

FOR BIDDING PURPOSES ONLY

City of Rapid City

Pennington County

SAN MARCO BRIDGE REPLACEMENT

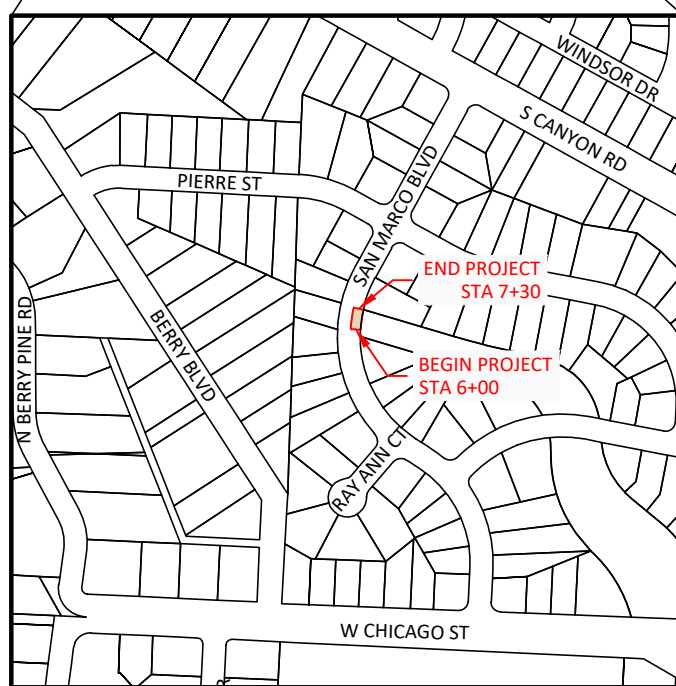
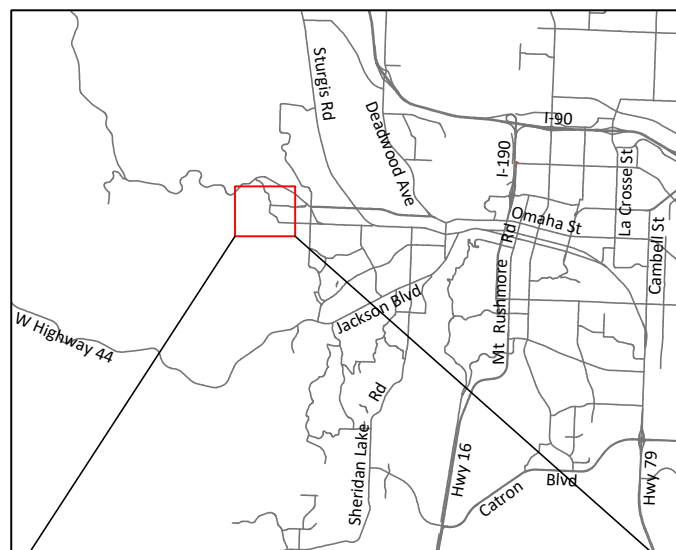
CITY OF RAPID CITY PROJECT NO. 20-2581 / CIP # 51194 - PCN X06G
 IN CONJUNCTION WITH SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION
 PROJECT BRO 8052(75)
 PCN 0862

ONE CALL
 BEFORE DIGGING
 1-800-781-7474

SOUTH DAKOTA



CITY OF RAPID CITY, SOUTH DAKOTA



PROJECT LOCATION MAP Not To Scale

INDEX OF SHEETS

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PUBLIC WORKS DEPARTMENT
 ENGINEERING SERVICES
 C/O SARA ODDEN
 300 6TH STREET
 RAPID CITY, SD 57701
 PHONE: (605) 394-4154
 EMAIL: SARA.ODDEN@RCGOV.ORG

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June 26, 2024

Original plans are 11" X 17".

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4/11/24 P:\PROJECTS-CURRENT\2581 SAN MARCO BOULEVARD BRIDGE REPLACEMENT\DESIGN\2581 ESTIMATE OF QUANTITIES6-8-23.DOCX

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PROJECT	SHEET	TOTAL SHEETS
BRO 8052(75) PCN 0862	U.2	U.9

Revised 4/11/2024

ESTIMATE OF QUANTITIES

Non-Section Method

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 009E0010	Mobilization	Lump Sum	LS
* 009E3200	Construction Staking	Lump Sum	LS
* 009E3220	Reestablish Right-of-Way and Property Corner	2	Each
* 250E0010	Incidental Work	Lump Sum	LS
* 451E0608	8" PVC Water Main	99	Ft
* 451E3008	8" Pipe Bend	4	Each
* 451E3208	8" Pipe Coupling	2	Each
* 451E4901	Type 1 Bedding Material	25.0	Ton
* 451E4904	Type 3 Foundation Material	25.0	Ton
* 451E4912	Controlled Low Strength Backfill	20.0	CuYd
* 451E6105	Connect To Existing Water Main	2	Each

* - Denotes Non-Participating

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PROJECT	SHEET	TOTAL SHEETS
BRO 8052(75) PCN 0862	U.3	U.9

FOR BIDDING PURPOSES ONLY

PROJECT NOTE

The City Utility Reconstruction shown herein is being constructed in conjunction with the South Dakota Department of Transportation Project BRO 8052(75) PCN 0682, Structure Replacement SN 52-375-296 Over South Canyon Creek Pennington County.

STANDARD SPECIFICATIONS

All work shown in these plans shall be constructed in accordance with the City of Rapid City Standard Specifications for Public Works Construction, 2022 Edition, hereinafter referred to as the Standard Specifications.

