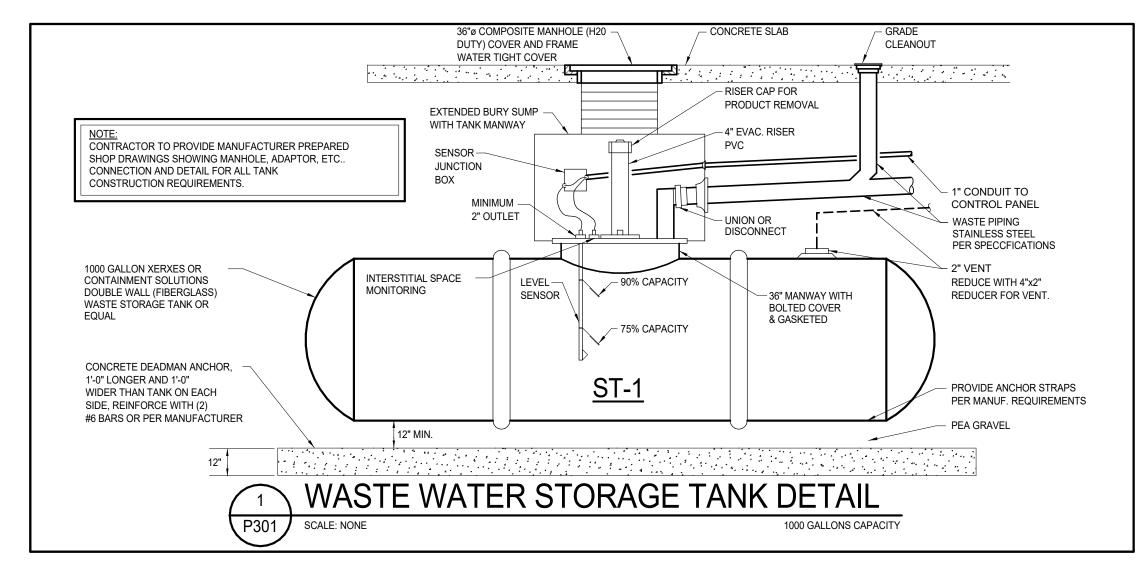
COORDINATE WIRING LENGTHS.

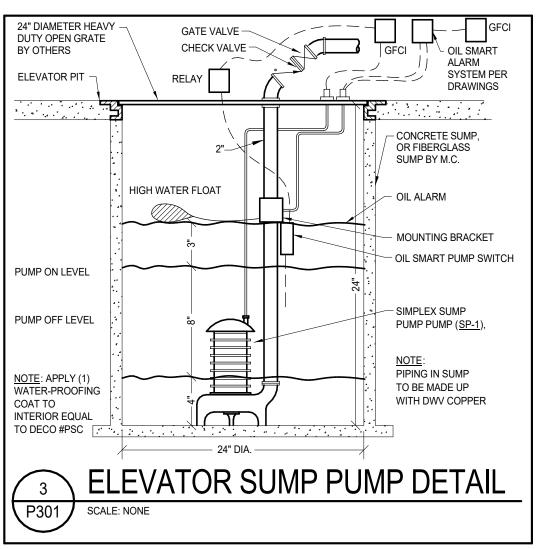
2. 120/601, 3 AMPS, 9-38"H X 7-7/8"W X 4-5/8"D 3. W/MORRISON BRO. TANK GAUGES & PROBES 4. AUDIBLE ALARM @ CONTROL PANEL INSIDE BOILER ROOM W/ CONTACTS FOR FUTURE BAS CONNECTION.

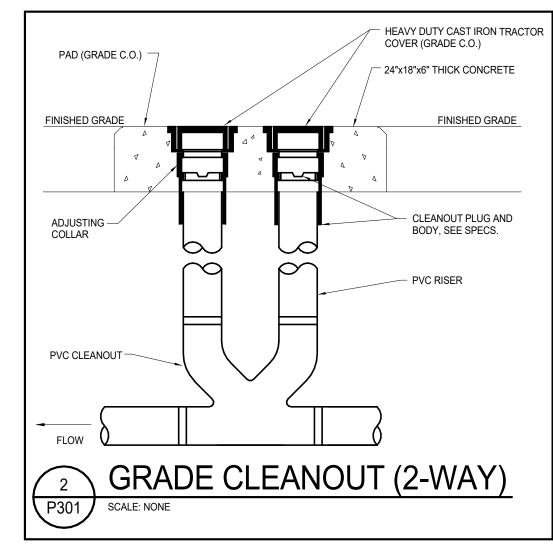
5. PROVIDE 75% & 90% AUDIBLE ALARM, INTERSTITAL

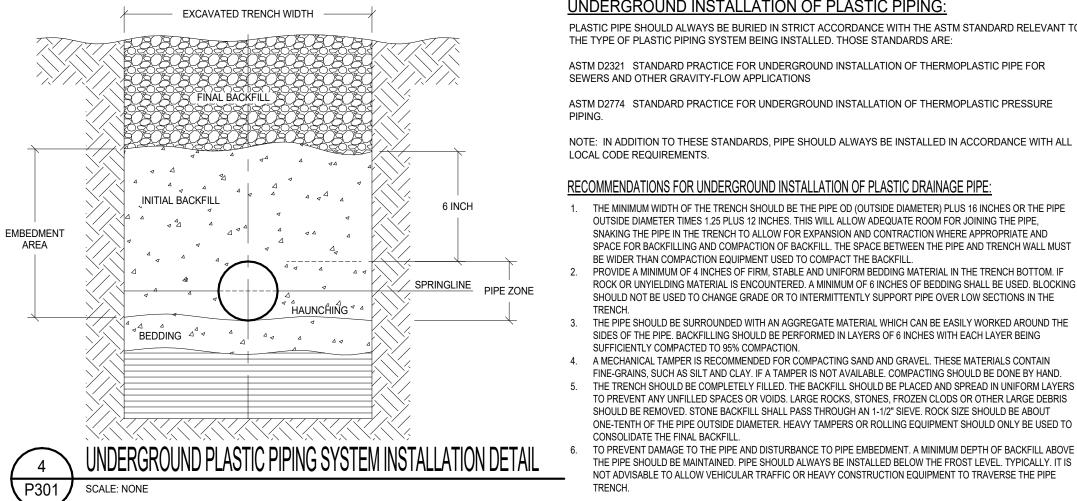
SPACE ALARM MONITORING W/ALARM.

6. CAST-IRON DOME, SUMP RECIEVER, DECK CLAMP, EXTENSIONS.









### UNDERGROUND INSTALLATION OF PLASTIC PIPING:

PLASTIC PIPE SHOULD ALWAYS BE BURIED IN STRICT ACCORDANCE WITH THE ASTM STANDARD RELEVANT TO THE TYPE OF PLASTIC PIPING SYSTEM BEING INSTALLED. THOSE STANDARDS ARE:

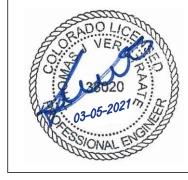
ASTM D2321 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS

ASTM D2774 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE

NOTE: IN ADDITION TO THESE STANDARDS, PIPE SHOULD ALWAYS BE INSTALLED IN ACCORDANCE WITH ALL

### RECOMMENDATIONS FOR UNDERGROUND INSTALLATION OF PLASTIC DRAINAGE PIPE:

- 1. THE MINIMUM WIDTH OF THE TRENCH SHOULD BE THE PIPE OD (OUTSIDE DIAMETER) PLUS 16 INCHES OR THE PIPE OUTSIDE DIAMETER TIMES 1.25 PLUS 12 INCHES. THIS WILL ALLOW ADEQUATE ROOM FOR JOINING THE PIPE, SNAKING THE PIPE IN THE TRENCH TO ALLOW FOR EXPANSION AND CONTRACTION WHERE APPROPRIATE AND
- PROVIDE A MINIMUM OF 4 INCHES OF FIRM, STABLE AND UNIFORM BEDDING MATERIAL IN THE TRENCH BOTTOM. IF ROCK OR UNYIELDING MATERIAL IS ENCOUNTERED. A MINIMUM OF 6 INCHES OF BEDDING SHALL BE USED. BLOCKING SHOULD NOT BE USED TO CHANGE GRADE OR TO INTERMITTENTLY SUPPORT PIPE OVER LOW SECTIONS IN THE
- THE PIPE SHOULD BE SURROUNDED WITH AN AGGREGATE MATERIAL WHICH CAN BE EASILY WORKED AROUND THE SIDES OF THE PIPE. BACKFILLING SHOULD BE PERFORMED IN LAYERS OF 6 INCHES WITH EACH LAYER BEING
- 4. A MECHANICAL TAMPER IS RECOMMENDED FOR COMPACTING SAND AND GRAVEL. THESE MATERIALS CONTAIN FINE-GRAINS, SUCH AS SILT AND CLAY. IF A TAMPER IS NOT AVAILABLE. COMPACTING SHOULD BE DONE BY HAND. THE TRENCH SHOULD BE COMPLETELY FILLED. THE BACKFILL SHOULD BE PLACED AND SPREAD IN UNIFORM LAYERS TO PREVENT ANY UNFILLED SPACES OR VOIDS. LARGE ROCKS, STONES, FROZEN CLODS OR OTHER LARGE DEBRIS SHOULD BE REMOVED. STONE BACKFILL SHALL PASS THROUGH AN 1-1/2" SIEVE. ROCK SIZE SHOULD BE ABOUT ONE-TENTH OF THE PIPE OUTSIDE DIAMETER. HEAVY TAMPERS OR ROLLING EQUIPMENT SHOULD ONLY BE USED TO
- TO PREVENT DAMAGE TO THE PIPE AND DISTURBANCE TO PIPE EMBEDMENT. A MINIMUM DEPTH OF BACKFILL ABOVE THE PIPE SHOULD BE MAINTAINED. PIPE SHOULD ALWAYS BE INSTALLED BELOW THE FROST LEVEL. TYPICALLY. IT IS NOT ADVISABLE TO ALLOW VEHICULAR TRAFFIC OR HEAVY CONSTRUCTION EQUIPMENT TO TRAVERSE THE PIPE



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**REVISIONS** Description

Job Number: 20034 Date: Drawn By: **Checked By:** 

**Project Phase** PERMIT SUBMITTAL **Sheet Title** 

PLUMBING SCHEDULES & **Sheet Number** 

03/05/2

1RH/*5*K

1RH

THERMAL OVERLOAD SWITCH

3-WAY SWITCH, LINE VOLTAGE

4-WAY SWITCH, LINE VOLTAGE

DIMMER SWITCH, LINE VOLTAGE

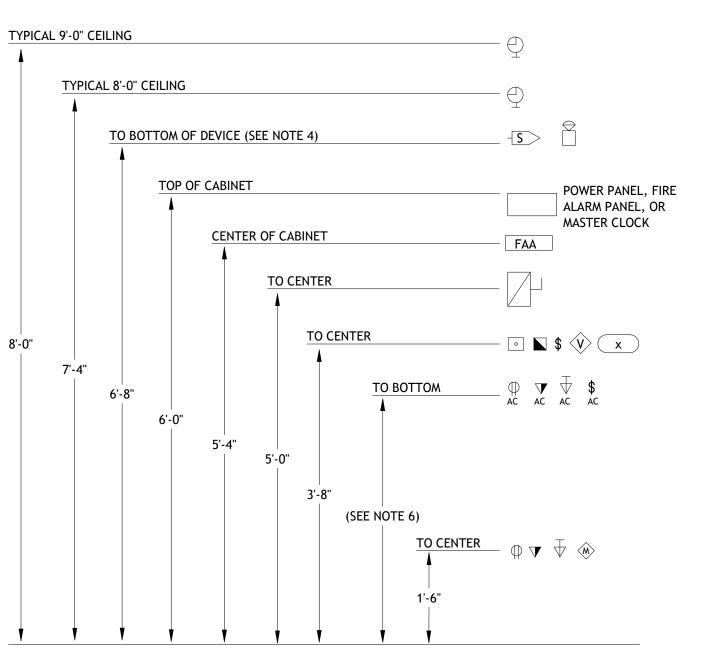
LIGHTING CONTROL DEVICE, REFER TO DETAILS FOR

KEY OPERATED SWITCH

RECESSED DOOR SWITCH

CONTROL INTENT

SINGLE POLE SWITCH, LINE VOLTAGE



# WHERE MULTIPLE LINE VOLTAGE DEVICES ARE SHOWN ADJACENT TO EACH OTHER, THEY ARE ALL TO SHARE THE SAME

- JUNCTION BOX, UP TO FOUR GANGS. WHERE MORE THAN FOUR DEVICES ARE SHOWN ADJACENT TO EACH OTHER, DEVICES ARE TO STACK VERTICALLY ABOVE
- ONE ANOTHER IN TWO ROWS IN AS SMALL OF GANG BOXES AS POSSIBLE. I.E. SIX DEVICES WILL USE TWO THREE GANG BOXES, FIVE DEVICES WILL USE ONE THREE GANG AND ONE TWO GANG BOX. WHEN DIMMERS ARE GANGED TOGETHER, REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR DE-RATING.
- SEPARATELY GANGED DEVICES ARE NOT ALLOWED TO BE INSTALLED ADJACENT TO ONE ANOTHER HORIZONTALLY WITHIN THE SAME STUD BAY.
- AUDIBLE/VISUAL FIRE ALARM DEVICES SHOWN ARE TO BE MOUNTED AT 90" OR 6" BELOW CEILING, WHICHEVER IS LOWER.

ADA STROBES TO BE MOUNTED AT 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.

MAXIMUM ELEVATION FOR ALL LOAD CENTER CIRCUIT BREAKERS SHALL NOT EXCEED 48" AFF, WITHIN DWELLING UNITS. THE E.C. SHALL REFER TO ARCHITECTURAL ELEVATIONS TO COORDINATE ALL COUNTER HEIGHTS. ALL "AC" DEVICES SHALL HAVE BOTTOM OF BACK-BOX MOUNTED 4" ABOVE THE BACK/SIDE SPLASH.

LIG	HTING FIXTURES
A1 <sub>a</sub>	LUMINAIRE TYPE, REFERENCING LUMINAIRE SCHEDULI TYPICAL ALL FIXTURES. SUBSCRIPT, IF SHOWN, REFERENCES WALL SWITCH OR RELAY/ZONE CONTRO
♀ 🖵	WALL MOUNTED LUMINAIRE
	SURFACE OR PENDANT MOUNTED LUMINAIRE
	RECESSED LUMINAIRE
0 🗆	RECESSED DOWNLIGHT LUMINAIRE
	SURFACE CEILING LUMINAIRE
$ec{oldsymbol{\diamondsuit}}$	EXIT LUMINAIRE - SHADED INDICATES FACE / DIRECTIONAL ARROWS AS SHOWN
	BATTERY PACK EMERGENCY LUMINAIRE

## DATTERY PACK EMERGENCY LUMINAIRE HATCH INDICATES EMERGENCY LUMINAIRE EXTERIOR AREA LIGHT DISTRIBUTION AND RACEWAY MDC MAIN DISTRIBUTION CENTER (MDC) SURFACE MTD PANELBOARD RECESSED PANELBOARD TRANSFORMER CONDUIT CONCEALED IN FLOOR OR UNDERGROUND ----CONDUIT EXPOSED OR CONCEALED IN WALL OR CEILING RACEWAY UP RACEWAY DOWN CAPPED CONDUIT CURRENT TRANSFORMER CIRCUIT BREAKER SWITCH FUSED SWITCH •— GROUNDING ELECTRODE CONDUCTOR (GFP)GROUND FAULT PROTECTION

	SYSTEMS
	TTB, MDF OR IDF SYSTEM BACKBOARD
lacksquare	TELECOMMUNICATION OUTLET
	FLOOR MOUNTED TELECOMMUNICATION OUTLET
$\overline{\downarrow}$	TELEVISION OUTLET
0	PUSH BUTTON

	FIRE ALARM
	I INL ALANM
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR/GRAPHIC MAP
FA-RPS	FIRE ALARM REMOTE POWER SUPPLY
С	CONTROL MODULE
M	MONITOR MODULE
	MANUAL PULLDOWN STATION
-[5]>	WALL MOUNTED ADA STROBE
	ADA HORN OR SPEAKER WITH STROBE
	MINI HORN / STROBE
<b></b> MH	ELECTROMAGNETIC DOOR HOLD OPEN
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER TAMPER SWITCH
٥т	THERMAL DETECTOR
°s	PHOTOELECTRIC SMOKE DETECTOR
°co	CARBON MONOXIDE DETECTOR
, d	DUCT SMOKE DETECTOR, SUPPLY OR RETURN
◯ <sub>TS</sub>	REMOTE INDICATING LIGHT (TEST SWITCH)
D	120V. MOTORIZED SMOKE DAMPER
<b>▼</b> <sub>RA</sub>	RESCUE ASSISTANCE PHONE
lacksquare	FIRE FIGURERS BUONE 14 CV

FIRE FIGHTERS PHONE JACK

#### ABBREVIATIONS AND SYMBOLS AMPERE(S) ABOVE COUNTER AFF ABOVE FINISHED FLOOR AFG ABOVE FINISHED GRADE **AUTHORITY HAVING JURISDICTION** AMPERES INTERRUPTING CAPACITY ATS AUTOMATIC TRANSFER SWITCH BELOW FINISHED FLOOR BOTTOM OF FIXTURE CONDUIT CABLE TELEVISION CATV CIRCUIT BREAKER CB **CURRENT TRANSFORMER** DED DEDICATED CIRCUIT DISCONNECT DISHWASHER DWG(S) DRAWING(S) EXISTING TO REMAIN ELECTRICAL CONTRACTOR EXHAUST FAN (ER) EXISTING TO BE RELOCATED **EMERGENCY** EPO **EMERGENCY POWER OFF EWC** ELECTRIC WATER COOLER FUSE FLA FULL LOAD AMPS SPRINKLER FLOW SWITCH GROUND GENERAL CONTRACTOR GD GARBAGE DISPOSAL GFI GROUND FAULT CIRCUIT INTERRUPTER GFP GROUND FAULT PROTECTION HORSEPOWER INTERMEDIATE DISTRIBUTION FACILITY ISOLATED GROUND SHORT CIRCUIT CURRENT KVA KILOVOLT AMPERE(S) KILOWATT(S) LTG LIGHTING MCA MINIMUM CIRCUIT AMPERE(S) MAIN CIRCUIT BREAKER MCB MDP MAIN DISTRIBUTION CENTER MAIN DISTRIBUTION FACILITY MAIN LUGS ONLY MTS MANUAL TRANSFER SWITCH MICROWAVE NORMALLY CLOSED NIGHT LIGHT - SEE GENERAL NOTES NORMALLY OPEN OAE OR APPROVED EQUAL OVERALL FIXTURE HEIGHT OVERHEAD POLE PART PARTIAL CIRCUIT PHASE PANEL RECEPTACLE REFRIGERATOR RECESSED FIXTURE DEPTH EXISTING TO BE REMOVED (RL) RELOCATED LOCATION SPD SURGE PROTECTION DEVICE SPRINKLER TAMPER SWITCH UNDER COUNTER/CABINET UG UNDERGROUND UNLESS OTHERWISE NOTED

VOLT(S)

XFMR

 $\langle x \rangle$ 

WATT(S) OR WIRE

WIRE GUARD WEATHERPROOF

TRANSFORMER

DETAIL NOTE

ELECTRICAL WIRE SIZE

DELTA REVISION NOTE

WALL FIXTURE DEPTH

MECHANICAL EQUIPMENT SCHEDULE NOTATION

LIGHTING CONTROLS SEQUENCE OF OPERATION

	COVERSHEET NOTES
1	THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIAL NECESSARY FOR A COMPLETE AND FUNCTIONING ELECTRICAL SYSTEM.
3	MATERIALS AND INSTALLATION SHALL COMPLY WITH CODES, LAWS AND ORDINANCES OF FEDERAL, STATE AND LOCAL GOVERNING BODIES HAVING JURISDICTION.  MATERIALS AND EQUIPMENT SHALL BE LISTED AND/OR LABELED BY U.L., ETL, CSA OR ANOTHER RECOGNIZED TESTING LAB.
4	ALL WORK REQUIRED FOR THE INSTALLATION AS SHOWN ON DRAWINGS INCLUDING LABOR, EQUIPMENT AND MATERIALS SHALL BE IN STRICT COMPLIANCE WITH THE
5	BUILDING STANDARDS, EXCEPT AS NOTED OTHERWISE.  THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES, TAXES AND LICENSES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION
6	THE ELECTRICAL WORK.  THE CONTRACTOR SHALL PREPARE AND SUBMIT TO GOVERNMENTAL AGENCIES AND UTILITY COMPANIES SHOP DRAWINGS, WHICH ARE REQUIRED BY THESE AGENCIES
7	FOR THEIR APPROVAL.  THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER/OWNER OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE, UNSUITABLE, IN VIOLATION OF ANY MATERIALS OR APPARATUS BELIEVED TO BE INADEQUATE.
8	LAWS, ORDINANCES, RULES OR REGULATIONS OF AUTHORITIES HAVING JURISDICTION.  THE CONTRACTOR SHALL CAREFULLY EXAMINE THE CONTRACT DOCUMENTS, VISIT THE SITE, AND THOROUGHLY BECOME FAMILIAR WITH THE BUILDING STANDARDS A LOCAL CONDITIONS RELATING TO THE WORK. FAILURE TO DO SO WILL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT.  ALL MATERIALS, AND EQUIPMENT SHALL BE ERECTED, INSTALLED, CONNECTED, CLEANED, ADJUSTED, TESTED, CONDITIONED, AND PLACED IN SERVICE IN ACCORDAN
<u> </u>	WITH THE MANUFACTURER'S DIRECTIONS AND RECOMMENDATIONS.
10	ALL CUTTING, DRILLING AND PATCHING OF MASONRY, STEEL OR IRON WORK BELONGING TO THE BUILDING MUST BE DONE BY THIS CONTRACTOR IN ORDER THAT HIS WORK MAY BE PROPERLY INSTALLED, BUT UNDER NO CONDITIONS MAY STRUCTURAL WORK BE CUT, EXCEPT AT THE DIRECTION OF THE ARCHITECT-DESIGNER OR THE REPRESENTATIVE.  E.C. IS TO REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ALL FIRE RATED PENETRATION INSTALLATION REQUIREMENTS. E.C. IS TO NOTIFY ENGINEER A
12	ARCHITECT PRIOR TO INSTALLING ANY FIXTURES WITHIN A FIRE RATED CEILING OR WALL. FIRE RATING MUST BE MAINTAINED FOR THIS TYPE OF INSTALLATION WIT DRYWALL TENTING.  SHOP DRAWINGS SHALL INCLUDE MANUFACTURER'S NAMES, CATALOG NUMBERS, CUTS, DIAGRAMS AND OTHER SUCH DESCRIPTIVE DATA AS MAY BE REQUIRED TO IDE
13	AND REVIEW THE EQUIPMENT. SUBMITTALS SHALL BE IN LOGICAL GROUPS, FOR EXAMPLE, ALL LIGHTING FIXTURES, PARTIAL SUBMITTALS WILL NOT BE REVIEWED.  SUBMIT (3) COPIES OF THE FOLLOWING SHOP DRAWINGS FOR REVIEW.  A. SWITCH BOARD, PANELBOARDS, AND METERING EQUIPMENT  B. DISCONNECTS
	C. FIRE ALARM SYSTEMS D. LIGHT FIXTURES
	E. LIGHTING CONTROLS
	F. TRANSFORMERS G. PROVIDE "AS-BUILT" DRAWINGS AND SUBMIT TO ARCHITECT/DESIGNER.
14	PROVIDE AS-BUILT DRAWINGS AND SUBMIT TO ARCHITECT/DESIGNER.  PROVIDE THE FOLLOWING INFORMATION, PER IECC 2018 C408.2.5.2 TO THE PARTY RESPONSIBLE FOR PROJECT COMMISSIONING PLAN (COMMISSIONING AGENT/MECHANICAL ENGINEER) AND ELECTRICAL ENGINEER.
	A. CUTSHEETS FOR ALL INSTALLED LIGHTING AND LIGHTING CONTROLS.  B. OPERATION AND MAINTENANCE MANUALS FOR EACH PIECE OF INSTALLED LIGHTING, REQUIRED ROUTINE MAINTENANCE ACTIONS, CLEANING AND RECOMMENDED
	RELAMPING SHALL BE CLEARLY IDENTIFIED.  C. SCHEDULE FOR INSPECTING AND RECALIBRATING ALL LIGHTING CONTROLS. INSPECTION OF ALL LIGHTING CONTROLS SHALL BE PERFORMED PRIOR TO ELECTRICA
	ENGINEER'S COMMISSIONING SITE VISIT. RECALIBRATION OF LIGHTING CONTROLS SHALL BE PERFORMED FOLLOWING SITE VISIT AND SHALL BE BASED UPON THE RECOMMENDATIONS OF THE ELECTRICAL ENGINEER.
15 16	ALL MATERIAL, EQUIPMENT, WIRING DEVICES, ETC. SHALL BE NEW, UNLESS SPECIFICALLY INDICATED AS EXISTING TO BE REUSED.
16	CONTRACTOR SHALL OBTAIN AND VERIFY EXACT UTILITY COMPANY DRAWINGS AND REQUIREMENTS. ELECTRICAL CONTRACTOR IS TO SUBMIT A COMPLETE CONSTRUCTION DRAWING SET TO THE ELECTRICAL UTILITY COMPANY WITHIN 10 DAYS OF AWARD OF CONTRACT. COORDINATE TIMELINE OF THE REVIEW, APPROVA
17	ALL ASSOCIATED DOWN TIME, CONSTRUCTION SCHEDULING, DELIVERY, AND INSTALLATION OF THE UTILITY TRANSFORMER. NOTIFY OWNER OF SCHEDULING CONFL ALL NEW CIRCUIT BREAKERS FOR NEW OR EXISTING PANELBOARDS SHALL MATCH EXISTING BUILDING PANELBOARD MANUFACTURER AND BREAKER TYPE. THE
	CONTRACTOR SHALL PROVIDE NEW TYPE WRITTEN PANEL DIRECTORIES FOR ALL NEW PANELS AND EXISTING PANELS WHICH HAVE CHANGED. PANELBOARD SHALL BI MARKED WHERE THE SOURCE OF POWER SUPPLY ORIGINATES, AND IF SERIES COMBINATION SYSTEMS ARE UTILIZED AND THEIR LISTED AMPERE RATING.
18	DO NOT SHARE NEUTRAL CONDUCTORS FOR MULTIWIRE BRANCH CIRCUITS. WHERE SHARED NEUTRAL CONDUCTORS ARE REQUIRED (SUCH AS POWERED FURNITURE SYSTEMS), HANDLE TIES SHALL BE PROVIDED ON THE CIRCUIT BREAKERS, WITH SHARED NEUTRALS, SUCH THAT IT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROU
	CONDUCTORS. ALL HANDLE TIES ARE REQUIRED TO BE INDICATED ON THE PANELBOARD SHOP DRAWINGS.
19 20	SHOULD ACTUAL FIELD CONDITIONS REQUIRE INDICATED CIRCUIT DESIGNATIONS TO VARY, INDICATE THE CIRCUIT NUMBER USED ON THE "AS-BUILT" DRAWINGS.  ALL SERVICE EQUIPMENT (OTHER THAN IN DWELLING UNITS) SHALL BE LEGIBLY MARKED IN THE FIELD BY THE ELECTRICAL CONTRACTOR WITH THE MAXIMUM AVAILABLE OF THE PROPERTY
	FAULT CURRENT AS INDICATED WITHIN THESE DOCUMENTS. THE FIELD MARKING(S) SHALL COMPLY WITH ELECTRICAL SPECIFICATIONS FOR READABILITY AND DURABILITY.
21	PROVIDE COMPLETE METAL RACEWAY SYSTEMS AND ENCLOSURES FOR ALL WIRING THROUGHOUT THE EXTENT OF THE REQUIRED DISTRIBUTION SYSTEM.  A. UTILIZE RIGID POLYVINYL CHLORIDE CONDUIT (PVC) IN THE FOLLOWING LOCATIONS:  - UNDERGROUND
	B. UTILIZE ELECTRICAL METALLIC TUBING (EMT), MINIMUM SIZE OF 3/4", IN THE FOLLOWING LOCATIONS:  - SERVICE & FEEDERS
	- POWER CIRCUIT HOMERUN - BRANCH CIRCUITS IN CONCEALED OR EXPOSED LOCATIONS
	- TELEPHONE/DATA/CATV ROUGH-IN
	C. UTILIZE METAL-CLAD CABLE (MC) IN THE FOLLOWING LOCATIONS: - BRANCH CIRCUIT IN CONCEALED LOCATIONS
	- FINAL CONNECTION TO RECESSED LIGHTING FIXTURES
22	- FINAL CONNECTION TO STEP-DOWN TRANSFORMERS ALL NEW CIRCUITS SHALL HAVE A GROUND WIRE INSTALLED.
23	ALL WIRING NOT INSTALLED IN CONDUIT AND INSTALLED IN THE CEILING SPACE SHALL BE PLENUM RATED.
24 25	ELECTRICAL CONTRACTOR SHALL PROVIDE ALL SPECIAL OUTLET BOXES THAT MAY BE REQUIRED TO ENCLOSE RECEPTACLES.  EACH SWITCH, LIGHT, RECEPTACLE AND OTHER MISCELLANEOUS DEVICE SHALL BE PROVIDED WITH A GALVANIZED OR PRESSED STEEL OUTLET BOX OF THE KNOCKOL
26	TYPE, OF NOT LESS THAN NO. 14 U.S. GAUGE STEEL. CONDUITS SHALL BE FASTENED WITH LOCKNUTS AND BUSHINGS AND ALL UNUSED KNOCKOUTS MUST BE LEFT SEALED. THERE MUST BE SUFFICIENT ROOM FOR WIRES AND BUSHINGS AND DEEP BOXES SHALL BE INSTALLED WHERE REQUIRED. BOXES SHALL BE SECURELY AND ADEQUATELY SUPPORTED.  IN EXPOSED AND SUSPENDED CEILING APPLICATIONS, ROUTE CONDUIT AS CLOSE TO STRUCTURAL SLAB OR DECK AS POSSIBLE, AND SUPPORT CONDUIT AND JUNCTIC
	BOXES DIRECTLY FROM THE STRUCTURAL SLAB, DECK, OR FRAMING PROVIDED FOR THAT PURPOSE. LIGHTING BRANCH CIRCUIT CONDUITS SHALL NOT BE CLIPPED TO CEILING SYSTEM HAS BEEN SPECIFICALLY DESIGNED FOR THAT PURPOSE.
27	ALL EXPOSED CONDUIT SHALL BE CONCEALED TO THE GREATEST EXTENT POSSIBLE, AND SHALL BE INSTALLED PARALLEL AND CLOSE TO STRUCTURAL MEMBERS. GEN CONTRACTOR SHALL PAINT CONDUIT TO MATCH ADJACENT FINISHES.
28	WHERE FLOOR FITTINGS REQUIRE PENETRATION OF THE FLOOR SLAB, THEY SHALL BE STANDARD DEVICE LISTED BY UL FOR THE PURPOSE AND HAVE A UL FIRE RATII EQUAL TO THE FLOOR RATING. FLOOR SERVICE BOXES SHALL BE MODULAR, ADJUSTABLE FLUSH TYPE, DUAL SERVICE UNITS SUITABLE FOR WIRING METHOD USED. COMPARTMENT BARRIERS SHALL SEPARATE POWER FROM LOW VOLTAGE CABLING. PROVIDE RECTANGULAR SERVICE PLATE WITH SATIN FINISH.
29 30	ALL RECEPTACLES SHALL BE SPECIFICATION GRADE NEMA 5-20R, UNLESS OTHERWISE NOTED.  ALL LIGHT SWITCHES SHALL BE SPECIFICATION GRADE, QUIET OPERATION RATED 120/277 VOLT, 20 AMPS, UNLESS OTHERWISE NOTED.
31 32	ALL FACE PLATE AND DEVICE COLORS SHALL BE APPROVED BY ARCHITECT OR OWNER/LEASEE.  PROVIDE LUMINAIRES SHOWN AS SHADED WITH EMERGENCY BATTERY BACKUP POWER. EMERGENCY LUMINAIRES SHALL SENSE UNSWITCHED POWER TO THE SPACE A
34	OPERATE AUTOMATICALLY UPON LOSS OF NORMAL POWER. ALL SHADED LUMINAIRES WITH LED SOURCES SHALL BE PROVIDED WITH 90 MINUTES OF BATTERY BACKUPOWER. AL EMERGENCY LUMINAIRES SHALL HAVE INTEGRAL OR REMOTE TEST SWITCHES AS INDICATED IN THE FIXTURE SCHEDULE AND VISIBLE INDICATING LIGHTS. CONNECT THE EMERGENCY BATTERY BALLAST/DRIVER TO THE UN-SWITCHED LEG OF THE LIGHTING CIRCUIT INDICATED.
33	ALL BATTERY BACKUP EMERGENCY LIGHTING AND EXIT LIGHTS SHALL BE WIRED AHEAD OF ANY LOCAL SWITCHING, UON.
34 35 36	UNLESS OTHERWISE NOTED, LUMINAIRES DESIGNATED AS NIGHT LIGHT (NL) SHALL BE CONNECTED AHEAD OF LOCAL SWITCHING AND REMAIN ON 24 HOURS A DAY.  ALL DIMMED LIGHTING CIRCUITS ARE TO RECEIVE DEDICATED NEUTRALS. DO NOT SHARE NEUTRALS ON DIMMED LIGHTING CIRCUITS.  PROVIDE OWNER WITH A COMPLETE LISTING OF ALL LAMPS UTILIZED ON THE PROJECT INCLUDING MANUFACTURER AND CATALOG INFORMATION. PROVIDE A SUGGE
36	SOURCE, INCLUDING CONTACT NAME AND PHONE NUMBER, FOR REORDERING.  THE CONTRACTOR SHALL VERIFY THE CEILING TYPE BEFORE ORDERING LIGHTING.
38	ROUGH-IN FOR MECHANICAL EQUIPMENT SHALL ONLY OCCUR AFTER MECHANICAL EQUIPMENT SUBMITTALS ARE THOROUGHLY REVIEWED FOR CHANGES. NOTIFY ENGINEER OF ANY DISCREPANCIES.
39	FINAL LAYOUT AND QUANTITY OF ALL FIRE ALARM DEVICES SUBJECT TO APPROVAL OF LOCAL AUTHORITY HAVING JURISDICTION.
40 41	THE POWER AND CONTROL REQUIREMENTS FOR ALL EQUIPMENT CONNECTIONS SHALL BE CONFIRMED WITH APPROVED SHOP DRAWINGS PRIOR TO ELECTRICAL ROUGE. FINAL POWER REQUIREMENTS, DIMENSIONED ROUGH-IN LOCATIONS, LOW VOLTAGE SYSTEM CONNECTIONS, ETC. SHALL BE CONFIRMED AND MODIFIED AS REQUIRED.  ALL DEVICES IN OR ABOVE COUNTERS SHALL HAVE LOCATIONS AND MOUNTING HEIGHTS CONFIRMED WITH ARCHITECTURAL ELEVATIONS & OWNER PRIOR TO ROUGH
42	ANY ADJUSTMENTS TO MOUNTING HEIGHTS REQUIRED BY LACK OF COORDINATION WILL BE AT THE CONTRACTOR'S EXPENSE.  ALL EXISTING ELECTRICAL SERVICES NOT SPECIFICALLY INDICATED TO BE REMOVED OR ALTERED SHALL REMAIN AS THEY PRESENTLY EXIST.
43	G.C. SHALL INCLUDE IN HIS COST THE REMOVAL OF ALL EXISTING ELECTRICAL DEVICES, CONDUITS, FIXTURES AND EQUIPMENT. TURN EQUIPMENT OVER TO OWNER INDICATED OR RECYCLE/DISCARD ALL EQUIPMENT AS REQUIRED. E.C. SHALL BE RESPONSIBLE FOR DISCONNECTING PRIMARY SERVICE AND TEMPORARY POWER.  CONTRACTOR TO CONDUCT FUNCTIONAL TESTING OF LIGHTING CONTROLS EQUIPMENT AS REQUIRED BY IECC 2018, SECTION C408.3. AFTER THIS TESTING IS OBSERTAND COMPLETED, THE REGISTERED DESIGN PROFESSIONAL OR COMMISSIONING AUTHORITY SHALL PROVIDE DOCUMENTATION TO THE AHJ THAT CERTIFIES THAT THIS
45 46	INSTALLATION MEETS THE DOCUMENTED PERFORMANCE CRITERIA OF SECTION C405.  IDENTIFY EACH RECEPTACLE WITH PANELBOARD IDENTIFICATION AND CIRCUIT NUMBER. USE HOT, STAMPED, OR ENGRAVED MACHINE PRINTING WITH BLACK-FILLED LETTERING ON FACE OF PLATE, AND DURABLE WIRE MARKERS OR TAGS INSIDE OUTLET BOXES.  UNLESS OTHERWISE NOTED, ALL GFCI RECEPTACLES SHALL HAVE TEST/RESET SWITCHES INTEGRAL TO RECEPTACLE DEVICE.

