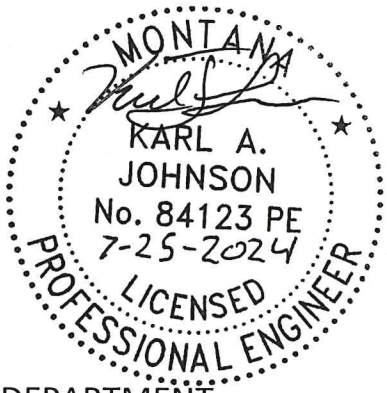
BOZEMAN MT

CITY OF BOZEMAN

# 7TH AVENUE HYDRANT RELOCATIONS DESIGN REPORT

PREPARED BY




CITY OF BOZEMAN ENGINEERRING DEPARTMENT

JULY 2024

In conjunction with the Montana Department of Transportation North 7th Ave Intersection Improvements – Bozeman Project there are two fire hydrants and one water service curb stop that must be relocated to accommodate the new curb and sidewalk alignment. One of the fire hydrants is located on the northeast corner of the North 7th Avenue and West Oak Street intersection (see sheet U20 of the attached reference plan set). The other hydrant is located on the north side of West Peach Street near the intersection North 6th Avenue and West Peach Street (see sheet U22 of the attached reference plan set). The curb stop is located on the north side of West Peach Street east of the North 7th Avenue and West Peach Street intersection (see sheet U21 of the attached reference plan set).

**General Requirements**

1. All work shall be performed in accordance with applicable sections of the Montana Public Works Standard Specifications Sixth Edition (MPWSS), and as further modified by the City of Bozeman Modifications to MPWSS, 6th Edition, which is hereby included as part of these specifications. All references to MPWSS sections, unless otherwise noted, are a reference to said Montana Public Works Standard Specifications.
2. All correspondence and official authorization concerning the work shall be with the City Engineer or his designated representatives as identified at the preconstruction meeting. Any changes in the Work or schedule not authorized by the above shall be deemed as unauthorized and shall be done at Contractors risk at no cost to the Owner. All damages, reparations, and costs thus incurred during the progress of such unauthorized work shall be borne exclusively by the Contractor.
3. Any existing or new valves which control the COB's water supply shall be operated by COB personnel only.
4. The contractor shall notify the Water Department a minimum of 24-hours prior to beginning any work.
5. Contractor shall field-verify line and grade of existing connections.
6. After the contract(s) have been awarded, but before the start of construction, a conference will be held at the City Engineer's Office, 20 E. Olive Street, for the purpose of discussing requirements on such matters as project supervision, on-site inspections, progress schedules and reports, and any other items pertinent to the project. The Contractor shall arrange to have all supervisory personnel and a representative from each of the affected utility companies connected with the project on hand to meet with a representative of the Owner to discuss the project and any problems anticipated.
7. The Contractor shall prepare and submit fabrication drawings in accordance with this document and it references. Following review, the Contractor shall resubmit copies of any drawings which required revision or correction. Any review by the Owner will not relieve the Contractor from responsibility for errors or omissions, inadequate design performance requirements, schedule requirements, and proper operation of any item required under the Contract. Notwithstanding any such review, Contractor shall remain solely responsible for full and complete performance in accordance with the terms,

conditions, provisions, drawings and specifications set forth in this document and its references.

8. The Contractor shall be responsible for checking with the Owners of underground utilities such as the City, County, power and telephone companies, etc. as to the location of their underground installations in the project area. The Contractor shall be solely responsible for any damage done to these installations due to failure to locate them or to properly protect them when their location is known. It shall be solely the responsibility of the Contractor to fully coordinate his work with the agencies and to keep them informed of his construction activities so that these vital installations are fully protected at all times. A Montana One-call system, phone number 1-800-424-5555 has been set up to facilitate requests for underground facility locate information. The Contractor is responsible for contacting the One-call system prior to any excavation.
9. The Contractor shall contain all of his construction operations within the easements and rights of way unless written approval is secured from the owner of the adjoining property or written approval is given by the Owner to utilize the adjacent land area.
10. Any items removed from the existing system under the terms of this contract shall remain the property of the Owner. Should the owner choose not to accept any salvageable items, then the Contractor shall dispose of those items at his expense at a site or landfill acceptable to the engineer. Any costs for the above referenced work shall be at the contractor's expense.
11. The CONTRACTOR shall notify water service customers of any water main or water service shutdowns in writing between 24 and 48 hours prior to the disruption, and shall have all necessary materials, tools, equipment, and labor on the site prior to removing the existing lines from service.
12. Water main piping materials shall be pressure class 350 ductile iron pipe as referenced in Section 02660, MPWSS, and City of Bozeman Modifications to MPWSS.
13. Service reconnections shall be reconnected by the method shown on City of Bozeman Standard Drawings 02660-6 and 02660-12. Note that all corporation stops shall be ball corp valve type, and all curb stops shall be ball valve curb stops.
14. There may be locations where fire hydrants are to be installed at depths which differ from the typical bury depth. CONTRACTOR shall be responsible for obtaining the correct materials to ensure that all fire hydrants are installed with the proper bury depth. Installation of fire hydrants must be such that the breakaway bolts are accessible from underneath and that the bottom of the breakaway flange is not installed more than 3-inches above the finished grade.
15. All mainline connection taps will be performed by the City of Bozeman personnel. City personnel will verify test results prior to tapping. CONTRACTOR shall be responsible for supplying and installing tapping tee, connection sleeves, spool pieces, and all other appurtenances required for connections. Once tap is completed, CONTRACTOR shall

complete all connections. CONTRACTOR shall provide means, methods, and labor to set and remove tapping equipment. City of Bozeman requires 24-hour notice and an appointment (scheduled time) for tapping services. No taps will be made after 3:00 p.m. CONTRACTOR shall be ready at scheduled tapping appointment time. If CONTRACTOR is not ready at scheduled time, City personnel will leave and CONTRACTOR shall reschedule with the required 24-hour notice. No consideration will be given to CONTRACTOR's inability to be ready at the scheduled tapping time. City of Bozeman will provide tapping service at no cost to CONTRACTOR. The CONTRACTOR is advised that the City cannot guarantee 100% shutdowns for water main connections. Existing valves may leak. The CONTRACTOR shall have all equipment necessary to handle any water present and make connection without the complete stoppage of water. No payment will be made for dealing with water. All costs associated with less than complete shutdown shall be included in other bid prices.

