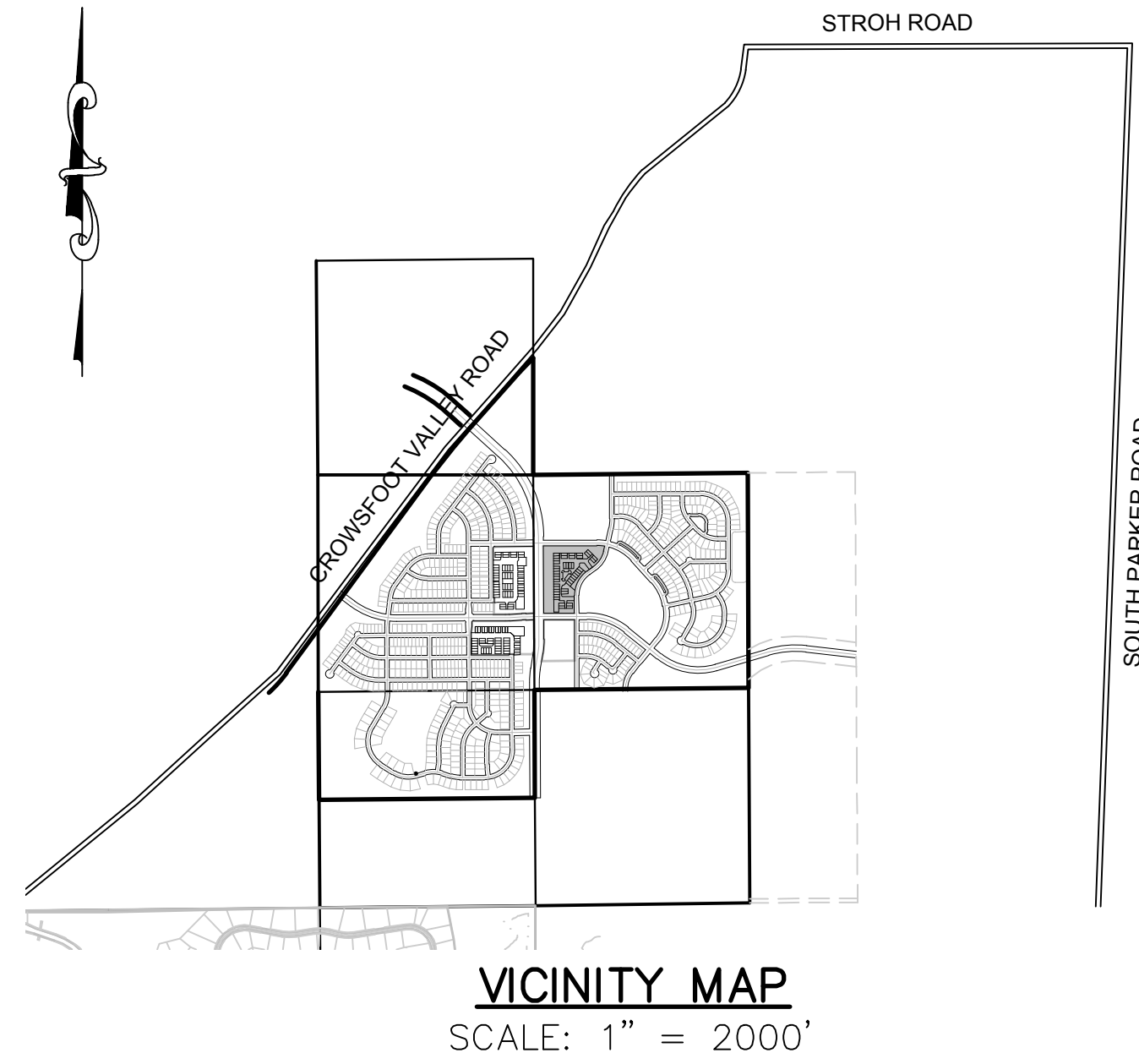


# TRAILS AT CROWFOOT FILING 15

## PARKER WATER AND SANITATION CONSTRUCTION PLANS

SECTIONS 4, 8, AND 9 TOWNSHIP 7 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN COUNTY OF DOUGLAS, STATE OF COLORADO

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2	PARKER WATER AND SANITATION NOTES
3	AREA UTILITY PLAN
4	FILING 15 SS WEST
5	FILING 15 SS WEST-EAST & ROCK DAISY ST
6	MOCK ORANGE AVE
7	FILING 15 SS NORTH & NORTHEAST
8	MOCK ORANGE AVENUE
9	MOCK ORANGE WAY & MOCK ORANGE COURT
10	ROCK DAISY STREET & BLUE HEART COURT
11	ROCK DAISY TRAIL & ROCK DAISY LANE
12	SANITARY SEWER DETAILS
13	SANITARY SEWER DETAILS
14	SANITARY SEWER DETAILS
15	WATER DETAILS
16	WATER DETAILS
17	WATER DETAILS
18	WATER DETAILS
19	WATER DETAILS
20	WATER DETAILS
21	WATER DETAILS



MATERIALS LIST		
DESCRIPTION	QUANTITY	UNIT
8" SEWER (SDR-35 PVC)	1,490	L.F.
4' DIA. MANHOLE	14	EA.
SEWER SERVICE LATERAL W/ WYE TAP	30	EA.
CONNECTION TO EXISTING MAIN	1	EA.
6" WATERPIPE (DIP-FIRE HYDRANT LINE)	72	L.F.
8" WATERPIPE (C900)	2,037	L.F.
6" GATE VALVE W/ BOX	4	EA.
8" GATE VALVE W/ BOX	7	EA.
8" MISC FITTINGS	22	EA.
AIR / VACUUM VALVE	2	EA.
8" CAP WITH BLOW OFF	4	EA.
FIRE HYDRANT WITH 6" LEAD	4	EA.
IRRIGATION SERVICE W/ METER (2")	1	EA.
DOMESTIC WATER SERVICE W/ METER	44	EA.
CONNECTION TO EXISTING MAIN	2	EA.

**FIRE DEPARTMENT APPROVAL**

ALL FIRE HYDRANTS SHALL BE INSTALLED ACCORDING TO WATER UTILITY STANDARDS. THE NUMBER AND LOCATIONS OF THE FIRE HYDRANTS AS SHOWN ON THE OVERALL UTILITY PLAN ARE CORRECT AS SPECIFIED BY THE TOWN OF PARKER, COMMUNITY DEVELOPMENT DEPARTMENT.

(FIRE CODE OFFICIAL OR DESIGNATED REPRESENTATIVE) \_\_\_\_\_ DATE \_\_\_\_\_

(NOTE- UNDERGROUND FIRE LINE (UFL) SUBMITTAL DOCUMENTS MUST MEET THE REQUIREMENTS OF NFPA24 WHEN SUBMITTING FOR REVIEW.)

THE DISTRICT INSPECTOR MUST BE NOTIFIED AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION. CALL PARKER WATER AND SANITATION DISTRICT AT 303-841-4627. THE DISTRICT WILL PROVIDE PERIODIC INSPECTIONS OF THE WORK. 24 HOUR NOTICE TO THE INSPECTOR IS REQUIRED FOR SCHEDULED INSPECTIONS. ANY WORK ACCOMPLISHED WITHOUT THE APPROVAL OF THE INSPECTOR WILL BE SUBJECT TO REJECTION.

REVIEWED FOR CONFORMANCE TO PARKER WATER AND SANITATION DISTRICT STANDARDS.

BY: \_\_\_\_\_  
(DISTRICT REPRESENTATIVE)

DATE SIGNED: \_\_\_\_\_

APPROVED FOR CONSTRUCTION:  
PARKER WATER AND SANITATION DISTRICT

BY: \_\_\_\_\_  
(DISTRICT ENGINEER)

DATE SIGNED: \_\_\_\_\_

### DEVELOPER

HR 935 LLC  
7353 SOUTH ALTON WAY  
CENTENNIAL, CO 80112  
TEL: (303) 770-9111  
CONTACT: MATT JANKE

### PLANNER/ LANDSCAPE DESIGNER:

PCS GROUP, INC.  
200 KALAMATH STREET  
DENVER, CO 80233  
TEL: (303) 531-4905  
CONTACT: JOHN PRESTWICH

### SURVEYOR/ ENGINEER:

CVL CONSULTANTS  
OF COLORADO, INC.  
10333 E. DRY CREEK RD. STE 240  
ENGLEWOOD, CO 80112  
TEL: (720) 482-9526  
CONTACT: JIM JANNICKE

### UTILITY DISTRICT

PARKER WATER AND  
SANITATION DISTRICT  
18100 E. WOODMAN DRIVE  
PARKER, CO 80134  
TEL: (303) 841-4627

**BENCHMARK**  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '83 DATUM

**BASIS OF BEARINGS:**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE  
SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

N:\PROJECTS\SS\BENCH\ENGINEERING\SSHEET SET\BENCH\FAMILY\CDS\F\BANKER WATER AND SANITATION\COVER.DWG: BRIANW. 11/22/2018 10:52 AM

CALL 811  
TWO WORKING DAYS  
**BEFORE YOU DIG**  
UNCC 1-800-922-1987  
UTILITY NOTIFICATION  
CENTER OF EXCELLENCE

SHEET NUMBER	DRAWN BY: RRR	CHECKED BY: BPW	DATE: JUNE 2018	SCALE: AS SHOWN	FILE NO: 8130283701	TRAILS AT CROWFOOT FILING 15 CONSTRUCTION DRAWINGS COVER SHEET	HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112		10333 E. Dry Creek Rd. Suite 240 Englewood, Colorado 80112 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	No.	Date	Appr.	Date



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REVIEWED FOR CONFORMANCE TO PARKER WATER AND SANITATION DISTRICT STANDARDS.

BY: \_\_\_\_\_ DATE \_\_\_\_\_  
(DISTRICT REPRESENTATIVE)

APPROVED FOR CONSTRUCTION:  
PARKER WATER AND SANITATION DISTRICT

BY: \_\_\_\_\_ DATE \_\_\_\_\_  
(DISTRICT ENGINEER)

THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGN, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.

THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE, APPROVED AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, DIRECTOR OF ENGINEERING \_\_\_\_\_ DATE \_\_\_\_\_

**LEGEND**

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
A	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊕	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⊕	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊕	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊕	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊕	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊕	PROPOSED WL FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊕	PROPOSED FLARED END SECTION	---	PROPOSED 5' CONTOUR
⊕	PROPOSED LOW POINT BLOW-OFF	---	PROPOSED 1' CONTOUR
⊕	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊕	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊕	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊕	PROPOSED LIGHT POLE	---	PROPOSED WATER LINE
⊕	PROPOSED SIDEWALK	---	PROPOSED WATER LATERAL W/ METER
⊕	PROPOSED SIDEWALK RAMP	---	SECTION LINE
10.00	EXISTING ELEVATION	---	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	---	FO
⊕	PROPOSED STORM DRAIN INLET	---	EXISTING FIBER OPTIC LINE
⊕	PROPOSED STORM DRAIN MANHOLE	---	EXISTING OVERHEAD POWER
		---	TEL
		---	EXISTING TELEPHONE LINE

**ABBREVIATIONS**

AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
BVC	BEGIN VERTICAL CURVE	PVC	POLYVINYL CHLORIDE
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FL	FLOW LINE	STA	STATION
GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
INV	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

NOTES:  
1. SANITARY SERVICES FOR BLOCK 1, LOTS 19-20 & 29-30 & BLOCK 2, LOTS 5-14 WILL BE INSTALLED WITH TRAILS AT CROWFOOT FILING 9.  
2. THE PROPOSED UTILITY CONNECTION WILL REQUIRE A TOWN RIGHT-OF-WAY PERMIT PRIOR TO COMMENCING WORK. THE TOWN PREFERS CONNECTIONS TO BE BORED TO THE EXTENT POSSIBLE, AND ANY STREET CUT ALLOWED BY THE TOWN WILL BE REQUIRED TO BE PATCHED ACCORDING TO THE TOWN'S CONSTRUCTION STANDARDS AND DETAILS. THE LIMITS OF PATCHING WILL BE DETERMINED BY THE TOWN AT THE TIME OF CONSTRUCTION. THE TOWN OF PARKER DOES NOT ALLOW ROADWAY CLOSURES FOR UTILITY WORK.  
3. FIRE HYDRANT EASEMENTS ARE 5' BEHIND AND 10' TO EACH SIDE OF THE HYDRANTS.

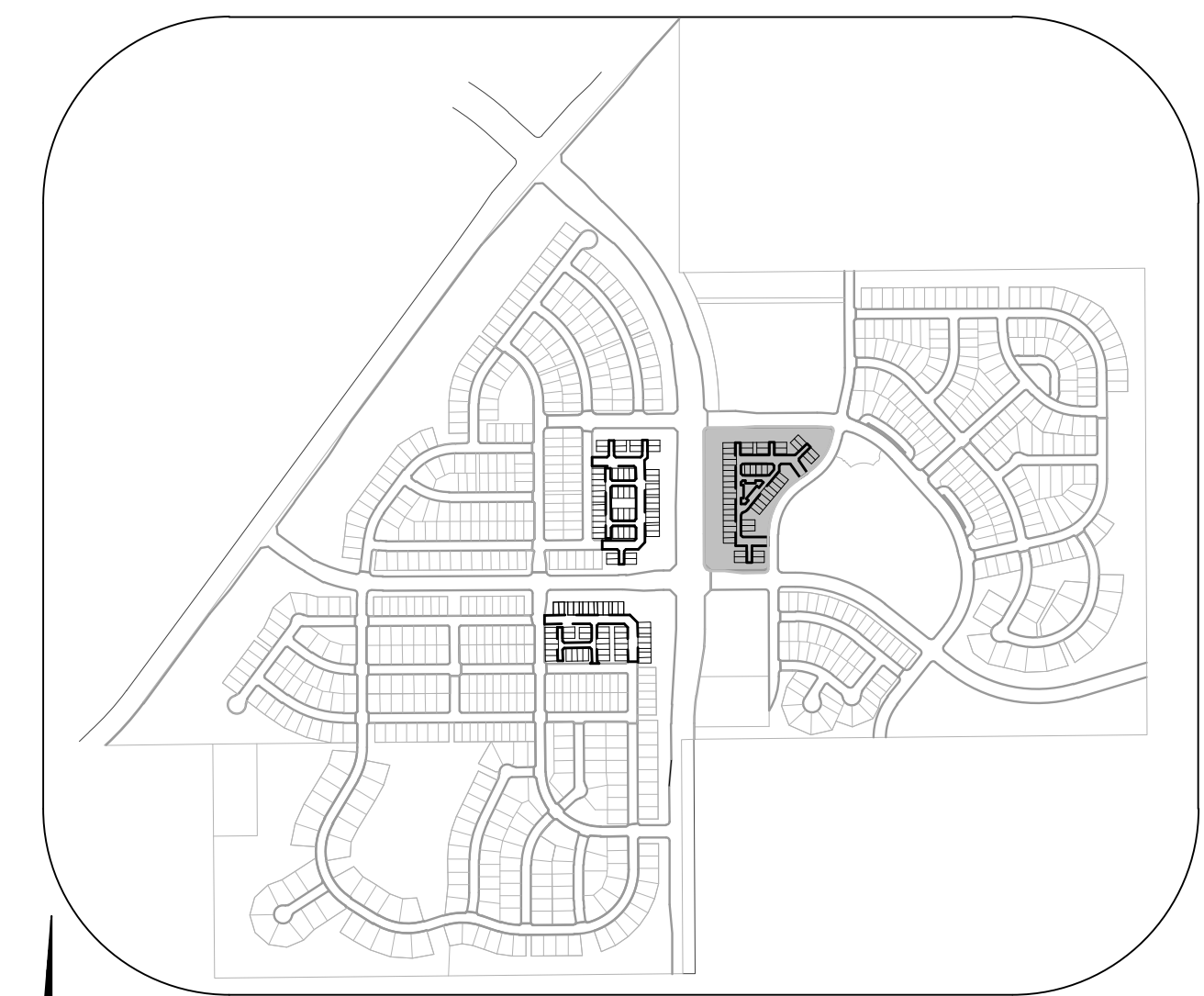
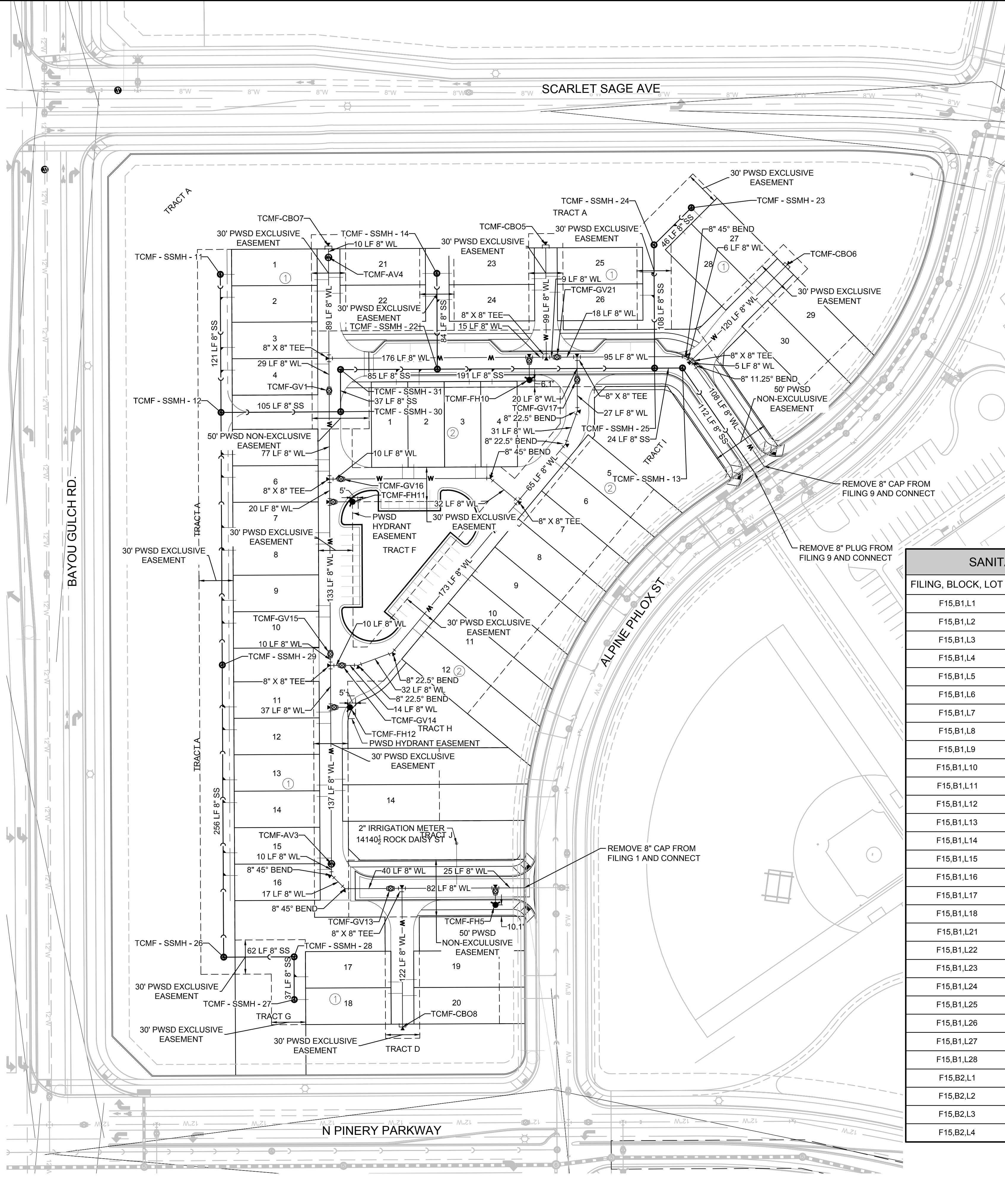
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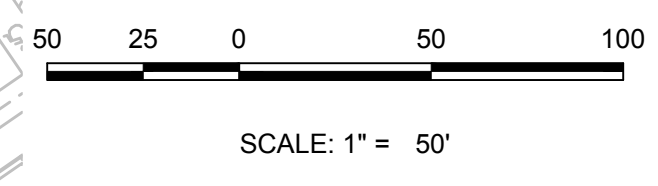
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CALL 811  
TWO WORKING DAYS  
**BEFORE YOU DIG**  
1-800-922-1987

UNCC  
UTILITY NOTIFICATION CENTER OF COLORADO



**KEYMAP**  
N.T.S.



**SANITARY SERVICE TABLE**

FILING, BLOCK, LOT	STREET	STATIONING
F15,B1,L1	FILING 15 SS WEST	16+98.25
F15,B1,L2	FILING 15 SS WEST	16+78.25
F15,B1,L3	FILING 15 SS WEST	16+34.25
F15,B1,L4	FILING 15 SS WEST	16+14.25
F15,B1,L5	FILING 15 SS WEST	15+40.25
F15,B1,L6	FILING 15 SS WEST	15+20.25
F15,B1,L7	FILING 15 SS WEST	14+76.25
F15,B1,L8	FILING 15 SS WEST	14+12.25
F15,B1,L9	FILING 15 SS WEST	13+92.25
F15,B1,L10	FILING 15 SS WEST	13+18.83
F15,B1,L11	FILING 15 SS WEST	12+98.83
F15,B1,L12	FILING 15 SS WEST	12+54.83
F15,B1,L13	FILING 15 SS WEST	12+34.83
F15,B1,L14	FILING 15 SS WEST	11+90.83
F15,B1,L15	FILING 15 SS WEST	11+70.83
F15,B1,L16	FILING 15 SS WEST	10+20.00
F15,B1,L17	FILING 15 SS WEST	10+00.00
F15,B1,L18	FILING 15 SS NORTH	10+84.00
F15,B1,L19	FILING 15 SS NORTH	10+64.00
F15,B1,L20	FILING 15 SS NORTH	10+84.00
F15,B1,L21	FILING 15 SS NORTH	10+64.00
F15,B1,L22	FILING 15 SS NORTH	10+84.00
F15,B1,L23	FILING 15 SS NORTH	10+61.00
F15,B1,L24	FILING 15 SS NORTHEAST	10+84.00
F15,B1,L25	FILING 15 SS NORTHEAST	10+64.00
F15,B1,L26	FILING 15 SS NORTHEAST	11+54.29
F15,B1,L27	FILING 15 SS NORTHEAST	11+34.29
F15,B2,L1	MOCK ORANGE AVE	10+59.00
F15,B2,L2	MOCK ORANGE AVE	10+79.00
F15,B2,L3	MOCK ORANGE AVE	11+23.00
F15,B2,L4	MOCK ORANGE AVE	11+43.00

**WATER SERVICE TABLE**

FILING, BLOCK, LOT	STREET	STATIONING
F15,B1,L1	ROCK DAISY PT	10+27.00
F15,B1,L2	ROCK DAISY PT	10+37.00
F15,B1,L3	ROCK DAISY PT	10+91.00
F15,B1,L4	ROCK DAISY PT	11+01.00
F15,B1,L5	ROCK DAISY PT	11+85.00
F15,B1,L6	ROCK DAISY PT	11+95.00
F15,B1,L7	ROCK DAISY PT	12+49.00
F15,B1,L8	ROCK DAISY PT	12+59.00
F15,B1,L9	ROCK DAISY PT	13+13.00
F15,B1,L10	ROCK DAISY PT	13+23.00
F15,B1,L11	ROCK DAISY PT	14+06.42
F15,B1,L12	ROCK DAISY PT	14+16.42
F15,B1,L13	ROCK DAISY PT	14+70.42
F15,B1,L14	ROCK DAISY PT	14+80.42
F15,B1,L15	ROCK DAISY PT	15+34.19
F15,B1,L16	ROCK DAISY PT	15+42.76
F15,B1,L17	BLUE HEART CT	10+82.08
F15,B1,L18	BLUE HEART CT	10+92.08
F15,B1,L19	BLUE HEART CT	10+80.08
F15,B1,L20	BLUE HEART CT	10+94.08
F15,B1,L21	ROCK DAISY PT	10+25.00
F15,B1,L22	ROCK DAISY PT	10+39.00
F15,B1,L23	MOCK ORANGE WAY	10+27.00
F15,B1,L24	MOCK ORANGE WAY	10+37.00
F15,B1,L25	MOCK ORANGE WAY	10+25.00
F15,B1,L26	MOCK ORANGE WAY	10+39.00
F15,B1,L27	MOCK ORANGE CT	10+98.21
F15,B1,L28	MOCK ORANGE CT	10+88.21
F15,B1,L29	MOCK ORANGE CT	11+00.21
F15,B1,L30	MOCK ORANGE CT	10+86.21
F15,B2,L1	ROCK DAISY LN	10+64.00
F15,B2,L2	ROCK DAISY LN	10+74.00
F15,B2,L3	ROCK DAISY LN	11+27.91
F15,B2,L4	ROCK DAISY LN	11+37.07
F15,B2,L5	ROCK DAISY TRL	12+86.64
F15,B2,L6	ROCK DAISY TRL	12+76.64
F15,B2,L7	ROCK DAISY TRL	12+22.64
F15,B2,L8	ROCK DAISY TRL	12+12.64
F15,B2,L9	ROCK DAISY TRL	11+58.64
F15,B2,L10	ROCK DAISY TRL	11+48.64
F15,B2,L11	ROCK DAISY TRL	10+94.64
F15,B2,L12	ROCK DAISY TRL	10+84.64
F15,B2,L13	ROCK DAISY PT	14+65.32
F15,B2,L14	ROCK DAISY PT	14+75.32

PREPARED UNDER THE SUPERVISION OF  
BRIAN P. WILSON  
COLORADO P.E. 0050067

**BENCHMARK**  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

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Tel: (720) 482-9526  
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**CVL**  
CONSULTANTS

HR 935 LLC  
7363 South Alton Way  
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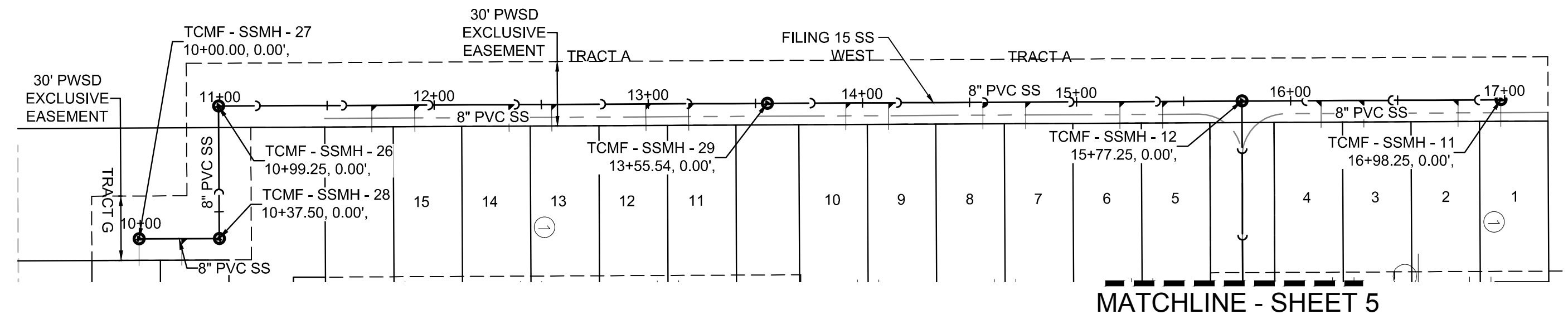
TRAILS AT CROWFOOT  
FILING 15 CONSTRUCTION DRAWINGS  
AREA UTILITY PLAN

SCALE: AS SHOWN  
DRAWN BY: BPW  
CHECKED BY: BPW  
DATE: JUNE 2018

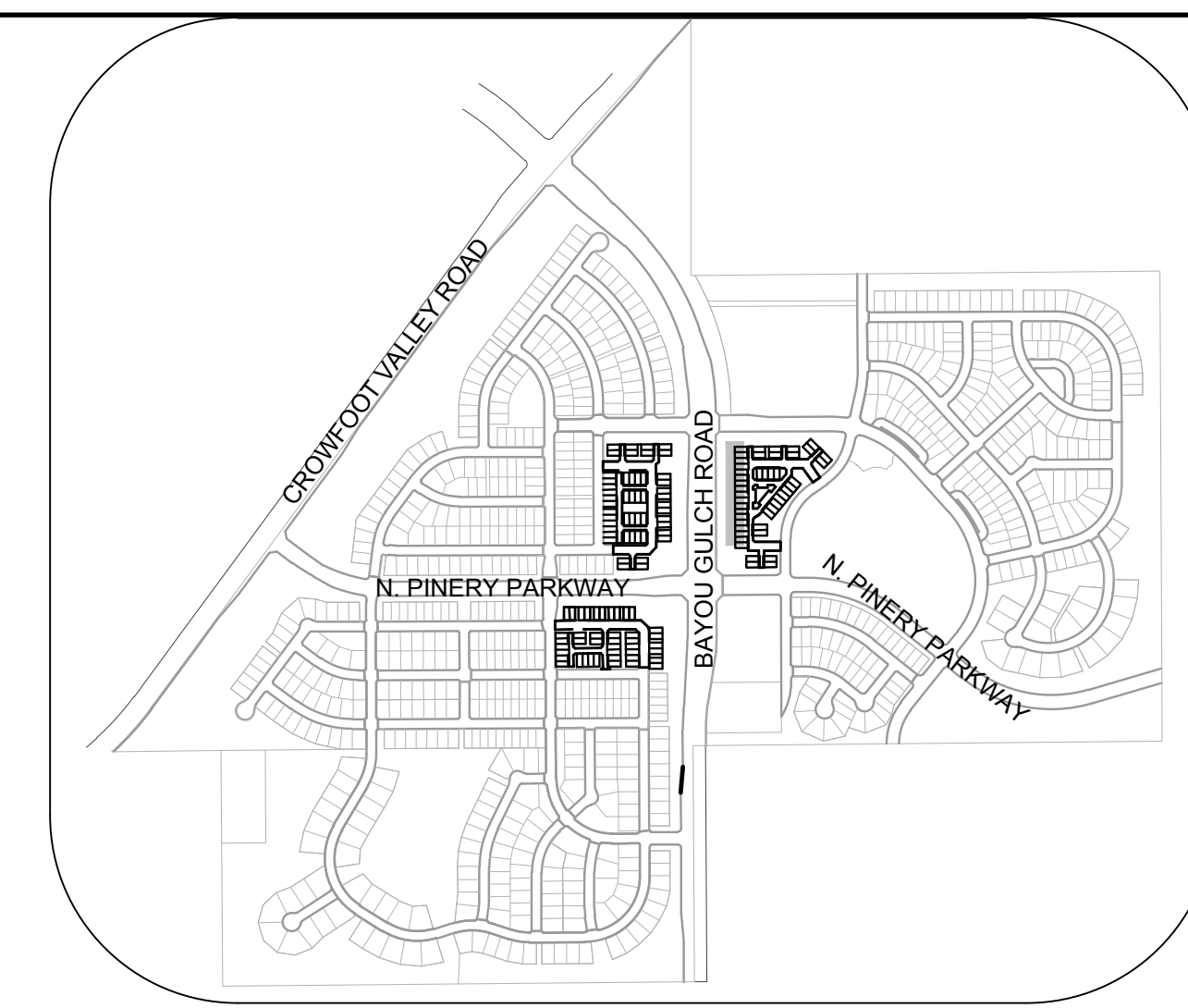
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SHEET NUMBER **3**

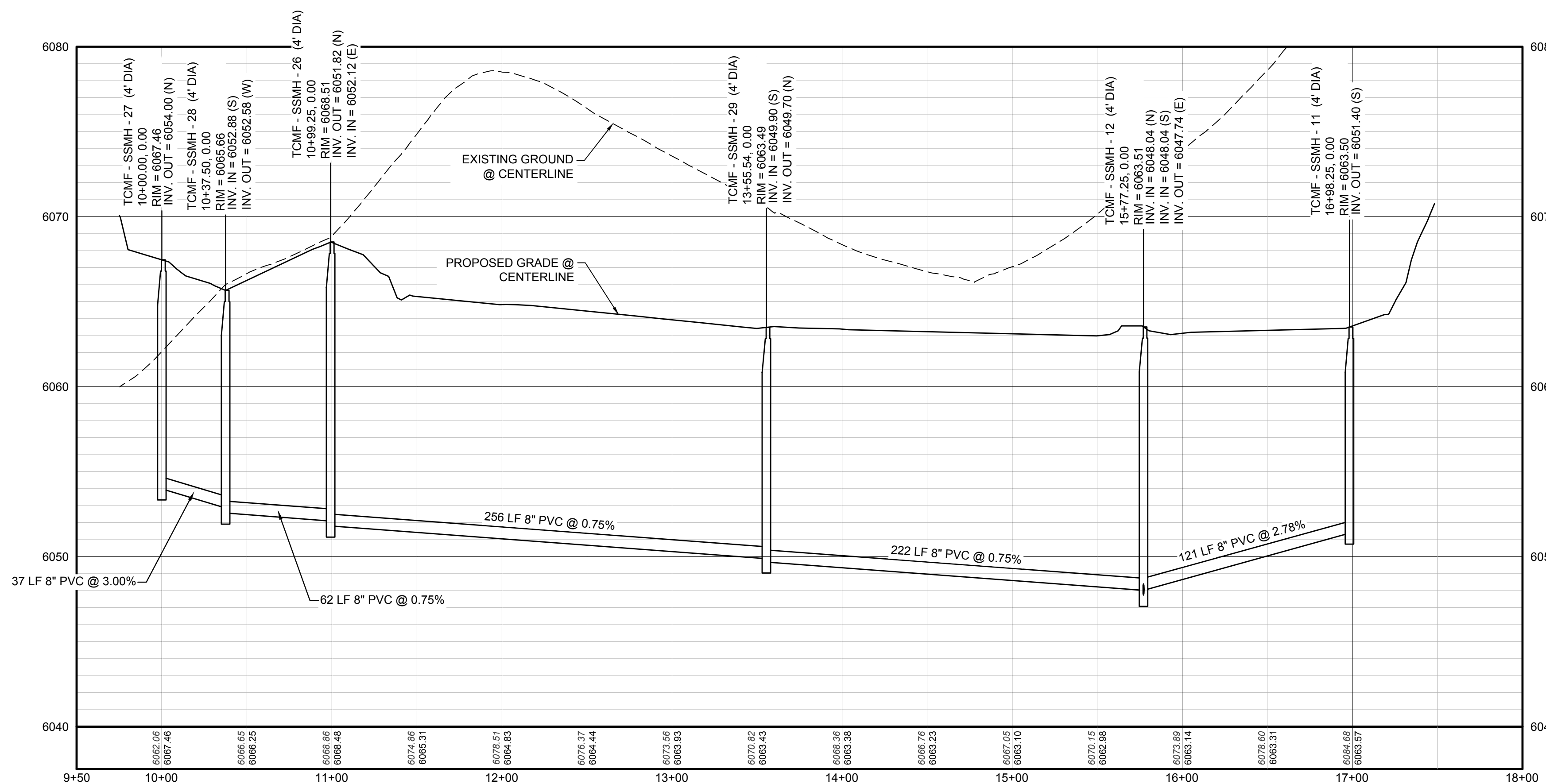
No.	Revisions	Date	Appr.	Date



PLAN: FILING 15 SS WEST STA: 9+50.00 TO 15+50.00  
HORIZONTAL SCALE: 1" = 50'



KEYMAP  
N.T.S.



PROFILE: FILING 15 SS WEST STA: 9+50.00 TO 18+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

### LEGEND

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊗	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⌈	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊗	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊗	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊗	PROPOSED FIRE HYDRANT	5615	EXISTING 5' CONTOUR
⊗	PROPOSED WL FITTING WITH THRUST BLOCK	5616	EXISTING 1' CONTOUR
⊗	PROPOSED FLARED END SECTION	5620	PROPOSED 5' CONTOUR
⊗	PROPOSED LOW POINT BLOW-OFF	5607	PROPOSED 1' CONTOUR
⊗	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊗	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊗	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊗	PROPOSED LIGHT POLE	---	PROPOSED WATER LINE
---	PROPOSED SIDEWALK	---	PROPOSED WATER LATERAL W/ METER
---	PROPOSED SIDEWALK RAMP	---	SECTION LINE
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### ABBREVIATIONS

AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
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LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

NOTES:  
1. SEE SHEET 3 FOR SANITARY SERVICE TABLES.

PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

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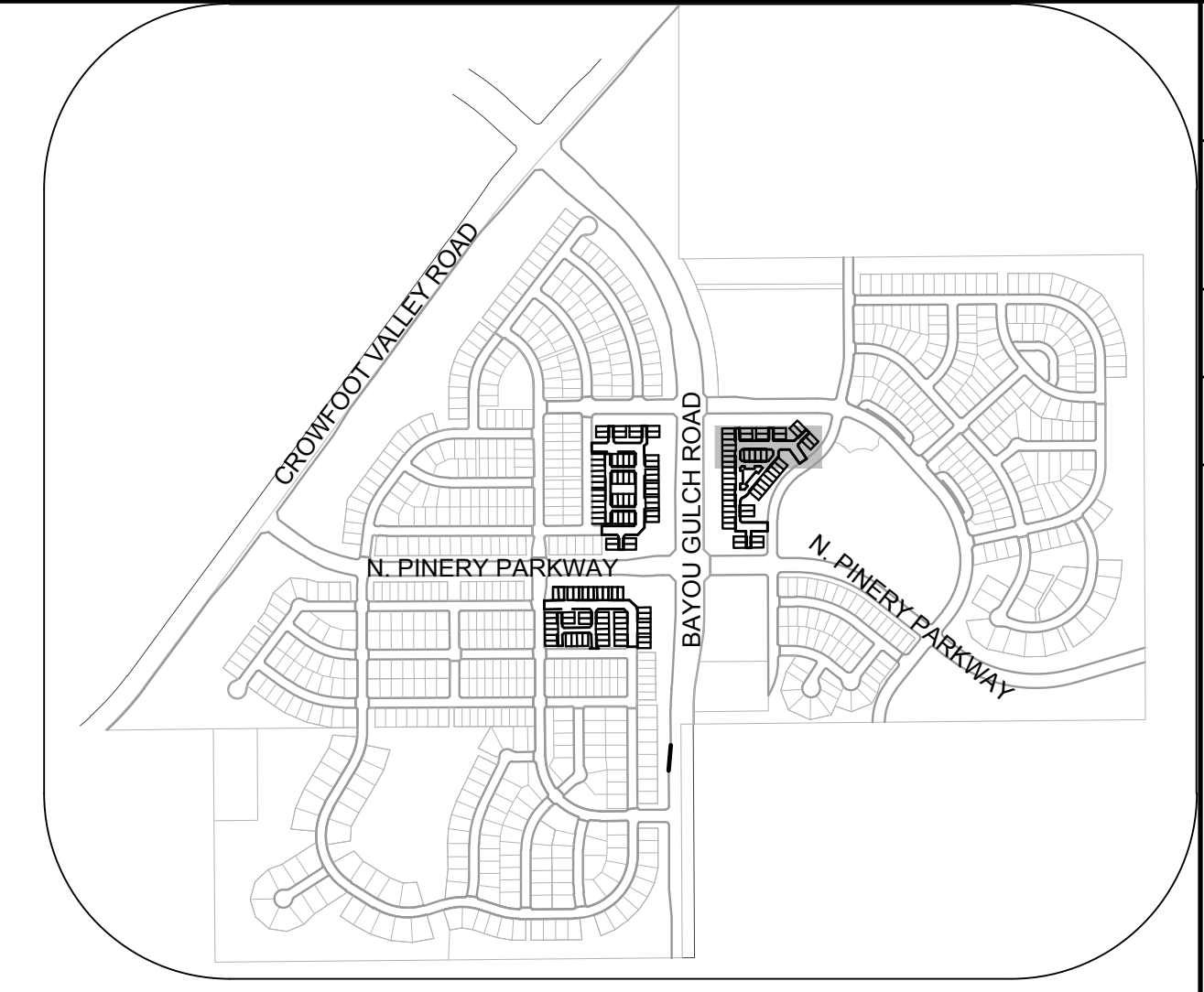
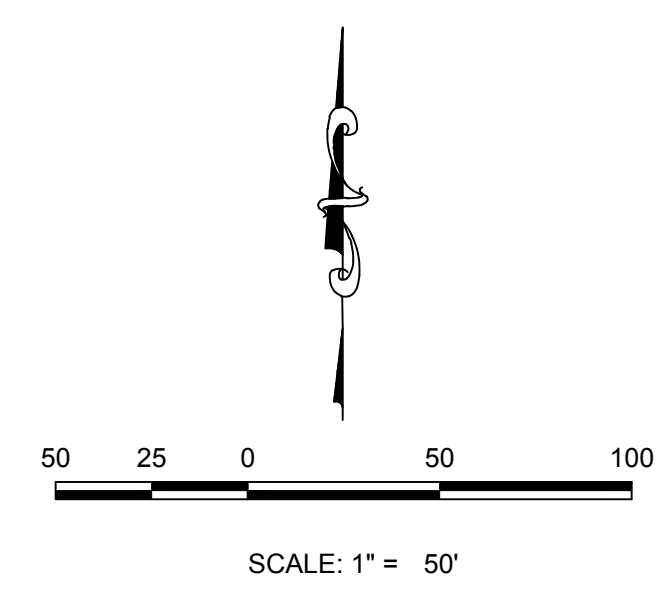
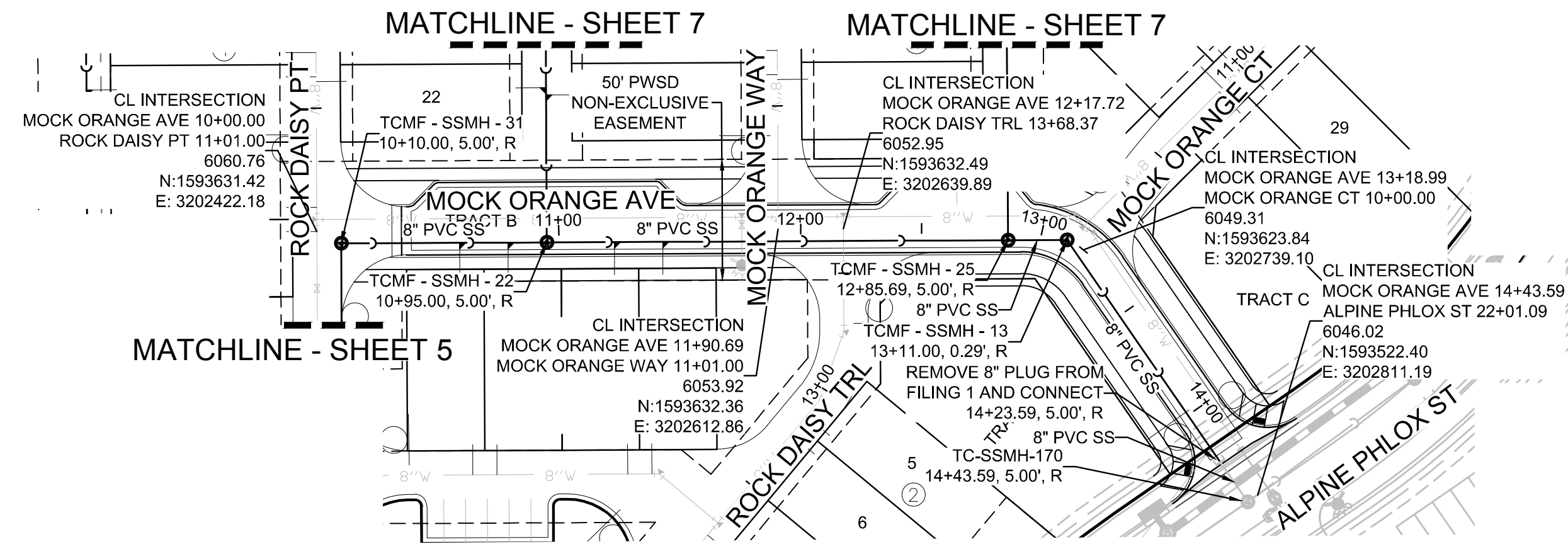
**BASIS OF BEARINGS:**  
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N:\PROJECTS\SS RANCH\ENGINEERING\SS RANCH\SS WEST.DWG, BRUNN, 11/20/19, 10:47 AM

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UTILITY NOTIFICATION CENTER OF COLORADO

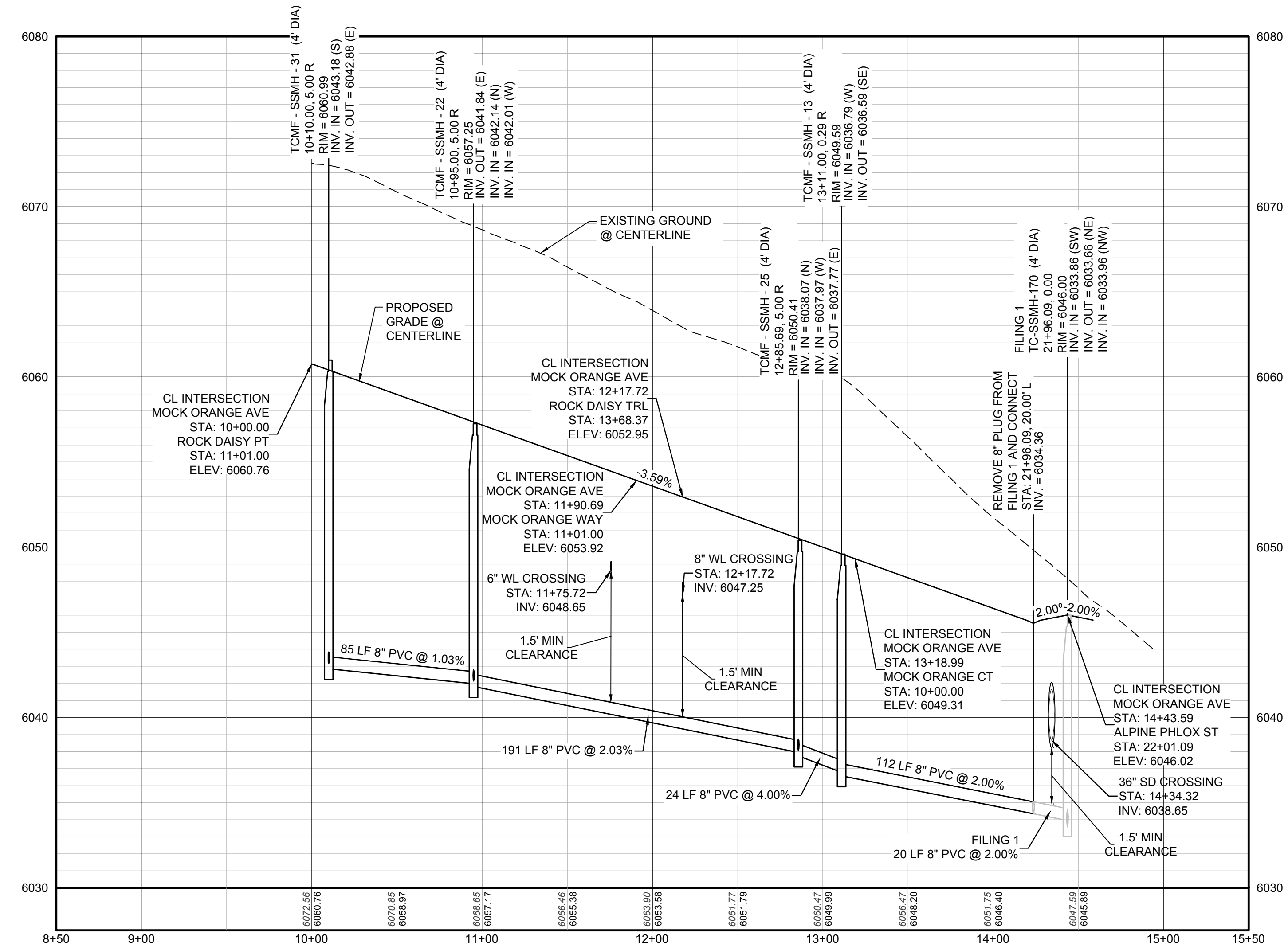
DATE:	JUNE 2018
DRAWN BY:	RRR
CHECKED BY:	BPW
SCALE:	AS SHOWN
FILE NO.:	8130283701
SHEET NUMBER:	4
PROJECT:	TRAILS AT CROWFOOT FILING 15 CONSTRUCTION DRAWINGS SANITARY SEWER PLAN & PROFILE FILING 15 SS WEST
CONTRACTOR:	HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112
CONSULTANT:	CVL CONSULTANTS 10333 E. Dry Creek Rd. Suite 410 Englewood, Colorado 80150 Tel: (720) 482-9526 Fax: (720) 482-9546
Revisions:	No. Date Init. Appr. Date





**KEYMAP**  
N.T.S.

**PLAN: MOCK ORANGE AVE STA: 9+00.00 TO 16+00.00**  
HORIZONTAL SCALE: 1" = 50'



**PROFILE: MOCK ORANGE AVE STA: 8+50.00 TO 15+50.00**  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

**LEGEND**

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊕	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⌈	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊘	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊕	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊕	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊕	PROPOSED WL FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊕	PROPOSED FLARED END SECTION	---	PROPOSED 5' CONTOUR
⊕	PROPOSED LOW POINT BLOW-OFF	---	PROPOSED 1' CONTOUR
⊕	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊕	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊕	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊕	PROPOSED LIGHT POLE	---	PROPOSED WATER LINE
⊕	PROPOSED SIDEWALK	---	PROPOSED WATER LATERAL W/ METER
⊕	PROPOSED SIDEWALK RAMP	---	SECTION LINE
10.00	EXISTING ELEVATION	---	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	---	EXISTING FIBER OPTIC LINE
⊕	PROPOSED STORM DRAIN INLET	---	EXISTING OVERHEAD POWER
⊕	PROPOSED STORM DRAIN MANHOLE	---	EXISTING TELEPHONE LINE

**ABBREVIATIONS**

AD	ANGLE DIFFERENCE	MH	MANHOLE
AV	AIR VAC RELEASE VALVE	N.T.S.	NOT TO SCALE
BVC	BEGIN VERTICAL CURVE	PVC	POLYVINYL CHLORIDE
BVP	BEGIN VERTICAL PROFILE	PVI	PT. OF VERTICAL INTERSECTION
CBO	CAP WITH BLOW OFF	PVT	POINT OF VERTICAL TANGENT
CRR	CURB RETURN RADIUS	ROCB	REINFORCED CONCRETE BOX CULVERT
EL	ELEVATION	RCP	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
EVC	END VERTICAL CURVE	SC	SANITARY CAP
EVP	END VERTICAL PROFILE	SD	STORM DRAIN
FG	FINISHED GROUND	SL	SECTION LINE
FH	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	STA	STATION
GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
INV	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

NOTES:  
1. SEE SHEET 3 FOR SANITARY SERVICE TABLES.

N:\PROJECTS\SSR\BENCH\ENGINEERING\SSR\SEWER\SANITARY\SEWER SHEETS\MOCK ORANGE AVE.DWG, BRIANW, 11/20/2018 10:59 AM

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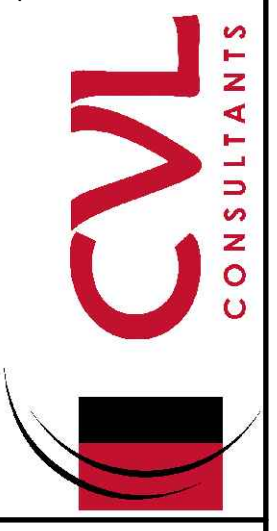
**BENCHMARK**  
THE DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

**BASIS OF BEARINGS:**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

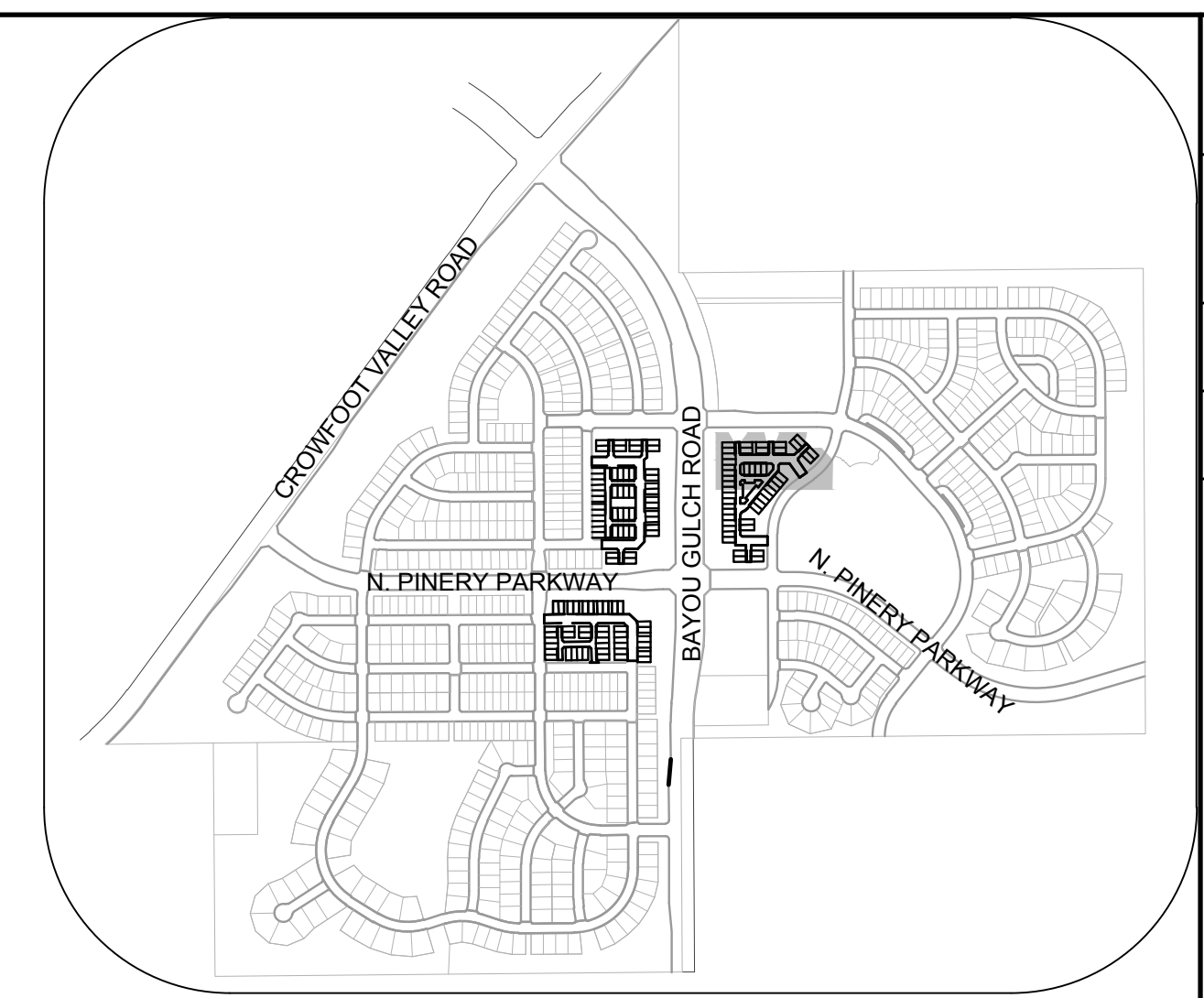
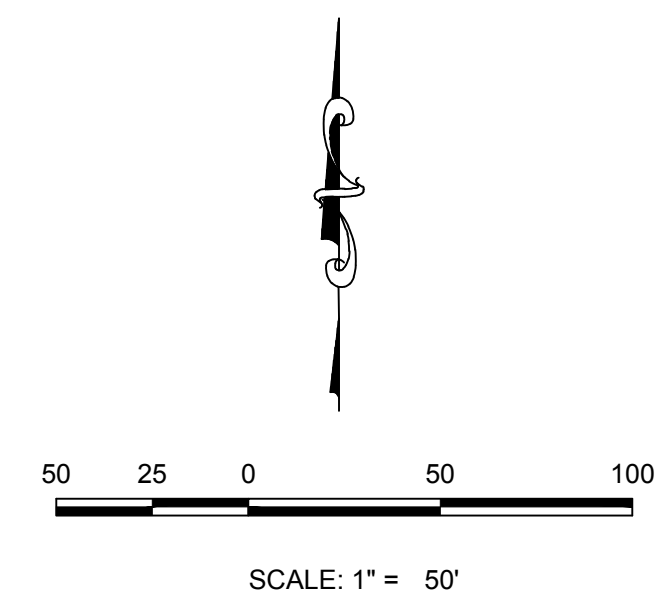
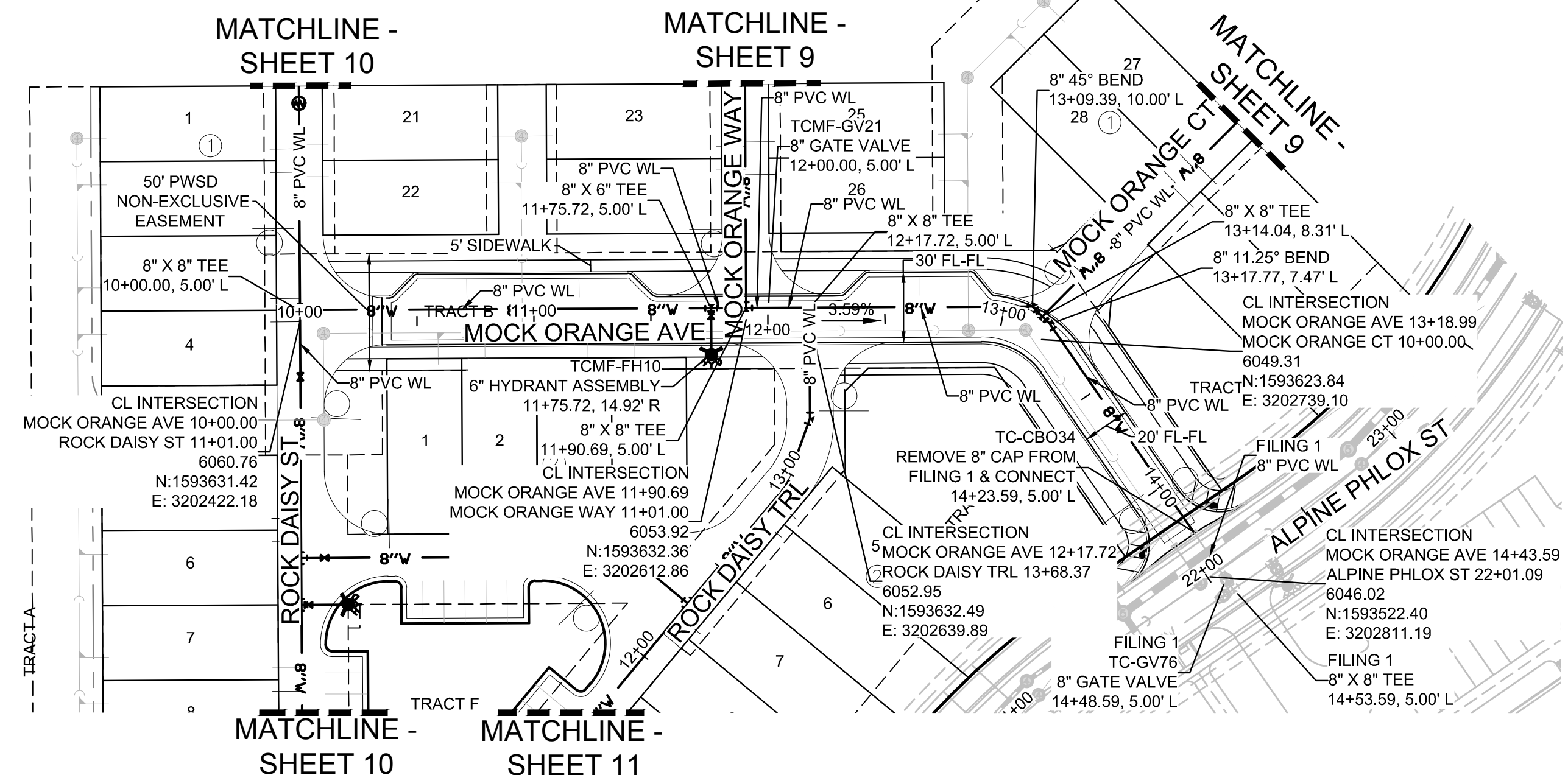
SHEET NUMBER	DRAWN BY: RRR	CHECKED BY: BPW	DATE: JUNE 2018	SCALE:	AS SHOWN	FILE NO.:	8130283701
				TRAILS AT CROWFOOT FILING 15 CONSTRUCTION DRAWINGS SANITARY SEWER PLAN & PROFILE MOCK ORANGE AVE			
6	Revisions	No.	Date	Appr.	Date		

10333 E. Dry Creek Rd.  
Suite 410  
Englewood, CO 80150  
Tel: (720) 482-9526  
Fax: (720) 482-9546



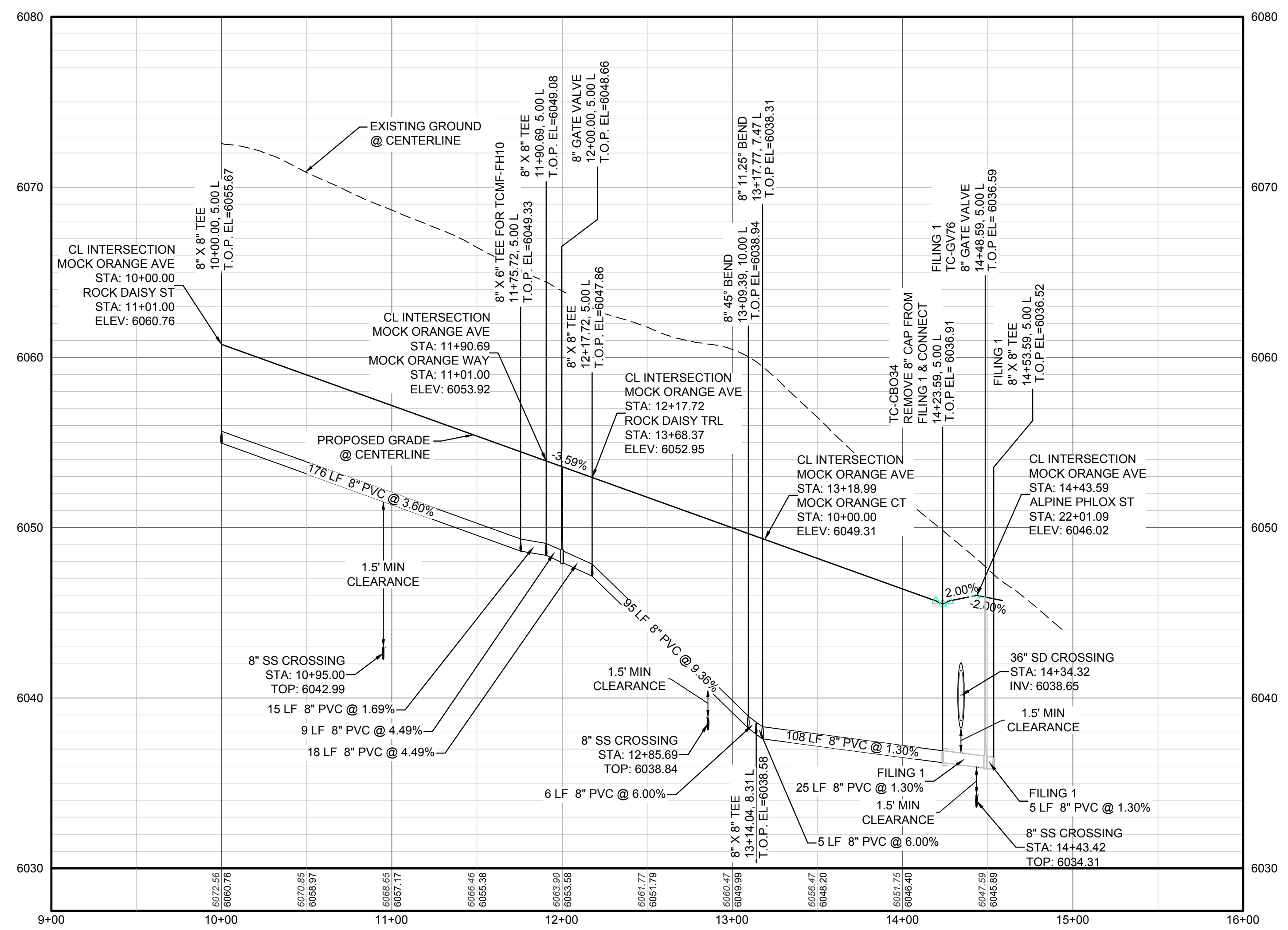
HR 935 LLC  
7353 South Alton Way  
CENTENNIAL, CO 80112





KEYMAP  
N.T.S.

PLAN: MOCK ORANGE AVE STA: 9+00.00 TO 15+00.00  
HORIZONTAL SCALE: 1" = 50'



PROFILE: MOCK ORANGE AVE STA: 9+00.00 TO 16+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

### LEGEND

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊕	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⌈	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⌋	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊗	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊕	PROPOSED FIRE HYDRANT	5615	EXISTING 5' CONTOUR
⊕	PROPOSED WL FITTING WITH THRUST BLOCK	5616	EXISTING 1' CONTOUR
⊕	PROPOSED FLARED END SECTION	5620	PROPOSED 5' CONTOUR
⊕	PROPOSED LOW POINT BLOW-OFF	5607	PROPOSED 1' CONTOUR
⊕	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊕	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊕	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊕	PROPOSED LIGHT POLE	---	PROPOSED WATER LINE
⊕	PROPOSED SIDEWALK	---	PROPOSED WATER LATERAL W/ METER
⊕	PROPOSED SIDEWALK RAMP	---	SECTION LINE
10.00	EXISTING ELEVATION	---	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	---	EXISTING FIBER OPTIC LINE
⊕	PROPOSED STORM DRAIN INLET	---	EXISTING OVERHEAD POWER
⊕	PROPOSED STORM DRAIN MANHOLE	---	EXISTING TELEPHONE LINE

### ABBREVIATIONS

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BVP	BEGIN VERTICAL PROFILE	PVI	PT. OF VERTICAL INTERSECTION
CBO	CAP WITH BLOW OFF	PVT	POINT OF VERTICAL TANGENT
CRR	CURB RETURN RADIUS	ROCB	REINFORCED CONCRETE BOX CULVERT
ELR	ELEVATION	RCP	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
EVC	END VERTICAL CURVE	SC	SANITARY CAP
EVP	END VERTICAL PROFILE	SD	SANITARY DRAIN
FG	FINISHED GROUND	SL	SECTION LINE
FH	FIRE HYDRANT	SS	SANITARY SEWER
FL	FLOW LINE	STA	STATION
GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
INV	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

NOTES:  
1. SEE SHEET 3 FOR WATER SERVICE TABLES.

N:\PROJECTS\SSR\BENCHM\ENGINEERING\SSR\SET\SMULTIFAMILY\CDSP\FPARKER WATER AND SANITATION\WATER PIPING\MOCK ORANGE AVE DWG. BRUNN\1122018 10:56 AM

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CENTER OF COLORADO

**BENCHMARK**  
THE DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

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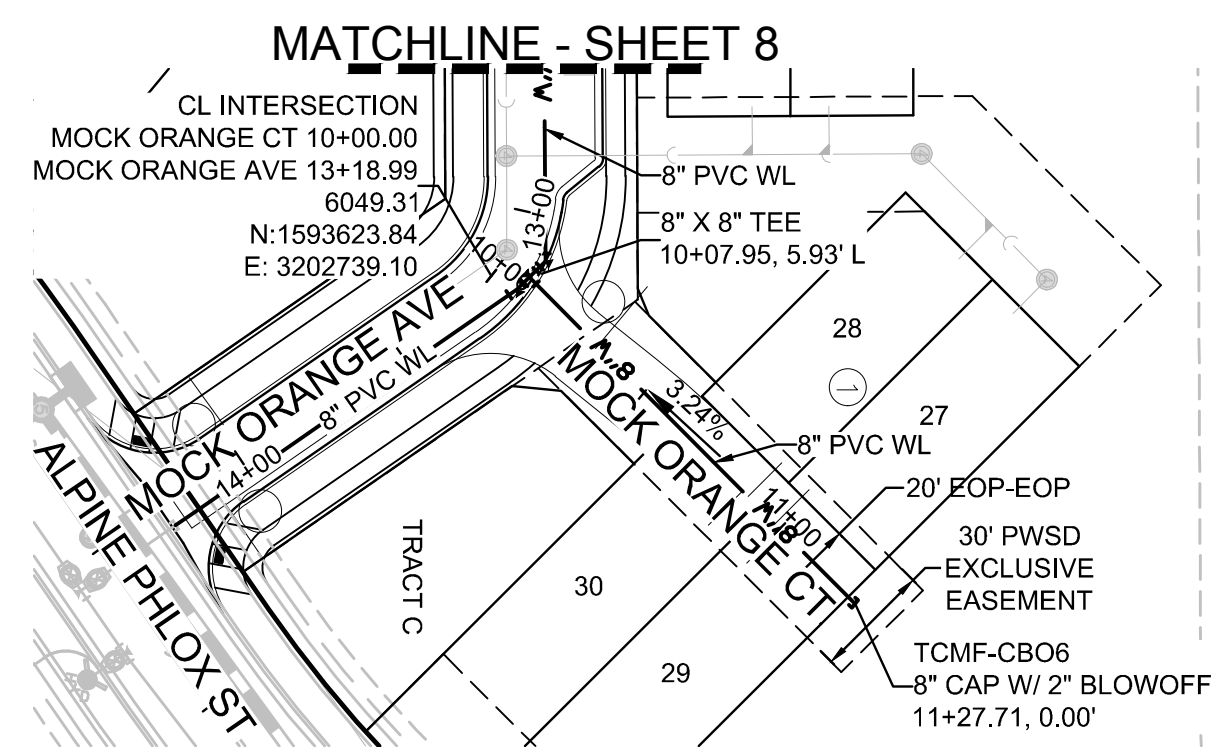
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

SHEET NUMBER	DRAWN BY: RRR	SCALE: AS SHOWN	FILE NO: 8130283701	DATE: JUNE 2018
				CHECKED BY: BPW
8	DATE: JUNE 2018	SCALE: AS SHOWN	FILE NO: 8130283701	NO. REVISIONS
				DATE
				INIT.
				APPR.
				DATE

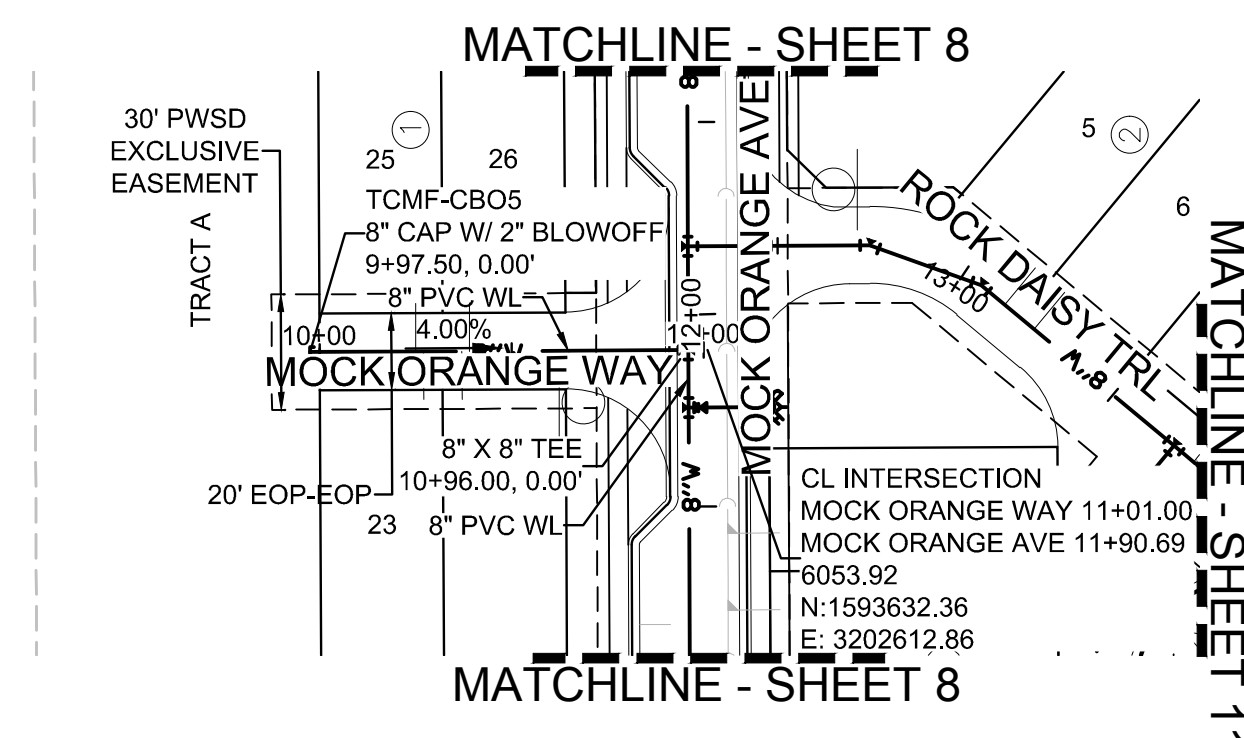
TRAILS AT CROWFOOT  
FILING 15 CONSTRUCTION DRAWINGS  
WATER PLAN & PROFILE  
MOCK ORANGE AVENUE

HR 935 LLC  
7353 South Alton Way  
CENTENNIAL, CO 80112

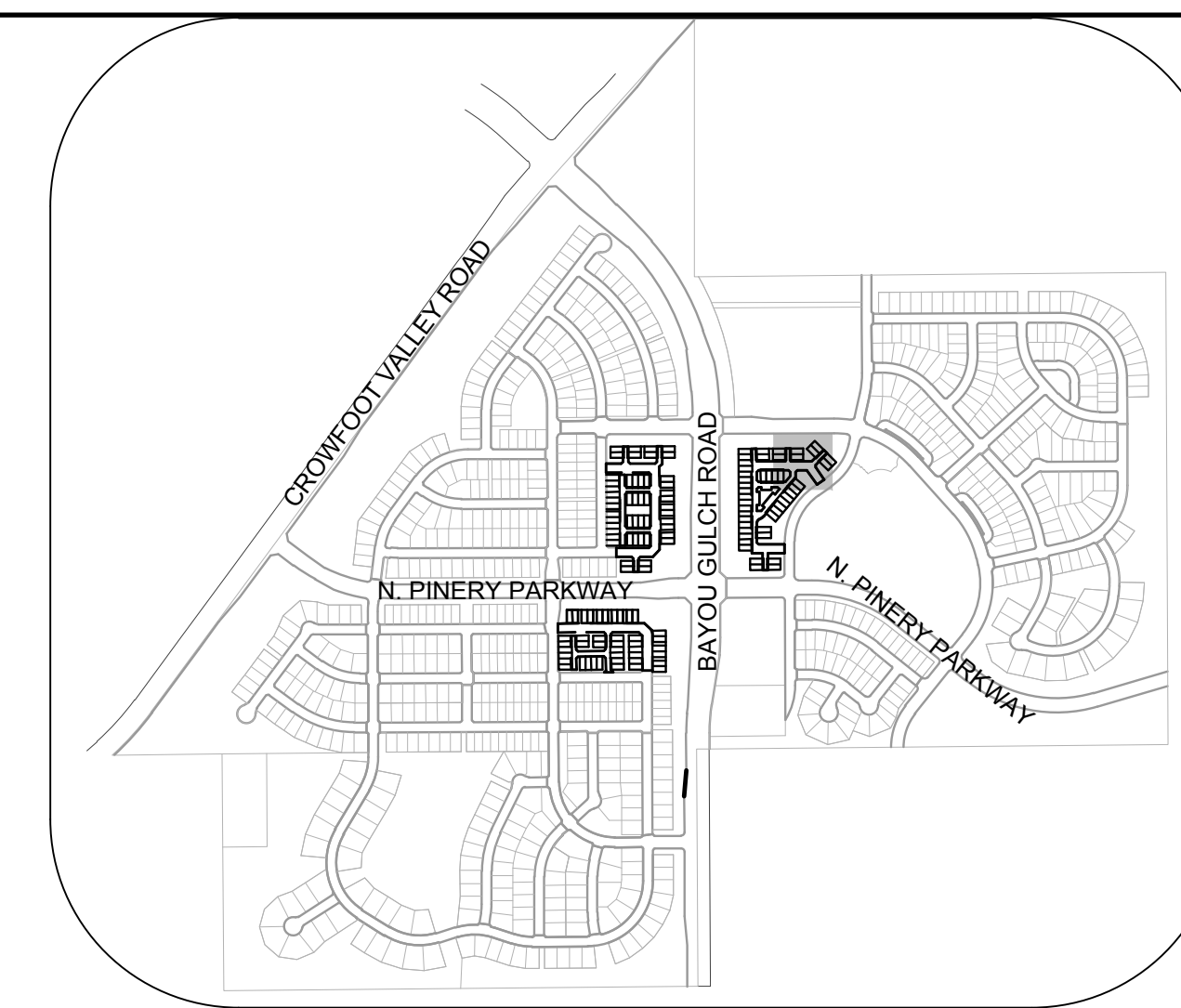
CVL CONSULTANTS  
10333 E. Dry Creek Rd.  
Suite 6410  
Englewood, CO 80110  
Tel: (720) 482-9526  
Fax: (720) 482-9546



