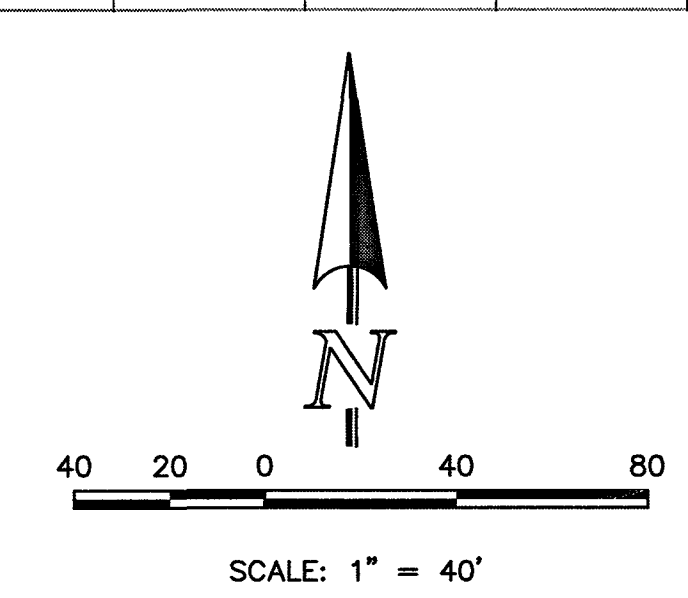
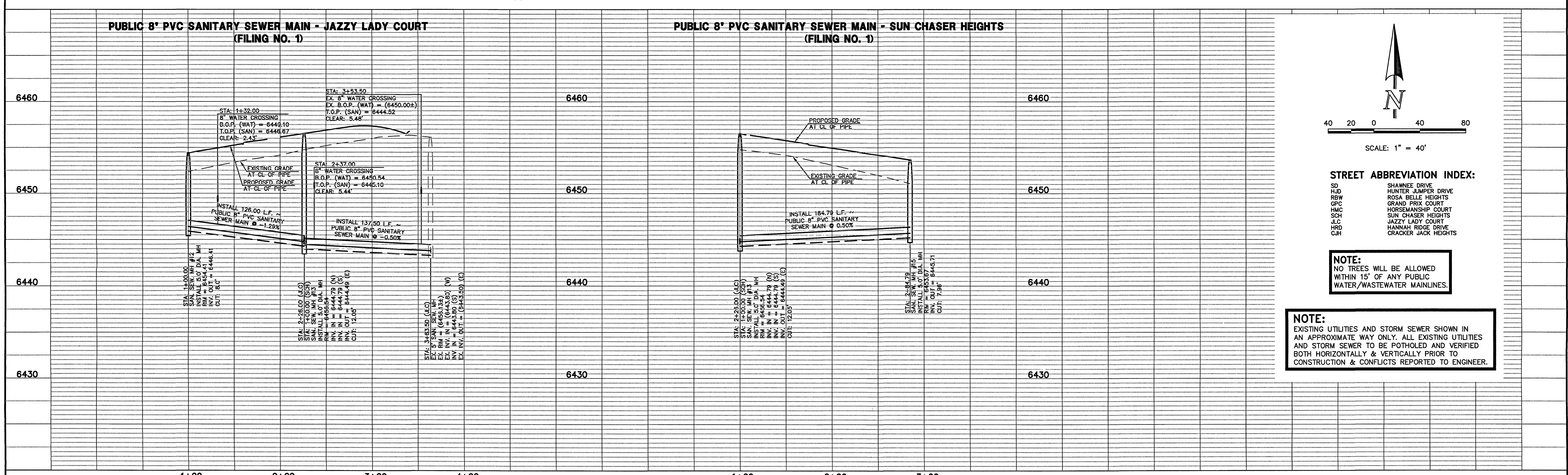
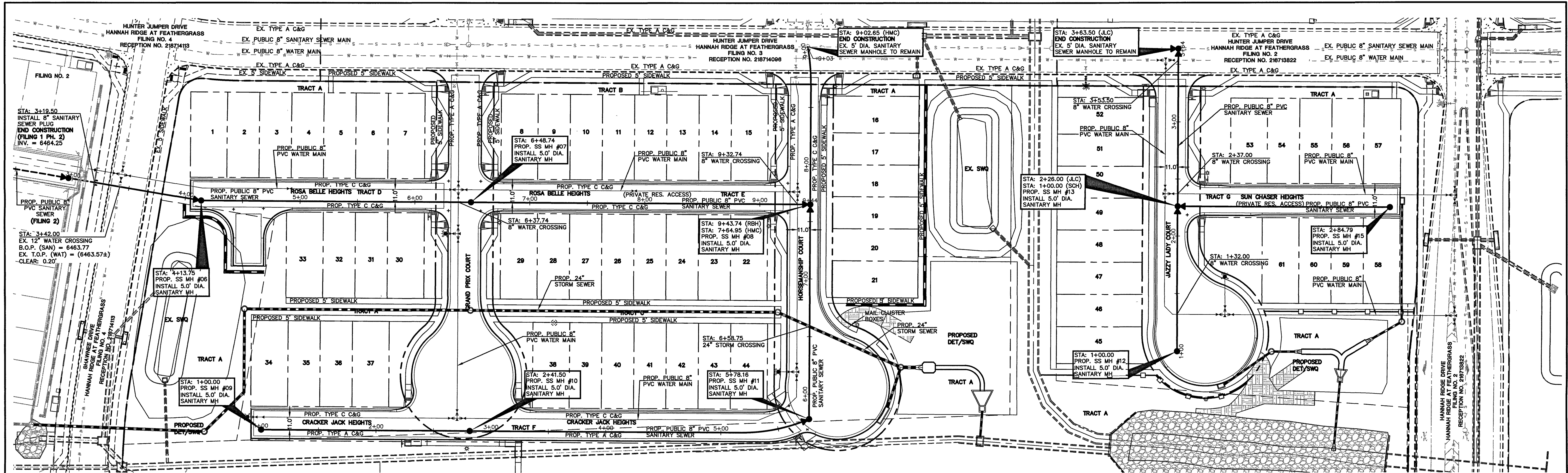


MARCH 2019

CLASSIC[™]
OF 6
1116.30



STREET ABBREVIATION INDEX:

SD	SHAWNEE DRIVE
HJD	HUNTER JUMPER DRIVE
RBW	ROSA BELLE HEIGHTS
GPC	GRAND PRIX COURT
HMC	HORSEMANSHIP COURT
SCH	SUN CHASER HEIGHTS
JLC	JAZZY LADY COURT
HRD	HANNAH RIDGE DRIVE
CJH	CRACKER JACK HEIGHTS

NOTE:
NO TREES WILL BE ALLOWED WITHIN 15' OF ANY PUBLIC WATER/WASTEWATER MAINLINES.

