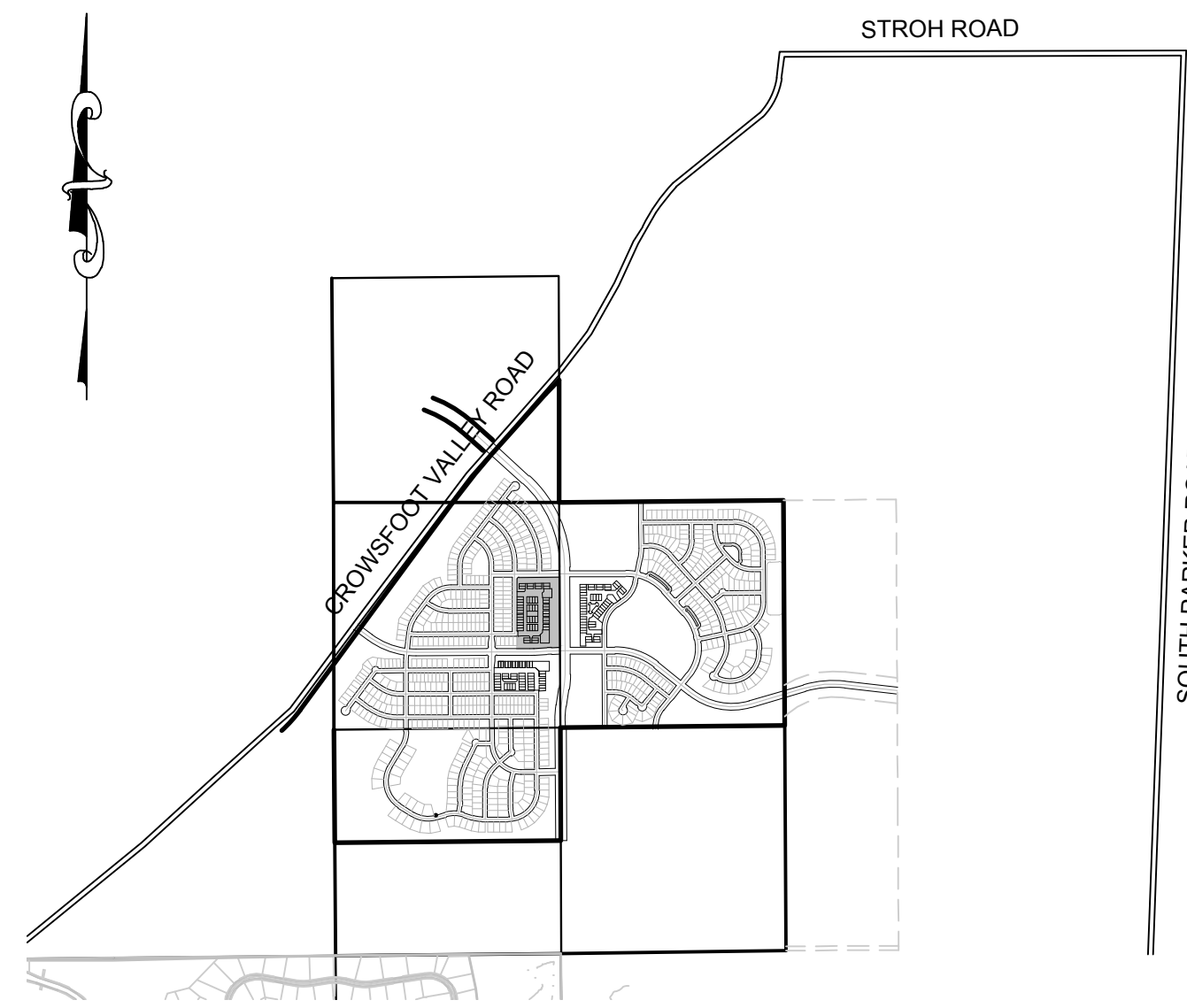


# TRAILS AT CROWFOOT FILING 14

## 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

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	PARKER WATER AND SANITATION NOTES
3	AREA UTILITY PLAN
4	RED COSMOS STREET
5	RED COSMOS PT
6	FILING 14 SS NORTH
7	FILING 14 SS NORTHEAST
8	FILING 14 SS EAST-WEST
9	FILING 14 SS SOUTH
10	FILING 14 SS SOUTHWEST
11	ROSE HEALTH STREET
12	RED COSMOS STREET
13	BLUE COSMOS CT
14	RED COSMOS COURT
15	ROSE HEATH LANE
16	ROSE HEATH ROAD
17	RED COSMOS POINT
18	ZINNIA COURT
19	SANITARY SEWER DETAILS
20	SANITARY SEWER DETAILS
21	SANITARY SEWER DETAILS
22	WATER DETAILS
23	WATER DETAILS
24	WATER DETAILS
25	WATER DETAILS
26	WATER DETAILS
27	WATER DETAILS
28	WATER DETAILS



VICINITY MAP  
SCALE: 1" = 2000'

MATERIALS LIST		
DESCRIPTION	QUANTITY	UNIT
8" SEWER (SDR-35 PVC)	1,568	L.F.
4' DIA. MANHOLE	12	EA.
SEWER SERVICE LATERAL W/ WYE TAP	36	EA.
CONNECTION TO EXISTING MAIN	1	EA.
6" WATERPIPE (DIP)	118	L.F.
8" WATERPIPE (PVC)	2,030	L.F.
6" GATE VALVE W/ BOX	6	EA.
8" GATE VALVE	10	EA.
8" MISC FITTINGS	12	EA.
AIR/VACUUM VALVE	2	EA.
8" CAP WITH BLOW OFF	4	EA.
FIRE HYDRANT WITH 6" LEAD	6	EA.
IRRIGATION SERVICE WITH METER (2")	1	EA.
DOMESTIC WATER SERVICE WITH METER	50	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 SCHEDULE 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**  
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 9935 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\SS\BENCH\FAMILY\CDS\F-PARKER WATER AND SANITATION\COVER.DWG, BRUNAK, 10/29/2016 2:32 PM

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

SHEET NUMBER	DRAWN BY: RRR	CHECKED BY: BPW	DATE: SEPTEMBER 2016	SCALE:	AS SHOWN	FILE NO:	8130283701
				TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS COVER SHEET			
				HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112			
				10333 E. Dry Creek Rd. Suite 240 Englewood, Colorado Tel: (720) 482-9526 Fax: (720) 482-9546			
				Date _____ Appr. _____ Date _____ Date _____ Date _____ Revisions No. _____			



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

APPROVED FOR CONSTRUCTION:  
PARKER WATER AND SANITATION DISTRICT

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

**WATER SERVICE TABLE**

FILING, BLOCK, LOT	STREET	STATIONING
F14.B1.L1	BLUE COSMOS CT	10+91.00
F14.B1.L2	BLUE COSMOS CT	10+81.00
F14.B1.L3	BLUE COSMOS CT	10+93.50
F14.B1.L4	BLUE COSMOS CT	10+78.50
F14.B1.L5	RED COSMOS CT	11+18.52
F14.B1.L6	RED COSMOS CT	11+08.52
F14.B1.L7	RED COSMOS CT	11+21.02
F14.B1.L8	RED COSMOS CT	11+06.02
F14.B1.L9	RED COSMOS ST	14+29.94
F14.B1.L10	RED COSMOS ST	14+19.94
F14.B1.L11	RED COSMOS ST	13+50.65
F14.B1.L12	RED COSMOS ST	13+40.65
F14.B1.L13	RED COSMOS ST	12+71.65
F14.B1.L14	RED COSMOS ST	12+61.65
F14.B1.L15	RED COSMOS ST	11+92.65
F14.B1.L16	RED COSMOS ST	11+82.65
F14.B1.L17	RED COSMOS ST	11+13.65
F14.B1.L18	RED COSMOS ST	11+03.65
F14.B1.L19	ZINNIA CT	10+68.10
F14.B1.L20	ZINNIA CT	10+83.10
F14.B1.L21	ZINNIA CT	10+70.80
F14.B1.L22	ZINNIA CT	10+80.60
F14.B2.L1	ROSE HEATH ST	10+67.50
F14.B2.L2	ROSE HEATH ST	10+77.50
F14.B2.L3	ROSE HEATH ST	11+31.50
F14.B2.L4	ROSE HEATH ST	11+41.50
F14.B2.L5	ROSE HEATH ST	11+95.50
F14.B2.L6	ROSE HEATH ST	12+05.50
F14.B2.L7	ROSE HEATH ST	12+73.00
F14.B2.L8	ROSE HEATH ST	12+83.00
F14.B2.L9	ROSE HEATH ST	13+37.00
F14.B2.L10	ROSE HEATH ST	13+47.00
F14.B2.L11	ROSE HEATH ST	14+01.00
F14.B2.L12	ROSE HEATH ST	14+11.00
F14.B3.L1	ROSE HEATH LN	10+54.06
F14.B3.L2	ROSE HEATH LN	10+69.06
F14.B3.L3	ROSE HEATH LN	11+18.06
F14.B3.L4	ROSE HEATH LN	11+33.06
F14.B3.L5	ROSE HEATH LN	10+56.56
F14.B3.L6	ROSE HEATH LN	10+66.56
F14.B3.L7	ROSE HEATH LN	11+20.55
F14.B3.L8	ROSE HEATH LN	11+30.56
F14.B3.L9	ROSE HEATH RD	10+54.06
F14.B3.L10	ROSE HEATH RD	10+69.06
F14.B3.L11	ROSE HEATH RD	11+18.06
F14.B3.L12	ROSE HEATH RD	11+33.06
F14.B3.L13	ROSE HEATH RD	10+56.56
F14.B3.L14	ROSE HEATH RD	10+66.56
F14.B3.L15	ROSE HEATH RD	11+20.56
F14.B3.L16	ROSE HEATH RD	11+30.56

**SANITARY SERVICE TABLE**

FILING, BLOCK, LOT	STREET	STATIONING
F14.B1.L3	FILING 14 SS NORTH	10+99.00
F14.B1.L4	FILING 14 SS NORTH	10+79.00
F14.B1.L5	FILING 14 SS NORTH	10+99.00
F14.B1.L6	FILING 14 SS NORTH	10+76.00
F14.B1.L7	FILING 14 SS NORTHEAST	12+51.97
F14.B1.L8	FILING 14 SS NORTHEAST	12+31.97
F14.B1.L9	RED COSMOS ST	14+39.68
F14.B1.L10	RED COSMOS ST	14+09.04
F14.B1.L11	RED COSMOS ST	13+60.42
F14.B1.L12	RED COSMOS ST	13+30.06
F14.B1.L13	RED COSMOS ST	12+81.44
F14.B1.L14	RED COSMOS ST	12+51.65
F14.B1.L15	RED COSMOS ST	12+02.65
F14.B1.L16	RED COSMOS ST	11+72.65
F14.B1.L17	RED COSMOS ST	11+23.65
F14.B1.L18	RED COSMOS ST	10+93.65
F14.B1.L19	FILING 14 SS SOUTHWEST	10+68.60
F14.B1.L20	FILING 14 SS SOUTHWEST	10+88.60
F14.B1.L21	FILING 14 SS SOUTH	10+82.67
F14.B1.L22	FILING 14 SS SOUTH	11+02.67
F14.B3.L1	RED COSMOS ST	16+24.86
F14.B3.L2	RED COSMOS ST	16+04.86
F14.B3.L3	RED COSMOS ST	15+64.42
F14.B3.L4	RED COSMOS ST	15+40.86
F14.B3.L5	FILING 14 SS EAST-WEST	10+00.00
F14.B3.L6	FILING 14 SS EAST-WEST	10+23.00
F14.B3.L7	FILING 14 SS EAST-WEST	10+61.00
F14.B3.L8	FILING 14 SS EAST-WEST	10+87.00
F14.B3.L9	FILING 14 SS EAST-WEST	10+00.00
F14.B3.L10	FILING 14 SS EAST-WEST	10+20.00
F14.B3.L11	FILING 14 SS EAST-WEST	10+64.00
F14.B3.L12	FILING 14 SS EAST-WEST	10+84.00
F14.B3.L13	RED COSMOS PT	24+13.51
F14.B3.L14	RED COSMOS PT	24+33.49
F14.B3.L15	RED COSMOS ST	9+74.09
F14.B3.L16	RED COSMOS ST	9+94.06

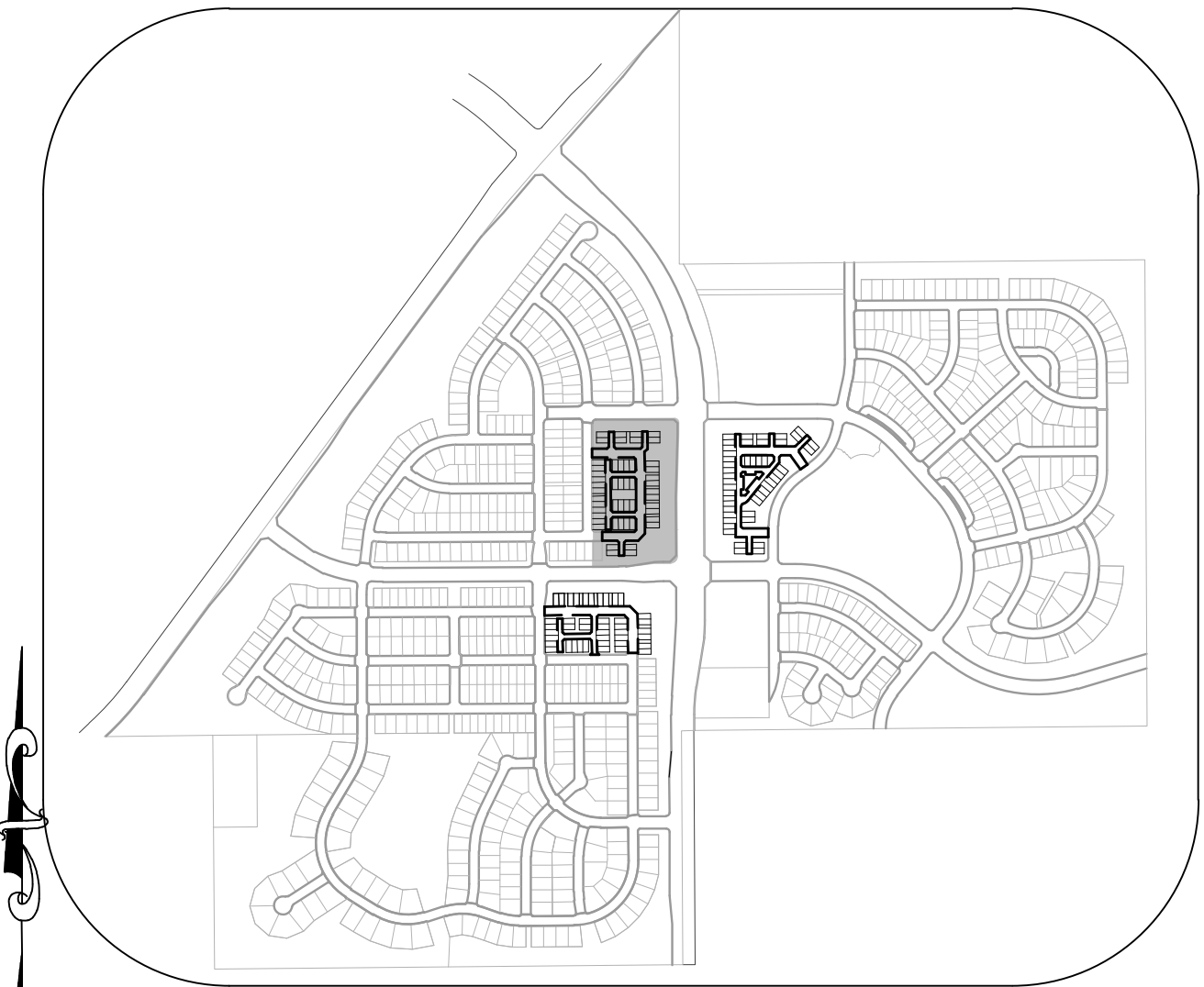
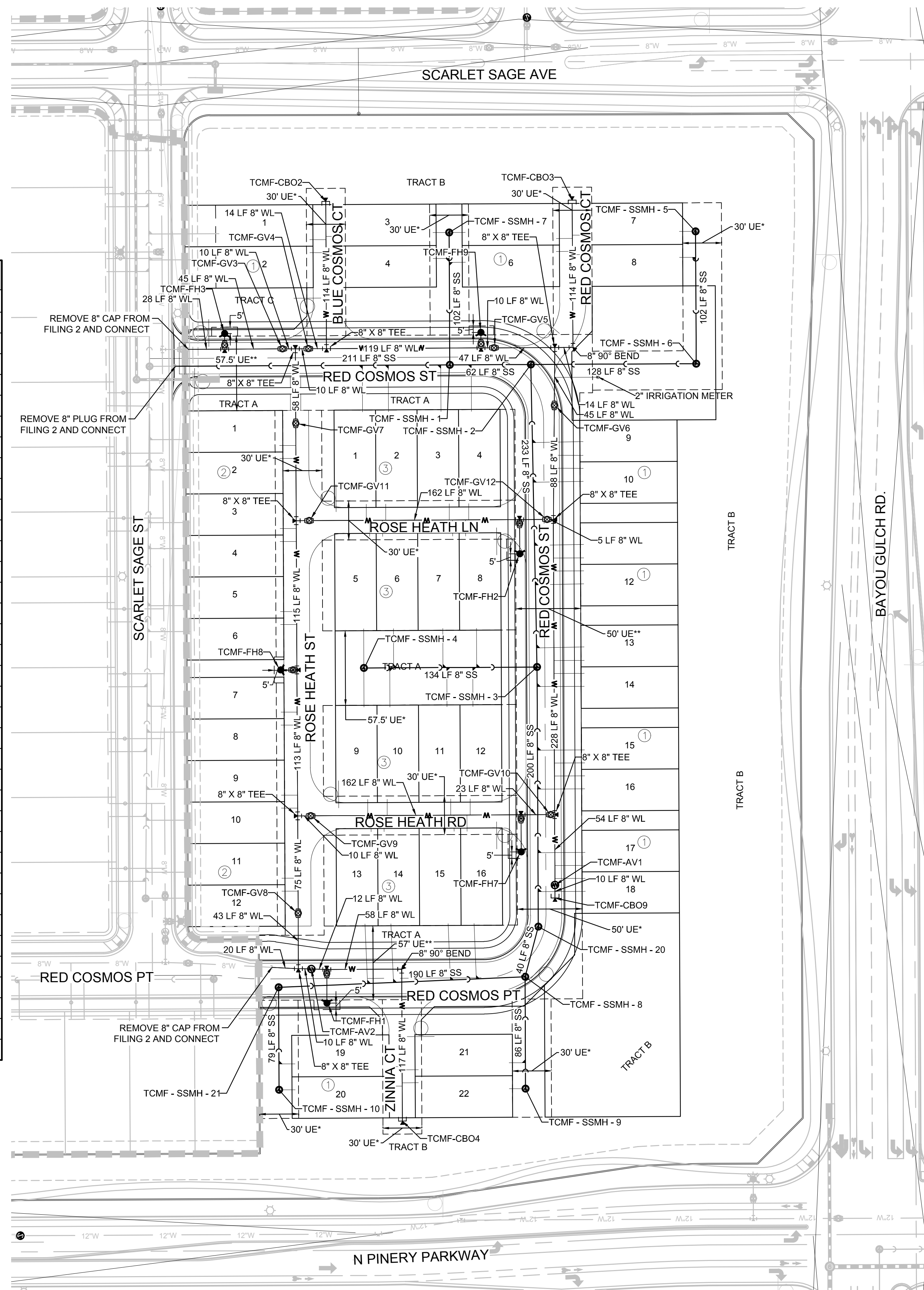
- NOTES:
- SANITARY SERVICES FOR BLOCK 1, LOTS 1-2 & BLOCK 2, LOTS 1-12 WILL BE INSTALLED WITH TRAILS AT CROWFOOT FILING 2.
  - THE PROPOSED UTILITY CONNECTION WILL REQUIRE A TOWN RIGHT-OF-WAY PERMIT PRIOR TO COMMENCING WORK. THE TOWN PREFERS CONNECTIONS TO BE BORED TO THE EXTENT POSSIBLE, AND ANY STREET 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. ALL 30' UE ARE 30' PWS EXCLUSIVE EASEMENTS. ALL 50' UE ARE 50' PWS NON-EXCLUSIVE EASEMENTS.
  - FIRE HYDRANT EASEMENTS ARE 5 BEHIND AND 10' EACH SIDE OF PROPOSED HYDRANTS.

**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.)



SCALE: 1" = 50'

**KEYMAP N.T.S. 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 RAMP                | ---  | PROPOSED WATER LATERAL W/ METER  |
| 10.00 | EXISTING ELEVATION                    | ---  | SECTION LINE                     |
| 10.00 | PROPOSED DESIGN ELEVATION             | ---  | FILING BOUNDARY                  |
| ⊗     | PROPOSED STORM DRAIN INLET            | ---  | EXISTING FIBER OPTIC LINE        |
| ⊗     | PROPOSED STORM DRAIN MANHOLE          | ---  | EXISTING OVERHEAD POWER          |
| ⊗     |                                       | ---  | 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     | RCBC   | 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         |

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.

PREPARED UNDER THE SUPERVISION OF

BRIAN P. WILSON  
COLORADO P.E. 0050067

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

N:\PROJECTS\BRANCH\ENGINEERING\SET\MULTIFAMILY\CD\SF\4PARKER WATER AND SANITATION\AREA\UTILITY PLAN\DWG. BRIAN.W. 11/22/2018 10:46 AM

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

**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.

10333 E. Dry Creek Rd.  
Suite 240  
Englewood, CO 80112  
Tel: (720) 462-9526  
Fax: (720) 462-9546

**CVL CONSULTANTS**

HR 935 LLC  
7363 South Alton Way  
CENTENNIAL, CO 80112

**TRAILS AT CROWFOOT  
FILING 14 CONSTRUCTION DRAWINGS  
AREA UTILITY PLAN**

SCALE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DATE: \_\_\_\_\_

FILE NO: 8130283701

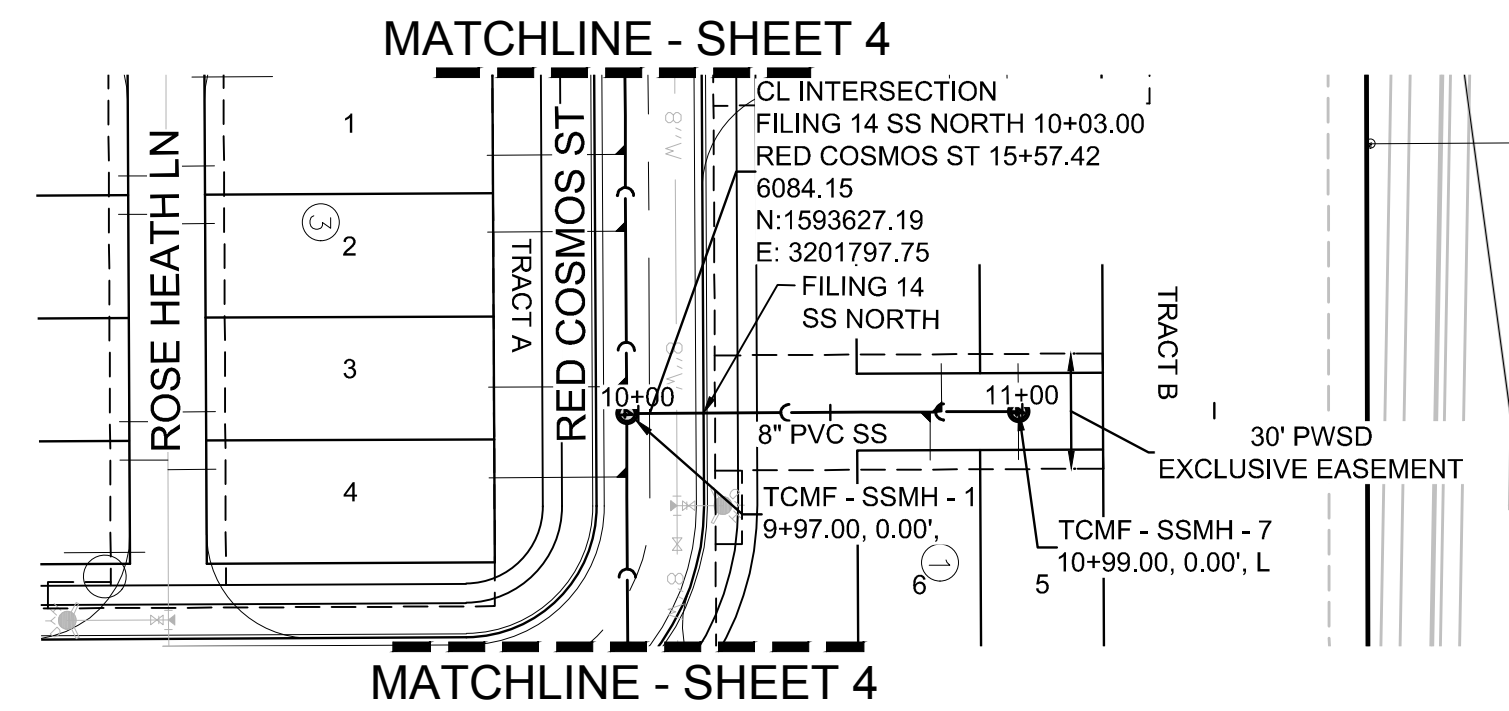
DATE: SEPTEMBER 2018

SHEET NUMBER **3**

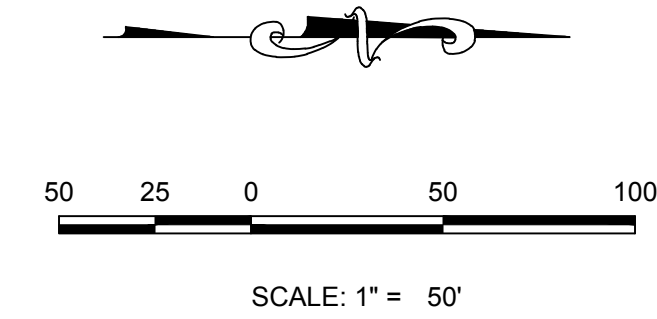
No.	Revisions	Date	Appr.



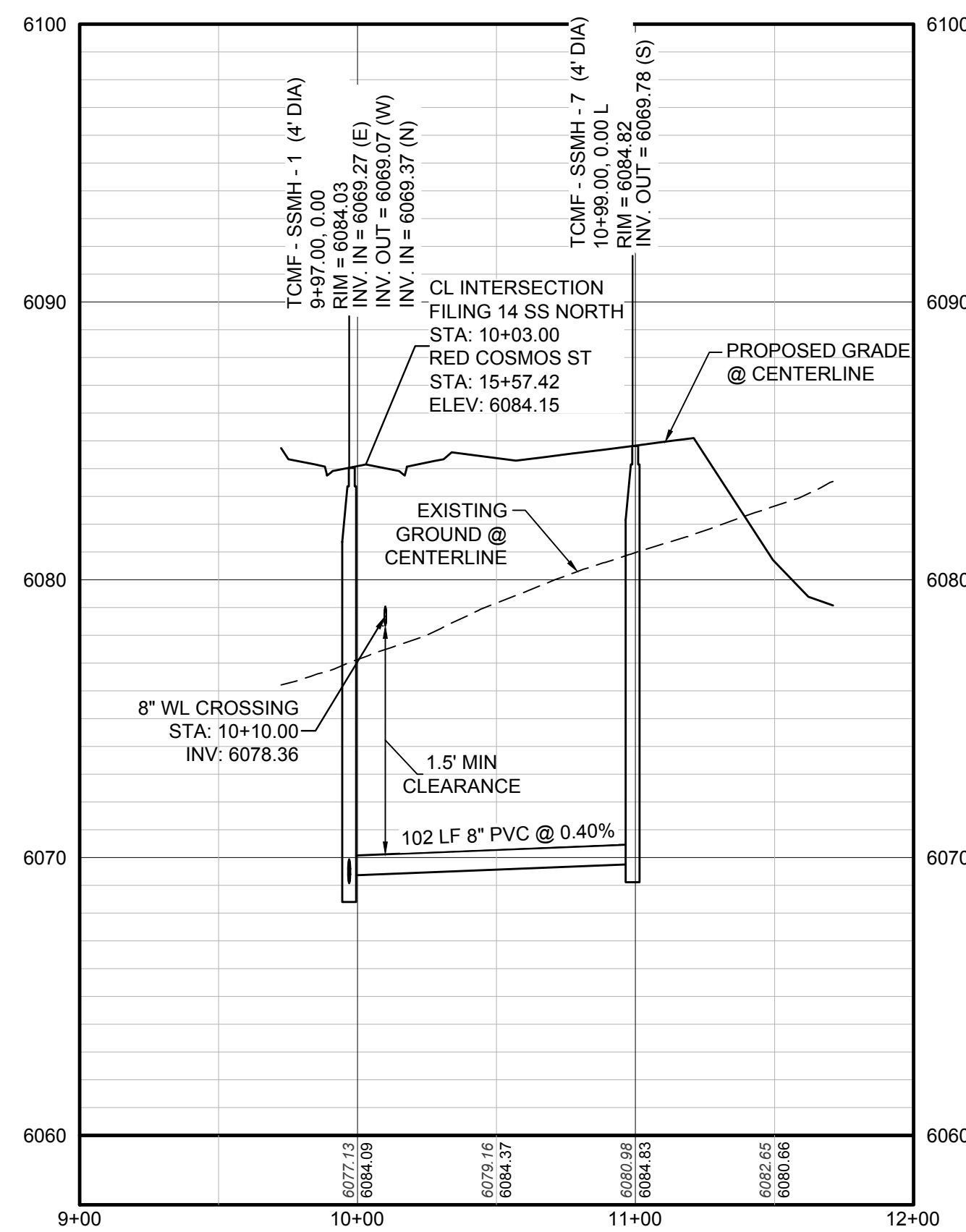




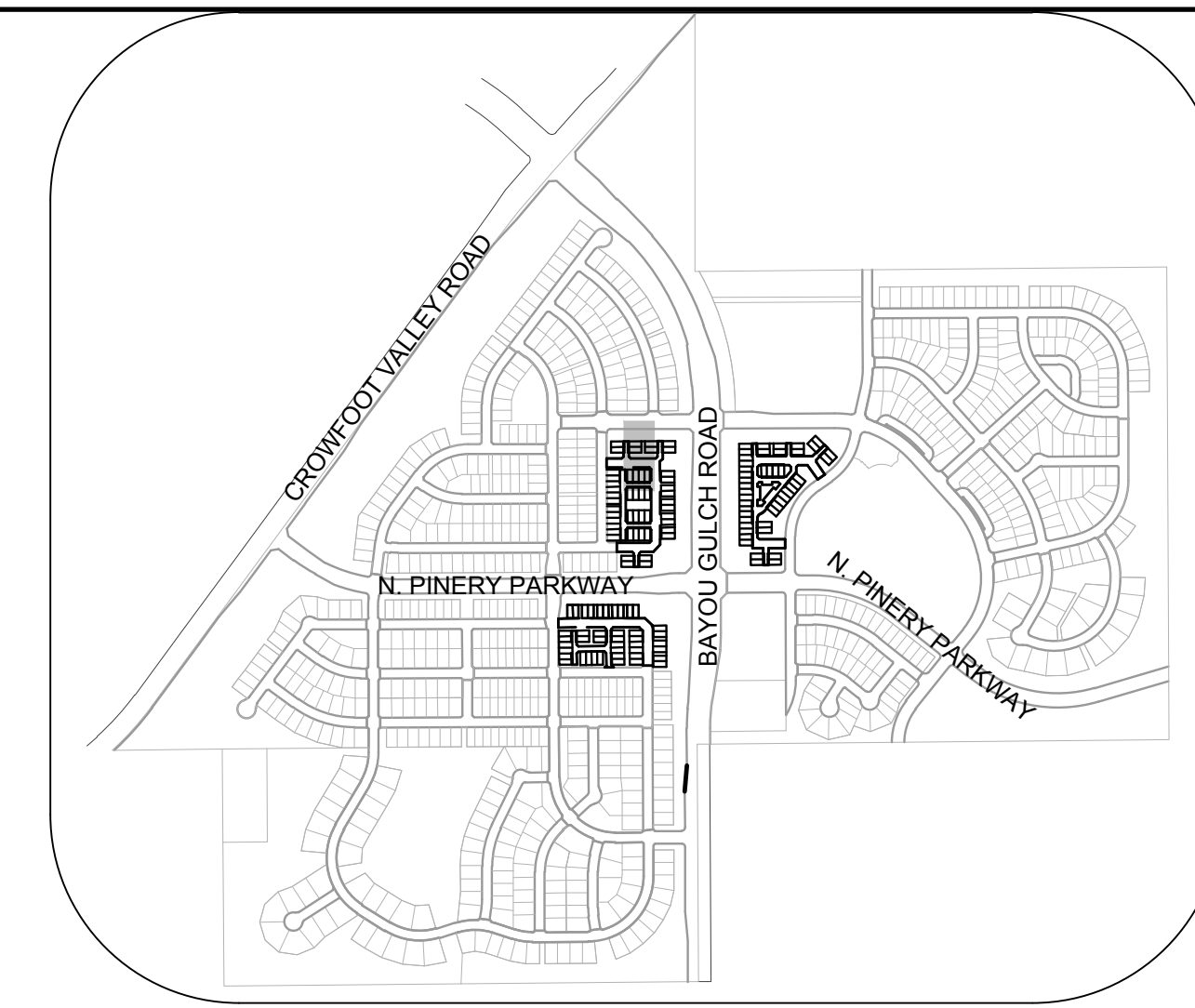
PLAN: FILING 14 SS NORTH STA: 9+00.00 TO 12+00.00  
HORIZONTAL SCALE: 1" = 50'



SANITARY SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14.B1.L3	FILING 14 SS NORTH	10+99.00
F14.B1.L4	FILING 14 SS NORTH	10+79.00
F14.B1.L5	FILING 14 SS NORTH	10+99.00
F14.B1.L6	FILING 14 SS NORTH	10+76.00



PROFILE: FILING 14 SS NORTH STA: 9+00.00 TO 12+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



KEYMAP  
N.T.S.

### 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

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	ROBC	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

REVISIONS	No.	Date	Appr.	Date

10333 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 14 CONSTRUCTION DRAWINGS  
SANITARY SEWER PLAN & PROFILE  
FILING 14 SS NORTH

SCALE: AS SHOWN  
FILE NO: 8130283701

DRAWN BY: RRR  
CHECKED BY: BPW  
DATE: SEPTEMBER 2018

SHEET NUMBER **6**

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

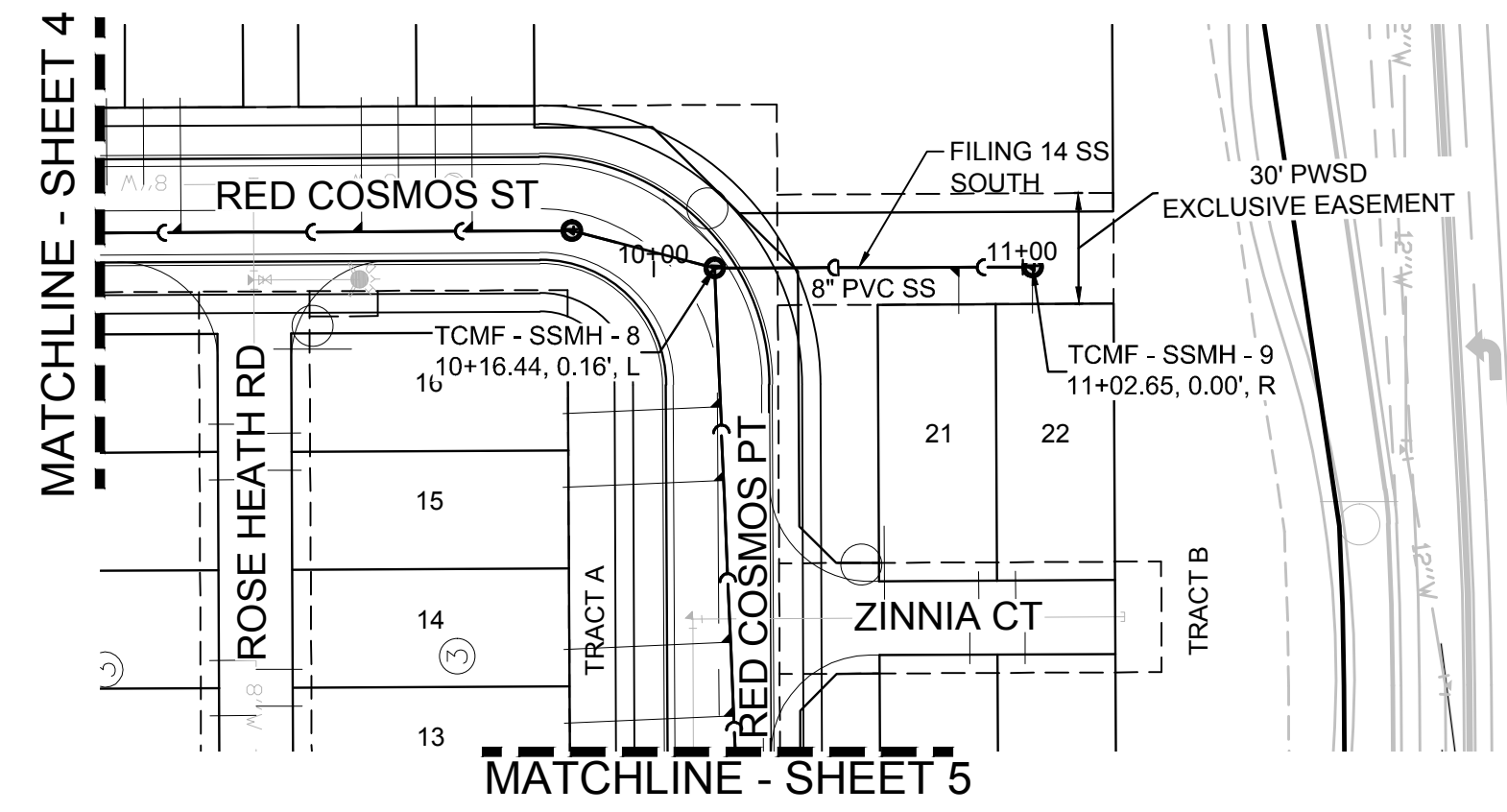
**BASIS OF BEARINGS:**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

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

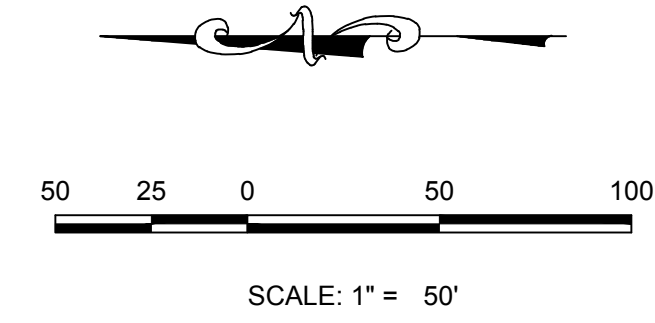
N:\PROJECTS\SS\BENCH\ENGINEERING\SS\SET\MULTIFAMILY\COSIF\HARPER WATER AND SANITATION\SANITARY SEWER SHEETS\FILING 14 SS NORTH.DWG. BRIANW. 10/29/2018 2:45 PM



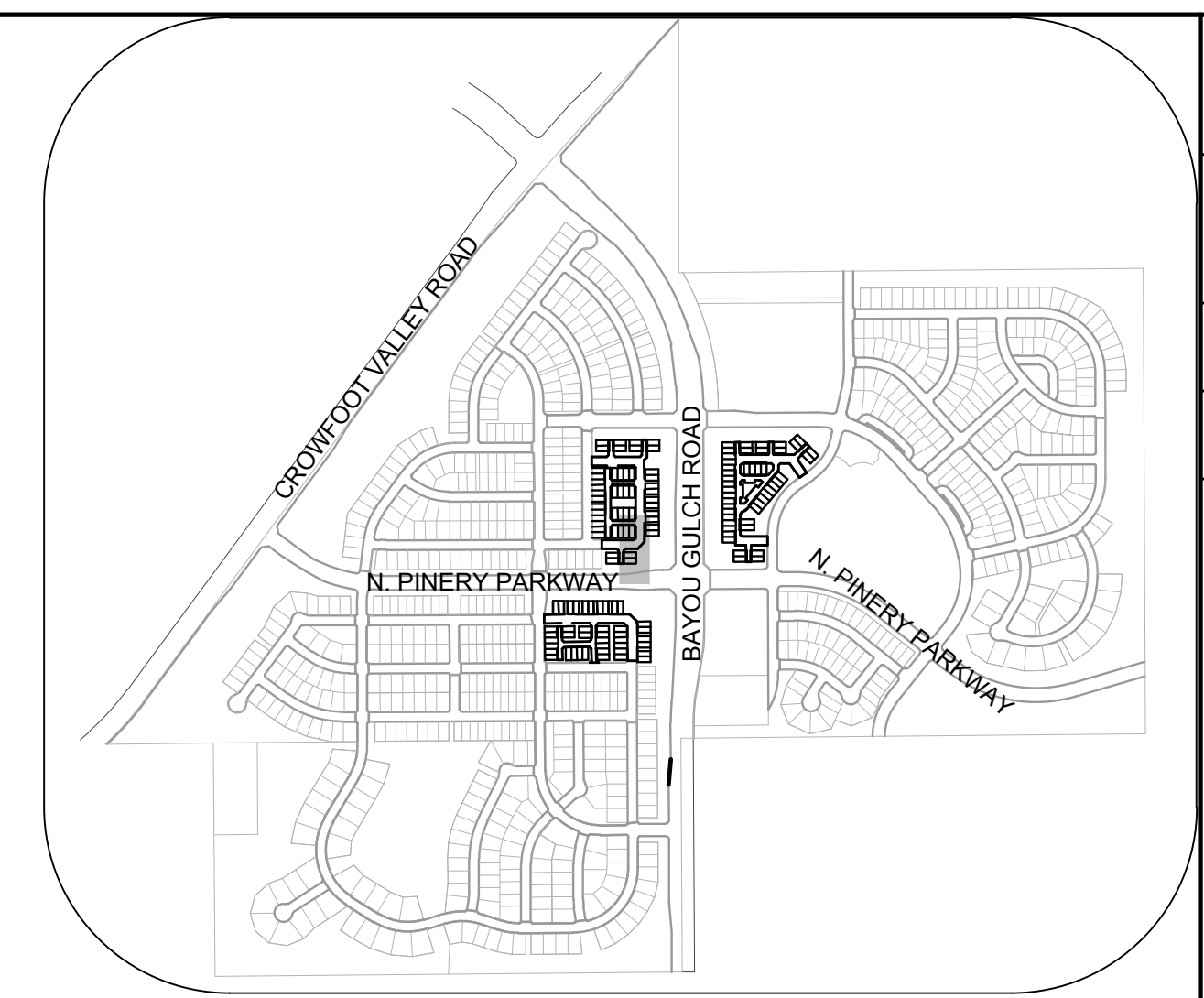




PLAN: FILING 14 SS SOUTH STA: 9+00.00 TO 12+00.00  
HORIZONTAL SCALE: 1" = 50'



SANITARY SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14.B1.L21	FILING 14 SS SOUTH	10+82.67
F14.B1.L22	FILING 14 SS SOUTH	11+02.67



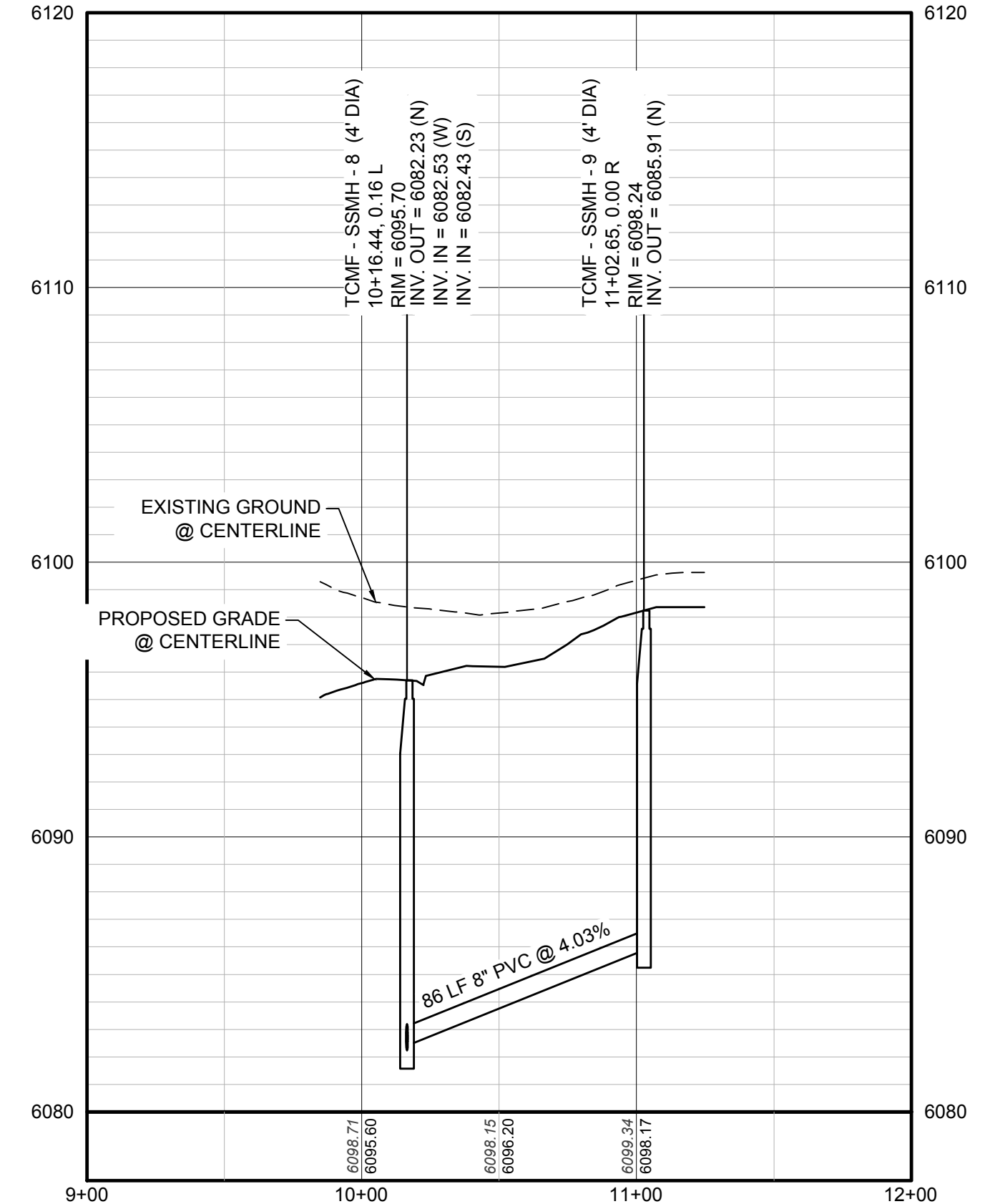
KEYMAP  
N.T.S.