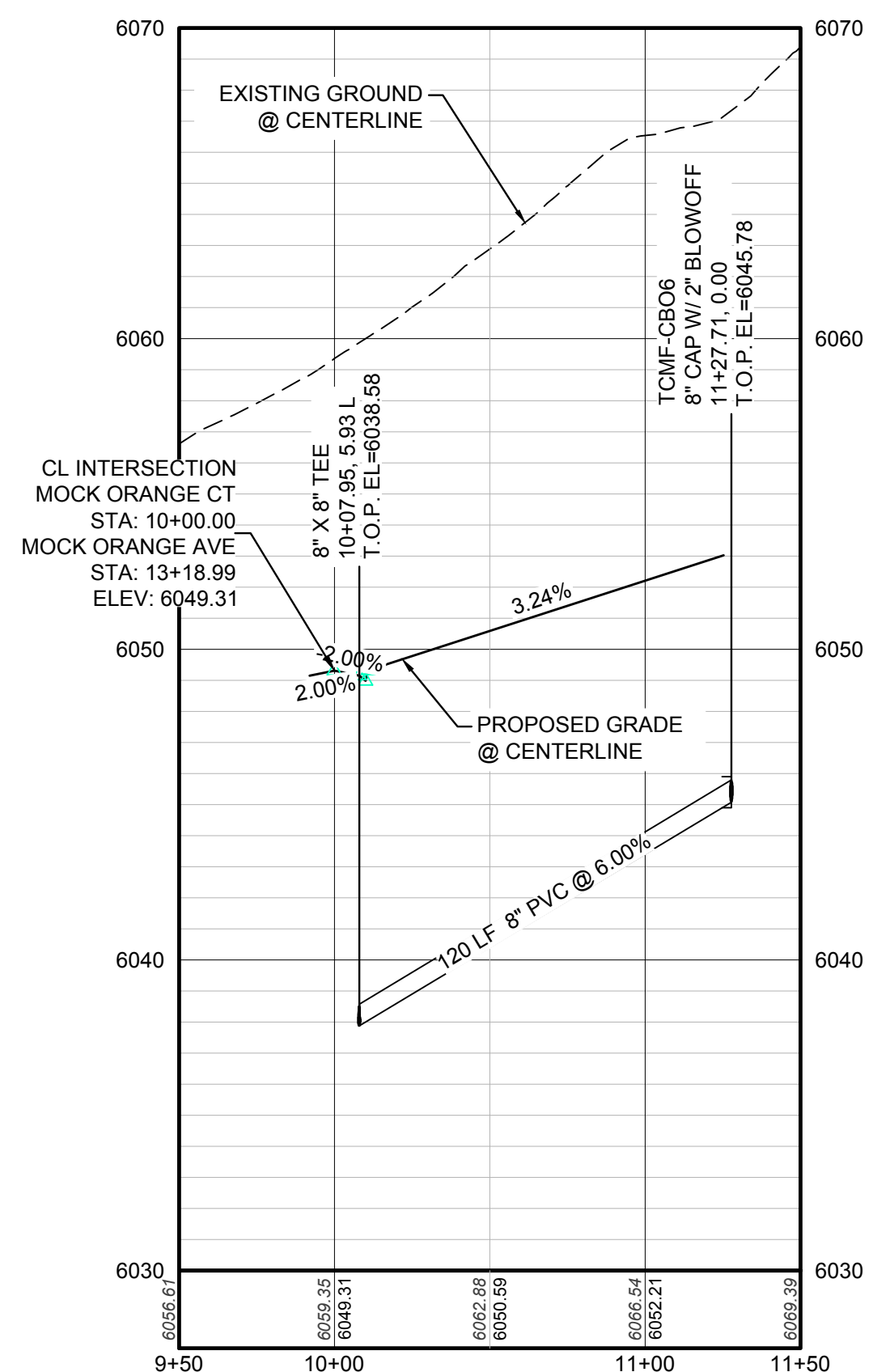
PLAN: MOCK ORANGE CT STA: 10+00.00 TO 11+50.00  
HORIZONTAL SCALE: 1" = 50'



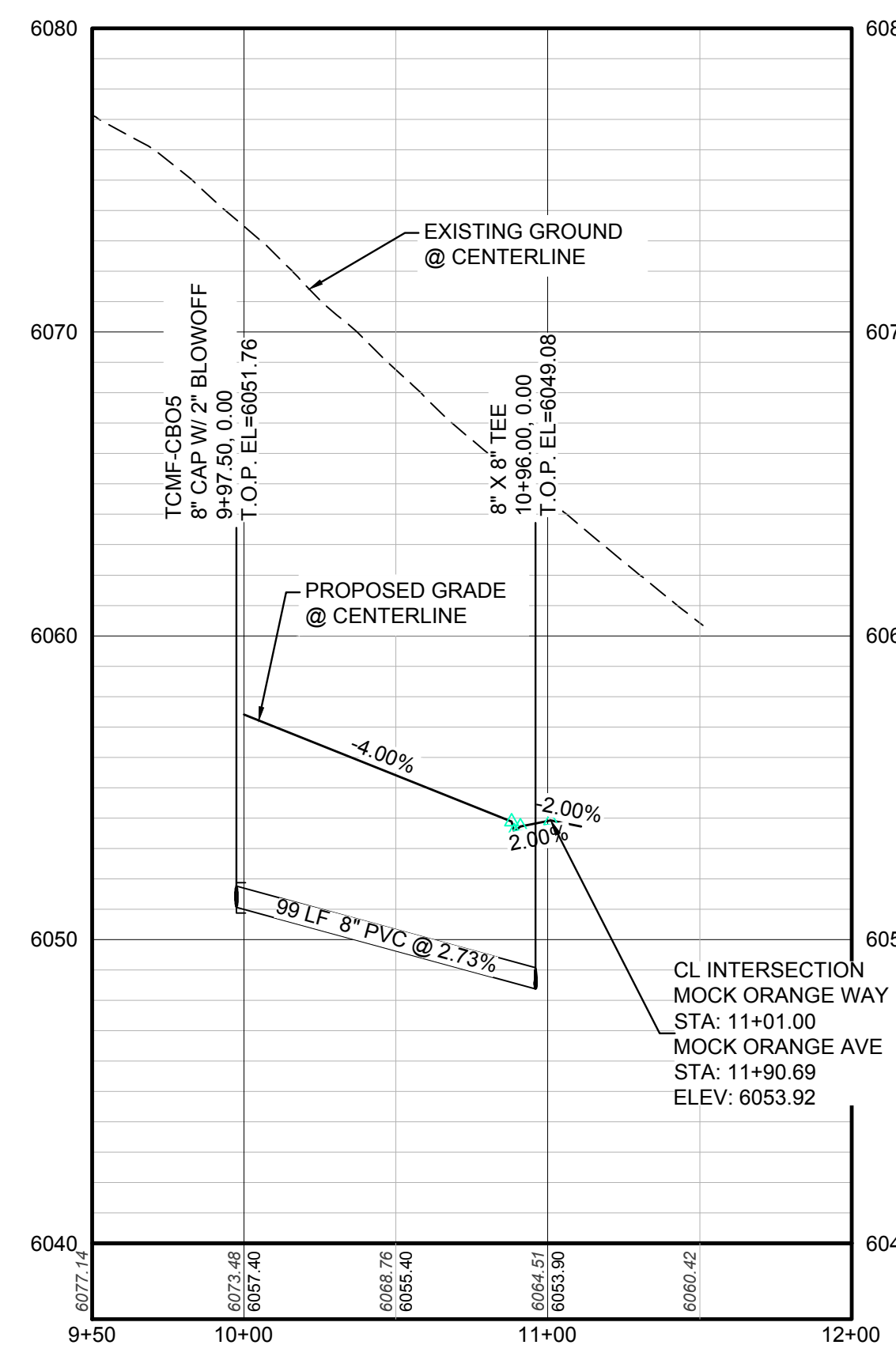
PLAN: MOCK ORANGE WAY STA: 9+50.00 TO 12+00.00  
HORIZONTAL SCALE: 1" = 50'



KEYMAP  
N.T.S.



PROFILE: MOCK ORANGE CT STA: 9+50.00 TO 11+50.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



PROFILE: MOCK ORANGE WAY STA: 9+50.00 TO 12+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

### LEGEND

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
⊗	PROPOSED BUTTERFLY VALVE	---	PROPERTY LINE
⌈	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊘	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊗	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊗	PROPOSED FIRE HYDRANT	---	EXISTING 5' CONTOUR
⊗	PROPOSED WL FITTING WITH THRUST BLOCK	---	EXISTING 1' CONTOUR
⊗	PROPOSED FLARED END SECTION	---	PROPOSED 5' CONTOUR
⊗	PROPOSED LOW POINT BLOWOFF	---	PROPOSED 1' CONTOUR
⊗	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊗	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊗	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊗	PROPOSED LIGHT POLE	---	PROPOSED WATER LINE
---	PROPOSED SIDEWALK	---	PROPOSED WATER LATERAL W/ METER
---	PROPOSED SIDEWALK RAMP	---	SECTION LINE
10.00	EXISTING ELEVATION	---	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	---	EXISTING FIBER OPTIC LINE
---	PROPOSED STORM DRAIN INLET	---	EXISTING OVERHEAD POWER
⊗	PROPOSED STORM DRAIN MANHOLE	---	EXISTING TELEPHONE LINE

### ABBREVIATIONS

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BVC	BEGIN VERTICAL CURVE	PVC	POLYVINYL CHLORIDE
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ELR	ELEVATION	RCP	REINFORCED CONCRETE PIPE
EP	EDGE OF PAVEMENT	ROW	RIGHT OF WAY
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EVP	END VERTICAL PROFILE	SD	STORM DRAIN
FG	FINISHED GROUND	SL	SECTION LINE
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GV	GATE VALVE	T.O.P.	TOP OF PIPE
HCR	HANDICAP CURB RAMP	UE	UTILITY EASEMENT
HP	HIGH POINT	VC	VERTICAL CURVE
INV	INVERT	WL	WATER LINE
K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

NOTES:  
1. SEE SHEET 3 FOR WATER SERVICE TABLES.

N:\PROJECTS\SSR\BENCHM\ENGINEERING\SSR\BENCHM\TRAILS AT CROWFOOT WATER AND SANITATION\WATER PIPING\MOCK ORANGE WAY DWG. BRIAN.W. 11/2/2018 10:58 AM

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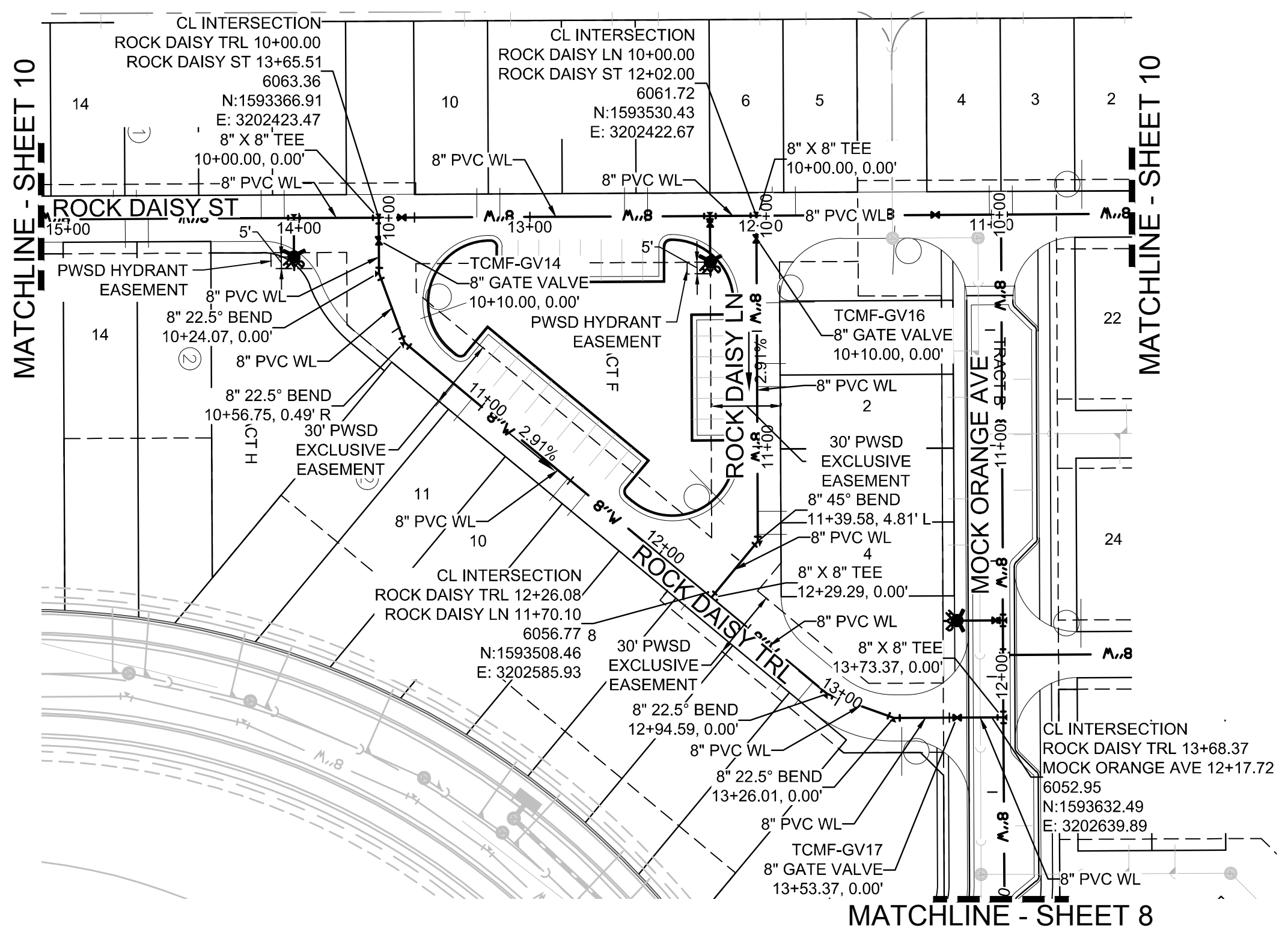
**BENCHMARK**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

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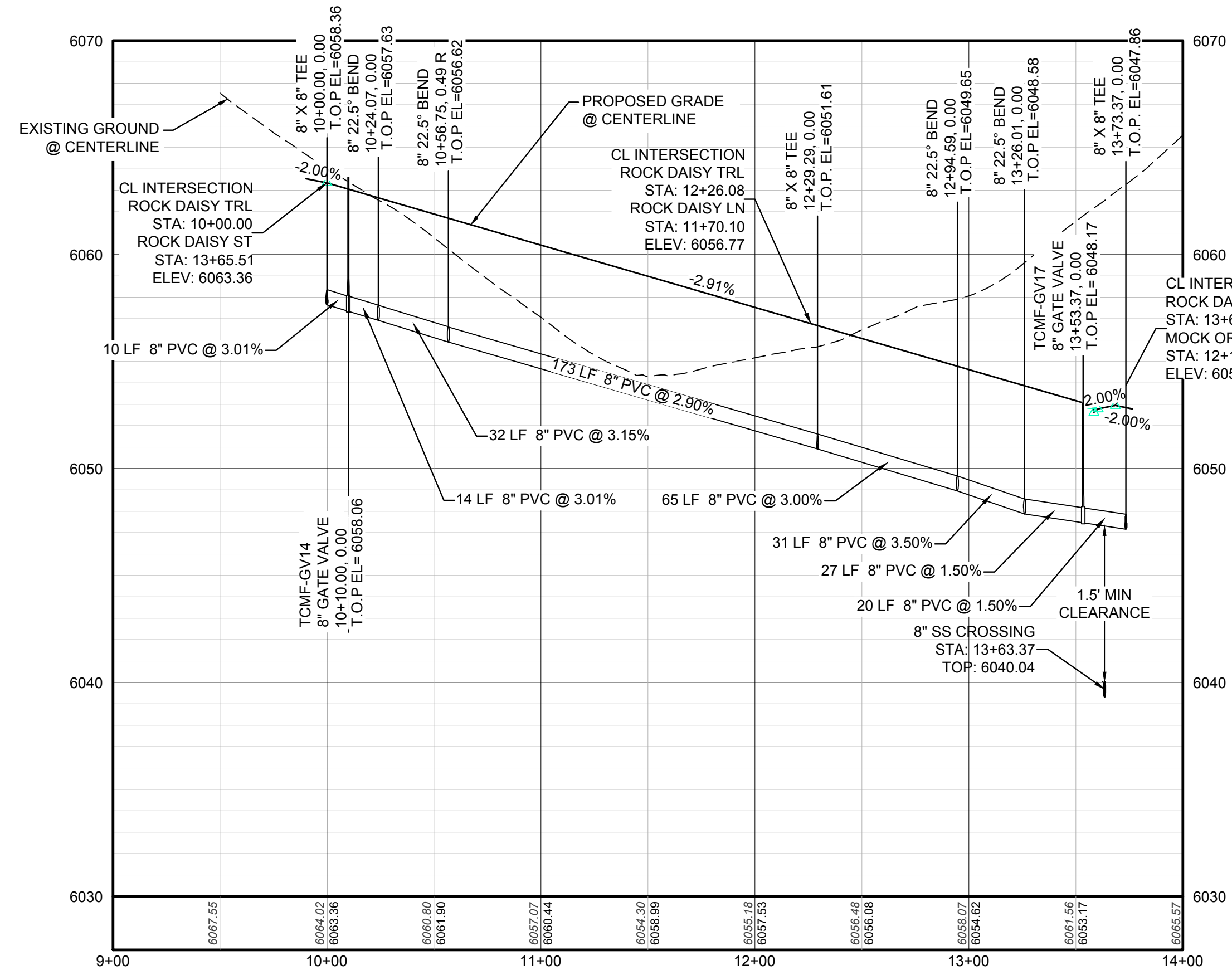
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

DATE:	JUNE 2018
CHECKED BY:	BPW
DRAWN BY:	RRR
SCALE:	AS SHOWN
FILE NO.:	8130283701
SHEET NUMBER:	9
PROJECT:	TRAILS AT CROWFOOT FILING 15 CONSTRUCTION DRAWINGS WATER PLAN & PROFILE MOCK ORANGE WAY & MOCK ORANGE COURT
CONSULTANT:	CVL CONSULTANTS 10339 E. Dry Creek Rd. Suite 410 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9548
PROJECT NO.:	HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112
NO.:	
REVISIONS:	
DATE:	
INIT.:	
APPR.:	
DATE:	

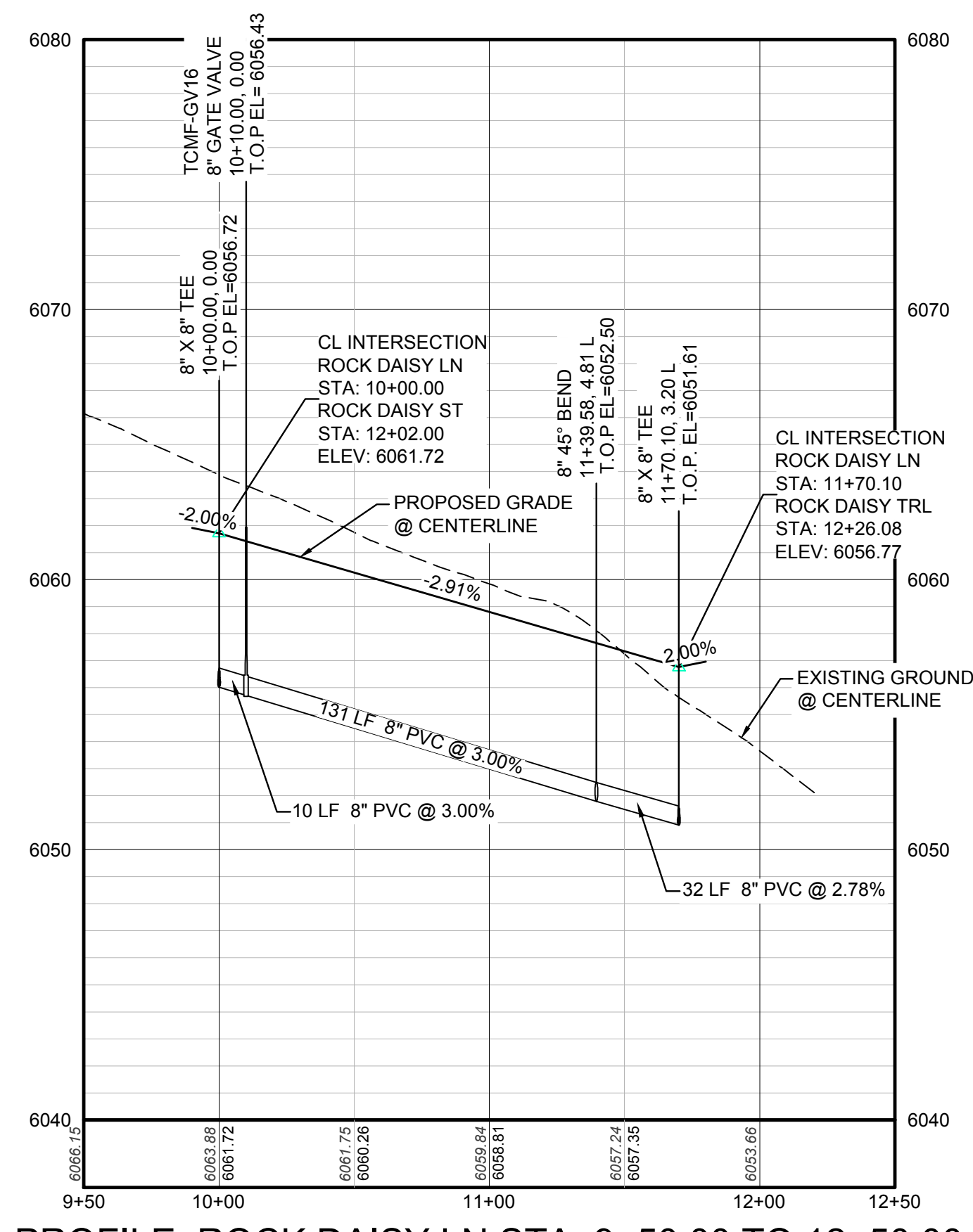




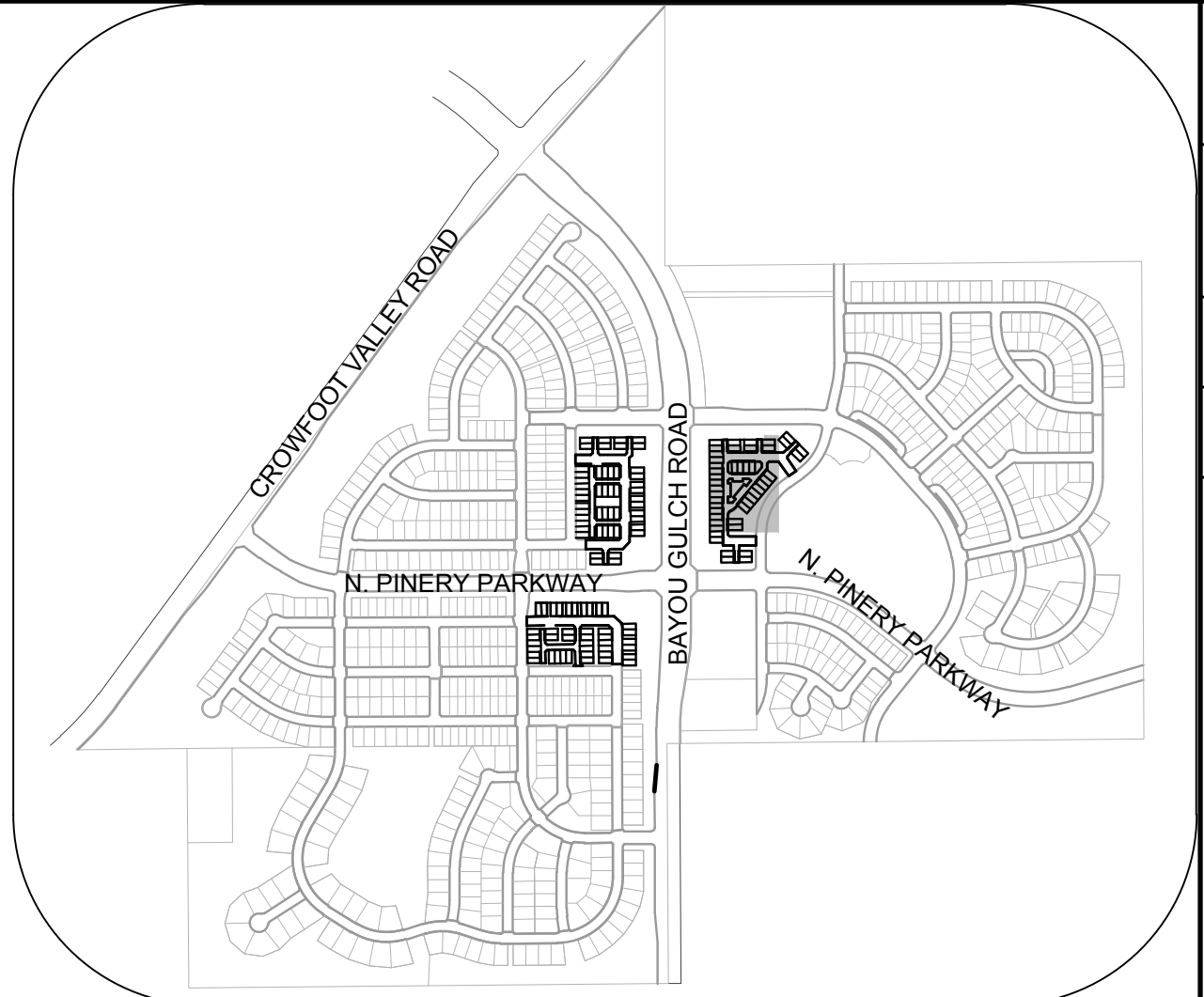
PLAN: ROCK DAISY TRL STA: 9+00.00 TO 14+00.00 & ROCK DAISY LN STA: 9+50.00 TO 12+50.00  
HORIZONTAL SCALE: 1" = 50'



PROFILE: ROCK DAISY TRL STA: 9+00.00 TO 14+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



PROFILE: ROCK DAISY LN STA: 9+50.00 TO 12+50.00  
HORIZONTAL: 1" = 50'  
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KEYMAP  
N.T.S.

### LEGEND

②	BLOCK NUMBER	△	PROPOSED RANGE POINT
Ⓐ	LOT TYPE	---	CENTERLINE
6	LOT NUMBER	---	RIGHT-OF-WAY
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⌈	PROPOSED CAP WITH END OF LINE BLOWOFF	---	EDGE OF PAVEMENT
⊗	PROPOSED REDUCER	→	PROPOSED DIRECTION OF FLOW
⊕	PROPOSED VALVE	1.0%	PROPOSED SLOPE & DIRECTION
⊕	PROPOSED FIRE HYDRANT	5615	EXISTING 5' CONTOUR
⊕	PROPOSED WL FITTING WITH THRUST BLOCK	5616	EXISTING 1' CONTOUR
⊕	PROPOSED FLARED END SECTION	5620	PROPOSED 5' CONTOUR
⊕	PROPOSED LOW POINT BLOW-OFF	5607	PROPOSED 1' CONTOUR
⊕	PROPOSED AIR VALVE	---	PROPOSED STORM DRAIN
⊕	FUTURE PHASE VALVE	---	PROPOSED SEWER LINE WITH MANHOLE
⊕	FUTURE FIRE HYDRANT	---	PROPOSED SEWER LATERAL
⊕	PROPOSED LIGHT POLE	---	PROPOSED WATER LINE
⊕	PROPOSED SIDEWALK	---	PROPOSED WATER LATERAL W/ METER
⊕	PROPOSED SIDEWALK RAMP	---	SECTION LINE
10.00	EXISTING ELEVATION	---	FILING BOUNDARY
10.00	PROPOSED DESIGN ELEVATION	---	EXISTING FIBER OPTIC LINE
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⊕	PROPOSED STORM DRAIN MANHOLE	---	EXISTING TELEPHONE LINE

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K	CURVATURE COEFFICIENT	WLC	WATER LINE CONNECTION
LF	LINEAR FEET	WSE	WATER SURFACE ELEVATION

NOTES:  
1. SEE SHEET 3 FOR WATER SERVICE TABLES.

10333 E. Dry Creek Rd. Suite 6410 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
<b>CVL</b> CONSULTANTS				
HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112				
TRAILS AT CROWFOOT FILING 15 CONSTRUCTION DRAWINGS WATER PLAN & PROFILE ROCK DAISY TRAIL & ROCK DAISY LANE				
SCALE: AS SHOWN FILE NO: 8130283701				
DRAWN BY: RRR CHECKED BY: BPW DATE: JUNE 2018				
SHEET NUMBER <b>11</b>				

N:\PROJECTS\SSR\CHANGINGENGINEERING\SSR\SET\SMULTIFAMILY\CDSP\FBARKER WATER AND SANITATION\WATER PAPER\ROCK DAISY TRL.DWG. BRUNAW, 11/20/18 11:08 AM

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UTILITY NOTIFICATION CENTER OF COLORADO

**BENCHMARK**  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

**BASIS OF BEARINGS:**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

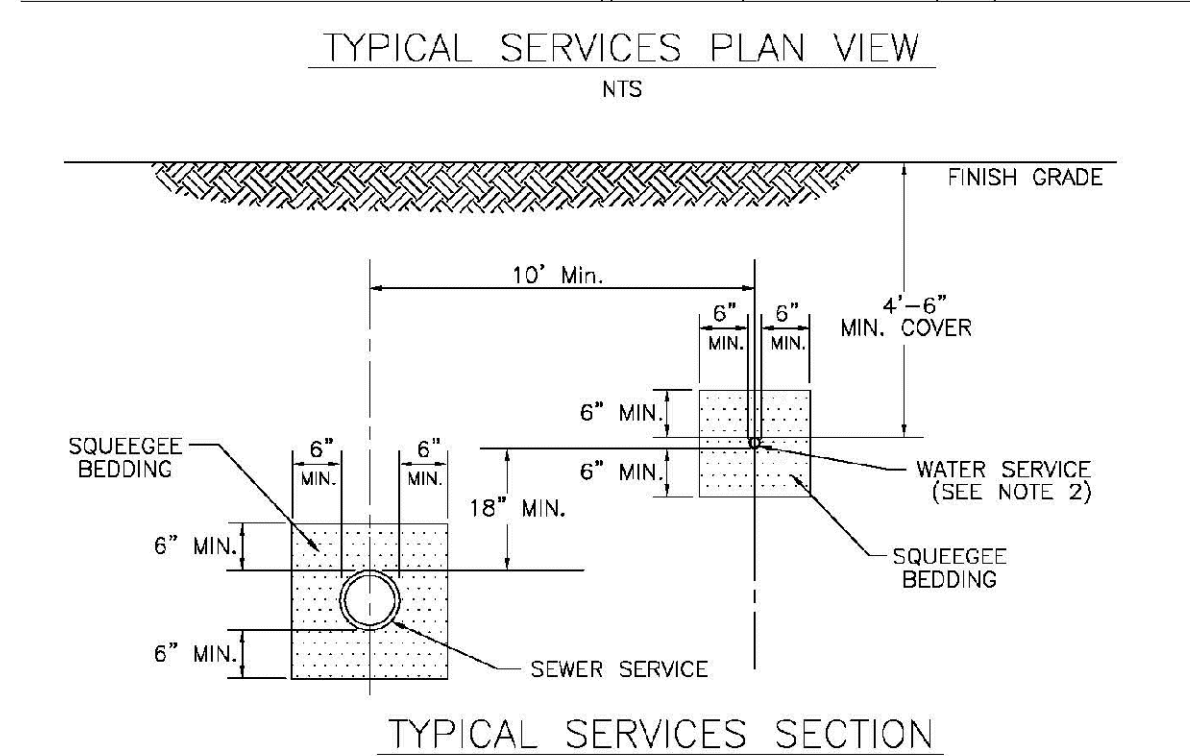
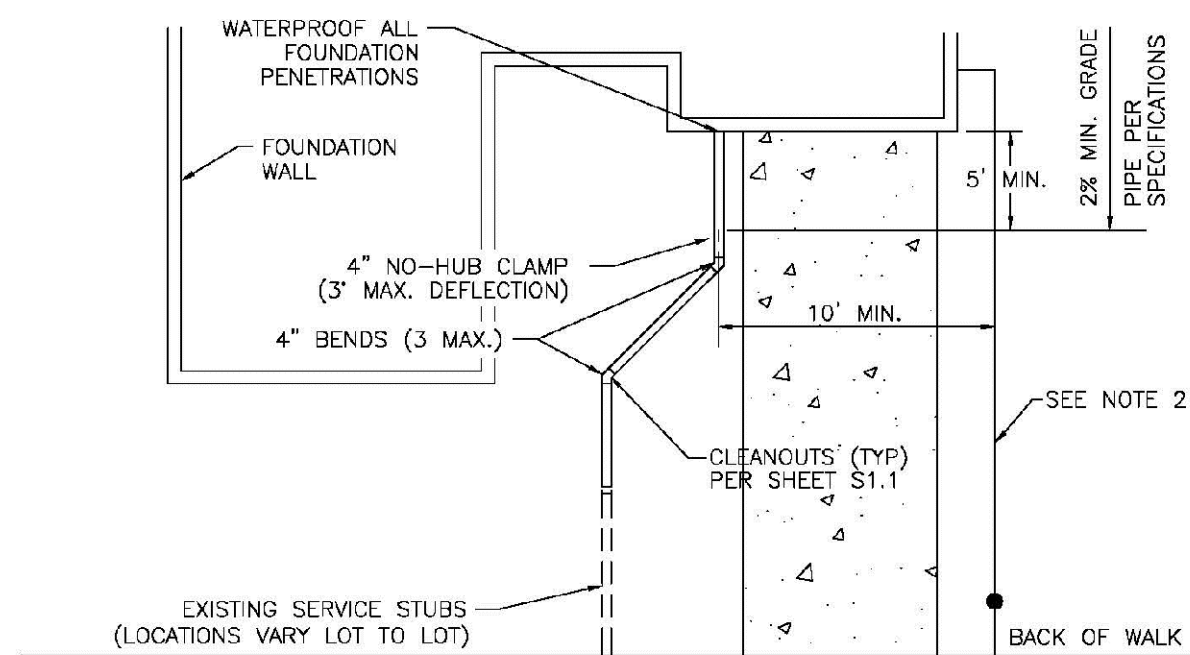
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

- INSPECTION POLICY:**
1. ALL SERVICE INSPECTIONS MUST BE SCHEDULED WITH THE DISTRICT OFFICE AT LEAST 24 HOURS IN ADVANCE OF THE REQUESTED INSPECTION.
  2. IF THE CONTRACTOR IS NOT READY FOR INSPECTION WHEN THE INSPECTOR ARRIVES AT THE SITE, A RE-INSPECTION WILL HAVE TO BE SCHEDULED IN ACCORDANCE WITH NOTE 1 ABOVE AND A RE-INSPECTION FEE CHARGED.
  3. SHOULD THE SERVICE LINES BE DAMAGED BY LATER CONSTRUCTION, AN INSPECTION OF THE REPAIR WILL BE REQUIRED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE.
  4. THE CONTRACTOR SHALL LEAVE ALL PIPE AND FITTINGS EXPOSED FOR THE INSPECTOR TO OBSERVE. INSPECTORS WILL NOT ENTER ANY EXCAVATIONS TO CHECK MATERIALS. THE TOP LAYER OF BEDDING CAN BE ADDED AFTER THE INSPECTION HAS BEEN COMPLETED.
  5. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH OSHA STANDARDS.
  6. LOTS WITHOUT BUILDING ADDRESSES OR LOT AND BLOCK NUMBERS BEFORE DISTRICT INSPECTION OR METER SET WILL FAIL AUTOMATICALLY.
  7. CONTRACTOR MUST BE PRESENT AT TIME OF INSPECTION UNLESS COORDINATED WITH DISTRICT INSPECTOR.