**7th and Oak Hydrant Relocation**

Remove existing hydrant assembly and auxiliary gate valve. Install new 9.5-feet bury depth hydrant assembly and auxiliary gate valve (per COB Std. Dwg. #02660-4) to one foot south of the right of way line measured to the center of the hydrant assembly. Connect to the existing hydrant lead pipe with 6-inch solid sleeve and extend the hydrant lead to the new hydrant location (approximately 7.5 linear feet). The auxiliary gate valve may be wholly or partially within the new concrete sidewalk. If so, install expansion joint material around the valve box where it is next to concrete. Valve box must be 1/8-inch to ¼-inch below the finished concrete surface per COB Std. Dwg. #02213-2.

**Peach Street Hydrant Relocation**

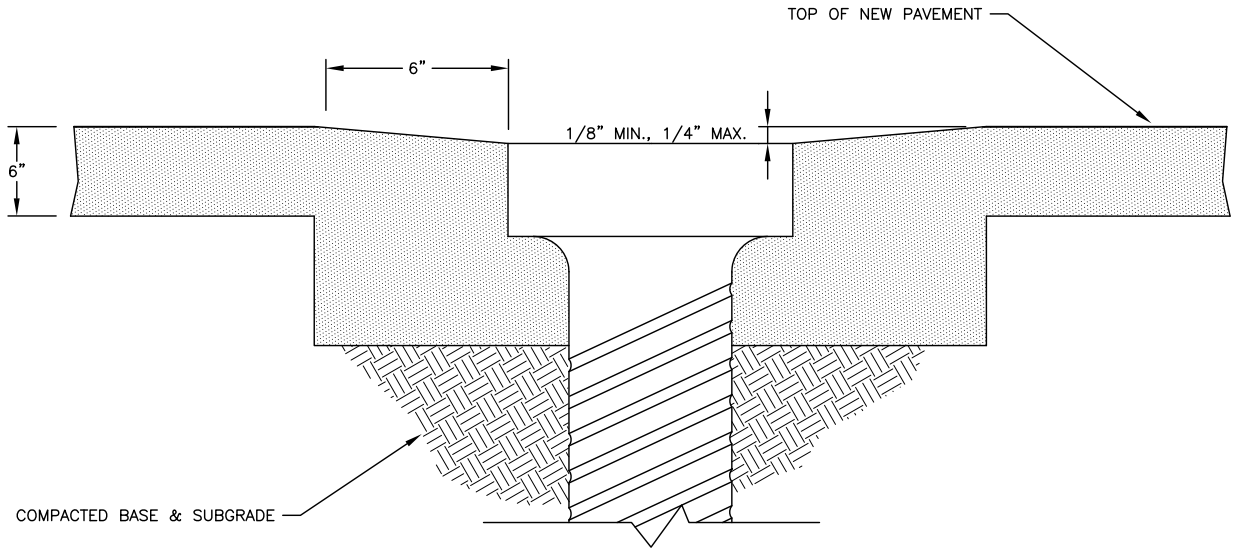
Remove existing hydrant assembly and auxiliary gate valve. Abandon the existing hydrant lead by capping the existing tee at the water main. Install new 9.0-feet bury depth hydrant assembly and auxiliary gate valve (per COB Std. Dwg. #02660-4) 8-feet west of the existing hydrant and to 3-feet behind the edge of the sidewalk. Install new hydrant lead pipe from the existing water main to the proposed hydrant location (approximately 24.3 linear feet) and connect to the existing water main with a 6-inch tapping tee.

**Peach Street Curb Box Relocation**

Remove existing curb box assembly and leave the existing curb stop in place by leaving it in the on position. Install new curb stop and curb box assembly north of the proposed sidewalk and south of the right of way line approximately 11-feet north of the existing curb stop (per COB Std. Dwg. #02660-6).

# Appendix A

# Standard Drawings




NOTES:

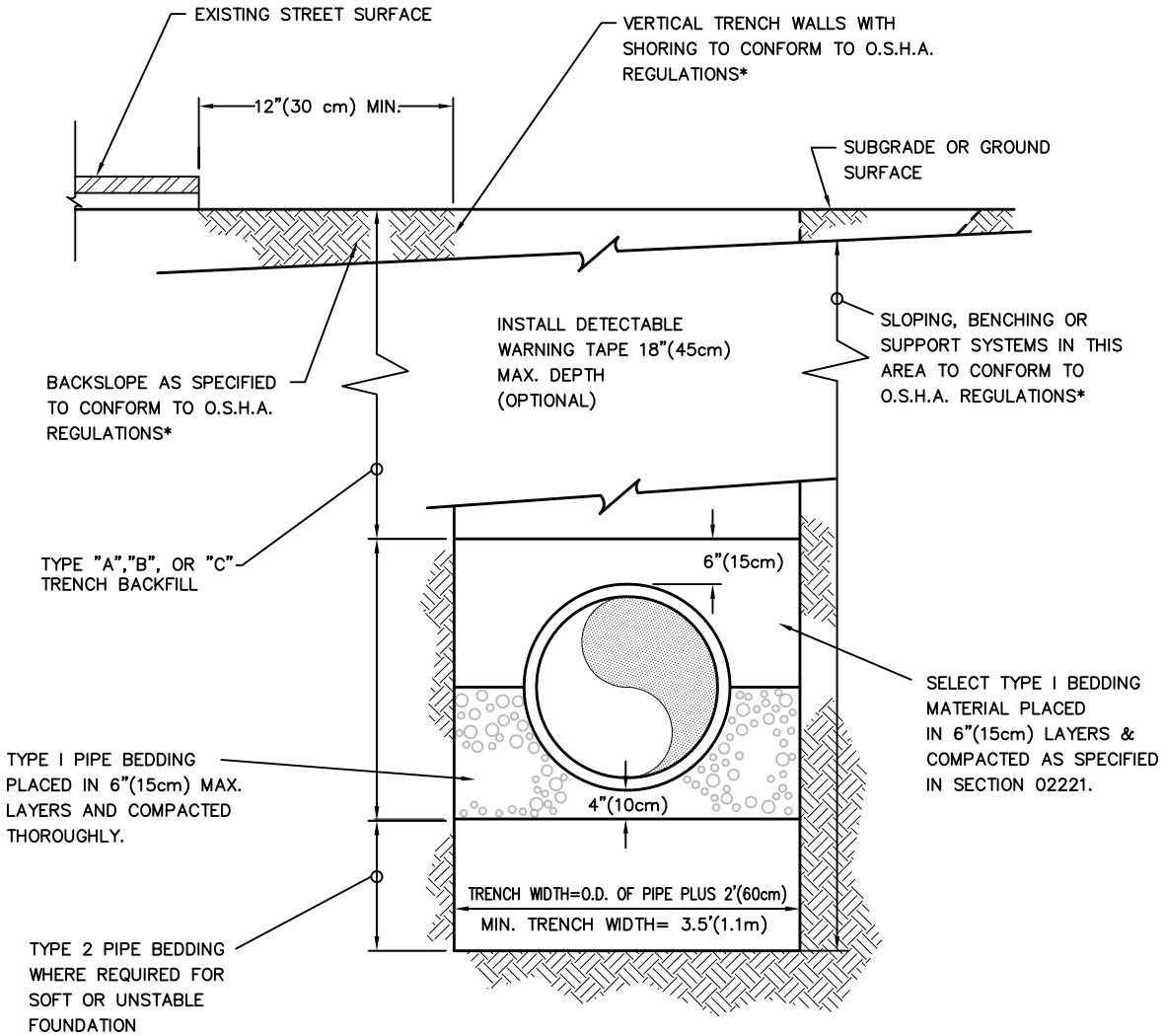
1. Adjust water valves upward or downward as required. Final adjustment shall be made after paving and before seal coating.

