



## City of Ketchum

October 17, 2022

Mayor Bradshaw and City Councilors  
City of Ketchum  
Ketchum, Idaho

Mayor Bradshaw and City Councilors:

### **Recommendation to Approve Right-of-Way Encroachment Agreement 22788 for the placement of sidewalk pavers with snowmelt in the public right-of-way adjacent to 131 N Washington Ave.**

#### Recommendation and Summary

Staff recommends the Ketchum City Council approve the attached Right-of-Way Encroachment Agreement 22788 and adopt the following motion:

“I move to authorize the Mayor to sign Right-of-Way Encroachment Agreement 22788 between the City and Bohica Idaho, LLC.”

#### The reasons for the recommendation are as follows:

- The proposed mixed-use project is within the Ketchum Community Core, where snowmelt sidewalks assist in public safety and snow management operations in the winter.
- The improvements will not impact the use or operation of N Washington Ave.
- The improvements will not impact drainage or snow removal within the public right-of-way.
- The project complies with all standards for Right-of-Way Encroachment Permit issuance specified in Ketchum Municipal Code §12.12.060.
- The project meets all requirements for energy code and installation as outlined in the agreement and shown in the exhibits.

#### Introduction and History

The City of Ketchum receive a building permit application on May 18, 2022, for the remodel and expansion of an existing building commonly referenced as the Boho Lounge at 131 N Washington Ave. The proposed project received Design Review approval by the Planning and Zoning Commission on April 26, 2022. The sidewalk along the subject property is currently a paver sidewalk 5-6 feet wide constructed in 2008 when the original building was constructed. The proposed project includes a paver sidewalk 8 feet wide with snowmelt that connects to the new sidewalk constructed for the Mountain Land Design project under construction at the corner of 1<sup>st</sup> Street and N Washington Ave.

A public right-of-way is defined as improved or unimproved public property dedicated or deeded to the City for the purpose of providing vehicular, pedestrian, and public use. In Ketchum, the public rights-of-way consist of roadways, curbs, gutters, sidewalks, signage, and drainage facilities. The public rights-of-way are also used for public parking, wintertime snow storage, and conveyance of utilities, such as water, sewer, electricity, telephone, and cable.

### Analysis

Pursuant to Ketchum Municipal Code §12.12.040.C, a Right-of-Way Encroachment Permit is required for any permanent encroachment of the public right-of-way where a permanent fixture to the ground or a building will occur. The associated Right-of-Way Encroachment Agreement is intended to help protect the City in the event the proposed encroachments were to ever pose an issue requiring repair, relocation, or removal of the encroachment. The standards for issuance of a Right-of-Way Encroachment Permit are specified in Ketchum Municipal Code §12.12.060. The encroachments proposed for the 131 N Washington Ave mixed-use project complies with all standards.

### Sustainability

The City Council is conducting ongoing discussions as to the application of snowmelt systems and the goals and policies of the Sustainability Action Plan related to snowmelt in driveways in residential neighborhoods. To date, the City Council has been supportive of snowmelt systems in sidewalks within the Community Core due to the increased benefit to public safety and snow management operations in the winter. The proposed project complies with all insulation, boiler efficiency, and installation requirements as outlined in the agreement.

### Financial Impact

There is no financial requirement from the city for this action.

### Attachments

ROW Encroachment Agreement 22788 and Exhibits

**WHEN RECORDED, PLEASE RETURN TO:**

**OFFICE OF THE CITY CLERK  
CITY OF KETCHUM  
POST OFFICE BOX 2315  
KETCHUM, IDAHO 83340**

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**RIGHT-OF-WAY ENCROACHMENT AGREEMENT 22788**

THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_, 2022, by and between the CITY OF KETCHUM, IDAHO, a municipal corporation ("Ketchum"), whose address is Post Office Box 2315, Ketchum, Idaho and Bohica Idaho, LLC ("Owner"), whose mailing PO Box 1129, Ketchum ID 83340 and who owns real property located at 131 N Washington Ave, Ketchum, ID 83340 ("subject property").

*RECITALS*

WHEREAS, Encroachment Permit Application 08-005 was approved by Ketchum on September 2, 2008, Resolution Number 08-097, for the installation of an entry awning constructed over the sidewalk adjacent to the subject property; and

WHEREAS, Ketchum approved a Design Review application (File No. P22-001) on April 26, 2022 for the remodel and expansion of the building on the subject property which shows the removal of the entry awning previously constructed; and,

WHEREAS, Ketchum received a building permit application (File No. B22-041) to construct the project approved under the Design Review approval, showing the removal of the entry awning and the construction of various new improvements within the right-of-way; and

WHEREAS, Owner wishes to permit placement of sidewalk pavers with associated snowmelt system totalling 810 square feet. These improvements are shown in Exhibit "A" attached hereto and incorporated herein (collectively referred to as the "Improvements"); and,

WHEREAS, Ketchum finds that said Improvements will not impede the use of said public right-of-way at this time subject to the terms and provisions of this Agreement;

WHEREAS, the Owner will restore the sidewalk, street, curb and gutter and any landscaping back to the original condition acceptable to the Streets and Facilities Director;

NOW, THEREFORE, in contemplation of the above stated facts and objectives, it is hereby agreed as follows:

*TERMS AND CONDITIONS*

1. Ketchum shall permit Owner to install a paver sidewalk and associated snowmelt system identified in Exhibit "A" within the public right-of-way on N Washington Ave adjacent to the subject property, until notified by Ketchum to remove the infrastructure at which time Owner shall remove infrastructure at Owner's expense.

2. Owner shall be responsible for the maintenance of said Improvements and shall repair said improvements within 48 hours upon notice from Ketchum that repairs are needed.