- INSTALLATION NOTES:**
- SEWER**
1. ACCEPTABLE PIPE MATERIALS ARE TO BE SDR 35 PVC PIPE, ABS PIPE AND PVC SCHD 40 PIPE. APPROVED BEDDING IS TO BE SQUEEGEE.
  2. NO-HUB CLAMPS SHALL BE USED TO JOIN 2 MALE PIPE ENDS WITH A MAXIMUM DEFLECTION OF 3°.
  3. MINIMUM GRADE SHALL BE 2%.
  4. INSTALLATION SHALL INCLUDE NO MORE THAN 3 BENDS. 90° BENDS ARE NOT ALLOWED. SOLVENT WELDED PIPE WILL NOT BE ALLOWED.
  5. CLEAN-OUTS SHALL BE INSTALLED AT 100' INTERVALS AND EVERY CHANGE IN DIRECTION. CLEAN-OUTS ARE NOT REQUIRED FOR SERVICES LESS THAN 100' UNLESS THERE ARE CHANGES IN DIRECTION. PROVIDE DUAL CLEAN-OUT WITHIN 5 FEET OF FOUNDATION.
  6. STRESSING OF THE PIPE BETWEEN FITTINGS WILL NOT BE ALLOWED.
  7. SEWER SERVICE LINE SHALL NOT BE LOCATED UNDER CONCRETE SURFACE.
  8. ALL SERVICES WILL BE PERMANENTLY MARKED ON CURB FACE AS FOLLOWS:  
"X" FOR SANITARY SEWER SERVICE  
"Y" FOR WATER SERVICES

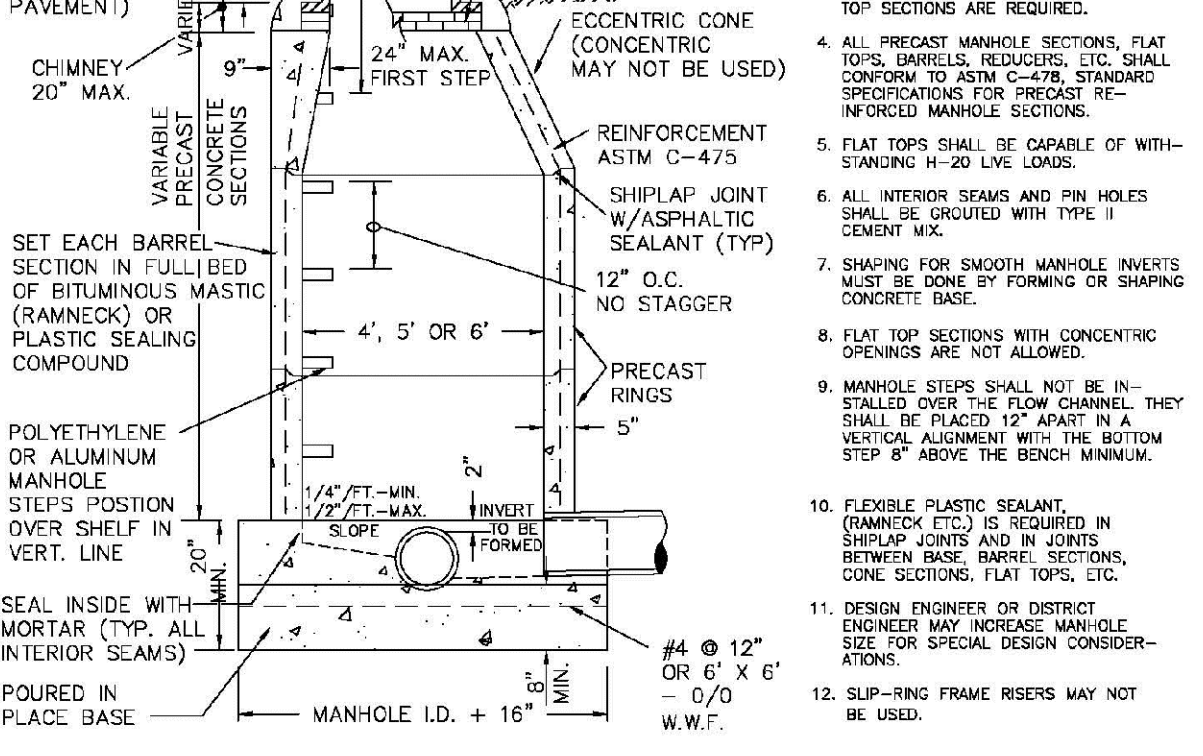
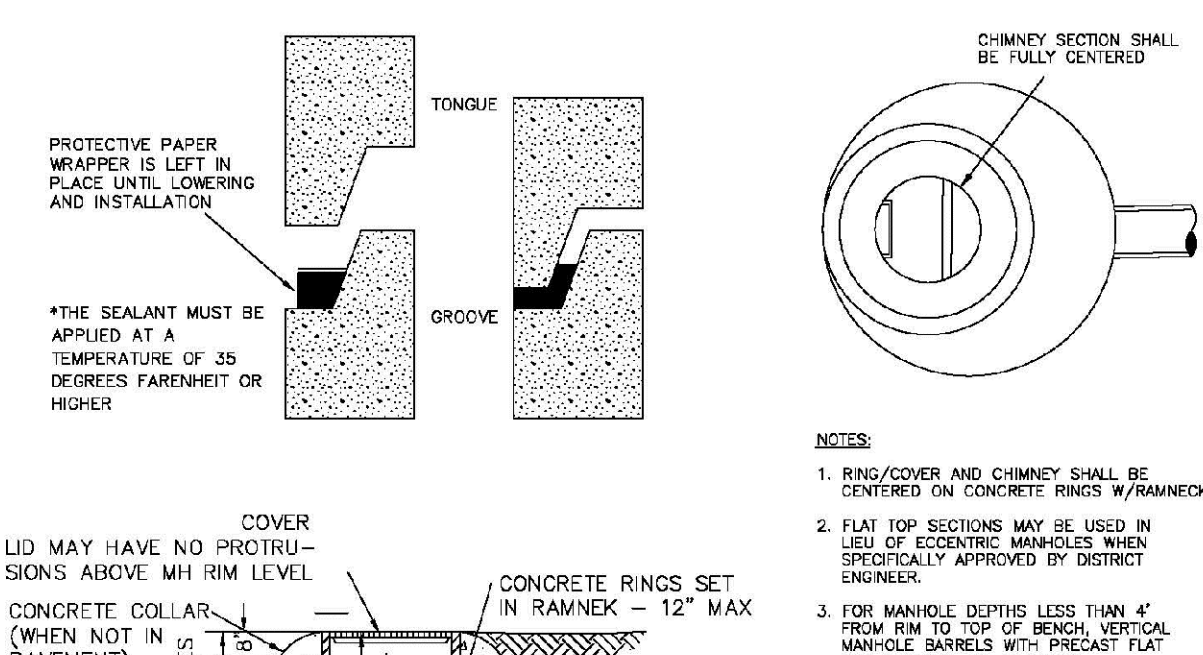
**PARKER WATER & SANITATION DISTRICT**  
DISTRICT POLICIES & INSTALLATION NOTES FOR SEWER SERVICES

SCALE: NONE	DATE: 2/96
APPROVED: PVR	01/02 12/16
	1/08 10/16
DIRECTOR OF ENGINEERING	



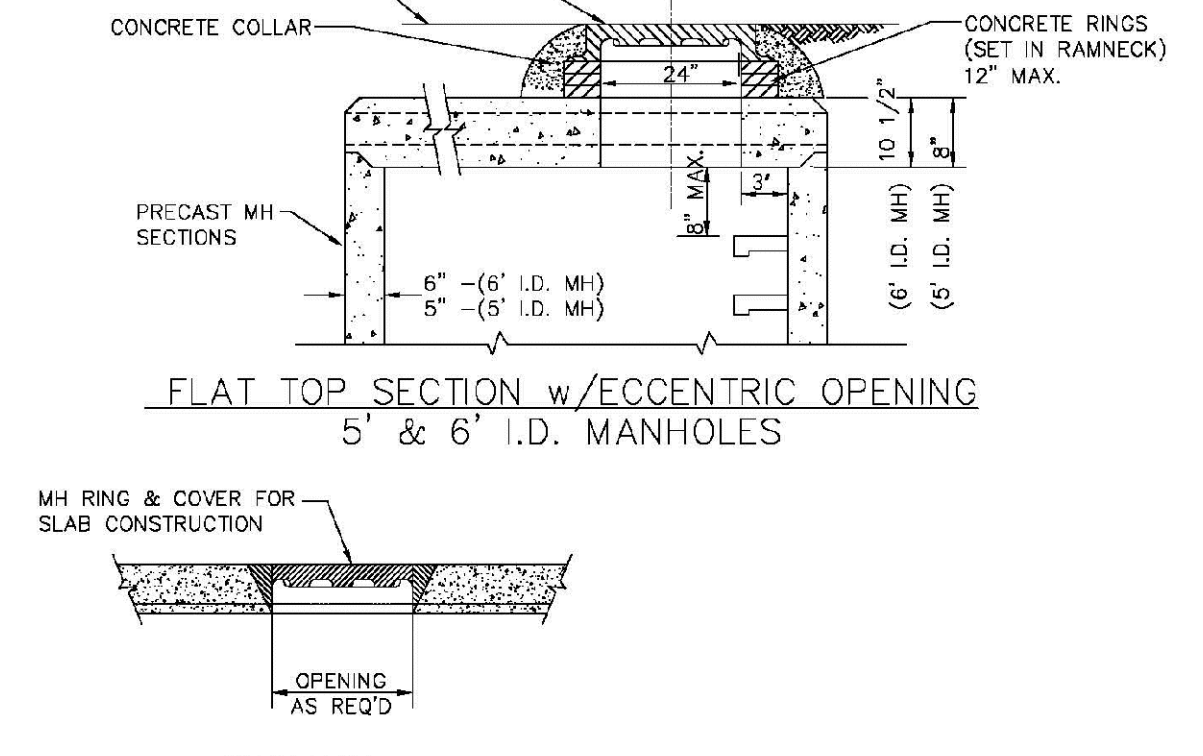
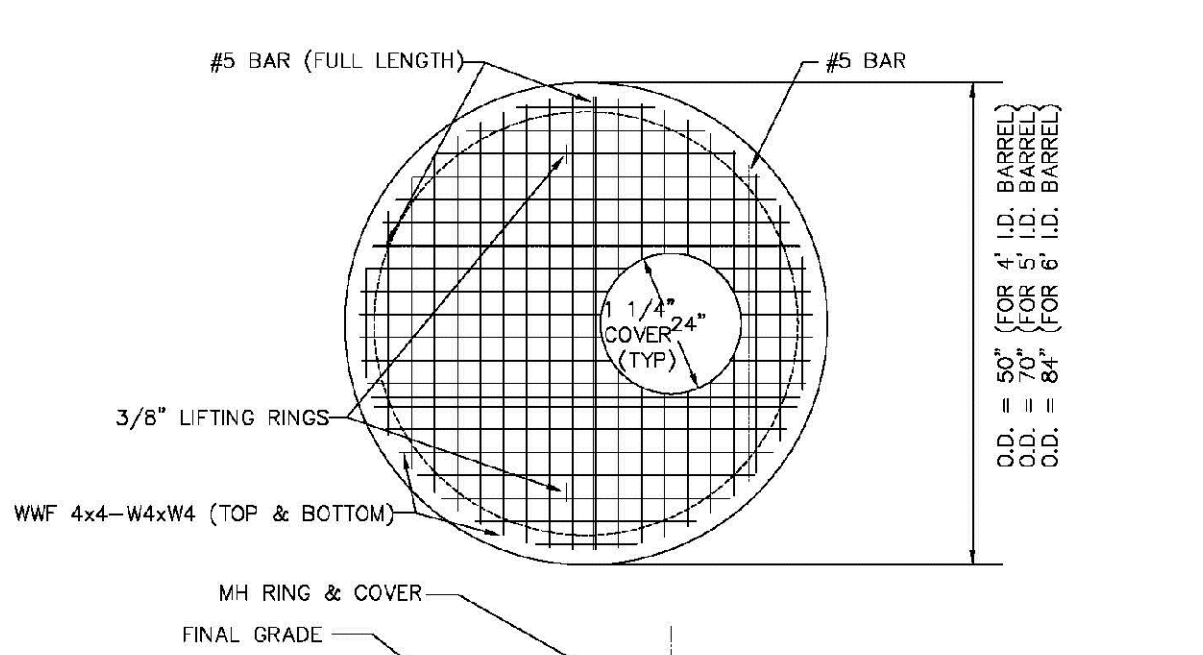
**PARKER WATER & SANITATION DISTRICT**  
TYPICAL SEWER SERVICES

SCALE: NONE	DATE: 2/96
APPROVED: PVR	2/90 01/02 01/16 10/16
DIRECTOR OF ENGINEERING	



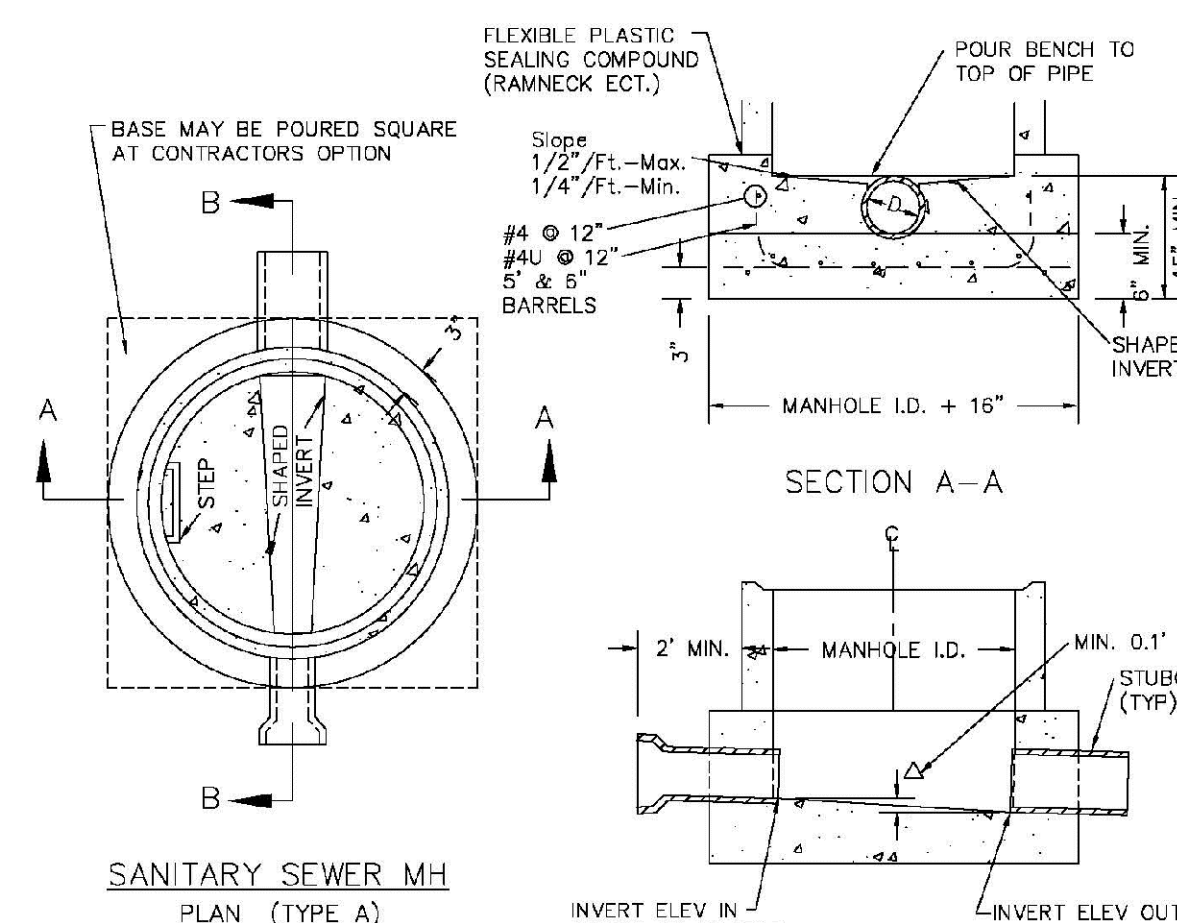
**PARKER WATER & SANITATION DISTRICT**  
PARKER MANHOLE ECCENTRIC CONE

SCALE: NONE	DATE: 2/96
APPROVED: PVR	4/01 10/16 01/02 1/08 1/16
DIRECTOR OF ENGINEERING	



**PARKER WATER & SANITATION DISTRICT**  
PRECAST MANHOLE - 5' & 6' I.D. WITH ECCENTRIC CONE

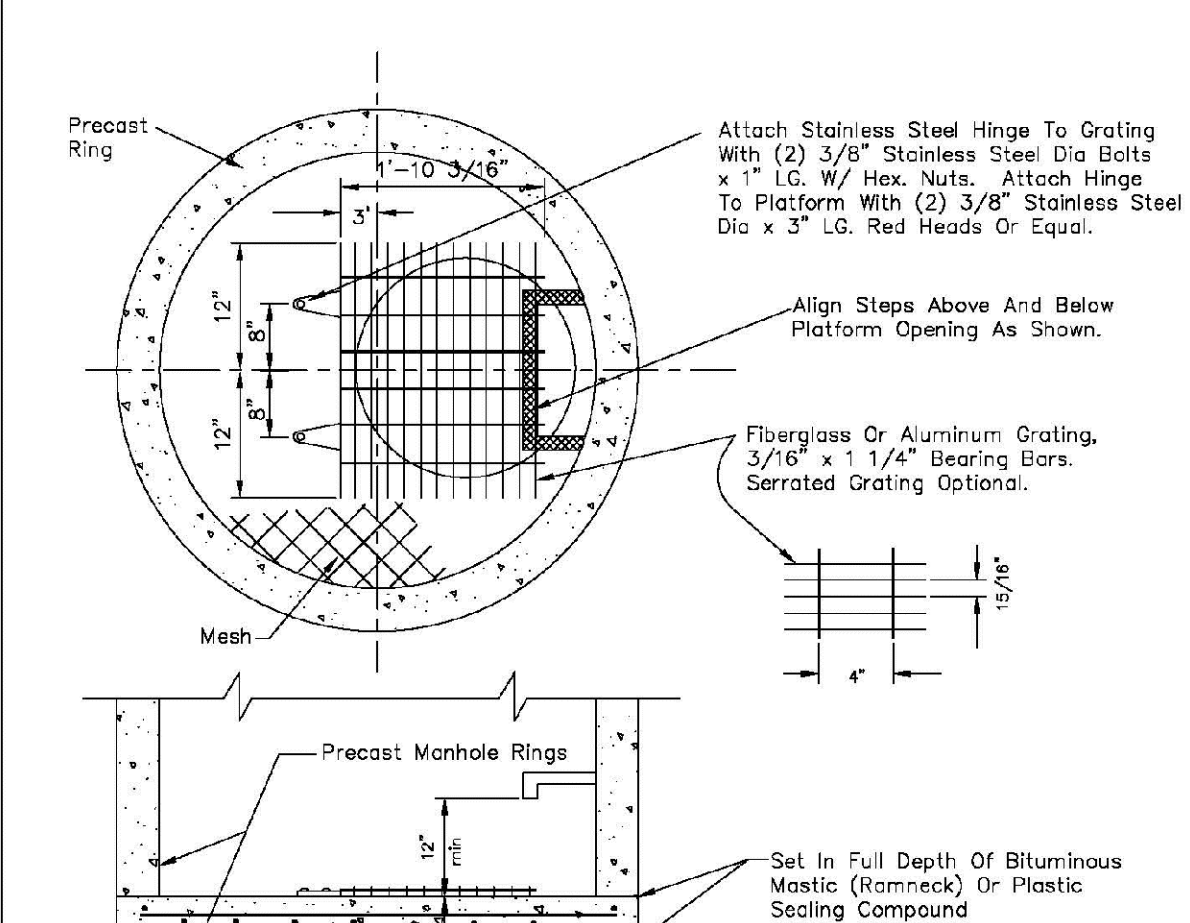
SCALE: NONE	DATE: 2/96
APPROVED: PVR	01/02 01/16 10/16
DIRECTOR OF ENGINEERING	



- NOTES:**
1. Manhole barrel min. thickness to be 5".
  2. Shaping for smooth manhole inverts may be done by forming or shaping with cement mortar (San. Sewer).
  3. The manhole steps shall conform to District Standards and Specifications.
  4. Precast sections to conform to A.S.T.M. C-478.
  5. All dead-end manholes, that call out a stub out, shall be thru at 0.40% minimum slope.
  6. Stub outs shall extend 2'-3" minimum past manhole O.D. and be satisfactorily plugged.
  7. Reinforcing in base required for manhole.
  8. Slope of bench = 1/2" / FT. - Max. 1/4" / FT. - Min.
  9. Δ = Invert drop thru MH (If Δ > 18", outside drop MH required). Min. D.1" for all straight through MH and 0.2" for all angled MH.

**PARKER WATER & SANITATION DISTRICT**  
CAST-IN-PLACE MANHOLE BASE DETAIL

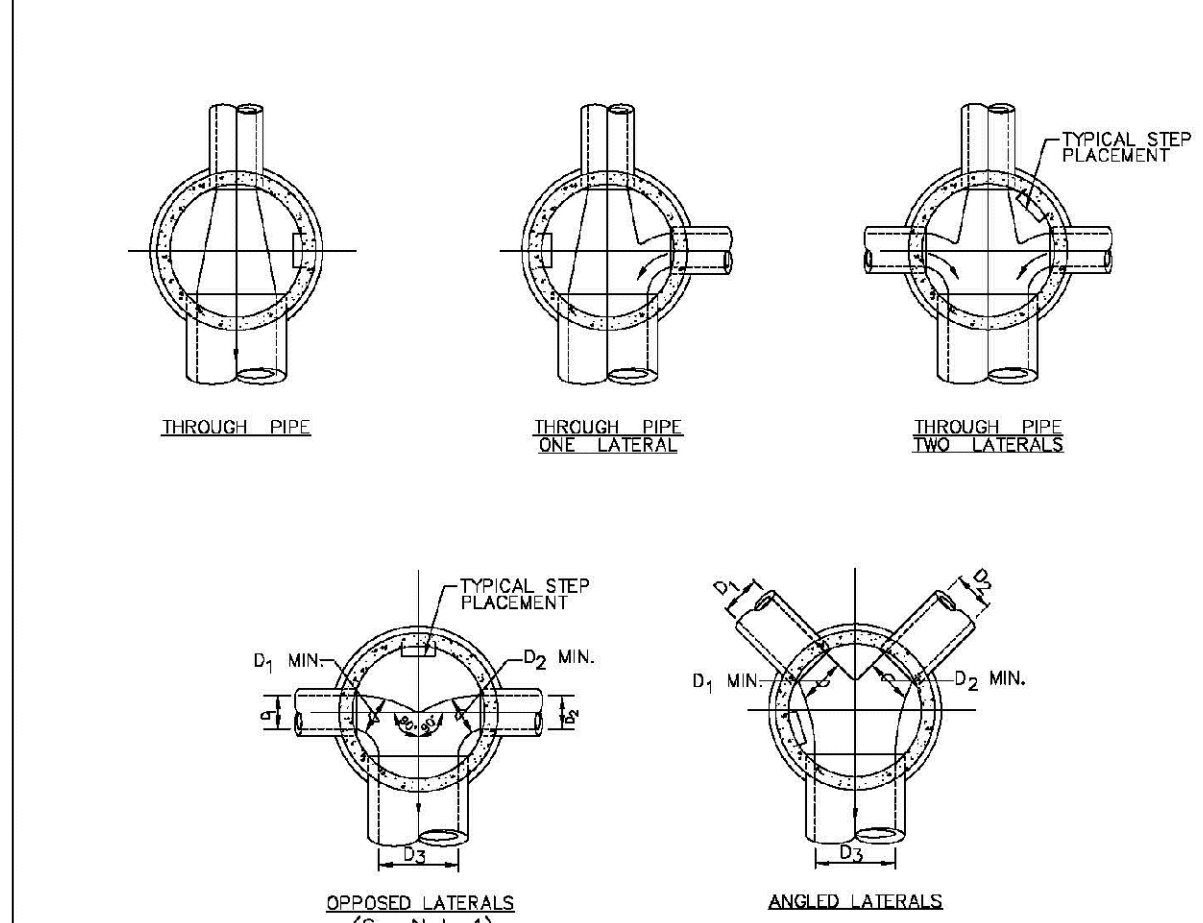
SCALE: NONE	DATE: 2/96
APPROVED: PVR	01/02 01/16 10/16
DIRECTOR OF ENGINEERING	



- NOTES:**
- 1.1 Maximum distance between platforms shall be 15' vertically.
  - 1.2 All hardware used inside a manhole shall be stainless steel.
  - 1.3 Manholes over 20' deep shall submit structural calculations on base and wall sizing.

**PARKER WATER & SANITATION DISTRICT**  
INTERMEDIATE PLATFORM FOR MANHOLES OVER 20' DEPTH

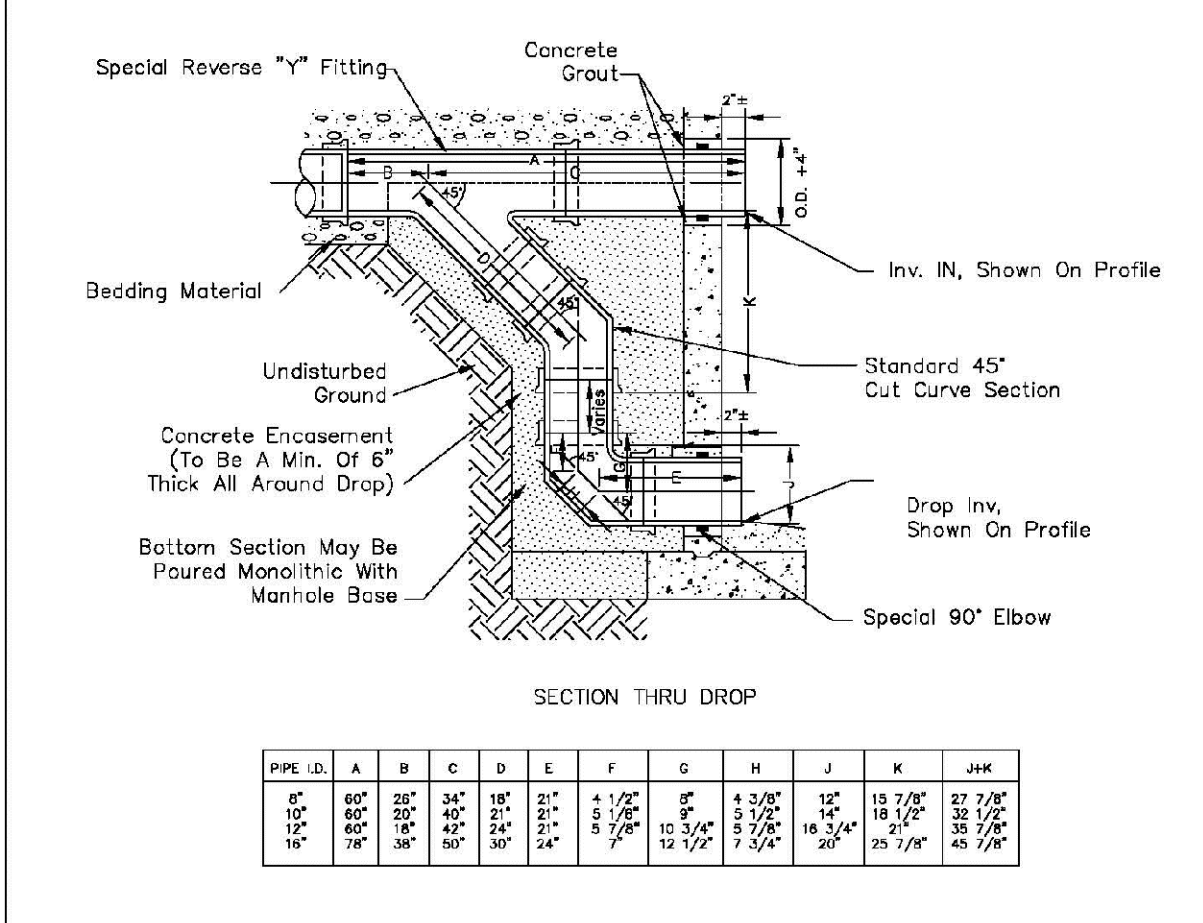
SCALE: NONE	DATE: 2/96
APPROVED: PVR	2/90 01/16 10/16
DIRECTOR OF ENGINEERING	



- NOTES:**
1. Manhole shall be coated using bituminous mastic (ramneck) or plastic sealing compound.

**PARKER WATER & SANITATION DISTRICT**  
TYPICAL BASE CHANNELIZATION DETAILS

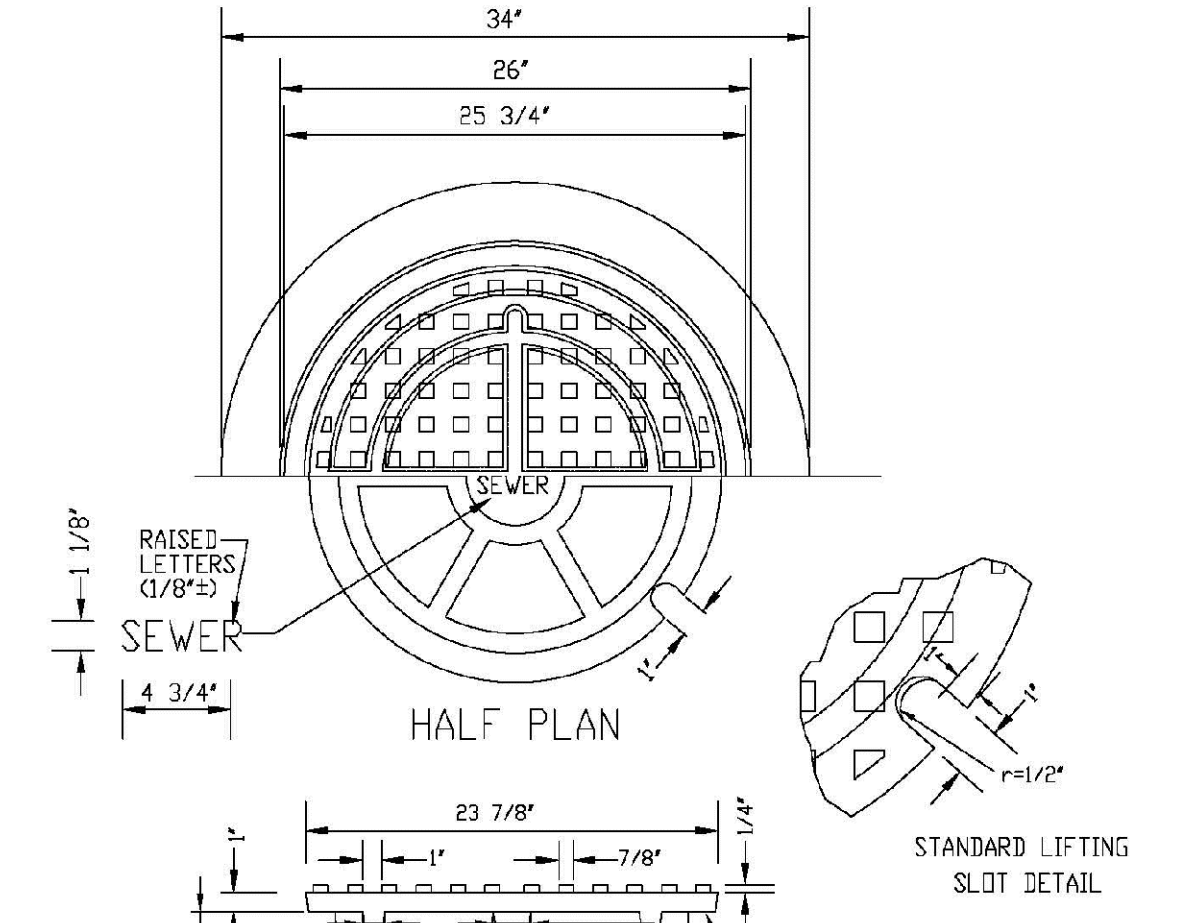
SCALE: NONE	DATE: 2/96
APPROVED: PVR	01/16 10/16
DIRECTOR OF ENGINEERING	



- NOTES:**
1. Vlt Clay Pipe & fittings (A.S.T.M. C-700) shown, details similar for all other pipe.
  2. Diameter of drop shall not be less than the line pipe diameter.
  3. For 18" diameter and larger, outside drop detail shall be a special design.
  4. Manhole shall be coated using bituminous mastic (ramneck) or plastic sealing compound.

**PARKER WATER & SANITATION DISTRICT**  
OUTSIDE DROP MANHOLE CONSTRUCTION

SCALE: NONE	DATE: 2/96
APPROVED: PVR	01/16 10/16
DIRECTOR OF ENGINEERING	



- NOTE:**
1. Casting Specifications: ASTM A-48 With A Minimum Tensile Strength of 25 KSI (Class 25)
  2. All Coating To Be Dipped in Asphalt Base Paint (Or Approved Equal).
  3. No other manhole lids will be accepted without prior approval from the District Engineer.

**PARKER WATER & SANITATION DISTRICT**  
24" DIAMETER RING AND COVER

SCALE: NONE	DATE: 2/96
APPROVED: PVR	01/16 10/16
DIRECTOR OF ENGINEERING	

CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC 1-800-922-1987

10338 E. Dry Creek Rd.  
Suite 410  
Englewood, CO 80150  
Tel: (720) 482-9526  
Fax: (720) 482-9548

**CVL CONSULTANTS**

HR 935 LLC  
7353 South Alton Way  
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT  
FILING 15 CONSTRUCTION DRAWINGS  
SANITARY SEWER DETAILS

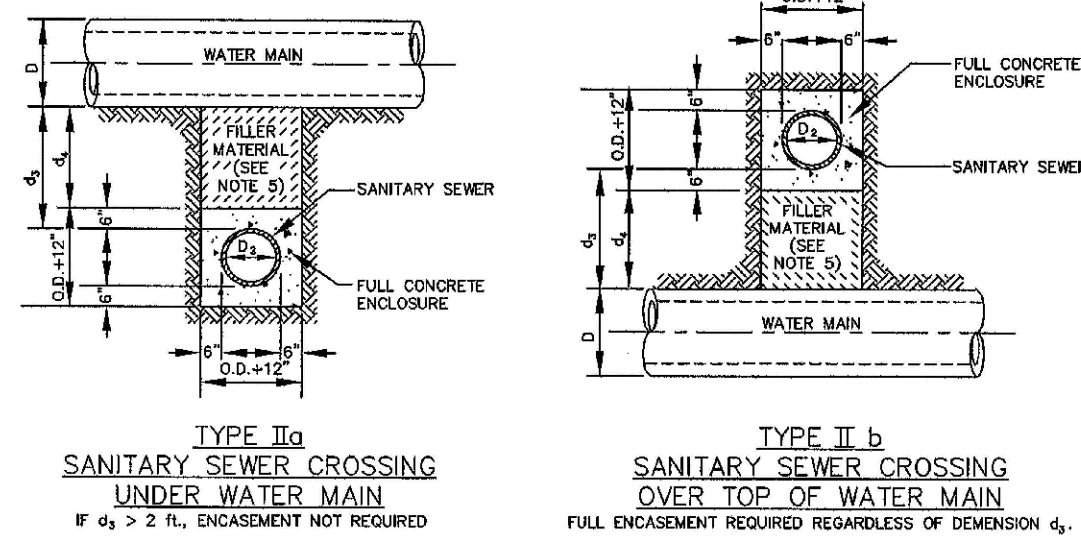
SCALE: AS SHOWN  
FILE NO: 8130283701

DRAWN BY: RHR  
CHECKED BY: BPW  
DATE: JUNE 2018

12

No.	Revisions	Date	Appr.	Date





**TYPE IIa**  
SANITARY SEWER CROSSING UNDER WATER MAIN  
IF  $d_1 > 2$  FT., ENCASEMENT NOT REQUIRED

**TYPE IIb**  
SANITARY SEWER CROSSING OVER TOP OF WATER MAIN  
FULL ENCASEMENT REQUIRED REGARDLESS OF DIMENSION  $d_1$ .

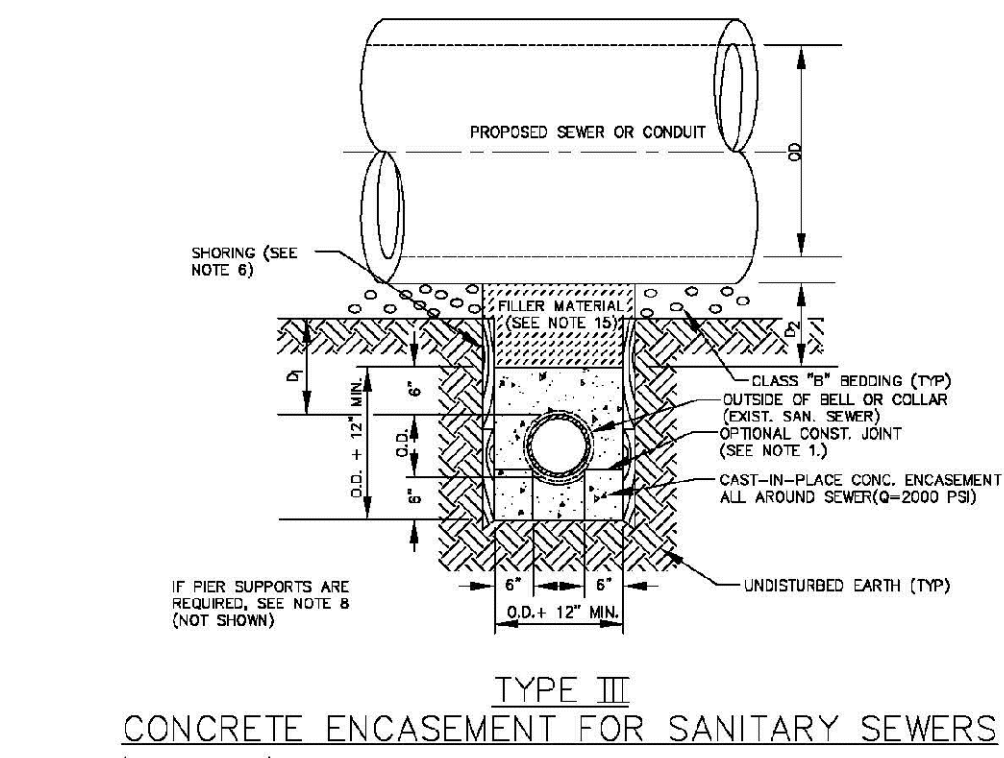
**TYPE II**  
CONCRETE ENCASEMENT FOR SANITARY SEWERS CROSSING OVER OR UNDER WATER MAIN

**GENERAL NOTES FOR TYPE IIa & IIb ENCASEMENT**

- CONCRETE TO BE CAST AGAINST UNDISTURBED SOIL OR SHORING. IF OPTIONAL CONSTRUCTION JOINT IS USED & BOTTOM HALF OF ENCASEMENT IS POURED SEPARATELY, A ONE INCH LAYER OF SAND OR MORTAR SHALL BE PLACED BETWEEN BOTTOM OF SANITARY SEWER AND TOP OF CONCRETE.
- LENGTH OF ENCASEMENT FOR:
  - TYPE I & TYPE II ENCASEMENT SHALL EXTEND FULL TRENCH WIDTH EXCAVATED FOR PROPOSED SEWER OR CONDUIT.
  - TYPE III ENCASEMENT SHALL EXTEND AT LEAST 10 FEET EACH SIDE OF WATER MAIN.
- UNLESS OTHERWISE NOTED ON PLAN/PROFILE DRAWINGS, TYPE I, II & III ENCASEMENTS NEED NOT BE REINFORCED. REINFORCEMENT, IF REQUIRED, SHALL BE SPECIFIED AND DETAILED SEPARATELY ON PLAN & PROFILE DRAWINGS.
- TYPE I, II OR III ENCASEMENTS ARE REQUIRED UNDER FOLLOWING CONDITIONS:
  - TYPE I OR TYPE II IF  $d_1 \leq 18"$  ( $d_2 \leq 12"$ ) EXCEPT FOR SANITARY SEWER CROSSING OVER OR UNDER WATER MAINS.
  - WATER MAINS AND  $d_2 \leq 24"$  ( $d_1 \leq 18"$ )
  - TYPE II IS REQUIRED FOR SANITARY SEWERS CROSSING OVER TOP OF WATER MAINS REGARDLESS OF DIMENSION  $d_1$ .
  - EXCEPT FOR UNUSUAL CIRCUMSTANCES, WATER MAIN CROSSINGS, OR WHERE UNUSUAL SOIL CONDITIONS ARE UNDISTURBED, TYPE I ENCASEMENT WILL NORMALLY BE SATISFACTORY.
  - IF THE SANITARY SEWER IS REPLACED OR CONSTRUCTED OF DUCTILE IRON PIPE (AWWA C-150 OR C-151), CONCRETE ENCASEMENT MAY NOT BE REQUIRED.
- FILLER MATERIAL BETWEEN CONDUITS TO BE:
  - APPROVED COMPRESSIBLE MATERIAL SUCH AS STYROFOAM, ETC. IF  $d_1 \leq 4"$  &  $d_2 \leq 5"$ .
  - COMPACTED CLASS "B" BEDDING IF  $d_1 \leq 4"$  &  $d_2 \leq 5"$  (IF  $d_2 > 5"$  FOR TYPE II ENCASEMENT POUR CONCRETE ON UNDISTURBED SOIL).
- SHORING OR SHIELDING, IF USED, TO BE CUT OFF AT TOP OF ENCASEMENT.
- THESE ENCASEMENT DETAILS MAY ALSO BE APPLICABLE FOR CONDUITS OTHER THAN STORM OR SANITARY SEWER INSTALLATIONS.
- IN CERTAIN SITUATIONS WHERE CONDUIT DIAMETER "D" IS EXTREMELY LARGE, PIPE SUPPORTS ON EACH SIDE OF SANITARY SEWER MAY ALSO BE REQUIRED. IF REQUIRED, SUPPORTS SHALL BE SPECIFIED AND DETAILED SEPARATELY ON PLAN AND PROFILE DRAWINGS.