2. Model No. 69 8550 series, East Jordan Iron works adjustable screw–type risers may be used to raise or adjust existing valve boxes only.

3. Valve box adjustment shown is designated as Type II water valve adjustment. Type I water valve adjustment is similar except with a concrete collar.

| | | | |
|---|---|---|---|
| CITY OF BOZEMAN STANDARD DRAWING | SCALE: NONE | WATER VALVE ADJUSTMENT DETAIL | NO. 02213–2 Feb. 2004 |

NOTE: WHERE TRENCH PASSES THROUGH EXISTING PAVEMENT THE PAVEMENT SHALL BE CUT ALONG A NEAT VERTICAL LINE A MINIMUM OF 12" (30cm) FROM THE EDGE OF THE TRENCH OPENING. WHERE NEAT LINE IS LESS THAN 3' (0.9m) FROM EDGE OF EXISTING PAVEMENT OR CURB AND GUTTER SECTION, REMOVE AND REPLACE ENTIRE PAVEMENT SECTION BETWEEN TRENCH AND EDGE OF PAVEMENT.

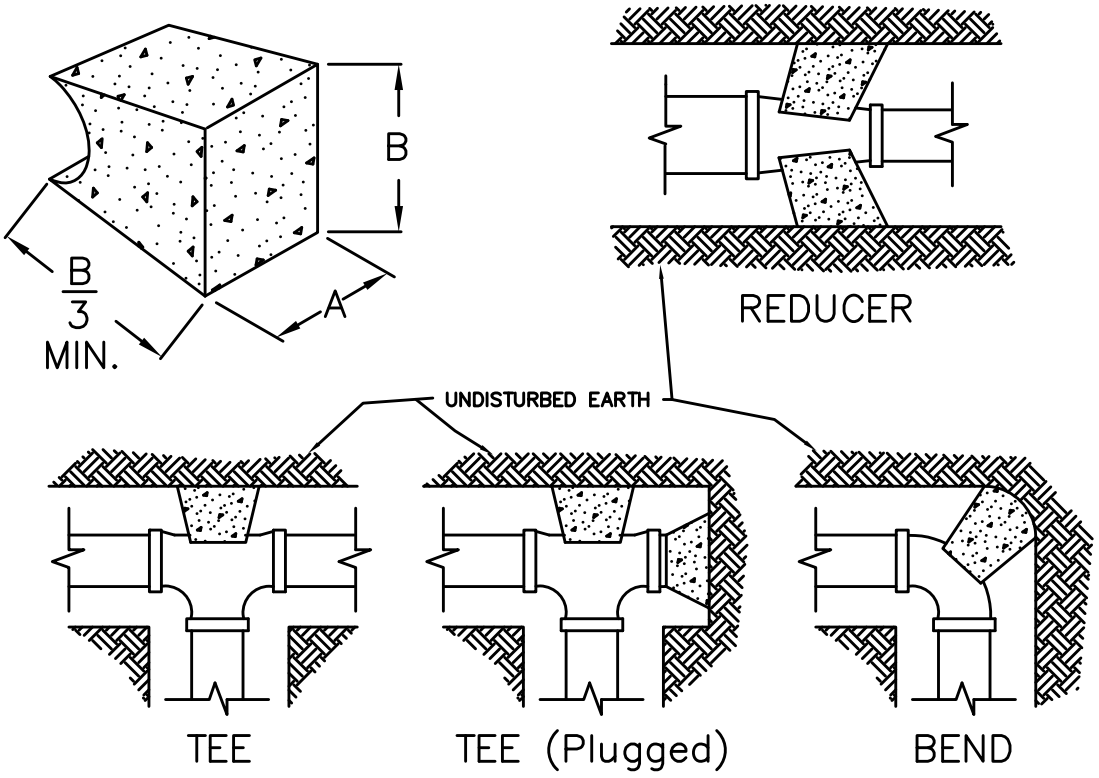



NOTE: SEE CONTRACT SPECIAL PROVISIONS FOR ANY MODIFICATIONS TO STANDARD TRENCH MATERIALS AND/OR OTHER TRENCH DESIGN FEATURES

* SEE O.S.H.A. CONSTRUCTION STANDARDS FOR EXCAVATIONS.

REVISED: 10/25/02

| CITY OF BILLINGS STANDARD SPECIFICATIONS | SCALE: NONE | TYPICAL UTILITY TRENCH DETAILS | STANDARD DRAWING NO. 02221–1 |
|---|---|---|---|




## STANDARD DIMENSIONS FOR THRUST BLOCKING

| FITTING SIZES | TEES & PLUGS | | 90° BEND | | 45° BEND & WYES | | REDUCERS & 22 1/2° BEND | |
|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A | B |
| 4" | 1'–7" | 1'–2" | 1'–9" | 1'–6" | 1'–8" | 0'–10" | 1'–7" | 0'–6" |
| 6" | 2'–0" | 1'–11" | 2'–5" | 2'–2" | 1'–10" | 1'–7" | 1'–9" | 0'–10" |
| 8" | 2'–8" | 2'–6" | 3'–2" | 3'–0" | 2'–5" | 2'–1" | 1'–9" | 1'–6" |
| 10" | 3'–4" | 3'–3" | 4'–0" | 3'–10" | 3'–0" | 2'–9" | 2'–2" | 1'–11" |
| 12" | 4'–0" | 3'–10" | 4'–8" | 4'–8" | 3'–8" | 3'–3" | 2'–7" | 2'–3" |
| 14" | 5'–5" | 3'–10" | 6'–6" | 4'–11" | 4'–9" | 3'–5" | 3'–5" | 2'–5" |