3. Snowmelt systems installed in the public right-of-way shall be installed and operate at all times during the winter according to the following and as shown in Exhibit "B":

- The system shall meet the requirements of the International Energy Conservation Code (2018 IECC, 403.12.2)
- The system shall have an electronic main control board to operate the system that is programmable and optimizes the way the system functions.
- Installation of in-ground control sensors linked to the main control board that detect snow and ice on the surface, monitor the the sidewalk or driveway temperature, and automatically activates the system to be turned on or off based on the snow condition and air temperature.

4. Owner shall be responsible for restoring the sidewalk, curb and gutter and landscaping that is altered due to the construction and installation of the vault, to the satisfaction of the Director of Streets and Facilities.

5. In consideration of Ketchum allowing Owner to maintain the Improvements in the public right-of-way, Owner agrees to indemnify and hold harmless Ketchum from and against any and all claims of liability for any injury or damage to any person or property arising from the Improvements constructed, installed and maintained in the public right-of-way. Owner shall further indemnify and hold Ketchum harmless from and against any and all claims arising from any breach or default in the performance of any obligation on Owner's part to be performed under this Agreement, or arising from any negligence of Owner or Owner's agents, contractors or employees and from and against all costs, attorney's fees, expenses and liabilities incurred in the defense of any such action or proceeding brought thereon. In the event any action or proceeding is brought against Ketchum by reason of such claim, Owner, upon notice from Ketchum, shall defend Ketchum at Owner's expense by counsel satisfactory to Ketchum. Owner, as a material part of the consideration to Ketchum, hereby assumes all risk of damages to property or injury to persons in, upon or about the Improvements constructed, installed and maintained in the public right-of-way arising from the construction, installation and maintenance of said Improvements and Owner hereby waives all claims in respect thereof against Ketchum.

6. Ketchum shall not be liable for injury to Owner's business or loss of income therefrom or for damage which may be sustained by the person, goods, wares, merchandise or property of Owner, its tenants, employees, invitees, customers, agents or contractors or any other person in or about the Subject Property caused by or resulting from the Improvements constructed, installed, removed or maintained in the public right-of-way.

7. Owner understands and agrees that by maintaining the Improvements in the public right-of-way pursuant to this Agreement, Owner obtains no claim or interest in said public right-of-way which is adverse to that of Ketchum and that Owner obtains no exclusive right to said public right-of-way nor any other right to use the public right-of-way not specifically described herein.

8. In the event either party hereto retains an attorney to enforce any of the rights, duties and obligations arising out of this Agreement, the prevailing party shall be entitled to recover from the non-prevailing party reasonable attorney's fees at the trial and appellate levels and, whether or not litigation is actually instituted.

9. This Agreement shall be governed by, construed, and enforced in accordance with the laws and decisions of the State of Idaho. Venue shall be in the District Court of the fifth Judicial District of the State of Idaho.

10. This Agreement sets forth the entire understanding of the parties hereto and shall not be changed or terminated orally. It is understood and agreed by the parties hereto that there are no verbal promises or implied promises, agreements, stipulations or other representations of any kind or character pertaining to the Improvements maintained in the public right-of-way other than as set forth in this Agreement.

11. No presumption shall exist in favor of or against any party to this Agreement as the result of the drafting and preparation of this document.

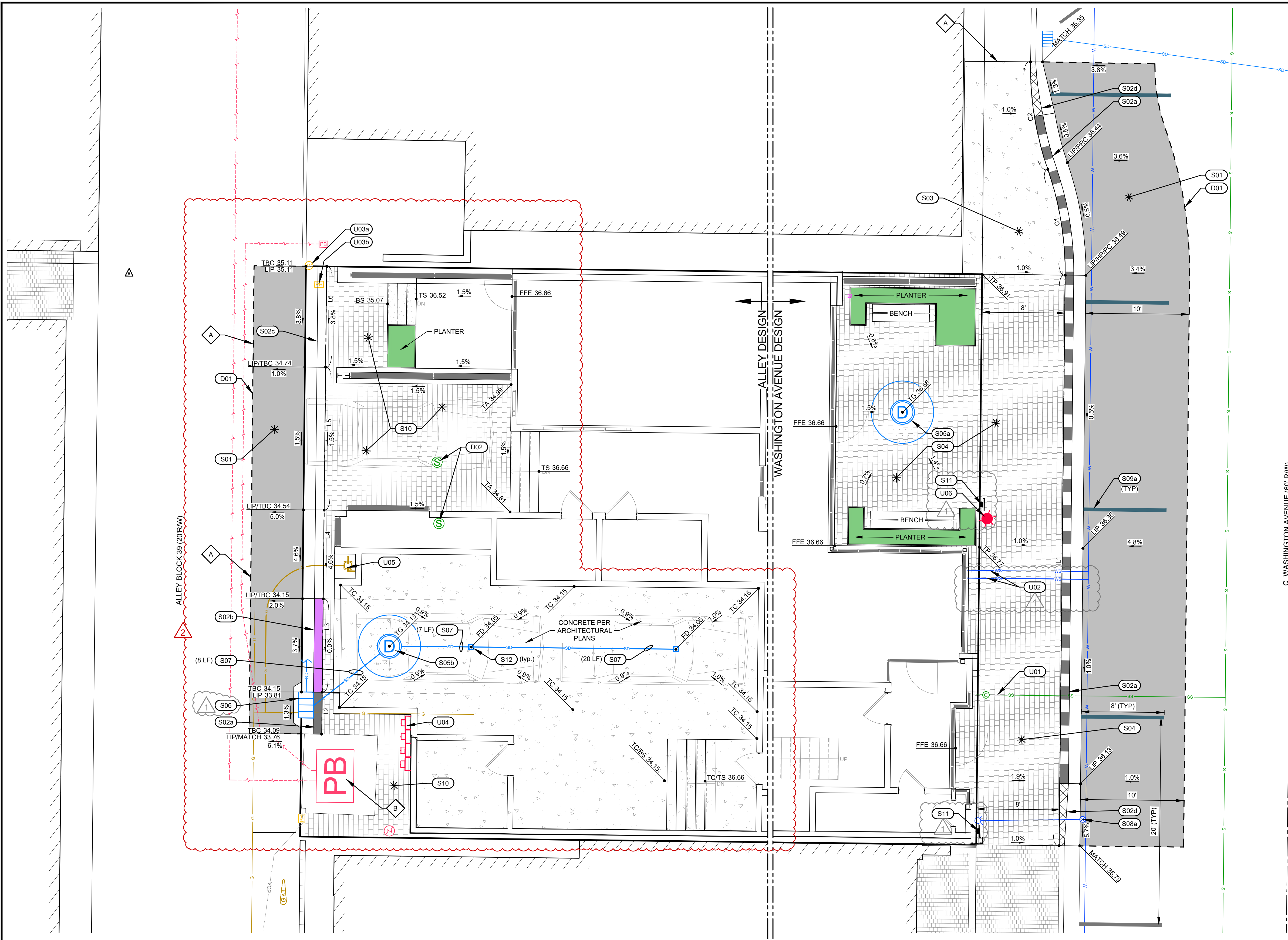
12. This Agreement shall be recorded with the Blaine County Recorder by Ketchum. Upon recording of this Agreement, Encroachment Permit 08-005, Resolution Number 08-097, shall become null and void.