PARKER WATER & SANITATION DISTRICT	
CONCRETE ENCASEMENT TYPE II	
SCALE: NONE	DATE: 2/96
APPROVED: JFN	5/98 4/01 1/06
DISTRICT ENGINEER	

2008 REVISION SHEET 7



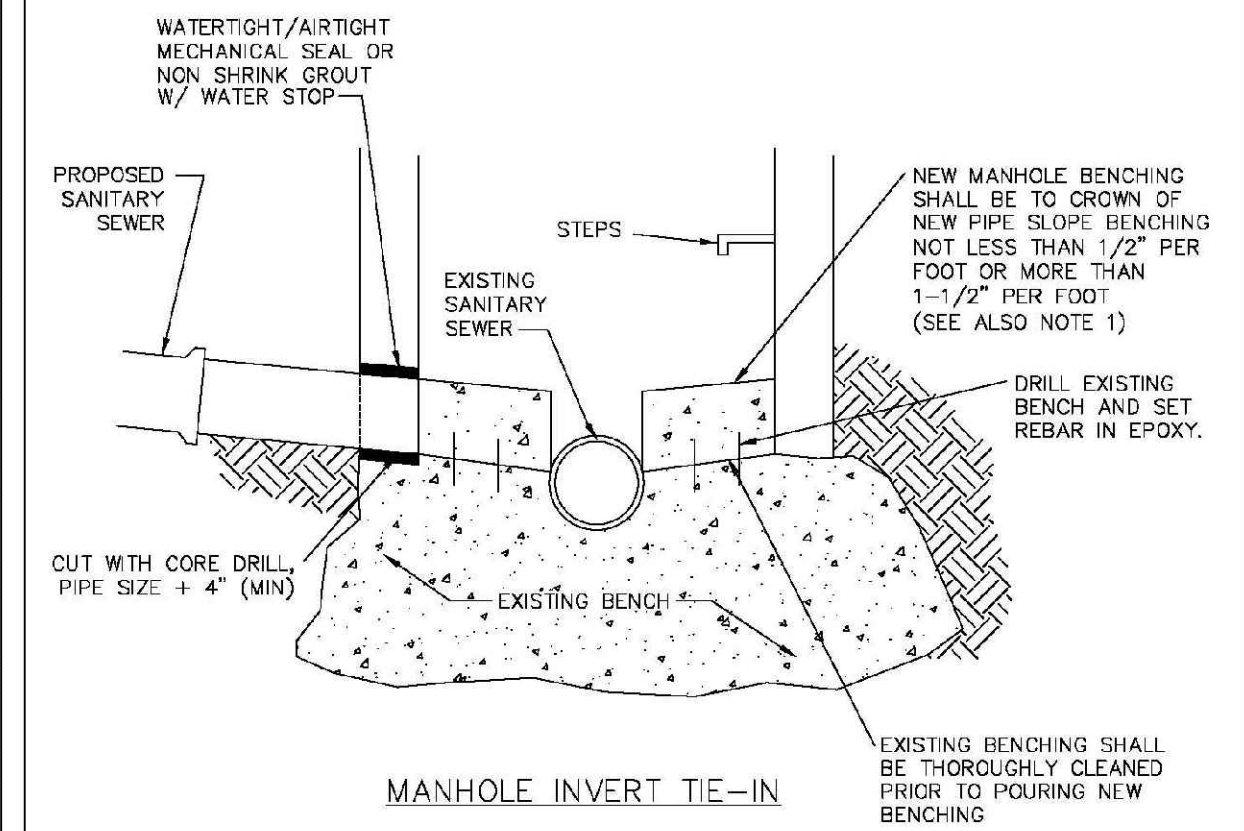
**TYPE III**  
CONCRETE ENCASEMENT FOR SANITARY SEWERS  
(FULL ENCASEMENT) NO SCALE

**GENERAL NOTES FOR TYPE III ENCASEMENT**

- CONCRETE TO BE CAST AGAINST UNDISTURBED SOIL OR SHORING. IF OPTIONAL CONSTRUCTION JOINT IS USED & BOTTOM HALF OF ENCASEMENT IS POURED SEPARATELY, A ONE INCH LAYER OF SAND OR MORTAR SHALL BE PLACED BETWEEN BOTTOM OF SANITARY SEWER AND TOP OF CONCRETE.
- LENGTH OF ENCASEMENT FOR:
  - TYPE I & TYPE II ENCASEMENT SHALL EXTEND FULL TRENCH WIDTH EXCAVATED FOR PROPOSED SEWER OR CONDUIT.
  - TYPE III ENCASEMENT SHALL EXTEND AT LEAST 10 FEET EACH SIDE OF WATER MAIN.
- UNLESS OTHERWISE NOTED ON PLAN/PROFILE DRAWINGS, TYPE I, II & III ENCASEMENTS NEED NOT BE REINFORCED. REINFORCEMENT, IF REQUIRED, TO BE SPECIFIED AND DETAILED SEPARATELY ON PLAN & PROFILE DRAWINGS.
- TYPE I, II OR III ENCASEMENTS ARE REQUIRED UNDER FOLLOWING CONDITIONS:
  - TYPE I OR TYPE II IF  $d_1 \leq 18"$  ( $d_2 \leq 12"$ ) EXCEPT FOR SANITARY SEWER CROSSING OVER OR UNDER WATER MAINS.
  - TYPE III IS REQUIRED FOR SANITARY SEWERS CROSSING OVER TOP OF WATER MAINS REGARDLESS OF DIMENSION  $d_1$ .
  - EXCEPT FOR UNUSUAL CIRCUMSTANCES, WATER MAIN CROSSINGS, OR WHERE UNUSUAL SOIL CONDITIONS ARE UNDISTURBED, TYPE I ENCASEMENT WILL NORMALLY BE SATISFACTORY.
  - IF THE SANITARY SEWER IS REPLACED OR CONSTRUCTED OF DUCTILE IRON PIPE (AWWA C-150 OR C-151), CONCRETE ENCASEMENT MAY NOT BE REQUIRED.
- FILLER MATERIAL BETWEEN CONDUITS TO BE:
  - APPROVED COMPRESSIBLE MATERIAL SUCH AS STYROFOAM, ETC. IF  $d_1 \leq 4"$  &  $d_2 \leq 5"$ .
  - COMPACTED CLASS "B" BEDDING IF  $d_1 \leq 4"$  &  $d_2 \leq 5"$  (IF  $d_2 > 5"$  FOR TYPE III ENCASEMENT POUR CONCRETE ON UNDISTURBED SOIL).
- SHORING OR SHIELDING, IF USED, TO BE CUT OFF AT TOP OF ENCASEMENT.
- THESE ENCASEMENT DETAILS MAY ALSO BE APPLICABLE FOR CONDUITS OTHER THAN STORM OR SANITARY SEWER INSTALLATIONS.
- IN CERTAIN SITUATIONS WHERE CONDUIT DIAMETER "D" IS EXTREMELY LARGE, PIPE SUPPORTS ON EACH SIDE OF SANITARY SEWER MAY ALSO BE REQUIRED. IF REQUIRED, SUPPORTS SHALL BE SPECIFIED AND DETAILED SEPARATELY ON PLAN AND PROFILE DRAWINGS.
- CONCRETE ENCASED PIPING SHALL BE UNID WITH FULT LAYER.

PARKER WATER & SANITATION DISTRICT	
CONCRETE ENCASEMENT TYPE III	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	5/98 1/06 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET S4.8

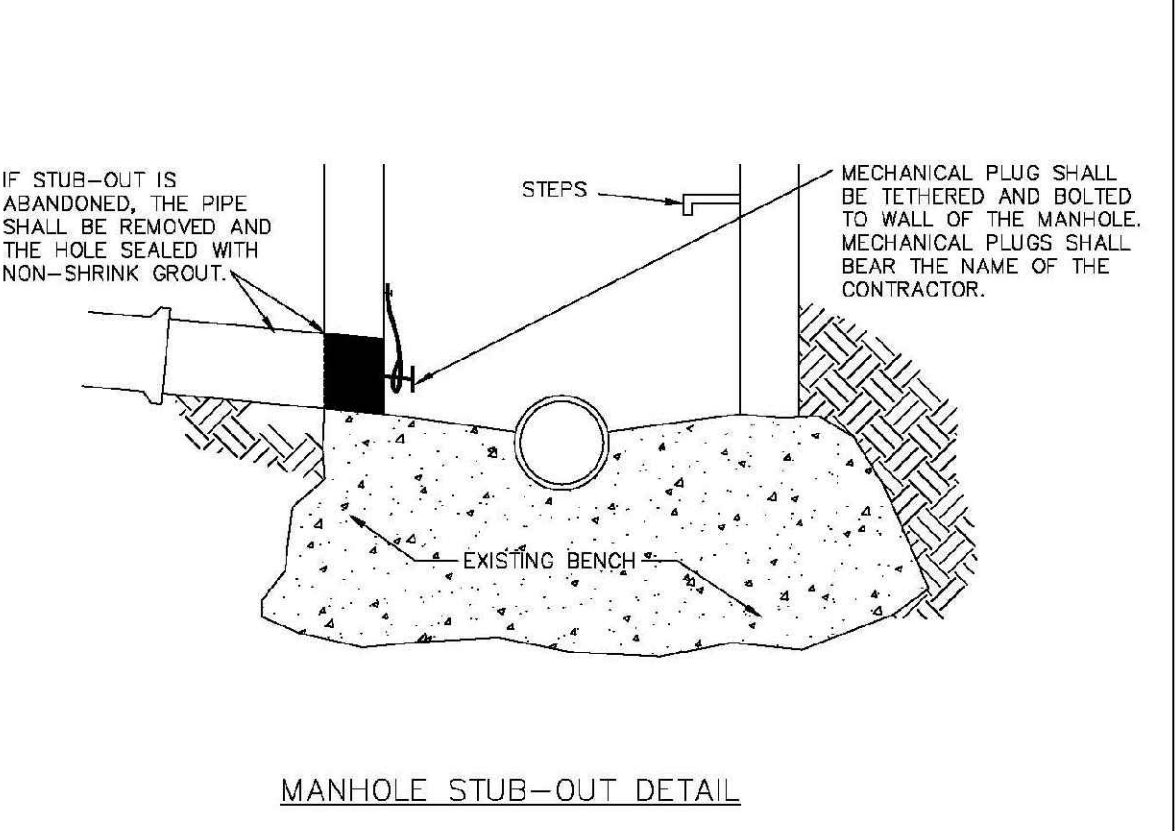


**NOTES**

- NEW BENCH SHALL INCLUDE REINFORCEMENT TO CONTROL CONCRETE CRACKING.

PARKER WATER & SANITATION DISTRICT	
MANHOLE INVERT TIE-IN DETAIL	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	1/78 12/76
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET S4.9

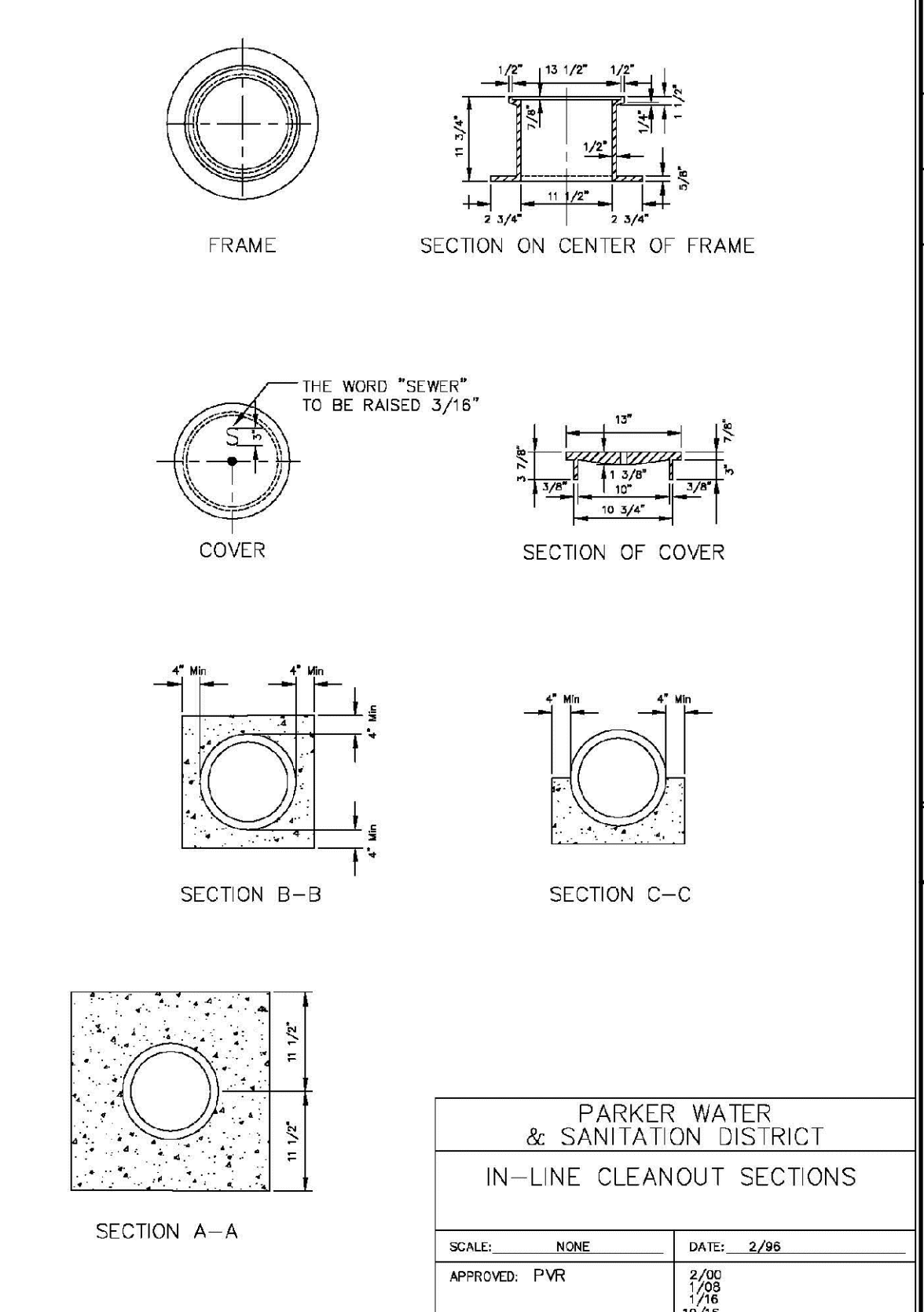


**NOTES**

- NEW BENCH SHALL INCLUDE REINFORCEMENT TO CONTROL CONCRETE CRACKING.

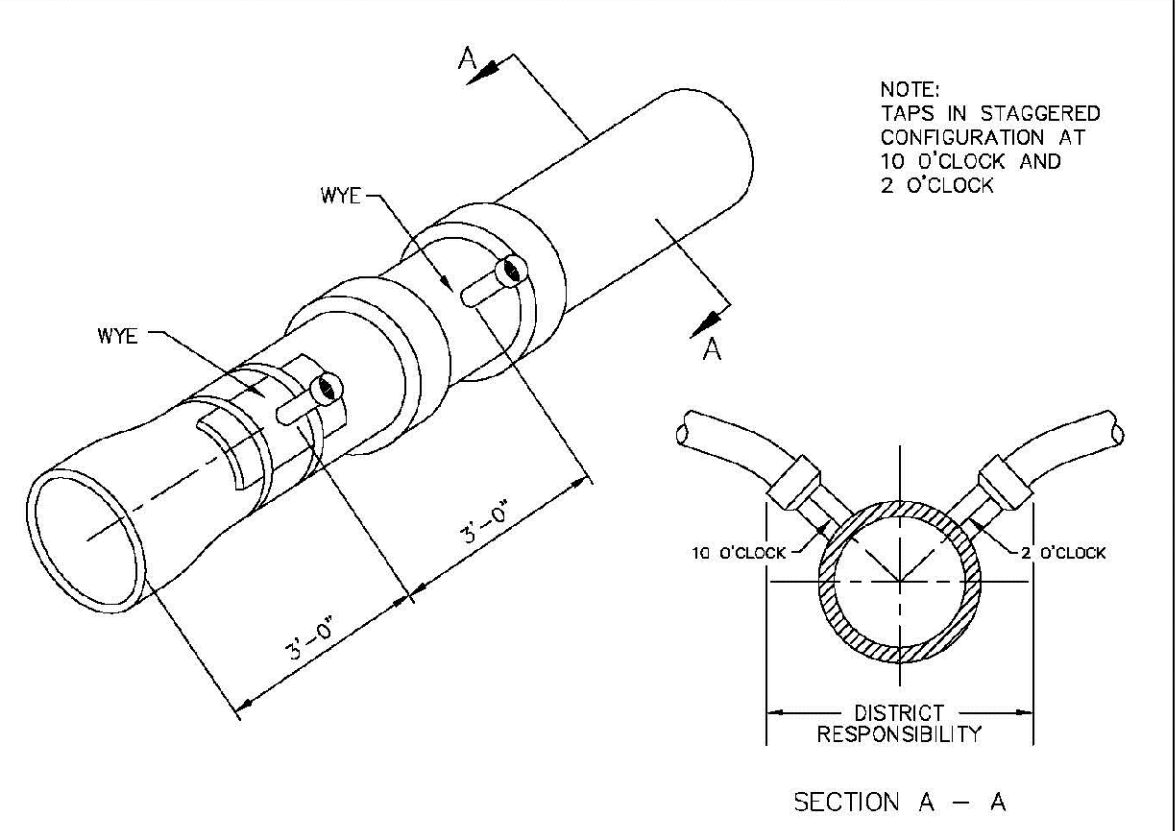
PARKER WATER & SANITATION DISTRICT	
MANHOLE STUB-OUT DETAIL	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	1/78 10/76
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET S4.10



PARKER WATER & SANITATION DISTRICT	
IN-LINE CLEANOUT SECTIONS	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	2/00 7/96 10/78
DIRECTOR OF ENGINEERING	

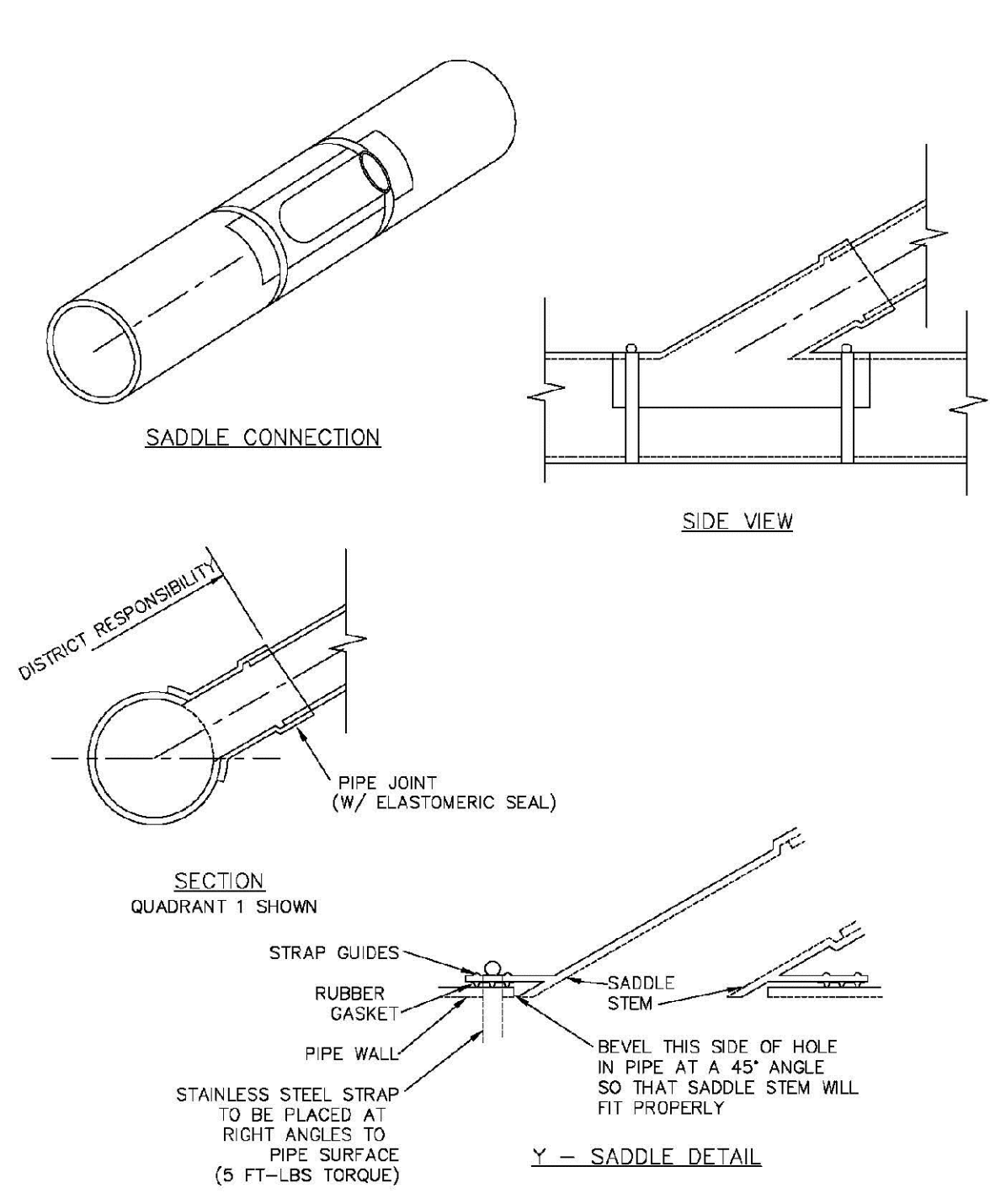
2016 REVISION SHEET S4.12



Sewer service connections shall be positioned at either the 2 o'clock or the 10 o'clock position on the circumference of the sewer main. On new installations, tee or wye fittings shall be used. When tapping into existing sewer main, a saddle connection and approved coring method shall be used. The minimum distance between service connections made along the pipe shall be 3 feet. The minimum distance from either the bell or spigot end of a pipe shall be 3 feet. The minimum distance from the center of a manhole to a service connection shall be either 7 feet or the transition point from the manhole trench to the normal pipe trench, whichever is greater. A maximum of 4 sewer service connections shall be allowed per 20 foot length of pipe. In all cases, a specific soils investigation should be conducted to assure that the external loading will be within allowable limits regardless of the number of taps involved.

PARKER WATER & SANITATION DISTRICT	
DOMESTIC SEWER TAPPING DETAIL	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	4/01 1/08 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET S4.13



**NOTES:**

- SADDLE FITTINGS TO BE PER ASTM D3034.
- CONNECTION SHALL BE Y - SADDLE WITH TWO BONDS

PARKER WATER & SANITATION DISTRICT	
P.V.C. SADDLE CONNECTION DETAIL	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	1/78 10/76
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET S4.14

CALL 811  
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LITLTY NOTIFICATION CENTER OF COLORADO

10338 E. Dry Creek Rd.  
Suite 410  
Englewood, Colorado 80150  
Tel: (720) 482-9526  
Fax: (720) 482-9546

**CVL CONSULTANTS**

HR 935 LLC  
7353 South Alton Way  
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT  
FILING 15 CONSTRUCTION DRAWINGS  
SANITARY SEWER DETAILS

SCALE: AS SHOWN  
FILE NO: 8130283701

DRAWN BY: RHR  
CHECKED BY: BPW  
DATE: JUNE 2018

SHEET NUMBER: 14

Revisions: No. Date Initial Appr. Date

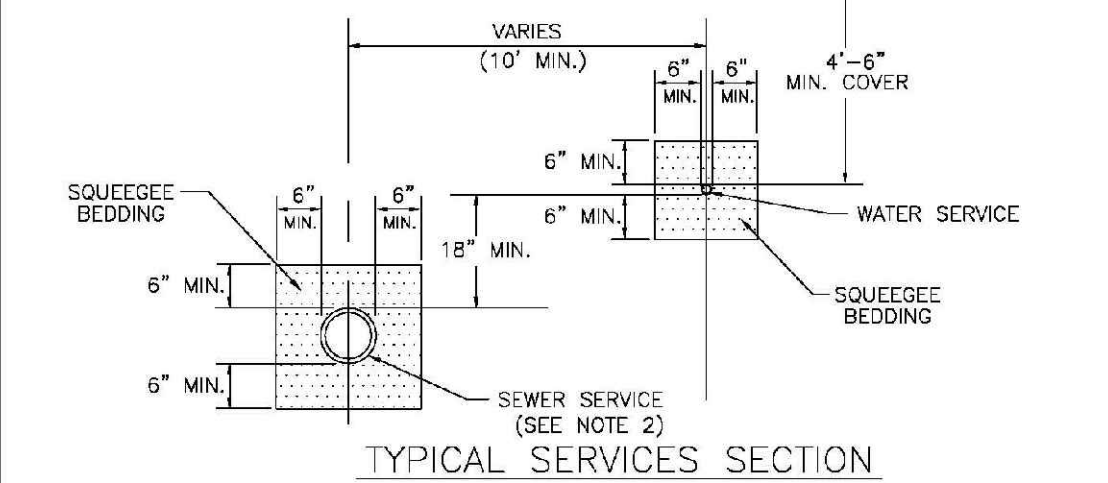
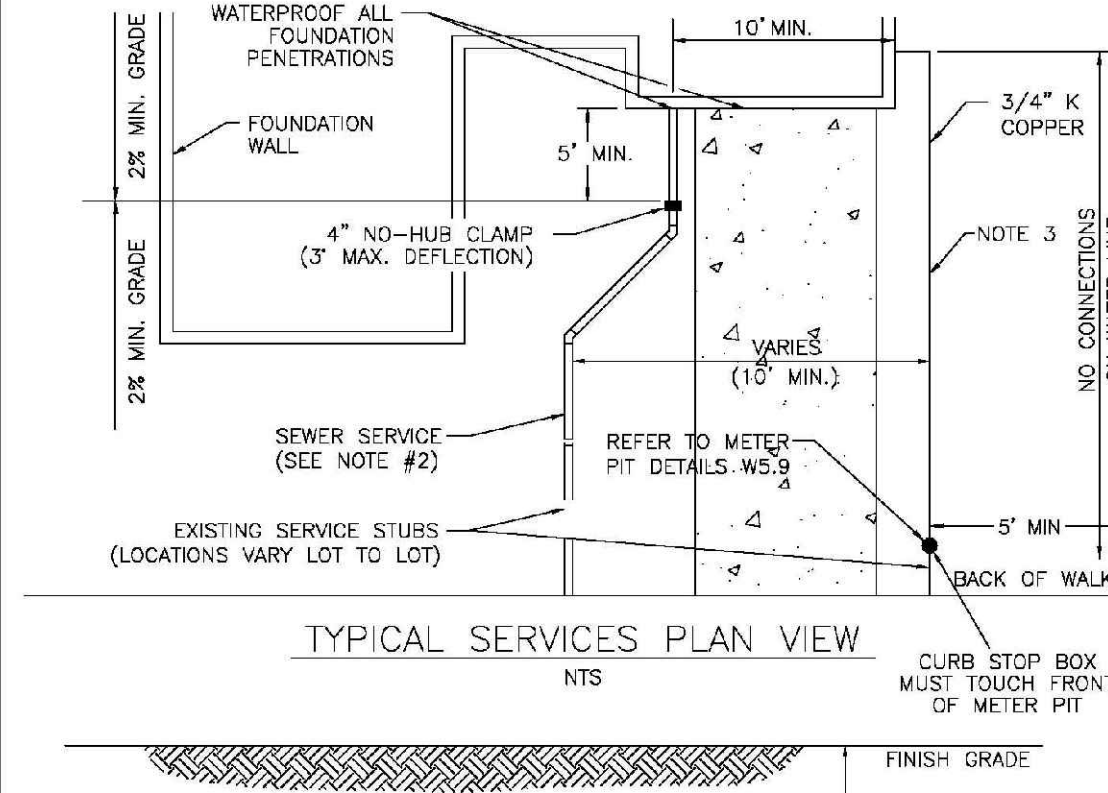
- INSPECTION POLICY:**
1. ALL SERVICE INSPECTIONS MUST BE SCHEDULED AT LEAST 24 HOURS IN ADVANCE OF THE REQUESTED INSPECTION.
  2. SERVICE INSPECTIONS WILL OCCUR BETWEEN 1:00 P.M. AND 3:00 P.M. SPECIFIC INSPECTION TIMES ARE NOT AVAILABLE.
  3. IF THE CONTRACTOR IS NOT READY FOR INSPECTION WHEN THE INSPECTOR ARRIVES AT THE SITE OR SERVICE FAILS, A RE-INSPECTION WILL HAVE TO BE SCHEDULED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE AND A RE-INSPECTION FEE CHARGED.
  4. SHOULD THE SERVICE LINES BE DAMAGED BY LATER CONSTRUCTION, AN INSPECTION OF THE REPAIR WILL BE REQUIRED IN ACCORDANCE WITH NOTES 1 AND 2 ABOVE.
  5. THE CONTRACTOR SHALL LEAVE ALL PIPE AND FITTINGS EXPOSED FOR THE INSPECTOR TO OBSERVE. INSPECTORS WILL NOT ENTER ANY EXCAVATIONS TO CHECK MATERIALS. THE TOP LAYER OF BEDDING CAN BE ADDED AFTER THE INSPECTION HAS BEEN COMPLETED.
  6. ALL EXCAVATIONS SHALL BE IN ACCORDANCE WITH OSHA STANDARDS.
  7. LOTS WITHOUT BUILDING ADDRESSES BEFORE DISTRICT INSPECTION OR METER SET WILL FAIL AUTOMATICALLY.
  8. CONTRACTOR MUST BE PRESENT AT TIME OF INSPECTION, UNLESS COORDINATED WITH DISTRICT INSPECTOR.

- INSTALLATION NOTES:**
- WATER**
1. ACCEPTABLE PIPE MATERIALS SHALL BE K-COPPER TUBING, (3/4" MIN.)
  2. APPROVED BEDDING TO BE SQUEEGEE.
  3. ONLY ONE COUPLING WILL BE ALLOWED BETWEEN THE SUB-IN AND BUILDING. COMPRESSION COUPLINGS WILL NOT BE ALLOWED ON NEW CONSTRUCTION. SILVER SOLDERED JOINTS MUST BE USED ON SERVICES LARGER THAN 3/4". SILVER SOLDERED JOINTS MUST BE INSPECTED BY PWS BEFORE BURIAL. FLARED COUPLINGS WILL BE ALLOWED ON ALL SERVICES 3/4" AND SMALLER.
  4. A WATER SERVICE WHICH CROSSES A SEWER SERVICE CAN DO SO ONLY AT A 45-90° ANGLE. WATER SERVICES SHALL BE LOCATED A MINIMUM OF 18" ABOVE SEWER SERVICE.
  5. WATER SERVICE FOUNDATION PENETRATIONS SHALL BE WATERPROOFED USING MASTIC OR OTHER APPROVED METHOD. CRAWL SPACE REQUIRES CONTINUOUS COPPER WITH A 1" BURY.
  6. CURB STOP MUST BE PLUMB AND CENTERED OVER THE NUT. IT SHOULD BE STRAPPED TO THE METER PIT (RESIDENTIAL INSTALLATIONS) OR CENTERED OVER THE EASEMENT LINE (COMMERCIAL INSTALLATIONS). THE ASSEMBLY MUST BE AT OR SLIGHTLY ABOVE FINISHED GRADE.
  7. MOVED CURB BOXES MUST BE INSPECTED BY PWS PRIOR TO BURIAL.
  8. WATERLINE MUST BE ATTACHED TO A SUPPORT BOARD THAT IS MOUNTED TO THE WALL.
  9. NO VOIDS ALLOWED UNDER WATERLINES FROM STOP BOX TO FOUNDATION.
  10. CURBSTOP BOXES AND METER PITS CANNOT BE IN DRIVEWAYS.
  11. ONLY 3/4" (JUMPER) PIPES (RESIDENCES) ARE ALLOWED. (JUMPER) PIPES WILL BE REMOVED PRIOR TO METER SET DATE.
  12. ALL SERVICES WILL BE PERMANENTLY MARKED ON CURB FACE AS FOLLOWS:  
"X" FOR SANITARY SEWER SERVICE  
"W" FOR WATER SERVICES
  13. NO SPLICES OR FLARED COUPLINGS ALLOWED ON SERVICES LARGER THAN 3/4". SILVER SOLDERED JOINTS MUST BE INSPECTED BY PWS PRIOR TO BURIAL. FLARED COUPLINGS WILL BE ALLOWED ON ALL SERVICES 3/4" AND SMALLER.

PARKER WATER & SANITATION DISTRICT	
DISTRICT POLICIES & INSTALLATION NOTES FOR WATER SERVICES	
SCALE: NONE	DATE: 2/96
APPROVED: 1/04	1/16
PVR	10/16
DIRECTOR OF ENGINEERING	

2016 REVISION

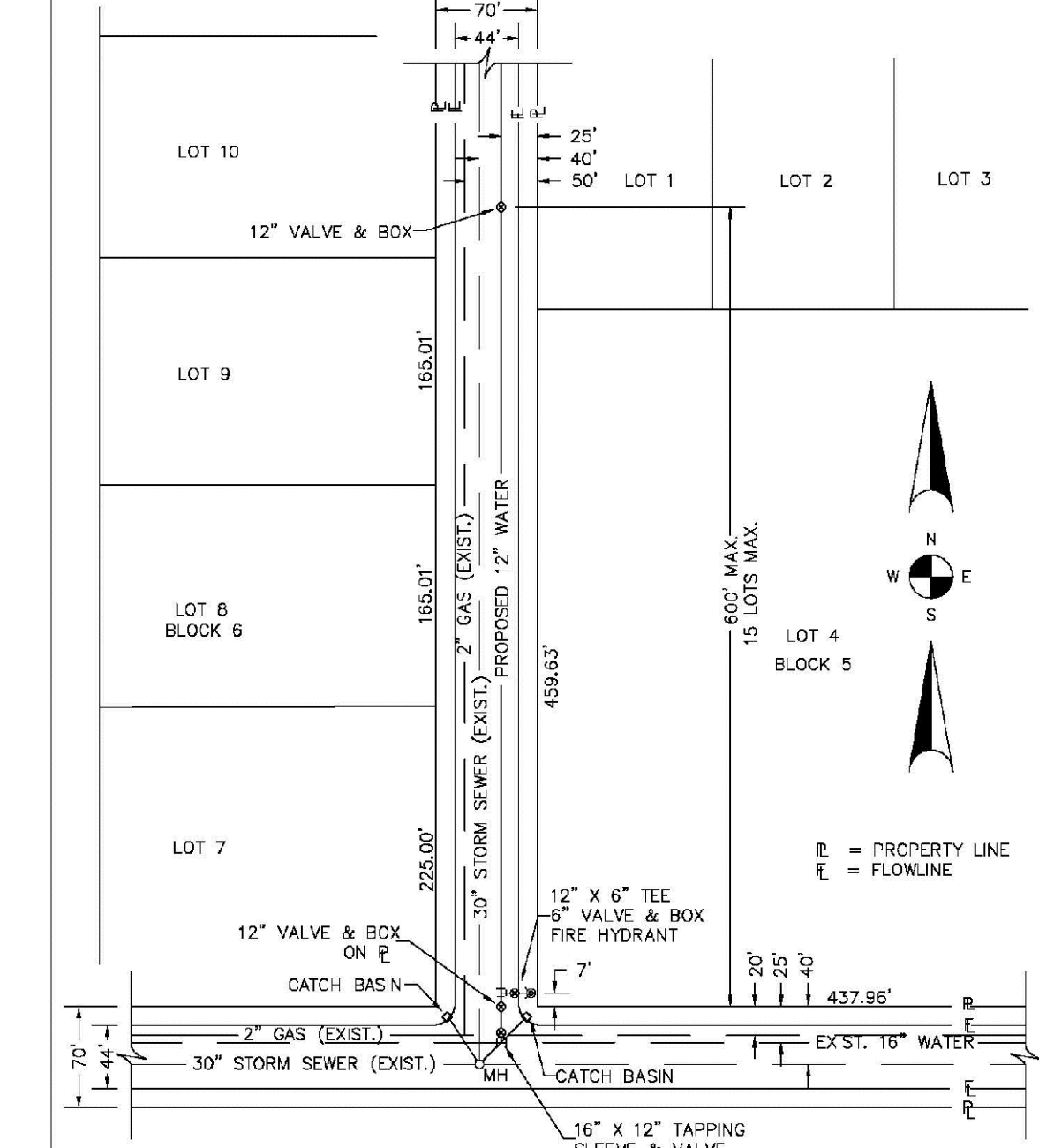
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PARKER WATER & SANITATION DISTRICT	
TYPICAL WATER SERVICES	
SCALE: NONE	DATE: 2/96
APPROVED: 1/04	10/16
PVR	12/07
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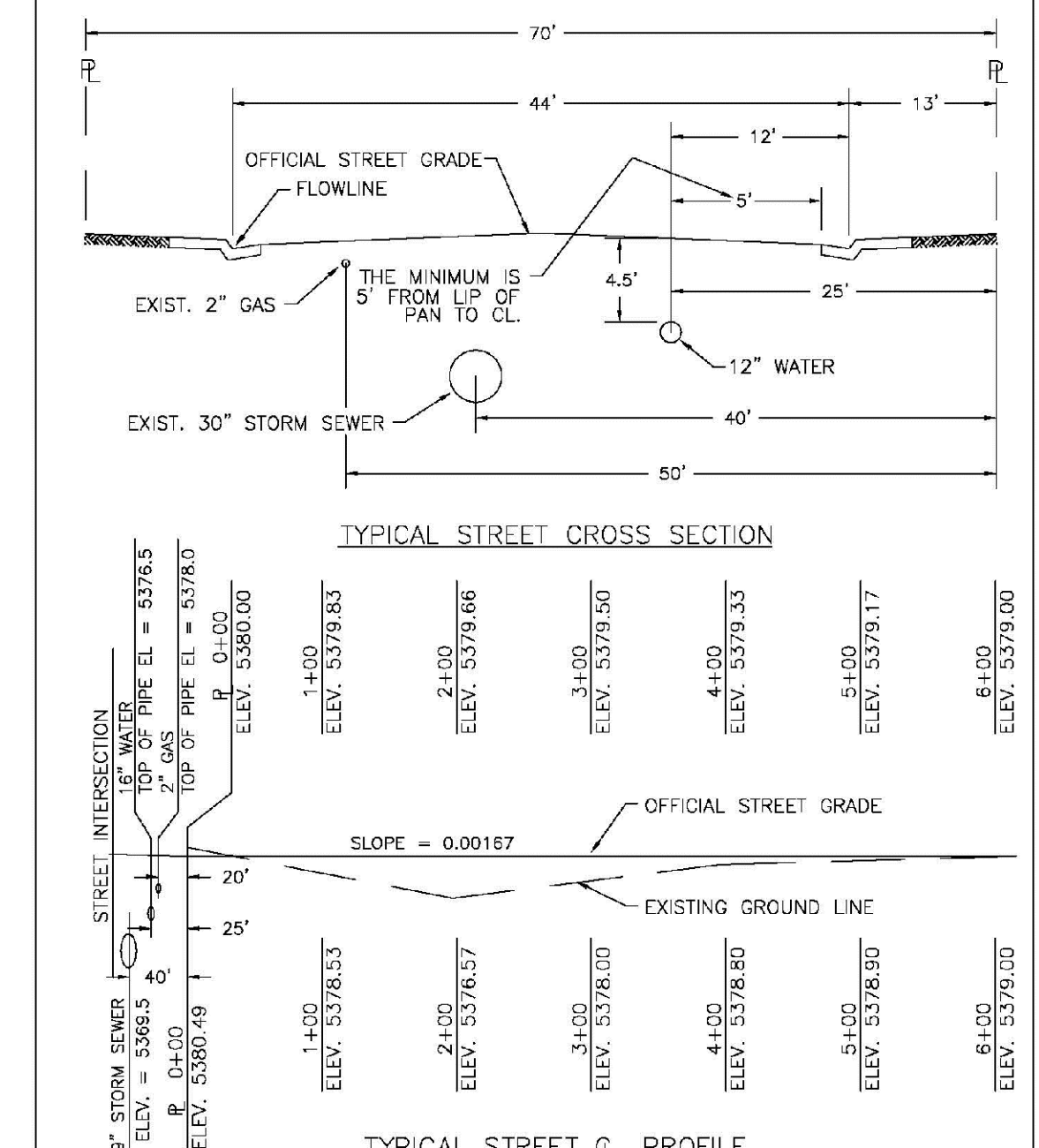
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PARKER WATER & SANITATION DISTRICT	
WATER DISTRIBUTION SYSTEM TYPICAL PLAN	
SCALE: NONE	DATE: 2/96
APPROVED: 1/16	10/16
PVR	DIRECTOR OF ENGINEERING

