

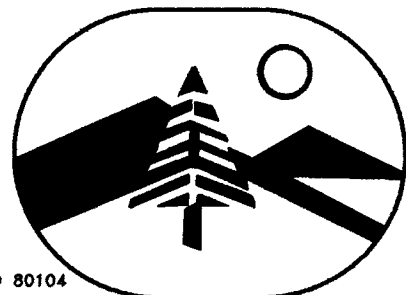
FINAL UTILITY REPORT
LOT 1,
LYNCH SUBDIVISION
ADDRESS TBD
(CDXX-00XX)

Prepared for
Ryan Lynch & Jamielynn Shepherd
1320 Sweet Springs Cir. Apt 108
Castle Pines, CO 80108

Prepared by
David E. Archer & Associates, Inc.
105 North Wilcox Street
Castle Rock, Colorado 80104

Project No. 25-0097
September 2025

 **DAVID E.**
ARCHER
& ASSOCIATES, INC.
LAND DEVELOPMENT CONSULTING
SURVEYING & ENGINEERING
PHONE (303) 688-4642
105 WILCOX ST., CASTLE ROCK, COLORADO 80104



UTILITY REPORT APPROVAL BLOCKS

Engineer's Statement:

The enclosed utility report, and exhibits, were prepared by me or under my direct supervision and is correct to the best of my knowledge and belief. Said utility report has been prepared in accordance with applicable Town of Castle Rock criteria and is in conformance with the master utility plans for the affected area. I accept responsibility for any liability caused by negligent acts, errors, or omissions on my part in preparing this report.

Signature: _____
Registered Professional Engineer
State Of Colorado No. _____
(Affix Seal)

Owner/Developer's Statement:

As Owner/Developer of Land(s) identified within this report; I agree to proceed, implement and comply with all recommendations and requirements outlined herein.

Name of Developer

Authorized Signature

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REFERENCES 5

Lot 1 Lynch Subdivision
FINAL UTILITY REPORT

PROJECT LOCATION AND DESCRIPTION

Site Location

1. The project site is Lot 1, Lynch Subdivision
2. The site is located in Section 23, Township 7 South, Range 67 West.
3. There are no adjacent streets to the property. The site is accessed from Pawnee Trail to the north. Access to site requires entering through the northern neighboring property.
4. The site lies within the Maher Ranch P.U.D. Properties to the east are also within the P.U.D. Neighboring properties to the north, south, and west are unincorporated Douglas County. They are a mix of Agricultural One District (A1) and Open Space Conservation District (OS) zoning.

Project Description and Land Use

1. The entire site contains about 14.73 acres.
2. This site will be developed with one single-family residence.
3. The SFE's for the proposed project are as follows:

Single Family Residence	1.00 SFE
-------------------------	----------

TOTAL

1.00 SFE's

4. As noted above the total site is 14.73 acres. The site will used as a single family residence
5. The site has an existing 20' waterline easement that cuts through the center of the property. Within this easement is an existing 16" diameter red zone water transmission main. The site is anticipating an additional easement for raw water pipeline from the Reuter-Hess Reservoir. The easement will lie adjacent to the current transmission line. The exact easement location is unknown at the time of this report. There is also an existing 10' wide water and sewer easement along the western property boundary.
6. There are no navigable waterways on site. There are no major drainage ways through the site. There are no FEMA defined floodplains on site per FIRM Panel 08035C20186F.
7. There are no irrigation canals or ditches on the site.
8. There are no significant geologic features on site, other than some relatively steep existing slopes, of about 20% to 40% in the middle of the site.
9. There is currently no sewer service on site or located adjacent to the site. The proposed developed site will be served by an on-site wastewater treatment system (OWTS).

WATER SYSTEM

CALCULATED WATER DEMANDS

Average Day Demands

LAND USE	TAP SIZE	ADD gpm	ADD gpd	ADD af/yr
Single Family Residential	3/4"	0.28	400	0.448

Maximum/Peak Demands

LAND USE	TAP SIZE	PHD gpm	MDD gpd
Single Family Residential	3/4"	1.53	1,000

Storage Requirements

The storage requirements required for the site is equal to the maximum daily demand of 1,000 gallons.

Irrigation Demands

The irrigation demands are included in the design demands for single family residential land uses.

EXISTING WATER SYSTEM

Existing Distribution System

1. There are no existing water distribution mains on or accessible to the site. There is an existing 16" ductile iron transmission line on site. The transmission line is located within the red zone. A distribution line will be required to be installed from the transmission line to serve the site.
2. Based on the Town of Castle Rock Water System Design Criteria Manual, the maximum HGL elevation for this zone is 6680', with a top and low elevation served of 6557' and 6393' respectively. The approximate finished floor elevation of the home will be 6600'. A booster pump will be required to serve the proposed residence.

Existing Supply Facilities

1. The site is supplied by Red Zone Water Tank 14.
2. Based on the Town of Castle Rock Water System Design Criteria Manual, the maximum HGL elevation for this zone is 6680', with a top and low low elevation served of 6557' and 6393' respectively. The approximate finished floor elevation of the home will be 6600'. A booster pump will be required to serve the proposed residence.

PROPOSED WATER SYSTEM

1. As noted above there is an existing 16" water transmission line that runs through the site. For the proposed residence to tap into the system an 8" main is to be constructed on site. The 8" main will tap into the existing 16" water transmission line. The proposed 8" PVC main will be 50' LF.
2. The residence will tap into the proposed 8" main with a ¾" tap and ¾" x ¾" meter assembly.
3. A private booster pump will be required to serve the residence.

Proposed Supply Facilities

It is not believed that there will be any new pump stations, wells, PRVs, storage reservoirs, purification facilities, etc. needed to serve the site.

Land Dedication Requirements

1. A 20' wide easement will be required for the proposed 8" PVC main.
2. An additional easement will be required for the proposed raw water pipeline from the Rueter-Hess Reservoir. The exact location is unknown at the time of this report. This project will not tie into the proposed pipeline.

PROPOSED WATER SYSTEM ANALYSIS AND MODELING

The Town has provided static HGL information for the existing transmission line through the site. At the approximate proposed finished floor elevation on site (6600') the pressure is 34.6 psi. A private booster pump will be required.

POTENTIAL PERMITTING REQUIREMENTS

There are no anticipated permits required for this project other than the local Public Works permits.

WASTEWATER COLLECTION SYSTEM

There are no accessible town sanitary sewer lines near the site. The site will utilize an OWTS for all wastewater collection and treatment. The site will be subject to Colorado Department of Public Health and Environment Regulation No. 43.

CALCULATED WASTEWATER FLOWS

The calculated flows will be based on the number of proposed bedrooms within the single family residence. Below is the assumed design flow for the site.

Design Flow

Number of Bedrooms	Occupancy Number of Persons	Wastewater Flow Per Person GPD	Design Flow GPD
5	9	75	675

Peaking Factor

Peaking factor is not applicable to this project.

Peak Design Flow Rate

Peaking factor is not applicable to this project. The peak design flow is calculated into the assumed design flow for the OWTS.

EXISTING WASTEWATER SYSTEM

Existing Collection System

1. There are no accessible town sanitary sewer lines near the site. The nearest sewer collector is located in Neon Way. This sewer collector will not be utilized by the site.

PROPOSED WASTEWATER SYSTEM

Proposed Collection System

1. The site will utilize an OWTS for all wastewater collection and treatment. The site will be subject to Colorado Department of Public Health and Environment Regulation No. 43.

Proposed Wastewater Facilities

The proposed project will not require the addition of any new wastewater facilities.

Land Dedication Requirements

1. There are no proposed land dedication requirements for wastewater systems.

PROPOSED WASTEWATER SYSTEM ANALYSIS AND MODELING

Calculations and designs will be required for the proposed OWTS prior to construction. The site will be subject to Colorado Department of Public Health and Environment Regulation No. 43.

POTENTIAL PERMITTING REQUIREMENTS

The site will require a permit for the proposed 8" PVC main, the proposed OWTS, and the proposed residence and domestic tap.

REFERENCES

- Town of Castle Rock 2018 Water Master Plan Update, 2023
- Town of Castle Rock Wastewater Collection Design Criteria Manual, December 2018
- Town of Castle Rock Water System Design Criteria Manual – December 2018

APPENDIX A WATER DEMANDS

Date:
 Permit Number:
 Development Name: Lot 1 Lynch Subdivision
 Model Name/permit :
 Address:
 FRONT AND BACKYARD LS
 AND IRR BY BUILDER: YES NO
 please circle



RESIDENTIAL WATER FIXTURE UNIT CALCULATIONS					
FIXTURE:	Quantity		Water FU (Based on Table AP 103.3(2) of the 2018 IRC)	TOTAL WATER F.U.	
Bathtub (with/without overhead shower head)		x	1.4	0	
Clothes washer	1	x	1.4	1.4	
Dishwasher (DW)		x	1.4	0	
3 Piece Bath Group (1 sink, toilet, tub)	2	x	2.6	5.2	
4 Piece Bath Group (1sink, toilet, tub, shower stall)		x	3.8	0	
5 Piece Bath Group (2 sinks, toilet, tub, shower stall)	1	x	4.5	4.5	
Half Bath Group (toilet and sink only)	1	x	1.4	1.4	
Hose Bibb (sillcock)	2	x	2.5	5	
Kitchen group (DW & Sink with/without garbage grinder)	1	x	2.5	2.5	
Kitchen Sink	1	x	1.4	1.4	
Laundry group (clothes washer standpipe & laundry tub)		x	2.5	0	
Laundry tub		x	1.4	0	
Lavatory (sink)		x	0.7	0	
Shower stall		x	1.4	0	
Water closet/toilet (tank type)		x	1.0	0	
Basement Rough-In (if other than 3 pc Bath Group rough-in, please list all rough fixtures i.e. kitchen group, bar sink and manually write in the fixture units associated as listed above)					
3 Piece Bath Group (1 sink, toilet, tub) rough-in		x	2.6	0	
		x		0	
		x		0	
		x		0	
		x		0	
*Low Flow 0.8 gpf Toilet Credit: (0.2 FU per water/closet toilet installed by builder)		x	-0.2	0	
**Graywater Credit (1.0 FU per water closet/toilet using graywater system)		x	-1.0	0	
(DO NOT WRITE BELOW THIS LINE) TOTALS :				21.4	Water FU
Peak Demand Estimate (Based on Table AP 103.3(3) of the 2018 IRC) =				21.5	GPM
Highest Irrigation Zone GPM flow =				7.00	GPM
TOTAL GPM =				28.50	GPM
Water Meter size, to be filled in by the Castle Rock Water Department =					
If FRONT AND BACKYARD INSTALLED BY BUILDER - PRORATED SFE SFE EQUIVALENT =					
Total turf area installed (as shown on attached landscape plan)=					Sq.Ft.
Total planting area installed (as shown on attached landscape plan)=					Sq.Ft.
Actual irrigated area installed (as shown on attached landscape plan) =					Sq.Ft.
Maximum calculated irrigable area (as shown on attached landscape plan) =					Sq.Ft.
* Low Flow 0.8 gpf toilet credit only for toilets installed by builder. Rough in for basements will not be counted for credit **Graywater Credit is for each toilet connected to the graywater system. If 0.8 gpf toilet used with graywater system, only the graywater credit will be used.					