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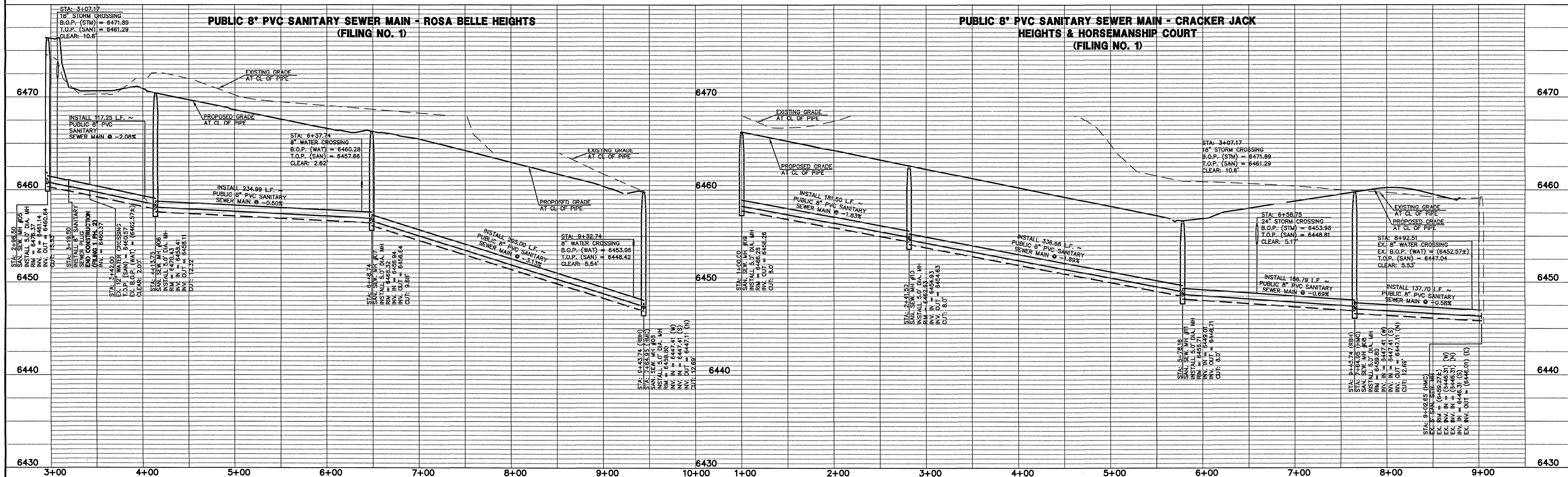
<p>48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS 811 UTILITY NOTIFICATION CENTER OF COLORADO IT'S THE LAW</p> <p>THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.</p>	<p>NO. REVISION</p> <table><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table>									<p>DATE</p> <table><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table>									<p>REVIEW:</p> <p>PREPARED UNDER MY DIRECT SUPERVISION FOR AND ON BEHALF OF CLASSIC CONSULTING ENGINEERS & SURVEYORS, LLC</p> <p><i>Kyle R. Campbell</i> KYLE R. CAMPBELL, COLORADO 29794 DATE 2/26/20</p>	<p>CLASSIC CONSULTING ENGINEERS & SURVEYORS</p> <p>619 N. Cascade Avenue, Suite 200 Colorado Springs, Colorado 80903 (719) 785-0790 (719) 785-0799 (Fax)</p>	<p>MIDTOWN COLLECTION AT HANNAH RIDGE FILING NO. 1 PUBLIC 8" PVC SANITARY SEWER PLAN AND PROFILES</p> <table><tr><td>DESIGNED BY</td><td>KRC</td><td>SCALE</td><td>DATE</td><td>03/22/19</td></tr><tr><td>DRAWN BY</td><td>LDB</td><td>(H) 1" = 40'</td><td>SHEET</td><td>2 OF 6</td></tr><tr><td>CHECKED BY</td><td> </td><td>(V) 1" = 5'</td><td>JOB NO.</td><td>1116.30</td></tr></table>	DESIGNED BY	KRC	SCALE	DATE	03/22/19	DRAWN BY	LDB	(H) 1" = 40'	SHEET	2 OF 6	CHECKED BY		(V) 1" = 5'	JOB NO.	1116.30
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29794
KYLE R. CAMPBELL, COLORADO
#29794