All bidding requirements, surfacing replacement, traffic control, erosion control and other miscellaneous items shall be constructed in accordance with the South Dakota Department of Transportation Standard Specifications (SDDOT Specifications) for Roads and Bridges, 2015 Edition, and the required provisions, supplemental specifications and special provisions included in the proposal.

The Contractor shall notify the Engineer of conflicts between drawings, detailed specifications, the Standard Specifications, SDDOT Specifications and revised provisions, supplemental specifications and special provisions as included in the proposal. The more strict interpretation will be used to resolve the conflict.

Any reference regarding Buy American will not apply to City materials.

PERMITS

The Contractor shall be responsible for obtaining all necessary permits for this project. The City will pay permit fees as indicated in Section 2 of the contract documents.

PERMIT:	NOT REQUIRED	BY CITY	BY CONTRACTOR	NOTES:
City Air Quality Permit			X	
City Floodplain Development Permit		X		By SDDOT
City Right-to-Work Permit from U.M.			X	
City R.O.W Permit	X			
SDDANR Water/Wastewater Approval		X		
City Erosion Control Permit			X	
SDDANR Permit for Temporary Discharge			X	If needed

PERMIT FOR THE RAPID CITY AIR QUALITY CONTROL DISTRICT

All activities associated with this contract shall conform to the City of Rapid City Municipal Code Chapter 8, regarding air quality compliance. For sites with soil disturbance of one acre or more, the Contractor shall obtain an air quality construction permit from Rapid City's Air Quality office, located in the Community Development Department and furnish a copy to the owner before beginning work on the project.

DEWATERING PERMITS

Dewatering activities shall be conducted in accordance with the Standard Specifications Section 11, and in accordance with the following additional requirements.

Dewatering activities shall be conducted in compliance with the "General Permit to Discharge Under the Surface Water Discharge System for Temporary Discharge Activities in South Dakota", SDDANR Permit NO. SDG 070000. A copy of the permit is available through SDDANR. The Contractor is required to furnish the "Request for Authorization" to DANR required under the permit and for each schedule, obtain DANR authorization, and furnish a separate copy of authorization to the respective owner at the preconstruction conference.

The Contractor is responsible for performing self-monitoring activities including sampling, testing and reporting as may be determined to be required under the authorization to discharge. Payment for obtaining the necessary authorization to discharge, and for all compliance activities and obligations by the Contractor shall be absorbed into the item to which it relates. No additional payment will be made.

SUBMITTALS

Submittals shall be made in accordance with Section 203 of the Standard Specifications at least seven (7) working days before their need for approval. Submittals will be accepted only from the Prime Contractor. Any work done prior to approval shall be at the Contractor's own expense.

The log of construction submittals shall include but is not limited to the table below:

Construction Schedule	Traffic Control Plan
Subcontractor & Supplier List	PVC Water Main
Key Personnel	SD DANR Dewatering Permit
Cathodic Protection System	Inlet Protection
Fire Hydrants	Fittings
Type 1 Bedding Material	Valves
Water Main Disinfection Tablets	Other Submittals

TRAFFIC CONTROL

A Traffic Control Plan has not been completed for the utility portion of this project as it will be covered by the overall SDDOT Traffic Control Plan for BRO 8052(75) PCN 0862.

EXISTING SIGNS

Permanent traffic control signs damaged by the Contractor shall be replaced by the Contractor at their cost.

EROSION, SEDIMENT, AND WATER POLLUTION CONTROL

An Erosion and Sediment Control Plan and SWPPP has not been completed for the utility portion of this project as it will be covered by the overall SDDOT Erosion and Sediment Control Plan. However, the Contractor will be required to obtain a City of Rapid City Erosion Control Permit.

CONSTRUCTION LIMITS

In general, the construction limits for the project shall be defined as follows:

Property lines, right-of-way lines, existing utility easement lines, and temporary construction easement lines shall be the construction limits unless indicated otherwise on the drawings or further defined herein.

Construction activities shall be restricted to the construction limits unless prior approval is received from the Engineer. The Contractor shall not operate or place equipment, materials, or stockpiles on private property without the property owner's written consent. The Contractor shall furnish a copy of owner's written consent to the Engineer.

Temporary construction easements are to be utilized only when work is being completed for that specific portion of the project. The temporary easements shall not be utilized for the storage of materials or equipment until adjacent work within a permanent easement or public ROW is under construction.

Use of City lands for staging areas, material storage, sedimentation ponds, dewatering, and/or topsoil stockpiling shall only be with prior approval from the Engineer. Any damages and restoration outside the construction limits shall be at the Contractor's expense.

UTILITY COMPANY NOTIFICATION

The Contractor shall utilize the South Dakota one call notification process to provide advance notice of at least 48 hours, excluding weekends and holidays, to inform all South Dakota underground facility operators of intended excavation. The Contractor shall contact all utility companies before work has commenced.

South Dakota 811 (One call)
1-800-781-7474 or 811

If utility locations are sufficiently identified within the time frame required any excavator damaging or injuring the underground facilities is strictly liable for damages to the utility.

If in the course of excavation, the excavator is unable to locate the underground facility or discovers that the operator of the underground facility has incorrectly located the underground facility, he shall promptly

notify the utility operator, or, if the utility operator is unknown, the one-call notification center. The excavator shall also notify the Engineer.