APPENDIX B

WATER STORAGE

Maximum/Peak Demands

LAND USE	TAP SIZE	PHD gpm	MDD gpd
Single Family Residential	3/4"	1.53	1,000

Storage Requirements

The storage requirements required for the site is equal to the maximum daily demand of 1,000 gallons.

APPENDIX C

PRESSURE CALCULATIONS

This project will not be adding any additional looping to the Town of Castle Rock Water System. There is an existing 16" ductile iron water transmission line that runs through the site.

The Town of Castle Rock has provided the following Hydraulic Grade Line information for the site.

Static HGL = 6680

The site elevation ranges from 6684' to 6414'

LOCATION	ELEVATION	STATIC PRESSURE
Approximate Main Floor	6600	34.6 psi

APPENDIX D

WASTEWATER FLOWS

CALCULATED FLOWS

The calculated flows will be based on the number of proposed bedrooms within the single family residence. Below is the assumed design flow for the site.

Design Flow

Number of Bedrooms	Occupancy Number of Persons	Wastewater Flow Per Person GPD	Design Flow GPD
5	9	75	675

Peaking Factor

Peaking factor is not applicable to this project.

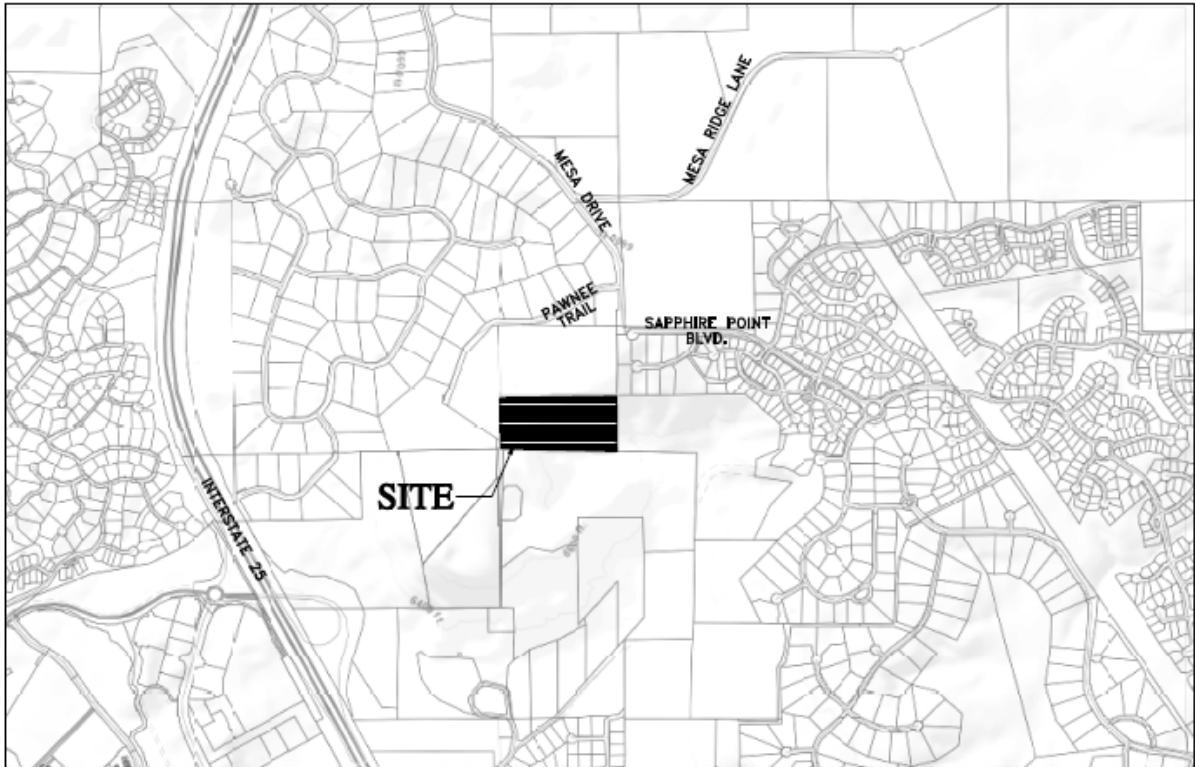
Peak Design Flow Rate

Peaking factor is not applicable to this project. The peak design flow is calculated into the assumed design flow for the OWTS.

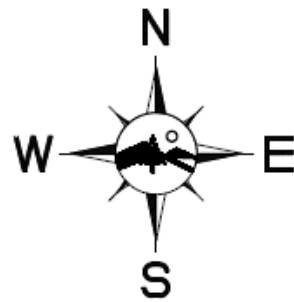
APPENDIX E
WASTEWATER HYDRAULIC MODELING
NOT REQUIRED FOR THIS PROJECT

APPENDIX F

MAPS/PLANS



- VICINITY MAP -



UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

1. All materials, workmanship, construction, and construction of Public Improvements shall meet or exceed the standards and specifications set forth in the Town of Castle Rock (TCR) Municipal Code, TCR Technical Manuals, and applicable State and Federal Regulations. Where there is conflict between these Plans and the Technical Manual or any applicable Standards, the more stringent Standard shall apply. All Work shall be inspected and approved by the TCR Construction Inspector.
2. The Contractor is specifically cautioned that the location and/or elevation of existing utilities as shown on these Plans is based on records of the various utility companies and, where possible, measurements taken in the field. The information is not to be relied upon as being exact or complete.
3. The Contractor must call the local utility location center at least 72 hours before any excavation to request exact field locations of the utilities. Prior to construction, the Contractor shall verify pertinent locations and elevations, especially at connection points and at potential utility conflicts. It shall be the responsibility of the Contractor to relocate all existing utilities that conflict with the proposed improvements shown on these Plans.
4. The Contractor shall coordinate and cooperate with the Town and all utility companies involved with regard to relocations or adjustments of existing utilities during construction and to assure that the Work is accomplished in a timely fashion and with a minimum disruption of service. The Contractor shall be responsible for contacting all parties affected by any disruption of any utility service.
5. Contractor shall provide a minimum seventy-two (72) hours notice to the on-site TCR Construction Inspector, (720) 733-2200, prior to making any connections/tie-ins to existing Water, Sanitary Sewer, and/or Storm Sewer systems provided that the utility tie-in does not disrupt service to existing CR Water customers. If the tie-in will disrupt utility service, then Contractor shall provide a minimum of three (3) weeks notice to the TCR Construction Inspector to allow time for CR Water to provide written notification to existing customers affected by the tie-in. All Town utility tie-ins must be approved by CR Water prior to commencing work.
6. The Contractor shall have one (1) signed copy of the approved Plans, one (1) copy of the appropriate criteria and specifications, and a copy of any permits and extension agreements needed for the job onsite at all times.
7. The Contractor shall be responsible for all aspects of safety including, but not limited to, excavation, trenching, shoring, traffic control, and security.
8. If during the construction process conditions are encountered which could indicate a situation that is not identified in the Plans or specifications, the Contractor shall contact the TCR Construction Inspector immediately.
9. All references to any published Standards shall refer to the latest revision of said Standard unless specifically stated otherwise.
10. The Contractor shall submit a Traffic Control Plan in accordance with MUTCD to the appropriate Right-of-Way authority (the County or State) for approval prior to any construction activities within or affecting the Right-of-Way. The Contractor shall be responsible for providing any and all traffic control devices as may be required by the construction activities.
11. The Contractor is responsible for providing all labor and materials necessary for the completion of the intended improvements shown on these drawings or as designated to be provided, installed, or constructed unless specifically noted otherwise.
12. The Contractor shall be responsible for recording As-Built information on a set of record drawings kept on the construction site and available to the TCR Construction Inspector at all times.
13. Dimensions for layout and construction are not to be scaled from any drawing. If pertinent dimensions are not shown, contact the Consultant Engineer for clarification and annotate the dimension on the As-Built Record drawings.
14. All initial sediment control measures shall be installed per the Temporary Erosion & Sediment Control (TESC) plan prior to any earth-disturbing activity. All erosion and sediment control practices must be maintained in effective operating condition at all times. Removal of control measures shall not occur without the approval of the stormwater inspector. The Contractor shall be responsible for keeping roadways free and clear of all construction debris and dirt tracked from the site. The Contractor shall also comply with all terms and conditions of the Colorado Construction General Permit for Stormwater Discharges.
15. The Contractor shall provide an action plan immediately following the pre-construction meeting detailing sufficient means to mitigate dust on site during overlot grading, rock crushing or other earthwork activities. If the Contractor fails to control dust, all earth disturbing activities shall be stopped until sufficient measures are taken to the Town's satisfaction. The Contractor shall also comply with all terms and conditions of the Colorado Air Quality Regulations for Land Development, as required.
16. The Contractor shall sequence installation of utilities in such a manner as to minimize potential utility conflicts. In general, storm sewer and sanitary sewer should be constructed prior to installation of the water lines and dry utilities.
17. There shall be no site construction activities on Saturdays unless specifically approved by the TCR Construction Inspector and no site construction activities on Sundays or holidays unless there is prior written approval by the Public Works Director.
18. No solid object (excluding fire hydrants and traffic control devices and traffic signs) exceeding thirty(30) inches in height above the flowline elevation of the adjacent street, including but not limited to buildings, utility cabinets, walls, fences, landscape plantings, crops, cut slopes, and berms, shall be placed within sight distance lines and sight distance easements.
19. This property is not located within any FEMA floodplain as per FEMA FIRF Panel No. 08035C0186G Dated March 16, 2016.
20. The project benchmark is Douglas County Benchmark DCBM ECKHARDT ELEVATION=6434.71 (NAVD88)
21. The Basis of Bearing for the project is based on the consideration that the South line of the Parcel B bears S88°06'21"E shown hereon; Southwest corner is a 3" Aluminum Monument with PLS 34989; Southeast corner is a #5 rebar with PLS 15605.

