

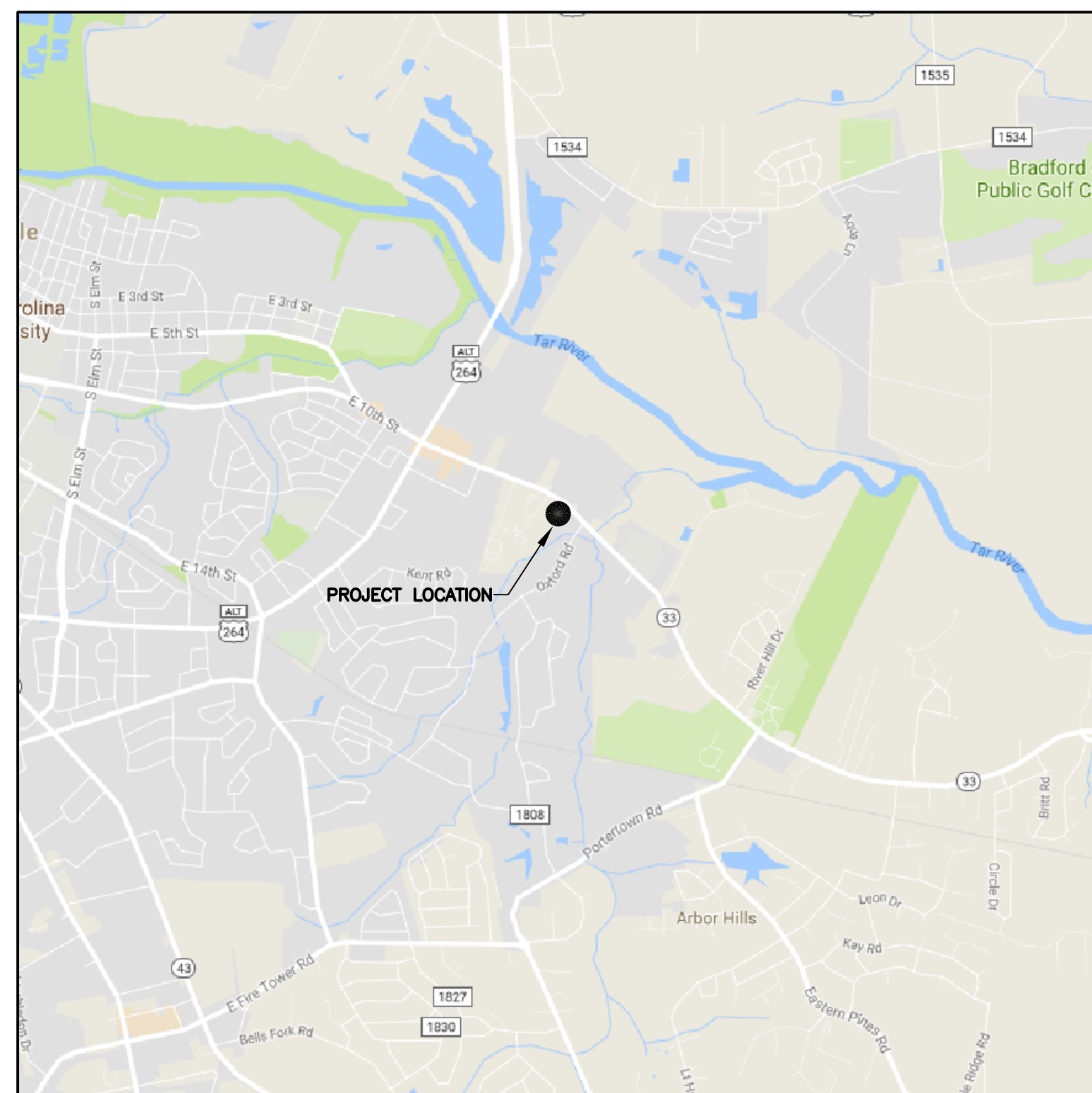
# Greenville Utilities

## PROPOSED HEATER INSTALLATION CITY GATE #4 GREENVILLE, NORTH CAROLINA

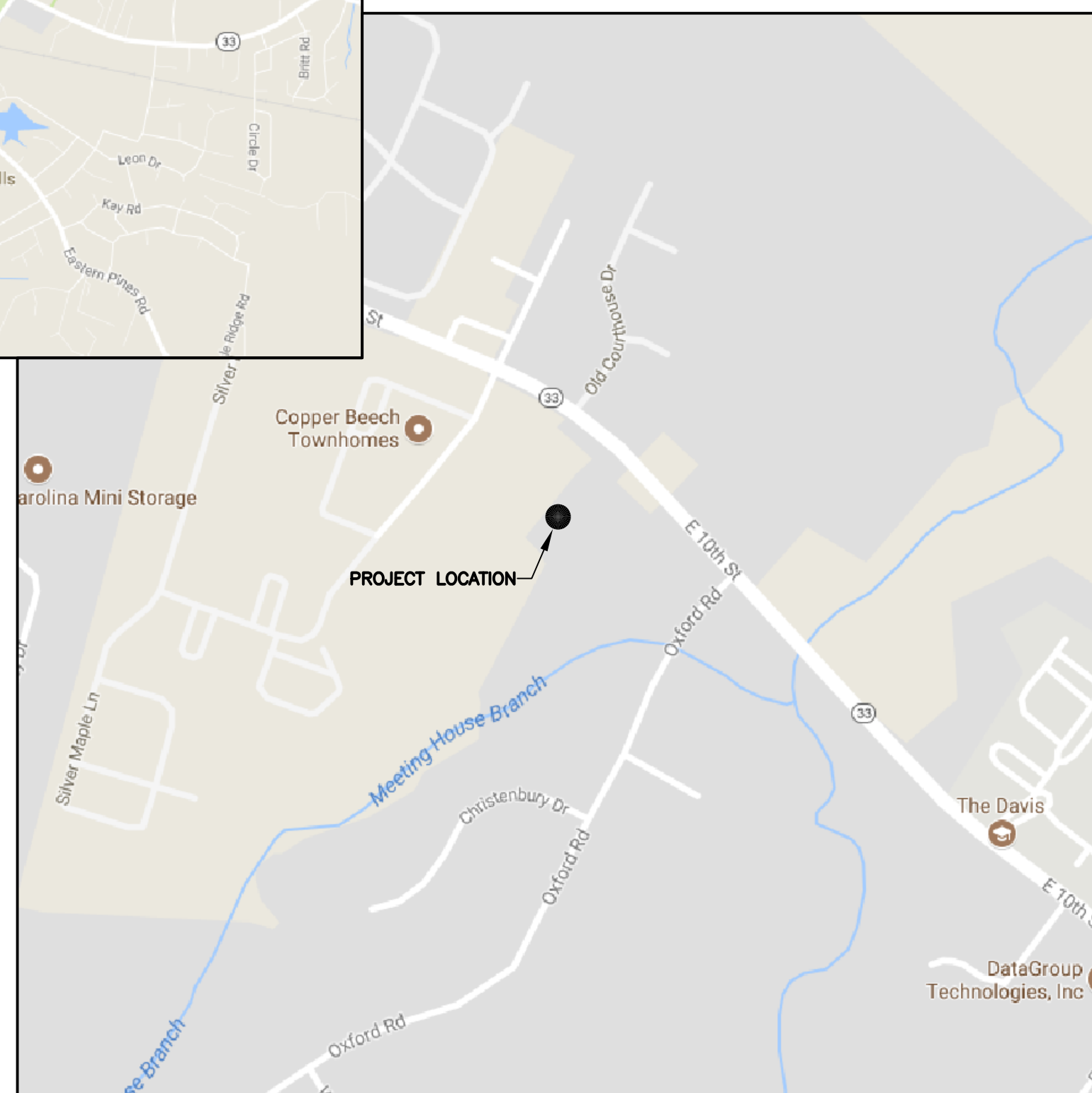
November 2017

### SHEET INDEX

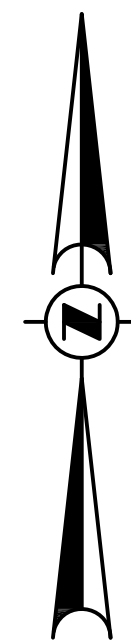
SHEET DESCRIPTION	SHEET NUMBER
COVER SHEET	-
SITE EXISTING CONDITIONS	1 OF 8
EXISTING SITE CONDITIONS AND DEMOLITION PLAN	2 OF 8
DEMOLITION DETAILS	3 OF 8
PROPOSED HEATER AND VALVE INSTALLATION PLAN	4 OF 8
ELECTRICAL BELOW GRADE CONDUIT PLAN	5 OF 8
PROPOSED HEATER AND VALVE INSTALLATION DETAILS	6 OF 8
PROPOSED VALVE INSTALLATION AND REGULATOR RUN RELOCATION DETAILS	7 OF 8
PIPE STAND AND HEATER FOUNDATION DETAILS	8 OF 8



