

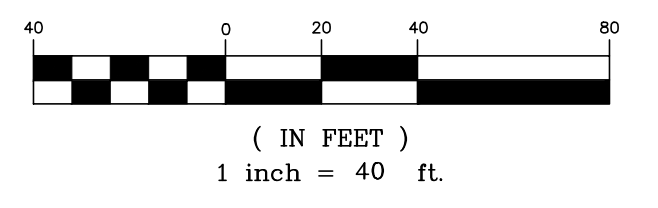
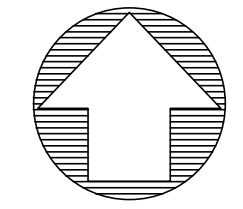
**GENERAL NOTES:**

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXACT HORIZONTAL AND VERTICAL LOCATION OF EXISTING UNDERGROUND FACILITIES PRIOR TO BEGINNING INSTALLATION OF NEW FACILITIES. CONTACT THE ENGINEER FOR INSTRUCTIONS WHEREVER ANY CONFLICTS ARE DISCOVERED.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CORRECT ANY DAMAGE TO UNDERGROUND UTILITIES OR OTHER OBSTRUCTIONS WHICH IS DUE TO HIS OPERATIONS.
- THE CONTRACTOR WILL KEEP THE PROJECT AREA NEAT AND ORDERLY AT ALL TIMES WHILE BUILDING IS TAKING PLACE. ACCESS STREETS TO THE PROJECT SHALL BE KEPT CLEAN OF MUD, DEBRIS, PAPER AND WASTE MATERIAL AT ALL TIMES.
- THE CONTRACTOR SHALL STRICTLY COMPLY WITH ALL OSHA SAFETY RULES AND REGULATIONS AND USE ONLY APPROVED EQUIPMENT REQUIRED FOR THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL ALSO STRICTLY COMPLY WITH ALL OSHA SAFETY RULES AND REGULATIONS AND USE ONLY APPROVED METHODS OF EXCAVATION TRENCHING AND SHORING METHODS AS DESCRIBED IN OSHA 29 CFR 1926.650. THE CONTRACTOR SHALL MAINTAIN AND CLOSELY SUPERVISE ALL SAFETY PRACTICES AND CODES.
- ALL COMPACTED OR BACKFILLED AREAS SHALL MEET 95% STANDARD PROCTOR DENSITY. ANY SOILS IN EXCAVATED SOFT OR WET AREAS THAT DO NOT MEET 95% STANDARD PROCTOR DENSITY SHALL BE REMOVED, RECOMPACTED, AND RETESTED.
- THE CONTRACTOR SHALL MINIMIZE DISTURBANCE OF AREA AND PHASE CONSTRUCTION SUCH THAT NO DISCHARGE OF SEDIMENT OR SEDIMENT-LADEN WATER OCCURS ON OFF-SITE PROPERTY. ANY ACCUMULATED SEDIMENT IN STORM DRAINS OR OFF-SITE PROPERTY SHALL BE REMOVED PRIOR TO FINAL ACCEPTANCE.
- THE CONTRACTOR SHALL CLEAN STREETS, BOTH INTERIOR AND ADJACENT TO THE SITE, AS NEEDED, AFTER EACH RAINFALL, AND AT THE END OF CONSTRUCTION.
- THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FULLY FAMILIAR WITH ALL OF THE CONDITIONS THAT PERTAIN TO THE WORK DESCRIBED HEREIN. THE FAILURE TO UNDERSTAND OR TO HAVE KNOWLEDGE OF ISSUES THAT COULD HAVE BEEN DETERMINED PRIOR TO BIDDING WILL NOT CONSTITUTE GROUNDS FOR ASKING FOR WORK CHANGE ORDERS OR EXTRA WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO CURB AND PAVEMENT BACK TO CITY SPECIFICATIONS.
- THE CONTRACTOR IS REQUIRED TO RETAIN FLOATABLE WINDBLOWN

- MATERIALS ON SITE BY STORING ALL TRASH AND BUILDING MATERIAL WASTE IN ENCLOSURES UNTIL PROPER DISPOSAL AT OFF-SITE FACILITIES. CONTRACTOR IS REQUIRED TO CHECK ADJACENT AREAS DAILY AND PICK UP CONSTRUCTION WASTE MATERIALS AND DEBRIS THAT HAVE BLOWN OR WASHED OFF-SITE.
- CONTRACTOR IS REQUIRED TO TAKE CARE NOT TO DAMAGE ANY EXISTING STREET, CURB & GUTTER, SIDEWALK AND DRIVEWAY DURING CONSTRUCTION.
  - CONTRACTOR IS REQUIRED TO KEEP THE ROCK, MUD AND DIRT OFF OF ALL ROADWAYS DURING CONSTRUCTION.
  - ALL WORK SHALL BE IN CONFORMANCE WITH THE CITY OF REPUBLIC GENERAL CONDITIONS AND TECHNICAL SPECIFICATIONS, CITY OF REPUBLIC STANDARD DRAWING DETAILS, AND CITY OF REPUBLIC DESIGN STANDARDS.