SHEET 1 of 3 = COVER SHEET
SHEET 2 of 2 = UTILITY PLAN

FIELD CHANGE ORDER TABLE		
FCO#	DATE	PURPOSE / DESCRIPTION
—	—	—

CASTLE ROCK WATER
STORMWATER
720-733-2235

TOWN OF CASTLE ROCK
UTILITIES DEPT.
PHONE: (720)733-6000

TOWN OF CASTLE ROCK PUBLIC WORKS
PHONE: (720)733-2462

GAS:
BLACK HILLS ENERGY
PHONE: (800) 890-5554

ELECTRIC:
CORE
PHONE: 303-688-3100

TELEPHONE:
CENTURY LINK COMMUNICATIONS
PHONE: 720-578-5142

RYAN LYNCH & JAMIELYNNE SHEPHERD
1320 SWEET SPRINGS CIR. APT 108
CASTLE PINES, CO 80108

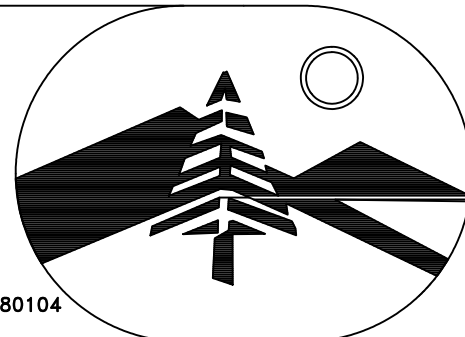
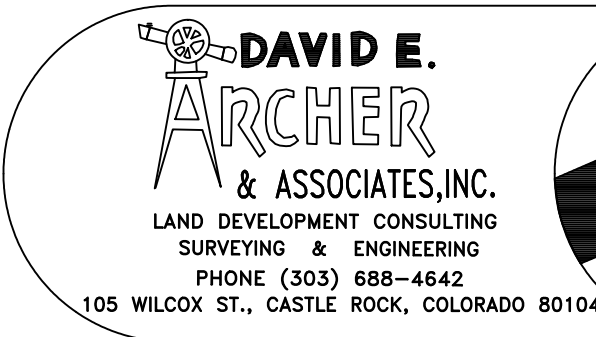
DAVID E. ARCHER & ASSOCIATES, INC.
105 WILCOX STREET
CASTLE ROCK CO 80104
PHONE: (303)-688-4642
FAX: (303)-688-4675

DOUGLAS COUNTY BENCHMARK:
DCBM ECKHARDT
ELEVATION = 6434.71 (NAVD88)

I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE TOWN OF CASTLE ROCK AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY, AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

ZACHARY E THATCHER PE NO. 64656

SHEET 1 OF 2
SEPTEMBER 2025
JOB NUMBER 25-0097



REVISIONS

TOWN OF CASTLE ROCK APPROVALS
THESE PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM
DATE OF DEVELOPMENT SERVICES APPROVAL

APPROVED BY:

DEVELOPMENT SERVICES DIRECTOR

DATE _____

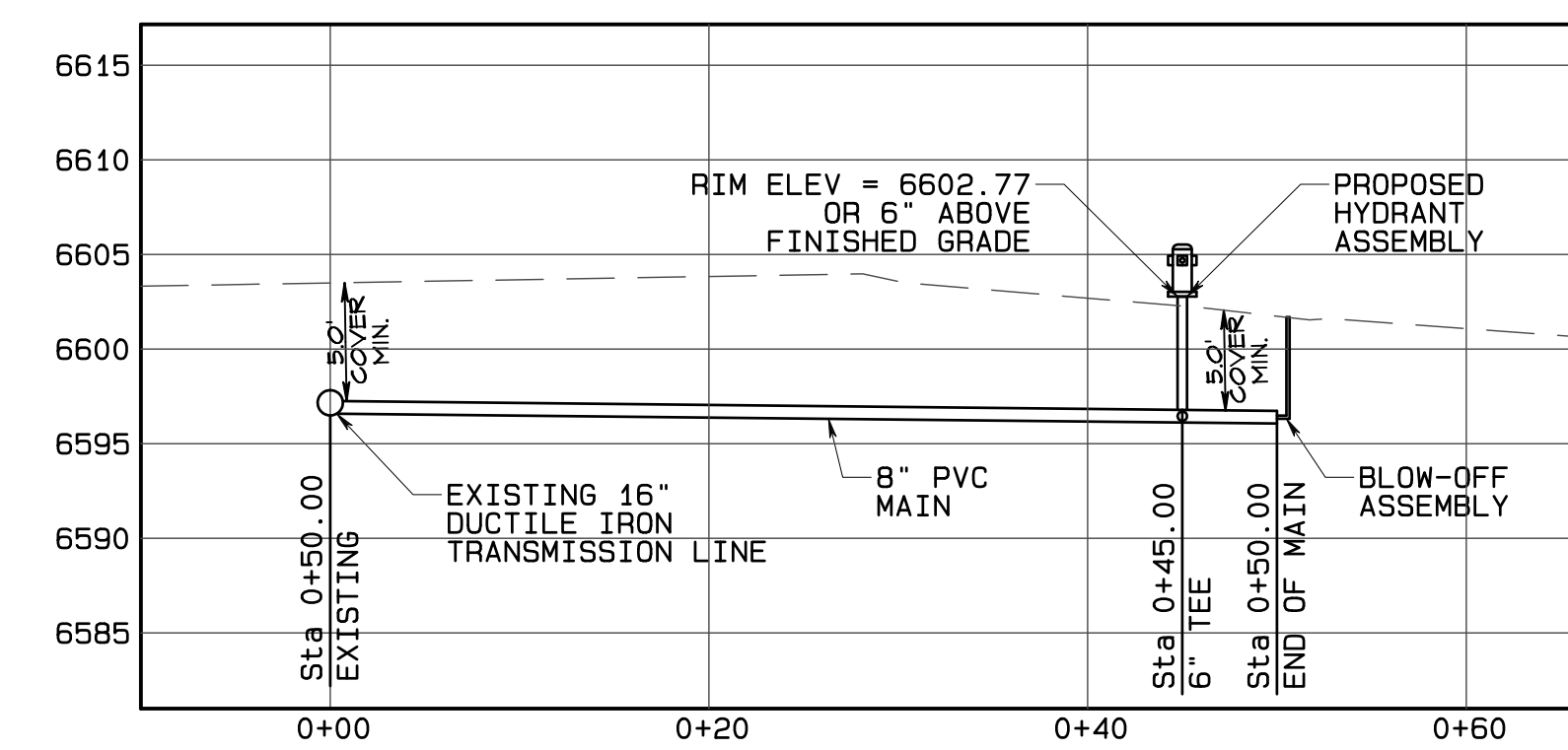
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Mon Sep 22 14:47:32 2025

UNCC

UTILITY NOTIFICATION
CENTER OF COLORADO

1-800-922-1987

CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.



WATER LINE PROFILE
SCALE: (H)1"=10' (V)1"=10'

- LEGEND
- [Gravel symbol] = GRAVEL SURFACE
 - [Riprap symbol] = RIPRAP
 - [Dashed line] = EXISTING EDGE OF ASPHALT
 - [Dashed line] = PROPOSED CENTERLINE
 - [X-X line] = EXISTING FENCE
 - [Storm pipe symbol] = STORM PIPE / CULVERT WITH FLARED END SECTION
 - [E-E line] = EXISTING OVERHEAD POWERLINE
 - [Solid line] = EASEMENT
 - [Contour symbol] = PROPOSED CONTOUR
 - [Contour symbol] = EXISTING CONTOUR
 - [Water line symbol] = PROPOSED WATER LINE
 - [Water line symbol] = EXISTING WATER LINE

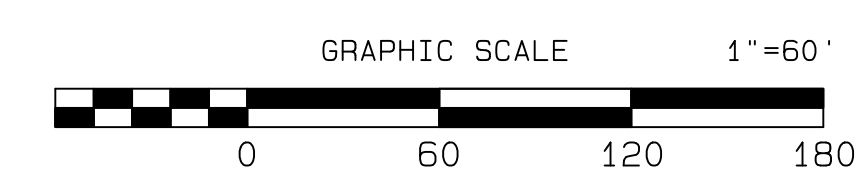
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ZACHARY E THATCHER PE NO. 64656 DATE

TOWN OF CASTLE ROCK APPROVALS
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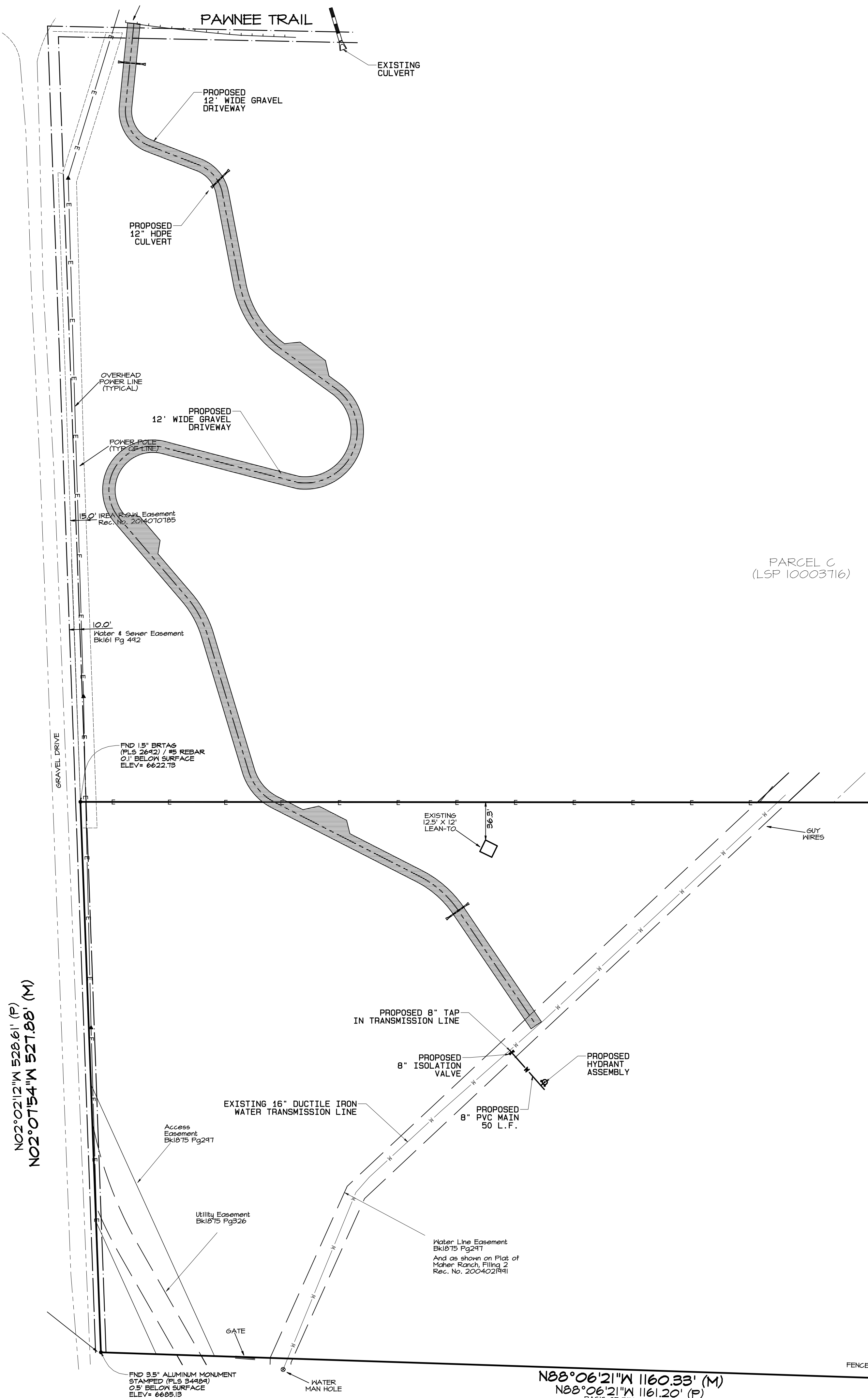
APPROVED BY:
DEVELOPMENT SERVICES DIRECTOR DATE