EXISTING UTILITIES

Location of existing utilities shown on these drawings are approximate and were taken from available records. Prior to excavation, the Contractor shall field verify exact location of all utilities whether or not shown on these drawings. Contractor shall protect all utilities during construction. Excavators shall maintain a minimum horizontal clearance of eighteen inches between a marked underground facility and the cutting edge of any mechanical equipment. If excavation is required within eighteen inches, horizontally, the excavator shall expose the facility with hand tools or approved noninvasive methods and shall protect and support the facility prior to further excavation with mechanical equipment.

Unless explicitly otherwise noted, any disturbance or replacement of existing utilities shall be incidental to the project. If required, the Contractor shall coordinate relocation of utility with the utility owner. All utilities are to be adjusted and/or relocated by the respective utility companies unless other provisions are explicitly called for within these drawings.

EXISTING UTILITY CROSSINGS

Refer to specifications for crossing of existing storm sewers, sanitary sewers, water mains, and water main lowerings. At all locations where the proposed utility improvement crosses or is adjacent to existing storm sewers, sanitary sewers or water mains, the Contractor shall be responsible for safeguarding the existing utilities to ensure that they are not disturbed during the work. Temporary structural support for the utilities may be required. No separate payment shall be made for crossed utility protection. Any repair work necessary to a crossed utility resulting from the Contractor's activity shall be at the Contractor's expense.

MATERIAL TICKET SUBMITTALS AND STOCKPILES

The Contractor shall submit all tickets for measurement and payment in accordance with Standard Specifications. The Contractor shall clearly identify materials for various products used on the project, such as: bedding, gravel surfacing, etc. No hand-written tickets shall be allowed.

WASTE DISPOSAL

The Contractor will be responsible for all waste disposal on the project. The Contractor shall furnish the disposal site for this work and the location must be approved by the Engineer. No waste disposal is allowed within right of way or easements. No payment will be made for waste disposal.

If contaminated material is encountered on the project the Contractor shall immediately notify the Engineer.

All material generated by this project must be disposed of in accordance with the SD DANR solid waste regulations. Depending on what material is generated and whether it is contaminated or uncontaminated will determine which permitted facility can accept it. Permitted facilities include construction and demolition debris sites, restricted use sites, and regional landfills. Contact SD DANR Waste Management Program at 605-773-3153 to identify locally permitted disposal sites for various categories of contaminated and uncontaminated materials.

RESIDENT NOTIFICATION

The Contractor shall notify the residents affected by this project of the construction schedule and the extent of work a minimum of 7 days in advance of beginning construction. Verification of the resident's notification shall be provided to the Engineer.

MAINTENANCE OF SOLID WASTE DISPOSAL SERVICE (CURBSIDE PICKUP)

The streets and alleys in the project areas are used for pickup and removal of solid waste from the properties adjacent to and near the project areas. The Contractor shall provide notification of the work to all affected properties and coordinate with City Solid Waste Division phone (605) 355-3496 or solid waste collection Contractors to assure alternative locations for weekly solid waste pickup are provided as needed. If necessary the Contractor shall transport or convey disposal containers (including containers for recyclable materials) to the alternative locations and return them to the usual collection location on the property following collection on designated solid waste pickup days.

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 <small>CITY OF Rapid City WORKS GROW. PUBLIC WORKS DEPARTMENT ENGINEERING SERVICES</small>	PROJECT	SHEET	TOTAL SHEETS
	BRO 8052(75) PCN 0862	U.4	U.9

PVC WATER MAIN PIPE

Water main pipe shall conform to the requirements of AWWA Specification C900, pipe thickness dimension ratio (DR) DR18 (235 psi pressure class), cast iron outer diameter (CIOD) as designed and called for in the approved construction plans and per the Standard Specifications. Installation procedures shall conform to AWWA C-605 standards.

BOLTS FOR FITTING AND JOINT RESTRAINING DEVICES

Bolts and nuts for water main fitting and joint restraining devices shall be Series 300 Stainless Steel.

CATHODIC PROTECTION SYSTEM TESTS AND MEASUREMENTS

Tests and measurements shall be per Standard Specifications. Upon completion of the cathodic protection system installation work, the Contractor shall perform testing to ensure proper installation of the system. The Engineer shall conduct final testing on the pipeline to ensure proper installation of the specified corrosion protection items. The contractor may be present during final testing.

Prior to connection of each anode wire to its test station terminal block, all anode-to-soil "Native" potential measurements shall be as follows:

High potential Magnesium Anode shall read -1.6-volt DC or more negative when referenced to a copper sulfate electrode (CSE). Magnesium anodes not satisfying this "Native Potential Level" shall be replaced by the Contractor at no additional cost to the owner.

WATER MAIN JOINT AND FITTING RESTRAINT

All fittings on any water main for this project shall be restrained using the EBAA, or approved equal restraint system. Pipe joints within the specified restrained length "L" of a valve or fitting shall be restrained using the EBAA, or equal, restraining system. Restrained Lengths were calculated based on a test pressure of 150 PSI with an additional factor of safety of 1.5:1. Contact the Engineer for restraining lengths in the event of fittings not shown below.

<u>Vertical Bends</u>	
Size	Restrained Length, L
Top 8" 45°	20' on Each Side
Bottom 8" 45°	6' on Each Side

TRENCH EXCAVATION AND BACKFILL

The Contractor shall be responsible for maintaining a safe excavation complying with applicable state and federal regulations. Special foundations may be required to provide adequate support for the pipe. Such foundations will consist of sub-excavation to a depth as required by the Engineer and placement of Type 3 Foundation Material.

No gypsum larger than one (1) inch in nominal size shall be placed in the backfill. The contractor shall screen all gypsum fragments greater than one (1) inch in nominal size from the backfill material prior to placement.