### 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

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	ROBC	REINFORCED CONCRETE BOX CULVERT
E	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



PROFILE: FILING 14 SS SOUTH STA: 9+00.00 TO 12+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

No.	Revisions	Date	Init.	Appr.	Date

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 14 CONSTRUCTION DRAWINGS  
SANITARY SEWER PLAN & PROFILE  
FILING 14 SS SOUTH

SCALE: AS SHOWN  
FILE NO: 8130283701

DRAWN BY: BIG  
CHECKED BY: BPW  
DATE: SEPTEMBER 2018

SHEET NUMBER **9**

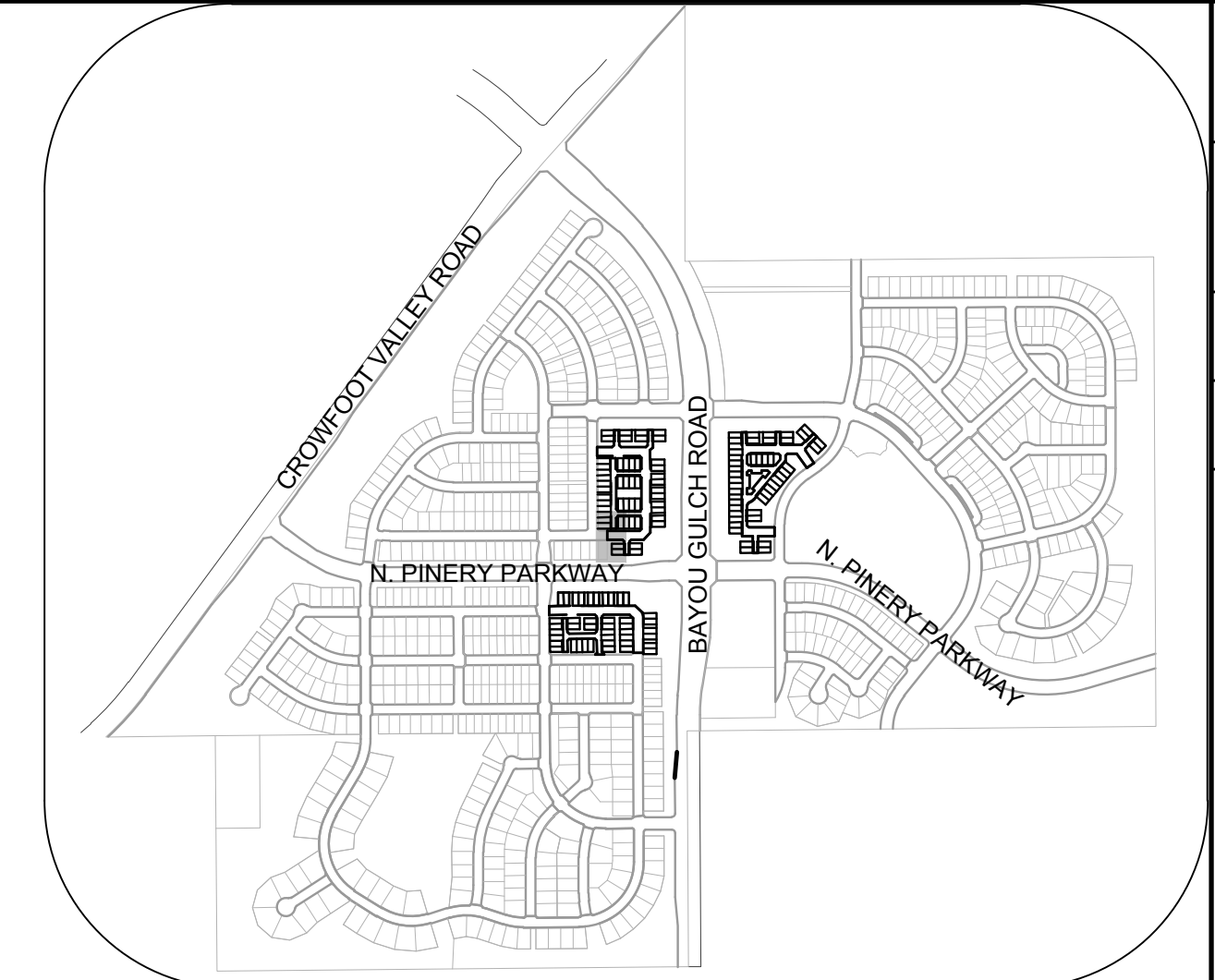
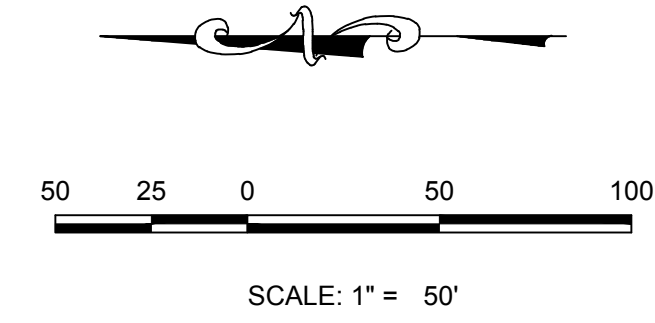
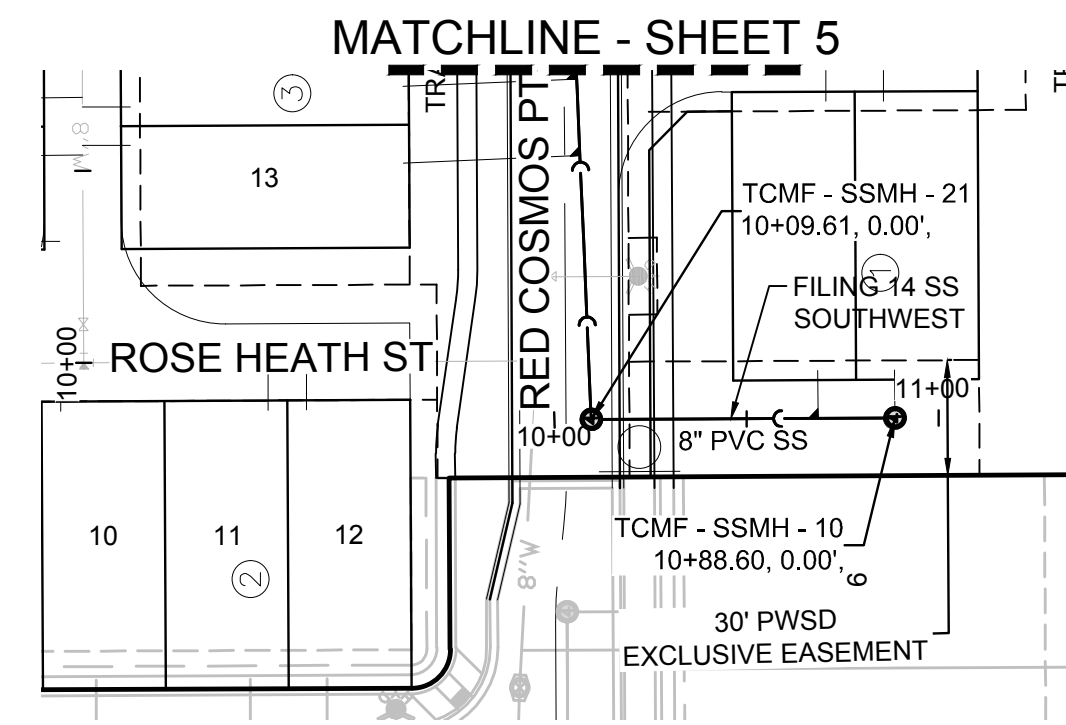
CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC 1-800-922-1987  
UTILITY NOTIFICATION  
CENTER OF COLORADO

**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 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

**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 8935 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 SETS\MULTIFAMILY\COSIF\HARPER WATER AND SANITATION\SANITARY SEWER SHEETS\FILING 14 SS SOUTH.DWG. BRIAN.W. 11/20/18 10:54 AM



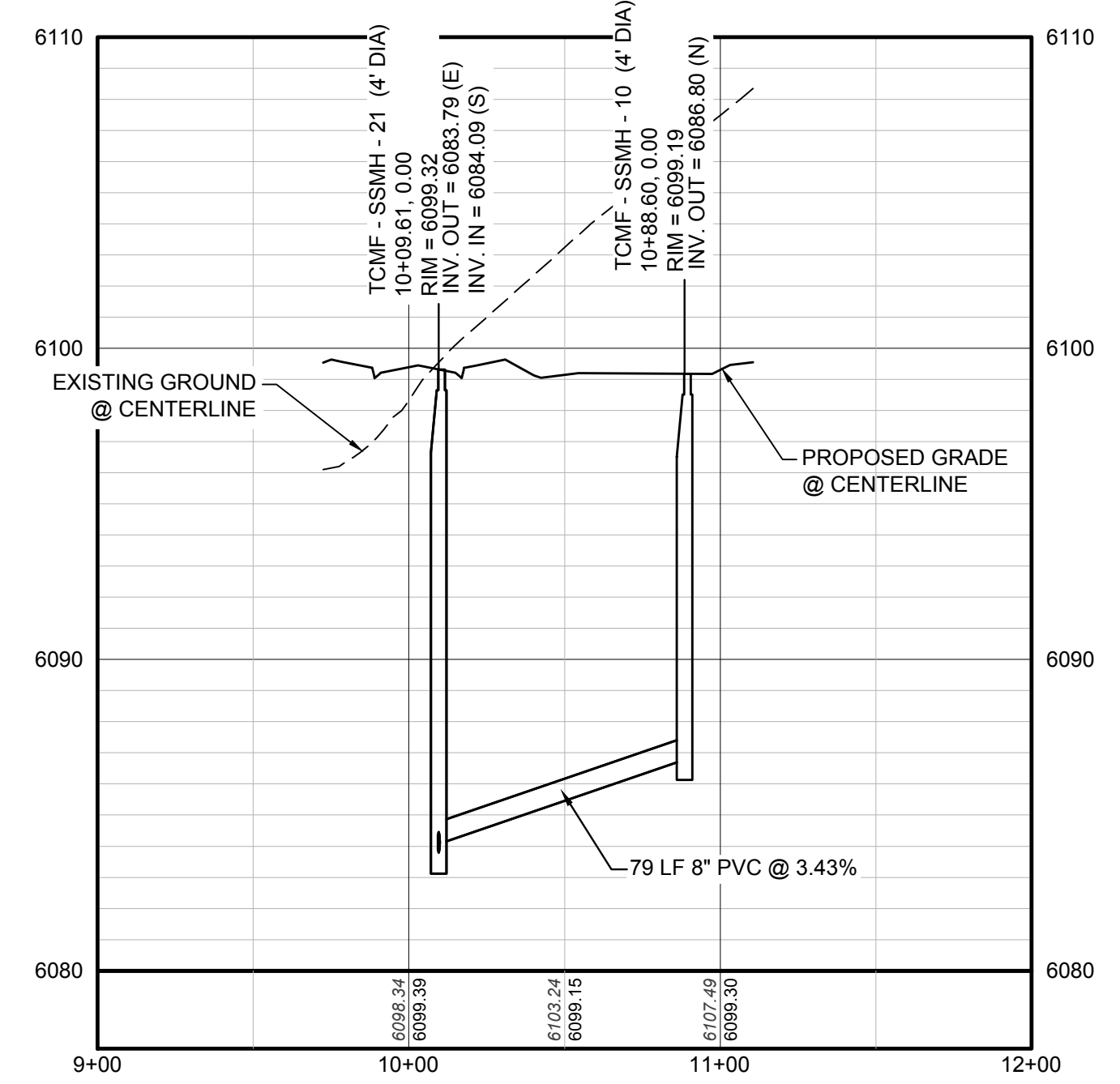
**KEYMAP**  
N.T.S.

PLAN: FILING 14 SS SOUTHWEST STA: 9+00.00 TO 12+00.00  
HORIZONTAL SCALE: 1" = 50'

SANITARY SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14,B1,L19	FILING 14 SS SOUTHWEST	10+68.60
F14,B1,L20	FILING 14 SS SOUTHWEST	10+88.60

**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



PROFILE: FILING 14 SS SOUTHWEST STA: 9+00.00 TO 12+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

**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	RCB	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

10333 E. Dry Creek Rd. Suite 410 Englewood, CO 80151 Tel: (720) 482-9526 Fax: (720) 482-9546	10333 E. Dry Creek Rd. Suite 410 Englewood, CO 80151 Tel: (720) 482-9526 Fax: (720) 482-9546
<b>CVL</b> CONSULTANTS	<b>CVL</b> CONSULTANTS
HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112	HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112
TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS SANITARY SEWER PLAN & PROFILE FILING 14 SS SOUTHWEST	TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS SANITARY SEWER PLAN & PROFILE FILING 14 SS SOUTHWEST
SCALE: AS SHOWN FILE NO: 8130283701	SCALE: AS SHOWN FILE NO: 8130283701
DRAWN BY: RRR CHECKED BY: BPW DATE: SEPTEMBER 2018	DRAWN BY: RRR CHECKED BY: BPW DATE: SEPTEMBER 2018
SHEET NUMBER <b>10</b>	SHEET NUMBER <b>10</b>

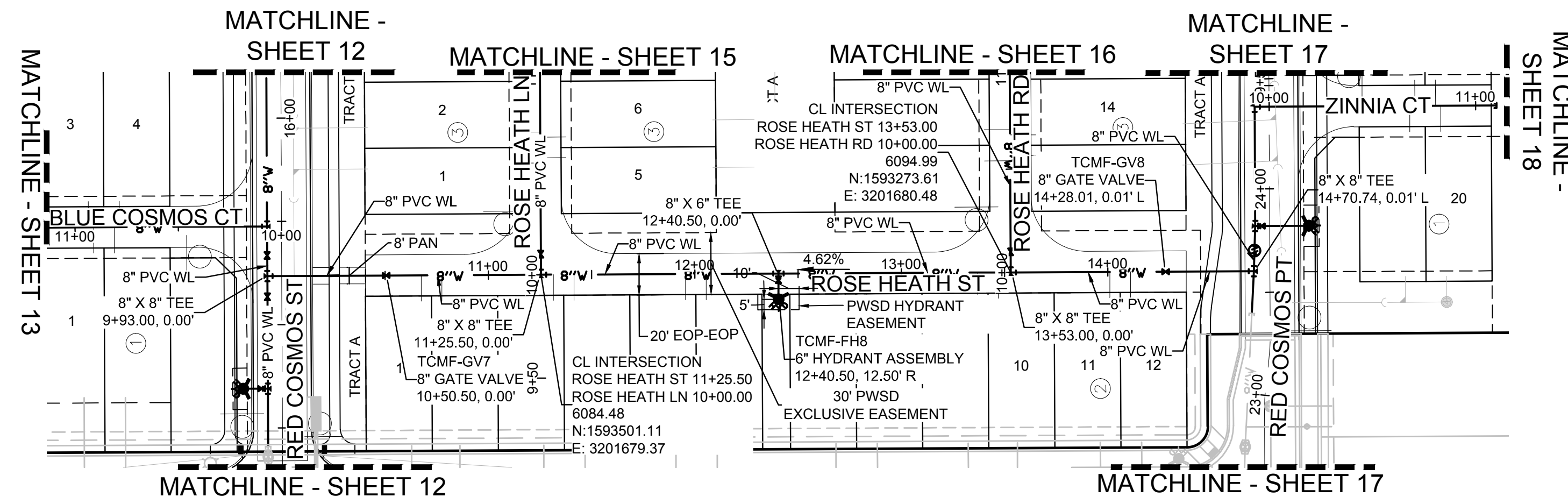
CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
**UNCC** 1-800-922-1987  
UTILITY NOTIFICATION  
CENTER OF COLORADO

**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 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

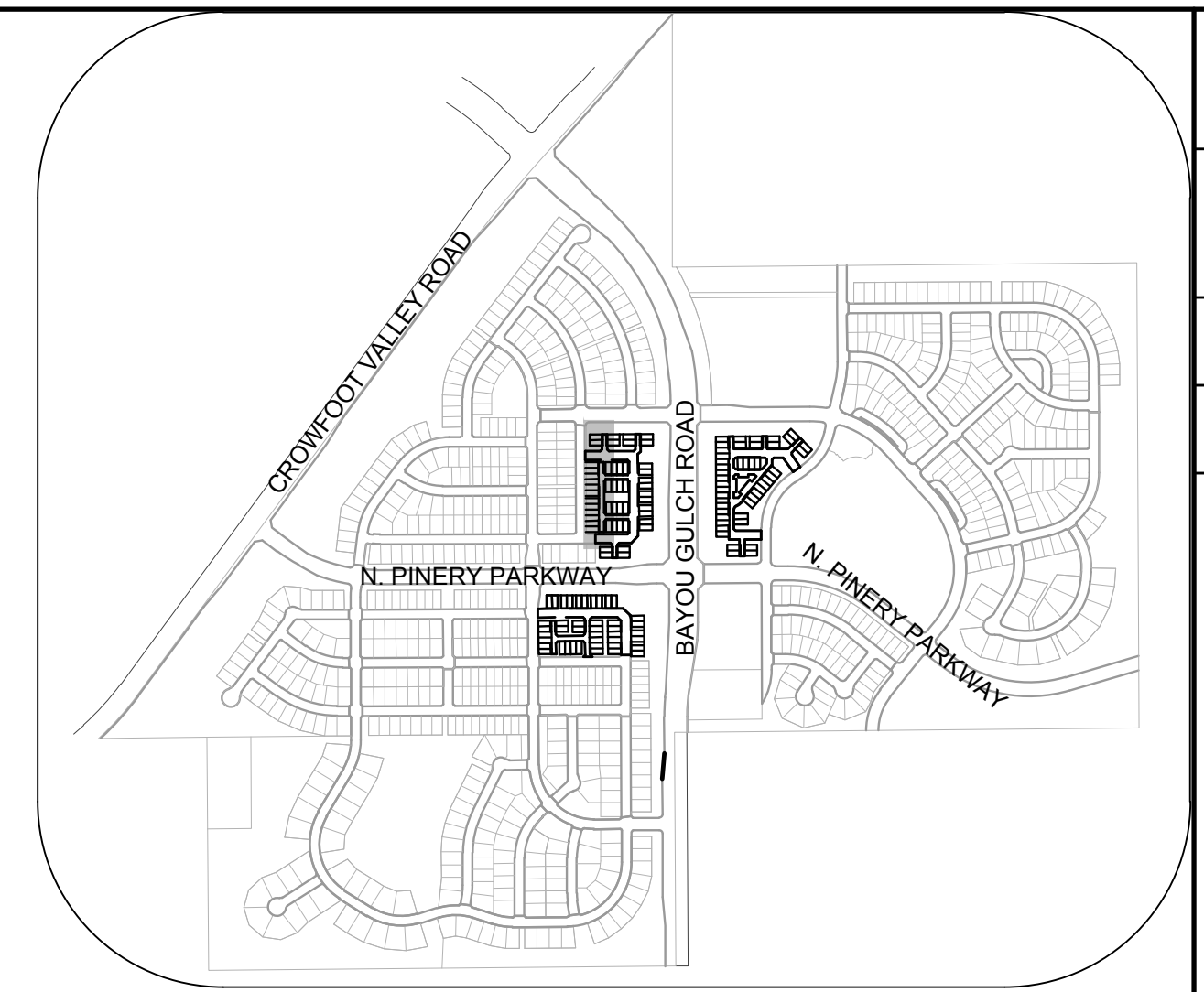
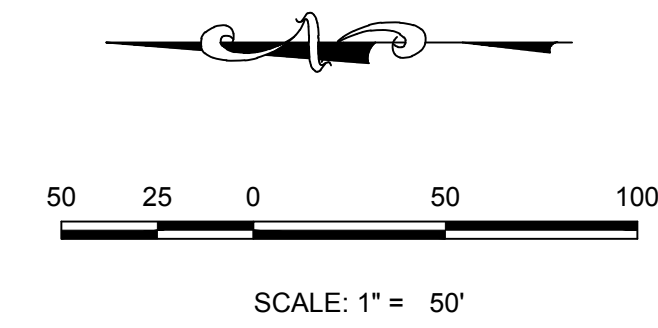
**BASIS OF BEARINGS:**  
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

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

N:\PROJECTS\SS\BENCH\ENGINEERING\SS\SET\MULTIFAMILY\CDS\F\HARPER WATER AND SANITATION\SANITARY SEWER SHEETS\FILING 14 SS SOUTHWEST.DWG, BRIAN W, 10/29/2018 2:52 PM

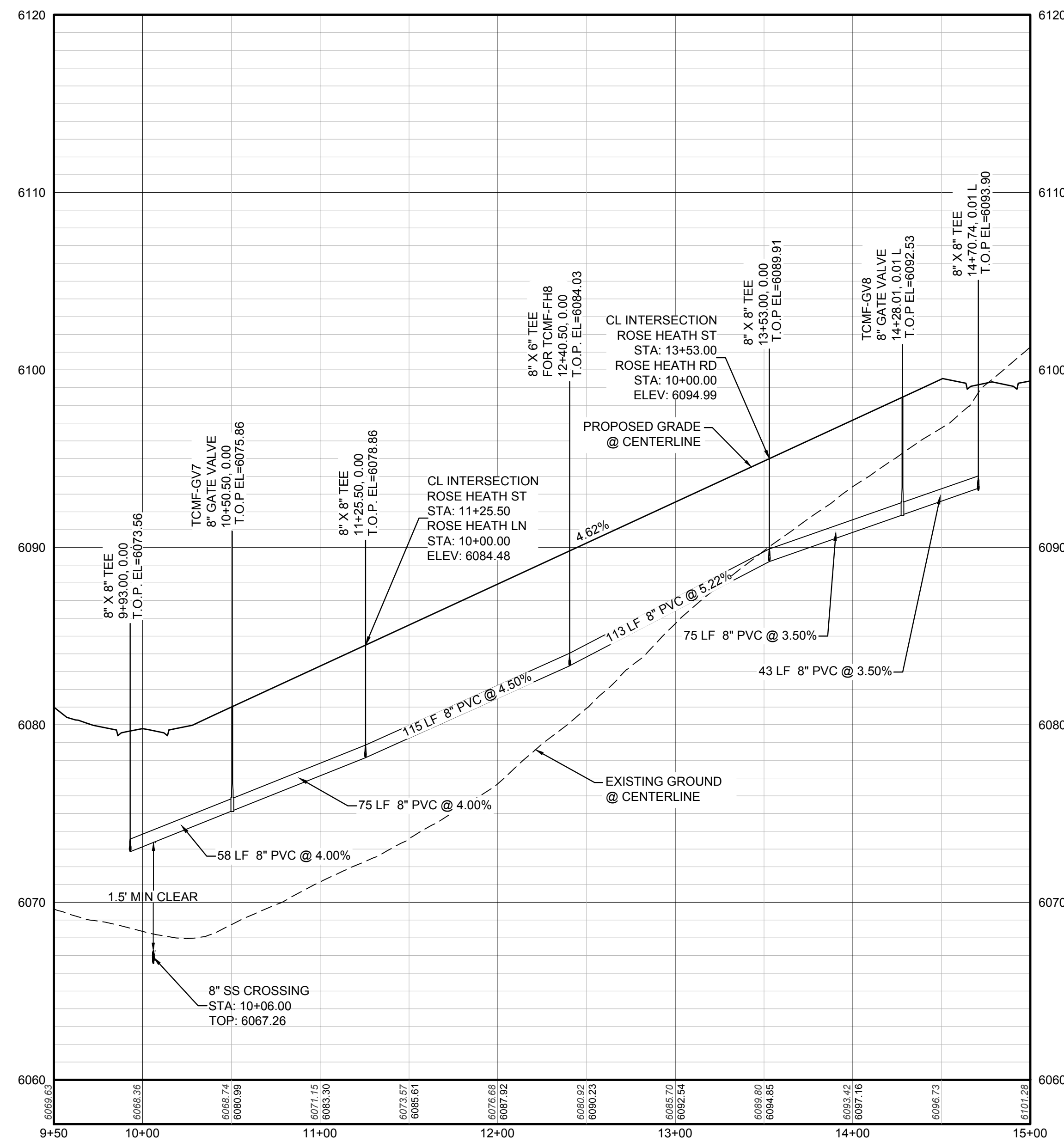


PLAN: ROSE HEATH ST STA: 9+50.00 TO 15+00.00  
HORIZONTAL SCALE: 1" = 50'



KEYMAP  
N.T.S.

WATER SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14.B2.L1	ROSE HEATH ST	10+67.50
F14.B2.L2	ROSE HEATH ST	10+77.50
F14.B2.L3	ROSE HEATH ST	11+31.50
F14.B2.L4	ROSE HEATH ST	11+41.50
F14.B2.L5	ROSE HEATH ST	11+95.50
F14.B2.L6	ROSE HEATH ST	12+05.50
F14.B2.L7	ROSE HEATH ST	12+73.00
F14.B2.L8	ROSE HEATH ST	12+83.00
F14.B2.L9	ROSE HEATH ST	13+37.00
F14.B2.L10	ROSE HEATH ST	13+47.00
F14.B2.L11	ROSE HEATH ST	14+01.00
F14.B2.L12	ROSE HEATH ST	14+11.00



PROFILE: ROSE HEATH ST STA: 9+50.00 TO 15+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
10.00	EXISTING ELEVATION	---	SECTION LINE
10.00	PROPOSED DESIGN ELEVATION	---	FILING BOUNDARY
⊗	PROPOSED STORM DRAIN INLET	---	EXISTING FIBER OPTIC LINE
⊗	PROPOSED STORM DRAIN MANHOLE	---	EXISTING OVERHEAD POWER
		---	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	RCBC	REINFORCED CONCRETE BOX CULVERT
ELEVATION	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

10333 E. Dry Creek Rd. Suite 410 Englewood, CO 80110 Tel: (720) 482-9526 Fax: (720) 482-9546	11 SEPTEMBER 2018	DATE: 11 SEPTEMBER 2018	FILE NO: 8130283701	SCALE: AS SHOWN	AS SHOWN	SCALE: AS SHOWN	AS SHOWN
Revisions	No.	Date	Init.	Appr.	Date		
<b>CVL CONSULTANTS</b> HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112							
<b>TRAILS AT CROWFOOT</b> FILING 14 CONSTRUCTION DRAWINGS WATER PLAN & PROFILE ROSE HEALTH STREET							

N:\PROJECTS\SSR\BENCHM\ENGINEERING\SSR\BENCHM\TRAILS AT CROWFOOT\WATER AND SANITATION\WATER PAPER\ROSE HEALTH ST.DWG. BRIAN.W. 10/29/2018 2:56 PM

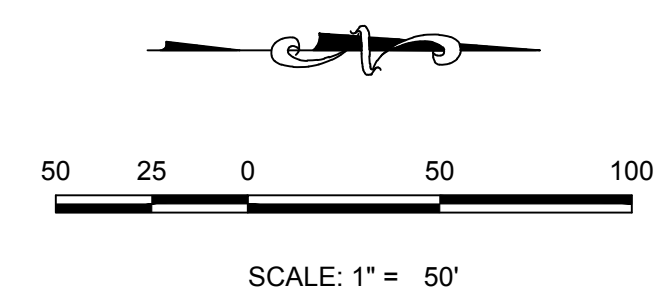
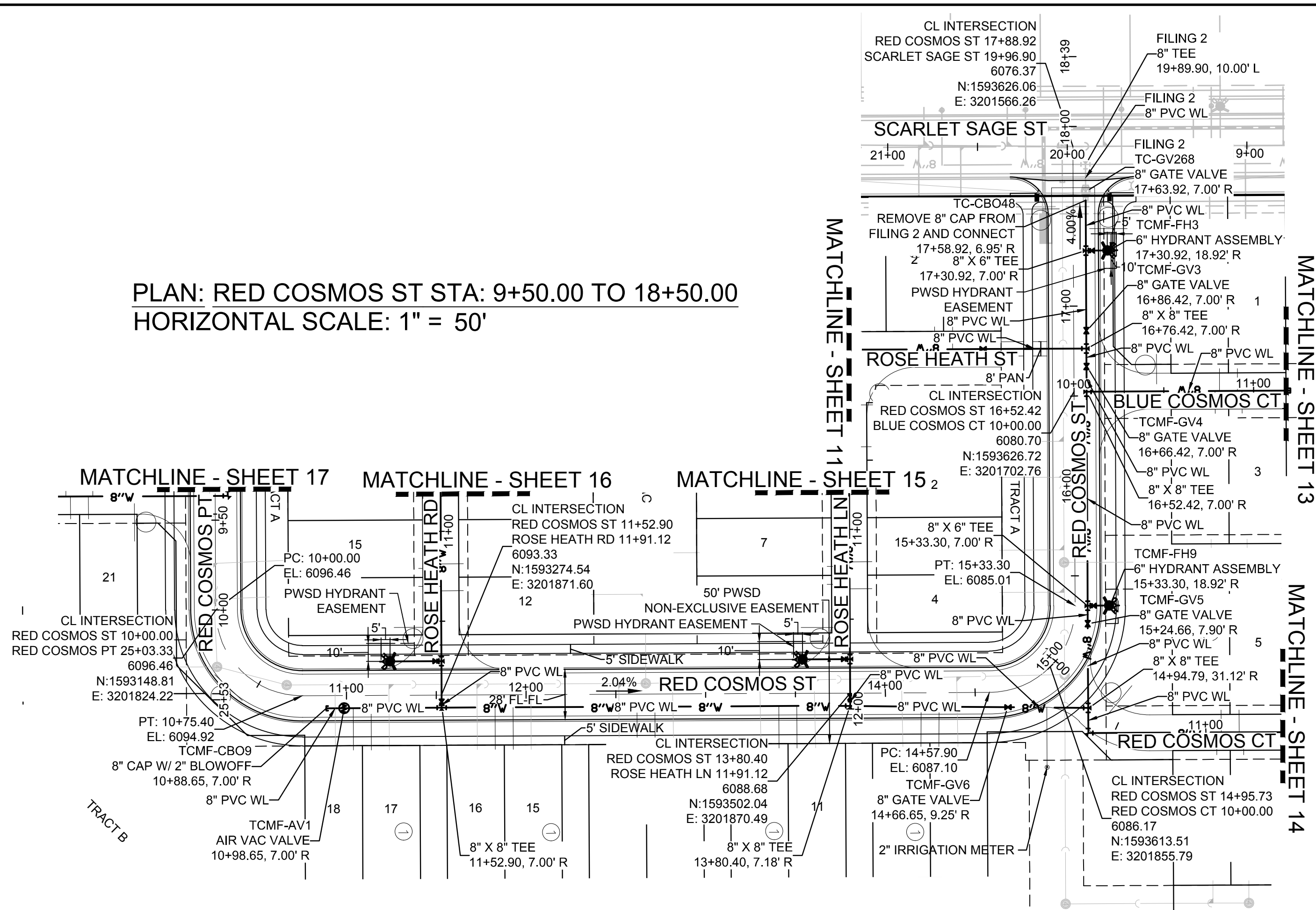
CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC 1-800-922-1987  
UTILITY NOTIFICATION  
CENTER OF COLORADO

**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

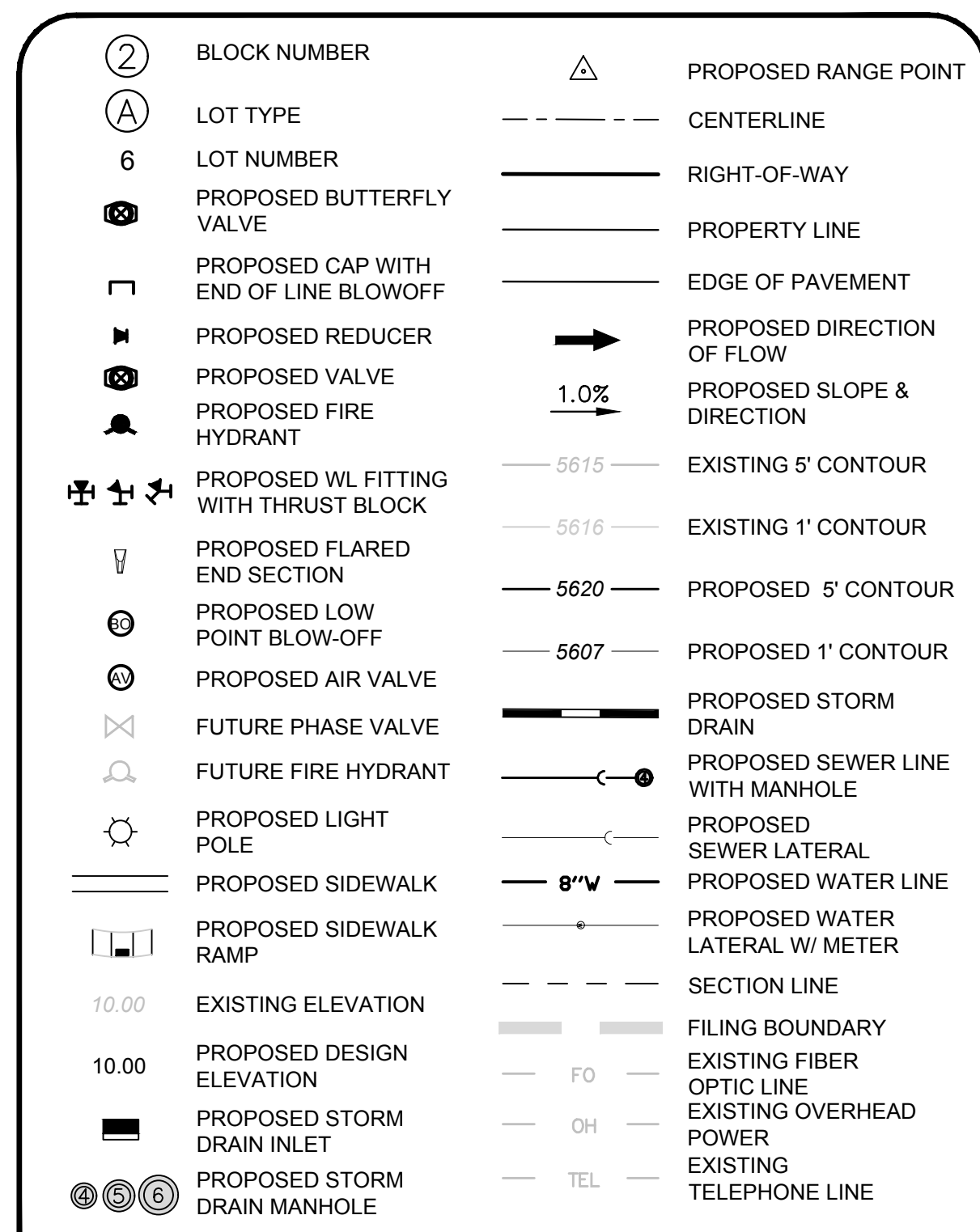
PLAN: RED COSMOS ST STA: 9+50.00 TO 18+50.00  
HORIZONTAL SCALE: 1" = 50'



KEYMAP  
N.T.S.