UTILITY PLAN
SCALE: 1"=60'



501°04'03"W 565.06' (P)
50°10'29"W 565.29' (P)

N02°02'12"W 528.61' (P)
N02°07'54"W 527.88' (M)



PARCEL B
14.73 ACRES +/-
641840 SQ FT +/-

PARCEL C
(LSP 10003116)

N88°06'21"W 1160.33' (M)
N88°06'21"W 1161.20' (P)
BASIS OF BEARINGS

TRACT IN SW 1/4 23-7-67

REVISIONS

DAVID E. ARCHER & ASSOCIATES, INC.

LAND DEVELOPMENT CONSULTING
SURVEYING & ENGINEERING
PHONE (303) 688-4642
105 WILCOX ST. CASTLE ROCK, COLORADO 80104

UTILITY PLAN

TBD PAWNEE TRAIL
CASTLE ROCK, CO 80108

CLIENT
RYAN LYNCH

JOB NUMBER
25-0097

SCALE 1"=60'

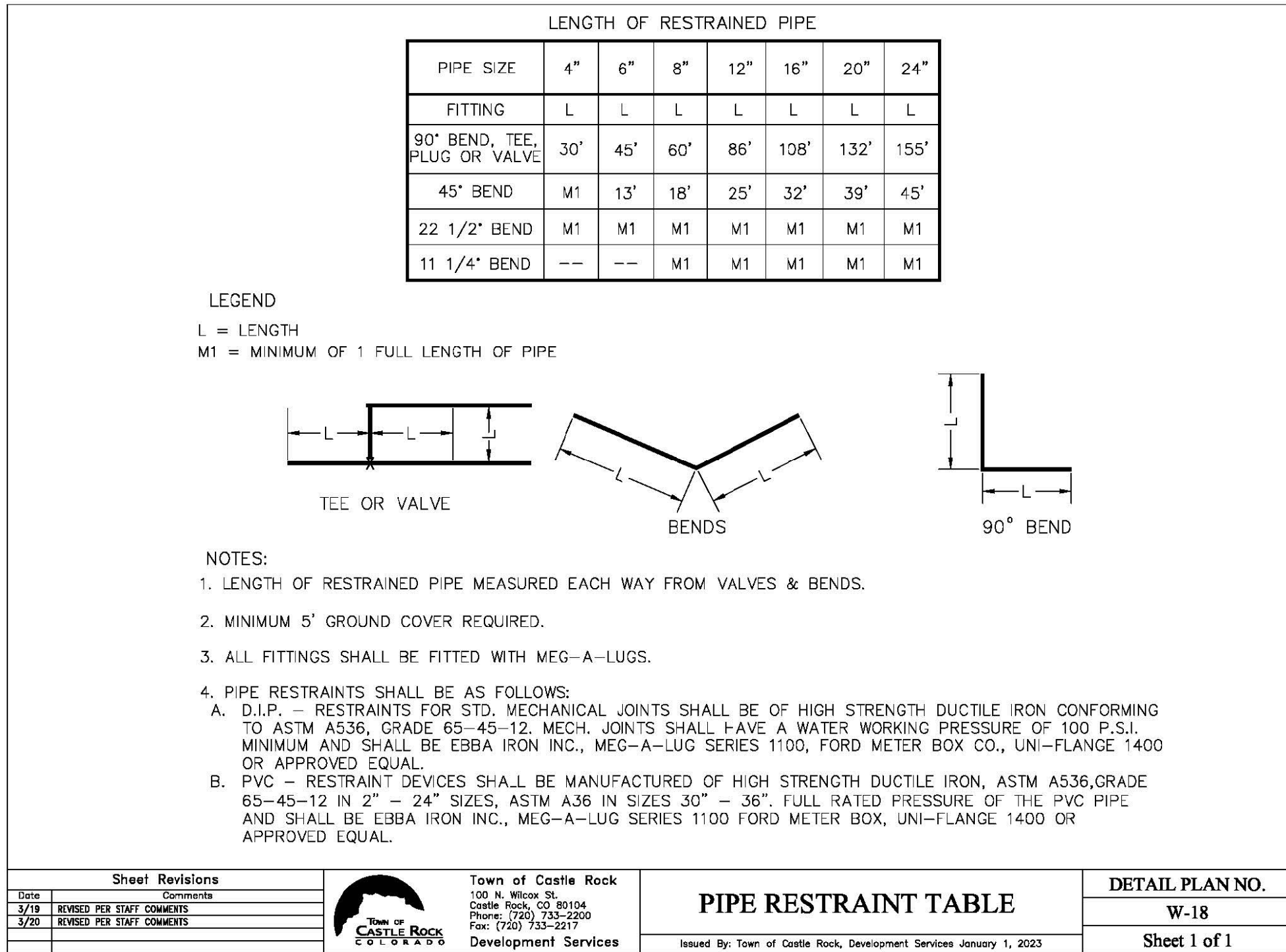
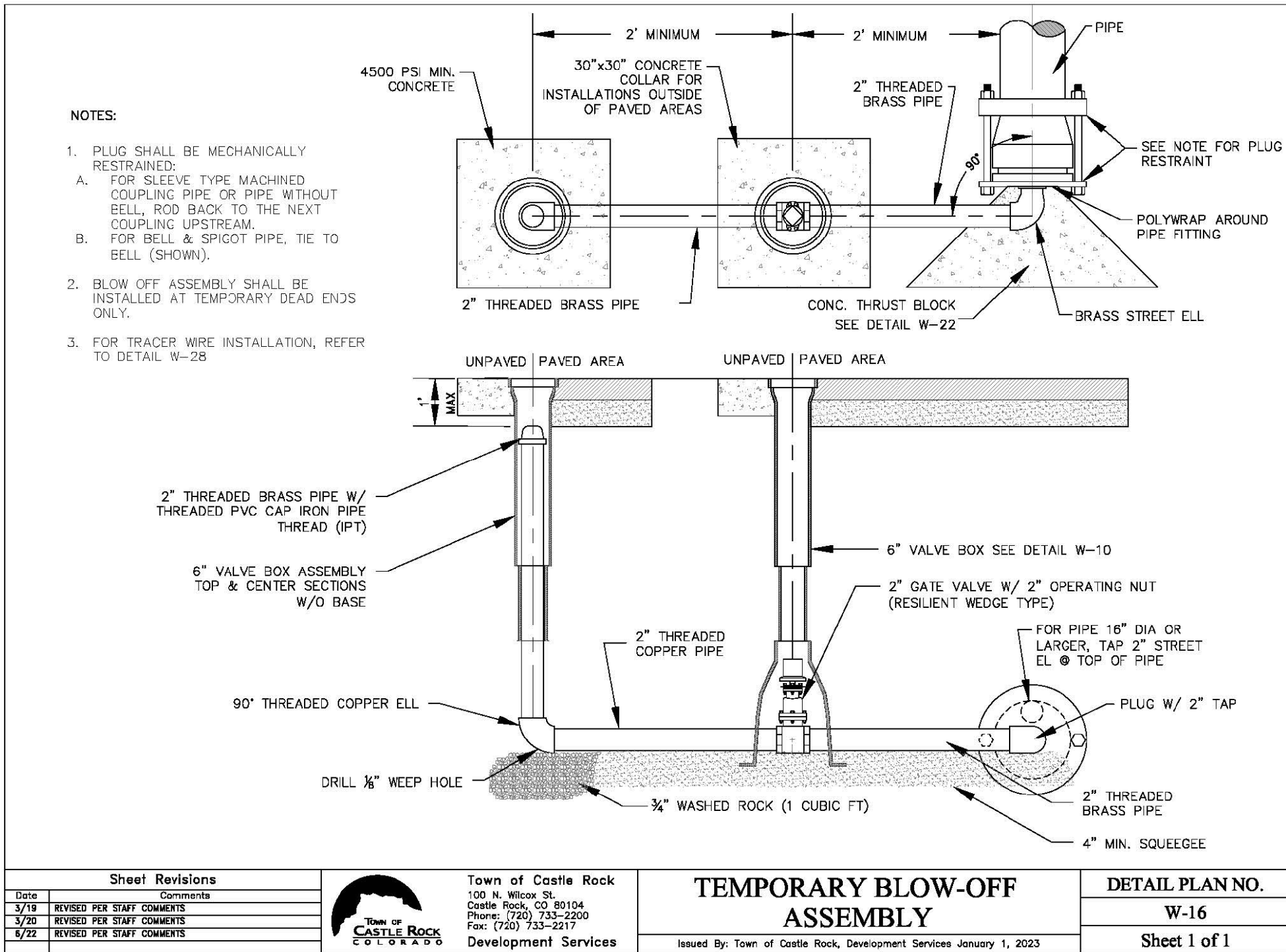
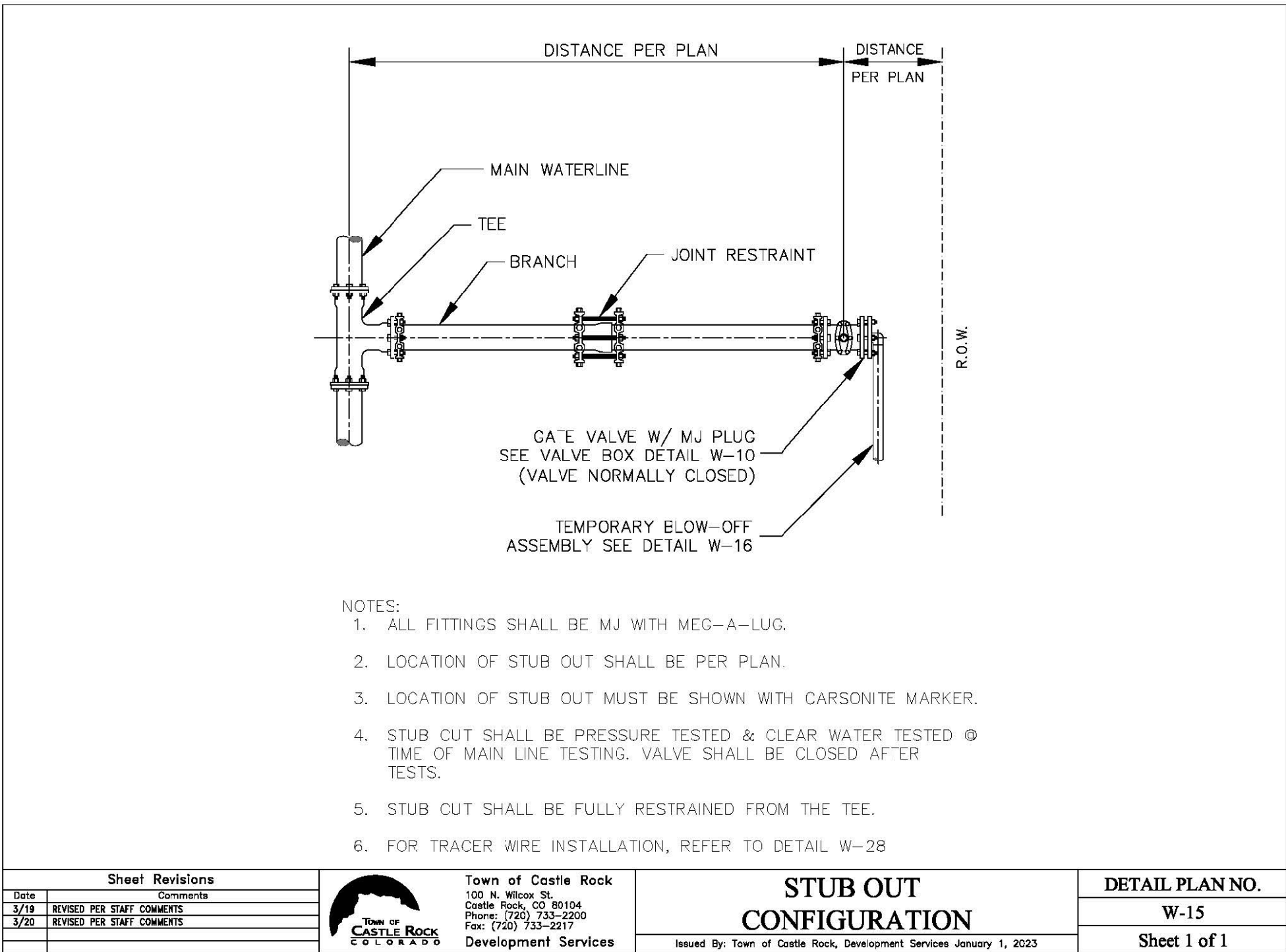
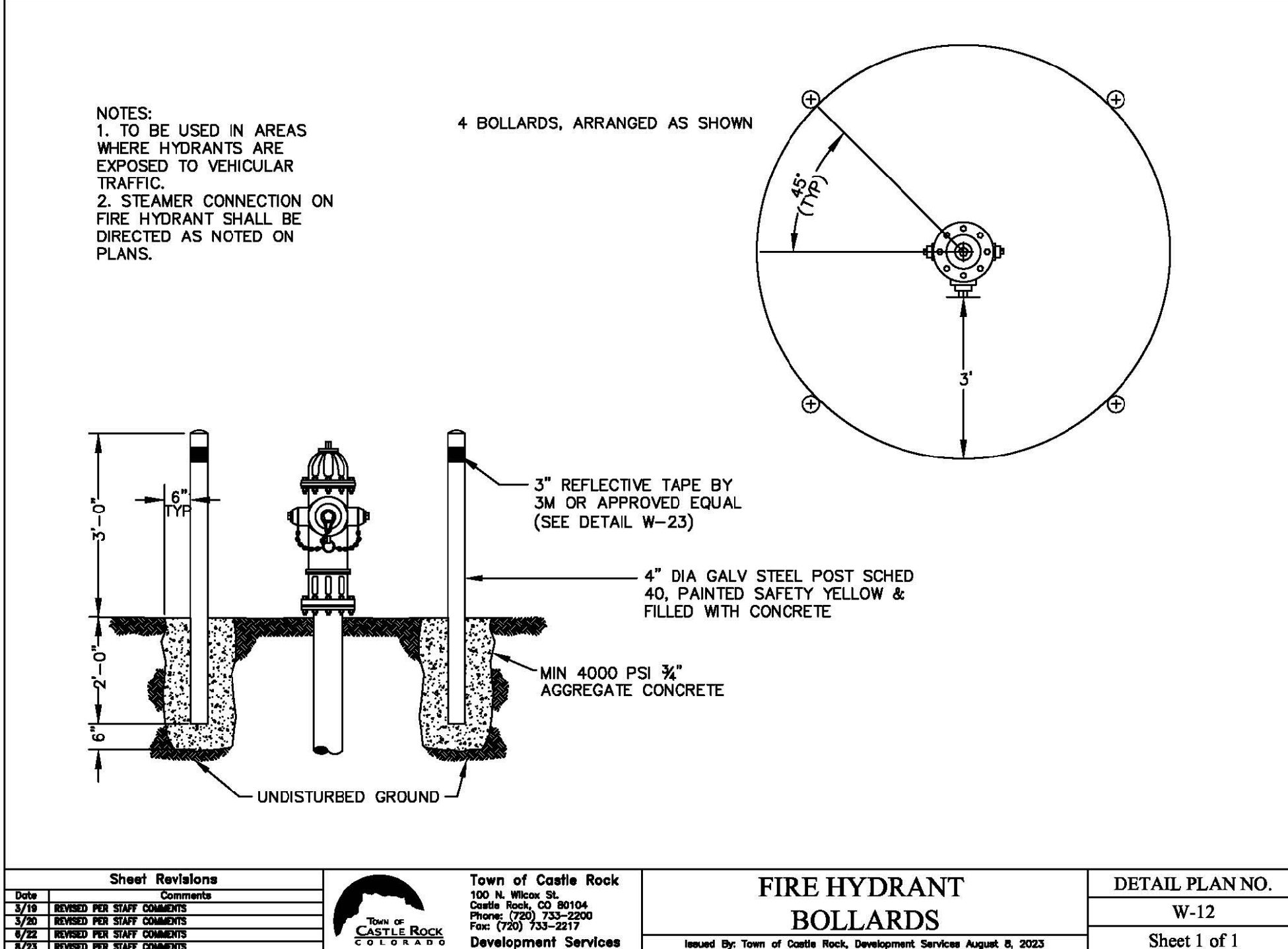
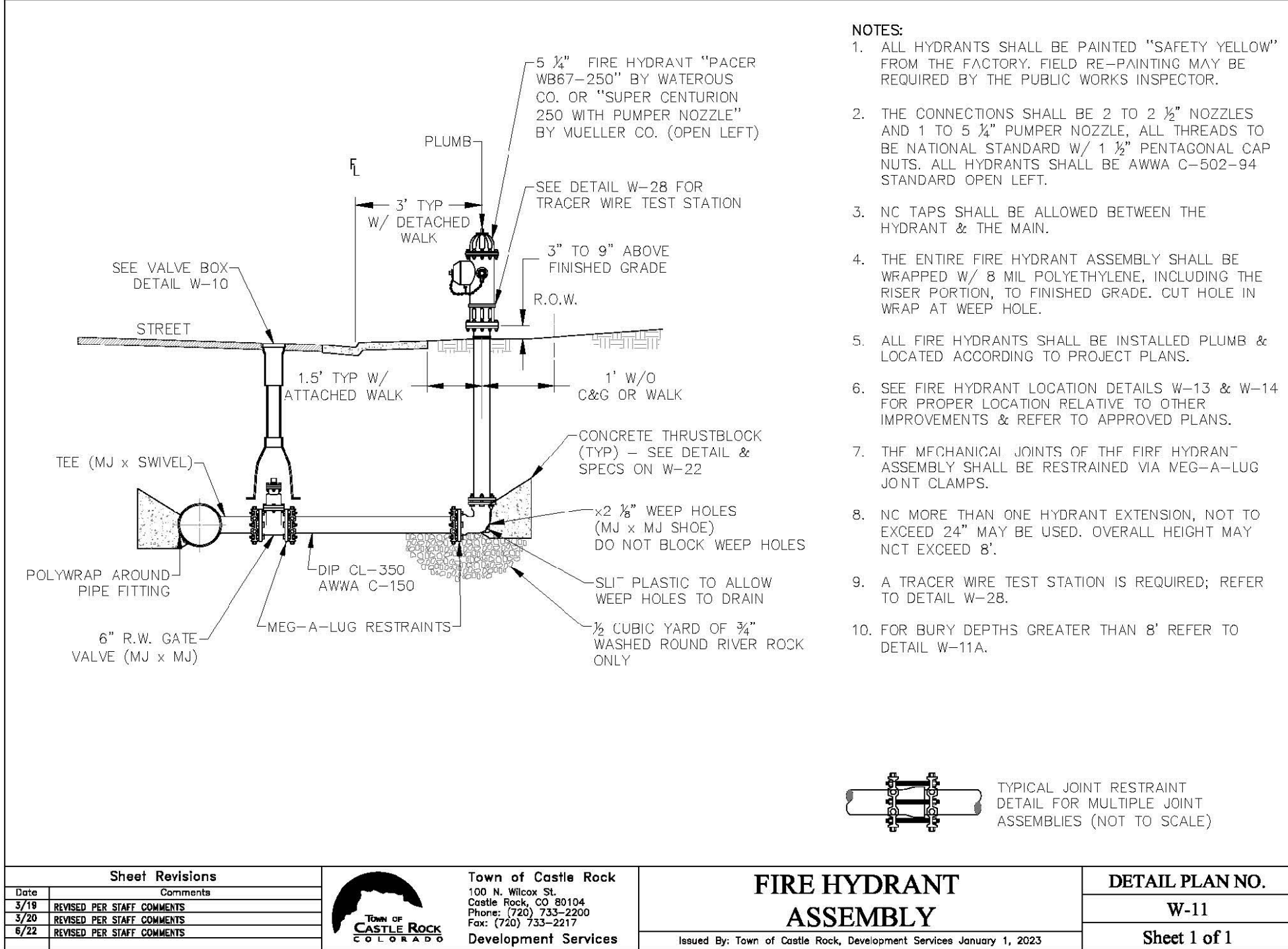
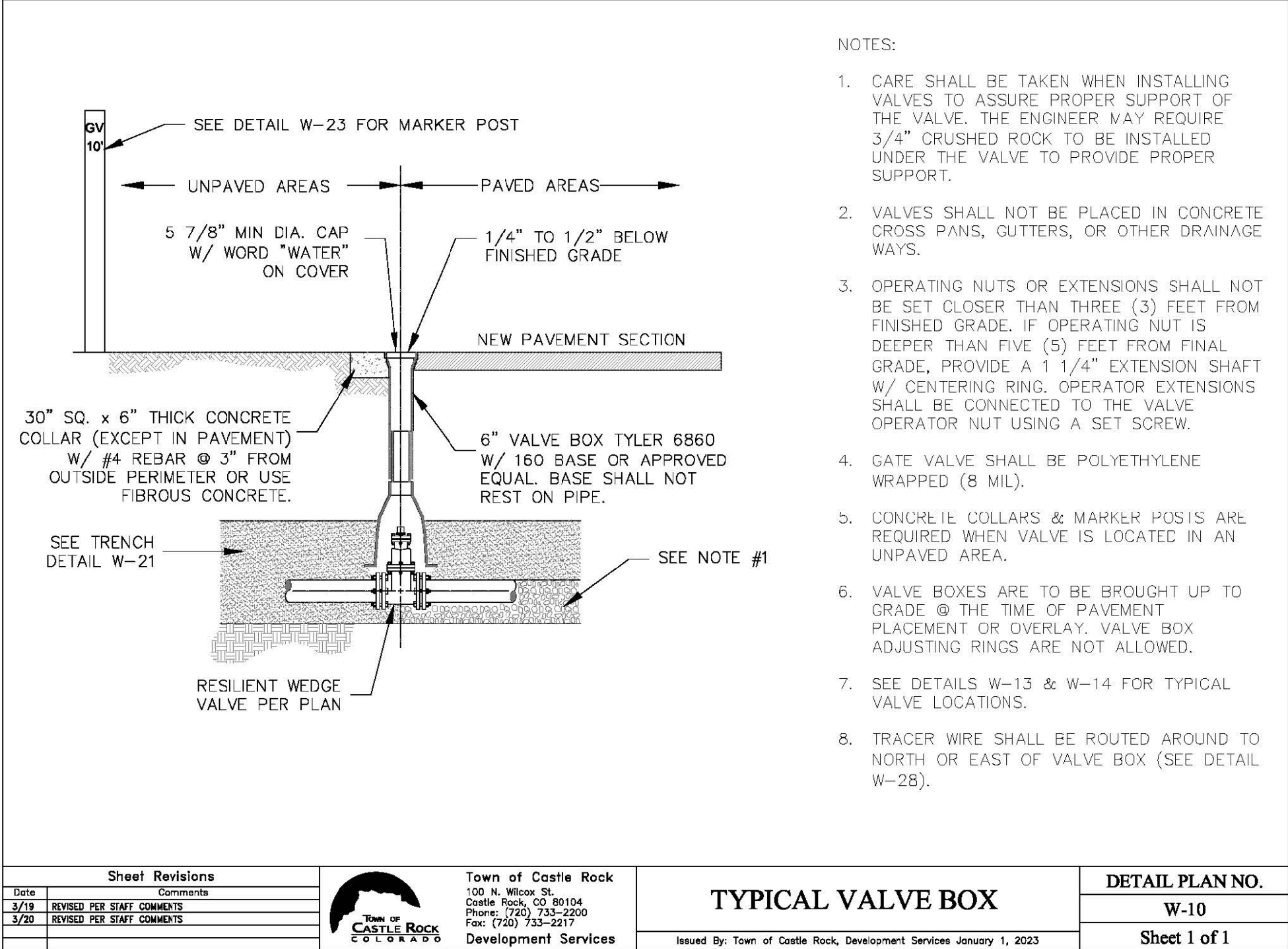
DATE 04/05/25