DATE

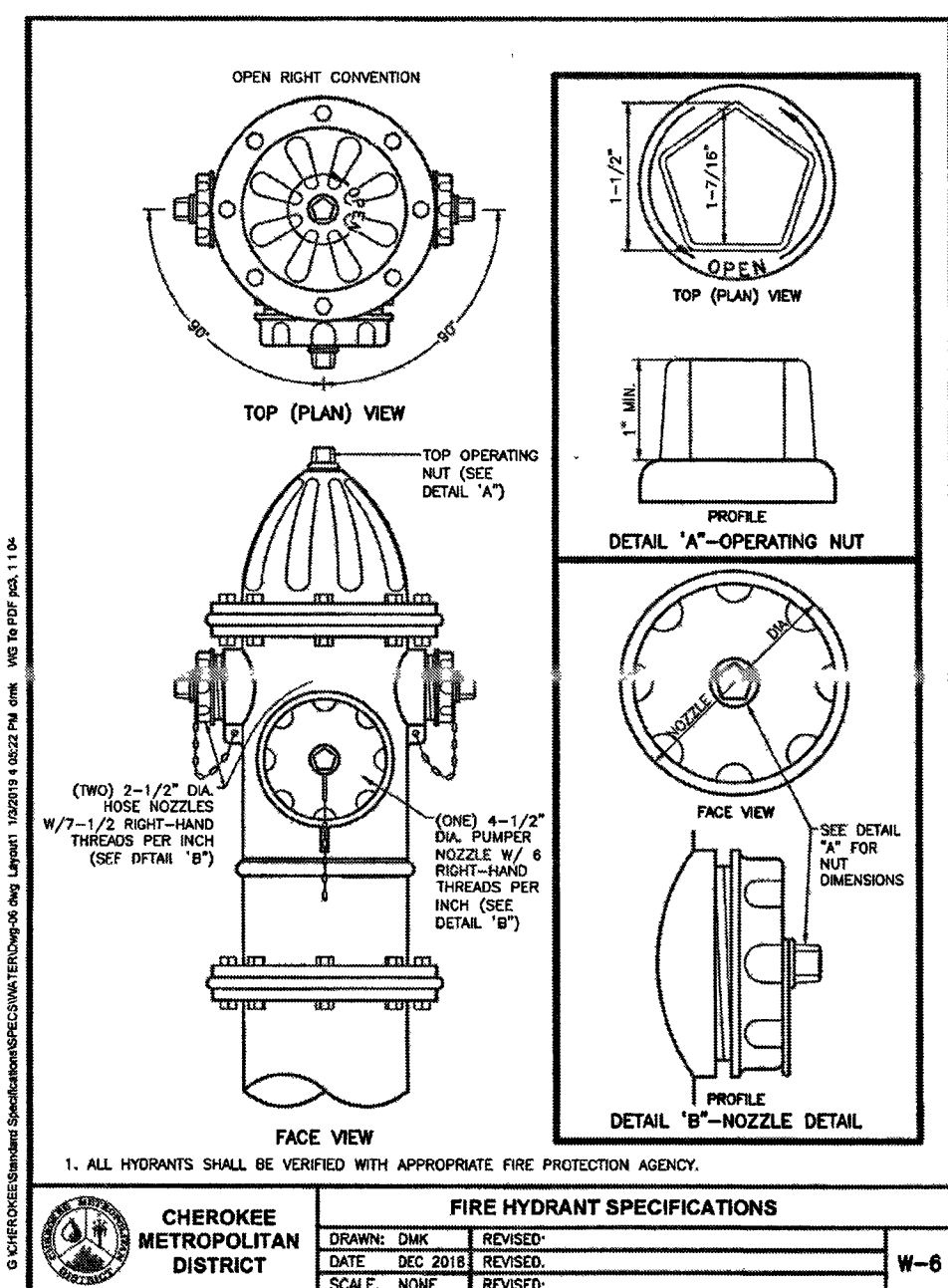
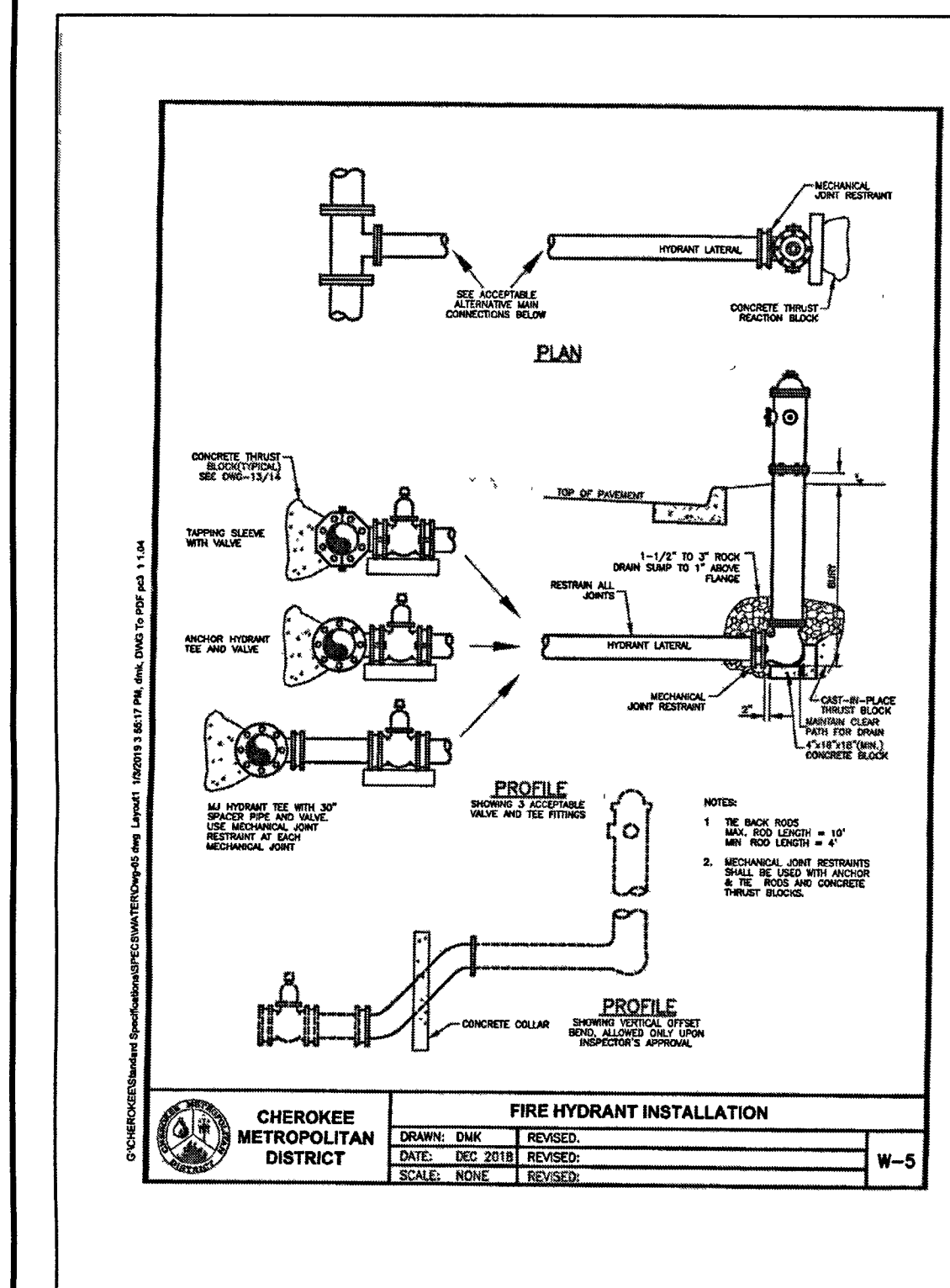