KEY PLAN  
NOT TO SCALE



LOCATION MAP  
NOT TO SCALE



### PIPING BILL OF MATERIALS

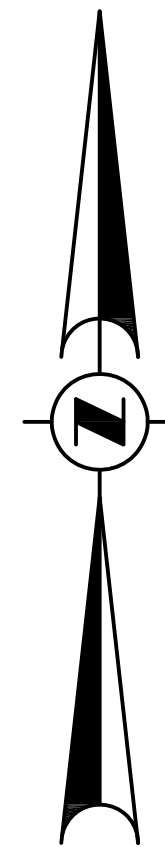
ITEM NO.	QUANTITY	SIZE	DESCRIPTION
1	104	7/8"x5 3/4"	STUD BOLT, GRADE B-7, (ASTM-A193), W/2 GRADE 2-H HEX NUTS (ASTM-A194) (4" ANSI 600, (8) BOLTS PER CONNECTION)
2	48	1"x6 3/4"	STUD BOLT, GRADE B-7, (ASTM-A193), W/2 GRADE 2-H HEX NUTS (ASTM-A194) (6" ANSI 600, (12) BOLTS PER CONNECTION)
3	13	4"	GASKET, ANSI 600, SPIRAL WOUND, FLEXITALLIC
4	4	6"	GASKET, ANSI 600, SPIRAL WOUND, FLEXITALLIC
5	4	4"-5"x1"	THREDOLET, FOR 4" THRU 5" PIPE, 3000#
6	2	6"-10"x1"	THREDOLET, FOR 6" THRU 10" PIPE, 3000#
7	6	1"x3"	NIPPLE, PIPE, STEEL, GRADE B, SMLS, CS, TBE
8	5	1"	PLUG, FORGED STEEL, HEX HEAD, SCREWED, 3000#
9	1	1"	COUPLING, FORGED STEEL, SCREWED, 3000#
9A	1	AS REQ'D	HEX BUSHING - SIZE AS REQUIRED TO ACCOMMODATE THERMOWELL AS PROVIDED BY HEATER MANUFACTURER
10	2	4"	ELL, WELD END, 90 DEG., LONG RADIUS, GRADE B, WT=0.237"
11	1	4"	CAP, WELD END, GRADE B, WT=0.237"
12	2	6"	CAP, WELD END, GRADE B, WT=0.280"
13	4	4"x4"	TEE, WELD END, STRAIGHT, GRADE B, WT=0.237"x0.237"
14	3	6"x6"	TEE, WELD END, STRAIGHT, GRADE B, WT=0.280"x0.280"
15	11	4"	FLANGE, WELD NECK, RF, ANSI 600, FORGED ST, WT=0.237", BORE=4.02"
16	2	6"	FLANGE, WELD NECK, RF, ANSI 600, FORGED ST, WT=0.280", BORE=6.065"
17	5	1"	BALL VALVE, SWAGelok SERIES 60, THREADED FEMALE ENDS, CLASS 3000
18	5	4"	VALVE, BALL, CAMERON, T-31 FULLY WELDED BALL VALVE, R.F. FLANGED ENDS, ANSI 600, LEVER OPERATED
19	2	6"	VALVE, BALL, CAMERON, T-31 FULLY WELDED BALL VALVE, R.F. FLANGED ENDS, ANSI 600, GEAR OPERATED
20	1	-	HEATER
21	40 LF	4"	PIPE, WT=0.237", GRADE B, BARE, CS, ERW, BE, SPEC API-5L
22	20 LF	6"	PIPE, WT=0.280", GRADE B, BARE, CS, ERW, BE, SPEC API-5L
23	4"	4"	PIPE SUPPORT, EZ-LINE, MODEL NO. 204, FIGURE E, W/ NEOPRENE LINER, PART NO. 204-E, 4" P.S., D= 2'-11" (SEE NOTE)
24	8	1/2"x5"	BOLT, HILTI HIT-RE-100 INJECTABLE ADHESIVE WITH CARBON STEEL THREADED ROD
25	4	1"x5"	BOLT, HILTI HIT-RE-100 INJECTABLE ADHESIVE WITH CARBON STEEL THREADED ROD
-	-	-	-
-	-	-	-

NOTE:  
CONTRACTOR TO VERIFY HEIGHT OF EXISTING PIPING PRIOR TO CONSTRUCTION. VERIFICATION OF PIPING HEIGHT SHALL GOVERN THE HEIGHT OF HEATER FOUNDATIONS AND PIPE STANDS

For Review and Comment



RUMMEL • KLEPPER and KAHL, LLP  
ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS  
RICHMOND, VIRGINIA



**EXISTING SITE CONDITIONS**

SCALE: 1" = 5'-0"

For Review and Comment

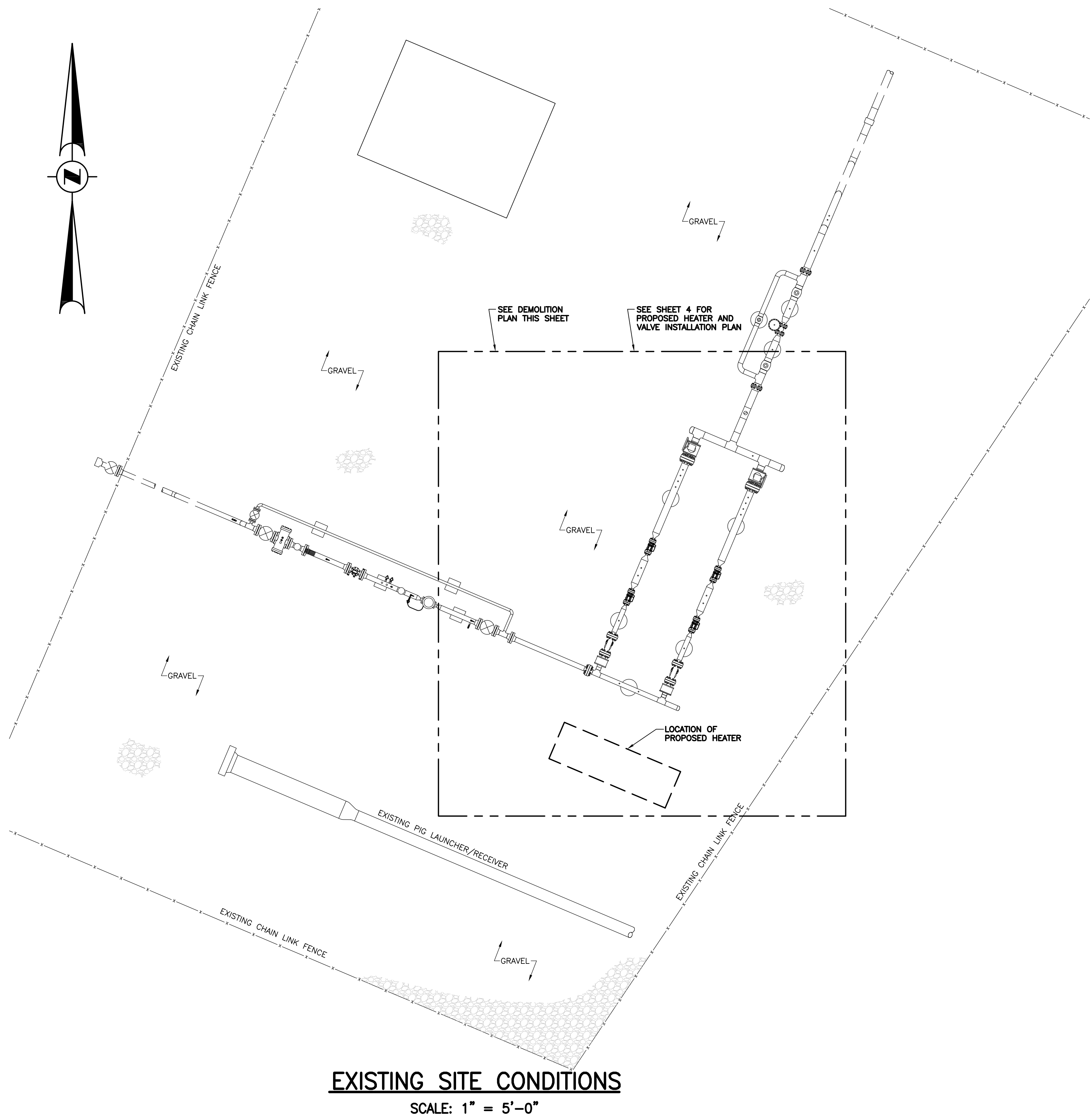
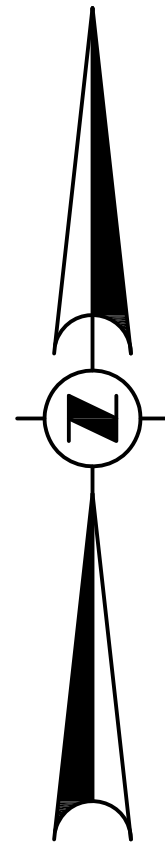
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				INITIALS	DATE	INITIALS	DATE	INITIALS	DATE			
											ALIGNMENT SHEET	
		REVISIONS									SCALE PLAN 1"=8'-0" PROFILE HOR. - VERT. -	
		REV.	DESIGN	DRAFT	CHECK	DATE	DESCRIPTION					
											SHEET NO: 1	
					TEST DATA						R&K COMM. NO. 1216-087.003	
					TESTED FROM STATION: _____ TO STATION: _____ MEDIUM: _____ RECORD TEST PRESSURE: _____ psig DATE TEST COMPLETED: _____							



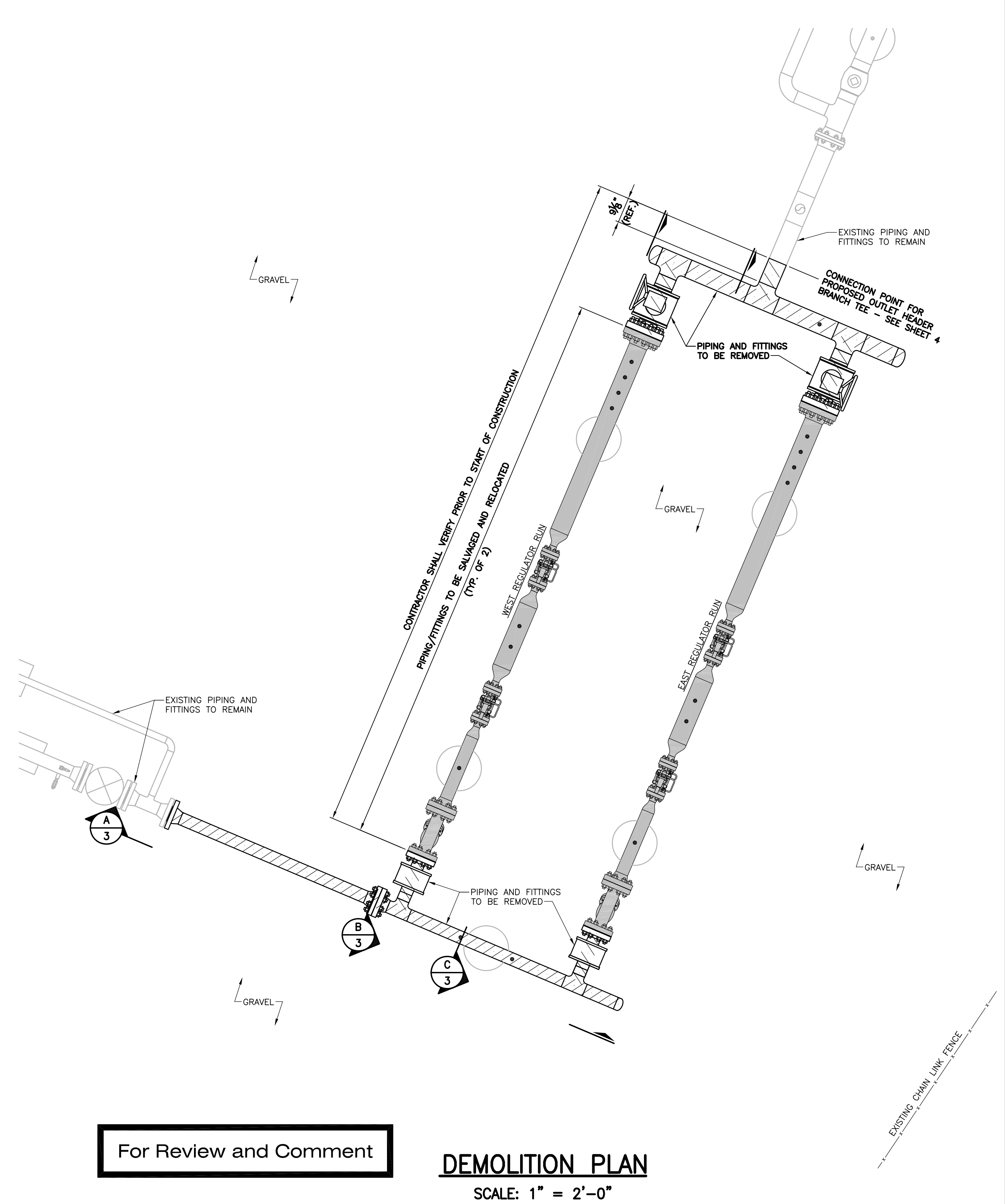
SITE EXISTING CONDITIONS

**SHEET NO: 1**

REVISION:



