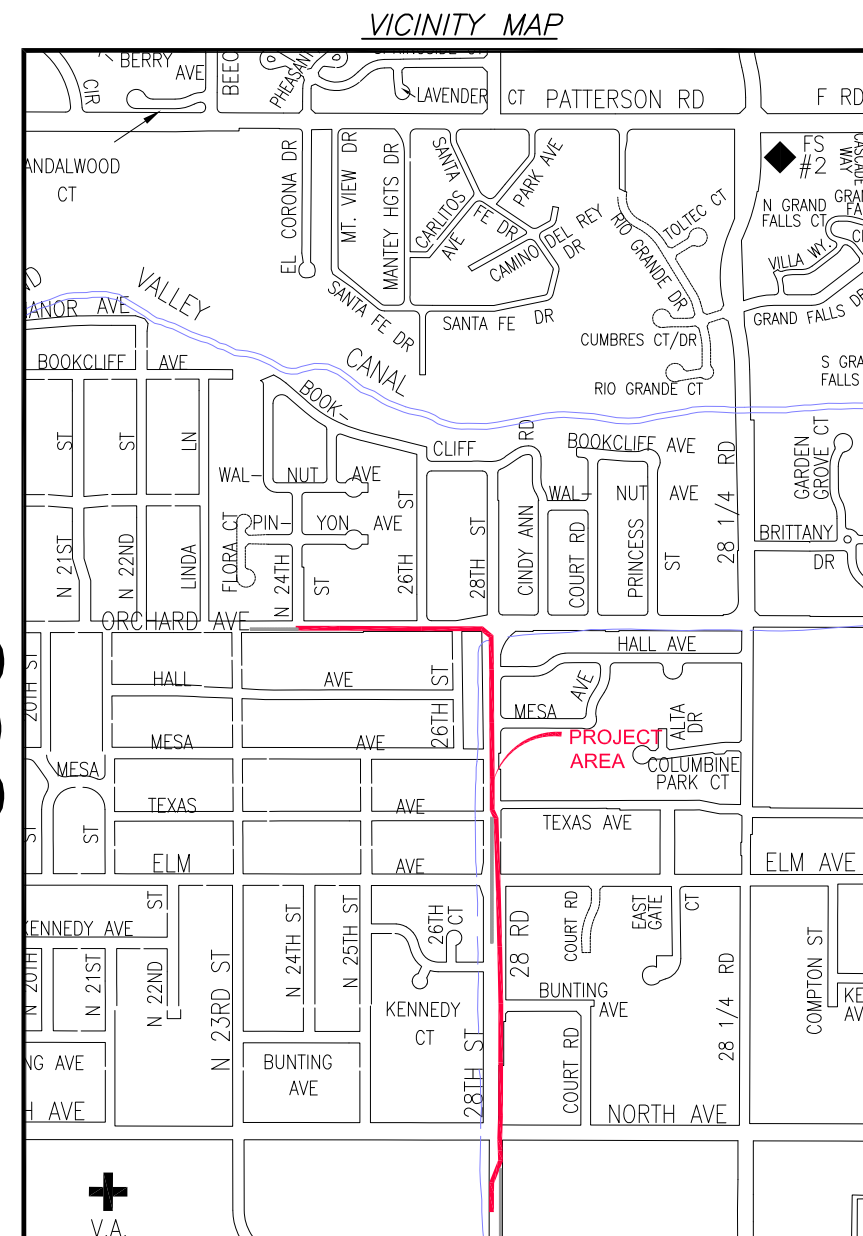


# 2016 WATERLINE REPLACEMENT PROJECT

## 28 ROAD & ORCHARD AVENUE

### JANUARY, 2016

- 1 ————— Cover Sheet
- 2 ————— Standard Abbreviations, Legend, and Symbols
- 3 ————— Summary of Approximate Quantities
- 4 ————— Project Control Map
- 5 ————— Orchard Ave. to 28 Road – Sta: 0+00 – 10+00
- 6 ————— 28 Road (Orchard Ave. to Texas Ave.) – Sta: 10+00 – 20+00
- 7 ————— 28 Road (Texas Ave. to Bunting Ave.) – Sta: 20+00 – 30+00
- 8 ————— 28 Road (Bunting Ave. to North Ave.) – Sta: 30+00 – 40+00
- 9 ————— As-Built of Indian Wash Crossing at Orchard Ave. & 28 Rd.
- 10 ————— As-Built of Indian Wash Crossing at Orchard Ave. & 28 Rd.



SCALE 1"=1000'

UTILITIES AND AGENCIES								
AGENCY	NAME	POSITION	ROLE	MAILING ADDRESS	STREET ADDRESS	CITY, STATE	VOICE-WK	FAX
GRAND JUNCTION, CITY OF	LEE COOPER	PROJECT ENGINEER	PROJECT ENGINEER	250 N. 5th STREET	250 N. 5th STREET	GRAND JCT., CO 81501	(970) 256-4155	(970) 256-4022
GRAND JUNCTION, CITY OF	BRET GUILLORY	UTILITY ENGINEER		250 N. 5th STREET	250 N. 5th STREET	GRAND JCT., CO 81501	(970) 244-1590	(970) 256-4022
GRAND JUNCTION, CITY OF	RON KEY	WATERLINE SUPERVISOR		250 N. 5th STREET	250 N. 5th STREET	GRAND JCT., CO 81501	(970) 270-6446	
CHARTER	JEFF VALDEZ	CONST. SUPERVISOR	CABLE TV	2502 FORESIGHT CIRCLE	2502 FORESIGHT CIRCLE	GRAND JCT., CO 81504	(970) 263-2314	
CENTURY LINK	CHRIS JOHNSON	ENGINEER	TELEPHONE/FIBER	2524 BLICHMANN AVE	2524 BLICHMANN AVE	GRAND JCT., CO 81504	(970) 244-4311	(970) 240-4349
XCEL ENERGY	JON PRICE	PLANNER	GAS, ELECTRIC	2538 BLICHMANN AVE	2538 BLICHMANN AVE	GRAND JCT., CO 81506	(970) 244-2693	



*Public Works & Utilities  
Engineering Division*



Know what's below.  
Call before you dig.

DRAWING STATUS:	
<input type="radio"/>	PROGRESS
<input type="radio"/>	FINAL CONSTRUCTION DRAWINGS
<input type="radio"/>	ASBUILT
DESIGNED BY:	
LEE COOPER, PROJECT ENGINEER	DATE
REVIEWED BY:	
BRET GUILLORY, UTILITY ENGINEER	DATE
AUTHORIZED FOR CONSTRUCTION	
TRENTON C. PRALL, CITY ENGINEER	DATE
ACCEPTED AS CONSTRUCTED	
LEE COOPER, PROJECT ENGINEER	DATE

NOTE: NOTIFY AFFECTED UTILITY VENDOR 48 HOURS PRIOR TO EXCAVATIONS THAT WILL EXPOSE UTILITY LINES. THE COVER SHEET WILL HAVE A LISTING OF UTILITY VENDORS AND TELEPHONE NUMBERS.

REVISION	DESCRIPTION	DATE
REVISION	_____	_____
REVISION	_____	_____
REVISION	_____	_____
REVISION	_____	_____

**ABBREVIATIONS**

AAASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
ABC	AGGREGATE BASE COURSE
AC	ASBESTOS CEMENT
AP	ANGLE POINT
ASB	ANCHORED STRAW BALES
ASP	ALUMINIZED STEEL PIPE
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BACK OF CURB
BF	BUTTERFLY VALVE
BOW	BACK OF WALK
BCR	BEGIN CURB RETURN
BOT	BOTTOM
BSWMP	BETTER STORM WATER MANAGEMENT PRACTICES
CH	CHORD
CAP	CORRUGATED ALUMINUM PIPE
CDOT	COLORADO DEPARTMENT OF TRANSPORTATION
CI	CAST IRON
C.G.& SW	CURB, GUTTER & SIDEWALK
CL	CENTER LINE
CL	CLEAR
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COMB	COMBINATION (AS IN STORM SEWER AND SANITARY SEWER)
CONC	CONCRETE
CSM	CITY SURVEY MONUMENT
CSP	CORRUGATED STEEL PIPE
CU	COPPER
DJ	DUCTILE IRON
DWY	DRIVEWAY
E	ELECTRIC
ECR	END CURB RETURN
EG	EDGE OF GUTTER
EL	ELEVATION
EP	EDGE OF PAVEMENT
EX	EXISTING
FB	FULL BODY
FC	FACE OF CURB
FG	FINISHED GRADE
F	FLOW LINE
FL	FLANGE
FM	FORCE MAIN
FO	FIBER OPTICS
FS	FAR SIDE
FTG	FOOTING
G	GAS
GB	GRADE BREAK
GM	GAS METER
GV	GATE VALVE
HBP	HOT BITUMINOUS PAVEMENT
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
IRR	IRRIGATION
L	LENGTH OF ARC
LC	LONG CHORD
LF	LINEAR FEET
LL	LONG ARC
LS	SHORT ARC
LT	LEFT
MB	MAILBOX
MCSM	MESA COUNTY SURVEY MONUMENT
MH	MANHOLE
MJ	MECHANICAL JOINT
MW	MILL WRAP
N/A	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOP	NO ONE PERSON
NRCP	NON-REINFORCED CONCRETE PIPE
NS	NEAR SIDE
NTS	NOT TO SCALE
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PE	POLYETHYLENE
PERF	PERFORATED
PI	POINT OF INTERSECTION
PIP	PLASTIC IRRIGATION PIPE
POC	POINT ON CURVE
POT	POINT ON TANGENT
PR	PROPOSED
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
RG	RESTRAINED GLANDS
RL	LONG RADIUS
ROW	RIGHT OF WAY
RP	RADIUS POINT
RR	RAIL ROAD
RS	SHORT RADIUS
RT	RIGHT
S	SLOPE
SAN	SANITARY
SC	SHORT CHORD
SCD	STANDARD CONTRACT DOCUMENTS
SCH	SCHEDULE
SF	SILT FENCE
SL	SECTION LINE
SSRB	STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION
SSUU	STANDARD SPECIFICATIONS FOR CONSTRUCTION OF UNDERGROUND UTILITIES
STA	STATION
STL	STEEL
STM	STORM
T	TELEPHONE
TAN	LENGTH OF TANGENT
TC	TOP OF CURB
TH	TEST HOLE
TV	TELEVISION
(TYP)	TYPICAL
UU	UNDERGROUND UTILITIES
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VPC	VERTICAL POINT OF CURVATURE
VPCC	VERTICAL POINT OF COMPOUND CURVATURE
VPRC	VERTICAL POINT OF REVERSE CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WATER
Δ	DELTA ANGLE

