TOWN OF MINTURN, COLORADO
RESOLUTION NO. 26 – SERIES 2024

A RESOLUTION APPROVING AN AMENDED SITE SPECIFIC DEVELOPMENT PLAN AND SUBDIVISION IMPROVEMENTS AGREEMENT FOR BELDEN PLACE PLANNED UNIT DEVELOPMENT

WHEREAS, on March 16, 2022 as part of the Belden Place PUD Final Development Plan and Final Subdivision Plat approvals the Town approved Resolution No. 8 "A Resolution Approving the Belden Place Final Plan for Planned Unit development (PUD) Subdivision Improvements Agreement ("SIA") ; and

WHEREAS, Miner's Base Camp, LLC filed litigation against the Town challenging, in part, elements of the approval of the PUD, Final Plat, and the Subdivision Improvement Agreement; and

WHEREAS, the parties entered into a Settlement Agreement approved by Resolution No. 32, Series 2023; and

WHEREAS, the Settlement Agreement provides that certain amendments to the PUD, Final Plat, and the Subdivision Improvement Agreement were to be processed for potential approval by Town Council; and

WHEREAS, the Town Council has approved amendments to the PUD and Final Plat which require amendments to the SIA; and

WHEREAS, The Town Council hereby approves the amended Site Specific Development Plan and Subdivision Improvements Agreement for Belden Place Planned Unit Development.

NOW THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF MINTURN, COLORADO:

1. The foregoing recitals are hereby incorporated as if set forth in full.

2. The Minturn Town Council hereby approves the amended Site Specific Development Plan and Subdivision Improvements Agreement for Belden Place Planned Unit Development, attached as **Exhibit 1**.

INTRODUCED, READ, APPROVED, ADOPTED AND RESOLVED this 19th day of June, 2024.

TOWN OF MINTURN

By:_____
Earle Bidez, Mayor

ATTEST:

_____
Jay Brunvand, Town Clerk

SITE SPECIFIC DEVELOPMENT PLAN AND SUBDIVISION IMPROVEMENTS AGREEMENT FOR BELDEN PLACE PLANNED UNIT DEVELOPMENT

THIS AGREEMENT made this __ day of _____, 20__, by and between the TOWN OF MINTURN, COLORADO, a home rule municipality whose address is 302 Pine Street, P.O. Box 309, Minturn, CO 81645 (the "Town") and MINERS BASE CAMP LLC, a Colorado limited liability corporation whose address is 1000 Enterprise Dr., Allen Park, MI 48101, (the "Developer") (individually, a "Party"; collectively, the "Parties");

W I T N E S S E T H:

WHEREAS, the Developer is the owner of certain real property located in the Town of Minturn, Colorado known as Belden Place Subdivision and described on **Exhibit A**, attached and incorporated by this reference (the "Property"); and

WHEREAS, on June 9, 2021 after a duly-noticed public hearing and pursuant to Minturn Municipal Code §§ 16-15-160, 17-5-40 and 16-21-200, the Town of Minturn Planning Commission approved a Preliminary Subdivision Plat and Preliminary PUD Development Plan for the Property; and

WHEREAS, on June 16, 2021 after a duly-noticed public hearing and pursuant to Minturn Municipal Code §§ 16-15-170, 17-5-60 and 16-21-200, the Town Council of the Town of Minturn adopted Resolution No. 20 Series 2021 approving a Preliminary Subdivision Plat and Preliminary PUD Development Plan for the Property; and

WHEREAS, on March 2, 2022 and March 16, 2022, after a duly-noticed public hearing and pursuant to Minturn Municipal Code §§ 16-15-200, and 16-21-200, the Town Council of the Town of Minturn, adopted Ordinance No. 4 - Series 2022 approving a Final Plan for PUD for the Property, which Ordinance is recorded as Reception No. _____with the Eagle County Clerk and Recorder; and

WHEREAS, on March 2, 2022 and March 16, 2022, after a duly-noticed public hearing and pursuant to Minturn Municipal Code §§ 17-6-30, and 16-21-200, the Town Council of the Town of Minturn, approved by appropriate ordinance a Final Subdivision Plat for the Property, which Ordinance No. 5, Series of 2022 is recorded as Reception No. _____with the Eagle County Clerk and Recorder; and

WHEREAS, Minturn Municipal Code Chapter 17, Article 7 requires a Subdivisions Improvements Agreement to be approved concurrent with approval of a final subdivision plat, as governed by that Article to require certain standards in development and guarantee certain public improvements; and

WHEREAS, the Town's approval of the Final Subdivision Plat and PUD Final Plan for the

Property cited above is contingent upon the express condition that all obligations and duties created by this Agreement are faithfully performed by the Developer.

NOW, THEREFORE, for and in consideration of the mutual promises and covenants contained herein, the parties hereto agree as follows:

1. Recitals. The foregoing recitals are incorporated herein as material representations and acknowledgments of the Parties.