## METRIC DIMENSIONS FOR THRUST BLOCKING

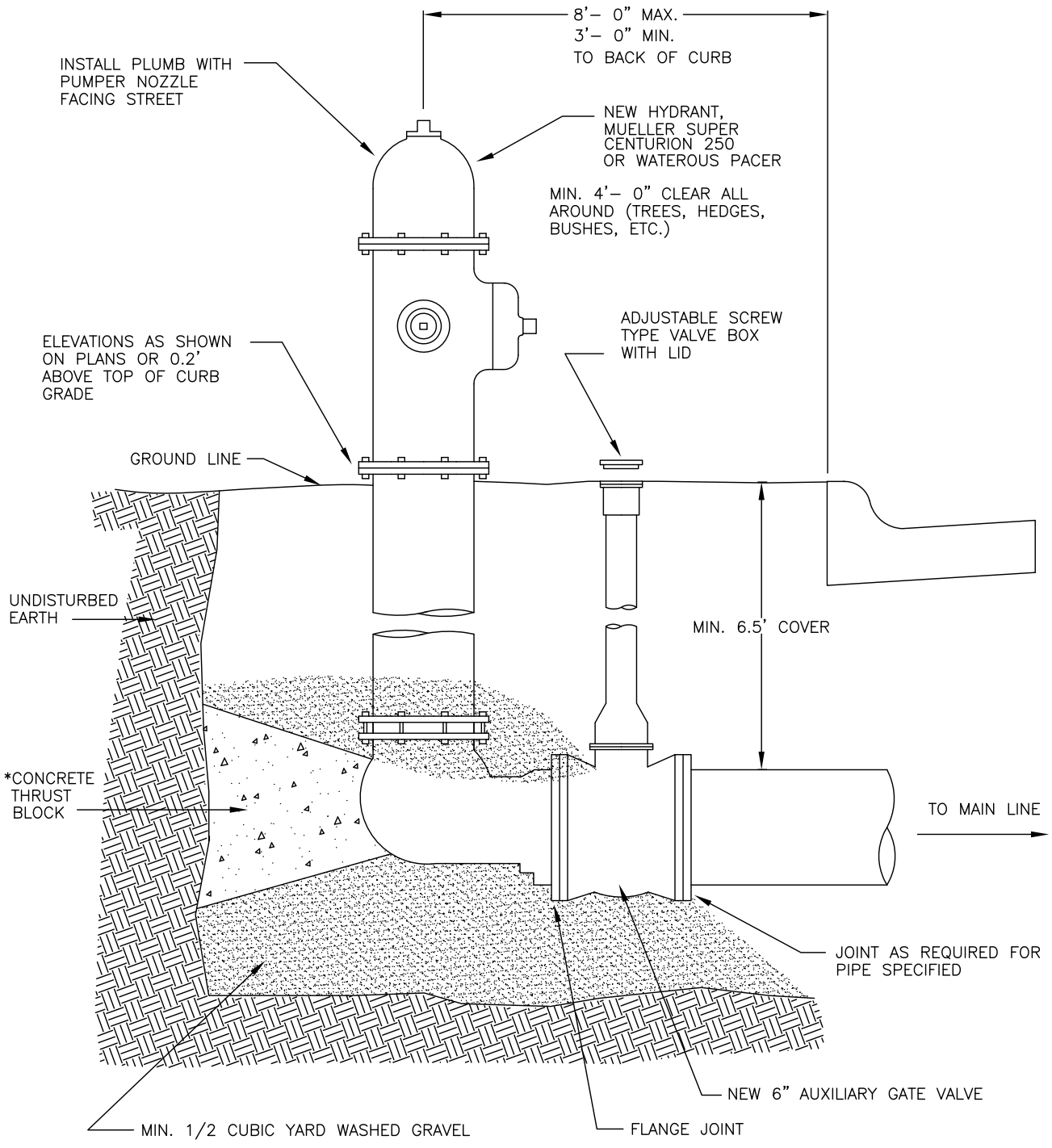
| FITTING SIZES | TEES & PLUGS | | 90° BEND | | 45° BEND & WYES | | REDUCERS & 22 1/2° BEND | |
|---|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A | B |
| 10cm | 0.5m | 0.4m | 0.5m | 0.5m | 0.5m | 0.3m | 0.5m | 0.2m |
| 15cm | 0.6m | 0.6m | 0.7m | 0.7m | 0.6m | 0.5m | 0.5m | 0.3m |
| 20cm | 0.8m | 0.8m | 1.0m | 0.9m | 0.7m | 0.6m | 0.5m | 0.5m |
| 25cm | 1.0m | 1.0m | 1.2m | 1.2m | 0.9m | 0.8m | 0.7m | 0.6m |
| 30cm | 1.2m | 1.2m | 1.4m | 1.4m | 1.1m | 1.0m | 0.8m | 0.7m |
| 36cm | 1.6m | 1.2m | 2.0m | 1.5m | 1.4m | 1.0m | 1.0m | 0.7m |

**NOTES:**

1. THESE TABLES ARE BASED ON 150 PSI(1030 kpa) MAIN PRESSURE 2000 PSF(9800 kg/m²) SOIL BEARING PRESSURE
2. WRAP ALL FITTINGS WITH POLYETHYLENE.