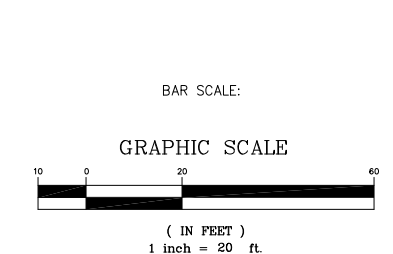
**LEGEND**

BSWMP DRAINAGE BASIN BOUNDARY	
BSWMP ANCHORED STRAW BALES	
BSWMP SILT FENCE	
BUILDING	
CONCRETE CURB AND GUTTER	
CONCRETE CURB, GUTTER, & SIDEWALK	
CONCRETE DITCH	
CONCRETE SIDEWALK	
CULVERT	
EARTH DITCH	
EDGE OF GRAVEL	
EDGE OF PAVEMENT	
FENCE (BARBED WIRE)	
FENCE (CHAIN LINK)	
FENCE (IRON)	
FENCE (PLASTIC)	
FENCE (WOOD)	
FENCE (WOVEN WIRE)	
GUARD RAIL	
HATCHING: INDICATES ASPHALT REMOVAL	
HATCHING: INDICATES CONCRETE REMOVAL	
HATCHING: INDICATES STAGING AREA	
LINE (CENTER OF IMPROVEMENTS)	
LINE (CITY LIMITS)	
LINE (CONTROL)	
LINE (EASEMENT)	
LINE (MONUMENT/SECTION)	
LINE (PROPERTY)	
LINE (RIGHT OF WAY)	
MATCH LINE	
PIPE (IRRIGATION)	
PIPE (SIPHON)	

PROPOSED CONCRETE CURB AND GUTTER	
PROPOSED CONCRETE CURB, GUTTER, & SIDEWALK	
PROPOSED CONCRETE SIDEWALK	
PROPOSED "WET" UTILITIES (CONSTRUCTION NOTE WILL INDICATE TYPE, SIZE, AND MATERIAL OF NEW MAIN)	
RAIL ROAD	
RETAINING WALL	
STRIPING (CONTINUOUS WHITE)	
STRIPING (DASHED WHITE)	
STRIPING (CONTINUOUS YELLOW)	
STRIPING (DASHED YELLOW)	
TOP OF SLOPE	
CONTOUR LINES (SHOWN BETWEEN TOP & TOE)	
TOE OF SLOPE	
TRAFFIC DETECTOR LOOP	
UTILITY LINE (ABANDON) (THIS CASE A WATER LINE)	
UTILITY LINE (CABLE TV)	
UTILITY LINE (ELECTRIC)	
UTILITY LINE (FIBER OPTIC)	
UTILITY LINE (GAS)	
UTILITY LINE (HIGH VOLTAGE OVERHEAD POWER)	
UTILITY LINE (OVERHEAD POWER)	
UTILITY LINE (OVERHEAD TELEPHONE)	
UTILITY LINE (SANITARY SEWER)	
UTILITY LINE (SANITARY SEWER FORCE MAIN)	
UTILITY LINE (SANITARY SEWER SERVICE)	
UTILITY LINE (STORM SEWER)	
UTILITY LINE (STORM SEWER, PERFORATED)	
UTILITY LINE (STORM/SANITARY SEWER SEWER COMBINATION)	
UTILITY LINE (TELEPHONE)	
UTILITY LINE (WATER)	

**SYMBOLS**

BENCH MARK	
CATCH BASIN	
CLEAN OUT	
CURB STOP	
FIRE HYDRANT	
GUY WIRE ANCHOR	
HEADGATE	
IRRIGATION PUMP	
MAILBOX	
MANHOLE (ELECTRIC)	
MANHOLE (GAS)	
MANHOLE (SANITARY/STORM)	
MANHOLE (TELEPHONE)	
MANHOLE (TV)	
MANHOLE (WATER)	
METER (GAS)	
METER (WATER)	
PEDESTAL (TELEPHONE)	
PEDESTAL (TV)	
PROPERTY PIN	
PULL BOX	
REDUCER FITTING	
SIGN OR POST (SIGN TYPE NOTED)	
SPRINKLER HEAD	
STREET LIGHT	
SURVEY MONUMENT (CITY)	
SURVEY MONUMENT (TYPE NOTED)	
TEST HOLE	
TRAFFIC PAINT MARKING	
TRAFFIC SIGNAL POLE AND MAST ARM	
UTILITY POLE	
VALVE (GAS)	
VALVE (IRRIGATION)	
VALVE (WATER)	
VEGETATION (HEDGE OR BUSH)	
VEGETATION (TREE STUMP)	
VEGETATION (TREE) (CALIPER SIZE NOTED)	
WATER HYDRANT	
WEIR	
YARD LIGHT	



NORTH ARROW:



REVISION Δ	DESCRIPTION	DATE	DRAWN BY	JCS	DATE	4-02
REVISION Δ			DESIGNED BY		DATE	
REVISION Δ			CHECKED BY		DATE	
REVISION Δ			APPROVED BY		DATE	

SCALE	
PLAN	PROFILE
HORIZ. 1"=20'	HORIZ. _____
VERT. _____	VERT. _____



**PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION**

**CITY OF GRAND JUNCTION STANDARD ABBREVIATIONS, LEGEND, AND SYMBOLS SHEET**

Item No.	CDOT, City Ref.	Description	Quantity	Units
1	108.2	Water Main (2") (HDPE) (Service Line) (If lead service line is encounter, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	10.	Lin. Ft.
2	108.2	Water Main (6") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	285.	Lin. Ft.
3	108.2	Water Main (8") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	85.	Lin. Ft.
4	108.2	Water Main (10") (C-900 PVC, DR-18) (Includes cost of connection to existing waterline / valve / fitting)	15.	Lin. Ft.
5	108.2	Water Main (18") (C-905 PVC, DR-25) (Includes cost of connection to existing waterline / valve / fitting)	140.	Lin. Ft.
6	108.2	Water Main (18") (Fusible C-905 PVC, DR-25) (Install Only) (Includes all equipment, labor, fuel, and materials for fusing pipe and pulling pipe through existing 24" steel pipe) (The City has already purchased the 18" Fusible pipe from Underground Solutions) The Bidder shall not include pipe material costs for this Bid Item.	3,650.	Lin. Ft.
7	108.2	Imported Trench Backfill (Class 3) (Includes haul and disposal of unsuitable excavated material) (Assumed Unit Weight = 133 lbs/ft <sup>3</sup> )	300.	Ton
8	108.3	Gate Valve (6")	1.	Each
9	108.3	8" Blind Flange	1.	Each
10	108.3	18" x 6" Tee (MJ)	1.	Each
11	108.3	Butterfly Valve (18")	4.	Each
12	108.3	Elbow (6" x 22.5 deg) (MJ)	2.	Each
13	108.3	Elbow (6" x 45 deg) (MJ)	8.	Each
14	108.3	Elbow (8" x 45 deg) (MJ)	6.	Each
15	108.3	Elbow (18" x 22.5 deg) (MJ)	4.	Each
16	108.3	Elbow (18" x 45 deg) (MJ)	6.	Each
17	108.3	Reducer (20" x 18") (MJ)	1.	Each
18	108.3	18" Solid Sleeve Coupling (MJ)	7.	Each
19	108.3	Fire Hydrant Assembly	6.	Each
20	108.4	3/4" Water Service Line (Type K Copper) (If Lead or Poly service line is encountered, water service shall be replaced to meter) (Includes cost of connection to existing pipe)	160.	Lin. Ft.

Item No.	CDOT, City Ref.	Description	Quantity	Units
21	108.4	Tapping Saddle (18" x 3/4")	19.	Each
22	108.4	Tapping Saddle (18" x 2")	1.	Each
23	108.4	Corporation Stop (3/4")	19.	Each
24	108.4	Corporation Stop (2")	1.	Each
25	108.7	Granular Stabilization Material (Type B) (Crushed Rock) (Includes haul and disposal of unsuitable excavated material) (Assumed material unit weight = 138 lbs/ft <sup>3</sup> )	200.	Ton
26	202	Removal of Bush	1.	Each
27	202	Removal of Tree	2.	Each
28	202	Abandon Pipe (Abandon pipe by plugging ends with concrete)	70.	Lin. Ft.
29	202	Abandon Existing Water Valve (Close valve, remove top half of existing valve box, fill cavity to finished subgrade with flow-fill material)	9.	Each
30	202	Remove Existing Fire Hydrant (Return Hydrant to City Shops)	6.	Each
31	202	Remove Existing Pipe (Various sizes and material type)	400.	Lin. Ft.
32	202	Remove Existing Water Valve	7.	Each
33	202	Removal of Asphalt Mat (Planing) (T-Top Section) (2" Depth) (North Ave., 28 Road, Orchard Ave.) (Per City Standard Detail GU-03)	430.	Sq. Yd.
34	202	Removal of Asphalt Mat (Full-Depth) (Per City Standard Detail GU-03)	520.	Sq. Yd.
35	202	Removal of Concrete (Saw cut and remove concrete as shown) (Includes but not limited to curb, gutter, sidewalk, driveway, slabs, V-pan, curb ramps, intersection corners, aprons, and concrete walls.)	210.	Sq. Ft.
36	203	Disposal of Radioactive Material (City Shops Location)	100.	Cu. Yd.
37	206	Structure Backfill (Flow-Fill)	27.	Cu. Yd.
38	208	Storm Drain Inlet Protection (Silt-Sack) (Includes Maintenance & Removal of Inlet Protection)	10.	Each
39	208	Concrete Washout Facility	1.	Lump Sum