RCRBD **RECORD SET ELECTRICAL** 



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consent of the architect are unauthorized and shall relieve the architect of responsibility for all

consequences arriving out of such changes.

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No.	Description	Date
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Job Number: 20034 03/05/2 BDJ, MAE Drawn By: **Checked By:** 1PK

Project Phase PERMIT SET

**Sheet Title** ELECTRICAL COVER SHEET

**Sheet Number** 

E000 NTS

### SITE GENERAL NOTES

A. ALL EXTERIOR LIGHTING CIRCUITS SHALL UTILIZE A MINIMUM WIRE SIZE OF #8AWG COPPER, UON.

#### KEYNOTE LEGEND **KEYNOTE TEXT KEY VALUE** PROVIDE 48"X48"X24"D IN-GRADE TELECOMMUNICATIONS UTILITY ENTRANCE ENCLOSURE FOR FIBER OPTIC AND COMMUNICATIONS SERVICE CABLING TO NEW GONDOLA PLATFORM BUILDING AS SHOWN. ASSEMBLY AND ALL COMPONENTS SHALL BE UL LISTED AND RATED FOR OUTDOOR LOCATIONS. PROVIDE HUBBELL QUAZITE PG SERIES, ANSI/SCTE-77 TIER 22 RATING WITH TIER 22 COVER AND "COMMUNICATIONS" LABEL ON COVER LID. COORDINATE EXACT LOCATION OF ENCLOSURE WITH EXISTING UNDERGROUND UTILITIES, EXISTING UNDERGROUND PIPING, AND OWNER PRIOR TO COMMENCING WORK. PROVIDE (2) 3" CONDUITS FOR FIBER OPTIC AND COMMUNICATIONS SERVICE CABLING TO OPERATORS CABIN. REFER TO CIVIL SITE UTILITY DRAWINGS FOR EXACT ROUTING AND SIZING REQUIREMENTS. REFER TO LOW-VOLTAGE RISER DIAGRAM, SHEET E600, FOR ADDITIONAL INFORMATION. APPROXIMATE ROUTING OF NEW UNDERGROUND UTILITY PRIMARY FROM NEW UTILITY TRANSFORMER TO UTILITY INTERCONNECTION POINT WITHIN EXISTING UTILITY EASEMENT. COORDINATE EXACT ROUTING AND REQUIREMENTS WITH ELECTRICAL UTILITY (YAMPA VALLEY ELECTRIC ASSOCIATION) AND GENERAL CONTRACTOR PRIOR TO COMMENCING WORK. COORDINATE FINAL ROUTING WITH ALL OTHER NEW/EXISTING UNDERGROUND UTILITIES INCLUDING FUTURE BASE BUILDING ELECTRICAL UTILITY PRIMARY/SECONDARY ROUTING PRIOR TO EXCAVATING. THE EC SHALL FURNISH AND INSTALL THE REQUIRED METER HOUSING AS COORDINATED WITH YVEA. UTILITY SHALL FURNISH, INSTALL, AND CONNECT THE METER IN THAT HOUSING. ALL COSTS FOR WORK DESCRIBED ABOVE TO BE PERFORMED BY UTILITY SHALL BE CARRIED AS PART OF THE PROJECT BUDGET AND SHALL BE PAID BY THE CONTRACTOR. TRANSFORMER CONCRETE PAD BY GC, COORDINATE PAD AND CLEARANCE REQUIREMENTS WITH UTILITY ELECTRICAL SERVICE INSTALLATION MANUAL. APPROXIMATE ROUTING OF NEW UNDERGROUND ELECTRICAL SECONDARY FEEDER FROM UTILITY TRANSFORMER TO NEW BUILDING ELECTRICAL SERVICE CT CABINET AND MAIN DISCONNECT LOCATED ON BUILDING EXTERIOR. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR MORE INFORMATION. ANTICIPATED LOCATION OF NEW 480/277V, 3-PHASE PAD MOUNTED UTILITY TRANSFORMER. IT IS ANTICIPATED THAT UTILITY (YVEA - YAMPA VALLEY ELECTRIC ASSOCIATION) WILL PROVIDE BORING/TRENCHING FOR ALL PRIMARY CONDUIT BETWEEN UTILITY CONNECTION AND THE TRANSFORMER. UTILITY SHALL PROVIDE ALL PRIMARY CONDUIT AND WIRING TO THE TRANSFORMER, INCLUDING TRENCHING BETWEEN THE NEAREST UTILITY CONNECTION POINT AND THE PRIMARY CONNECTION AT THE TRANSFORMER. THE EC SHALL COORDINATE ROUTING AND TERMINATION IN THE FIELD AS TO ACHIEVE BUILDING POWER ACTIVATION. THE EC SHALL PERFORM ALL TRENCHING AND BACKFILLING ON THE SECONDARY SIDE OF THE TRANSFORMER. UTILITY SHALL MAKE ALL CONNECTIONS OF PRIMARY AND SECONDARY CABLING AT THE TRANSFORMER LANDINGS. APPROXIMATE LOCATION OF BASE BUILDING UTILITY TRANSFORMER TO BE LOCATED ADJACENT TO NEW PLATFORM BUILDING UTILITY TRANSFORMER (SHOWN FOR REFERENCE ONLY). REFER TO SEPARATE BASE BUILDING DESIGN DOCUMENTS AND PERMIT PACKAGE FOR ADDITIONAL INFORMATION AS NECESSARY. APPROXIMATE ROUTING OF BASE BUILDING UTILITY PRIMARY AND SECONDARY UNDERGROUND DUCT BANK (SHOWN FOR REFERENCE ONLY). REFER TO SEPARATE BASE BUILDING DESIGN DOCUMENTS AND PERMIT PACKAGE FOR ADDITIONAL INFORMATION AS NECESSARY. EXISTING SKI SCHOOL BLOCKHOUSE 1 ANTICIPATED TO BE DEMOLISHED TO ACCOMMODATE NEW GONDOLA PLATFORM CONSTRUCTION. EXISTING SNOW MAKING EQUIPMENT ANTICIPATED TO REMAIN. REMOVED IN THEIR ENTIRETY BACK TO SOURCE AS REQUIRED TO ACCOMMODATE NEW PLATFORM BUILDING CONSTRUCTION. EXISTING UNDERGROUND POWER AND TELECOMMUNICATIONS SERVICES (CONDUIT AND CABLING) SUPPLYING BLOCKHOUSE FROM CHRISTIE PEAK CHAIR LIFT ANTICIPATED TO REMAIN. PROVIDE LB FITTINGS (MADISON ELECTRIC SMARTLB SERIES, OR APPROVED EQUAL)

SIZED FOR INTENDED COMMUNICATIONS CABLING AND CABLING BENDING RADIUS AT EXTERIOR WALL AS REQUIRED FOR TRANSITION AT CONDUIT PENETRATION INTO OPERATOR CABIN BUILDING. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO

35717 3/5/21

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REVISIONS

No. Description Date

STEAMBOAT GONDOL/
RELOCATION
STEAMBOAT SPRINGS CO



Job Number: 20034

Date: 03/05/2

Drawn By: BDJ, MAE

Checked By: 1PK

Project Phase

PERMIT SET

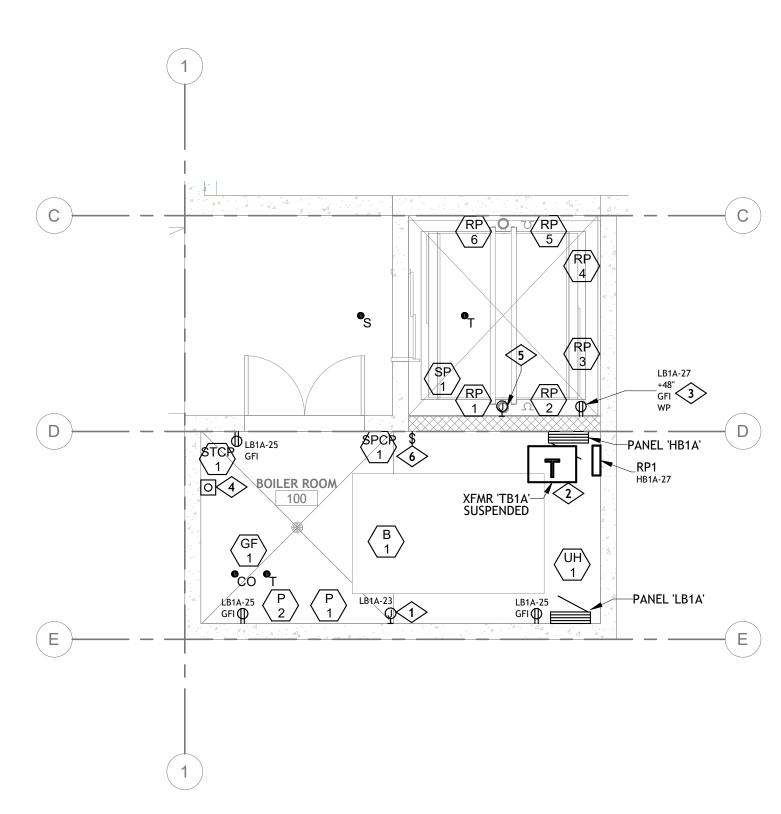
Sheet Title
ELECTRICAL SITE PLAN

F010

R C R B D
RECORD SET
ELECTRICAL



KEYNOTE LEGEND KEY VALUE KEYNOTE TEXT PROVIDE 120V, 20-AMP CIRCUIT FOR MECHANICAL CONTROLS. COORDINATE EXACT CONTROL EQUIPMENT LOCATION AND MOUNTING HEIGHT PRIOR TO ROUGH-IN. RUN 2#12, 1#12G, 3/4"C. EC SHALL SUSPEND TRANSFORMER FROM STRUCTURE. REFER TO DETAIL #1/E600 FOR MORE INFORMATION. EC SHALL COORDINATE ELEVATOR SHAFT/PIT RECEPTACLE LOCATION WITH APPROVED MANUFACTURER'S ELEVATOR EQUIPMENT SHOP DRAWINGS PRIOR TO PROVIDE EPO SWITCH FOR SHUTDOWN OF MECHANICAL BOILER(S) AS REQUIRED. COORDINATE EXACT LOCATION IN-FIELD WITH MECHANICAL CONTRACTOR. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION. PROVIDE 24V THERMOSTAT WITH REMOTE SENSOR BY TCC WIRED TO POWER RELAY TERMINAL AT RADIANT HEATERS. MOUNT SENSOR IN SHAFT AT 54"AFF. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION. EC SHALL PROVIDE TOGGLE SWITCH WITH INDICATOR LIGHT FOR TRENCH DRAIN HEAT TRACE CONTROL. COORDINATE AND CONFIRM EXACT LOCATION WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN. REFER TO FIRST LEVEL POWER PLAN FOR ADDITIONAL HEAT TRACE INFORMATION.



2 ENLARGED ELECTRICAL POWER PLAN - BOILER ROOM
E101 | 1/4" = 1'-0"

RCRBD **RECORD SET ELECTRICAL** 

Integrated Lighting and Electrical Solutions

1900 Wazee Street #205 | Denver, CO 80202 | 303.296.3034

aedesign-inc.com Project #: 5155.00

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**Project Phase** PERMIT SET

Sheet Title
ELECTRICAL LOWER LEVEL
POWER PLAN

1 LOWER LEVEL - ELECTRICAL POWER PLAN
E101 1/8" = 1'-0"



**KEY VALUE** 

PROVIDE 120V, 20-AMP CONNECTION FOR LINE VOLTAGE THERMOSTAT AND MOTORIZED DAMPER FOR EF-1. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION, INCLUDING EXACT CONNECTION REQUIREMENTS AND LOCATION. RUN 2#12, 1#12G, 3/4"C.

**KEYNOTE TEXT** 

PROVIDE (2) 2"C ROUTED UP THROUGH CRAWL SPACE AS NECESSARY AND THEN ROUTED BELOW GRADE/FINISHED PAVERS BETWEEN PANEL LB1A IN LOWER LEVEL BOILER ROOM AND IT EQUIPMENT IN UPPER LEVEL OPERATOR CABIN FOR ENTRY GATE AND TICKET SCANNER POWER/DATA CABLING PATHWAY. CONDUIT SHALL BE ROUTED TO JUNCTION BOXES AS SHOWN FOR FINAL TERMINATIONS TO ENTRY GATE AND TICKET SCANNER EQUIPMENT. COORDINATE EXACT LOCATIONS AND ROUTING WITH OWNER PRIOR TO COMMENCING WORK.

PROVIDE (1) 2"C WITH PULL-STRING FOR DATA CABLING AND (2) SPARE 2"C WITH PULL-STRING FOR FUTURE POWER/DATA, ROUTED BELOW GRADE/FINISHED PAVERS FROM BOILER ROOM ON LOWER LEVEL TO OPERATOR CABIN FOR POWER/DATA CABLING PATHWAY(S). REFER TO LOW VOLTAGE RISER DIAGRAM, #2/E600, FOR MORE INFORMATION.

PROVIDE 3/4"C CONDUIT ROUTED FROM TELECOMMUNICATIONS HEAD END EQUIPMENT LOCATION TO ELEVATOR CONTROLLER FOR LOW-VOLTAGE TELEPHONE CABLING RACEWAY. CONTRACTOR SHALL PROVIDE (1) CAT6 CABLE FOR CONNECTION TO ELEVATOR CONTROL PANEL. EC SHALL COORDINATE EXACT LOCATIONS AND REQUIREMENTS WITH APPROVED ELEVATOR MANUFACTURER SHOP DRAWINGS PRIOR TO INSTALLATION.

PROVIDE ELEVATOR FUSED DISCONNECT EQUIPMENT IN ELEVATOR MACHINE ROOM. PROVIDE EATON ELEVATOR CONTROL SWITCH #ES SERIES WITH FIRE SAFETY INTERFACE RELAY, VOLTAGE MONITORING RELAY, AND AUXILIARY CONTACTS AS REQUIRED FOR FIRE ALARM SHUNT TRIP OPERATION OF ELEVATOR POWER. EC SHALL COORDINATE EXACT DISCONNECT LOCATION, SIZING AND FIRE ALARM RELAY SPECIFICATION WITH THE APPROVED ELEVATOR SUBMITTALS AND FIRE ALARM SYSTEM SUBMITTALS PRIOR TO ORDERING.

PROVIDE LOCKABLE 120V, 20-AMP CIRCUIT FOR POWER CONNECTION TO ELEVATOR CAB. EC SHALL COORDINATE EXACT LOCATION AND REQUIREMENTS WITH APPROVED MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGH-IN.

EC SHALL PROVIDE 208V, SINGLE-PHASE, 20A/2P GFEP PROTECTED ELECTRICAL CONNECTION (2#12, 1#12G, 3/4"C) TO HEAT TRACE SYSTEM CONTROL PANEL LOCATED IN BOILER ROOM AND HEAT TRACE CABLING LOCATED WITHIN TRENCH DRAIN AS INDICATED WITH DASHED LINE. EC SHALL COORDINATE EXACT LOCATIONS AND INSTALLATION REQUIREMENTS OF HEAT TRACE CABLE, CONTROL PANEL, THERMOSTATS, SENSORS, POWER CONNECTION KITS, INDICATOR LIGHTS, AND OTHER ACCESSORIES WITH MECHANICAL CONTRACTOR PRIOR TO COMMENCING WORK. REFER TO ENLARGED BOILER ROOM PLAN FOR CONTROLLER LOCATION. BASIS OF DESIGN SHALL BE RAYCHEM GM-2X CABLE, PROVIDED BY MECHANICAL CONTRACTOR. EC SHALL PROVIDE ANY ADDITIONAL ELECTRICAL BRANCH CIRCUIT POWER WIRING, CONDUIT, AND JUNCTION BOXES REQUIRED FOR A COMPLETE SYSTEM. EC SHALL COORDINATE EXACT ELECTRICAL CONNECTIONS AND REQUIREMENTS WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION AND CONTROL SYSTEM REQUIREMENTS.

APPROXIMATE LOCATION OF NEW TERMINAL ELECTRICAL CABINET EQUIPMENT 'DMEC', PROVIDED BY DOPPELMAYR USA. REFER TO ONE-LINE DIAGRAM FOR

ADDITIONAL INFORMATION. NEW POC (CONTROL STATION). EC SHALL PROVIDE NEW 3/4"C FOR POWER AND OPERATORS CABIN FOR NEW POWER AND CONTROL WIRING. CONDUIT FOR POWER WIRING SHALL BE EXTENDED FROM OPERATORS CABIN TO NEW TERMINAL ELECTRICAL CABINET 'DMEC' AS REQUIRED FOR FINAL CIRCUIT TERMINATIONS. EC SHALL COORDINATE EXACT CONDUIT INSTALLATION REQUIREMENTS, ROUTING, AND STUB-UP LOCATIONS WITH DOPPELMAYR PRIOR TO COMMENCING WORK. NEW GATE ACCESS CONTROL STATION. EC SHALL PROVIDE NEW 3/4"C FOR POWER AND 3/4"C FOR COMMUNICATIONS ROUTED UNDERGROUND FROM JUNCTION BOX TO

OPERATORS CABIN FOR NEW POWER AND CONTROL WIRING. CONDUIT FOR POWER WIRING SHALL BE EXTENDED FROM OPERATORS CABIN TO NEW TERMINAL ELECTRICAL CABINET 'DMEC' AS REQUIRED FOR FINAL CIRCUIT TERMINATIONS. EC SHALL COORDINATE EXACT CONDUIT INSTALLATION REQUIREMENTS, ROUTING, AND STUB-UP LOCATIONS WITH DOPPELMAYR PRIOR TO COMMENCING WORK. ALL POWER DEVICES INCLUDING RECEPTACLES, HEATING, RETURN TERMINAL EQUIPMENT/CONTROLS, AND SMOKE DETECTORS WITHIN OPERATORS CABIN SHALL BE CIRCUITED TO LIFT TERMINAL ELECTRICAL CABINET 'DMEC', PROVIDED BY

OTHERS. EC SHALL COORDINATE INSTALLATION REQUIREMENTS OF ALL ASSOCIATED CONDUIT AND WIRING FOR OPERATOR CABIN DEVICES WITH DOPPELMAYR PRIOR TO

COMMENCING WORK. PROVIDE 13"X24"X18"D HUBBELL QUAZITE PG SERIES IN-GRADE PULL-BOX WITH (2) PVC OUTDOOR RATED, WATER-TIGHT JUNCTION BOXES MOUNTED INSIDE PULL-BOX ENCLOSURE, (1) FOR POWER AND (1) FOR DATA CONNECTIONS TO NEW ENTRY GATE AND TICKET SCANNER EQUIPMENT. COORDINATE EXACT LOCATIONS WITH OWNER PRIOR TO ROUGH-IN. COORDINATE INSTALLATION WITHIN FINISHED PAVERS WITH GENERAL CONTRACTOR.

PROVIDE 3/4"C FROM SNOW/ICE DETECTOR TO BOILER ROOM SNOWMELT CONTROL PANEL FOR SENSOR CONTROL WIRING AS NECESSARY. COORDINATE EXACT ZONES/QUANTITIES, LOCATIONS AND INSTALLATION REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO COMMENCING WORK.



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Job Number: 20034 03/05/2 Drawn By: **Checked By:** 

**Project Phase** 

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**Sheet Title** ELECTRICAL FIRST LEVEL POWER PLAN

**Sheet Number** 

RCRBD **RECORD SET ELECTRICAL** 

Integrated Lighting and Electrical Solutions 1900 Wazee Street #205 | Denver, CO 80202 | 303.296.3034 Project #: 5155.00

A. ALL FIXTURES WITH HATCHING AND/OR DESIGNATED AS 'EM' SHALL BE PROVIDED WITH INTEGRAL BATTERY BACKUP. BATTERY SHALL ENGAGE ONLY AFTER COMPLETE LOSS OF POWER TO THE CIRCUIT.

B. CIRCUIT ALL EMERGENCY LIGHTING UNITS AND EXIT SIGNS TO NEAREST LINE VOLTAGE CIRCUIT, AHEAD OF ALL SWITCH LEGS.

KEYNOTE LEGEND

KEY VALUE

KEYNOTE TEXT

NOTICE: DUTY OF COOPERATION NOTICE: DUTY OF COOPERATION

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Eric Smith Associates, P.C. **REVISIONS** Description

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**Job Number:** 20034 **Date:** 03/05/2 Drawn By: BDJ, MAE

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**Project Phase** PERMIT SET

Sheet Title
ELECTRICAL LOWER LEVEL

LIGHTING PLAN

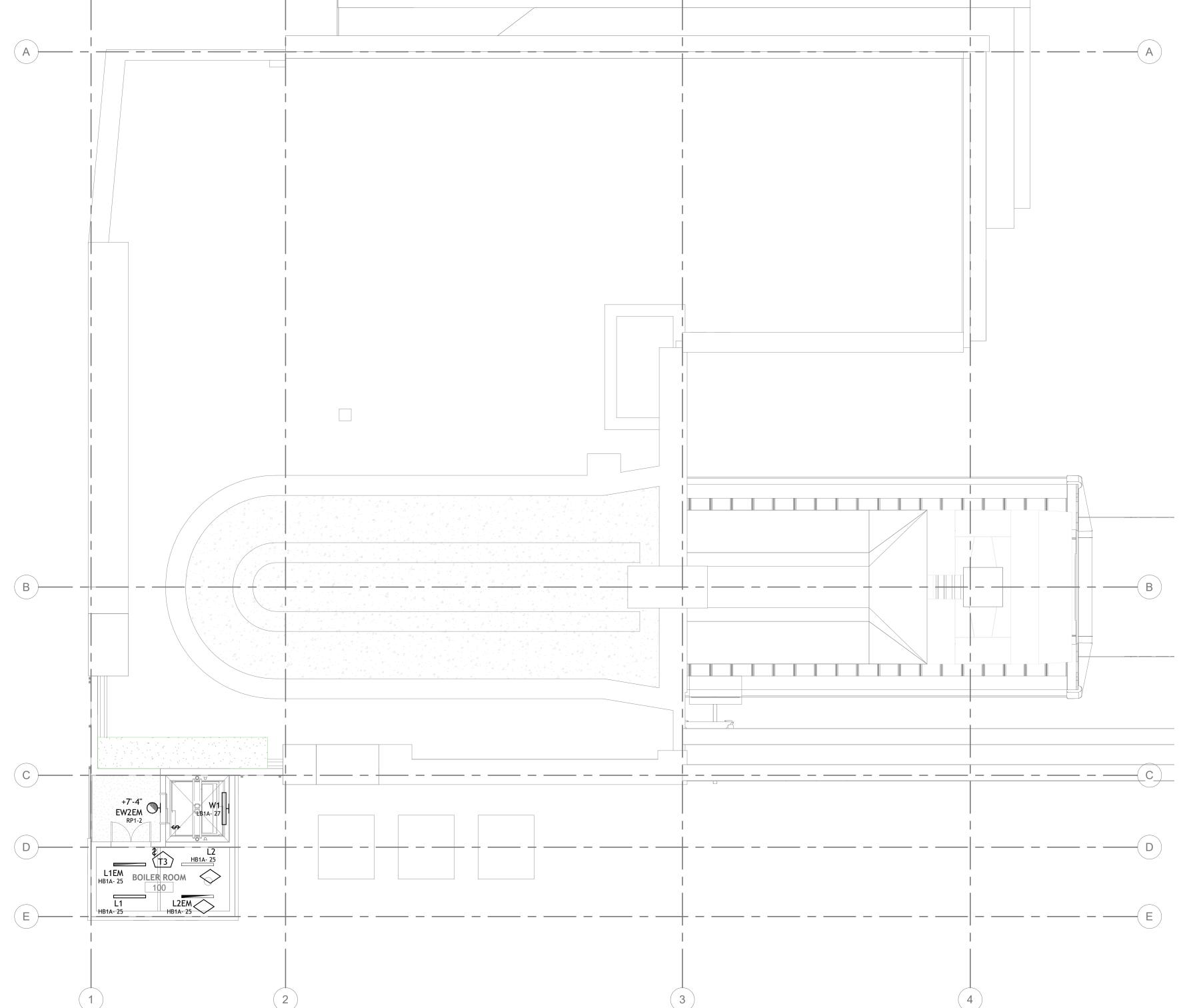
RCRBD Integrated Lighting and Electrical Solutions

1900 Wazee Street #205 | Denver, CO 80202 | 303.296.3034

aedesign-inc.com Project #: 5155.00

**RECORD SET ELECTRICAL** 

1 LOWER LEVEL - ELECTRICAL LIGHTING PLAN
E201 1/8" = 1'-0"



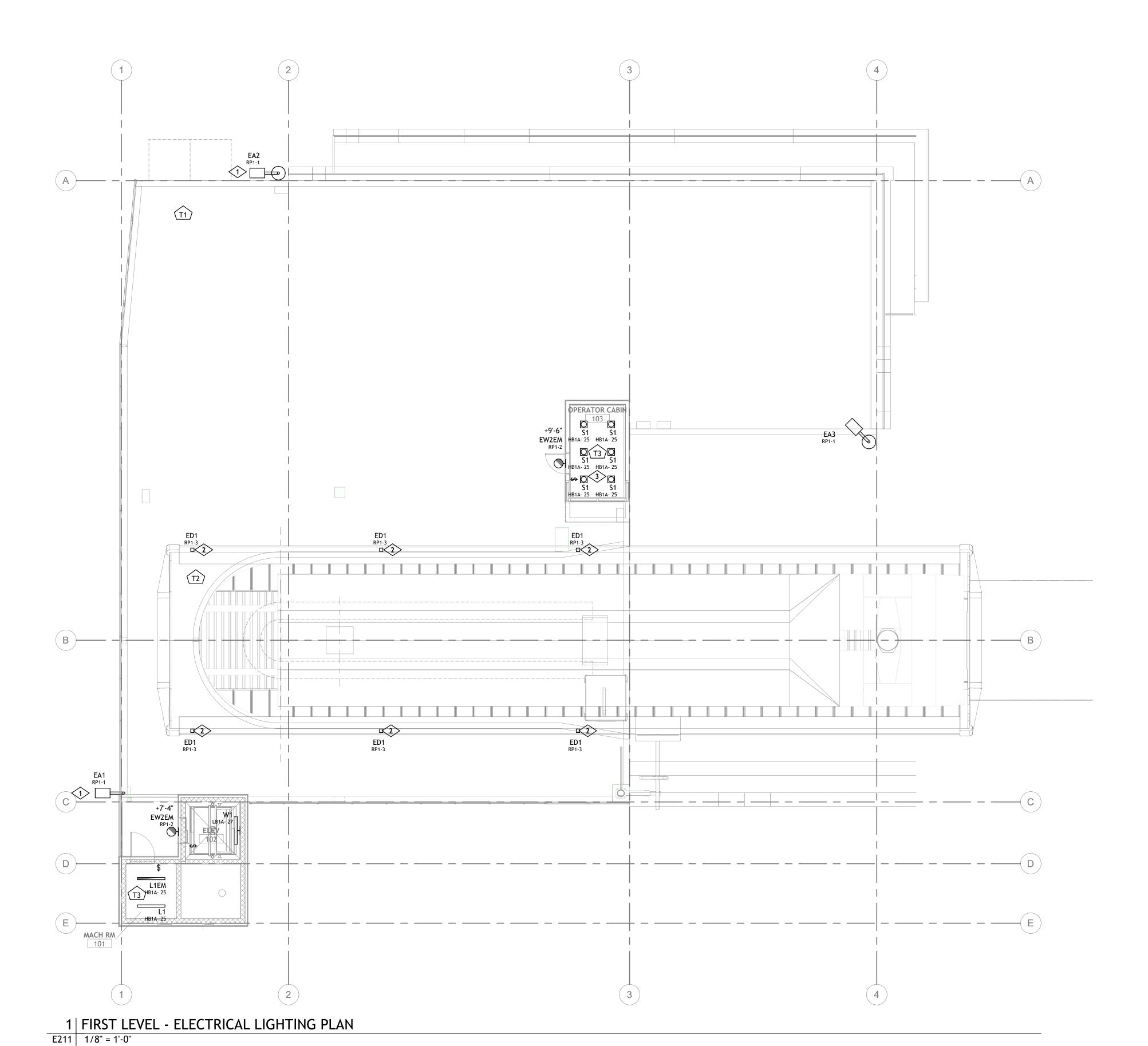
### LIGHTING GENERAL NOTES

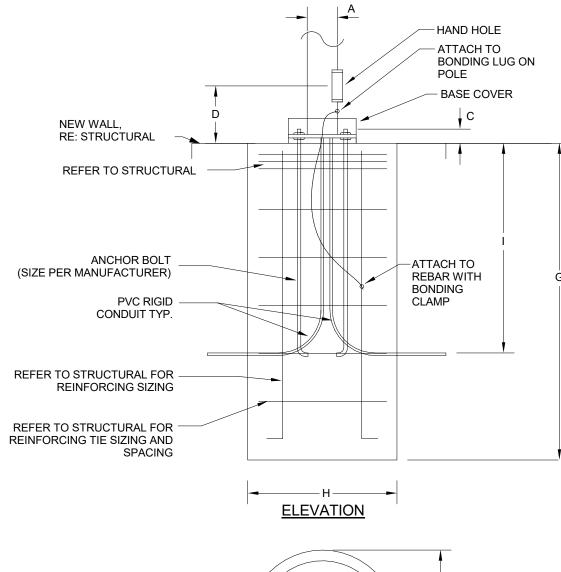
- ALL FIXTURES WITH HATCHING AND/OR DESIGNATED AS 'EM' SHALL BE PROVIDED WITH INTEGRAL BATTERY BACKUP. BATTERY SHALL ENGAGE ONLY AFTER COMPLETE LOSS OF POWER TO THE CIRCUIT.
- CIRCUIT ALL EMERGENCY LIGHTING UNITS AND EXIT SIGNS TO NEAREST LINE VOLTAGE CIRCUIT, AHEAD OF ALL SWITCH LEGS.