13. The parties fully understand all of the provisions of this Agreement, and believe them to be fair, just, adequate, and reasonable, and accordingly accept the provisions of this Agreement freely and voluntarily.



**EXHIBIT "A"**

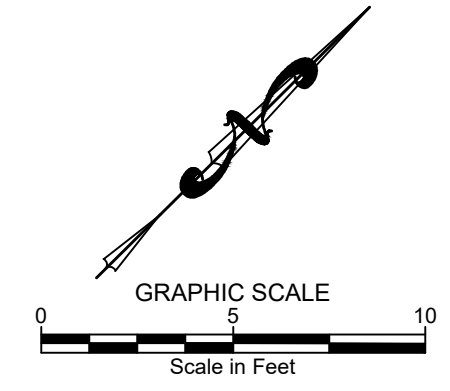
REUSE OF DRAWINGS: These drawings, or any portion thereof, shall not be used on any project or extension of this project except by agreement in writing with Galena Engineering, Inc.



Line	Direction	Length	Start Northing	Start Easting
L1	N44° 23' 44"W	55.02'	733836.648	1544628.846
L2	S44° 21' 43"E	4.04'	733772.523	1544543.199
L3	S44° 24' 04"E	9.00'	733778.953	1544536.902
L4	S44° 24' 04"E	8.56'	733785.071	1544530.911
L5	S44° 24' 04"E	13.77'	733794.910	1544521.276
L6	S44° 24' 04"E	9.72'	733801.855	1544514.475

Curve	Radius	Length	Delta	Chord Direction	Chord Length	Start Northing	Start Easting
C1	30.00'	10.38'	19° 49' 43"	N54° 18' 36"W	10.33'	733875.965	1544590.350
C2	30.00'	10.56'	20° 10' 39"	N54° 08' 08"W	10.51'	733881.992	1544581.960

**ABBREVIATIONS**  
 BS = BOTTOM OF STEP  
 EG = EXISTING GRADE  
 FD = FLOOR DRAIN  
 FF = FINISHED FLOOR  
 FFE = FINISHED FLOOR AT ENTRY  
 LF = LINEAL FEET  
 LIP = LIP OF GUTTER  
 HP = HIGH POINT  
 PC = POINT OF CURVATURE  
 PRC = POINT OF REVERSE CURVE  
 PT = POINT OF TANGENCY  
 TBC = TOP BACK OF CURB  
 TC = TOP OF CONCRETE  
 TG = TOP OF GRATE  
 TP = TOP OF PAVERS  
 TS = TOP OF STEP



**DEMOLITION KEY NOTES**

- D01 SAWCUT ASPHALT TO PROVIDE FOR A CLEAN VERTICAL EDGE.
- D02 REMOVE AND DISPOSE OF GREASE TRAP.

**SITE IMPROVEMENT KEY NOTES**

- S01 CONSTRUCT ASPHALT ROADWAY / ASPHALT REPAIR. SEE DETAIL 1 / C1.1.
- S02 CONSTRUCT CONCRETE CURB AND GUTTER
  - a. 6" ROLLED C&G PER DETAIL 3 / C1.1.
  - b. CURB TRANSITION PER DETAIL 4 / C1.1.
  - c. ZERO REVEAL CURB AND GUTTER PER DETAIL 4 / C1.1.
  - d. ±6" OF CURB TRANSITION (BETWEEN 6" VERTICAL C&G AND 6" ROLLED C&G).
  - e. 24" WIDE CONCRETE VALLEY GUTTER. PER DETAIL 9 / C1.1
- S03 CONSTRUCT CONCRETE SIDEWALK. WIDTH AS SHOWN HEREON. SEE DETAIL 5 / C1.1.
- S04 CONSTRUCT HEATED PAVES SIDEWALK. WIDTH AS SHOWN HEREON. SEE DETAIL 2a / C1.1.

- S05 DRYWELL. SEE DETAIL 7 / C1.1.
  - a. CONTRACTOR TO CLEAN EXISTING DRYWELL. RIM = 5836.56 (WITH GRATE)
  - b. CONTRACTOR TO CLEAN EXISTING DRYWELL. RIM = 5834.58 (WITH SOLID LID) I.E.(IN - S06) = 5830.76
  - c. N/A.

