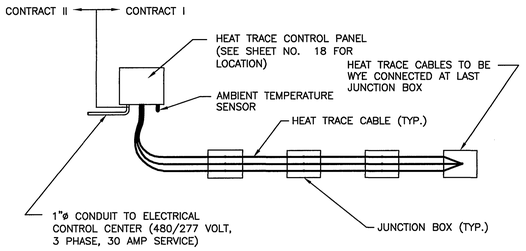


NOTES:

1. HEAT TRACE CABLE SHALL BE ONE CONDUCTOR; COPPER SHEATH MINERAL INSULATED (MI) HEATER CABLE WITH HIGH DENSITY POLYETHYLENE JACKET. EACH CABLE SHALL BE SUPPLIED WITH 7 FEET OF PVC JACKETED COLD LEAD ON EACH END. CABLE SHALL BE RATED 69 VOLT, 26.6 AMP, 1, 844 WATTS, GENERATING 7.1 WATTS PER FOOT OF HEATING CAPACITY, EACH PHASE. MI CABLE SHALL BE AS MANUFACTURED BY CHROMALOX, OR APPROVED EQUAL.

2. JUNCTION BOXES SHALL BE NEMA 4/8 ENCLOSURES CONNECTED TO PIPE MOUNTED BRACKETS. JUNCTION BOXES SHALL BE LOCATED TO CREATE FOUR APPROXIMATELY EQUAL SECTIONS OF HEAT TRACE CABLE BETWEEN EACH JUNCTION BOX. JUNCTION BOXES SHALL BE MODEL JB-4-4-BKT AS MANUFACTURED BY CHROMOLOX, OR APPROVED EQUAL.

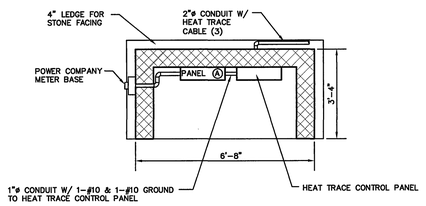
3. PIPE SHALL BE TRACED WITH THREE (3) HEAT TRACE CABLES SURFACE MOUNTED TO THE PIPE WITH STAINLESS STEEL PIPE BANDS LOCATED APPROXIMATELY EVERY 24". CABLES SHALL BE INSTALLED PARALLEL TO THE PIPE, EACH AT THE 10:00, 2:00 AND 5:00 POSITIONS. CABLES SHALL BE COVERED WITH 2" WIDE FOIL HEAT TRANSFER TAPE.

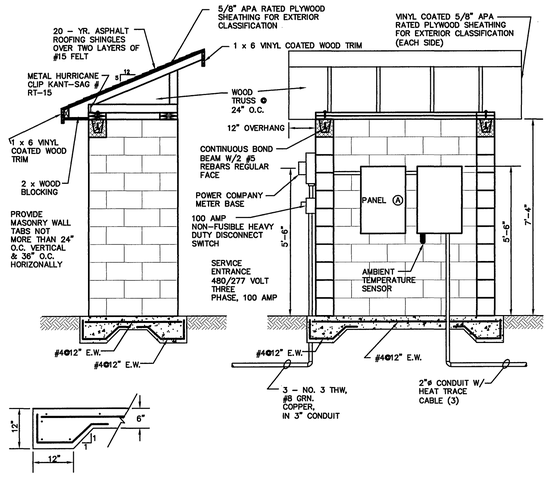
4. HEAT TRACE CONTROL PANEL SHALL BE A NEMA 4X ENCLOSURE INCLUDING TEMPERATURE CONTROL AMBIENT SENSOR, SINGLE THREE PHASE CIRCUIT WITH SSR POWER CONTROL AND 30AMP CONTACTOR FOR SHUTDOWN CAPABILITY, GROUND FAULT INTERRUPT FEATURE BREAKER TRIP, OUTPUT SWITCH PROTECTION, 11 CONTROL MODES INCLUDING AMBIENT PROPORTIONAL CONTROL, AND CSA NRTL/C. HEAT TRACE CONTROL PANEL SHALL BE MODEL 910*EIFNL*SSR2 AS MANUFACTURED BE CHROMALOX, OR APPROVED EQUAL.