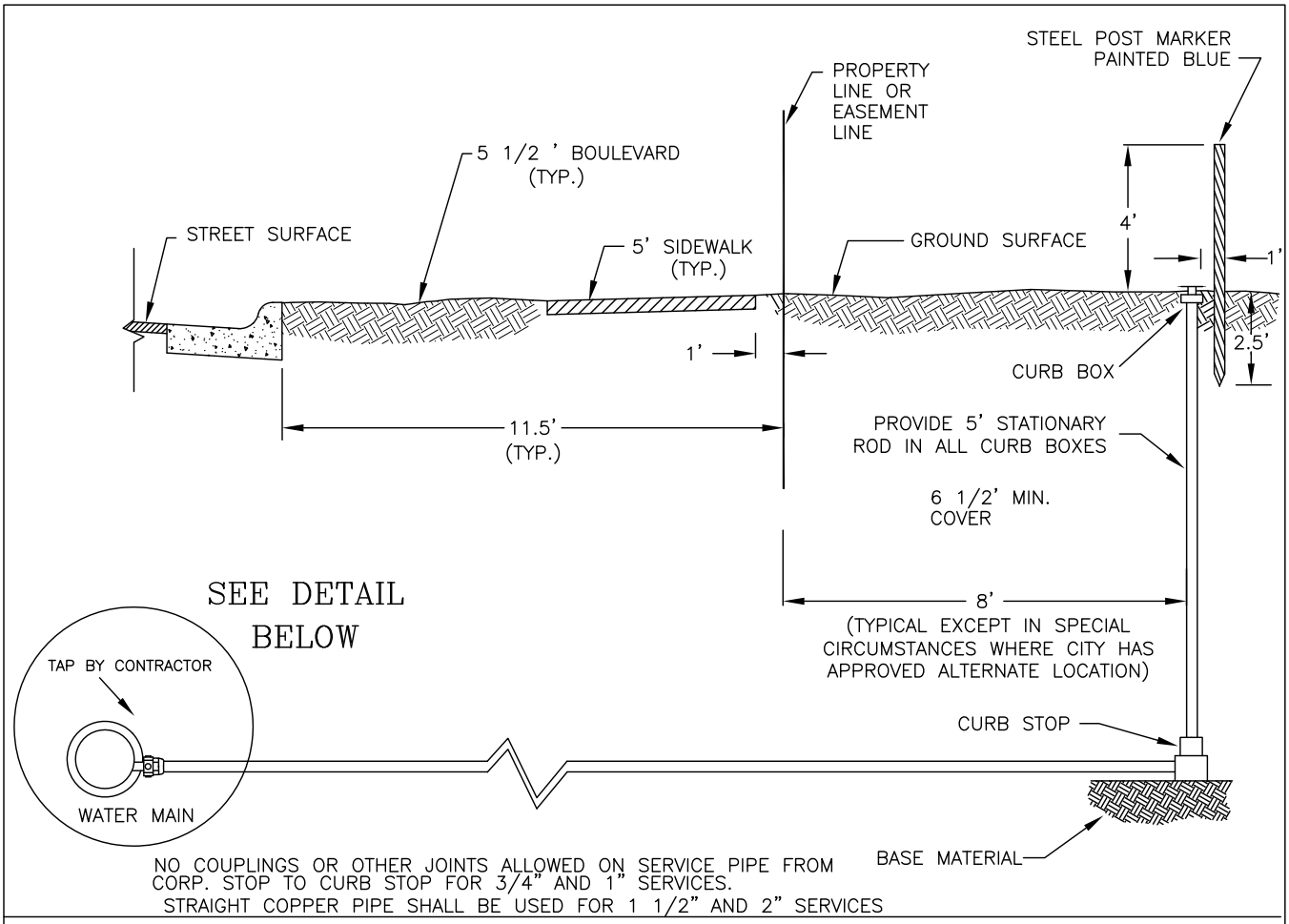
REVISED: 12/27/95

| MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS | SCALE: NONE | THRUST BLOCKING FOR WATER MAIN FITTINGS | STANDARD DRAWING NO. 02660–1 |
|---|---|---|---|



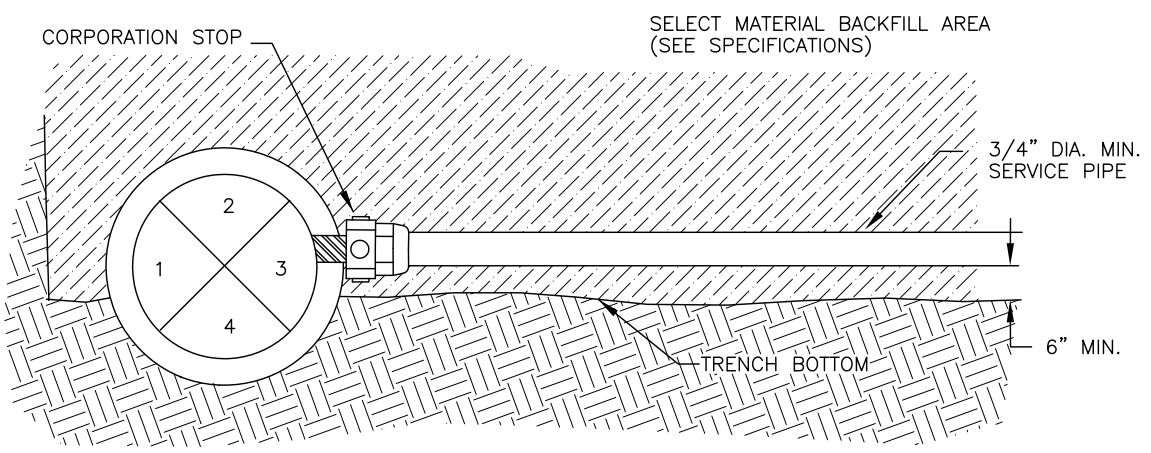

*MEGA–LUG OR APPROVED EQUAL JOINT RESTRAINTS MAY BE USED IN LIEU OF CONCRETE THRUST BLOCK

| CITY OF BOZEMAN STANDARD DRAWING | SCALE: NONE | FIRE HYDRANT | NO. 02660–4 FEB 2008 |
|---|---|---|---|




NO COUPLINGS OR OTHER JOINTS ALLOWED ON SERVICE PIPE FROM CORP. STOP TO CURB STOP FOR 3/4" AND 1" SERVICES.
STRAIGHT COPPER PIPE SHALL BE USED FOR 1 1/2" AND 2" SERVICES

*DETAIL OF A PROPERLY INSTALLED CORPORATION STOP. TAP MAIN AT SPRINGLINE.*




GENERAL NOTES:

1. WATER SERVICE LINES SHALL HAVE A MINIMUM 6 1/2 FOOT COVER MEASURED FROM THE EXISTING GROUND SURFACE, EXCEPT THAT COVER SHALL BE MEASURED FROM CENTER LINE STREET GRADE WHEN SERVICE LINES ARE LAID TO A STREET SIDE WHICH HAS AN UPHILL SLOPE. WATER SERVICE LINES SHALL HAVE A MAXIMUM 7 1/2 FOOT COVER AT CURB STOP.
2. WATER SERVICE LINES SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS OR AS SPECIFIED.
3. BEDDING SHALL BE 1" DIA. MAXIMUM WITHIN 6" OF SERVICE PIPE.
4. INSTALL CURB STOP SO THAT OPERATING KEY IS PARALLEL TO STREET IN OFF–POSITION.