# COVER SHEET

## WATER MAIN EXTENSION TO SERVE IRON GRAIN MULTI FAMILY REPUBLIC, MISSOURI

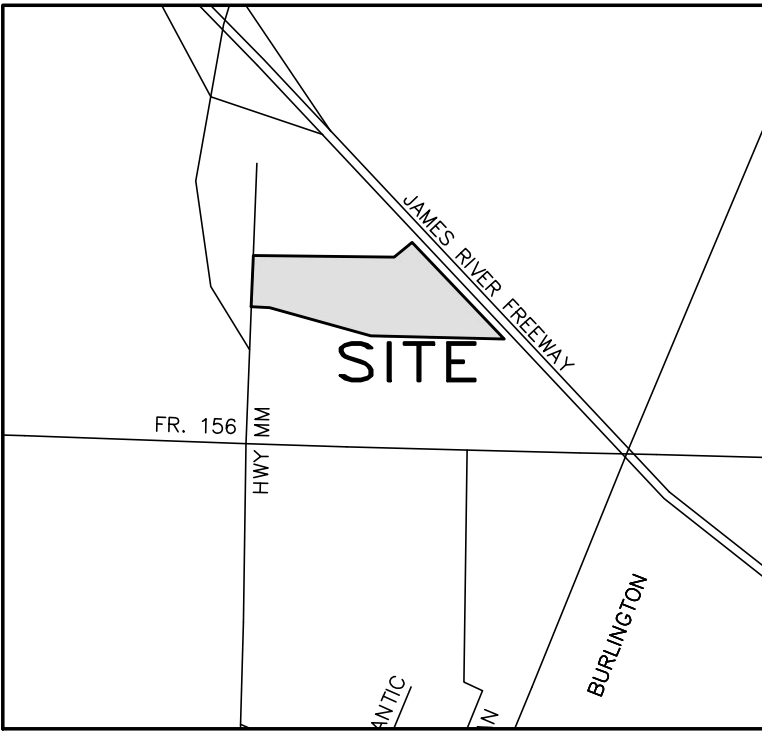


**SHEET INDEX:**

1.	S1	COVER SHEET
2.	S2	WATER LINE A
3.	S3	WATER LINE B
4.	S4	WATER LINE B CONT.
5.	S5	WATER DETAILS

**APPROXIMATE QUANTITIES:**

1,631	LF	8" SDR 21 CLASS 200 WATER LINE
92	LF	6" DUCTILE IRON PIPE (MAY UTILIZE C900 IN LIEU OF DUCTILE IRON AT HYDRANTS)
1	EA	12" x 12" x 8" TAPPING TEE
2	EA	8" x 8" x 8" TEE
4	EA	8" x 8" x 6" TEE
2	EA	8" ELBOW (SEE PLANS FOR ANGLE)
10	EA	8" WATER SHUT OFF VALVE
4	EA	FIRE HYDRANT ASSEMBLY (INCLUDING TEE, VALVE, APPURTENANCES, ETC.)



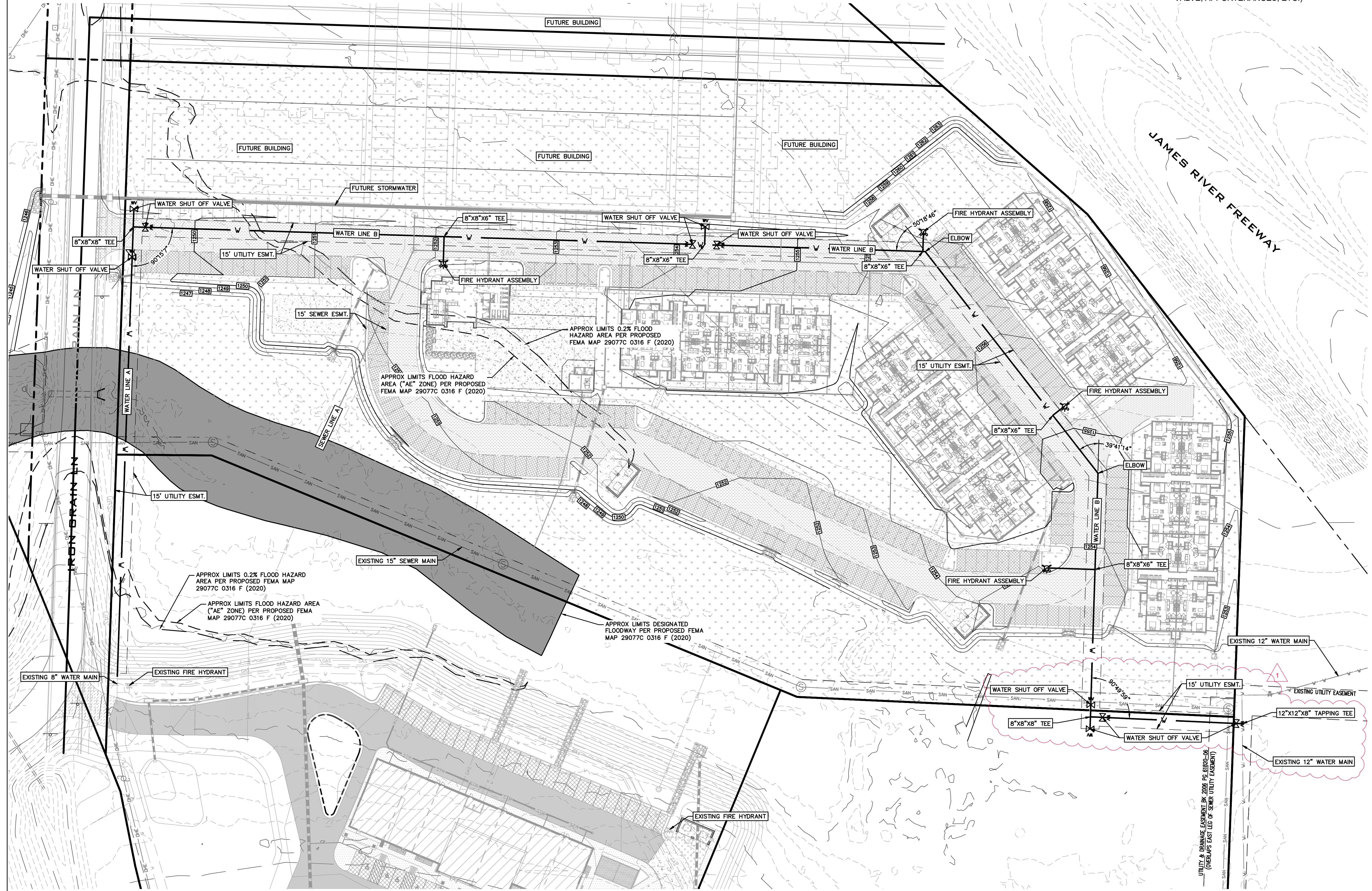
**VICINITY MAP**  
NOT TO SCALE

**LEGEND**

●	FOUND IRON PIN
○	SET IRON PIN OR MARKER AS NOTED
▲	R/W MARKER
---	BOUNDARY LINE
- - -	R/W LINE
- · - · -	EASEMENT LINE
- · - · -	SETBACK LINE
(M)	MEASURED
(P)	PLAT
(D)	DEED
(R)	RECORD
☆	LIGHT POLE
⊙	SANITARY SEWER MANHOLE
⊙	SANITARY SEWER CLEANOUT
⊙	SANITARY SEWER LINE
⊙	UTILITY POLE
⊙	ELECTRIC METER
⊙	OVERHEAD ELECTRIC
⊙	UNDERGROUND ELECTRIC
⊙	GUY WIRE
⊙	PHONE/COMMUNICATION MANHOLE
⊙	PHONE PEDESTAL
⊙	CABLE TV RISER
⊙	CABLE TV LINE
⊙	UNDERGROUND PHONE
⊙	OVERHEAD PHONE
⊙	FIBER OPTIC LINE
⊙	WATER VALVE
⊙	WATER METER
⊙	WATER LINE
⊙	FIRE HYDRANT
⊙	GAS VALVE
⊙	GAS METER
⊙	GAS LINE
⊙	FENCE LINE (AS NOTED)
⊙	ROAD SIGN (STOP, SPEED LIMIT, ETC)