Item No.	CDOT, City Ref.	Description	Quantity	Units
40	210	Repair damage to unlocated irrigation lines, various sizes and materials (1" to 12" dia.)	3.	Each
41	210	Reset Guardrail	50.	Lin. Ft.
42	210	Reset Sprinkler System (Complete in Place)	6.	Each
43	212	Sod (Includes 6" Thick Imported Topsoil placed prior to sod placement)	100.	Sq. Ft.
44	304	Aggregate Base Course (Class 6) (15" Thick) (4' wide +/-)	520.	Sq. Yd.
45	401	Hot Bituminous Pavement (Patching) (4" Thick) (Grading SX, PG 64-22, GYR=75) (Two 2" Lifts) (Bottom Two Mats) (See City Standard Detail GU-03)	520.	Sq. Yd.
46	401	Hot Bituminous Pavement (Patching) (2" Thick) (Grading SX, PG 64-22, GYR=75) (T-Top) (See City Standard Detail GU-03) (Top Mat)	430.	Sq. Yd.
47	407	Emulsified Asphalt (Tack Coat)	95.	Gallon
48	608	Concrete Curb and Gutter (Match in Kind)	100.	Lin. Ft.
49	608	Concrete Curb, Gutter and Sidewalk (Match in Kind)	3.	Sq. Yd.
50	608	Concrete Drainage Pan (Match in Kind)	6.	Sq. Yd.
51	608	Cap Top Half of Sewer Pipe in concrete per Std. Detail GU-04 (20' long)	2.	Each
52	620	Portable Sanitary Facility	1.	Each
53	625	Construction Surveying	1.	Lump Sum
54	626	Mobilization	1.	Lump Sum
55	630	Traffic Control Plan	1.	Lump Sum
56	630	Traffic Control (Complete in Place)	1.	Lump Sum
57	630	Flagging	200.	Hour

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REVISION	DESCRIPTION	DATE	DRAWN BY	DATE
REVISION			DESIGNED BY	DATE
REVISION			CHECKED BY	DATE
REVISION			APPROVED BY	DATE

SCALE
N.T.S.

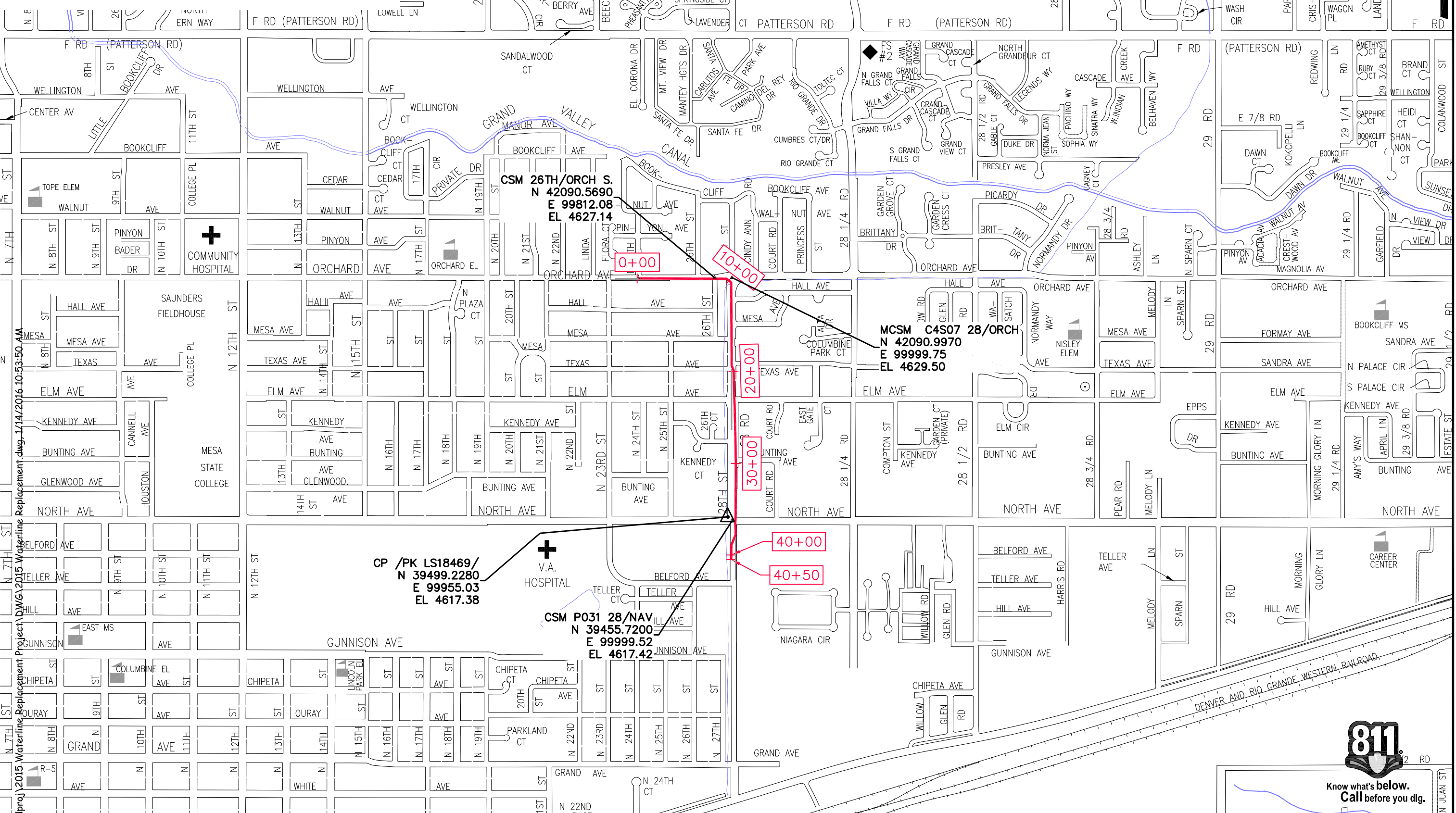


**PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION**

**2016 WATERLINE REPLACEMENT PROJECT SUMMARY OF APPROXIMATE QUANTITIES**

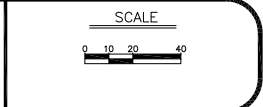
**COORDINATE SYSTEM:**

The coordinate system used for this Project is the Mesa County LCS (Local Coordinate System) zone "GVALCS" being a Transverse Mercator Coordinate Projection where as the Point of Origin (N50,000/E100,000) and Central Meridian being the SIMS point SN01 and GLO6 (initial Point - Ute Meridian). The Geodetic Coordinates of said SIMS point SN01 being Lat. 39°06'22.72746 N and Long. -108°32'01.43552" W. Basis of Bearings is True Geodetic North at the Central Meridian.



2015 Waterline Replacement Project DWG 1/14/2016 10:53:50 AM  
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REVISION	DESCRIPTION	DATE	DRAWN BY	DATE



**PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION**

**2016 WATERLINE REPLACEMENT PROJECT PROJECT CONTROL MAP**



Know what's below. Call before you dig.

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ENGINEER'S RECOMMENDED SEQUENCE OF OPERATIONS:

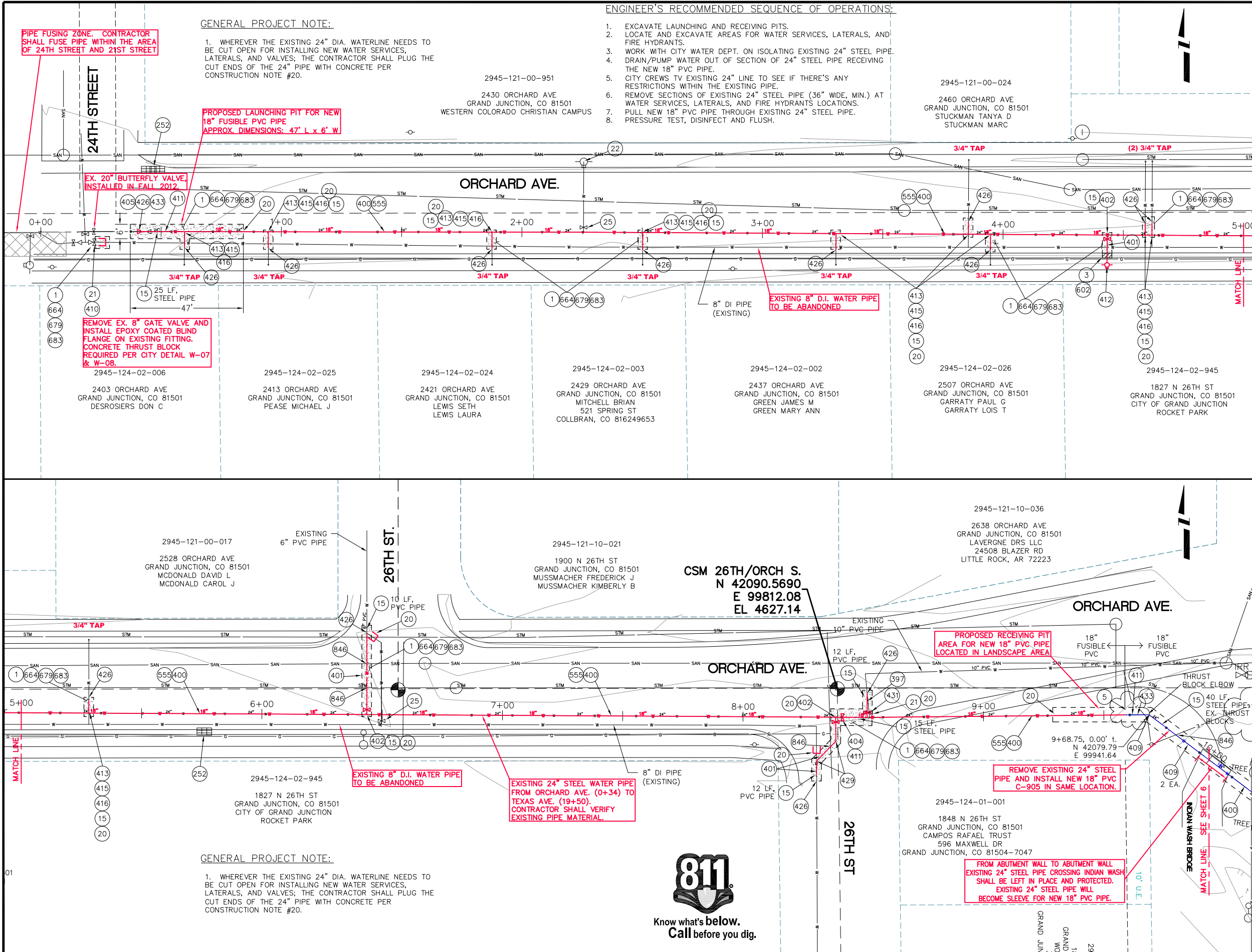
1. EXCAVATE LAUNCHING AND RECEIVING PITS.
2. LOCATE AND EXCAVATE AREAS FOR WATER SERVICES, LATERALS, AND FIRE HYDRANTS.
3. WORK WITH CITY WATER DEPT. ON ISOLATING EXISTING 24" STEEL PIPE. DRAIN/PUMP WATER OUT OF SECTION OF 24" STEEL PIPE RECEIVING THE NEW 18" PVC PIPE.
4. CITY CREWS TO EXISTING 24" LINE TO SEE IF THERE'S ANY RESTRICTIONS WITHIN THE EXISTING PIPE.
5. REMOVE SECTIONS OF EXISTING 24" STEEL PIPE (36" WIDE, MIN.) AT WATER SERVICES, LATERALS, AND FIRE HYDRANTS LOCATIONS.
6. PULL NEW 18" PVC PIPE THROUGH EXISTING 24" STEEL PIPE. PRESSURE TEST, DISINFECT AND FLUSH.

GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.



- 1 202 - REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)
- 3 202 - REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.
- 5 202 - REMOVAL OF BUSH
- 15 202 - REMOVAL OF PIPE (SIZE & TYPE AS SHOWN ON PLAN) (INCLUDES REMOVAL OF THRUST BLOCKS)
- 20 202 - ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.
- 21 202 - REMOVE EXISTING WATER VALVE
- 22 202 - REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS
- 25 202 - ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.
- 252 208 - STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)
- 397 102.7/108.2 - 10" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 400 102.7/108.2 - 18" WATER MAIN PIPE (C-905 FUSIBLE PVC, DR-25) INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS FOR FUSING PIPE AND PULLING NEW PIPE THROUGH EXISTING 24" STEEL PIPE.
- 401 102.7/108.2 - 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 402 6" HOT TAP & 6" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)
- 404 102.8e/108.3 - BUTTERFLY VALVE (18")
- 405 102.8/108.3 - 20" x 18" REDUCER (MJ) RESTRAINED
- 409 102.8/108.3 - 18", 45° ELBOW (MJ) RESTRAINED
- 410 102.8/108.3 - 8" BLIND FLANGE
- 411 102.8/108.3 - 18" SOLID SLEEVE COUPLING (MJ)
- 412 102.8A/108.3 - FIRE HYDRANT ASSEMBLY
- 413 102.7C/108.4 - WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.
- 415 102.8K/108.4 - TAPPING SADDLE (SIZE AS SHOWN ON PLAN)
- 416 102.8J/108.4 - CORPORATION STOP (SIZE AS SHOWN ON PLAN)
- 426 CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE
- 429 102.8/108.3 - 6", 45° ELBOW (MJ) RESTRAINED
- 431 10" HOT TAP & 10" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)
- 433 102.7/108.2 - 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 555 603 - ANNULAR SPACE GROUTING
- 602 608.06 - CONCRETE CURB AND GUTTER (2' WIDE)
- 664 304 - AGGREGATE BASE COURSE (CLASS 6) (15" THICK)
- 679 401.08 - HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)
- 683 401.08 - HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7" WIDE)
- 846 POT HOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POT HOLE SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.



REVISION	DESCRIPTION	DATE	DRAWN BY	HC	DATE	JULY, 2015

SCALES:	PLAN	PROFILE
HORIZONTAL	1" = 40'	1" = 20'
VERTICAL	1" = 2'	1" = 5'



PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

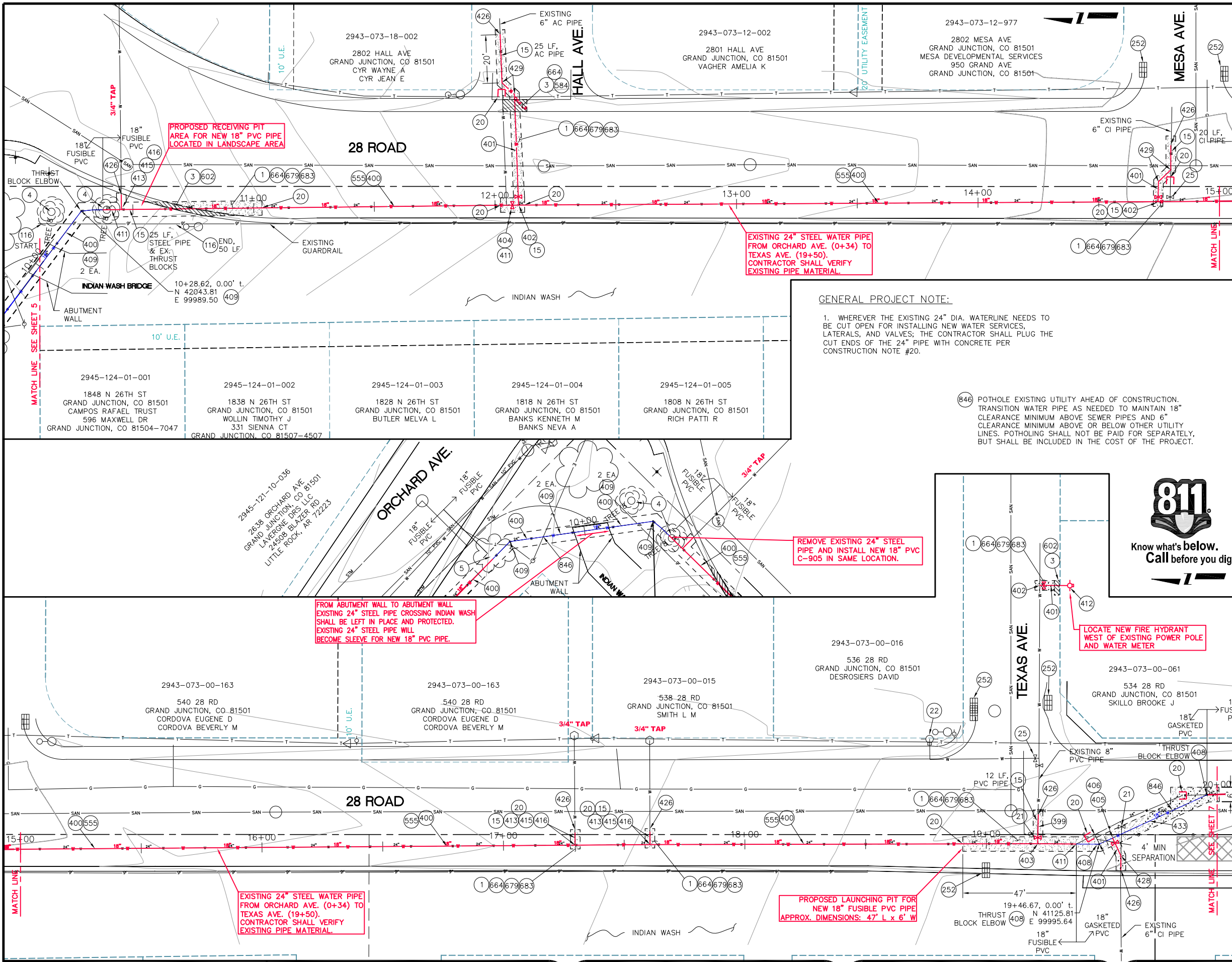
2016 WATERLINE REPLACEMENT PROJECT  
ORCHARD AVENUE TO 28 ROAD  
STA 0+00 TO STA 10+00

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PROJECT NO. 301-F000522

CONSTRUCTION NOTES

- 1 202 - REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)
- 3 202 - REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.
- 4 202 - REMOVAL OF TREE
- 5 202 - REMOVAL OF BUSH
- 15 202 - REMOVAL OF PIPE (SIZE AND TYPE AS SHOWN ON PLAN) (INCLUDES REMOVAL OF THRUST BLOCKS)
- 20 202 - ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.
- 21 202 - REMOVE EXISTING WATER VALVE
- 22 202 - REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS
- 25 202 - ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.
- 116 210 - RESET GUARDRAIL
- 252 202 - STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)
- 399 102.7/108.2 - 8" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 400 102.7/108.2 - 18" WATER MAIN PIPE (C-905 FUSIBLE PVC, DR-25) INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS FOR FUSING PIPE AND PULLING NEW PIPE THROUGH EXISTING 24" STEEL PIPE.
- 401 102.7/108.2 - 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 402 6" HOT TAP & 6" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)
- 403 8" HOT TAP & 8" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)
- 404 102.8e/108.3 - BUTTERFLY VALVE (18")
- 405 102.8b/108.3 - 6" GATE VALVE
- 406 102.8/108.3 - 18" x 6" TEE
- 408 102.8/108.3 - 18", 22.5' ELBOW (MJ) RESTRAINED
- 409 102.8/108.3 - 18", 45' ELBOW (MJ) RESTRAINED
- 411 102.8/108.3 - 18" SOLID SLEEVE COUPLING (MJ)
- 412 102.8A/108.3 - FIRE HYDRANT ASSEMBLY
- 413 102.7C/108.4 - WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.
- 415 102.8K/108.4 - TAPPING SADDLE (SIZE AS SHOWN ON PLAN)
- 416 102.8J/108.4 - CORPORATION STOP (SIZE AS SHOWN ON PLAN)
- 426 CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE
- 428 102.8/108.3 - 6", 22.5' ELBOW (MJ) RESTRAINED
- 429 102.8/108.3 - 6", 45' ELBOW (MJ) RESTRAINED
- 433 102.7/108.2 - 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 555 603 - ANNULAR SPACE GROUTING
- 584 608.06 - CONCRETE DRAINAGE PAN (MATCH IN KIND)
- 602 608.06 - CONCRETE CURB AND GUTTER (2' WIDE)
- 664 304 - AGGREGATE BASE COURSE (CLASS 6) (15" THICK)
- 679 401.08 - HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)
- 683 401.08 - HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7" WIDE)



**GENERAL PROJECT NOTE:**

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES, THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

846 POTHOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POTHOLING SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.