**EXISTING SITE CONDITIONS**  
SCALE: 1" = 5'-0"



For Review and Comment

**DEMOLITION PLAN**  
SCALE: 1" = 2'-0"

SUMMARY OF MATERIALS	
QUANTITY	DESCRIPTION

NOTES				
REVISIONS				
REV.	DESIGN	DRAFT	CHECK	DATE
DESCRIPTION				DATE

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K					
ENGINEERING - RK&K					
TEST DATA					
TESTED FROM STATION: _____ TO STATION: _____					
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
DATE TEST COMPLETED: _____					

PROJECT	
PROPOSED HEATER INSTALLATION CITY GATE #4 GREENVILLE, NORTH CAROLINA	
ALIGNMENT SHEET	
SCALE PLAN AS SHOWN PROFILE	
HOR. _____ VERT. _____	

# Greenville Utilities

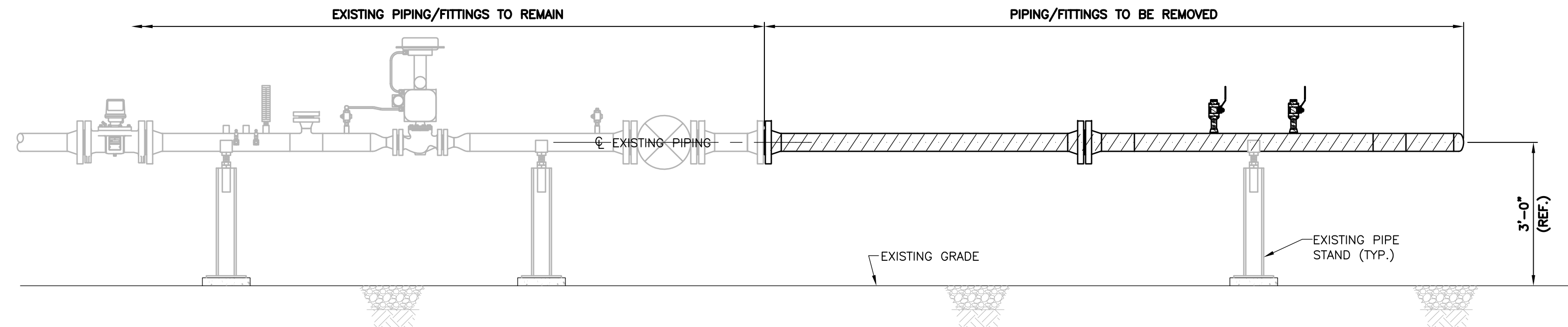
City of Greenville, NC

SHEET DESCRIPTION

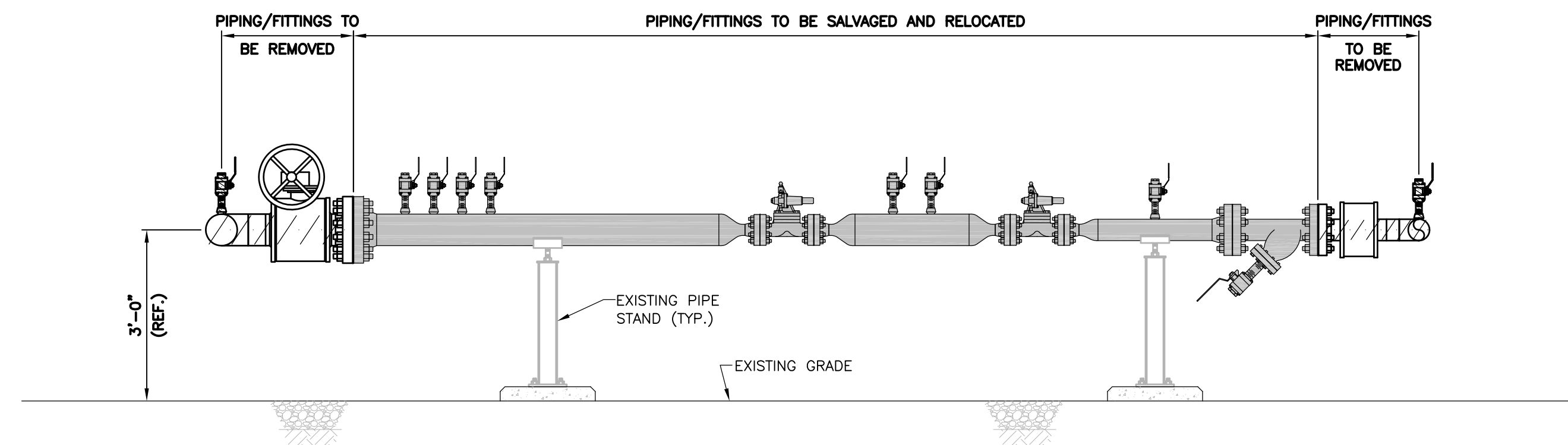
EXISTING SITE CONDITIONS  
AND DEMOLITION PLAN

SHEET NO: 2

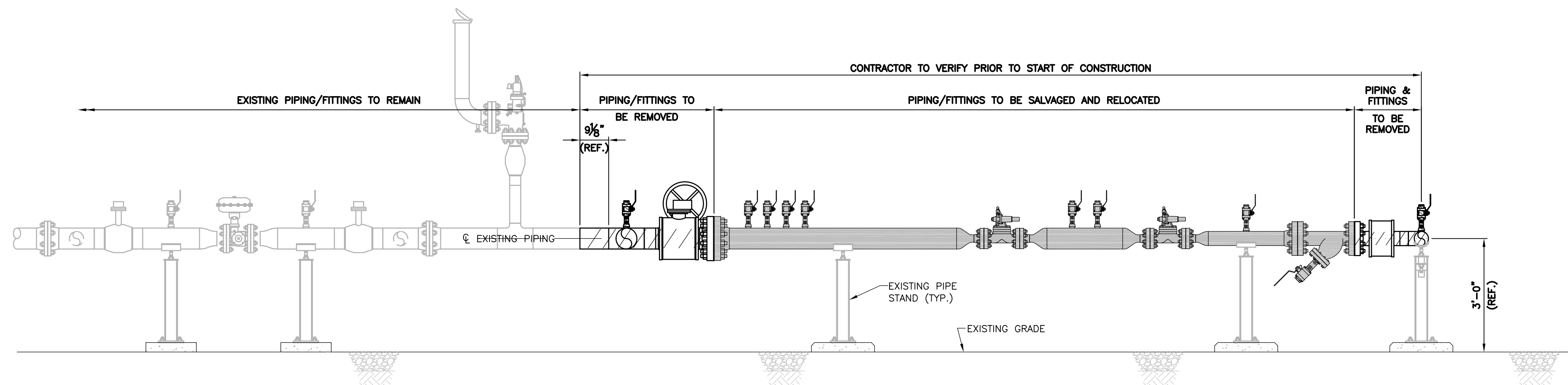
REVISION:



**INLET HEADER  
SECTION A-A**



**WEST REGULATOR RUN  
SECTION B-B**



**EAST REGULATOR RUN  
SECTION C-C**

For Review and Comment

SUMMARY OF MATERIALS		NOTES			APPROVAL						PROJECT	
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												DEMOLITION DETAILS
												SHEET NO: 3
												REVISION:

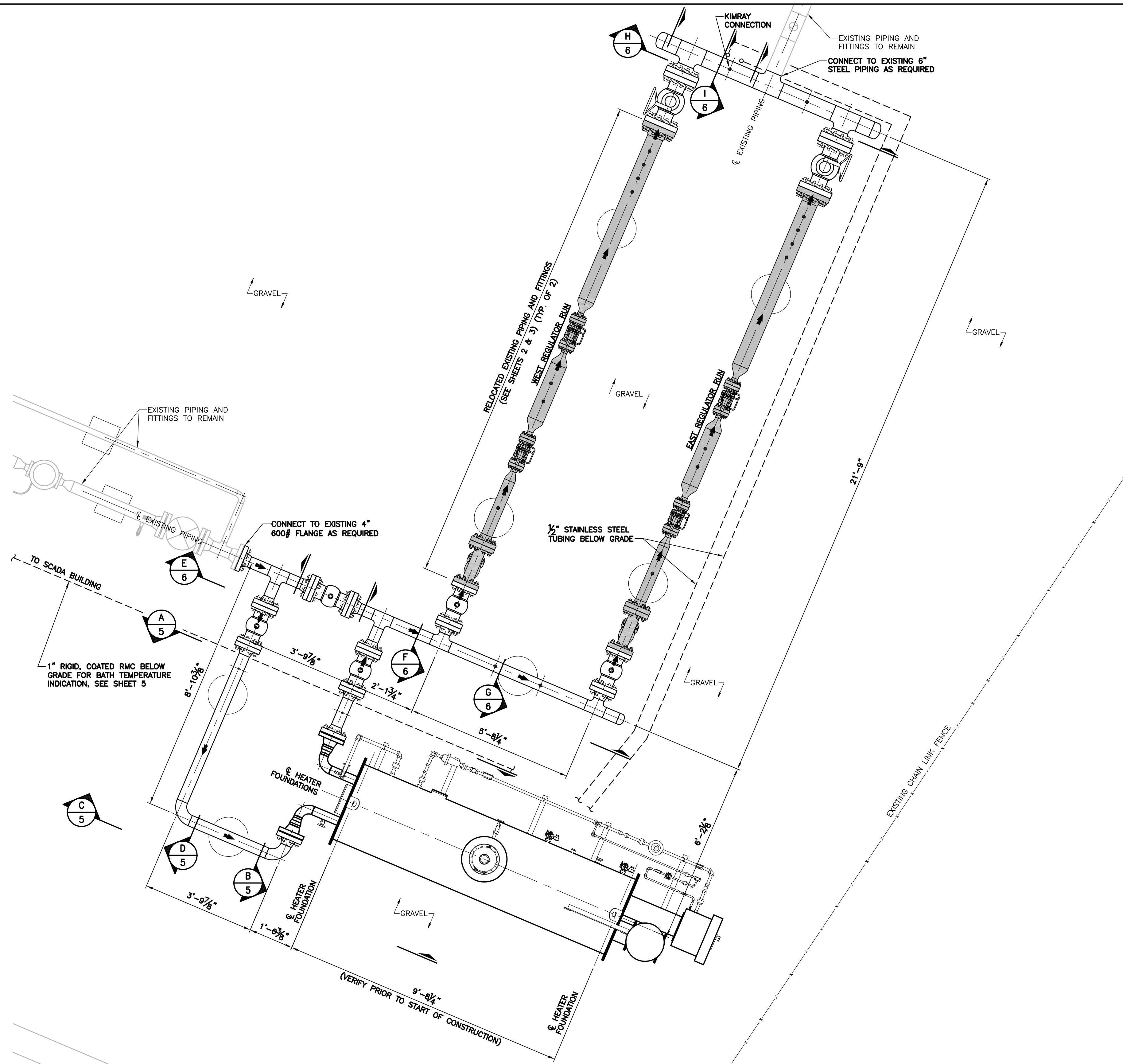
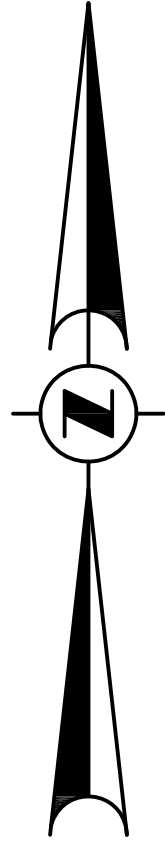