| CITY OF BOZEMAN STANDARD DRAWING | SCALE: NONE | WATER SERVICE LINE | NO. 02660–6 DEC 2003 |
|---|---|---|---|

BOZEMAN MT
Engineering Division

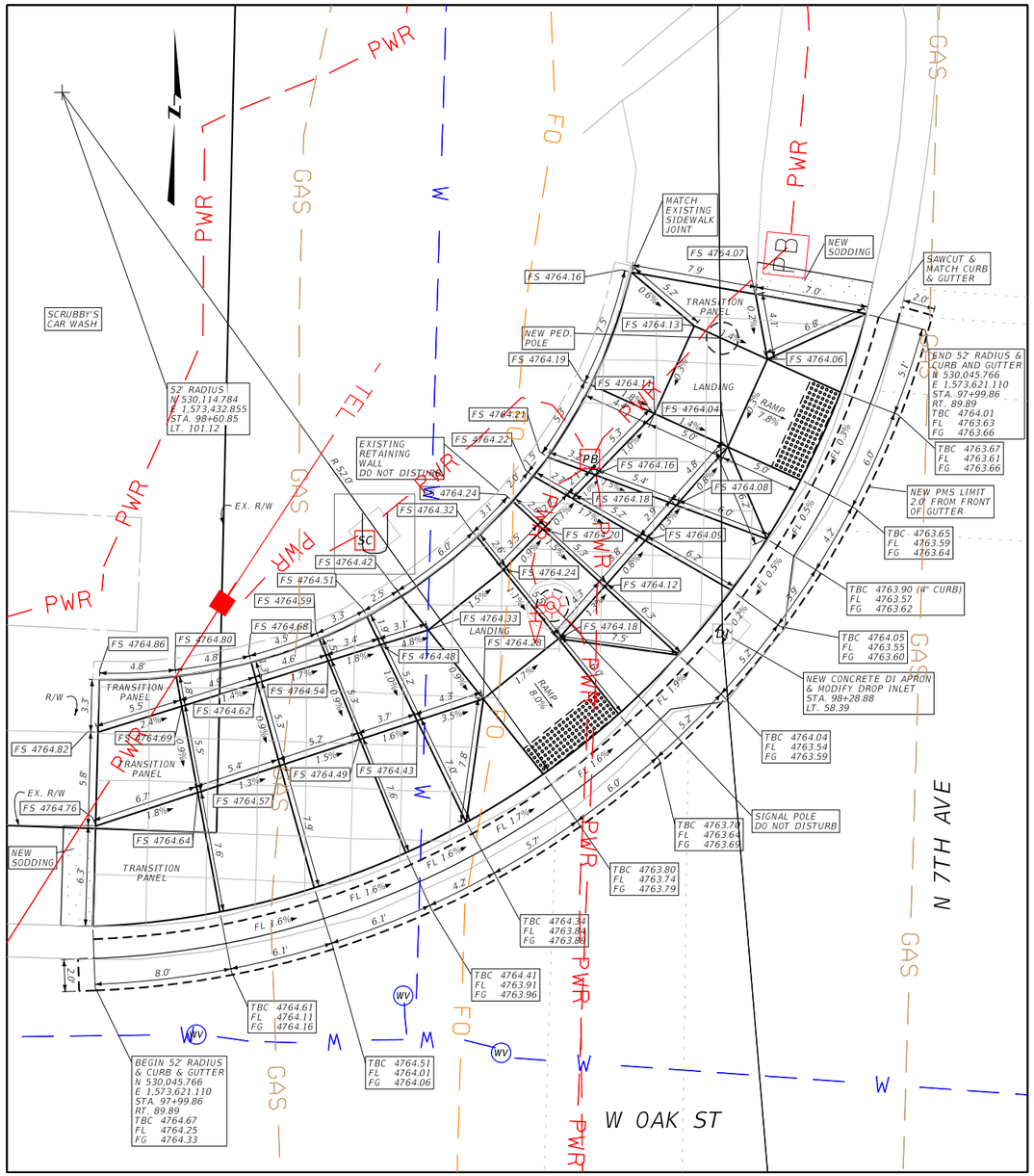
# Appendix B

# Reference Plans

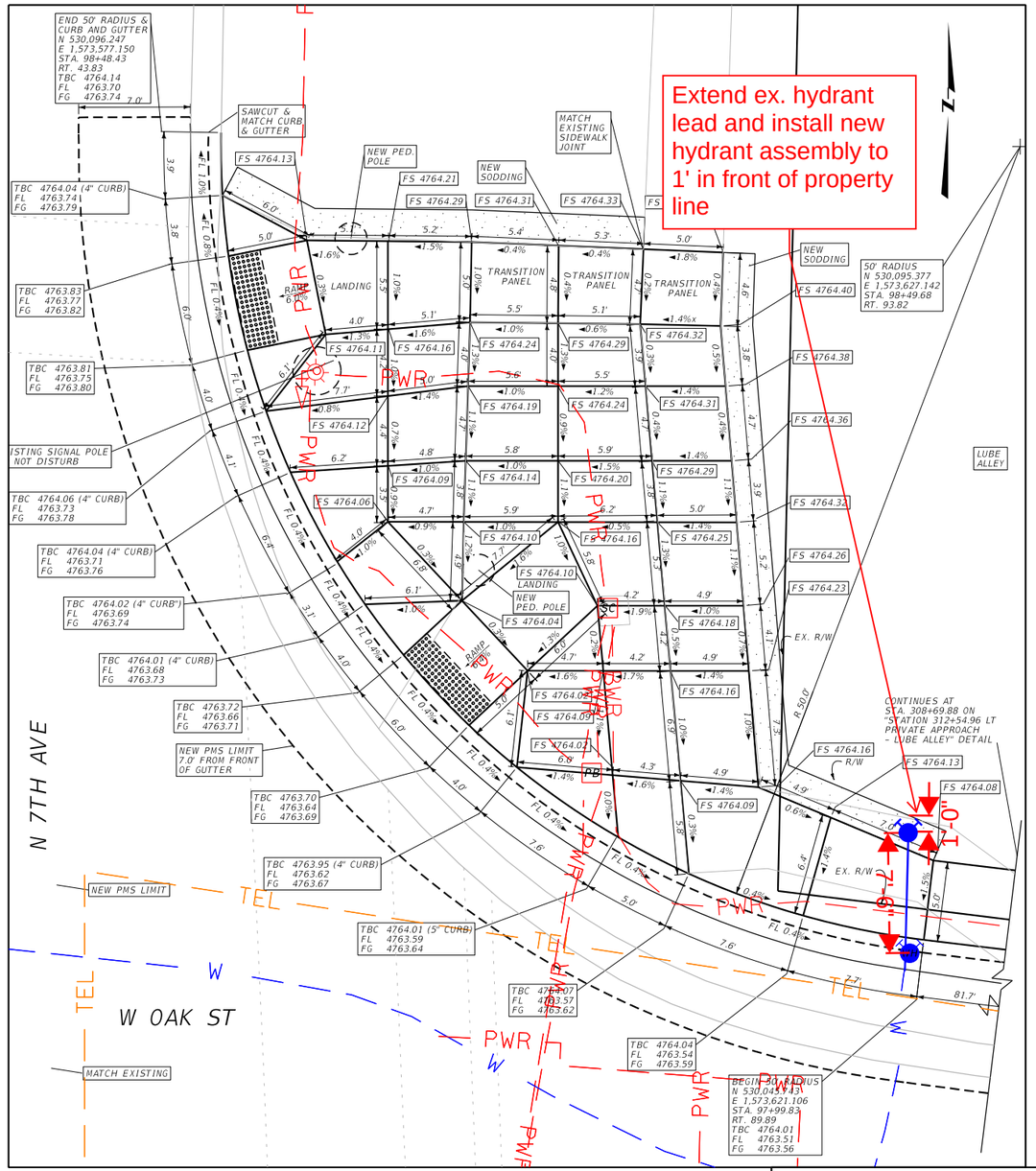
A 20 East Olive Street | M P.O. Box 1230 Bozeman, MT 59771-1230 | P 406-582-2280 | F 406-582-2263 | www.bozeman.net

TDD: 406-582-2301

## INTERSECTION OF N 7TH AVE - W OAK ST
## NORTHWEST CORNER




## INTERSECTION OF N 7TH AVE - W OAK ST
## NORTHEAST CORNER




### LEGEND

FS = FINISHED SURFACE ELEV.
TBC = TOP BACK OF CURB ELEV.
FL = FLOW LINE ELEV.
TRW = TOP OF RETAINING WALL ELEV.
FG = FRONT OF GUTTER ELEV.

DETECTABLE WARNING DEVICES

NOTES:

PROVIDE DETECTABLE WARNING DEVICES ON THE BOTTOM 2.0 FEET OF EACH RAMP AS SHOWN. SEE DTL. DWG. NO. 608-40 FOR DETECTABLE WARNING DEVICES DETAILS.

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE. ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

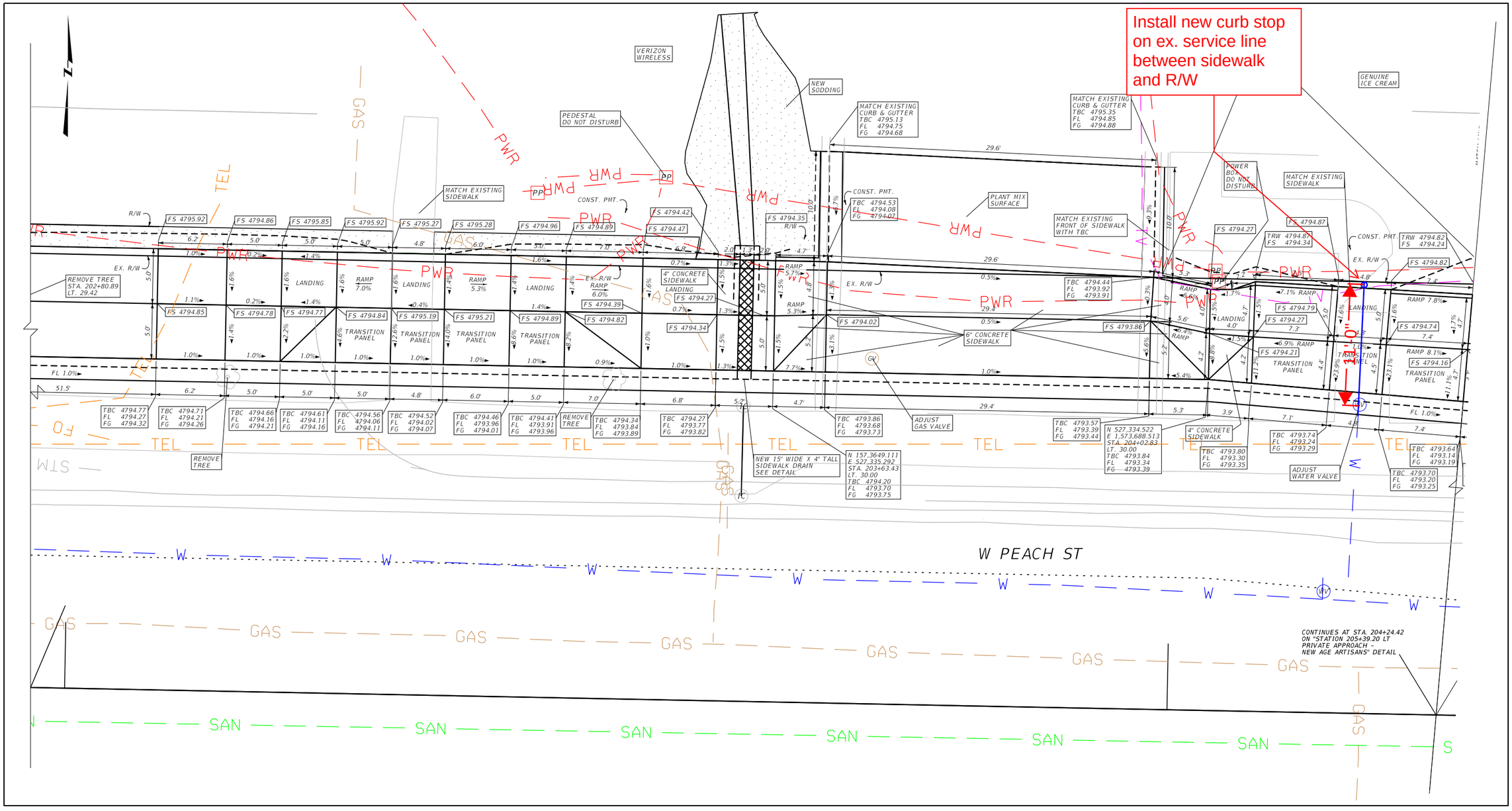
COST OF RETAINING WALL IS INCLUDED IN THE UNIT PRICE BID FOR CONCRETE SIDEWALK

# N 7TH AVE & W OAK ST CURB RAMP DETAILS

NO SCALE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 / 1 | MONTANA Department of Transportation | C:\DGN\9313000utdet003.dgn | DESIGNED BY | | UTILITY PLANS | FOR UTILITY PIH | N 7TH AVE INT IMPROV - BOZEMAN / UPN 9313000 | CMDP 118-1( )0 |
| | | 4/10/2024 | REVIEWED BY | | GALLATIN COUNTY | | | SHEET U20 OF 35 |
| | | 7:26:04 AM CPS - U3666 | CHECKED BY | | | | | |

# STATION 203+83.29 LT
# PRIVATE APPROACH - VERIZON




## LEGEND

FS = FINISHED SURFACE ELEV.
TBC = TOP BACK OF CURB ELEV.
FL = FLOW LINE ELEV.
TRW = TOP OF RETAINING WALL ELEV.
FG = FRONT OF GUTTER ELEV.

DETECTABLE WARNING DEVICES

NOTES:

PROVIDE DETECTABLE WARINING DEVICES ON THE BOTTOM 2.0 FEET OF EACH RAMP AS SHOWN. SEE DTL. DWG. NO. 608-40 FOR DETECTABLE WARNING DEVICE DETAILS.

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE. ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

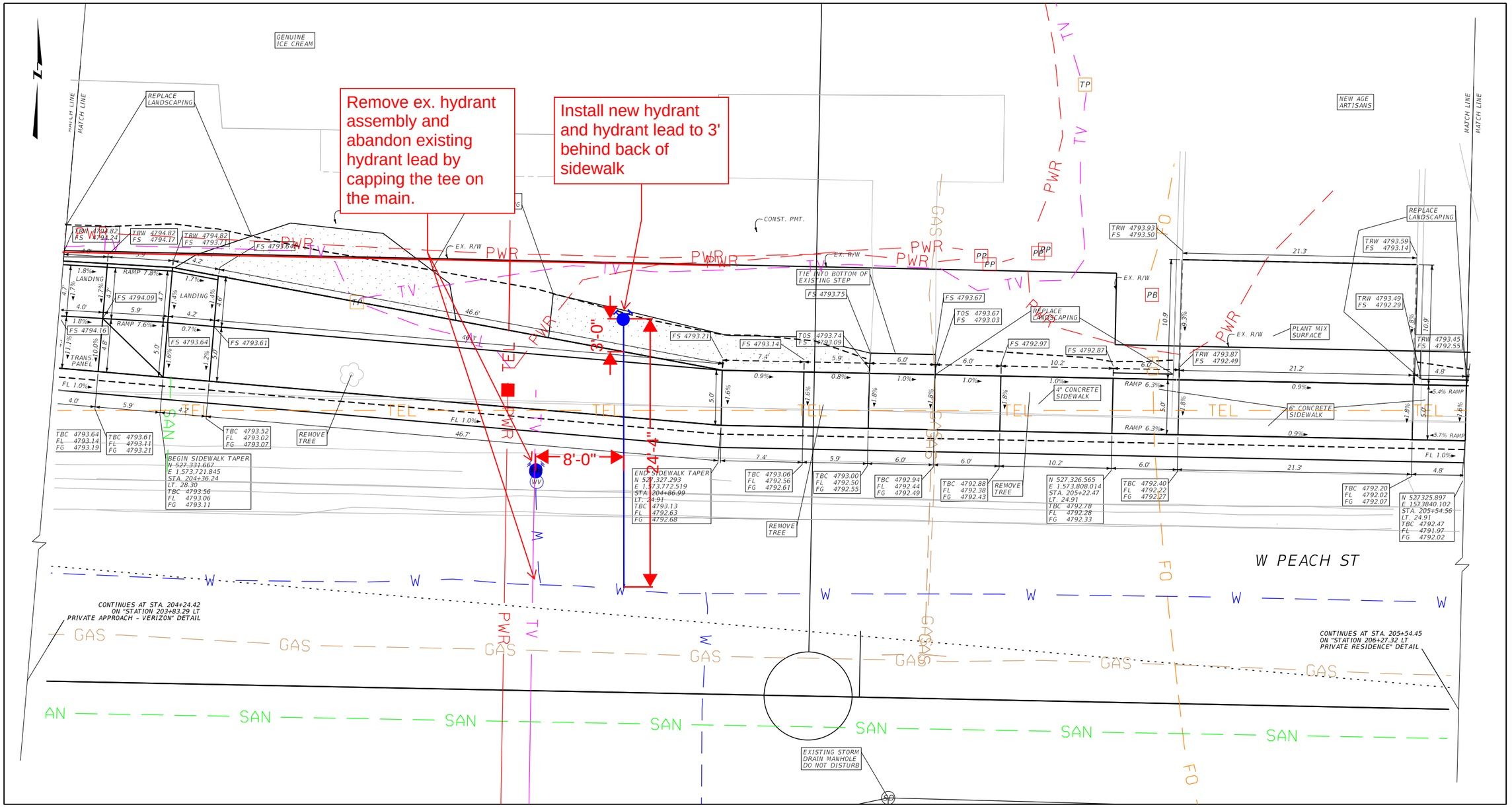
COST OF RETAINING WALL IS INCLUDED IN THE UNIT PRICE BID FOR CONCRETE SIDEWALK

## W PEACH ST APPROACH & SIDEWALK DETAILS

NO SCALE

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | MONTANA Department of Transportation | C:\DGN\9313000utdet004.dgn | DESIGNED BY | | UTILITY PLANS | N 7TH AVE INT IMPROV - BOZEMAN | CMDP 118-1( )0 |
| 2 | | 4/10/2024 | REVIEWED BY | | | | |
| | | 7:26:23 AM CPS - U3666 | CHECKED BY | | GALLATIN COUNTY | FOR UTILITY PIH | UPN 9313000 SHEET U21 OF 35 |

# STATION 205+39.20 LT
## PRIVATE APPROACH - NEW AGE ARTISANS




### LEGEND

FS = FINISHED SURFACE ELEV.
TBC = TOP BACK OF CURB ELEV.
FL = FLOW LINE ELEV.
TRW = TOP OF RETAINING WALL ELEV.
FG = FRONT OF GUTTER ELEV.
TOS = TOP OF STEP

DETECTABLE WARNING DEVICES

NOTES:

PROVIDE DETECTABLE WARINING DEVICES ON THE BOTTOM 2.0 FEET OF EACH RAMP AS SHOWN. SEE DTL. DWG. NO. 608-40 FOR DETECTABLE WARNING DEVICE DETAILS.

ALL DIMENSIONS AND ELEVATIONS ARE FEET UNLESS OTHERWISE NOTED.

ALL CURB AND GUTTER DIMENSIONS ARE ALONG TBC.

CONTRACTOR VERIFY ELEVATIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MATCH EXISTING ELEVATIONS AT ALL JOINTS BETWEEN NEW AND EXISTING CONCRETE. ELEVATIONS SHOWN AT MATCH LINE LOCATIONS ARE APPROXIMATE.

SEE DETAILED DRAWINGS FOR STANDARD SIDEWALK, CURB & GUTTER AND RETAINING WALL DETAILS.

COST OF RETAINING WALL IS INCLUDED IN THE UNIT PRICE BID FOR CONCRETE SIDEWALK

## W PEACH ST APPROACH & SIDEWALK DETAILS

NO SCALE