2. Purposes. The purpose of this Agreement is to set forth the terms and conditions to be met by the Developer; to set forth the fees to be paid by the Developer upon subdivision of the Property; and to constitute the Subdivision Improvement Agreement ("SIA") provided for in Sections 17-7-10 through 17-7-20 of the Minturn Municipal Code. All terms and conditions contained herein are in addition to all requirements of the Minturn Municipal Code, the Town of Min-
turn Zoning and Subdivision Regulations (Titles 16 and 17 of the Minturn Municipal Code),
and state and federal statutes, and are not intended to supersede any requirements contained therein, except where specifically provided in this Agreement. The Developer agrees to bear all costs and responsibility for completion of the improvements servicing the Property as provided in this Agreement. This Agreement is not executed for the benefit of materialmen, laborers, or others providing work, services, or materials to the Property, or for the benefit of future lot owners or occupants of the Property.

3. Amended Final Subdivision Plats and Condominium Plat.

A. Developer acknowledges that by recording a Final Subdivision Plat depicting property lines between duplex, triplex, and five-plex units prior to the location of foundations for such buildings, Developer may be required to submit an Amended Final Sub- division Plat for approval under the Minturn Municipal Code. Notwithstanding the fore-
going, Developer shall submit "as- built" surveys to the Town Engineer to certify the locations of foundations as constructed are consistent with the lot lines as depicted on the Final Subdivision Plat. Town Engineer shall determine whether an Amended Final Subdivision Plat is necessary for individual buildings.

B. For Lots or Tracts that are developed with "airspace" units, the Town and the Developer agree and acknowledge that a condominium plat shall be prepared after final "as- built" survey of the common elements, limited common elements and units has been completed. This "Type B Subdivision" may be approved administratively by the Town without further review by the Town Council or the Planning Commission. No individual condominium unit shall be sold into separate ownership until and unless a Type B Subdivision plat has been approved by the Town and such plat has been recorded in the real estate records of Eagle County. A plat note on the Final Subdivision Plat for the Property shall be included to this effect.

4. Fees and Dedications. In addition to any fees enacted by any ordinance of general

applicability in the Town, the following fees shall be paid to the Town by the Developer:

A. Reimbursement of Costs. The Developer hereby agrees to pay the Town the actual costs to the Town for engineering, surveying, and legal services rendered in connection with the review of the subdivision of the Property. In addition, the Developer shall reimburse the Town for the cost of making corrections or additions to the master copy of the official Town map, for the fee for recording the Final Subdivision Plat and accompanying documents with the County Clerk and Recorder of Eagle County. The Developer shall also pay any fees required pursuant to the Minturn Municipal Code. Interest shall be imposed at rate of 1.5% per month on all balances not paid within thirty (30) days of the date of the statement. In addition to any and all remedies available to the Town and in the event the Town is forced to pursue collection of any amounts due and unpaid under this provision or under this Agreement, the Town shall be entitled to collect attorney's fees and costs incurred in said collection efforts in addition to the amount due and unpaid.

B. Water and Sewer Taps. The Developer, its successors and assigns, shall comply in full with Title 13 of the Minturn Municipal Code regarding tap fees and system improvement fees for water and sewer service, subject to the following stipulations:

i. For the purposes of Water Tap Fees due at time of Building Permit issuance, Developer shall pay the fee required under Minturn Municipal Code Sec. 13-2-20 pursuant to the Town's duly adopted fee schedule, less nineteen (19) existing SFEs, one and a half (1.5) of which have been put into use on Lot 17 of the Belden Place PUD Plat at the time of Final Subdivision Plat.

ii. For the purposes of System Improvement Fees due at time of Building Permit issuance Developer shall pay the fee required under Minturn Municipal Code Sec. 13-2-20 pursuant to the Town s duly adopted fee schedule. Developer has paid on the System Improvement Fee for Lot 17.

iii. Sewer taps shall be assessed in accordance with the requirements of the Eagle River Water and Sanitation District.

C. Water Rights Dedication. The Developer shall deed to the Town water rights (or pay the cash in lieu of the water rights dedication fees) as required under Minturn Municipal Code Section 13-2-20, as it may be amended. Developer shall receive a credit in the amount of nineteen (19) SFEs for water service historically provided to the Property. Developer acknowledges that at the time of its Final Subdivision Plat approval a moratorium is in place prohibiting the Town from providing water service beyond the 19 historical SFEs associated with the property plus 1 SFE associated with Duran Subdivision Lot 3 plus 3 SFEs as provided for in the moratorium ordinance plus 16 SFEs as provided for in the Settlement Agreement between the parties in Eagle County District Court Case No. 2022CV30054. Therefore, Developer shall receive a total of 39 SFEs. No additional SFEs of water service can be provided to the Property until such time as

the moratorium is lifted or amended.