BEDDING AND FOUNDATION MATERIAL AND IMPORTED BACKFILL (TRENCH)

Groundwater may be encountered along portions of the project. These conditions do not deem the excavated material unsuitable and is not justification for the use of imported material.

The Contractor shall be responsible for either drying the wet but otherwise suitable material or hauling in drier material at no additional cost to the City.

The use of Imported backfill will only be authorized by the Engineer, if in the Engineer's opinion, there is insufficient quantity of suitable backfill material, including material that can be dried.

A Quantity of both Type 1 Bedding Material and Type 3 Foundation Material has been included in the estimate of quantities for use where unstable trench bottom is encountered, beyond the limits of typical pipe bedding per the Standard Specifications.

The use of Type 1 Bedding Material, Type 3 Foundation Material, or Imported backfill shall be authorized by the Engineer prior to placement. Measurement and payment will be made in accordance with the Standard

Specifications. Bedding material is incidental to the construction of the water mains per the Standard Specifications.

TRENCH CHECK DAM

Contractor shall place within the trench a compacted cohesive clay trench check dam. The trench check dam is used as a means to prevent the conveyance of water through the trench bedding. If the normal excavated matter is not suitable for construction of the trench check dam then the Contractor shall obtain material from outside sources. Trench check dams shall be installed as per Standard Specifications, whether shown in the plans or not. Trench check dam installation and material shall be considered as incidental to the pipe installation.

CONTRACTOR PROVIDED WATER

There will be no separate payment for water. The Contractor shall be responsible for providing water for compaction of earthen and granular materials used for, but not limited to, grading, subgrade preparation, and trench backfill. Water needed for sod and seed irrigation, street cleaning, and other miscellaneous items shall also be provided by the Contractor at no cost to the City. The City will provide water for water main testing and dechlorination. The costs for purchasing, loading, transporting and applying/incorporating water shall be incidental to the various items where water is required.

The Contractor will be required to pay for meter fees and installation onto a fire hydrant if the water is purchased from the City of Rapid City. Contact the Water Office at (605) 394-4125 to arrange for meter hook-ups to be added to fire hydrants and to obtain the current rate that will be charged.

CONTROLLED LOW STRENGTH BACKFILL MATERIAL

Under some circumstances, low strength backfill material may be required for support and other structural reasons. Under these situations, the low strength backfill material shall be paid for under the bid item "Controlled Low Strength Backfill". A quantity of 20 CY has been assumed for this bid item. The use of low strength backfill material shall be authorized by the Engineer prior to placement and shall comply with Section 200 of the Standard Specifications.

TESTING

All testing on the project shall be in accordance with the Rapid City Standard Specifications for Public Works Construction, 2022 Edition, with the following exception. The modified proctor soil compaction tests (AASHTO 180) required for work within the work limits will be completed by the Engineer or their designated representative and are not the responsibility of the Contractor. Utility Contractor is responsible for utility trench backfill compaction up to the SDDOT undercut limit. Base course and pavement testing shall be in accordance with the SDDOT Standard Specifications for roads and Bridges, Current Edition.

SODDING

Watering the sod for the three (3) week period called for in the specifications shall be met or exceeded to insure sod growth.

INCIDENTAL WORK

Incidental work shall include all miscellaneous items not included in the regular items covered by unit prices listed in the proposal and shown on the drawings, but which must be performed in order to properly complete the work.

The items and work listed below are to be included in the incidental work item, but the list does not limit the scope to only those items. The Contractor shall include those items that may be specific to his construction procedures.

- Dust Control
- Tree Trimming
- Obtain Permits as Needed
- Remove and Reset Traffic Signs
- Abandonment of Existing Water Mains
- Salvage or Disposal of Valve Boxes
- Protect Other Utilities from Movement During Excavation
- Protect Existing Landscaping
- Protect Lawn Irrigation Systems

Project coordination, to include resident notification, public service announcements etc.

The Contractor shall be responsible for obtaining and complying with all permits.

Incidental work shall be paid for under the lump sum bid for "Incidental Work".

CONTRACTOR FURNISHED STAKING

All staking on the project will be provided by the Contractor in accordance with the City of Rapid City Standard Specifications. Payment for Contractor furnished staking will be at the contract lump sum price for "Construction Staking".

REESTABLISHING PROPERTY CORNERS

The Contractor shall reestablish all property corners that are disturbed during construction under the direction of a registered land surveyor. All property corners along the project that were found during the topographic survey are shown on the plans.

Any corners that are disturbed shall be reestablished by the Contractor. All costs for work and material necessary for reestablishing the corners within project limits shall be incidental to the contract unit price per each for "Reestablish Right-of-Way and Property Corner". No payment will be made for reestablishing property corners that are disturbed and/or destroyed outside of the work limits.

Property corners that require reestablishment may not be reestablished using the stations and offsets that are shown in the attached list. A separate survey by the Contractor is required to reestablish the corners.

AS-BUILT PLANS

The Contractor shall measure and record any horizontal or vertical deviations from the contract drawings. The changes shall be recorded in an accurate, neat fashion on the drawings and furnished to the Engineer upon completion of the project. Specifically, all service taps, connections, anodes and buried fittings shall be recorded for the work. The as-built drawings shall be on-site and available for review by the Engineer upon request.