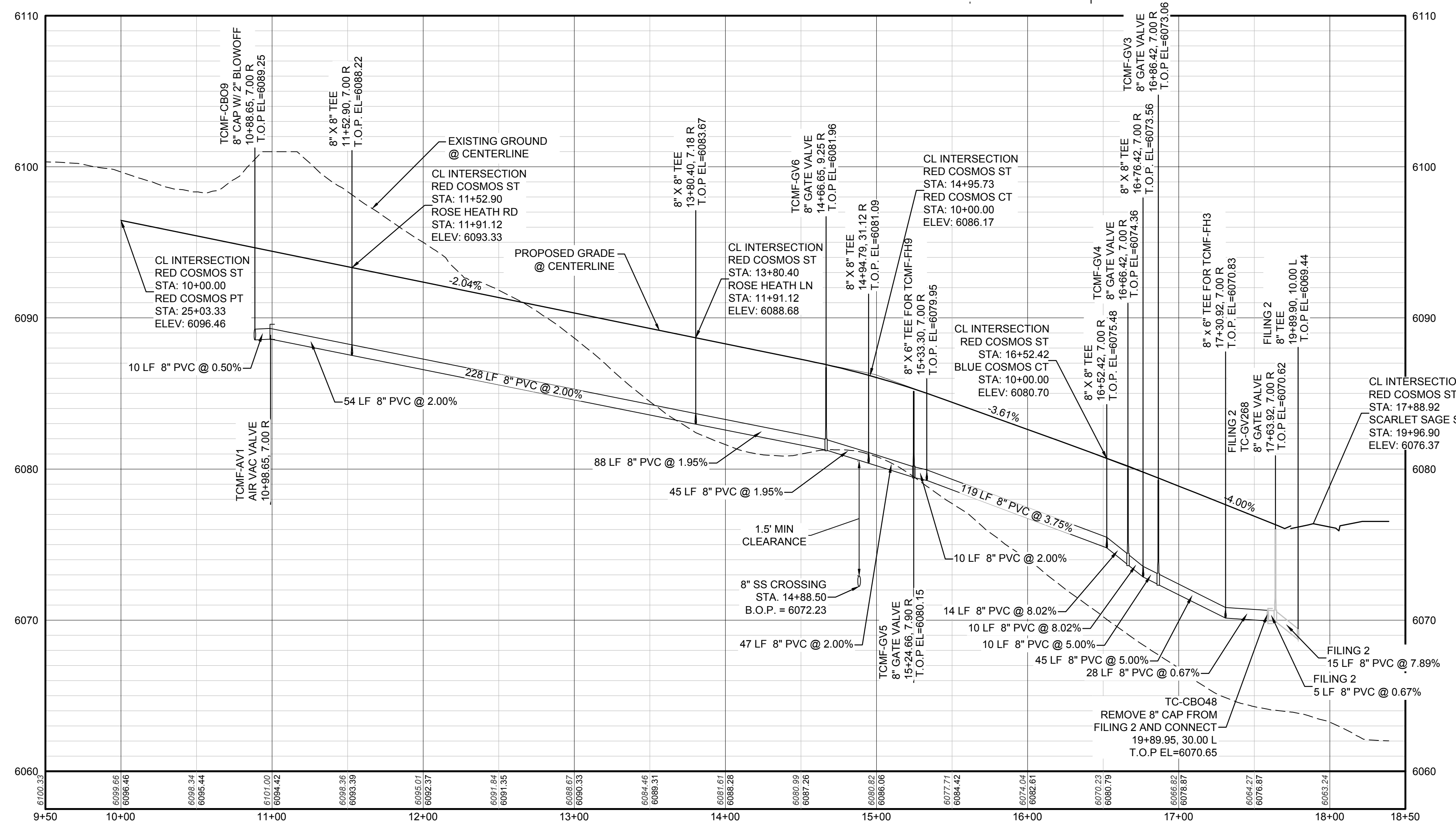
FILING, BLOCK, LOT	STREET	STATIONING
F14.B1.L9	RED COSMOS ST	14+29.94
F14.B1.L10	RED COSMOS ST	14+19.94
F14.B1.L11	RED COSMOS ST	13+50.65
F14.B1.L12	RED COSMOS ST	13+40.65
F14.B1.L13	RED COSMOS ST	12+71.65
F14.B1.L14	RED COSMOS ST	12+61.65
F14.B1.L15	RED COSMOS ST	11+92.65
F14.B1.L16	RED COSMOS ST	11+82.65
F14.B1.L17	RED COSMOS ST	11+13.65
F14.B1.L18	RED COSMOS ST	11+03.65

LEGEND



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	RCBC	REINFORCED CONCRETE BOX CULVERT
ELEVATION	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



PROFILE: RED COSMOS ST STA: 9+50.00 TO 18+50.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

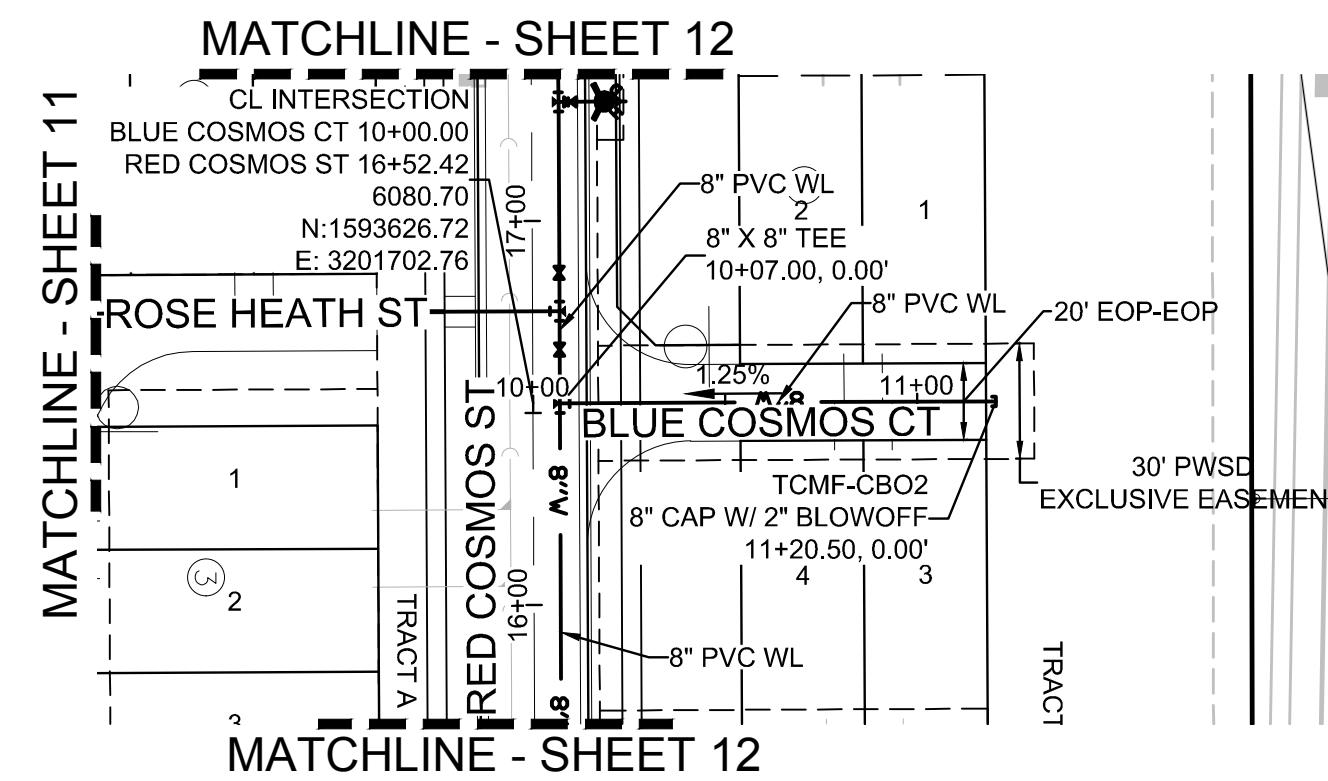
BENCHMARK  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

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 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

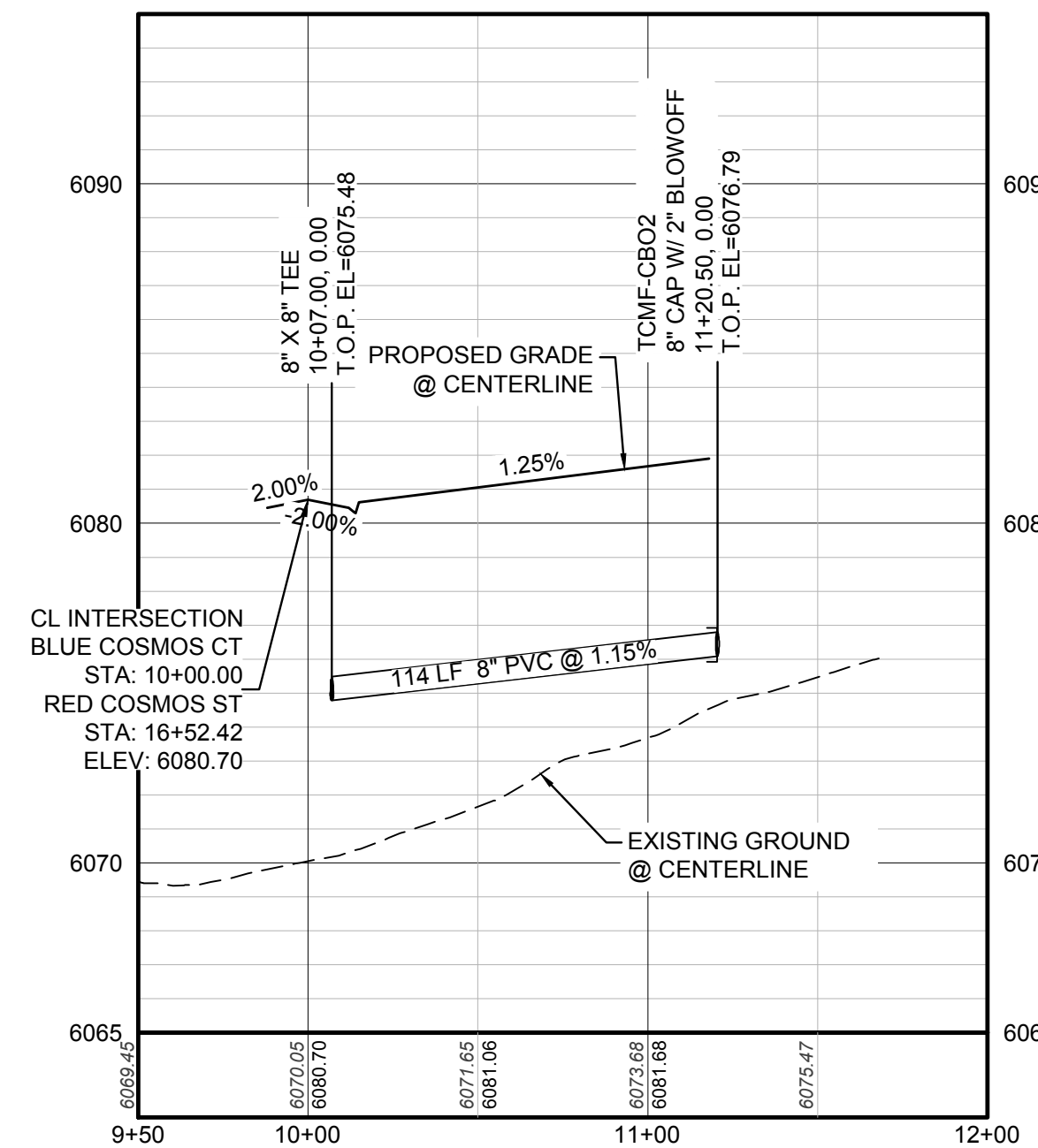
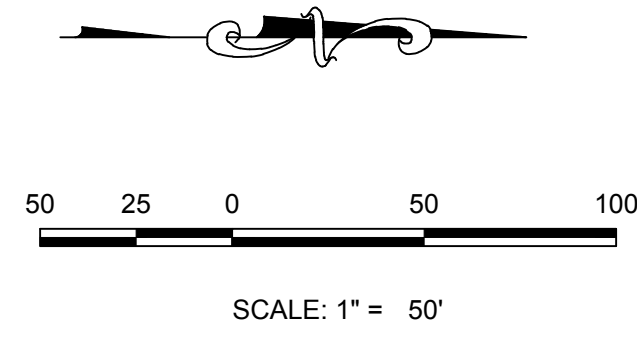
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

10333 E. Dry Creek Rd. Suite 6110 Englewood, Colorado 80110 Tel: (720) 482-9526 Fax: (720) 482-9548	Revisions	Date	Date
CVL CONSULTANTS	No.	Init.	Appr.
HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112			
TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS WATER PLAN & PROFILE RED COSMOS STREET			
SCALE: AS SHOWN FILE NO: 8130283701			
DRAWN BY: KJD CHECKED BY: BPW DATE: SEPTEMBER 2018			
SHEET NUMBER			
12			

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

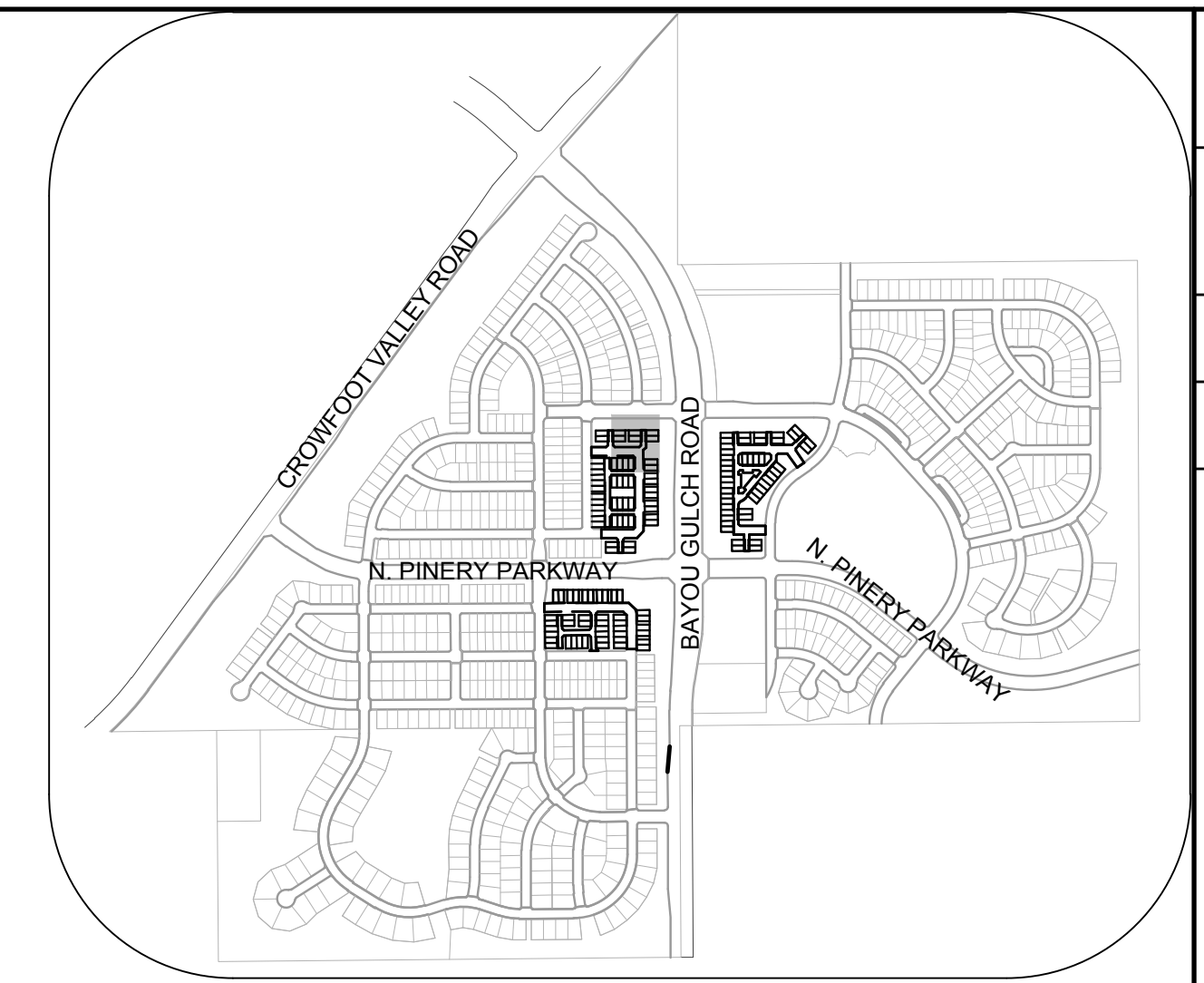


PLAN: BLUE COSMOS CT STA: 9+50.00 TO 12+00.00  
HORIZONTAL SCALE: 1" = 50'



PROFILE: BLUE COSMOS CT STA: 9+50.00 TO 12+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

WATER SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14,B1,L1	BLUE COSMOS CT	10+91.00
F14,B1,L2	BLUE COSMOS CT	10+81.00
F14,B1,L3	BLUE COSMOS CT	10+93.50
F14,B1,L4	BLUE COSMOS CT	10+78.50



KEYMAP  
N.T.S.

### 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	FO	EXISTING FIBER OPTIC LINE
⊞	PROPOSED STORM DRAIN INLET	OH	EXISTING OVERHEAD POWER
⊞	PROPOSED STORM DRAIN MANHOLE	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
BVP	BEGIN VERTICAL PROFILE	PVI	PT. OF VERTICAL INTERSECTION
CBO	CAP WITH BLOW OFF	PVT	POINT OF VERTICAL TANGENT
CRR	CURB RETURN RADIUS	ROBC	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

10333 E. Dry Creek Rd. Suite 410 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
	No.			
<b>HR 935 LLC</b> 7353 South Alton Way CENTENNIAL, CO 80112	<b>TRAILS AT CROWFOOT</b> <b>FILING 14 CONSTRUCTION DRAWINGS</b> WATER PLAN & PROFILE BLUE COSMOS CT			
SCALE: AS SHOWN DRAWN BY: KJD CHECKED BY: BPW DATE: SEPTEMBER 2018	FILE NO: 8130283701	SHEET NUMBER <h1>13</h1>		

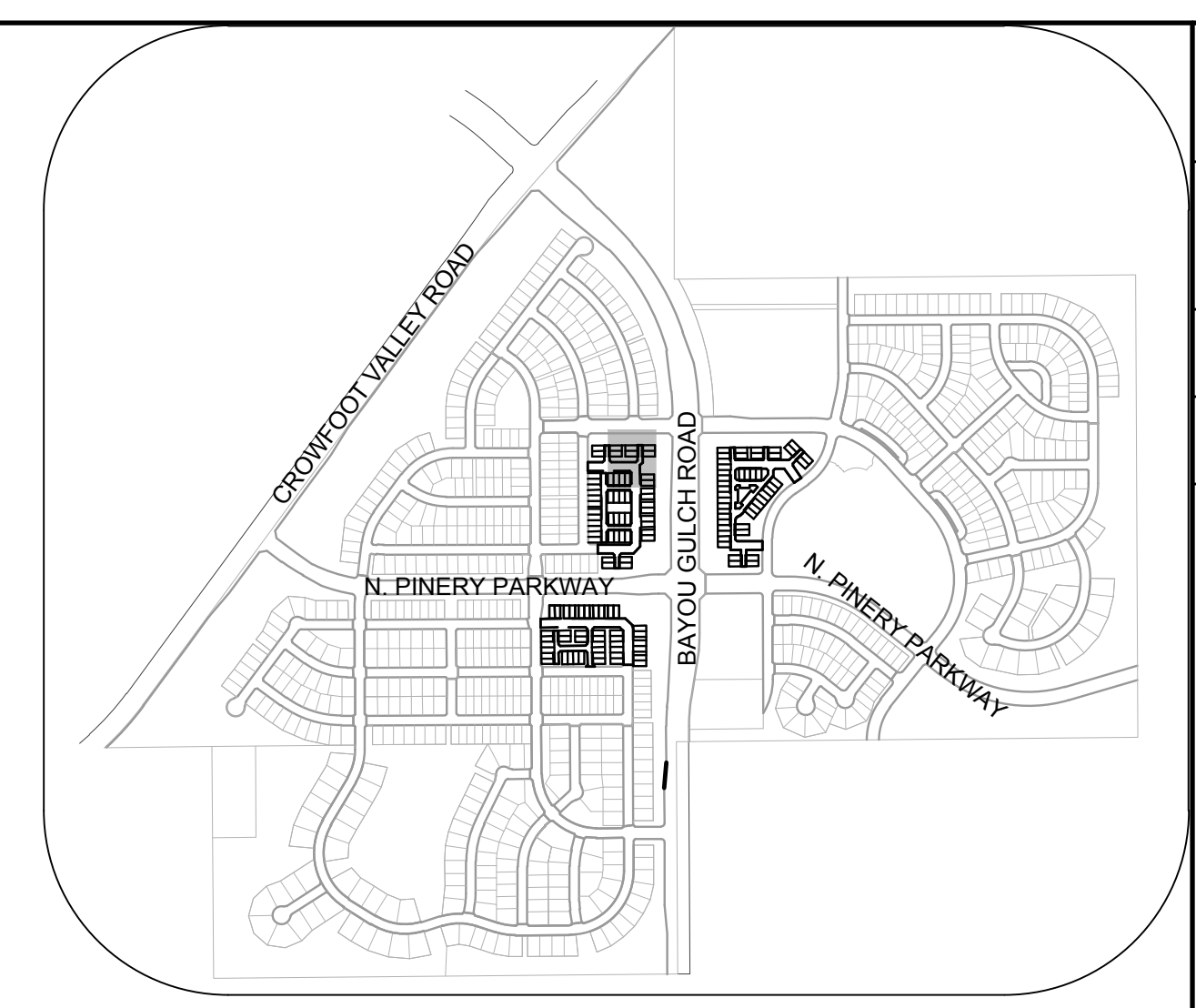
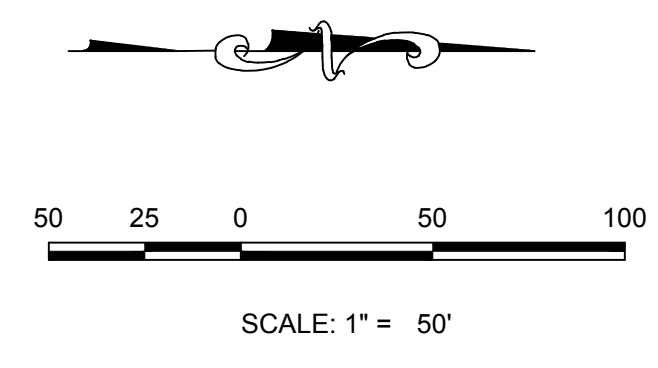
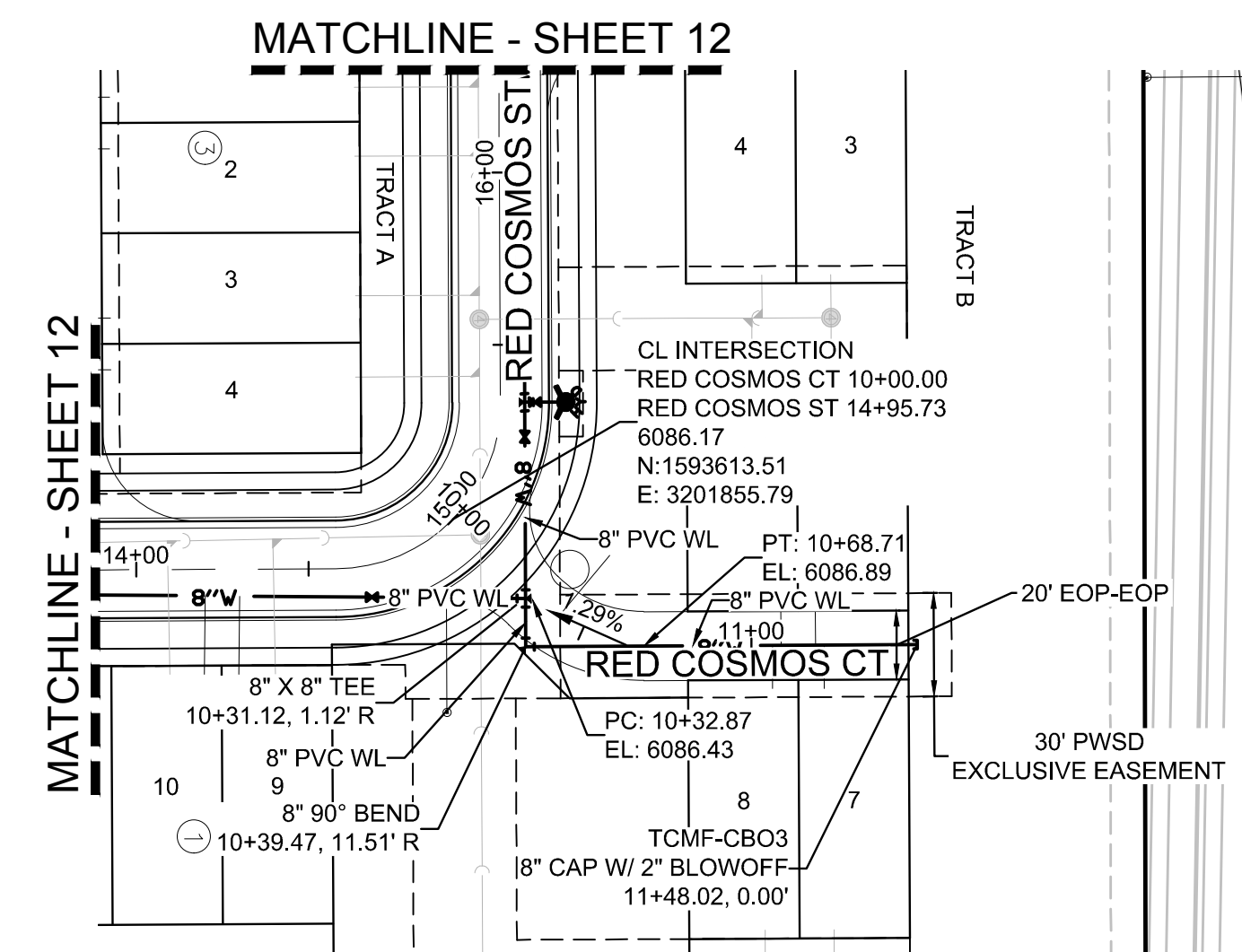
N:\PROJECTS\SSR\BENCH\ENGINEERING\SSR\SET\MULTIFAMILY\CDSIF\HARPER WATER AND SANITATION\WATER PAPER\PRIMARY ALIGNMENT DWG. BRUNN, 10/25/2018 2:56 PM

CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC 1-800-922-1987  
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 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

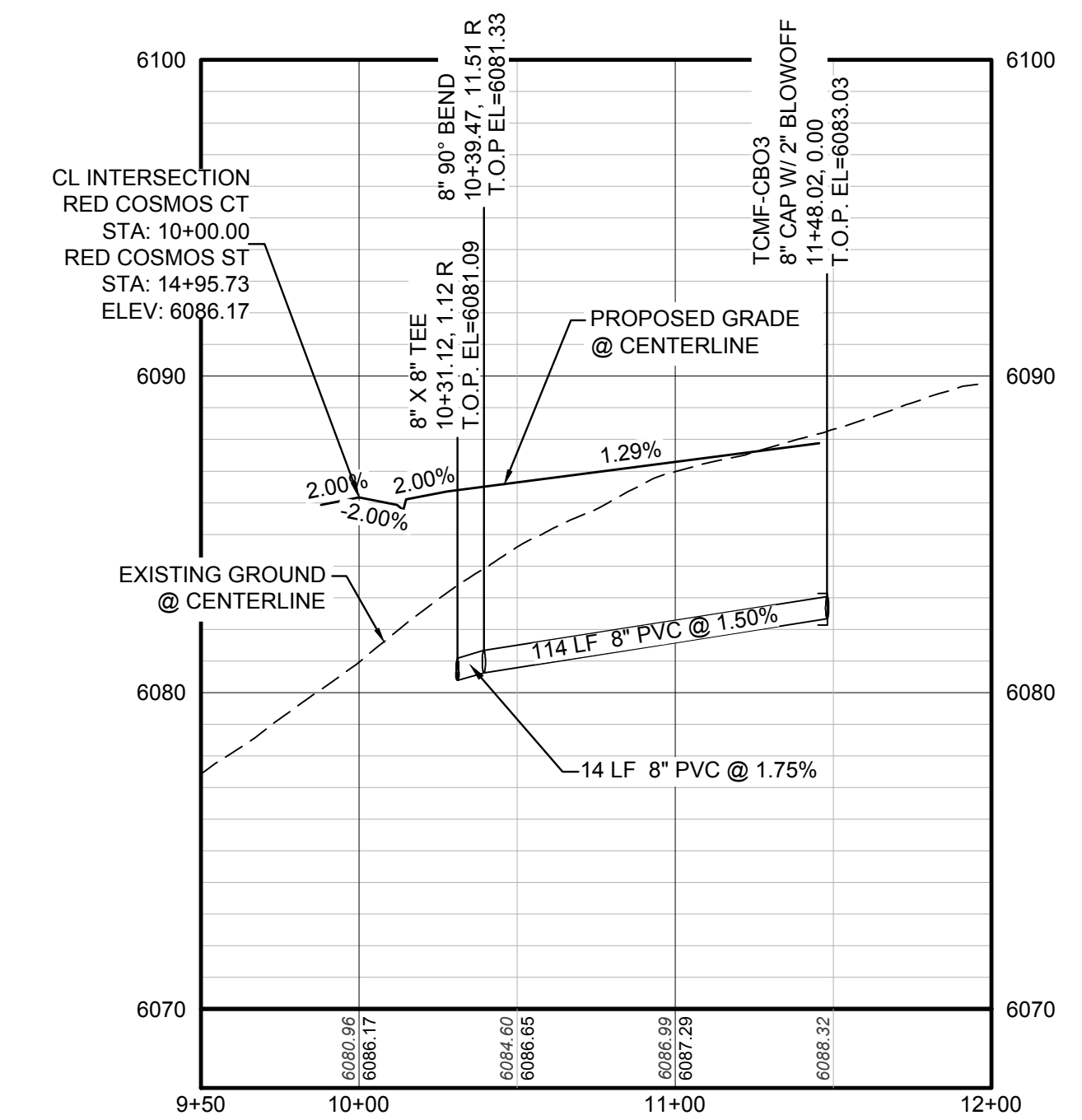
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067



**KEYMAP**  
N.T.S.

**PLAN: RED COSMOS CT STA: 9+50.00 TO 12+00.00**  
HORIZONTAL SCALE: 1" = 50'

WATER SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14,B1,L5	RED COSMOS CT	11+18.52
F14,B1,L6	RED COSMOS CT	11+08.52
F14,B1,L7	RED COSMOS CT	11+21.02
F14,B1,L8	RED COSMOS CT	11+06.02



**PROFILE: RED COSMOS CT 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	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	FO	EXISTING FIBER OPTIC LINE
⊕	PROPOSED STORM DRAIN INLET	OH	EXISTING OVERHEAD POWER
⊕	PROPOSED STORM DRAIN MANHOLE	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
BVP	BEGIN VERTICAL PROFILE	PVI	PT. OF VERTICAL INTERSECTION
CBO	CAP WITH BLOW OFF	PVT	POINT OF VERTICAL TANGENT
CRR	CURB RETURN RADIUS	ROBC	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

DRAWN BY: KJD	SCALE:	AS SHOWN	SHEET NUMBER <b>14</b>
	CHECKED BY: BPW	FILE NO: 8130283701	
DATE: SEPTEMBER 2018	TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS WATER PLAN & PROFILE RED COSMOS COURT		Revisions No. Date Init. Date Appr. Date
<p>10339 E. Dry Creek Rd. Suite 410 Englewood, CO 80151 Tel: (720) 482-9526 Fax: (720) 482-9546</p> <p><b>CVL</b> CONSULTANTS</p> <p>HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112</p>			

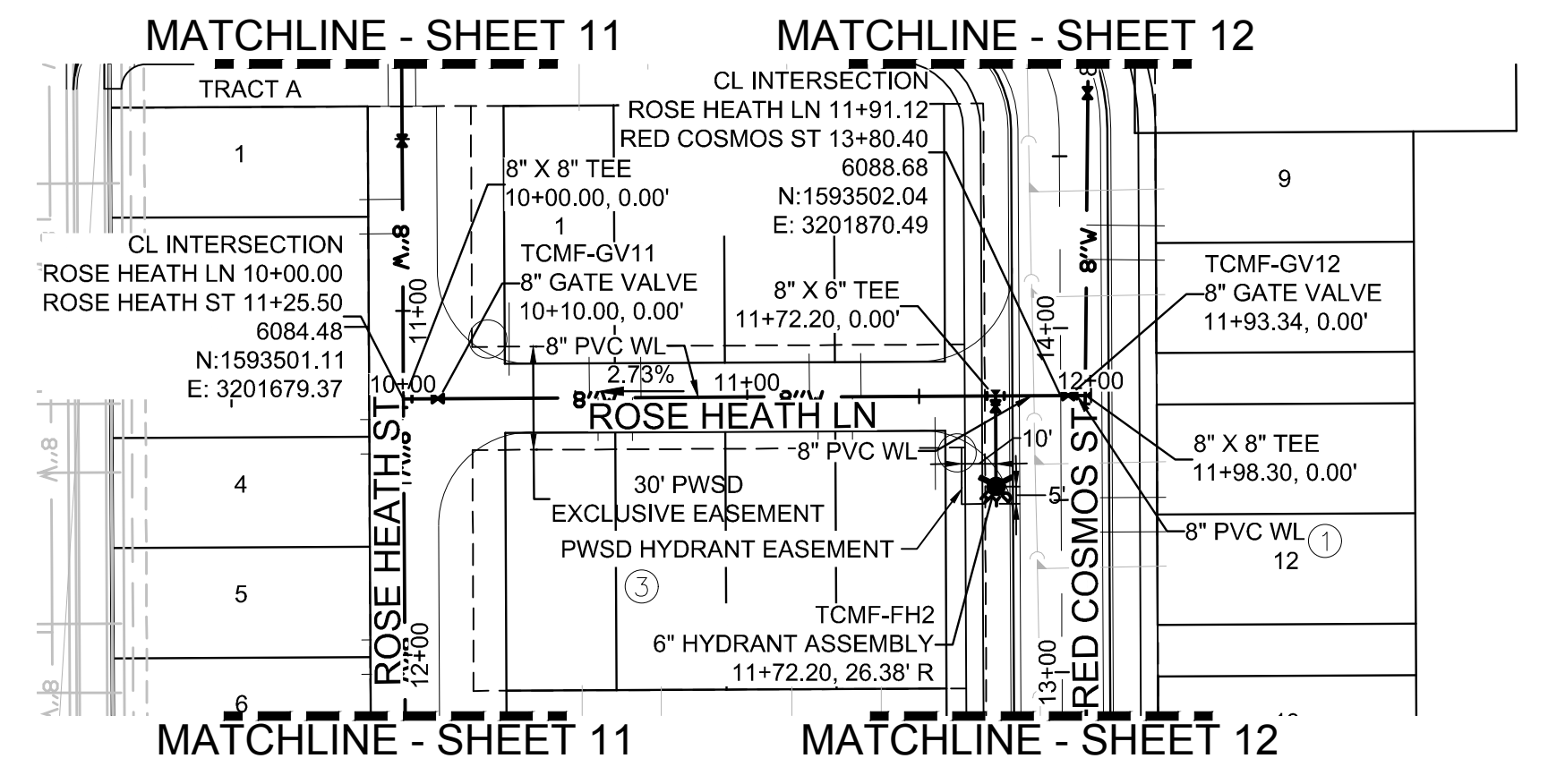
N:\PROJECTS\SSR\BENCHM\ENGINEERING\SSR\SET\MULTIFAMILY\CDS\F-HARPER WATER AND SANITATION\WATER PIPED COSMOS CT DWG. BRIANNI\_10292018 2:46 PM

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

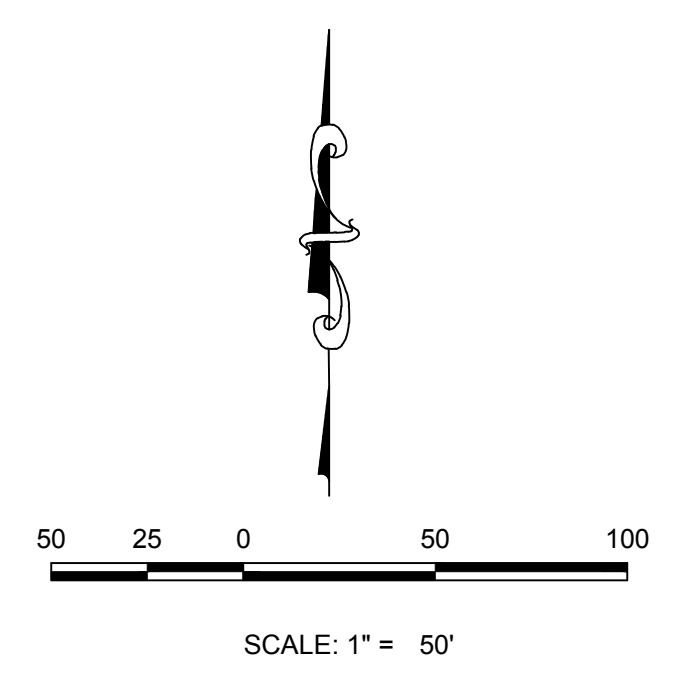
**BENCHMARK**  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

**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 8935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

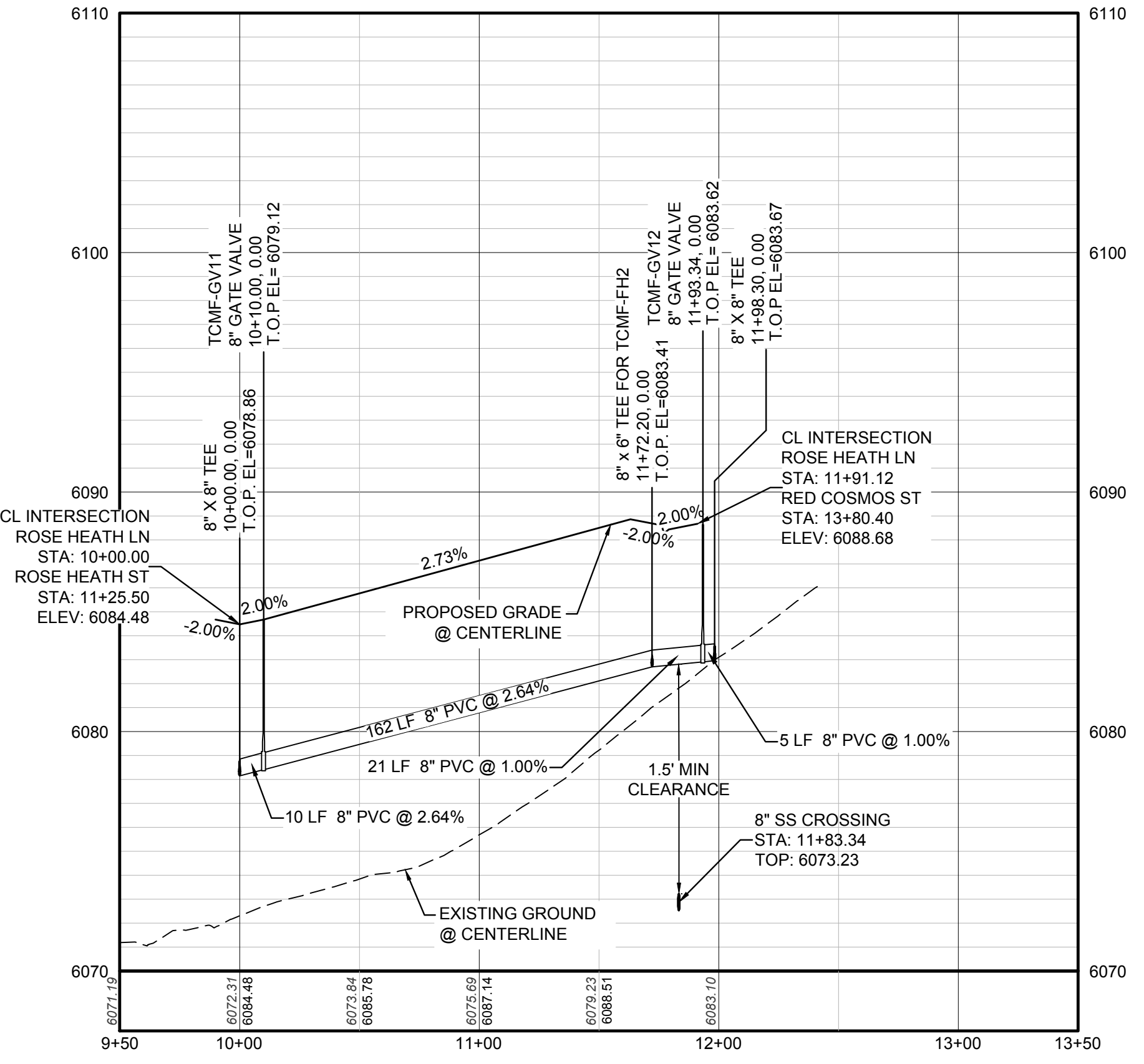
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067



PLAN: ROSE HEATH LN STA: 9+50.00 TO 13+50.00  
HORIZONTAL SCALE: 1" = 50'



KEYMAP  
N.T.S.