Under the Town Code, water rights dedication fees are due at the time a Final Subdivision Plat is recorded. Developer and Town agree that prior to the recording of the Final Subdivision Plat, the Developer shall pay the fee then in effect for each of the 39 allocated SFEs for which potable water service is to be provided by the Town. Developer shall receive a credit for nineteen (19) SFEs as- sociated with historical water usage on the Property. Therefore, at the rate in effect at the time of the Final Plat recordation of $40,501.00, Developer shall pay Eight hundred ten thousand twenty and no/100ths dollars ($810,020.00) in water rights dedication fees:
$40,501.00 x 20 SFEs (39 total SFEs minus 19 SFE Credit = 20 SFEs) prior to the recording of the Final Subdivision Plat. Additional cash-in-lieu of water rights dedication fees shall be due in the amount then in effect at the time of building permit for any proposed uses over 39 SFEs. This payment in no way guarantees the availability of water to any units constructed beyond the number of SFEs available at the time of Final Subdivision Plat as provided in the moratorium ordinance. Within seven (7) years of recordation of the Final Subdivision Plat, Developer may amend the Final Subdivision Plat and this Agreement to eliminate Lots and/or Units. Developer may then receive reimbursement at the rate paid associated with each Lot or Unit that is eliminated.

If there are additional SFEs associated with development or use of any of the lots or Property, payment shall be due at the time of building permit for such units which raise the total SFEs above the above-referenced calculations. The water rights ded ication fee per SFE to be paid will be the fee then in effect. Further, the Developer agrees to be bound by any ordinance or resolution of general applicability that mod ifies these fees.

D. Land and Open Space Dedication. The Parties agree that the Property is subject to the Town land and open space dedication requirements set forth in Minturn Municipal Code § 16-17-90. The Developer shall deed to the Belden Place Homeowners Association Parcels B, C, and D depicted on the Final Subdivision Plat, for the use and enjoyment of the general public.

E. Impact Fees. The Developer shall pay to the Town Impact Fees required under the Minturn Municipal Code.

5. Specific Conditions. The Developer agrees to perform the following conditions:

A. Representations. All representations of the Developer made in its application and in statements during the public hearings for Final Subdivision Plat approval before the Planning Commission and Town Council shall be considered conditions of approval with which the Developer shall comply.

B. Approved Plans. The lots and public improvements to be constructed on the Property shall conform to the elevations and general design elements as shown

on the plans approved by Ordinance No. 5, Series 2022 incorporated by this reference. The construction documents approved by the Town are attached as **Exhibit B** hereto. Any amendments to such plans and drawings shall require approval by the Town, which approval shall not be unreasonably withheld.

C. Revegetation and Landscaping. Within eighteen (18) months of the filing of the final subdivision plat, the Developer shall landscape the Property to eliminate erosion and revegetate any disturbed areas pursuant to plans reviewed and approved by the Town concurrent with the development schedule. Erosion mitigation shall be ongoing. The Developer shall further install or require by covenant, landscaping on the Property pursuant to plans approved by the Town. Cost estimates of all landscaping shall be submitted to the Town, guaranteed by the security required by this Agreement, and shall be considered a public improvement hereunder. Specific components of the Landscaping Plan shall include, but are not limited to:

i. Compliance with all applicable Town Code provisions, including Sections 16-17-130 to 16-17-170 and Appendix C.

ii. Park/green space improvements to be installed no later than the time of completion of one half (1/2) of the residential units on the Property.

iii. Landscaping of individual yards, including fencing, as part of the building process.

iv. Plans for installation and maintenance of seed mix if this approach is selected over sod landscaping.

v. Screening elements.

vi. Features to protect mature tree stands, where feasible.

D. Fencing Plan. Prior to the commencement of development of the Property, Developer shall provide a Fencing Plan to the Town for its review and approval, which approval shall not be unreasonably withheld. The Fencing Plan shall show a common and uniform fencing theme (design and materials) for the Property and shall be included in the Covenants for the Property as an architectural requirement applicable to all unit owners.

E. Irrigation. The Developer agrees to construct and install, at the Developer's sole expense, an irrigation system sufficient to irrigate all open space for which the Developer has installed landscaped improvements and all areas of multi-use open space parcels landscaped by the Developer within the Property. The plans and specifications for such system shall be subject to the approval of the Town Engineer, which approval shall not be unreasonably withheld. Irrigation systems in the drainage ways and cut and fill slopes shall be installed temporarily and may be removed when revegetation has been established and irrigation is no longer necessary.

F. Pedestrian Access. The Developer shall install safe pedestrian access within the Property consistent with the approved construction plans. The Developer shall ensure such access complies with ADA requirements, including proper ramps and sidewalks/paths.

G. Emergency Access. Plans for emergency access to the Property shall be submitted to the Planning Department according to specifications approved by the Eagle River Fire Protection District.

H. Dust, Mud, and Erosion Control. The Developer shall maintain all streets and surrounding areas during construction of the Public Improvements by employing techniques acceptable to the Town for dust, mud, and erosion control. Further, as may be applicable, the Developer shall apply and receive a Storm Water Management Permit from the State of Colorado prior to any construction work, including grading, if required.

I. Dogs Prohibited During Construction. The Developer shall prohibit its con- tractors and subcontractors from bringing dogs onto the Property during workings hours, even if such dogs are to be kept inside motor vehicles.

6. Pre-Construction Meeting. The Developer shall hold a pre-construction meeting with the Town Engineer and Public Works Director, as well as the Developer's engineer and contractor for the purpose of discussing all construction issues that will be required for this project.