DRN ZET

TRD

APVD

Sheet 2 of 4



I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE TOWN OF CASTLE ROCK AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY, AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

TOWN OF CASTLE ROCK APPROVALS
THESE PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM
DATE OF DEVELOPMENT SERVICES APPROVAL

APPROVED BY:

DEVELOPMENT SERVICES DIRECTOR

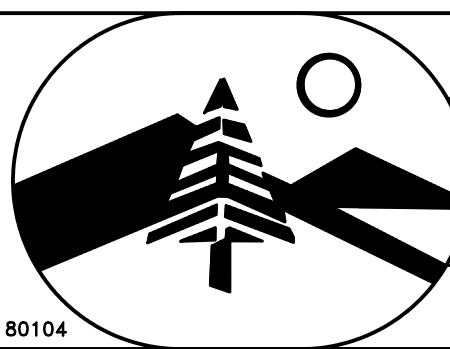
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ZACHARY E THATCHER PE NO. 64656

DATE

REVISIONS

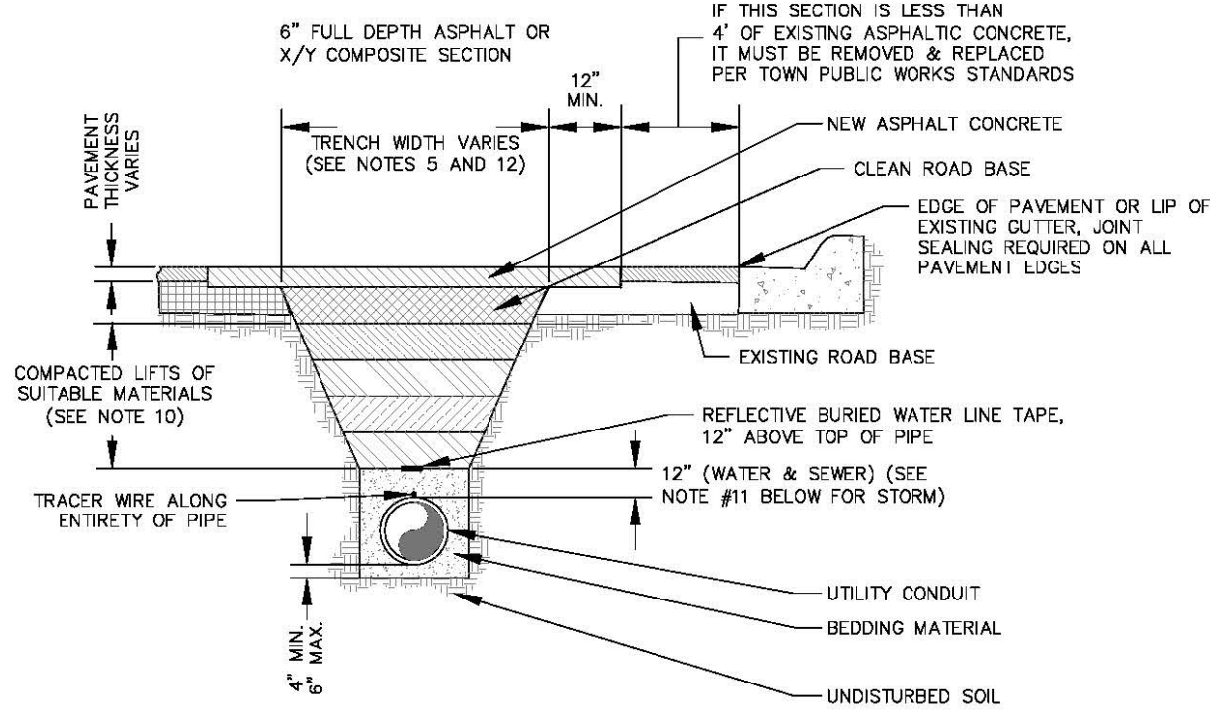
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105 WILCOX ST. CASTLE ROCK, COLORADO 80104

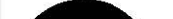


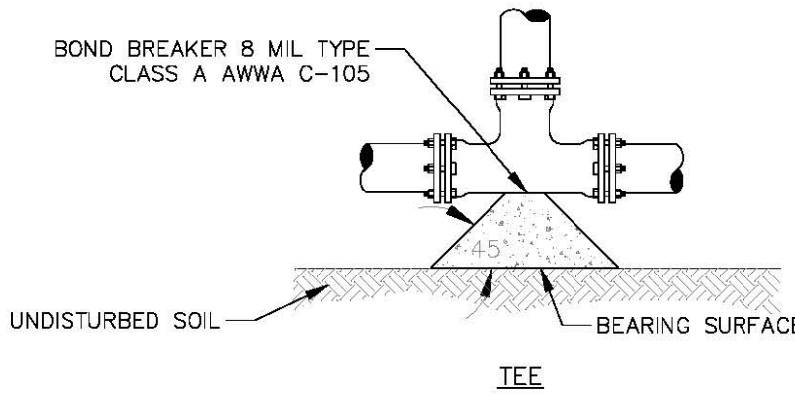
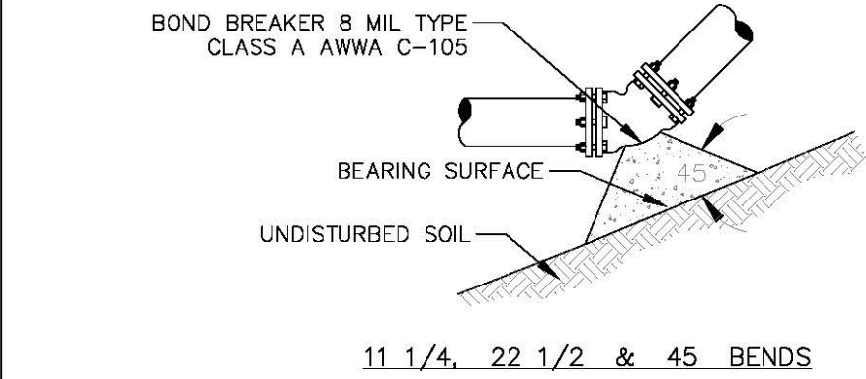
TITLE WATER LINE DETAILS
TBD PAINNEE TRAIL
CASTLE ROCK, CO 80108
DATE 04/05/25
BY: ZET
APPROVED: RYAN LYNCH
CLIENT RYAN LYNCH
PHONE (303) 688-4642
105 WILCOX ST. CASTLE ROCK, COLORADO 80104
Sheet 3 of 4
JOB NUMBER 25-0097