PROFILE: ROSE HEATH LN STA: 9+50.00 TO 13+50.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

WATER SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14.B3.L1	ROSE HEATH LN	10+54.06
F14.B3.L2	ROSE HEATH LN	10+69.06
F14.B3.L3	ROSE HEATH LN	11+18.06
F14.B3.L4	ROSE HEATH LN	11+33.06
F14.B3.L5	ROSE HEATH LN	10+56.56
F14.B3.L6	ROSE HEATH LN	10+66.56
F14.B3.L7	ROSE HEATH LN	11+20.55
F14.B3.L8	ROSE HEATH LN	11+30.56

### 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

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	ROBC	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

10333 E. Dry Creek Rd. Suite 410 Englewood, Colorado 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
	No.			
HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112	<b>TRAILS AT CROWFOOT</b> <b>FILING 14 CONSTRUCTION DRAWINGS</b> WATER PLAN & PROFILE ROSE HEATH LANE			
SCALE: AS SHOWN	DRAWN BY: KJD	CHECKED BY: BPW	DATE: SEPTEMBER 2018	SHEET NUMBER
FILE NO: 8130283701				15

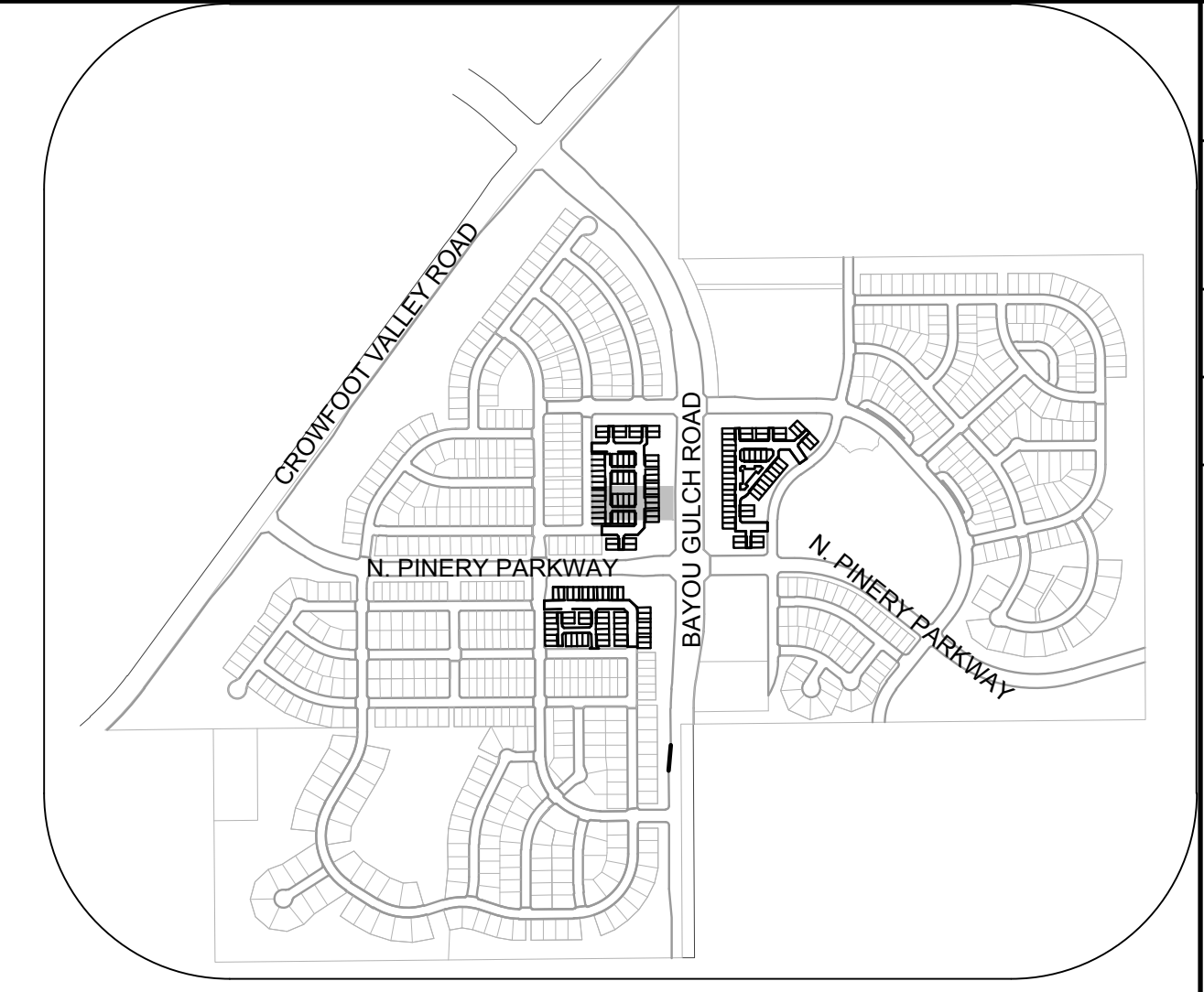
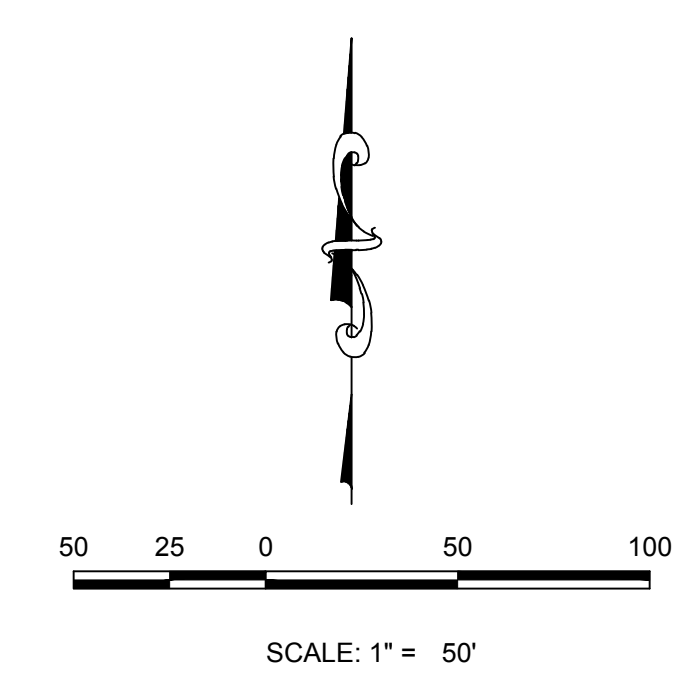
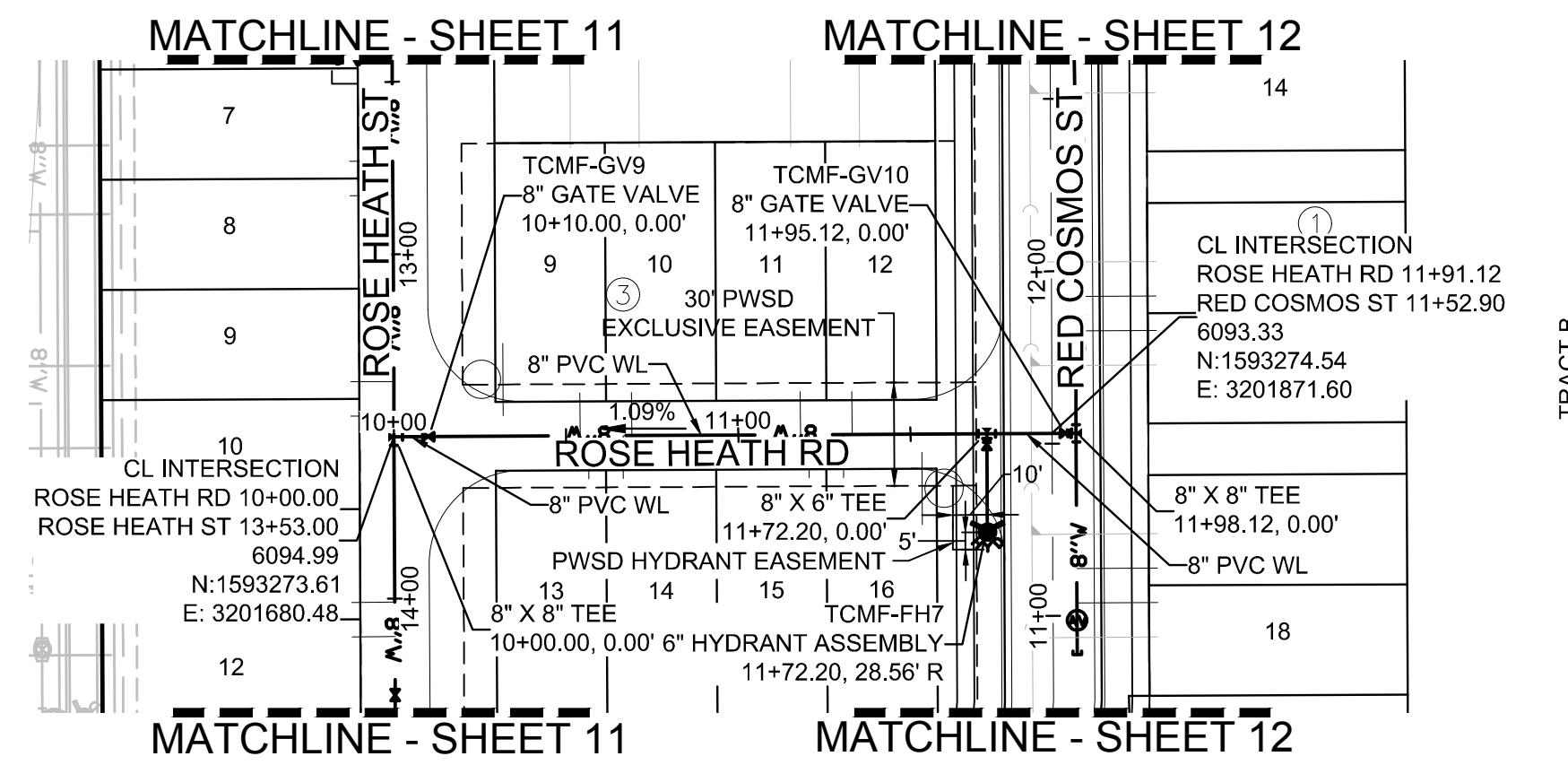
CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC 1-800-922-1987  
UTILITY NOTIFICATION CENTER OF COLORADO

**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.

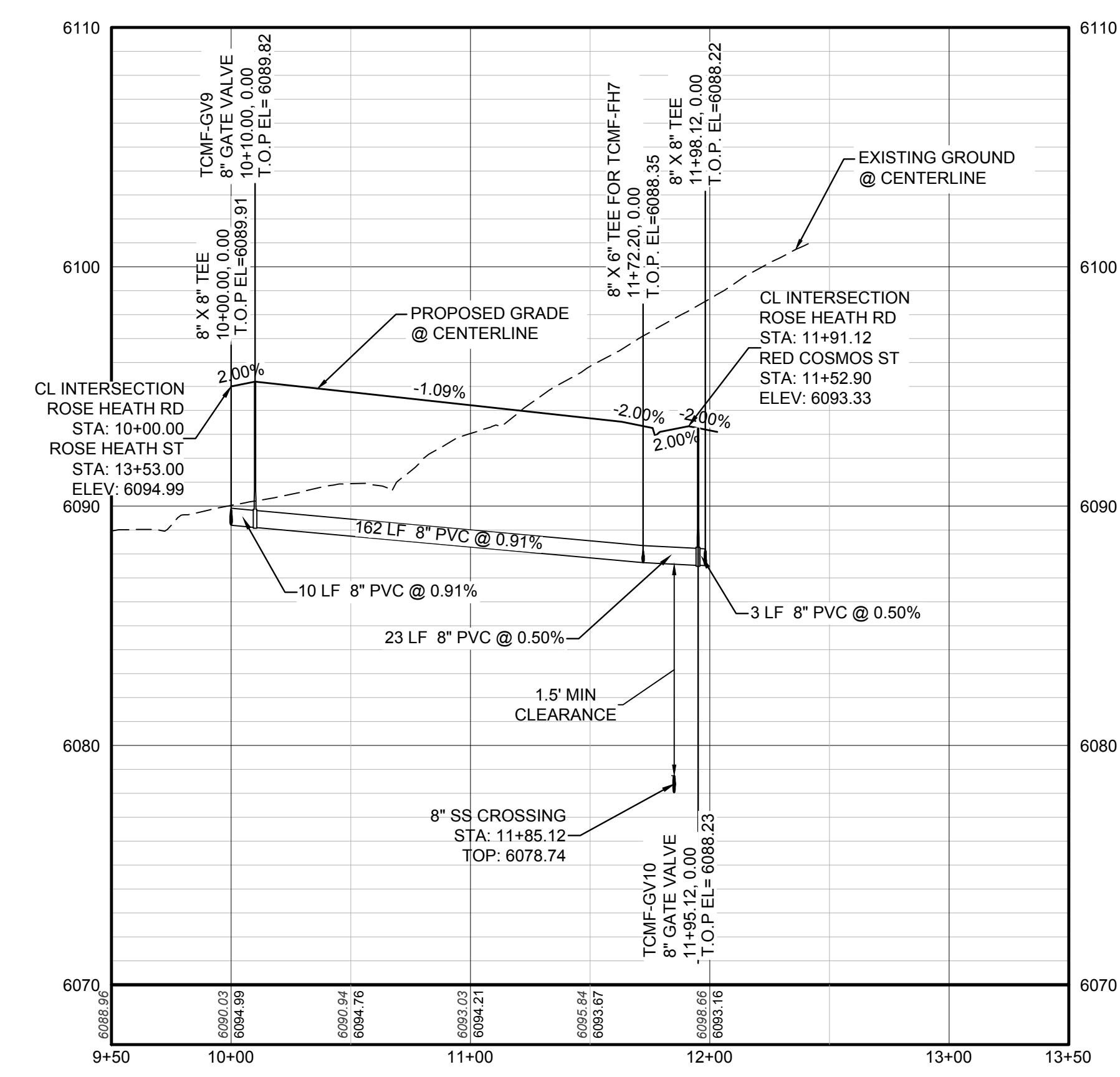
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067

N:\PROJECTS\SSR\BENCH\ENGINEERING\SSR\BENCH\MULTIFAMILY\COSIF\HARPER WATER AND SANITATION\WATER PROPOSE HEATH LN.DWG. BRIAN.W. 10/29/2018 2:56 PM



**KEYMAP**  
N.T.S.

**PLAN: ROSE HEATH RD STA: 9+50.00 TO 13+50.00**  
HORIZONTAL SCALE: 1" = 50'



**PROFILE: ROSE HEATH RD STA: 9+50.00 TO 13+50.00**  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'

WATER SERVICE TABLE		
FILING, BLOCK, LOT	STREET	STATIONING
F14.B3.L9	ROSE HEATH RD	10+54.06
F14.B3.L10	ROSE HEATH RD	10+69.06
F14.B3.L11	ROSE HEATH RD	11+18.06
F14.B3.L12	ROSE HEATH RD	11+33.06
F14.B3.L13	ROSE HEATH RD	10+56.56
F14.B3.L14	ROSE HEATH RD	10+66.56
F14.B3.L15	ROSE HEATH RD	11+20.56
F14.B3.L16	ROSE HEATH RD	11+30.56

**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**

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

10333 E. Dry Creek Rd. Suite 410 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	10333 E. Dry Creek Rd. Suite 410 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546
<b>CVL</b> CONSULTANTS	<b>CVL</b> CONSULTANTS
HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112	HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112
TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS WATER PLAN & PROFILE ROSE HEATH ROAD	TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS WATER PLAN & PROFILE ROSE HEATH ROAD
SCALE: AS SHOWN FILE NO: 8130283701	SCALE: AS SHOWN FILE NO: 8130283701
DRAWN BY: KJD CHECKED BY: BPW DATE: SEPTEMBER 2018	DRAWN BY: KJD CHECKED BY: BPW DATE: SEPTEMBER 2018
SHEET NUMBER <b>16</b>	SHEET NUMBER <b>16</b>

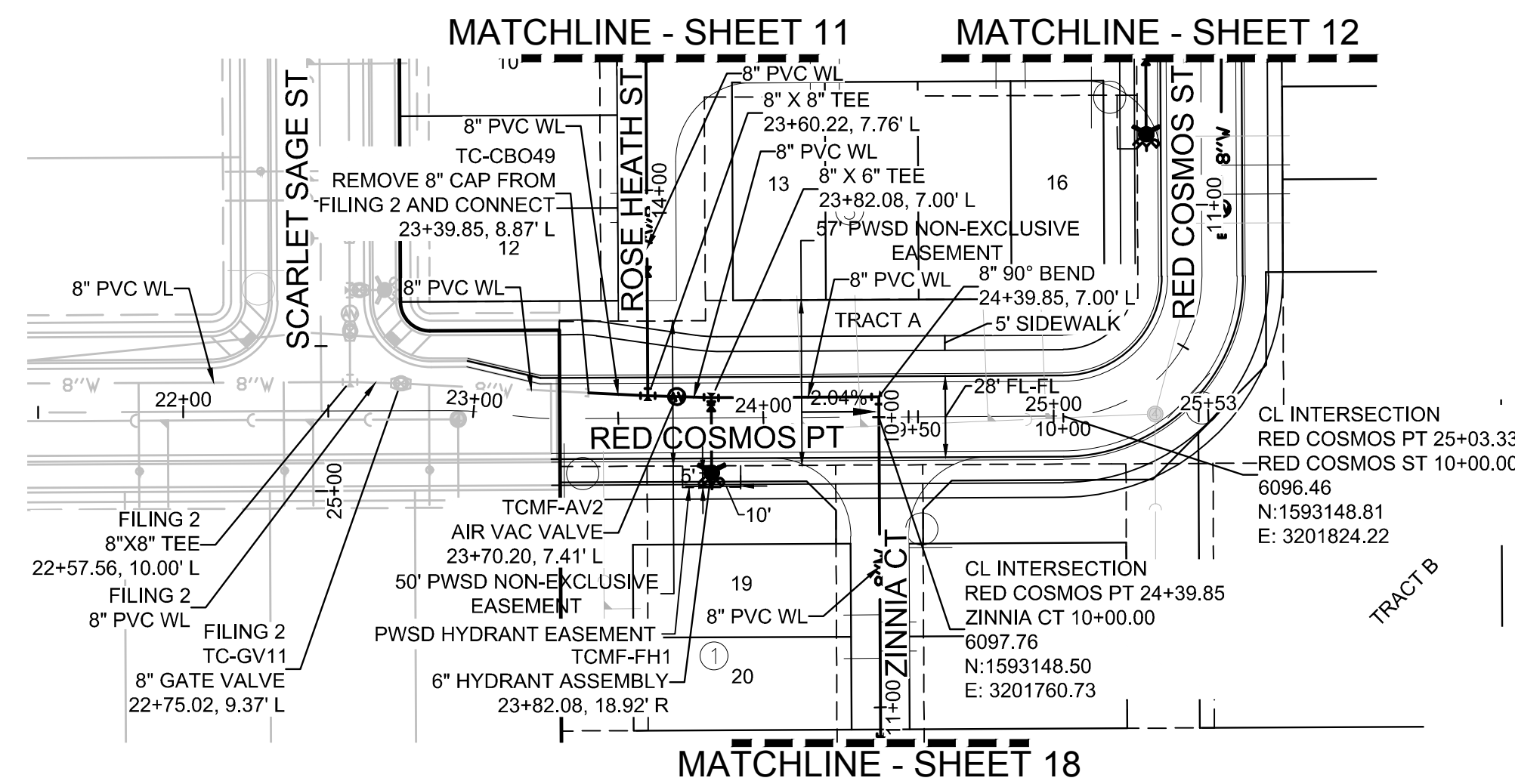
N:\PROJECTS\SSR\BENCHM\ENGINEERING\SSR\BENCHM\TIF\MULTIFAMILY\CDSIF\HARKER WATER AND SANITATION\WATER PROPOSE HEALTHY RIDING, BRIANW. 10/29/2018 2:57 PM

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

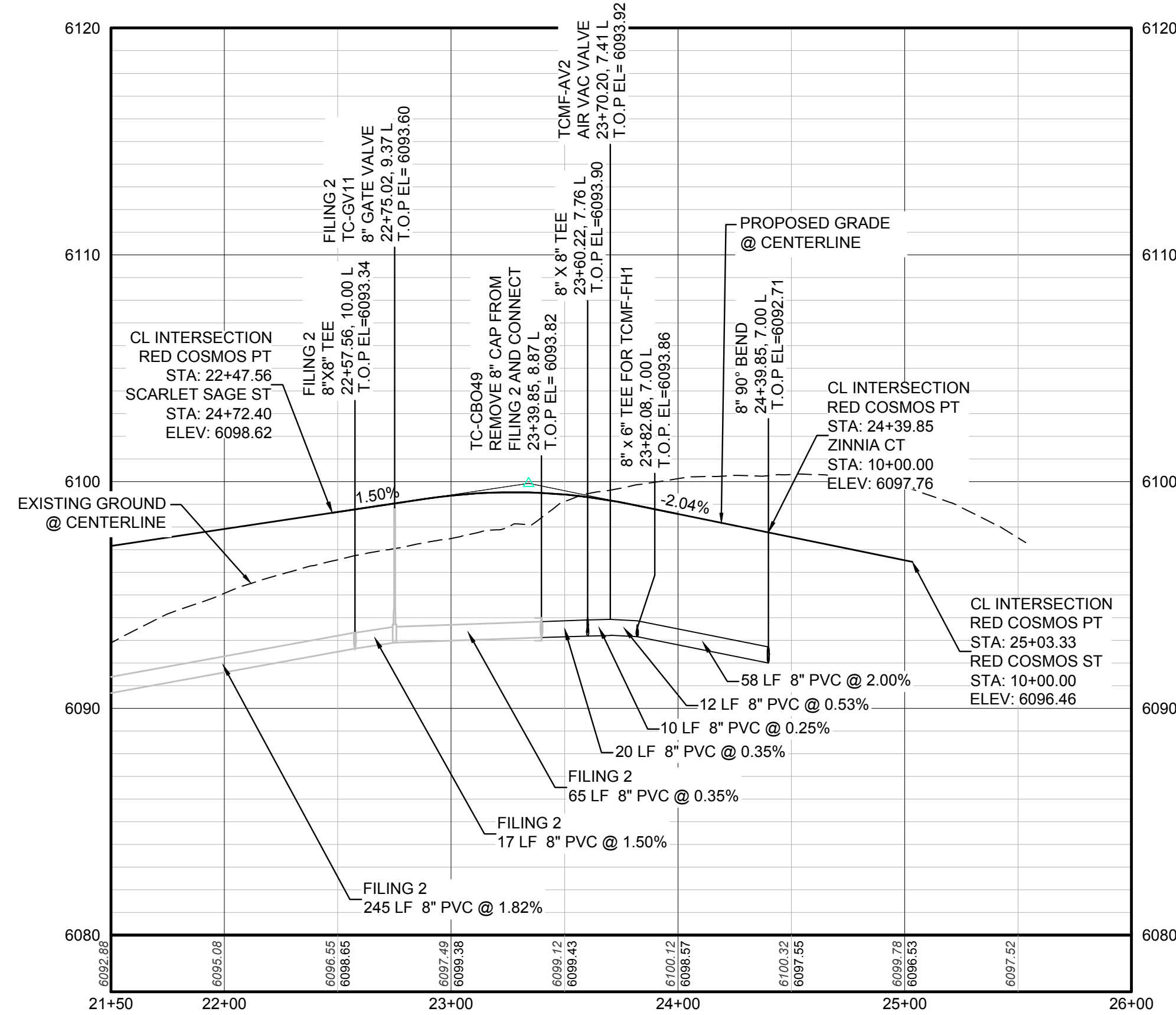
**BENCHMARK**  
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

**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.

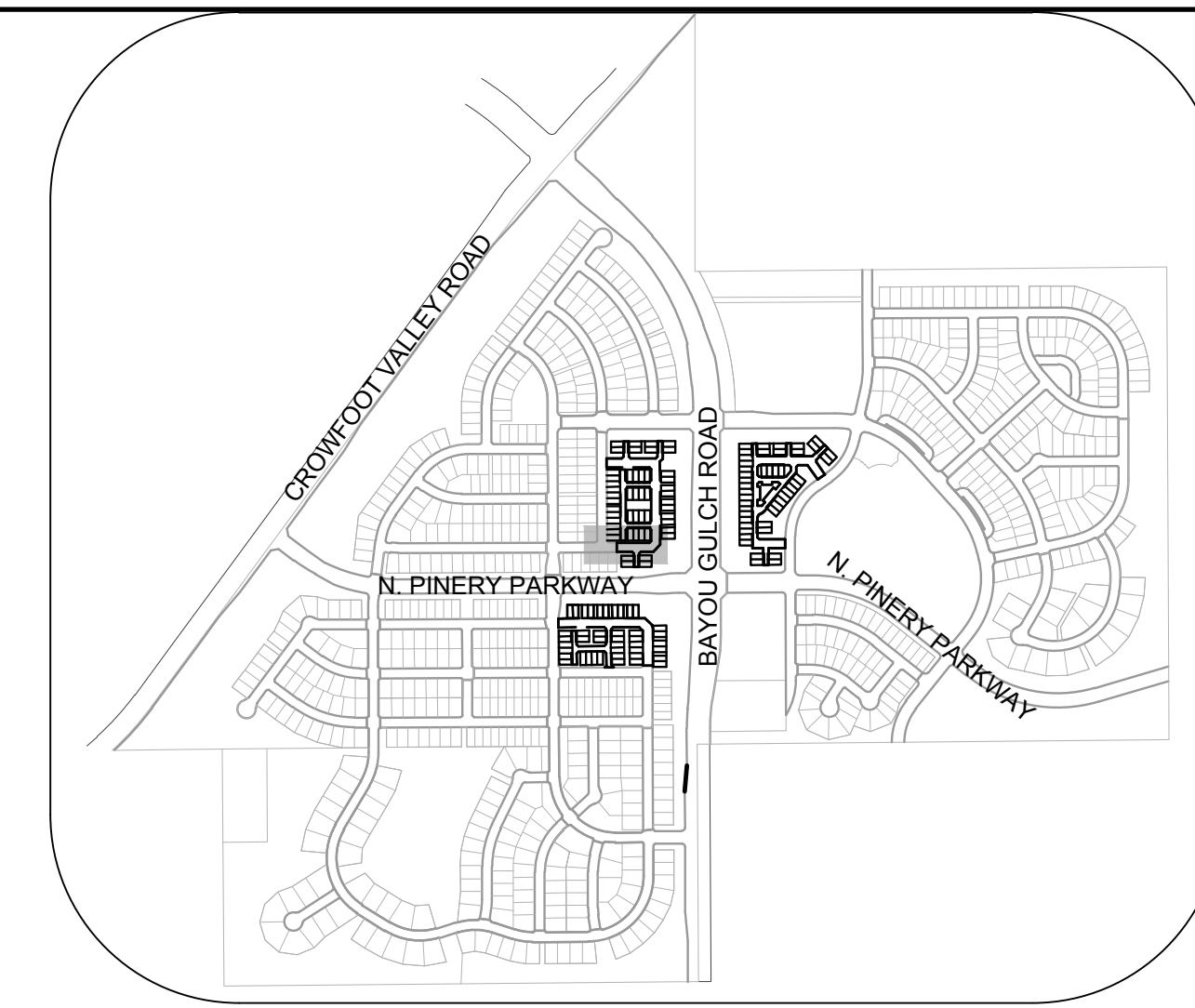
PREPARED UNDER THE SUPERVISION OF  
  
BRIAN P. WILSON  
COLORADO P.E. 0050067



PLAN: RED COSMOS POINT STA: 21+50.00 TO 26+00.00  
HORIZONTAL SCALE: 1" = 50'



PROFILE: RED COSMOS PT STA: 21+50.00 TO 26+00.00  
HORIZONTAL: 1" = 50'  
VERTICAL: 1" = 5'



KEYMAP  
N.T.S.

### 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

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	ROBC	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

NO.	REVISIONS	DATE	INIT.	APPR.	DATE

10339 E. Dry Creek Rd.  
Suite 410  
Englewood, CO 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 14 CONSTRUCTION DRAWINGS  
WATER PLAN & PROFILE  
RED COSMOS POINT

SCALE: AS SHOWN  
FILE NO: 8130283701

DRAWN BY: KJD  
CHECKED BY: BPW  
DATE: SEPTEMBER 2018

SHEET NUMBER **17**

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

**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

N:\PROJECTS\SSR\BENCHM\ENGINEERING\SSR\BENCHM\TIF\MULTIFAMILY\CDSP\FHARKER WATER AND SANITATION\WATER PIPED COSMOS PT.DWG. BIRNBY, 1/12/2018, 10:56 AM



**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:  
"S" FOR SANITARY SEWER SERVICE  
"W" FOR WATER SERVICES

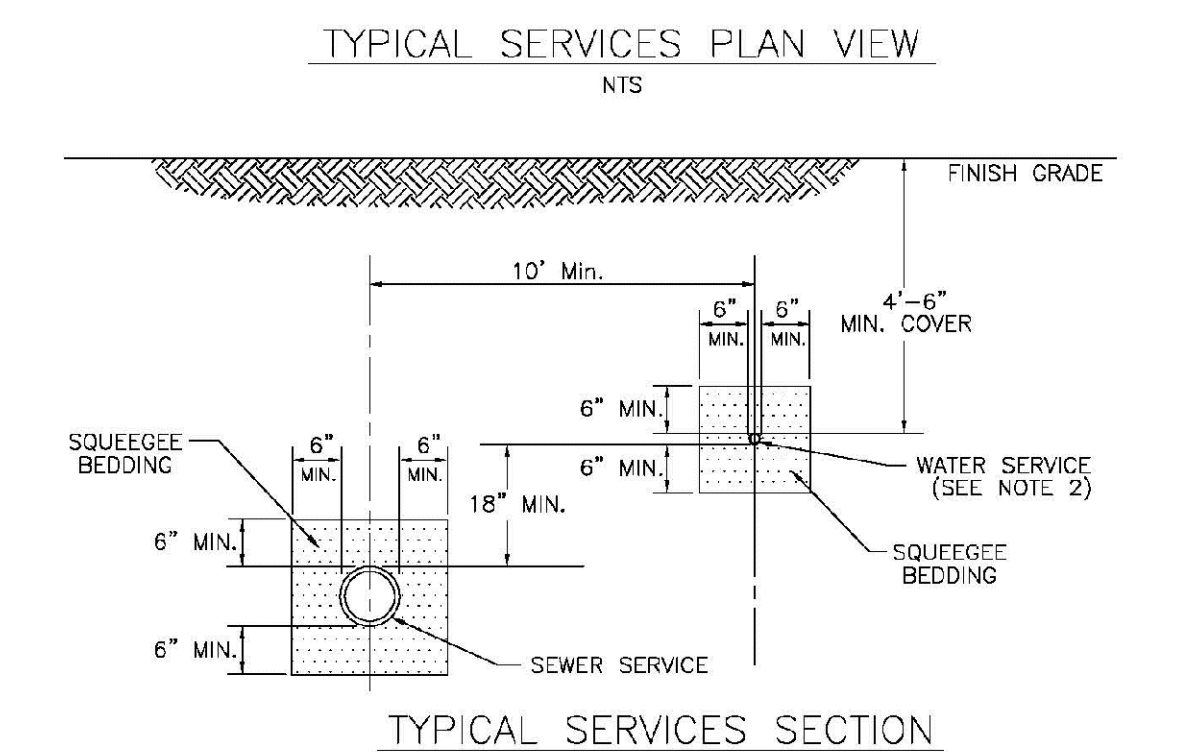
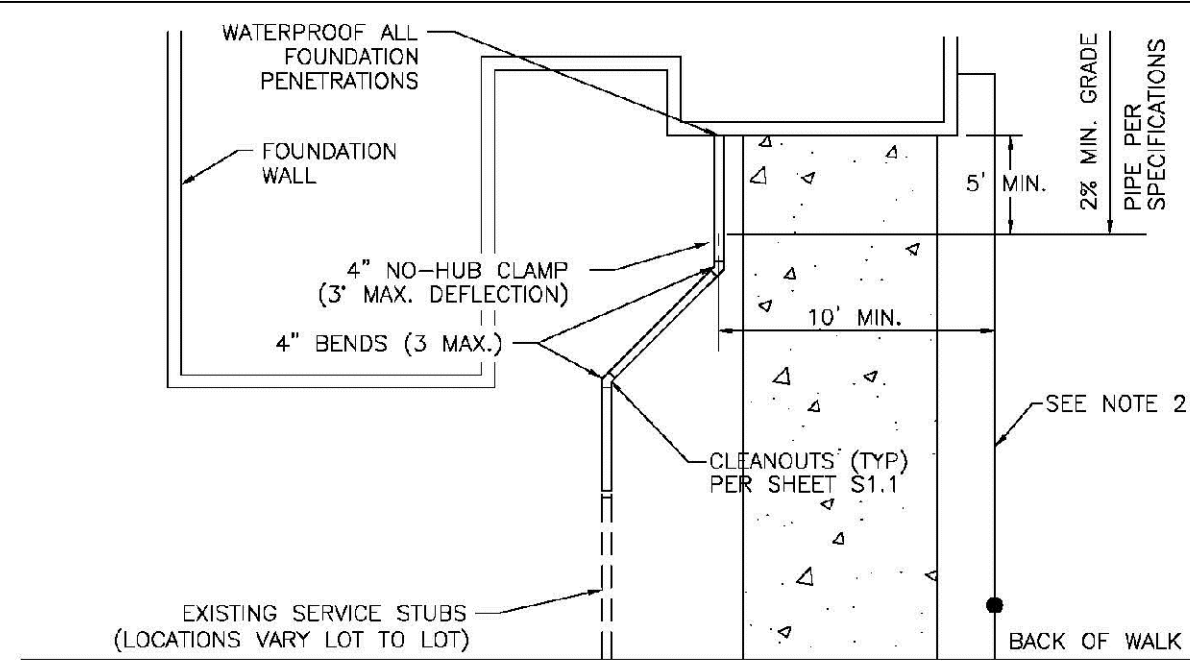
**PARKER WATER & SANITATION DISTRICT**  
DISTRICT POLICIES & INSTALLATION NOTES FOR SEWER SERVICES

SCALE: NONE DATE: 2/96

APPROVED: PVR 01/02 10/16  
1/08 01/16  
1/16

DIRECTOR OF ENGINEERING

SHEET S1.1



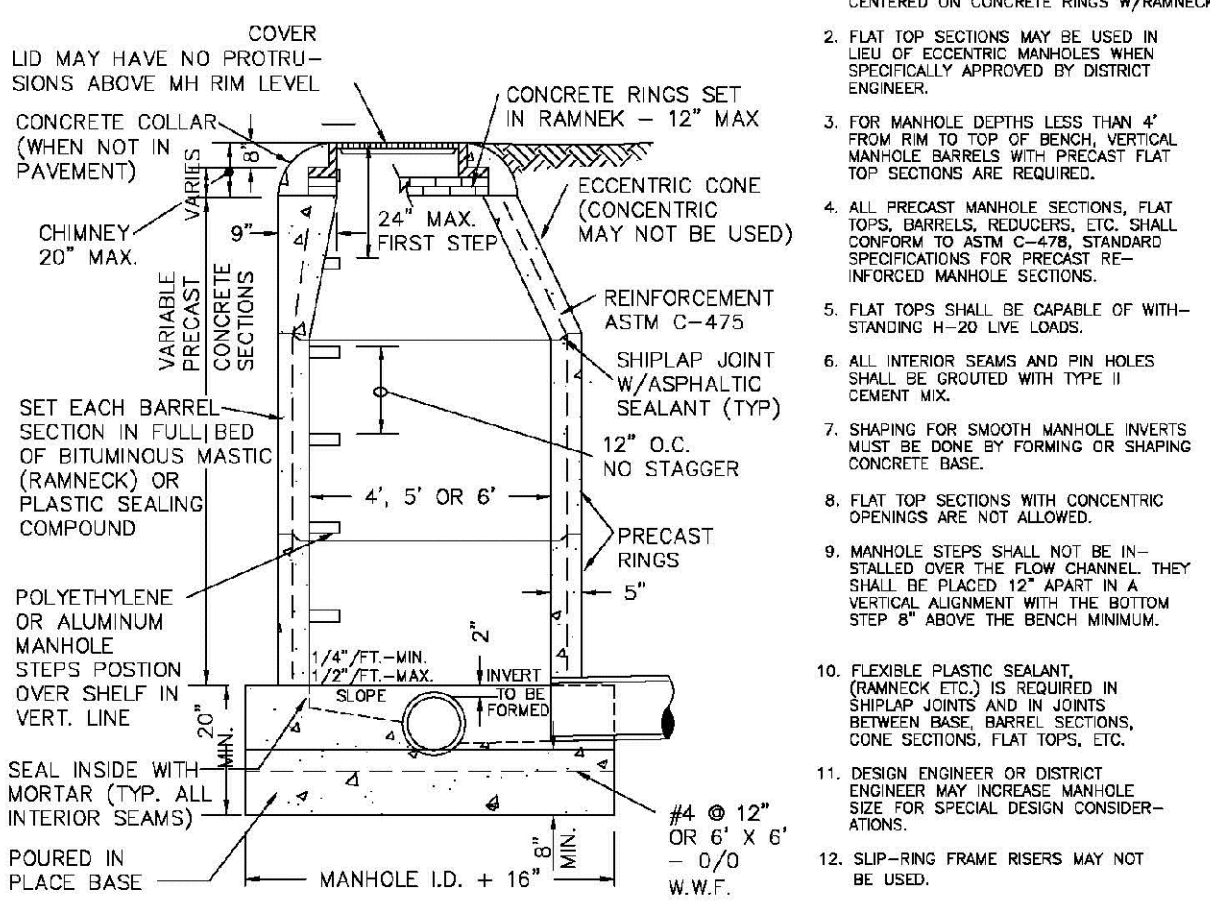
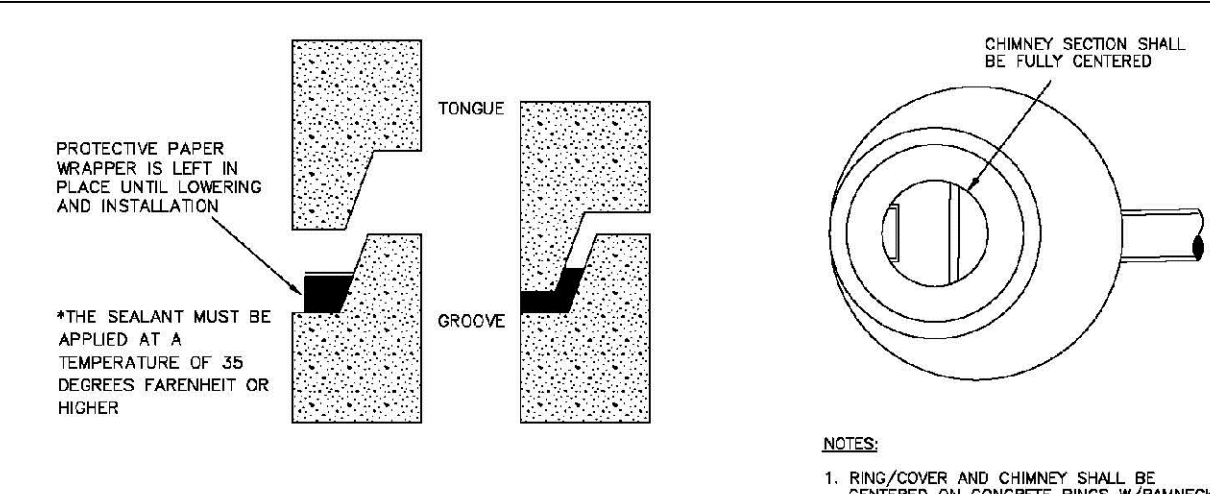
**PARKER WATER & SANITATION DISTRICT**  
TYPICAL SEWER SERVICES

SCALE: NONE DATE: 2/96

APPROVED: PVR 2/90 01/02 01/16 10/16

DIRECTOR OF ENGINEERING

SHEET S1.2



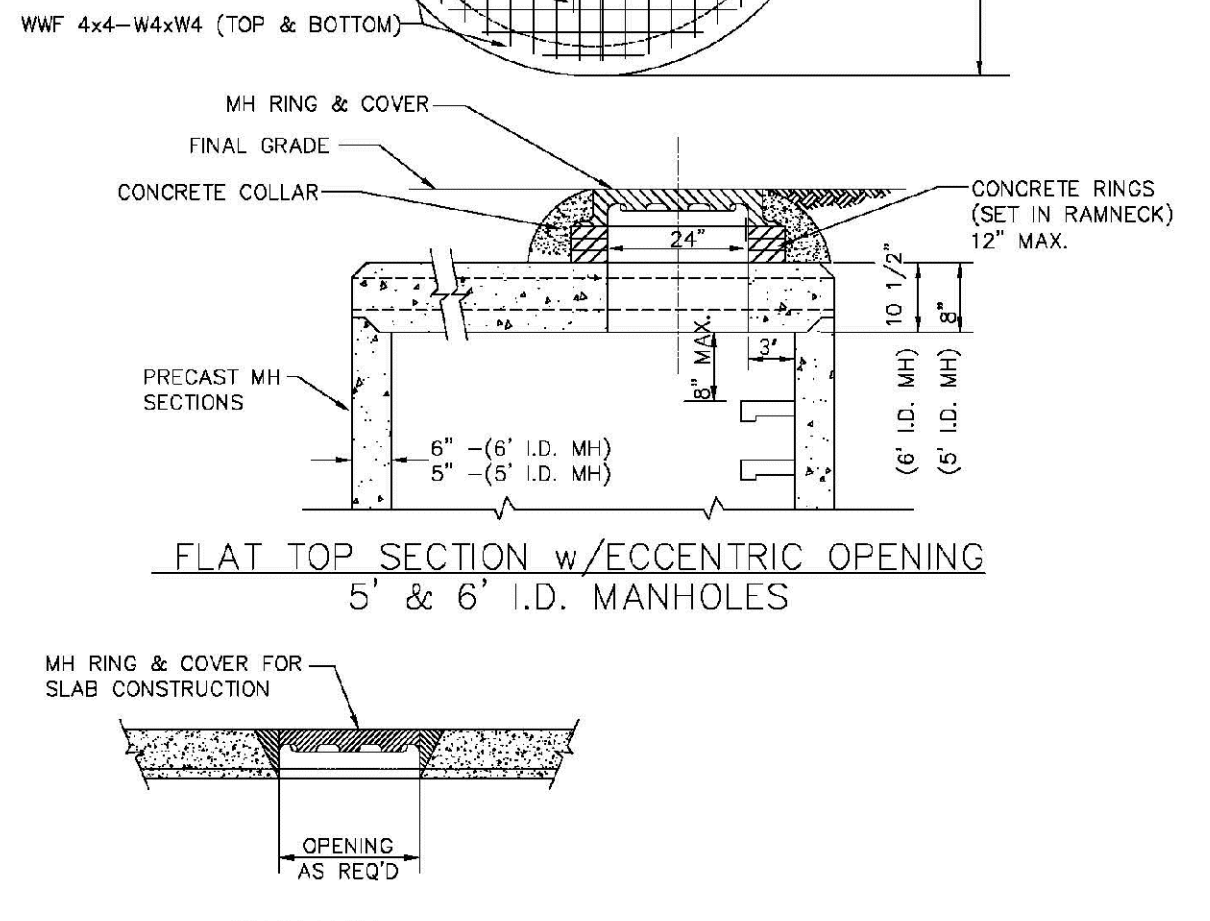
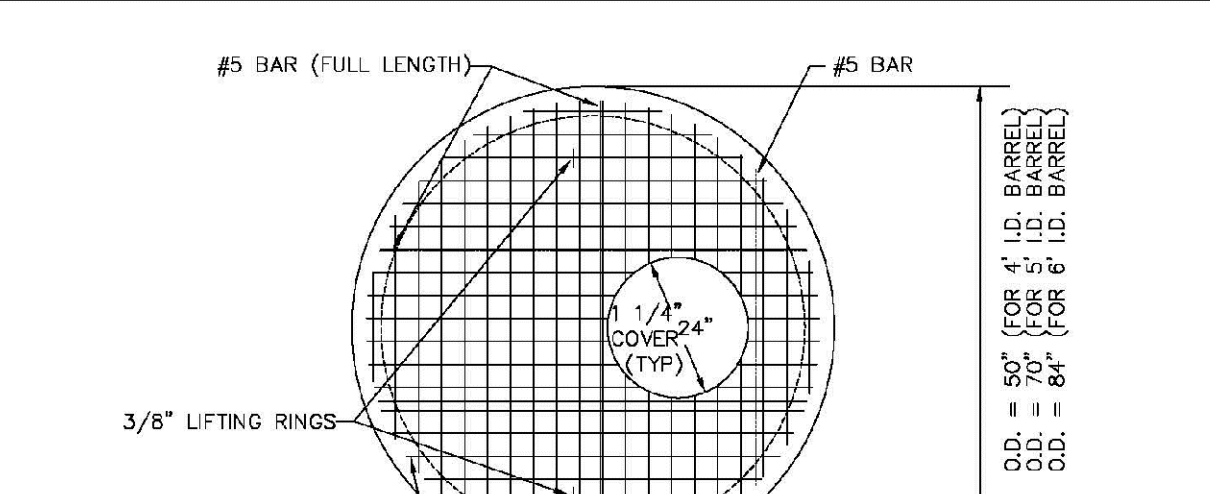
**PARKER WATER & SANITATION DISTRICT**  
PARKER MANHOLE ECCENTRIC CONE

SCALE: NONE DATE: 2/96

APPROVED: PVR 4/01 10/16 01/02 1/08 1/16

DIRECTOR OF ENGINEERING

SHEET S3.1



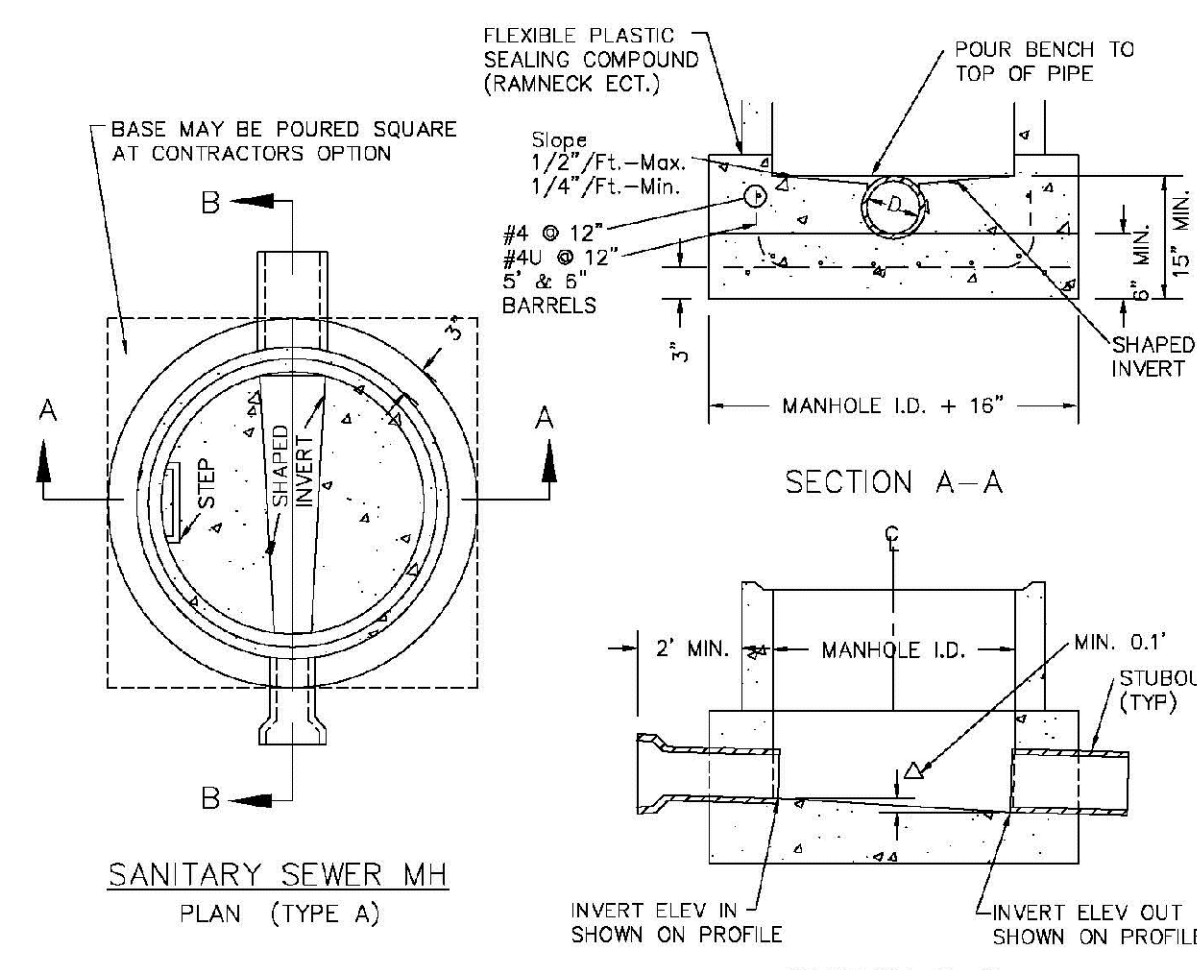
**PARKER WATER & SANITATION DISTRICT**  
PRECAST MANHOLE - 5' & 6' I.D. WITH ECCENTRIC CONE

SCALE: NONE DATE: 2/96

APPROVED: PVR 01/02 10/16 01/16 10/16

DIRECTOR OF ENGINEERING

SHEET S3.3



- 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.