2016 REVISION

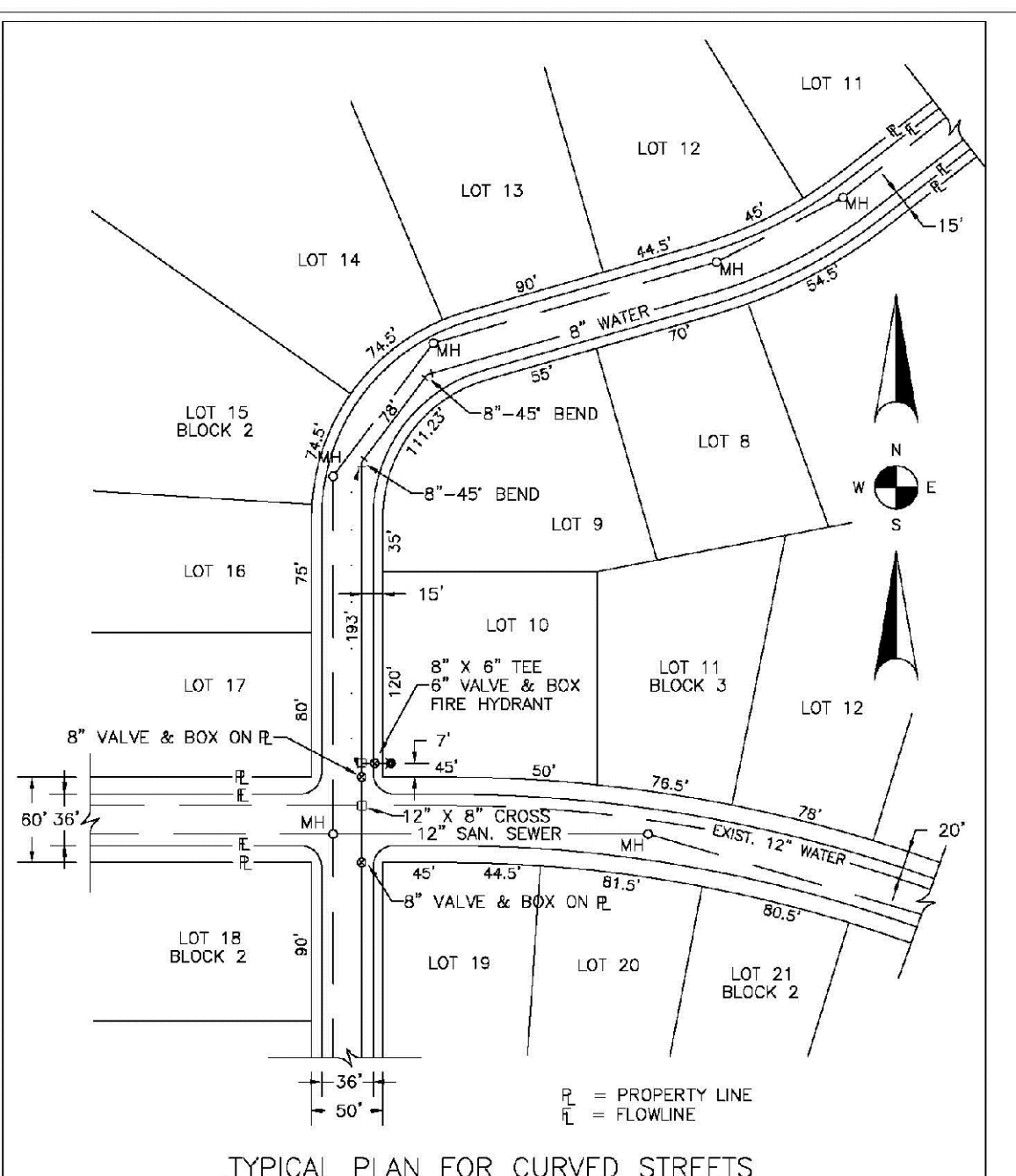
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PARKER WATER & SANITATION DISTRICT	
TYPICAL STREET CROSS SECTION	
SCALE: NONE	DATE: 2/96
APPROVED: 1/16	10/16
PVR	DIRECTOR OF ENGINEERING

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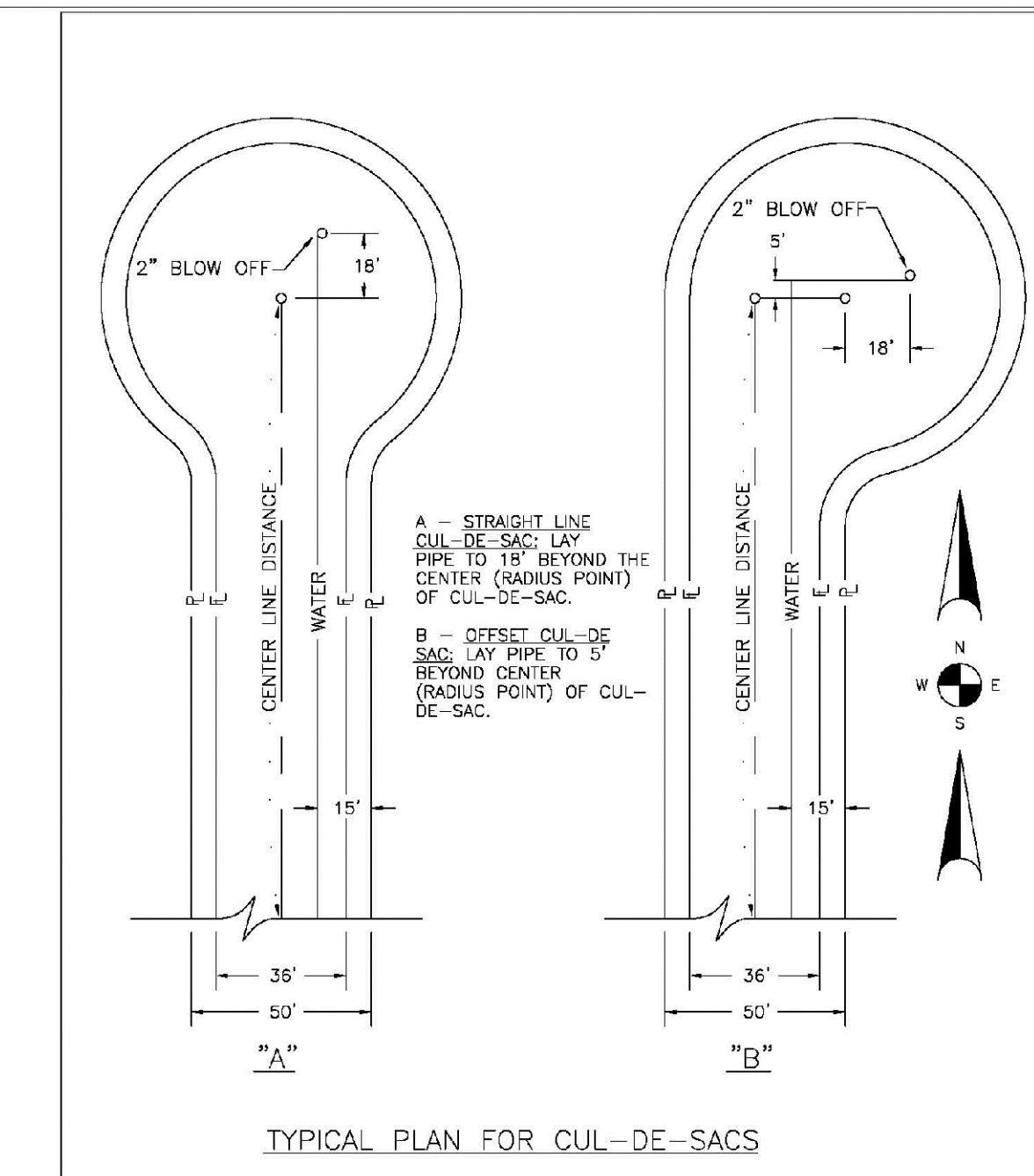
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PARKER WATER & SANITATION DISTRICT	
WATER DISTRIBUTION SYSTEM TYPICAL PLAN FOR CURVED STREETS	
SCALE: NONE	DATE: 2/96
APPROVED: 1/16	10/16
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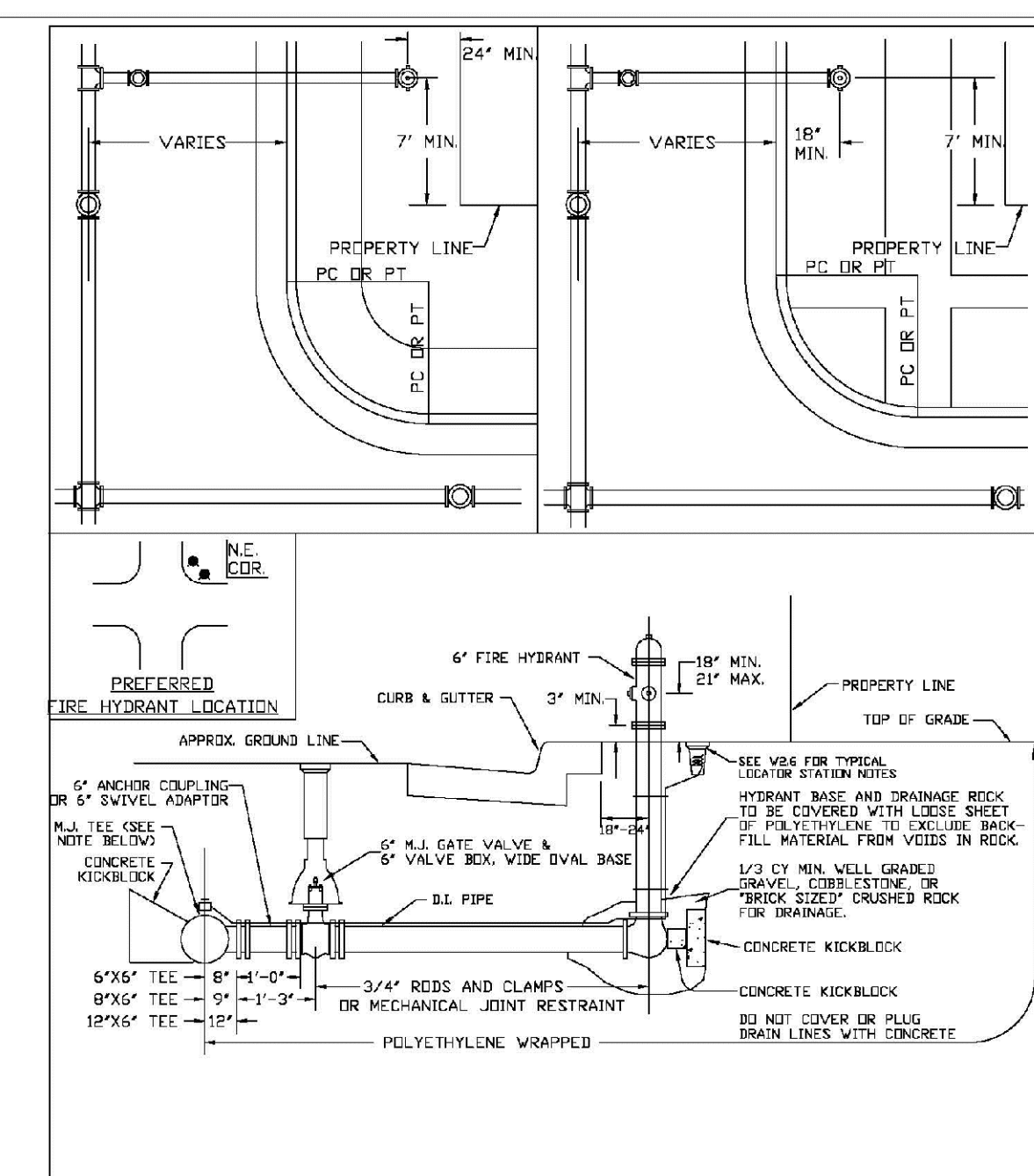
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PARKER WATER & SANITATION DISTRICT	
WATER DISTRIBUTION SYSTEM TYPICAL PLAN FOR CUL-DE-SACS	
SCALE: NONE	DATE: 2/96
APPROVED: 1/16	10/16
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2016 REVISION

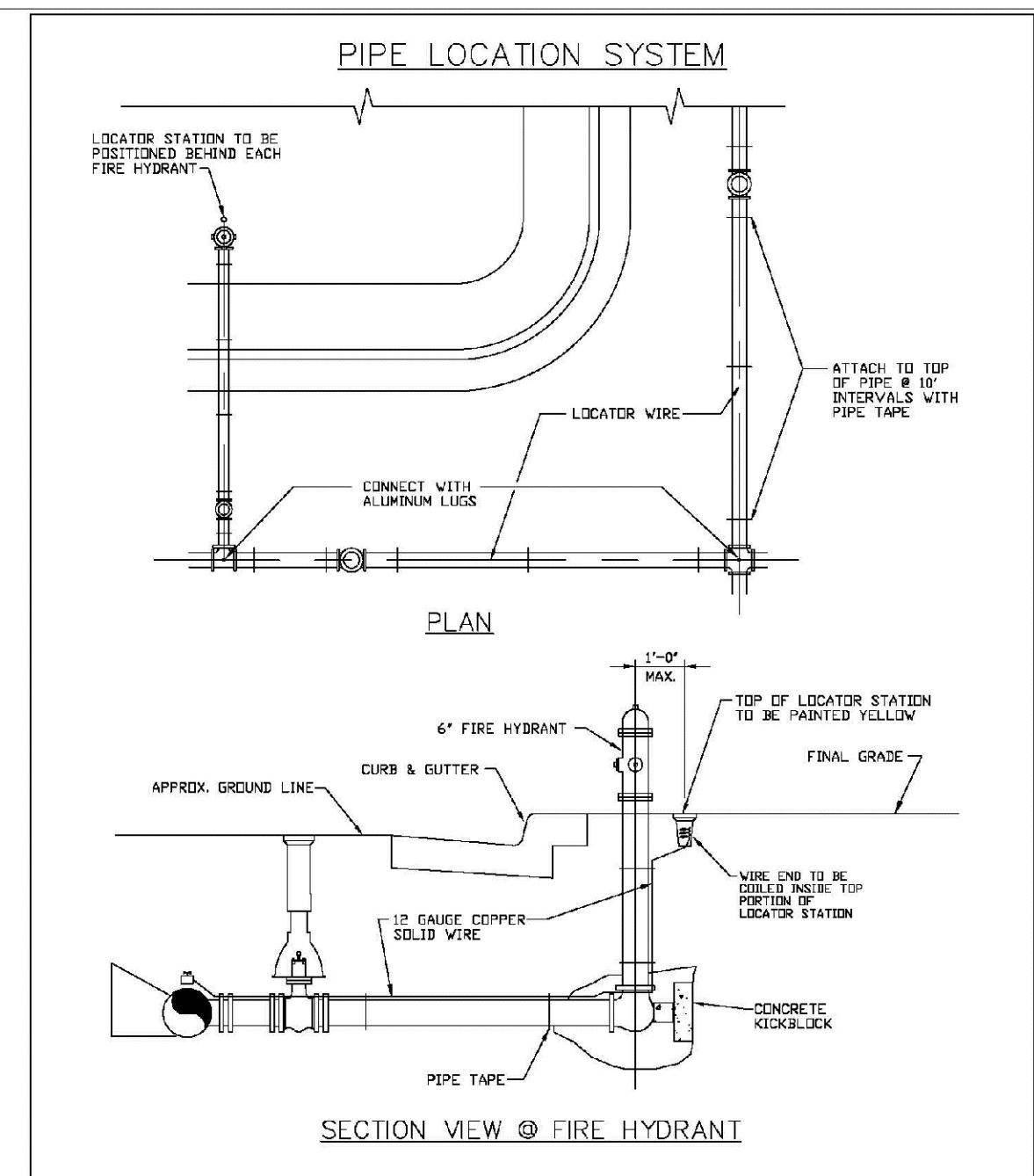
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PARKER WATER & SANITATION DISTRICT	
FIRE HYDRANTS LOCATION & INSTALLATION	
SCALE: NONE	DATE: 2/96
APPROVED: 4/01	10/16
PVR	10/27
DIRECTOR OF ENGINEERING	

2016 REVISION

SHEET W2.5



PARKER WATER & SANITATION DISTRICT	
LOCATOR WIRE DETAILS	
SCALE: NONE	DATE: 2/96
APPROVED: 4/01	10/16
PVR	10/16
DIRECTOR OF ENGINEERING	

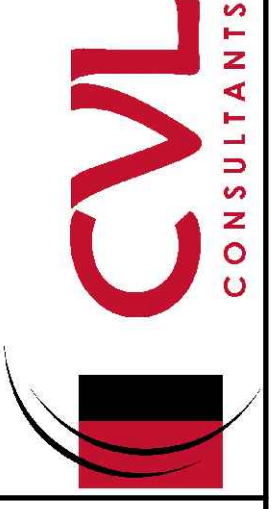
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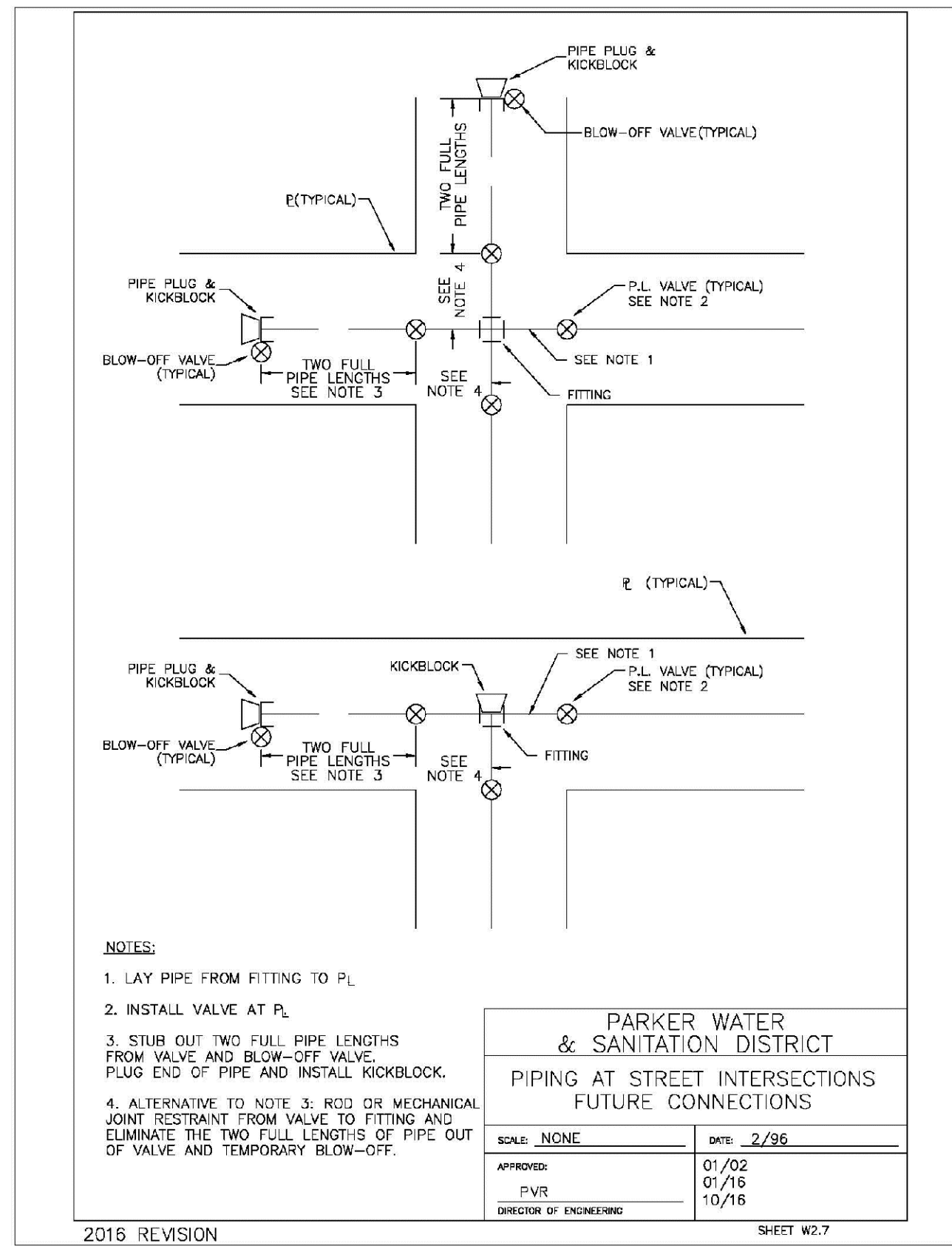
SHEET W2.6

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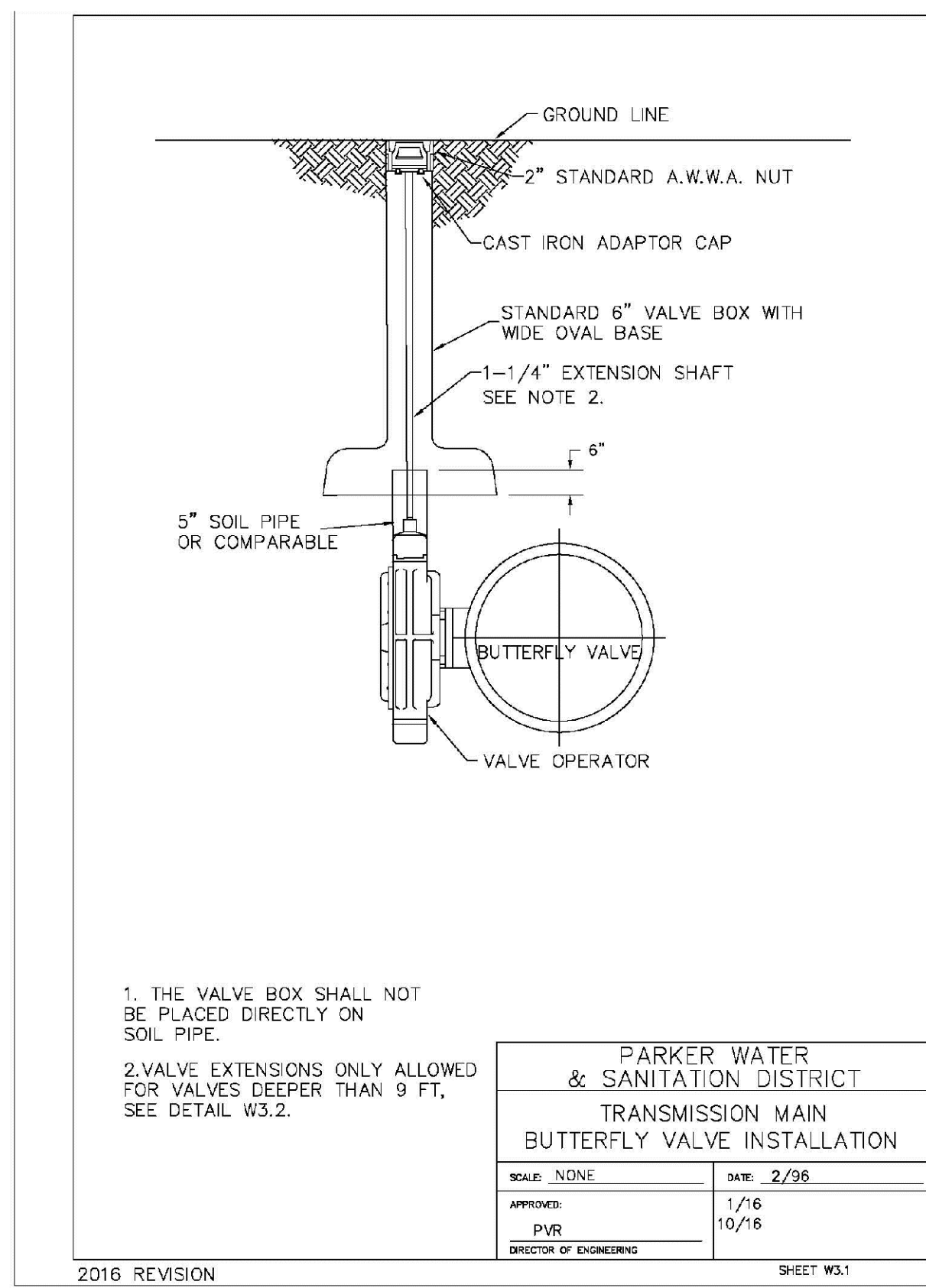
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15									





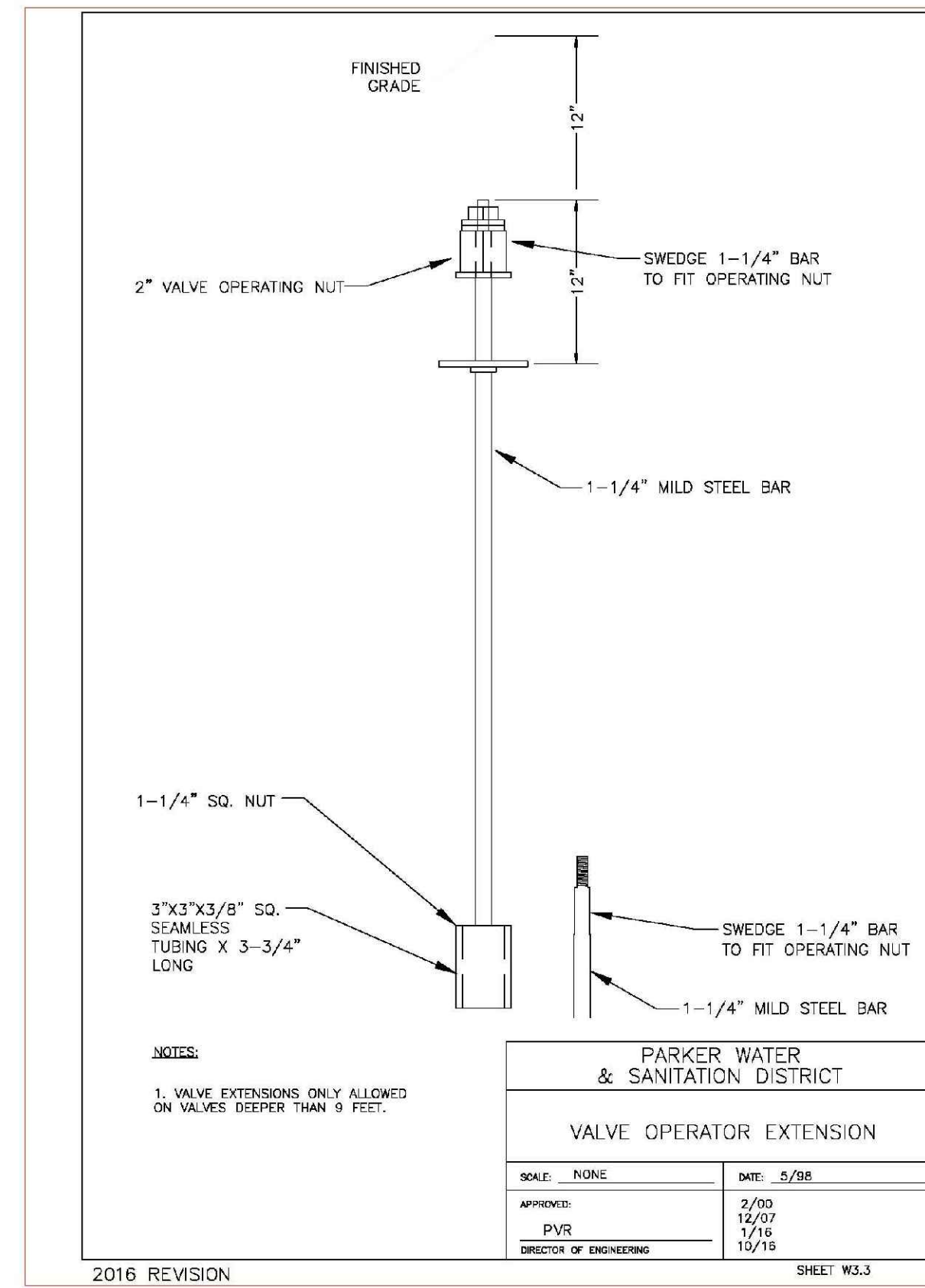
PARKER WATER & SANITATION DISTRICT PIPING AT STREET INTERSECTIONS FUTURE CONNECTIONS	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	DATE: 1/16
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2016 REVISION SHEET W3.7



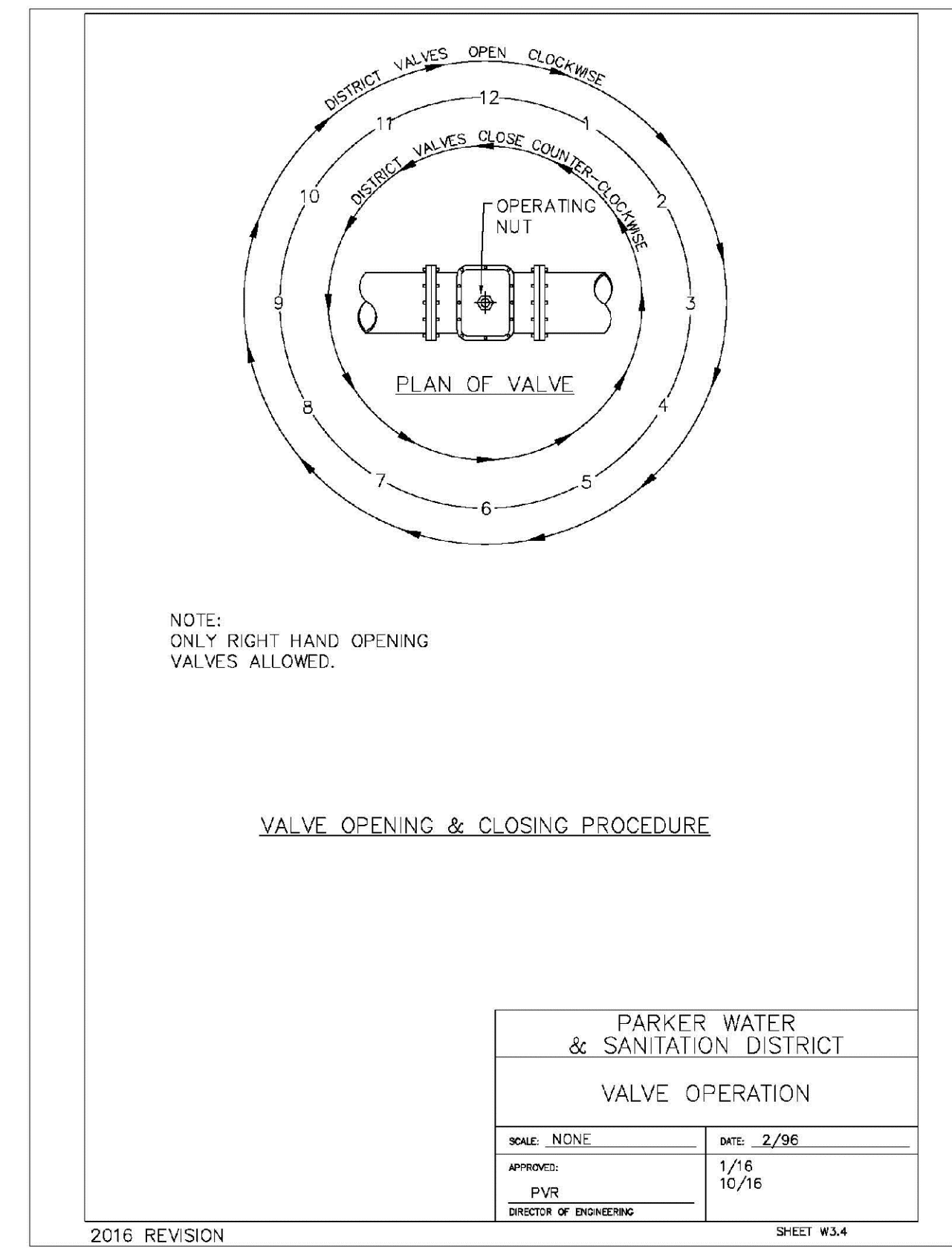
PARKER WATER & SANITATION DISTRICT TRANSMISSION MAIN BUTTERFLY VALVE INSTALLATION	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	DATE: 1/16
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2016 REVISION SHEET W3.1



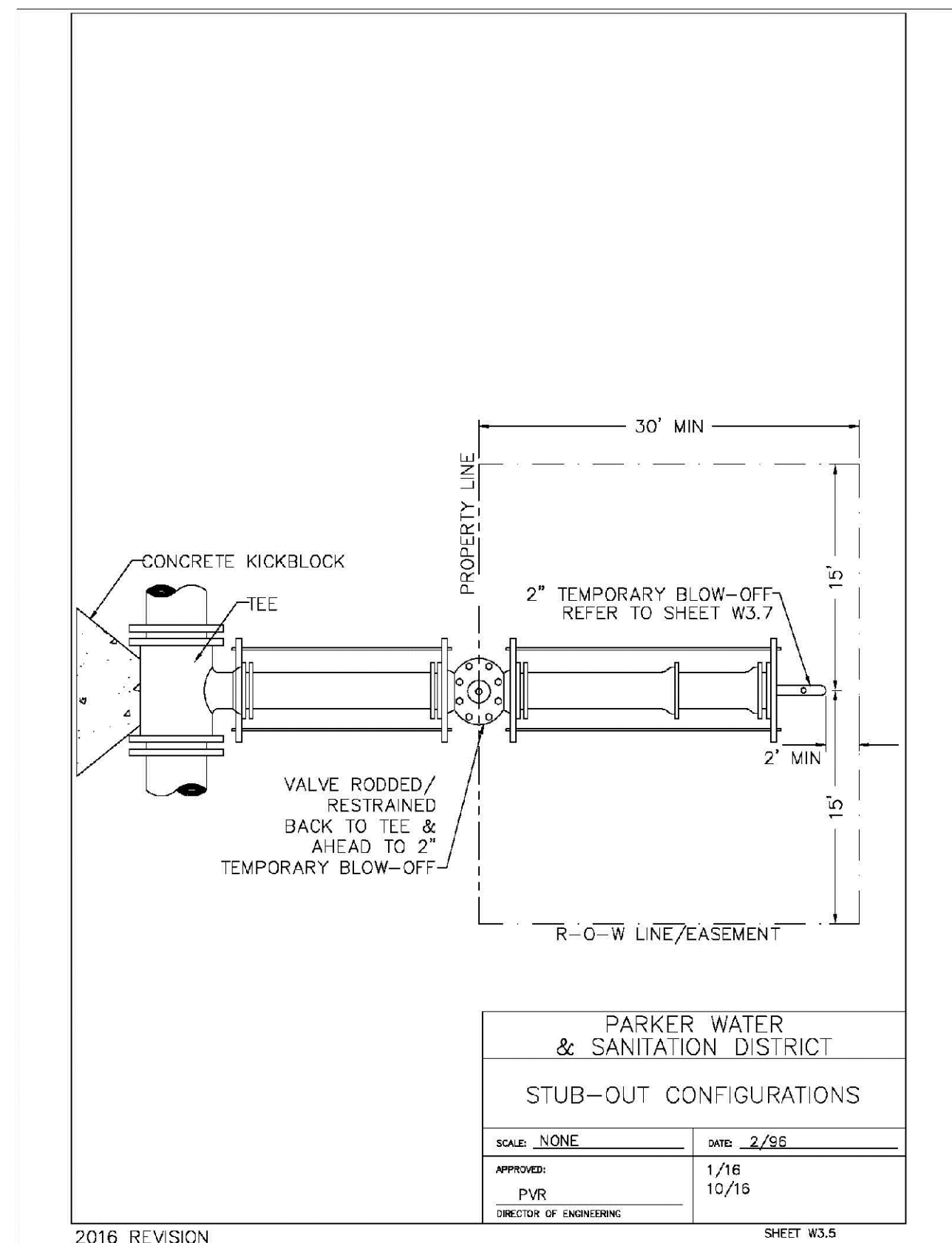
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APPROVED: PVR	DATE: 1/16
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET W3.3



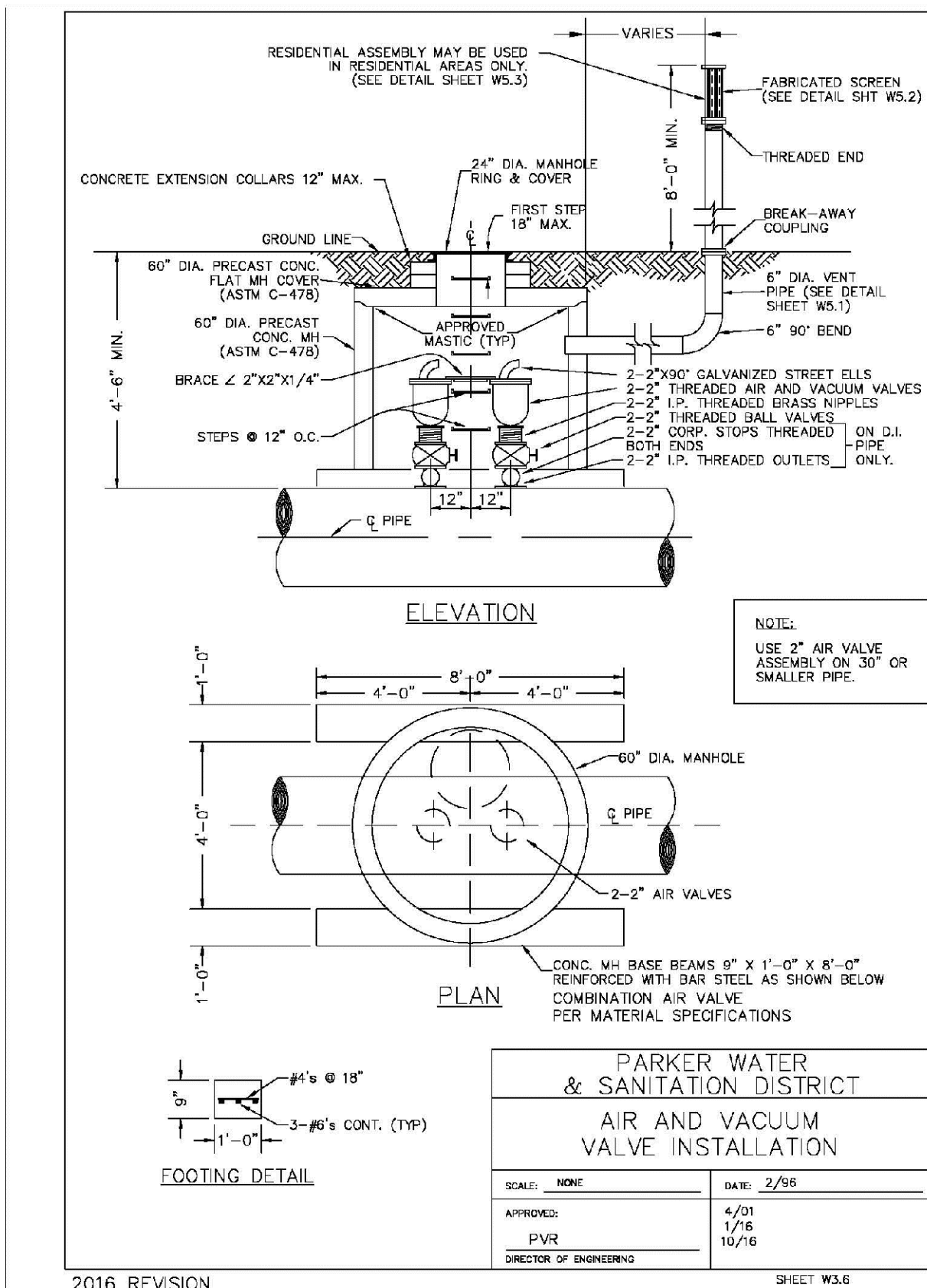
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APPROVED: PVR	DATE: 1/16
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2016 REVISION SHEET W3.4