- S06 INSTALL CATCH BASIN WITH MINIMUM SUMP DEPTH OF 12". CONNECT ALL ROOF DRAINS TO THIS CATCH BASIN. SEE DETAIL 6 / C1.1. RIM = 5833.92 I.E.(IN) = 5831.02 I.E.(OUT) = 5830.92 SUMP = 5828.92

- S07 INSTALL STORM DRAIN PIPE WITH A MINIMUM SLOPE OF 2.0%. SEE DETAIL 10 / C1.1 FOR TRENCHING.

- S08 RESET UTILITY BOX LID ELEVATION.
  - a. WATER VALVE BOX ORIGINAL RIM = 5835.81 NEW RIM = 5835.94

- S09 INSTALL ROAD STRIPING / PAINT
  - a. YELLOW ASPHALT PARKING STRIPING (4" WIDE). MATCH CITY PATTERNS.

- S10 INSTALL PAVERS. REUSE EXISTING PAVERS FROM SITE. SEE DETAIL 2b / C1.1.
- S11 INSTALL SIGN. CITY TO PROVIDE SIGN BASES. CONTRACTOR TO COORDINATE WITH STREET DEPT. ON FINAL LOCATION AND TYPE OF SIGN DURING CONSTRUCTION. REFER TO DETAIL 1 / C1.2.

- S12 INSTALL FLOOR DRAIN. CONNECT TO DRYWELL S05b.

**UTILITY KEY NOTES**

- U01 UTILIZE EXISTING SEWER SERVICE.
- U02 UTILIZE EXISTING 1 1/2" WATER SERVICE FOR RESIDENTIAL UNITS. INSTALL NEW 1" WATER SERVICE FOR MASTER COMMERCIAL UNIT.

- U03 RELOCATE UTILITY RISERS / BOXES. CONTRACTOR TO COORDINATE ACTIVITY WITH UTILITY FRANCHISES.
  - a. CABLE TV RISER
  - b. TELEPHONE RISER

- U04 POWER METER. REFER TO ARCHITECTURAL AND UTILITY FRANCHISE PLANS FOR FINAL PLACEMENT.

- U05 GAS METER. REFER TO ARCHITECTURAL AND UTILITY FRANCHISE PLANS FOR FINAL PLACEMENT.

- U06 INSTALL STREET LIGHT. REFER TO DETAIL 2 / C1.2.

- A MATCH EXISTING LINES AND GRADES
- B RETAIN AND PROTECT POWER TRANSFORMER.

**GENERAL NOTES:**

- SEE SHEET C0.1 FOR CONSTRUCTION NOTES.
- SEE SHEET C0.2 FOR LEGEND.

**BOHICA MULTI-USE**  
**131 WASHINGTON AVE**  
**SITE GRADING AND DRAINAGE PLAN**  
 LOCATED WITHIN SECTION 18, T.4 N., R.18 E., B.M., CITY OF KETCHUM, BLAINE COUNTY, IDAHO  
 PREPARED FOR BOHICA IDAHO, LLC

PROJECT INFORMATION  
 P:\s\18092222\18092222.dwg 08/01/22 1:45:58 PM

DESIGNED BY \_\_\_\_\_  
 DRAWN BY \_\_\_\_\_  
 SMF  
 CHECKED BY \_\_\_\_\_

**GALENA**  
**ENGINEERING, INC.**  
 Civil Engineers & Land Surveyors  
 317 N. River Street  
 Hailey, Idaho 83433  
 (208) 768-1705  
 email: galena@galena-engineering.com

PURPOSE: \_\_\_\_\_  
 NO. DATE BY REVISIONS  
 A 06/28/22 SMF REVISIONS PER CITY COMMENTS  
 B 08/01/22 SMF REGRADE ALLEY

PROFESSIONAL ENGINEER  
 REGISTERED  
 12497  
 5/08/01/22 AND  
 STATE OF IDAHO  
 SEAN M. FLANN

**C1.0**



**EXHIBIT "B"**

- Snow Melt System:**
- Sidewalk will have snow melt per cities requirements.
  - A snow melt controller is installed along with outside air temperature sensors and snow/ice sensors.
  - The system meets the requirements of the International Energy Conservation Code (2018 IECC, 403.12.2)

See Sequence of Operation below:  
GENERAL:

The Snowmelt System shall consist of snow / ice melt sensors, slab sensors, lead/lag heating water pumps, two control valve at each snow melt manifold, natural gas boiler and snow melt radiant in-slab pipe.