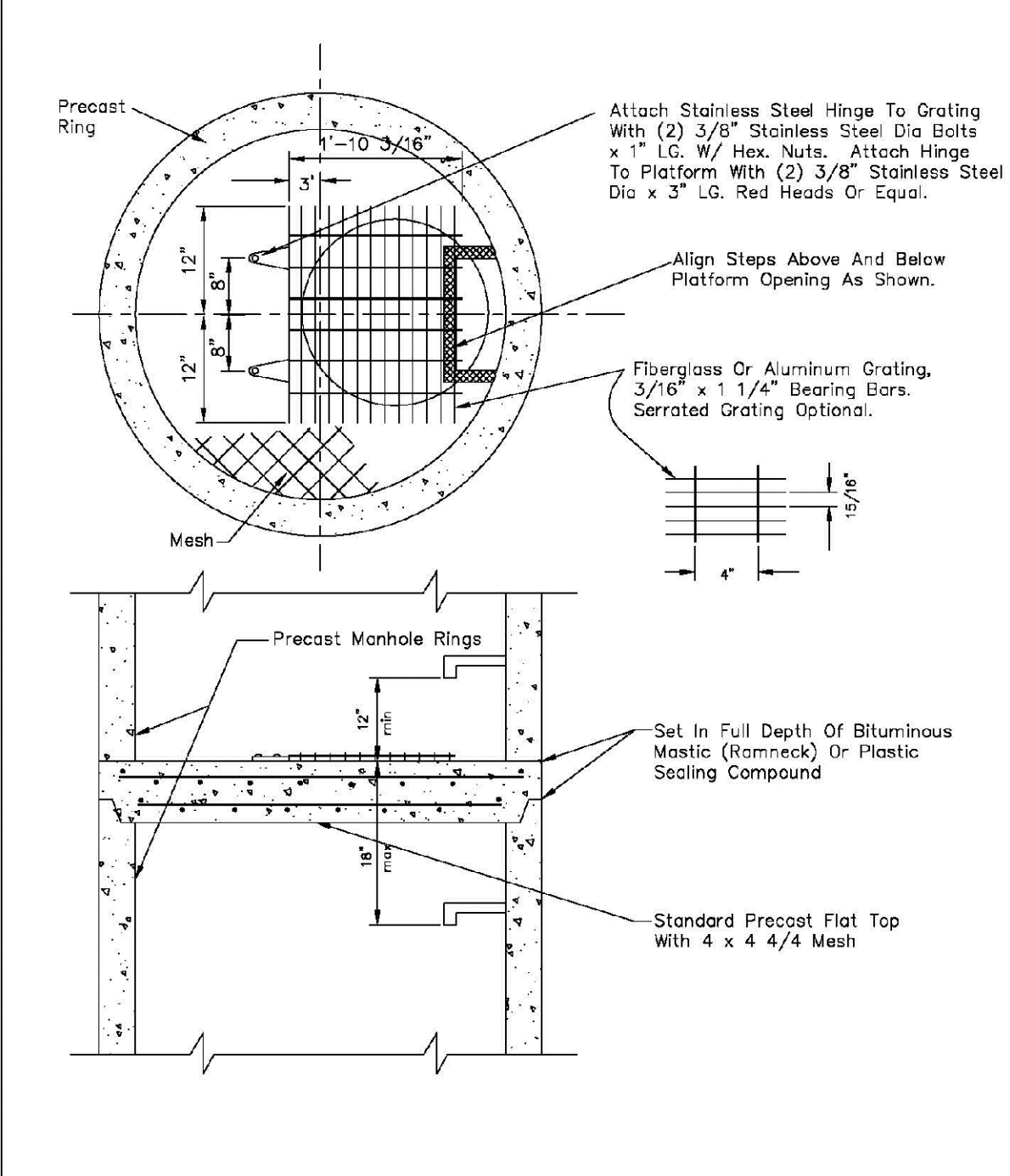
**PARKER WATER & SANITATION DISTRICT**  
CAST-IN-PLACE MANHOLE BASE DETAIL

SCALE: NONE DATE: 2/96

APPROVED: PVR 01/02 01/16 10/16

DIRECTOR OF ENGINEERING

SHEET S3.5



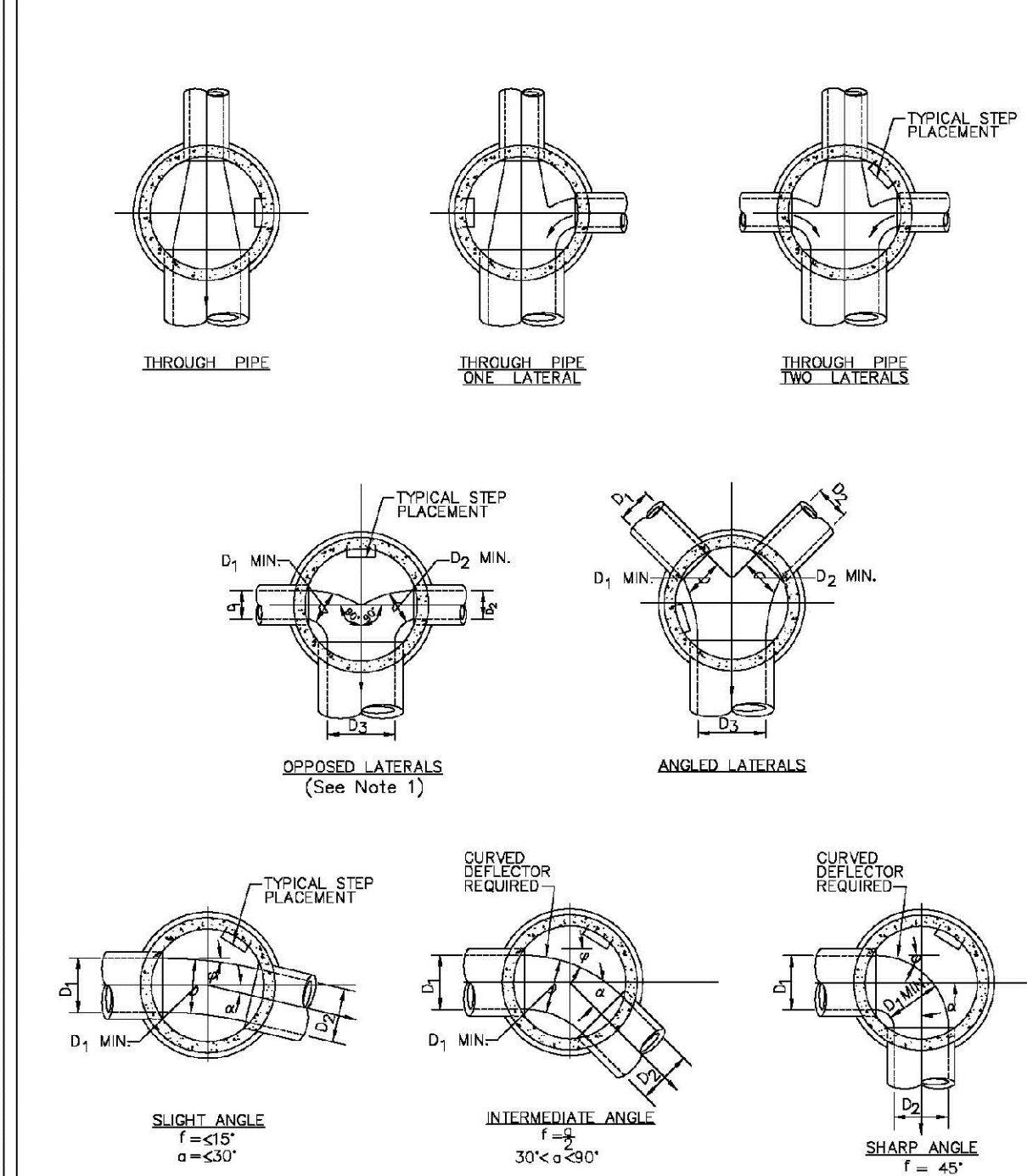
**PARKER WATER & SANITATION DISTRICT**  
INTERMEDIATE PLATFORM FOR MANHOLES OVER 20' DEPTH

SCALE: NONE DATE: 2/96

APPROVED: PVR 2/90 1/16 10/16

DIRECTOR OF ENGINEERING

SHEET S3.6



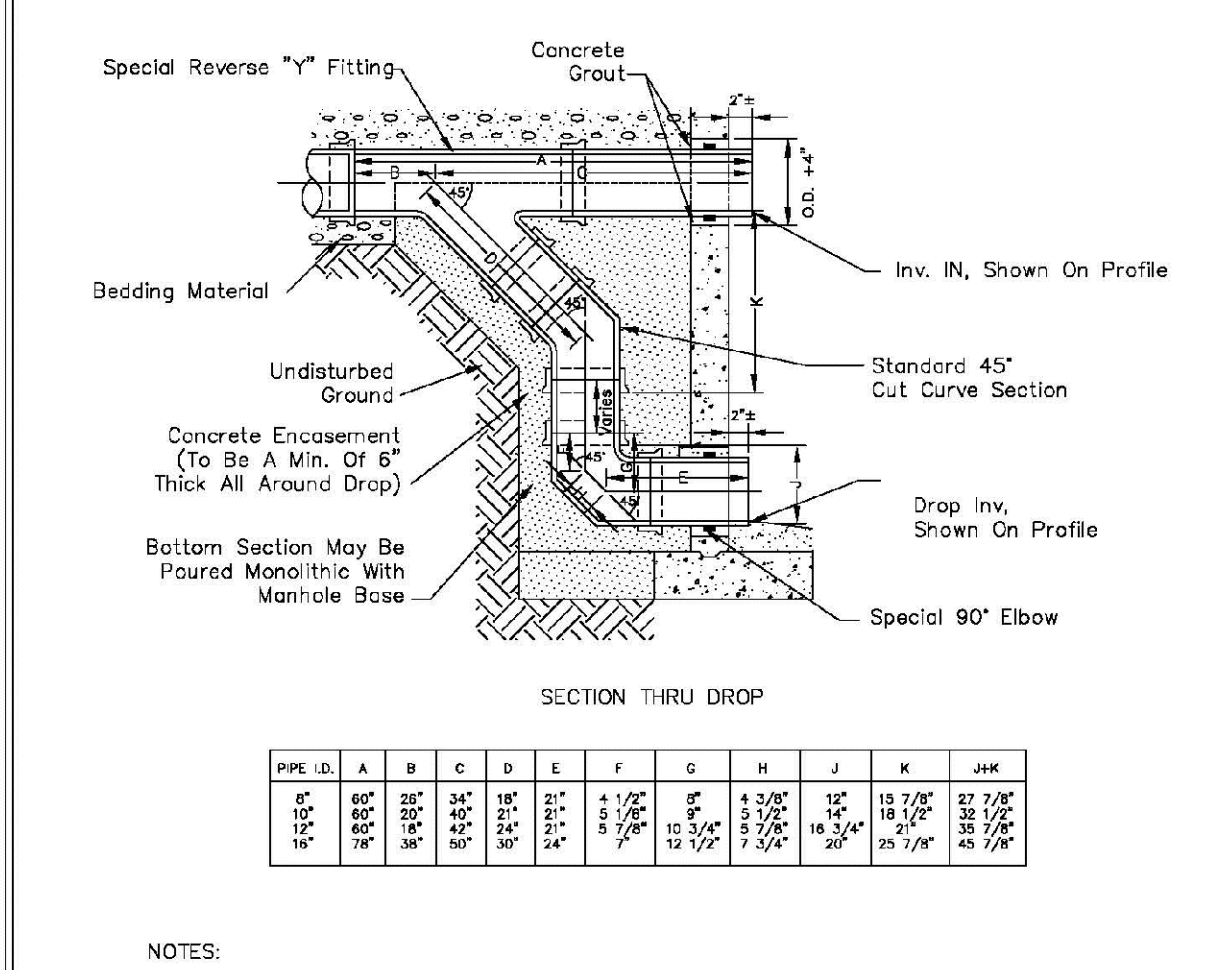
**PARKER WATER & SANITATION DISTRICT**  
TYPICAL BASE CHANNELIZATION DETAILS

SCALE: NONE DATE: 2/96

APPROVED: PVR 01/16 10/16

DIRECTOR OF ENGINEERING

SHEET S3.7



**PIPE SIZES**

PIPE I.D.	A	B	C	D	E	F	G	H	J	K	MIN.
18"	18"	18"	18"	18"	18"	18"	18"	18"	18"	18"	18"
21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"	21"
54"	54"	54"	54"	54"	54"	54"	54"	54"	54"	54"	54"
60"	60"	60"	60"	60"	60"	60"	60"	60"	60"	60"	60"

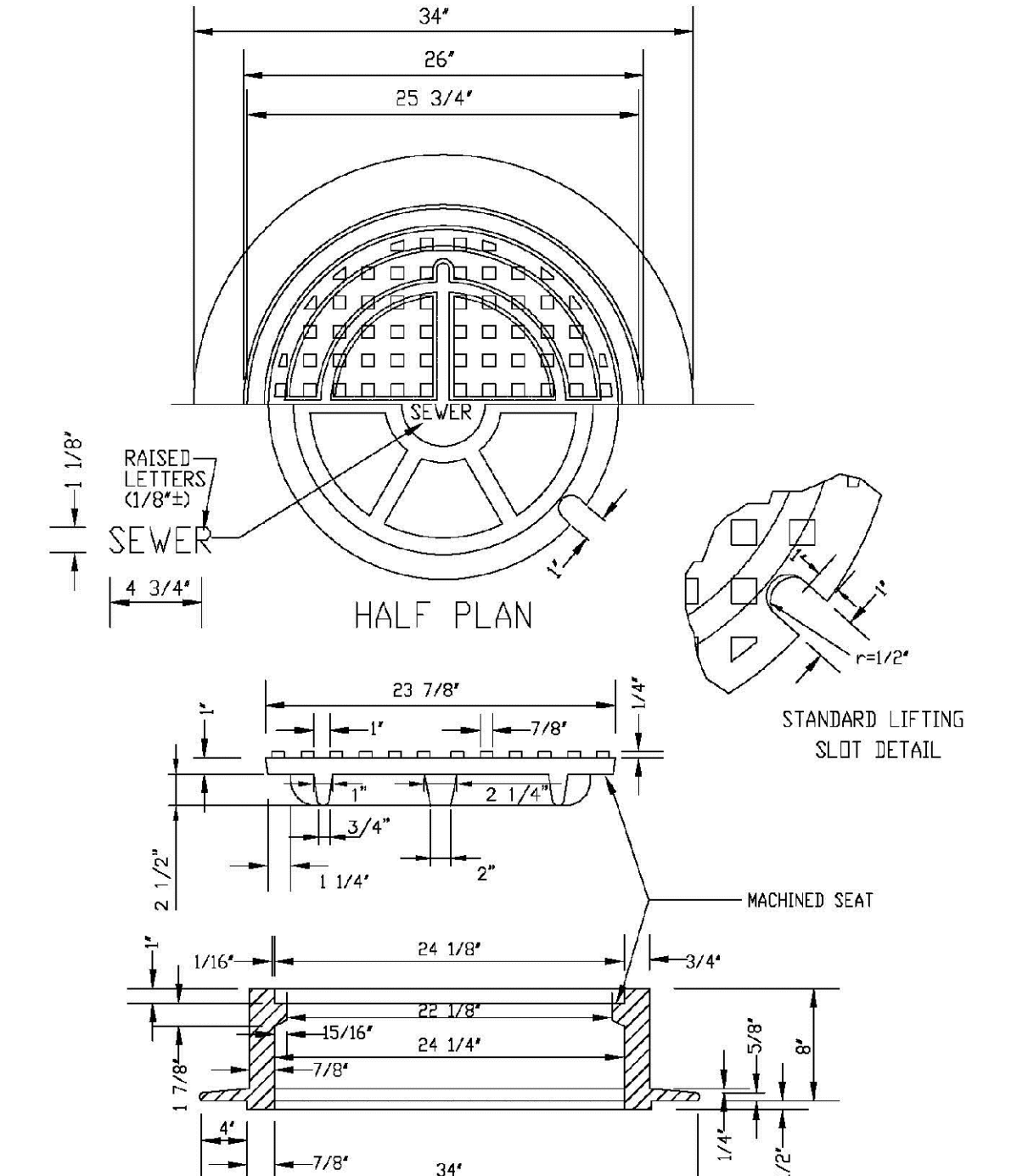
**PARKER WATER & SANITATION DISTRICT**  
OUTSIDE DROP MANHOLE CONSTRUCTION

SCALE: NONE DATE: 2/96

APPROVED: PVR 01/16 10/16

DIRECTOR OF ENGINEERING

SHEET S3.8



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

SCALE: NONE DATE: 2/96

APPROVED: PVR 01/16 10/16

DIRECTOR OF ENGINEERING

SHEET S3.9

CALL 811  
TWO WORKING DAYS  
BEFORE YOU DIG  
UNCC 1-800-922-1987  
LITVINYI NOTIFICATION CENTER OF COLORADO

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 14 CONSTRUCTION DRAWINGS  
SANITARY SEWER DETAILS

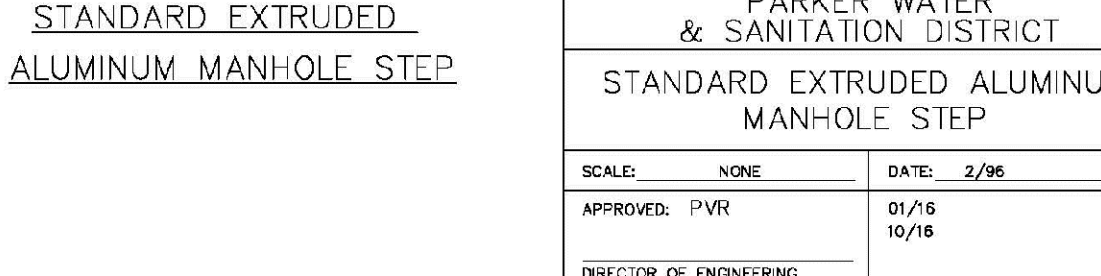
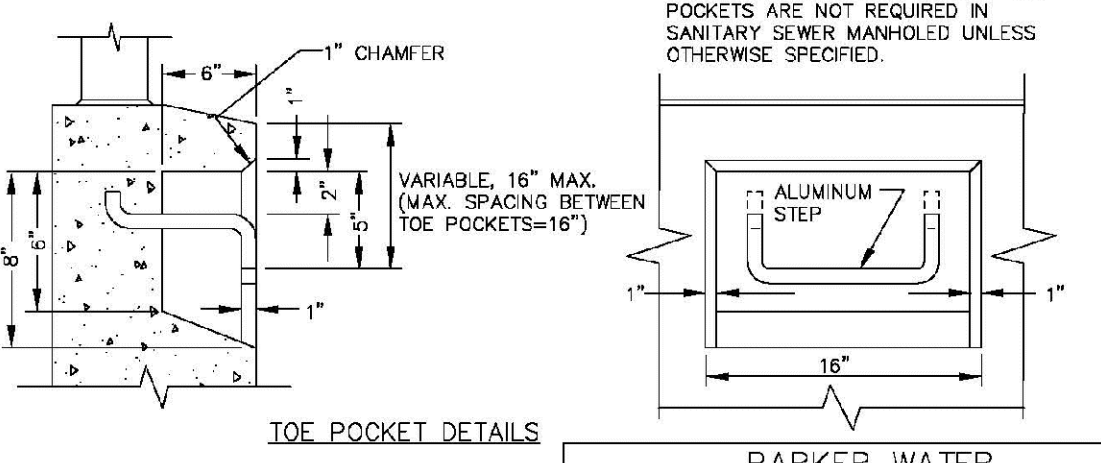
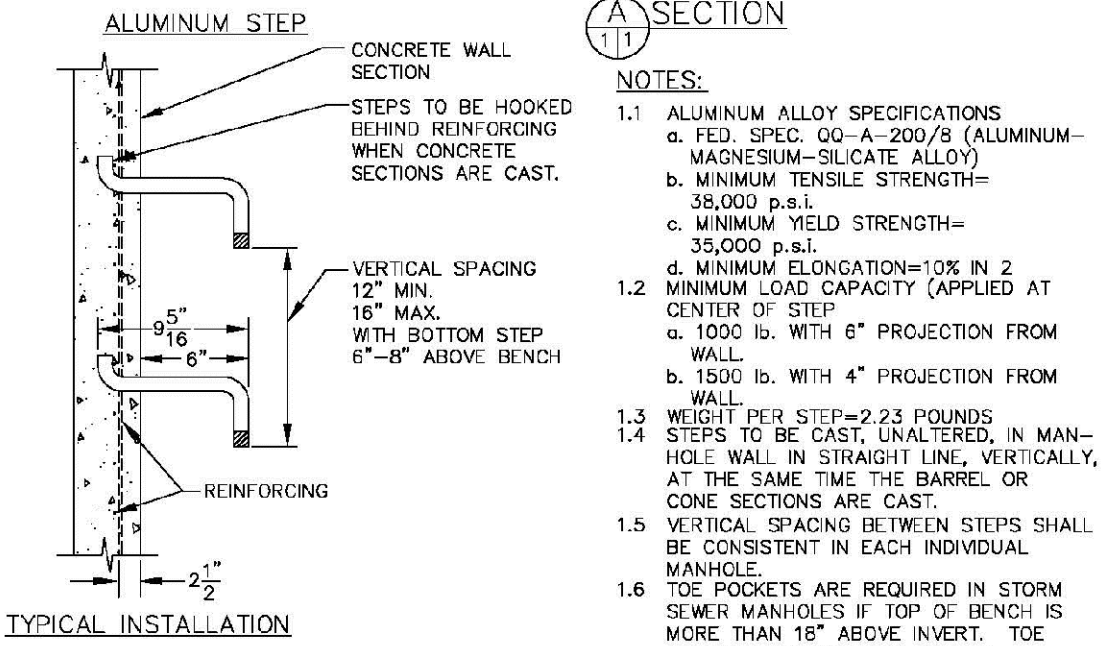
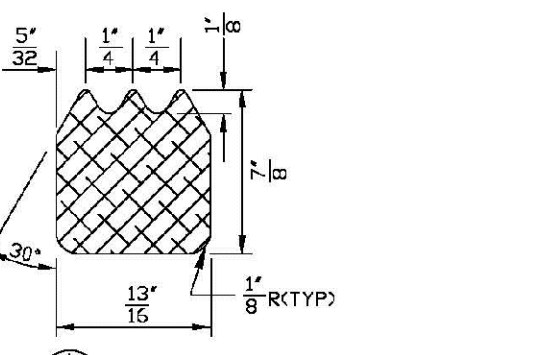
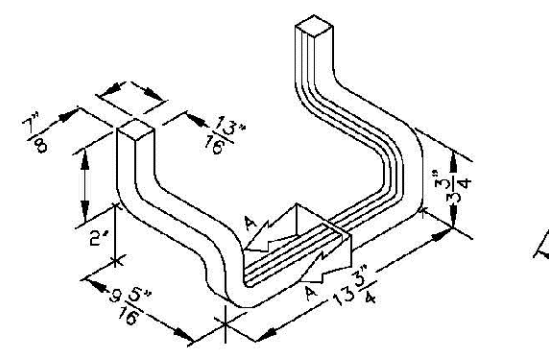
SCALE: AS SHOWN  
FILE NO: 8130283701

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

19

SHEET NUMBER

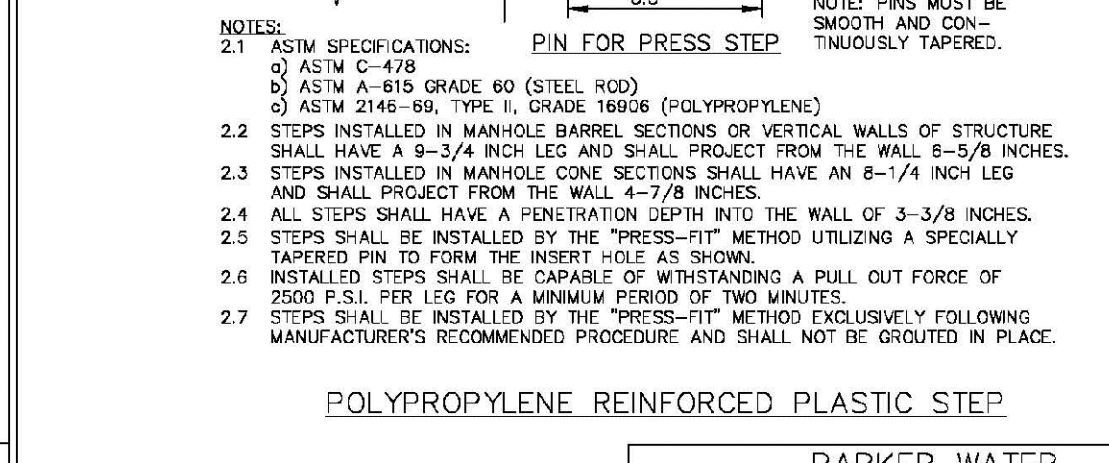
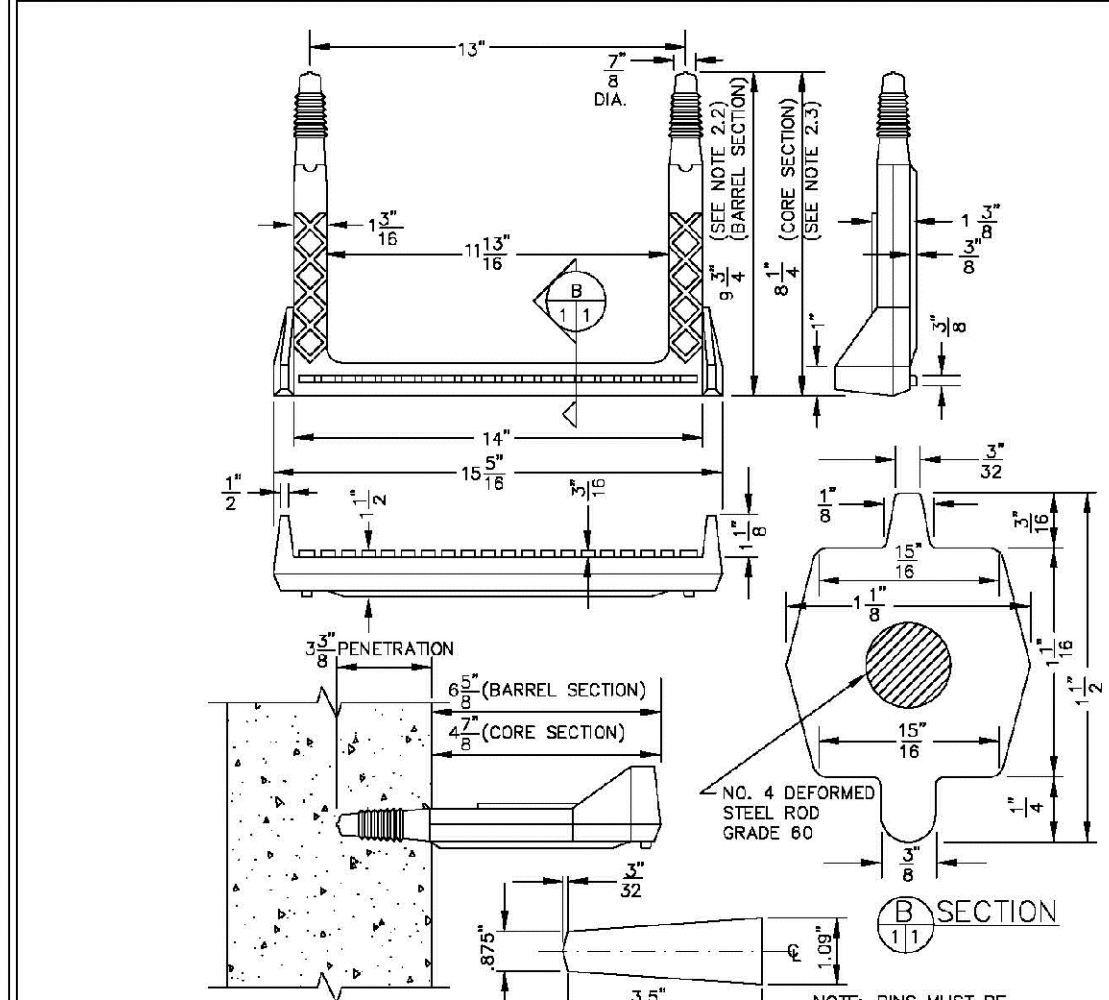
Revisions	No.	Date	Appr.	Date



- NOTES:**
- ALUMINUM ALLOY SPECIFICATIONS:
    - FED. SPEC. QQ-A-200/9 (ALUMINUM-MAGNESIUM-SILICATE ALLOY)
    - MINIMUM TENSILE STRENGTH=38,000 p.s.i.
    - MINIMUM YIELD STRENGTH=35,000 p.s.i.
    - MINIMUM ELONGATION=10% IN 2"
  - MINIMUM LOAD CAPACITY (APPLIED AT CENTER OF STEP)
    - 1,000 lb. WITH 4" PROJECTION FROM WALL
    - 1,500 lb. WITH 4" PROJECTION FROM WALL
  - WEIGHT PER STEP=2.25 POUNDS
  - STEPS TO BE CAST, UNALTERED, IN MANHOLE WALL IN STRAIGHT LINE, VERTICALLY, AT THE SAME TIME THE BARREL OR CONE SECTIONS ARE CAST.
  - VERTICAL SPACING BETWEEN STEPS SHALL BE CONSISTENT IN EACH INDIVIDUAL MANHOLE.
  - TOE POCKETS ARE REQUIRED IN STORM SEWER MANHOLES IF TOP OF BENCH IS MORE THAN 18" ABOVE INVERT. TOE POCKETS ARE NOT REQUIRED IN SANITARY SEWER MANHOLES UNLESS OTHERWISE SPECIFIED.

**PARKER WATER & SANITATION DISTRICT**  
STANDARD EXTRUDED ALUMINUM MANHOLE STEP

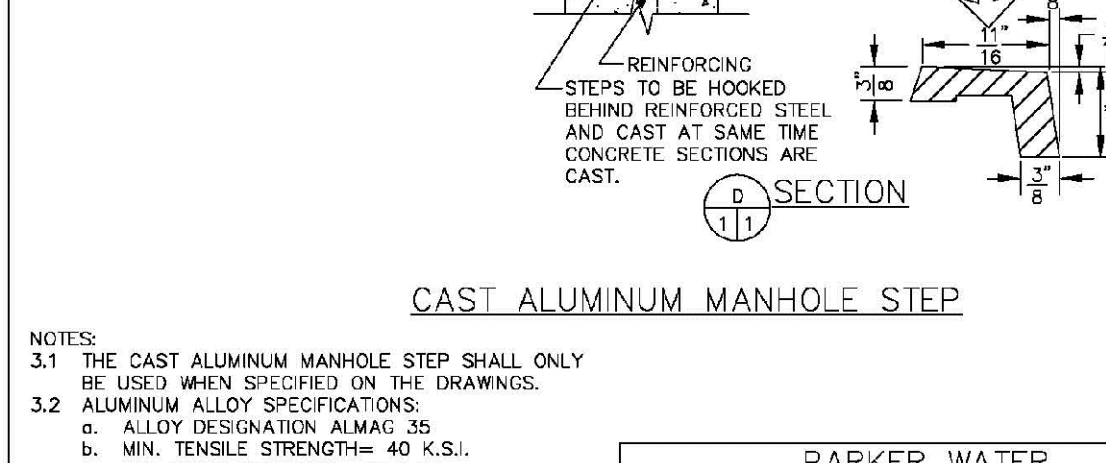
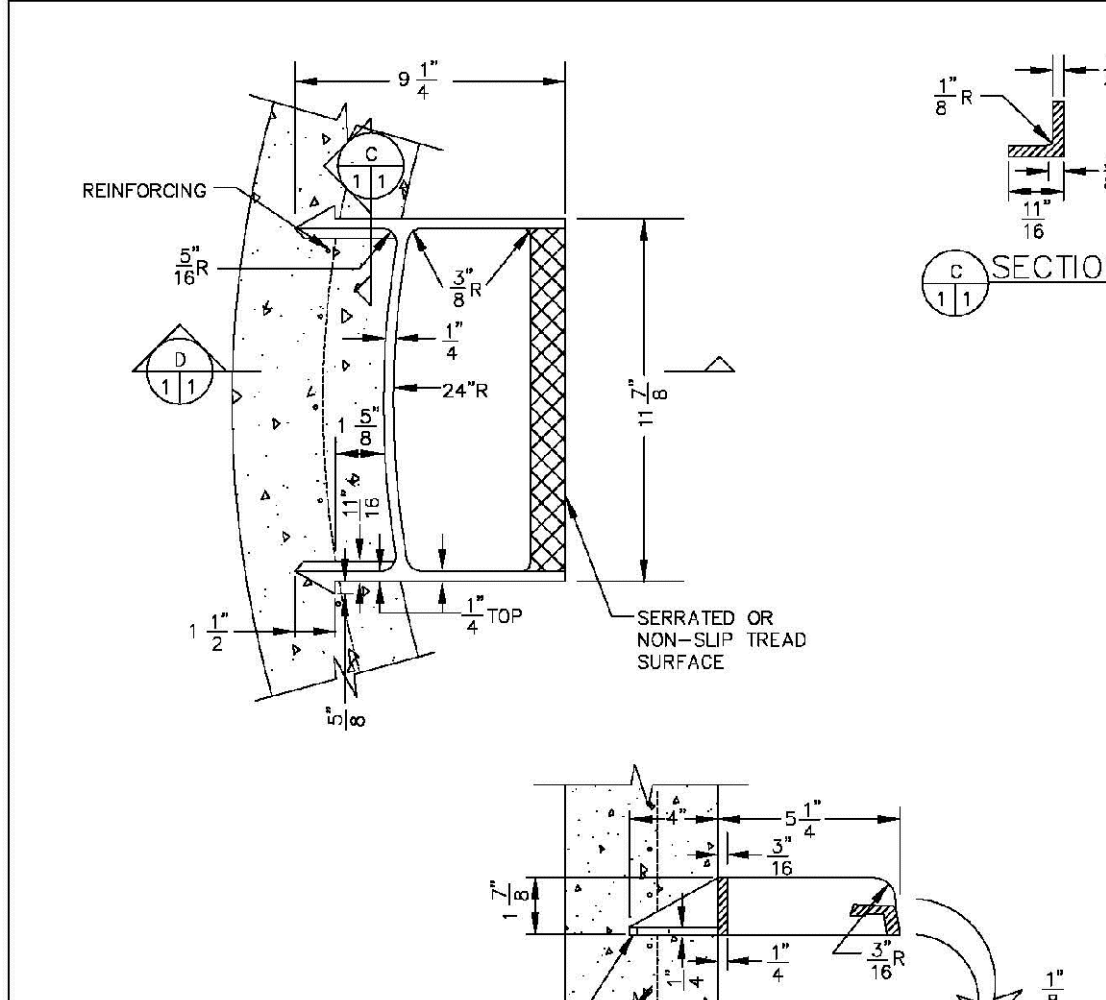
SCALE: NONE DATE: 2/98  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING



- NOTES:**
- ASTM SPECIFICATIONS:
    - ASTM C-478
    - ASTM A-615 GRADE 60 (STEEL ROD)
    - ASTM D146-96, TYPE I, GRADE 1000 (POLYPROPYLENE)
  - STEPS INSTALLED IN MANHOLE BARREL SECTIONS OR VERTICAL WALLS OF STRUCTURE SHALL HAVE A 9-3/4" INCH LEG AND SHALL PROJECT FROM THE WALL 5-5/8" INCHES.
  - STEPS INSTALLED IN MANHOLE CONE SECTIONS SHALL HAVE AN 8-1/4" INCH LEG AND SHALL PROJECT FROM THE WALL 4-7/8" INCHES.
  - ALL STEPS SHALL HAVE A PENETRATION DEPTH INTO THE WALL OF 3-3/8" INCHES.
  - STEPS SHALL BE INSTALLED BY THE "PRESS-FIT" METHOD UTILIZING A SPECIALLY TAPERED PIN TO FORM THE INSERT HOLE AS SHOWN.
  - INSTALLED STEPS SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 2500 P.S.I. PER LEG FOR A MINIMUM PERIOD OF TWO MINUTES.
  - STEPS SHALL BE INSTALLED BY THE "PRESS-FIT" METHOD EXCLUSIVELY FOLLOWING MANUFACTURER'S RECOMMENDED PROCEDURE AND SHALL NOT BE GRouted IN PLACE.