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PROJECT	SHEET NUMBER	TOTAL SHEETS
BRO 8052(75) PCN X06G	U.5	U.9

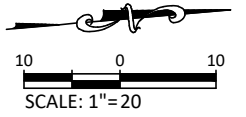


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At Full Size Plot 11"x17" Color

PROJECT NO. 22-2581 CIP NO. 51194	WATER MASTER LAYOUT
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Temporary Easement

Water Notes:

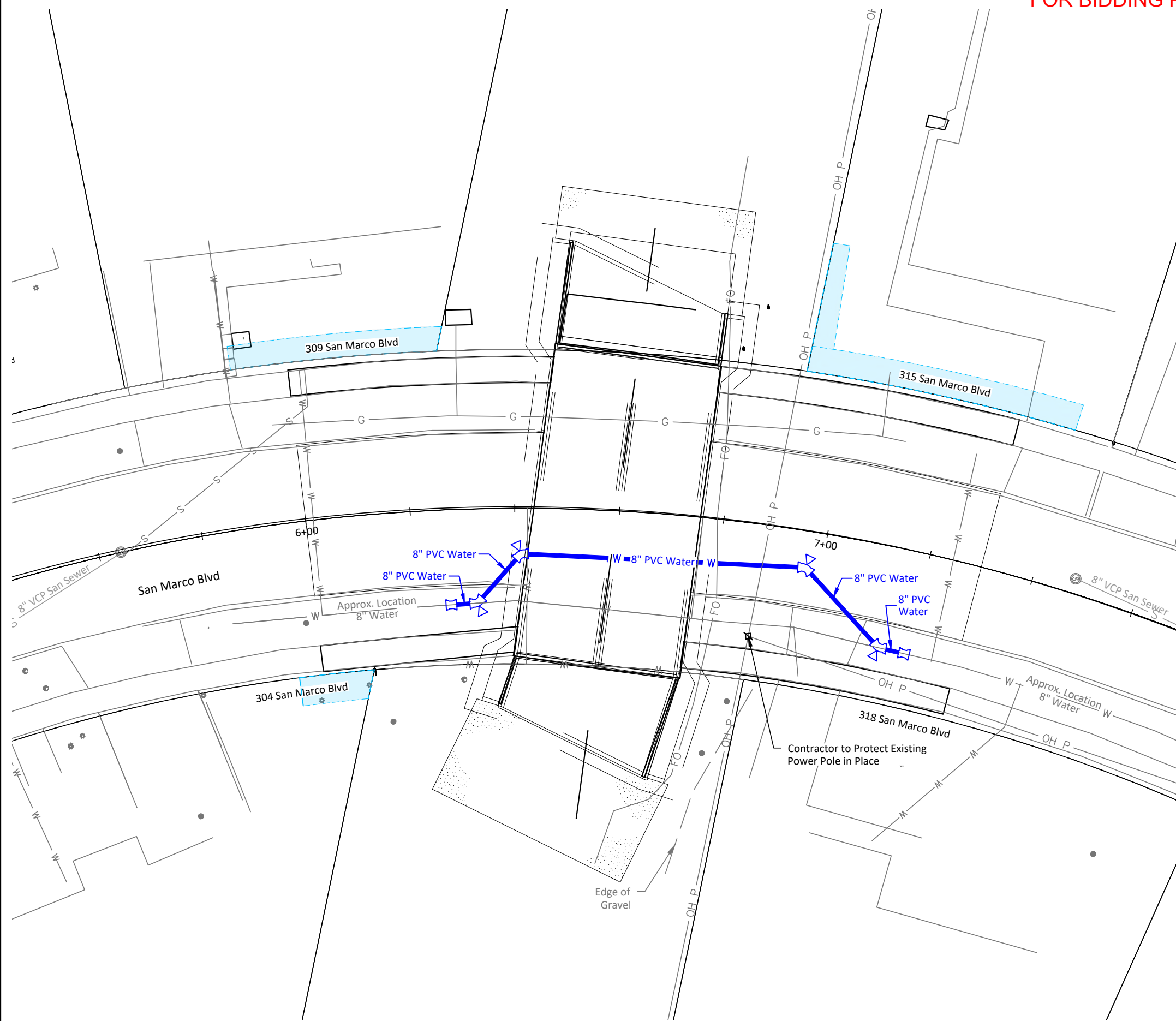
- Sta 6+27.2, 18.2' R Connect to Existing 8" Water Main, 1 Ea
- Sta 6+27.2, 18.2' R to Sta 6+32.5, 18.0' R Install 5 Lf - 8" PVC Water Main
- Sta 6+32.5, 18.0' R Install 8" 45° Bend Rotated, 1 Ea
- Sta 6+32.5, 18.0' R to Sta 6+41.2, 8.7' R Install 13 Lf - 8" PVC Water Main
- Sta 6+41.2, 8.7' R Install 8" 45° Bend Rotated, 1 Ea
- Sta 6+41.2, 8.7' R to Sta 6+96.8, 7.0' R Install 55 Lf - 8" PVC Water Main
- Sta 6+96.8, 7.0' R Install 8" 45° Bend Rotated, 1 Ea
- Sta 6+96.8, 7.0' R to Sta 7+13.9, 19.5' R Install 21 Lf - 8" PVC Water Main
- Sta 7+13.9, 19.5' R Install 8" 45° Bend Rotated, 1 Ea
- Sta 7+13.9, 19.5' R to Sta 7+19.2, 19.6' R Install 5 Lf - 8" PVC Water Main
- Sta 7+19.2, 19.6' R Connect to Existing 8" Water Main, 1 Ea

SAN MARCO BLVD 8" WATER MAIN FITTINGS		
THRUST BLOCK TABLE		
FITTING	MIN BEARING AREA (SF)	MIN CONC VOLUME (CY)
8" 45 DEGREE BEND	3.2	0.25

Type D Permanent Seeding Quantities

See Project BRO 8052(75) Permanent Erosion Control for Type D Permanent Seeding.