7. Public Improvements. All water lines, water facilities, sewer lines, sewer facilities, hydrants, water or sewer distribution facilities, drainage structures, landscaping, gas lines, electrical facilities, cable T.V., telephone lines, utility systems, streets (public and/or private), lighting, and signage required by this Agreement, construction drawings approved by the Town, or shown on the Final Subdivision Plat prepared by Slagle Surveying Services, as Job No. 18029 dated _____2024, as it may be amended (the "Public Improvements") shall be installed and completed at the expense of the Developer.

A. All Public Improvements required by this Agreement are shown on the Final Subdivision Plat submittal, and the estimated costs thereof which are identified on the Final Submittal Cost Estimate attached as **Exhibit C**. The Public Improvements shall be constructed in conformance with the approved plans and specifications attached as **Exhibit B**, including all supplemental plans and specifications of the Town of Minturn Public Works Manual Municipal Code Appendix C, then in effect, and the utility plan (hereinafter collectively referred to as "Plans and Specifications").

B. The Developer shall provide, at its sole cost and expense, all necessary engineering designs, surveys, field surveys, and incidental services related to the construction of the Public Improvements.

C. The approved construction plans include drainage improvements associated with development of the Property that pipes stormwater under Highway 24 across the Town's "Boneyard" property and USFS Property, to the Eagle River ("Alternative A"). At the time of approval of this Agreement, Developer has not obtained approvals from CDOT, Eagle Valley Land Trust and the USFS to implement

Alternative A. To that end, Developer has provided conceptual level engineering that demonstrates drainage detention ponds sufficient for the needs of the Belden Place subdivision can be constructed on Lots 18, 19 and 20.

Developer desires to proceed with Alternative A if the necessary improvements can be obtained within the next twelve (12) month period. At the time of recording the Final Subdivision Plat, Developer will record a covenant restricting the use of Lots 18, 19 and 20 which will be used to construct on-site detention in the event that Alternative A cannot be implemented. If Developer does not obtain the necessary approvals for Alternative A within twelve (12) months from recordation of the Final Subdivision Plat, Developer will submit engineered plans for on-site detention ponds within thirty (30) days. Developer will then construct the Town-approved on-site detention ponds within seventeen (17) months of recordation of the Final Subdivision Plat and dedicate the Lots associated with the on-site detention ponds to the homeowners association. If Developer constructs the Alternative A drainage improvements in conformance with the approved construction plans, the Town will release the covenant from the public records within thirty days of acceptance of the Alternative A drainage improvements by the Town.

Until either the Alternative A or Alternative B drainage improvement are completed and accepted by the Town, Developer shall provide the Town with financial security equal to the estimated cost thereof.

8. Construction Observation and Inspection.

A. Materials and Workmanship. Unless otherwise specified, all materials used for the Public Improvements shall be new, and both workmanship and materials shall be of good quality. Upon request, the Developer shall furnish to the Town for the Town's approval, the name of the manufacturer of equipment and materials that it contemplates incorporating into the Public Improvements, which approval shall not be unreasonably withheld. The Developer shall also furnish, upon request, information on capacities, efficiencies, seizes, etc. as the Town may require. Equipment, materials, and articles not conforming to the construction plans shall be placed and installed at the risk of subsequent rejection by the Town.

B. Construction Inspection by the Developer. The Developer shall be responsible for ensuring that its certified professional engineer provides construction inspection services as necessary to allow The Developer s engineer to provide a stamped certification, when improvements are submitted to the Town for acceptance, that the Public Improvements have been constructed in accordance with the Plans and Specifications approved by the Town.

C. Construction Observation by the Town. The Town shall have the right to make engineering and construction observations at reasonable intervals and at the Developer's expense during construction of the Public Improvements. Observation,

acquiescence in or approval by any engineering and/or building inspector of the construction of any physical facilities, at any particular time, shall not constitute Town approval of any phase of construction of the Public Improvements. Town approvals shall be made only after completion of construction and in the manner hereinafter set forth. To assist the Town in monitoring the installation of the Public Improvements, a supervisor employed by the Developer's general contractor shall inspect the Public Improvements on at least a weekly basis, and shall provide the Town Engineer and/or Town Public Works Director or his/her designee with supervisor's field and inspection notes relating to the installation of the Public Improvements which have been reviewed and stamped by a professional engineer. The supervisor shall regularly apprise the Town Public Works Director or his/her designee of the status of the work on the Public Improvements. Further, the Developer at its own expense shall have an approved geotechnical engineer monitor the methods of construction and backfill, to ensure such work is being completed in conformance with the approved Plans and Specifications, and accepted standards for such work. The geotechnical engineer shall conduct inspections and testing as directed by the Town Public Works Director or his/her designee. The Town agrees to respond to requests for interim inspections in a timely manner and to respond not later than ten (10) business days after a request for a final inspection. Nothing in this paragraph shall be construed to constitute an acceptance by the Town of the Public Improvements, which approval and acceptance shall only occur pursuant to the specific provisions below.