**PARKER WATER & SANITATION DISTRICT**  
POLYPROPYLENE REINFORCED PLASTIC MANHOLE STEP

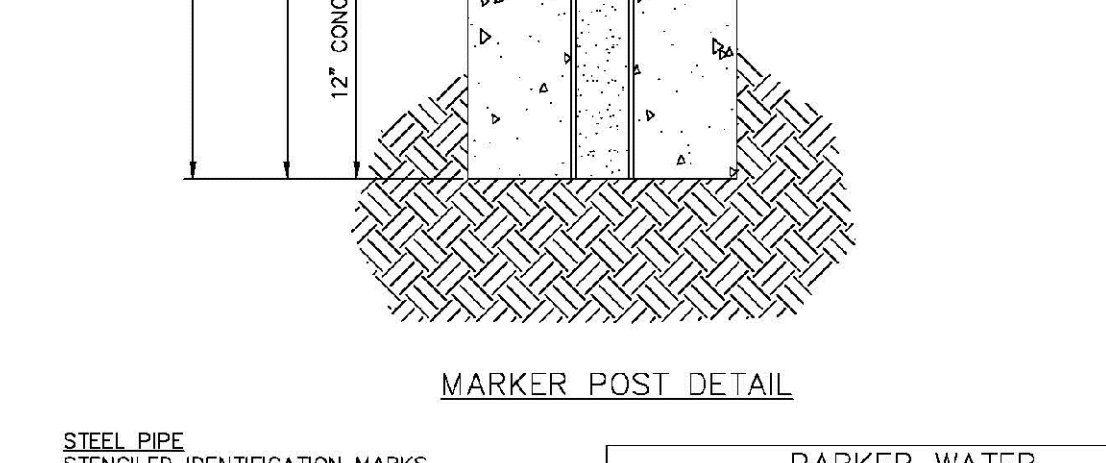
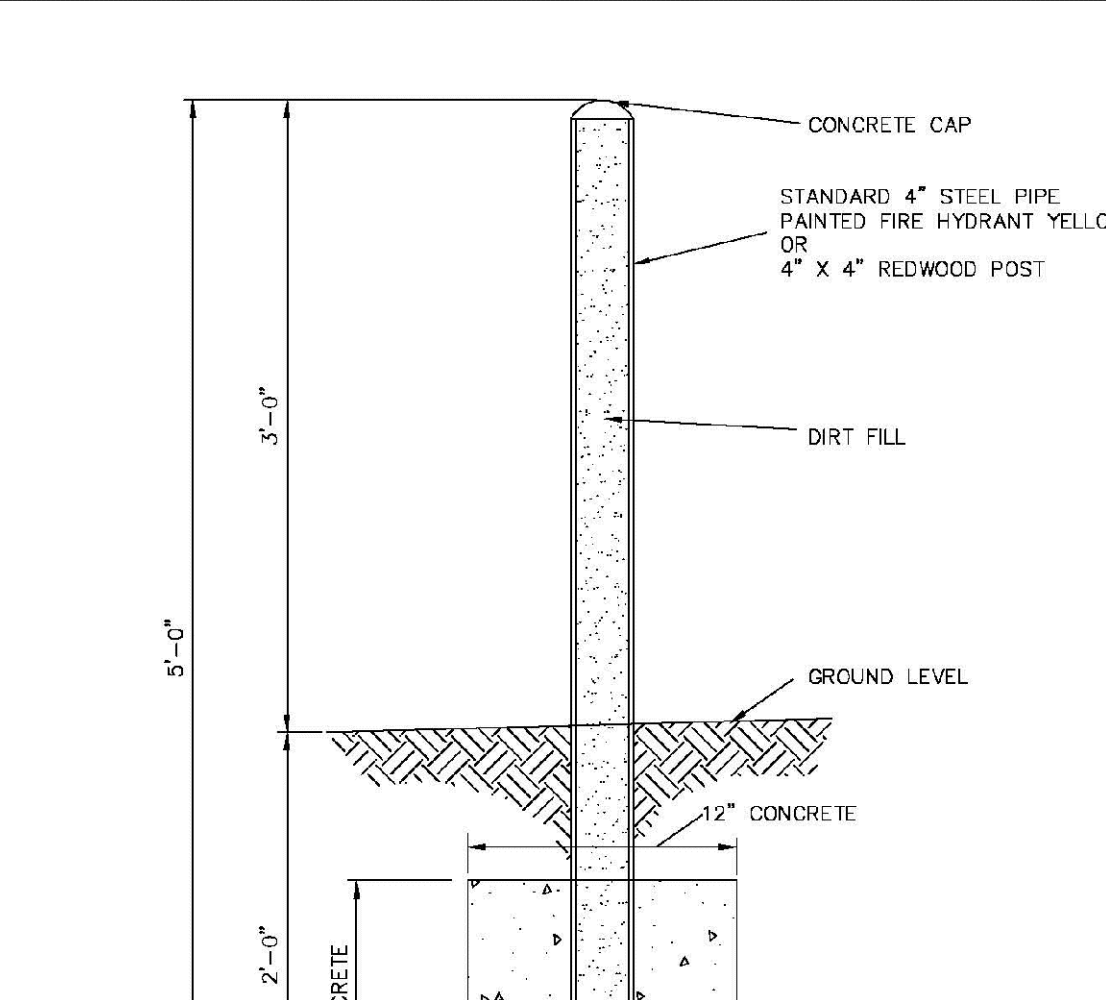
SCALE: NONE DATE: 2/03  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING



- NOTES:**
- THE CAST ALUMINUM MANHOLE STEP SHALL ONLY BE USED WHEN SPECIFIED ON THE DRAWINGS.
  - ALUMINUM ALLOY SPECIFICATIONS:
    - ALLOY DESIGNATION: A13M, 35
    - MIN. TENSILE STRENGTH: 40 K.S.I.
    - MIN. YIELD STRENGTH: 20 K.S.I.
    - MIN. SHEAR STRENGTH: 27.45 K.S.I.
    - ELONGATION: 10% IN 2"
    - BRINELL HARDNESS: 70
  - MINIMUM LOAD CAPACITY, STEP SPACING AND ALIGNMENT. TOE POCKET DETAILS AND OTHER APPLICABLE NOTES OR DETAILS SPECIFIED FOR EXTRUDED ALUMINUM MANHOLE STEP SHALL ALSO APPLY TO THIS STANDARD.
  - MIN. WT. = 2.0 LB.

**PARKER WATER & SANITATION DISTRICT**  
CAST ALUMINUM MANHOLE STEP

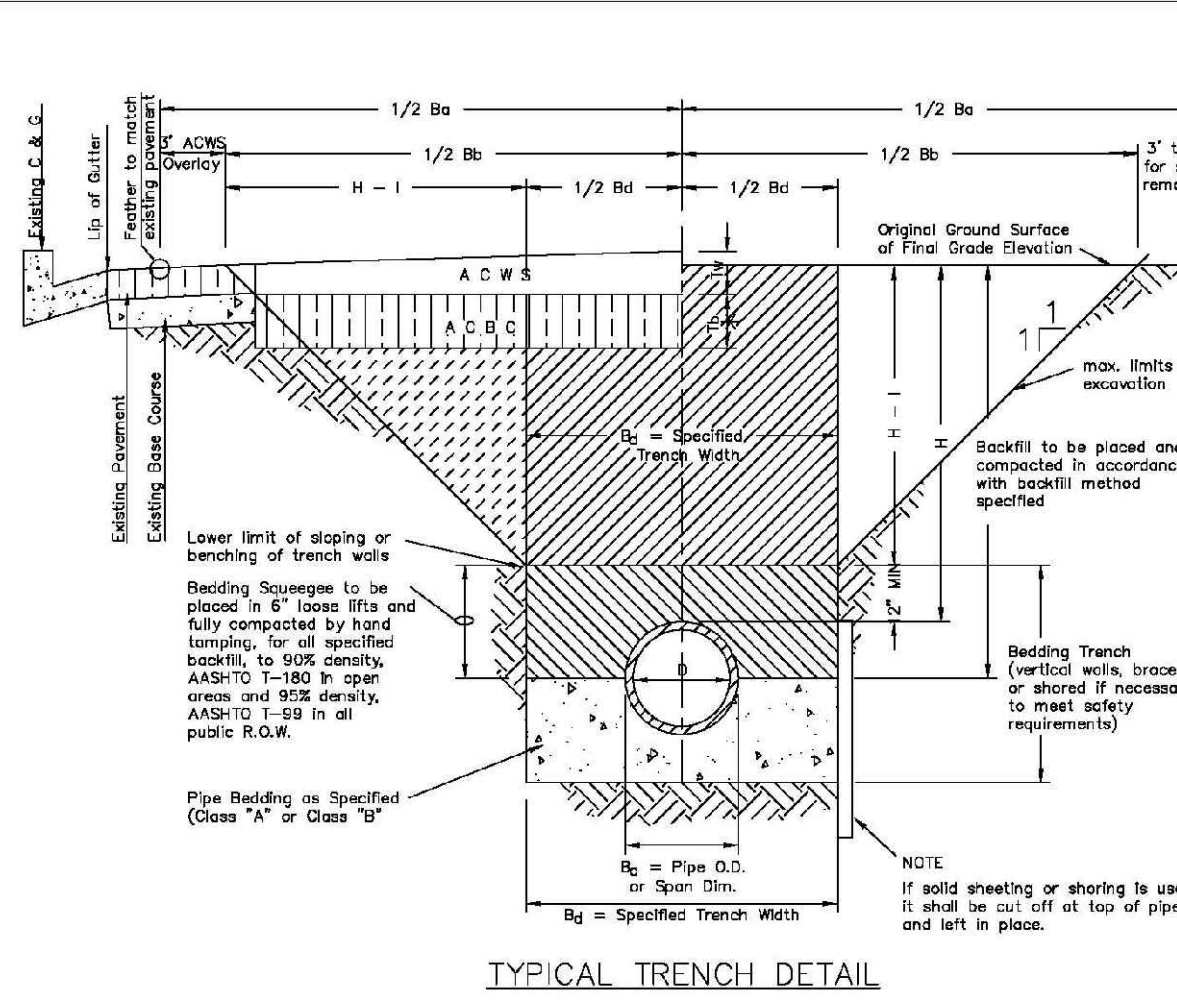
SCALE: NONE DATE: 2/98  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING



- NOTES:**
- Slating or benching of trench side walls, where permitted shall be in accordance with applicable Federal, State and Local safety regulations.
  - Trench shall be propped and shored as necessary to assure safe working conditions or to protect adjacent utilities, structures, etc. Unless otherwise specified on the plans, no permanent wall be made for removal, replacement or relocation of curb and gutter, utilities, structures, etc. outside the maximum limits of excavation as shown on the contractor shall be responsible for protection of same.
  - If dimension  $T_0$  is  $\leq 4'$ , then existing asphalt pavement shall be removed and replaced up to the gutter. Maximum asphalt strip width,  $B_0$  &  $B_1$  shall then be based on this actual width.

**PARKER WATER & SANITATION DISTRICT**  
MARKER POST DETAIL

SCALE: NONE DATE: 2/98  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING



- NOTES:**
- Slating or benching of trench side walls, where permitted shall be in accordance with applicable Federal, State and Local safety regulations.
  - Trench shall be propped and shored as necessary to assure safe working conditions or to protect adjacent utilities, structures, etc. Unless otherwise specified on the plans, no permanent wall be made for removal, replacement or relocation of curb and gutter, utilities, structures, etc. outside the maximum limits of excavation as shown on the contractor shall be responsible for protection of same.
  - If dimension  $T_0$  is  $\leq 4'$ , then existing asphalt pavement shall be removed and replaced up to the gutter. Maximum asphalt strip width,  $B_0$  &  $B_1$  shall then be based on this actual width.

**PARKER WATER & SANITATION DISTRICT**  
SEWER TRENCHING AND BEDDING DETAIL

SCALE: NONE DATE: 2/98  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING

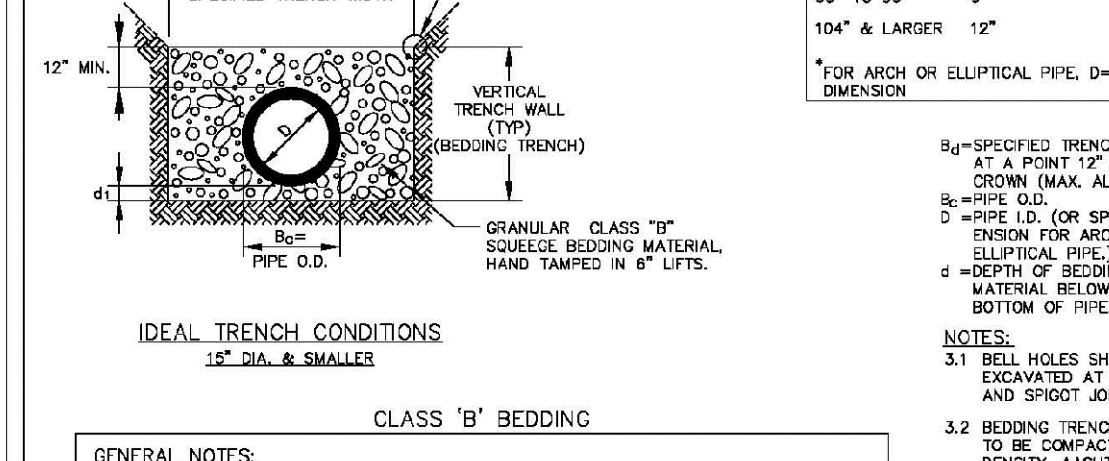
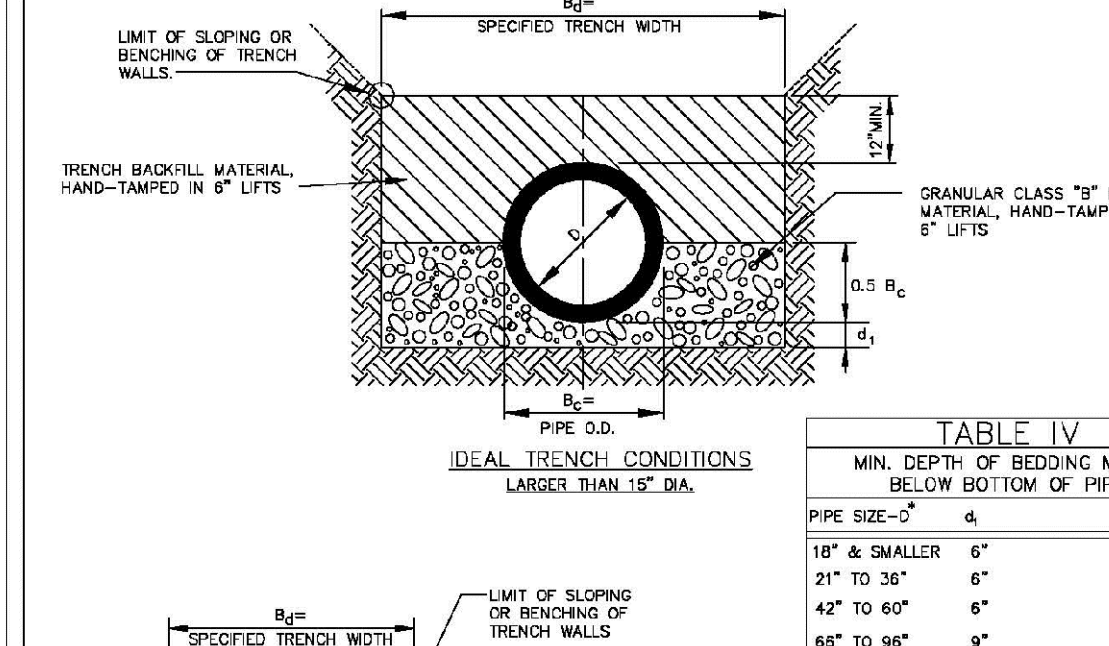
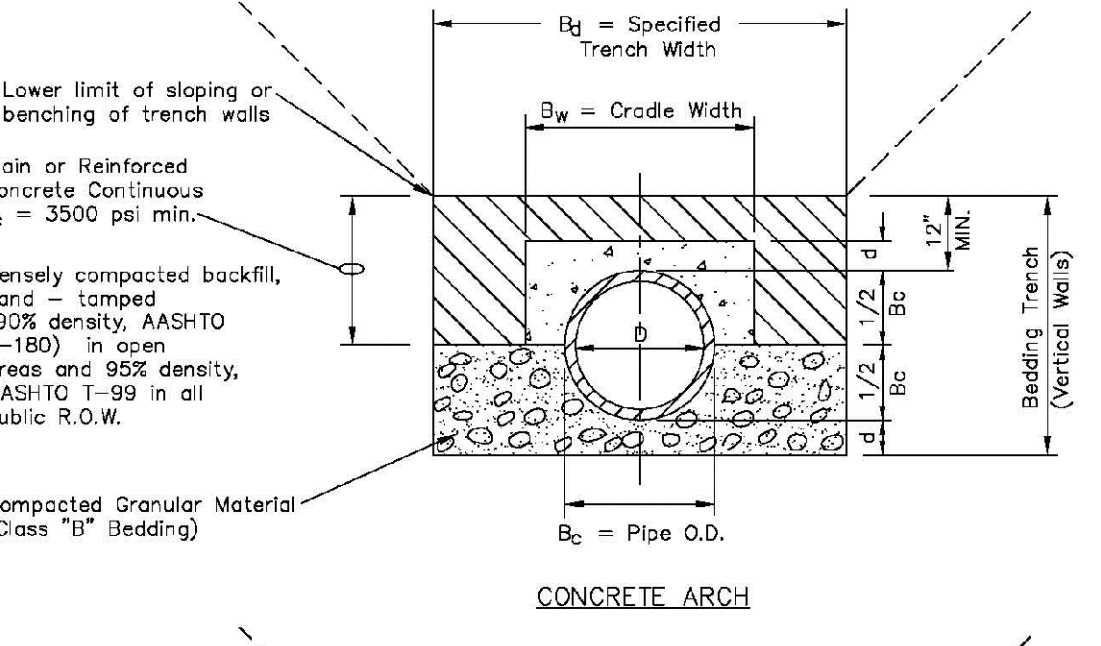
2016 REVISION SHEET 53-10

2016 REVISION SHEET 53-11

2016 REVISION SHEET 53-12

2016 REVISION SHEET 53-13

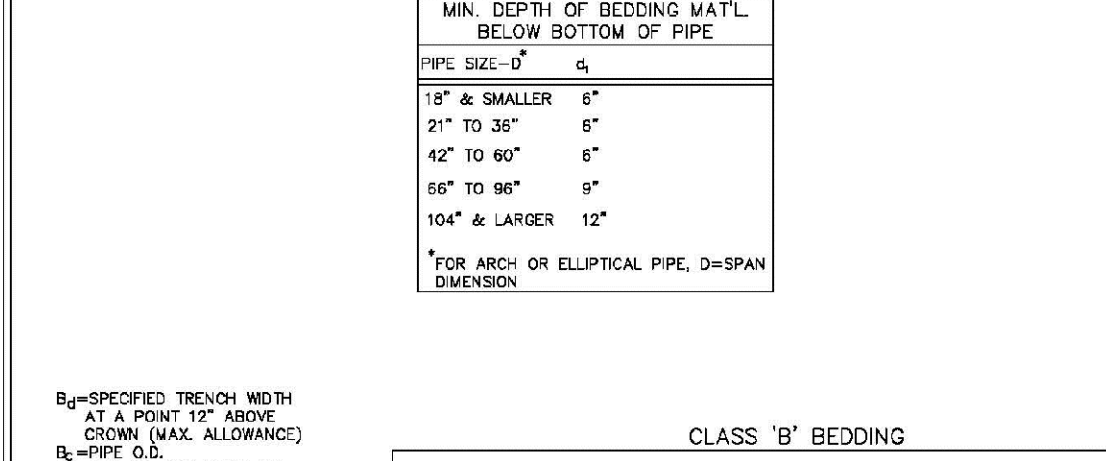
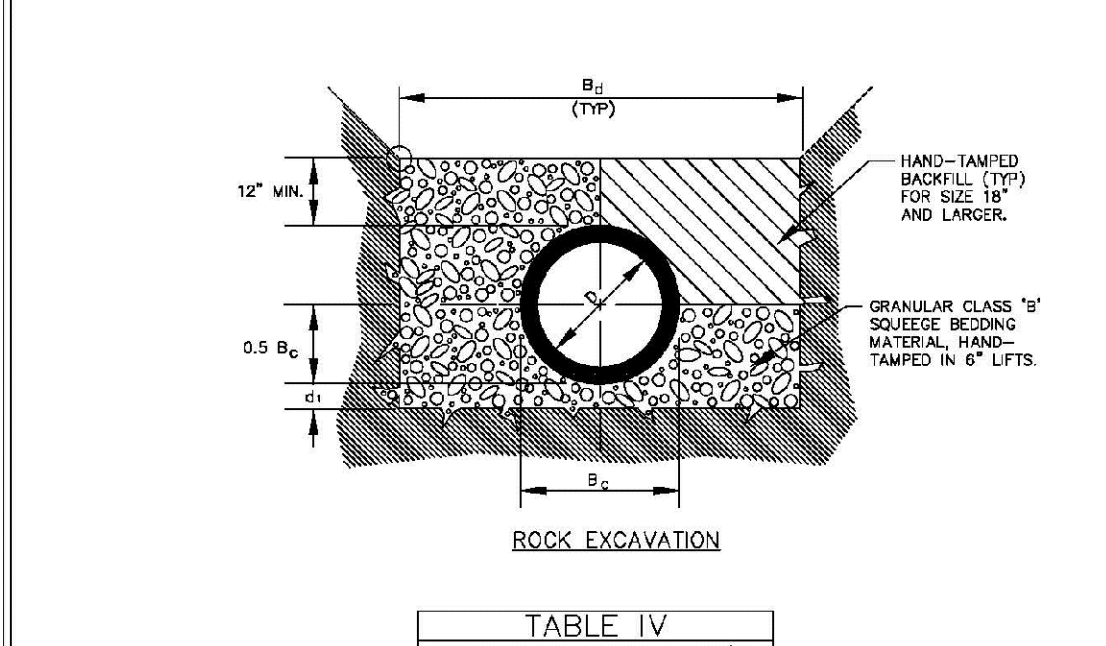
2016 REVISION SHEET 54-1



- GENERAL NOTES:**
- THESE DETAILS ARE TYPICAL FOR NORMAL TRENCH CONDITIONS. FOR INSTALLATIONS OTHER THAN THESE (SUCH AS DRAINAGE OR TUNNEL INSTALLATIONS, ETC.) EXCAVATION, BEDDING AND BACKFILL REQUIREMENTS SHALL BE DETAIL ON THE CONSTRUCTION DRAWINGS. FOR UNUSUAL OR UNSTABLE SOIL CONDITIONS, TRENCH AND BEDDING DETAILS SHALL BE A SPECIAL DESIGN.

**PARKER WATER & SANITATION DISTRICT**  
TRENCHING AND BEDDING DETAIL - CLASS "A"

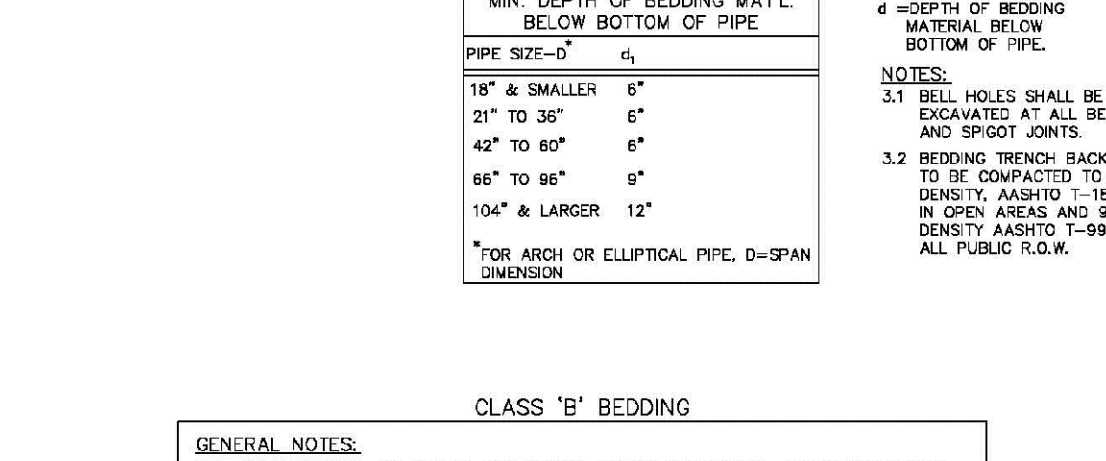
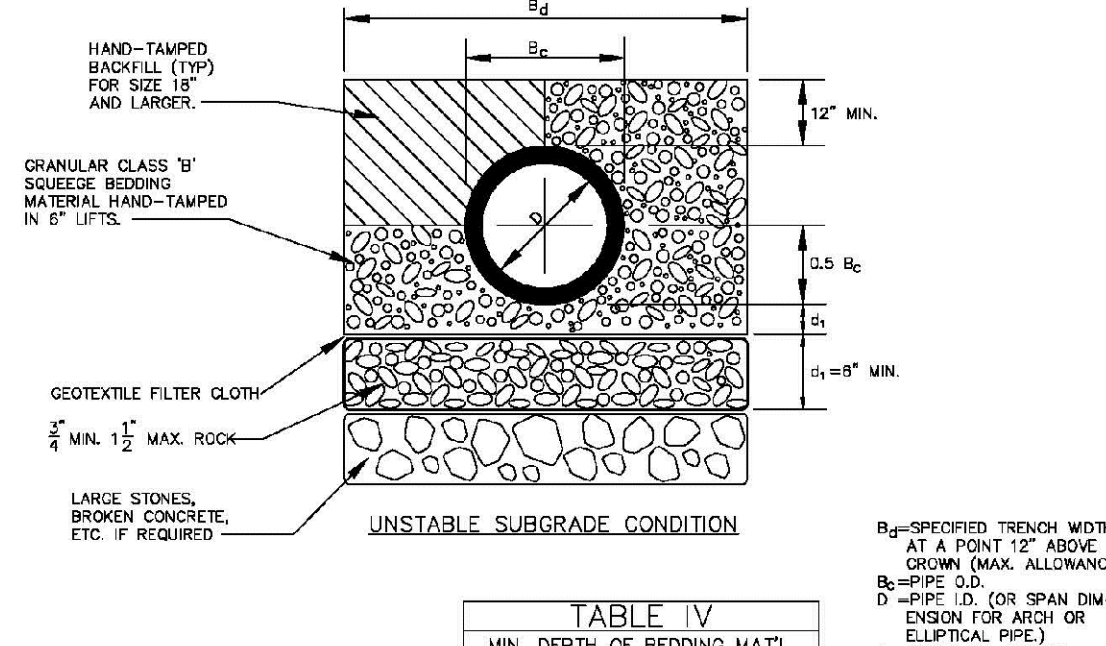
SCALE: NONE DATE: 2/98  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING



- GENERAL NOTES:**
- THESE DETAILS ARE TYPICAL FOR NORMAL TRENCH CONDITIONS. FOR INSTALLATIONS OTHER THAN THESE (SUCH AS DRAINAGE OR TUNNEL INSTALLATIONS, ETC.) EXCAVATION, BEDDING AND BACKFILL REQUIREMENTS SHALL BE DETAIL ON THE CONSTRUCTION DRAWINGS. FOR UNUSUAL OR UNSTABLE SOIL CONDITIONS, TRENCH AND BEDDING DETAILS SHALL BE A SPECIAL DESIGN.

**PARKER WATER & SANITATION DISTRICT**  
TRENCHING AND BEDDING CLASS "B"

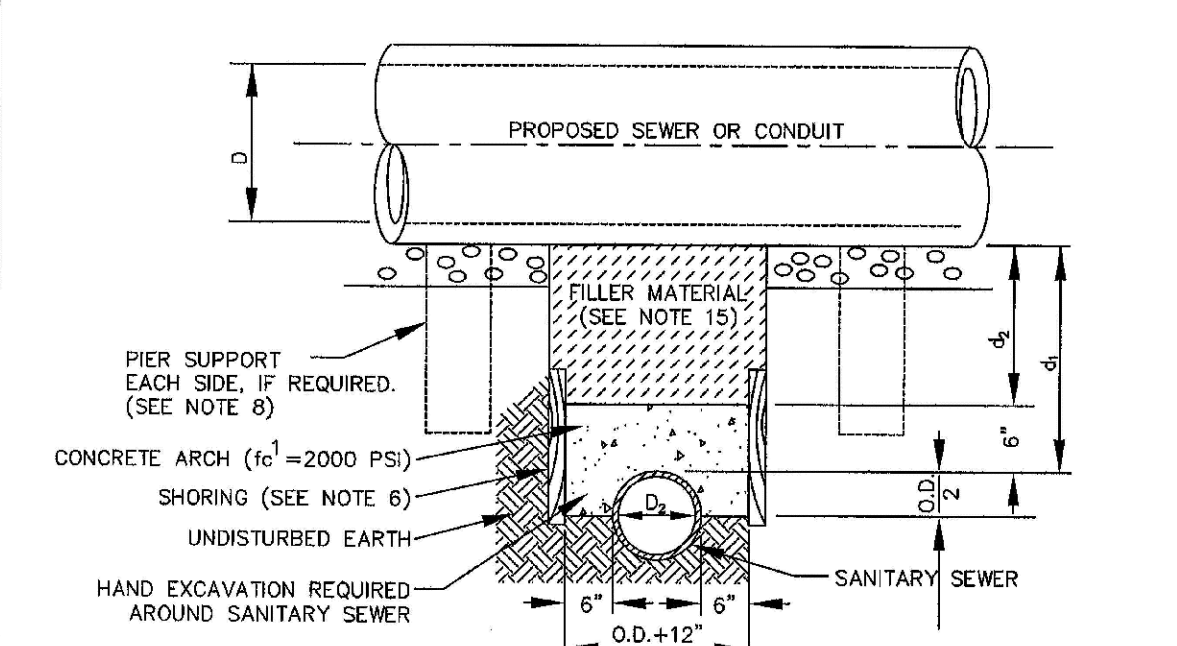
SCALE: NONE DATE: 2/98  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING



- GENERAL NOTES:**
- THESE DETAILS ARE TYPICAL FOR NORMAL TRENCH CONDITIONS. FOR INSTALLATIONS OTHER THAN THESE (SUCH AS DRAINAGE OR TUNNEL INSTALLATIONS, ETC.) EXCAVATION, BEDDING AND BACKFILL REQUIREMENTS SHALL BE DETAIL ON THE CONSTRUCTION DRAWINGS. FOR UNUSUAL OR UNSTABLE SOIL CONDITIONS, TRENCH AND BEDDING DETAILS SHALL BE A SPECIAL DESIGN.

**PARKER WATER & SANITATION DISTRICT**  
TRENCHING AND BEDDING CLASS "B"

SCALE: NONE DATE: 2/98  
APPROVED: PVR 01/16 10/16  
DIRECTOR OF ENGINEERING



- GENERAL NOTES FOR TYPE I, II, III, & IV ENCASEMENT:**
- CONCRETE TO BE CAST AGAINST UNDISTURBED SOIL OR SHORING. IF OPTIMAL 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 OR TYPE II ENCASEMENT SHALL EXTEND FULL TRENCH WIDTH EXCAVATED FOR PROPOSED SEWER OR CONDUIT.
  - TYPE I ENCASEMENT SHALL EXTEND AT LEAST TO FEET EACH SIDE OF WATER MAIN.
  - UNLESS OTHERWISE NOTED ON PLAN/PROFILE DRAWINGS, TYPE I, II, III & IV ENCASEMENTS NEED NOT BE REINFORCED. REINFORCEMENT, IF REQUIRED, SHALL BE SPECIFIED SEPARATELY ON PLAN AND PROFILE DRAWINGS.
  - TYPE I OR II ENCASEMENTS ARE REQUIRED UNDER FOLLOWING CONDITIONS:
    - TYPE I OR II ENCASEMENT SHALL EXTEND AT LEAST TO FEET EACH SIDE OF SANITARY SEWER CROSSING OVER OR UNDER WATER MAINS.
    - WATER MAINS AND  $d_1 \leq 24"$  ( $d_2 \leq 18"$ )
    - TYPE II IS REQUIRED FOR SANITARY SEWERS CROSSING OVER TOP OF WATER MAINS, REGARDLESS OF DIMENSION  $d_1$ .
    - EXCEPT FOR UNUSUAL CIRCUMSTANCES, WATER MAIN CROSSING OR UNDER UNUSUAL SOIL CONDITIONS ARE ENCOURAGED. TYPE I ENCASEMENT WILL NORMALLY BE SATISFACTORY.
    - IF THE SANITARY SEWER IS REPLACED OR CONSTRUCTED OF DUCTILE IRON PIPE (AWD-150 OR C-151), CONCRETE ENCASEMENT MAY NOT BE REQUIRED.
  - FILLER MATERIAL BETWEEN CONDUITS TO BE:
    - APPROVED COMPRESSIBLE MATERIAL SUCH AS STYROFOAM, ETC. IF  $d_1$  &  $d_2 \leq 6"$
    - CONCRETE CLASS "B" BEDDING IF  $d_1$  &  $d_2 > 6"$  (IF  $d_1$  &  $d_2$  FOR TYPE II ENCASEMENT FOUR CONCRETE ON UNDISTURBED SOIL)
  - SHORING OR SHEETING, 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 THESE CONDUIT DIMENSIONS  $T_0$  IS EXTREMELY LARGE, PIER SUPPORTS ON EACH SIDE OF SANITARY SEWER MAY BE REQUIRED. IF REQUIRED, SUPPORTS SHALL BE SPECIFIED AND DETAIL SEPARATELY ON PLAN AND PROFILE DRAWINGS.

**PARKER WATER & SANITATION DISTRICT**  
CONCRETE ENCASEMENT TYPE I

SCALE: NONE DATE: 2/98  
APPROVED: JFN 01/16 10/16  
DISTRICT ENGINEER

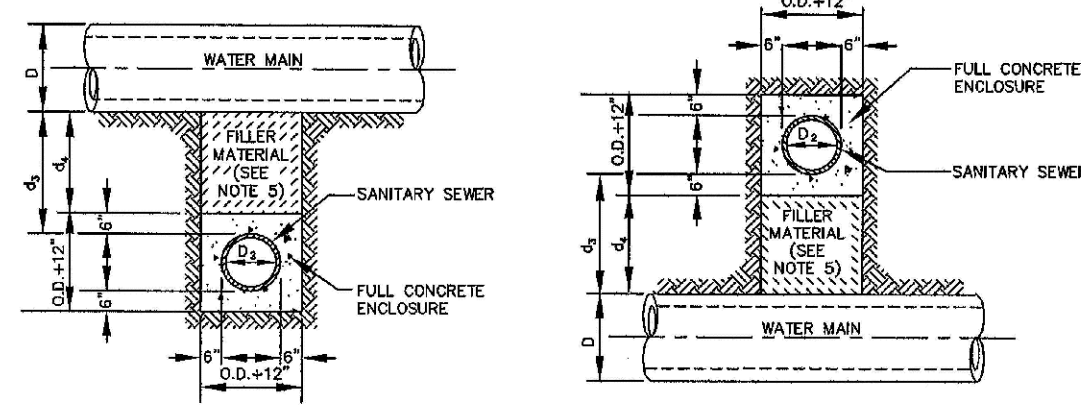
2016 REVISION SHEET 54-2

2016 REVISION SHEET 54-3

2016 REVISION SHEET 54-4

2016 REVISION SHEET 54-5

2008 REVISION SHEET 6



**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  $d_1$ .

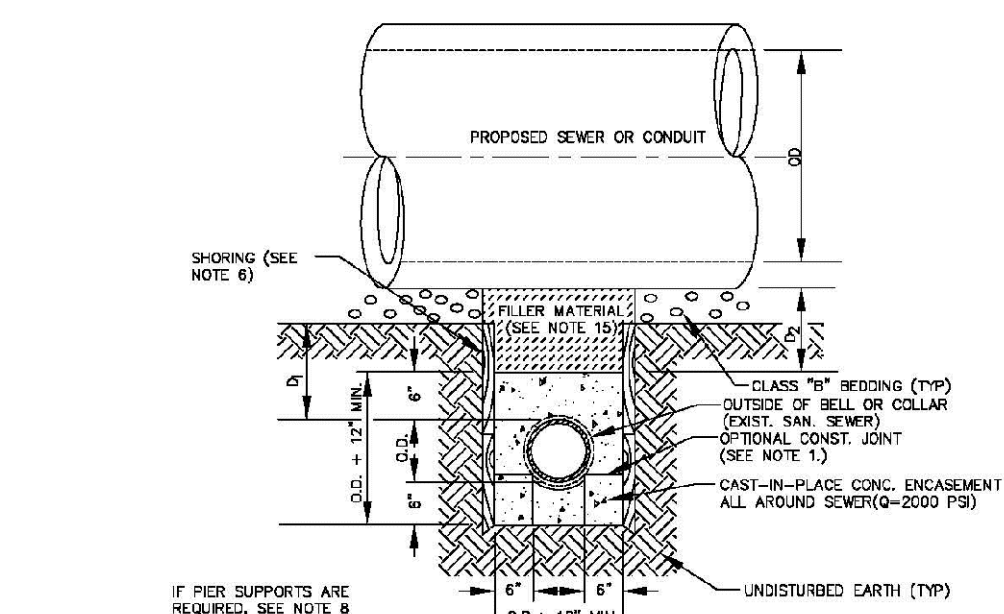
**TYPE II**  
CONCRETE ENCASEMENT FOR SANITARY SEWERS  
CROSSING OVER OR UNDER WATER MAIN

**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  $d_1 \leq 18"$  ( $d_1 \leq 12"$  EXCEPT FOR SANITARY SEWER CROSSING OVER OR UNDER WATER MAINS).
  - TYPE III IF  $d_1 > 18"$  ( $d_1 > 12"$  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 ENCOUNTERED, 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  $d_1 \leq 4"$  &  $d_2 \leq 4"$ .
  - COMPACTED CLASS "D" BEDDING IF  $d_1 \leq 4"$  &  $d_2 > 4"$  OR  $d_1 > 4"$  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



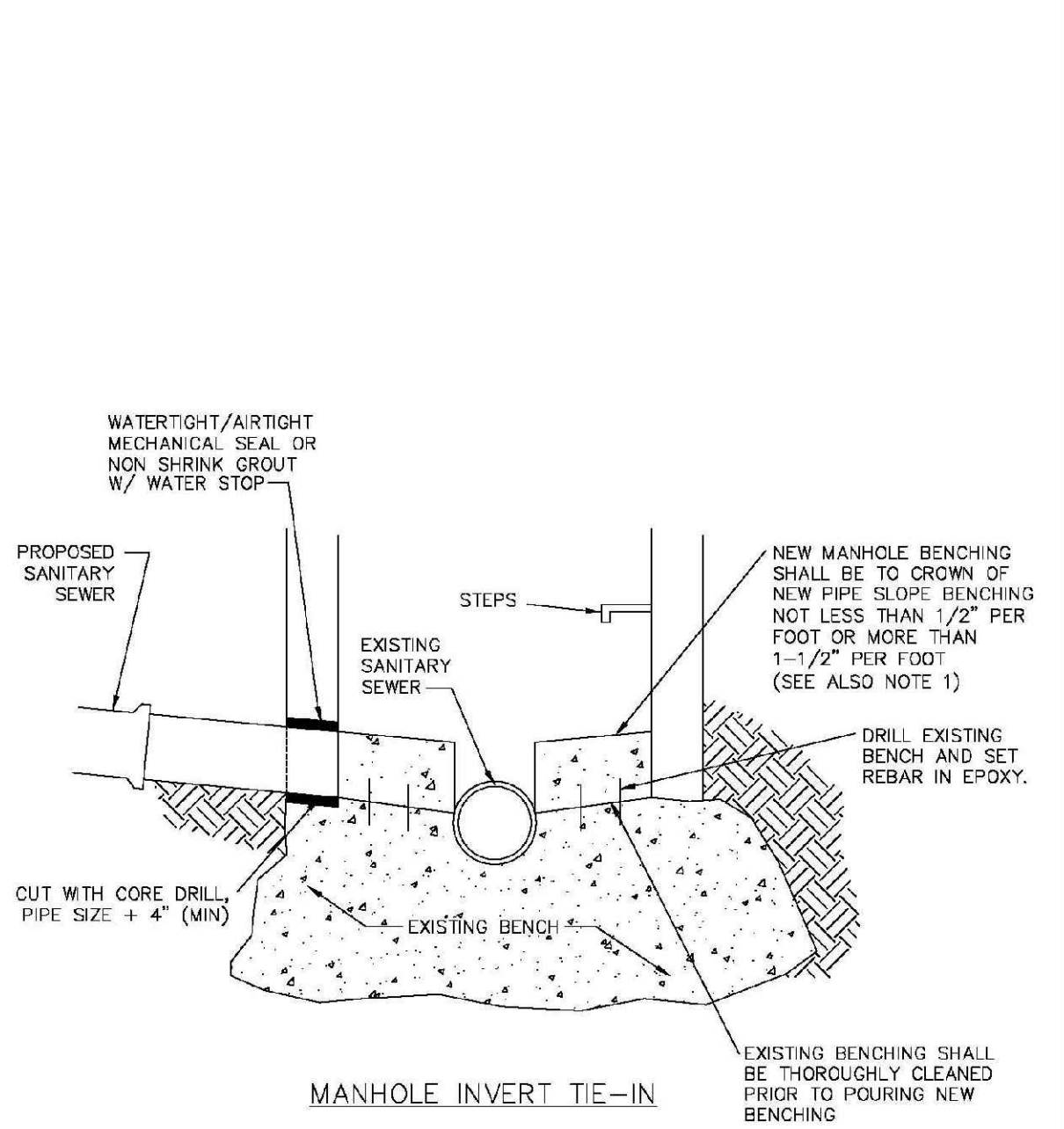
**TYPE III**  
CONCRETE ENCASEMENT FOR SANITARY SEWERS  
(FULL ENCASEMENT) NO SCALE

**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  $d_1 \leq 18"$  ( $d_1 \leq 12"$  EXCEPT FOR SANITARY SEWER CROSSING OVER OR UNDER WATER MAINS).
  - TYPE III IS REQUIRED FOR SANITARY SEWERS CROSSING UNDER WATER MAINS REGARDLESS OF DIMENSION  $d_1$ .
  - 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 ENCOUNTERED, 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.
- APPROVED COMPRESSIBLE MATERIAL SUCH AS STYROFOAM, ETC. IF  $d_1 \leq 4"$  &  $d_2 \leq 4"$ .
- COMPACTED CLASS "D" BEDDING IF  $d_1 \leq 4"$  &  $d_2 > 4"$  OR  $d_1 > 4"$  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	