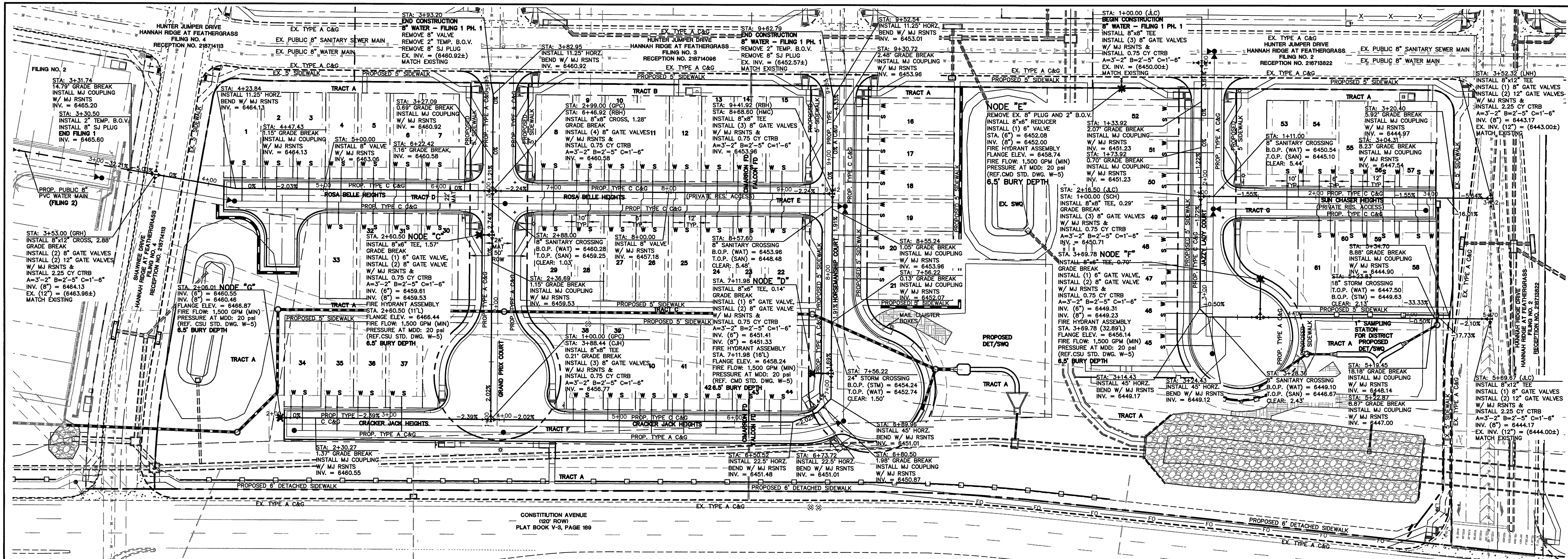
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ENGINEERS & SURVEYORS