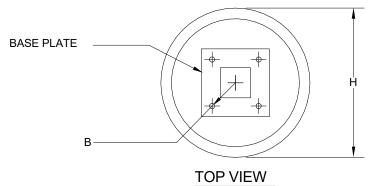
## KEYNOTE LEGEND

**KEYNOTE TEXT** KEY VALUE

- LIGHT POLE TO BE MOUNTED IN CONCRETE RETAINING WALL. COORDINATE MOUNTING WITH STRUCTURAL DRAWINGS.
- TYPE 'ED1' SURFACE MOUNTED DOWNLIGHT FIXTURE SHALL BE MOUNTED TO
- UNDERSIDE OF TERMINAL CANOPY STRUCTURE AND DIRECTED DOWNWARD. EC SHALL COORDINATE INSTALLATION REQUIREMENTS OF ALL ASSOCIATED CONDUIT AND WIRING FOR OPERATOR CABIN LIGHTING FIXTURES AND LIGHTING CONTROL DEVICES WITH DOPPELMAYR PRIOR TO COMMENCING WORK.





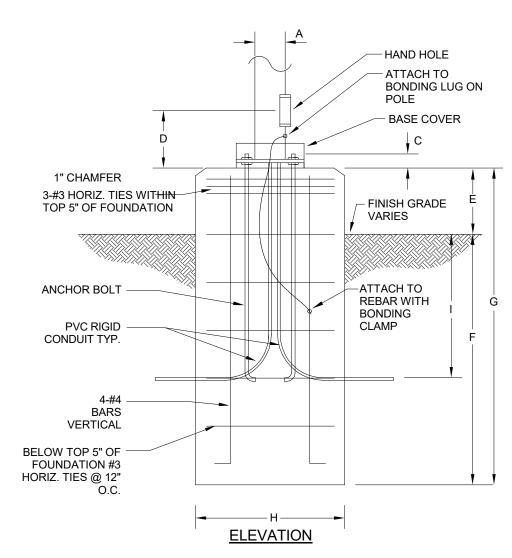


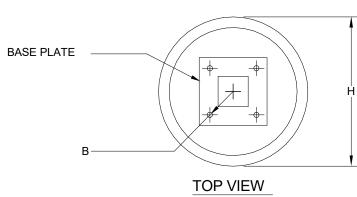
POLE	OVERALL	۸	ANCHO	R BOLT D	ATA	D	E	Е		н	1
KEY	HEIGHT	^	В	SIZE	С		_	'	G		! 
EA1	15'0"	4"	PE	R MANU	FACTUR	RER	N/A	N/A	N/A	N/A	36"

LIGHTING POLE BASE SHALL BE INTEGRATED INTO STRUCTURAL WALL SYSTEM. REFER TO STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION REGARDING POLE FOUNDATION INSTALLATION REQUIREMENTS INCLUDING FOUNDATION SIZING, AND REINFORCING SIZING. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF POLE ELECTRICAL CONNECTIONS AND CONDUIT WITH STRUCTURAL DRAWINGS AND GENERAL CONTRACTOR PRIOR TO COMMENCING

## 2 EA1 POLE BASE DETAIL

E211 N.T.S.





POLE	OVERALL	Α	ANCHO	R BOLT D	ATA	D	F	_	G	н	
KEY	HEIGHT		В	SIZE	С		_	Г	G	''	
EA2	15'0"	4"	PE	R MANU	FACTUR	RER	4'0"	6'0"	10'0"	24"	36"
EA3	15'0"	4"	PE	R MANU	FACTUR	RER	4'0"	6'0"	10'0"	24"	36"

3 EA2, EA3 POLE BASE DETAIL
E211 N.T.S.



RCRBD

**RECORD SET** 

**ELECTRICAL** 

NOTICE: DUTY OF COOPERATION Release of these plans contemplates further cooperation among the owner, his contractor and the architect. Design and construction are complex.

Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the consequences. Changes made from the plans without consent of the architect are unauthorized and shall relieve the architect of responsibility for all consequences arriving out of such changes.

All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C. Eric Smith Associates, P.C.

	REVISION	S
No.	Description	Date

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Job Number: 20034 03/05/2 **Drawn By:** 

Checked By: **Project Phase** 

PERMIT SET

**Sheet Title** ELECTRICAL FIRST FLOOR LIGHTING PLAN



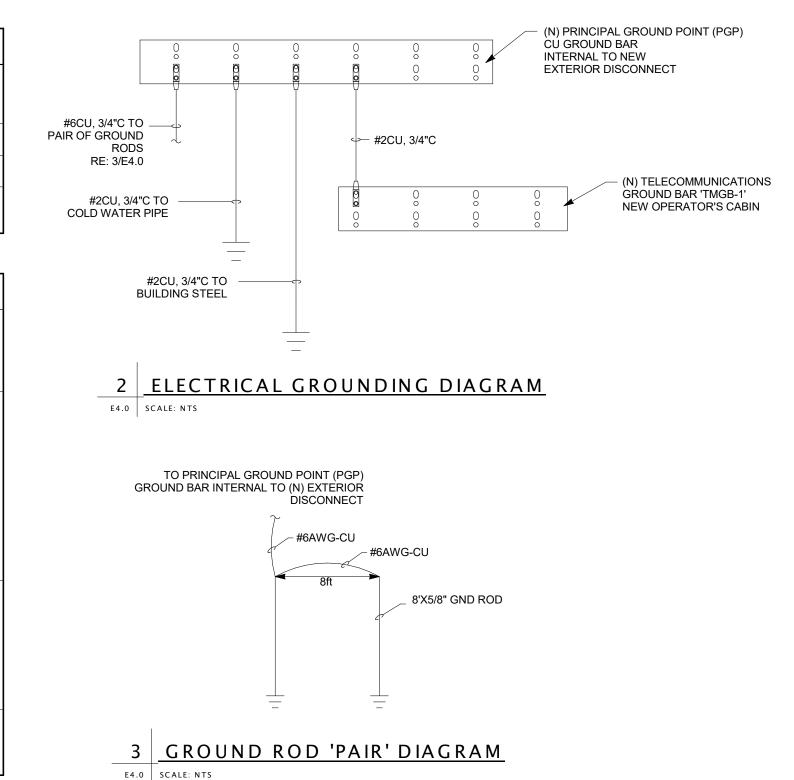
ALL BUS BARS SHALL BE ATTACHED TO SURFACE WITH NON-CONDUCTIVE STAND-OFFS.

ALL GROUND CONNECTORS SHALL BE STRANDED.

GROUND BUS BAR AND GROUNDING SYSTEM SHALL BE UL LISTED AND COMPLY WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.

### GROUNDING ELECTRODE SYSTEMS NOTES

- METAL UNDERGROUND WATER PIPE MAKE CONNECTION TO METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH THE EARTH FOR 10' OR AND ELECTRICALLY CONTINUOUS TO THE POINTS OF CONNECTION TO THE GROUNDING ELECTRODE CONDUCTOR AND BONDING CONDUCTORS. CONNECTION POINT TO BE AT A MAXIMUM OF 5' OF THE POINT OF ENTRANCE ON THE INTERIOR OF THE BUILDING.
- BUILDING STEEL THE METAL FRAME OF THE BUILDING OR STRUCTURE, WHERE ANY OF THE FOLLOWING METHODS ARE USED TO MAKE AN EARTH CONNECTION:
  - A. AT LEAST ONE STRUCTURAL METAL MEMBER THAT IS IN DIRECT CONTACT WITH THE EARTH FOR 10' OR MORE, WITH OR WITHOUT CONCRETE ENCASEMENT.
  - HOLD-DOWN BOLTS SECURING THE STRUCTURAL STEEL COLUMN THAT ARE CONNECTED TO A CONCRETE ENCASED ELECTRODE THAT COMPLIES WITH 250.52(A)(3) AND IS LOCATED IN THE SUPPORT FOOTING OR FOUNDATION. THE HOLD-DOWN BOLTS SHALL BE CONNECTED TO THE CONCRETE-ENCASED ELECTRODE BY WELDING, EXOTHERMIC WELDING, THE USUAL STEEL TIE WIRES, OR OTHER APPROVED MEANS.
- UFER GROUND (CONCRETE-ENCASED ELECTRODE) AN ELECTRODE ENCASED BY AT LEAST 2" OF CONCRETE, LOCATED WITHIN AND NEAR THE BOTTOM OF A CONCRETE FOUNDATION OR FOOTING THAT IS IN DIRECT CONTACT WITH EARTH, CONSISTING OF AT LEAST 20' OF ONE OR MORE BARE OR ZINC GALVANIZED OR OTHER ELECTRICALLY CONDUCTIVE COATED STEEL REINFORCING BARS OR RODS OF NOT LESS THAN 1/2" IN DIAMETER, OR CONSISTING OF AT LEAST 20' OF BARE COPPER CONDUCTOR NOT SMALLER THAN NO. 4 AWG. REINFORCING BARS SHALL BE PERMITTED TO BE BONDED TOGETHER BY THE USUAL STEEL TIE WIRES OR OTHER EFFECTIVE MEANS.
- GROUND ROD ROD IS TO BE 8FT IN LENGTH AND SHALL BE MADE OF IRON OR STEEL AT LEAST 5/8" DIAMETER. INSTALLATION METHODS FOR GROUND ROD SHALL BE IN COMPLIANCE WITH THE NEC SUCH THAT AT LEAST 8' OF LENGTH IS IN CONTACT WITH THE EARTH.



	TRΔ	NSFOR	MFR SC	HFDIIIF - C	OPPER	WINDINGS (	2016 DOF F	FFICIFNO	Υς	$\overline{T\DeltaN}$	<u> IDV</u>	<b>RDS</b> )	
	111	1131 011	MILIN ST	STIEDOLL C	OII LI	(			<u>, , , , , , , , , , , , , , , , , , , </u>	1 / 1	IDA		_
KVA	PRIMARY	SECONDARY	PRIMARY	PRIMARY	SECONDARY	SECONDARY	GROUNDING ELECTRODE	TRANSFORMER	APPRO	X. DIMEN	ISIONS	APPROX.	SPECIFIC
RATING	FLA	FLA	PROTECTION	FEEDER	PROTECTION	FEEDER	CONDUCTOR (GEC)	IMPEDANCE	HIGH	WIDE	DEEP	WEIGHT	NOTES
3	3.6	8.3	15A/3P	3#12, 1#12G, 3/4"C	15A/3P	4#12, 1#8G, 3/4"C	1#8, 3/4"C	4.57%	15	15	11	140LBS	1,2
6	7.2	16.7	15A/3P	3#12, 1#12G, 3/4"C	20A/3P	4#12, 1#8G, 3/4"C	1#8, 3/4"C	4.57%	15	15	11	145LBS	1,2
9	10.8	25.0	15A/3P	3#12, 1#12G, 3/4"C	30A/3P	4#10, 1#8G, 3/4"C	1#8, 3/4"C	4.57%	20	20	15	245LBS	1,2
15	18.1	41.7	25A/3P	3#10, 1#10G, 3/4"C	50A/3P	4#6, 1#8G, 1-1/4"C	1#8, 3/4"C	2.88%	26	21.88	17.75	250LBS	
30	36.1	83.3	45A/3P	3#6, 1#10G, 1"C	100A/3P	4#1, 1#6G, 1-1/2"C	1#6, 3/4"C	2.56%	36.88	24.88	21.13	415LBS	
45	54.2	125.0	70A/3P	3#4, 1#8G, 1-1/4"C	150A/3P	4#1/0, 1#6G, 2"C	1#6, 3/4"C	3.44%	36.88	24.88	21.13	478LBS	
75	90.3	208.3	125A/3P	3#1, 1#6G, 1-1/2"C	250A/3P	4#250MCM, 1#2G, 3"C	1#2G, 3/4"C	3.21%	43	30.54	24	676LBS	
112.5	135.4	312.5	175A/3P	3#2/0, 1#6G, 2"C	400A/3P	2[4#3/0, 1#2G, 2-1/2"C]	1#2G, 3/4"C	3.63%	51	34.5	31.5	1263LBS	
150	180.5	416.7	225A/3P	3#4/0, 1#4G, 2"C	500A/3P	2[4#250MCM, 1#1/0G, 3"C]	1#1/0G, 3/4"C	3.39%	51	34.5	31.5	1410LBS	
225	270.8	625.0	350A/3P	3#500MCM, 1#3G, 3"C	800A/3P	2[4#500MCM, 1#2/0G, 3-1/2"C]		4.34%	60	38	33.5	1745LBS	
300	361.0	833.3	450A/3P	2[3#4/0, 1#2G, 2"C]	1000A/3P	3[4#400MCM, 1#3/0G, 3-1/2"C]		3.48%	66.18	42.18	33.5	2354LBS	
500	601.7	1388.9	750A/3P	2[3#500MCM, 1#1/0G, 3"C]	1600A/3P	5[4#400MCM, 1#3/0G, 3-1/2"C]		4.57%	60	56	36	3450LBS	1,2
750	902.5	2083.3	1200A/3P	3[3#350MCM, 1#3/0G, 3"C]	2500A/3P	7[4#500MCM, 1#3/0G, 3-1/2"C]	1#3/0G, 3/4"	4.57%	74	56	41	3950LBS	1,2
GENERA	L NOTES:			•			•	•					

LENGTH (L) VOLTAGE VOLTAGE PHASE WIRE CONDUCTOR

SIZE MATERIAL

3. DISTRIBUTION TRANSFORMER IMPEDANCES USED IN THE CALCULATIONS WERE TAKEN FROM EATON'S PUBLISHED IMPEDANCES FOR DOE 2016 DRY-TYPE TRANSFORMERS.

COPPER

COPPER

2. REFER TO PLANS FOR ASSUMED UTILITY TRANSFORMER SIZE UTILIZED FOR CALCULATIONS. EXACT TRANSFORMER SIZE, IMPEDANCE, AND AVAILABLE SHORT CIRCUIT CURRENT SHALL BE VERIFIED WITH UTILITY PRIOR

4. CONDUCTOR LENGTHS INDICATED IN THIS SCHEDULE ARE FOR THE PUROPOSES OF FAULT CURRENT CALCULATIONS ONLY. THESE LENGTHS ASSUME WORST CASE SHORTEST DISTANCE CONDITIONS AND SHOULD NOT BE UTILIZED BY THE ELECTRICAL CONTRACTOR FOR BIDDING PURPOSES. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ESTIMATING AND MEASURING ACTUAL FIELD CONDITION LENGTHS AS PART OF THE BID PROCESS.

(EL-N)

CONDUCTOR

THREE SINGLE CONDUCTORS

CONDUIT

MATERIAL

# OF PARALLEL

RUNS

VALUE

CLASS

Isc AVAILABLE

UPSTREAM

AT EQUIP

(I3ph) OR (IL-L)

A. ALL TRANSFORMERS ARE 480V, 3PHASE, DELTA PRIMARY AND 208Y/120V, 3PHASE SECONDARY.

ALL CONDUCTORS ARE THWN, COPPER, SEE PLANS FOR INCREASED CONDUCTOR SIZE DUE TO VOLTAGE DROP.

BONDING AND GROUNDING CONDUCTORS ARE TO BE INSTALLED PER NEC 250.30 - GROUNDING SEPERATELY DERIVED ALTERNATING CURRENT SYSTEMS.

FAULT CURRENT CALCULATION SCHEDULE

LOCATION

DESCRIPTION

UTILITY XFMR

400A CT CABINET

400A DISC. 'MSD'

NEW EQUIPMENT

XFMR 'TB1A' PRI

XFMR 'TB1A' SEC

PANEL 'LB1A'

WEIGHT SHOWN FOR REFERENCE ONLY, AND MAY VARY BY MANUFACTURER.

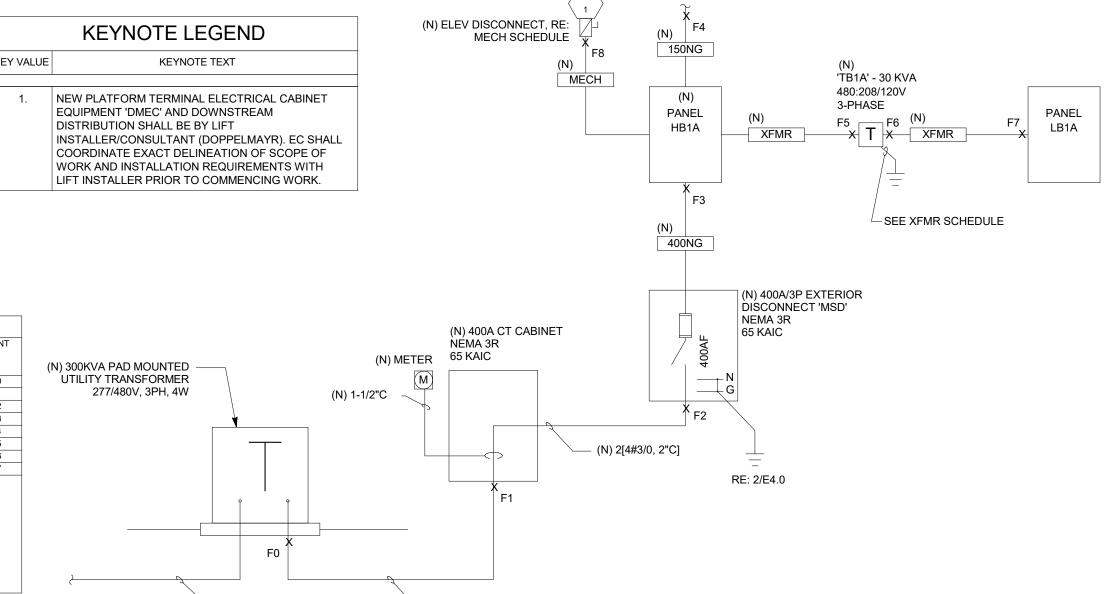
TRANSFORMER IMPEDANCE IS THE ASSUMED VALUE AND IS USED FOR FAULT-CURRENT CALCULATIONS. IF SUBMITTED TRANSFORMER IS OF A DIFFERENT VALUE, REVISED CALCULATIONS MAY BE

(EL-L)

TO ORDERING ELECTRICAL EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.

1. ALL CALCULATIONS WERE DONE USING BUSSMAN "POINT-TO-POINT" METHOD.

EC TO FIELD VERIFY WEIGHTS OF NON DOE 2016 AS THEY MAY VARY BY MANUFACTURER.



4 ELECTRICAL ONE-LINE DIAGRAM

E500 NO SCALE

RCRBD **RECORD SET ELECTRICAL** 





misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the consequences. Changes made from the plans without consent of the architect are unauthorized and shall relieve the architect of responsibility for all consequences arriving out of such changes. All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C.

Eric Smith Associates, P.C

REVISIONS										
No.	Description	Date								
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**Job Number:** 20034

**Project Phase** 

**Sheet Title** 

**Sheet Number** 

ELECTRICAL ONE LINE

Drawn By: Checked By:

PERMIT SET

DIAGRAM

03/05/2 BDJ, MAE

1PK

FEEDER FOR SECONDARY OF SEPARATELY DERIVED SYSTEM (SDS). GROUND SIZE PER NEC 250.66. 2. ALL CONDUCTORS ARE SINGLE CONDUCTOR COPPER THWN UNLESS NOTED OTHERWISE. AMPACITY BASED ON NEC TABLE

FEEDER SCHEDULE

800S 1000S 1600S

2500S

450G 500G 600G 700G 800G

1000G 1200G

1600G

2000G

ABBREVIATIONS

KEY/ FEEDER CONDUIT

AMPS AND CONDUCTORS

SDS XFMR FEEDERS (NOTE 1) 30S 4#10, 1#8G, 3/4

4#6, 1#8G, 1-1/4"( 4#1, 1#6G, 1-1/2"(

4#1/0, 1#6G,

4#250, 1#2G, 3

2[4#250, 1#1/0G, 3'

2[4#500, 1#2/0G, 3-1

3[4#400, 1#4/0G, 3-1

5[4#400, 1#350G, 3-1

7[4#500, 1#500G, 3-1

3#10, 1#10G, 3/4"C 3#8, 1#10G, 1"C

3#6, 1#10G, 1" 3#4, 1#10G, 1

3#4, 1#8G, 1-1/4 3#3, 1#8G, 1-1/4

3#2, 1#8G, 1-1/ 3#1, 1#8G, 1-1/

3#1/0, 1#6G, 1-1/ 3#2/0, 1#6G, 2"C 3#3/0, 1#6G, 2"C 3#4/0, 1#4G, 2"C

3#250, 1#4G, 2-1

2[3#3/0, 1#3G, 2"C]

2[3#4/0, 1#2G, 2"C]

2[3#250, 1#2G, 2-1/2"C

[3#500, 1#1/0G,

3[3#400, 1#2/0G, 3

4[3#350, 1#3/0G, 3

2[3#500, 1#1/0G, 3"0

5[3#400, 1#4/0G, 3"C

6[3#400, 1#250G, 3"C]

SEE MECH SCHEDULE SEE XFMR SCHEDULE

3#350, 1#4G, 2-

3#1, 1#6G, 1-

KEY/ FEEDER CONDUIT

AMPS AND CONDUCTORS

[4#500, 3-

3[4#400, 3

5[4#400, 3

6[4#400, 3-

7[4#500, 3

8[4#500, 3-

10[4#500, 3-1/2"C]

11[4#500, 3-1/2"C]

4#10, 1#10G, 3/4"C

4#8, 1#10G, 1"0

4#6, 1#10G, 1-1/4"0

4#2, 1#8G, 1-4#1, 1#8G, 1-

4#3/0, 1#6G, 2-1 4#4/0, 1#4G, 2-1

2[4#3/0, 1#3G, 2-

2[4#250, 1#2G,

2[4#500, 1#1/0G, 3-

3[4#400, 1#2/0G, 3

2[4#350, 1#1G, 3"

4[4#350, 1#3/0G, 3"0

5[4#400, 1#4/0G, 3-1/2"

1#4, 3/4" 1#2, 3/4"

1-2/0, 3/4" (

1-3/0, 3/4" C

6[4#400, 1#250G, 3-1/2"C]

4#250, 1#4G, 3"C

4#350, 1#4G, 3"C

2[4#4/0, 1#2G, 2-1/2"C]

SERVICE ENTRANCE FEEDERS

600N 800N

1000N

1200N 1600N 2000N

2500N 3000N 3500N 4000N

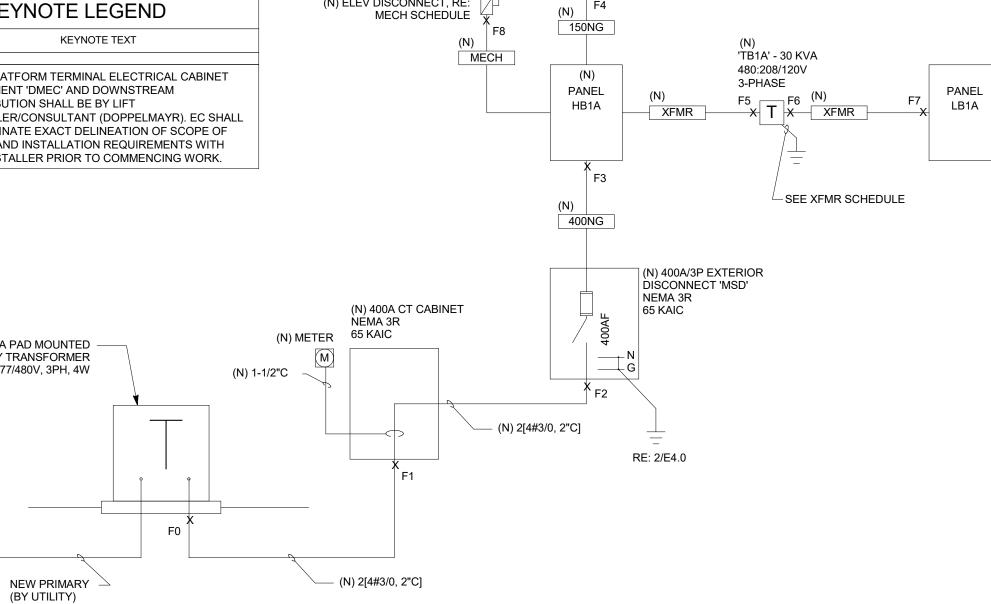
20NG 30NG 40NG 50NG 60NG 70NG 80NG 90NG 110NG 125NG 150NG 225NG 250NG 300NG 350NG 400NG 450NG 500NG 600NG 700NG

2000NG

GROUNDING CONDUCTORS

EQUIPMENT FEEDERS

ALL CONDUITS ARE EMT UNLESS NOTED OTHERWISE, FILL RATIOS BASED ON NEC ANNEX C TABLE C1.



TO NEW TERMINAL **ELECTRICAL CABINET** EQUIPMENT 'DMEC'

# 3 FIRE ALARM RISER DIAGRAM E600 1/8" = 1'-0"

FIRE ALARM SHOP DRAWING REQUIREMENTS

WITH CALCULATIONS SHOWN.

WILL NOT BE ACCEPTED.

PROPRIETARY, ETC.

CODED, VOICE, ETC.

ADDITIONAL SHEET.

WITH CALCULATIONS SHOWN.

FIRE SAFETY CONTROL FUNCTIONS.

2002 ED., SECTION 4.4.4.1(1))

PROVIDE NEC VALUES AND REFERENCE.

FOLLOWING INFORMATION:

THE FIRE ALARM DEVICES SHOWN ARE FOR GENERAL LAYOUT AND

GUIDELINES ONLY. THE AWARDED FIRE ALARM CONTRACTOR IS TO PROVIDE A

COMPLETE SET OF SHOP DRAWINGS FOR SUBMITTAL AND APPROVAL BY THE

AUTHORITY HAVING JURISDICTION. THESE DOCUMENTS ARE TO INCLUDE THE

A NICET FIRE ALARM LEVEL III CERTIFIED INDIVIDUAL.

1. SHOP DRAWINGS MUST BE PREPARED AND SIGNED BY A MINIMUM OF

2. COMPLETE RISER DIAGRAM SHOWING ALL DEVICES BY FLOOR/AREA

AS CONNECTED TO THE CIRCUIT, DEVICE ADDRESSES, WIRE COLOR

CODING SCHEDULE, WIRE COUNT, WIRE TYPE AND CONDUIT FILL

PROVIDE A SEQUENCE OF OPERATION (INPUT/OUTPUT MATRIX) IN

SPECIFIC TO THE PROJECT. GENERIC SEQUENCE OF OPERATIONS

IDENTIFY THE TYPE OF AUDIBLE NOTIFICATION: TEMPORAL, STEADY,

PROVIDE AN EQUIPMENT LIST WITH MANUFACTURER, PART NUMBER,

BACK BOX AND SYMBOL USED TO IDENTIFY THE COMPONENT. IF THERE IS INSUFFICIENT SPACE FOR WIRING LEGEND, EQUIPMENT LIST AND SYMBOL LEGEND ON THE TITLE SHEET, THAN INSERT AN

COMPLETE RISER DIAGRAM SHOWING ALL DEVICES BY FLOOR/AREA

CODING SCHEDULE, WIRE COUNT, WIRE TYPE AND CONDUIT FILL

10. DETAIL SHEET INCLUDING THE FOLLOWING; CIRCUIT WIRING

11. PROVIDE VOLTAGE DROP CALCULATIONS FOR EACH CIRCUIT

12. PROVIDE AUDIO CIRCUIT POWER LOSS CALCULATIONS

SHOWING WIRE SIZE, CIRCUIT LOAD AND VOLTAGE DROP.

13. VOLTAGE DROP CALCULATIONS MUST BE PERFORMED USING THE

OUTPUT CIRCUIT VOLTAGE WHEN THE INPUT VOLTAGE TO THE

14. PROVIDE RESISTANCE VALUES WITH SUPPORTING DATA SHEETS OR

15. INDICATE METHOD USED AND SHOW ALL FORMULAS/EQUATIONS.

16. PROVIDE STAND-BY BATTERY CALCULATIONS FOR EACH CONTROL

SUPPLY OR ANY COMPONENT REQUIRING SECONDARY POWER.