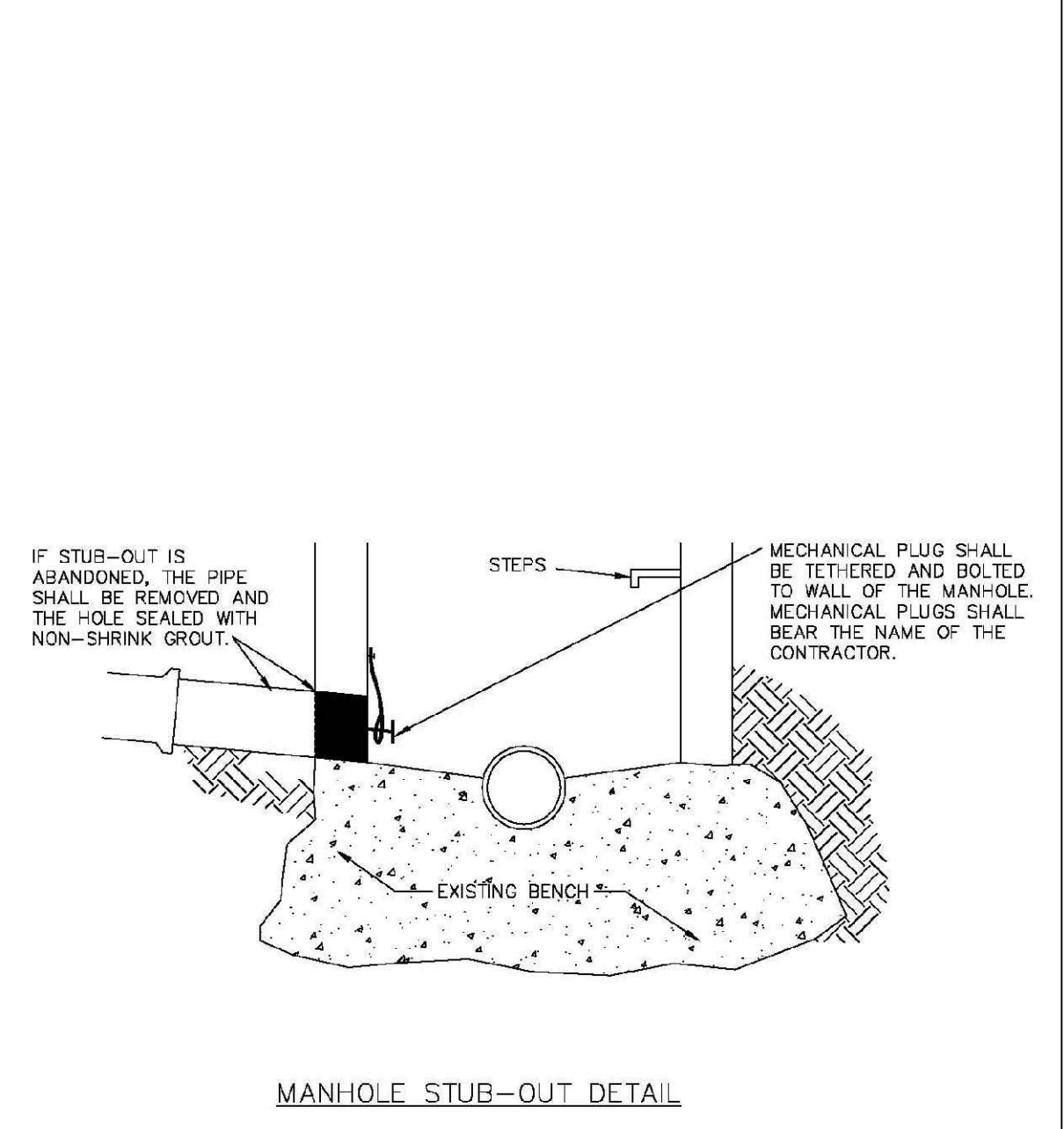
2016 REVISION SHEET S4.8



**MANHOLE INVERT TIE-IN**

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

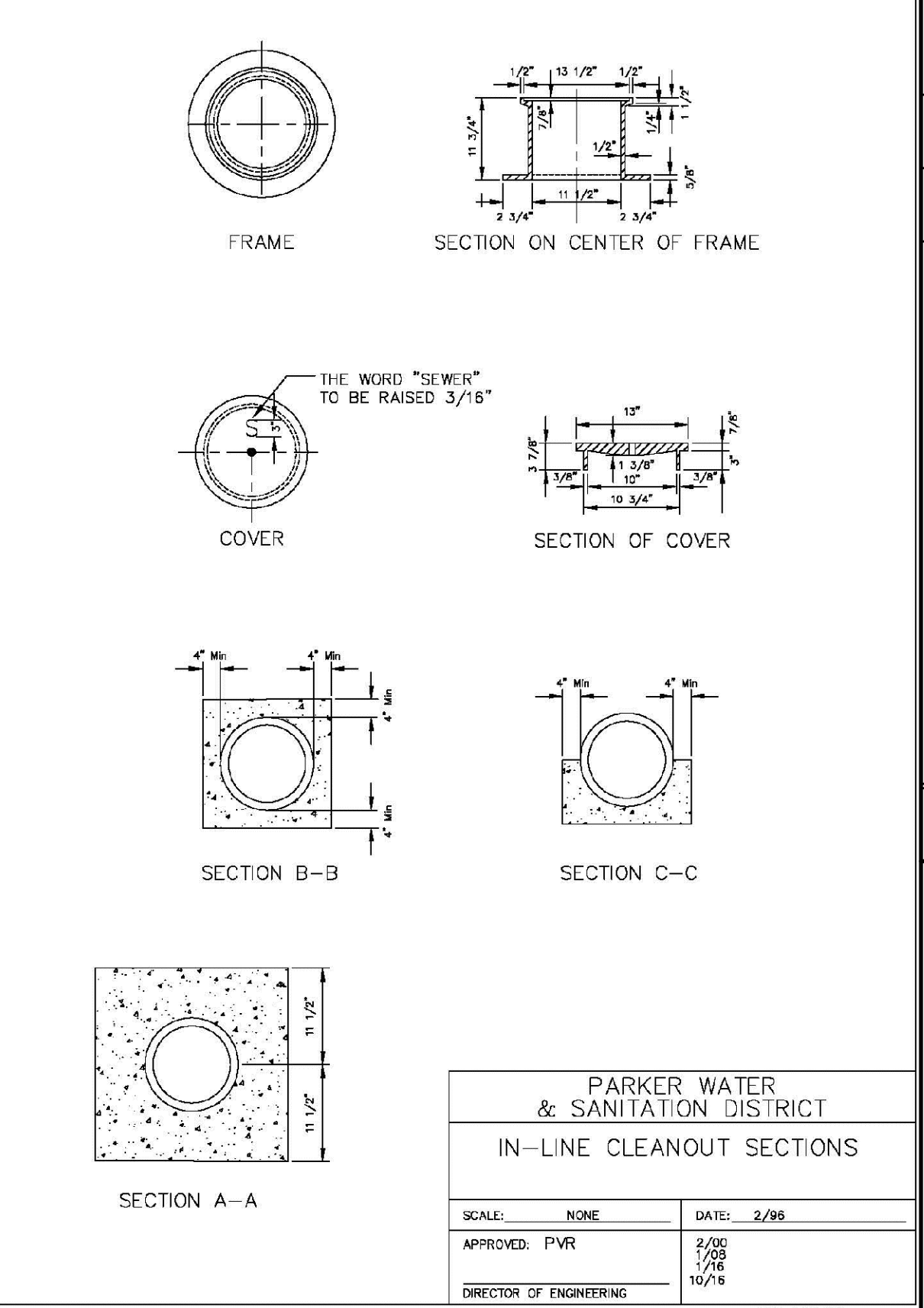
2016 REVISION SHEET S4.9



**MANHOLE STUB-OUT DETAIL**

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

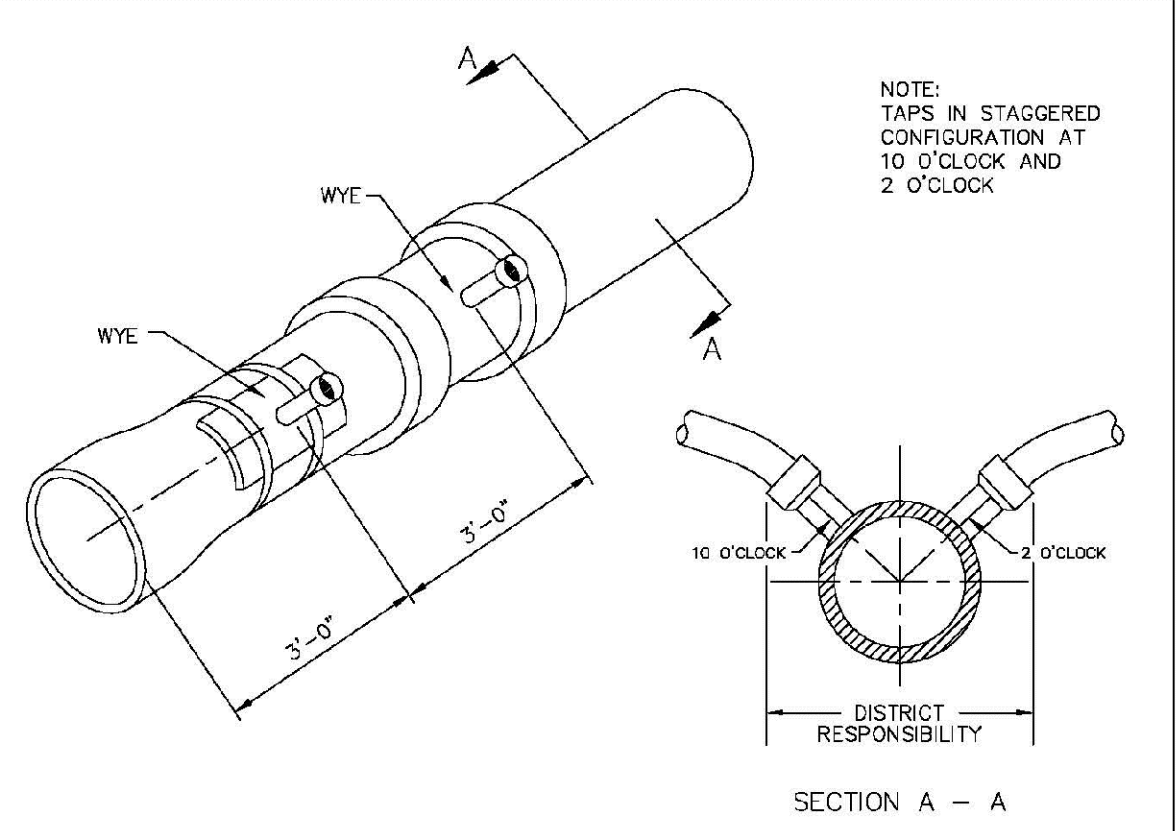
2016 REVISION SHEET S4.10



**IN-LINE CLEANOUT SECTIONS**

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

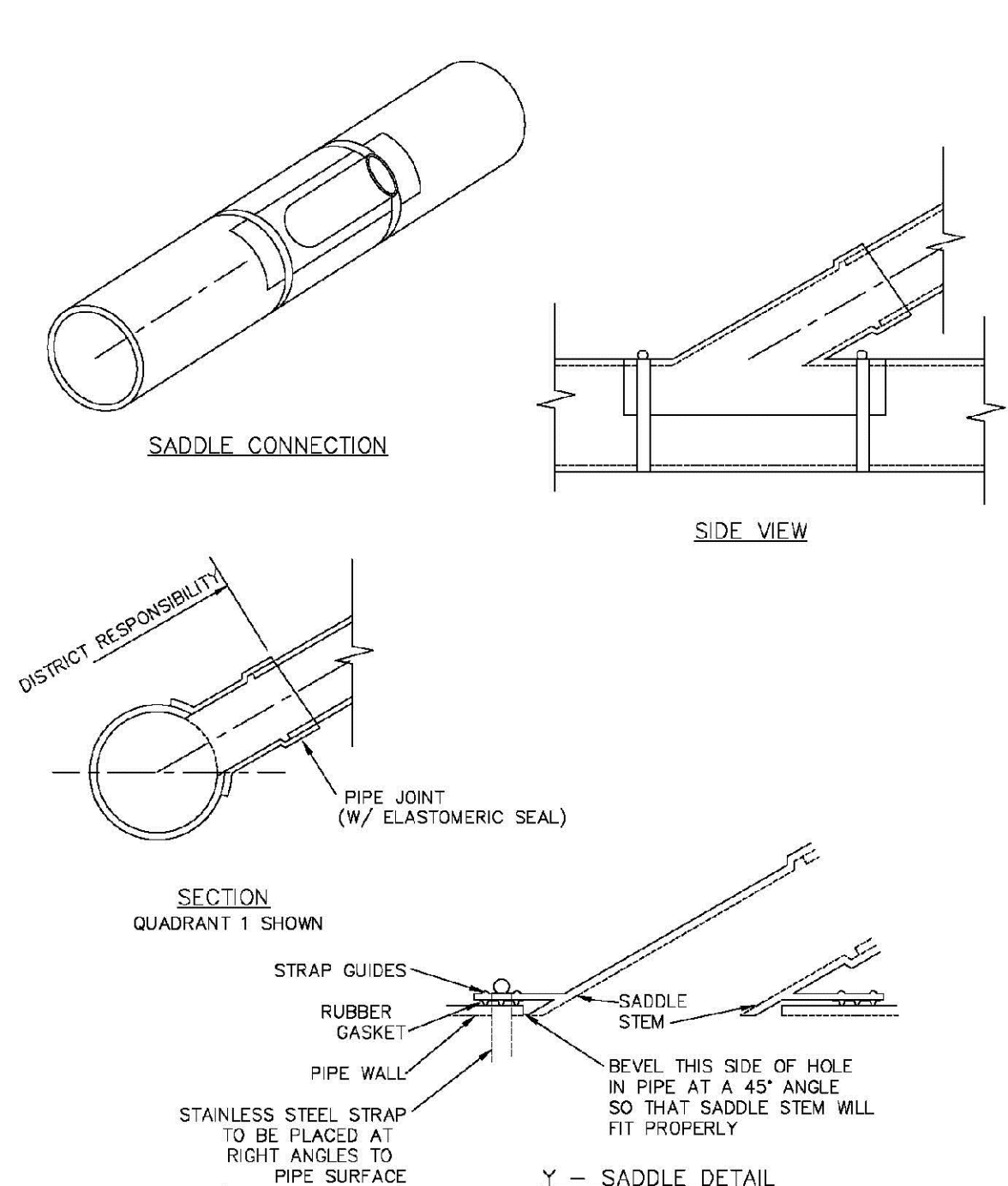
2016 REVISION SHEET S4.12



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 1/16 10/16
DIRECTOR OF ENGINEERING	

2016 REVISION SHEET S4.13



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

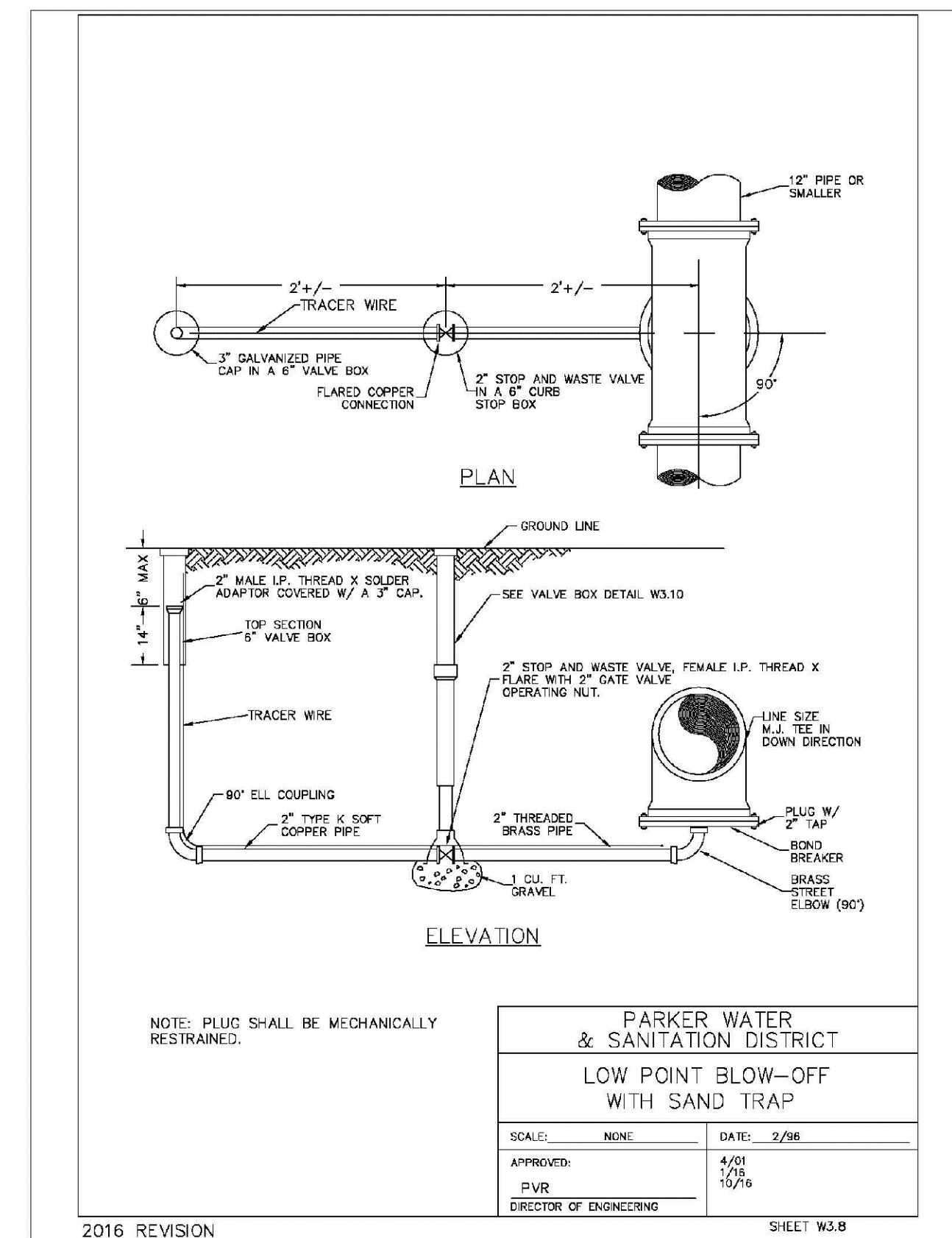
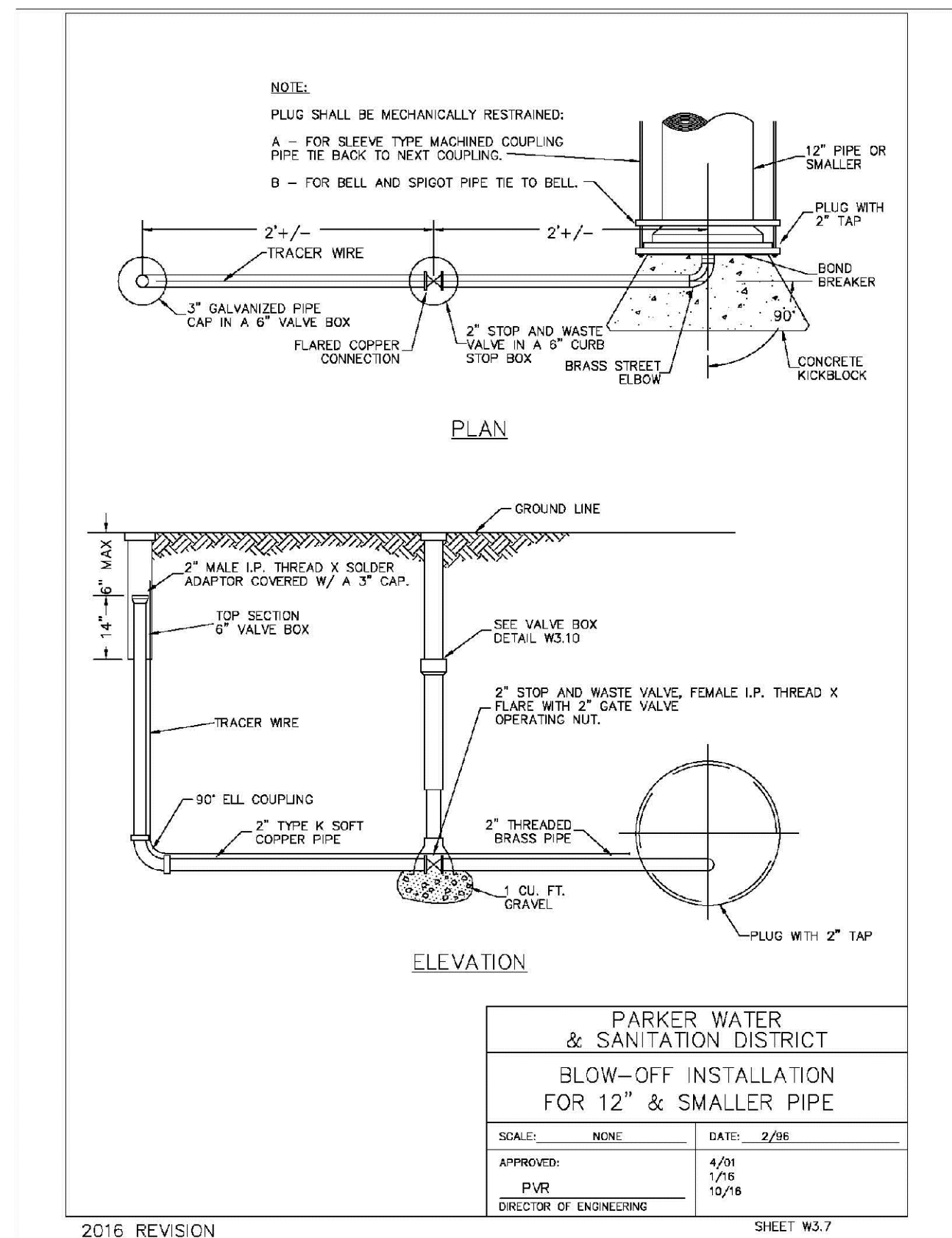
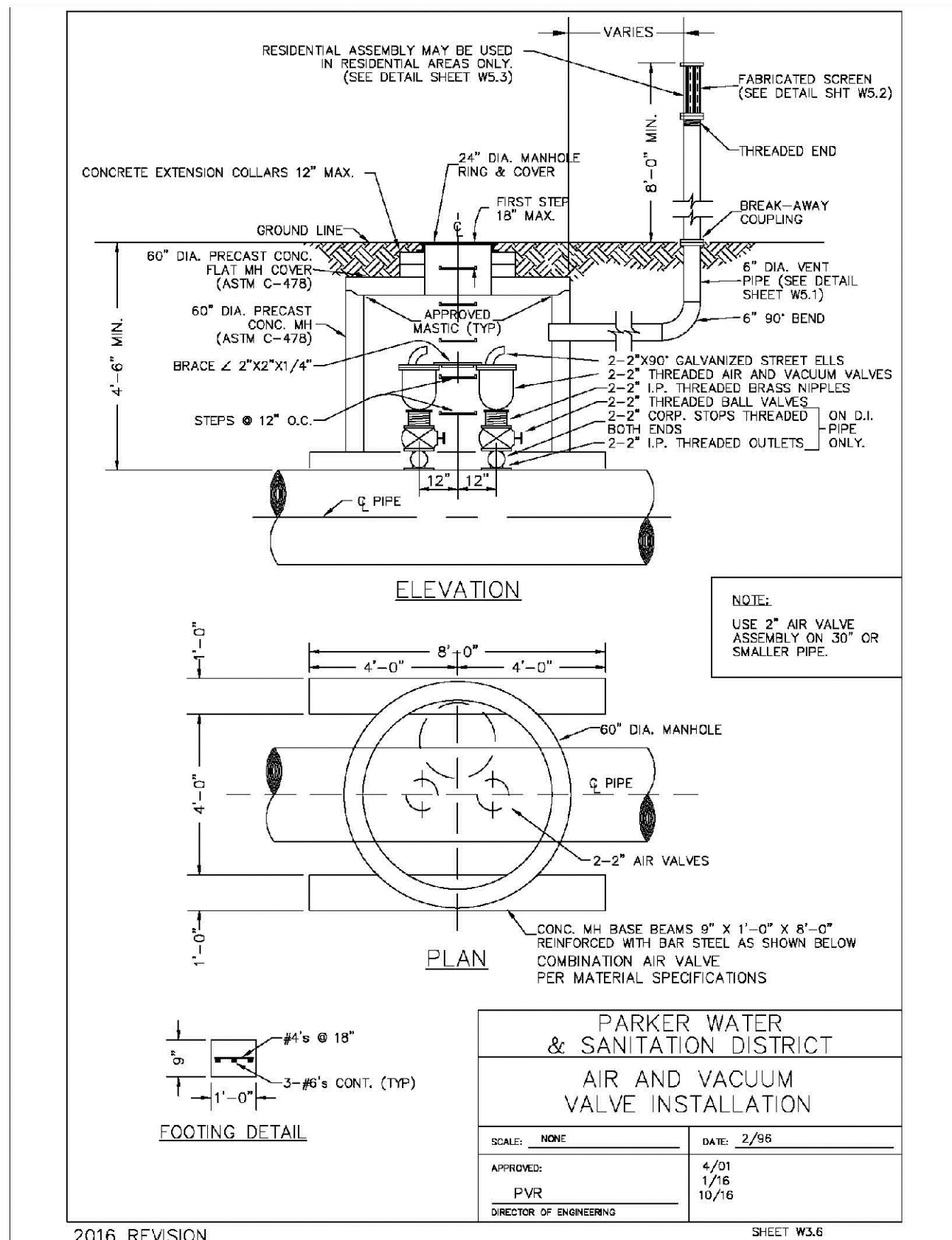
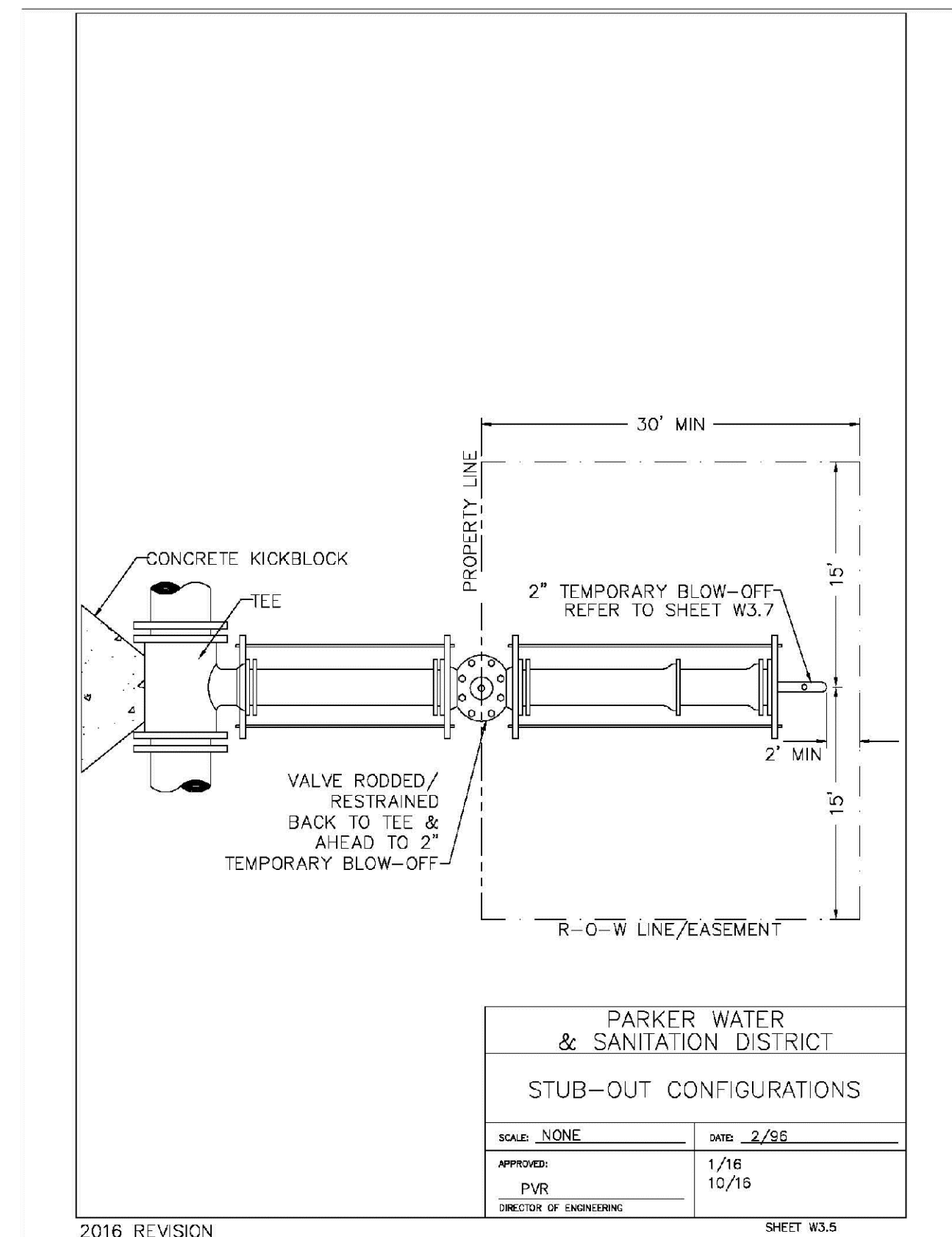
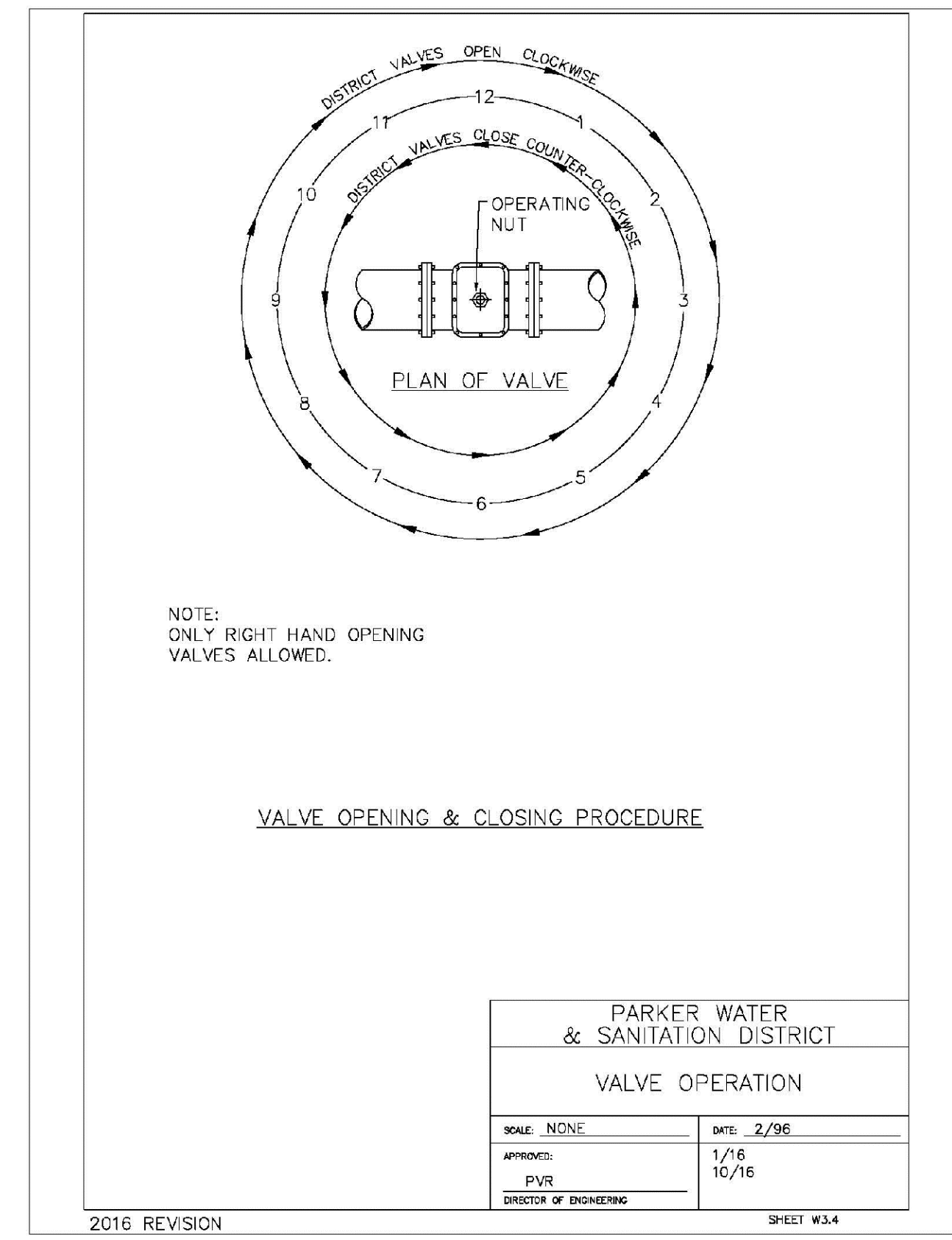
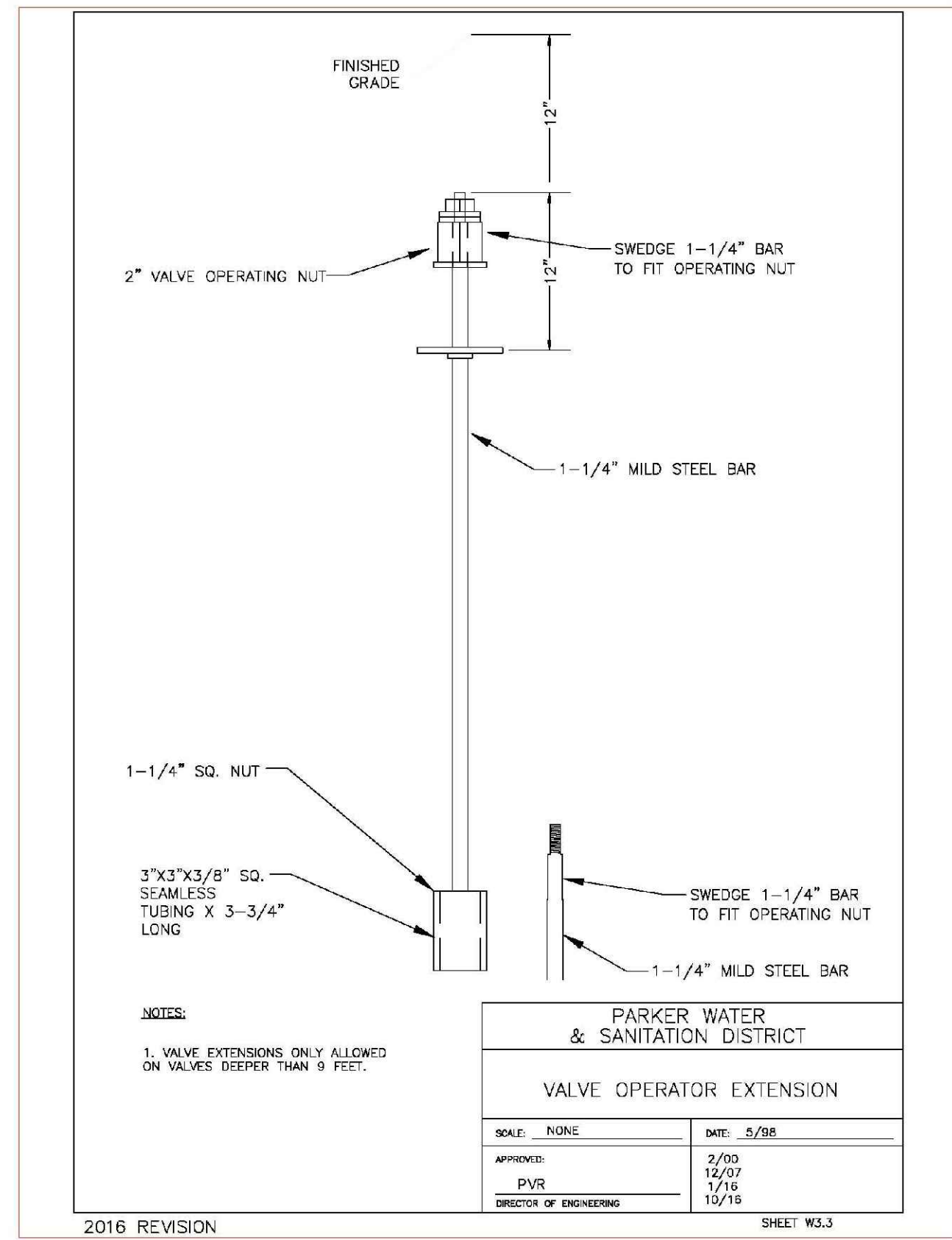
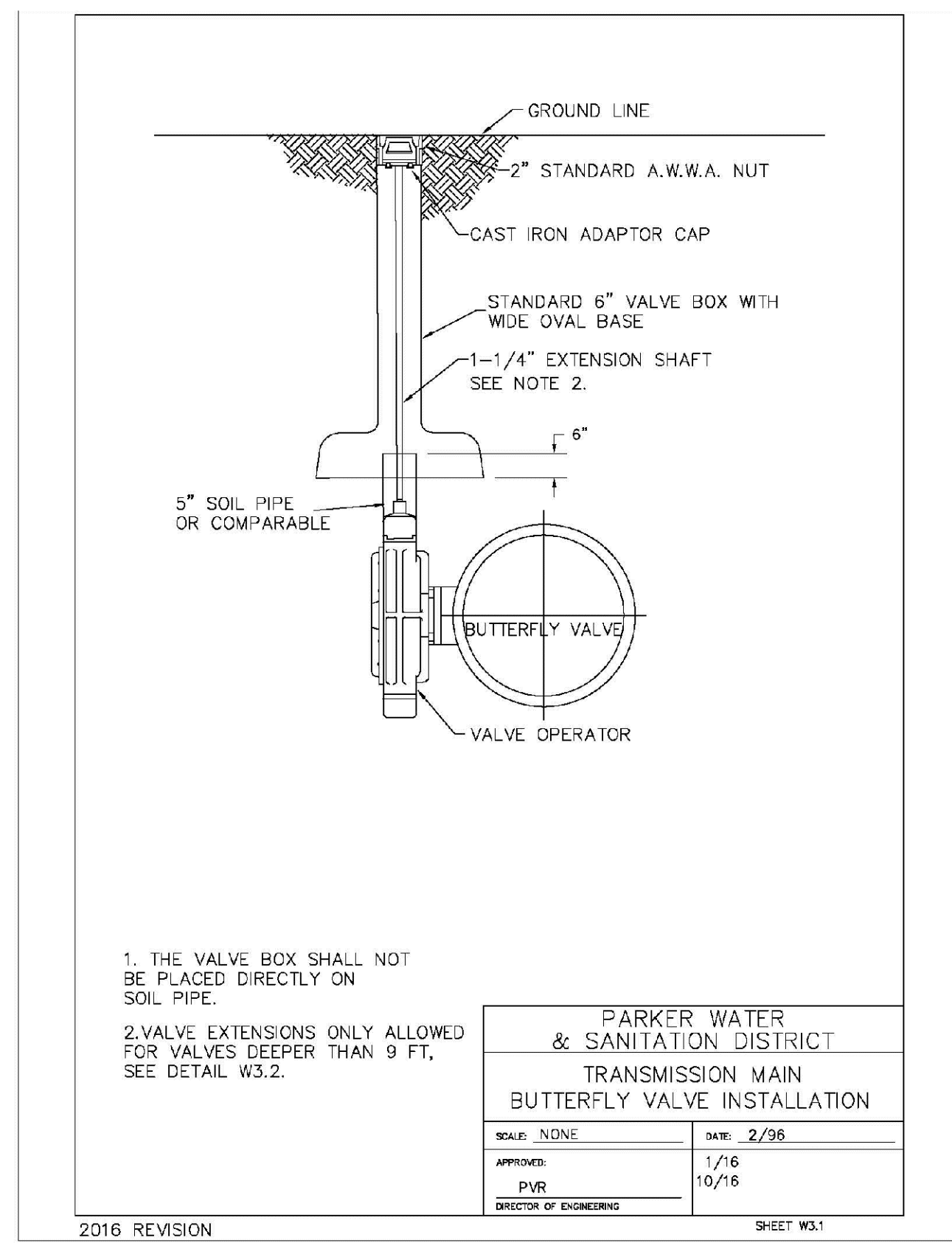
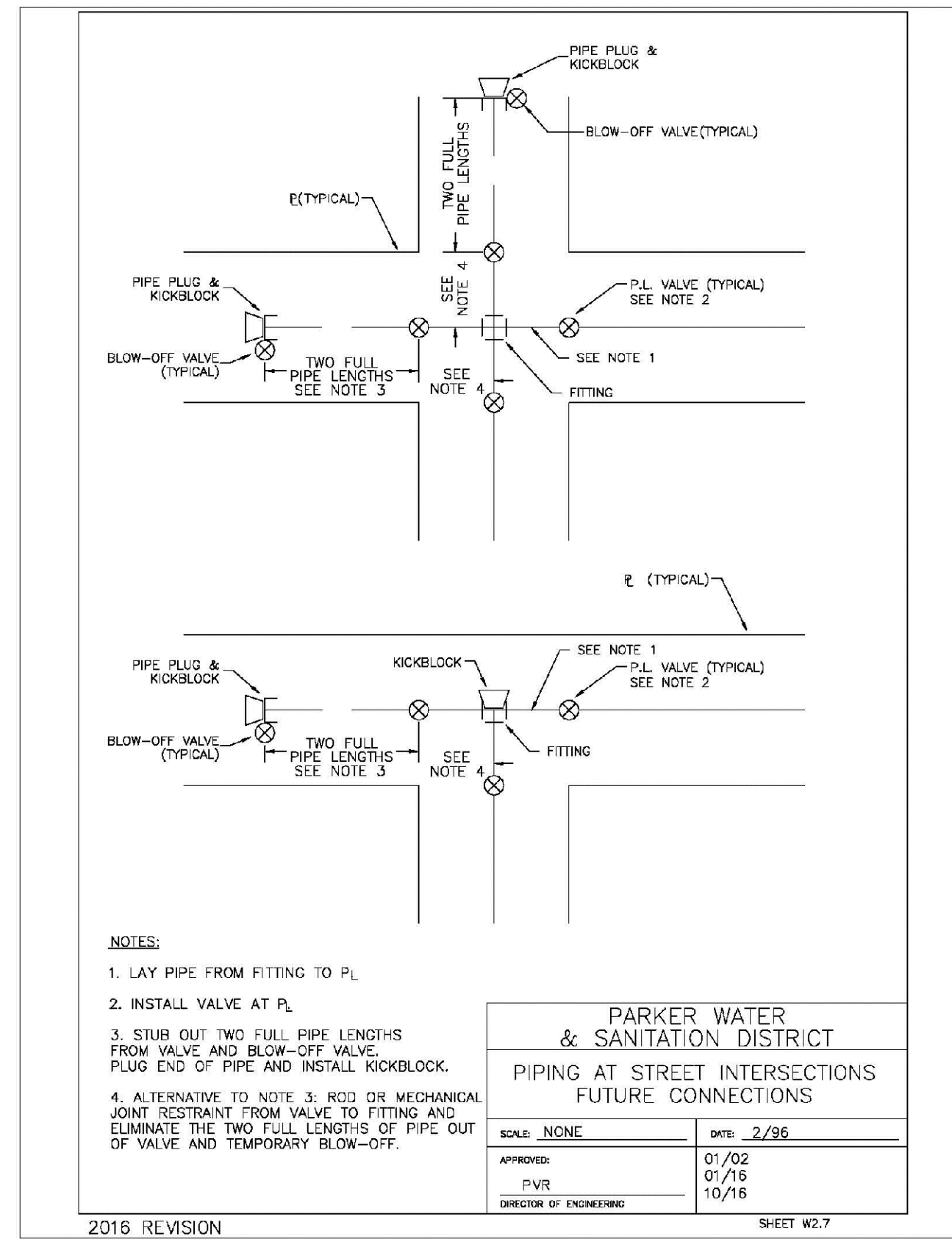
2016 REVISION SHEET S4.14

N:\PROJECTS\SSR\SSR\ENGINEERING\SSR\SSR\FAMILY\CDS\F-PARKER WATER AND SANITATION\SANITARY SEWER DETAILS.DWG, BRIANW, 10/29/2016 3:00 PM

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

SHEET NUMBER	DRAWN BY: RHR	CHECKED BY: BPW	DATE: SEPTEMBER 2016	SCALE: AS SHOWN	FILE NO: 8130283701	TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS SANITARY SEWER DETAILS	HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112		10335 E. Dry Creek Rd. Suite 410 Englewood, Colorado 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	No.	Date	Init.	Appr.	Date
				21											





N:\PROJECTS\BANCACHE\ENGINEERING\SHETS\MULTIFAMILY\CDSP\HARPER WATER AND SANITATION\WATER DETAILS.DWG, BRIANW, 10/29/2018 3:00 PM

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

10333 E. Dry Creek Rd. Suite 410 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
<b>CVL</b> CONSULTANTS	No.	Date		
HR 935 LLC 7353 South Alton Way CENTENNIAL, CO 80112				
<b>TRAILS AT CROWFOOT FILING 14 CONSTRUCTION DRAWINGS WATER DETAILS</b>				
SCALE: AS SHOWN FILE NO: 8130283701				
DRAWN BY: RHR CHECKED BY: BPW DATE: SEPTEMBER 2018				
<b>23</b>				



### 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
4"	4	2				
6"	5	3	11.12	9.5	7.00	0.88
8"	6	4	13.37	11.75	9.75	1.00
10"	7	5	15.62	14.00	11.20	1.00
12"	8	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  
PVR 12/07  
DIRECTOR OF ENGINEERING 1/16

2016 REVISION      SHEET W3.17

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

BOND BREAKER      BEARING SURFACE      UNDISTURBED SOIL

DEAD END

BEARING SURFACE      BOND BREAKER      UNDISTURBED SOIL

TYPICAL CROSS SECTION

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	2.50	2.00
8"	1.00	2.00	1.50	3.50	2.50
10"	1.00	2.50	2.00	4.50	3.00
12"	1.00	3.00	2.50	5.50	3.50
14"	1.00	3.50	3.00	6.50	4.00
16"	1.00	4.00	3.50	7.50	4.50
18"	1.00	4.50	4.00	8.50	5.00
20"	1.00	5.00	4.50	9.50	5.50
24"	1.00	6.00	5.50	11.50	6.50

NOTES:  
1. ALL VALVES, TEES, BENDS AND PLUGS SHALL BE RESTRAINED AND KICKBLOCKED.  
2. WATER HAMMER: 1" C 16", 20" AND 24" WATER HAMMER = 70 PSI.  
3. BASED ON 150 PSI PIPE PRESSURE.  
4. 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  
PVR 1/16  
DIRECTOR OF ENGINEERING 10/16

2016 REVISION      SHEET W3.18

RAISED LETTERS (1/8" x 5/16")

WATER

HALF PLAN

STANDARD LIFTING SLOT DETAIL

MACHINED SEAT

NOTES:  
1. Coating Specifications: ASTM A-48 With A Minimum Tenacity Strength of 20 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: 6/96

APPROVED: 12/97  
PVR 1/16  
DIRECTOR OF ENGINEERING 10/16

2016 REVISION      SHEET W3.19

GROUND LINE

60" DIA. PRECAST CONC. MH

STATION LOCATION

20" O.D. ACCESS MH

CONC. BASE BEAMS

ACCESS MANHOLE

NOTE:  
USE 2" AIR VALVE ASSEMBLY ON 30" OR SMALLER PIPS.