**RK&K** RUMMEL, KLEPPER & KAHN, LLP  
 100 S. CHASE STREET, SUITE 300  
 RICHMOND, VIRGINIA 23220  
 T-804.782.1103 F-804.782.2142

SCALE  
 PLAN 1"=2'-0"  
 PROFILE  
 HOR. -  
 VERT. -

TEST DATA  
 TESTED FROM STATION: \_\_\_\_\_ TO STATION: \_\_\_\_\_  
 MEDIUM: \_\_\_\_\_ RECORD TEST PRESSURE: \_\_\_\_\_ psig  
 DATE TEST COMPLETED: \_\_\_\_\_

RK&K COMM. NO. 1216-087.003



**For Review and Comment**

SUMMARY OF MATERIALS	
QUANTITY	DESCRIPTION

NOTES				
REVISIONS				
REV.	DESIGN	DRAFT	CHECK	DATE

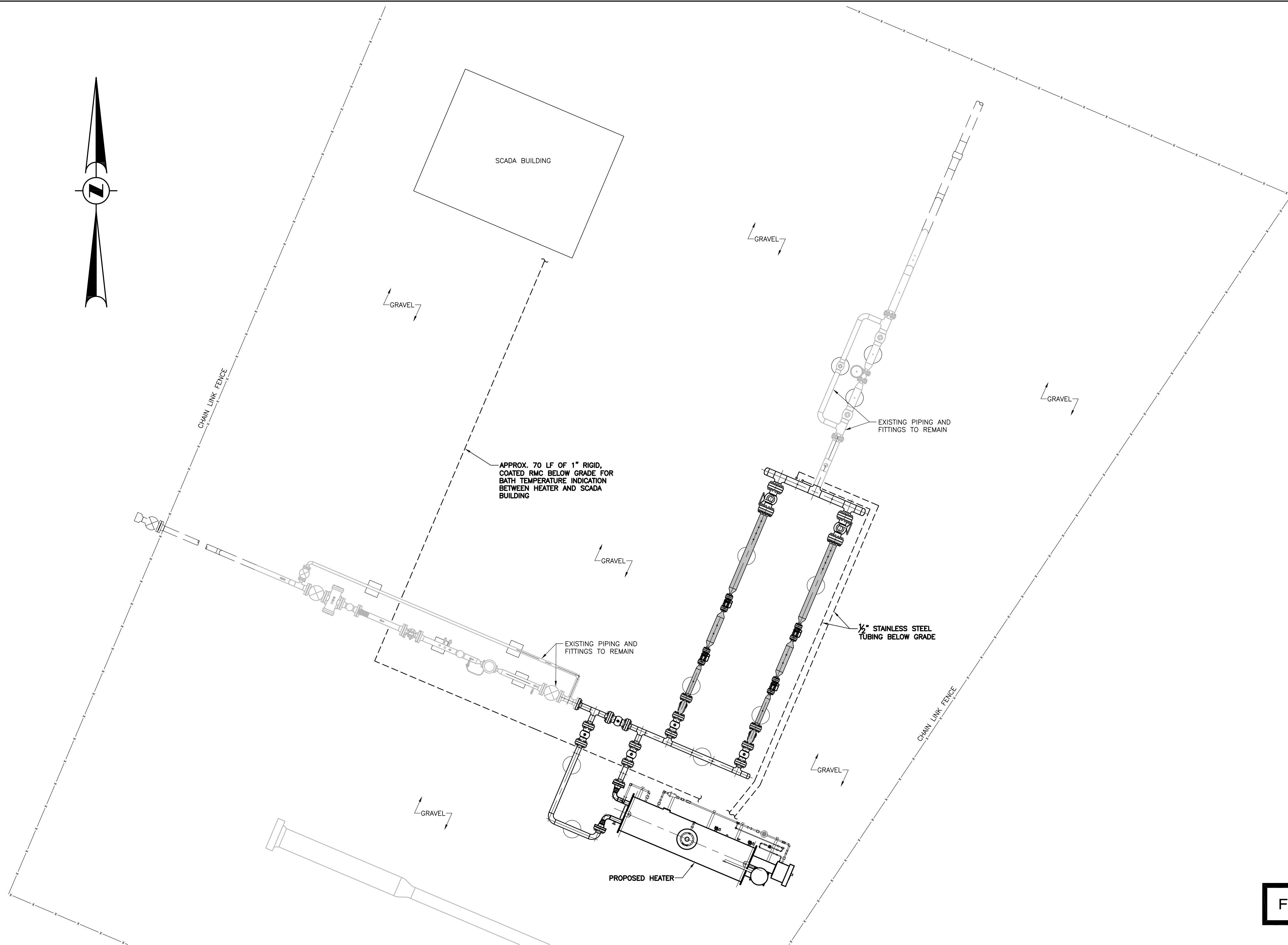
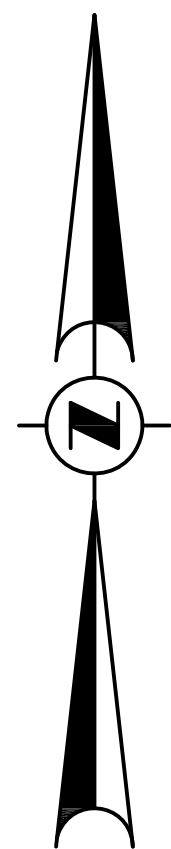
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PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAFTING & DESIGN - RK&K		-	-	AAL	11/21/17
ENGINEERING - RK&K		-	-	CJV	11/21/17

TEST DATA			
TESTED FROM STATION:		TO STATION:	
MEDIUM:		RECORD TEST PRESSURE:	psig
DATE TEST COMPLETED:			

PROJECT	
PROPOSED HEATER INSTALLATION CITY GATE #4 GREENVILLE, NORTH CAROLINA	
ALIGNMENT SHEET	
 2101 E. CAMP STREET, SUITE 300 RICHMOND, VIRGINIA 23223 T-804-782-1103 F-804-782-2142	
SCALE PLAN 1"=2'-0" PROFILE	
HOR. - VERT. -	

 <b>Greenville Utilities</b> City of Greenville, NC	
SHEET DESCRIPTION	
PROPOSED HEATER AND VALVE INSTALLATION PLAN	
SHEET NO: 4	REVISION:



For Review and Comment

SUMMARY OF MATERIALS	
QUANTITY	DESCRIPTION

NOTES				
REVISIONS				
REV.	DESIGN	DRAFT	CHECK	DATE

APPROVAL					
PERMITS		BID		CONSTRUCTION	
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
SURVEY					
C.P.					
DRAWING & DESIGN - RK&K					
ENGINEERING - RK&K					
TEST DATA					
TESTED FROM STATION: _____ TO STATION: _____					
MEDIUM: _____ RECORD TEST PRESSURE: _____ psig					
DATE TEST COMPLETED: _____					

PROJECT	
PROPOSED HEATER INSTALLATION CITY GATE #4 GREENVILLE, NORTH CAROLINA	
ALIGNMENT SHEET	
<small>           RUMMEL, KLEPPER &amp; KAHN, LLP            100 E. CHASE STREET, SUITE 300            RICHMOND, VIRGINIA 23223            T-804-782-1900 F-804-782-2142         </small>	
<small>           ENGINEERS   CONSTRUCTION MANAGERS   PLANNERS   SCIENTISTS         </small>	
<small>           COMM. NO. 1216-087.003         </small>	