PANEL, SUB PANEL, MONITORING STATION TRANSMITTER, POWER

CONTROL PANEL IS 85% OF ITS NAME PLATE VOLTAGE. (NFPA 72,

AS CONNECTED TO THE CIRCUIT, DEVICE ADDRESSES, WIRE COLOR

DIAGRAM, DEVICE/APPLIANCE MOUNTING HEIGHT PROFILE, TYPICAL

DEVICE AND ANCILLARY DEVICE WIRING, AND THE INTERFACE OF

6. IDENTIFY THE TYPE OF VISUAL NOTIFICATION: PUBLIC OR PRIVATE

7. PROVIDE A WIRING LEGEND SPECIFIC TO TYPES USED FOR THE PROJECT. IDENTIFY IF WIRING IS ENCLOSED IN CONDUIT, OPEN WIRING, PLENUM WIRING, POWER LIMITED OR NON-POWER LIMITED

INFORMATION PROVIDED IN THE SEQUENCE OF OPERATION MUST BE

COMPLIANCE WITH THE NFPA 72 ANNEX MATERIAL. THE

IDENTIFY THE TYPE OF SYSTEM, I.E. CENTRAL, REMOTE,

#### TYPICAL MECH UNIT DUCT DETECTION TYPICAL FOR TYPICAL DUCT DETECTOR -**ELEVATOR RECALL** TYPICAL AT EACH EXIT DOOR -TYPICAL AT TOP OF ELEV. SHAFT -TO FAN SHUTDOWN TYPICAL AT EACH FIRE ALARM CONTROL UNITS TYPICAL SPACE DETECTOR 120V CKT. TYPICAL ELEV. EQUIP. RM -TYPICAL ELEV. PIT -TYPICAL FIRE/SMOKE DAMPER CONTROL TYPICAL ELEV. LANDING HR D 120V MOTORIZED DAMPER 120V CKT. TYPICAL SOUND SYSTEM MUTING COORDINATE EXACT **QUANTITY OF ZONES** HR RECEP AT SOUND RACK WITH FIRE SPRINKLER @ F.D.C. 🗀 CONTRACTOR └**─** 120V CKT. TYPICAL HORN OR SPEAKER W/STROBE ZONE TS FS TS FS TYPICAL STROBE AT FACP -TYPICAL HORN/STROBE INSTALL A FRAMED, MYLAR GRAPHIC MAP NEXT TO FACP TELEPHONE DIALER -► 1/2" CONDUIT TO MTTB DEDICATED 120V 20A CIRCUIT -

### FIRE ALARM GENERAL NOTES:

- THIS IS A FULLY ADDRESSABLE SYSTEM WITH EACH DEVICE HAVING A DISTINCT 'ADDRESS'.
- PROVIDE NON-POWER LIMITING, PLENUM RATED WIRING. INSTALL IN EMT WHERE WIRING IS ROUTED THROUGH HAZARDOUS LOCATIONS, EXPOSED STRUCTURAL CEILINGS, INACCESSIBLE CEILINGS, AND BETWEEN AREAS SEPARATED BY MULTI-STORY ATRIUMS. ALL RACEWAY COMPONENTS SHALL BE PAINTED RED.
- PROVIDE DUCT DETECTION FOR ALL AIR-HANDLING EQUIPMENT OPERATING WITH A RETURN CAPACITY EXCEEDING 2000CFM, SUPPLY CAPACITY EXCEEDING 15,000CFM WITH COMMON DUCT SERVING MULTIPLE FLOORS, AND ADDITION- ALLY AS REQUIRED BY LOCAL CODES.
- SPRINKLER SYSTEM IS A DESIGN-BUILD CONTRACT. COORDINATE WITH SPRINKLER CONTRACTOR FOR QUANTITIES AND LOCATIONS OF ALL FLOW AND TAMPER SWITCHES, AND FOR LOCATION OF FIRE HORN/LIGHT AT EXTERIOR OF BUILDINGS. INSTALL WITH A MINIMUM OF 20% SPARE CAPACITY ON ALL INITIATING AND INDICATING APPLIANCE CIRCUITS.
- PROVIDE 120V CIRCUIT AND LOW-VOLTAGE FIRE ALARM CONTROL CIRCUIT TO ALL SMOKE DAMPERS. COORDINATE LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO BID.
- COORDINATE ALL SEQUENCING OF OPERATIONS WITH LOCAL FIRE
- ALL DEVICES INSTALLED IN DAMP, WET OR EXTERIOR LOCATIONS SHALL BE FURNISHED WITH WP HOUSINGS. ALL DEVICES INSTALLED IN GYMNASIUMS SHALL BE FURNISHED WITH WIRE GUARD.

- 8. SYSTEM SHALL TRANSMIT REQUIRED FIRE ALARM SIGNALS TO CENTRAL MONITORING AGENCY (SELECTED BY OWNER) VIA DIALER PROVIDED IN FIRE ALARM CONTROL PANEL.
- 10. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS BID AN ADDITIONAL 10% SPARE STROBES AND HORN/STROBES, INCLUDING INSTALLATION, AS MAY BE REQUIRED BY AHJ.
- 11. SEQUENCE OF OPERATION FOR SMOKE DAMPERS: 11.1. DAMPERS WILL OPERATE WHEN THE FOLLOWING CONDITIONS OCCURS.
- 11.1.1. THE SUPPLY OR RETURN DUCT DETECTOR OF THE RESPECTIVE AIR HANDLING UNIT GOES INTO ALARM. FIRE/SMOKE DAMPERS SHALL BE CLOSED BY ACTUATION OF A

SMOKE DETECTOR INSTALLED IN DUCT WORK WITHIN 5' OR

SPOT-TYPE DETECTOR INSTALLED WITHIN 5', REFER TO PLANS

12. SEQUENCE OF OPERATION FOR ELEVATOR RECALL: 12.1. WHEN THE SMOKE DETECTORS IN THE LOBBIES, ELEVATOR SHAFT OR EQUIPMENT ROOM GO INTO ALARM, THE RESPECTIVE ELEVATOR WILL RETURN TO THEIR PRIMARY LEVEL OR SECONDARY LEVEL AND LOCK-OUT; THE LEVEL WILL DEPEND UPON IF THE ELEVATOR LOBBY

TYPE AND LOCATION.

DETECTOR SENSES ANY SMOKE AT THE RESPECTIVE LOBBY. SUBSEQUENTLY, IF THE THERMAL DETECTOR IN THE ELEVATOR ROOM GOES INTO ALARM, THE POWER TO THE ELEVATOR CONTROLLER WILL BE DISCONNECTED VIA A SHUNT TRIP CIRCUIT BREAKER.

#### 17. SHOW LOCATION OF ALL FIRE ALARM INITIATING DEVICES AND NOTIFICATION APPLIANCES WITH TEMPERATURE, DECIBLE AND CANDELA RATINGS, WHEN APPLICABLE.

# 1 | SUSPENDED TRANSFORMER DETAIL

TO STRUT.

### **KEYNOTE LEGEND**

#### VALUE NEW (1) 3" PVC CONDUIT ROUTED 30" BELOW GRADE FOR CONNECTION TO SITE TELEPHONE SERVICE

KEY KEYNOTE TEXT

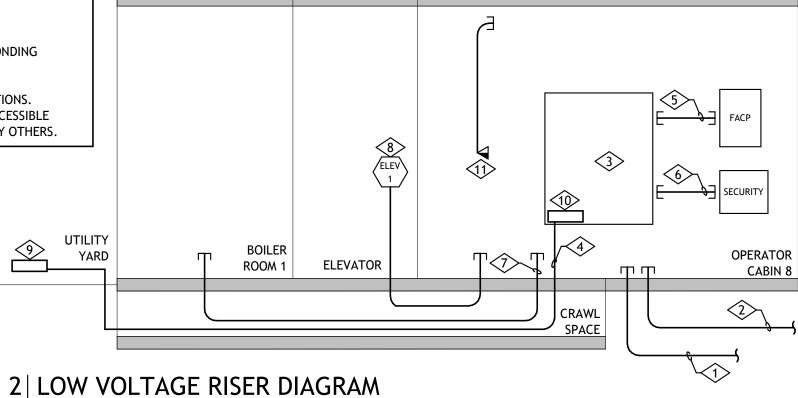
PROVIDER PRIOR TO INSTALLATION. REFER TO ELECTRICAL SITE PLAN FOR MORE INFORMATION. NEW (1) 3" PVC CONDUIT ROUTED 30" BELOW GRADE FOR CONNECTION TO SITE FIBER OPTIC SERVICE

POINT. ELECTRICAL CONTRACTOR SHALL VERIFY CONDUIT SIZING AND QUANTITY WITH SERVICE

- POINT. ELECTRICAL CONTRACTOR SHALL VERIFY CONDUIT SIZING AND QUANTITY WITH SERVICE PROVIDER PRIOR TO INSTALLATION. REFER TO ELECTRICAL SITE PLAN FOR MORE INFORMATION.
- MAIN TELECOMMUNICATIONS DEMARC POINT AND OWNER (SSRC) IT/MDF EQUIPMENT. EC SHALL PROVIDE MAIN TELEPHONE TERMINAL BOARD 'MTTB' AS NECESSARY AND REQUIRED BY OWNER (SSRC). IF REQUIRED, TELEPHONE BOARD SHALL CONSIST OF 3/4", FIRE-RETARDANT TREATED PLYWOOD INSTALLED IN ROOM. EC SHALL COORDINATE EXACT LOCATION AND INSTALLATION REQUIREMENTS WITH OWNER (SSRC) AND IT INSTALLER PRIOR TO COMMENCING WORK. ALL RECEPTACLE DEVICES SHOWN IN BACKBOARD ON PLANS SHALL BE FLUSH MOUNT, UON.
- PROVIDE #6AWG GREEN COPPER GROUNDING CONDUCTOR (TYPICAL) BETWEEN GROUNDING BUSSES AS
- ROUTE (1) 1/2" CONDUIT FOR FIRE ALARM CONTROL PANEL COMMUNICATIONS CABLING RACEWAY.
- ROUTE (1) 1/2" CONDUIT FOR SECURITY ALARM CONTROL PANEL COMMUNICATIONS CABLING
- PROVIDE (2) 2" CONDUIT FROM OPERATOR CABIN TO BOILER ROOM FOR OPTICAL FIBER AND COPPER CABLING RACEWAY.
- PROVIDE (1) 3/4"C WITH PULL WIRE TO ELEVATOR CONTROL PANEL FOR ELEVATOR COMMUNICATIONS CABLING RACEWAY. CABLING SHALL BE FURNISHED BY OTHERS.
- PRINCIPAL GROUND POINT NEAR ELECTRICAL SERVICE EQUIPMENT.
- 10. | TELECOMMUNICATIONS MAIN GROUNDING BAR 'TCMGB' FUNCTIONING AS INTERSYSTEM BONDING TERMINATION DEVICE, COMPLYING WITH NEC 250.94.
- NEW TYPICAL WORK AREA COMMUNICATIONS OUTLET FOR STRUCTURED CABLE TERMINATIONS. PROVIDE 2" DEEP, 2-GANG BOX WITH 1-GANG PLASTER RING. PROVIDE 1" CONDUIT TO ACCESSIBLE CEILING AND BUSH END. RECEPTACLE FACEPLATE, JACK, CABLING, AND TERMINATIONS BY OTHERS.

### **GENERAL NOTES**

- PROVIDE EMT FOR ALL CABLING ROUTED THROUGH AREAS WITH EXPOSED STRUCTURAL CEILINGS AND THROUGH INACCESSIBLE CEILINGS, COORDINATE CONDUIT SIZE REQUIREMENTS WITH CABLE INSTALLER.
- ALL EXPOSED CONDUIT SHALL BE CONCEALED TO THE GREATEST EXTENT POSSIBLE, AND SHALL BE INSTALLED PARALLEL AND CLOSE TO STRUCTURAL MEMBERS, PAINT CONDUIT TO MATCH ADJACENT FINISHES.
- PROVIDE PULLCORD FOR ALL CONDUIT INSTALLED FOR CABLE.
- PROVIDE PULLBOXES AS REQUIRED BY ABLE INSTALLER FOR RUNS EXCEEDING MAXIMUM PULL DISTANCE, AS IDENTIFIED BY CABLE INSTALLER.
- FOR ALL FREELY RUN ARMORED METALLIC FIBER OPTIC CABLING, CONTRACTOR SHALL GROUND CABLING ARMOR TO THE NEAREST PBB OR SBB.
- PROVIDE SLEEVES AND CONDUIT BETWEEN FLOORS FOR ROUTING OF CABLE. COORDINATE CONDUIT SIZE WITH CABLE INSTALLER. COORDINATE LOCATION OF RACEWAY WITH ARCHITECT AND CABLE INSTALLER.
- ALL CONDUIT AND CABLING IN CRAWL SPACE IS TO BE SUPPORTED BY AND TIGHT TO STRUCTURE ABOVE WHERE CONDUIT TRANSITIONS FROM BEING SUPPORTED BY STRUCTURE INTO SOIL. ADD LOOP AND/OR FLEXIBLE CONDUIT FOR ANTICIPATED SOIL MOVEMENT.
- NOTE THAT ALL UNDERGROUND CONDUIT BENDS ARE TO BE GALVANIZED RIGID CONDUIT. UNDERGROUND CONDUIT EXTENDING ABOVE SLAB IS ALSO TO BE GALVANIZED RIGID CONDUIT. REFER TO SPECIFICATIONS FOR FULL CONDUIT REQUIREMENTS.



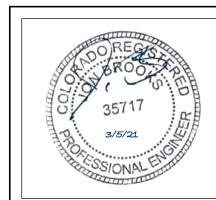
VIBRATION HANGER MASON INDUSTRIES HD SERIES -DRY TYPE TRANSFORMER -1/2" DIAMETER HANGER SUPER STRUT A-1200 SERIES FRAMING CHANNEL WITH HANGER ROD ASSEMBLY -

> 1. FASTEN VIBRATION HANGER RIGIDLY TO STRUCTURE ABOVE. SIZE TO ACCOMMODATE TRANSFORMER WEIGHT. BOT TRANSFORMER

2. INSTALL FLEXIBLE CONDUIT BETWEEN PRIMARY AND SECONDARY CONDUIT AND TRANSFORMER HOUSING.

# RCRBD **RECORD SET ELECTRICAL**





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**Job Number:** | 20034 03/05/2 Drawn By: BDJ, MAE Checked By: 1PK

**Project Phase** PERMIT SET

**Sheet Title** ELECTRICAL DIAGRAMS

		MEC	HANICAL	<b>EQUIP</b>	MENT SCH	<del>I</del> EDULE			
KEY	EQUIPMENT DESCRIPTION	LOAD	ELECTRICAL	MOCP/MFS	FEEDER	DISCONNECT	PANEL	CIRCUIT	NOTES
B 1	HEATING WATER BOILER	30.2 FLA	208 V/3-10881 VA	40A	3#8, 1#10G, 1"C	60A/3P	LB1A	1,3,5	
EF 1	EXHAUST FAN	818 W	120 V/1-818 VA	20A	2#12, 1#12G, 3/4"C	30A/1P	LB1A	7	1
ELEV 1	ELEVATOR	25 HP 34 FLA	480 V/3-28266 VA	70A	3#4, 1#8G, 1-1/4"C	100A/3P	HB1A	1,3,5	
GF 1	GLYCOL FEEDER	50 W	120 V/1-50 VA	20A	2#12, 1#12G, 3/4"C	NEMA 5-20R	LB1A	11	2
P 1	PUMP	7.5 HP 11 FLA	480 V/3-9144 VA	20A	3#12, 1#12G, 3/4"C	30A/3P	HB1A	7,9,11	
P 2	PUMP	7.5 HP 11 FLA	480 V/3-9144 VA	20A	3#12, 1#12G, 3/4"C	30A/3P	HB1A	13,15,17	
RP 1	RADIANT CEILING PANEL	750 W	120 V/1-750 VA	20A	2#12, 1#12G, 3/4"C	20A/1P	LB1A	17	3
RP 2	RADIANT CEILING PANEL	750 W	120 V/1-750 VA	20A	2#12, 1#12G, 3/4"C	20A/1P	LB1A	17	3
RP 3	RADIANT CEILING PANEL	750 W	120 V/1-750 VA	20A	2#12, 1#12G, 3/4"C	20A/1P	LB1A	19	3
RP 4	RADIANT CEILING PANEL	750 W	120 V/1-750 VA	20A	2#12, 1#12G, 3/4"C	20A/1P	LB1A	19	3
RP 5	RADIANT CEILING PANEL	750 W	120 V/1-750 VA	20A	2#12, 1#12G, 3/4"C	20A/1P	LB1A	21	3
RP 6	RADIANT CEILING PANEL	750 W	120 V/1-750 VA	20A	2#12, 1#12G, 3/4"C	20A/1P	LB1A	21	3
SP 1	PLUMBING PUMP	4/10 HP	120 V/1-1176 VA	20A	2#12, 1#12G, 3/4"C	30A/1P	LB1A	9	
SPCP 1	SUMP PUMP CONTROL PANEL	3 FLA	120 V/1-360 VA	20A	2#12, 1#12G, 3/4"C	20A/1P TOGGLE	LB1A	11	
STCP 1	STORAGE TANK CONTROL PANEL	3 FLA	120 V/1-360 VA	20A	2#12, 1#12G, 3/4"C	20A/1P TOGGLE	LB1A	11	
UH 1	UNIT HEATER	7.5 KW 9.0 FLA	480 V/3-7482 VA	20A	3#12, 1#12G, 3/4"C	30A/3P	HB1A	19,21,23	
UH 2	UNIT HEATER	5.0 KW 6.0 FLA	480 V/3-4989 VA	20A	3#12, 1#12G, 3/4"C	30A/3P	HB1A	19,21,23	

A. REFER TO MECHANICAL PLANS FOR SPECIFIC EQUIPMENT LOCATIONS AND REQUIREMENTS.

CONSTRUCTION IF LESS CONNECTIONS ARE REQUIRED.

- PRIOR TO ROUGH-IN, COORDINATE ALL MECHANICAL EQUIPMENT POWER AND CONNECTION REQUIREMENTS WITH MECHANICAL CONTRACTOR'S FINAL SHOP DRAWINGS.
- PROVIDE ALL 120V CONTROL WIRING, REFER TO SPECIFICATIONS FOR FURTHER CONTROL WIRING
- FOR ANY VAV SYSTEM COORDINATE POWER REQUIREMENTS WITH MECHANICAL CONTRACTOR AND PROVIDE 120V CONNECTIONS AT EACH VAV BOX, OR AT CENTRAL CONTROL PANEL LOCATION(S) AS REQUIRED. IF EXACT QUANTITIES AND LOCATIONS FOR CONTROL PANELS ARE NOT KNOWN AT BID TIME, E.C. IS TO INCLUDE ONE 120V CONNECTION AT EACH VAV DEVICE IN THE BASE BID PRICE AND PROVIDE A CREDIT DURING
- E. EXTERIOR DISCONNECT SWITCHES ARE TO BE PROVIDED AS NEMA 3R EQUIPMENT UNLESS OTHERWISE NOTED.
- PROVIDE WEATHERPROOF 120 VOLT GFCI RECEPTACLES WITHIN 25' OF ALL ROOFTOP HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT. CIRCUIT TO SPARE CIRCUIT ON NEAREST 120V PANELBOARD OR AS INDICATED ON PLANS.
- PROVIDE DUCT DETECTION ON ALL RETURN AIR SYSTEMS OF 2,000 CFM OR GREATER, AND FOR ALL SUPPLY AIR SYSTEMS 15,000 CFM OR GREATER, INCLUDING THOSE SYSTEMS SERVING MULTIPLE FLOORS. PROVIDE ADDITIONAL DUCT DETECTORS AND INSTALL REMOTE INDICATOR LIGHTS AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION.
- FOR ANY BOILER MECHANICAL SYSTEM, E.C. IS TO PROVIDE AN EMERGENCY PUSHBUTTON OFF AND ANY CONTROL WIRING REQUIRED. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR AND EQUIPMENT PRIOR TO INSTALLATION.
- EC TO PROVIDE HAND/OFF/AUTO STARTERS FOR ALL MOTORS WHEN NOT INDICATED AS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR ON THE MECHANICAL PLANS. SIZE OF STARTER TO BE BASED UPON SIZE OF MOTOR HORSEPOWER INDICATED.

## MECHANICAL EQUIPMENT SPECIFIC NOTES

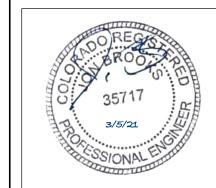
- VERIFY THAT ELECTRICAL DISCONNECT IS PROVIDED BY MANUFACTURER AND INSTALL IN ACCESSIBLE LOCATION.
- EC SHALL PROVIDE DEDICATED 120V DUPLEX GFCI RECEPTACLE WITHIN 3 FEET OF AND BEHIND UNIT. RECEPTACLE TO BE CIRCUITED PER MECHANICAL EQUIPMENT SCHEDULE.
- MOUNT RADIANT PANEL IN ELEVATOR SHAFT WITH BOTTOM OF PANEL AT 18" ABOVE BOTTOM OF PIT. CONFIRM ALL MOUNTING LOCATIONS WITH ELEVATOR INSTALLER.

		PANEL: HE														
		LOCATION: BOIL SUPPLY FROM: MOUNTING: SURF ENCLOSURE: NEM	FACE	00			VOLTS: PHASES: WIRES:		Wye				MAINS R	ATING: 65K AIC FULLY RATED 5 TYPE: MLO ATING: 400 A ATING: N/A		
Notes:																
СКТ	CCT TYPE	LOAD DESCRIPTION	TRIP	POLES CB TYF	PE	A	E	3	(	C	СВ ТҮРЕ	POLES	TRIP	LOAD DESCRIPTION	CCT TYPE	СКТ
1	М	ELEVATOR 'ELEV-1'	70	3	9422	0								BUSSED SPACE		2
3							9422	0						BUSSED SPACE		4
5									9422	0				BUSSED SPACE		6
7	М	PUMP (P-1)	20	3	3048	0								BUSSED SPACE		8
9							3048	0						BUSSED SPACE		10
11									3048	0				BUSSED SPACE		12
13	М	PUMP (P-2)	20	3	3048	0								BUSSED SPACE		14
15							3048	0						BUSSED SPACE		16
17									3048	0				BUSSED SPACE		18
19	Е	UNIT HEATERS (UH-1, UH-2)	20	3	4157	0								BUSSED SPACE		20
21							4157	0						BUSSED SPACE		22
23									4157	0				BUSSED SPACE		24
25	1	PLATFORM AND BOH LTG	20	1	834	0			1107					BUSSED SPACE		26
27	 E	LTG CONTROL RELAY PANEL 'RP1'	20	1	00.1		500	0						BUSSED SPACE		28
29		SPARE SPARE	20	1			300		0	0				BUSSED SPACE		30
31		SPARE	20	1	0	32333						3		DOPPELMAYR PANEL	E; M	
33		BUSSED SPACE				32333	0	32333								34
35		BUSSED SPACE						32333	0	32333						36
37		BUSSED SPACE			0	7205			0	32333		3	45	PANEL 'LB1A' VIA XFMR 'TB1A'	L; E; R	
39		BUSSED SPACE				7203	0	8721							L, L, N	40
41		BUSSED SPACE					U	0/21	0	8597						42
41		BUSSED SPACE		Fotal Load:	600	47 VA	6122	Q V/A		05 VA						42
				otal Amps:		7 A	22			9 A						
B TYPI	LEGENE	)		•								CIRCUIT PH	ASE CO	DE LEGEND		
GFCI: 5r	nA GROU	ND FAULT CIRCUIT INTERRUPTER			HC(-ON/C	OFF): HAND	LE CLAMP	FOR LOCK	ING IN ON	/OFF POSIT	TON	N1.	EXISTIN	IG LOAD ON EXISTING CIRCUIT BREA	AKER.	
GFEP: 3	Oma GRO	OUND FAULT PROTECTION FOR EQUIPM	ENT		HT#: HAN	IDLE TIE WI	TH GROUP	ING#				N2.	NEW LO	DAD ON EXISTING CIRCUIT BREAKER	₹.	
		CIRCUIT INTERRUPTER			ST: SHUN				_			N3.		DAD ON NEW CIRCUIT BREAKER. CI		
.AFCI: ( CT TYI		TION ARC FAULT & 5mA GROUND FAUL	_I CIRCUII	LOA		RMANENTL)	LOCKABL DEMAND		R					ER AND AIC RATING TO MATCH EXIS ANEL TOTALS	TING.	
IGHTIN				872			1090 V						Ρ/	AITLL IUIAL3		
ECEPT				1440			1440 \						TOT	AL CONN. LOAD: 181882 VA		
NOTOR:				54872			61939						TC	OTAL EST. LOAD: 189167 VA		
QUIPM				12469	8 VA		124698	VA						TOTAL CONN.: 219 A		
(ITCH E NOTES:	QUIP:												TOTA	L EST. DEMAND: 228 A		

		PANEL: LB LOCATION: BOILE		100				VOLTS:	120/208	Wye				A.I.C. R	NATING: 10K AIC FULLY RATED		
		SUPPLY FROM: TB1A Mounting: Surfa Enclosure: Nema						PHASES: WIRES:						MAINS R	S TYPE: MCB RATING: 100 A RATING: 100 A		
otes:																	
СКТ	CCT TYPE	LOAD DESCRIPTION	TRIP	POLES	СВ ТҮРЕ		<b>A</b>		3		c	СВ ТҮРЕ	POLES	TRIP	LOAD DESCRIPTION	CCT TYPE	C
1	E	BOILER (B-1)	40	3		3627	180						1	20	UTILITY YARD RECEPT	R	
3								3627	1200			GFEP	2	20	HEAT TRACE SYSTEM	Е	
5										3627	1200						
7	M	EXHAUST FAN (EF-1)	20	1		818	0						1	20	SPARE		
9	Е	PLUMBING PUMP (SP-1)	20	1				1176	0				1	20	SPARE		1
11	Е	CTRL PANELS AND GLYCOL FEEDER	20	1						770	0		1	20	SPARE		1
13		SPARE	20	1		0	0						1	20	SPARE		1
15		SPARE	20	1				0	0				1	20	SPARE		1
17	Е	RP-1, RP-2	20	1						1500	0		1	20	SPARE		1
19	Е	RP-3, RP-4	20	1		1500	0						1	20	SPARE		7
21	E	RP-5, RP-6	20	1				1500	0				1	20	SPARE		1
23	Е	MECHANICAL CONTROLS	20	1						500	0		1	20	SPARE		7
25	R	BOILER ROOM RECEPTS	20	1		540	0						1	20	SPARE		2
27	L; R	ELEVATOR SHAFT RECEPT	20	1				218	0				1	20	SPARE		2
29	M	THERMOSTAT AND MOTOR DAMPER	20	1						500	0		1	20	SPARE		3
31	R	MACHINE ROOM RECEPT	20	1		360	0								BUSSED SPACE		3
33	Е	ELEVATOR CAB CONNECTION	20	1				1000	0						BUSSED SPACE		3
35	Е	FIRE ALARM CONTROL PANEL	20	1						500	0				BUSSED SPACE		3
37	R	OPERATOR CABIN RECEPTS	20	1		180	0								BUSSED SPACE		3
39		SPARE	20	1				0	0						BUSSED SPACE		4
41		SPARE	20	1						0	0				BUSSED SPACE		4
				Total Load			5 VA		1 VA		7 VA						
			•	Total Amps		60	) A	74	ł A	73	3 A						
	E LEGENI														DE LEGEND		
		IND FAULT CIRCUIT INTERRUPTER DUND FAULT PROTECTION FOR EQUIPME	NT			HC(-ON/O HT#: HAN	,			ang in on	OFF POSI		N1. N2.		NG LOAD ON EXISTING CIRCUIT BREA OAD ON EXISTING CIRCUIT BREAKER.	KER.	
FCI: AF	RC FAULT	CIRCUIT INTERRUPTER				ST: SHUNT	T TRIP			_		1	N3.	NEW L	OAD ON NEW CIRCUIT BREAKER. CIR		
AFCI: ( CT TY		TION ARC FAULT & 5mA GROUND FAUL	I CIRCUII	INTERRUP	LOAD	LOCK: PEF	RMANEN I L	Y LOCKABL DEMAND		R					ER AND AIC RATING TO MATCH EXIST ANEL TOTALS	ING.	
IGHTIN					38 VA			48 V						P/	MINLE IUIALS		
ECEPT	ACLE:				1440 VA			1440	VA						TAL CONN. LOAD: 24523 VA		
NOTOR:					1318 VA			1523						TO	OTAL EST. LOAD: 24737 VA		
QUIPM					21727 V	4		21727	VA					TOT	TOTAL CONN.: 68 A		
ITCH E														1014	AL EST. DEMAND: 69 A		

RCRBD **RECORD SET ELECTRICAL** 





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**Job Number:** 20034 **Date:** 03/05/2 Drawn By: BDJ, MAE Checked By:

**Project Phase** 

PERMIT SET

Sheet Title
ELECTRICAL SCHEDULES

	LIGHTING CONTROL NOTES
	GENERAL CONTROL NOTES
G1	THE LIGHTING CONTROL SYSTEM CONSISTS OF THE FOLLOWING:  a. STAND-ALONE CONTROLS  b. ROOM CONTROLLER CONTROLS  c. NETWORKED RELAY BASED LIGHTING CONTROL PANEL SYSTEM  OR NETWORKED DISTRIBUTED LIGHTING CONTROLS  OR NETWORKED WIRELESS DISTRIBUTED LIGHTING CONTROLS
G2	ALTERNATE MANUFACTURER'S WILL BE REVIEWED ACCORDING TO THE NOTES PROVIDED IN THE LIGHTING FIXTURE SCHEDULE.
G3	ALL WIRING DIAGRAMS WITHIN THESE DRAWINGS ARE PROVIDED TO COMMUNICATE THE DESIGN INTENT. SYSTEM SHALL BE WIRED ACCORDING TO THE APPROVED SHOP DRAWINGS.
G4	ALL STRUCTURED CABLE WIRING SHOWN ON RISER DIAGRAMS IS INTENDED TO BE BY CONTROL MANUFACTURER APPROVED STANDARD STRUCTURED CABLING, UNLESS OTHERWISE NOTED. EC SHALL PROVIDE ALL CABLING WITHIN THE LIGHTING CONTROSYSTEM, CABLING BETWEEN THE NETWORKED HEAD-END AND THE BUILDINGS COMMUNICATION NETWORK SHALL BE PROVIDED BY THE LOW VOLTAGE CONTRACTOR/OWNER.
G5	ALL MANUALLY DIMMED LIGHT LOADS SHALL BE CAPABLE OF DIMMING LIGHTS TO OFF SETTING. DIMMING COMPATIBILITY BETWEEN THE CONTROLS AND LIGHT FIXTURES SHALL BE COORDINATED BY THE EC TO ENSURE THAT LIGHTING IS ABLE TO DIM TO LEVEL NOTED ON LIGHTING FIXTURE SCHEDULE.
G6	LIGHTING CONTROL SYSTEM SHALL INCLUDE A MINIMUM OF (4) HOURS OF MANUFACTURER'S REPRESENTATIVE TIME ON SITE FOR SYSTEM CHECK-OUT AND OWNER TRAINING. ELECTRICAL CONTRACTOR SHALL VIDEO RECORD TRAINING SESSION AND PROVIDE COPY OF VIDEO TO OWNER AS PART OF PROJECT COMPLETION SUBMITTALS.
G7	ALL DIGITAL SWITCHES FOR OVERRIDE CONTROL OF LIGHTING CONTROL SYSTEM(S) SHALL HAVE A MAXIMUM SETTING OF 2 HOURS PER IECC REQUIREMENTS.
G8	FINAL OCCUPANCY AND DAYLIGHT SENSOR LOCATION SHALL BE PROVIDED BY MANUFACTURER AND LOCATED PER APPROVED SHOP DRAWINGS AND DEVICE REQUIREMENTS. LOCATIONS INDICATED IN THESE DRAWINGS SHALL BE REVIEWED AND ALTERED AS NECESSARY FOR CORRECT OPERATION BY MANUFACTURER. IF OPERATIONS OF SENSORS DOES NOT MEET THE INTENT OUTLINED IN THESE DOCUMENTS THE MANUFACTURER REPRESENTATIVE SHALL PROVIDE FIELD RECTIFICATION SERVICES AS NECESSARY IN ORDER TO RECONFIGURE SYSTEM TO MEET OUTINED INTENT.
	STANDALONE LIGHTING CONTROL GENERAL NOTES

a.	LEVITON
b.	nLIGHT/SENSORSWITCH
c.	LUTRON
d.	GREENGATE
_	WATTSTORRED

f. DOUGLAS

FOLLOWING PRE-APPROVED MANUFACTURERS:

ROOM CONTROLLER GENERAL NOTES

R1	APPROVED ROOM CONTROLLER LIGHTING CONTROLS TO BE PROVIDED BY ONE OF	
	THE FOLLOWING PRE-APPROVED MANUFACTURERS:	
	2 CDECTRON	

APPROVED STANDALONE LIGHTING CONTROLS TO BE PROVIDED BY ONE OF THE

b. nLIGHT d. GREENGATE

e. WATTSTOPPER

f. DOUGLAS R2 REFER TO ELECTRICAL LIGHTING LAYOUTS FOR LAYOUT OF DEVICES CONNECTED TO ROOM CONTROLLERS. ROOM CONTROLLER COMPONENTS ARE INDICATED IN THE "LIGHTING CONTROL DEVICE" SCHEDULE, THESE COMPONENTS START WITH THE DESIGNATION 'R'.