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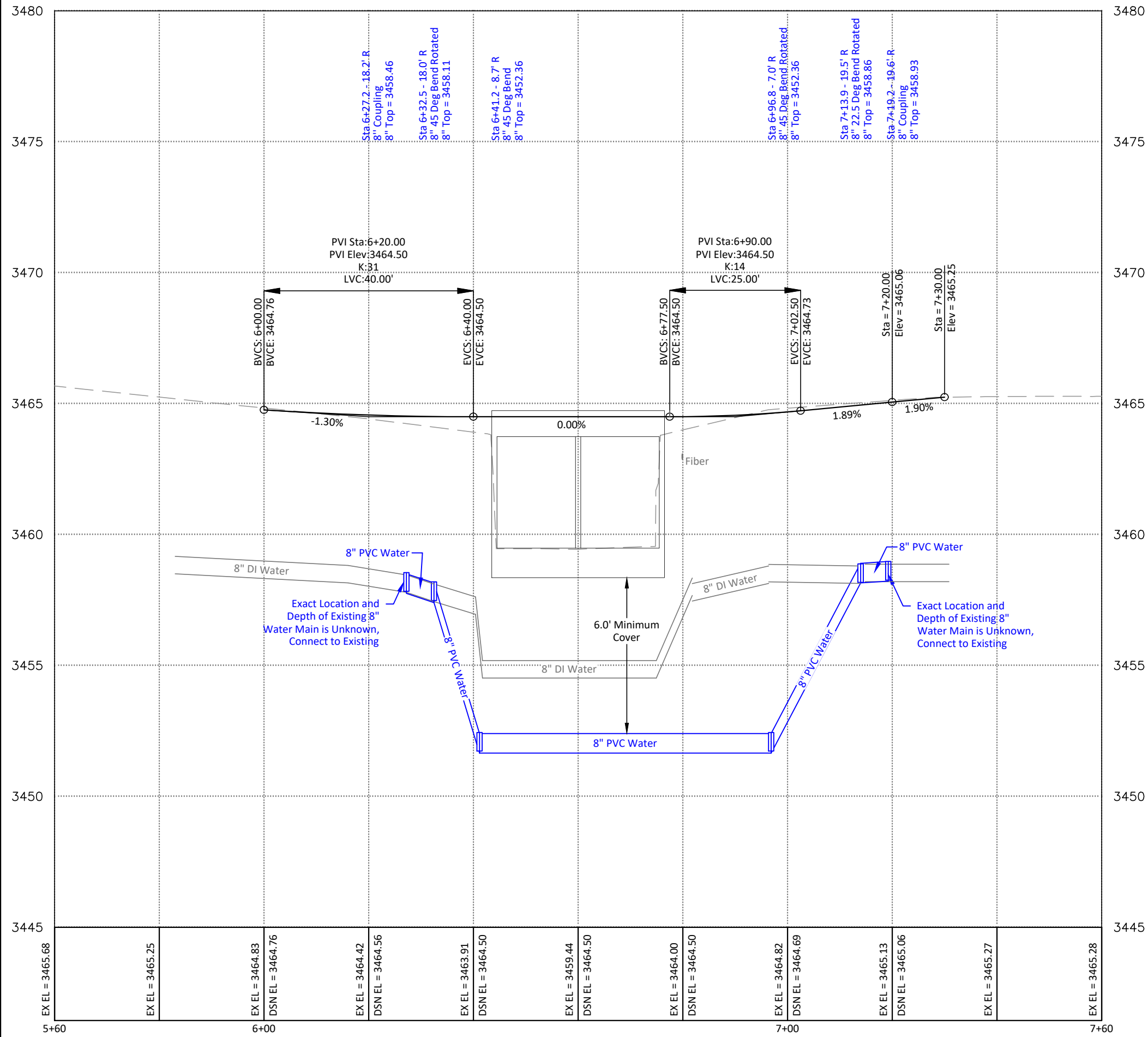
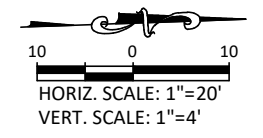


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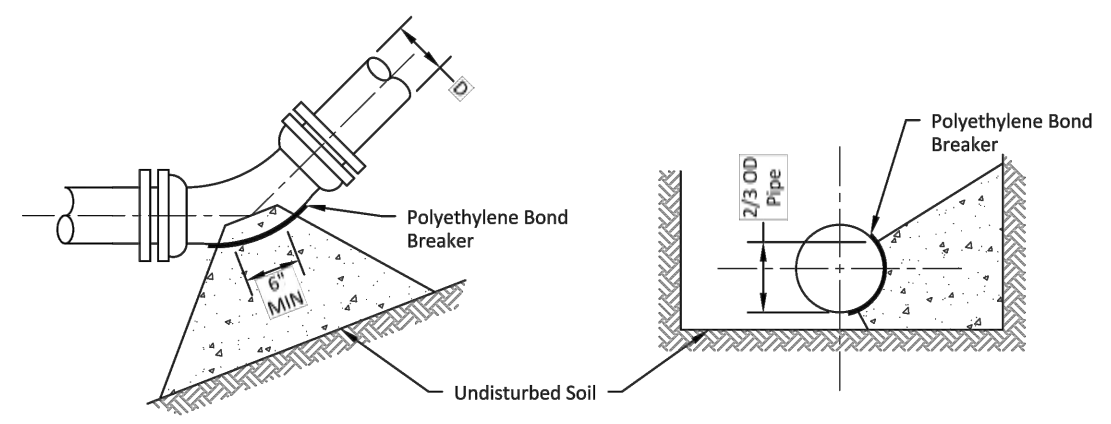
PROJECT	SHEET NUMBER	TOTAL SHEETS
BRO 8052(75) PCN X06G	U.7	U.9