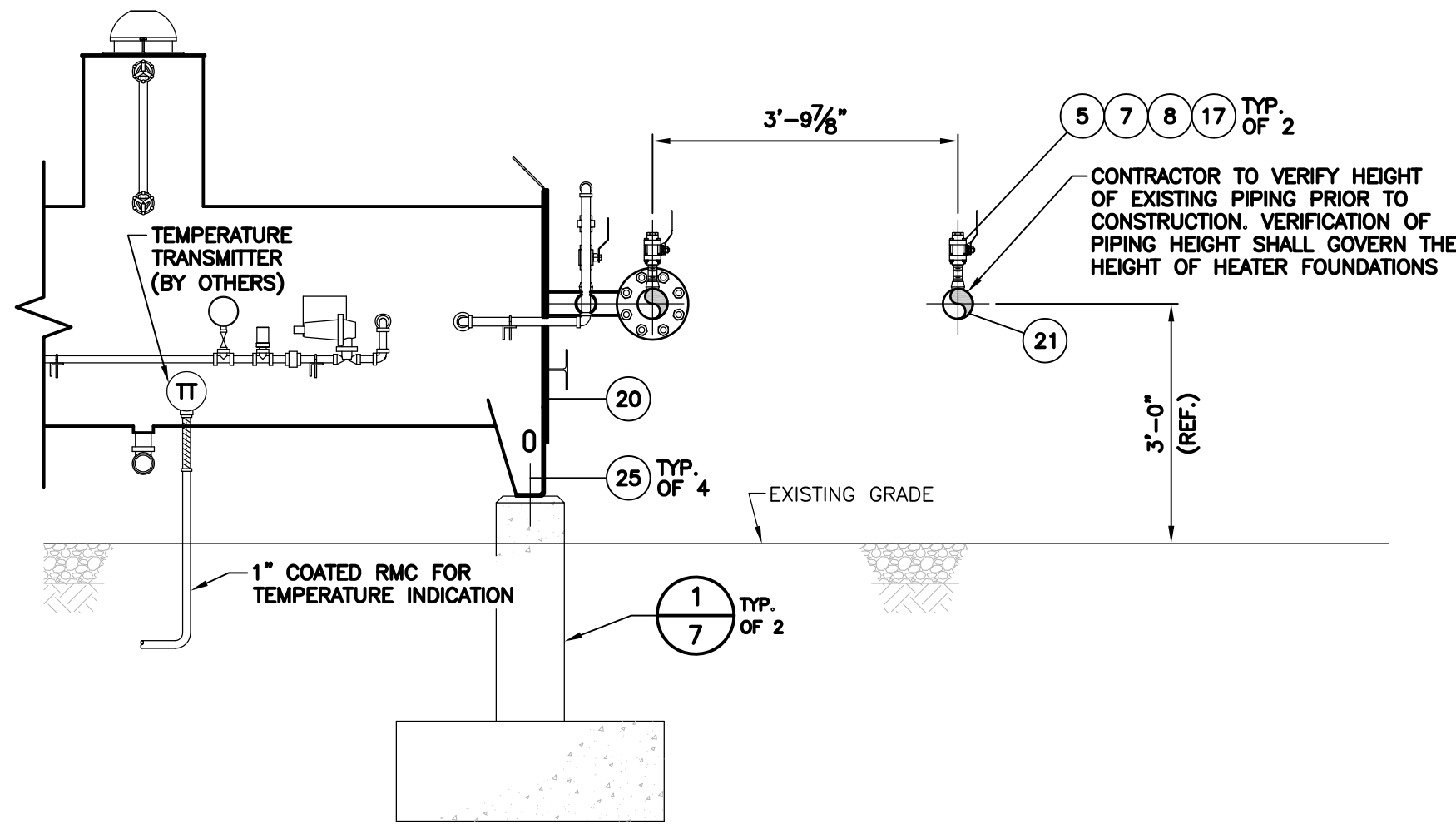
**Greenville Utilities**  
City of Greenville, NC

SHEET DESCRIPTION

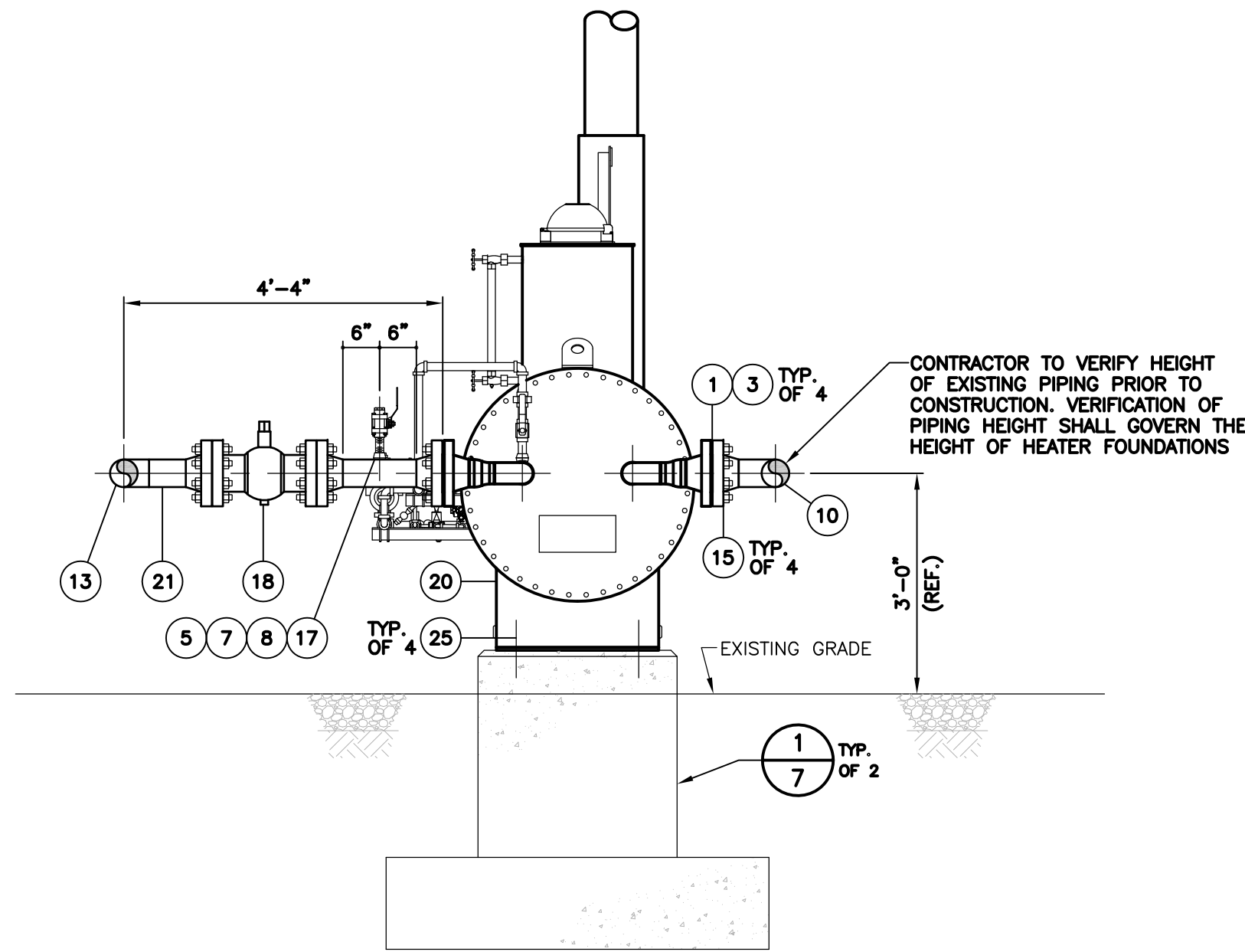
ELECTRICAL BELOW GRADE  
CONDUIT PLAN

**SHEET NO: 5**

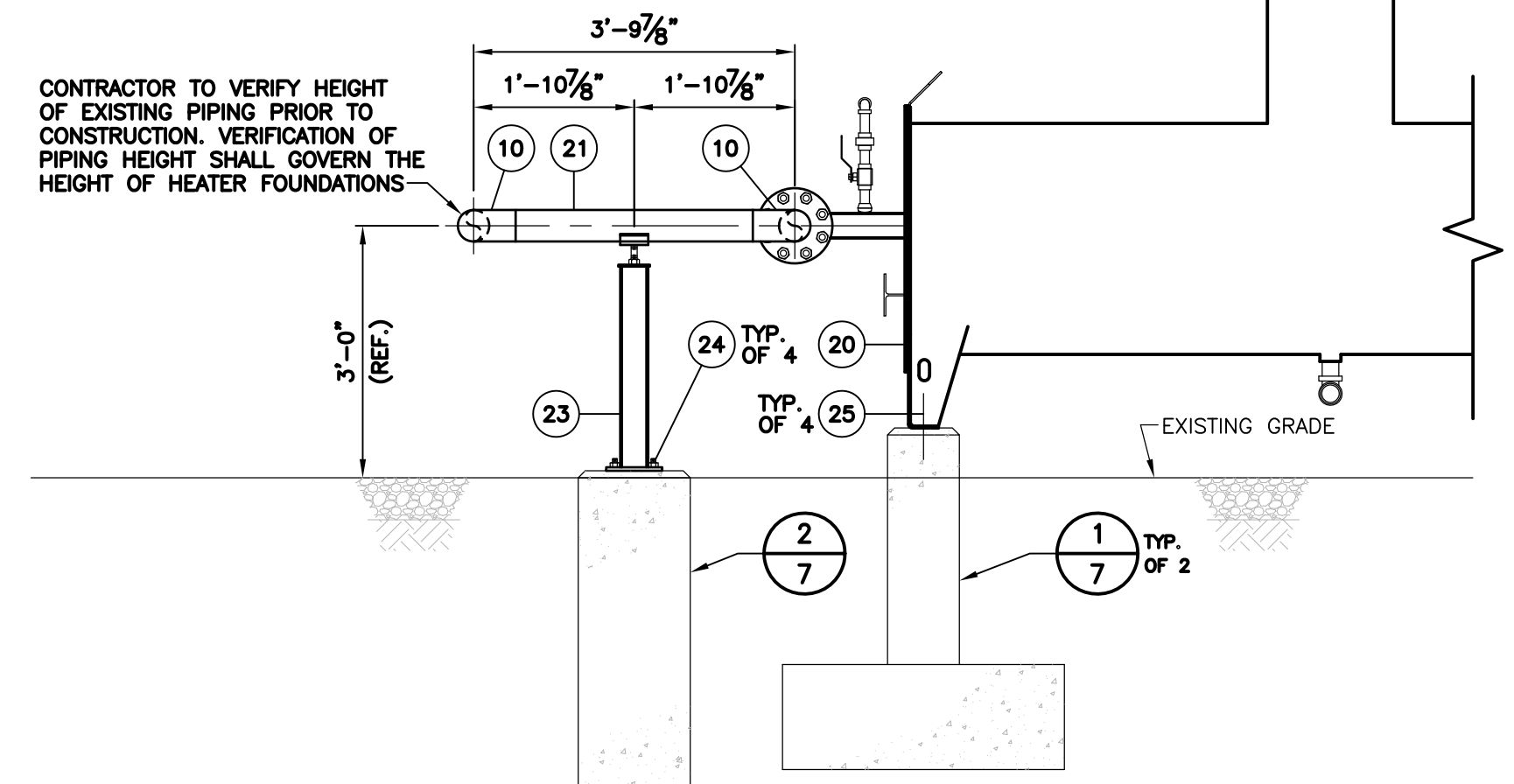
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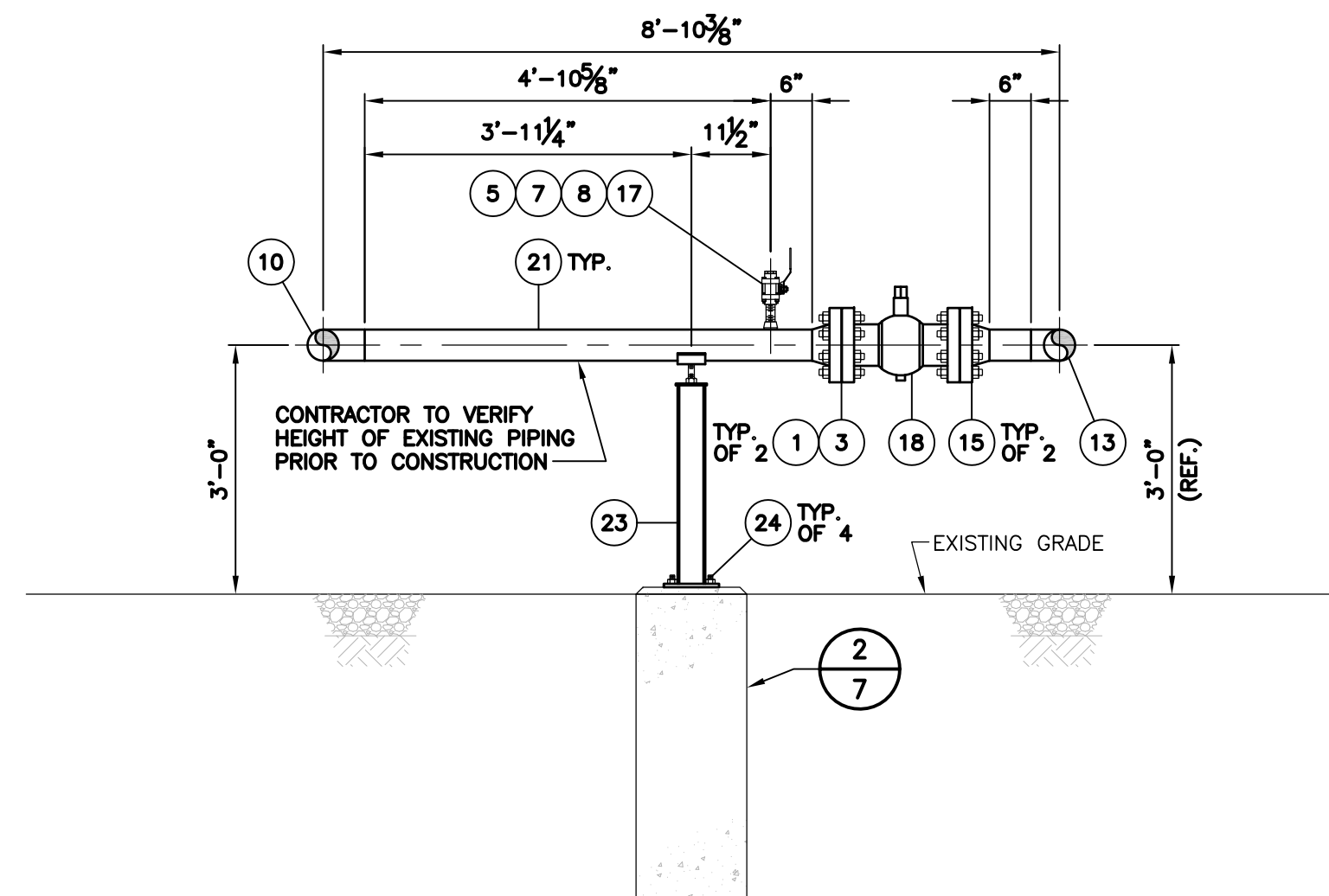
**HEATER OUTLET  
SECTION A-A**