**OPERATION:**

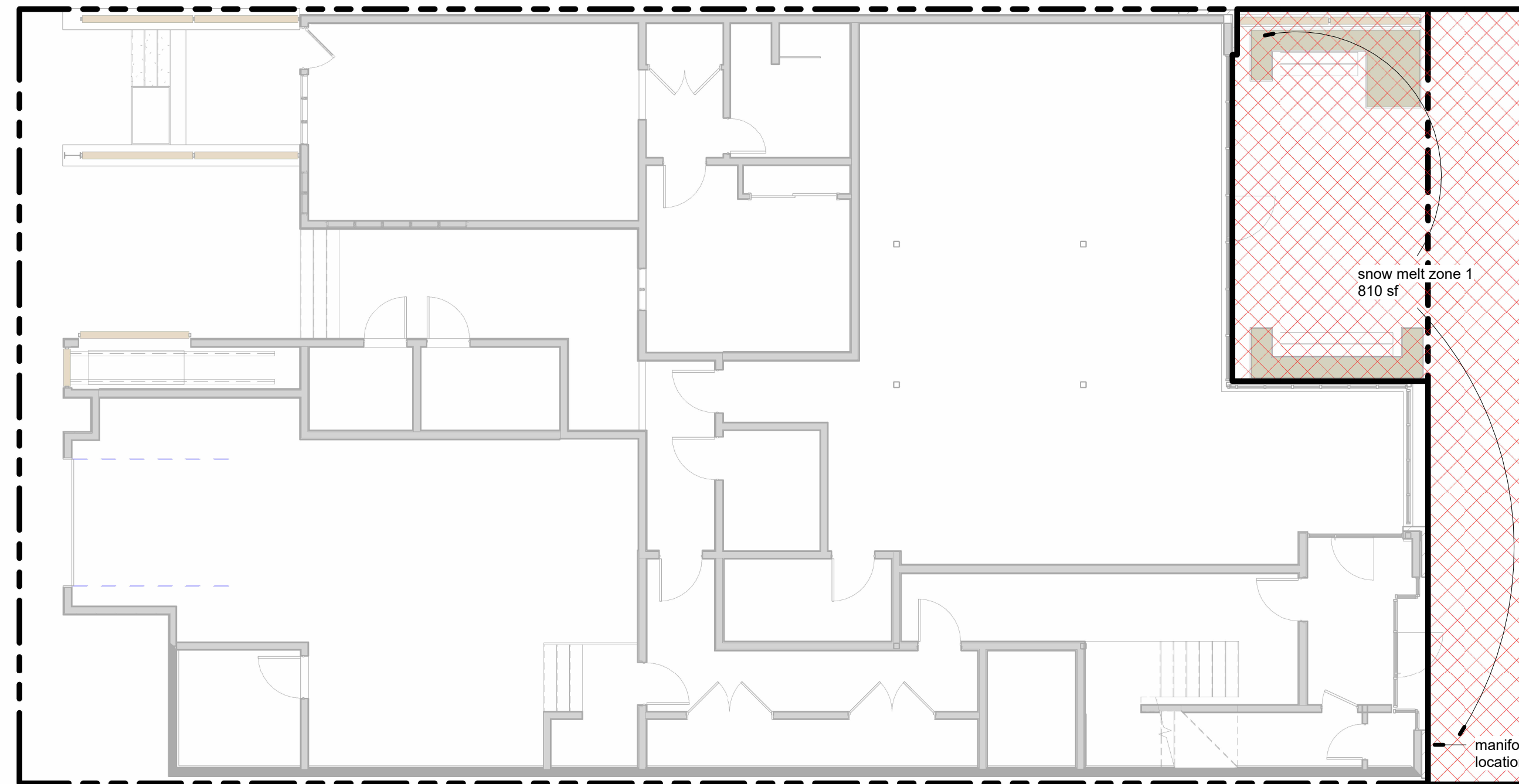
The Snowmelt System shall be enabled to idle mode whenever the outside air temperature is 40°F (adjustable) or lower and no moisture is detected. In idle mode, the heating water pump and boiler system shall be enabled. The Snowmelt System shall maintain a slab temperature of 40°F (adjustable) in idle mode. The boiler system shall maintain supply temperature of 90°F (adjustable) in idle mode.

When the outside air temperature is above 40°F (adjustable) the Snowmelt System shall stop the heating pumps and boiler system.

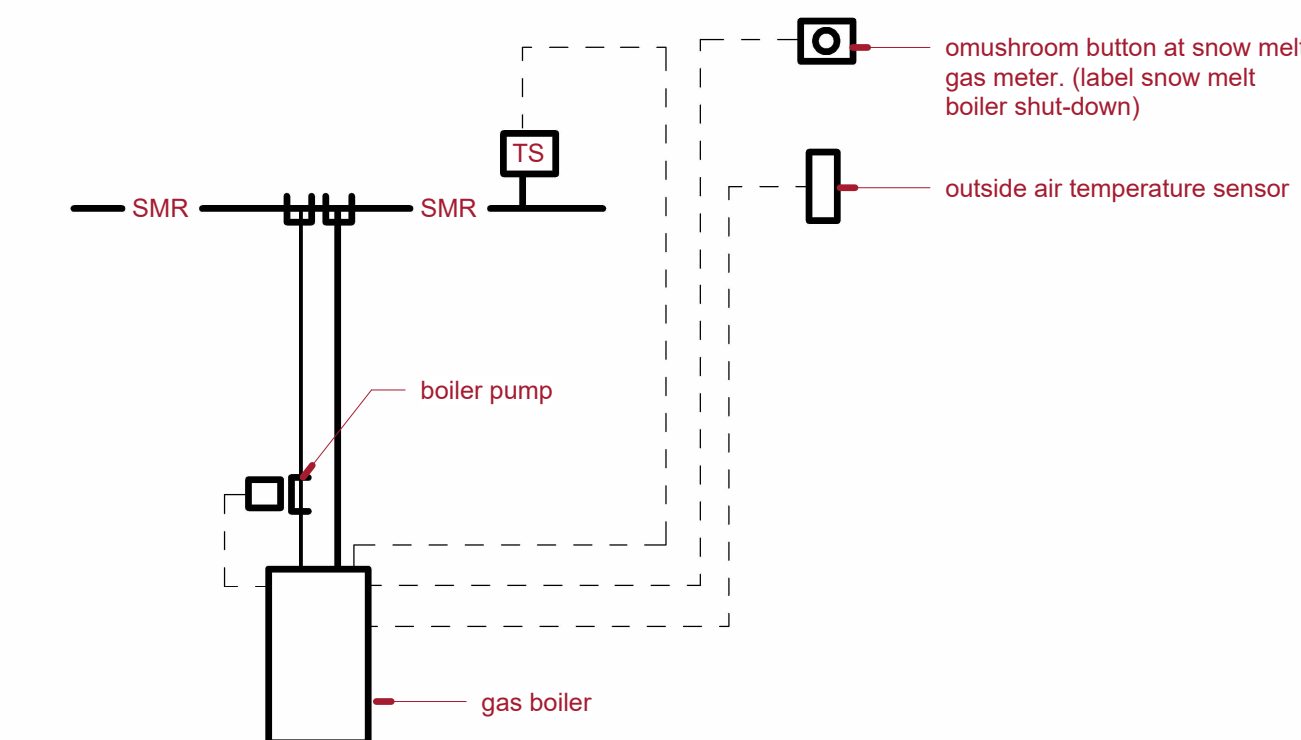
When the Snowmelt System detects moisture, and the outside air temperature is below 40°F (adjustable) the Snowmelt System shall start in melting mode. In melting mode, the heating water pump and boiler system shall be enabled. The Snowmelt System shall maintain a slab temperature of 38°F (adjustable) until the moisture sensor does not detect moisture. The boiler system shall maintain a supply temperature of 130°F (adjustable) in melting mode. The Snowmelt System shall return to idle mode when the moisture sensor is not sensing moisture.