619 N. Cascade Avenue, Suite 200 (719)785-0790
Colorado Springs, Colorado 80903 (719)785-0799(Fax)

MIDTOWN COLLECTION AT HANNAH RIDGE
FILING NO. 1

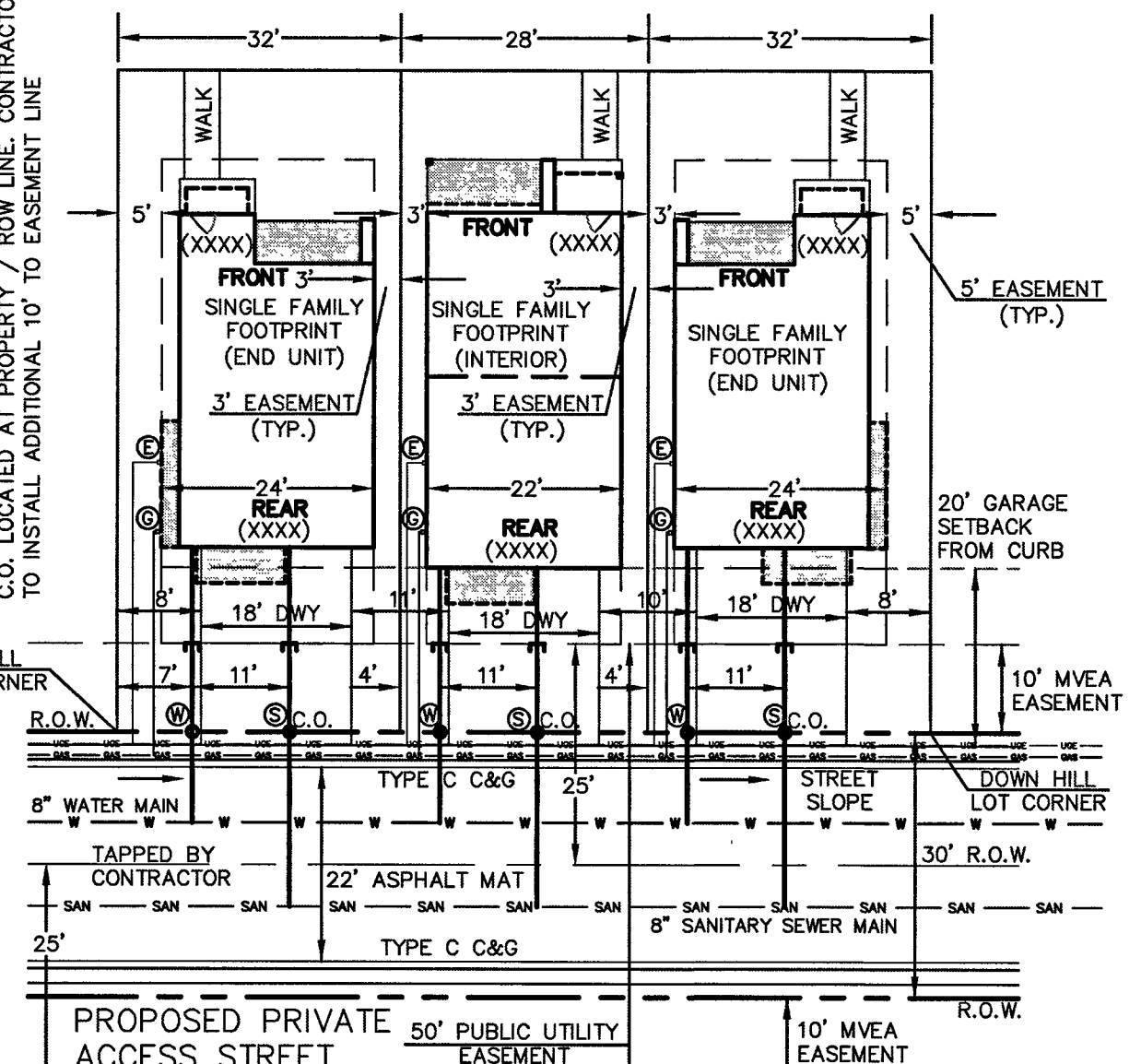
PUBLIC 8" PVC SANITARY SEWER PROFILES

DESIGNED BY KRC SCALE DATE 03/22/19
DRAWN BY LDB (H) 1"= NA SHEET 3 OF 6
CHECKED BY (V) 1"= 5' JOB NO. 1116.30



WATER SERVICE (1" HOPE SDR9 CTS)
CURB STOP LOCATED AT PROPERTY / ROW LINE. CONTRACTOR TO INSTALL ADDITIONAL 10' TO EASEMENT LINE

*NOTE:
NON-TYPICAL SERVICE
LINE LOCATION



- UTILITY SERVICE LOCATION NOTES:
- 1) DIMENSIONS SHOWN ARE TYPICAL UNLESS OTHERWISE NOTED ON PLANS.
 - 2) SEE PLANS FOR MAINLINE SIZES.
 - 3) ALL WATER SERVICES TO BE 1" HOPE SDR9 CTS (COPPER TUBE SIZE) UNLESS OTHERWISE SHOWN ON PLANS. ALL WATER SERVICES ARE 3/4" x 8" TAPS BY DEVELOPER UNLESS OTHERWISE NOTED ON PLANS.
 - 4) ALL CLEANOUTS TO BE INSTALLED PER CHEROKEE METROPOLITAN DISTRICT STANDARD DETAIL WM-8A.
 - 5) ALL WASTEWATER SERVICES TO BE 4" PVC UNLESS OTHERWISE SHOWN ON PLANS. ALL WASTEWATER SERVICES ARE 4" x 8" TAPS UNLESS OTHERWISE NOTED ON PLANS.
 - 6) WATER CURB STOPS NOT TO BE WITHIN DRIVEWAYS OR SIDEWALKS.
 - 7) CHEROKEE METROPOLITAN DISTRICT RESPONSIBLE TO MAINTAIN SANITARY SEWER SERVICE FROM MAIN TO TRAFFIC RATED CLEANOUT AT PROPERTY / ROW LINE. HOMEOWNER RESPONSIBLE TO MAINTAIN SANITARY SEWER SERVICE FROM CLEANOUT TO THE HOME.
 - 8) CHEROKEE METROPOLITAN DISTRICT RESPONSIBLE TO MAINTAIN WATER SERVICE FROM MAIN TO CURB STOP AT PROPERTY / ROW LINE. HOMEOWNER RESPONSIBLE TO MAINTAIN WATER SERVICE FROM CURB STOP TO THE HOME.
 - 9) THE COST FOR CONCRETE SIDEWALK AND CONCRETE DRIVEWAY REPLACEMENT DUE TO SEWER AND WATER MAIN SERVICE LINE REPAIR AND/OR REPLACEMENT SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER.

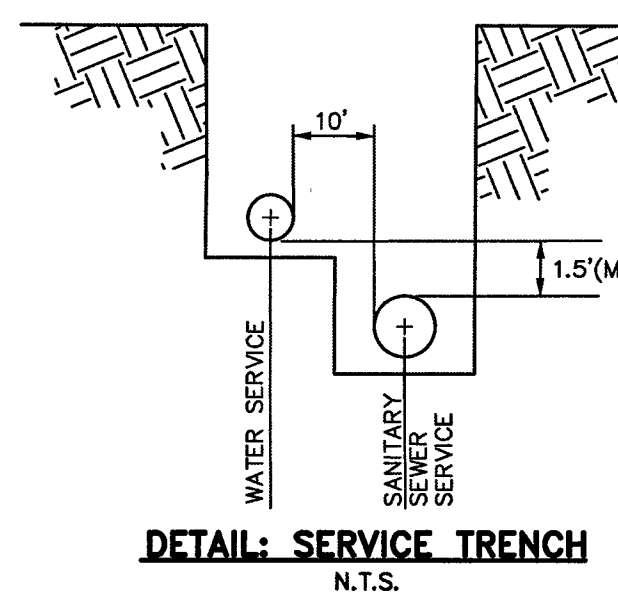
WATER CONSTRUCTION NOTE:

UNLESS OTHERWISE INDICATED, MJ RESTRAINTS WILL BE USED ON ALL HORIZONTAL BENDS. MJ RESTRAINED PIPE LENGTHS ARE BASED ON CSJ STD. DWG. A4-4. IF DETERMINED IN THE FIELD THAT THE MJ RESTRAINTS WILL NOT WORK THEN USE CONCRETE THRUST BLOCKS PER CSJ STD. DWG. A4-2.