5. THIS HEAT TRACE SYSTEM IS BASED ON A GENERAL LAYOUT FOR A CHROMALOX SURFACE MOUNTED MINERAL INSULATED CABLE HEAT TRACE SYSTEM. THE CHROMALOX SYSTEM WILL BE CONSIDERED THE BASE BID FOR THIS PROJECT. ANY CHANGES IN EQUIPMENT RESULTING FROM AN ALTERNATE SYSTEM MANUFACTURER SHALL BE MADE BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

HEAT TRACE SYSTEM SCHEMATIC

NOT TO SCALE





PANEL A, MAIN BREAKER TYPE, 480/277 VOLT, 3 PHASE 100 AMP CAPACITY

CIRCUIT NO.	CIRCUIT DESCRIPTION	EQUIP. ID #	POLES A B C	VOLTS	HP OR LOAD	FULL LOAD CURRENT	BREAKER SIZE	WIRE SIZE	GRND. WIRE SIZE	CONDUIT SIZE
A-1	HEAT TRACE	N/A	1 1 1	480	22.1 KW	26.6	30	10	10	1"
A-2	TRANSFORMER	N/A	1 1	480	5 KW	10.4	20	12	12	3/4"

LOCATION: ELECTRICAL CONTROL CENTER
MOUNTING: SURFACE
SERVICE: 480/277 VOLTS 3 PHASE
MAINS: 100 AMP WITH 100 AMP MAIN BREAKER
TYPE: SQUARE D TYPE NF- BOLT ON, NEMA 1 ENCLOSURE, 12 BREAKER SPACES OR APPROVED EQUAL
TRANSFORMER: 5KVA SINGLE PHASE - 240/480 VOLT PRIMARY, 120/240 VOLT SECONDARY, 60 HZ, GENERAL PURPOSE TRANSFORMER EQUAL TO SQUARE D MODEL 5S1F

PANEL B MAIN BREAKER TYPE, 120/240 VOLT, 1 PH., 100 AMP CAPACITY

CIRCUIT NO.	CIRCUIT DESCRIPTION	EQUIP. ID #	POLES A B	VOLTS	HP OR LOAD	FULL LOAD CURRENT	BREAKER SIZE	WIRE SIZE	GRND. WIRE SIZE	CONDUIT SIZE
B-1	HEATER	N/A	1 1	120	1.5 KW	12.50	20	12	12	3/4"
B-2	FAN AND LOUVER	N/A	1	120	1/5 HP	1.50	20	12	12	3/4"
B-3	LIGHTS & CONVENIENCE OUTLETS	N/A	1	120	1 KW	8.33	20	12	12	3/4"
B-4	SPARE	N/A	1	120	0.00 W	0.0	20	12	12	3/4"

LOCATION: ELECTRICAL CONTROL CENTER
MOUNTING: SURFACE
TYPE: SQUARE D TYPE NQOD-BOLT ON NEMA 1 ENCLOSURE, 12 BREAKER SPACES OR APPROVED EQUAL

COMMONWEALTH OF VIRGINIA
GREGORY H. HURST
No. 031700
12/2/06
PROFESSIONAL ENGINEER

Thompson +Litton
Engineers
Architects
Planners

STATE ROUTE 122/BURNT CHIMNEY/SMITH MOUNTAIN LAKE
WATER DISTRIBUTION SYSTEM PROJECT
PHASE I
FOR THE
FRANKLIN COUNTY BOARD OF SUPERVISORS

HEAT TRACE BUILDING - MECHANICAL/ELECTRICAL

No.	Date	Revision
	07/31/03	REVIEW DOCUMENTS ISSUED
	01/22/04	BID DOCUMENTS ISSUED
	04/26/04	BID DOCUMENTS ISSUED
	05/24/04	ADDENDUM NO.2
A	08/02/04	CONSTRUCTION DOCUMENTS ISSUED
	12/02/05	RECORD DOCUMENTS ISSUED

Designed:
Drawn:
Checked:
Date: JULY, 2003

Project No.
7363-03

Sheet No.
20