NOTES:

- ALL TRENCHES SHALL BE BACKFILLED IN ACCORDANCE WITH THIS DETAIL UNLESS OTHERWISE SPECIFIED BY PUBLIC WORKS.
- PRIOR TO PLACEMENT OF CONCRETE, ALL EDGES SHALL BE SAW CUT TO A CLEAN, STRAIGHT, AND VERTICAL EDGE.
- PRIOR TO PLACEMENT OF ASPHALT, 18 INCHES OF ADJACENT ASPHALT SHALL BE WIDENED TO 2 INCH DEPTH ON ALL SIDES TO MATCH EXISTING PAVEMENT. INNER SURFACE TO BE TACKED WITH HSS-1.
- WHEN SUBSTITUTING FOOT BACKFILL MATERIAL, FLOWABLE FILL SHALL CONFORM TO MOPEC CLSM STANDARDS.
- TRENCH WIDTH SHALL NOT BE MORE THAN 16" NOR LESS THAN 12" WIDER THAN THE DIAMETER OF THE PIPE.
- 95% OF ASTM D698 STANDARD COMPACTION EFFORT IS REQUIRED ON ALL TRENCHING ZONES, IN BOTH IMPROVED & UNIMPROVED AREAS.
- IN UNIMPROVED AREAS, ALL DISTURBED AREAS SHALL BE REGRADED, SEEDED & MULCHED.
- IN CONCRETE ROADWAYS, A MINIMUM OF 1/2 PANEL WIDTH OR 10' x 3' SECTION WILL BE ALLOWED TO REMAIN, OTHERWISE THE ENTIRE CONCRETE PANEL MUST BE REPLACED.
- USE #4 REBAR AT 2' CENTERS ALONG THE PERIMETER OF CONCRETE REPLACEMENT SECTIONS.
- 6" MAXIMUM COMPACTIONED LIFT THICKNESS IF FLOWABLE FILL NOT REQUIRED.
- BEDDING MATERIAL DEPTH WHEN INSTALLING STORM SEWER SHALL BE UP TO SPRING LINE, EXCEPT IN AREAS OF UNSUITABLE BACKFILL, THEN BEDDING MATERIAL SHALL BE 12" ABOVE PIPE.
- TRENCH WIDTHS LESS THAN 4" OR TRENCHING THAT EXPERIENCES CAVING-IN OR SLOUGHING SHALL REQUIRE FLOWABLE FILL IN ORDER TO ACHIEVE COMPACTION.

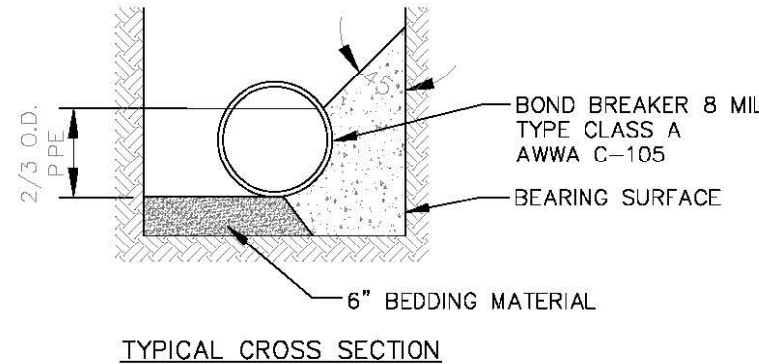
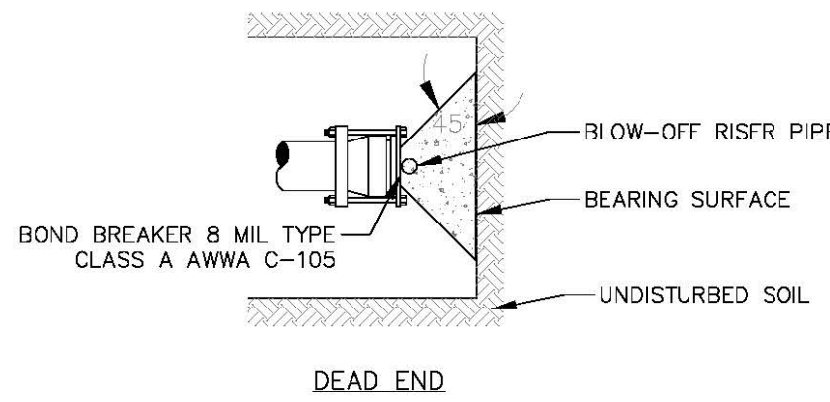


Sheet Revisions			Town of Castle Rock 100 N. Wilcox St. Castle Rock, CO 80104 Phone: (720) 733-2200 Fax: (720) 733-2217 Development Services	WATER TRENCH DETAIL		DETAIL PLAN NO.
Date	Comments					W-21
3/19	REVISED PER STAFF COMMENTS					
3/20	REVISED PER STAFF COMMENTS					
Issued By: Town of Castle Rock, Development Services January 1, 2023				Sheet 1 of 1		



NOTES:

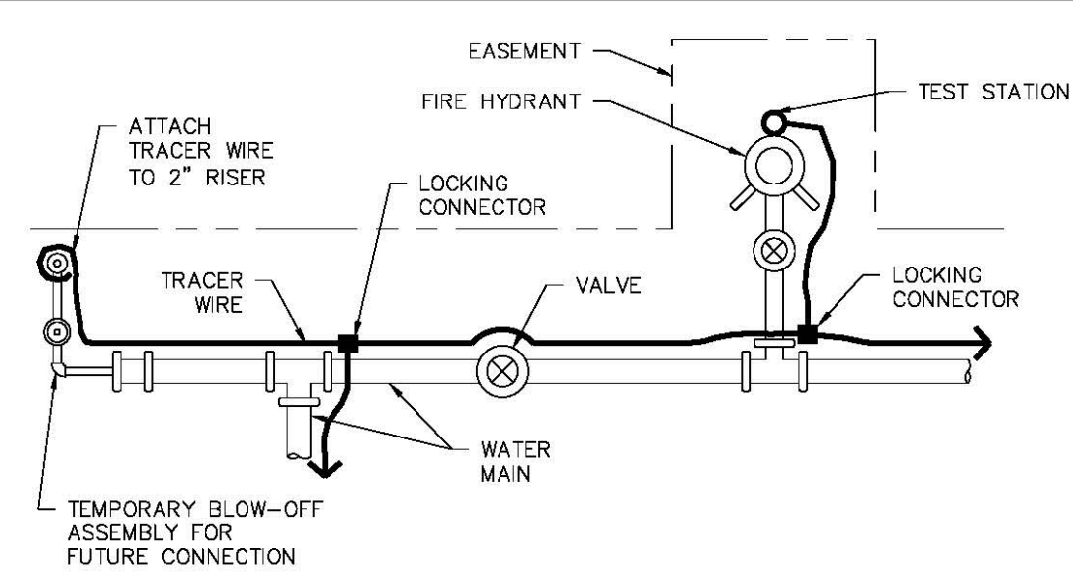
- BEARING AREAS SHOWN ON THE CHART ARE MINIMUM AREAS & ARE DESIGNED USING THE FOLLOWING CRITERIA:
A. INTERNAL WORKING PRESSURE OF 150 PSI.
B. TRANSIENT (WATER HAMMER) PRESSURE OF 120 PSI FOR 4", 6" & 8" DIAMETER LINES, 110 PSI FOR 12" LINES, & 70 PSI FOR 20" LINES.
C. THRUSTBLOCK CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 4500 PSI.
- ALL SIZES OF BENDS, TEES & DEAD ENDS SHALL HAVE CONCRETE THRUSTBLOCKS.
- THRUSTBLOCKS ARE NOT A SUBSTITUTE FOR JOINT RESTRAINT.



MINIMUM BEARING SURFACE AREA
(IN SQUARE FEET)

SIZE OF PIPE	11 1/4"	22 1/2"	45"	90"	TEE OR DEAD END
6"	2.00	2.00	2.25	4.25	3.00
8"	2.00	2.00	4.00	6.00	5.25
12"	2.00	4.25	8.25	12.00	11.00
16"	3.50	6.50	12.50	23.00	16.50
20"	5.00	10.00	19.50	35.50	25.00

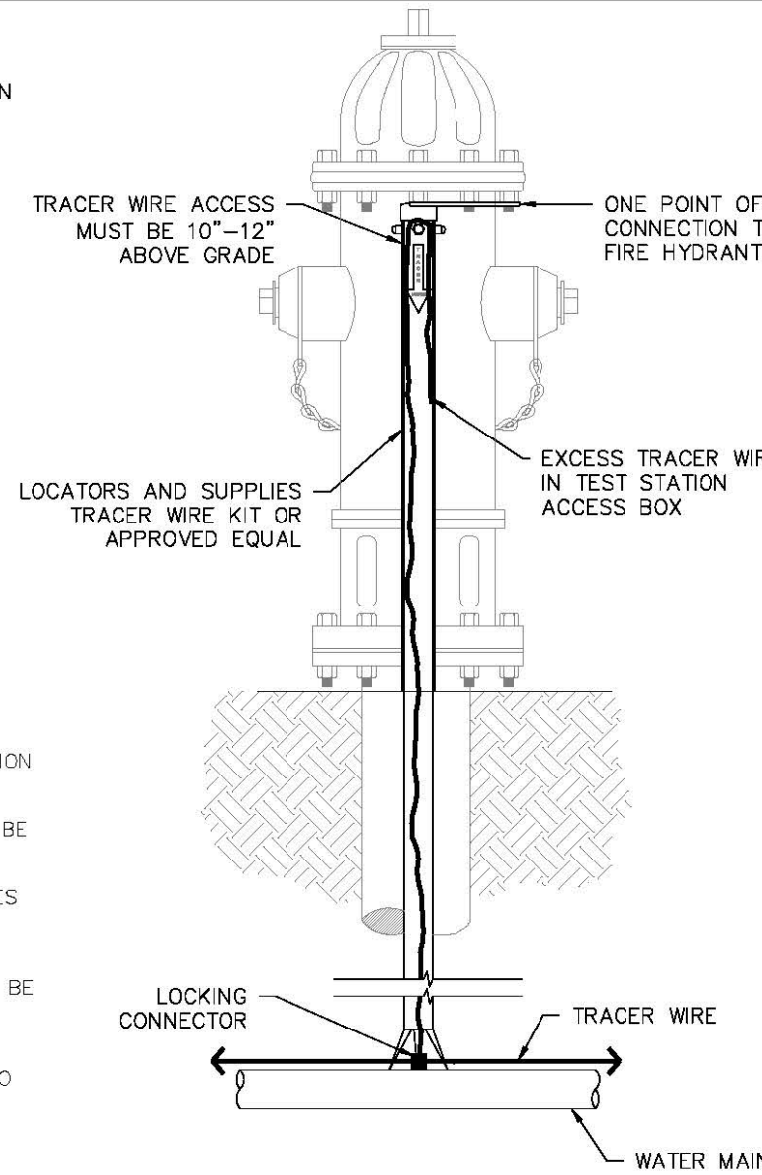
Sheet Revisions			Town of Castle Rock 100 N. Wilcox St. Castle Rock, CO 80104 Phone: (720) 733-2200 Fax: (720) 733-2217 Development Services	HORIZONTAL BEND THRUSTBLOCKS		DETAIL PLAN NO.	
Date	Comments					W-22	
3/19	REVISED PER STAFF COMMENTS						
3/20	REVISED PER STAFF COMMENTS						
6/22	REVISED PER STAFF COMMENTS						Sheet 1 of 1
Issued By: Town of Castle Rock, Development Services January 1, 2023							