AS NOTED ON PLANS, ANCHOR TEES MUST BE USED FOR HYDRANT TEES, ELIMINATING THE 30" SPACER PIPE, TO KEEP THE HYDRANT VALVE OUT OF THE CURB AND GUTTER PAN.

WHEN WATER MAIN CROSSES UNDER A WASTEWATER MAIN OR STORM SEWER MAIN SECONDARY CONTAINMENT MUST BE PROVIDED:

1. WATER MAIN OR ABOVE UTILITY SHALL BE CONSTRUCTED WITHOUT MECHANICAL JOINTS FOR 9 FEET ON EITHER SIDE OF THE CROSSING.
2. THE WATER MAIN OR ABOVE UTILITY SHALL BE ENCASED IN FLOW FILL PER CSJ SPECIFICATIONS SECTION 4.4S FOR 9 FEET ON EITHER SIDE OF CROSSING.



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LEGEND

PROPOSED FIRE HYDRANT	EXISTING FIRE HYDRANT
PROPOSED WATER MAIN	EXISTING WATER MAIN
PROPOSED SANITARY SEWER MAIN	EXISTING SANITARY SEWER MAIN
PROPOSED STORM SEWER	EXISTING STORM SEWER
PROPOSED STORM INLET	EXISTING STORM INLET
ROW/BOUNDARY LINE	EXISTING GAS MAIN
	EXISTING ELECTRIC

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NO.	REVISION	DATE

REVIEW:

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29794

KYLE R. CAMPBELL, COLORADO

2/6/26

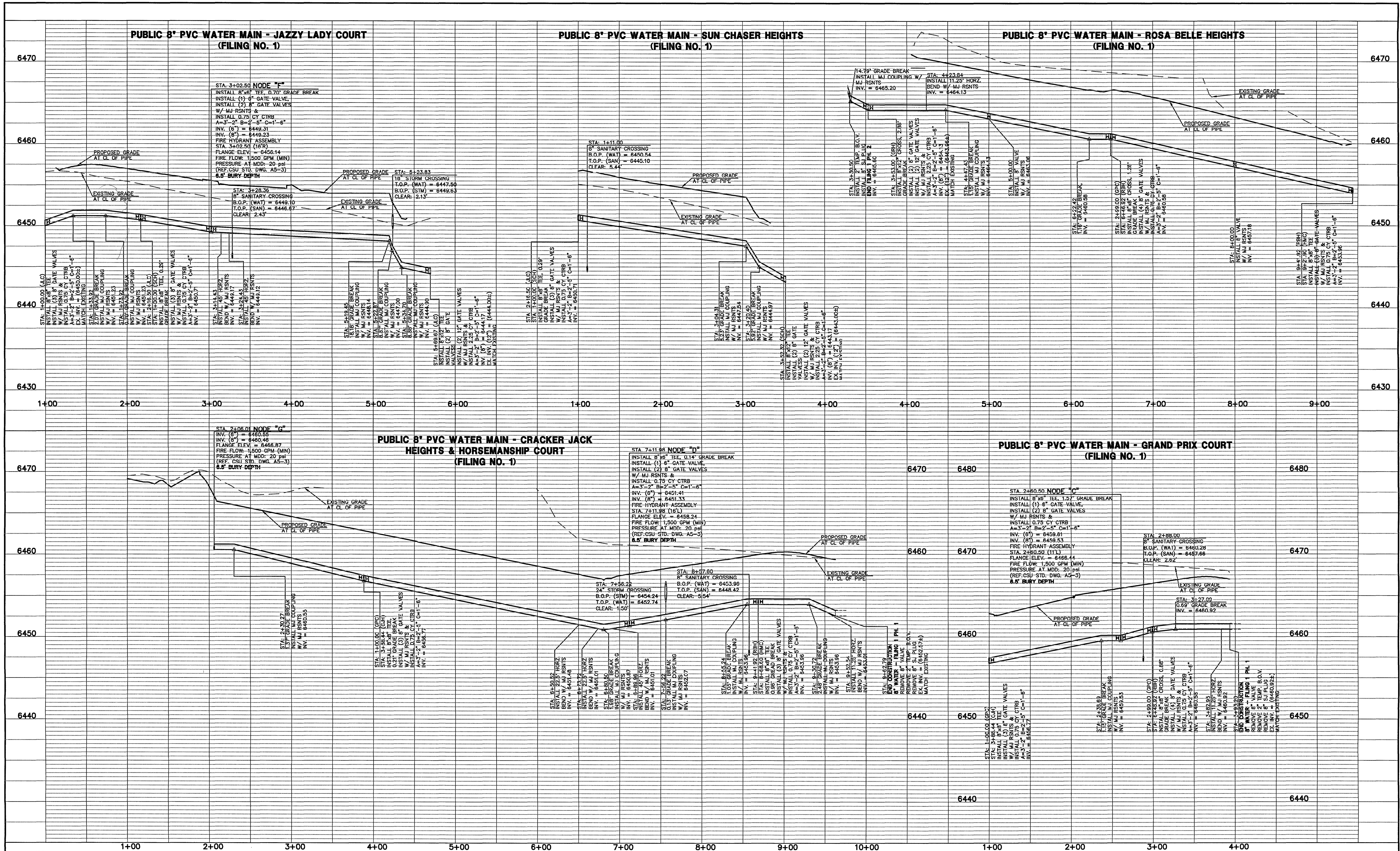
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Colorado Springs, Colorado 80903

(719)785-0790
(719)785-0798(Fax)