**HEATER OUTLET VALVE  
SECTION B-B**



**HEATER INLET  
SECTION C-C**



**HEATER INLET VALVE  
SECTION D-D**

CONTRACTOR TO VERIFY HEIGHT OF EXISTING PIPING PRIOR TO CONSTRUCTION. VERIFICATION OF PIPING HEIGHT SHALL GOVERN THE HEIGHT OF HEATER FOUNDATIONS

CONTRACTOR TO VERIFY HEIGHT OF EXISTING PIPING PRIOR TO CONSTRUCTION. VERIFICATION OF PIPING HEIGHT SHALL GOVERN THE HEIGHT OF HEATER FOUNDATIONS

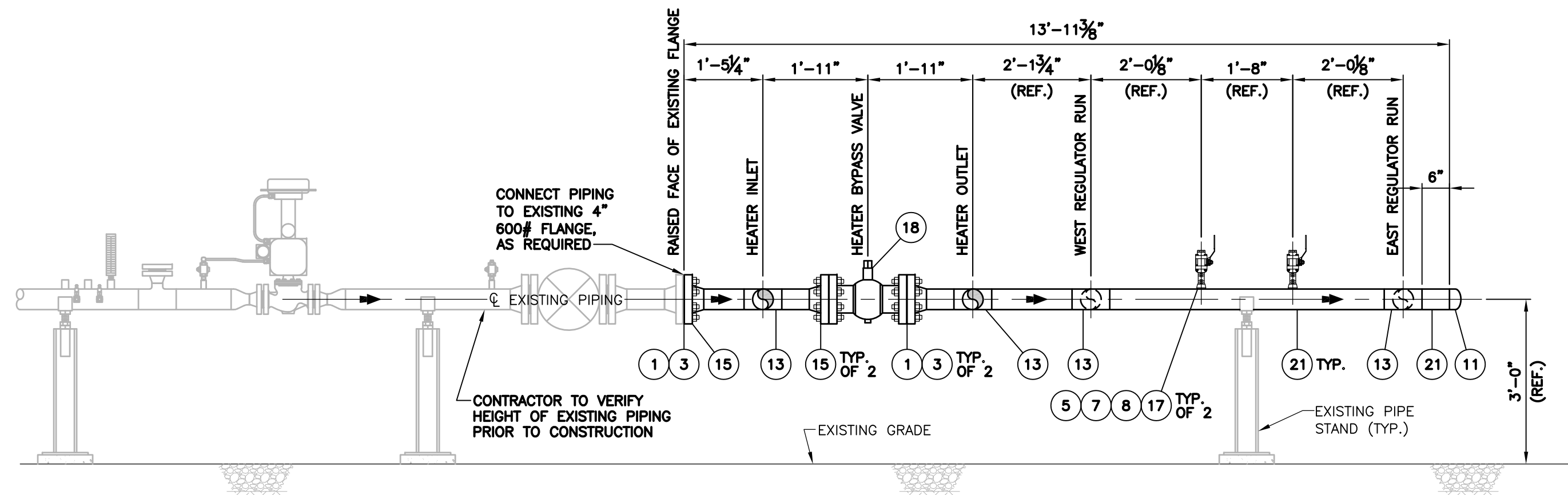
CONTRACTOR TO VERIFY HEIGHT OF EXISTING PIPING PRIOR TO CONSTRUCTION

For Review and Comment

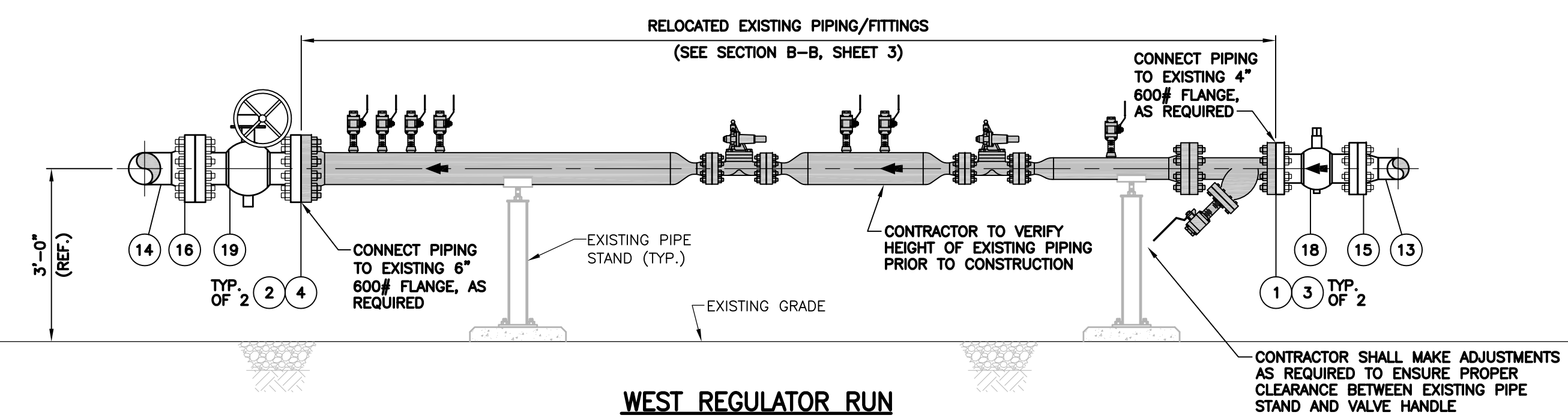
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			PERMITS INITIALS	PERMITS DATE	BID INITIALS	BID DATE	CONSTRUCTION INITIALS	CONSTRUCTION DATE	PROPOSED HEATER INSTALLATION CITY GATE #4 GREENVILLE, NORTH CAROLINA	
		REVISIONS	TEST DATA						<b>RK&amp;K</b> <small>RUMMEL, KLEPPER &amp; KAHN, LLP              1101 E. CAMP STREET, SUITE 300              RICHMOND, VIRGINIA 23222              T-804-352-1100 F-804-782-2142</small>	SCALE PLAN 1"=2'-0" PROFILE HOR. - VERT. -
REV.	DESIGN	DRAFT	CHECK	DATE	TESTED FROM STATION: _____ TO STATION: _____		SHEET NO: 6			
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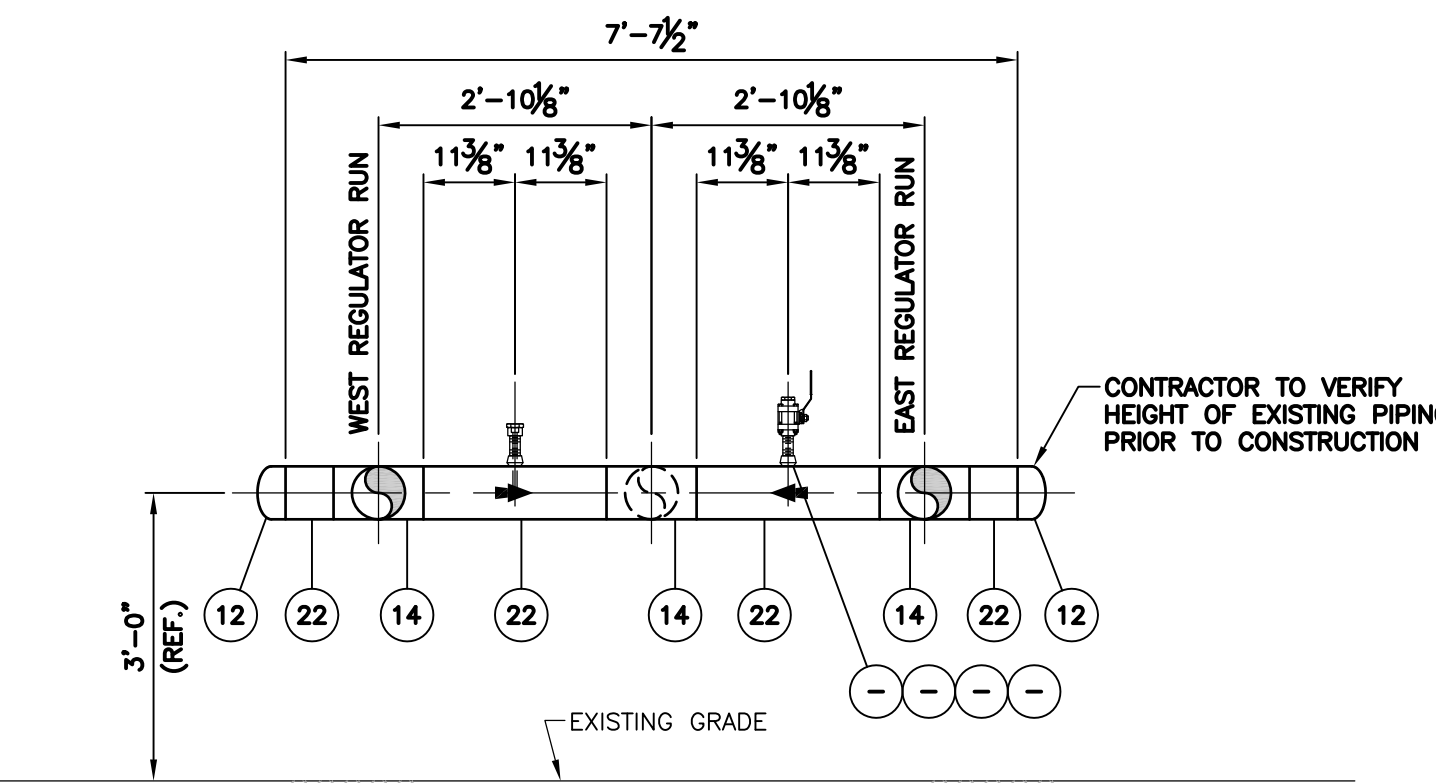
**PROPOSED HEATER AND VALVE  
INSTALLATION DETAILS**



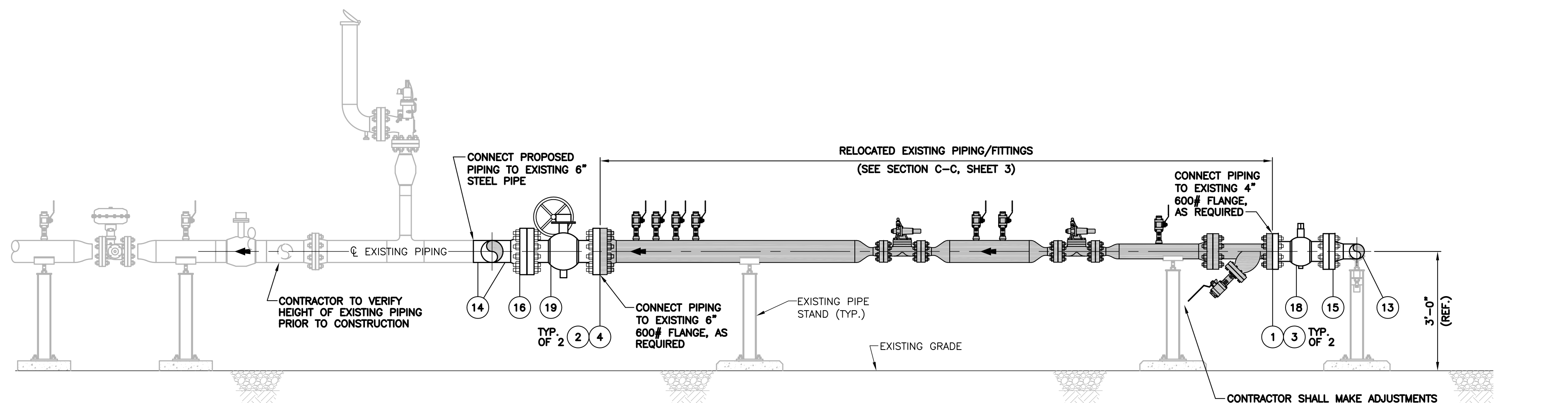
HEATER BYPASS VALVE/INLET HEADER  
**SECTION E-E**



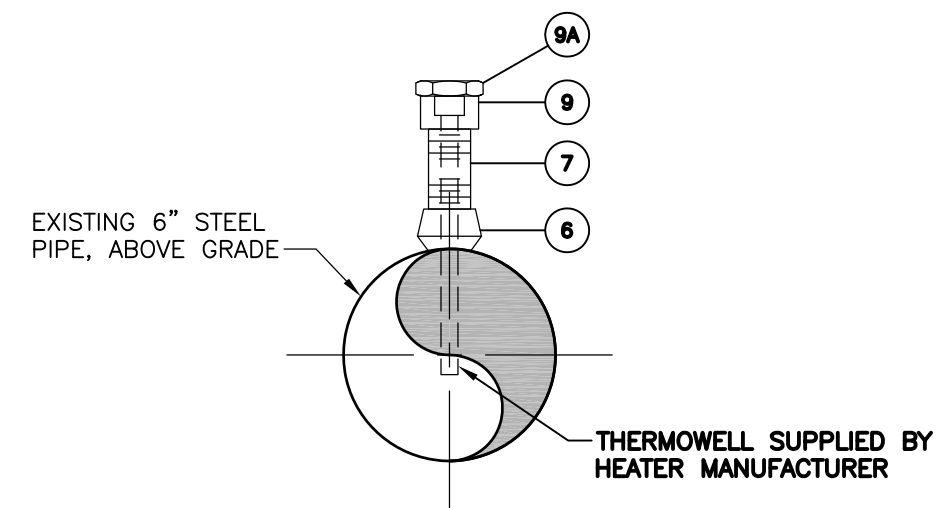
WEST REGULATOR RUN  
**SECTION F-F**



OUTLET HEADER  
**SECTION H-H**



EAST REGULATOR RUN  
**SECTION G-G**



KIMRAY CONNECTION  
**SECTION I-I**

For Review and Comment

SUMMARY OF MATERIALS

QUANTITY	DESCRIPTION

NOTES

REVISIONS

REV.	DESIGN	DRAFT	CHECK	DESCRIPTION	DATE

APPROVAL

SURVEY	PERMITS		BID		CONSTRUCTION	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
C.P.						
DRAFTING & DESIGN - RK&K			AAL	11/21/17		
ENGINEERING - RK&K			CJV	11/21/17		

PROJECT

PROPOSED HEATER INSTALLATION  
CITY GATE #4  
GREENVILLE, NORTH CAROLINA

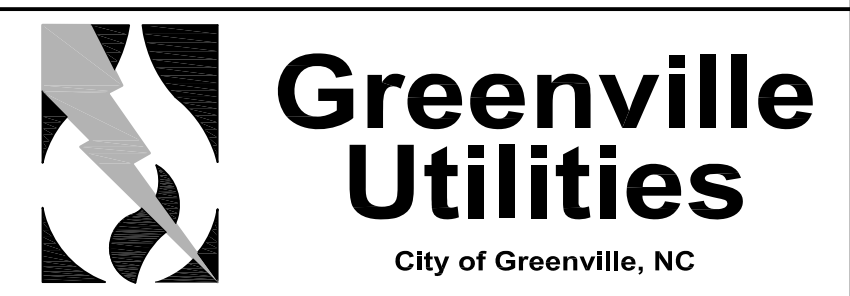
ALIGNMENT SHEET

**RK&K** RAMMEL, KLEPPER & KIM, LLP  
100 E. CAMP STREET, SUITE 300  
RICHMOND, VIRGINIA 23221  
T-804-782-1103 F-804-782-2142

ENGINEERS | CONSTRUCTION MANAGERS | PLANNERS | SCIENTISTS

SCALE  
PLAN 1"=2'-0"  
PROFILE  
HOR. -  
VERT. -

RK&K COMM. NO. 1216-087.003



SHEET DESCRIPTION  
PROPOSED VALVE INSTALLATION AND  
REGULATOR RUN RELOCATION DETAILS

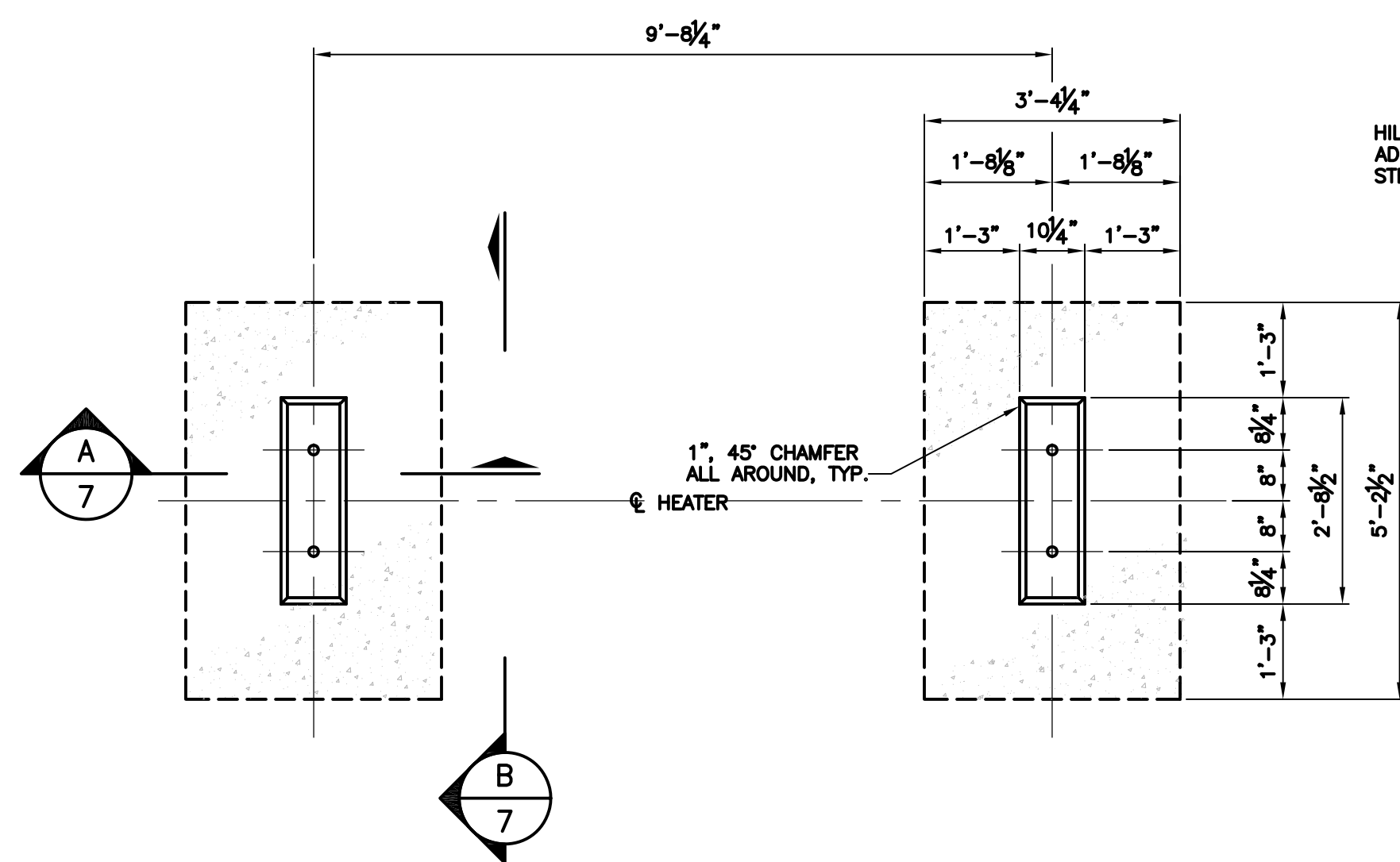
**SHEET NO: 7**

REVISION:

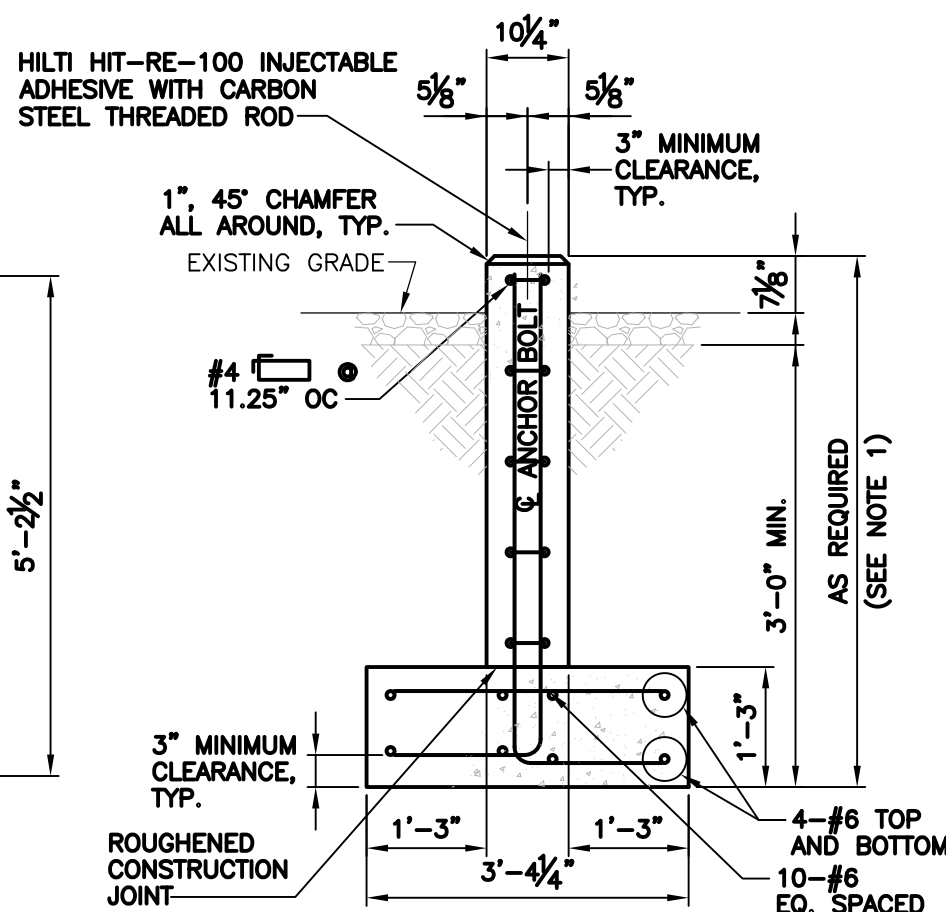


**NOTES**

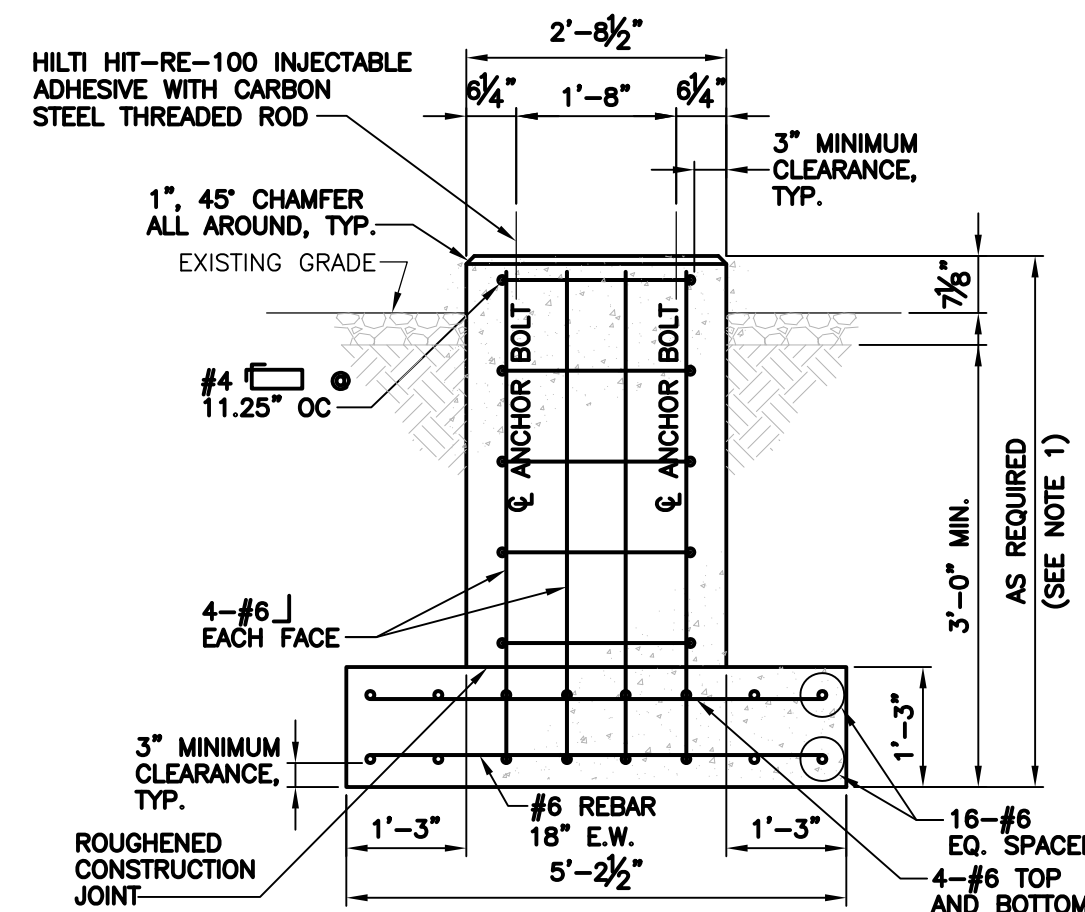
1. CONTRACTOR TO VERIFY HEIGHT OF EXISTING PIPING PRIOR TO CONSTRUCTION. VERIFICATION OF PIPING HEIGHT SHALL GOVERN THE HEIGHT OF HEATER FOUNDATIONS
2. AN 1/8" THICK NEOPRENE PAD SHALL BE INSTALLED BETWEEN THE TOP OF CONCRETE AND THE BOTTOM OF INDIRECT GAS-FIRED HEATER SADDLE BASE PLATES.



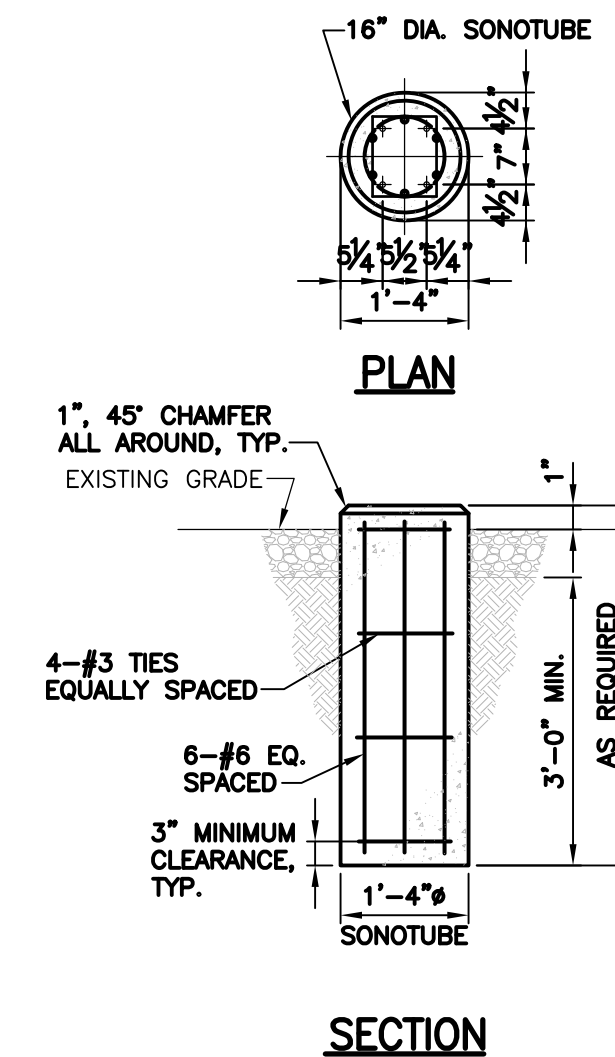
**HEATER FOUNDATIONS - PLAN VIEW  
DETAIL 1**



**HEATER FOUNDATION PIER  
SECTION A-A**



**HEATER FOUNDATION PIER  
SECTION B-B**



**PIPE STAND FOUNDATION  
DETAIL 2**

For Review and Comment

SUMMARY OF MATERIALS		NOTES		APPROVAL						PROJECT	
QUANTITY	DESCRIPTION			PERMITS		BID		CONSTRUCTION		PROPOSED HEATER INSTALLATION CITY GATE #4 GREENVILLE, NORTH CAROLINA	
		REV.	DESIGN DRAFT CHECK	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE		
										ALIGNMENT SHEET	
										<b>RK&amp;K</b> <small>RAMMEL, KLEPPER &amp; KAHN, LLP 100 E. CAMP STREET, SUITE 300 RICHMOND, VIRGINIA 23220 T-804-782-1900 F-804-782-2142</small> ENGINEERS   CONSTRUCTION MANAGERS   PLANNERS   SCIENTISTS	
										SCALE PLAN 1"=2'-0" PROFILE HOR. - VERT. -	
										SHEET NO: 8	
										REVISION:	



PIPE STAND AND HEATER FOUNDATION DETAILS