If lead heater water pump fails, the lag heater water pump shall start. An alarm shall be sent to the operator's workstation on failure of pump to start.

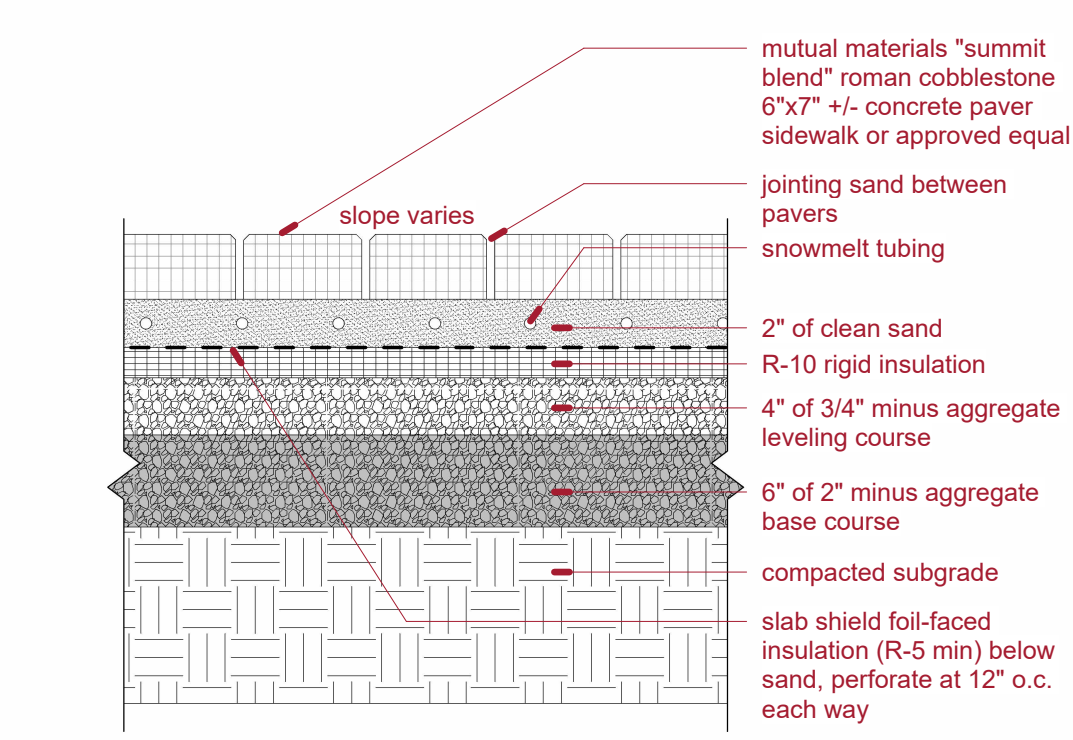
- A snow melt controller is installed along with outside air temperature sensors and snow/ice sensors for each zone.
- Installation of in-ground control sensors linked to the main control board that detect snow and ice on the surface, monitor the sidewalk or driveway temperature, and automatically activates the system to be turned on or off based on the snow condition and air temperature.
- A snow melt controller is installed along with outside air temperature sensors and snow/ice sensors for each zone.