REVISION	DESCRIPTION	DATE	DRAWN BY	HC	DATE	JULY, 2015

SCALE:	PLAN	PROFILE
HORIZONTAL	1" = 40'	1" = 20'
VERTICAL	1" = 20'	1" = 2'



**PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION**

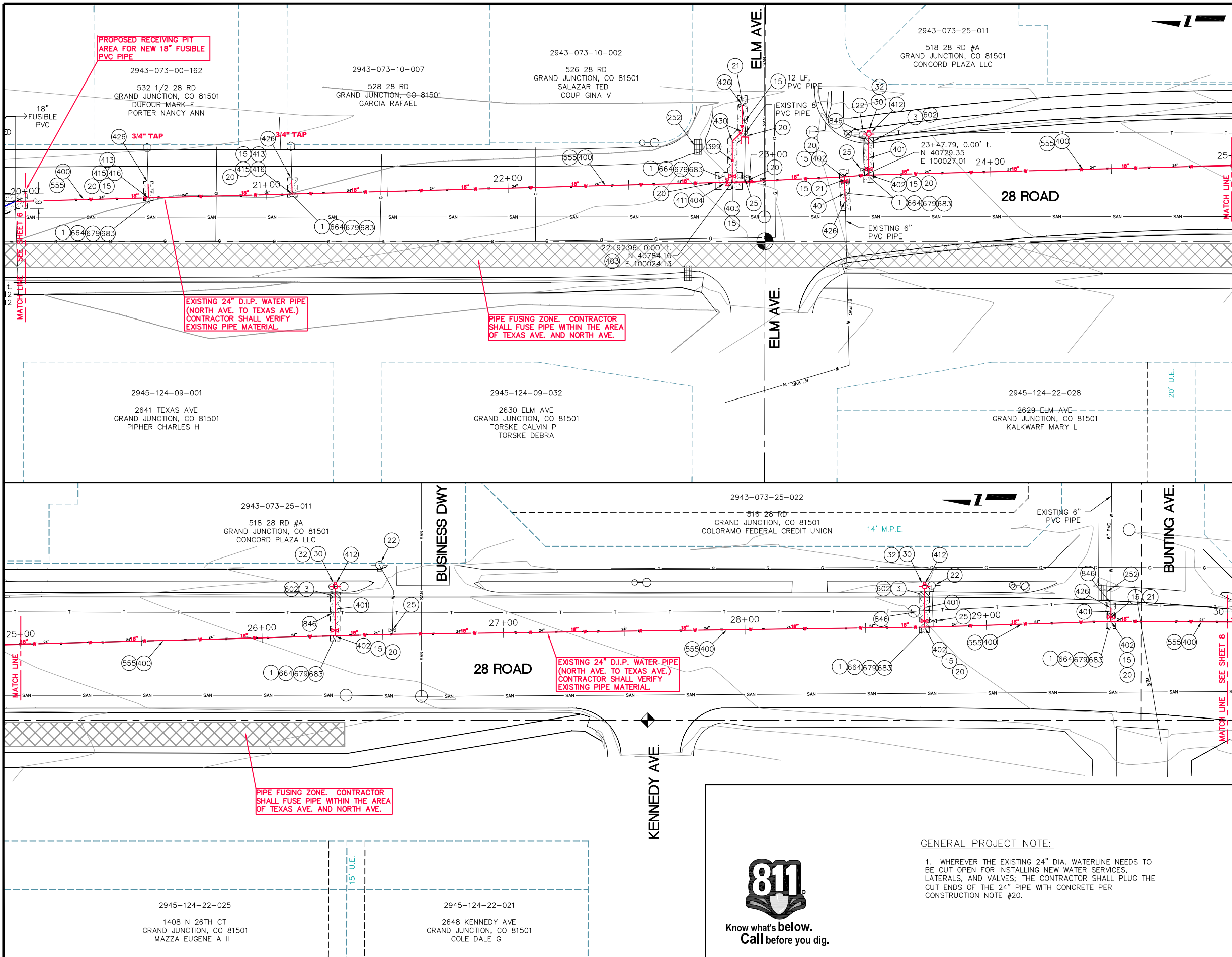
**2016 WATERLINE REPLACEMENT PROJECT  
28 ROAD (ORCHARD AVE. TO TEXAS AVE.)  
STA 10+00 TO STA 20+00**

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PROJECT NO. 301-F000522

CONSTRUCTION NOTES

- 1 202 - REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)
- 3 202 - REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.
- 15 202 - REMOVAL OF PIPE AS SHOWN. (SIZE AND TYPE AS SHOWN ON PLAN)
- 20 202 - ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.
- 21 202 - REMOVE EXISTING WATER VALVE
- 22 202 - REMOVE EXISTING FIRE HYDRANT AND RETURN TO CITY SHOPS
- 25 202 - ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.
- 30 210 - RESET SPRINKLER SYSTEM (COMPLETE IN PLACE)
- 32 212 - SOD (INCLUDES 6" THICK IMPORTED TOPSOIL PLACED PRIOR TO SOD PLACEMENT)
- 252 208 - STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)
- 399 102.7/108.2 - 8" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 400 102.7/108.2 - 18" WATER MAIN PIPE (C-905 FUSIBLE PVC, DR-25) INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS FOR FUSING PIPE AND PULLING NEW PIPE THROUGH EXISTING 24" STEEL PIPE.
- 401 102.7/108.2 - 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 402 6" HOT TAP & 6" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)
- 403 8" HOT TAP & 8" GATE VALVE (PROVIDED AND INSTALLED BY THE CITY'S WATER DEPT.)
- 404 102.8e/108.3 - BUTTERFLY VALVE (18")
- 411 102.8/108.3 - 18" SOLID SLEEVE COUPLING (MJ)
- 412 102.8A/108.3 - FIRE HYDRANT ASSEMBLY
- 413 102.7C/108.4 - WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.
- 415 102.8K/108.4 - TAPPING SADDLE (SIZE AS SHOWN ON PLAN)
- 416 102.8J/108.4 - CORPORATION STOP (SIZE AS SHOWN ON PLAN)
- 426 CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE
- 430 102.8/108.3 - 8", 45' ELBOW (MJ) RESTRAINED
- 433 102.7/108.2 - 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 555 603 - ANNULAR SPACE GROUTING
- 584 608.06 - CONCRETE DRAINAGE PAN (MATCH IN KIND)
- 602 608.06 - CONCRETE CURB AND GUTTER (2' WIDE)
- 664 304 - AGGREGATE BASE COURSE (CLASS 6) (15" THICK)
- 679 401.08 - HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)
- 683 401.08 - HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7" WIDE)
- 846 POT HOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POT HOLE SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.



Know what's below.  
Call before you dig.

GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

REVISION	DESCRIPTION	DATE	DRAWN BY	DATE
			HC	JULY, 2015
			ALC	JULY, 2015

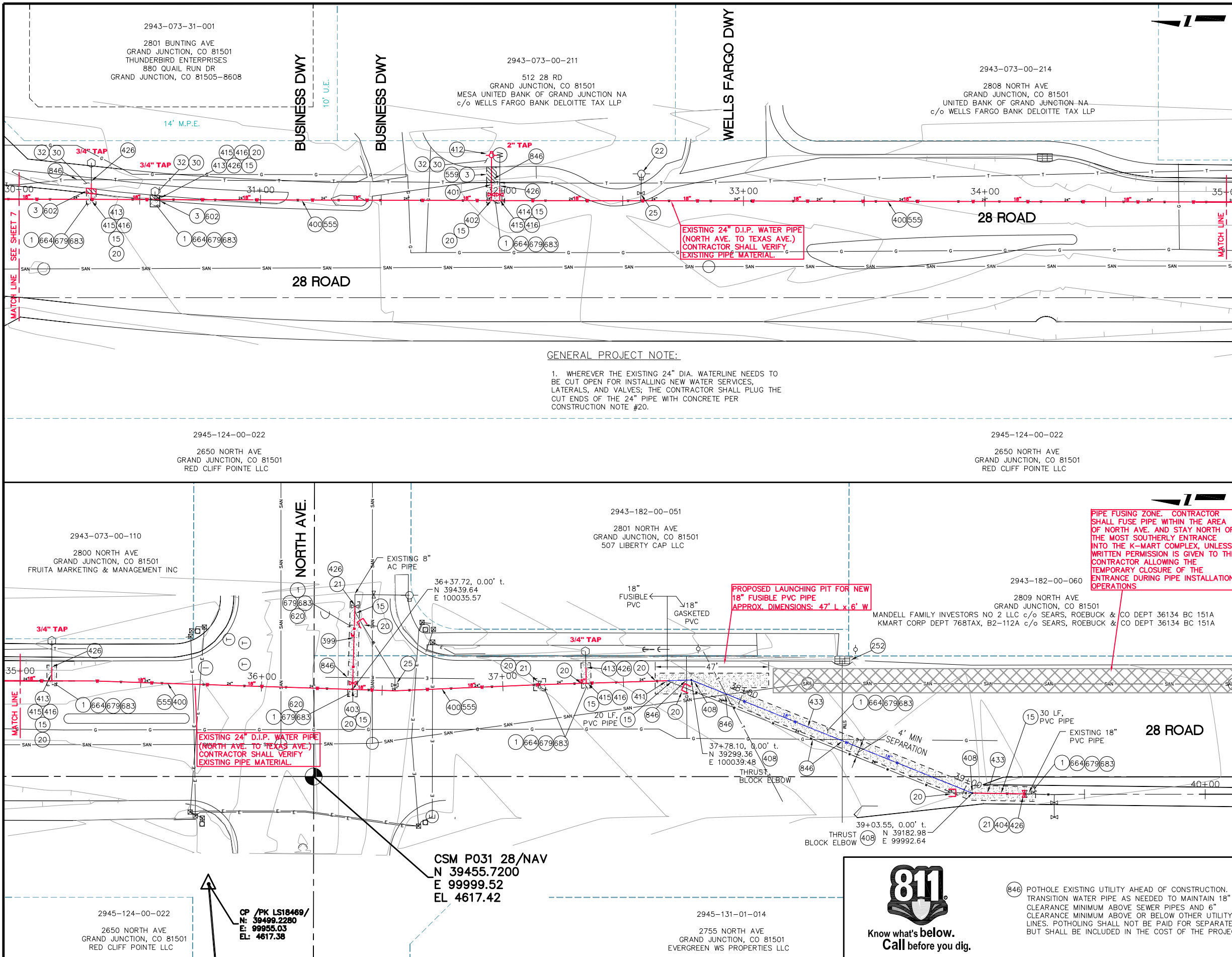
SCALES:	
PLAN	PROFILE
HORIZONTAL 1" = 40'	HORIZONTAL 1" = 40'
VERTICAL 1" = 2'-0"	VERTICAL 1" = 2'-0"



**PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION**

**2016 WATERLINE REPLACEMENT PROJECT  
28 ROAD (TEXAS AVE. TO BUNTING AVE.)  
STA 20+00 TO STA 30+00**

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PROJECT NO. 301-F000522

CONSTRUCTION NOTES

- 1 202 - REMOVAL OF ASPHALT MAT. CUT AND REMOVE ASPHALT AS SHOWN. (INDICATED BY DOT HATCH PATTERN)
- 3 202 - REMOVAL OF CONCRETE. SAW CUT AND REMOVE CONCRETE AS SHOWN. (INDICATED BY CROSS HATCH PATTERN) INCLUDES BUT NOT LIMITED TO CURB, GUTTER, SIDEWALK, DRIVEWAY, SLABS, V-PAN, CURB RAMPS, INTERSECTION CORNERS, APRONS, AND LANDSCAPE BORDERS.
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- 20 202 - ABANDON PIPE. ABANDON BY PLUGGING REMAINING ENDS WITH CONCRETE.
- 21 202 - REMOVE EXISTING WATER VALVE
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- 25 202 - ABANDON EXISTING WATER VALVE. CLOSE VALVE, REMOVE TOP HALF OF EXISTING VALVE BOX, FILL CAVITY TO FINISHED SUBGRADE WITH FLOW FILL MATERIAL.
- 30 210 - RESET SPRINKLER SYSTEM (COMPLETE IN PLACE)
- 32 212 - SOD (INCLUDES 6" THICK IMPORTED TOPSOIL PLACED PRIOR TO SOD PLACEMENT)
- 252 208 - STORM DRAIN INLET PROTECTION (SILT-SACK) (INCLUDES MAINTENANCE AND REMOVAL OF INLET PROTECTION)
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- 401 102.7/108.2 - 6" WATER MAIN PIPE (C-900 PVC, DR 18). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
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- 411 102.8/108.3 - 18" SOLID SLEEVE COUPLING (MJ)
- 412 102.8A/108.3 - FIRE HYDRANT ASSEMBLY
- 413 102.7C/108.4 - WATER SERVICE LINE (TYPE K COPPER) (SIZE AS SHOWN ON PLAN) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.
- 414 102.7C/108.4 - WATER MAIN (2") (HDPE) (SERVICE LINE) IF LEAD OR POLY SERVICE LINE IS ENCOUNTERED, WATER SERVICE LINE SHALL BE REPLACED TO METER.
- 415 102.8K/108.4 - TAPPING SADDLE (SIZE AS SHOWN ON PLAN)
- 416 102.8J/108.4 - CORPORATION STOP (SIZE AS SHOWN ON PLAN)
- 426 CONNECT TO EXISTING WATER PIPE/VALVE/FITTING. THE CONTRACT UNIT PRICE FOR WATER PIPE SHALL INCLUDE THE COST OF CONNECTION TO EXISTING PIPELINE
- 430 102.8/108.3 - 8", 45' ELBOW (MJ) RESTRAINED
- 433 102.7/108.2 - 18" WATER MAIN PIPE (C-905 PVC, DR 25). INCLUDES TYPE A BEDDING AND HAUNCHING MATERIAL AND BACKFILL OF TRENCH WITH NATIVE MATERIALS MEETING 103.16 EARTH BACKFILL MATERIAL.
- 555 603 - ANNULAR SPACE GROUTING
- 559 608.06 - MONOLITHIC VERTICAL CURB, GUTTER AND SIDEWALK (MATCH IN KIND) (CONCRETE)
- 602 608.06 - CONCRETE CURB AND GUTTER (2' WIDE)
- 620 206 - STRUCTURAL BACKFILL (FLOW-FILL)
- 664 304 - AGGREGATE BASE COURSE (CLASS 6) (15" THICK)
- 679 401.08 - HOT BITUMINOUS PAVEMENT (4" THICK) (GRADING SX, BINDER GRADE PG 64-22) (TWO 2" LIFTS) (BOTTOM TWO MATS) (5' WIDE MAX.)
- 683 401.08 - HOT BITUMINOUS PAVEMENT (2" THICK) (GRADING SX, BINDER GRADE PG 64-22) (ONE 2" LIFT) (TOP MAT) (T-TOP PATCH, 6'-7" WIDE)

GENERAL PROJECT NOTE:

1. WHEREVER THE EXISTING 24" DIA. WATERLINE NEEDS TO BE CUT OPEN FOR INSTALLING NEW WATER SERVICES, LATERALS, AND VALVES; THE CONTRACTOR SHALL PLUG THE CUT ENDS OF THE 24" PIPE WITH CONCRETE PER CONSTRUCTION NOTE #20.

PIPE FUSING ZONE. CONTRACTOR SHALL FUSE PIPE WITHIN THE AREA OF NORTH AVE. AND STAY NORTH OF THE MOST SOUTHERLY ENTRANCE INTO THE K-MART COMPLEX, UNLESS WRITTEN PERMISSION IS GIVEN TO THE CONTRACTOR ALLOWING THE TEMPORARY CLOSURE OF THE ENTRANCE DURING PIPE INSTALLATION OPERATIONS

PROPOSED LAUNCHING PIT FOR NEW 18" FUSIBLE PVC PIPE APPROX. DIMENSIONS: 47' L x 6' W

EXISTING 24" D.I.P. WATER PIPE (NORTH AVE. TO TEXAS AVE.) CONTRACTOR SHALL VERIFY EXISTING PIPE MATERIAL.

CSM P031 28/NAV  
N 39455.7200  
E 99999.52  
EL 4617.42

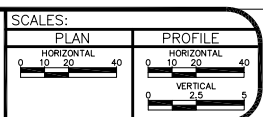
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E: 99955.03  
EL: 4617.38



Know what's below.  
Call before you dig.

646 POT HOLE EXISTING UTILITY AHEAD OF CONSTRUCTION. TRANSITION WATER PIPE AS NEEDED TO MAINTAIN 18" CLEARANCE MINIMUM ABOVE SEWER PIPES AND 6" CLEARANCE MINIMUM ABOVE OR BELOW OTHER UTILITY LINES. POT HOLE SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.