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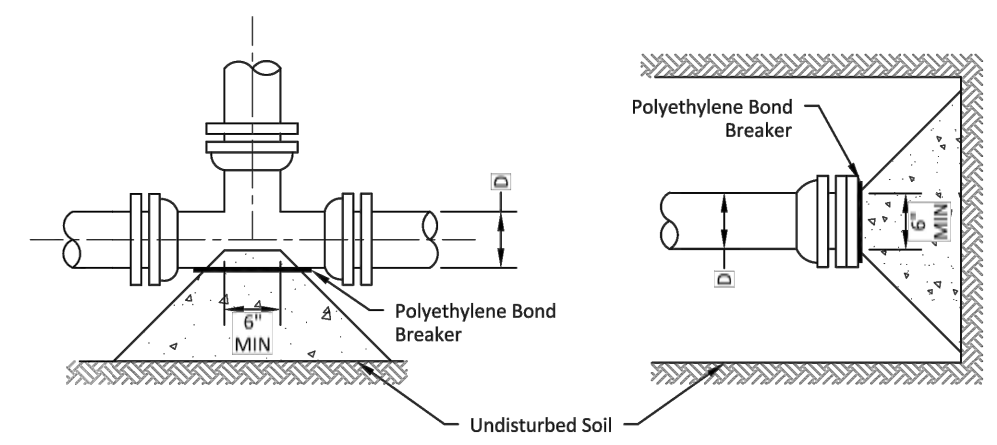
At Full Size Plot 11"x17" Color

PROJECT NO. 20-2581 CIP NO. 51194	SAN MARCO BLVD WATER MAIN LOWERING PROFILE
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11.25°, 22.5°, 45°, AND 90° BENDS

TYPICAL CROSS SECTION



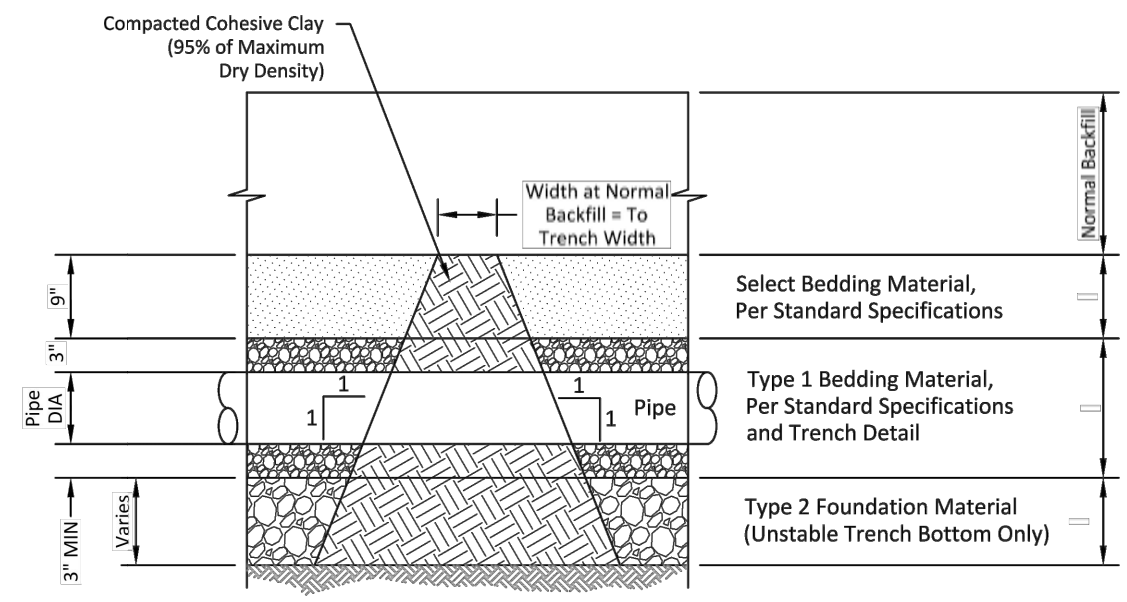
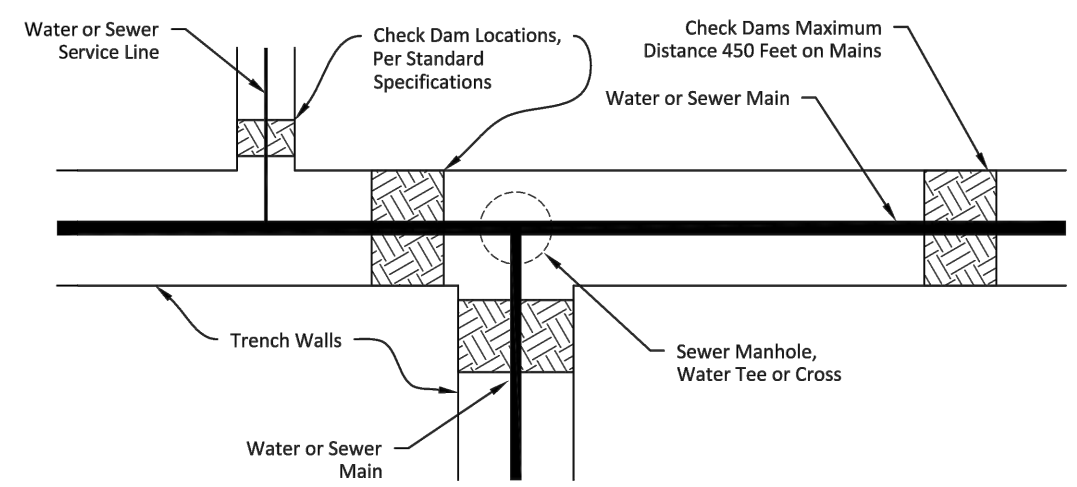
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DEAD END