MIDTOWN COLLECTION AT HANNAH RIDGE
FILING NO. 1
PUBLIC 8" PVC WATER SYSTEM PLAN
INCLUDING UTILITY SERVICES

DESIGNED BY	KRC	SCALE	DATE	03/22/19
DRAWN BY	LDB	(H) 1" = 40'	SHEET	4 OF 6
CHECKED BY	(V) 1" = NA	JOB NO.	1116.30	



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CLASSIC CONSULTING ENGINEERS AND SURVEYORS, LLC

[Signature]
KYLE E. CAMPBELL, COLORADO LICENSE #29794

2/6/20
DATE

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ENGINEERS & SURVEYORS

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Colorado Springs, Colorado 80903

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MIDTOWN COLLECTION AT HANNAH RIDGE FILING NO. 1 PUBLIC 8" PVC WATER SYSTEM PROFILES			
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THRUST BLOCK DIMENSIONS and VOLUMES - PVC & DIP 250 psi									
MAN SIZE (IN)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (FT ²)	MINIMUM A ₁ (IN)	MINIMUM A ₂ (IN)	MINIMUM C ₁ (IN)	MINIMUM C ₂ (IN)	MINIMUM R (IN)	APPROXIMATE VOLUME (cu ft)	
4	11 3/4" BEND	1.90	1.90	1.90	0.25	0.25	2.00	0.25	
4	22 1/2" BEND	2.00	1.41	1.41	0.25	0.25	2.00	0.25	
4	45° BEND	3.60	1.67	1.67	0.42	0.33	2.00	0.25	
4	TEE & DEAD END	4.75	2.18	2.18	0.47	0.33	2.00	0.25	
6	11 3/4" BEND	2.00	1.41	1.41	0.25	0.25	2.00	0.25	
6	22 1/2" BEND	2.75	1.44	1.44	0.28	0.24	2.00	0.25	
6	45° BEND	2.25	2.08	2.08	0.28	0.20	2.00	0.25	
6	TEE & DEAD END	5.50	3.58	3.58	0.83	0.50	2.00	0.90	
8	11 3/4" BEND	3.25	1.90	1.90	0.34	0.27	2.00	0.25	
8	22 1/2" BEND	6.50	2.95	2.95	0.48	0.37	2.00	0.25	
8	45° BEND	6.50	3.97	3.97	0.47	0.27	2.00	0.25	
8	TEE & DEAD END	16.25	4.44	3.90	1.08	0.67	2.00	0.75	
THRUST BLOCK DIMENSIONS and VOLUMES - PVC (Maximum Static Pressure = 170 psi)									
MAN SIZE (IN)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (FT ²)	MINIMUM A ₁ (IN)	MINIMUM A ₂ (IN)	MINIMUM C ₁ (IN)	MINIMUM C ₂ (IN)	MINIMUM R (IN)	APPROXIMATE VOLUME (cu ft)	
12	11 3/4" BEND	4.75	2.18	2.18	0.43	1.00	2.00	0.25	
12	22 1/2" BEND	9.25	3.04	3.04	0.84	1.00	2.00	0.50	
12	45° BEND	19.50	4.42	3.48	1.48	1.00	2.00	0.75	
12	TEE & DEAD END	23.50	5.42	3.66	1.48	1.00	2.00	1.00	
16	11 3/4" BEND	8.00	2.93	2.93	0.64	1.20	2.00	0.90	
16	22 1/2" BEND	16.00	4.37	3.75	0.88	1.20	2.00	0.75	
16	45° BEND	31.00	6.27	3.75	1.00	1.33	3.64	1.75	
16	TEE & DEAD END	40.00	10.00	3.75	1.92	1.33	4.44	3.00	
THRUST BLOCK DIMENSIONS and VOLUMES - DIP (Maximum Static Pressure = 250 psi)									
MAN SIZE (IN)	TYPE OF FITTING	MINIMUM BEARING SURFACE AREA (FT ²)	MINIMUM A ₁ (IN)	MINIMUM A ₂ (IN)	MINIMUM C ₁ (IN)	MINIMUM C ₂ (IN)	MINIMUM R (IN)	APPROXIMATE VOLUME (cu ft)	
12	11 3/4" BEND	6.75	2.60	2.60	0.43	1.00	2.00	0.50	
12	22 1/2" BEND	13.50	3.99	3.99	0.64	1.00	2.00	0.50	
12	45° BEND	26.25	7.17	3.66	1.00	1.00	3.69	1.50	
12	TEE & DEAD END	34.50	9.36	3.96	1.46	1.00	3.86	2.25	
16	11 3/4" BEND	11.75	3.43	3.43	0.44	1.20	2.00	0.50	
16	22 1/2" BEND	23.25	6.20	3.75	0.66	1.20	2.77	1.00	
16	45° BEND	45.50	12.13	3.75	1.00	1.33	5.57	4.06	
16	TEE & DEAD END	59.00	15.87	3.75	1.92	1.33	6.98	6.00	

NOTES

- THE MINIMUM BEARING SURFACE AREAS SHOWN ARE BASED ON A MAX STATIC PIPE PRESSURE OF 170/250 POUNDS PER SQUARE INCH PLUS A SAFETY FACTOR OF 1.5 AND AN ALLOWABLE SOIL BEARING CAPACITY OF 1000 POUNDS PER SQUARE FOOT. BEARING SURFACE AREA IS ROUNDED UP TO THE NEAREST 0.25 SQUARE FEET. REFERENCE AWWA M22 AND M41.
- THE DESIGN ENGINEER IS RESPONSIBLE FOR VERIFYING ASSUMPTIONS BASED ON ACTUAL SITE CONDITIONS. IF SITE CONDITIONS VARY FROM THE ASSUMPTIONS THE DESIGN ENGINEER SHALL PROVIDE A SITE SPECIFIC DESIGN IN ACCORDANCE WITH AWWA M22, PVC PIPE DESIGN AND INSTALLATION AND AWWA M41, DUCTILE-IRON PIPE AND FITTINGS. SITE SPECIFIC DESIGNS INCLUDING GEOTECHNICAL INFORMATION SHALL BE SUBMITTED TO COLORADO SPRINGS UTILITIES FOR REVIEW.
- THE MINIMUM BEARING SURFACE AREA AND APPROXIMATE VOLUME OF CONCRETE SHALL BE SHOWN ON THE CONSTRUCTION PLANS FOR ALL CONCRETE THRUST BLOCKS. CONCRETE MIX SHALL BE PER MATERIAL CHAPTER 4.
- THE APPROXIMATE VOLUMES SHOWN ARE BASED ON THE MINIMUM BEARING SURFACE AREA AND THE MINIMUM TRENCH DIMENSIONS. THE APPROXIMATE VOLUME IS ROUNDED UP TO THE NEAREST 0.25 CUBIC YARD.
- THESE CHARTS MAY ONLY BE USED IF THE BLOCK HEIGHT (H) IS EQUAL TO OR LESS THAN ONE HALF THE TOTAL DEPTH (D) FROM THE FINISHED GRADE TO THE BOTTOM OF THE BLOCK. THE MINIMUM DIMENSIONS SHOWN ARE BASED ON A PIPE DEPTH OF 5 FEET. SEE DETAIL DRAWING A-1.3.
- A SITE SPECIFIC DESIGN SHALL BE REQUIRED FOR PIPES LARGER THAN 18 INCHES OR MAX STATIC PIPE PRESSURES GREATER THAN 250 POUNDS PER SQUARE INCH. THE DESIGN ENGINEER HAS THE OPTION OF PROVIDING A SITE SPECIFIC DESIGN FOR PIPES SMALLER THAN 18 INCHES OR MAX STATIC PRESSURES LESS THAN 250 POUNDS PER SQUARE INCH.
- ALL CALCULATIONS SHALL BE PROVIDED TO COLORADO SPRINGS UTILITIES FOR REVIEW.

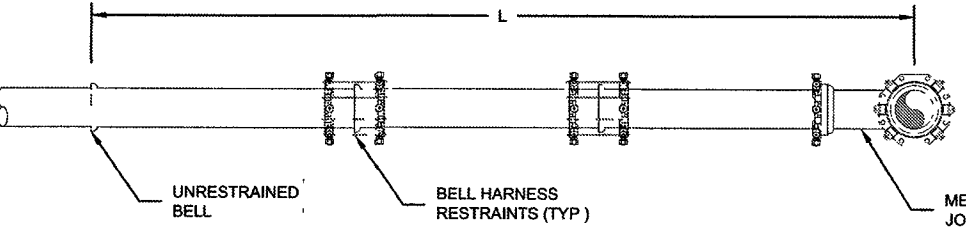


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CONCRETE THRUST REACTION BLOCKS

A4-2
DATED 10/20/14


L = MINIMUM RESTRAINED PIPE LENGTH (FEET)									
PIPE DIAMETER	45° BEND			22-1/2° BEND			11-1/4° BEND		
MAX. STATIC PRESSURE (PSI)	<100	100-150	150-200	<100	100-150	150-200	<100	100-150	150-200
6 INCH	DUCTILE IRON AND PVC	6	9	12	3	5	6	2	3
8 INCH	DUCTILE IRON AND PVC	8	12	16	4	6	8	2	3
12 INCH	DUCTILE IRON AND PVC	12	17	23	6	8	11	3	4
16 INCH	DUCTILE IRON AND PVC	15	22	29	7	11	14	4	5
20 INCH	DUCTILE IRON AND PVC	18	26	35	9	13	17	4	6
24 INCH	DUCTILE IRON AND PVC	20	30	40	10	15	20	5	7
30 INCH	DUCTILE IRON AND PVC	24	36	48	12	18	24	6	9
36 INCH	DUCTILE IRON AND PVC	28	42	56	14	20	27	7	10



UNRESTRAINED BELL BELL HARNESS RESTRAINTS (TYP.) MECHANICAL JOINT BEND

NOTES

- PRESSURE GREATER THAN 200 PSI REQUIRE SPECIAL DESIGN APPROVED BY SPRINGS UTILITIES. APPROVED BY COLORADO SPRINGS UTILITIES.
- LENGTH IS BASED ON MINIMUM 4 FEET OF GROUND COVER AND SOIL COMPACTED ACCORDING TO CHAPTER 5 OF THESE WATER LESS. IF THE DEPTH IS LESS THAN 5 FEET RESTRAINED LENGTH MUST BE DESIGNED BY THE DESIGN ENGINEER.
- APPROVED METHODS OF RESTRAINED PIPE BEYOND INITIAL FITTING SHALL BE IN ACCORDANCE WITH CHAPTER 4.
- RESTRAINED PIPE LENGTH APPLIES TO CONDITIONS WHERE NO CONCRETE THRUST REACTION BLOCK IS PRESENT.
- CALCULATIONS ARE BASED ON A POORLY GRADED SAND, GRAVEL AND GRAVEL SAND MATURE LITTLE OR NO FINES, TYPE 4 SECOND CONDITIONS - PIPE BEDDED IN SAND, GRAVEL OR CRUSHED STONE TO A DEPTH OF 1/8 PIPE DIAMETER (4" MIN.) * FACTOR OF SAFETY 2.1
- FIGURES ARE BASED ON DIP WRAPPED IN POLYETHYLENE MATERIAL.
- MEASUREMENTS ARE IN FEET.
- USE CRA FOR DOWN TURNING BENDS.
- RESTRAINED LENGTH FOR DEAD END MAY BE USED AT THE DISCRETION OF COLORADO SPRINGS UTILITIES.



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RESTRAINED PIPE LENGTH (FEET) W/MECHANICAL JOINT RESTRAINTS

A4-4
DATED 10/20/14

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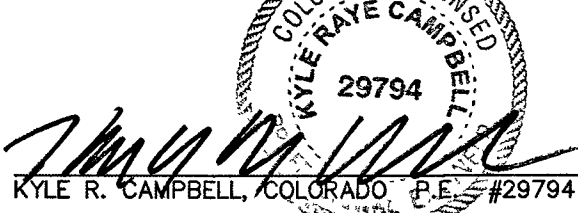
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MIDTOWN COLLECTION AT HANNAH RIDGE
FILING NO. 1

PUBLIC 8" PVC WATER SYSTEM PLAN
DETAILS

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