**1 snow melt floor plan**  
A-007 1/8" = 1'-0"



**3 snow melt boiler control schematic**  
A-007 1" = 1'-0"



**4 paver detail**  
A-007 1" = 1'-0"

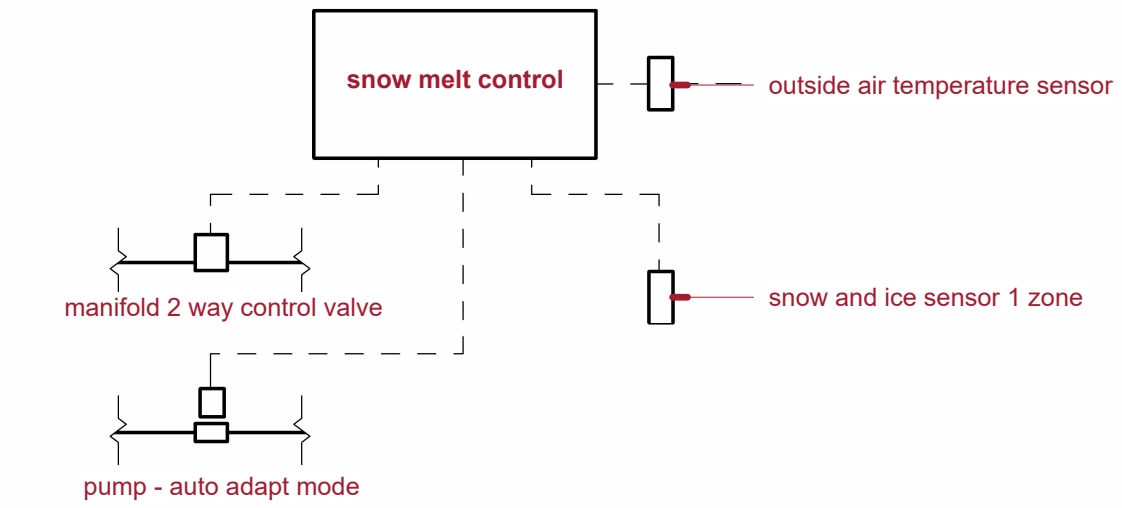
**GENERAL:**  
THE SNOWMELT SYSTEM SHALL CONSIST OF SNOW / ICE MELT SENSORS, SLAB SENSORS, LEAD/LAG HEATING WATER PUMPS, TWO CONTROL VALVE AT EACH SNOW MELT MANIFOLD, NATURAL GAS BOILER AND SNOW MELT RADIANT IN-SLAB PIPE.

**OPERATION:**  
THE SNOW MELT SYSTEM SHALL BE ENABLED TO IDLE MODE WHENEVER THE OUTSIDE AIR TEMPERATURE IS 40°F (ADJUSTABLE) OR LOWER AND NO MOISTURE IS DETECTED. IN IDLE MODE THE HEATING WATER PUMP AND BOILER SYSTEM SHALL BE ENABLED. THE SNOW MELT SYSTEM SHALL MAINTAIN A SLAB TEMPERATURE OF 40°F (ADJUSTABLE) IN IDLE MODE. THE BOILER SYSTEM SHALL MAINTAIN SUPPLY TEMPERATURE OF 90°F (ADJUSTABLE) IN IDLE MODE.

WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 40°F (ADJUSTABLE) THE SNOW MELT SYSTEM SHALL STOP THE HEATING PUMPS AND BOILER SYSTEM.

WHEN THE SNOW MELT SYSTEM DETECTS MOISTURE AND THE OUTSIDE AIR TEMPERATURE IS BELOW 40°F (ADJUSTABLE) THE SNOW MELT SYSTEM SHALL START IN MELTING MODE. IN MELTING MODE THE HEATING WATER PUMP AND BOILER SYSTEM SHALL BE ENABLED. THE SNOW MELT SYSTEM SHALL MAINTAIN A SLAB TEMPERATURE OF 38°F (ADJUSTABLE) UNTIL THE MOISTURE SENSOR DOES NOT DETECT MOISTURE. THE BOILER SYSTEM SHALL MAINTAIN A SUPPLY TEMPERATURE OF 130°F (ADJUSTABLE) IN MELTING MODE. THE SNOW MELT SYSTEM SHALL RETURN TO IDLE MODE WHEN THE MOISTURE SENSOR IS NOT SENSING MOISTURE.

IF LEAD HEATER WATER PUMP FAILS THE LAG HEATER WATER PUMP SHALL START. AN ALARM SHALL BE SENT TO THE OPERATORS WORKSTATION ON FAILURE OF PUMP TO START.



**2 snow melt control schematic**  
A-007 1" = 1'-0"

- Snow Melt System Piping**  
Subcontractor to supply system piping schematic defining the following:
- Snowmelt manifolds
  - In-line pump detailing
  - Expansion Tank details
  - Glycol package details
  - Boiler piping details

**MECHANICAL SPECIALTY EQUIPMENT SCHEDULE**  
EQUIPMENT DESCRIPTION

EQUIPMENT DESCRIPTION	SYSTEM SERVED	DESCRIPTION
INLINE AIR SEDIMENT SEPARATOR	HYDRONIC SYSTEM	DESIGN FLOW IS 75 GPM WITH A DESIGN PD OF 1.0 FT-H 20.
EXPANSION TANK (HORIZONTAL DIAPHRAGM TYPE)	HYDRONIC SYSTEM	21.7 GAL. CAPACITY, 11.3 ACCEPTANCE GAL., BLADDER TYPE EXPANSION TANK. (PRE-CHARGED TO 12 PSI)
SINGLE PUMP GLYCOL FEEDER	HYDRONIC SYSTEM	PROVIDE WITH LOW LEVEL CUT-OFF AND ALARM ARRANGEMENT INCLUDING A 110V SIGNAL FOR REMOTE ALARM, ISOLATION VALVES, STRAINER, PRESSURE TANK WITH PRESSURE CONTROL, PRESSURE REDUCING VALVE AND GAUGE, 55 GAL. TRANSLUCENT POLYETHYLENE SOLUTION CONTAINER WITH LID TO ACCOMMODATE RELIEF VALVE PIPING, (110V, 60 HZ MOTOR AND CONTROLS WITH PLUG AND CORD). PRESET SYSTEM TO 12 PSI. SOLUTION SHALL BE 40% DOWFROST PROPYLENE GLYCOL WITH INHIBITOR AND 60% WATER.
POT FEEDER	HYDRONIC SYSTEM	5 GALLON POT FEEDER MOUNTED ON WALL 36" A.F.F.