9. Permits and Easements. The Developer shall obtain and present to the Town all land boundary surveys, permits, licenses, and easements of a temporary or permanent nature, if any, necessary for the construction or maintenance of Public Improvements.

10. Completion of Public Improvements; Approval. The Developer shall complete all Public Improvements within eighteen (18) months of the execution of this Agreement, unless otherwise agreed in writing. Upon the Developer's completion of construction of the Public Improvements, the Developer s engineer shall certify in writing that the improvements have been completed in conformance with the Plans and Specifications and submit to the Town a completed acceptance checklist utilizing a form approved by the Town. Thereafter, the Town Public Works Director or his/her designee shall inspect the Public Improvements and certify in writing and with specificity their conformity or lack thereof to the Plans and Specifications. The Developer shall make all corrections necessary to bring the Public Improvements into conformity with the Plans and Specifications. The Developer shall at its expense have as-built drawings prepared by a professional engineer and a registered land surveyor, which drawings shall include all legal descriptions the Town may require. The Developer shall also prepare a summary of the actual construction costs of all Public Improvements to be dedicated to the Town. The as-built drawings and costs summary shall be forwarded to the Town for review and approval.

Once the as-built drawings and costs summary are approved, and any and all corrections are completed, the Town Public Engineer or his/her designee shall certify in writing that all Public Improvements are in conformity with the Plans and Specifications, and the date of such certification shall be known as "the Acceptance Date". The Town shall be under no obligation to

provide any water or sewer service until all Public Improvements are brought into conformance with the Plans and Specifications and the approved Final Plan and Final Subdivision Plat, and are certified and approved by the Town Public Works Director or his/her designee pursuant to this Agreement. However, upon certification and approval, the Town shall be obligated to provide water and sewer service to the Property, subject to all provisions of the Minturn Municipal Code, and in particular to the availability of water or sewer taps, which shall be on a first-come, first- served basis. The Town does not guarantee an adequate number of taps will be available to serve the Property at the time the Developer intends to proceed with development.

11. Acceptance; Conveyance. Within thirty (30) days of the Acceptance Date, the Developer of the Property shall execute a deed to the Town (or the homeowners association as the case may be) conveying all rights-of-way and easements required for the operation, maintenance, repair and replacement of the Public Improvements. The Developer agrees to dedicate to the public and to convey or, with respect to off-site easements, to assign, to the Town, in such form as may be required by the Town, such easements and other rights as acquired by the Developer as may be reasonably required for the construction of the Public Improvements. Such conveyance and dedication shall be free and clear of all liens and encumbrances that might adversely affect the use of the Public Improvements for their intended purpose. The Developer shall also execute a bill of sale conveying the Public Improvements to the Town (or the homeowners association as the case may be), free and clear of all liens and encumbrances. All Public Improvements shall be warranted for a period of twelve (12) months from the Acceptance Date, as provided below.

12. Warranty. The Developer shall warrant any and all Public Improvements and facilities which are conveyed to the Town or a homeowners association pursuant to this Agreement for a period of twenty-four (24) months (the "Warranty Period") from the Acceptance Date. Such Warranty shall automatically terminate at the expiration of Warranty Period or twelve (12) months from the final repair or replacement required under the Warranty, whichever is sooner, unless oth erwise agreed by the Parties. Specifically, but not by way of limitation, the Developer shall warrant that:

A. The title conveyed shall be good and its transfer rightful;

B. Any and all facilities conveyed shall be free from any security interest or other lien or encumbrance; and

C. Any and all facilities so conveyed shall be free of any defects in materials or workmanship for a period of twelve (12) months, as stated above.

13. Warranty Securitization. The Developer shall provide to the Town a Warranty Security in the form of a bond, letter of credit or deposit agreement satisfactory to the Town Attorney

no later than the Acceptance Date. The Warranty Security shall be adequate to repair or replace twenty-five percent (25%) of the improvements made to the property, as described on **Exhibit C**, during the Warranty Period. If the Developer does not repair or replace damaged or inoperable improvements upon 60 days'' notice from the Town, or within ten (10) days of expiration of the Warranty Security, the Town shall have the right to do so and deduct the cost of the same from the Warranty Security. Such Warranty Security shall be held by the Town for the Warranty Period and shall be released upon the expiration of the same, once all warranty issues have been resolved.

14. Performance Guarantee.

A. The total amount of required security for the Public Improvements shall be as specified on **Exhibit C**. The Developer shall provide to the Town security in the form required herein. Such guarantees shall be subject to increase if deemed reasonable and necessary in the sole opinion of the Town.

In order to secure the construction and installation of the Public Improvements above described, for which the Developer is responsible, the Developer shall upon execution of this Agreement, and before any lots are contracted for or sold or offered for sale, furnish the Town with a certificate or other evidence, in good and sufficient form approved by the Town Attorney, of a bond, an irrevocable letter of credit or deposit agreement, in a form acceptable to the Town Attorney issued or confirmed by a commercial banking institution authorized to do business and with offices located within the State of Colorado to secure the performance and completion of the Public Improvements, in an amount equal to the estimated costs of said facilities as set forth on **Exhibit C**. The Town shall have the right to review and approve all terms and conditions of the bond, letter of credit or deposit agreement prior to recording of the Final Subdivision Plat.

The original letter of credit or deposit agreement shall be delivered to the Town prior to the recordation of the Final Subdivision Plat. This Letter of Credit shall comply in all respects with the Uniform Customs and Practice for Documentary Credits, 1993 Revision, issued by the International Chamber Commerce, Paris, to the extent it does not conflict with Article 5 of the Colorado Uniform Commercial Code.

The Performance Guarantee shall specifically address:

i. Landscape Guarantee. Developer shall provide Town with a guarantee for no less than one hundred twenty-five percent (125%) of the cost of the landscaping improvements for the entire Property to ensure proper installation and continued maintenance of all features for a warranty period of two (2) years after installation. The guarantee shall be provided prior to the initiation of any land clearing or infrastructure development on the Property and shall be released upon the Planning Director's and/or Town Engineer's inspection, approval, and acceptance of the landscaping, except that twenty-five percent (25%) of the cost of each feature shall be retained for the two (2) year warranty period.

ii. Public Improvements Guarantee. A guarantee acceptable to

the Town Attorney for no less than one hundred percent (100%) of the current estimated costs of necessary public improvements, as estimated by the Town Engineer. Such guarantee shall be released upon inspection, approval, and acceptance by the Town Engineer, except that ten percent (10%) of the cost of each improvement shall be retained until all proposed improvements are completed.

B. In the event the Public Improvements are not constructed or completed within eighteen (18) months of the date of this Agreement, the bond, letter of credit or deposit agreement shall provide that the funds necessary to complete the Public Improvements shall be put directly to an escrow account under the control of the Town Manager and shall be used to complete the Public Improvements called for herein.

C. Within ten (10) days of timely completion and acceptance of the Public Improvements, and performance of the conditions and requirements of this Agreement secured by the performance guarantee, and upon the approval of the Town Manager, the performance guarantee shall be released to the Developer. If the Public Improvements are not completed within the required time, the performance guarantee may be called by the Town and the monies may be used to complete the Public Improvements; provided, however, that if such guarantee is not sufficient to pay the actual costs, the Developer shall be responsible for the balance.

D. Prior to release of any portion of the performance guarantee, Developer shall demonstrate to the reasonable satisfaction of the Town Attorney:

i. that Sewer easements identified on Sheet 2 of the Final Subdivision Plat have been "revised by separate document after Plat recording."

ii. that a deed to the Belden Place Homeowners Association has been recorded in the public records of Eagle County conveying Tracts B, C, and D together with all rights in the easements identified in Plat Note 8.

E. The required security for the Public Improvements is the amount mutually agreed upon by the Developer and the Town Engineer as set forth above. The Parties agree that this amount does not necessarily reflect the Town Engineer's estimate of what the actual cost to the Town would be if the Town were required to fund construction of all of the Public Improvements. In the event the costs of the Public Improvements exceed the amount set forth above, the Developer shall be solely responsible for the actual cost. The purpose of **Exhibit C** is solely to determine the amount of security and shall be revised every twelve (12) months to reflect the actual costs, and the performance guarantee required by this SIA shall be adjusted accordingly. No representations are made as to the accuracy of these estimates, and the Developer agrees to pay the actual costs of all such Public Improvements.

F. The Parties expressly agree that the Developer's preparation and submission to the Town of "as-built drawings" and a summary of actual construction costs for the Public Improvements to be dedicated to the Town or owners ass~~oci~~iation and approval by the Town of the asbuilt drawings and sum~~m~~ary are essential requirements of this Agreement. In the event the Developer fails to provide the as-built drawings and summary to the Town thirty (30) days prior to the expiration of the performance guarantee or any extension thereof, such failure shall constitute a breach of this Agreement with regard to the completion of the Public Improvements, damages for which are impossible to ascertain, entitling the Town to call upon the performance guarantee in an amount equal to ten percent (10%) of the total amount set forth on **Exhibit C**, which amount the Town may retain as liquidated damages due to the Developer's breach. No releases of the letter of credit or deposit agreement shall be granted by the Town until such as-built drawings are provided and all Public Improvements are accepted by the Town.

15. Title Policy. Prior to the recordation of the Final Subdivision Plat for the Property, the Developer shall provide the Town a commitment for a title insurance policy, indicating that the Property is free and clear of all encumbrances whatsoever which would impair the use of the Property as proposed by the Final Subdivision Plat. Further, said title commitment, and/or an additional title commitment, shall show that all other property to be dedicated to the Town is free and clear of all encumbrances which would make said dedications unacceptable as the Town in its sole discretion determines. At the time of recording the Final Subdivision Plat, the title insurance policy(s) shall be provided to the Town, and the premium(s) for the title insurance shall be paid by the Developer. In the event the title commitment(s) reflect encumbrances which would impair the use of the Property as proposed or which would make the public dedications unacceptable, the Town shall notify the Developer, who shall cure or otherwise remove or subordinate said encumbrances to the satisfaction of the Town prior to the recordation of the Final Subdivision Plat.

16. Vested Rights. Pursuant to Section 16-11-10, *et. seq.,* of the Minturn Municipal Code, the Town and the Developer agree that the Town Council's Subdivision Final Subdivision Plat approval of the Property constitutes the approval of a "Site Specific Development Plan", and no further hearings are required. Pursuant to the approval by the Town Council of the Final Subdivision Plat for the Property, the Town granted vested property rights for the Property for a period of three (3) years from the effective date of the Town ordinance approving this Agreement and the Final Subdivision Plat upon the condition that the Developer comply with all of the terms and conditions of this Agreement, the Final Subdivision Plat for the Property, and the development submittal. If Developer has submitted a complete application for a building permit and paid all applicable fees for a building that cannot be served with water due to a moratorium on water service, vested rights shall extend for a period of four (4) years after the termination of the three (3) year vested rights period. Such rights shall also be subject to the provisions of Minturn Municipal Code Section, and the Developer shall at its expense publish the vested rights notice required by
C.R.S. §24-68-103(1) and Minturn Municipal Code Section 16-21-710.

17. Owners Association; Covenants. An owners association shall be created by the Developer under the laws of the State of Colorado before any properties within the subdivision are sold to third parties. The Articles of Incorporation and covenants shall be reviewed by the Town

Attorney to ensure that they meet the Town's requirements that the owners association (1) maintains, operate and assume full responsibility for all easements and common areas within the Property and shown on the Final Subdivision Plat, including landscaping; (2) maintains all private open space; and (3) is empowered to enforce any provisions of the covenants, conditions and restrictions affecting the Property. The covenants for the Property shall also address, at a minimum: party wall agreements, snow removal, building and landscape maintenance, sidewalk maintenance, drainage maintenance, road maintenance, use of limited and general common elements, fencing styles and heights, outdoor storage of vehicles (including recreational vehicles, boats, trailers, and the like), and pets. The Articles of Incorporation and covenants shall be reviewed and approved, and the Articles filed with the Colorado Secretary of State prior to the recordation of the Final Subdivision Plat.

18. Conditions of Building Permit / Certificate of Occupancy. In addition to all requirements of the Minturn Municipal Code and any requirements imposed by operation of state, federal, or local law, no building permits shall be issued for the Property until:

A. This SIA has been recorded in the Office of the Eagle County Clerk and Recorder, and a recorded copy is on file in the Office of the Town Clerk.

B. The Final Subdivision Plat has been recorded in the Office of the Eagle County Clerk and Recorder, and a recorded copy is on file in the Office of the Town Clerk.

C. All Public Improvements have been accepted, or a performance guarantee to secure all Public Improvements has been provided in accordance with this SIA.

19. Voluntary Action of Developer. Notwithstanding any provision of the Minturn Municipal Code, the Developer agrees that all terms and conditions of this Agreement, including specifically the payment of fees, the dedication of land, and the completion of off-site infrastructure improvements, are agreed to and constitute the voluntary actions of the Developer.

20. Breach by Developer; Town's Remedies. In the event of any default or breach by the Developer of any term, condition, covenant or obligation under this Agreement, the Town Council shall be notified immediately. The Town may take such action as it deems necessary to protect the public health, safety, and welfare; to protect lot buyers and builders, and to protect the citizens of the Town from hardship. The Town's remedies include:

A. The refusal to issue to the Developer any building permit or certificate of occupancy; provided, however, that this remedy shall not be available to the Town until after the affidavit described below has been recorded;

B The recording with the Eagle County Clerk and Recorder of an affidavit, approved in writing by the Town Attorney and signed by the Town Manager or his designee, stating that the terms and conditions of this Agreement have been

breached by the Developer. At the next regularly scheduled Town Council meeting, the Town Council shall either approve the filing of said affidavit or direct the Town Manager to file an affidavit stating that the default has been cured. Upon the recording of such an affidavit, no further lots or parcels may be sold within the Property until the default has been cured. An affidavit signed by the Town Manager or his designee and approved by the Town Council stating that the default has been cured shall remove this restriction;

C. A demand that the security given for the completion of the public improvements be paid or honored; the refusal to consider further development plans within the Property; and/or any other remedy available at law.

Unless necessary to protect the immediate health, safety, and welfare of the Town or Town residents, the Town shall provide the Developer ten (10) days' written notice of its intent to take any action under this paragraph during which ten-day period the Developer may cure the breach described in said notice and prevent further action by the Town. Furthermore, unless an affidavit as described above has been recorded with the Eagle County Clerk and Recorder, any person dealing with the Developer shall be entitled to assume that no default by the Developer has occurred hereunder unless a notice of default has been served upon the Developer as described above, in which event Developer shall be expressly responsible for informing any such third party of the claimed default by the Town.

21. Assignment. This Agreement may not be assigned by the Developer without the prior written consent of the Town, which consent shall not be unreasonably withheld. In the event the Developer desires to assign its rights and obligations herein, it shall so notify the Town in writing together with the proposed assignee's written agreement to be bound by the terms and conditions contained herein.