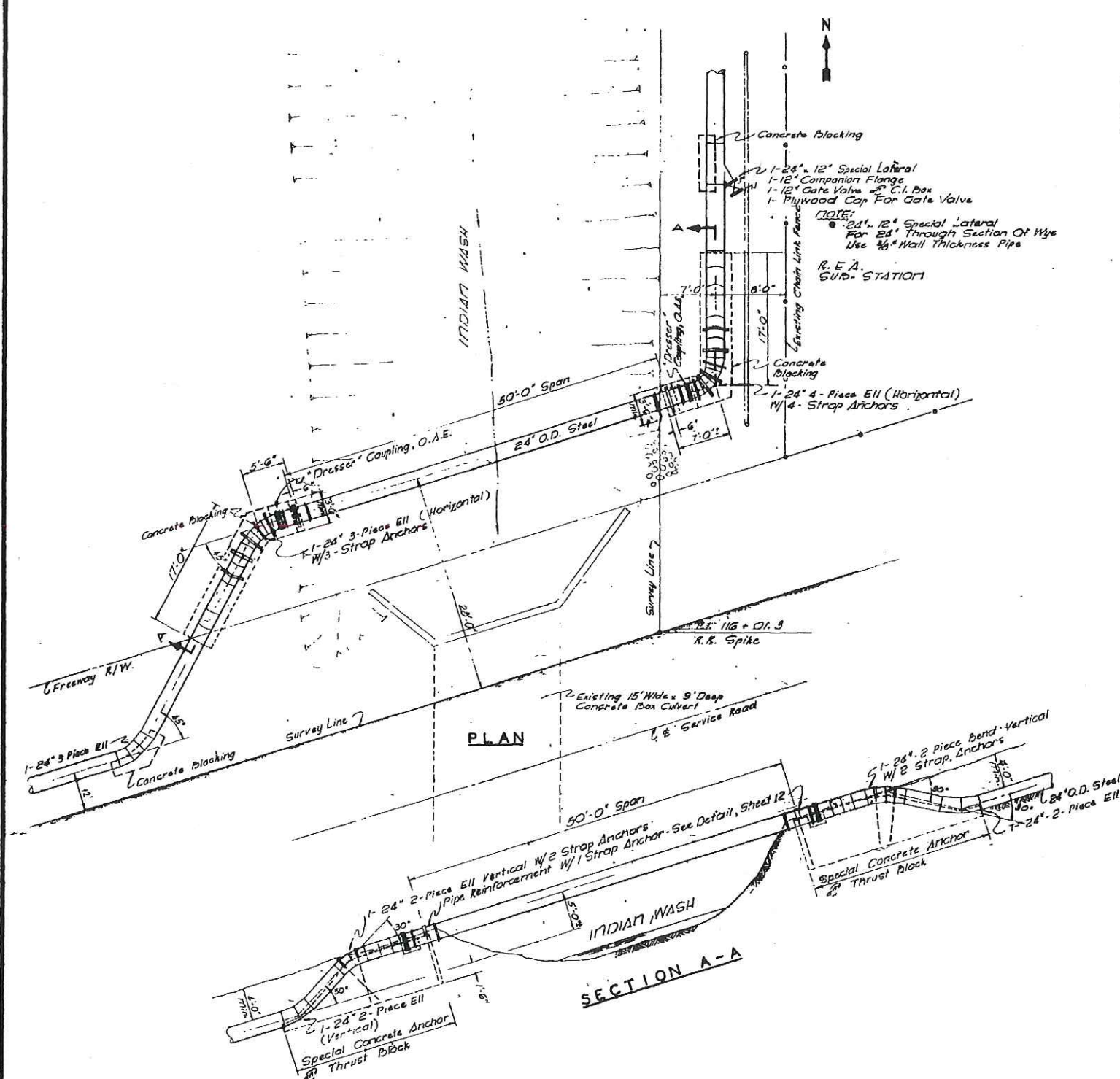
REVISION	DESCRIPTION	DATE	DRAWN BY	HC	DATE	DESIGNED BY	ALC	CHECKED BY	DATE	APPROVED BY	DATE
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					JULY, 2015						



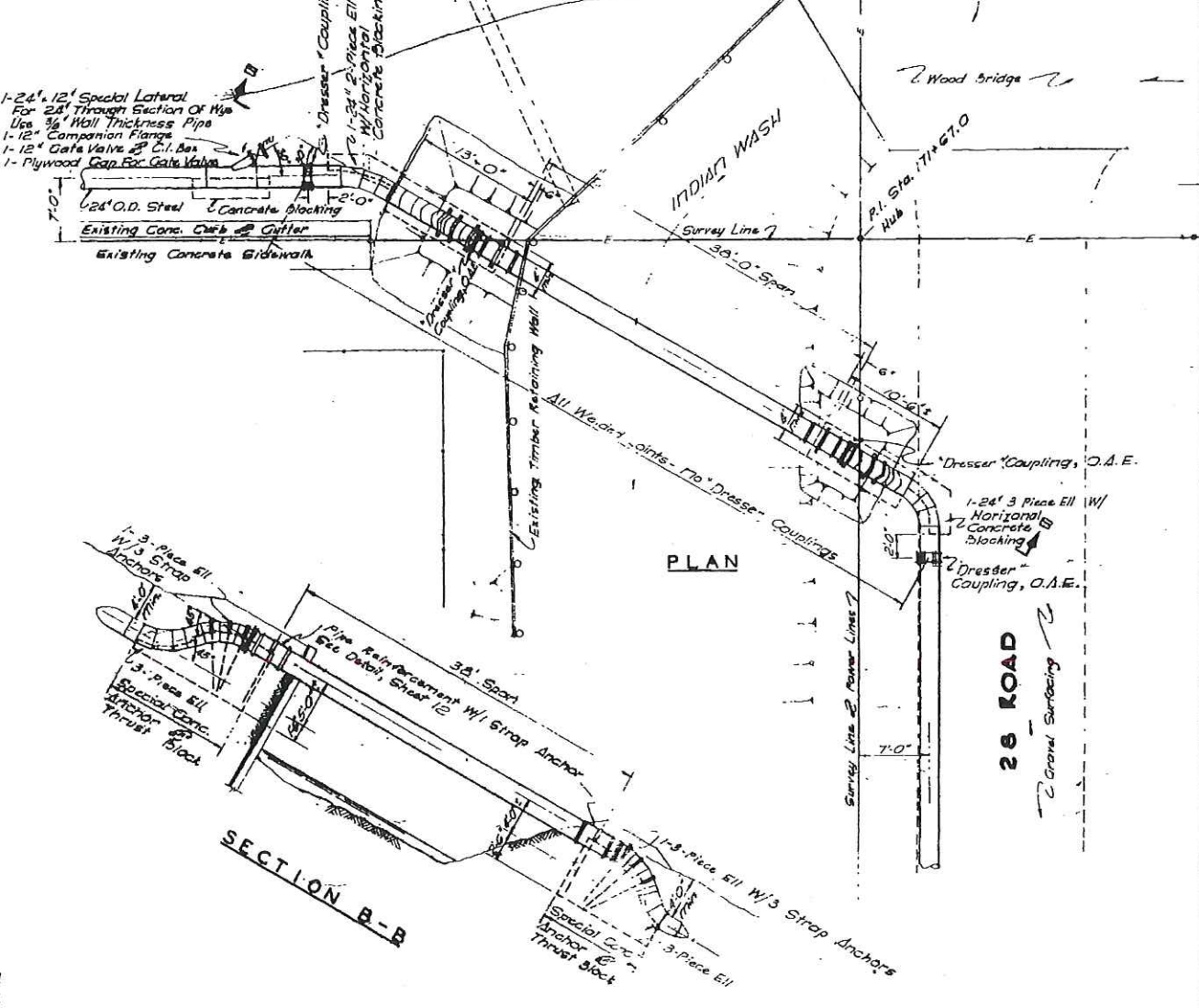
PUBLIC WORKS AND UTILITIES ENGINEERING DIVISION

2016 WATERLINE REPLACEMENT PROJECT  
28 ROAD (BUNTING AVE. TO NORTH AVE.)  
STA 30+00 TO STA 40+00





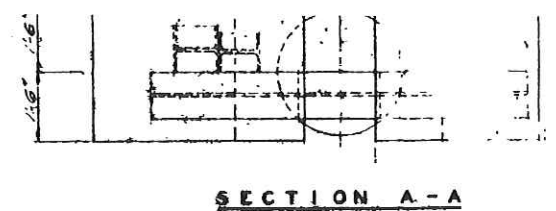
CROSSING AT FREEWAY AND 28 ROAD-STA. 116+01.3  
SCALE: 1/8" = 1 FT.



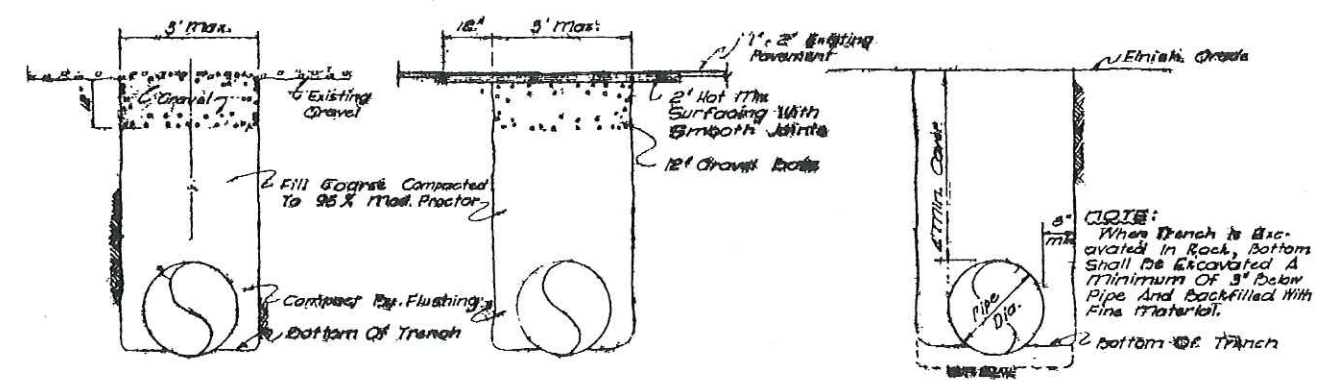
CROSSING AT 28 ROAD AND ORCHARD AVENUE-STA. 171+67.00  
SCALE: 1/8" = 1 FT.