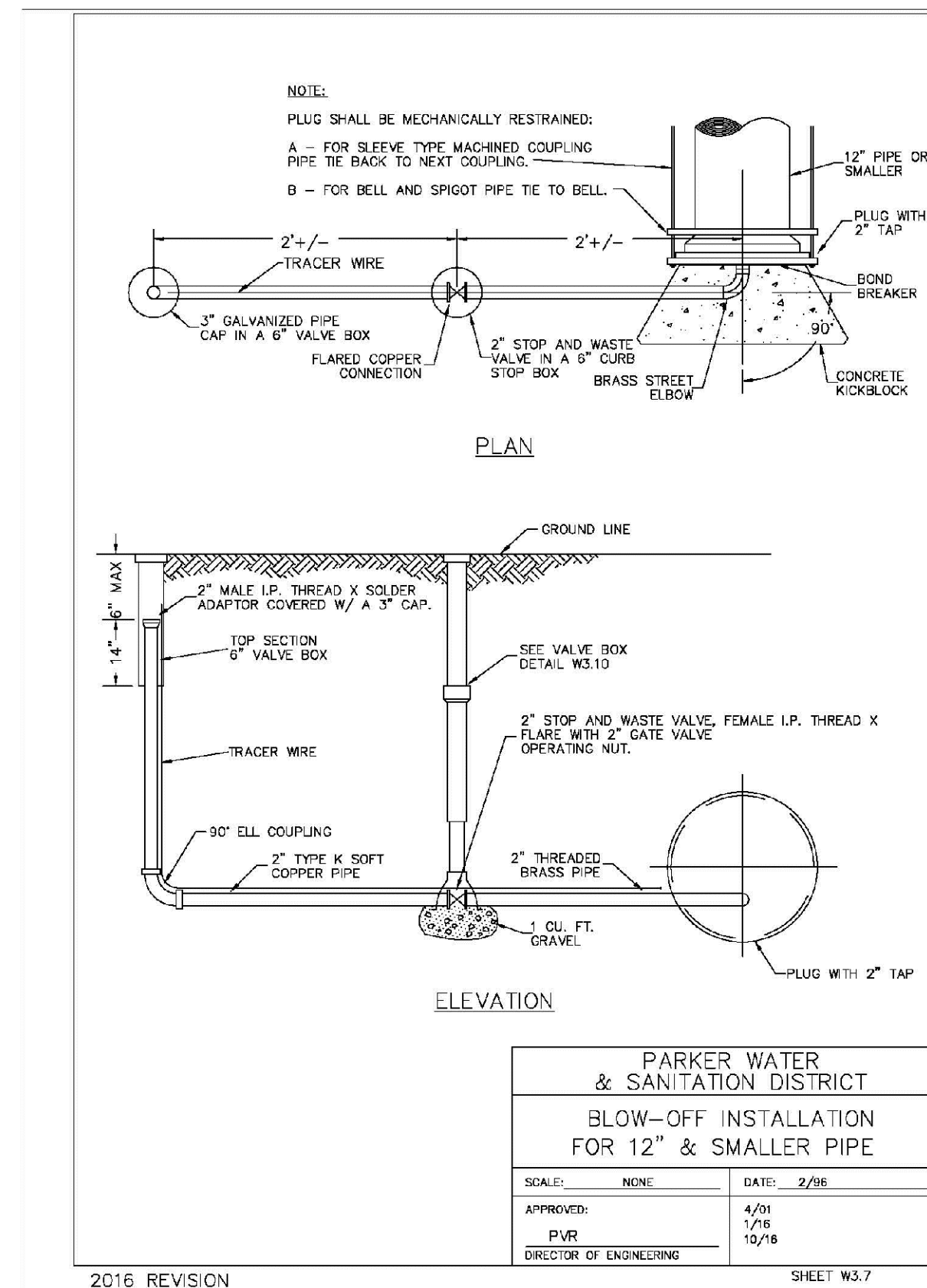
PARKER WATER & SANITATION DISTRICT STUB-OUT CONFIGURATIONS	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	DATE: 10/16
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2016 REVISION SHEET W3.5



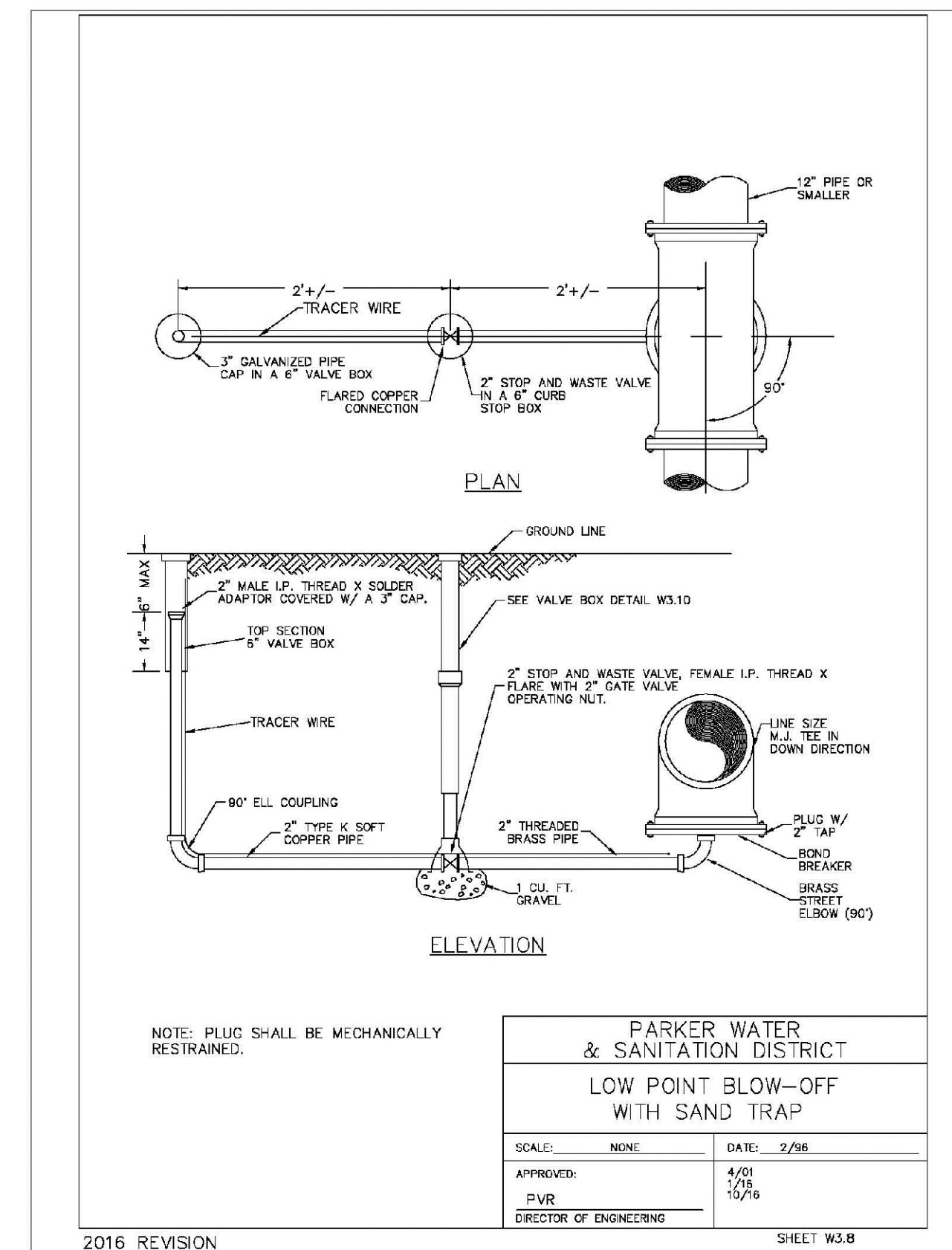
PARKER WATER & SANITATION DISTRICT AIR AND VACUUM VALVE INSTALLATION	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	DATE: 1/16
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET W3.6



PARKER WATER & SANITATION DISTRICT BLOW-OFF INSTALLATION FOR 12" & SMALLER PIPE	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	DATE: 1/16
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET W3.7



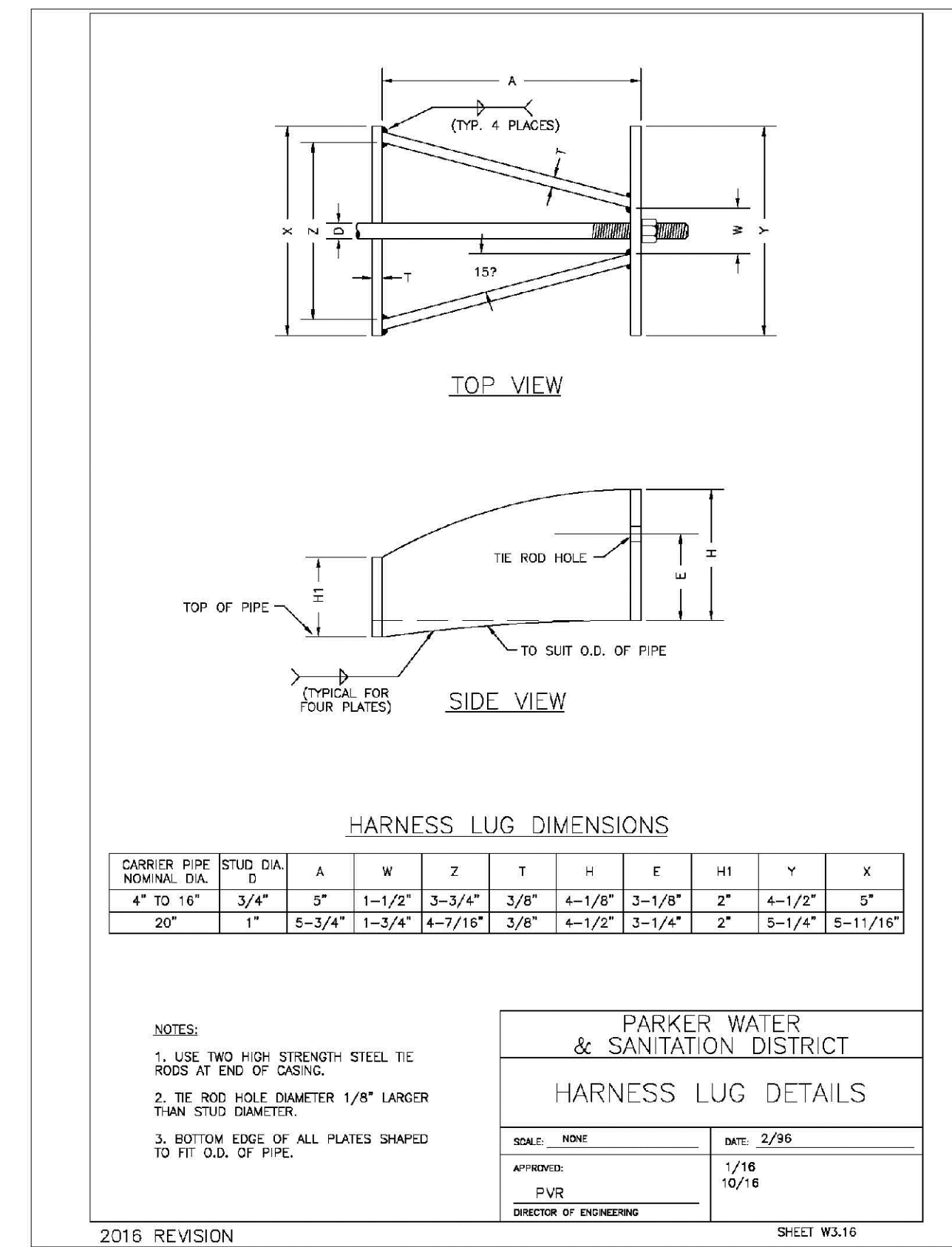
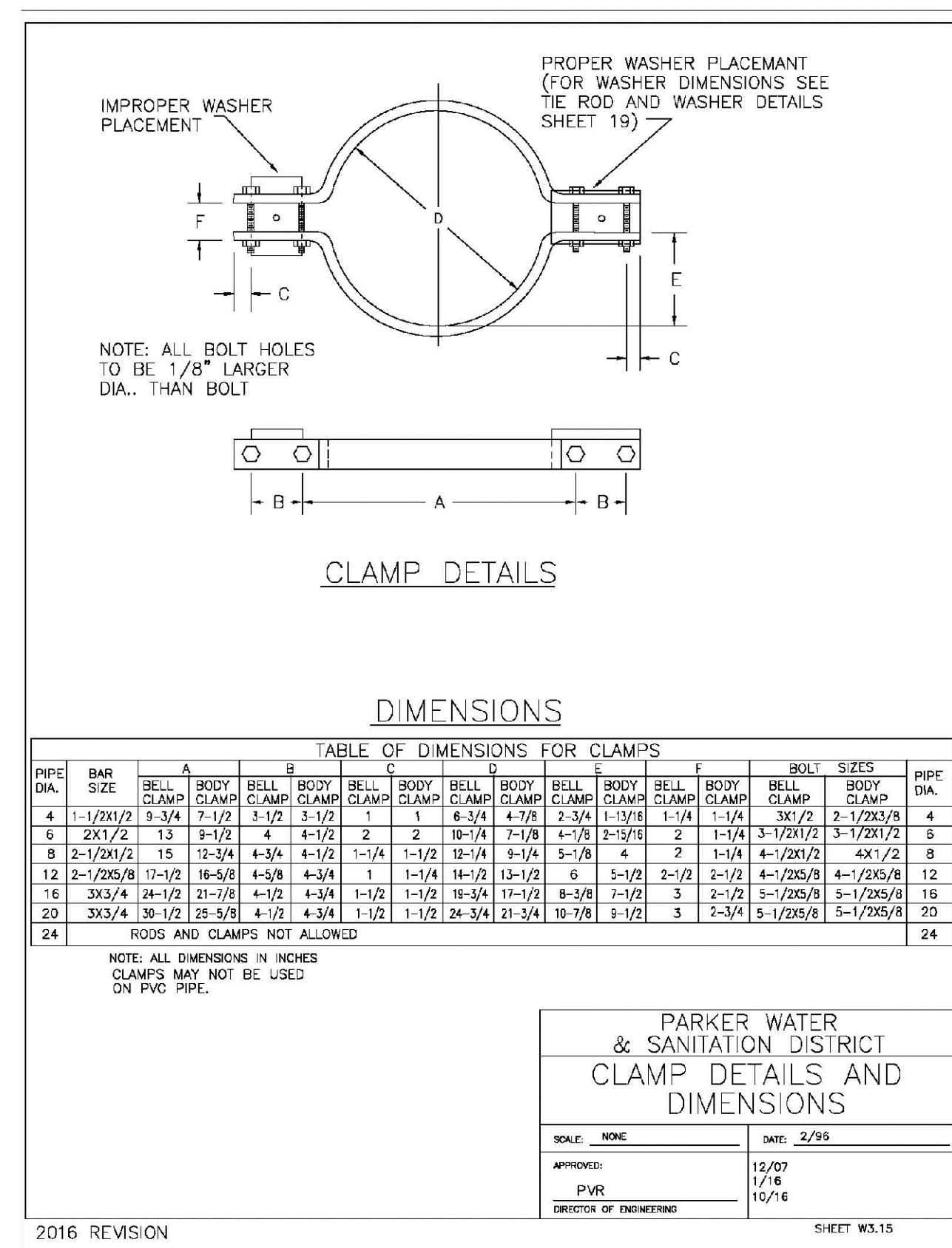
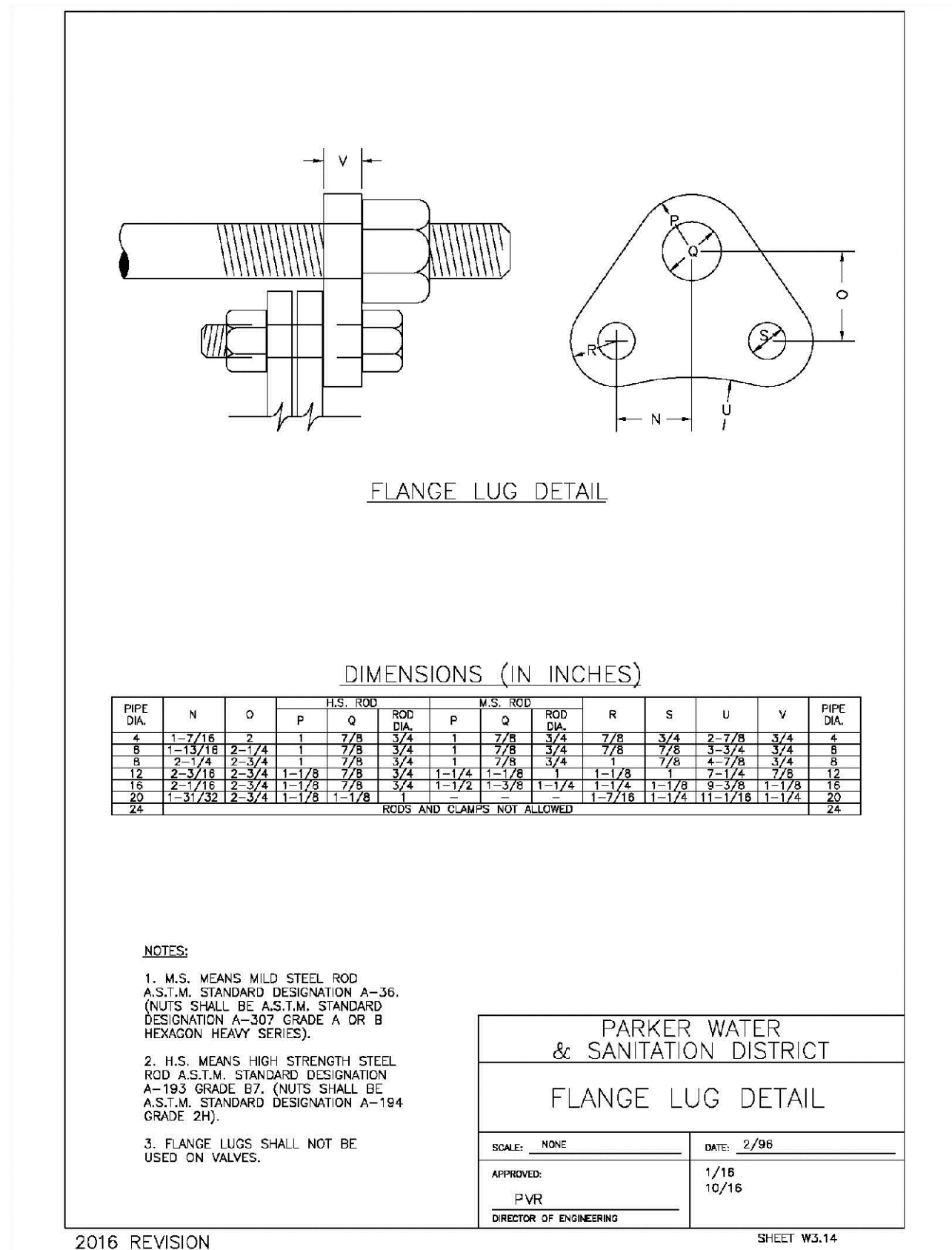
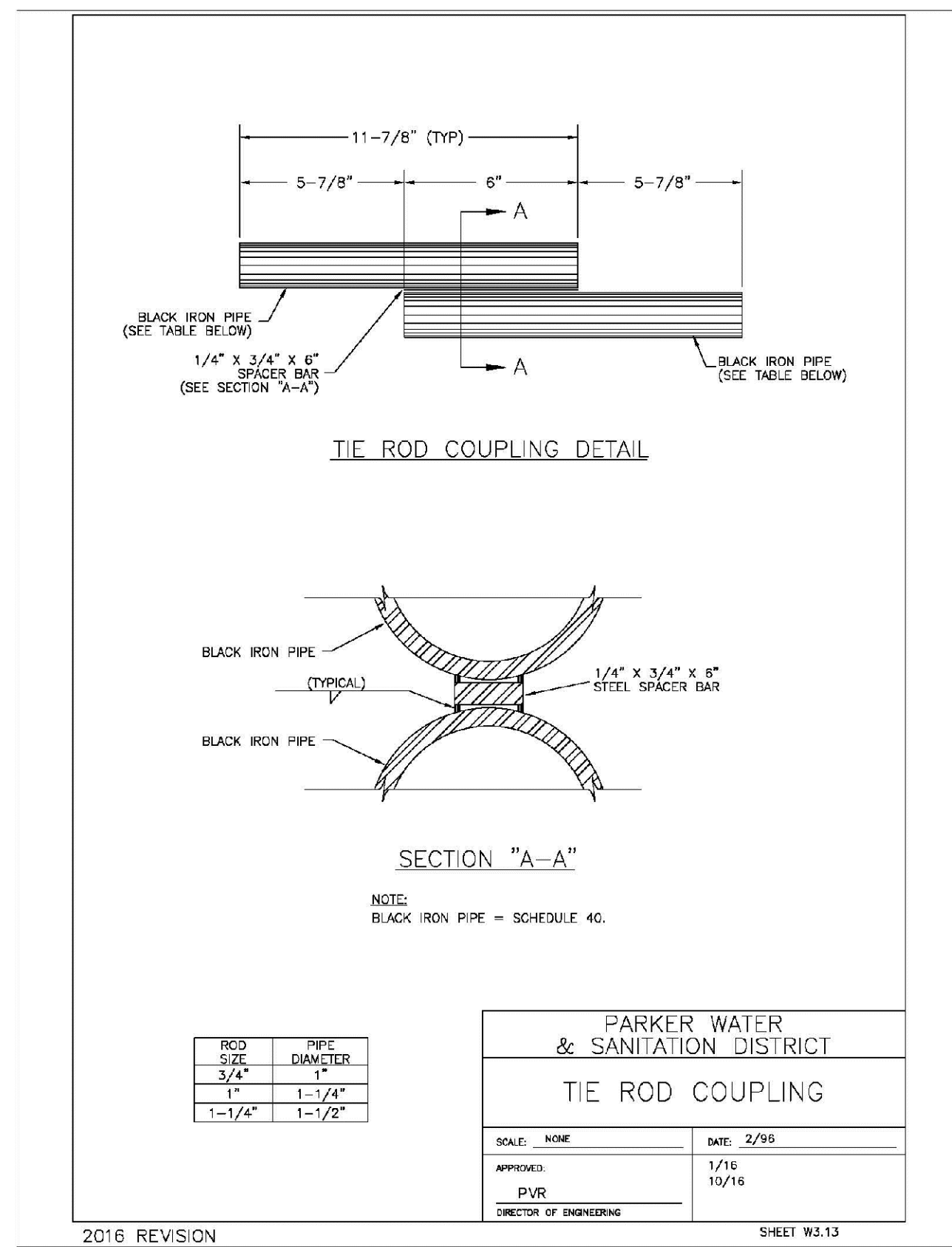
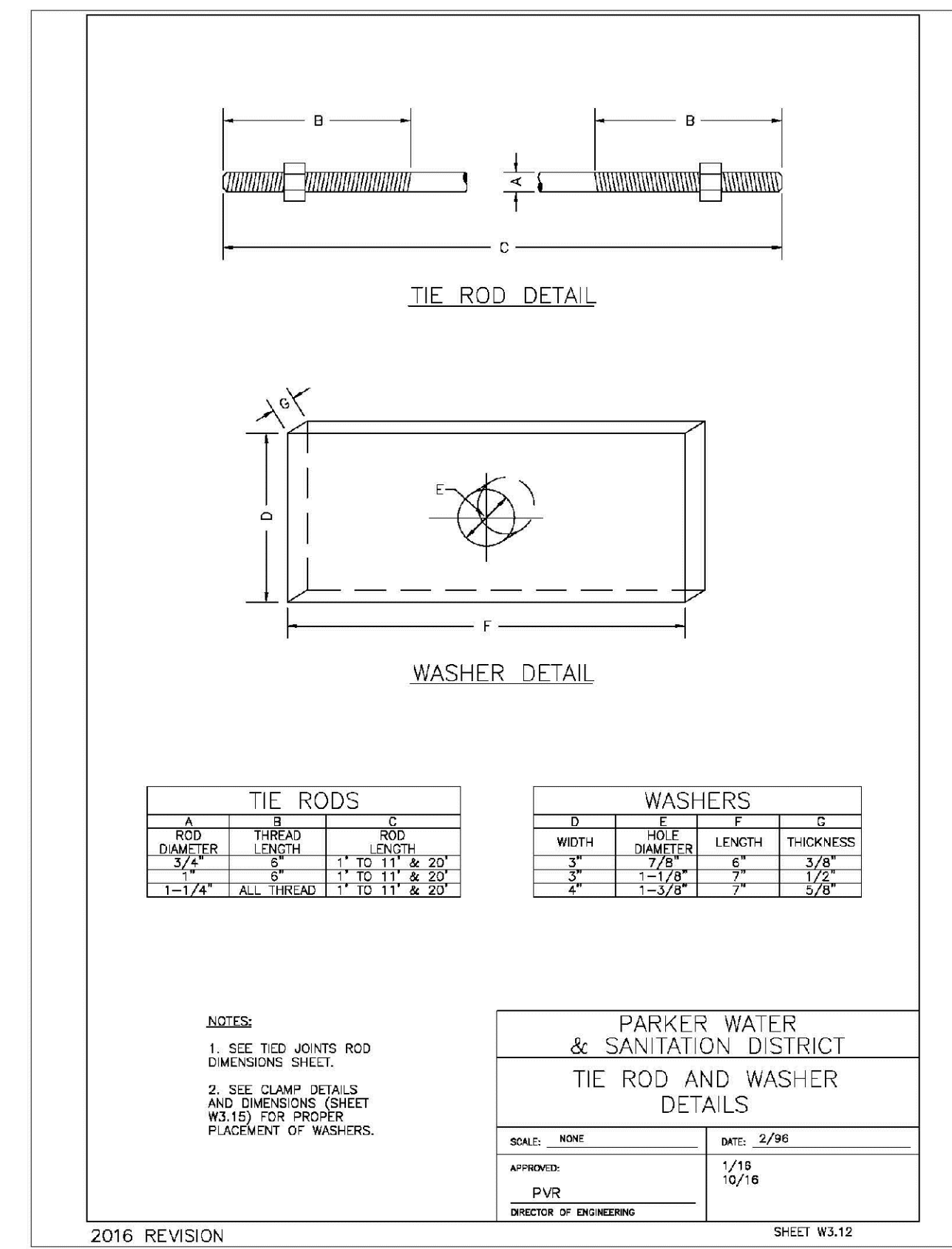
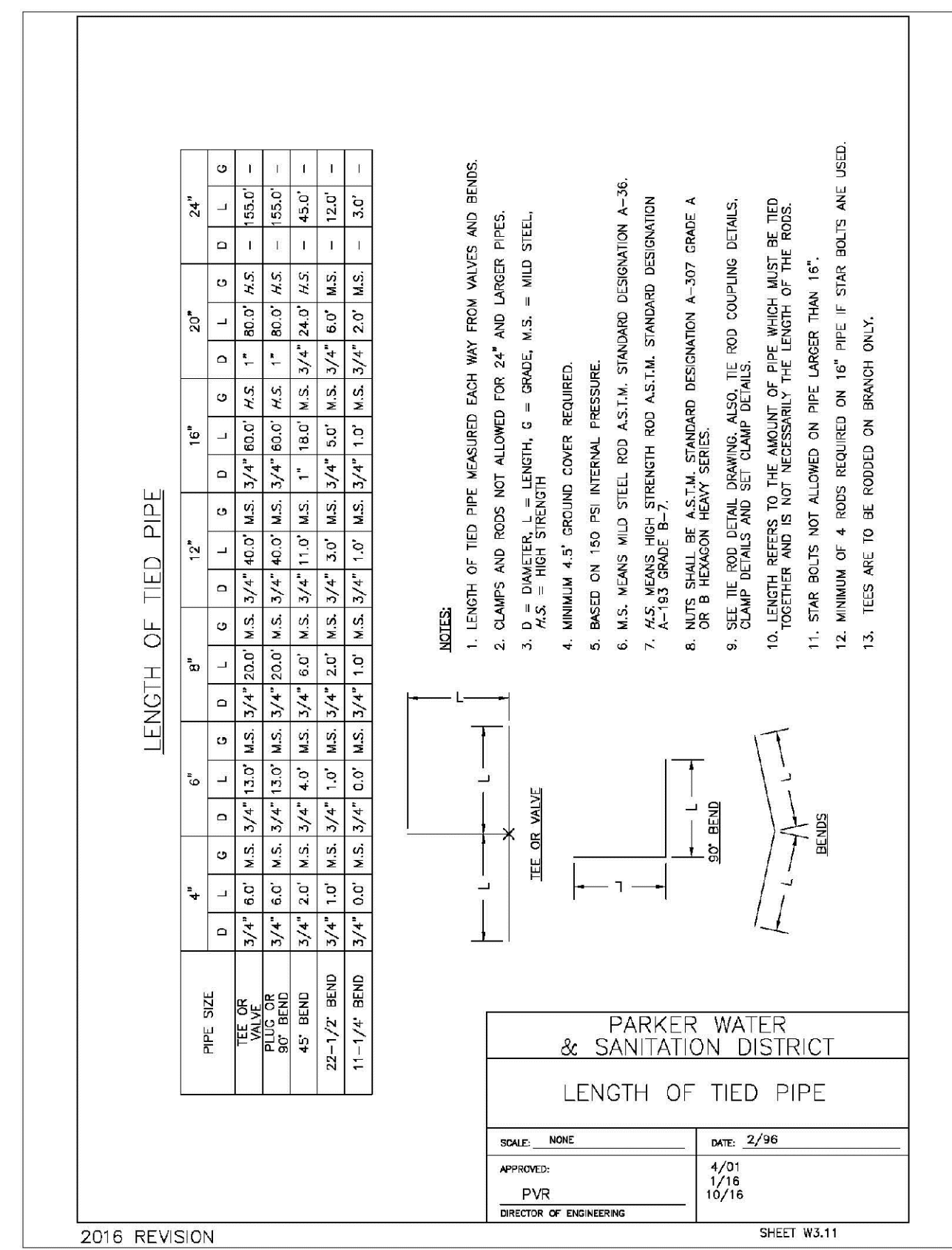
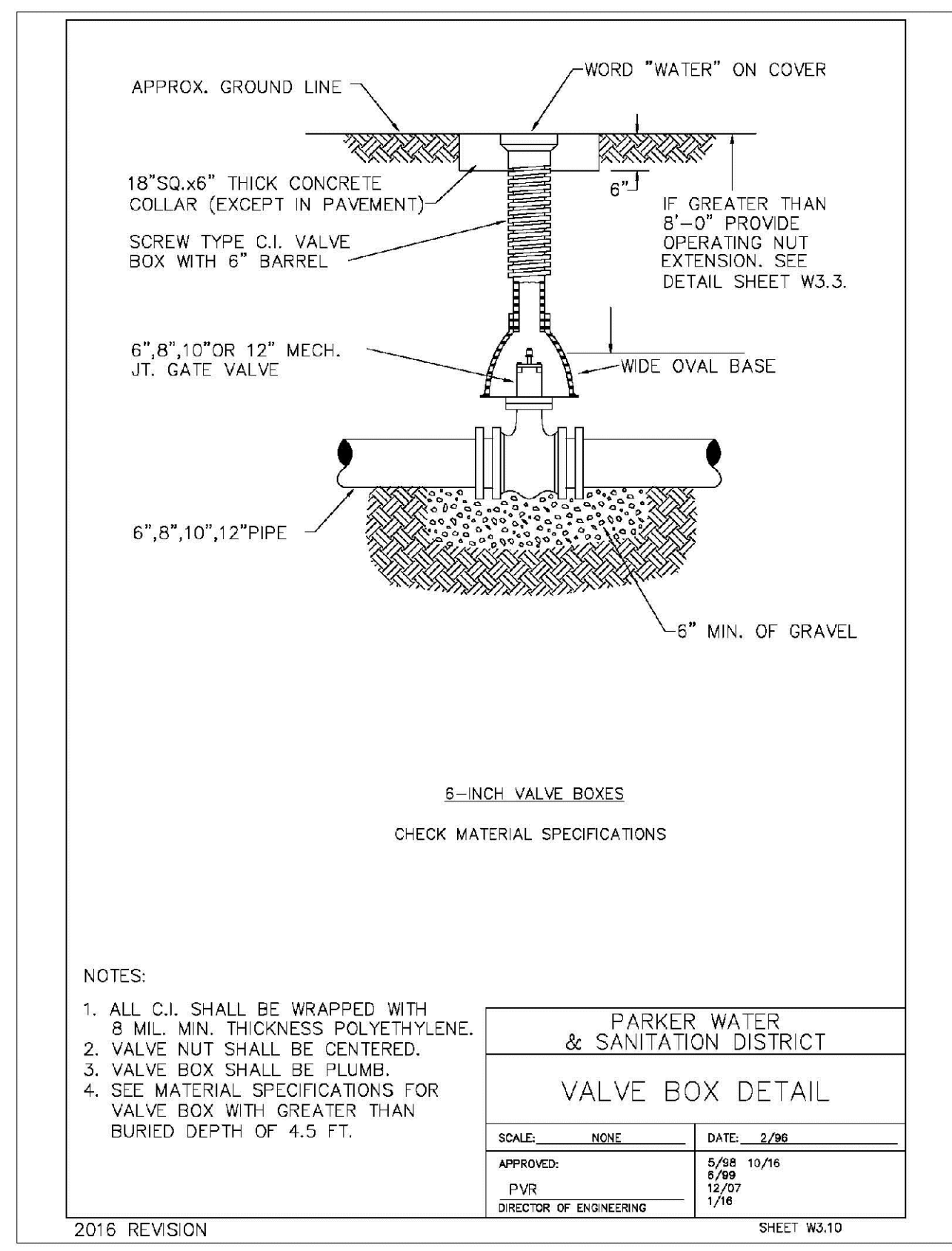
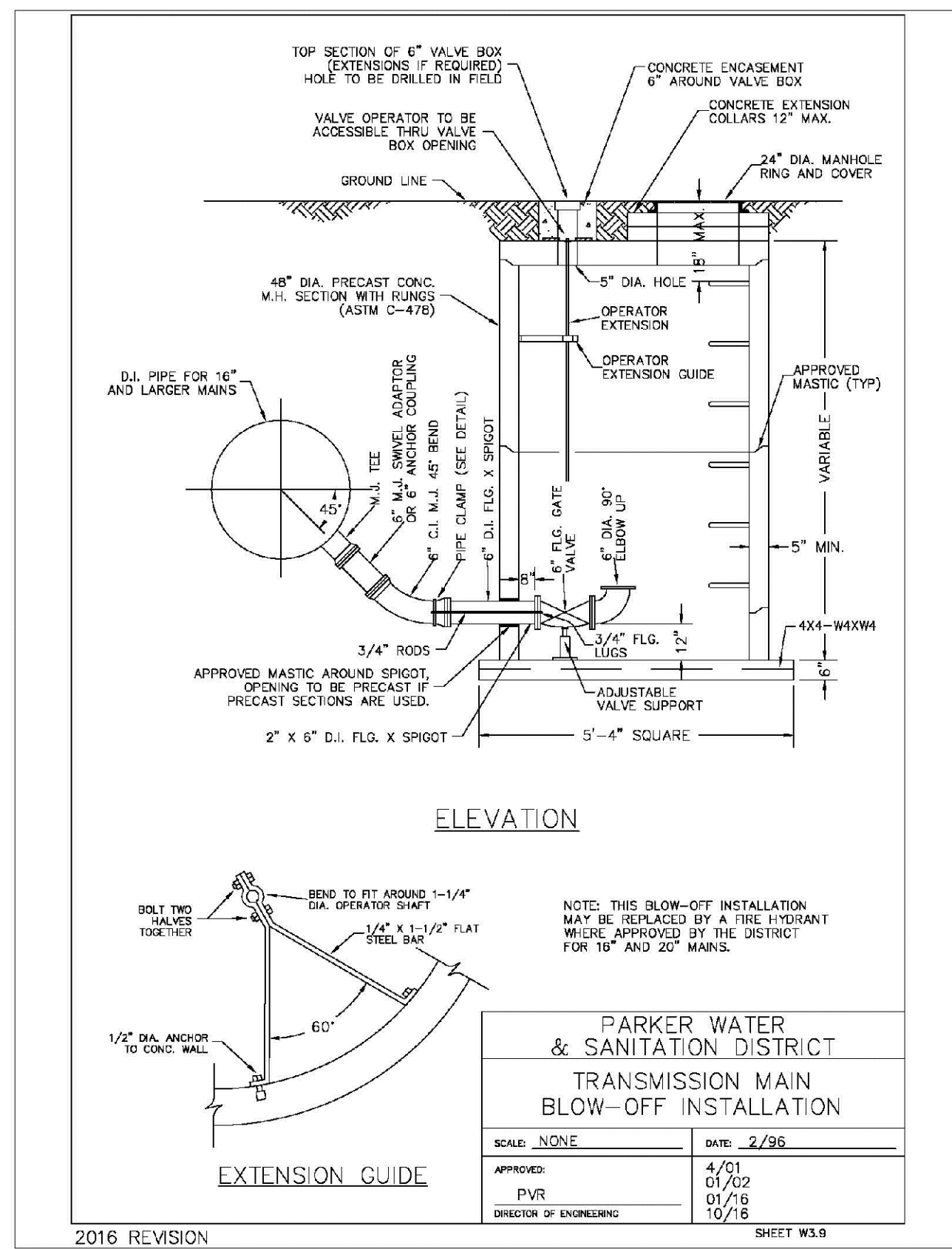
PARKER WATER & SANITATION DISTRICT LOW POINT BLOW-OFF WITH SAND TRAP	
SCALE: NONE	DATE: 2/96
APPROVED: PVR	DATE: 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET W3.8

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<b>HR 935 LLC</b> 7353 South Alton Way CENTENNIAL, CO 80112					
<b>TRAILS AT CROWFOOT</b> <b>FILING 15 CONSTRUCTION DRAWINGS</b> WATER DETAILS					
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SCALE: AS SHOWN  
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DRAWN BY: RHR  
CHECKED BY: BPW  
DATE: JUNE 2018

SHEET NUMBER: 17

No.	Revisions	Date	Init.	Appr.	Date

### MECHANICAL JOINT RESTRAINT

WEDGE DETAIL      BOLT HOLE DETAIL

NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	K1 INCHES	F INCHES	M INCHES
4"	2	2				
6"	3	3	11.12	9.5	7.00	0.88
8"	4	4	13.37	11.75	8.75	1.00
10"	5	5	15.62	14.00	11.20	1.00
12"	6	6	17.88	16.25	13.30	1.25

NOTES:  
1. DIMENSIONS FOR 16" AND 20" D.I. PIPE NOT SHOWN.