FOR VENT PIPE DETAILS SEE SHEET W3.1

RESIDENTIAL ASSEMBLY MAY BE USED IN RESIDENTIAL AREAS ONLY (SEE DETAIL SHEET W3.3)

GROUND LINE

STATION LOCATION

AIR/VACUUM VALVES

72" DIA. PRECAST CONC. MH

ACCESS MANHOLE AND AIR VALVE ASSEMBLY

NOTE:  
SEE SHEET W3.6 FOR CONCRETE MANHOLE BASE BEAMS AND AIR/VACUUM VALVE DETAILS.

PARKER WATER & SANITATION DISTRICT  
ACCESS MANHOLE ASSEMBLY

SCALE: NONE      DATE: 2/96

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

2016 REVISION      SHEET W3.20

IN OPEN FIELD      IN STREET

NEW STREET SURFACE

UNIFORM OUT LINE ASPHALT/CONCRETE

EXISTING STREET SURFACE

COMPACTED FILL ONLY IN OPEN FIELD. FLOWABLE FILL IN ROADWAY.

BACKFILL

NEW BASE COURSE

WIDTH

SEE TABLE

NOTE: MINIMUM COVER TO BE BELOW OFFICIAL STREET GRADE.

WATER MAIN SHALL BE BEDDED FROM 6" BELOW THE BOTTOM OF THE PIPE TO 12" ABOVE THE TOP OF THE PIPE.

LIMITS OF BEDDING

SAND OR SQUEEGEE BEDDING AS SPECIFIED IN SECTION 4.0

STANDARD TRENCH SECTION

SAW-CUT EXISTING ASPHALT (TYP)

PATCH TO BE 6" OR EXISTING PAVEMENT THICKNESS (WHICHEVER IS GREATEST) OF HOT BITUMINOUS PAVEMENT PLACED IN 3" MAX. LIFTS

EXISTING ASPHALT SHALL BE TACKED WITH EMULSIFIED ASPHALT (TYP)

FLOWABLE FILL SHALL BE PLACED TO THE GRADE OF THE STREET PRIOR TO PAVING AND REMOVED TO THE DEPTH OF THE PAVEMENT AT THE TIME OF PAVING.

LIMITS OF BEDDING

SAND OR SQUEEGEE BEDDING AS SPECIFIED IN SECTION 4.0

STREET CUT PATCH

PARKER WATER & SANITATION DISTRICT  
TYPICAL TRENCH SECTION PIPE PROTECTION

SCALE: NONE      DATE: 2/96

APPROVED: 5/98  
PVR 2/02  
DIRECTOR OF ENGINEERING 10/16

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.

Tamping is herein defined as the act of placing approved bedding material under the fullness of the pipe, paying particular attention to voids, bell holes, and sump holes. The purpose of tamping is to ensure uniform support for the pipe.

The limits of bedding shall be from six inches (6") below the bottom of the pipe to twelve inches (12") above the top of the pipe. Approved bedding may then be installed to the groundline. See Chapter 2 of these Standards for details and composition of bedding.

Composition of bedding is not required. The only requirement is sufficient tamping to achieve uniform support under the pipe. See Sheet W4.1 of the Standard Details for a typical trench cross section.

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

Well-Graded Sand for 24-inch or larger diameter

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

Squeegee Sand for use with 20-inch or smaller

Sieve Size	Total Percent Passing by Weight
3/8 inch	100
No. 200	0-3

If approved by the District, fines from the trench walls and spoils pile may be used to provide uniform support for the pipe. No rock or stone larger than that allowed by the sieve analysis, or any other detrital materials, shall be placed under the pipe. Approved bedding materials shall be stockpiled on the jobsite to be used in the event natural materials become unsatisfactory. The District reserves the right to require the use of the specified bedding material at any time.

PARKER WATER & SANITATION DISTRICT  
PIPE BEDDING

SCALE: NONE      DATE: 2/96

APPROVED: 5/98  
PVR 2/02  
DIRECTOR OF ENGINEERING 10/16

2016 REVISION      SHEET W4.2

PLAN VIEW

PROFILE

CONCRETE ENCASEMENT

SUPPORTS BY STRUCTURAL ENGINEER

NTS

NTS

NTS

FELT LAYER BOND BREAKER

B = #4 REBAR WHERE O.D. < OR = 10"

12 = #6 REBAR WHERE O.D. > 10"

#4 REBAR @ 24" O.C. WHERE O.D. < OR = 10"

#5 REBAR @ 24" O.C. WHERE O.D. > 10"

TYPICAL SECTION

NTS

NOTES:  
1. ALL CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3,000 PSI USING TYPE 1 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 ENCASEMENT.

PARKER WATER & SANITATION DISTRICT  
WATERLINE ENCASEMENT

SCALE: NONE      DATE: 5/98

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

2016 REVISION      SHEET W4.3

PLAN FOR PERPENDICULAR CROSSING

PLAN FOR ANGLE CROSSING

EXISTING CONDUIT

OFFICIAL STREET GRADE

SPRINGLINE

EXISTING CONDUIT

PROFILE

C (CASING LENGTH FOR PERPENDICULAR CROSSING)

PERPENDICULAR CROSSING CASING LENGTH

CASING O.D.

VERTICAL DISTANCE BETWEEN CASING AND WATER DEPARTMENT CONDUIT

CONSTANT RATIO OF MIN. SLOPE

1/2 O.D. WATER DEPARTMENT CONDUIT

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

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

NOTE:  
1. FINAL APPROVAL OF BORING AND CASING METHOD AND MATERIALS SHALL BE OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.

PARKER WATER & SANITATION DISTRICT  
BORED CROSSINGS BENEATH CONDUITS

SCALE: NONE      DATE: 2/96

APPROVED: 2/00  
PVR 1/16  
DIRECTOR OF ENGINEERING 10/16

2016 REVISION      SHEET W4.4

N:\PROJECTS\BANCOCAD\ENGINEERING\SHSHEET\SET\MULTIFAMILY\COSIP\HARPER WATER AND SANITATION\WATER DETAILS.DWG, BRIAN.M, 10/20/2018 5:00 PM

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

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

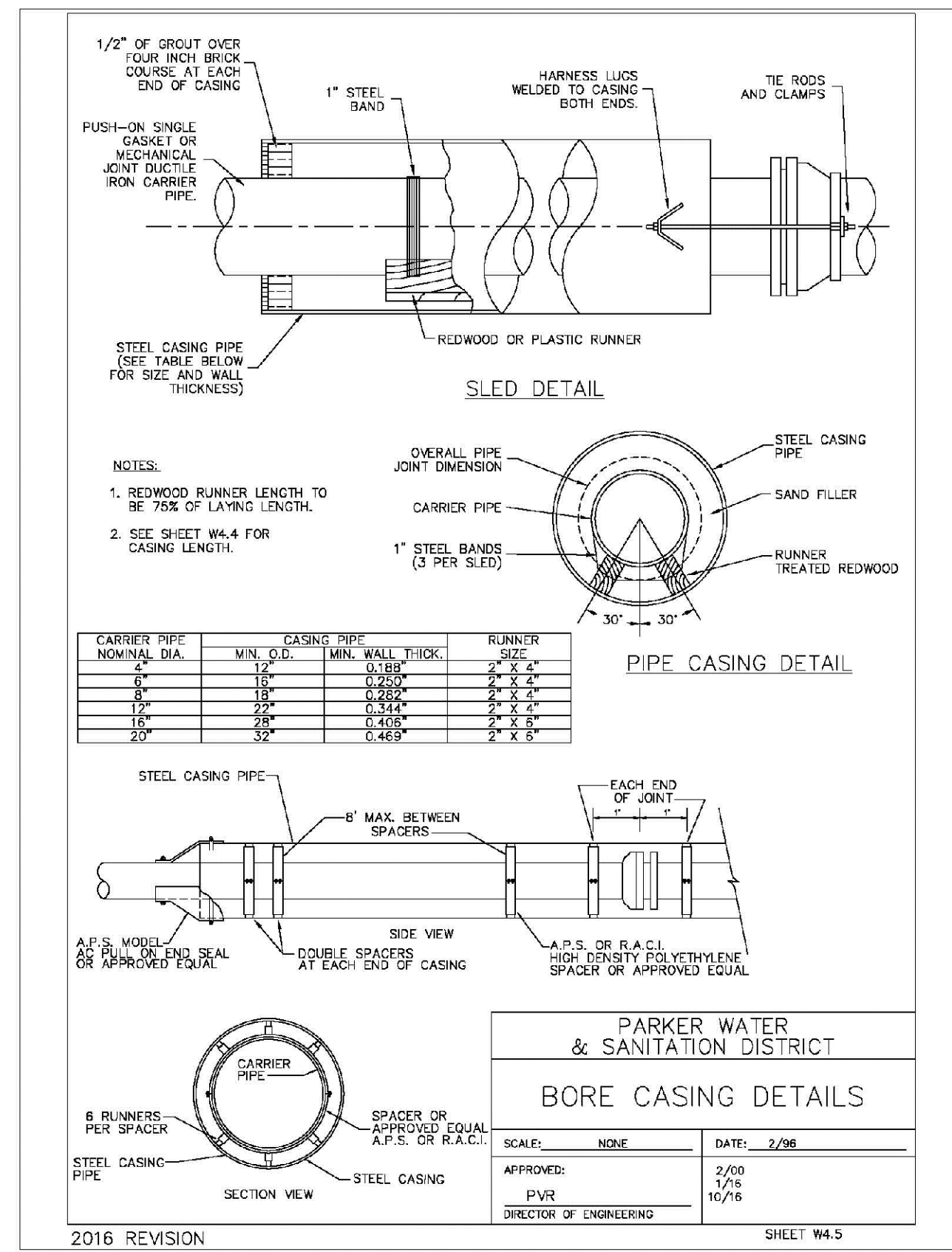
TRAILS AT CROWFOOT  
FILING 14 CONSTRUCTION DRAWINGS  
WATER DETAILS

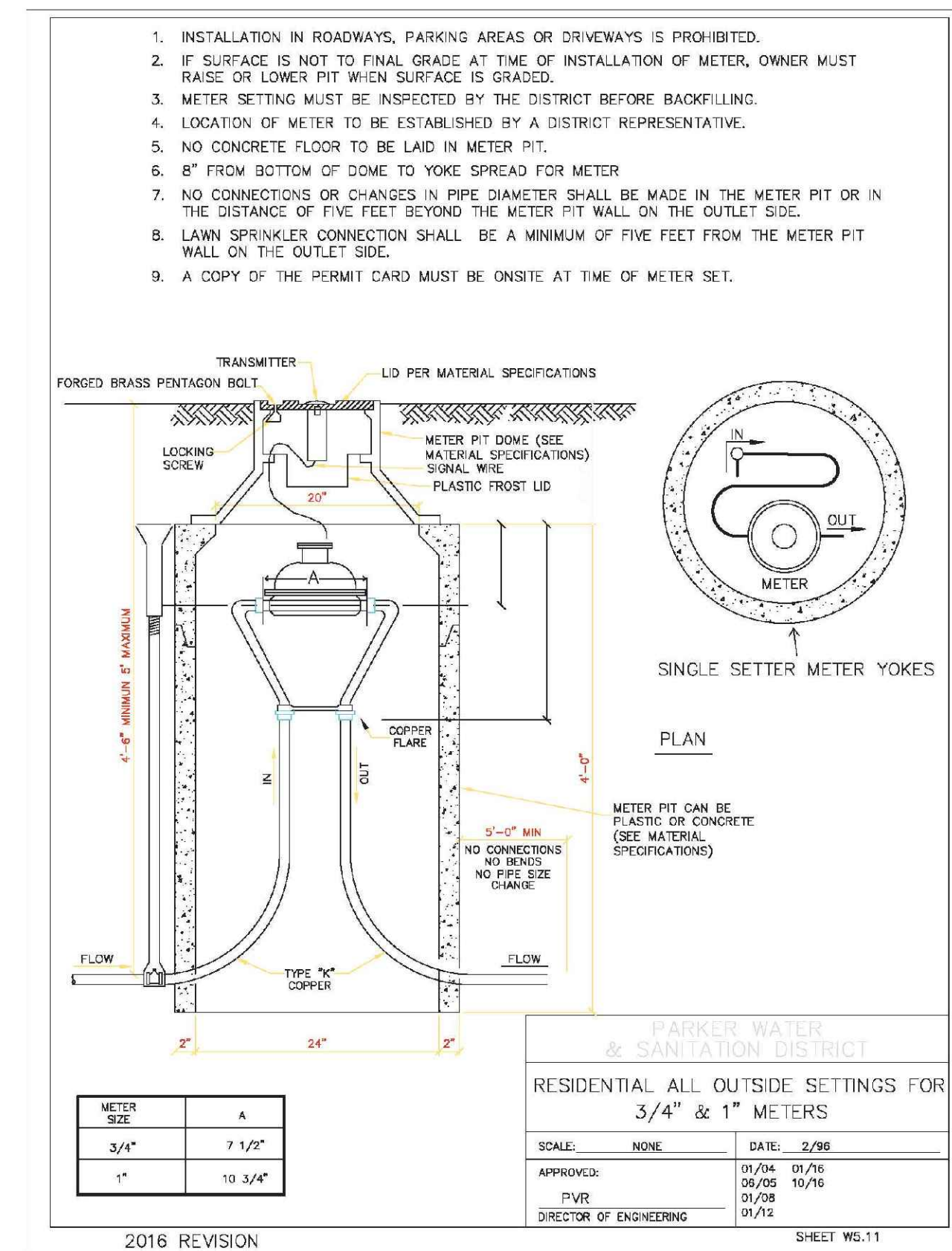
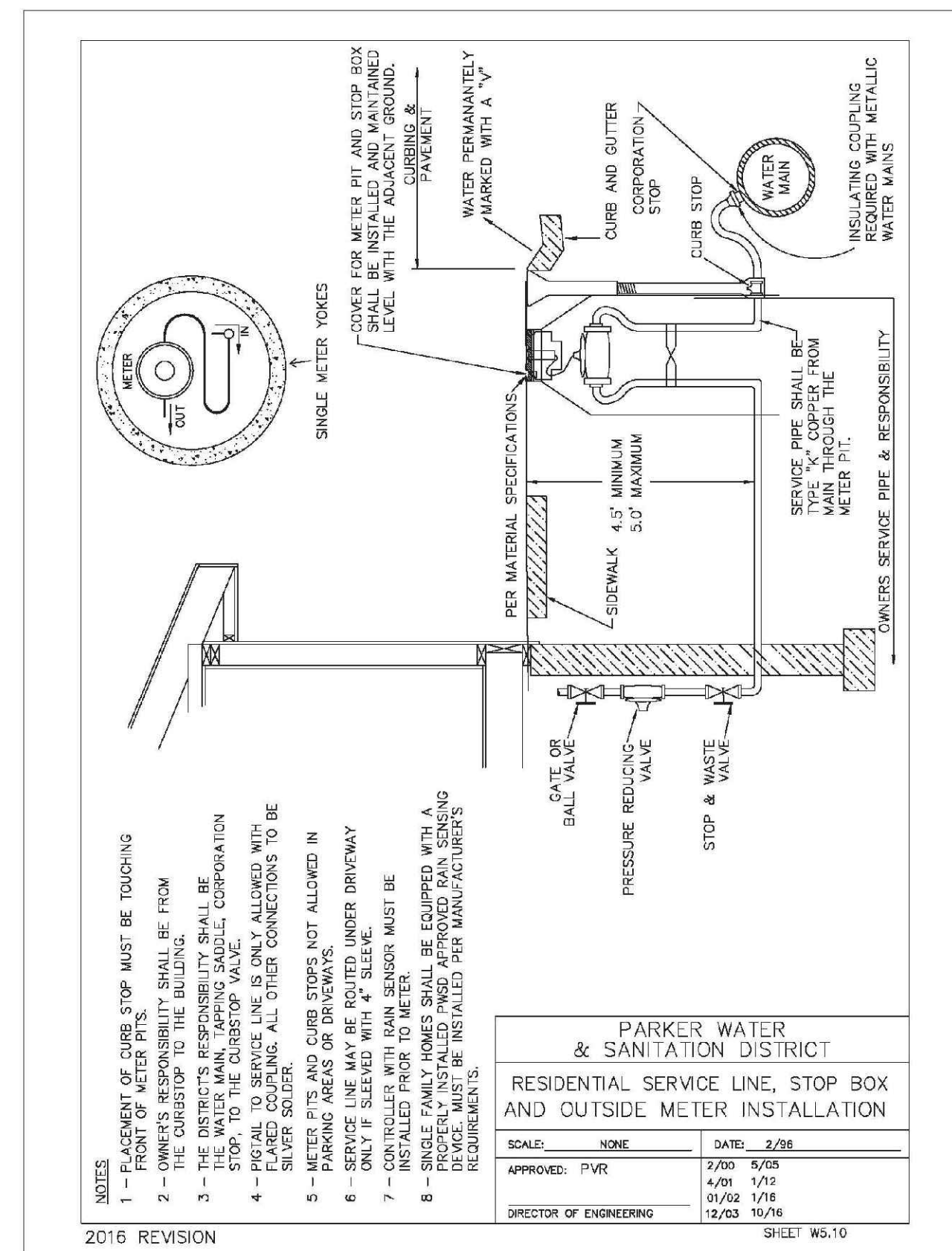
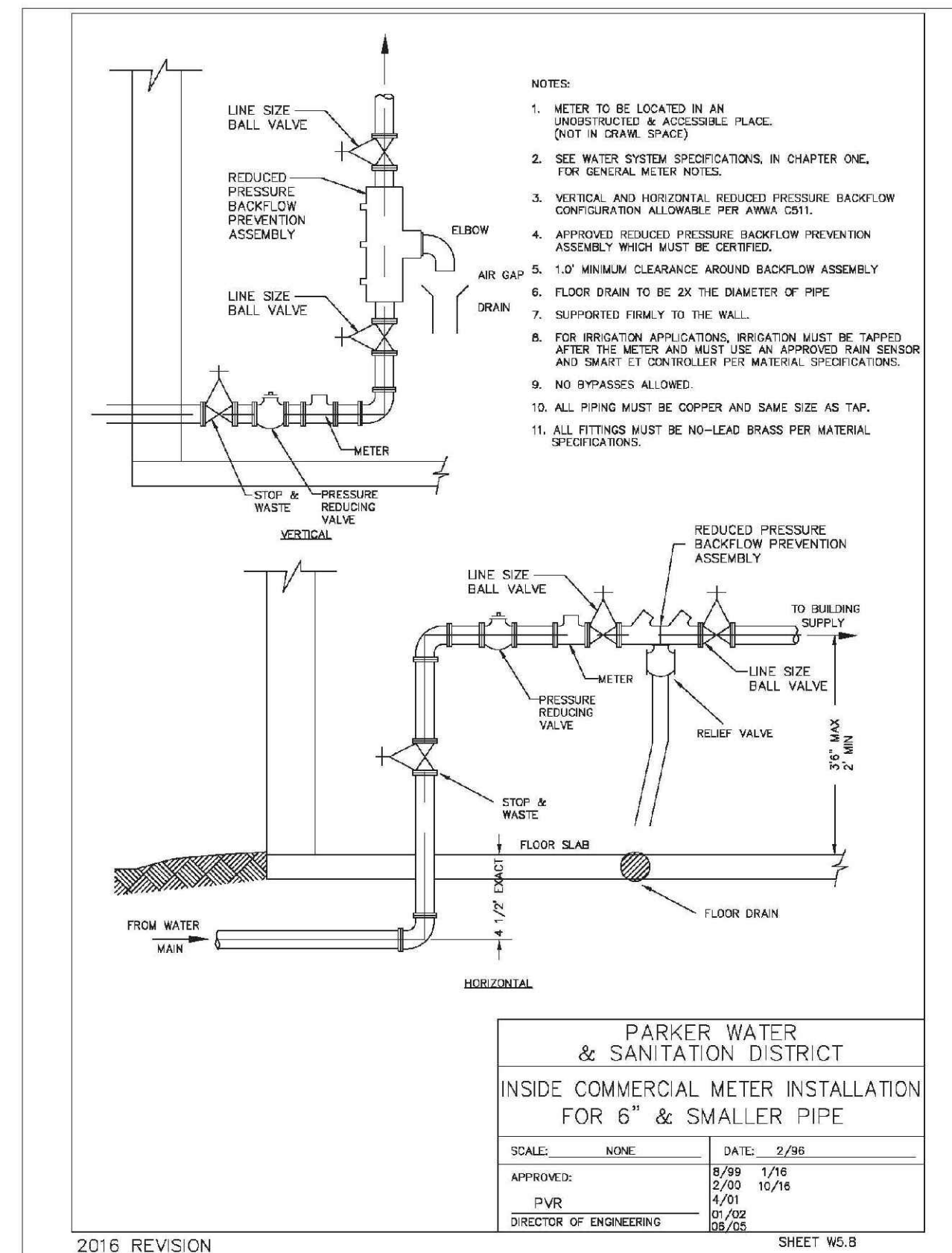
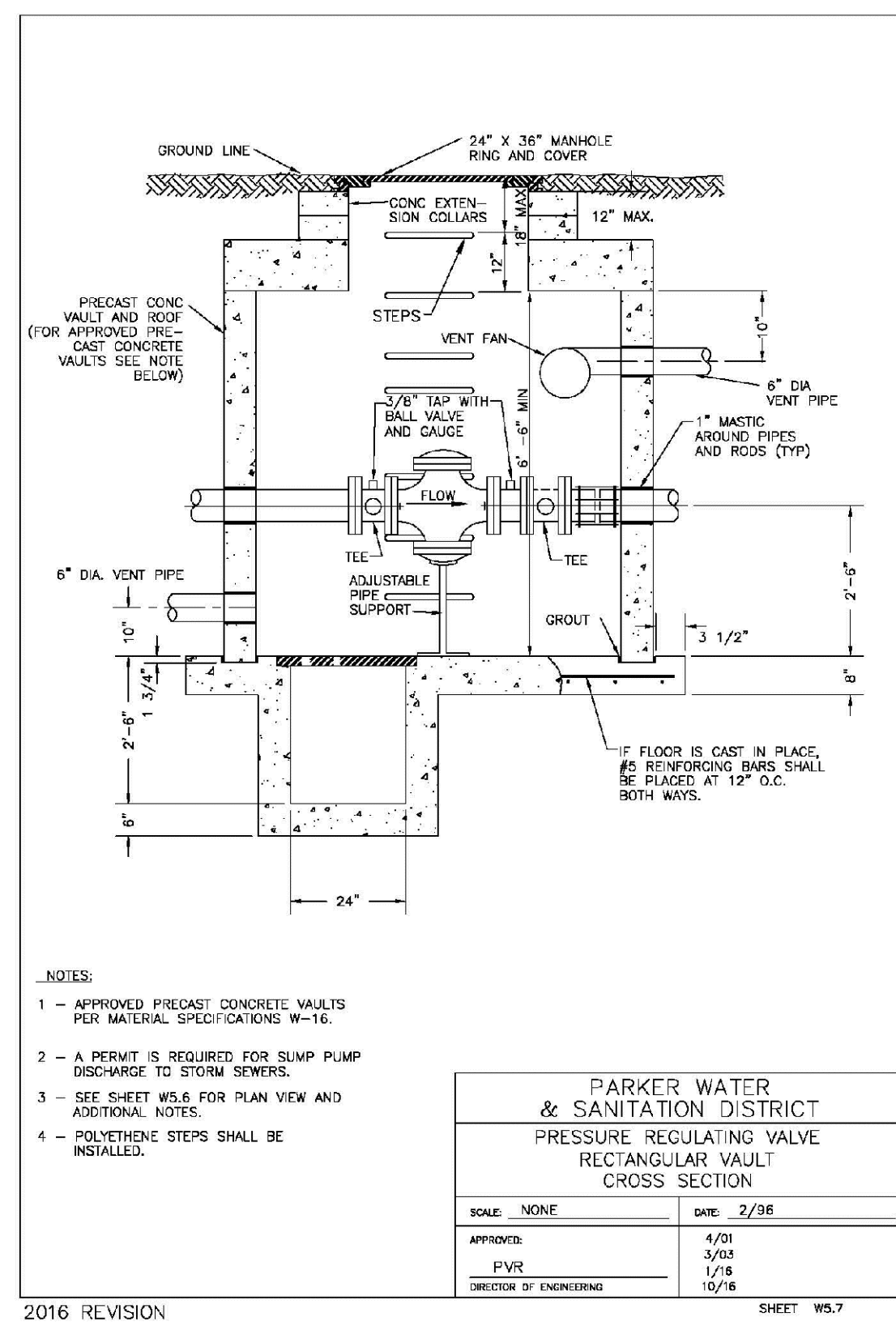
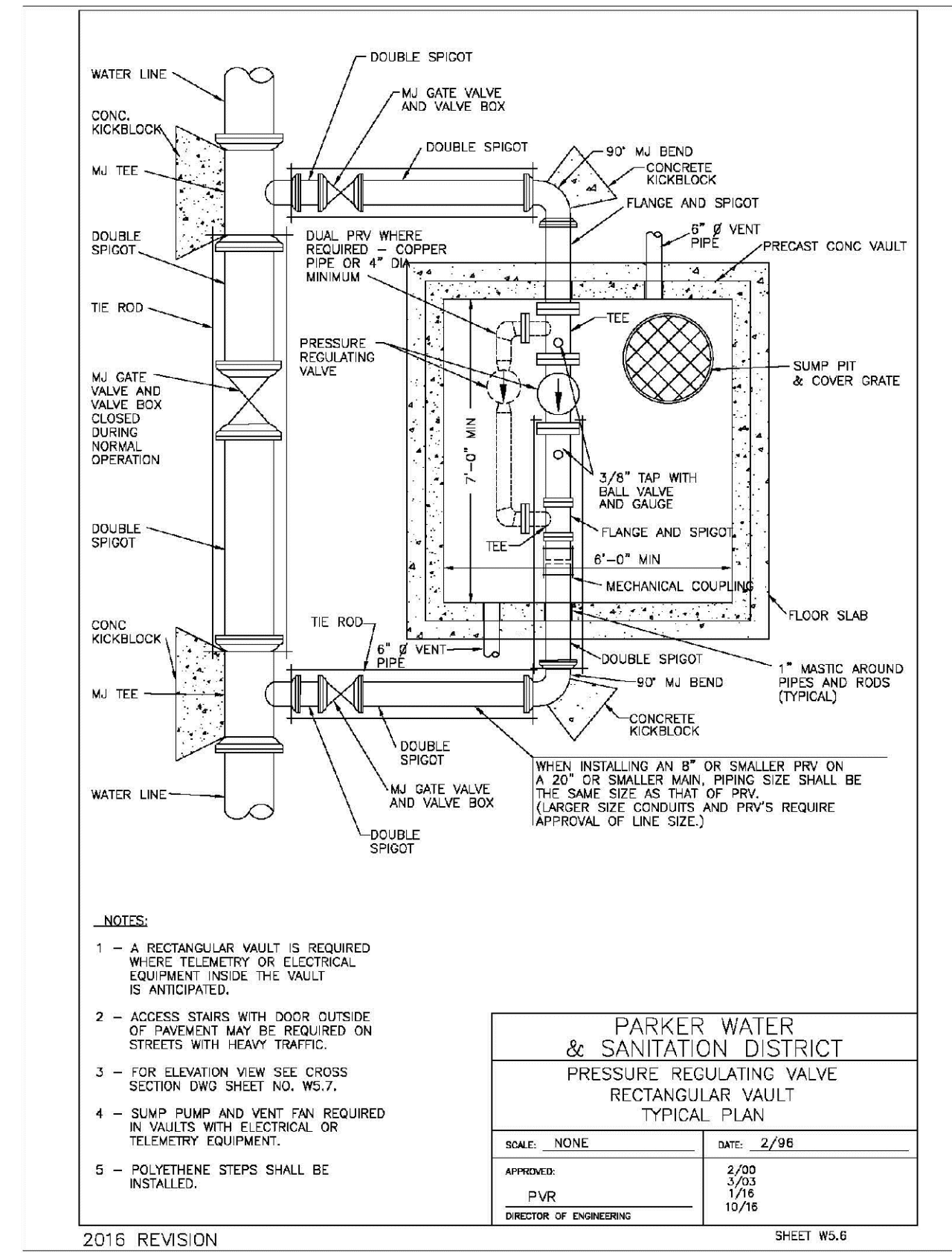
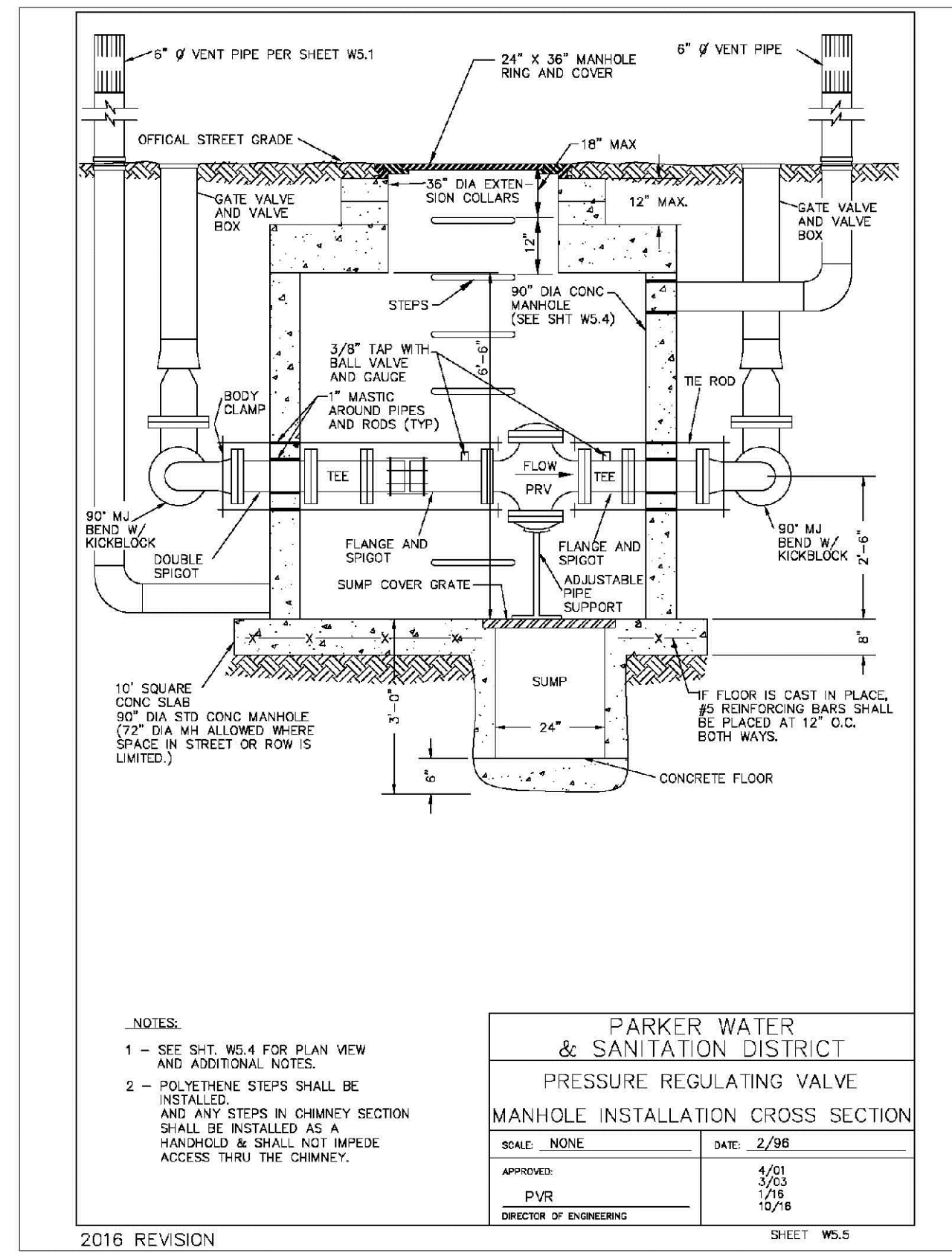
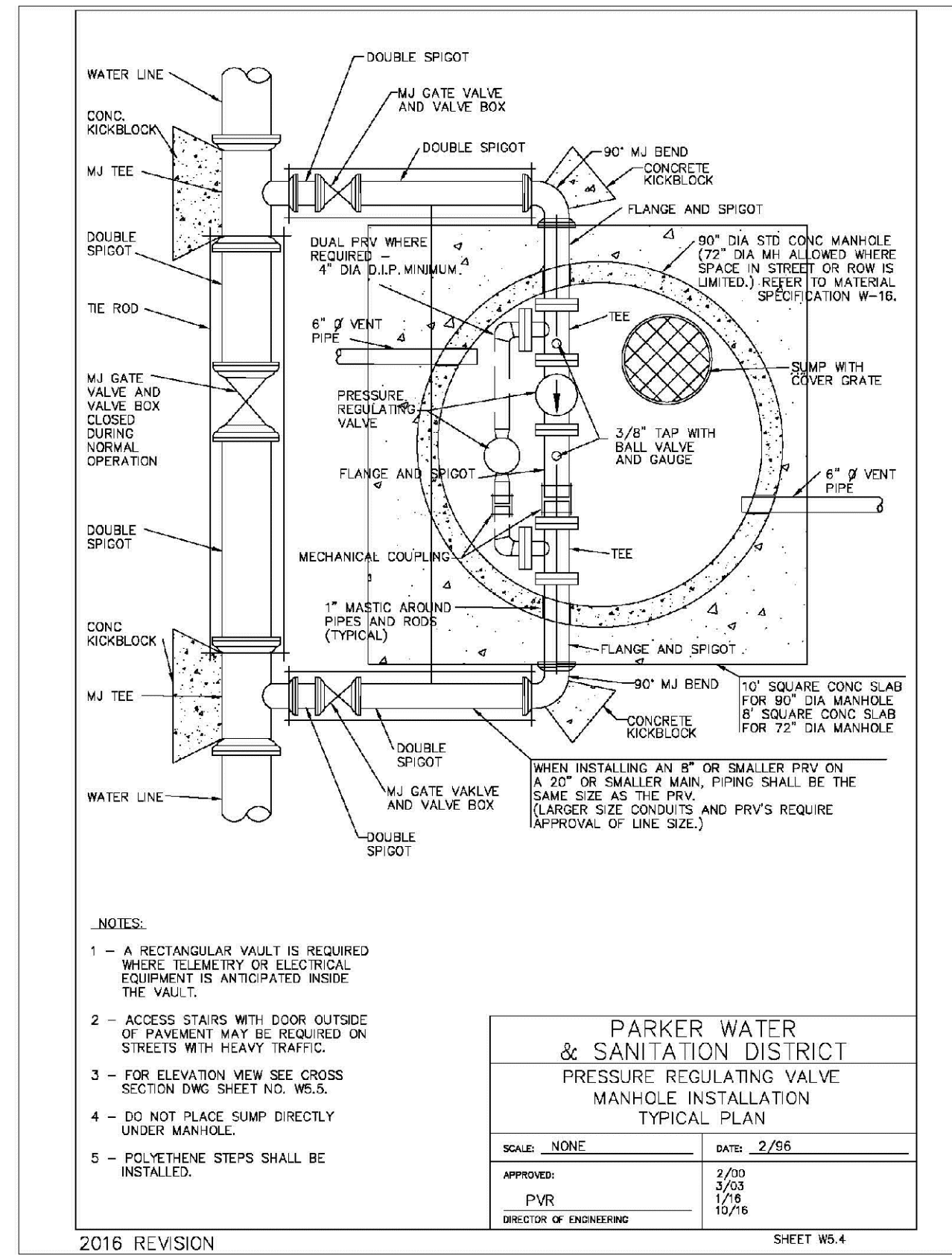
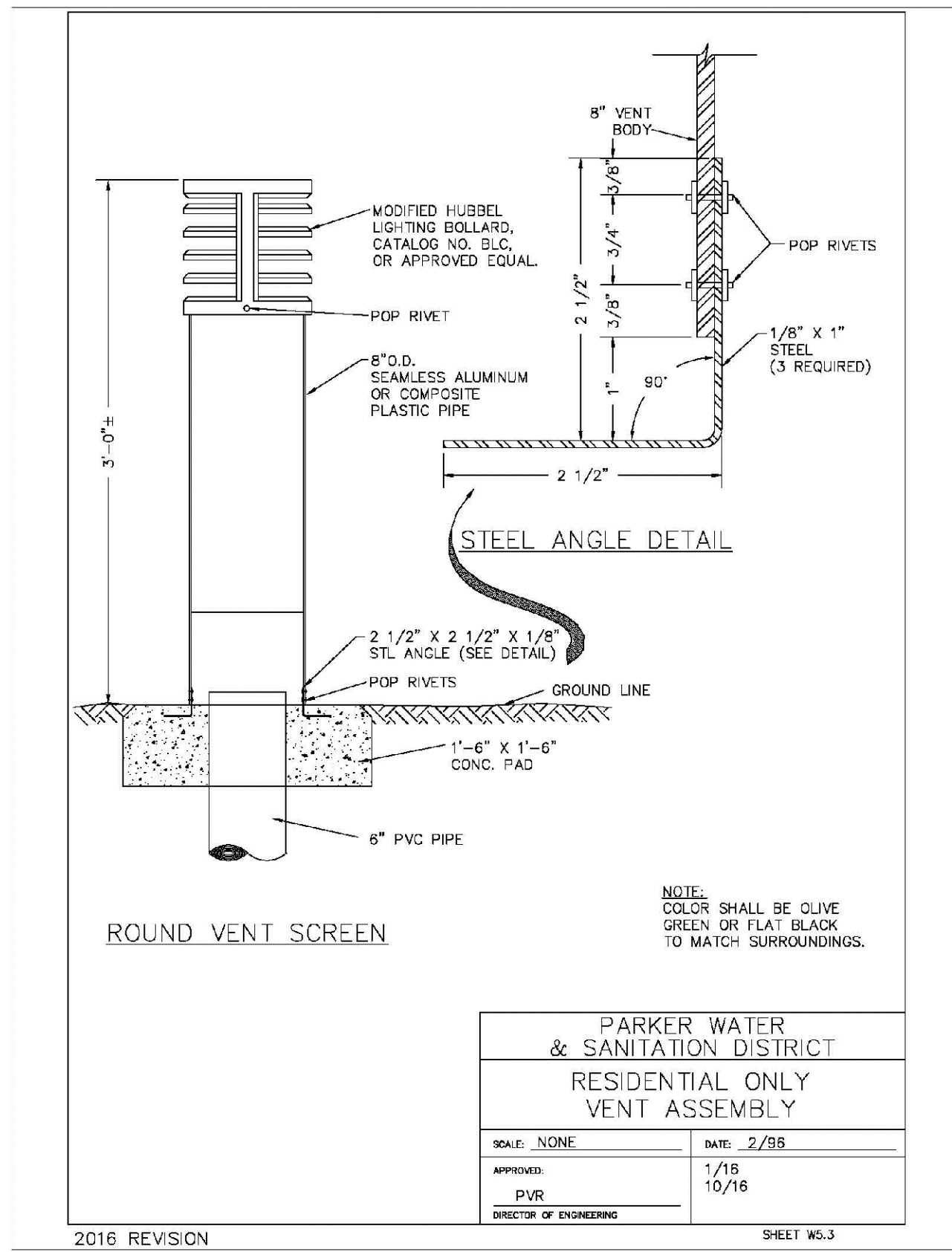
SCALE: AS SHOWN  
FILE NO: 8130283701

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

SHEET NUMBER: 25

No.	Revisions	Date	Init.	Appr.	Date





N:\PROJECTS\SSR\BACH\ENGINEERING\SSR\SHEET SET\SMALL TIFAMILY\CDSIF\H PARKER WATER AND SANITATION\WATER DETAILS.DWG, BROWN, 10/29/2018 3:00 PM

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

10333 E. Dry Creek Rd.  
Suite 410  
Englewood, CO 80151  
Tel: (720) 482-9526  
Fax: (720) 482-9546

**CVL CONSULTANTS**

HR 935 LLC  
7353 South Alton Way  
CENTENNIAL, CO 80112

**TRAILS AT CROWFOOT  
FILING 14 CONSTRUCTION DRAWINGS  
WATER DETAILS**

SCALE: AS SHOWN  
FILE NO: 8130283701

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

SHEET NUMBER: 27

No.	Revisions	Date	Appr.	Date