AS CONSTRUCTED

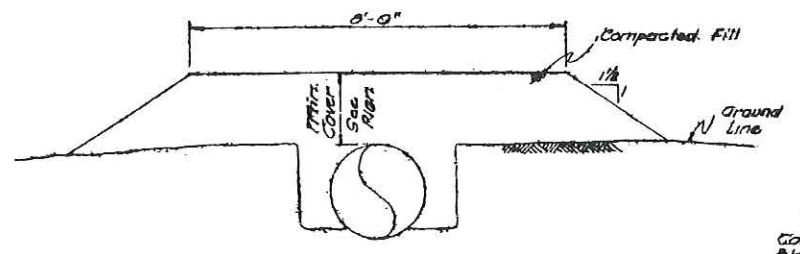
W. F. TURNEY AND ASSOCIATES CONSULTING ENGINEERS, SANTA FE, NEW MEXICO		GRAND JUNCTION, COLO	
		INDIAN WASH WATER MAIN	
		INDIAN WASH CROSSINGS	
BY	REVISION	DATE	
W.F.T.	1		
D. A. E. DESIGNED OR APPROVED EQUAL		DRAWN BY	PROJECT NO.
CHECKED: 2/2/71		W.F.T.	88-18
		SCALE:	DATE
		1/8" = 1 FT.	JAN 70
			SHEET
			OF 13



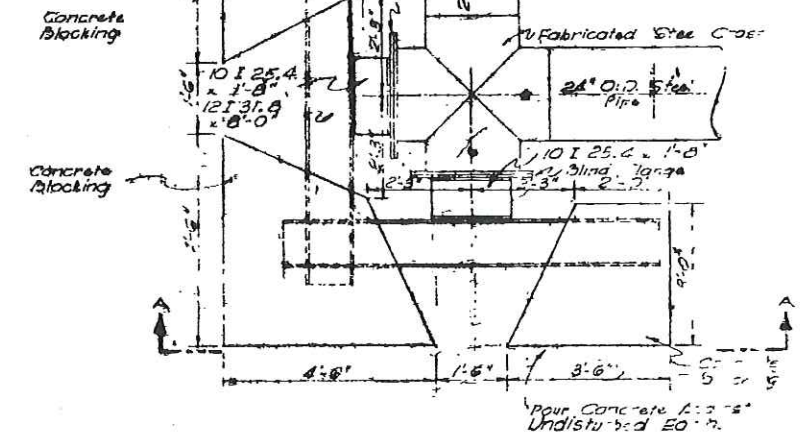
SECTION A-A



TRENCH SECTION  
SCALE: 1/2" = 1 FT.

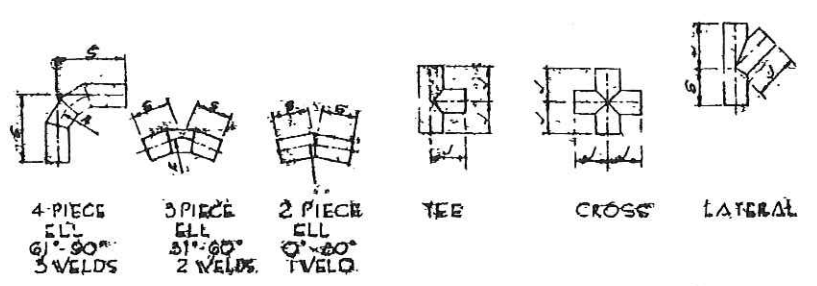


EMBANKMENT  
SCALE: 1/2" = 1 FT.



CROSS WITH BLIND FLANGES  
SCALE:

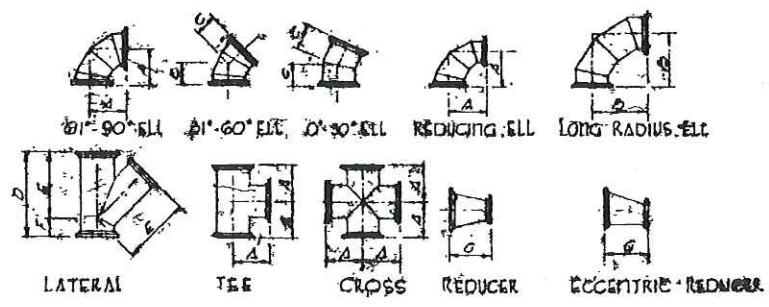
GRAVEL PAVING REPLACEMENT  
SCALE: 1/2" = 1 FT.



FITTINGS FOR WELDED STEEL PIPE

OUTSIDE DIAMETER OF PIPE	4-PIECE ELLS		3-PIECE ELLS		2-PIECE ELLS		REDUCERS			TEES		CROSSES		LATERALS	
	A	B	A	B	A	B	L	V	S	T	V	S	A	B	
12"	22	18	16	20	15 1/2	19	34	19	8	27	27	15 1/2	15 1/2	14	
20"	36	28	26	30	24	28	42	26	8	45	45	24	24	20	
24"	42	34	32	36	30	34	48	32	8	51	51	28	28	24	

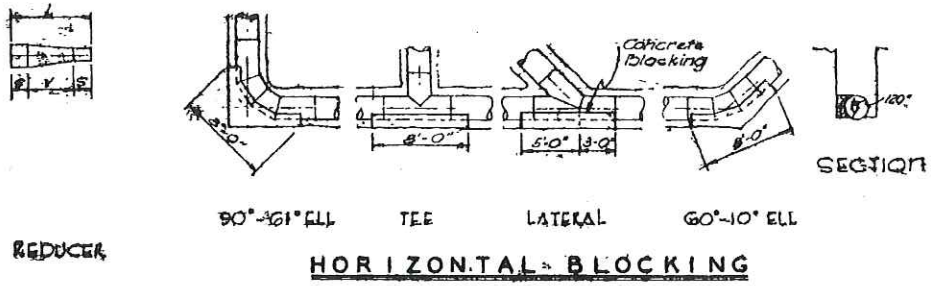
Fabricate All Fittings To Above Dimensions



FLANGED FITTINGS FOR WELDED STEEL PIPE

O.D. OF PIPE	Dimensions in inches						
	A	B	C	D	E	F	G
12"	12	19	9 1/2	30	24 1/4	5 1/2	14
20"	18	29	14 1/2	43	35	8	20
24"	22	34	17 1/2	49 1/2	40 1/2	9	24

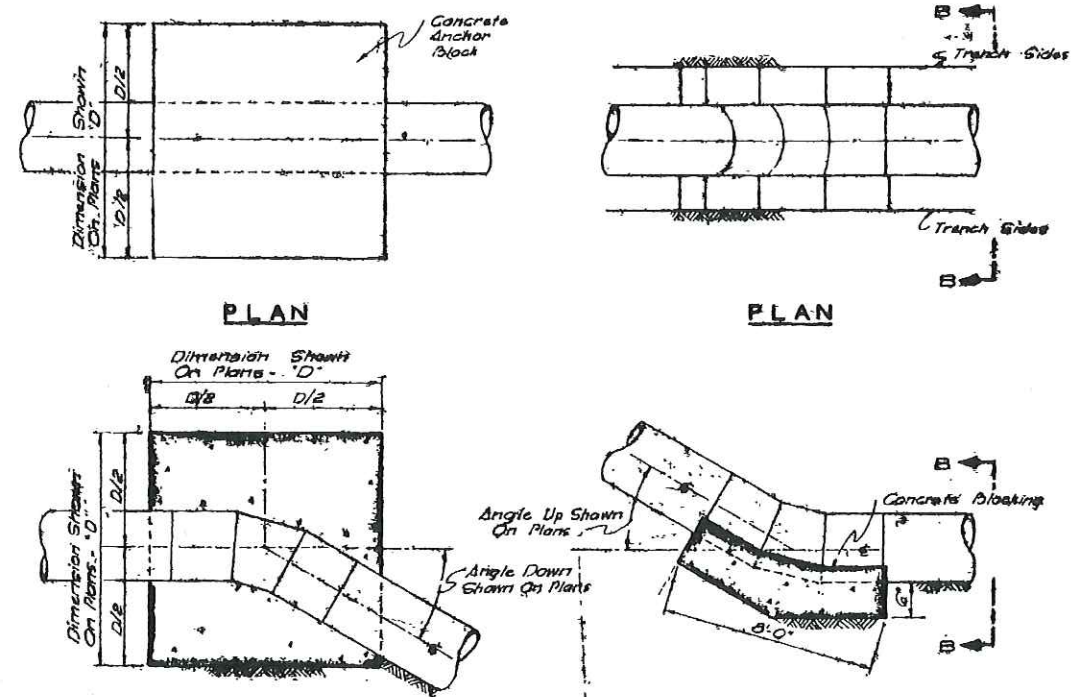
Fabricate All Fittings To Above Dimensions Unless Otherwise Shown On Drawings



HORIZONTAL BLOCKING

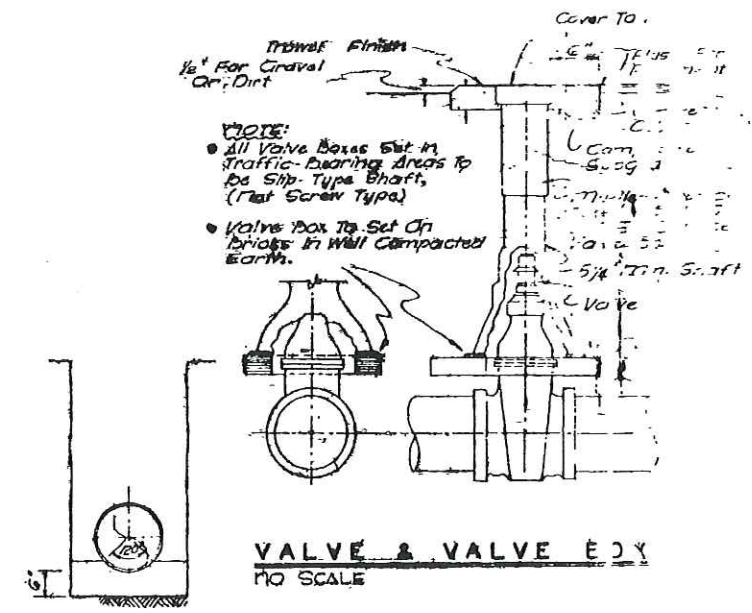
ANGLE DOWN	DIMENSION "D"
10°-10°	No Anchor
11°-20°	6'-8"
21°-30°	5'-6"
31°-40°	6'-6"
21°-50°	7'-0"

ANCHOR BLOCK DIMENSIONS



SECTION PLAN SECTION  
ANCHOR FOR BENDS DOWN BLOCKING FOR BENDS UP

VERTICAL ANCHORS AND BLOCKING  
NO SCALE



SECTION B-B

W. F. TURNEY AND ASSOCIATES CONSULTING ENGINEERS SANTA FE, NEW MEXICO

GRAND JUNCTION, COLORADO

PIPE LINE

BY	REVISION	DATE
W.F.T.	1	10/1/50