TRACER WIRE SAMPLE PLAN

NOTES:

- REFER TO STANDARD NOTES FOR TOWN OF CASTLE ROCK GENERAL TRACER WIRE REQUIREMENTS. FOR TEST STATION AT MANHOLE, REFER TO DETAIL SD-5.
- TRACER WIRE AND TEST STATION LIDS SHALL BE BLUE FOR POTABLE WATER DISTRIBUTION SYSTEM AND PURPLE FOR RECLAIMED OR RAW WATER COMPONENTS.
- TRACER WIRE IN PLAN IS SHOWN AWAY FROM PIPE FOR CLARITY. TRACER WIRE SHALL BE FASTENED TO THE PIPE WITH TAPE OR PLASTIC TIES AT 5-FOOT INTERVALS.
- TRACER WIRE SHALL BE LAID CONTINUOUSLY, PASSING AROUND THE OUTSIDE OF VALVES AND FITTINGS ON THE NORTH OR EAST SIDE.
- TEST STATIONS SHALL BE INSTALLED AT EVERY FIRE HYDRANT, AS SHOWN, OR AT A MINIMUM INTERVAL OF 500 FEET. TEST STATIONS NOT LOCATED NEAR HYDRANTS MUST BE PLACED BEHIND EDGE OF PAVEMENT.
- AT ALL TEMPORARY BLOW-OFFS, THE END OF THE TRACER WIRE SHALL BE CONTAINED WITHIN A CORROSION PREVENTION CAP, THEN BROUGHT TO SURFACE AND ATTACHED TO THE RISER PIPE AT GRADE WITHIN THE EASEMENT OR R.O.W.
- TEST STATIONS SHALL LIE WITHIN UTILITY EASEMENT OR PUBLIC R.O.W.
- PROVIDE ADEQUATE LENGTH OF TRACER WIRE TO EXTEND 12 INCHES ABOVE GRADE.
- TEST STATIONS NOT LOCATED AT A FIRE HYDRANT MUST BE AT GRADE WITH LOCKING LID.



FIRE HYDRANT TRACER WIRE DETAIL

Sheet Revisions			Town of Castle Rock 100 N. Wilcox St. Castle Rock, CO 80104 Phone: (720) 733-2200 Fax: (720) 733-2217 Development Services	TRACER WIRE DETAIL		DETAIL PLAN NO.
Date	Comments					W-28
3/19	REVISED PER STAFF COMMENTS					
3/20	REVISED PER STAFF COMMENTS					
7/22	REVISED PER STAFF COMMENTS					
Issued By: Town of Castle Rock, Development Services January 1, 2023				Sheet 1 of 1		

I HEREBY AFFIRM THAT THESE FINAL CONSTRUCTION PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION, IN ACCORDANCE WITH ALL APPLICABLE TOWN OF CASTLE ROCK AND STATE OF COLORADO STANDARDS AND STATUTES, RESPECTIVELY, AND THAT I AM FULLY RESPONSIBLE FOR ALL DESIGN AND REVISIONS RELATIVE TO SAID PLANS.

TOWN OF CASTLE ROCK APPROVALS
THESE PLANS ARE HEREBY APPROVED FOR ONE YEAR FROM
DATE OF DEVELOPMENT SERVICES APPROVAL

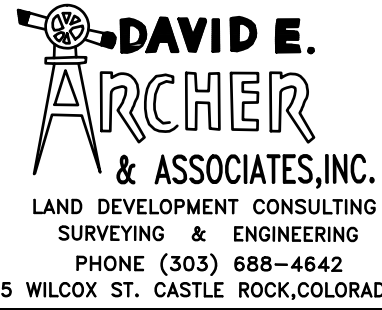
APPROVED BY:

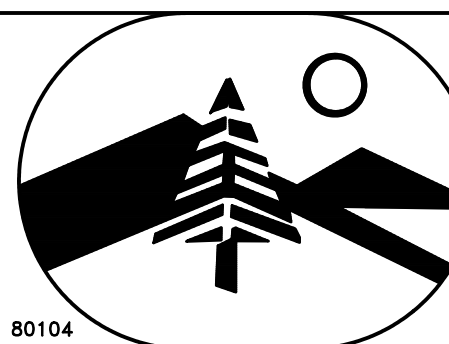
DEVELOPMENT SERVICES DIRECTOR DATE

ZACHARY E THATCHER PE NO. 64656

DATE

REVISIONS

**DAVID E.
ARCHER**
& ASSOCIATES, INC.
LAND DEVELOPMENT CONSULTING
SURVEYING & ENGINEERING
PHONE (303) 688-4642
105 WILCOX ST. CASTLE ROCK, COLORADO 80104



SCALE -
DATE 04/05/25
BY: JET
APPROVED: [Signature]

TITLE WATER LINE DETAILS

TBD PAVINEE TRAIL
CASTLE ROCK, CO 80108

CLIENT RYAN LYNCH

Sheet 4 of 4 JOB NUMBER 25-0097

APPENDIX G CHECK LIST



Final Utility Report Checklist

The Final Utility Report must be in conformance with the latest Town of Castle Rock Water and Wastewater System Design Criteria Manuals, available on the Town's website.

For the Final Utility Report, the Preliminary Utility Report and associated hydraulic modeling shall be thoroughly updated to reflect the final design and layout of all water/wastewater system facilities and mains since the approval of the Site Development Plan (SDP), and as now shown on the Construction Drawings (CDs). The Final Utility Report shall describe adherence to the Preliminary Utility Report or describe deviations, and shall resolve any outstanding issues regarding the Town's ability to serve the development. As applicable, hydraulic modeling shall be provided for both the initial phase of development represented on the CDs, and for full build-out of the overall site. The Final Utility Report shall include a discussion of applicable SCADA requirements.

The following outline sets forth the **required minimum** content to be provided in the Final Utility Report that shall be submitted with the CDs. This report must be prepared by, or the report preparation supervised by a registered Professional Engineer licensed in Colorado. A copy of this checklist must be submitted with the Final Utility Report.

Please check off the following items to assure your report is complete. Appropriate notations shall be provided with the checklist. For example, if a specific item is not addressed or not applicable, an explanation needs to be provided.

Included	N/A	
✓		TITLE SHEET
✓		A. Name of Project, including legal name of development
✓		B. Address
✓		C. Owner
✓		D. Developer
✓		E. Engineer
✓		F. Submittal date and revision dates as applicable
✓		APPROVAL BLOCK SHEET (Available on Town's website)
✓		TABLE OF CONTENTS
✓		PROJECT LOCATION AND DESCRIPTION
✓		A. Site Location
✓		B. Description of Property and Land Use
✓		CALCULATED WATER DEMANDS
✓		A. Average Day Demands (ADD)
✓		B. Max Day Demands (MDD)

Final Utility Report – Formatting Checklist

Included	N/A	
✓		CALCULATED WATER DEMANDS (CONT.)
✓		C. Peak Hour Demands (PHD)
✓		D. Irrigation Demands
✓		EXISTING WATER SYSTEM
✓		A. Existing Distribution System
✓		B. Existing Supply Facilities
✓		PROPOSED WATER SYSTEM
✓		A. Proposed Distribution System
✓		B. Proposed Supply Facilities
✓		C. Required Fire Flows
✓		D. Land Dedication Requirements
✓		PROPOSED WATER SYSTEM ANALYSIS AND MODELING
✓		A. Hydraulic Models
✓		B. Hydraulic Modeling Scenarios
✓		C. Hydraulic Modeling Output and Required Schematics
✓		D. Fire Flow Test Results
✓		CALCULATED WASTEWATER FLOWS
	✗	A. Average Day Wastewater Flows (ADF)
	✗	B. Peaking Factor (PF)
	✗	C. Peak Design Flows (PDF)
✓		EXISTING WASTEWATER SYSTEM
✓		A. Existing Collection System
✓		PROPOSED WASTEWATER SYSTEM
	✗	A. Proposed Collection System
	✗	B. Proposed Wastewater Facilities
	✗	C. Land Dedication Requirements
✓		PROPOSED WASTEWATER SYSTEM ANALYSIS AND MODELING
	✗	A. Hydraulic Models
	✗	B. Hydraulic Modeling Scenarios
	✗	C. Hydraulic Modeling Output and Required Schematics
	✗	POTENTIAL SUBDIVISION IMPROVEMENTS AGREEMENT (SIA) ITEMS
✓		POTENTIAL PERMITTING REQUIREMENTS
✓		REFERENCES

Final Utility Report – Formatting Checklist

Included	N/A	
✓		APPENDICES
✓		Appendix A — Water Demands
✓		Water Fixture Unit Counts and Tap/Meter Sizing Calculations
✓		Irrigation Demands
✓		Hydraulic Worksheet(s) and Irrigation Chart(s)
✓		Appendix B — Water Storage
✓		Confirmation Memo for Required Fire Flow
✓		Appendix C — Water Hydraulic Analysis and Modeling
✓		Fire Flow Test Results
✓		Appendix D — Wastewater Flows
✓		Appendix E — Wastewater Hydraulic Modeling
✓		Appendix F — Maps and Plans
✓		A. Vicinity Map
✓		B. Utility Map(s) provided by the Utilities Department
✓		C. Overall Utility Plan from the CDs
✓		D. Water/Wastewater Utility Plan(s)

Notes/Comments: