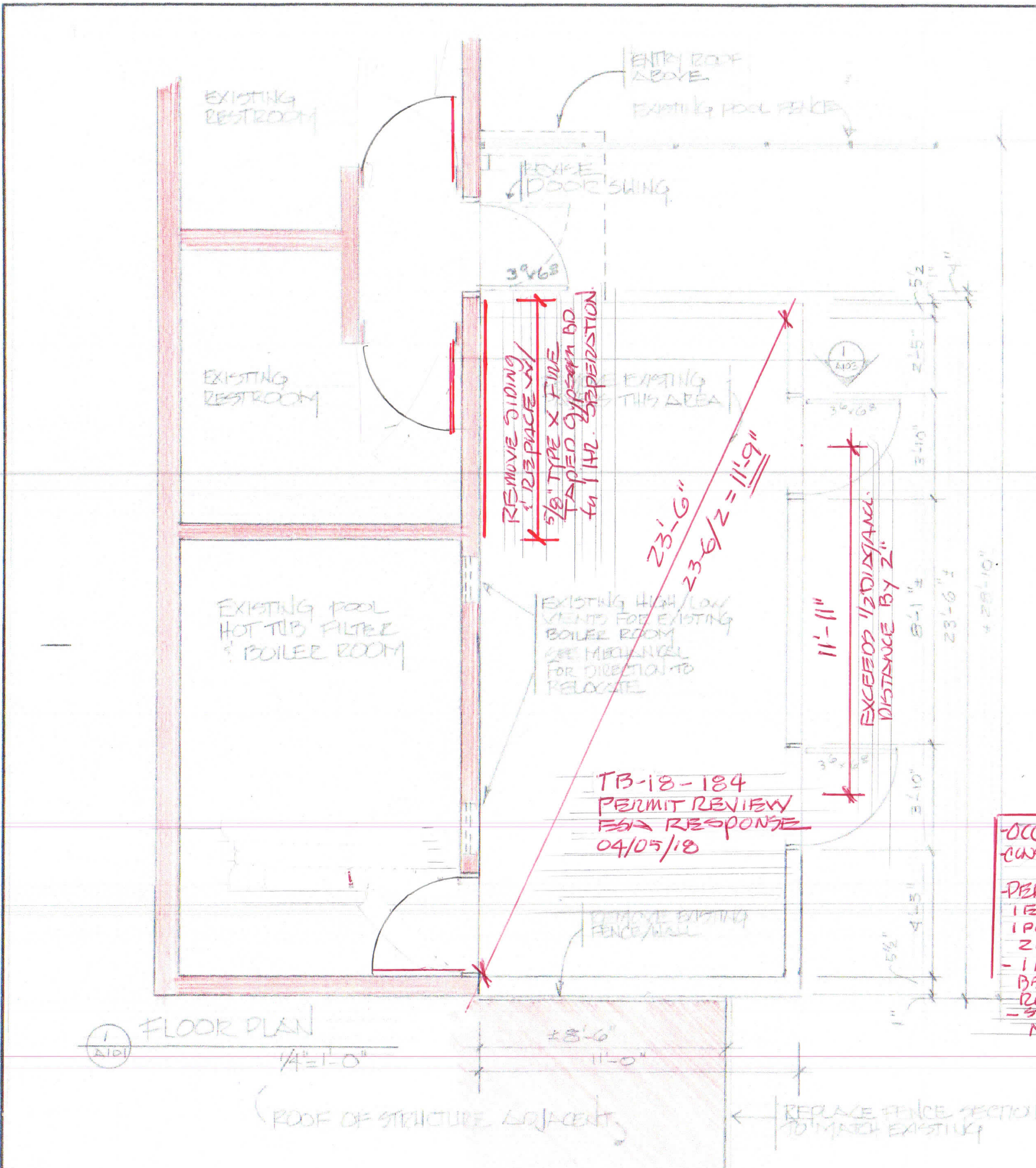


TORIAN PARKING STRUCTURE

WATERPROOFING / RENOVATION – PHASE 2

STEAMBOAT SPRINGS, CO.

RCRBD

TORIAN PLUM H.O.A.

RECORD SET

PROJECT TEAM

ARCHITECTURE
ESA ARCHITECTS
600 S. LINCOLN AVE. SUITE 201
STEAMBOAT SPRINGS, CO. 80487
LEE FISCHER
970-879-5458 LEE@ESAPC.COM

STRUCTURAL
ALPENGLOW ENGINEERING SOLUTIONS
1901 PINE GROVE ROAD, SUITE 202
STEAMBOAT SPRINGS, CO. 80487
BEN SCHUTT
970-879-1181 BEN@ALPENGLOWENG.COM

SHEET INDEX

A101 - COVER SHEET/FLOOR PLAN
A102 - ELEVATION
A103 - BUILDING SECTION/DETAIL
A104 - ROOF PLAN/DETAILS

S1 - DETAILS AND NOTES

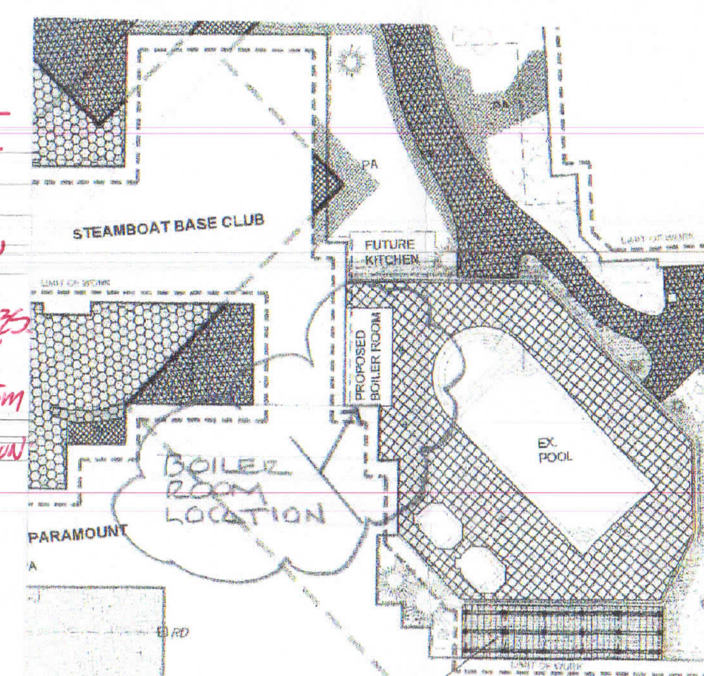
STATE OF COLORADO – LEE W. FISCHER – C-2337 – LICENSED ARCHITECT
MAR 06 2018

GENERAL NOTES: TYPE VB CONSTRUCTION

1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT BUILDING CODES ADOPTED BY
2. ROUTT COUNTY AND THE STATE OF COLORADO.
3. ALL PLUMBING SHALL BE FULLY PROTECTED FROM FREEZING.
4. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS.
5. DO NOT SCALE DRAWINGS.
6. ALL MATERIALS, COMPONENTS, FINISHES, EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS & WARRANTY, ANY AND ALL GOVERNING AUTHORITY THAT HAS JURISDICTION AND/OR INDUSTRY STANDARDS, WHICHEVER IS MORE STRINGENT
7. NOTIFY ARCHITECT AND STRUCTURAL ENGINEER OF ANY LOCATION THAT WOULD REQUIRE PENETRATION OF THE JOIST.
8. CONTRACTOR TO VERIFY BOTH ROUGH OPENINGS & FINISH OPENINGS OF ALL DOORS PRIOR TO FRAMING.

PROJECT LOCATION

- OCCUPANCY S-1
- CONSTRUCTION VB
- PER 2015 IBC, IEBC, IECC, IMC, IPC, IFGC & 2017 NEC. CODES
- 1 HR SEPERATION BETWEEN BOILER ROOM & REST ROOM
- STRUCTURE IS NR CONSTRUCTION



TB-18-184 REVISED 04/06/18 ESA

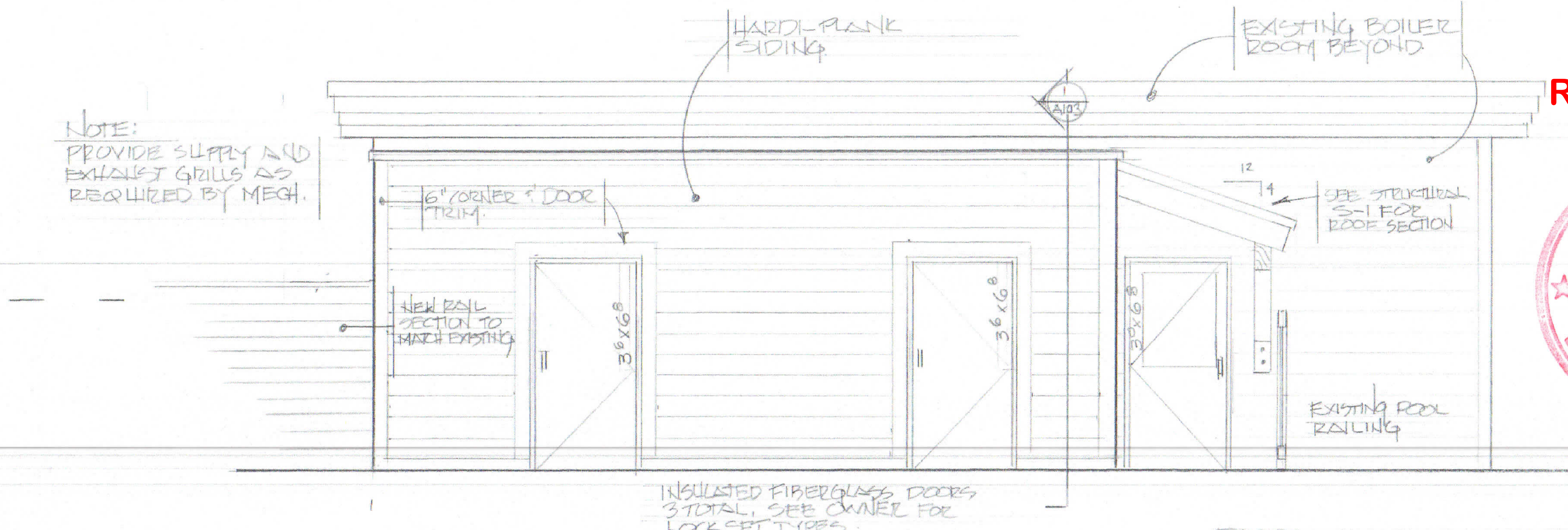
Torian Snowmelt Boiler Room
Waterproofing /Renovation - Phase 2
Steamboat Springs, Co.

ERIC SMITH ASSOCIATES, P.C.
BOULDER, COLORADO

Job Number: 17045
Date: 02/20/18
Drawn By: LWF
Checked By:
Project Phase: CONSTRUCTION
Sheet Title: FLOOR PLAN
Sheet Number: A101

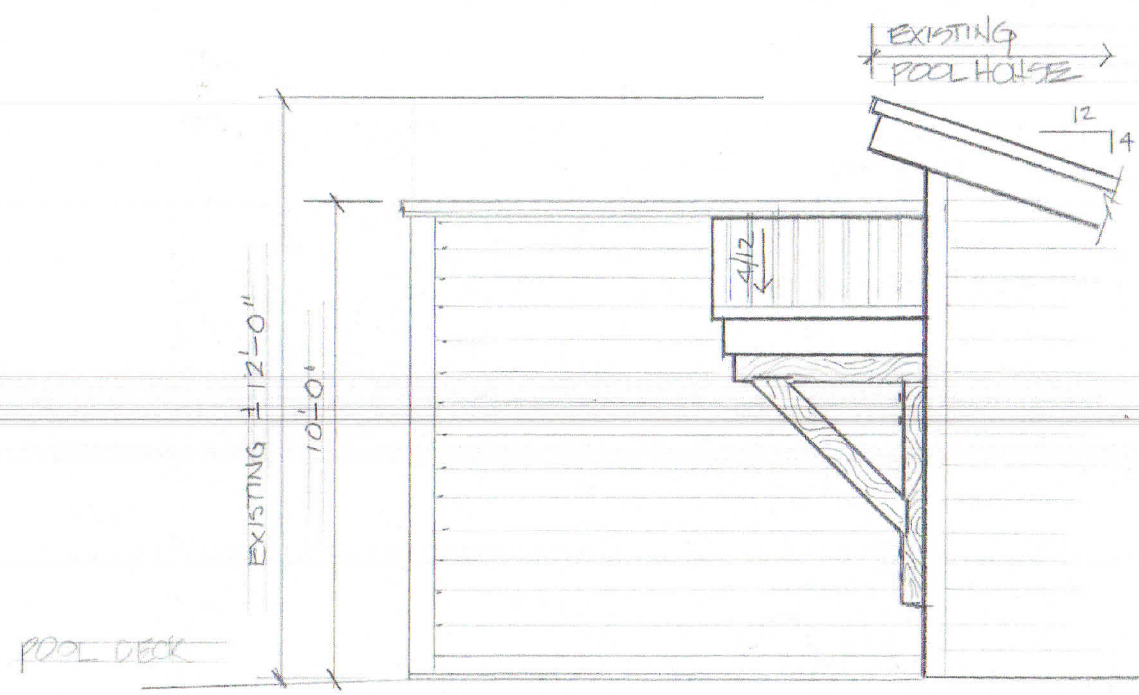
R C R B D

RECORD SET



1 A102 EAST ELEVATION

1/4"=1'-0"



2 A103 NORTH ELEVATION

1/4"=1'-0"

DOORS:

- PROVIDE THERMA-TRU FIBERGLASS ENTRY DOORS, OR EQ.
- DOORS TO BE 2 PANEL, W/INSULATED GLASS TOP PANEL @ RESTROOM DOOR.
- DOORS TO INCLUDED WEATHER STRIP & THRESHOLDS & ADA @ RESTROOM DOOR.
- SELF CLOSING HINGES TO BE PROVIDED

GENERAL NOTES:

- SIDING TO MATCH EXISTING.

REVISED 02/23/18

STATE OF COLORADO LICENSED ARCHITECT
LEE W HOWER
C-2337
MAR 06 2018

Torian Snowmelt Boiler Room

Waterproofing /Renovation - Phase 2

Steamboat Springs, Co.

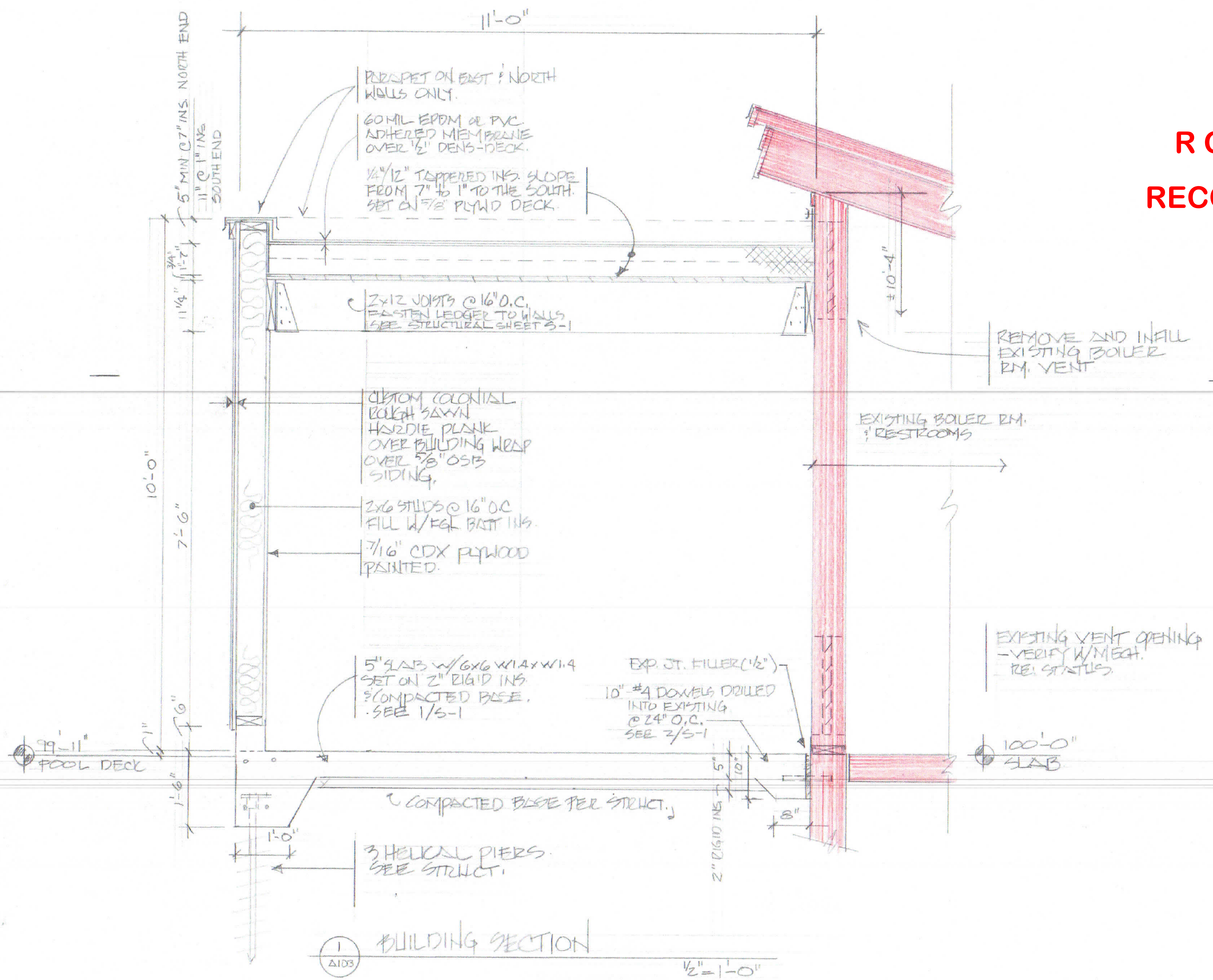
ERIC SMITH ASSOCIATES, P.C.
1919 SEVENTH STREET
BOULDER, COLORADO, 80302
(303) 442-5458, (303) 442-4746 FAX

Job Number:	17045
Date:	02/29/18
Drawn By:	LWF
Checked By:	

Project Phase: CONSTRUCTION

Sheet Title: ELEVATION

Sheet Number: A102


11'-0"
PARAPET ON EAST & NORTH WALLS ONLY.
60 MIL EPDM OR PVC ADHERED MEMBRANE OVER 1/2" DENS-DECK.
1/4"/12" TAPPERED INS. SLOPE FROM 7" to 1" TO THE SOUTH. SET ON 5/8" PLYWD DECK.
5" MIN. @ 7" INS. NORTH END
11" @ 1" INS. SOUTH END
2x12 JOISTS @ 16" O.C. FASTEN LEDGER TO WALLS. SEE STRUCTURAL SHEET S-1
±10'-4"
REMOVE AND INFILL EXISTING BOILER RM. VENT
CUSTOM COLONIAL ROUGH SAWN HARDIE PLANK OVER BUILDING WRAP OVER 5/8" OSB SIDING.
EXISTING BOILER RM. & RESTROOMS
10'-0"
7'-6"
2x6 STUDS @ 16" O.C. FILL W/ FGL BATT INS.
7/16" CDX PLYWOOD PAINTED.
EXISTING VENT OPENING -VERIFY W/ MECH. RE: STATUS
5" SLAB W/ 6x6 W1.4xW1.4 SET ON 2" RIGID INS. & COMPACTED BASE. SEE 1/S-1
EXP. JT. FILLER (1/2")
10" #4 DOWELS DRILLED INTO EXISTING @ 24" O.C. SEE 2/S-1
99'-11" POOL DECK
100'-0" SLAB
COMPACTED BASE PER STRUCT.
2" RIGID INS.
1'-0"
3 HELICAL PIERS SEE STRUCT.

1 / A103 BUILDING SECTION

1/2" = 1'-0"

R C R B D

RECORD SET

Torian Snowmelt Boiler Room

Waterproofing /Renovation - Phase 2

Steamboat Springs, Co.

ERIC SMITH ASSOCIATES, P.C.
1919 SEVENTH STREET
BOULDER, COLORADO, 80302
(303) 442-5458, (303) 442-4745 FAX

Job Number:	17045
Date:	02/20/18
Drawn By:	LWF
Checked By:	

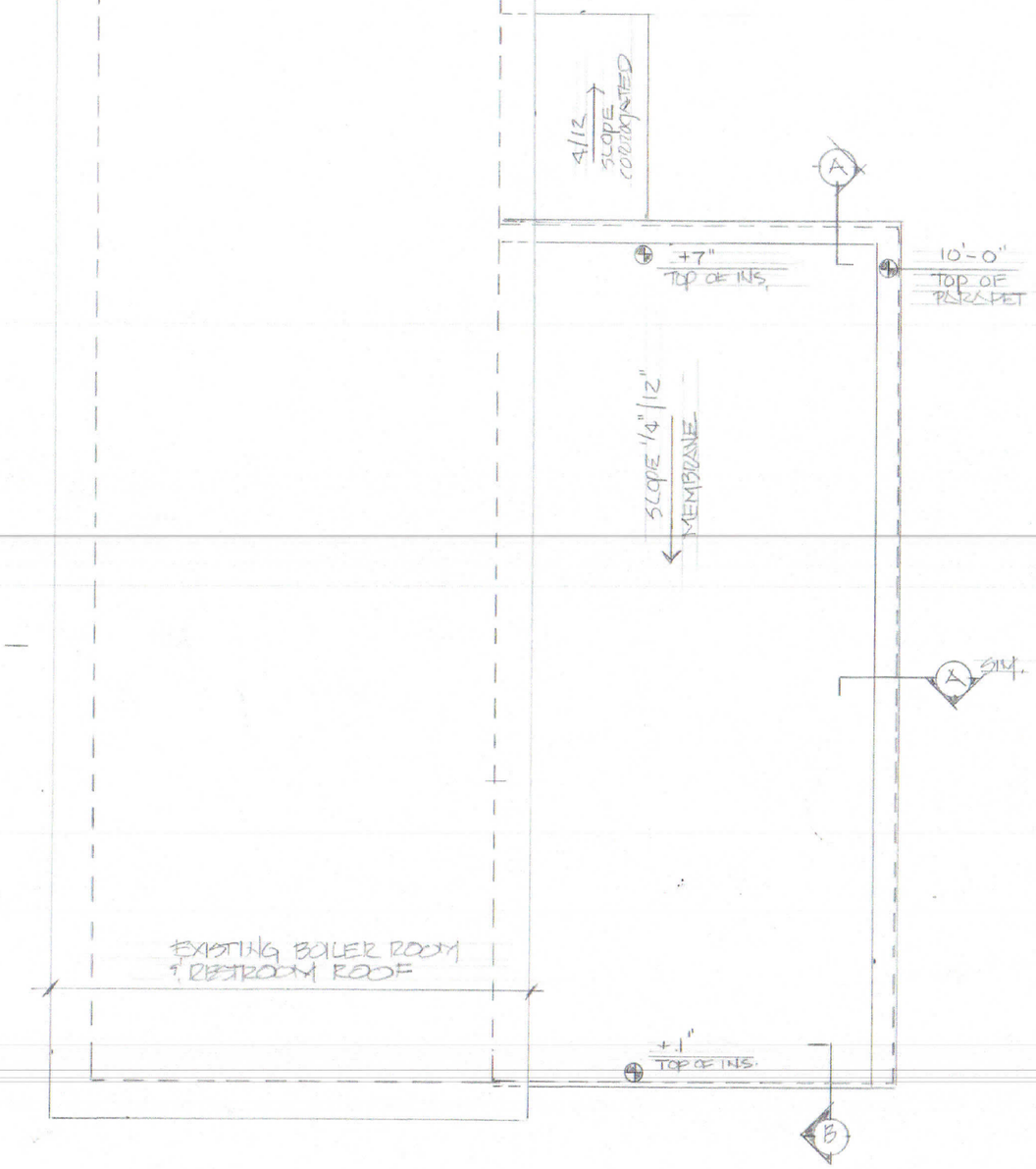
Project Phase: CONSTRUCTION

Sheet Title: SECTION

Sheet Number: A103

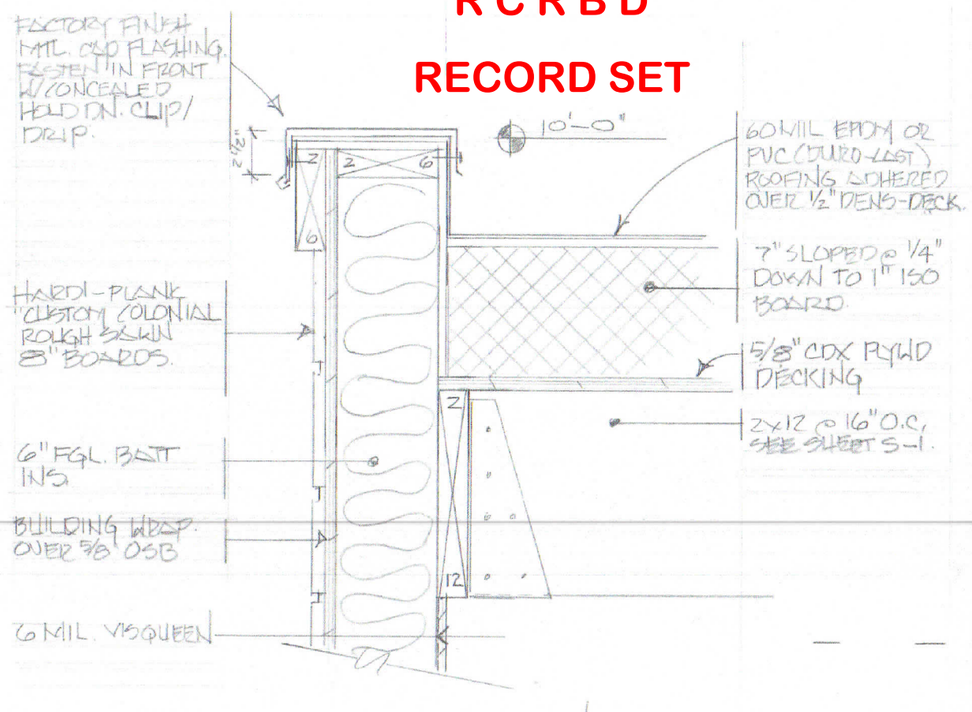
R C R B D

RECORD SET

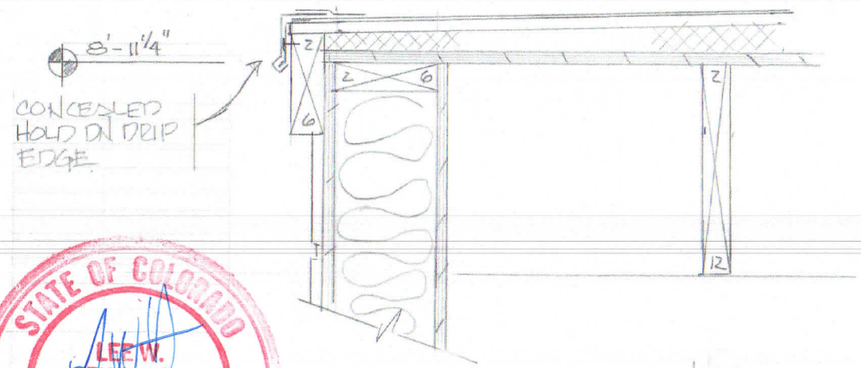


1 / A104 ROOF PLAN

1/4" = 1'-0"



A WALL SECTION (NORTH WALL) (EAST WALL SIM) 1 1/2" = 1'-0"



B SOUTH WALL SECTION 1 1/2" = 1'-0"

STATE OF COLORADO
LEE W. FISCHER
C-2337
MAR 06 2018
LICENSED ARCHITECT

01/26/18

Torian Snowmelt Boiler Room

Waterproofing /Renovation - Phase 2

Steamboat Springs, Co.

ERIC SMITH ASSOCIATES P.C.
1519 SEVENTH STREET
BOULDER, COLORADO, 80302
(303) 442-5458, (303) 442-4746 FAX

Job Number:	1704b
Date:	02/20/18
Drawn By:	LWF
Checked By:	

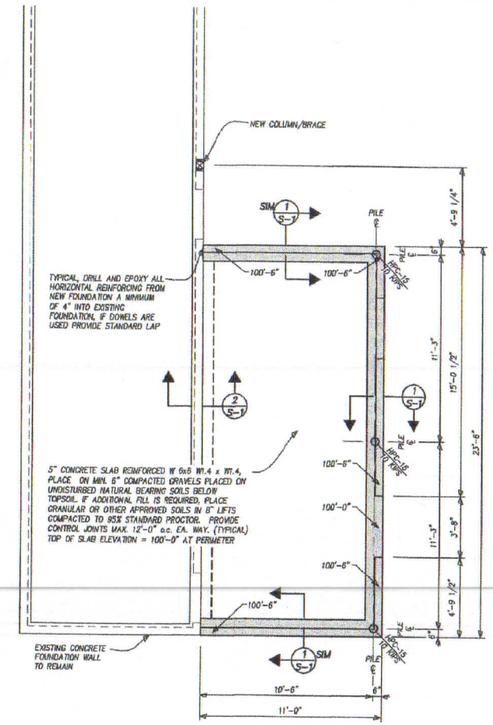
Project Phase: CONSTRUCTION

Sheet Title: ROOF PLAN AND DETAILS

Sheet Number: A104

RCRBD

RECORD SET



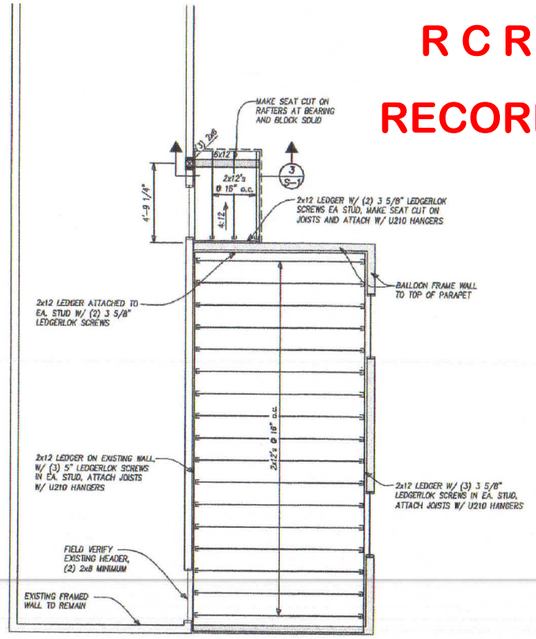
FOUNDATION PLAN

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

ELEVATION TOP OF CONCRETE WALL INDICATED THUS ELEV-#

HELICAL SCREW PILE LOCATION, SHAFT SIZE, AND MINIMUM SERVICE LOAD REQUIREMENT FOR HELICAL SCREW PILE, DEAD LOAD PLUS LIVE LOAD IN KIPS (1 KIP = 1000 lbs), INDICATED THUS (SHAFT SIZE) (TOTAL LOAD)

NOTE:
ALL EXISTING FRAMING MEMBER SIZES SHOWN SHALL BE FIELD VERIFIED BY CONTRACTOR AT TIME OF CONSTRUCTION. ALL DIMENSIONS SHOWN SHALL BE FIELD VERIFIED BY CONTRACTOR AT TIME OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES BETWEEN FIELD CONDITIONS AND THOSE SHOWN ON DRAWINGS PRIOR TO CONSTRUCTION.



ROOF FRAMING PLAN

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

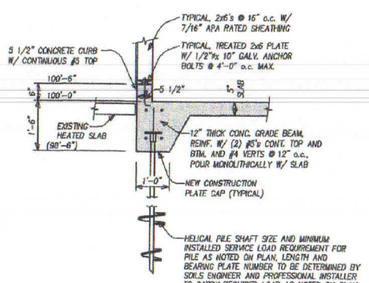
FRAME EXTERIOR WALLS ARE TO BE 2x6 @ 16" o.c. W/ 7/16" APA RATED SHEATHING UNLESS NOTED OTHERWISE

TYPICAL HEADER THIS PLAN, (3) 2x10's W/ (1) 2x6 TRIMMER AND (1) 2x6 KING STUD EACH END UNLESS NOTED OTHERWISE

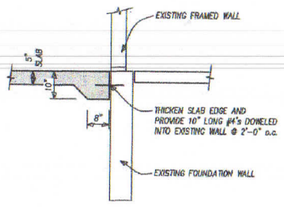
TYPICAL AT ROOF, 5/8" APA RATED, EXPOSURE 1, SHEATHING
TYPICAL SUB-FASCIA THIS PLAN, IS TO BE 2x12

(S2/S1) INDICATES SIZE OF COLUMN BELOW BEAM AT INDICATED LOCATION

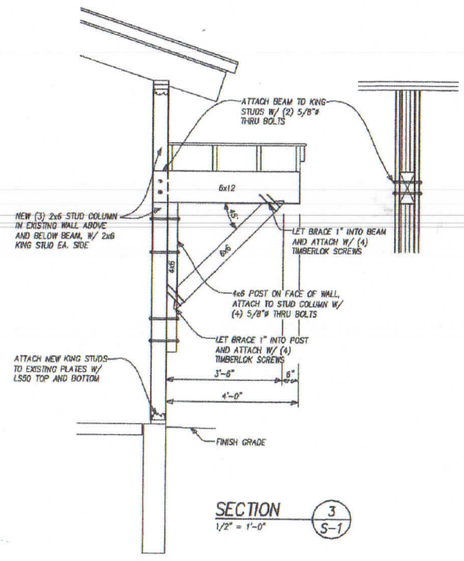
NOTE:
ALL EXISTING FRAMING MEMBER SIZES SHOWN SHALL BE FIELD VERIFIED BY CONTRACTOR AT TIME OF CONSTRUCTION. ALL DIMENSIONS SHOWN SHALL BE FIELD VERIFIED BY CONTRACTOR AT TIME OF CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF DISCREPANCIES BETWEEN FIELD CONDITIONS AND THOSE SHOWN ON DRAWINGS PRIOR TO CONSTRUCTION.



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



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



SECTION 3 S-1
1/2" = 1'-0"

GENERAL NOTES

DESIGN LIVE LOADS

a. Roofs ..... 105 psf
b. Floors ..... 40 psf
c. Wind ..... 90 mph (3 sec gust), Exposure "B"
d. Seismic ..... IBC Design Category B

FOUNDATION DESIGN

a. Design of helical screw piles is based upon the specifications for the IWR HELI-PILE Helical Piers. Piers are to be installed as specified and as required by the soils engineer and the professional installer to carry the required loads as noted on the plan.
b. The contractor shall submit shop drawings for all helical pile components, including corrosion protection and pile top attachment to the Engineer and Regional Building Department for review and approval.
c. The contractor shall provide the Engineer and Regional Building Department copies of helical pile installation records.
d. Special inspection of helical pier installation is required and inspectors shall be employed by the owner or agent of the owner and not by the contractor.

REINFORCED CONCRETE

a. Structural concrete shall have a minimum 28 day compressive strength of 3000 psi Type I.
b. Reinforcing bars shall conform to ASTM Specification A615-75 and shall be Grade 60.
c. All anchor bolts are to meet ASTM Specification F1554 Grade 36.
d. At splices, lap bars 38 diameters. At corners and intersections, make horizontal bars continuous or provide matching corner bars. Around openings in walls and slabs, provide 2-#5, extending 2'-0" beyond edge of opening.

STRUCTURAL STEEL

a. Structural steel rolled shapes shall conform to ASTM A572, Grade 50. Plates and angles shall conform to ASTM A36. Tube shapes shall conform to ASTM A500 Grade B., 46 ksi yield. Pipe shapes shall conform to ASTM A53, Grade B.
b. All bolts shall conform to ASTM Specification A307.
c. Expansion bolts called for on the drawings shall be "WEDGE-IT", "RED HEAD", or approved wedge type, with the following minimum embedments: 5/8" diameter bolts - 2 3/4", 1/2" diameter bolts - 2 1/4".
d. All welding shall be done by a certified welder.

STRUCTURAL WOOD FRAMING

a. Except where noted otherwise, all 2" lumber shall be Douglas Fir-Larch S4S No.2 or better, and all solid timber beams and posts shall be Douglas Fir-Larch No. 1. All studs over 12'-0" in length shall be 1.3E LSL with allowable fiber stress in bending = 1700 psi, modulus of elasticity of 1.3x10(6) psi, and allowable shear stress = 425 psi. Logs shall be sized and graded according to notes on plan. Grade shall be as approved by TPI in accordance with ASTM D-3957-84.
b. Except as noted otherwise, minimum nailing shall be provided as specified in Table 2304.9.1 "Fastening Schedule" of the I.B.C., 2009 edition.
c. Floor and roof sheathing shall be APA rated Structural I sheathing with exterior glue and graded in accordance with APA standards. Panel identification and thickness shall be as noted on the drawings.
d. Where light gage framing anchors are shown or required, they shall be Simpson "Strong Tie" or equal ICBO approved connectors and shall be installed with the number and type of nails recommended by the manufacturer to develop the rated capacity.
e. Glued Laminated timber shall be of such stress grade to provide glued laminated beams with combination symbol 24F-V4.
f. Laminated Veneer Lumber shall be of such stress grade to provide members with allowable fiber stress in bending = 2600 psi, modulus of elasticity of 1.9x10(6) psi, and allowable shear stress parallel to the glue line = 285 psi.
g. Trussed rafters shall be designed by a Professional Engineer licensed in the state of Colorado to support the full dead and live loads of the roof, ceiling, and any other superimposed loads. Calculations and shop drawings, including member sizes, lumber species and grades, and substantiating data for connector capacities, shall be submitted to the Architect or Engineer for review and approval prior to fabrication.
h. Roof and floor joists shall be plant-fabricated I-series with LVL wood flanges and plywood or OSB webs, and carry ICBO approval for the composite section. Joists shall be designed to carry the full dead and live loads of the roof and floor and any other superimposed loads. Bridging and blocking shall be installed according to the fabricator's requirement.

BACK FILLING

a. Do not backfill against basement or retaining walls until supporting slabs and floor framing are in place and securely anchored.

EPOXY ADHESIVE ANCHORING SYSTEM

a. Epoxy adhesive anchoring system shall be HILTI HIT-RE 500 or approved equal.
b. Anchor rods shall be furnished with chamfered ends so that either end will accept a nut and washer and meet the requirements of ISO 898 Class 5.8.
c. Anchors shall have the following minimum embedments: 3/4"ø - 6 3/4", 5/8"ø - 5 5/8", 1/2"ø - 4 1/2".

STRUCTURAL ERECTION AND BRACING REQUIREMENTS

a. The structural drawings illustrate the completed structure with all elements in their final positions, properly supported and braced.
b. The Contractor, in the proper sequence, shall provide proper shoring and bracing as may be required during construction to achieve the final completed structure.
c. The Contractor shall submit a shoring plan for approval prior to construction and all shoring shall be inspected and approved by Engineer prior to demolition.

SPECIAL INSPECTIONS

a. All special inspections shall comply with chapter 17 of the International Building Code (IBC). These inspections are in addition to the inspections specified in Section 109 of the IBC.
b. The Special Inspector and testing agent shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official prior to commencing work.
c. 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.
d. The credentials of all inspectors, administrators and testing technicians shall be provided if requested.
e. The Special Inspector shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge.
f. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge.
g. The Special Inspection program does not relieve the Contractor of his or her responsibilities.
h. A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.
i. Job site safety and means and methods of construction are solely the responsibility of the Contractor.
j. The Special Inspection program does not relieve the Contractor or any other entity of any contractual duties, including quality control, quality assurance, or safety.
k. The Contractor is solely responsible for construction means, methods, and job site safety.
l. Special Inspection is required for the off site fabrication of structural steel load-bearing members and assemblies unless the work is done on the premises of a fabricator registered and approved to perform such work without special inspection.
m. In addition to special inspections required by chapter 17 of the IBC and those required by the Building Official the following site specific inspections are required:
   1. Installation of Epoxy Adhesive Anchors.
   2. Installation and tightening of high strength bolts.
   3. Visual inspection of all welds and continuous inspection of all complete and partial penetration groove welds.
   4. Attachment of wood diaphragms to steel frame.

NOTE FOR ADDITIONS TO EXISTING STRUCTURES:

1. ALL PARTIES INVOLVED SHOULD BE AWARE THAT ADDITIONS TO EXISTING STRUCTURES CARRY THE POTENTIAL RISK OF DIFFERENTIAL MOVEMENT FROM SETTLEMENT AND SHRINKAGE BETWEEN THE NEW AND EXISTING STRUCTURES. THESE POTENTIAL MOVEMENTS CAN RESULT IN APPARENT DISTRESS IN THE FINISHES SOON AFTER COMPLETION OF THE PROJECT, HOWEVER SHOULD NOT RESULT IN ANY SIGNIFICANT STRUCTURAL DISTRESS.

2. THE CONTRACTOR SHALL TAKE THESE FACTORS INTO CONSIDERATION DURING CONSTRUCTION AND TAKE APPROPRIATE MEASURES TO MINIMIZE THE POTENTIAL DIFFERENTIAL MOVEMENTS BY PROPERLY ATTACHING THE NEW STRUCTURE TO THE EXISTING STRUCTURE, USING FRAMING MATERIALS WITH LOW MOISTURE CONTENT TO LESSEN THE SHRINKAGE POTENTIAL, AND PLACING NEW FOUNDATIONS ON PROPERLY COMPACTED NATURAL SOILS OR APPROVED COMPACTED STRUCTURAL FILL AS REQUIRED. NOTE THAT EVEN WITH PROPER MEASURES THERE WILL STILL BE SOME RISK OF DIFFERENTIAL SETTLEMENT.

3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY FIELD CONDITIONS THAT MAY POTENTIALLY AFFECT THE PERFORMANCE OF THE NEW STRUCTURE OR MAY LEAD TO DIFFERENTIAL MOVEMENTS IN THE NEW STRUCTURE OR BETWEEN THE NEW AND EXISTING STRUCTURES.

COLORADO LICENSED
BENJAMIN F. SCHLUTER
30325
3/6/18
PROFESSIONAL ENGINEER

ALPENGLOW
ENGINEERING SOLUTIONS, INC.
Consulting Structural Engineers
1901 Pine Grove Rd, Suite 202, P.O. Box 772591
Steamboat Springs, CO 80477
970.879.1181 alpen@rocketmail.com

DATE	REVISIONS

DATE 2/9/18
PROJECT #17-105
DRAWN CAS
CHECKED BFS
FILE Torian_17105.dwg
SCALE 1/4" = 1'-0"

TORIAN PLAZA SNOW MELT

FOUNDATION PLAN
BOILER ROOM ADDITION
SKI TIME SQUARE
STEAMBOAT SPRINGS, COLORADO 80477

SHEET
S-1
1 OF 1

PJ2853-3
Fire Prevention
In: 03/28/2018
Out: 04/16/2018

R C R B D

RECORD SET

MECHANICAL LEGEND

NOT ALL ITEMS LISTED BELOW ARE USED ON THIS SET OF MECHANICAL DRAWINGS

GENERAL

SYMBOL	DESCRIPTION
DTL / SHT	REFERENCE BUBBLE
EQUIP#	MECHANICAL/ELECTRICAL EQUIPMENT DESIGNATION
	REMOVE EXISTING
-U-	UNDERCUT DOOR
	CONNECT NEW TO EXISTING

DOUBLE LINE DUCTWORK

SYMBOL	DESCRIPTION
	RECTANGULAR SUPPLY AIR DUCT UP
	RECTANGULAR SUPPLY AIR DUCT DOWN
	RECTANGULAR RETURN AIR / EXHAUST DUCT UP
	RECTANGULAR RETURN AIR / EXHAUST DUCT DOWN
	ROUND DUCT UP
	ROUND DUCT DOWN
	BRANCH DUCT 45° TAKE-OFF
	RECTANGULAR DUCT ELBOW WITH TURNING VANES
	RADIUS ELBOW RECTANGULAR/ROUND DUCT
	DUCT TRANSITION
	FLEX CONNECTION

SINGLE LINE DUCTWORK

SYMBOL	DESCRIPTION
	RECTANGULAR DUCT ELBOW WITH TURNING VANES
	RADIUS ELBOW RECTANGULAR/ROUND DUCT
	DUCT TRANSITION
	CONICAL SPIN-IN FITTING
	CONICAL SPIN-IN FITTING W/DAMPER
	FLEXIBLE DUCT

CONTROL DEVICES AND DAMPERS

SYMBOL	DESCRIPTION
H	HUMIDISTAT
PS	PRESSURE SENSOR
S	SENSOR
T	WALL MOUNTED THERMOSTAT
T	UNIT MOUNTED THERMOSTAT
S	SWITCH
SD	SMOKE DUCT DETECTOR
	FIRE DAMPER
	COMBINATION FIRE AND SMOKE DAMPER
	MANUAL VOLUME DAMPER W/LOCKING QUADRANT
	MOTORIZED DAMPER
DSD	DUCT SMOKE DETECTOR

PIPING

SYMBOL	ABBV.	DESCRIPTION
SMS	SMS	SNOW MELT SUPPLY
SMR	SMR	SNOW MELT RETURN
CHS	CHS	CHILLED WATER SUPPLY
CHR	CHR	CHILLED WATER RETURN
CS	CS	CONDENSER SUPPLY
CR	CR	CONDENSER RETURN
HPS	HPS	HIGH PRESSURE STEAM
HPC	HPC	HIGH PRESSURE CONDENSATE
PC	PC	PUMPED CONDENSATE
D	D	EQUIPMENT DRAIN
RL	RL	REFRIGERANT LIQUID
RS	RS	REFRIGERANT SUCTION

PIPING SYMBOLS

SYMBOL	DESCRIPTION
	ARROW IN LINE INDICATES DIRECTION OF FLOW
XX	INDICATES PIPE SLOPE DOWN
	BOTTOM PIPE CONNECTION
	PIPING UP
	PIPING DOWN
	FIXTURE TRAP OR DRAIN TRAP
	PIPING CAP OR PLUG
	PUMP
BV	BALANCING VALVE/ FLOW MEASURING DEVICE
	BALL VALVE
	GATE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	FLOW SWITCH
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	3-WAY TEMPERATURE CONTROL VALVE
	2-WAY TEMPERATURE CONTROL VALVE
	RELIEF VALVE
	STRAINER
	STRAINER WITH BLOW-OFF VALVE
	UNION
	PRESSURE GUAGE
	THERMOMETER
P/T	PRESSURE AND TEMPERATURE TAP
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	FLEXIBLE CONNECTOR
	HOSE END DRAIN VALVE
	MANUAL AIR VENT

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR	RA	RETURN AIR
AP	ACCESS PANEL	(N)	NEW	RE	REFER TO
C	COMMON	NC	NORMALLY CLOSED	SA	SUPPLY AIR
(E)	EXISTING	NIC	NOT IN CONTRACT	SRV	SAFETY RELIEF VALVE
EC	ELECTRICAL CONTRACTOR	NO	NORMALLY OPEN	TCC	TEMPERATURE CONTROL CONTRACTOR
ELEV	ELEVATION	NTS	NOT TO SCALE	TYP	TYPICAL
EQ	EQUIPMENT	OA	OUTSIDE AIR		
GC	GENERAL CONTRACTOR	PRV	PRESSURE REDUCING VALVE		

NOTE:

BUILDING DEPARTMENT AND CONTRACTOR NOTES

1. THE SNOW MELT PROJECT IS DESIGN BUILD. BID DOCUMENTS AND DRAWINGS ARE PROVIDED TO ASSIST THE DESIGN/BUILD INSTALLING CONTRACTOR.
2. THE DESIGN/BUILD CONTRACTOR SHALL PROVIDE THE UNDERSLAB LOOP SNOWMELT SYSTEM DESIGN FROM EACH MANIFOLD.
3. THE SNOW MELT CONTRACTOR BIDDING THE PROJECT SHALL BE THE FOLLOWING:

   R4H MECHANICAL
   825 CHAMBERS AVE.
   EAGLE, COLO. 81631

MECHANICAL SHEET INDEX

COLORADO LICENSED
SCOTT B. SUMNER
36751
3/6/18
PROFESSIONAL ENGINEER

Wenk ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1601
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BAW
Reviewed by MCS
Job No. 17109

Revisions

Name	Date
BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
MECHANICAL LEGEND AND SHEET INDEX

Sheet Number
M0.1

RCRBD

RECORD SET

CONDENSING/HOT WATER BOILER SCHEDULE - Torian Plum Boiler Room

MARK	SERVICE	TYPE	HEATING CAPACITY				EWT (°F)	LWT (°F)	DESIGN GPM	MANUFACTURER MODEL NUMBER	ELECTRICAL			OPER. WEIGHT (LBS.)	REMARKS
			INPUT @ SL (MBH)	OUTPUT @ ALT. (MBH) 100% FIRE	OUTPUT @ ALT. (MBH) 75% FIRE	OUTPUT @ ALT. (MBH) 50% FIRE					VOLTAGE/ PHASE	MOCP	FLA		
B-1,2	SNOW MELT SYSTEM TORIAN PLUM PROPERTY	CONDENSING GAS FIRED MODULATING BURNER	2000 NAT. GAS	1500	1125	750	95	135	105	AERCO BENCHMARK BMK-2.0 LN	208/3	15	5	1760	1, 2, 3, 4, 5, 6,7

1. ACCEPTABLE MANUFACTURER'S: ACCEPTABLE ALTERNATE MANUFACTURER'S SHALL BE DETERMINED BY THE INSTALLING CONTRACTOR IN CONJUNCTION WITH ALL REQUIREMENTS FOR THE PROJECT. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE PERMIT AND CONSTRUCTION DRAWINGS AS REQUIRED DUE TO CHOICE OF ALTERNATE MANUFACTURER'S.
2. BURNERS SHALL BE DESIGNED TO FIRE ON NATURAL GAS, 848 BTU/CF, 11.0" W.C. PROVIDE WITH GAS REGULATORS AS NECESSARY. REGULATORS SHALL BE VENTED TO EXTERIOR. VENTLESS REGULATORS ARE NOT ACCEPTABLE.
3. MINIMUM GPM THROUGH THE BOILER SHALL BE 25 GPM.
4. E.C. TO PROVIDE ELECTRICAL FEED FOR BMS. COORDINATE WITH E.C.
5. PROVIDE BOILERS WITH BMS II CONTROL PANEL.
6. REFER TO SPECIFICATION SECTION 15556 FOR MORE INFORMATION.
7. PROVIDE BOILER B-2 IN FUTURE FOR THE SKI TIME SQUARE BUILDOUT.

PUMP SCHEDULE - Torian Plum Boiler Room

SYMBOL	MFR.	MODEL NUMBER	SERVICE	PUMP TYPE	TOTAL GPM	GPM	HEAD FT WC	FLUID	IMPELLER SIZE (IN)	EFF %	MAX HP	RPM	ELEC	SUCTION SIZE IN	DISCH SIZE IN	REMARKS
P-1,2	ARMSTRONG	SERIES-4300 SIZE-4X4X11.5	TORIAN PLUM BOILER ROOM PLAZA SNOW MELT SYSTEM	IN-LINE VERT.	202	101	115	50% PROP. GLYCOL	4.9	74	10	3600	208/3	2	2	1, 2, 3, 4, 5

1. ACCEPTABLE MANUFACTURER'S: AT INSTALLING CONTRACTOR'S OPTION, ALTERNATE MANUFACTURER'S MAY BE USED. IT SHALL BE THE INSTALLING CONTRACTORS RESPONSIBILITY TO PROVIDE PERMIT AND CONSTRUCTION DOCUMENTS SHOWING CONFORMANCE TO PROJECT REQUIREMENTS.
2. PUMP SHALL BE PROVIDED WITH A VFD THAT IS COMPLETELY COMPATIBLE WITH THE ARMSTRONG IPS 3000 SERIES PUMP CONTROL PACKAGE, OR THAT USED IN THE PROMENADE SYSTEM.
3. THE PUMPS SCHEDULED GPM IS ESTIMATED FROM WHAT IS REQUIRED FOR THE FULL BOILER ROOM BUILDOUT.
4. REFER TO SPECIFICATION SECTION 235216 FOR MORE INFORMATION.
5. PROVIDE PUMP P-2 IN FUTURE FOR THE SKI TIMES SQUARE BUILDOUT.

AIR SEPARATOR SCHEDULE - Torian Plum Boiler Room

SYMBOL	MANUFACTURER	MODEL	TYPE	AIR SEPARATOR			BUILT IN STRAINER REQUIRED	OPERATING WEIGHT (LBS)	REMARKS
				SIZE IN (IN)	FLOW (GPM)	WPD (FT)			
AS-1	ARMSTRONG	VAS-4	VORTEX	4"	240 MAX	0.6 MAX	YES	151	1, 2

REMARKS:
1. EQUIPMENT SCHEDULE BASED ON ARMSTRONG. ACCEPTABLE MANUFACTURERS: BELL & GOSSETT, AMTROL, TACO ACT
2. REFER TO SPECIFICATION SECTION 15515 FOR MORE INFORMATION.

THERMAL EXPANSION TANK SCHEDULE - Boiler Room.

SYMBOL	MODEL	CAPACITY (GAL)	DIAMETER (IN)	HEIGHT (IN)	OPERATING WEIGHT (LBS)	SYSTEM CONNECTION (IN)	ACCEPTANCE FACTOR	SERVICE	NOTES
ET-1	AX-240(V)	131.7	30	58	1,800	1	0.35	TORIAN PLUM BOILER ROOM	1, 2, 3

NOTES:
1. EQUIPMENT SCHEDULE BASED ON AMTROL.
2. APPROVED EQUALS INCLUDE: TACO AND WATTS.
3. ASME RATED.

ELECTRIC BASEBOARD RADIATION Torian Plum Boiler Room

SYMBOL	MODEL	WATTS	ELEC	REMARKS
EBB-1	BKOC2508W	2000	208/1	1, 2

1. EQUIPMENT SCHEDULE BASED ON BERKO.
2. PROVIDE WITH UNIT MOUNTED THERMOSTAT.

ZONE VALVE SCHEDULE-Torian Plum Snow Melt System

SYMBOL	SERVICE	ESTIMATED GPM	PIPE SIZE	NUMBER OF MANIFOLDS ON ZONE	ESTIMATED SQUARE FEET OF SNOWMELT
ZV-7	TORIAN PLUM PROPERTY PHASE 2 BOILER	41 GPM	3"	2	4240 S.F.
ZV-8	TORIAN PLUM PROPERTY PHASE 2 BOILER	40 GPM	3"	2	4071 S.F.
ZV-9	TORIAN PLUM PROPERTY PHASE 1 BOILER	73 GPM	3"	2	6336 S.F.
ZV-10	TORIAN PLUM PROPERTY PHASE 1 BOILER	68 GPM	3"	1	4440 S.F.
ZV-11	TORIAN PLUM PROPERTY PHASE 2 BOILER	61 GPM	3"	2	3290 S.F.

SNOW MELT SYSTEM SEQUENCE OF OPERATION

THE INTENDED SEQUENCE OF OPERATION FOR THE SNOW MELT SYSTEM FOR THE TORIAN PLUM DECK IS AS FOLLOWS:

PUMPS: THE PHASE 2 PUMPS SHALL BE BALANCED TO THE MINIMUM CAPABILITIES OF THE PROVIDED VFD OR THE 41 GPM REQUIRED OF THE (PHASE 2) SNOW MELT SYSTEM, WHICHEVER IS GREATER. THE PUMP SHALL RUN CONTINUOUSLY.

BOILER: THE BOILER SHALL MODULATE FIRING RATE BASED ON SUPPLY WATER TEMPERATURE, NOT TO EXCEED 140 DEG. F. THE OUTDOOR AIR TEMPERATURE SENSOR AND SNOW MELT SENSOR CONTROLS PACKAGE IS PROVIDED UNDER THE SCOPE OF THIS PROJECT.

CONTROL VALVE: THE CONTROL VALVE ZV-7, 8, 9, 10 & 11 SHALL BE ENERGIZED OPEN. IT IS INTENDED THAT CONTROL OF THE ZONE VALVES ZV-9 & 10 WILL BE BY THE PHASE 1 BOILER CONTROLS. THE CONTROLS VALVES ZV-7, 8 & 11 WILL BE BY THE PHASE 2 BOILER ROOM CONTROLS.

SNOW MELT MANIFOLD SCHEDULE

ZONE MANIFOLD	SERVICE	EST. NO. LOOPS	MANIFOLD FLOW RATE (GPM)	GPM/ LOOP	NOTES
A12	TORIAN PLUM PROPERTY	13	20	2.5	1,2
A13	TORIAN PLUM PROPERTY	13	33.6	4.2	1,2
A14	TORIAN PLUM PROPERTY	6	12.3	2.7	1
A15	TORIAN PLUM PROPERTY	16	20	2.5	1
A16	TORIAN PLUM PROPERTY	13	19.2	2.4	1
A17	TORIAN PLUM PROPERTY	12	20	2.5	1
A18	TORIAN PLUM PROPERTY	17	19.2	2.4	1,2
A19	TORIAN PLUM PROPERTY	12	18.4	2.3	1

NOTES:
1. THE INTENT IS THAT THE SYSTEMS BE BALANCED SUCH THAT THEY ARE DELIVERING 140 TO 175 BTUH/SQ.FT. TO THE AREAS THEY SERVE.
2. ZONE 15 ON THE EXISTING PHASE 1 TORIAN PLUM BOILERS.

ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.828.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1565
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BAW
Reviewed by MCS
Job No. 17109

Revisions

Name	Date
1 BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

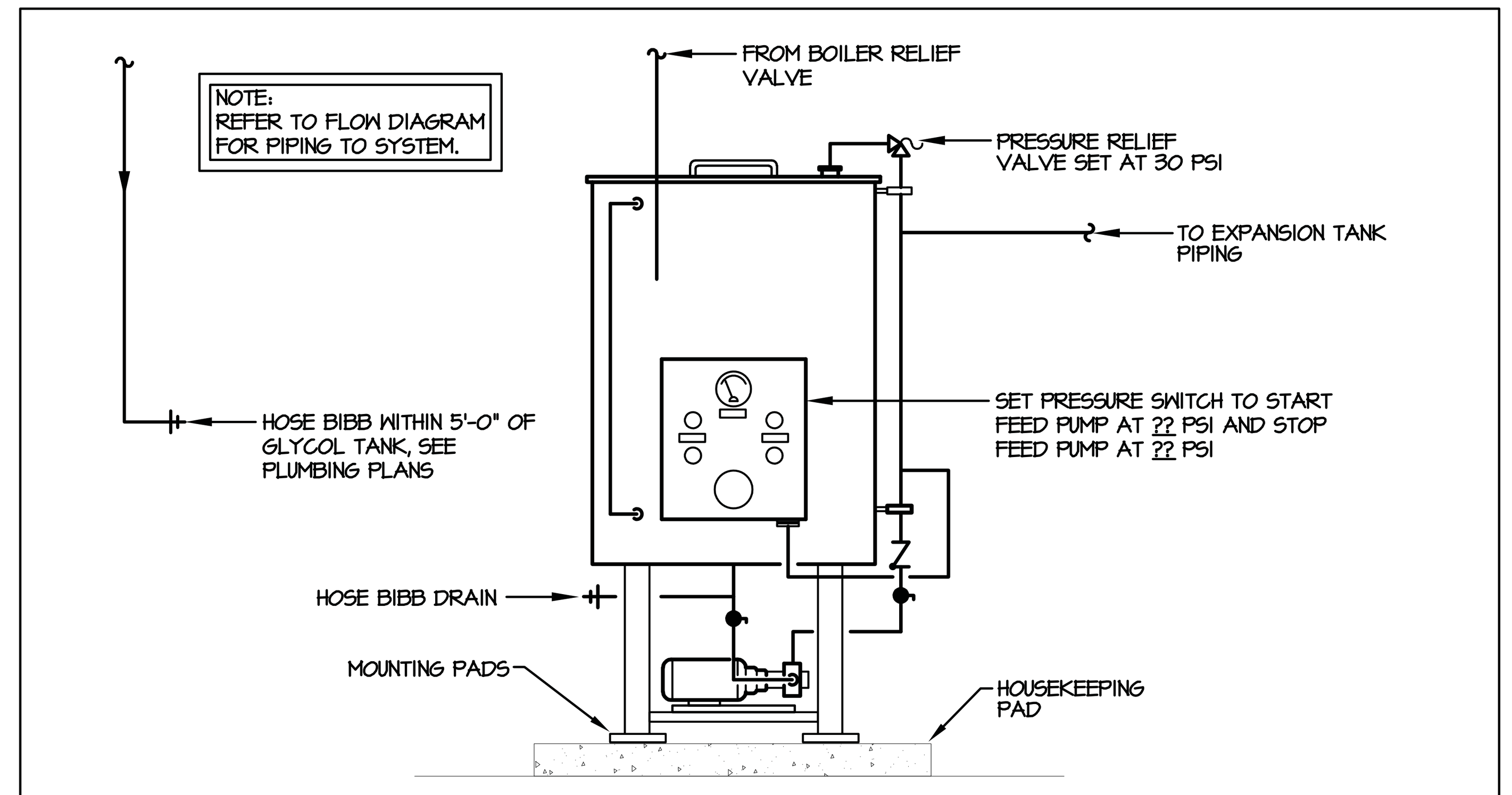
Sheet Title:
MECHANICAL SCHEDULES

Sheet Number
M0.2

COLORADO LICENSED
SCOTT A. MEYER
36751
3/6/18
PROFESSIONAL ENGINEER

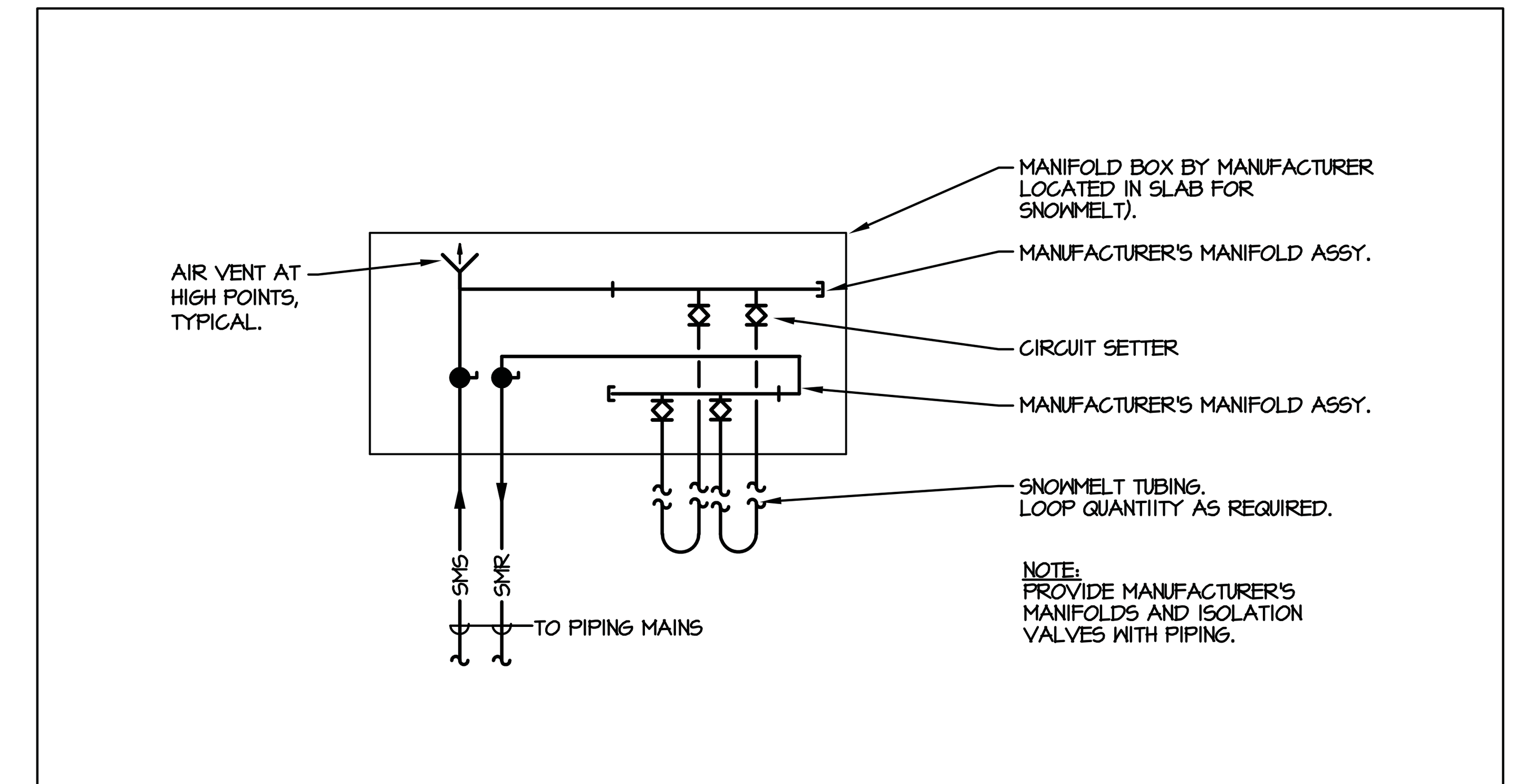
R C R B D

RECORD SET



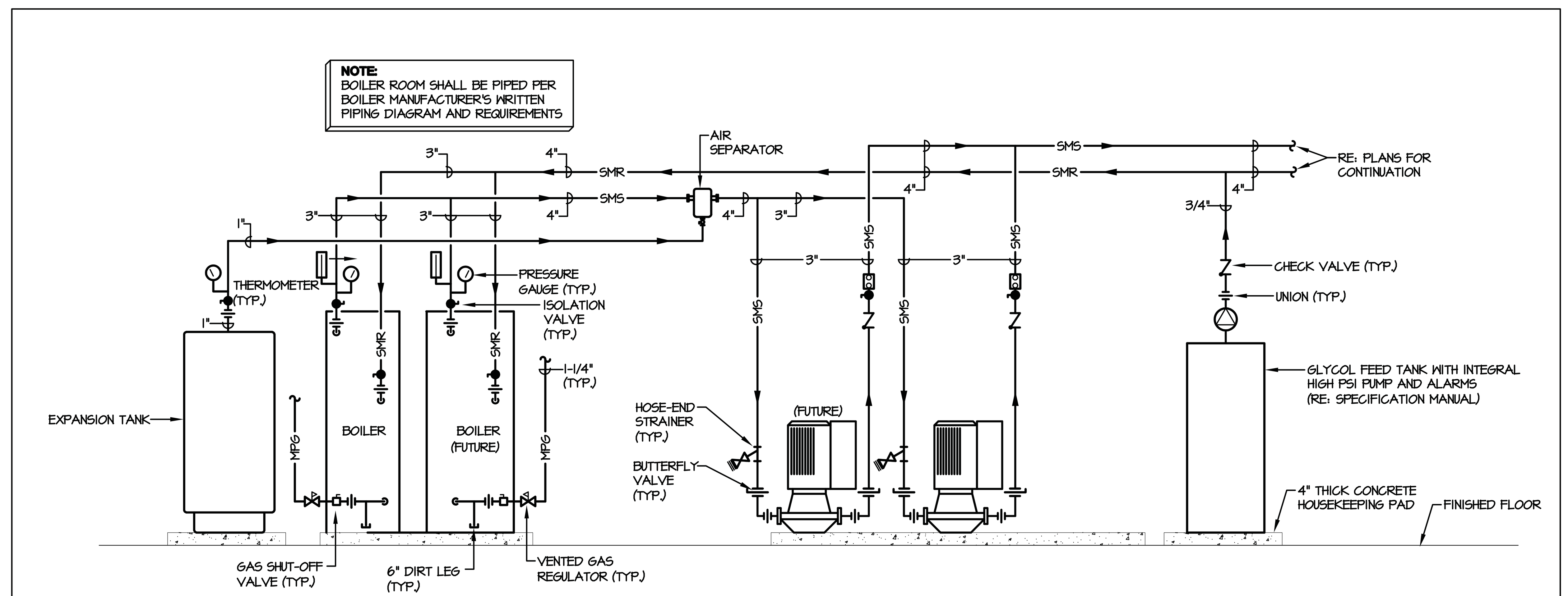
GLYCOL FEEDER DIAGRAM

NOT TO SCALE



SNOWMELT MANIFOLD PIPING DIAGRAM

NOT TO SCALE



BOILER ROOM SCHEMATIC PIPING PLAN

SCALE: NONE

wenk ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS 303.628.0003

MEP ENGINEERING INC. CLIENT CENTRIC CONSULTING

WATERPROOFING / RENOVATION - PHASE 2

TORIAN PLUM PARKING STRUCTURE

STEAMBOAT SPRINGS, CO

Date	10.22.17
Drawn By	BAW
Reviewed by	MCS
Job No.	17109

Revisions

Name	Date
△ BLDG DEPT #1	03/06/18

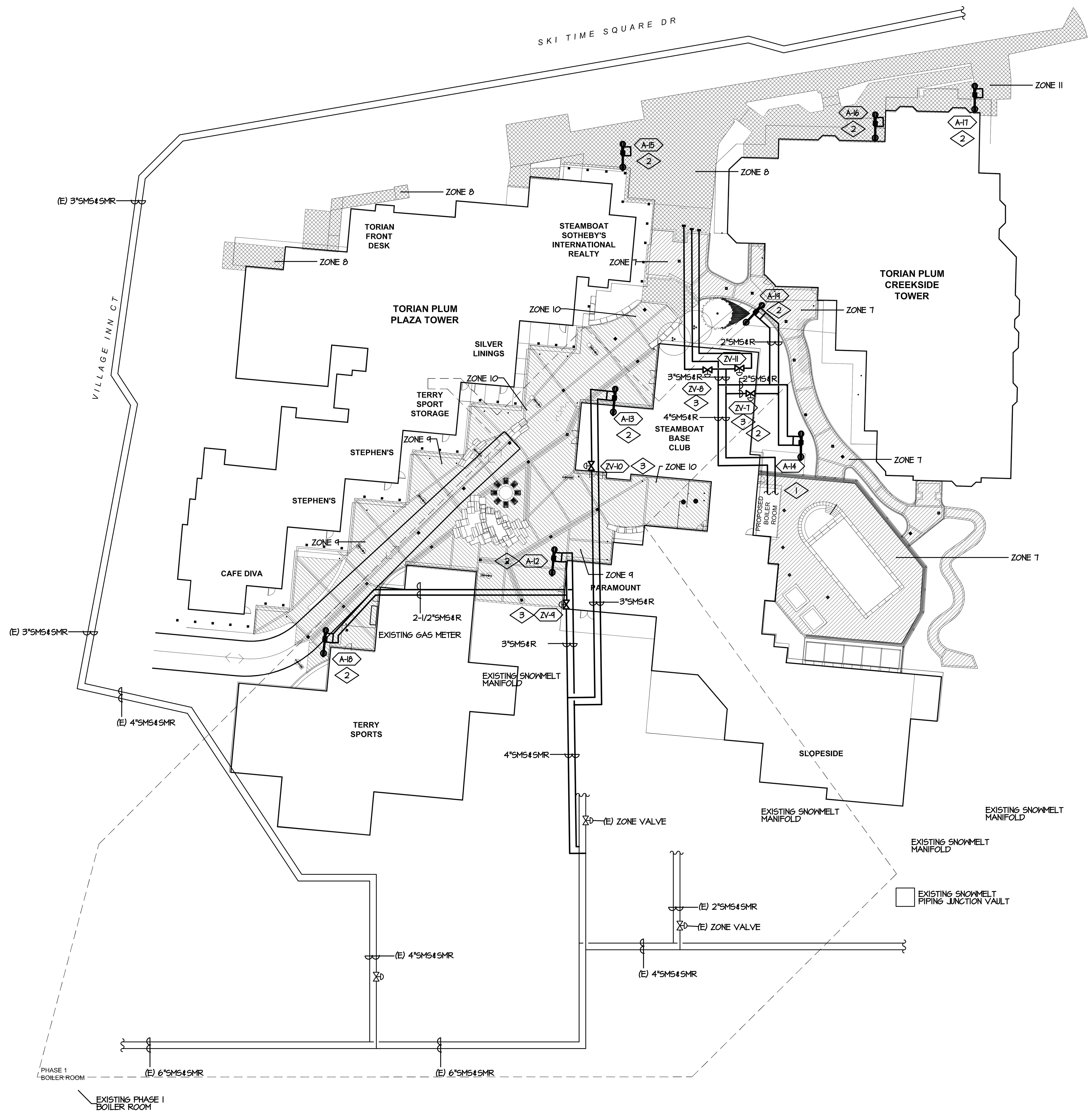
Issue: 100% Construction Documents

Sheet Title: MECHANICAL DETAILS

Sheet Number

M0.3

COLORADO LICENSED PROFESSIONAL ENGINEER 36751 3/6/18



MECHANICAL SITE PLAN

SCALE: 1" = 30'-0"

R C R B D

RECORD SET

GENERAL NOTES

1. ALL SNOWMELT PIPING, SNOWMELT MANIFOLDS, SNOW MELT AREAS, ETC SHOWN ON THIS SET OF PLANS ARE DIAGRAMMATIC. ALL SNOWMELT SLOPE AND SPECIFICATIONS ARE SHOWN.
2. SQUARE FOOTAGE OF SNOWMELT AREA SHOWN ARE APPROXIMATE. THE ACTUAL SQUARE FOOTAGE SHALL BE VERIFIED BY THE INSTALLING CONTRACTOR AND COORDINATED WITH THE OWNER REPRESENTATIVE AND GENERAL CONTRACTOR.
3. WHEREVER POSSIBLE SNOWMELT MANIFOLD VAULTS SHALL BE LOCATED WITHIN LANDSCAPING AREAS ALONG THE PROMENADE. VAULTS NOT LOCATED IN PROMENADE PAVERS SHALL BE PEDESTRIAN RATED. LOCATION OF VAULTS SHALL BE COORDINATED WITH THE OWNERS REPRESENTATIVE.
4. SMS AND SMR PIPING SHALL BE ROUTED EXPOSED IN THE PARKING GARAGE AND SUPPORTED FROM STRUCTURE. THE INSTALLING SHALL FIELD VERIFY THE EXACT ROUTING TAKING INTO CONSIDERATION EXISTING STRUCTURE, PIPING, ELECTRICAL CONDUIT AND LIGHTING INTERFERENCES.
5. COORDINATE PENETRATIONS OF SMR AND SMS PIPING THROUGH PARKING GARAGE WALLS. PENETRATIONS SHALL BE SLEEVED AND SEALED WATER TIGHT.

DRAWING NOTES

1. LOCATION OF PROPOSED BOILER ROOM.
2. PROPOSED LOCATION OF NEW SNOWMELT ZONE MANIFOLD. LOCATION OF MANIFOLD VAULTS SHALL BE COORDINATED WITH THE OWNER REPRESENTATIVE.
3. NEW SNOWMELT ZONE VALVE LOCATED IN PARKING GARAGE.

LOWER PLAZA - SNOWMELT FOR PHASE I BOILER (11,253 SF)

MID PLAZA - SNOWMELT INFRASTRUCTURE INSTALLED UNDER PAVERS, TO BE FED BY PROPOSED BOILER (6,125 SF)

SKI TIME SQUARE / FUTURE - SNOWMELT TO BE INSTALLED AT LATER DATE, TO BE FED BY PROPOSED BOILER (8,315 SF)

----- OUTSIDE EDGE OF UNDERGROUND PARKING STRUCTURE

COLORADO LICENSED PROFESSIONAL ENGINEER 36751 3/6/18

wenk ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS 303.628.0003

MEP PROJECT #17109

MEP ENGINEERING INC. CLIENT CENTRIC CONSULTING

6402 S. Troy Circle, Suite 100 Centennial, CO 80111 info@mep-eng.com (W) 303.936.1633 (F) 303.934.3299 www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BAW
Reviewed by RRR
Job No. 17109

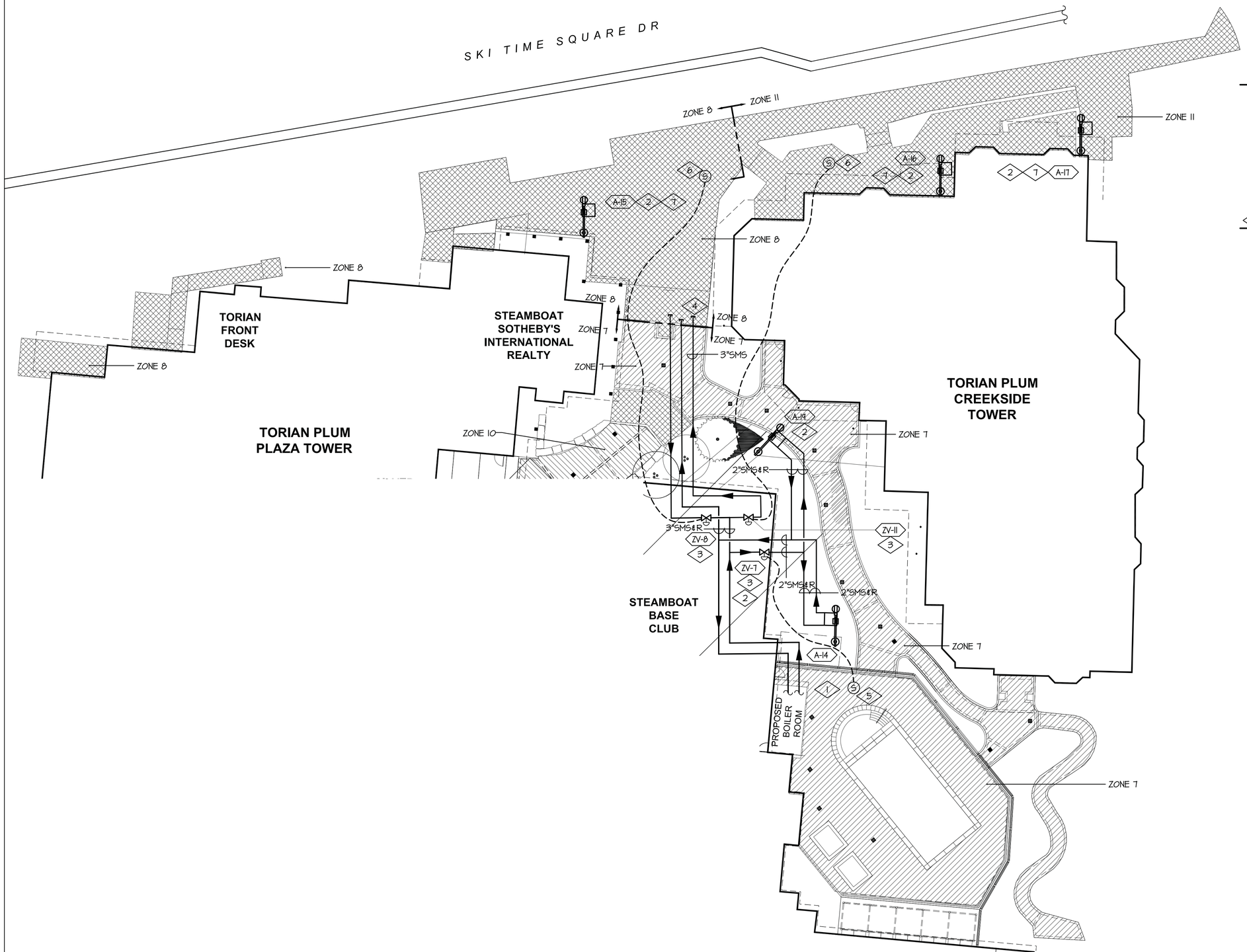
Revisions

Name	Date
BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
MECHANICAL SITE PLAN

Sheet Number
M1.0



N

SNOWMELT PLAN (ZONE 7, 8 & 11)

SCALE: 1/16" = 1'-0"

RCRBD

RECORD SET

GENERAL NOTES

1. ALL SNOWMELT PIPING, SNOWMELT MANIFOLDS, SNOW MELT AREAS, ETC. SHOWN ON THIS SET OF PLANS ARE DIAGRAMMATIC. ALL SNOWMELT SLOPE AND SPECIFICATIONS ARE SHOWN.
2. SQUARE FOOTAGE OF SNOWMELT AREA SHOWN ARE APPROXIMATE. THE ACTUAL SQUARE FOOTAGE SHALL BE VERIFIED BY THE INSTALLING CONTRACTOR AND COORDINATED WITH THE OWNER REPRESENTATIVE AND GENERAL CONTRACTOR.
3. WHEREVER POSSIBLE SNOWMELT MANIFOLD VAULTS SHALL BE LOCATED WITHIN LANDSCAPING AREAS ALONG THE PROMENADE. VAULTS NOT LOCATED IN PROMENADE PAVERS SHALL BE PEDESTRIAN RATED. LOCATION OF VAULTS SHALL BE COORDINATED WITH THE OWNERS REPRESENTATIVE.

DRAWING NOTES

1. LOCATION OF PROPOSED BOILER ROOM.
2. PROPOSED LOCATION OF NEW SNOW MELT ZONE MANIFOLD. LOCATION OF MANIFOLD VAULTS SHALL BE COORDINATED WITH THE OWNER REPRESENTATIVE.
3. NEW SNOW MELT ZONE VALVE LOCATED IN PARKING GARAGE.
4. CAP SMS&R PIPING FOR CONNECTION TO FUTURE SNOW MELT SYSTEM.
5. SNOW MELT SENSOR LOCATION FOR ZV-7. ROUTE ¾" CONDUIT FROM SNOW MELT SENSOR TO ZV-7. UNDERGROUND CONDUIT SHALL BE PVC. CONDUIT EXPOSED IN GARAGE SHALL BE GALVANIZED RIGID CONDUIT.
6. FUTURE SNOW MELT SENSOR LOCATION.
7. SNOW MELT MANIFOLD FOR FUTURE SNOW MELT SYSTEM.

LOWER PLAZA - SNOWMELT FOR PHASE I BOILER (11,253 SF)

MID PLAZA - SNOWMELT INFRASTRUCTURE INSTALLED UNDER PAVERS, TO BE FED BY PROPOSED BOILER (6,125 SF)

SKI TIME SQUARE / FUTURE - SNOWMELT TO BE INSTALLED AT LATER DATE, TO BE FED BY PROPOSED BOILER (8,315 SF)

OUTSIDE EDGE OF UNDERGROUND PARKING STRUCTURE

W&K ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1835
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BAW
Reviewed by RRR
Job No. 17109

Revisions

Name	Date
1 BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

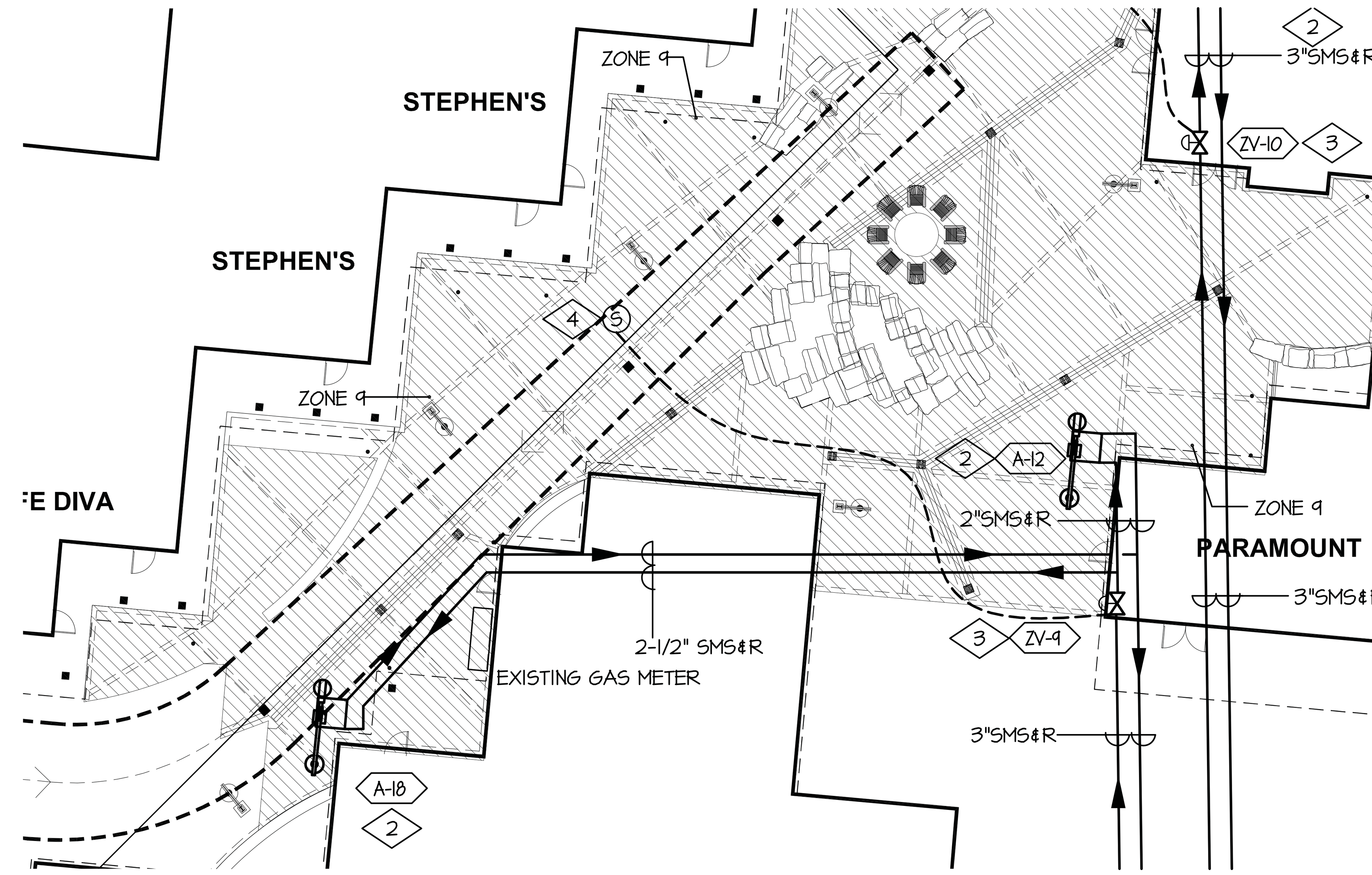
Sheet Title:
SNOWMELT ZONE 7, 8 & 11 AREA

Sheet Number
M2.0

COLORADO LICENSED
REGISTERED
36751
3/6/18
PROFESSIONAL ENGINEER

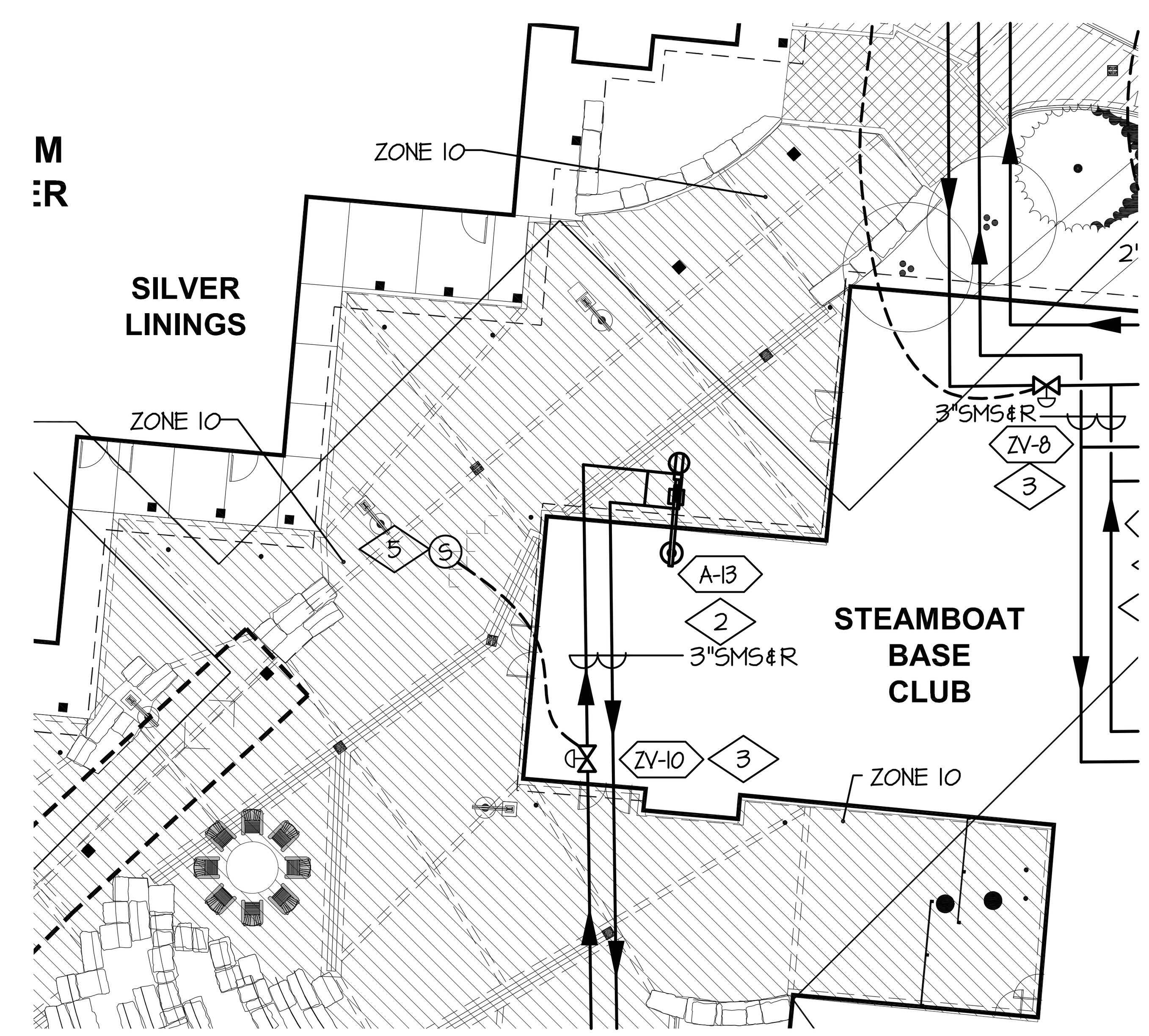
R C R B D

RECORD SET



SNOWMELT PLAN (ZONE 9)

SCALE: 1/16" = 1'-0"



SNOWMELT PLAN (ZONE 10)

SCALE: 1/16" = 1'-0"

GENERAL NOTES

1. ALL SNOWMELT PIPING, SNOWMELT MANIFOLDS, SNOW MELT AREAS, ETC SHOWN ON THIS SET OF PLANS ARE DIAGRAMMATIC. ALL SNOWMELT SLOPE AND SPECIFICATIONS ARE SHOWN.
2. SQUARE FOOTAGE OF SNOWMELT AREA SHOWN ARE APPROXIMATE. THE ACTUAL SQUARE FOOTAGE SHALL BE VERIFIED BY THE INSTALLING CONTRACTOR AND COORDINATED WITH THE OWNER REPRESENTATIVE AND GENERAL CONTRACTOR.
3. WHEREVER POSSIBLE SNOWMELT MANIFOLD VAULTS SHALL BE LOCATED WITHIN LANDSCAPING AREAS ALONG THE PROMENADE. VAULTS NOT LOCATED IN PROMENADE PAVERS SHALL BE PEDESTRIAN RATED. LOCATION OF VAULTS SHALL BE COORDINATED WITH THE OWNERS REPRESENTATIVE.

DRAWING NOTES

1. NOT USED.
2. PROPOSED LOCATION OF NEW SNOW MELT ZONE MANIFOLD. LOCATION OF MANIFOLD VAULTS SHALL BE COORDINATED WITH THE OWNER REPRESENTATIVE.
3. NEW SNOW MELT ZONE VALVE LOCATED IN PARKING GARAGE.
4. PROPOSED SNOW MELT SENSOR LOCATION FOR ZONE VALVE 9. ROUTE 3/4" CONDUIT FROM SNOW MELT SENSOR LOCATION TO ZV-9. UNDERGROUND CONDUIT SHALL BE PVC. EXPOSED CONDUIT IN PARKING GARAGE SHALL BE RIGID GALVANIZED CONDUIT.
5. PROPOSED SNOW MELT SENSOR LOCATION FOR ZONE VALVE 10. ROUTE 3/4" CONDUIT FROM SNOW MELT SENSOR LOCATION TO ZV-9. UNDERGROUND CONDUIT SHALL BE PVC. EXPOSED CONDUIT IN PARKING GARAGE SHALL BE RIGID GALVANIZED CONDUIT.

- LOWER PLAZA - SNOWMELT FOR PHASE I BOILER (11,253 SF)
- MID PLAZA - SNOWMELT INFRASTRUCTURE INSTALLED UNDER PAVERS, TO BE FED BY PROPOSED BOILER (6,125 SF)
- SKI TIME SQUARE / FUTURE - SNOWMELT TO BE INSTALLED AT LATER DATE, TO BE FED BY PROPOSED BOILER (8,315 SF)
- ----- OUTSIDE EDGE OF UNDERGROUND PARKING STRUCTURE

wenk
ASSOCIATES
PLANNERS &
LANDSCAPE
ARCHITECTS
303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

COLORADO LICENSED PROFESSIONAL ENGINEER 36751 3/6/18

Date 10.22.17
Drawn By BAW
Reviewed by RRR
Job No. 17109

Revisions

Name	Date
BLDG DEPT #1	03/06/18

Issue: 100% Construction Documents

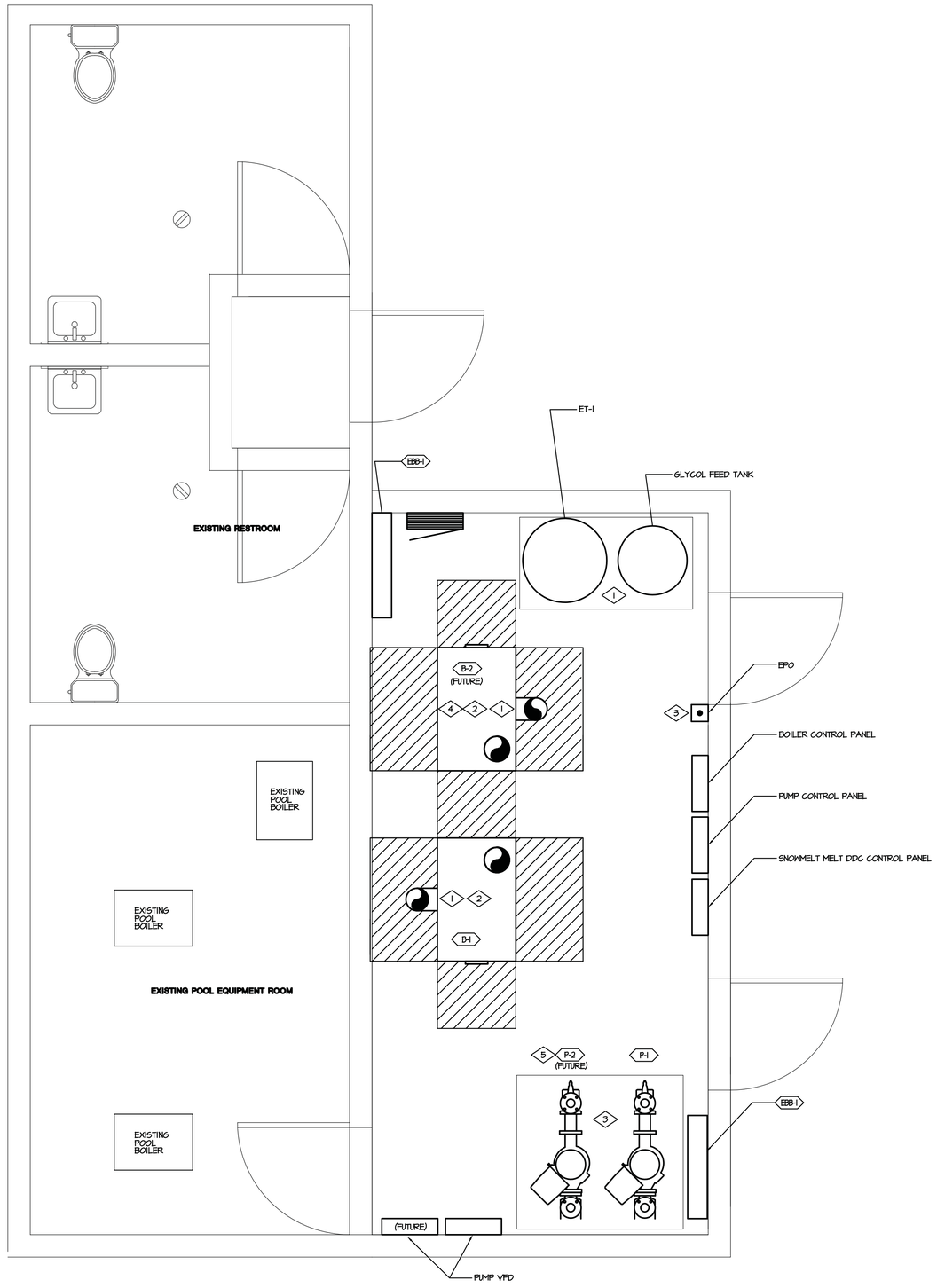
Sheet Title: SNOWMELT ZONE 9 & 10 AREA

Sheet Number

M2.1

RCRBD

RECORD SET



DRAWING NOTES

1. EQUIPMENT SHALL BE MOUNTED ON A 4IN THICK CONCRETE HOUSEKEEPING PAD.
2. CONDENSATE DRAINS FROM BOILER SHALL BE ROUTED TO AN ACID NEUTRALIZING TANK BEFORE ENTERING THE PUBLIC SANITARY SEWER SYSTEM. ALL MATERIALS FROM BOILER TO NEUTRALIZATION TANK SHALL BE ACID RESISTANT. INSTALLING CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF ACID NEUTRALIZATION TANK WITH EQUIPMENT LAYOUT.
3. PROVIDE EPO SWITCH FOR SHUTDOWN OF MAIN LINE POWER OF BOILER BURNERS. COORDINATE VOLTAGE AND SHUT DOWN REQUIREMENTS WITH BOILER MANUFACTURERS.
4. FUTURE BOILER B-2 FLUE PIPE STUBBED FOR FUTURE INSTALLATION.
5. FUTURE PUMP P-2 PIPING TO BE INSTALLED AND STUBBED FOR FUTURE INSTALLATION

N

BOILER ROOM EQUIPMENT LAYOUT

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

NOTE: BOILER ROOM BUILDING OUTLINE SUBJECT TO CHANGE. REFERENCE ARCHITECTURAL BID PACKAGE FOR FINAL LAYOUT.

Wenk Associates
PLANNERS & LANDSCAPE ARCHITECTS
303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1835
Centennial, CO 80111 (f) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BAW
Reviewed by RRR
Job No. 17109

Revisions

Name	Date
BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

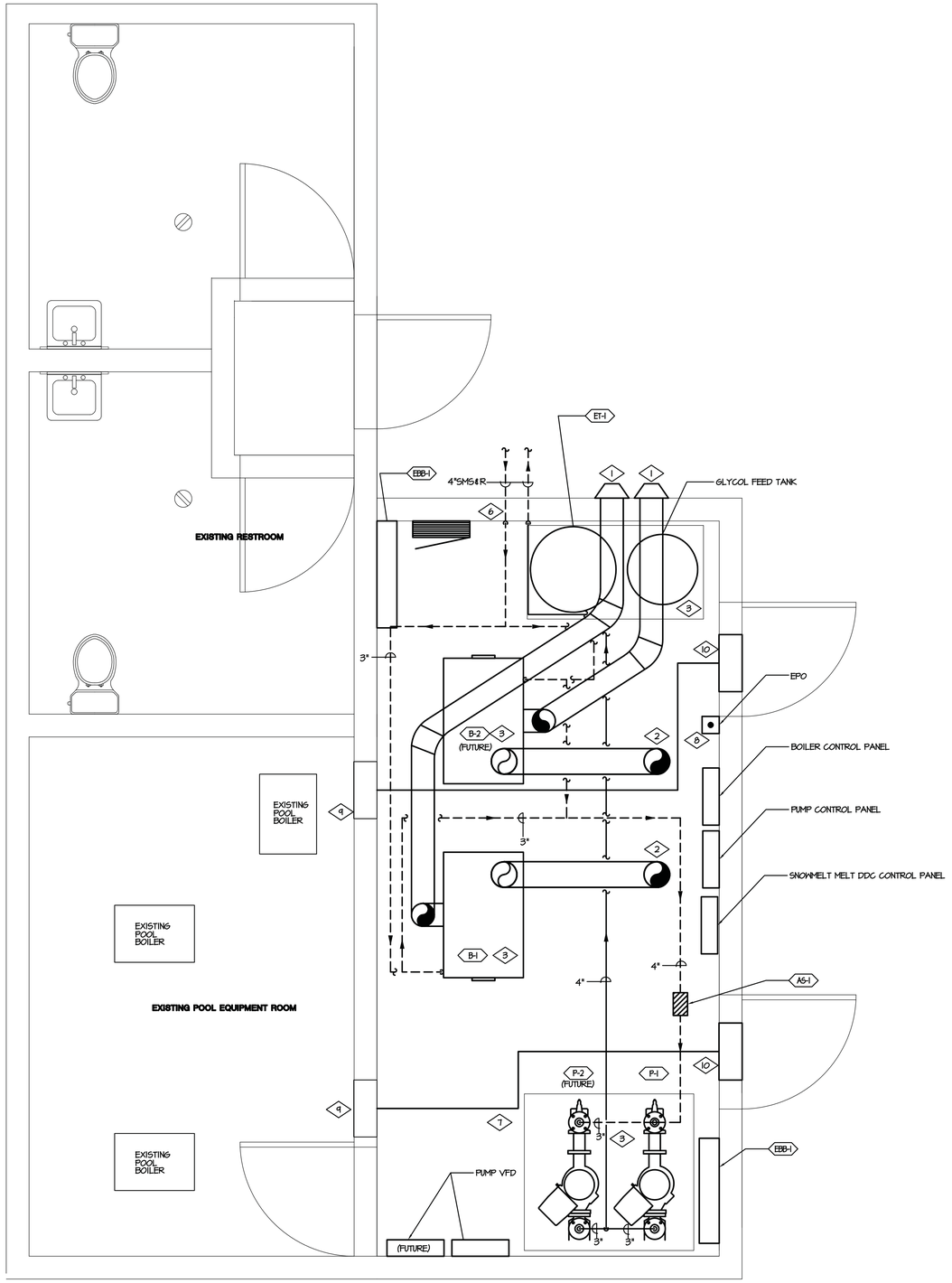
Sheet Title:
BOILER ROOM EQUIPMENT LAYOUT

Sheet Number
M3.0

COLORADO LICENSED
ROBERT R. RAMEY
PE 36751
3/6/18
PROFESSIONAL ENGINEER

RCRBD

RECORD SET



DRAWING NOTES

1. TERMINATE 8" COMBUSTION INTAKE PIPE THROUGH WALL WITH HOODED INTAKE CAP. CAP SHALL BE PROVIDED WITH BIRD SCREEN. TERMINATION SHALL BE 8 FT. ABOVE GRADE
2. TERMINATE 8" FLUE DUCTS WITH UL LISTED AND APPROVED VERTICAL VENT TERMINATION. VENT PIPE SHALL BE AL29-4C POLYPRO MATERIAL. INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. TERMINATION SHALL BE LOCATED AT LEAST 8 FT. FROM ADJACENT VERTICAL WALL.
3. EQUIPMENT SHALL BE MOUNTED ON A 4IN THICK CONCRETE HOUSEKEEPING PAD.
4. CONDENSATE DRAINS FROM BOILER SHALL BE ROUTED TO AN ACID NEUTRALIZING TANK BEFORE ENTERING THE PUBLIC SANITARY SEWER SYSTEM. ALL MATERIALS FROM BOILER TO NEUTRALIZATION TANK SHALL BE ACID RESISTANT. INSTALLING CONTRACTOR SHALL COORDINATE THE FINAL LOCATION OF ACID NEUTRALIZATION TANK WITH EQUIPMENT LAYOUT.
5. PROVIDE EPO SWITCH FOR SHUTDOWN OF MAIN LINE POWER OF BOILER BURNERS. COORDINATE VOLTAGE AND SHUT DOWN REQUIREMENTS WITH BOILER MANUFACTURER.
6. 4" SMS & R PIPING DOWN BELOW GRADE.
7. REFER TO THE BOILER ROOM SCHEMATIC PIPING PLAN ON SHEET M0.3 FOR DETAILS ON BOILER ROOM PIPING IN THIS AREA.
8. PROVIDE EPO SWITCH FOR BOILER SHUT OFF COORDINATED WITH ELECTRICAL.
9. EXISTING COMBUSTION AIR OPENING TO REMAIN.
10. NEW COMBUSTION AIR OPENING TO MATCH EXISTING BOILER ROOM VENTS.

N

BOILER ROOM MECHANICAL PLAN

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

NOTE: REFERENCE ARCHITECTURAL BID PACKAGE FOR FINAL BOILER ROOM LAYOUT.

ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1665
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BAW
Reviewed by RRR
Job No. 17109

Revisions

Name	Date
BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
BOILER ROOM MECHANICAL PLAN

Sheet Number
M3.1

COLORADO LICENSED ROBERT R. MEYER PE 36751 3/6/18 PROFESSIONAL ENGINEER

ELECTRICAL SYMBOLS LEGEND

ALL SYMBOLS INDICATED IN THE LEGEND MAY NOT NECESSARILY BE USED ON PLANS.

CIRCUITING

SYMBOL	DESCRIPTION
	CIRCUITING DESIGNATION - OPEN 2T1/ABOV, SOLID 120/208V.
	CIRCUITING - RUN CONCEALED IN WALL OR CEILING
	CIRCUITING - RUN CONCEALED IN FLOOR OR GRADE
	CONDUIT RISER - TURNED UP, TURNED DOWN
	CIRCUITING - CONTINUED AS DESIGNATED
	CIRCUITING - END CAP

LINETYPES and LINEWEIGHTS

	NEW CIRCUITING - CONTINUOUS AND BOLD
	NEW CIRCUITING - UNDER FLOOR OR GRADE - LARGER DASHED AND BOLD
	EXISTING CIRCUITING - CONTINUOUS AND THIN
	DEMOLITION CIRCUITING - LARGER DASHED AND THIN
	NEW AND RELOCATED DEVICES AND FIXTURES - CONTINUOUS AND BOLD
	EXISTING DEVICES AND FIXTURES - CONTINUOUS AND THIN
	DEMOLITION DEVICES AND FIXTURES - SMALLER DASHED AND THIN

GENERAL

SYMBOL	DESCRIPTION
#	REVISION DELTA
#	DRAWING NOTE
#	MECHANICAL EQUIPMENT
#	KITCHEN EQUIPMENT

TELECOMMUNICATION SYMBOLS

SYMBOL	DESCRIPTION
	TELEPHONE OUTLET, SINGLE GANG BOX 3/4" CONDUIT STUB TO ACCESSIBLE CEILING
	TELEPHONE/DATA OUTLET, DOUBLE GANG BOX 3/4" CONDUIT STUB TO ACCESSIBLE CEILING
	DATA OUTLET, SINGLE GANG BOX 3/4" CONDUIT STUB TO ACCESSIBLE CEILING
	FLOOR DATA OUTLET - (S) SURFACE, (F) FLUSH
	FLOOR TELEPHONE/DATA OUTLET - (S) SURFACE, (F) FLUSH
	CABLE TV OUTLET - (S) SURFACE, (F) FLUSH

POWER SYMBOLS

SYMBOL	DESCRIPTION
J	FLOOR MOUNTED JUNCTION BOX
J	JUNCTION BOX
J	JUNCTION BOX W/ BLANK COVER
	SIMPLEX RECEPTACLE
	DUPLEX RECEPTACLE
	HALF SWITCHED DUPLEX RECEPTACLE
	DEDICATED DUPLEX RECEPTACLE
	CEILING MOUNTED DUPLEX RECEPTACLE
	FOURPLEX RECEPTACLE
	DEDICATED FOURPLEX RECEPTACLE
	CLG. MOUNTED FOURPLEX RECEPTACLE
	SPECIAL RECEPTACLE - SEE DRAWING NOTES
	FLOOR MOUNTED DEVICE
	FLUSH FLOOR COMBINATION FLOOR BOX
	NON FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
M	MOTOR STARTER
M	MOTOR
	ONE, TWO, and THREE BUTTON PUSH SWITCH
PM	POWER POLE
TC	TIME CLOCK
C	CONTACTOR
M	METER
	PANEL BOARD
	CLOCK
	PULLBOX
C/T	CURRENT TRANSFORMER
T/F	TRANSFORMER
WH	WATER HEATER

LIGHTING SYMBOLS

SYMBOL	DESCRIPTION
	RECESS MOUNTED FLUORESCENT STRIP
	SURFACE MOUNTED FLUORESCENT STRIP
	SURFACE MOUNTED 1' x 4' FLUORESCENT
	SURFACE MOUNTED 2' x 4' FLUORESCENT
	SURFACE MOUNTED 2' x 2' FLUORESCENT
	RECESS MOUNTED 2' x 4' FLUORESCENT
	RECESS MOUNTED 1' x 4' FLUORESCENT
	CEILING MOUNTED SINGLE FACE EXIT SIGN W/ "FROG EYE"
	CEILING MOUNTED EXIT SIGN
	WALL MOUNT (ANY FIXTURE TYPE)
	EMERGENCY BATTERY PACK, "FROG-EYE"
	EMERGENCY, REMOTE HEAD, SINGLE & DOUBLE
	DOWNLIGHT/PENDANT FIXTURE
	WALL MOUNTED FIXTURE
	WALLWASH DOWNLIGHT
	PORCELAIN KEYLESS LAMPHOLDER
	TRACK LIGHTING
	TRACK LIGHTING, HEAD
	SINGLE ARM SITE LIGHTING - ADDITIONAL ARMS AS REQUIRED
	BUILDING EXTERIOR WALL MOUNTED

SWITCHES

S	SWITCH, SINGLE POLE
S2	SWITCH, DOUBLE POLE
S3	SWITCH, THREE WAY
S4	SWITCH, FOUR WAY
SD	SWITCH, DIMMER
SK	SWITCH, KEYED
SP	SWITCH, WITH PILOT LIGHT
STO	SWITCH, THERMAL OVERLOAD
SM	SWITCH, MOTOR CONTROL
SV	SWITCH, VARIABLE SPEED CONTROL
SFU	SWITCH, WITH TYPE S FUSE HOLDER (INCLUDE FUSE)
	WALL MOUNTED OCCUPANCY SENSOR
	CEILING MOUNTED OCCUPANCY SENSOR

FIRE ALARM SYMBOLS

SYMBOL	DESCRIPTION
	CEILING MOUNTED FIRE SPEAKER/STROBE
	CEILING MOUNTED STROBE
P	CEILING MOUNTED FIRE SPEAKER
	REMOTE INDICATOR LAMP
	MANUAL PULL STATION
FS	FLOW SWITCH
TS	TAMPER SWITCH
PS	PRESSURE SWITCH
	CEILING/WALL MOUNTED STROBE
F	FIRE HORN
F	FIRE HORN WITH STROBE
DH	MAGNETIC DOOR HOLD OPEN
FACP	FIRE ALARM CONTROL PANEL
ANN	ANNUNCIATOR PANEL
F	DUCT DETECTOR
	FIRE SMOKE DAMPER
H	HEAT DETECTOR
S	SMOKE DETECTOR
FF	FIREFIGHTER'S PHONE JACK/ WALL PHONE

MISCELLANEOUS SYMBOLS

CR	CARD READER
RTS	REMOTE TEST SWITCH
TC	TIME CLOCK
P	PHOTOCELL
S	MUSIC OR PAGING SPEAKER
T	THERMOSTAT, LINE VOLTAGE
MS	SEGURITY MOTION SENSOR, WALL MOUNTED
	SEGURITY MOTION SENSOR, CEILING MOUNTED
EPO	EMERGENCY POWER OFF
B	BELL
B	DOORBELL BUZZER
	TELEVISION CABLE OUTLET
	SEGURITY CAMERA
I	INTERCOM PUSH BUTTON
MIC	MICROPHONE JACK
	COMBINATION CLOCK/SPEAKER BOX

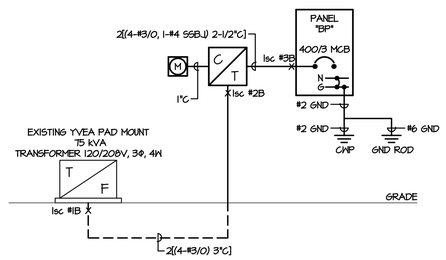
ONE LINE DIAGRAM SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
PANEL "LA"	PANEL BOARD	100A FRN-R / 100/3	FUSED DISCONNECT SWITCH WITHIN SWITCHBOARD
C / T	CURRENT TRANSFORMER ENCLOSURE	SPARE / 100/3	SPARE SWITCH WITHIN SWITCHBOARD
P / B	PULL BOX	SPACE	SPACE WITHIN SWITCHBOARD
100/3 / 100A FRN-R	FUSED DISCONNECT SWITCH	100/3	CIRCUIT BREAKER
100/3	NON-FUSED DISCONNECT SWITCH		SERVICE WEATHER HEAD
T / F	TRANSFORMER (PLAN VIEW)		CURRENT TRANSFORMER
T / F	PAD MOUNTED TRANSFORMER (ONE-LINE)		GROUNDING CONNECTION
	TRANSFER SWITCH	M	MOTOR
	OVERHEAD POLE MOUNTED TRANSFORMER BANK	G	GENERATOR
		M	METER

ABBREVIATIONS

AC	ABOVE COUNTER	GWP	COLD WATER PIPE	EWH	ELECTRIC WATER HEATER	IG	ISOLATED GROUND DEVICE
A.F.F.	ABOVE FINISHED FLOOR	(E)	EXISTING	FF FT	FLUSH FLOOR PORE THRU	MC	MECHANICAL CONTRACTOR
AFCI	ARC FAULT CIRCUIT INTERRUPTER	EPO	EMERGENCY POWER OFF	GC	GENERAL CONTRACTOR	(N)	NEW
BLDG.	BUILDING	EM	EMERGENCY POWER CIRCUIT	GND	GROUND	N.C.	NORMALLY CLOSED
CLG.	CEILING MOUNTED	EWC	ELECTRIC WATER COOLER	GFCI/GFI	GROUND FAULT CIRCUIT INTERRUPTER	NIC	NOT IN CONTRACT
						NL	NIGHT LIGHT

N.O.	NORMALLY OPEN	SM	SURFACE MOUNT
NTS	NOT TO SCALE	T/D	TELEPHONE AND DATA OUTLET
(PART)	PARTIAL CIRCUIT	TYP	TYPICAL
RL	RELOCATED	UF	UNDER FLOOR
RTS	REMOTE TEST SWITCH	WP	WEATHERPROOF - NEMA 3R
		WF	WALL PHONE +54" A.F.F.



ONE-LINE DIAGRAM - TORIAN PLUM POOL BOILER ROOM

SCALE: N.T.S.

NOTE: ALL CONDUCTORS ARE COPPER UNLESS NOTED OTHERWISE.

Isc CALCULATION - 3 PHASE

Point #1B - At The Utility Transformer

Isc = 24,400

Point #2B - At the CT Compartment

f = [1.732 X length X Isc(prev)] / [# runs X wire factor X voltage]
f = 1.732 X 180 X 24,400 / 2 X 13,923 X 208
f = 1.313

M = 1/(1+f)
M = 0.432

Isc = Isc(prev) x M
Isc = 10,547

Point #3B - At Panel "BP"

f = [1.732 X length X Isc(prev)] / [# runs X wire factor X voltage]
f = 1.732 X 8 X 10,547 / 2 X 12,843 X 208
f = 0.027

M = 1/(1+f)
M = 0.973

Isc = Isc(prev) x M
Isc = 10,267

RCRBD
RECORD SET
ELECTRICAL

COLORADO REGISTERED PROFESSIONAL ENGINEER
16134
3-6-18

ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.828.0003

MEP PROJECT #17109

MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By MTS
Reviewed by DGM
Job No. 17109

Revisions

Name	Date
1 BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
ELECTRICAL LEGEND AND ONE-LINE DIAGRAM

Sheet Number
E0.1

MECHANICAL EQUIPMENT SCHEDULE

DESIGNATION	DESCRIPTION	VOLTAGE	PH	HP	kVA	FLA (MCA)	CONDUCTORS	CONDUIT	SWITCH	CB	FUSE SIZE/TYPE	REMARKS
B-1	BOILER	208	3	--	--	5	3-#12, 1-#12 GND	1/2"	30/3	20/3	15A FRN-R	1,2
B-2	BOILER (FUTURE)	208	3	--	--	5	3-#12, 1-#12 GND	1/2"	30/3	20/3	15A FRN-R	1,2
EBB-1	BASEBOARD HEATER	208	1	--	2.0	--	2-#12, 1-#12 GND	1/2"	5	20/2	--	3
P-1	PUMP	208	3	10	--	32.2	3-#6, 1-#10 GND	3/4"	60/3	50/3	50A FRN-R	1,4
P-2	PUMP (FUTURE)	208	3	10	--	32.2	3-#6, 1-#10 GND	3/4"	60/3	50/3	50A FRN-R	1,4

REMARKS:

1. COORDINATE CONTROL WIRING WITH MECHANICAL CONTRACTOR
2. EPO SWITCH PROVIDED BY MECHANICAL CONTRACTOR TO TURN OFF BOILERS.
3. CONTROLLED VIA MECHANICAL CONTRACTOR PROVIDED UNIT MOUNTED THERMOSTAT.
4. NEW VFD (VARIABLE FREQUENCY DRIVE) OPERATED PER MECHANICAL SPECIFICATIONS/CONTROLS. PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR REFER TO MECHANICAL PLANS FOR SEQUENCE OF OPERATION AND CONTROL.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING	LAMPS
A	VISIONAIRE LIGHTING	ODN-I-L-T5-16LC-5-3K-UNV-YM-XX-GXHI-CLS	ARCHITECTURAL POLE LIGHT, TYPE V DISTRIBUTION, 16 LEDS, 530 mA DRIVER, 3000K, YOKE MOUNT, COORDINATE FINISH COLOR WITH ARCHITECT, COORDINATE GAP/SHADE WITH ARCHITECT, CUT-OFF LOUVER SYSTEM	POLE (REFER TO ARCHITECTURAL FOR POLE AND BASE DETAIL)	27W LED UNV 3,775 LUMENS
B	PROGRESS LIGHTING	P6824-20	LED STEP LIGHT, 2700K, WET LOCATION LISTED	RECESSED	5W LED 120V
C	LITHONIA	ZLIN-L48-5MR-5000LM- FST-MVOLT-40K-80CRI-ETW-MW	4' LED STRIP LIGHT, SYMMETRIC DISTRIBUTION, SNAP ON FROSTED LENS, 4000K, 90 MINUTE, BATTERY BACK-UP, WHITE FINISH	SURFACE	34W LED 120V 4351 LUMENS
X	LITHONIA	LQM-S-W-3-R-120/277-ELN	EXIT SIGN, WHITE HOUSING, RED LETTERING, 90 MINUTE BATTERY BACK-UP	SURFACE	.7W LED 120V

PANEL "EP" (NEW) VOLTAGE 120 / 208 V 3 ø 4 W
FLUSH ___ MAIN 400/3 MLO ___
SURFACE X BUS 400A FEED THRU ___ A.I.C. 22,000

TYPE	DESCRIPTION	BKR	CIR	LOAD (VA/ø) A ø	LOAD (VA/ø) B ø	LOAD (VA/ø) C ø	CIR	BKR	DESCRIPTION	TYPE
G	B-1	20	1	600	600		2	20	B-2 (FUTURE)	G
G	--		3		600	600	4		--	G
G	--	3	5			600	600	6	3	--	G
M	P-1	50	7	3867	3867			8	50	P-2 (FUTURE)	M
M	--		9		3867	3867		10		--	M
M	--	3	11			3867	3867	12	3	--	M
G	EBB-1	20	13	1000	1000			14	20	EBB-1	G
G	--	2	15		1000	1000		16	2	--	G
G	BOILER CONTROL PANEL	20	17			500	500	18	20	PUMP CONTROL PANEL	G
G	SNOWMELT DDC CONTROL	20	19	500	50			20	20	EPO SWITCH	G
G	ZONE VALVE #7	20	21		250	250		22	20	ZONE VALVE #9	G
G	ZONE VALVE #8	20	23			250	250	24	20	ZONE VALVE #10	G
R	LOWER PLAZA EVENT REC	20	25	360	84			26	20	GLYCOL FEED PUMP REC	R
R	LOWER PLAZA EVENT REC	20	27		720	360		28	20	BOILER ROOM REC	R
G	WATER HEATER	20	29			1500	272	30	20	BOILER ROOM LTG	L
G	LOWER LEVEL HEAT TAPE	40	31	1920	2220			32	40	LOWER LEVEL HEAT TAPE	G
G	--	2	33		1920	2220		34	2	--	G
G	MID LEVEL HEAT TAPE	30	35			1110	1140	36	30	POOL TRANCH HEAT TAPE	G
G	--	2	37	1110	1140			38	2	--	G
G	ZONE VALVE #11	20	39		250	23		40	20	POOL PERIMETER LTG	L
	SPARE	20	41			0	0	42		SPACE	
	SPARE	20	43	0	0			44		SPACE	
	SPARE	20	45		0	0		46		SPACE	
	SPARE	20	47			0	0	48		SPACE	
	SPARE	20	49	0	0			50		SPACE	
	SPARE	20	51		0	0		52		SPACE	
	SPARE	20	53			0	0	54		SPACE	
	SPARE	20	55	0	0			56		SPACE	
	SPARE	20	57		0	0		58		SPACE	
	SPARE	20	59			0	0	60		SPACE	
				18316	16427	14456					

LOAD TYPE	CONNECTED KVA A ø	B ø	C ø	TOTAL ALL ø'S	FACTOR	DEMAND KVA A ø	B ø	C ø	TOTAL ALL ø'S
LIGHTING/CONTINUOUS	0.0	0.0	0.3	0.3	125%	0.0	0.0	0.3	0.4
RECEPTACLE (10KVA OR LESS)	0.4	1.1	0.0	1.5	100%	0.4	1.1	0.0	1.5
RECEPTACLE (OVER 10KVA)	0.0	0.0	0.0	0.0	100%	0.0	0.0	0.0	0.0
HVAC/MOTOR	3.9	3.9	3.9	11.6	100%	3.9	3.9	3.9	11.6
MOTOR(LARGEST)	3.9	3.9	3.9	11.6	125%	4.8	4.8	4.8	14.5
KITCHEN EQUIPMENT	0.0	0.0	0.0	0.0	100%	0.0	0.0	0.0	0.0
MISCELLANEOUS	10.1	8.1	6.5	24.7	100%	10.1	8.1	6.5	24.7
TOTAL KVA	18.3	16.9	14.5	49.7	TOTAL KVA	19.3	17.9	15.5	52.7
					TOTAL AMPERES	160.7	149.2	129.1	160.7

LEGEND: L = LIGHTING R = RECEPTACLE M = HVAC / MOTOR K = KITCHEN G = MISCELLANEOUS

1 PROVIDE GFCI BREAKER. COORDINATE BREAKER WITH HEAT TRACE MFG. PRIOR TO PURCHASE.

COMcheck Software Version 4.0.6.0
Interior Lighting Compliance Certificate

Section 1: Project Information

Energy Code: **2009 IECC**
Project Title: Torian Plum Boiler Room
Project Type: New Construction

Construction Site:

Owner/Agent:

Designer/Contractor:
Mark Stratman
MEP Engineering Inc.
6402 S. Troy Circle Suite 100
Centennial, CO 80111
720-541-6355
MStratman@mep-eng.com

Section 2: Interior Lighting and Power Calculation

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B x C)
Boiler Room (Workshop)	214	1.4	300
		Total Allowed Watts =	300

Section 3: Interior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Boiler Room (Workshop 214 sq.ft.)				
C: C: Other:	1	3	34	102
		Total Proposed Watts =		102

Section 4: Requirements Checklist

Interior Lighting PASSES: Design 66% better than code.

Lighting Wattage:

☒ 1. Total proposed watts must be less than or equal to total allowed watts.

Allowed Watts	Proposed Watts	Complies
300	102	YES

Controls, Switching, and Wiring:

☐ 2. Daylight zones under skylights more than 15 feet from the perimeter have lighting controls separate from daylight zones adjacent to vertical fenestration.

☐ 3. Daylight zones have individual lighting controls independent from that of the general area lighting.

Exceptions:

☐ Contiguous daylight zones spanning no more than two orientations are allowed to be controlled by a single controlling device.

☐ Daylight spaces enclosed by walls or ceiling height partitions and containing two or fewer light fixtures are not required to have a separate switch for general area lighting.

☒ 4. Independent controls for each space (switch/occupancy sensor).

Exceptions:

☐ Areas designated as security or emergency areas that must be continuously illuminated.

☐ Lighting in stairways or corridors that are elements of the means of egress.

☐ 5. Master switch at entry to hotel/motel guest room.

☐ 6. Individual dwelling units separately metered.

☐ 7. Medical task lighting or art/history display lighting claimed to be exempt from compliance has a control device independent of the control of the nonexempt lighting.

☒ 8. Each space required to have a manual control also allows for reducing the connected lighting load by at least 50 percent by either controlling all luminaires, dual switching of alternate rows of luminaires, alternate luminaires, or alternate lamps, switching the middle lamp luminaires independently of other lamps, or switching each luminaire or each lamp.

Exceptions:

☐ Only one luminaire in space

☒ An occupant-sensing device controls the area.

☐ The area is a corridor, storeroom, restroom, public lobby or sleeping unit.

☐ Areas that use less than 0.6 Watts/sq.ft.

☐ 9. Automatic lighting shutoff control in buildings larger than 5,000 sq.ft.

Exceptions:

☐ Sleeping units, patient care areas; and spaces where automatic shutoff would endanger safety or security.

☐ 10. Photocell/astronomical time switch on exterior lights.

Exceptions:

☐ Lighting intended for 24 hour use.

☐ 11. Tandem wired one-lamp and three-lamp ballasted luminaires (No single-lamp ballasts).

Exceptions:

☐ Electronic high-frequency ballasts; Luminaires on emergency circuits or with no available pair.

Section 5: Compliance Statement

Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2009 IECC requirements in COMcheck Version 4.0.6.0 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title	Signature	Date
Mark Stratman - MEP Engineering Inc	Mark Stratman	9-22-17

ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.628.0003

MEP PROJECT #17109

MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2

TORIAN PLUM PARKING STRUCTURE

STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By MTS
Reviewed by DGM
Job No. 17109

Revisions

Name	Date
1 BLDG DEPT #1	03/05/18

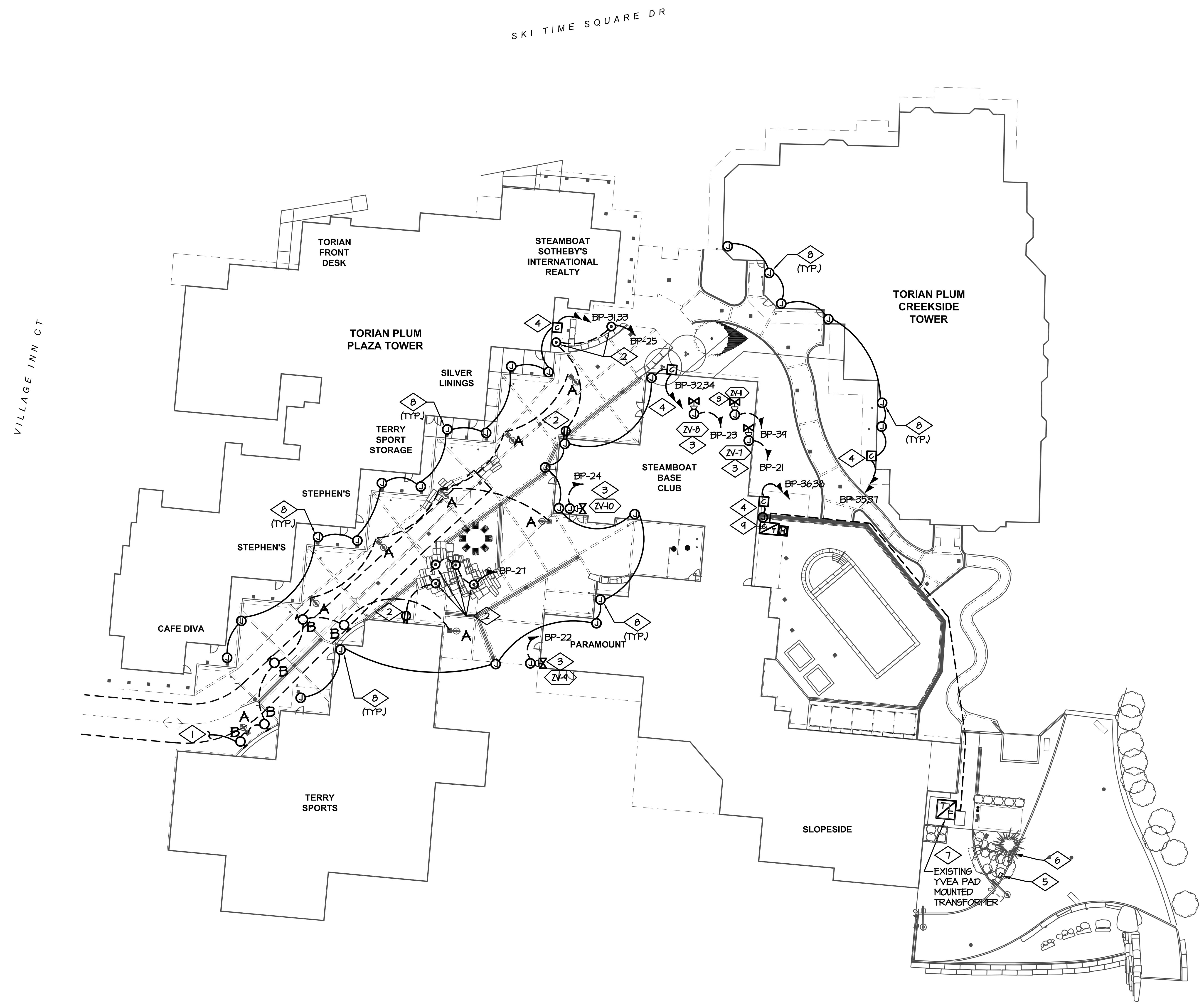
RCRBD
RECORD SET
ELECTRICAL

COLORADO REGISTERED MARK T. STRATMAN 16134 3-6-18 PROFESSIONAL ENGINEER

Issue:
100% Construction Documents

Sheet Title:
ELECTRICAL SCHEDULES

Sheet Number
E0.2



ELECTRICAL SITE PLAN

SCALE: 1" = 30'-0"

GENERAL NOTES

1. COORDINATE ALL TRENCHING FOR ELECTRICAL FEEDERS AND BRANCH CIRCUITS WITH SNOW MELT INSTALLER PRIOR TO TRENCHING.

DRAWING NOTES

1. CONNECT NEW LIGHT FIXTURES TO EXISTING POWER AND CONTROLS SERVING THE LOWER PLAZA AREA. NET REDUCTION IN LOAD OF 537 WATTS.
2. PROVIDE A STANCHION MOUNT DUPLEX GFCI RECEPTACLE WITH CAST ALUMINUM WHILE-IN-USE COVER. COORDINATE FINISH COLOR WITH ARCHITECT.
3. NEW SNOWMELT ZONE VALVE LOCATED IN PARKING GARAGE. COORDINATE ELECTRICAL REQUIREMENTS WITH GENERAL CONTRACTOR AND PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
4. PROVIDE AND INSTALL DE-ICING CONTROLLER, PENTAIR-RAYCHEM OR EQUAL, WITH CONNECTORS, CABLING, SENSORS AND A 10 YEAR WARRANTY FOR A COMPLETE DE-ICING HEAT TAPE SYSTEM FOR DRAIN PIPING. ELECTRICAL CONTRACTOR SHALL PROVIDE FULLY ENGINEERED DE-ICING SYSTEM SHOP DRAWING FOR SUBMITTAL REVIEW. CONNECT TO NEW PANEL "BP" IN NEW POOL DECK BOILER ROOM. VERIFY HEAT TAPE PROPERTIES WITH SELECTED PVC PIPING PER MANUFACTURERS' RECOMMENDATIONS PRIOR TO ORDER. COORDINATE EXACT LOCATION OF HEAT TAPE, JUNCTION BOXES, POWER CONNECTIONS, CONTROLLERS AND DRAIN LOCATIONS WITH LANDSCAPE DRAWINGS, ARCHITECT, DRAIN PIPING CONTRACTOR AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. HEAT TRACE SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS ALONG WITH ALL NECESSARY COMPONENTS FOR A COMPLETE AND OPERATIONAL SYSTEM. PROVIDE NECESSARY POWER CONNECTION KITS.
5. EXISTING GAS MANIFOLD SERVING FIRE PITS IS LOCATED BELOW GRADE IN THIS AREA. THE EXISTING GAS MANIFOLD WILL BE REPLACED WITH AN ABOVE GRADE VALVE CABINET PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. EXTEND CONDUCTORS FROM NEARBY GAS EPO TO NEW GAS SOLENOID VALVE AS NECESSARY. COORDINATE WITH PLUMBING CONTRACTOR.
6. APPROXIMATE LOCATION OF EXISTING EMERGENCY GAS EPO. INSPECT AND TEST OPERATION OF SHUTOFF VALVE AND CONTROLS AFTER REPLACEMENT OF GAS MANIFOLD AND SOLENOID VALVE NEARBY.
7. COORDINATE WITH UTILITY TO DETERMINE IF TRANSFORMER WILL BE REPLACED AND UP-SIZED. SUBMIT PLANS TO UTILITY FOR COORDINATION.
8. LOCATION OF DE-ICING POWER PACK FOR HEAT TAPE. HEAT TAPE SHALL RUN IN DOWN-SPOUTS AND CONTINUE INTO BELOW GRADE STORM DRAIN. TERMINATE HEAT TAPE AT THE 10" MAIN STORM LINE. REFER TO ARCHITECTURAL STORM PLANS FOR STORM DRAIN LAYOUT.
9. HEAT TAPE SHALL RUN IN TRENCH DRAIN AROUND THE POOL. REFER TO ARCHITECTURAL STORM PLANS FOR TRENCH DRAIN LAYOUT.

R C R B D

RECORD SET

ELECTRICAL

16134
3-6-18

wenk
ASSOCIATES
PLANNERS &
LANDSCAPE
ARCHITECTS
303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date: 10.22.17
Drawn By: MTS
Reviewed by: DGM
Job No.: 17109

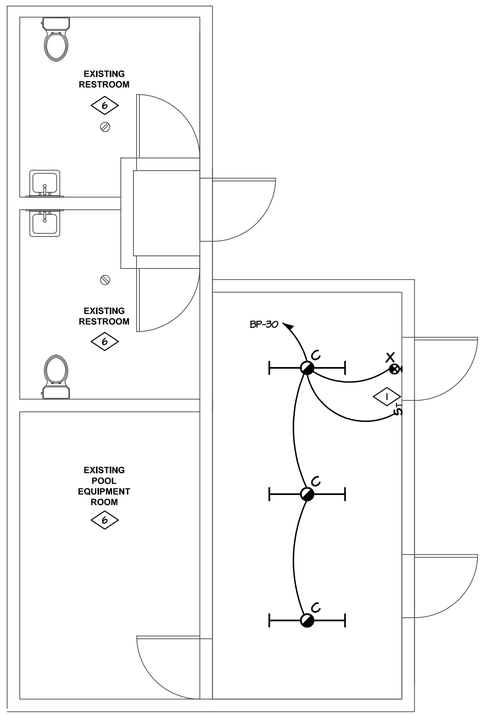
Revisions

Name	Date
△ BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
ELECTRICAL SITE PLAN

Sheet Number
E1.0

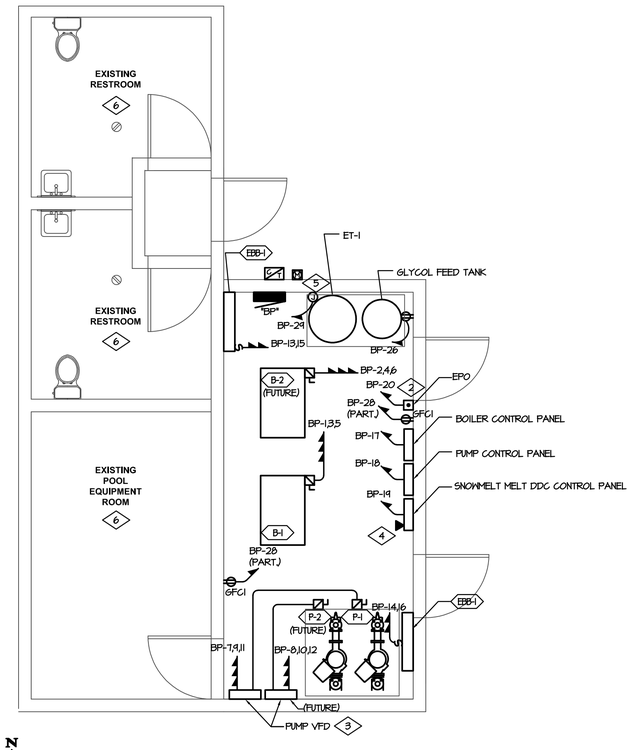


N

POOL BOILER ROOM LIGHTING PLAN

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

NOTE: BOILER ROOM BUILDING OUTLINE SUBJECT TO CHANGE. REFERENCE ARCHITECTURAL BID PACKAGE FOR FINAL LAYOUT.



N

POOL BOILER ROOM POWER PLAN

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

NOTE: BOILER ROOM BUILDING OUTLINE SUBJECT TO CHANGE. REFERENCE ARCHITECTURAL BID PACKAGE FOR FINAL LAYOUT.

GENERAL NOTES

1. CONNECT ALL BATTERY PACKS IN LIGHT FIXTURES AND EXIT SIGNS TO UN-SWITCHED HOT LEG OF LOCAL CIRCUIT.
2. ALL POOL AND HOT TUB RELATED EQUIPMENT AND DEVICES MOUNTED ON EXTERIOR WALL OF EXISTING POOL EQUIPMENT ROOM SHALL BE RELOCATED TO EXTERIOR WALL OF NEW BOILER ROOM. THIS INCLUDES BUT IS NOT LIMITED TO LIGHTING, TIMER SWITCHES, EPO, EMERGENCY PHONE AND POOL SIGNAGE. PROVIDE NEW CONDUCTORS, CONDUIT, JUNCTION BOXES, ETC TO MAINTAIN CONTINUITY OF ALL CIRCUITS AND CONTROLS AS NECESSARY. COORDINATE NEW LOCATION OF POOL AND HUT TUB RELATED EQUIPMENT AND DEVICES WITH OWNER AND GENERAL CONTRACTOR PRIOR TO RELOCATION.

◇ DRAWING NOTES

1. PROVIDE AND INSTALL 2-HOUR DIGITAL TIMER SWITCH TO CONTROL LIGHTING, THIS ROOM.
2. ELECTRICAL CONTRACTOR TO COORDINATE WIRING OF EMERGENCY POWER OFF OF MECHANICAL POWER TO BOILERS WITH MECHANICAL CONTRACTOR. PROVIDE ANY LINE VOLTAGE AS REQUIRED.
3. COORDINATE VFD AND WIRING REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
4. PROVIDE TELEPHONE LINE FOR DDC SYSTEM INTERNET INTERFACE. COORDINATE EQACT LOCATION AND REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
5. PROVIDE 120V/20A CONNECTION CAPPED IN JUNCTION BOX FOR FUTURE WATER HEATER. WATER HEATER WILL BE MOUNTED ABOVE EXPANSION TANK "ET-1". COORDINATE EXACT LOCATION WITH GENERAL CONTRACTOR AND PLUMBING CONTRACTOR PRIOR TO ROUGH-IN.
6. EXISTING POWER AND LIGHTING IN THIS SPACE TO REMAIN AS IS. NO NEW WORK TO BE DONE IN THIS SPACE.

RCRBD
RECORD SET
ELECTRICAL

COLORADO REGISTERED
DAVID G. MARTIN
16134
3-6-18
PROFESSIONAL ENGINEER

ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.628.0003

MEP PROJECT #17109

MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By MTS
Reviewed by DGM
Job No. 17109

Revisions

Name	Date
1 BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
BOILER ROOM
ELECTRICAL PLANS

Sheet Number
E2.0

RCRBD

RECORD SET

MOS 10/21/15

PLUMBING FIXTURE SCHEDULE

SYMBOL	TYPE	ADA	ACCESSORIES	FINISH	MANUFACTURER & MODEL NUMBER	FAUCET TRIM MANUFACTURER & MODEL NUMBER	ACCEPTABLE MANUFACTURERS	REMARKS	ROUGH IN CONNECTION SIZING WASTE (INCHES)	VENT (INCHES)	HOT (INCHES)	COLD (INCHES)
FD-1	FLOOR DRAIN - 5" ROUND TOP, ROUND CAST IRON BODY FLASHING COLLAR, ADJUSTABLE STRAINER HEAD, SECURED GRATE	YES	2642 QUAD-CLOSE TRAP SEAL	NICKLE BRONZE	JR SMITH 2005-A05NB	--	JOSAM ZURN MIFAB	FOR FINISHED FLOOR AREAS	NOTED ON PLANS	2	--	--
FS-1	FLOOR SINK - SQUARE CAST IRON BODY, PORCELAIN ENAMELED INTERIOR, DOME STRAINER	N/A	REMOVABLE HALF GRATE 2642 QUAD-CLOSE TRAP SEAL	NICKLE BRONZE	JR SMITH 3105-12	--	JOSAM ZURN MIFAB	8-1/2" SQUARE X 6" DEEP	NOTED ON PLANS	2	--	--
HB-1	SURFACE MOUNTED EXPOSED TYPE HOSE BIBB, ALL BRASS REMOVABLE TEE HANDLE, SPOUT OUTLET VACUUM BREAKER	N/A	34HF VACUUM BREAKER, 3/4" HOSE THREAD OUTLET, PROVIDE WITH SHUTOFF BALL VALVE IN BRANCH PIPE	ROUGH BRASS	WOODFORD 24	--	JOSAM JR. SMITH WOODFORD	FOR USE IN NON PUBLIC, HEATED AREAS ONLY	--	--	--	3/4

NOTE: FIXTURES SHOWN CONSTITUTE NEGLIGIBLE CHANGE TO OVERALL WATER SERVICE.
ALL CONNECTIONS TO POTABLE WATER SYSTEM SHALL CONFORM TO NSF/ANSI-61 AND NSF/ANSI-372 EFFECTIVE 01/04/2014.

PLUMBING SPECIALTIES SCHEDULE

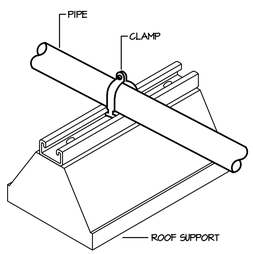
SYMBOL	TYPE	ADA	ACCESSORIES	FINISH	MANUFACTURER & MODEL NUMBER	ACCEPTABLE MANUFACTURERS	REMARKS	ROUGH IN CONNECTION SIZING WASTE (INCHES)	VENT (INCHES)	HOT (INCHES)	COLD (INCHES)
WCO-1	WALL CLEANOUT WITH COUNTERSUNK PLUG STAINLESS STEEL COVER PLATE	N/A	--	NICKLE BRONZE	J.R. SMITH	JOSAM ZURN WADE/MATTS	SIZE NOTED ON PLAN	--	--	--	--
FCO-1	FLOOR CLEANOUT WITH COUNTERSUNK PLUG HEAVY DUTY SECURED COVER	YES	MATCH TOP STYLE FOR FLOORING	NICKLE BRONZE	J.R. SMITH 4020	JOSAM ZURN WADE/MATTS	SIZE NOTED ON PLAN	--	--	--	--
SCO-1,2	ROUND CAST IRON BODY BRONZE DOUBLE FLANGED HOUSING HEAVY DUTY SECURED COVER	YES	VANDAL RESISTANT SCREWS TAPER THREAD BRONZE PLUG	NICKLE BRONZE	J.R. SMITH 4250	JOSAM ZURN WADE/MATTS	PROVIDE 2-WAY CLEANOUT AT EACH SCO-2, TWO COVERS REQUIRED	--	--	--	--

NOTE: ALL CONNECTIONS TO POTABLE WATER SYSTEM SHALL CONFORM TO NSF/ANSI-61 AND NSF/ANSI-372 EFFECTIVE 01/04/2014.

TOTAL CONNECTED GAS LOAD SCHEDULE

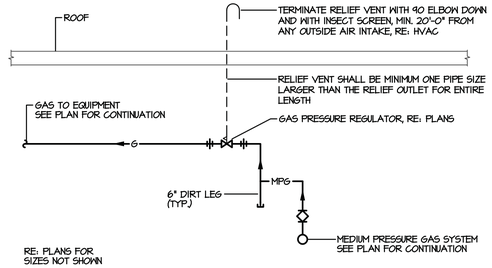
EQUIPMENT	QTY.	INPUT EACH (BTUH @ SL)	INPUT TOTAL (BTUH @ SL)	INLET PRESSURE	NOTES
SNOWMELT BOILER	2	2,000,000	4,000,000	7" WC	1, 2, 3
GAS GRILL	2	76,000	152,000	7" WC	1, 2, 3
		TOTAL NEW LOAD=	4,152,000		

NOTES:
1. MODIFICATIONS TO GAS METER AND/OR SERVICE PIPING SHALL BE PERFORMED BY THE GAS COMPANY. SUBMIT REQUIRED GAS SERVICE APPLICATION TO GAS COMPANY IN A TIMELY MANNER TO MEET THE CONSTRUCTION SCHEDULE.
2. FARTHEST CONNECTED DEVICE DISTANCE BASED ON TBD'.
3. PIPE SIZING BASED ON PRESSURE AT METER OUTLET OF 2 PSIG. CONTRACTOR TO FIELD VERIFY OUTLET PRESSURE PRIOR TO STARTING WORK.



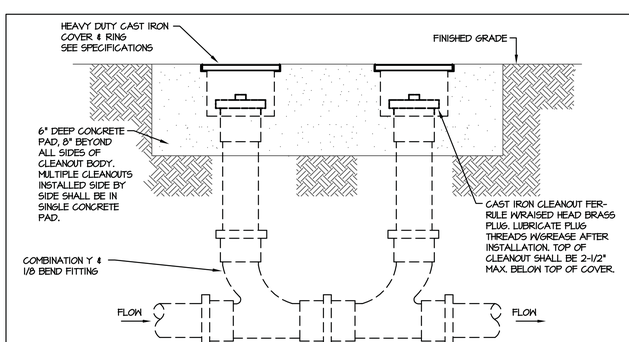
GAS PIPING ROOF SUPPORT

NOT TO SCALE 231123



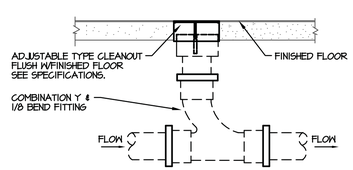
GAS PRESSURE REGULATOR PIPING DIAGRAM (INTERIOR LOCATION)

NOT TO SCALE 231123



2-WAY SURFACE CLEANOUT (SCO)

NOT TO SCALE CHECK VALVES AT 45 DEG 221319



FLOOR CLEANOUT (FCO)

NOT TO SCALE 221319

PLUMBING GENERAL NOTES

1. IF MANUFACTURER'S MATERIAL OR EQUIPMENT IS LISTED IN SCHEDULES OR ON DRAWINGS, THEY ARE TYPES TO BE PROVIDED FOR ESTABLISHMENT OF SIZE, CAPACITY, GRADE, AND QUALITY. IF OTHER ACCEPTABLE MANUFACTURERS ARE USED, COST OF ANY CHANGE IN CONSTRUCTION REQUIRED BY THEIR USE SHALL BE BORNE BY CONTRACTOR.
2. EQUIPMENT SHALL CONFORM TO ENERGY CONSERVATION CODE OR STANDARDS.
3. WORK SHALL COMPLY WITH RULES AND REGULATIONS OF LOCAL UTILITY COMPANIES, INCLUDE COST OF VALVES, VALVE BOXES, METER BOXES, METERS, ACCESSORY EQUIPMENT REQUIRED FOR PROJECT.
4. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO RESULT IN A COMPLETE PLUMBING INSTALLATION IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
5. DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED PIPE, OFFSET, TRANSITION, ETC. ITEMS NOT SPECIFICALLY MENTIONED IN THE SPECIFICATION OR NOTED ON THE DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.
6. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WHATEVER IS CALLED FOR IN EITHER IS BINDING AS THOUGH CALLED FOR IN BOTH. IF THERE IS A CONFLICT IN THE CONTRACT DOCUMENTS, THE MORE DEMANDING AND COSTLY DESIGN SHALL BE SELECTED FOR BIDDING PURPOSES. THE CONTRACTOR SHALL IMMEDIATELY PRESENT THE CONFLICT FOUND IN THE CONTRACT DOCUMENTS TO THE ARCHITECT/ENGINEER FOR RESOLUTION.
7. DRAWINGS SHALL NOT BE SCALED FOR ROUGH-IN MEASUREMENTS OR USED AS SHOP DRAWINGS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES OR HAVE TO BE MADE FROM FIELD MEASUREMENTS, TAKE THE NECESSARY MEASUREMENTS AND PREPARE THE DRAWINGS.
8. BEFORE ANY WORK IS INSTALLED, DETERMINE THAT EQUIPMENT WILL PROPERLY FIT THE SPACE THAT REQUIRED CLEARANCES CAN BE MAINTAINED AND THAT EQUIPMENT CAN BE LOCATED WITHOUT INTERFERENCES BETWEEN SYSTEMS, WITH STRUCTURAL ELEMENTS, OR WITH THE WORK OF OTHER TRADES.
9. IF CONFLICTS ARE DISCOVERED IN CONTRACT DOCUMENTS, SUBMIT A SET OF DRAWINGS MARKED WITH RED PENCIL SHOWING RECOMMENDED MODIFICATIONS TO THE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.
10. CONTRACTOR SHALL COORDINATE ROUGH-IN REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO ROUGH-IN. ENSURE ALL EQUIPMENT CONNECTIONS ARE PROVIDED FOR AND THAT THE INSTALLATION WILL MEET ALL LOCAL AND NATIONAL CODE REQUIREMENTS.
11. CONFER, COOPERATE, AND COORDINATE WORK WITH OTHER TRADES. COORDINATE CEILING CAVITY SPACE CAREFULLY WITH ALL TRADES. IN EVENT OF CONFLICT, INSTALL MECHANICAL AND ELECTRICAL SYSTEMS WITHIN CAVITY SPACE.
12. ARRANGE AND PAY FOR ALL INSPECTIONS, PERMITS, LICENSES, CERTIFICATES, AND FEES REQUIRED IN CONNECTION WITH WORK.
13. SUBMITTALS SHALL INCLUDE CATALOG CUT-SHEETS AND MANUFACTURER'S DATA SHEETS,
14. PRIOR TO ORDERING EQUIPMENT OR BEGINNING INSTALLATION, ASSEMBLE, PREPARE, AND FURNISH SUBMITTALS AND SHOP DRAWINGS REQUIRED FOR PROJECT. FURNISH SUBMITTALS AND SHOP DRAWINGS AS REQUIRED BY INDIVIDUAL SECTIONS OF SPECIFICATIONS.
15. CONTRACTOR SHALL THOROUGHLY CHECK SUBCONTRACTORS' OR VENDORS' SUBMITTALS AND SHOP DRAWINGS AND, AFTER APPROVING THEM, SUBMIT THEM FOR REVIEW. SUBMITTALS AND SHOP DRAWINGS THAT DO NOT BEAR CONTRACTOR'S REVIEW STAMP WILL BE RETURNED NOT REVIEWED.
16. IF DISCREPANCIES BETWEEN SUBMITTALS, SHOP DRAWINGS, AND CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SUBMITTALS AND SHOP DRAWINGS ARE REVIEWED, REQUIREMENTS OF CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE. SUBMITTALS AND SHOP DRAWINGS WHICH ARE SUBMITTED, BUT WHICH ARE NOT REQUIRED BY CONTRACT DOCUMENTS, WILL BE RETURNED NOT REVIEWED.
17. KEEP IN CUSTODY DURING ENTIRE PERIOD OF CONSTRUCTION, A CURRENT SET OF DOCUMENTS INDICATING CHANGES THAT HAVE BEEN MADE TO THE CONTRACT DOCUMENTS.
18. UPON COMPLETION OF WORK, SUBMIT THE COMPLETE SET OF RECORD DOCUMENTS TO THE ARCHITECT.
19. PROTECT MATERIALS AND EQUIPMENT FROM PHYSICAL DAMAGE, CONSTRUCTION DIRT, AND THE ELEMENTS FROM TIME OF SHIPMENT TO TIME INSTALLATION IS ACCEPTED BY OWNER.
20. GUARANTEE MATERIALS, WORKMANSHIP, AND OPERATION OF EQUIPMENT INSTALLED FOR PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF ENTIRE WORK. REPAIR OR REPLACE ANY PART OF WORK WHICH SHOWS DEFECT DURING THAT TIME.
21. BE RESPONSIBLE FOR DAMAGE TO PROPERTY OF OWNER OR TO WORK OF OTHER CONTRACTORS DURING CONSTRUCTION AND GUARANTEE PERIOD.
22. FURNISH EQUIPMENT WARRANTIES TO OWNER.
23. DO NOT COVER UP OR ENCLOSE WORK UNTIL INSPECTED, TESTED, AND APPROVED. ANY WORK ENCLOSED OR COVERED UP BEFORE SUCH APPROVAL SHALL BE UNCOVERED, TESTED, AND APPROVED.
24. FURNISH HINGED STEEL ACCESS DOORS WITH CONCEALED LATCH, WHETHER SHOWN OR NOT, IN WALLS AND PLASTER OR GYPSUM BOARD CEILINGS FOR ACCESS TO CONCEALED VALVES, SHOCK ARRESTERS, AIR VENTS, MOTORS, FANS, BALANCING VALVES, OR OTHER OPERATING DEVICES REQUIRING ADJUSTMENT OR SERVICING.
25. ACCESS DOOR SHALL BE SIZE OF EQUIPMENT TO BE REMOVED OR 24" BY 24" IF USED FOR SERVICE ONLY.
26. APPEARANCE OF WORK SHALL BE OF EQUAL IMPORTANCE TO ITS MECHANICAL OPERATION. LACK OF QUALITY WORKMANSHIP SHALL BE REASON FOR REJECTION OF SYSTEM IN PART OR IN WHOLE.
27. INSTALL SO THAT ALL VALVES AND EQUIPMENT CAN BE EASILY ACCESSED AND SERVICED BY ADEQUATE CLEARANCE, INSTALLATION OF ACCESS DOORS, UNIONS IN PIPING, OR OTHER METHODS.
28. COMPLETE INSTALLATION SHALL FUNCTION SMOOTHLY AND NOISELESSLY.
29. INSTALL EQUIPMENT AND MATERIALS PER MANUFACTURERS' RECOMMENDATIONS AND LOCAL CODES OR REGULATIONS.
30. FLUSH PIPES FREE OF FOREIGN SUBSTANCES BEFORE INSTALLING VALVES OR MAKING FINAL CONNECTIONS. CLEAN ALL PIPING AND EQUIPMENT.
31. CLEAN INSULATION COVERING, PIPES, EQUIPMENT, AND ACCESSORIES TO RECEIVE PRIME COAT OF PAINT. CLEAN EQUIPMENT RECEIVED WITH PRIME COAT TO RECEIVE FINAL COAT.
32. INSTRUCT OWNER IN OPERATION AND MAINTENANCE OF PLUMBING SYSTEMS. MINIMUM PARTICIPANTS SHALL INCLUDE PLUMBING CONTRACTOR AND CONTROLS CONTRACTOR REPRESENTATIVES.
33. AFTER TESTS AND ADJUSTMENTS HAVE BEEN MADE AND SYSTEMS PRONOUNCED SATISFACTORY FOR PERMANENT OPERATION, REFINISH DAMAGED FINISH AND LEAVE EVERYTHING IN PROPER WORKING ORDER AND APPEARANCE.
34. ON COMPLETION OF WORK, REMOVE TOOLS, SCAFFOLDING, DEBRIS, ETC., FROM GROUNDS AND LEAVE PREMISES CLEAN.

PLUMBING LEGEND

NOT ALL ITEMS LISTED BELOW ARE USED ON THIS SET OF PLUMBING DRAWINGS

PLUMBING PIPING

SYMBOL	ABBV.	DESCRIPTION
	CW	DOMESTIC COLD WATER
	HW	DOMESTIC HOT WATER
	HWC	DOMESTIC HOT WATER CIRCULATION
180°	HW	DOMESTIC HOT WATER AT TEMP. SHOWN
T	T	TEMPERED WATER
TR	TR	TEMPERED WATER CIRCULATION
W	W	SOIL OR WASTE
GW	GW	GREASE WASTE
SOD	SOD	SEDIMENT & OIL DRAIN
FW	FW	FORCE MAIN DRAINAGE
D	D	DRAIN
V	V	SANITARY VENT
GV	GV	GREASE VENT
SD	SD	STORM DRAIN
OD	OD	OVERFLOW STORM DRAIN
F	F	FIRE SPRINKLER
FDC	FDC	FIRE DEPT. CONNECTION
G	G	NATURAL GAS LOW PRESSURE
MPG	MPG	NATURAL GAS MEDIUM PRESSURE
LPG	LPG	PROPANE GAS
CA	CA	COMPRESSED AIR

PLUMBING PIPING SYMBOLS

SYMBOL	DESCRIPTION
	ARROW IN LINE INDICATES DIRECTION OF FLOW
XX	INDICATES PIPE SLOPE DOWN
XXXXXXXXXX	REMOVE EXISTING
	BOTTOM PIPE CONNECTION
	PIPING UP
	PIPING DOWN
	FIXTURE TRAP OR DRAIN TRAP
	PIPING CAP OR PLUG
	BALL VALVE IN VERTICAL PIPE DROP
	GATE VALVE IN VERTICAL PIPE DROP

PIPING SYMBOLS

SYMBOL	DESCRIPTION
	WALL HYDRANT
	HOSE BIBB
	BALL VALVE
	CALIBRATED BALANCING VALVE
	GATE VALVE
	CHECK VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	PLUG VALVE
	PUMP
	ATMOSPHERIC VACUUM BREAKER
	STRAINER
	RELIEF VALVE
	DOWNSPOUT NOZZLE
	WATER HAMMER ARRESTER
	UNION
	REDUCER
M	WATER METER
G	GAS METER
	PRESSURE GUAGE
	THERMOMETER
	FLOOR SINK
	AREA/FLOOR DRAIN
	ROOF DRAIN OR OVERFLOW DRAIN
	WALL CLEANOUT AND LINE CLEANOUT
	FLOOR CLEANOUT
	CONNECT NEW TO EXISTING
DTL SHT / EQUIP	RISER BUBBLE AND REFERENCE BUBBLE
DTL SHT	EQUIPMENT DESIGNATION

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	FFE	FINISHED FLOOR ELEVATION	NIC	NOT IN CONTRACT
AFG	ABOVE FINISHED GRADE	FPC	FIRE PROT. CONTRACTOR	NO	NORMALLY OPEN
AP	ACCESS PANEL	GC	GENERAL CONTRACTOR	NTS	NOT TO SCALE
BFP	BACKFLOW PREVENTER	IE	INVERT ELEVATION	SCO	SURFACE CLEAN OUT
DNZ	DOWNSPOUT NOZZLE	LCO	LINE CLEAN OUT	TYP	TYPICAL
(E)	EXISTING	MC	MECHANICAL CONTRACTOR	VTR	VENT THROUGH ROOF
EC	ELECTRICAL CONTRACTOR	MH	MANHOLE	WCO	WALL CLEAN OUT
EL	ELEVATION	(N)	NEW		
FCO	FLOOR CLEAN OUT	NC	NORMALLY CLOSED		

PLUMBING SHEET INDEX

IFGC PIPE SIZING CALCULATOR FOR NATURAL GAS PRESSURES GREATER THAN 15 PSI

METER DISCHARGE PRESSURE =	2	PSI
ALLOWABLE PRESSURE DROP =	1	PSI
TOTAL EQUIVALENT LENGTH OF PIPE =	75	FEET
ALTITUDE CORRECTION FACTOR =	750	BTU/CFH @ ALT.

NOMINAL SCHD. 40 STEEL PIPE SIZE	CAPACITY(CFH)	CAPACITY (MBH)
1/2"	534	401
3/4"	1117	838
1"	2104	1578
1-1/4"	4321	3241
1-1/2"	6414	4856
2"	12468	9351
2-1/2"	18871	14404
3"	35124	26347
4"	71652	53739
5"	124628	97221
6"	209848	157424

*PIPE CAPACITY IS CALCULATED USING FORMULA FOR HIGH PRESSURE GAS (1.5 PSI AND GREATER) LOCATED IN IFGC APPENDIX A

Q = 2287*D^2.623*(((P1^2-P2^2)/Y)/(Cr*L))^.541

Q = CAPACITY (CFH)
D = INSIDE PIPE DIAMETER
P1 = UPSTREAM PRESSURE (PSIA)
P2 = DOWNSTREAM PRESSURE (PSIA)
Y = SUPEREXPANSIBILITY FACTOR = .9942
Cr = FACTOR FOR VISCOSITY, DENSITY AND TEMPERATURE = .6064
L = LENGTH OF PIPE (FEET)

COLORADO LICENSED ROBERT A. RINKER 36751 3-6-18 PROFESSIONAL ENGINEER

W n k
ASSOCIATES PLANNERS & LANDSCAPE ARCHITECTS 303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.996.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BJB
Reviewed by MAB/RRR
Job No. 17109

Revisions

Name	Date
△ BLDG DEPT #1	03/06/18

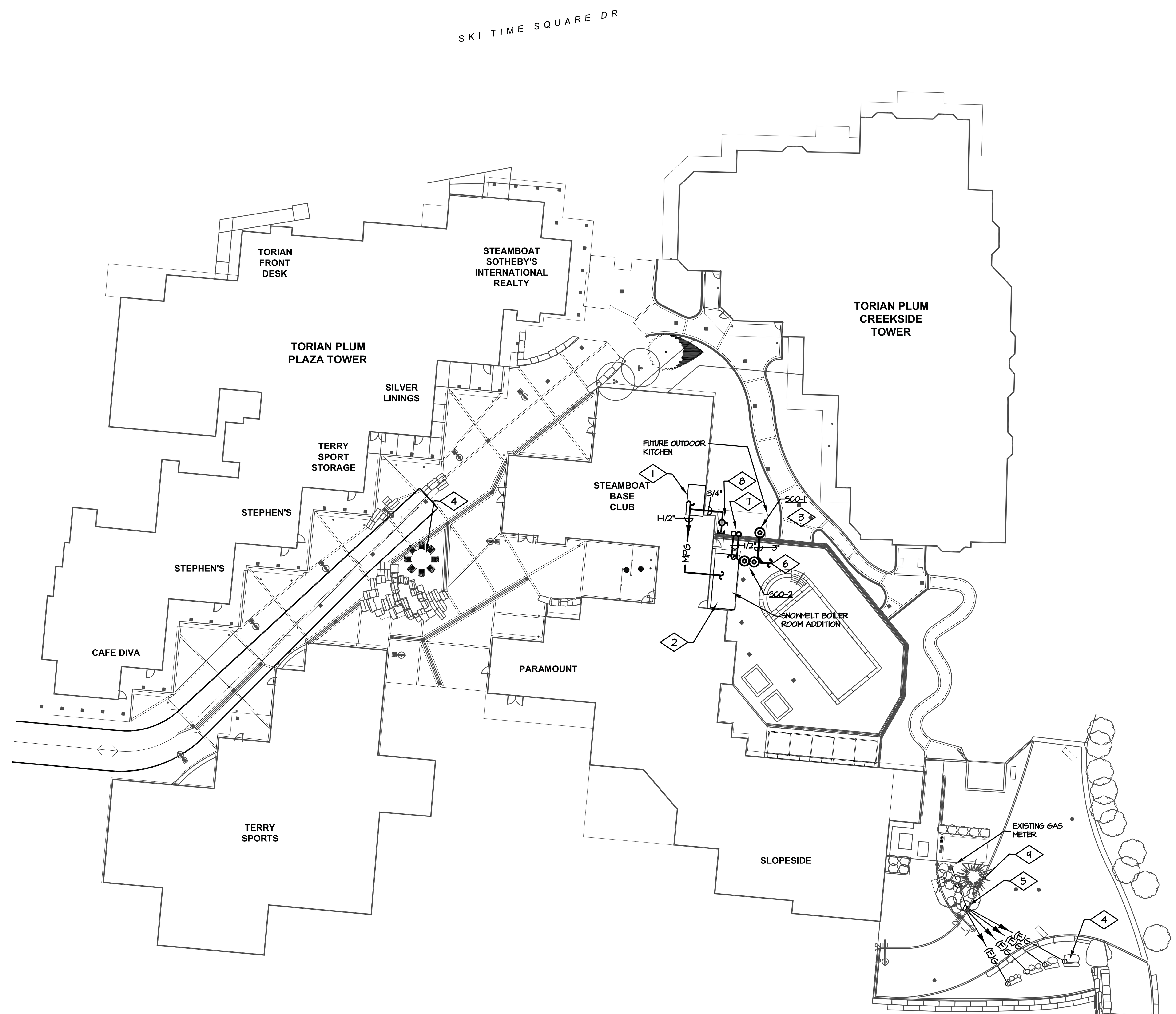
Issue: 100% Construction Documents
Sheet Title: PLUMBING SCHEDULES AND DIAGRAMS
Sheet Number P0.1

RCRBD

RECORD SET

GENERAL NOTES

1. VERIFY EXISTING CONDITIONS BEFORE COMMENCING WORK AND NOTIFY ARCHITECT OF DISCREPANCIES.
2. PHASE WORK SHALL INCLUDE INSTALLATION OF BELOW GROUND SANITARY, GAS UTILITY COORDINATION, AND FIRE PIT GAS CONNECTION WORK ONLY. SNOW-MELT BOILER ROOM PIPING ABOVE GROUND TO BE INSTALLED AS PART OF A FUTURE PHASE.



PLUMBING SITE PLAN

SCALE: 1" = 30'-0"

DRAWING NOTES

1. EXISTING GAS METER BANK ALCOVE CONTAINING METERS FOR POOL, SPA, PARAMOUNT, SLOPESIDE, AND BASECLUB. EXISTING METERS ARE ON MANIFOLD DISTRIBUTION. GAS SERVICE IS PROVIDED BY THE UTILITY (ATMOS ENERGY) AND ALL CHANGES WILL NEED TO BE COORDINATED THROUGH THE UTILITY.
2. A 1-1/2" MEDIUM PRESSURE GAS MAIN WILL BE REQUIRED TO BE ROUTED FROM A DEDICATED METER NEAR THE EXISTING METER BANK. THE GAS MAIN WILL EXTEND TO THE ENLARGED POOL BOILER ROOM TO SERVE THE SNOW MELT BOILERS. TOTAL ESTIMATED LOAD IS 4,500,000 BTUH WITH A MAXIMUM DEVELOPED LENGTH OF 75 FEET FROM METER TO FARTHEST CONNECTION. PRESSURE REGULATORS WILL BE REQUIRED AT ALL CONNECTIONS.
3. PROVIDE 3" SANITARY WASTE TO FUTURE OUTDOOR KITCHEN AREA AND TERMINATE WITH SURFACE CLEAN-OUT AT GRADE.
4. EXISTING FIRE PITS TO BE UPDATED. REMOVE EXISTING CORRODED GAS PIPE FITTINGS BELOW EACH FIRE PIT AND PROVIDE PIPE AND FITTINGS FOR CONNECTION TO NEW FIRE PITS INSTALLED BY LANDSCAPING CONTRACTOR. INSPECT BURIED GAS PIPING FEEDING EACH FIRE PIT LOCATION AND NOTIFY OWNER IF CONDITION OF PIPING IS DETERIORATED AND WOULD PREVENT A SAFE AND LEGAL CONNECTION. TYPICAL OF FOUR LOCATIONS.
5. EXISTING GAS MANIFOLD SERVING FIRE PITS IS LOCATED BELOW GRADE IN THIS AREA. REMOVE AND DISPOSE OF EXISTING BELOW GRADE VALVES AND MANIFOLD AND EXTEND PIPING UP INTO ABOVE GRADE VALVE CABINET PROVIDED AND INSTALLED BY GENERAL CONTRACTOR. INSTALL MANIFOLD WITH MANUAL ISOLATION VALVES TO EACH OF THE FOUR FIRE PIT GAS SUPPLIES AND INSTALL SOLENOID VALVE ON SUPPLY TO MANIFOLD. COORDINATE CONNECTION OF SOLENOID POWER TO EPO CONTROL WITH ELECTRICAL CONTRACTOR.
6. SANITARY PIPING TO BE ROUTED ON SITE BY CIVIL CONTRACTOR AND EXTEND TO SNOW-MELT BOILER ADDITION. LOCATE AT LEAST 6" BELOW FROST LINE. REFER TO ENLARGED PLANS FOR CONTINUATION.
7. ROUTE 1/2" DOMESTIC HOT AND COLD WATER PEX TUBING 6" BELOW FROST LINE BACK TO BOILER ROOM. EXTEND TUBING INTO IRRIGATION STYLE BOX FLUSH WITH GRADE AND PLACE MARKING STAKE WITH LABEL.
8. ROUTE 3/4" MEDIUM PRESSURE GAS PIPING ALONG FACE OF BUILDING FROM METER BANK TO FUTURE OUTDOOR KITCHEN AREA FOR FUTURE CONNECTION OF GRILLS. PROVIDE ISOLATION VALVE AND CAP LINE AT WALL.
9. APPROXIMATE LOCATION OF EXISTING EMERGENCY GAS SHUTOFF. INSPECT AND TEST OPERATION OF SHUTOFF VALVE AND CONTROLS AFTER REPLACEMENT OF GAS MANIFOLD AND SOLENOID VALVE NEARBY AND NOTIFY OWNER OF ANY DEFICIENCIES.

wenk

ASSOCIATES
PLANNERS &
LANDSCAPE
ARCHITECTS
303.628.0003

MEP PROJECT #17109

MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING

6402 S. Troy Circle, Suite 100 (W) 303.936.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BJB
Reviewed by MAB/RRR
Job No. 17109

Revisions

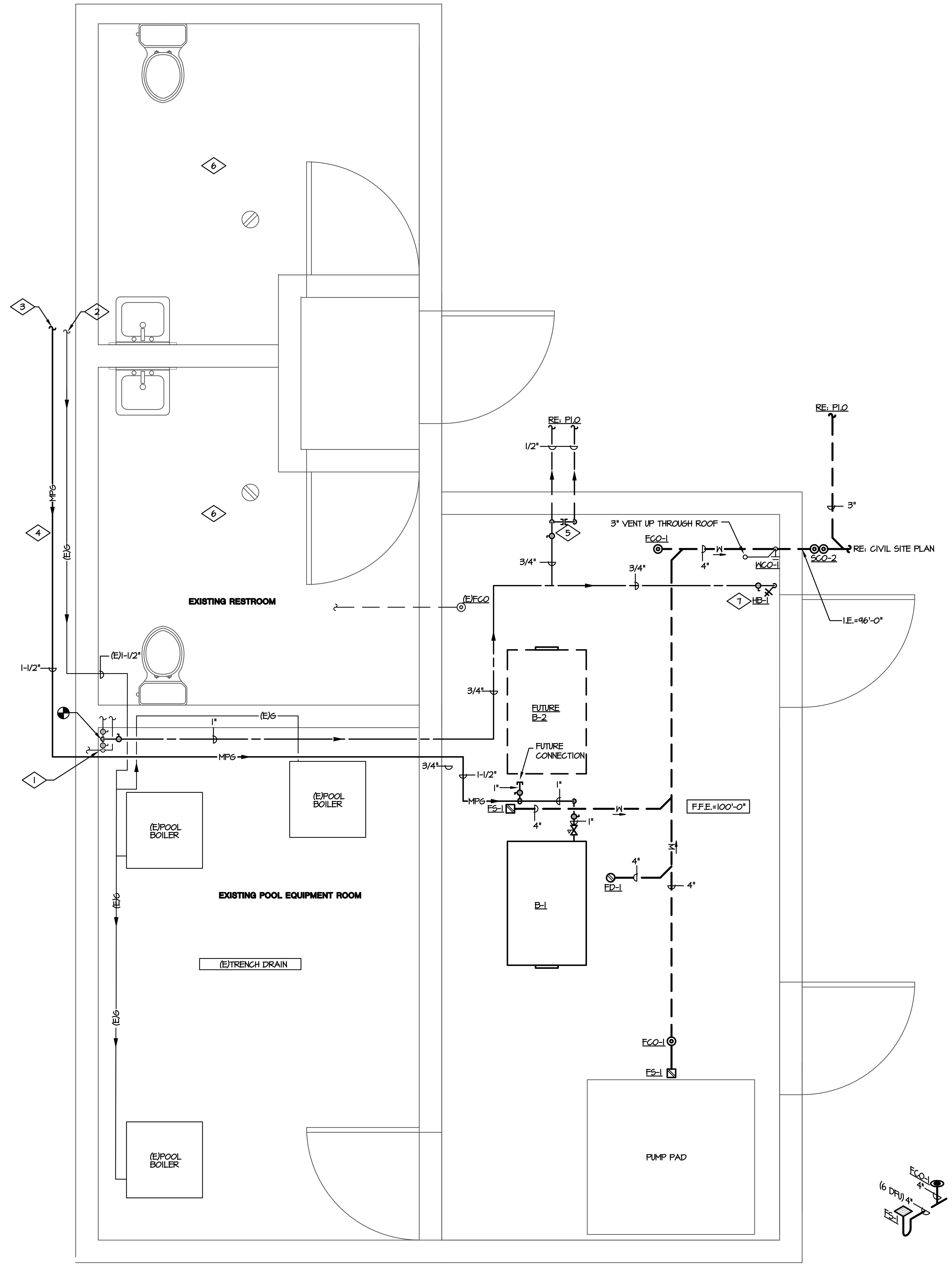
Name	Date
BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
PLUMBING SITE PLAN

Sheet Number
P1.0

COLORADO LICENSED PROFESSIONAL ENGINEER 36751 3-6-18



BOILER ROOM PLUMBING PLAN

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

NOTE: BOILER ROOM BUILDING OUTLINE SUBJECT TO CHANGE. REFERENCE ARCHITECTURAL BID PACKAGE FOR FINAL LAYOUT.

GENERAL NOTES

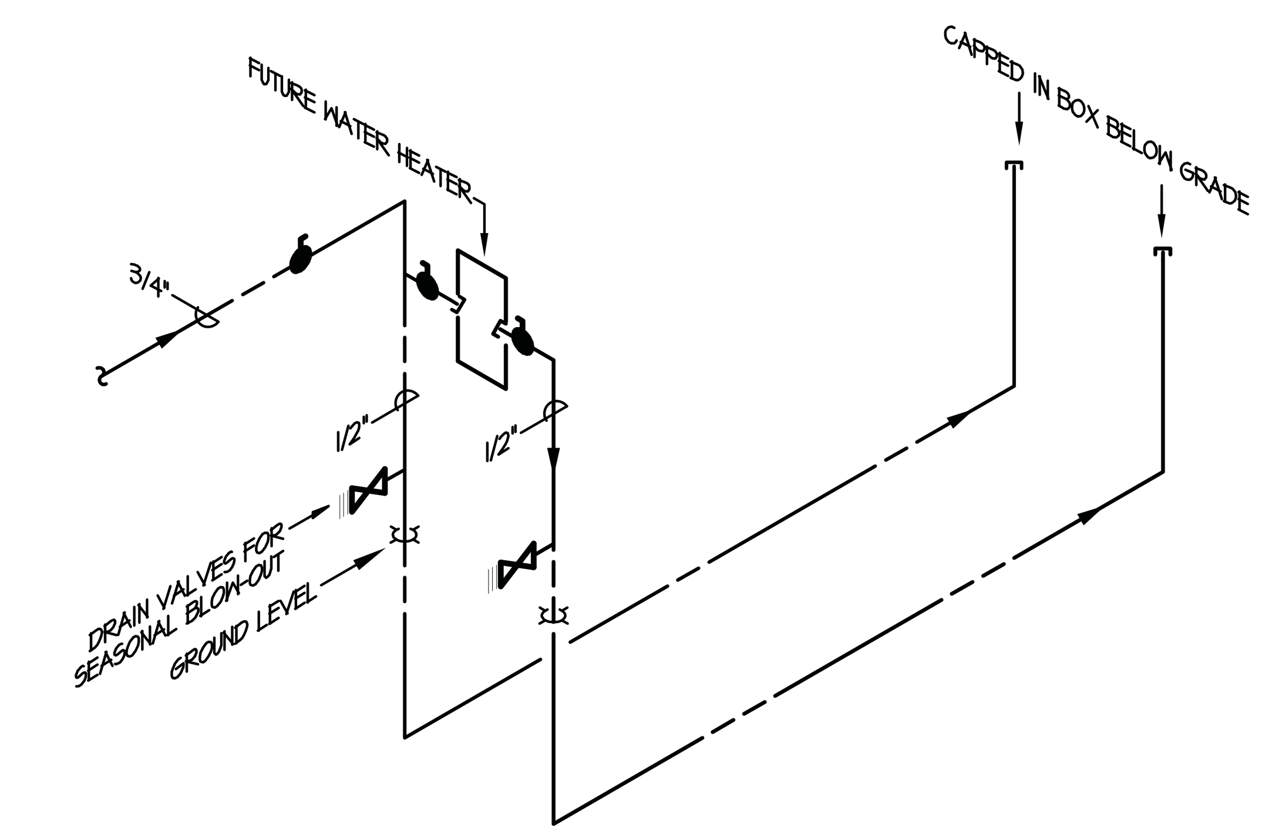
1. VERIFY EXISTING CONDITIONS BEFORE COMMENCING WORK AND NOTIFY ARCHITECT OF DISCREPANCIES.
2. ABOVE GROUND PIPING AND EQUIPMENT IS TO BE INSTALLED AS PART OF A FUTURE PHASE. ONLY BELOW GROUND SANITARY PIPING IS TO BE INSTALLED AS PART OF FIRST PROJECT PHASE.

R C R B D

RECORD SET

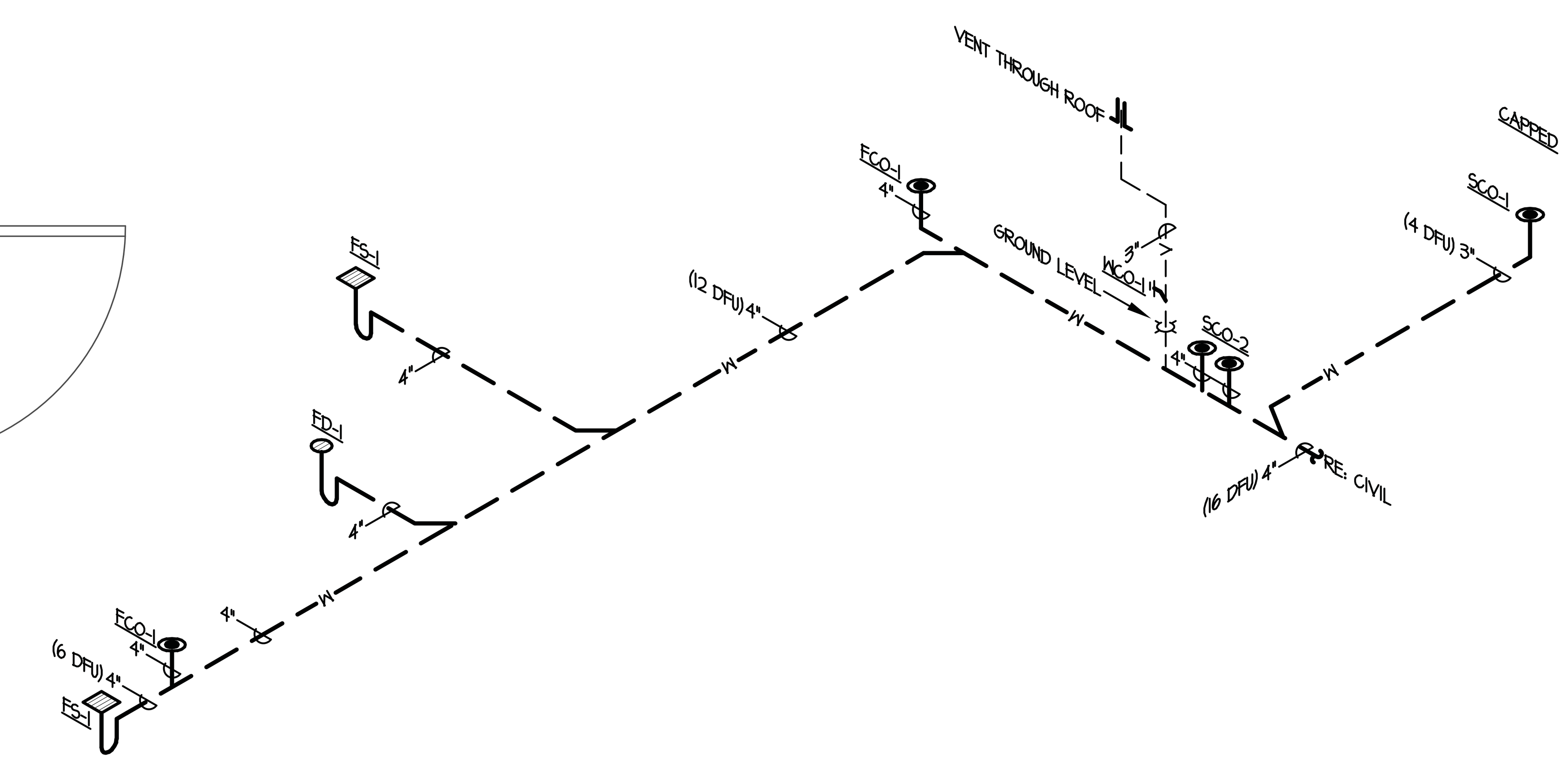
DRAWING NOTES

1. EXISTING 1-1/2" DOMESTIC COLD WATER CONNECTION FEEDING IRRIGATION BACKFLOW PREVENTER AND RESTROOMS. CONNECT 3/4" COLD WATER FEED FOR BOILER ROOM UPSTREAM OF ISOLATION VALVE FOR IRRIGATION CONNECTION.
2. EXISTING GAS LINE ROUTED BACK TO EXISTING METER BANK.
3. ROUTE MEDIUM PRESSURE GAS PIPING BACK TO METER BANK AREA AND CONNECT TO NEW METER PROVIDED BY THE UTILITY PROVIDER (ATMOS ENERGY).
4. ROUTE 1-1/2" GAS MAIN ACROSS LOWER FLAT ROOF BEHIND EXISTING POOL BOILER ROOM AND POSITION BESIDE EXISTING GAS PIPING. UTILIZE EXISTING RACK WHERE POSSIBLE AND PROVIDE ROOF SUPPORTS WITH RUBBER BASES WHERE PIPE MUST BE SUPPORTED INDIVIDUALLY.
5. INSTALL 1/2" DOMESTIC HOT AND COLD WATER PEX TUBING DOWN WALL AND OUT TO THE FUTURE OUTDOOR KITCHEN AREA. BURY PIPING AT LEAST 6" BELOW FROST LINE. CAP PIPING ON WALL AND PROVIDE SHUT-OFF VALVE AND DRAIN VALVE FOR SEASONAL DRAIN DOWN. ENSURE ADEQUATE SPACE IS RESERVED ON WALL NEAR WATER LINES FOR FUTURE MOUNTING OF A 6 GALLON WATER HEATER. REFER TO DIAGRAM.
6. EXISTING PLUMBING FIXTURES TO REMAIN.
7. MOUNT HOSE BIB ON WALL 18" ABOVE FINISHED FLOOR AND POSITION IN A MANNER THAT THE GLYCOL FEEDER CAN EASILY BE CONNECTED FOR ADDING MAKE-UP WATER. HOSE BIB MUST HAVE PERMANENTLY AFFIXED VACUUM BREAKER ON OUTLET.



DOMESTIC WATER PIPING TO FUTURE KITCHEN

SCALE: NONE



WASTE AND VENT ISOMETRIC

SCALE: NONE

COLORADO LICENSED PROFESSIONAL ENGINEER 36751 3-6-18

wenk ASSOCIATES
PLANNERS & LANDSCAPE ARCHITECTS
303.628.0003

MEP PROJECT #17109
MEP ENGINEERING INC.
CLIENT CENTRIC CONSULTING
6402 S. Troy Circle, Suite 100 (W) 303.936.1633
Centennial, CO 80111 (F) 303.934.3299
info@mep-eng.com www.mep-eng.com

WATERPROOFING / RENOVATION - PHASE 2
TORIAN PLUM PARKING STRUCTURE
STEAMBOAT SPRINGS, CO

Date 10.22.17
Drawn By BJB
Reviewed by MAB/RRR
Job No. 17109

Revisions

Name	Date
BLDG DEPT #1	03/06/18

Issue:
100% Construction Documents

Sheet Title:
BOILER ROOM PLUMBING PLAN

Sheet Number
P2.0