**ABBREVIATIONS:**

XFMR	TRANSFORMER
ICV	IRRIGATION CONTROL VALVE
CI	STORMWATER CURB INLET



DATE:	11/01/23
REVISIONS:	
SCALE: 1" = 40'	
FIELD BY: JS, AL	
DRAWN BY: ZNF	
CHECKED BY: DCR	

**WATER MAIN COVER SHEET**

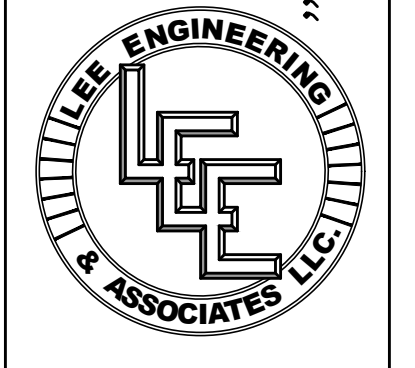
**IRON GRAIN MULTI FAMILY**

N BROOKLINE AVE REPUBLIC, MO 65619

Missouri State Certificate of Authority  
Engineering #2005015504  
Land Surveying #2009028050

LEE Engineering & Associates, L.L.C.  
1200 E. Woodhurst Dr., Suite D200  
Springfield, Missouri 65804  
417-886-9100 (phone)  
417-886-9336 (fax)  
lee@leeengineering.biz