**PARKER WATER & SANITATION DISTRICT**  
**MECHANICAL JOINT RESTRAINT DETAILS**

SCALE: NONE      DATE: 2/96

APPROVED: 2/90      12/07  
PVR      1/16  
DIRECTOR OF ENGINEERING

2016 REVISION      SHEET W3.17

### 11-1/4", 22-1/2", 45" & 90" BENDS

DEAD END      TEE

MINIMUM BEARING SURFACE AREA (IN SQUARE FEET)

SIZE OF PIPE	11-1/4" BENDS	22-1/2" BENDS	45" BENDS	90" BENDS	TEE OR DEAD END
4"	1.00	1.20	1.00	1.80	1.50
6"	1.00	1.45	1.25	2.00	2.00
8"	1.00	1.70	1.50	2.50	2.50
10"	1.00	2.00	1.75	3.00	3.00
12"	1.00	2.25	2.00	3.50	3.50
14"	1.00	2.50	2.25	4.00	4.00
16"	1.00	2.75	2.50	4.50	4.50
18"	1.00	3.00	2.75	5.00	5.00
20"	1.00	3.25	3.00	5.50	5.50
24"	1.00	3.75	3.50	6.50	6.50

NOTES:  
1. ALL VALVES, TEES, BENDS AND PLUGS SHALL BE RESTRAINED AND KICKLOCKED.  
2. WATER HAMMER: 1" C 1/2" 16", 20" AND 24" WATER HAMMER = 70 PSI.  
3. SOIL BEARING CAPACITY = 3,000 LBS./SQ. FT.

**PARKER WATER & SANITATION DISTRICT**  
**CONCRETE KICKBLOCKS BEARING SURFACES AND INSTALLATION**

SCALE: NONE      DATE: 2/96

APPROVED: 4/01      1/16  
PVR      10/16  
DIRECTOR OF ENGINEERING

2016 REVISION      SHEET W3.18

### 24" DIAMETER RING AND COVER

HALF PLAN      STANDARD LIFTING SLOT DETAIL

NOTES:  
1. Coating Specifications: ASTM A-48 With a Minimum Tensile Strength of 26 KSI (Class 20)  
2. All Castings to be Dipped in Asphalt Base Coat (Or Approved Lead)

**PARKER WATER & SANITATION DISTRICT**  
**24" DIAMETER RING AND COVER**

SCALE: NONE      DATE: 6/26

APPROVED: 12/07      1/16  
PVR      10/16  
DIRECTOR OF ENGINEERING

2016 REVISION      SHEET W2.19

### ACCESS MANHOLE ASSEMBLY

ACCESS MANHOLE      ACCESS MANHOLE AND AIR VALVE ASSEMBLY

NOTES:  
1. USE 2" AIR VALVE ASSEMBLY ON 30" OR SMALLER PIPES.  
2. RESIDENTIAL ASSEMBLY MAY BE USED IN RESIDENTIAL AREAS ONLY (SEE DETAIL SHEET W6.3)

**PARKER WATER & SANITATION DISTRICT**  
**ACCESS MANHOLE ASSEMBLY**

SCALE: NONE      DATE: 2/96

APPROVED: 4/01      1/16  
PVR      10/16  
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2016 REVISION      SHEET W3.20

### STANDARD TRENCH SECTION

STANDARD TRENCH SECTION      STREET CUT PATCH

PIPE DIAMETER	MINIMUM WIDTH	MAXIMUM WIDTH
4"	1'-0"	2'-0"
6"	1'-0"	2'-0"
8"	1'-0"	2'-0"
10"	1'-0"	2'-0"
12"	1'-0"	2'-0"
14"	1'-0"	2'-0"
16"	1'-0"	2'-0"
18"	1'-0"	2'-0"
20"	1'-0"	2'-0"
24"	1'-0"	2'-0"

**PARKER WATER & SANITATION DISTRICT**  
**TYPICAL TRENCH SECTION PIPE PROTECTION**

SCALE: NONE      DATE: 2/96

APPROVED: 5/08      2/02  
PVR      10/16  
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2016 REVISION      SHEET W4.1

### PIPE BEDDING

(a) Installation of Bedding and Pipes: After completion of the trench excavation and proper preparation of the foundation, six inches (6") of bedding material shall be placed on the trench bottom for support under the pipe. Bed holes shall be dug deep enough to provide a minimum of two inches (2") of clearance between the soil and bedding material. All pipe shall be installed in such a manner as to insure full support of the pipe barrel over its entire length. After the pipe is adjusted for line and grade, and the joint is made, the bedding material shall be carefully placed and tamped under the fullness of the pipe and in the previously dug bed holes.

(b) Bedding Material: The bedding material shall be a clean well-graded sand or screenings sand and shall conform to the following limits when tested by means of laboratory sieves.

Sieve Size	Total Percent Passing by Weight
3/8 inch	100
No. 4	70-100
No. 6	35-83
No. 16	20-80
No. 30	5-60
No. 50	2-30
No. 100	1-10
No. 200	0-3

**PARKER WATER & SANITATION DISTRICT**  
**PIPE BEDDING**

SCALE: NONE      DATE: 2/96

APPROVED: 5/08      2/02  
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2016 REVISION      SHEET W4.2

### WATERLINE ENCASEMENT

PLAN VIEW      PROFILE      TYPICAL SECTION

NOTES:  
1. ALL CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3,000 PSI USING TYPE I PORTLAND CEMENT AND 3/4" AGGREGATE. ALL CONCRETE SHALL HAVE 5-7% ENTRAINED AIR CONTENT AND A MAXIMUM SLUMP OF 4".  
2. ALL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60.  
3. ALL REINFORCEMENT SHALL HAVE 2" MIN. CONCRETE COVER.  
4. THE SUBGRADE SHALL BE COMPACTED TO 95% OF THE MAXIMUM STANDARD PROCTOR DENSITY PRIOR TO FORMING THE STRUCTURE.  
5. PIPE SHALL BE WRAPPED WITH FELT LAYER BEFORE ENCASING.

**PARKER WATER & SANITATION DISTRICT**  
**WATERLINE ENCASEMENT**

SCALE: NONE      DATE: 5/26

APPROVED: 1/16      10/16  
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2016 REVISION      SHEET W4.3

### BORED CROSSINGS BENEATH CONDUITS

PLAN FOR PERPENDICULAR CROSSING      PLAN FOR ANGLE CROSSING

FORMULA FOR FINDING C:  
$$C = B + (2)(1.5) \left[ \frac{B}{2} + A + F \right]$$

FORMULA FOR FINDING L:  
$$L = \frac{C}{\sin \phi}$$

**PARKER WATER & SANITATION DISTRICT**  
**BORED CROSSINGS BENEATH CONDUITS**

SCALE: NONE      DATE: 2/96

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2016 REVISION      SHEET W4.4

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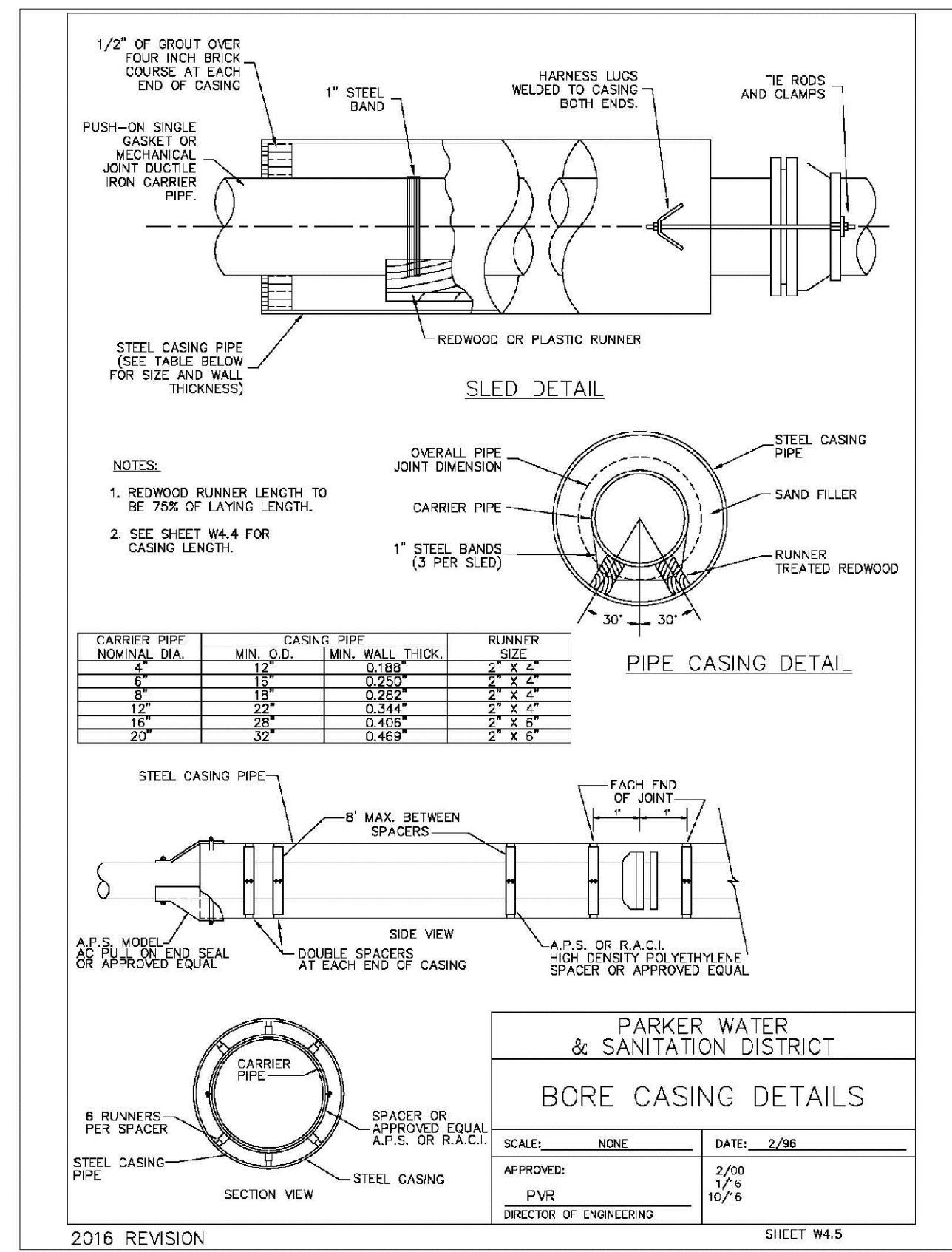
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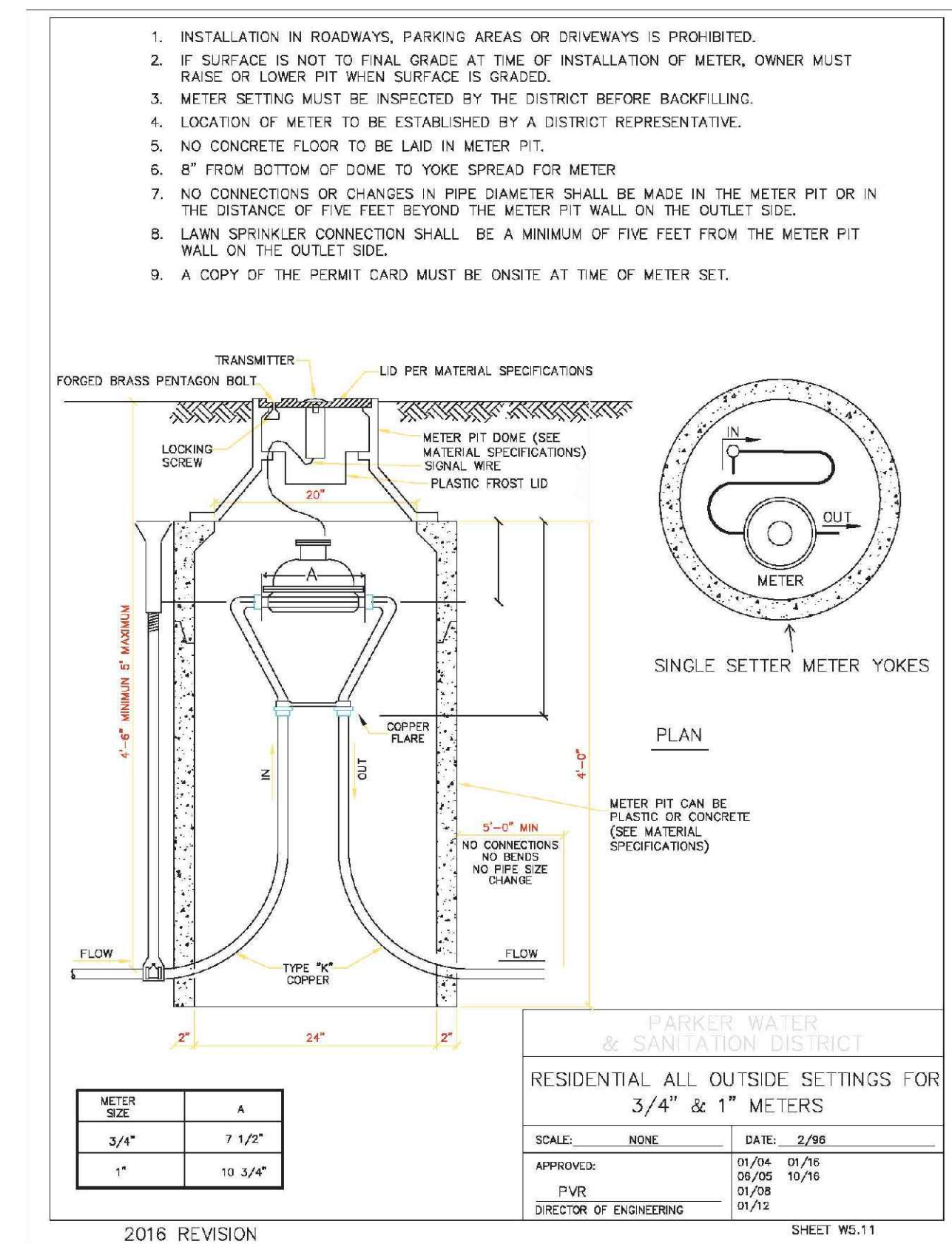
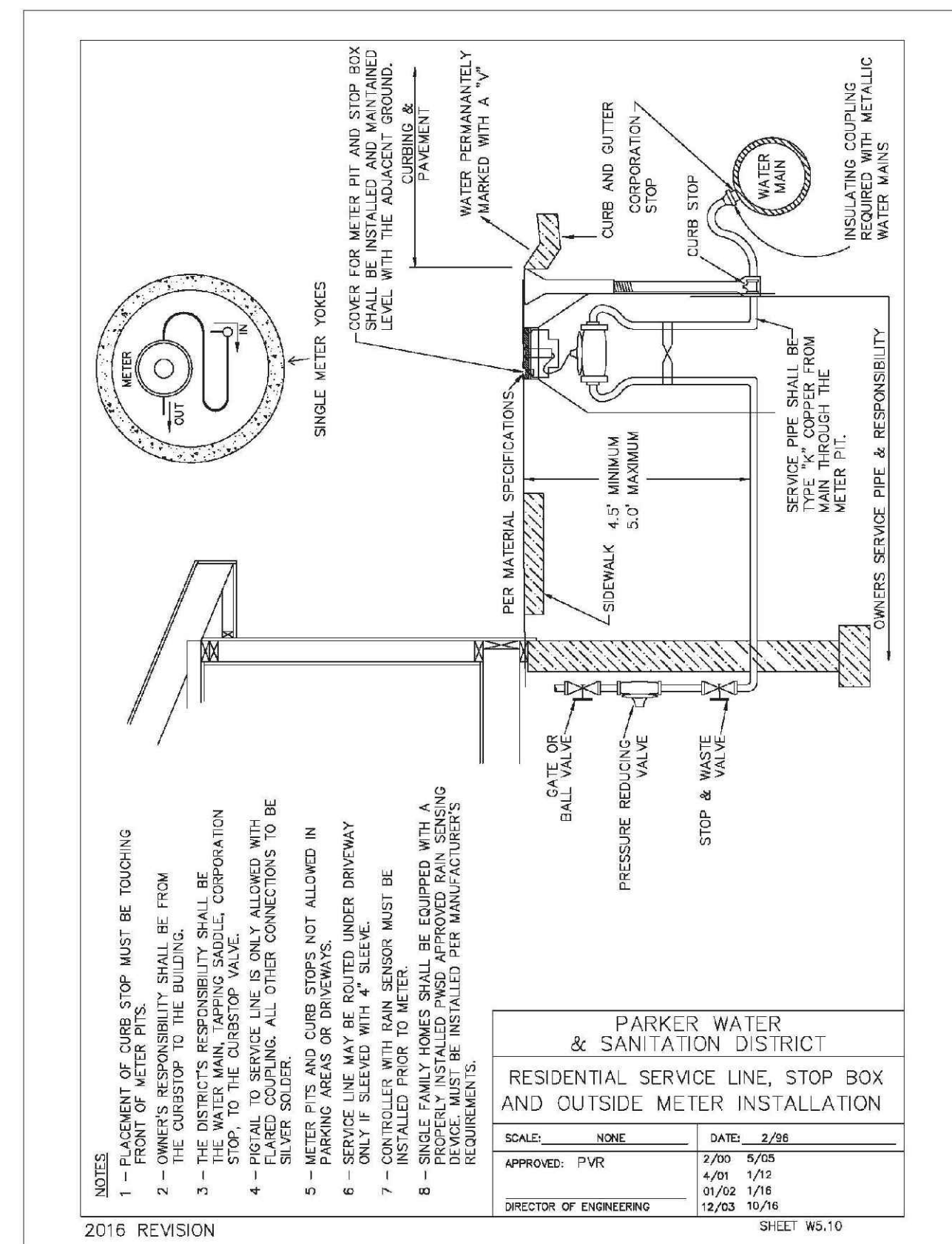
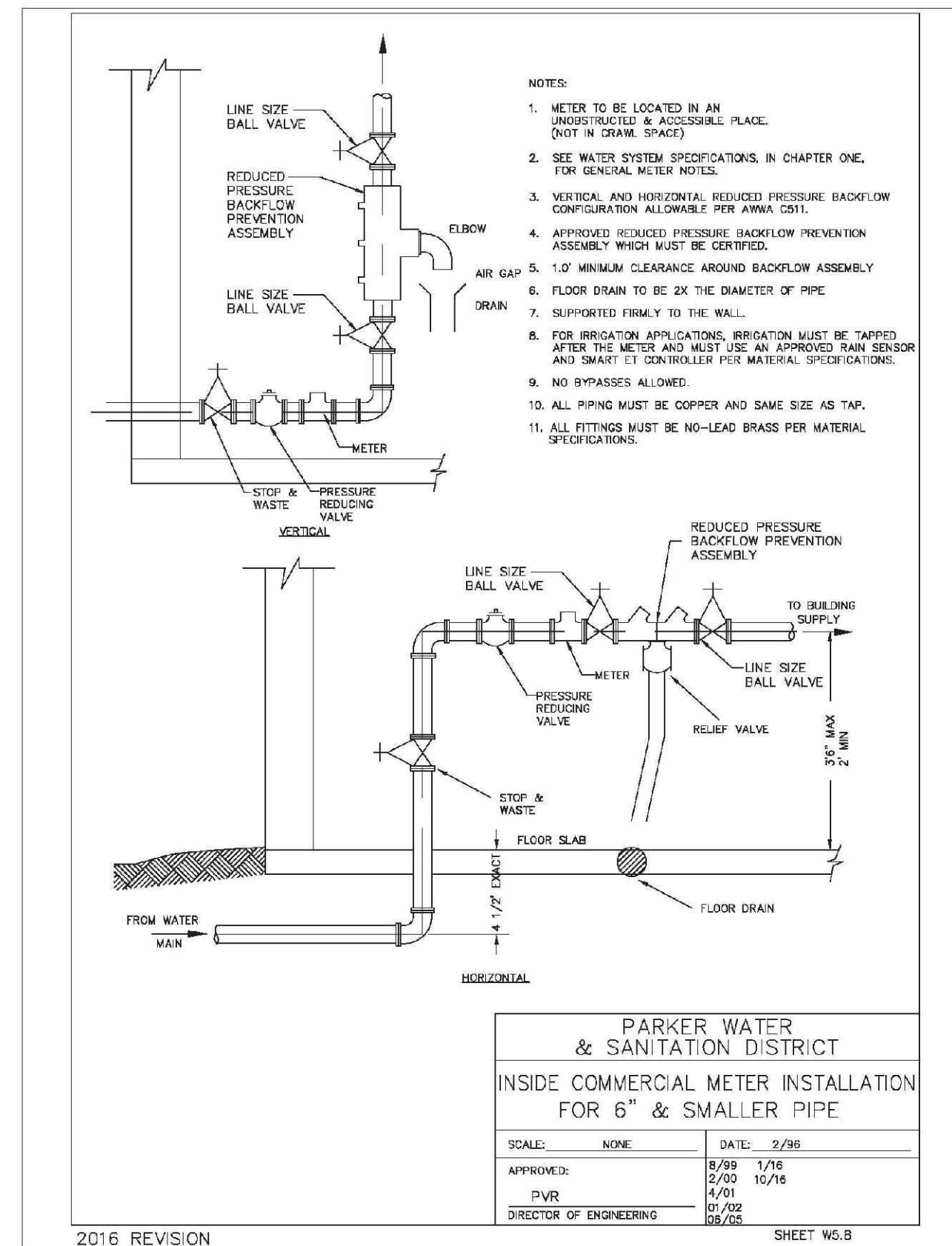
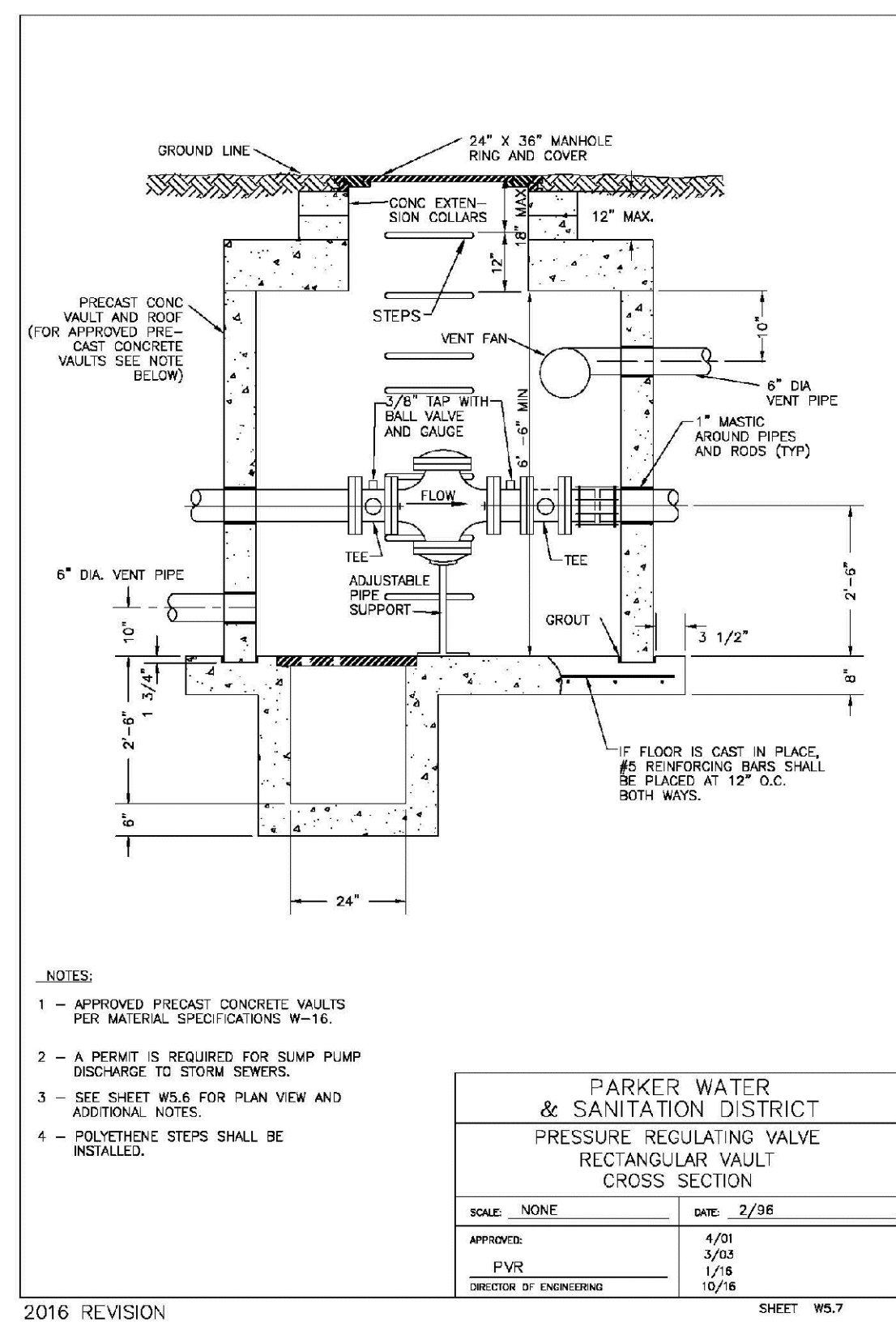
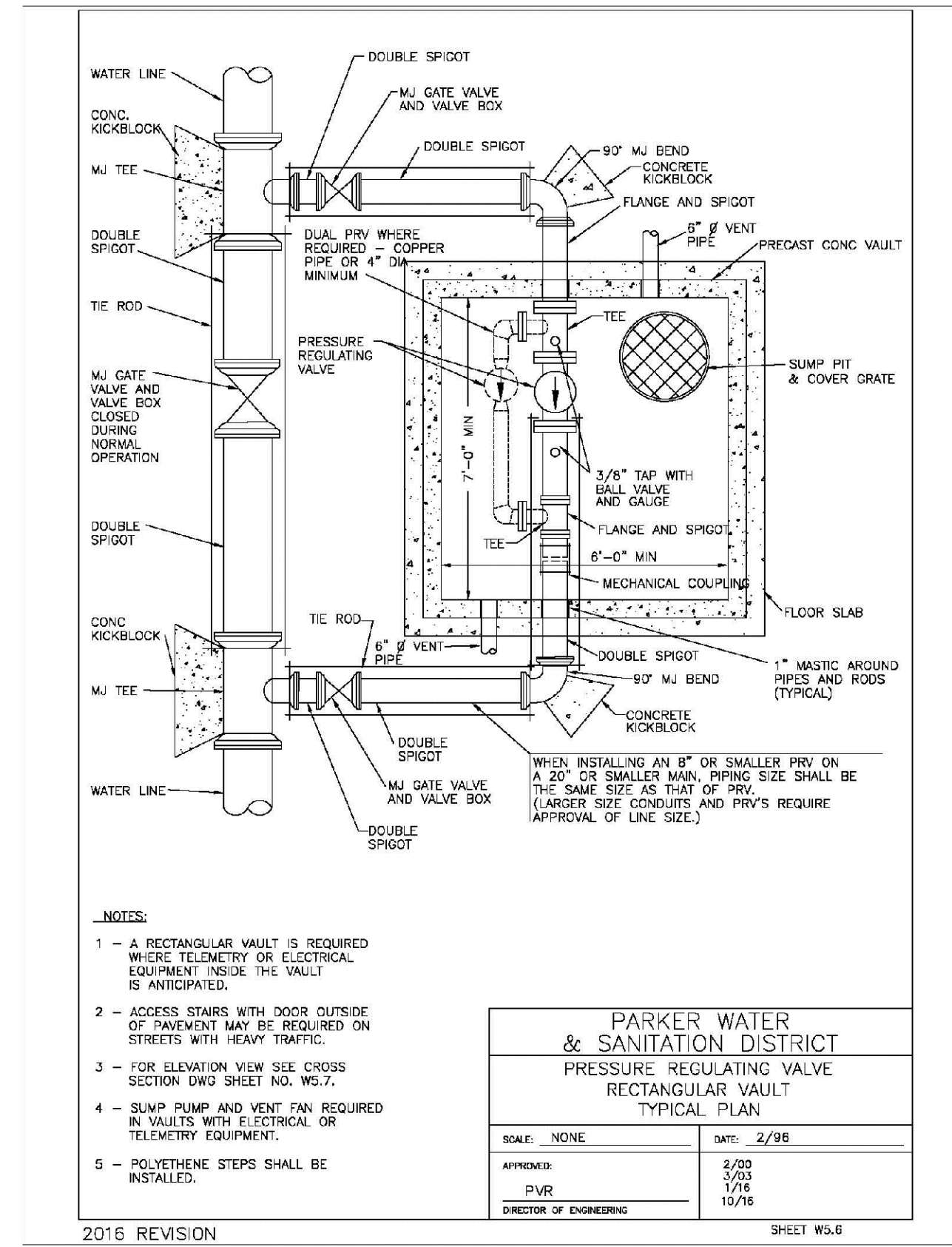
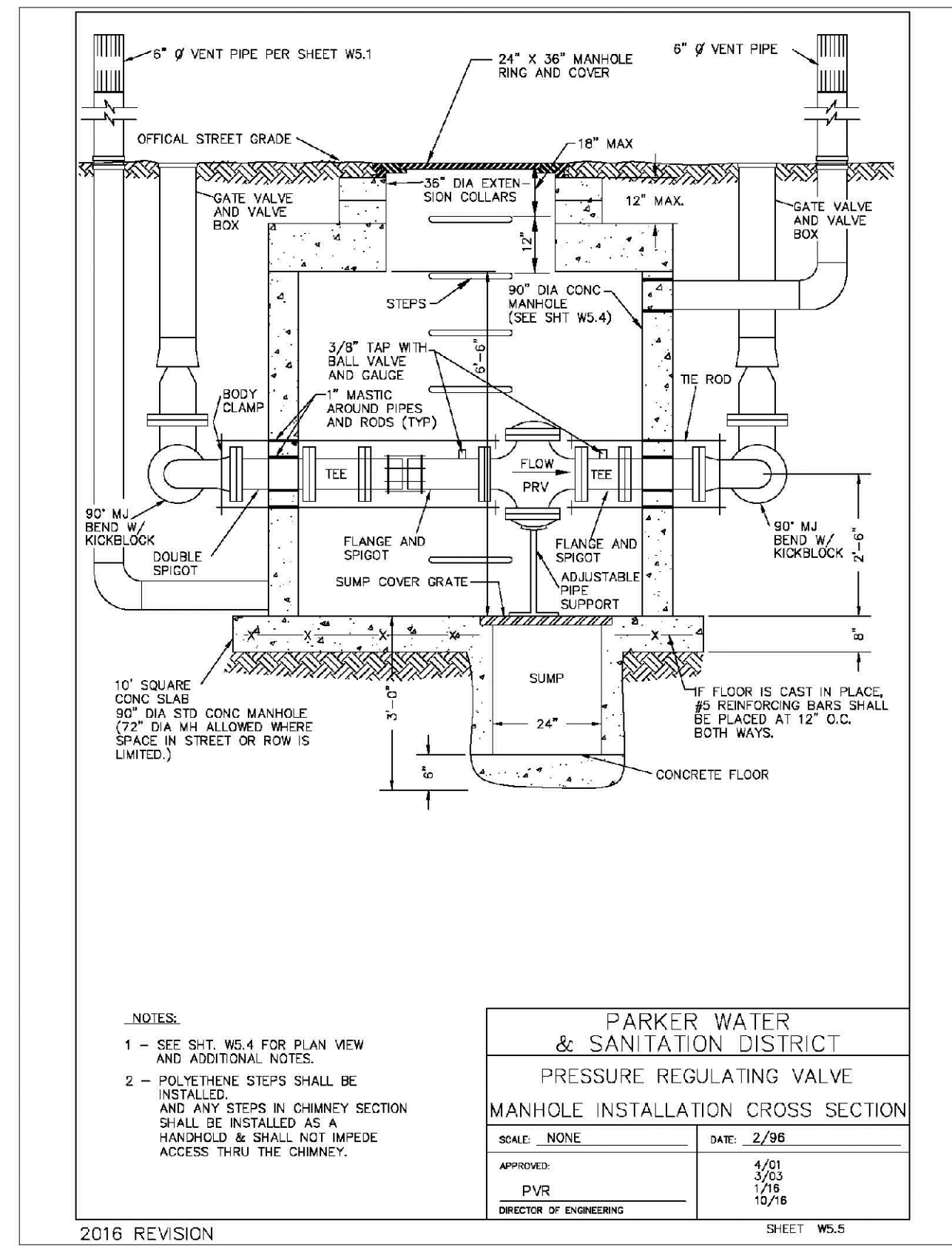
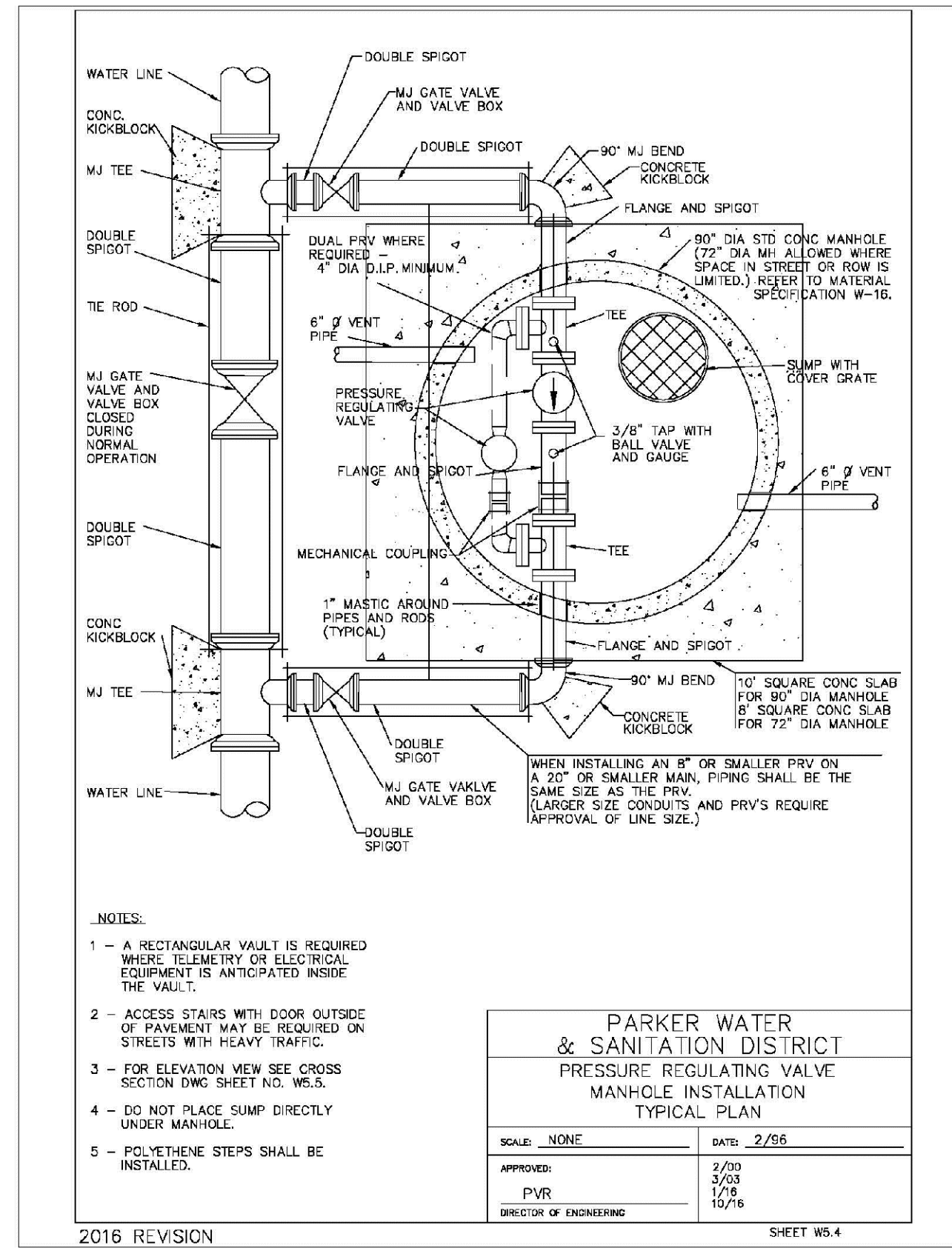
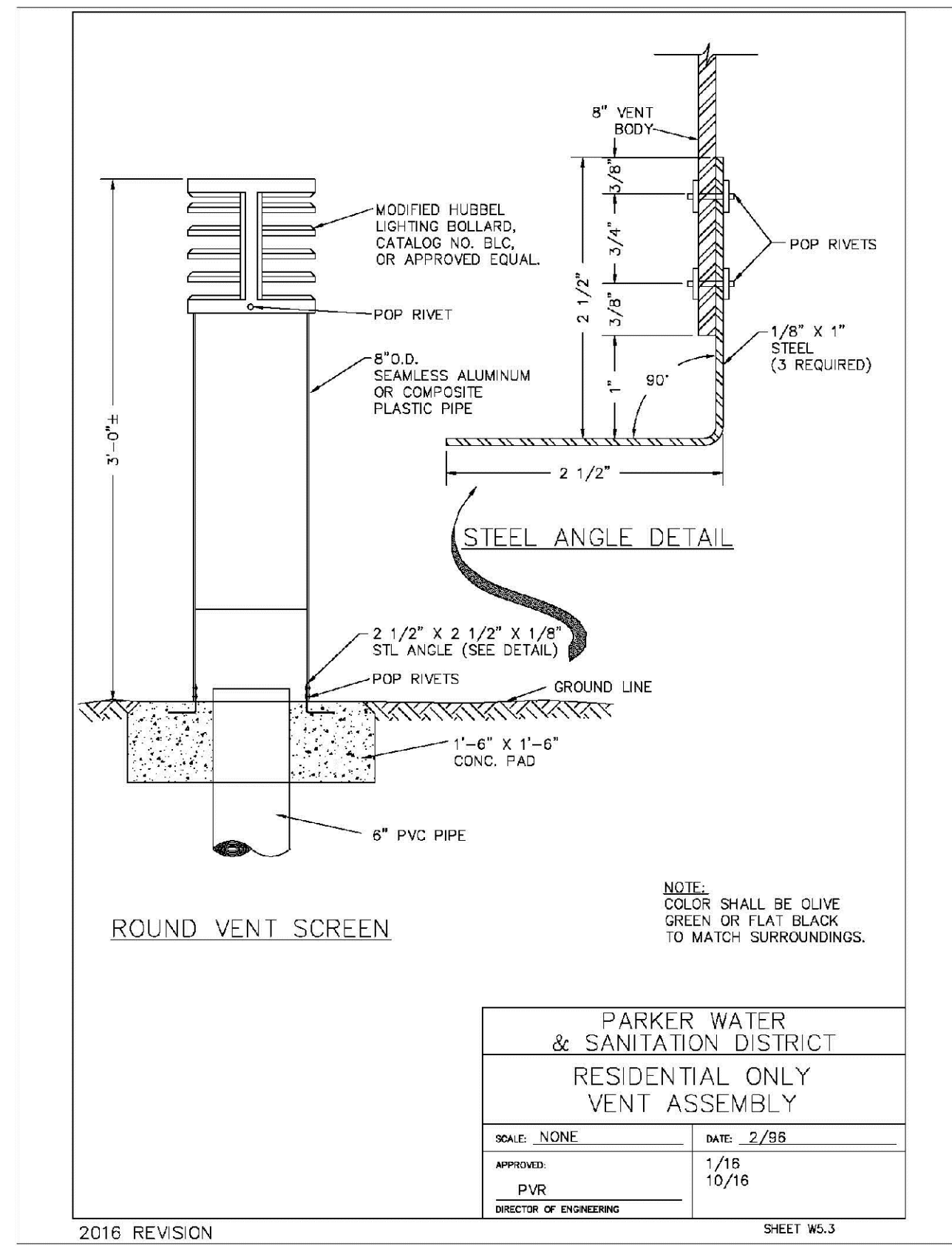
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