**MANUFACTURER AND MODEL**

B & G MODEL 3", ALTERNATE APPROVED MANUFACTURERS: TACO, ARMSTRONG, AND PACO
BELL AND GOSSETT HORIZONTAL D-40, ALTERNATE APPROVED MANUFACTURERS: TACO, ARMSTRONG, AND PACO
AXIOM MODEL SF100, ALTERNATE APPROVED MANUFACTURERS: WESSELS
JL WINGERT, ALTERNATE APPROVED MANUFACTURERS: SUBMIT FOR APPROVAL

**CONDENSING HOT WATER BOILER SCHEDULE**

AREA SERVED	THERMAL EFFICIENCY	FUEL	EWT (°F)	LWT (°F)	BOILER FLOW (GPM)	MAX P.D. (FT H2O)	CAPACITY	INPUT MBH	OUTPUT MBH	MANUFACTURER AND MODEL	REMARKS
SNOW MELT SYSTEM	95%	NAT. GAS	110	130	69.0	5.3		705	613	LOCKINVAR MODEL FTXL-725	1, 2, 3

**REMARKS:**

- APPROVED ALTERNATE MANUFACTURERS: SUBMIT FOR APPROVAL.
- PROVIDE BOILER VENTING KIT, NEUTRALIZING KIT, COMBUSTION AIR INTAKE KIT, SEISMIC VIBRATION ISOLATORS, LOW WATER CUT-OFF, FLOW SWITCH, MODULATING GAS BURNER, CONDENSATE TRAP, 316L STAINLESS STEEL COMBUSTION CHAMBER, EXHAUST PIPE, CSD-1 AND OSA RESET.
- BOILER SHALL BE PROVIDED W/FACTORY START-UP. START-UP IS NOT COMPLETE UNTIL ALL BURNERS AND BLOWER ARE CALIBRATED FOR PEAK PERFORMANCE AND AT COMPLETION OF PROJECT ALL BURNERS, BLOWERS, HEAT EXCHANGERS, AND OTHER INTERNAL PARTS SHALL BE THOROUGHLY CLEANED OF CONSTRUCTION DEBRIS.

**BOILER PUMP SCHEDULE**

AREA SERVED	TYPE	CAPACITY FLOW (GPM)	HEAD (FT)	MIN EFF	MOTOR AMPS	RPM	V/Ø	SUCTION DIFFUSER	TRIPLE DUTY VALVE	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
SNOW MELT SYSTEM	INLINE	69.0	30	---	2.5	---	115/1	N/A	N/A	50	GRUNDFOS MAGNA3 40-80	1, 2

**REMARKS:**

- APPROVED ALTERNATE MANUFACTURERS: ARMSTRONG, B & G, TACO, WILO, PACO, PEERLESS, PATTERSON.
- CONTROL PUMP THROUGH CONDENSING BOILER.

**PUMP SCHEDULE**

AREA SERVED	TYPE	CAPACITY FLOW (GPM)	HEAD (FT)	MIN EFF	MOTOR HP	RPM	V/Ø	SUCTION DIFFUSER	TRIPLE DUTY VALVE	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
SNOW MELT SECONDARY LOOP	INLINE	50	35	---	3/4	---	208/1	N/A	N/A	30	BELL AND GOSSET ECOCIRC XL MODEL 65-130	1, 2, 3, 4, 5

**REMARKS:**

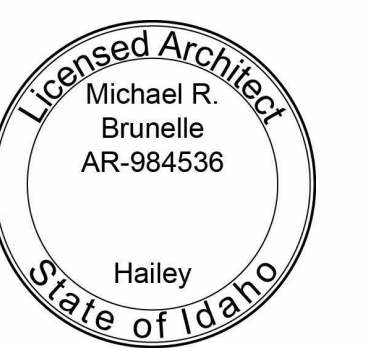
- APPROVED ALTERNATE MANUFACTURERS: ARMSTRONG, GRUNDFOS, TACO, WILO, PACO, PEERLESS, PATTERSON.
- PROVIDE UNIT WITH PREMIUM EFFICIENCY MOTOR WITH INTEGRAL VFD.
- PUMP SEALS SHALL BE COMPATIBLE WITH PROPYLENE GLYCOL.
- NOTE CONTROL BASED PRESSURE. DIFFERENTIAL (VARIABLE FLOW). PUMPS TO OPERATE IN PARALLEL. BOTH PUMPS SHALL START ON CALL FOR HEATING.
- SUPPORT PUMP FROM STRUCTURE.

**SNOW MELT MANIFOLD SCHEDULE**

ZONE #	AREA (ft2)	INSULATION Rv (°F x ft2 x hr/Btu)	HEAT LOAD (Btu/hr/ft2)	# OF LOOPS	TUBE TYPE & SIZE	TUBE SPACING (in)	SUPPLY WATER (°F)	DESIGN TEMP. DROP (°F)	SURFACE TEMP. (°F)	FLOW RATE (GPM)	HEAD LOSS (PSI)	REMARKS
SNOWMELT ZONE 1	810	10.0	130	7	hePEX 3/4"	9" O.C.	130	25	35	12.1	4.1	1, 2, 3, 4, 5

**REMARKS:**

- SNOW MELT CIRCUITS TO BE EQUAL LENGTHS OFF EACH MANIFOLD WITH A 300 FT MAXIMUM TUBE LENGTH. PROVIDE A BALL VALVE FOR EACH OF THE LOOPS. RADIANT FLOOR MANIFOLD DESIGN BASED ON UPONOR STAINLESS STEEL MANIFOLD WITH ISOLATION VALVES AND VISUAL FLOW GAUGES. ALTERNATES SHALL BE EQUAL IN QUALITY AND PERFORMANCE.
- PANEL TUBING TO BE WITHIN 4" OF PERIMETER.
- PROVIDE A 35% PROPYLENE GLYCOL 65% WATER SOLUTION.
- TUBING TO BE RATED FOR 180°F AT 100 PSI SERVICE.
- TUBING FOR SNOW MELT SYSTEM MUST BE LAID OUT IN A COUNTER FLOW PATTERN.



snow melt

SCALE: As indicated

**A-007**

DRAWN BY: Author