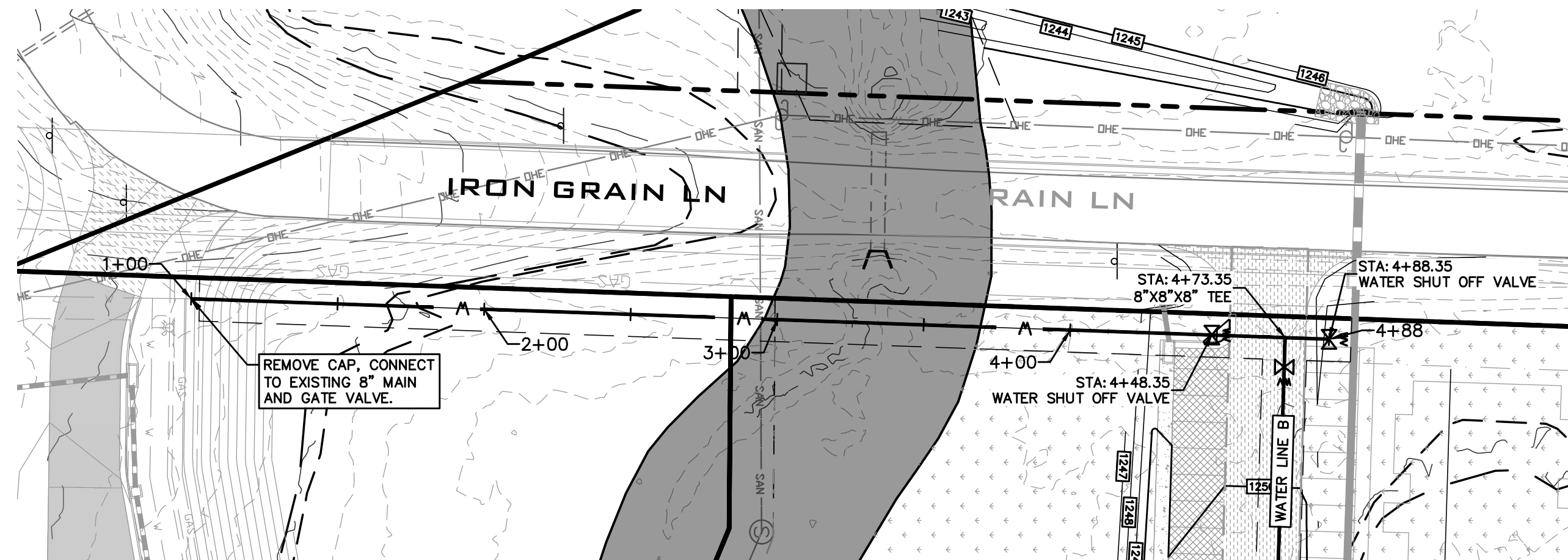
*Engineering with Integrity*



*Daniel Richards*

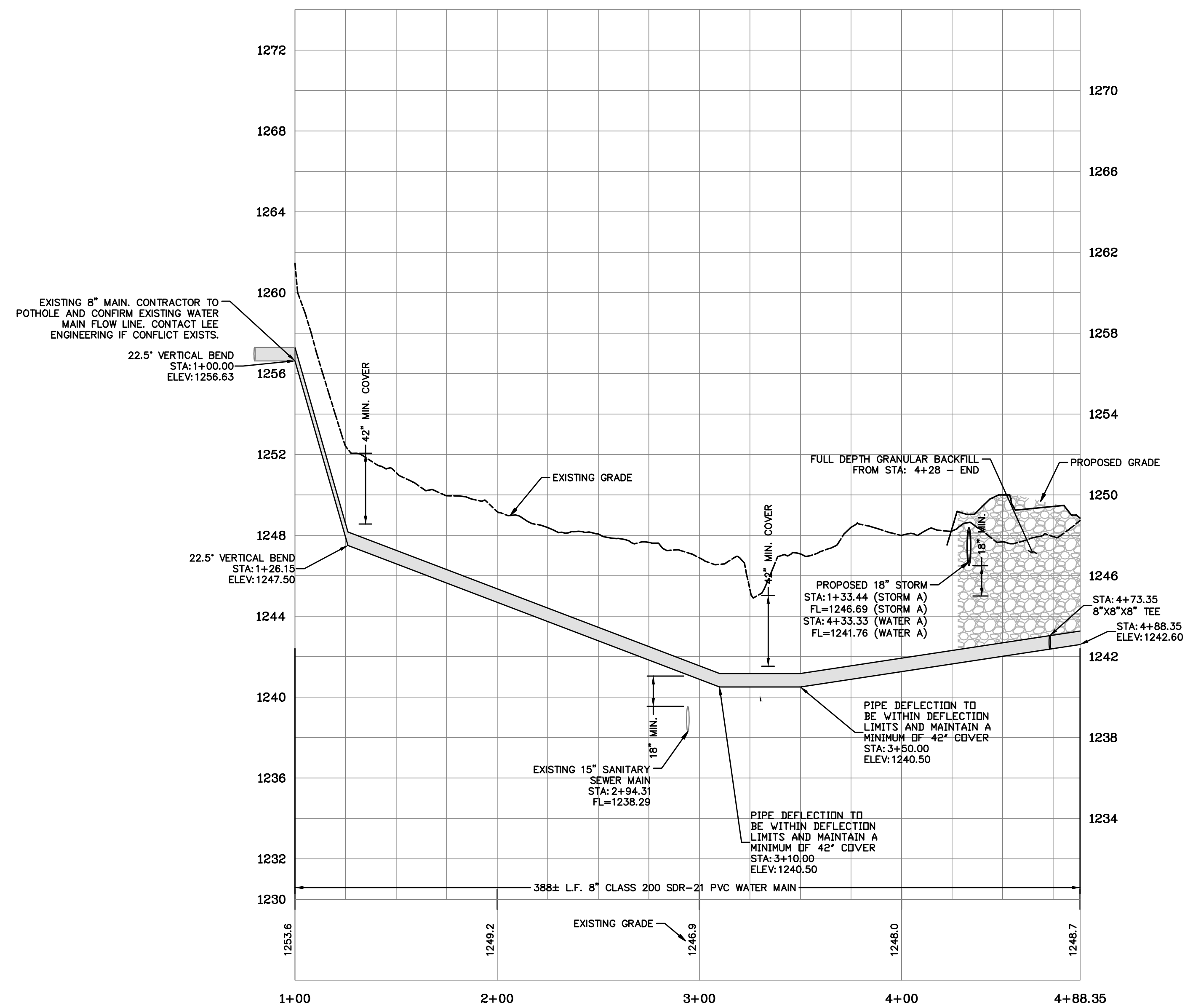
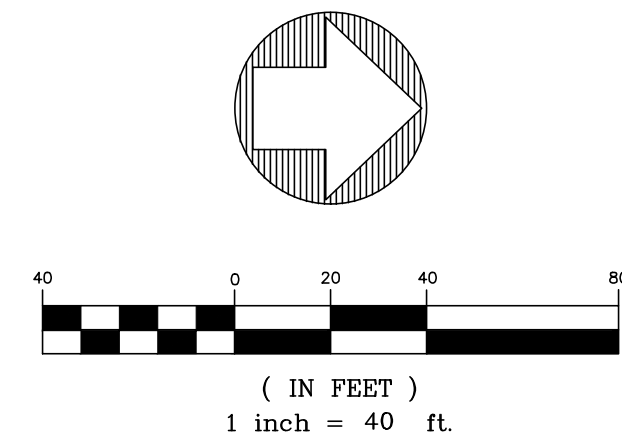


DATE:	2023-11-01
SHEET:	WT-1
PROJECT:	2123
FILE:	Iron Grain Multi Family - Sewer & Water.dwg



### WATER LINE A PLAN AND PROFILE

HORIZONTAL SCALE: 1"=40'  
VERTICAL SCALE: 1"=4'



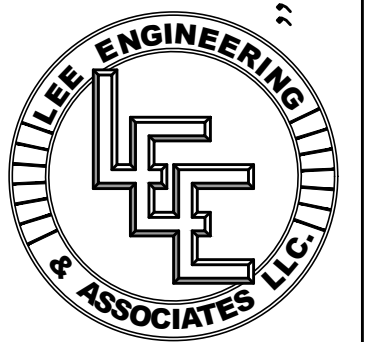
REVISIONS:	DATE:	BY:
ADDENDUM #1	11/01/23	

SCALE: 1" = 40'
FIELD BY: JS, AL
DRAWN BY: ZNF
CHECKED BY: DCR

**WATER LINE A**  
**IRON GRAIN MULTI FAMILY**  
N BROOKLINE AVE REPUBLIC, MO 65619

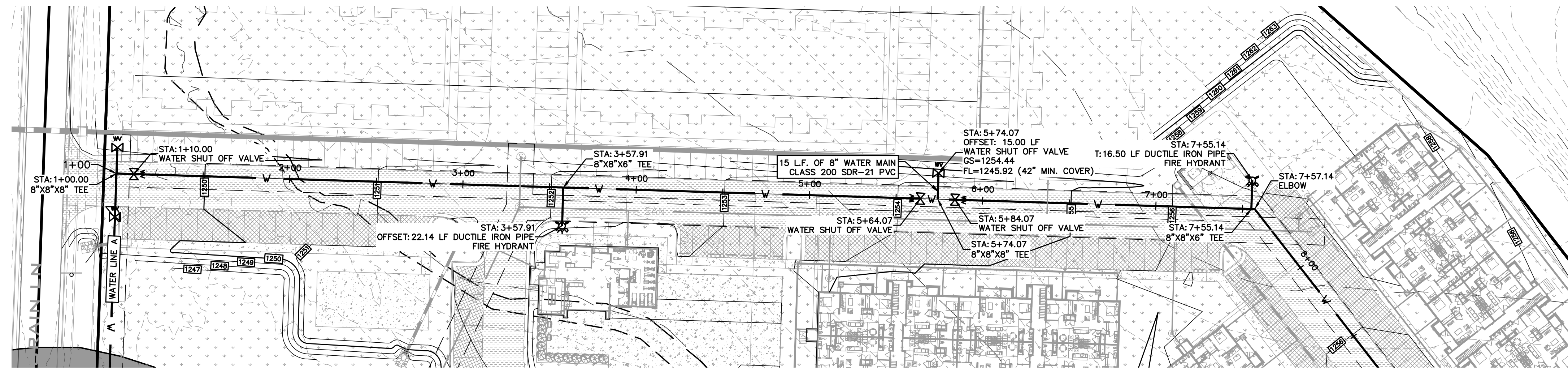
Missouri State Certificate of Authority  
Engineering #2035015504  
Land Surveying #2009028050

LEE Engineering & Associates, L.L.C.  
1200 E. Woodhurst Dr., Suite D200  
Springfield, Missouri 65804  
417-886-9100 (phone)  
417-886-9336 (fax)  
lee@leeengineering.biz



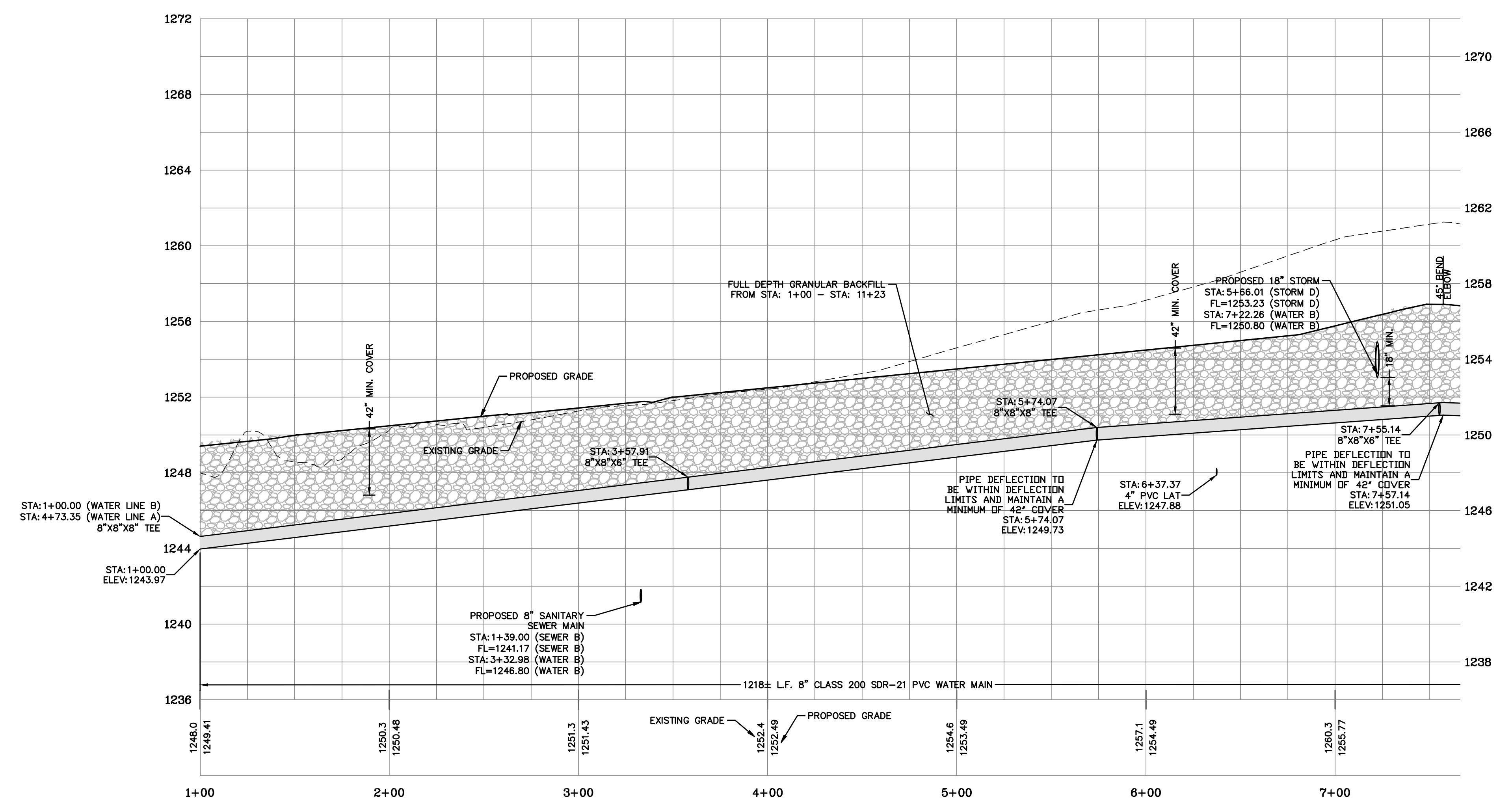
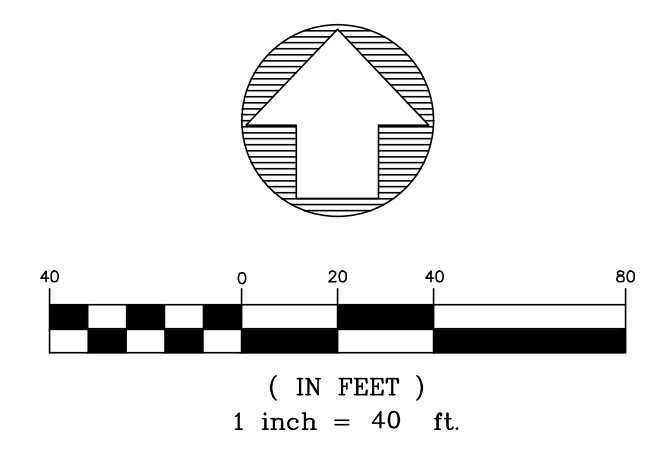
*Daniel Rickards*

DATE: 01/12/2024  
2024-01-12  
SHEET: WT-2  
PROJECT: 2123  
FILE: Iron\_Grain\_Multi\_Family - Sewer & Water.dwg



**WATER LINE B  
PLAN AND PROFILE**

HORIZONTAL SCALE: 1"=40'  
VERTICAL SCALE: 1"=4'



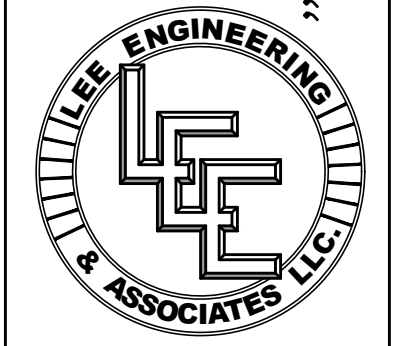
REVISIONS:	DATE:	BY:
ADDENDUM #1	11/01/23	
SCALE: 1" = 40'	FIELD BY: JS, AL	
	DRAWN BY: ZNF	
	CHECKED BY: DCR	

**IRON GRAIN MULTI FAMILY**

N BROOKLINE AVE REPUBLIC, MO 65619

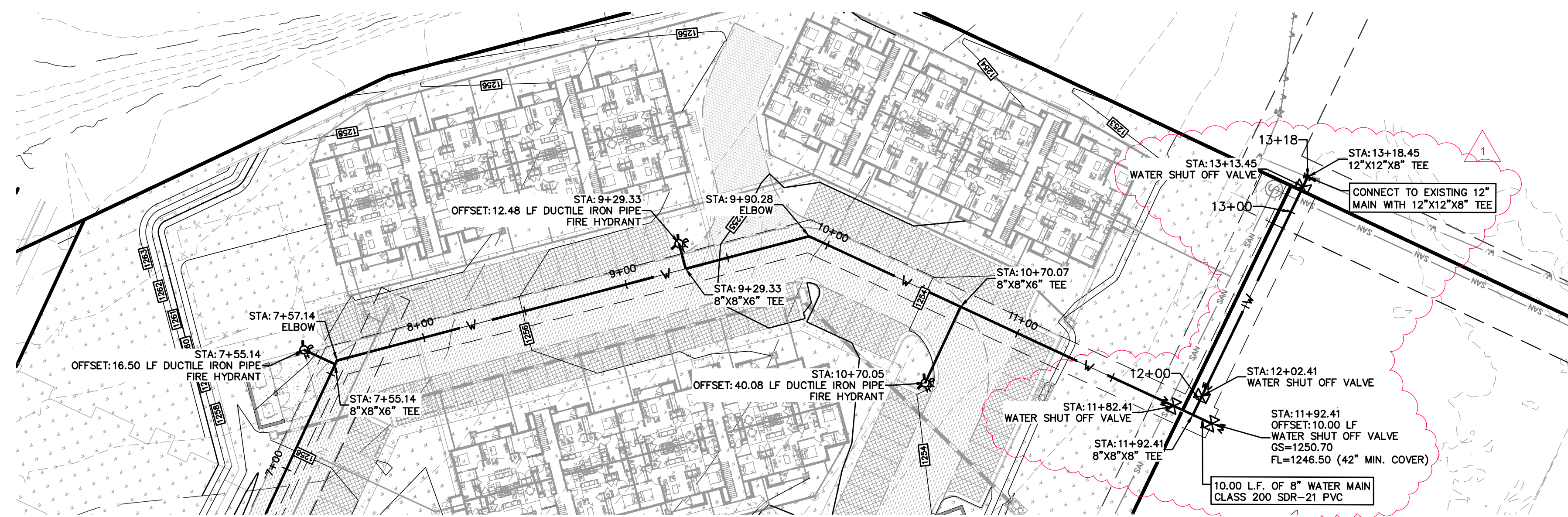
Missouri State Certificate of Authority  
Engineering #2035015504  
Land Surveying #2009028050

LEE Engineering & Associates, L.L.C.  
1200 E. Woodhurst Dr., Suite D200  
Springfield, Missouri 65804  
417-886-9100 (phone)  
417-886-9336 (fax)  
lee@leeengineering.biz



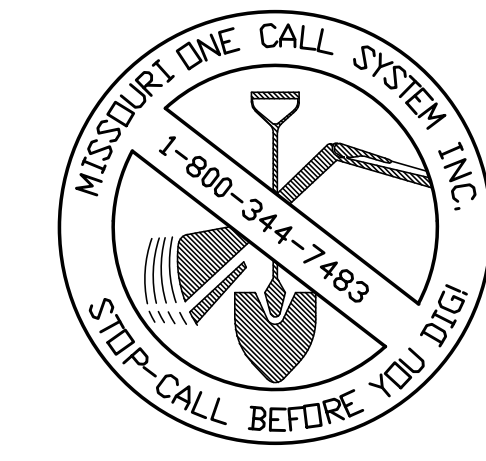
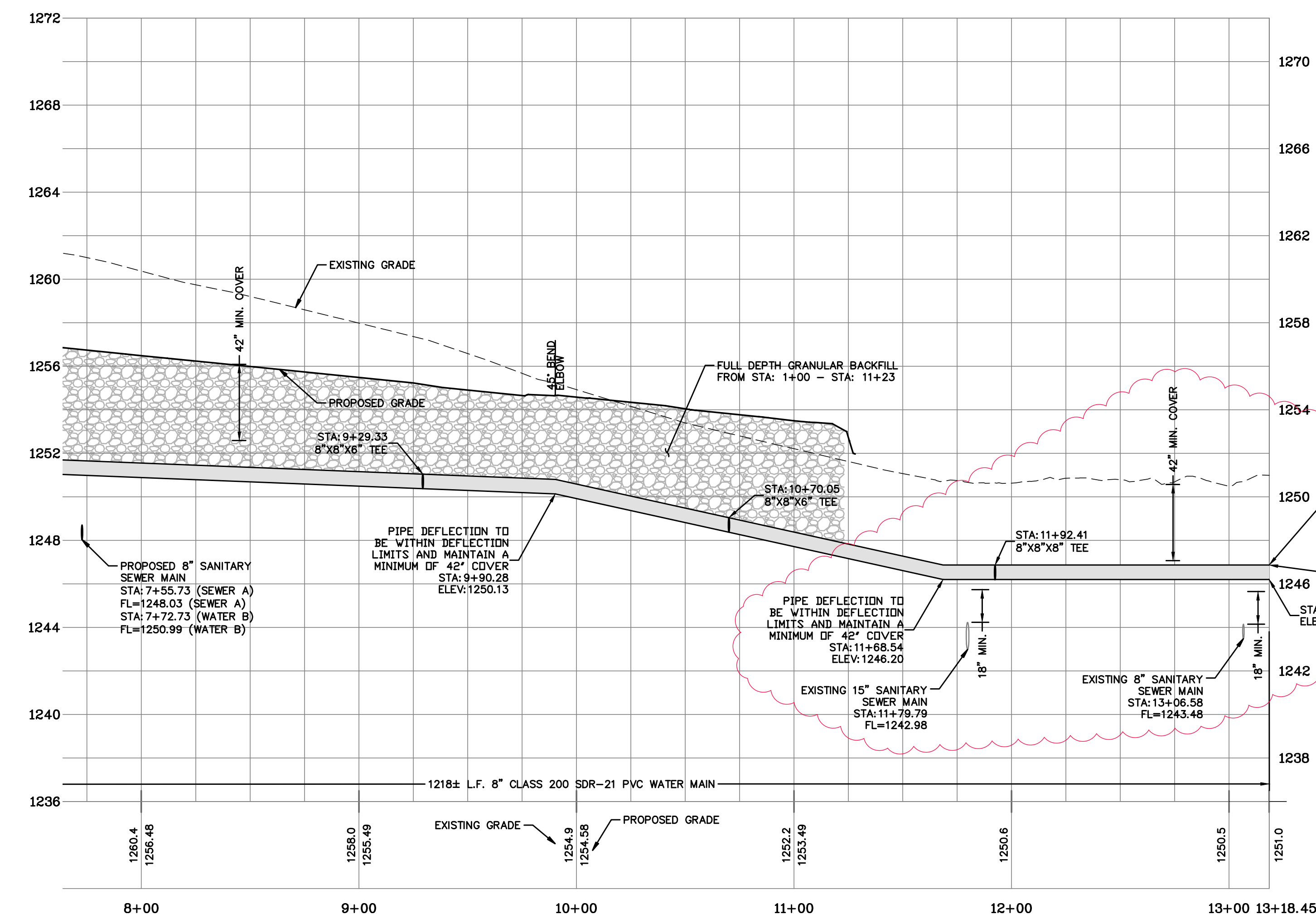
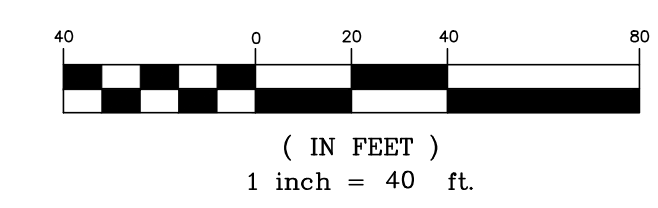
*Daniel Rickards*

DATE: 2023-11-01  
SHEET: WT-3  
PROJECT: 2123  
FILE: Iron Grain Multi Family - Sewer & Water.dwg



**WATER LINE B  
PLAN AND PROFILE**

HORIZONTAL SCALE: 1"=40'  
VERTICAL SCALE: 1"=4'



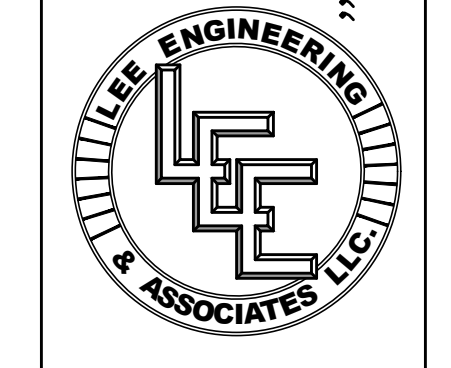
REVISIONS:	DATE:	BY:
ADDENDUM #1	11/01/23	
SCALE: 1" = 40'	FIELD BY: JS, AL	
	DRAWN BY: ZNF	
	CHECKED BY: DCR	

**IRON GRAIN MULTI FAMILY**

N BROOKLINE AVE REPUBLIC, MO 65619

Missouri State Certificate of Authority  
Engineering #2035015504  
Land Surveying #2009028050

LEE Engineering & Associates, L.L.C.  
1200 E. Woodhurst Dr., Suite D200  
Springfield, Missouri 65804  
417-886-9100 (phone)  
417-886-9336 (fax)  
lee@leeengineering.biz



*Daniel Richards*

DATE: 2023-11-01  
SHEET: WT-4  
PROJECT: 2123  
FILE: Iron Grain Multi Family - Sewer & Water.dwg

"Engineering with Integrity"

**DETAIL SHEET**  
**WATER MAIN EXTENSION TO SERVE**  
**IRON GRAIN MULTI FAMILY**  
**REPUBLIC, MISSOURI**

**PLAN VIEW**

**ELEVATION**

MAIN SIZE	DIMENSIONS												
	A	B	C	D	E	F	G	H	I	J	K	L	M
2"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
6"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	1'-6"	2'-0"	1'-6"	2'-0"	2'-0"	1'-6"	2'-0"
8"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"	2'-6"	3'-0"	2'-6"	3'-0"	2'-6"	3'-0"	2'-6"
12"	4'-6"	4'-6"	3'-0"	4'-0"	3'-6"	3'-0"	3'-6"	4'-0"	3'-0"	4'-0"	4'-0"	3'-0"	4'-0"
16"	8'-0"	8'-0"	4'-0"	4'-6"	7'-0"	4'-0"	4'-0"	6'-0"	4'-0"	6'-0"	4'-0"	6'-0"	4'-0"
24"	5'-4"	5'-4"	5'-3"	7'-6"	5'-6"	3'-5"	5'-6"	6'-4"	4'-2"	6'-3"	6'-4"	4'-10"	7'-0"
30"	6'-9"	6'-9"	6'-4"	9'-0"	6'-10"	7'-10"	5'-1"	7'-9"	5'-1"	7'-9"	7'-10"	5'-1"	7'-9"

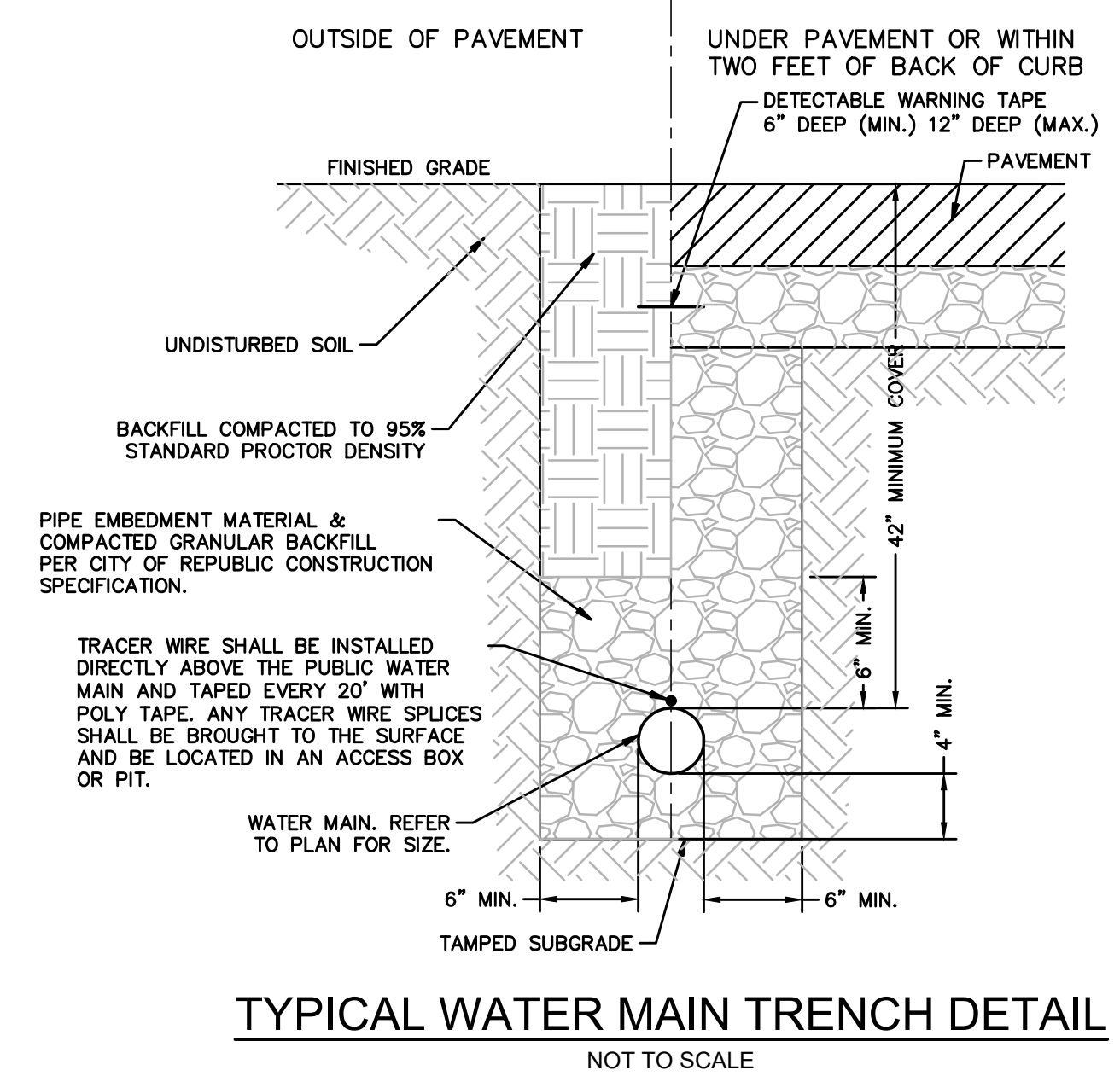
**GENERAL NOTES**

- DESIGNED FOR 150 PSI WORKING PRESSURE WITH 1500 PSI SOIL RESISTANCE FOR SIZES 2"-16". 2000 PSI SOIL RESISTANCE FOR SIZES 24" AND 30".
- BLOCK TO BE POURED AGAINST UNDISTURBED EARTH.
- PROTECT JOINTS & BOLTS FROM CONCRETE.

**CONSTRUCTION STANDARD CITY UTILITIES OF SPRINGFIELD, MISSOURI**

**CONCRETE THRUST BLOCK DIMENSIONS**

LATEST REV. DATE: 12/10/2008    STANDARD NO.: 15-400



**FIRE HYDRANT WITH ISOLATION VALVE FOR DEEP MAINS (MAINS DEEPER THAN 5')**

**CITY OF REPUBLIC, MO STANDARD DETAIL #6**

SPEC SECTION 331216    APRIL 2022

**REPUBLIC BUILDS**

**NOTES:**

- THRUST BLOCK REQUIRED WHEN HYDRANT AND VALVE ARE NOT RESTRAINED. DO NOT COVER HYDRANT DRAIN HOLES W/ CONC.
- RIGID PIPE INCLUDES: FOSTER ADAPTER, FLAT FLANGE, DIP, ANCHOR
- ACCEPTABLE RIGID PIPE SHALL BE DIP. ANY OTHER PROPOSED SHALL BE SUBMITTED TO THE CITY FOR APPROVAL.
- IF VALVE IS LOCATED AT A DISTANCE OTHER THAN LENGTH SPECIFIED, CONTACT THE CITY FOR APPROVAL.

**NOT TO SCALE**

**CLASS A CONCRETE CRADLE**

**CLASS A CONCRETE ARCH**

**CLASS B FIRST CLASS BEDDING**

**CLASS C ORDINARY BEDDING**

TABLE OF EMBEDMENT DEPTHS BELOW PIPE			
SOIL TRENCH			
BEDDING CLASS	PIPE O.D.	a MIN.	
A AND B	16" AND SMALLER	4"	
A AND B	LARGER THAN 16"	1 1/4 O.D.	
C	32" AND SMALLER	4"	
C	LARGER THAN 32"	1 1/8 O.D.	

ROCK TRENCH			
BEDDING CLASS	PIPE O.D.	a MIN.	
A AND B	24" AND SMALLER	6"	
A AND B	LARGER THAN 24"	1 1/4 O.D.	
C	48" AND SMALLER	6"	
C	LARGER THAN 48"	1 1/8 O.D.	

**LEGEND**

Bc    OUTSIDE DIA. OF PIPE

D    NOMINAL PIPE SIZE

a    EMBEDMENT BELOW PIPE

   HAND PLACED EMBEDMENT

   GRANULAR EMBEDMENT

   CONCRETE

   UNDISTURBED EARTH

**NOT TO SCALE**

**EMBEDMENT OF PIPE**

**CITY OF REPUBLIC, MO STANDARD DETAIL #27**

SPEC SECTION 312050    APRIL 2022

**REPUBLIC BUILDS**

**FIRE HYDRANT WITH ISOLATION VALVE (MAINS 5' DEEP OR LESS)**

**CITY OF REPUBLIC, MO STANDARD DETAIL #5**

SPEC SECTION 331216    APRIL 2022

**REPUBLIC BUILDS**

**NOTES:**

- THRUST BLOCK REQUIRED WHEN HYDRANT AND VALVE ARE NOT RESTRAINED. DO NOT COVER HYDRANT DRAIN HOLES W/ CONC.
- RIGID PIPE INCLUDES: FOSTER ADAPTER, FLAT FLANGE, DIP, ANCHOR
- ACCEPTABLE RIGID PIPE SHALL BE DIP. ANY OTHER PROPOSED SHALL BE SUBMITTED TO THE CITY FOR APPROVAL.
- IF VALVE IS LOCATED AT A DISTANCE OTHER THAN LENGTH SPECIFIED, CONTACT THE CITY FOR APPROVAL.

**NOT TO SCALE**

REVISIONS:

NO.	DATE	BY	DESCRIPTION
1	11/01/23		

SCALE: N/A

FIELD BY: JS, AL

DRAWN BY: ZMF

CHECKED BY: DCR

**WATER LINE DETAIL SHEET**

**IRON GRAIN MULTI FAMILY**

N BROOKLINE AVE REPUBLIC, MO 65619

Missouri State Certificate of Authority  
 Engineering #2035015504  
 Land Surveying #2009028050

LEE Engineering & Associates, L.L.C.  
 1200 E. Woodhurst Dr., Suite D200  
 Springfield, Missouri 65804  
 417-886-9100 (phone)  
 417-886-9336 (fax)  
 lee@leeengineering.biz

*Engineering with Integrity*

**LEE ENGINEERING & ASSOCIATES, L.L.C.**

*Daniel Rubeada*

DATE: 2024-01-12

SHEET: WT-5

PROJECT: 2123

FILE: Iron Grain Multi Family - Sewer & Water.dwg