THRUST BLOCK DETAILS

- Notes:**
1. Thrust blocks shall be a minimum of 6" wide at the fitting or one half the diameter of the pipe, whichever is greater.
 2. Thrust blocks shall extend from the fitting to the undisturbed trench wall. Thrust block dimensions at the undisturbed wall shall be as per plans and shall meet the minimum bearing area as required by plans.

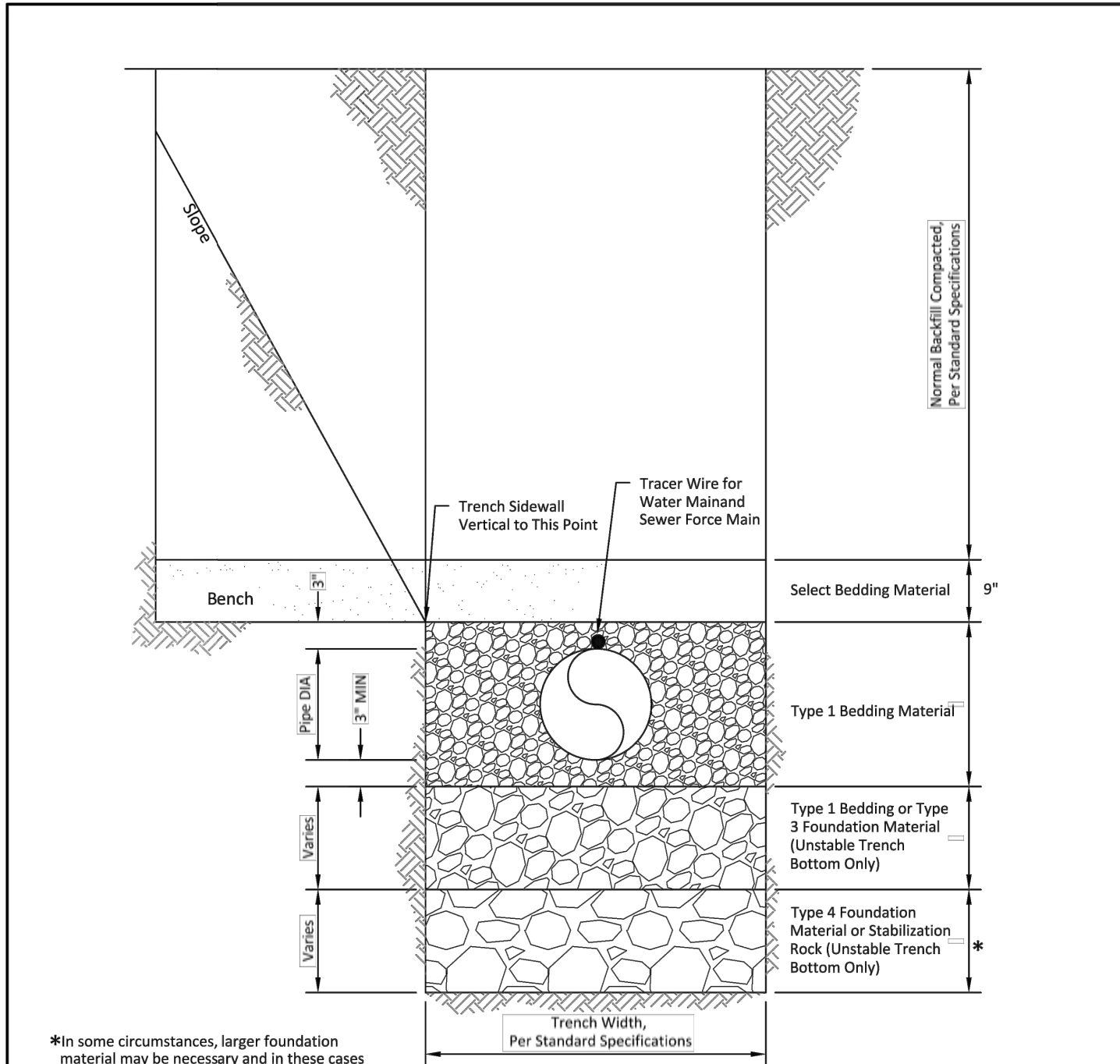
N.T.S.



Note: Check dam installation locations shall be as indicated on the plans. However during construction, check dam installation locations may be moved due to field conditions. The check dam shall extend from the bottom of the excavation through the bedding material to the "Normal Backfill" and shall extend completely to each trench sidewall. Do not construct check dam around pipe joint.

N.T.S.

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*In some circumstances, larger foundation material may be necessary and in these cases Type 4 Foundation Material or Stabilization Rock maybe used Per Standard Specifications, Section 112. If Type 4 Foundation Material or Stabilization Rock is used, then a minimum 6 inches of Type 3 Foundation Material shall be placed directly above the material and prior to the placement of the Type 1 Bedding Material.

N.T.S.

CITY OF RAPID CITY	PUBLIC WORKS DEPARTMENT
TRENCH DETAIL FOR PVC WATER & SEWER MAINS	DATE: 8-19-22
	Sec. - Sht. 11-3

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