ROOM CONTROLLER HEAD END EQUIPMENT LOCATIONS ARE INDICATED IN SPACES, HOWEVER DRAWINGS ARE DIAGRAMMATIC AND EXACT QUANTITY OF ROOM CONTROLLER HEAD END EQUIPMENT PIECES VARIES FROM MANUFACTURER TO MANUFACTURER BASED ON DIMMING UTILIZATION, QUANTITY OF RELAYS, NUMBER OF INPUT DEVICES, QUANTITY OUTPUT ZONES AND RECEPTACLE CONTROL.

f-														
				LIGI	HTING	FIXTU	RE SCH	<b>EDULE</b>	•					
TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLTAGE	LAMP	LAMP	LAMP / CCT	MAX	LUMEN	DIMMING	FIXTURE	LOCATION	BOF/RFD/O	NOTES
					QUAN.	WATTAGE	/ CRI	WATTAGE	OUTPUT		FINISH		FH	
EA1	AREA TYPE IV LED POLE	HUBBELL	ALT4-P70-96L-3K-277-BL	277 V	1	224 W	3000K 80 CRI LED	224 VA	19582		BLACK	POLE	15'-0" OFH	1,2
EA2	AREA TYPE V LED POLE	HUBBELL	ALT5-P35-96L-3K-277-BL	277 V	1	104 W	3000K 80 CRI LED	104 VA	11644		BLACK	POLE	15'-0" OFH	1,2
EA3	EXTERIOR LED AREA POLE LIGHT, SINGLE HEAD TYPE III	HUBBELL	ALT4-P35-96L-3K-277-BL	277 V	1	104 W	3000K 80 CRI LED	104 VA	9902		BLACK	POLE	15'-0" OFH	1,2
ED1	15" X 15" SQUARE LED CANOPY DOWNLIGHT	CREE	CPY250-DM-F-C-UL-BK-30K- DIM	277 V	1	31 W	3000K 80 CRI LED	31 VA	4210		BLACK	CANOPY SURFACE	2" RFD	1,2
EW2EM	9" WIDE LED WALL MOUNT	LITHONIA	WDGE1 LED-P1-30K-80CRI-VM-MVOL T-E4WH-DBLXD	277 V	1	10 W	3000K 80 CRI LED	10 VA	1163		BLACK	SURFACE WALL	SEE PLANS	1
L1	4' LED STRIP LIGHT	LITHONIA	CLX-L48-3000LM-SEF-L/LENS -MVOLT-GZ10-30K-80CRI-W H	277 V	1	20 W	3000K 80 CRI LED	20 VA	2631	0-10V	WHITE	SURFACE CEILING	1" RFD	1
L1EM	4' LED STRIP LIGHT WITH EMERGENCY	LITHONIA	CLX-L48-3000LM-SEF-L/LENS -MVOLT-GZ10-30K-80CRI-E1 0WLCP-WH	277 V	1	20 W	3000K 80 CRI LED	20 VA	2631	0-10V	WHITE	SURFACE CEILING	1" RFD	1
L2	4' LED STRIP LIGHT	LITHONIA	CLX-L48-3000LM-SEF-L/LENS -MVOLT-GZ10-30K-80CRI-W H-ZACVH	277 V	1	20 W	3000K 80 CRI LED	20 VA	2631	0-10V	WHITE	SUSPENDED	1" RFD	1
L2EM	4' LED STRIP LIGHT WITH EMERGENCY	LITHONIA	CLX-L48-3000LM-SEF-L/LENS -MVOLT-GZ10-30K-80CRI-W H-ZACVH-E10WLCP	277 V	1	20 W	3000K 80 CRI LED	20 VA	2631	0-10V	WHITE	SUSPENDED	1" RFD	1
S1	6" SURFACE MOUNT CYLINDER	LITHONIA	LDN6CYL-30/10-LO6-BR-LSS- MVOLT	277 V	1	11 W	3000K 80 CRI LED	11 VA	950		BLACK	SURFACE CEILING	9'-0" BOF	1
W1	4' LED STRIP LIGHT	CREE	C-STRIP-A-LIN4-22L-30K-WH	120 V	1	19 W	3000K 80 CRI	19 VA	2200			SURFACE WALL	6'-0" OFH	1
	ELEVATOR SHAFT		TIBE SEVEN				LED							
	LIGH	IING FIXT	TURE GENER	KAL NO	IES							110	HTING	
								1				1 11 _	<b>—                                    </b>	> H ( )

A. ALL FRONT OF HOUSE LED LAMPS TO BE 3000K COLOR TEMPERATURE AND A MINIMUM OF 90CRI, UON.

NECESSARY COMPONENT AS REQUIRED FOR INSTALLING A SECURE AND FULLY FUNCTIONAL SYSTEM.

G. ALL MOUNTING HEIGHTS SHALL BE VERIFIED WITH ARCHITECTURAL ELEVATIONS PRIOR TO ANY ROUGH-IN.

OTHERWISE NOTED, EC SHALL ASSUME STANDARD LUMINAIRE FINISH OPTION FOR PRICING.

D. FOR ALL SPECIFIED LUMINAIRES, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MOUNTING HARDWARE,

ACCESSORIES, COMPONENTS, LEADER/JUMPER CABLES, WIRE FEED, CONNECTORS, END CAPS, REMOTE POWER SUPPLIES, AND ANY OTHER

THE CONTRACTOR SHALL VERIFY THE CEILING TYPE BEFORE ORDERING LIGHT FIXTURES TO ENSURE COMPATIBILITY WITH SPECIFIED

ALL FINISH SELECTIONS SHALL BE VERIFIED BE ARCHITECT/INTERIOR DESIGNER/OWNER AS PART OF THE SUBMITTAL PROCESS. UNLESS

LIGHTING FIXTURE SPECIFIC NOTES

2. OVERALL FIXTURE HEIGHT DTERMINED FROM PLATFORM LEVEL ELEVATION (LEVEL 1) TO BOTTOM OF FIXTURE LENS. COORDINATE EXACT

B. ALL REFLECTOR LAMPS TO BE PROVIDED AS WIDE FLOOD DISTRIBUTION, UON.

C. LUMENS LISTED ARE DELIVERED LUMENS, NOT INITIAL.

FIXTURES. NOTIFY SPECIFIER OF ANY DISCREPANCIES.

ARCHITECT TO VERIFY COLOR FINISH PRIOR TO ORDERING.

HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.

N	LIGHTING CONTROLS NAMING CONVENTION
SYST	EM TYPE
	N = NETWORKED R = ROOM CONTROLLER
	(THE ABSENCE OF LETTERS ABOVE UNDER 'SYSTEM TYPE
	INDICATE A STANDALONE SYSTEM)
ΔΙΙΤΟ	MATIC MEANS OF SHUTOFF
,,,,,,	L = LIGHT LEVEL (VIA PHOTOCELL)
	M = MANUAL
	O = OCCUPANCY
	T = TIMECLOCK
	V = VACANCY
DEVI	CES
	C = CONTROLLED RECEPTACLE
	D = DIMMER
	E = EXTERIOR
	P = PHOTOCELL S = SENSOR
	U = UNIQUE DEVICE TYPE
	W = SWITCH MOUNTED DEVICE
NUMI	BERING
	1,2,3 = QUANTITY AS REQUIRED FOR
	DIFFERENT PROGRAMMING SCENARIOS, DEVICE
	CHARACTERISTICS OR MOUNTING CONDITIONS

	LIGHTING SEQUENCE OF OPERATION								
CONTROL SEQUENCE	ON	OFF	SENSOR TYPE	TIME OUT	DIMMING	DAYLIGHT HARVESTING	TARGET ILLUMINANCE (FC)	NOTES	
T1	TIMECLOCK AUTOMATIC ON 30 MINUTES PRIOR TO BUSINESS HOURS	TIMECLOCK AUTOMATIC OFF 30 MINUTES AFTER CLOSE OF BUSINESS	NONE	N/A	N/A	NO			
T2	TIMECLOCK AUTOMATIC ON 30 MINUTES PRIOR TO BUSINESS HOURS	TIMECLOCK AUTOMATIC OFF 30 MINUTES AFTER CLOSE OF BUSINESS	NONE	N/A	SWITCHING	NO			
T3	MANUAL ON	MANUAL OFF	NONE	N/A	0-10V	NO			

LIGHTING RELAY SCHEDULE - RP1							
		DIMMING /		PANEL-CIRC	•		
<b>RELAY ID</b>	RELAY DESCRIPTION	SWITCHING	VOLTAGE	UIT	CONTROL SEQUENCE		
RP1-1	PLATFORM POLES		277 V	HB1A-25	TIMECLOCK		
RP1-2	WALL/ELEVATOR SCONCES		277 V	HB1A-25	TIMECLOCK		
RP1-3	GONDOLA DOWNLIGHTS		277 V	HB1A-25	TIMECLOCK		
RP1-4	SPARE						
RP1-5	SPARE						
RP1-6	SPARE						
RP1-7	SPARE						
RP1-8	SPARF						

RCRBD **RECORD SET ELECTRICAL** 



NOTICE: DUTY OF COOPERATION Release of these plans contemplates further cooperation among the owner, his contractor and the architect. Design and construction are complex.

Although the architect and his consultants have performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated.
Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the architect. Failure to notify the architect compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the architect shall relieve the architect from responsibility for the consequences. Changes made from the plans without consent of the architect are unauthorized and shall relieve the architect of responsibility for all consequences arriving out of such changes.

All design, documents and data prepared by Eric Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C. and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express written consent of Eric Smith Associates, P.C. Eric Smith Associates, P.C.

**REVISIONS** Description

STE,

Job Number: 20034 03/05/21 Drawn By: BDJ, MAE Checked By:

**Project Phase** PERMIT SET

**Sheet Title** ELECTRICAL LIGHTING SCHEDULES

Additional Comments/Assumptions	Additional	Comments/Assumptions
---------------------------------	------------	----------------------

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3. 1,	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.4 [EL26] <sup>1</sup>	Separate lighting control devices for specific uses installed per approved lighting plans.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.4 [EL27] <sup>1</sup>	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.5 [EL28] <sup>null</sup>	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	□Complies □Does Not □Not Observable □Not Applicable	
C405.3 [EL6] <sup>1</sup>	Exit signs do not exceed 5 watts per face.	□Complies □Does Not □Not Observable □Not Applicable	
C405.6 [EL26] <sup>2</sup>	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	□Complies □Does Not □Not Observable □Not Applicable	
C405.7 [EL27] <sup>2</sup>	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	□Complies □Does Not □Not Observable □Not Applicable	
C405.8.2, C405.8.2. 1 [EL28] <sup>2</sup>	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	□Complies □Does Not □Not Observable □Not Applicable	
C405.9 [EL29] <sup>2</sup>	Total voltage drop across the combination of feeders and branch circuits <= 5%.	□Complies □Does Not □Not Observable □Not Applicable	

1 [EL18] <sup>1</sup>	conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	□Not Observable □Not Applicable	
C405.2.1. 2 [EL19] <sup>1</sup>	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	□Does Not □Not Observable □Not Applicable	
C405.2.1. 3 [EL20] <sup>1</sup>	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	□Complies □Does Not □Not Observable □Not Applicable	
C405.2.2.	Each area not served by occupancy sensors (per C405.2.1) have timeswitch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	□Complies □Does Not □Not Observable □Not Applicable	

Complies?

□Not Applicable

□Does Not

☐Complies

□Does Not

Comments/Assumptions

		1 High Impact (Tier 1) 2	Medium Impact (Tier 2)	3 Low Impact (Tier	3)		
Pro	oject Title:	Steamboat Gondola Relocation			Report date:	03/04/	2:
Da	ta filename:	J:\5155.00 - Steamboat Ski Gondola\Ltg 2018.cck	g Calcs\515500 - Steamboat Sp	rings Gondola - IECC	Page	4 of	7

### COMcheck Software Version 4.1.4.3 **Inspection Checklist** Energy Code: 2018 IECC

Project Title: Steamboat Gondola Relocation

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Data filename: J:\5155.00 - Steamboat Ski Gondola\Ltg Calcs\515500 - Steamboat Springs Gondola - IECC Page 6 of 7

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	□Complies □Does Not □Not Observable □Not Applicable	
C103.2 [PR8] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	□Complies □Does Not □Not Observable □Not Applicable	
C406 [PR9] <sup>1</sup>	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	□Complies □Does Not □Not Observable □Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Data filename: J:\5155.00 - Steamboat Ski Gondola\Ltg Calcs\515500 - Steamboat Springs Gondola - IECC Page 3 of 7 2018.cck

Additional	Comments/	Assumptions:

Project Title: Steamboat Gondola Relocation

# COMcheck Software Version 4.1.4.3 Exterior Lighting Compliance Certificate

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Data filename: J:\5155.00 - Steamboat Ski Gondola\Ltg Calcs\515500 - Steamboat Springs Gondola - IECC Page 5 of 7

### Project Information

Report date: 03/04/21

•	
Energy Code:	2018 IECC
Project Title:	Steamboat Gondola Relocation
Project Type:	New Construction
Exterior Lighting Zone	2 (Residential mixed use area)

Project Title: Steamboat Gondola Relocation

struction Site:	Owner/Agent:	Designer/Contractor:
eamboat Springs, CO 80487	Steamboat Ski & Resort	Mark Ekberg
, ,	Corporation	AE Design
	2305 Mt Werner Circle	1900 Wazee Street #20!
	Steamboat Springs, CO 80487	Denver, CO 80202
	970.871.5381	303.296.3034

## **Allowed Exterior Lighting Power**

A Area/Surface Category	Quantity	Allowed Watts / Unit	Tradable Wattage	Allowed Watts (B X C)
ain Platform (Plaza area)	6000 ft2	0.1	Yes	600
ower Level Pathway (Walkway >= 10 feet wide)	1405 ft2	0.1	Yes	140
		Total Tradab	le Watts (a) =	740
		Total All	owed Watts =	740
	Total All	owed Supplement	al Watts (b) =	400
<ul><li>(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.</li><li>(b) A supplemental allowance equal to 400 watts may be applied toward</li></ul>		oth non-tradable a	and tradable are	as/surfaces.

### **Proposed Exterior Lighting Power**

A Fixture ID: Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	(C X D)
Main Platform ( Plaza area 6000 ft2): Tradable Wattage				
LED 1: EA2, EA3: AREA POLE LIGHTS: Other:	1	2	104	208
LED 3: ED1: CANOPY DOWNLIGHTS: Other:	1	6	31	186
LED 4: EW2EM: EXTERIOR SCONCES: Other:	1	3	10	30
Lower Level Pathway ( Walkway >= 10 feet wide 1405 ft2): Tradable Wattage				
LED 2: EA1: AREA POLE LIGHT FOR PATHWAY: Other:	1	1	224	224
	Total Trac	dable Propos	ed Watts =	648

### Exterior Lighting PASSES: Design 43% better than code

### Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.4.3 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

·	Λ -	
Mark Ekberg - Project Designer	Marke and	03/04/2021
lame - Title	Signature	Date

Project Title:	Steamboat Gondola Relocation	Report date:	03/04	/21
Data filename:	$J:\5155.00$ - Steamboat Ski Gondola\Ltg Calcs\515500 - Steamboat Springs Gondola - IECC 2018.cck	Page	2 of	7



# COMcheck Software Version 4.1.4.3 Interior Lighting Compliance Certificate

### Project Information

Energy Code:	2018 IECC
Project Title:	Steamboat Gondola Relocation
Project Type:	New Construction

# Rough-In Electrical Inspection

reduction controls have a manual

a reasonably uniform illumination

conference/meeting/multipurpose

reduce the connected lighting load in

C405.2.2. Spaces required to have light-

[EL22]<sup>1</sup> control that allows the occupant to

pattern >= 50 percent.

C405.2.1. classrooms/lecture/training rooms,

C405.2.1, Occupancy sensors installed in

& Req.ID

onstruction Site:	Owner/Agent:	Designer/Contractor:
Steamboat Springs, CO 80487	Steamboat Ski & Resort	Mark Ekberg
, ,	Corporation	AE Design
	2305 Mt Werner Circle	1900 Wazee Street #
	Steamboat Springs, CO 80487	Denver, CO 80202

970.871.5381

### Additional Efficiency Package(s)

Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Allowed Interior Light	ing Power	
	Α	

Area Category	Floor Area (ft2)	Allowed Watts / ft2	Allowed Watts (B X C)
OPERATORS CABIN (Common Space Types:Office - Enclosed)	111	0.84	93
ELECTRICAL/MECHANICAL ROOMS (Common Space /pes:Electrical/Mechanical)	270	0.39	105
		Total Allowed Watts =	199

303.296.3034

### Proposed Interior Lighting Power

Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	Lamps/ Fixture	# of Fixtures	Fixture Watt.	(C X D)
1-OPERATORS CABIN (Common Space Types:Office - Enclosed) LED 1: S1: 6" SURFACE MOUNT CYLINDER: Other:	1	6	11	66
2-ELECTRICAL/MECHANICAL ROOMS (Common Space Types:Electrical/Mechanical) LED 3: W1: ELEVATOR STRIP LIGHTING: Other: Exemption:Lighting approved for safety considerations	1	2	19	Exempt
LED 2: L1/L1EM: 4' LED STRIP LIGHT: Other:	1	6	20	120
		Total Propos	ed Watts =	186

### nterior Lighting PASSES: Design 6% better than code

### Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.4.3 and to comply with any applicable mandatory

requirements listed in the hispection checklist.		
Mark Ekberg - Project Designer	mare any	03/04/2021
Name - Title	Signature	Date

Data filename: J:\5155.00 - Steamboat Ski Gondola\Ltg Calcs\515500 - Steamboat Springs Gondola - IECC Page 1 of 7

### RCRBD



Integrated Lighting and Electrical Solutions 1900 Wazee Street #205 | Denver, CO 80202 | 303.296.3034 Project #: 5155.00

NOTICE: DUTY OF COOPERATION

Release of these plans contemplates further cooperation among the owner, his contractor and the

architect. Design and construction are complex.
Although the architect and his consultants have

performed their services with due care and diligence, they cannot guarantee perfection. Communication is

imperfect and every contingency cannot be anticipated.
Any ambiguity or discrepancy discovered by the use of

these plans shall be reported immediately to the architect. Failure to notify the architect compounds

misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the architect

shall relieve the architect from responsibility for the

consequences. Changes made from the plans without consent of the architect are unauthorized and shall

relieve the architect of responsibility for all

consequences arriving out of such changes.

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Smith Associates, P.C. as instruments of service shall remain property of Eric Smith Associates, P.C.

and shall not be copied, changed or disclosed in any form whatsoever without first obtaining the express

written consent of Eric Smith Associates, P.C.

Eric Smith Associates, P.C.

REVISIONS

Description

**Job Number:** 20034 03/05/2 BDJ, MAE Drawn By: Checked By: 1PK

Project Phase PERMIT SET

**Sheet Title** ELECTRICAL LIGHTING COMPLIANCE

**Sheet Number** 

**ELECTRICAL** 



April 01, 2021

Routt County Regional Building Department Attn: Todd Carr, Building Official 136 6<sup>th</sup> Street, Suite #201 Steamboat Springs, CO 80487 tcarr@co.routt.co.us

RE: Building Permit Comment Responses for Steamboat Gondola Relocation (TB-21-204)

Todd,

Per your permit comments received 2/24/2021 on the Steamboat Gondola Relocation Project at 2305 Mt Werner Circle (TB-21-204), attached you will find the input from the gondola lift provider, Doppelmayr, on the Operator Cabin.

Please let me know if you have any questions or comments on this.

Sincerely,

Kate Leggett ESA – Principal RCRBD Record Set TC

04/03/2021

RCRBD is not responsible for any portions of the operator cabin.



#### **Kate Leggett**

From: Russell.Roselius@doppelmayrusa.com
Sent: Wednesday, March 31, 2021 3:53 PM

To: Kate Leggett

**Cc:** Eric.Mann@doppelmayrusa.com

**Subject:** Fw: On-Mountain Steamboat Gondola Relocation - Letter for Building Department

Hi Kate,

I've just been brought into this, and understand there is a question about permitting for the control enclosure at the bottom terminal of the gondola. It is Doppelmayr's position that this small enclosure is a non-occupied structure which is part of the lift, and houses control cabinets necessary for lift functionality. In dozens of installations in various states, counties, and towns around the US, it has never been classified as a "building" requiring permits or inspections.

It is of a standardized design and is shipped to the site complete, with the possible exception of exterior cladding. Electrically, it is ETL certified. Structurally, it was designed for 450 lb/ft2 snow load so that it can be used at any ski area in the country. It is insulated and heated to protect the electrical equipment within. The electrical systems do not require continuous human monitoring during operation, but access is provided for authorized personnel.

Please let us know if we can be of further assistance.

Russell Roselius, PE

Doppelmayr USA, Inc 12441 W. 49th Ave Suite 1 Wheat Ridge, CO 80033

Phone: 720-728-7283 Cell: 303-885-6990

---- Forwarded by Russell Roselius/USA/Doppelmayr on 03/31/2021 03:49 PM -----

From: Eric Mann/USA/Doppelmayr

To: Russell Roselius/USA/Doppelmayr@Doppelmayr

Date: 03/31/2021 02:46 PM

Subject: Fw: On-Mountain Steamboat Gondola Relocation - Letter for Building Department

#### FYI

---- Forwarded by Eric Mann/USA/Doppelmayr on 03/31/2021 02:44 PM -----

From: "Kate Leggett" <kate@esapc.com>

To: "Eric Mann (Eric.Mann@doppelmayrusa.com)" < Eric.Mann@doppelmayrusa.com>

Date: 03/30/2021 08:40 AM

Subject: On-Mountain Steamboat Gondola Relocation - Letter for Building Department



RCRBD Record Set TC 03/24/2021

December 18, 2020

Steamboat Ski and Resort Corp. Lance Miles 2305 Mt Werner Circle Steamboat Springs, CO 80847

Job Number: 20-12047

Subject: Subsoil and Foundation Investigation, Proposed Gondola Base Terminal Relocation, Steamboat Ski Resort, Steamboat Springs, Colorado.

Lance,

This report presents the results of the Subsoil and Foundation Investigation (SFI) for the proposed Silver Bullet Gondola Base Terminal Relocation (SBGBTR) at the Steamboat Ski Resort in Steamboat Springs, Colorado. The approximate location of the project site is shown in Figure #1.

NWCC, Inc.'s (NWCC) scope of work included obtaining data from cursory observations made at the site, review of nearby subsoil investigations conducted by NWCC, logging of four test pits, sampling of the probable foundation soils and laboratory testing of the samples obtained. This report presents recommendations for economically feasible and safe type foundations, as well as allowable soil pressures and other design and construction considerations that are advisable, but not necessarily routine to quality design and building practices.

<u>Proposed Construction</u>: NWCC understands the new gondola terminal is proposed to be constructed uphill from the current gondola base terminal. Construction will include a lift terminal, retaining walls and site grading. Based on the preliminary site plan provided by Landmark Consultants and observations of existing topography, it appears that cuts of 15 to 20 feet may be required in the eastern half of the site. It is NWCC's understanding that some deeper cuts will be permanent, and the client would like these permanent cuts to have 1.5 (Horizontal):1(Vertical) side slopes.

For design purposes, NWCC has assumed that building loads will be moderate, typical of this type of commercial construction. If loadings or conditions are significantly different from those above, NWCC should be notified to reevaluate recommendations in this report.

<u>Site Conditions:</u> The proposed SBGBTR site is located east and uphill from the current gondola base terminal at the base of the Steamboat Ski Resort and in the vicinity of two existing magic carpet ski lifts. The South Face ski lift existed in the area prior to construction of the magic carpet lifts, and extensive regrading of the slope has been done since removal of the South Face ski lift. Burgess Creek runs north to

south to the west of the proposed building site. This creek was resurfaced in recent history and previously was located farther east.

Vegetation at the proposed building site consists primarily of grasses and weeds. At the time of the investigation, the site had between 0 to 3 feet of man-made snow on the ground surface. Topography of the site is fairly uniform and slopes moderately down to the west on the order of 12 to 15 percent. An elevation difference of approximately 18 to 20 feet exists across the building site.

<u>Subsurface Conditions:</u> To investigate the subsurface conditions at the site, four test pits were advanced at the site on November 19, 2020. A site plan showing existing features along with the approximate test pit locations is presented in Figure #2.

Subsurface conditions encountered were variable and generally consisted of a layer of topsoil and organic materials or fill materials overlying natural clays or sands, gravels, cobbles and boulders to the maximum depth investigated, 14 feet beneath existing ground surface (bgs). Graphic logs of the exploratory test pits, along with associated Legend and Notes, are presented in Figure #3.

Based on subsurface conditions encountered during investigations on the adjacent Chateau Chamonix and property to the southeast and One Steamboat Place property to the west, bedrock of the Brown's Park Formation likely underlies the clays and sands, gravels, cobbles and boulders at depths from ranging from 20 to 30 feet bgs. However, bedrock depths at this proposed building site are not presently known. To assess bedrock types and depths, further investigation would be required.

A layer of topsoil and organic materials was encountered at the ground surface in Test Pits 1 and 3 and was approximately 18 to 30 inches in thickness. Fill materials were encountered at the ground surface in Test Pits 2 and 4 and extended to 3 feet bgs in Test Pit 2 and to approximately 5 feet bgs in Test Pit 4. Fill materials consisted of clays with gravels, cobbles and boulders that were low plastic, fine to coarse grained, medium stiff to medium dense, and brown in color.

Natural clays were encountered below the topsoil and organic materials and fill materials in Test Pits 1, 2 and 3 and extended to the maximum depth investigated in each test pit. The clays were sandy, moderately to highly plastic, stiff to hard, slightly moist to moist and brown to reddish brown in color. Samples of the natural clays classified as CL-CH and CL soils in accordance with the Unified Soil Classification System (USCS).

Natural sands, gravels, cobbles and boulders were encountered beneath fill materials in Test Hole 4. This test hole was excavated in the vicinity of a historic creek bed. Refusal was encountered on a large boulder at 9 ½ feet bgs in Test Hole 4. The sands, gravels, cobbles and boulders encountered in this test pit were slightly silty to clayey, low plastic, fine to coarse grained with large boulders greater than 6 feet in diameter, dense, moist and brown in color.

Swell-consolidation tests conducted on samples of the natural clays indicate the materials tested will exhibit a moderate swell potential when wetted under a constant load. The swell-consolidation test results are presented in Figures #4, #5 and #6, and all other laboratory test results are summarized in the attached Table 1. Standard Proctor test results are included following Table 1.

Water soluble sulfate (WSS), chloride content, resistivity and pH testing was conducted on bulk samples to evaluate corrosivity of the soils to metal and cement. Final corrosivity test results including WSS, chloride content and pH testing are included in the attached Table 2. Soil resistivity testing was conducted on samples of the clays and sands and gravels in accordance with G187. Results are shown below in Tables A and B. Test results indicate the materials tested exhibited values between 2,000 and 10,000 ohm-cm. Soils exhibiting a resistivity of 2,000 to 10,000 ohm-cm are rated as moderately corrosive; whereas soils exhibiting a resistivity of 10,000 to 20,000 ohm-cm are rated as mildly corrosive.

TABLE A
SUMMARY OF RESISTIVITY TEST RESULTS – CLAY

Calculated Resistivity (ohms-cm)	10,000	3,700	4,300
Moisture Content of Soil (%)	11.2	18.9	26.9
Ambient Air Temp (°F)	65	65	65
	Test #1	Test #2	Test #3

TABLE B SUMMARY OF RESISTIVITY TEST RESULTS – SANDS AND GRAVELS

	Test #1	Test #2	Test #3
Ambient Air Temp (°F)	65	65	65
Moisture Content of Soil (%)	10.3	17.9	25.2
Calculated Resistivity (ohms-cm)	5,700	2,600	3,100

Groundwater seepage was not encountered in the test pits at the time of excavation. However, groundwater should be expected at depths between 4 and 15 feet bgs during peak runoff, based on groundwater depths encountered at nearby sites and evidence of high-groundwater staining in Test Pit 4. It should be noted that the groundwater conditions at the site can be expected to fluctuate with seasonal changes in precipitation, runoff and flows in Burgess Creek.

Foundation Recommendations: Based on the subsurface conditions encountered in the test pits, the results of the field and laboratory investigations and our understanding of the proposed construction, NWCC believes an economically feasible and safe type of foundation system would consist of straight-shaft skin friction/end bearing piers drilled into the natural soils or bedrock materials. Foundation movement less than ½ inch should be within tolerable limits if the following design and construction precautions are observed.

1) A minimum pier diameter of 12 inches and a minimum pier length of 15 feet are recommended. A maximum pier length to diameter ratio of 25 is also recommended.

- Piers should be designed using an allowable skin friction value of 900 psf for the portion of the pier penetrating the natural soils. The upper 5 feet of penetration should be neglected in the skin friction calculations. A drill rig of sufficient size, type and operating condition should be used so bottom of the piers can be cleaned out properly and minimum length requirements can be met. If bottom of piers are properly cleaned and approved by an engineer from this office, then an allowable end bearing pressure of 3,000 psf for the natural soils may be used in the design. If the piers are advanced into the underlying bedrock materials, they could be designed using an allowable skin friction value of 3,000 psf for the portion of the pier penetrating the competent bedrock materials and an allowable end bearing pressure of 30,000 psf
- Piers should be reinforced their full length with at least one #5 reinforcing rod for each 16 inches of pier perimeter.
- Piers should be properly cleaned and dewatered prior to steel and concrete placement. If groundwater is encountered, casing and dewatering equipment may be required to reduce water infiltration and caving in the piers constructed at this site. The concrete should not be placed in more than 3 inches of water unless the tremie or pump methods are used.
- A 4-inch void should be provided beneath grade beams to prevent swelling soils from exerting uplift forces on grade beams and to concentrate pier loadings. A void should also be provided beneath necessary pier caps.
- We strongly recommend that at least two test holes or test piers be drilled at the building site prior to starting the pier drilling operations. The test holes/piers should be drilled to evaluate the deeper subsoil/bedrock conditions and verify the recommendations given above.
- 7) A representative of NWCC must observe the test hole and pier drilling operations.

Alternate Deep Foundation Recommendations: An alternative foundation system to the drilled piers would be a helical pile foundation system advanced into the underlying clays, sands, gravels, cobbles and boulders, or bedrock materials, if encountered. The helical screw pile foundation system should be designed by a qualified engineer, using industry standards and be installed by a licensed/certified installer. If pile groups are required, we recommend a minimum pile spacing of 3 times the largest helix to achieve the maximum capacity of each individual pile. Lateral loads should be resisted using battered piles or tiebacks or through passive soil pressures against foundation walls or grade beams.

We strongly recommend that at least three test piles be advanced at the site so that the torque versus depth relationships can be established and the proper shaft and helix size and type can be determined. In addition, load testing of the helical screw piles is strongly recommended to verify the design capacity of the piles. A representative of this office should observe the test piles, load test and helical screw pile installations.

NWCC also recommends the following:

- Minimum 8-inch diameter helix;
- Minimum penetration of 8 feet between upper helix and ground surface;
- Minimum installation torque of 5,000 ft-lbs;
- Full-time installation observation by a qualified special inspector;
- Review of the Contractor's quality control plan regarding instrumentation calibration and testing, materials QC, and pile installation procedures;
- Refusal in fill materials is not acceptable.

Alternate Shallow Foundation Recommendations: If the owner is aware of the risks associated with placing shallow foundations on expansive soils and can tolerate and/or design for differential movements that could result if the natural clays become wetted and swell, the structure may be supported by spread footings founded on undisturbed natural clays or sands, gravels cobbles and boulders or properly compacted structural fill materials placed over the natural soils.

The design and construction details presented below should be observed if a shallow foundation system is opted for. The precautions and recommendations itemized below will not prevent movement of the foundations if underlying clays become wetted and swell. However, they should reduce amount of differential movement beneath the foundation system. Differential movements on the order of 1 to 2 inches could still occur if clays undergo moisture changes. The owner must be willing to accept the risk of foundation movement associated with placing shallow foundations on expansive soils.

- 1) Footing excavations should be extended below existing fill materials and topsoil and organic materials down to natural clays or sands, gravels, cobbles and boulders, approximately 1 ½ to 5 feet beneath the existing ground surface.
- 2) Footings placed on the natural clays, sands, gravels, cobbles and boulders should be designed using an allowable soil bearing pressure of 3,500 psf. Footings placed on properly compacted structural fill materials should be designed using an allowable soil bearing pressure of 3,000 psf. Footings placed on the natural clays should also be designed using a minimum dead load pressure of at least 1,100 psf. If at least 2 feet of structural fill materials are placed over the natural clays, footings placed on the structural fill materials should be designed using a minimum dead load pressure of at least 900 psf. No dead load is required for footings placed on sands, gravels, cobbles and boulders or on structural fill materials placed over the sands, gravels, cobbles and boulders.
- Footings or pad sizes should be computed using the above soil pressures and placed on the natural clays or sands, gravels, cobbles and boulders encountered below the topsoil and organic materials and fill materials.

- Any topsoil and organic materials, existing fill materials or soft natural clays found beneath the footings when excavations are opened should be removed and footings extended down to competent natural clays or sands, gravels, cobbles and boulders prior to concrete placement. Footings placed on the clays may have to be narrow or interrupted to maintain the minimum dead load. Foundation design should be closely checked to assure that it distributes loads per the allowable pressures given.
- 5) Foundation walls should be designed and reinforced to span an unsupported distance of 10 feet or the length between pads, whichever is greater.
- 6) Footings or pads should be placed well enough below final backfill grades to protect them from frost heave. Forty-eight (48) inches is typical for this location considering normal snow cover and other winter factors.
- Structural fill materials consist of a non-expansive granular soil approved by NWCC. Structural fill materials should be uniformly placed and compacted in 6-to-8-inch loose lifts and compacted to at least 100% of the maximum standard Proctor density and within 2% of the optimum moisture content determined in accordance with ASTM D-698. Structural fill materials should extend out from the edge of the footings or mats on a 1(horizontal) to 1(vertical) or flatter slope.
- 8) Based on experience, NWCC estimates total settlement for footings and pads designed and constructed as discussed in this section will be approximately 1 inch. Additional bearing capacity values along with the associated settlements are presented in Figure #7.
- 9) NWCC must be retained by the client to observe the foundation excavations when they are near completion to identify bearing soils and confirm the recommendations in this report.

Retaining Structures and Foundation Wall Recommendations: Structural concrete retaining walls should be supported by continuous or spread footings placed directly on the undisturbed clays or sands, gravels, cobbles and boulders. The footings should be designed using an allowable soil bearing pressure of 3,500 psf. All existing fill materials and any topsoil and organic materials must be removed from beneath the wall foundation areas.

It has been NWCC's experience that the risk of retaining wall movement can be reduced by removing at least 2 feet of the expansive materials and replacing them with structural fill. If this is done or if structural fill is required to bring the foundation areas to plan grades after the removal of existing fill or topsoil and organics, the structural fill should consist of a lean concrete or flowable fill with a minimum 28-day compressive strength of at least 100 psi and should extend out from the edge of footings on a 1 (horizontal) to 1(vertical) or flatter slope. An engineer from this office must observe the foundation excavation prior to placement of formwork and reinforcing steel to verify the soil conditions exposed in the base of the excavations.

Foundation walls and retaining structures that are laterally supported and can be expected to undergo only a moderate amount of deflection, may be designed for a lateral earth pressured calculated based on an equivalent fluid unit weight of 45 pcf for imported, free draining granular backfill and 60 pcf for the on-site soils.

Cantilevered retaining structures can be expected to deflect sufficiently to mobilize the full active earth pressure condition. Therefore, the structures may be designed for a lateral earth pressure computed based on an equivalent fluid unit weight of 35 pcf for imported free draining granular backfill and 50 pcf for the on-site soils.

The retaining structures should also be designed for appropriate hydrostatic and surcharge pressures such as adjacent buildings, traffic and construction materials. An upward sloping backfill and/or natural slope will also significantly increase the earth pressures on foundation walls and retaining structures, and the structural engineer should carefully evaluate these additional lateral loads when designing the retaining walls.

The lateral resistance of retaining wall foundations placed on undisturbed clays or sands, gravels, cobbles and boulders at the site will be a combination of the sliding resistance of the footings on the foundation materials and the passive pressure against the sides of the footings. Sliding friction can be taken as 0.4 times the vertical dead load. Passive pressure against the sides of the footing can be calculated using an equivalent fluid pressure of 275 pcf. The fill placed against the sides of the footings to resist lateral loads should be compacted to at least 100% of the maximum standard Proctor density and near the optimum moisture content.

NWCC recommends imported granular soils for backfilling foundation walls and retaining structures because their use results in lower lateral earth pressures. The imported granular materials should be placed to within 2 to 3 feet of the ground surface. Imported granular soils should be free draining and have less than 5 percent passing the No. 200 sieve. The granular soils behind foundation and retaining walls should be sloped from the base of the wall at an angle of at least 45 degrees from the vertical. The upper 2 to 3 feet of fill should be a relatively impervious soil or pavement structure to prevent surface water infiltration into the backfill.

The wall backfill should be carefully placed in uniform lifts and compacted to at least 95 percent of the maximum standard Proctor density and near the optimum moisture content. Care should be taken not to overcompact the backfill since this could cause excessive lateral pressure on the walls. Some settlement of deep foundation wall backfill materials will occur even if the material is placed correctly.

Floor Slabs: NWCC has assumed a portion of the terminal building will be constructed with a concrete slab-on-grade floor system, placed beneath the existing ground surface. On-site soils, apart from existing fill and topsoil and organic materials, are capable of supporting slab-on-grade construction. However, floor slabs present a very difficult problem where swelling materials are present near floor slab elevation because sufficient dead load cannot be imposed on them to resist the uplift pressure generated when the materials

are wetted and expand. Based on the moisture-volume change characteristics of the natural clays encountered at this site, NWCC believes slab-on-grade construction may be used, provided the risk of distress resulting from slab movement is recognized and special design precautions are followed.

The following measures must be taken to reduce damage, which could result from movement should the underslab clays be subjected to moisture changes.

- 1) Floor slabs must be separated from all bearing walls; columns and their foundation supports with a positive slip joint. NWCC recommends the use of ½-inch thick cellotex or impregnated felt.
- 2) Interior non-bearing partition walls resting on the floor slabs must be provided with a slip joint, preferably at the bottom, so in the event the floor slab moves this movement is not transmitted to the upper structure. This detail is also important for wallboard and doorframes and is shown in Figure #8.
- A minimum 6-inch gravel layer must be provided beneath all floor slabs to act as a capillary break and to help distribute pressures. Prior to placing the gravel, excavation should be shaped so that if water does get under the slab, it will flow to the low point of the excavation. In addition, all topsoil and organic materials and existing fill materials should be removed prior to placement of the underslab gravels or new structural fill materials.
- 4) Floor slabs must be provided with control joints placed a maximum of 10 to 12 feet on center in each direction, depending on slab configurations, to help control shrinkage cracking. Locations of the joints should be carefully checked to assure that natural, unavoidable cracking will be controlled. Depth of the control joints should be a minimum of 1/4 the thickness of the slab.
- Underslab soils must be kept as close as possible to their in-situ moisture content. Excessive wetting or drying of these soils prior to placement of floor slab could result in differential movement after slabs are constructed.
- It has been NWCC's experience that the risk of floor slab movement can be reduced by removing at least 2 feet of the expansive materials and replacing them with a well compacted, non-expansive fill. If this is done or if fills are required to bring underslab areas to the desired grade, the fill should consist of non-expansive, granular materials. Fill should be uniformly placed and compacted in 6 to 8-inch lifts to at least 95% of the maximum standard Proctor density at or near the optimum moisture content, as determined by ASTM D-698.

Following the above precautions and recommendations will not prevent floor slab movement in the event the clays beneath the floor slabs undergo moisture changes. However, they should reduce the amount of damage if such movement occurs. The only way to eliminate the risk of all floor slab movement is to construct a structural floor over a well-vented crawl space or void form materials.

<u>Underdrain System:</u> Any floor levels or crawl space areas constructed below the existing or finished ground surfaces and the foundations should be protected by underdrain systems to help reduce the problems associated with surface and subsurface drainage during high runoff periods.

Localized perched water or runoff can infiltrate the lower levels of the structures at the foundation levels. This water can be one of the primary causes of differential foundation and slab movement. Especially, when expansive soils are encountered. Excessive moisture in crawl space areas or lower level can also lead to rotting and mildewing of wooden structural members and the formation of mold and mold spores. Formation of mold and mold spores could have detrimental effects on the air quality in these areas, which in turn can lead to potential adverse health effects.

Drains should be located around entire perimeter of the lower levels and be placed and at least 12 inches below any floor slab or crawl space levels and at least 6 inches below the foundation voids and bottom of the foundation walls or footings. NWCC recommends the use of perforated PVC pipe for the drainpipe, which meets or exceeds ASTM D-3034/SDR 35 requirements, to minimize potential for pipe crushing during backfill operations. Holes in the drainpipe should be oriented down between 4 o'clock and 8 o'clock to promote rapid runoff of water. Drainpipe should be surrounded with at least 12 inches of free draining gravel and should be protected from contamination by a filter covering of Mirafi 140N subsurface drainage fabric or an equivalent product. Drains should have a minimum slope of 1/8 inch per foot and be daylighted at positive outfalls protected from freezing or be led to sumps from which water can be pumped. The use of interior laterals, multiple daylights or sumps will likely be required for the proposed structure. Caution should be taken when backfilling so as not to damage or disturb the installed underdrain. NWCC recommends the drainage system include a cleanout every 100 feet, be protected against intrusion by animals at outfalls and be tested prior to backfilling. NWCC also recommends the client retain our firm to observe the underdrain systems during construction to verify that they are being installed in accordance with recommendations provided in this report and observe a flow test prior to backfilling the system.

In addition, NWCC recommends an impervious barrier be constructed to keep water from infiltrating through the voided areas and/or under footings and/or foundation walls. Barrier should be constructed of an impervious material, which is approved by this office and placed below the perimeter drain and up against the sides of the foundation walls. A typical perimeter/underdrain detail is shown in Figure #9.

Placement of and impervious membrane and/or properly compacted clays in crawl space areas to the top of the footings or at least 12 inches above the top of the foundation voids or bottom of the foundation walls should help reduce the moisture problems in these areas.

<u>Surface Drainage</u>: Proper surface drainage at this site is of paramount importance for minimizing infiltration of surface drainage into wall backfill and bearing soils, which could result in increased wall pressures, differential foundation and slab movement. The following drainage precautions should be observed during construction and at all times after the structures have been completed:

- I) Ground surface surrounding structures should be sloped (minimum of 1.0 inch per foot) to drain away from structures in all directions to a minimum of 10 feet. Ponding must be avoided. If necessary, raising top of foundation walls to achieve a better surface grade is advisable.
- Non-structural backfill placed around structures should be compacted to at least 95% of the maximum standard Proctor density at or near the optimum moisture content to minimize future settlement of the fill. Backfill should be placed immediately after the braced foundation walls are able to structurally support the fill. Puddling or sluicing must be avoided.
- Top 2 to 3 feet of soil placed within 10 feet of foundations should be impervious in nature to minimize infiltration of surface water into wall backfill.
- 4) Roof downspouts and drains should discharge well beyond the limits of all backfill. Roof overhangs, which project two to three feet beyond foundation walls, should be considered if gutters are not used.
- Landscaping, which requires excessive watering and lawn sprinkler heads, should be located a minimum of 10 feet from the foundation walls of the structures or any permanent, unretained cuts.

  Additionally, large piles of man-made or natural snow should be removed prior to melting within 10 feet of the foundation walls of the structures or any permanent, unretained cuts.
- 6) Plastic membranes should not be used to cover ground surface adjacent to foundation walls.

<u>Site Grading:</u> The slopes on which the proposed structures are proposed could become unstable due to the proposed construction. Design and construction considerations must be addressed to avoid and/or limit the potential for slope instability at the site. Although a detailed slope stability analysis is beyond the scope of this report, some general guidelines are provided below for initial planning and design.

Our office should review the construction plans as they are being prepared so that we can verify that our recommendations are being properly incorporated into the plans. Additional recommendations and/or investigations may be warranted to provide additional information for the design and construction of temporary or permanent shoring and slope stabilization structures. Slope reinforcement should be designed and constructed by engineers and contractors experienced in earth retention systems.

- 1) Slopes greater than 25 percent should be avoided whenever possible for construction of permanent roads and structures.
- Temporary cuts for foundation construction should be constructed to OSHA standards for temporary excavations. Permanent, unretained cuts should be kept as shallow as possible and should not exceed a 3(Horizontal) to 1(Vertical) configuration for the topsoil and organic materials and existing fill materials; and a 2(Horizontal) to 1(Vertical) configuration for the clays. A 1.5(Horizontal) to 1(Vertical) configuration is not recommended for permanent, unretained cuts

without additional stabilization measures, such as soil nails or unless competent bedrock is encountered in the cuts. Additional stabilization measures are typically designed by a design contractor with experience in this field.

We recommend permanent, unretained cuts be limited to 20 feet in height or less, unless stable bedrock is encountered. The risk of slope instability will be significantly increased if groundwater seepage is encountered in the cuts. NWCC office should be notified immediately to evaluate the site if seepage is encountered or deeper cuts are planned and determine if additional investigations and/or stabilization measures are warranted.

- 3) Excavating during periods of low runoff at the site can reduce potential slope instability during excavation. Excavations should not be attempted during the spring or early summer when seasonal runoff and groundwater levels are typically high.
- 4) Fills up to 15 feet in height can be constructed at the site and should be constructed to a 2(Horizontal) to 1(Vertical) or flatter configuration. The fill areas should be prepared by stripping any existing fill materials and topsoil and organics, scarification and compaction to at least 95% of the maximum standard Proctor density and within 2% of optimum moisture content as determined by ASTM D698. The fills should be properly benched/keyed into the natural hillsides after the existing fill materials, natural topsoil and organic materials, silts and clays have been removed. The fill materials should consist of the on-site soils (exclusive of topsoil, organics or silts) and be uniformly placed and compacted in 6 to 8-inch loose lifts to the minimum density value and moisture content range indicated above.
- Proper surface drainage features should be provided around all permanent cuts and fills and steep natural slopes to direct surface runoff away from these areas. Cuts, fills and other stripped areas should be protected against erosion by revegetation or other methods. Areas of concentrated drainage should be avoided and may require the use of riprap for erosion control. NWCC recommends that a maximum of 4 inches of topsoil be placed over the new cut and fill slopes. It should be noted that the newly placed topsoil materials may slough/slide off the slopes during the spring runoff seasons until the root zone in the vegetated cover establishes.
- A qualified engineer experienced in this area should prepare site grading and drainage plans. The contractor must provide a construction sequencing plan for excavation, wall construction and bracing and backfilling for the steeper and more sensitive portions of the site prior to starting the excavations or construction.

<u>Limitations:</u> The recommendations provided in this report are based on the soils encountered at this site and NWCC's understanding of the proposed construction. NWCC believes this information gives a high degree of reliability for anticipating behavior of the proposed structures; however, NWCC's recommendations are professional opinions and cannot control nature, nor can they assure the soils profiles

beneath those or adjacent to those observed. No warranties expressed or implied are given on the content of this report.

Swelling soils were encountered at this site. These soils are stable at their natural moisture content but can shrink or swell with changes in moisture. The behavior of swelling soils is not fully understood. The swell or consolidation potential of a site can change erratically both in lateral and vertical extent. Moisture changes also occur erratically, resulting in conditions, which cannot always be predicted. Recommendations presented in this report are based on the current state of the art for foundations and floor slabs on swelling soils. As noted previously, the owner must be made aware there is a risk in construction on these types of soil. Performance of the structure will depend on following the recommendations and in proper maintenance after construction is complete. As water is the main cause for volume change in the soils, it is necessary that the changes in moisture content be kept to a minimum. This requires judicious irrigation and providing positive surface drainage away from the structures. Any distress noted in the structures should be brought to the attention of NWCC.

This report is based on the investigation at the described site and on specific anticipated construction as stated herein. If either of these conditions is changed, the results would also most likely change. Therefore, NWCC strongly recommends that our firm be contacted prior to finalizing the construction plans so that we can verify our recommendations are being properly incorporated into the construction plans.

Man-made or natural changes in the conditions of a property can also occur over time. In addition, changes in requirements due to state-of-the-art knowledge and/or legislation do from time to time occur. As a result, the findings of this report may become invalid due to these changes. Therefore, this report is subject to review and not considered valid after a period of 3 years or if conditions as stated above are altered. It is the responsibility of the owner or his representative to ensure that the information in this report is incorporated into the plans and/or specifications and construction of the project.

If you have any questions regarding this report or if NWCC may be of further service, please do not hesitate to contact us.

Sincerely,

NWCC, Inc.

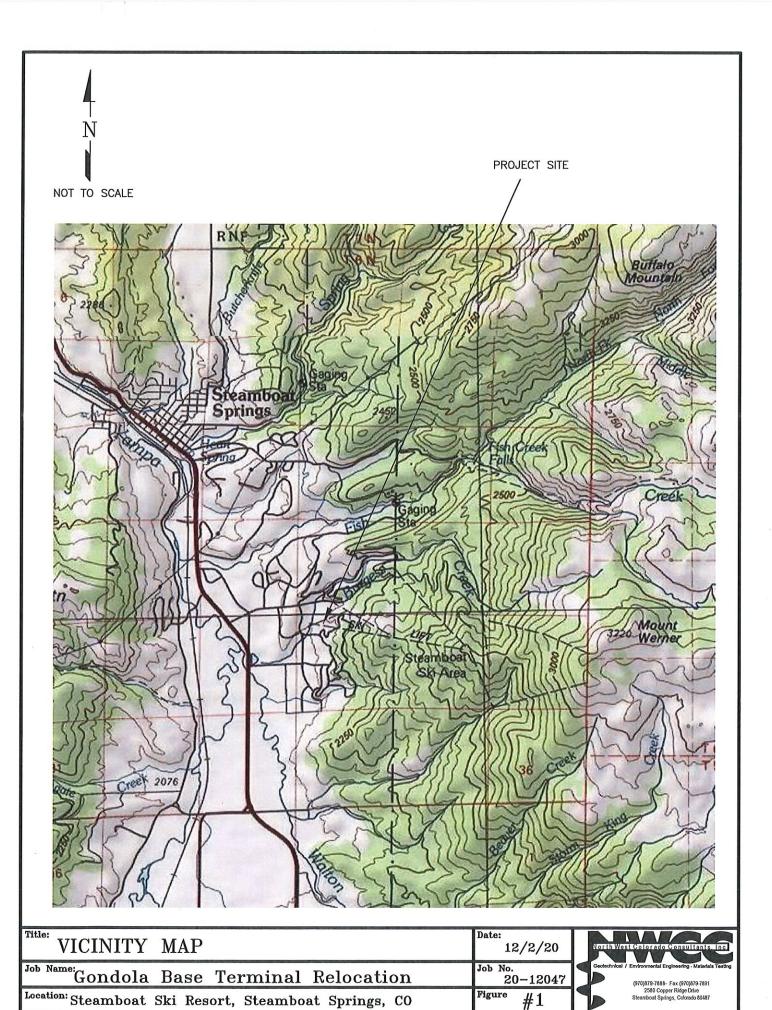
Erika K. Hill, P.E., P.G.

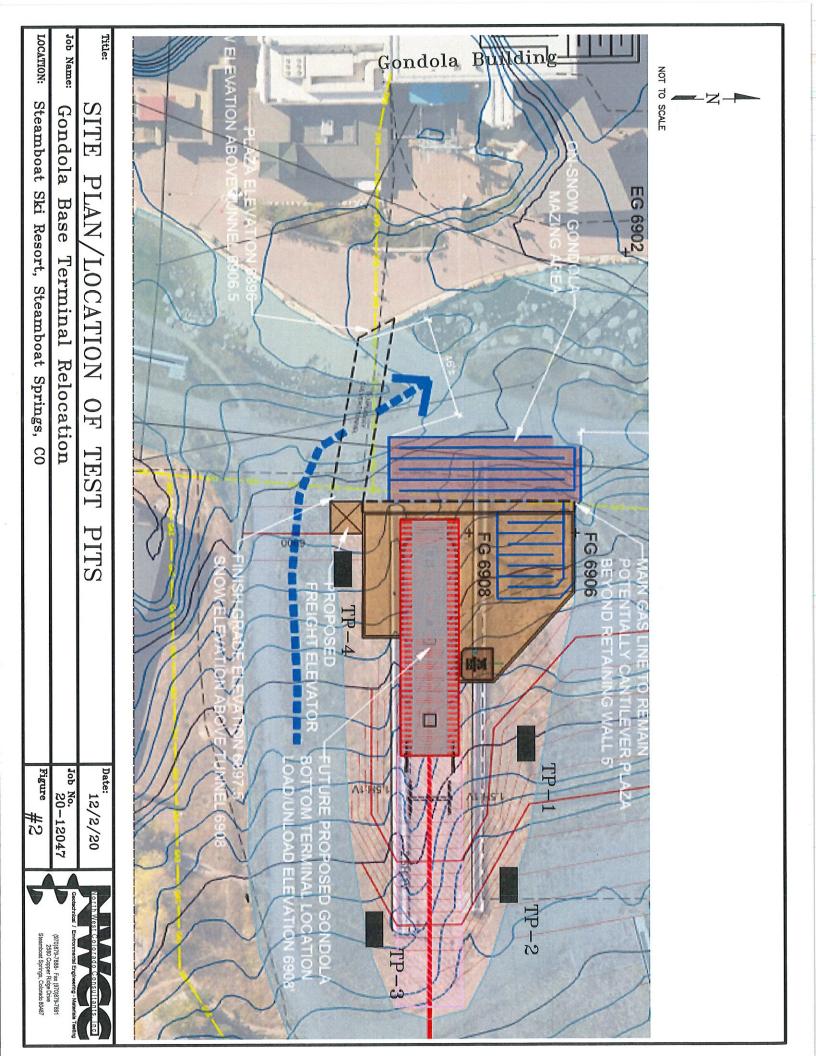
ORADO

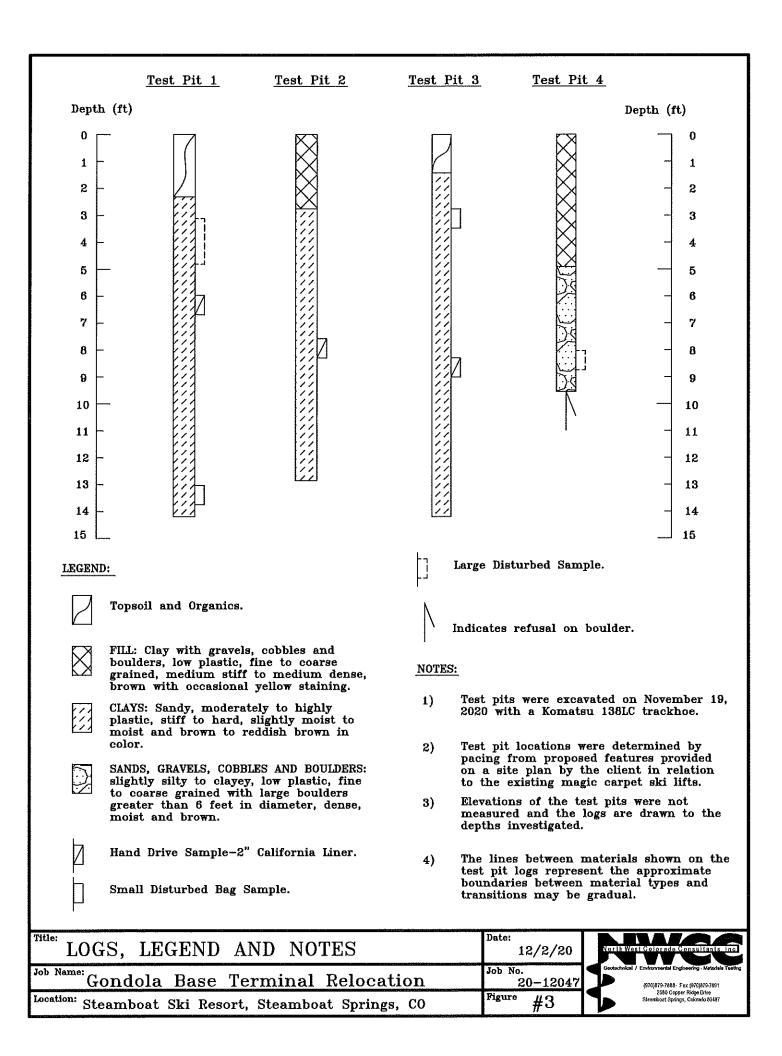
Project Engineer

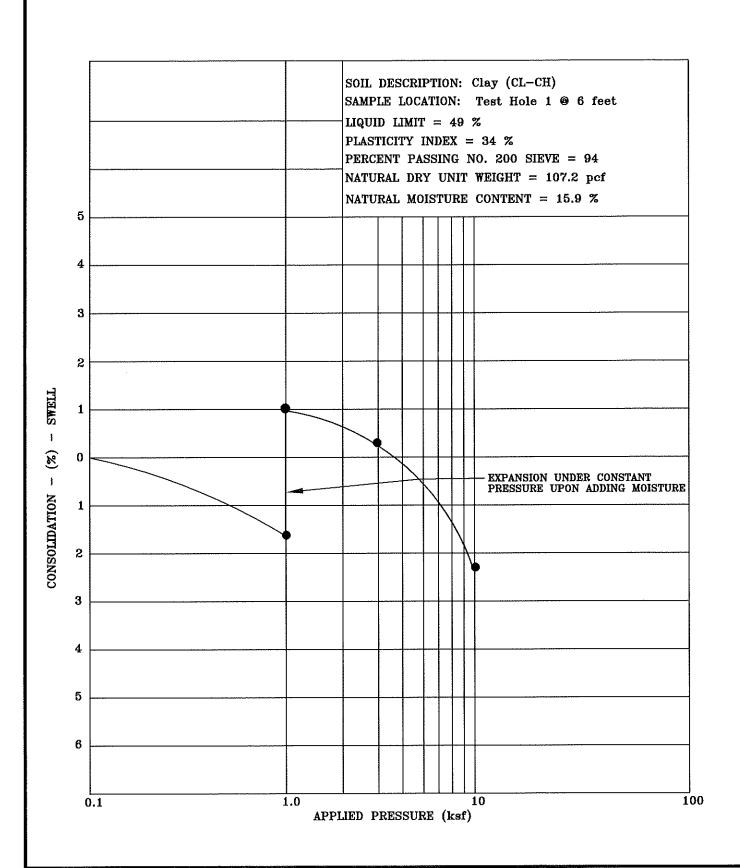
Reviewed by Brian D

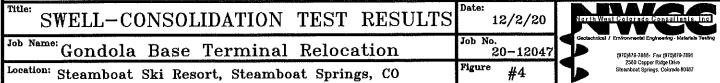
Principal Engineer

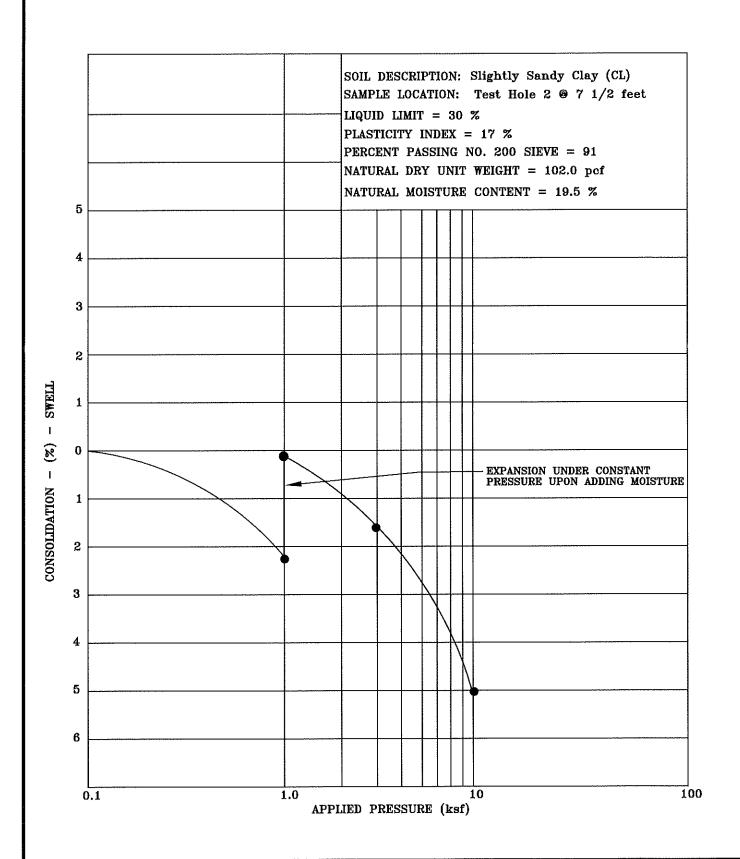




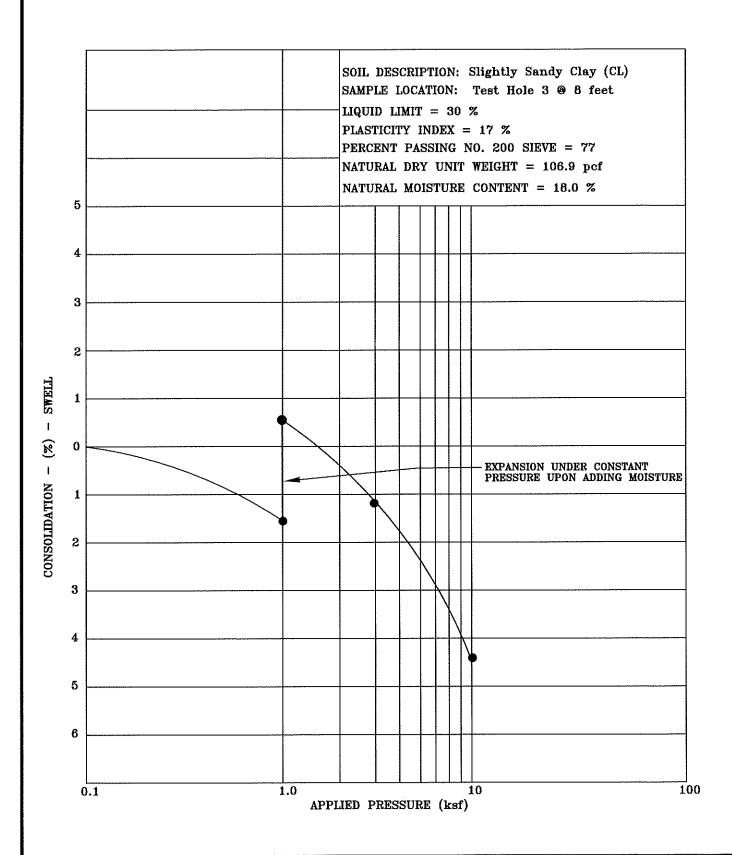




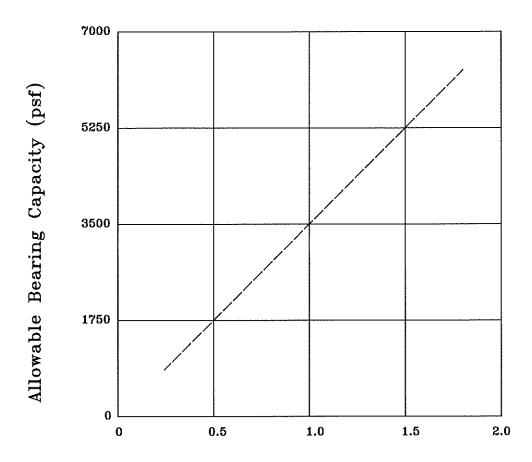




SWELL-CONSOLIDATION TEST RESULTS	Date: 12/2/20	North West Colorado Consultante Inc.
Job Name: Gondola Base Terminal Relocation	Job No. 20-12047	(or operations that for operations)
	Figure #5	2580 Copper Ridge Drive Steamboat Springs, Columbo 80487



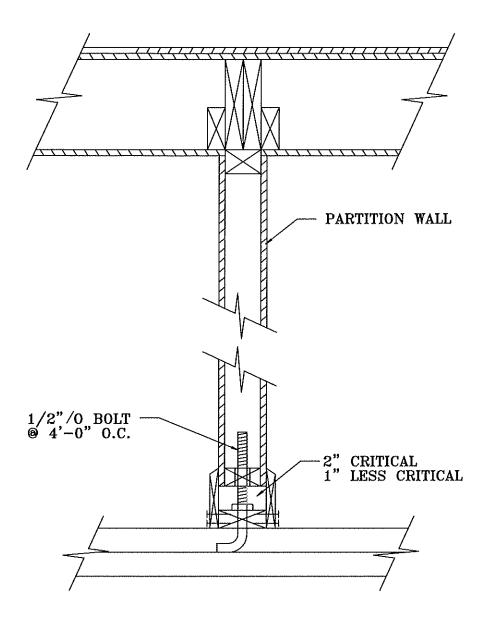
SWELL-CONSOLIDATION TEST RESULTS	S Date: 12/2/20 North West Colorado Consultants, inc
Job Name: Gondola Base Terminal Relocation	Job No. 20—12047 Gootschukal / Environmental Engineering - Materials Taeli  (970)979-7888 - Fax (970)979-7881
Location: Steamboat Ski Resort, Steamboat Springs, CO	Figure #6



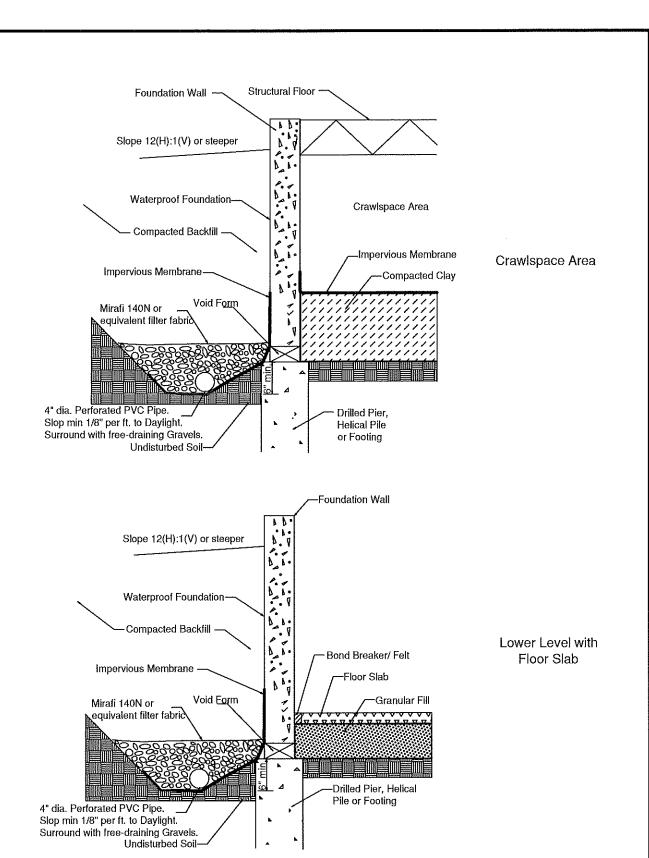
Estimated Settlement (inches)

Note: These values are based on footing widths of 1 to 4 feet. If the footing width is to be greater than 4 feet in width, then we should be notified to re-evaluate these recommendations.

BEARING CAPACITY CHART	Date: 12/2/20	North West Coloredo Consullante Line
Job Name: Gondola Base Terminal Relocation	Job No. 20-12047	Geotachnical / Environmental Engineering - Materials Testing (970)879-7888 - Fex (970)879-7891
Location: Steamboat Ski Resort, Steamboat Springs, CO	Figure #7	2580 Copper Ridge Drive Steamboat Springs, Colorada 60477



HUNG PARTITION WALL DETAIL	Date: 12/2/20 North West Colorado Consultants. Incl
Job Name: Gondola Base Terminal Relocation	Job No. 20-12047  Geolochical / Environmental Engineering - Materials Teating (970)879-7888- Fax (970)879-7881
Location: Steamboat Ski Resort, Steamboat Springs, CO	Figure #8



PERIMETER/UNDERDRAIN DETAIL	Date: 12/2/20	North World Coloredo Consultants Inc
Job Name: Gondola Base Terminal Relocation	Job No. 20-12047	Geotschulcal / Em/trohmental Engineering - Materials Tealing (970)879-7888- Fax (970)879-7891
Location: Steamboat Ski Resort, Steamboat Springs, CO	Figure #9	2580 Copper Ridge Drive Steamboat Springs, Colorado 80487

NWCC, Inc.

TABLE 1

SUMMARY OF LABORATORY TEST RESULTS

Ţ	П		1							FA
4		ၓ		3	22	1	1	j	TEST	SAMPLE LOCATION
8		8		ယ	7 1/2	13	3	6	DEPTH (feet)	
		18.0		8.8	19.5	18.9		15.9	MOISTURE CONTENT (%)	NATITRAI.
		106.9			102.0			107.2	DRY DENSITY (pcf)	NATITRAI.
34		30		24	30	34	29	49	(%)	ATTERBE
20		17		9	17	18	14	34	PLASTICITY INDEX (%)	ATTERBERG LIMITS
55 63		0		<b>)</b>	0	0	<b> </b> -	0	GRAVEL (%)	GRADATION
32		23		17	9	9	13	6	SAND (%)	ATION
15		77		82	91	91	86	94	PASSING No. 200 SIEVE	DEBCENT
									COMPRESSIVE STRENGTH (PSF)	TINICONIETNIED
Clayey Sandy Gravel		Sandy Clay		Sandy Clay	Slightly Sandy Clay	Slightly Sandy Clay	Sandy Clay	Clay		SOIL or BEDROCK
GC.		CL		CL	CL	CL	Ç.	CL-CH	SOIL CLASS.	UNIFIED

NV = No Value NP = Non Plastic

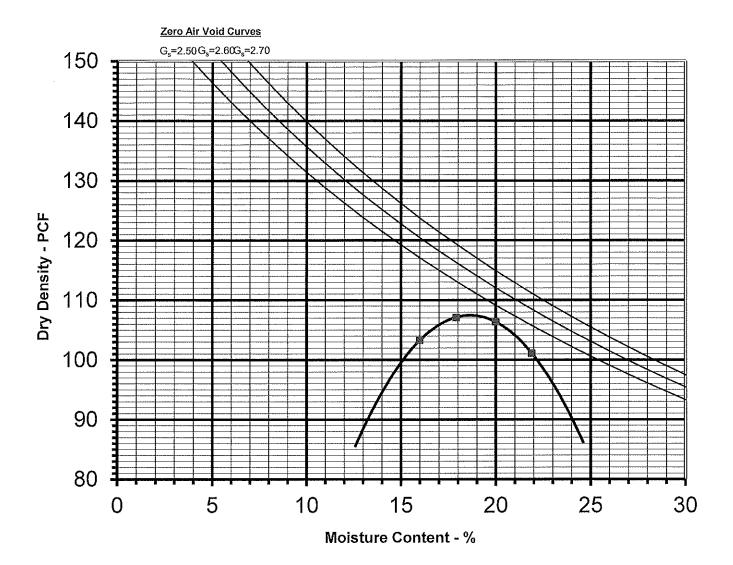
### NWCC, INC.

### TABLE 2

#### SUMMARY OF CORROSION TEST RESULTS

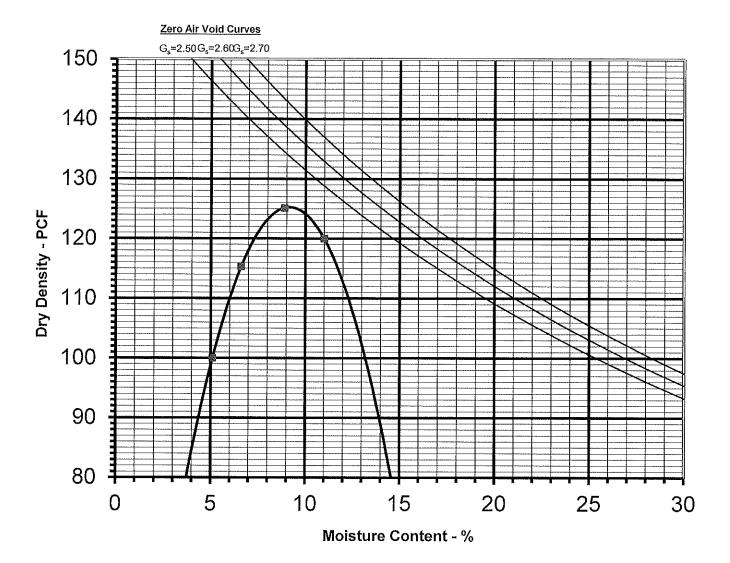
SAMPLE LOCATION			TAY A PITTER TO		L. Linder (Marie Control Contr	MINIMUM
SAMPLE	DEPTH (feet)	MOISTURE CONTENT (%)	WATER SOLUBLE SULFATES (%)	РН	CHLORIDE CONTENT (%)	ELECTRICAL RESISTIVITY (ohm-cm)
TP-1	3-6'	11.2-26.9	<0.01	5.71	0.003	3,700-10,000
TP-4	8'	10.3-25.2	<0.01	6.98	0.003	2,600-5,700
			7			
					A STANDARD CONTRACTOR OF THE STANDARD S	
ALL HARMAN ANALYSIS ANALYS						
-	•					

JOB NUMBER: 20-12047



Job Name: SBGBTR	PROCTOR TEST			
Sample Location: TH 1 @ 3 - 6'	RESULTS			
Soil Description: Sandy Clay	Sample No.: 1P			
Maximum Dry Density: 107.5 pcf Opt. Moisture Content: 18.6 %	Procedure: ASTM D698			
Liquid Limit: % Plasticity Index:	Date: 11/24/2020			
Gravel: 1 % Sand: 13 % Silt & Clay (-200): 86 %	Job No: 20-12047 Tech: JS			





Job Name: SBGBTR						PROCTOR TEST			
Sample Locatio	n: TH 4 @	9 8'				RES	SULTS		
Soil Description	n: Clayey	Sandy	/ Gra	vel		Sample No.:	2P		
Maximum Dry D	Density:	125.2	pcf	Opt. Moisture Content:	9.2 %	Procedure:	ASTM D698		
Liquid Limit:	%			Plasticity Index:		Date: 1	1/24/2020		
Gravel: 53 %	Sand:	32	%	Silt & Clay (-200): 15	%	Job No: 20-12	2047 <b>Tech</b> : JS		





### **Construction Site Management Plan Checklist**

Prior to the approval of a building/ROW permit, any commercial, multi-family, or applicable single family/duplex project must complete an approved Construction Site Management Plan (CSMP). Below are the required items to be included in the CSMP. Please check "yes" if the item is included, "no" if it is not, and "N/A" if not-applicable. Please provide an explanation for any "No" answers at the bottom of the checklist.

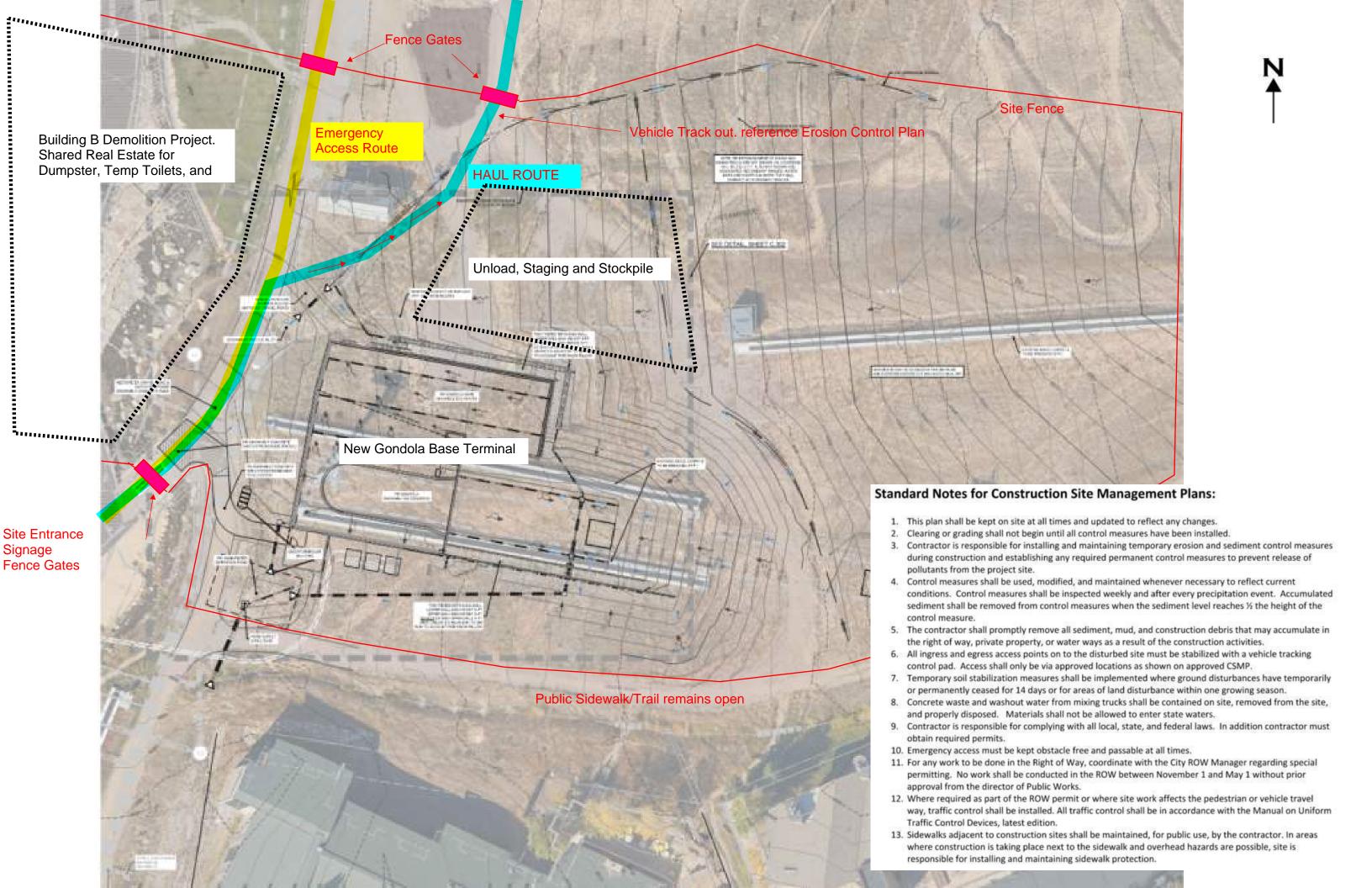
Project Name:	Date:		
Estimated Construction Start Date:	End Date:		
Individual responsible for CSMP monitoring and comp	liance		
Name:	Phone # (local):		
	Ye	s No	N/A
1. General			
a. CSMP is shown on the proposed site plan			
b. Schedule Pre-Construction Meeting (required only for	r commercial, industrial, & multifamily projects)		
c. Right of Way permit (i.e. work or obstruction with include estimated start and stop dates.	n ROW). If required, describe below and		
2. Erosion and Sedimentation Control Plan sho	wing		
a. Topographic Information – including sufficient det	ail to characterize the site		
b. Areas and extent of soil disturbance (show any pha	asing)		
c. Location of all on site and adjacent water bodies, v systems	vetlands, drainages, and storm water		
d. Vehicle tracking control measures (vehicle track page	nd, vehicle wash station, etc.)		
e. Inlet protection			
f. Perimeter Control Measures (BMPs)			
g. Standard details for all proposed control measures			
3. Site Construction Facilities (Identify the follows)	owing):		
a. Staging areas			
b. Stockpile areas			
c. Dumpsters and trash receptacles			
d. Sanitary facilities			
e. Loading/Unloading areas			
f. Trailers and field offices (show access)			
4. Parking:			
a. Location and number of onsite and any offsite stal	oilized parking areas		
b. Is project located downtown or at ski resort base a contractor parking will occur:	rea? If so, describe below where		

5. External Traffic Control Plan showing:			
a. Show/label all traffic control devices (MUTCD compliant)			
b. Site access points; show existing adjacent streets and driveways; identify any changes and associated signage			
c. Sidewalks and trails; identify any changes and associated signage			
d. Use of the public Right of Way (ROW) - generally not permitted (for constrained sites show any proposed use of ROW)			
e. Crane use details, including but not limited to, ROW encroachment, swing radius, loading locations (Crane will require ROW permit from the City)			
6. Internal Access Control showing			
a. Emergency access- <u>24'</u> wide all weather surface for emergency access thru site (to be maintained at all times)			
7. CSMP Standard Notes:			
a. Standard CSMP notes included on the site plan or Civil Plan Sheets			
8. Dust Control			
Provide explanation for any "No" or "N/A" answers:			

<sup>\*\*</sup> Plans shall be phased and updated as the project evolves and site conditions change.

<sup>\*\*</sup> Please notify adjacent property owners prior to mobilization.

<sup>\*\*</sup> Refer to chapter 36 of the Community Development Code for more information.





(IN FEET)

1 inch = 30 ft.

# LEGEND:

EXISTING STORM SEWER PROPOSED STORM SEWER . . . . . . . . . . PROPOSED STORM INLET (CURB & AREA) PROPOSED MAJOR CONTOUR PROPOSED MINOR CONTOUR — — — 6805 — — — — **EXISTING MAJOR CONTOUR** EXISTING MINOR CONTOUR

REVEGETATION AREA

PERMANENT BMP'S

## **TEMPORARY BMP'S**

WATTLE DIKE

ROCK SOCK

VEHICLE TRACKING CONTROL PAD SILT FENCE

INLET PROTECTION CONCRETE WASHOUT AREA

MULCH/HYDROMULCH

OVERLAND FLOW DIRECT FLOW

## NOTES:

DISCLAIMER: THIS EXHIBIT IS FOR CONVENIENCE AND LANDMARK CONSULTANTS, INC. MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, THAT THE EROSION CONTROL INFORMATION SHOWN HEREON WILL SATISFY REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION OR PERMITTING REQUIREMENTS. **USE AT YOUR OWN** 

- IT SHOULD BE NOTED THAT ANY EROSION CONTROL PLAN SERVES ONLY AS A GUIDELINE TO THE CONTRACTOR. STAGING AND/OR PHASING OF BEST MANAGEMENT PRACTICES (BMPs) IS EXPECTED. ADDITIONAL AND/OR DIFFERENT BMPs FROM THOSE ORIGINALLY DEPICTED MAY BE NECESSARY DURING CONSTRUCTION DUE TO CHANGING SITE CONDITIONS OR AS REQUIRED BY LOCAL AUTHORITIES.
- STRIP VEGETATION AND TOPSOIL, STOCKPILE AND COVER FOR REPLACEMENT AFTER CONSTRUCTION IS COMPLETE. THIS SOIL MUST BE KEPT MOIST. TOPSOIL SHOULD BE CONSIDERED AS ANY SOIL MATERIAL THAT IS SUITABLE AS A PLANT GROWTH MEDIUM WHICH WILL ULTIMATELY PRODUCE A VEGETATIVE GROUND COVER CAPABLE OF PREVENTING SURFACE EROSION. TOPSOIL SUITABILITY IS DEPENDENT ON DEPTH, TEXTURE, ORGANIC MATTER, FERTILITY, AND COARSE FRAGMENT
- THE SALVAGED TOPSOIL SHOULD BE SECURELY STORED AWAY FROM ALL CONSTRUCTION ACTIVITIES, COVERED, AND HYDROLOGICALLY ISOLATED FROM WATERCOURSES.

  EXCAVATION EQUIPMENT SHALL BE TRACK VEHICLES UNLESS PROJECT SITE ALLOWS FOR RUBBER TIRED
- MINIMIZE THE AREA OF EXPOSED SOILS AT ANY ONE TIME TO THAT ABSOLUTELY NECESSARY FOR PROJECT
- 8. CUTS AND FILLS AND COMPLETE VEGETATION REMOVAL ON EXTENSIVE AREAS SHOULD BE AVOIDED TO THE MAXIMUM EXTENT WHEN POSSIBLE.
- 9. REGRADE AND RE-TOPSOIL DISTURBED AREAS BY MOVING EQUIPMENT ACROSS THE SLOPE RATHER THAN UP AND DOWN THE SLOPE.

  10. DOZED SURFACES SHOULD BE LEFT ROUGH OR STEPPED INSTEAD OF BACKBLADED SMOOTH. A ROUGH SURFACE WILL AID IN HOLDING MOISTURE AND REDUCING EROSIC
- 1. ALL ERODIBLE CUT AND FILL AREAS MUST BE BACKSLOPED TO A DEGREE WHICH WILL ALLOW PROPER REVEGETATION, AS A GENERAL RULE, 1.5:1 OR FLATTER.

  12. IN ORDER TO REDUCE THE COMPACTION, ANY GROUND DISTURBING ACTIVITIES WILL NOT BEGIN UNTIL SOILS HAVE
- ADEQUATELY DRIED OUT. USE HEAVY EQUIPMENT ONLY WHEN THE WATER TABLE IS MORE THEN 3FT BELOW THE SURFACE AND SOIL MOISTURE IS BELOW THE PLASTIC LIMIT. GRADING AND OTHER GROUND DISTURBING ACTIVITIES SHOULD NOT BE CARRIED OUT DURING PERIODS OF HEAVY
- 14. INTERCEPT AND CAPTURE RUNOFF FROM UNDISTURBED AREAS AND PREVENT IT FROM ENTERING THE DISTURBED
- 15. HAVE AN ADEQUATE SUPPLY OF SURFACE AND EROSION CONTROL MATERIALS (SILT FENCE, WEED-FREE HAY/STRAW BALES, AND TOOLS) ONSITE AT ALL TIMES FOR EMERGENCIES.

  16. WATER BARS SHOULD BE CONSTRUCTED ON ALL DISTURBED SOIL IMMEDIATELY AFTER DISTURBED AND BEFORE
- REVEGETATION WORK IS COMPLETED. REVEGETATION WORK IS COMPLETED.

  17. REVEGETATION ON ANY AREA MAY BE REQUIRED WHERE GROUND COVER IS DISTURBED. AS A GENERAL GUIDELINE, GROUND COVER SHOULD RECOVER TO ITS NORMAL RANGE OF VARIABILITY FOR THE LAND TYPE AND GEOCLIMATIC AREA BY THE END OF THE THIRD GROWING SEASON. NATIVE PLANT SPECIES SHOULD ULTIMATELY DOMINATE THE SITE, ALTHOUGH INTRODUCING ANNUAL SPECIES MAY BE USED TO ENSURE VEGETATION COVER INITIALLY.
- 18. SEEDING SHOULD OCCUR IN THE FALL AND IMMEDIATELY AFTER A RAIN OR THE FIRST SNOWFALL. ON HIGH ELEVATION SLOPES OR AREAS OF SPECIAL EROSION CONCERNS, REVEGETATION SHOULD BE COMPLETED IMMEDIATELY AFTER THE DISTURBANCE.
- 9. WHEN NO SEEDING IS NEEDED OR SEEDING WILL BE ACCOMPLISHED IN THE FALL, THEN EROSION CONTROL MEASURES AND MULCHING NEED TO BE APPLIED IMMEDIATELY AFTER RECONTOURING IS COMPLETED ON ALL
- AREAS WITH ERODIBILITY POTENTIAL.

  20. SEED MIXTURES SHOULD BE DESIGNED BASED ON SITE-SPECIFIC CONDITIONS OF A PARTICULAR AREA (I.E. ELEVATION, ASPECT, VEGETATION COMMUNITY TYPE, SITE MOISTURE, SOIL TYPE ETC.) TO MEET THE SPECIFIC OBJECTIVES OF REVEGETATION. SPECIES NAME AND VARIETY, GERMINATION PERCENT, AND PURE LIVE SEED SHOULD BE SPECIFIED ON THE BAG.
- ONLY CERTIFIED WEED-FREE SEED SOURCES WILL BE UTILIZED. ALL SEED PURCHASED WILL BE REQUIRED TO BE TESTED FOR "ALL STATES NOXIOUS WEEDS" ACCORDING TO THE ASSOCIATION OF OFFICIAL SEED ANALYSTS (AOSA) STANDARDS AND WILL BE CERTIFIED IN WRITING BY A REGISTERED SEED TECHNOLOGIST OR SEED ANALYST AS MEETING THE REQUIREMENTS OF THE FEDERAL SEED ACT AND THE APPROPRIATE STATE SEED LAW REGARDING
- TESTING, LABELING, SALE AND TRANSPORT OF PROHIBITED AND RESTRICTED NOXIOUS WEEDS.

  2. SEED SHOULD BE PRIMARILY OF NATIVE SPECIES AND VARIETIES. IF NON-NATIVE SPECIES ARE DEMONSTRATED TO NOT BE OVERLY AGGRESSIVE AND ALLOW FOR ESTABLISHMENT OF NATIVE SPECIES, THEN SEED MIX CONTAINING NON-NATIVES MAY BE ALLOWED, SUCH AS STERILE WHEAT OR WINTER RYE 23. BROADCAST SEEDING SHOULD BE AT A RATE OF 40 TO 80 LBS PER ACRE.
- 24. IF HYDROMULCH IS USED, APPLICATION OF THE SEED SHOULD BE SEPARATE FROM THE MULCH TO PREVENT THE SEED FROM BEING "CAUGHT-UP" IN THE MULCH, GERMINATING, AND NOT COMING IN CONTACT WITH THE MINERAL
- 25. SEED SHOULD BE LIGHTLY RAKED OR HARROWED INTO THE SOIL.
  26. MONITORING SHOULD BE IMPLEMENTED TO DETERMINE BMP SUCCESSES.
- REVEGETATION SUCCESSES.
- $\bullet$  SHEET AND RILL EROSION, GULLIES, SLUMPING, AND SUBSIDENCE. • EFFECTIVENESS OF EROSION CONTROL MEASURES.
- NOXIOUS AND UNDESIRABLE WEED INVASION. • EVIDENCE OF EXCESSIVE LIVESTOCK AND WILDLIFE GRAZING.
- THE FOLLOWING PERFORMANCE STANDARDS SHOULD BE USED TO DETERMINE WHETHER THE OBJECTIVES OF THE EROSION CONTROL AND REVEGETATION PLAN HAVE BEEN MET AT A GIVEN TIME. A REFERENCE TRANSECT SHOULD
- PERCENT COVER-75% OF THE TOTAL VEGETATION COVER MEASURED FOR THE REFERENCE TRANSECT. • DOMINANT SPECIES-90% OF THE REVEGETATION CONSISTS OF SPECIES CONTAINED IN THE APPLIED SEED MIX AND
- THAT OCCUR IN THE REFERENCE TRANSECT. • SEEDLING DENSITY-THE DENSITY AND ABUNDANCE OF SEEDLINGS IS AT LEAST 3 TO 4 SEEDLINGS PER SQUARE
- EROSION CONDITION/SOIL FACTOR-EROSION CONDITION OF THE RECLAIMED AREA IS EQUAL TO OR IN BETTER
- CONDITION THAN THAT MEASURED FOR THE REFERENCE TRANSECT. . PHOTOGRAPHS SHOULD BE TAKEN EACH YEAR AT ESTABLISHED POINTS TO DOCUMENT THE RECLAMATION EFFORT
- AND MAINTAIN A CONSISTENT PHOTOGRAPHIC RECORD.

  32. CONDITIONS IN THE FIELD MAY WARRANT EROSION CONTROL MEASURES IN ADDITION TO WHAT IS SHOWN ON THESE PLANS. IMPLEMENT WHATEVER MEASURES ARE DETERMINED NECESSARY PER THE PROJECT STORMWATER MANAGEMENT PLAN.

STANDARD CHECK DAM SPACING CRITERIA | FLOW LINE GRADIENT | 2% | 3% | 4% | 5% | 
 SPACING (FEET)
 100
 67
 50
 40

STANDARD EROSION LOG SPACING CRITERIA MAXIMUM CHECK DAM SPACING BASED ON FLOW LINE GRADIENT NOMINAL LOG DIAMETER (FEET) 8 - 9 INCHES 12 INCHES 18 - 20 INCHES 0% - 2% 2% - 5% 5% - 10% 10% - 33%

CALL UTILITY NOTIFICATION CENTER OF

33% - 50%



Know what's below. Call before you dig. CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF

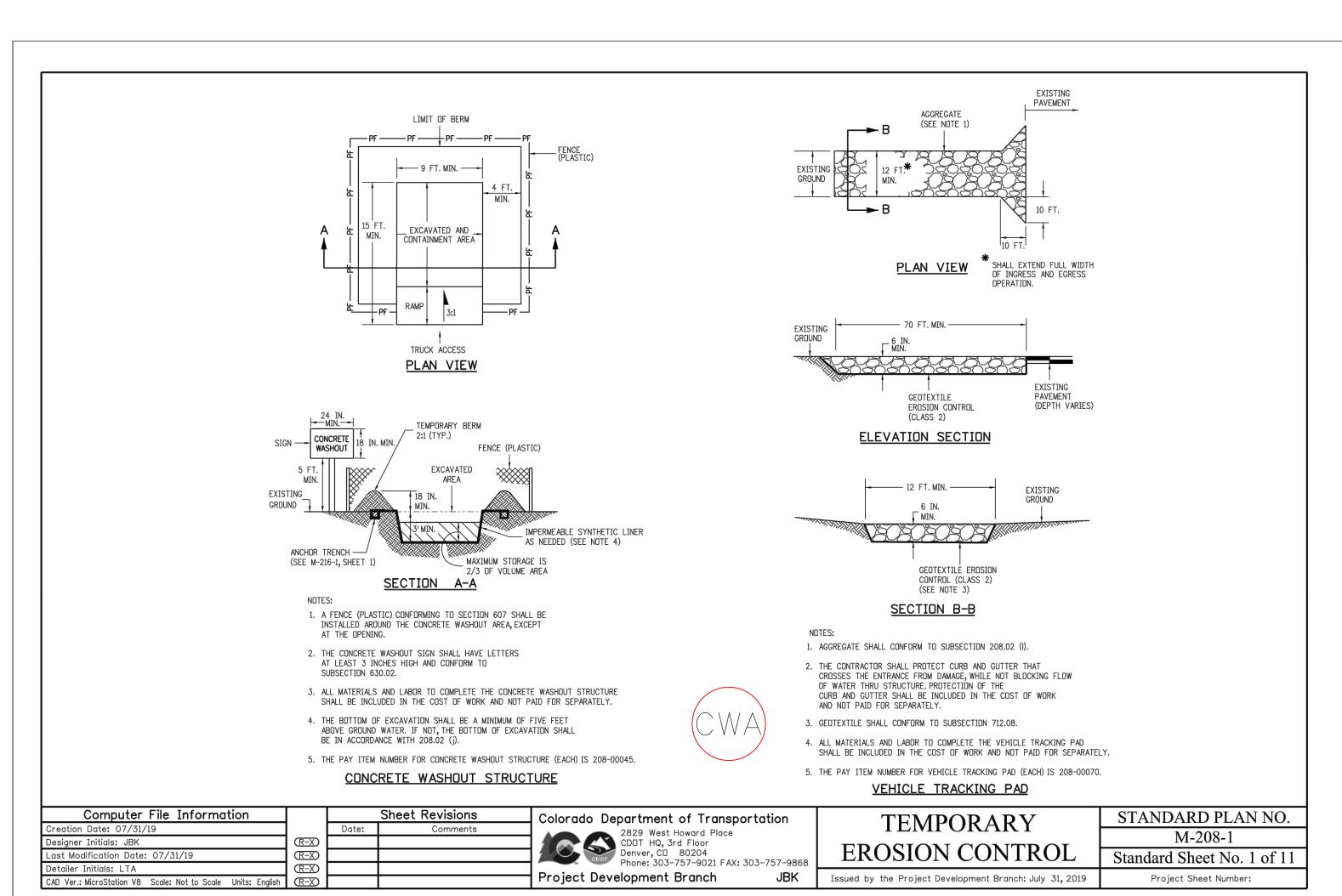


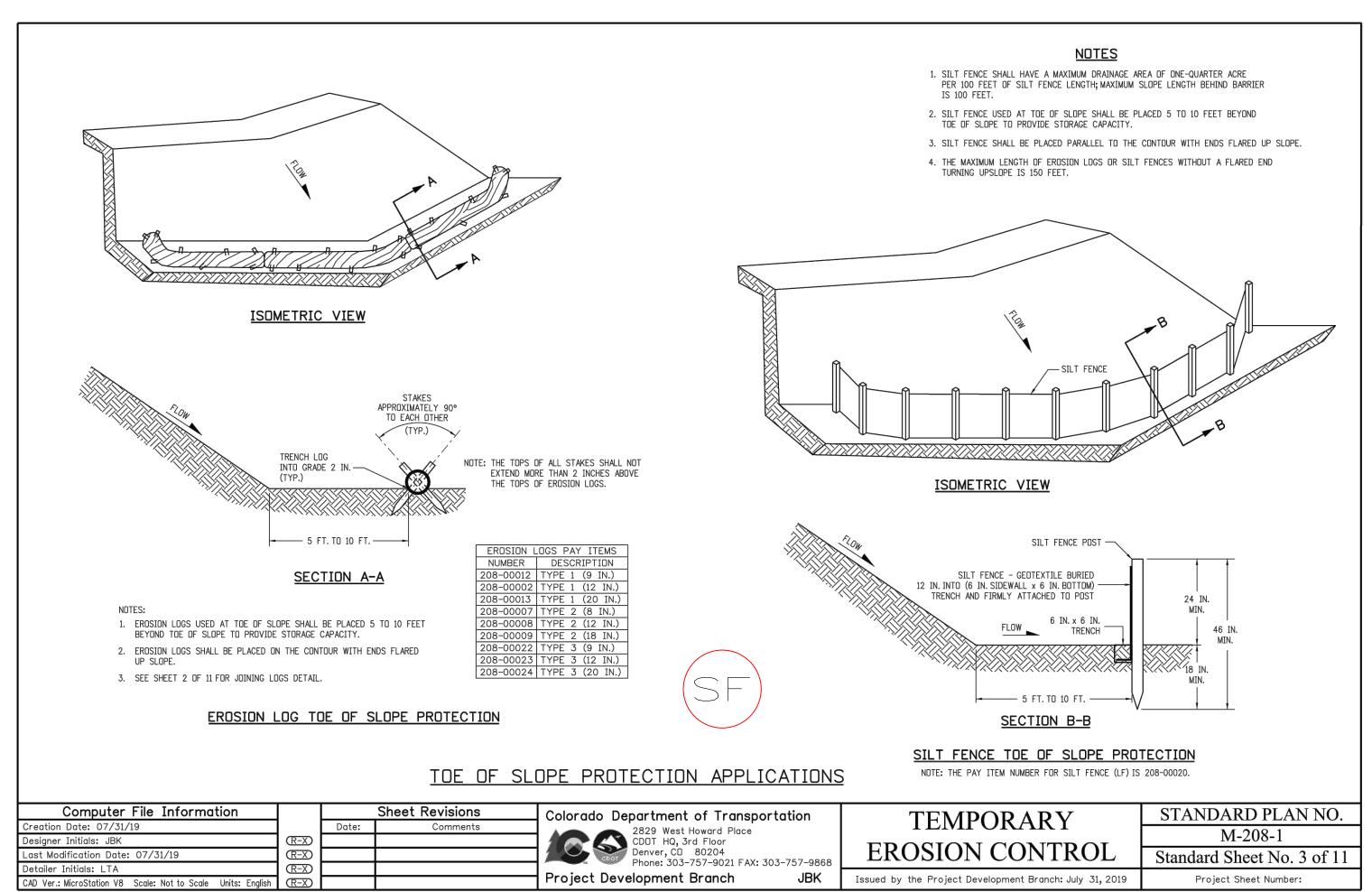
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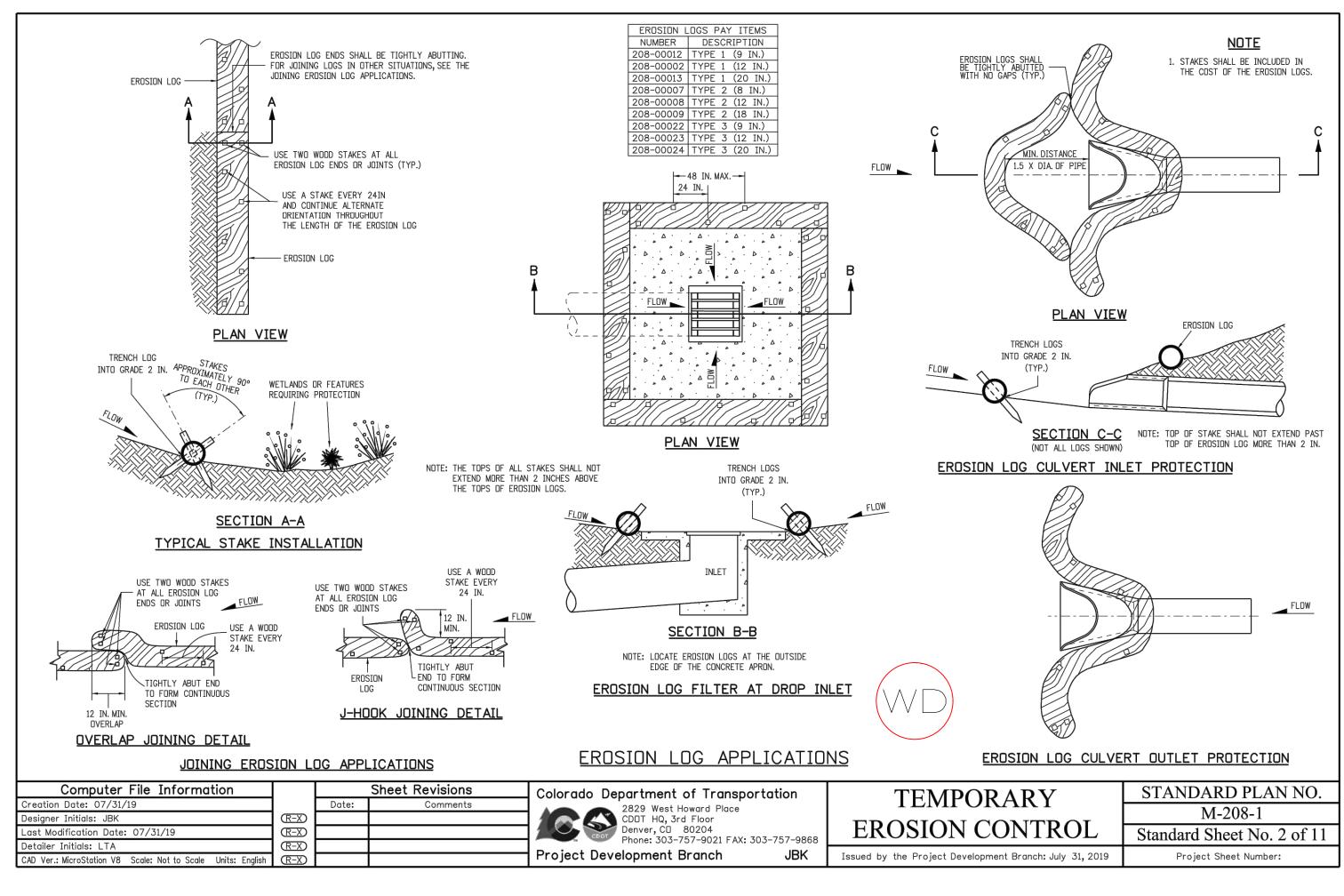
SHEET C.600

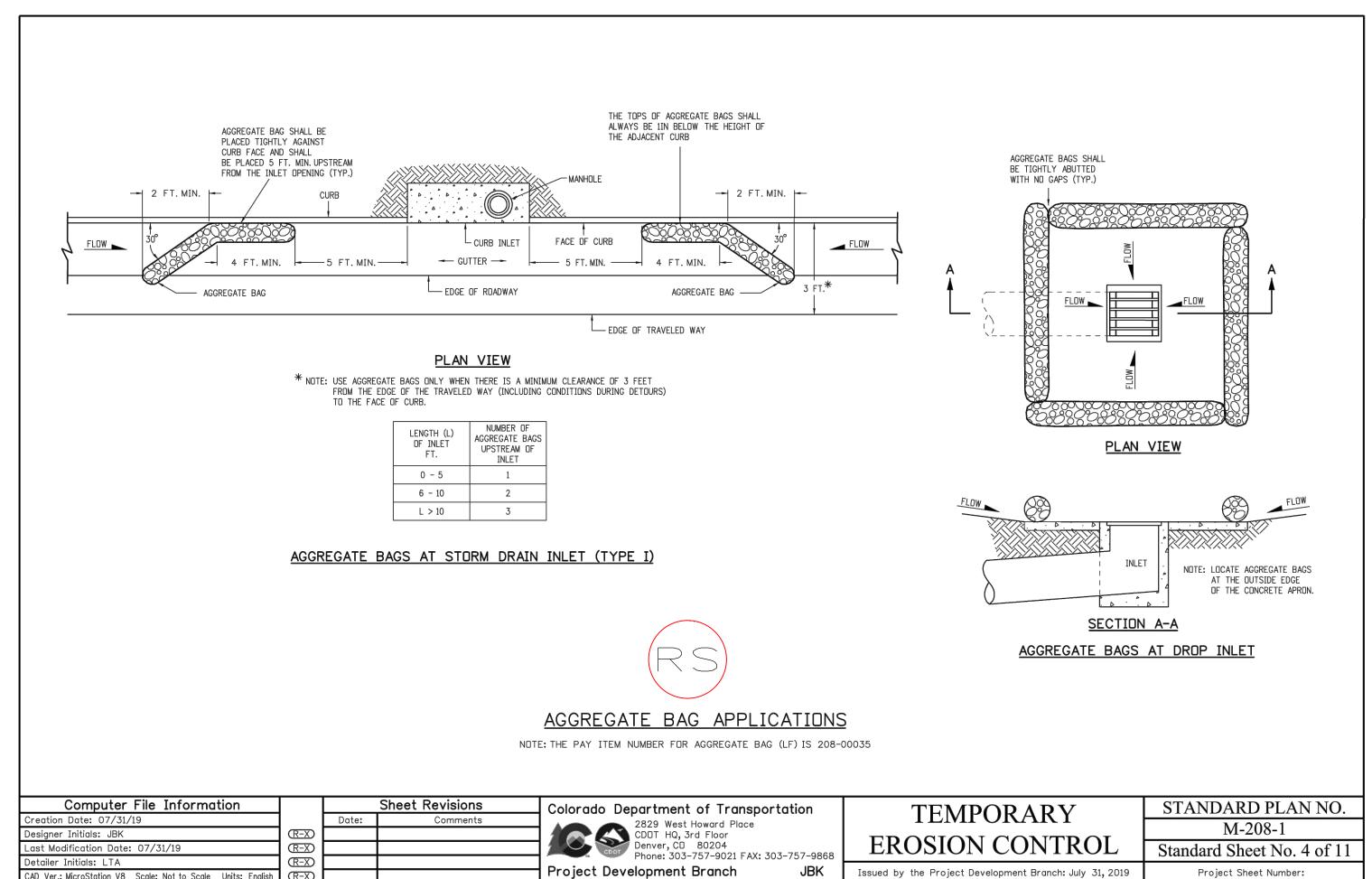
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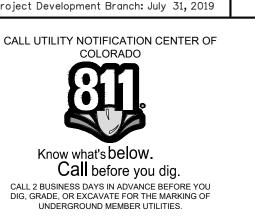
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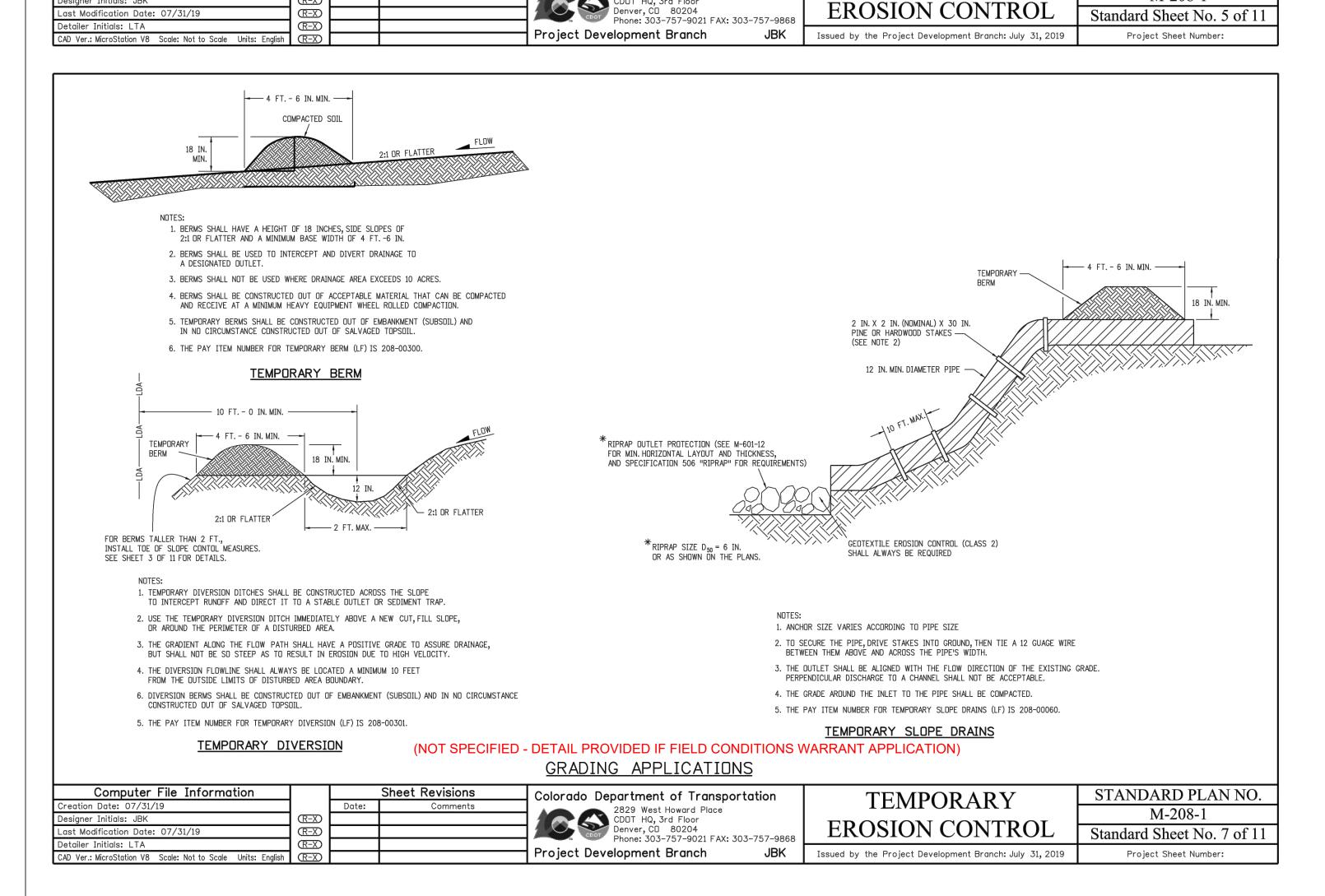
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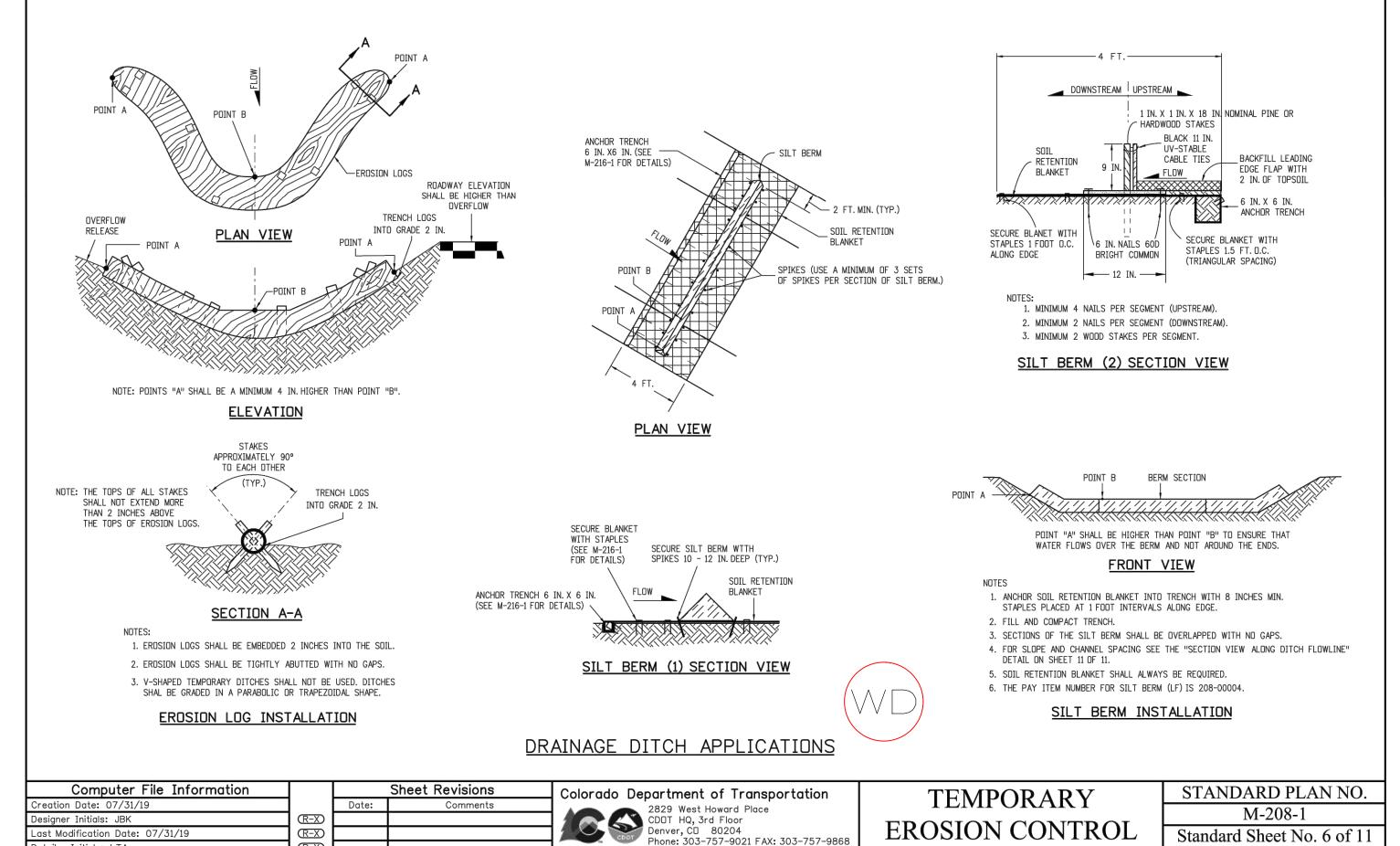
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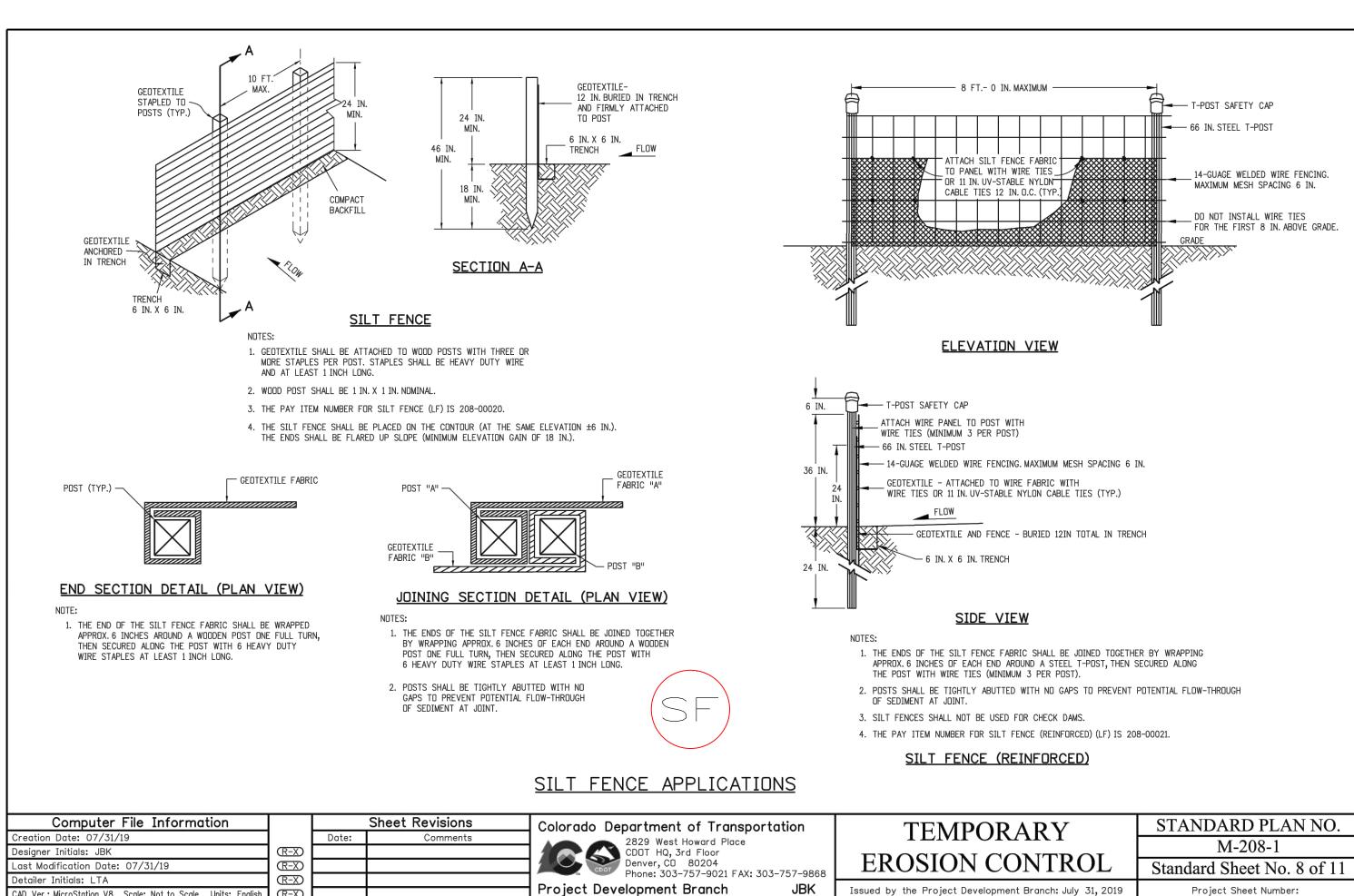
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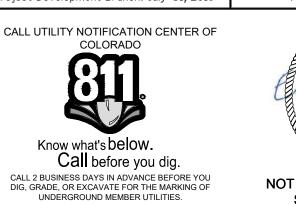


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Project Development Branch





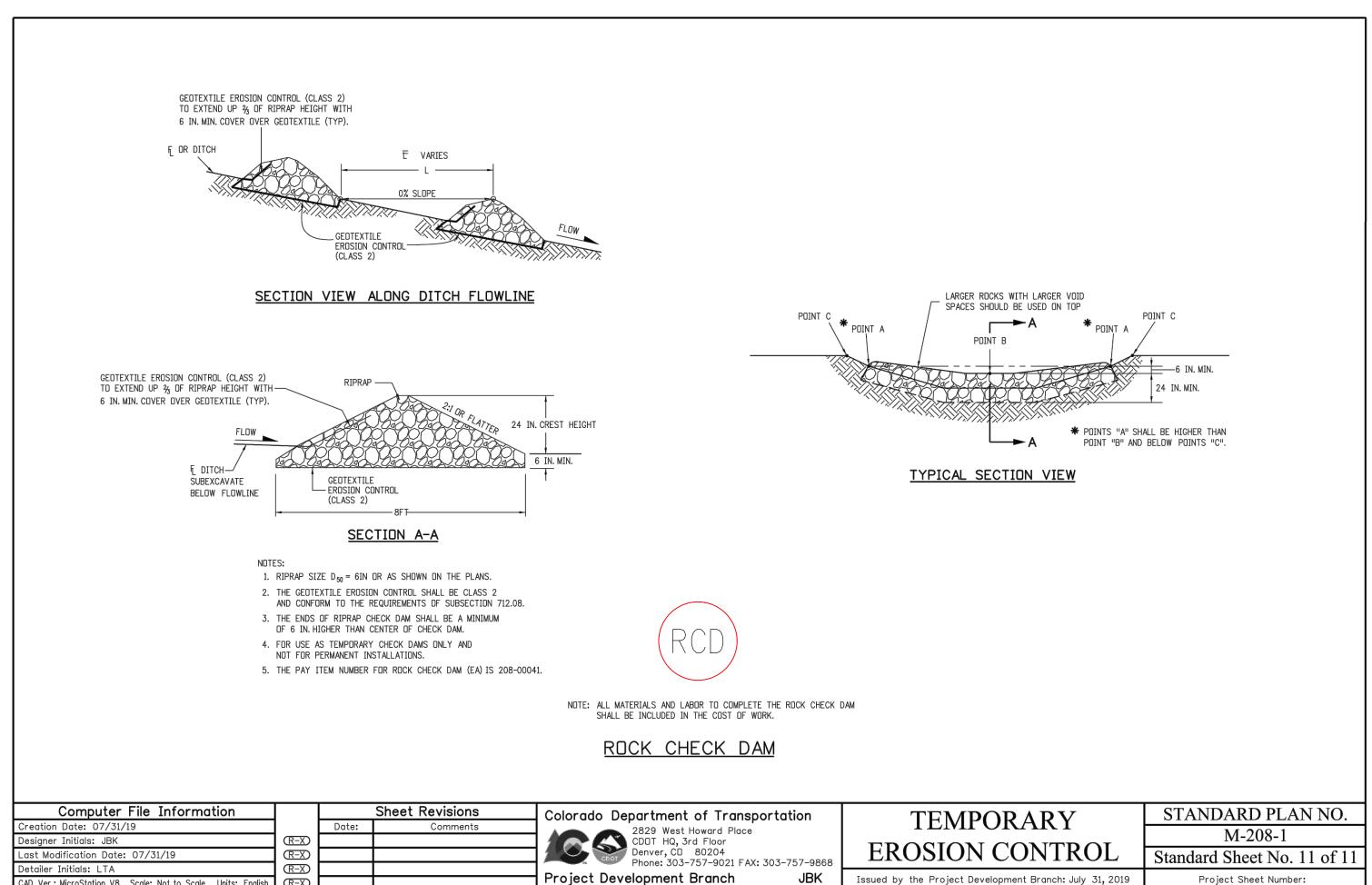
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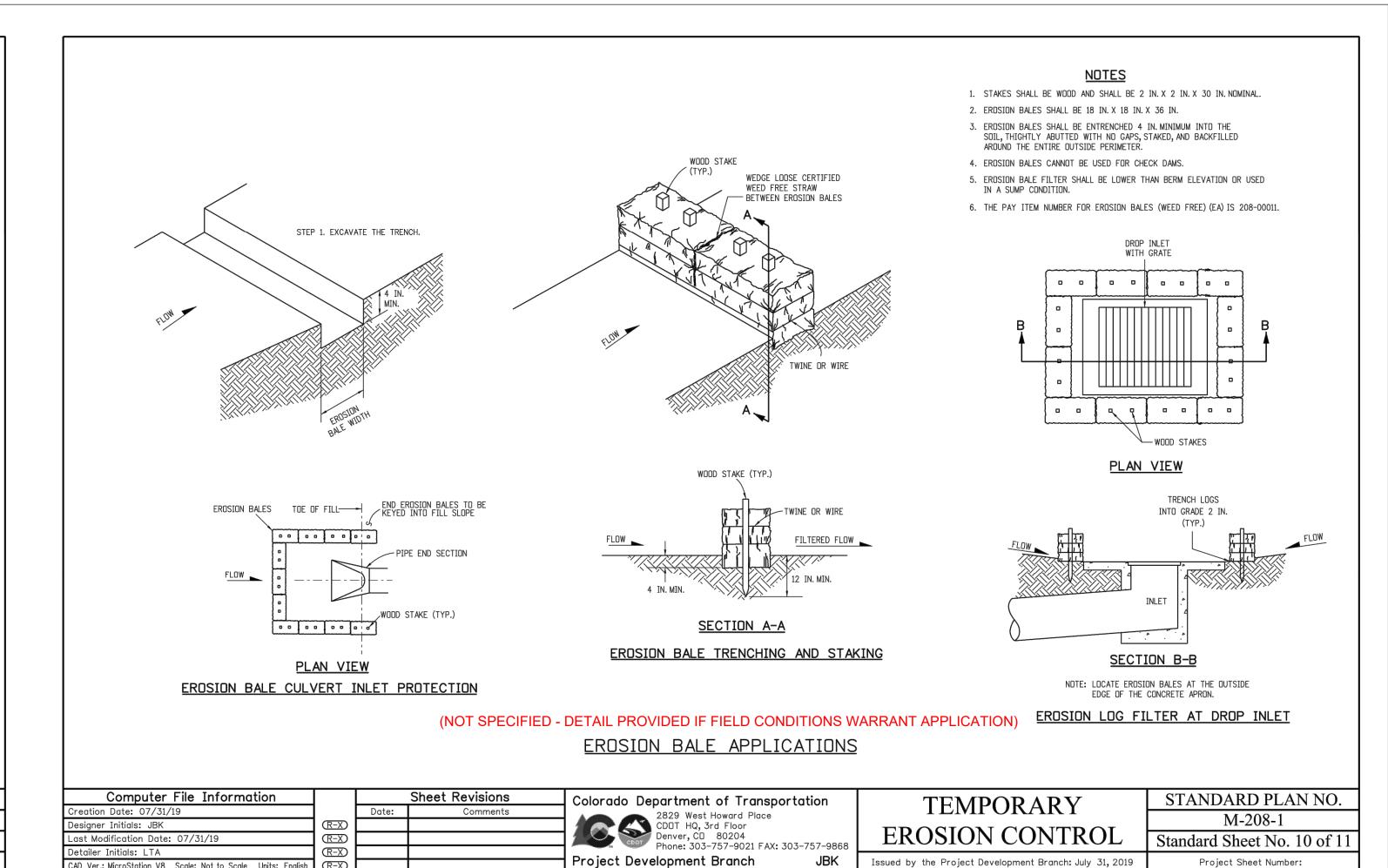
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Project Sheet Number:



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CAD Ver.: MicroStation V8 Scale: Not to Scale Units:

SHEET C.612

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