22. Indemnification. The Developer agrees to indemnify and hold the Town harmless from any and all claims or losses of any nature whatsoever incurred by the Town resulting from the subdivision of the Property and construction of the Public Improvements. This indemnification shall include actual attorneys' fees incurred in the event that any party brings an action against the Town for any of the approvals described herein. The Parties intend not to duplicate any legal services or other costs associated with the defense of any claims against either Party described in this section. Therefore, the Parties agree to cooperate in full to prevent duplicative expenses incurred as a result of the indemnification herein described.

23. Waiver of Defects. In executing this Agreement, the Developer waives all objections it may have concerning defects, if any, in the formalities whereby it is executed, or concern- ing the power of the Town to impose conditions on the Developer as set forth herein, and concern- ing the procedure, substance, and form of the ordinances or resolutions adopting this Agreement.

24. Final Agreement. This Agreement supersedes and controls all prior written and oral agreements and representations of the Parties and is the total integrated agreement between the parties.

25. Modifications. This Agreement shall not be amended, except by subsequent written agreement of the Parties.

26. Release of Liability. It is expressly understood that the Town cannot be legally bound by the representations of any of its officers or agents or their designees except in accordance with the Town of Minturn Municipal Code and Ordinances and the laws of the State of Colorado, and that the Developer, when dealing with the Town, acts at its own risk as to any representation or undertaking by the Town officers or agents or their designees which is subsequently held unlawful by a court of law.

27. Captions. The captions in this Agreement are inserted only for the purpose of convenient reference and in no way define, limit, or prescribe the scope or intent of this Agreement or any part thereof.

28. Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective heirs, successors, and assigns.

29. Invalid Provision. If any provisions of this Agreement shall be determined to be void by any court of competent jurisdiction, then such determination shall not affect any other provision hereof, all of which other provisions shall remain in full force and effect. It is the intention of the parties hereto that, if any provision of this Agreement is capable of two constructions, one of which would render the provision void, and the other of which would render the provision valid, then the provision shall have the meaning which renders it valid.

30. Governing Law. The laws of the State of Colorado shall govern the validity, performance, and enforcement of this Agreement. Should either party institute legal suit or action for enforcement of any obligation contained herein, it is agreed that the venue of such suit or action shall be in Eagle County, Colorado.

31. Attorneys' Fees; Survival. Should this Agreement become the subject of litigation, the substantially prevailing Party shall be entitled to, and the failing Party shall pay, all reasonable attorneys 'fees, expenses, and court costs. All rights concerning remedies and/or attorneys shall survive any termination of this Agreement.

32. Authority. Each person signing this Agreement represents and warrants that he is fully authorized to enter into and execute this Agreement, and to bind the Party it represents to the terms and conditions hereof.

33. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which, when taken together, shall be deemed one and the same instrument.

34. Notice. All notices required under this Agreement shall be in writing and shall be hand-delivered or sent by registered or certified mail, return receipt requested, postage prepaid, to

the addresses of the parties herein set forth. All notices so given shall be considered effective seventy-two (72) hours after deposit in the United States mail with the proper address as set forth below. Either Party by notice so given may change the address to which future notices shall be sent.

Notice to Town:	Town of Minturn P. O. Box 309 Minturn, CO 81645
With copy to:	Michael J. Sawyer Karp Neu Hanlon, P.C. P. O. Drawer 2030 Glenwood Springs, CO 81602
Notice to Developer:	Miners Base Camp LLC PO Box 1134 Minturn, CO 81645
With copy to:	James Wm. Stovall **STOVALL ASSOCIATES** 175 Main Street, Suite C-109 Edwards, CO 81632

35. Gender. Whenever the context shall require, the singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

36. No Agency, Joint Venture, or Partnership. It is specifically understood and agreed to that the Parties that this Agreement does not create any agency, joint venture, or partnership relationship between the Parties. The Town has no interest in responsibility for, or duty to, third parties concerning any improvements made hereunder until such time, and only until such time, that the Town accepts the Public Improvements under the provisions of this Agreement.

WHEREFORE, the parties hereto have executed duplicate originals of this Agreement on the day and year first written above.

TOWN OF MINTURN, COLORADO

By: _____
Mayor

ATTEST:

_____
Jay Brunvand, Clerk

DEVELOPER

By: _____

_____ , Manager

STATE OF COLORADO)
) ss.
COUNTY OF)

Acknowledged, subscribed, and sworn to before me this ____day of _____, 20__, by _____as Manager of _____, LLC.

WITNESS my hand and official seal.

My Commission expires: _____.

_____
Notary Public

Exhibit A
Legal Description

Property located in the Town of Minturn, Eagle County:

LOTS 29, 31 AND 32, SOUTH MINTURN ADDITION, ACCORDING TO THE ANNEXATION PLAT THEREOF RECORDED MARCH 1, 1978 AS RECEPTION No. 163447 IN THE OFFICE OF THE EAGLE COUNTY CLERK AND RECORDER, EAGLE COUNTY, COLORADO AND LOTS 1, 2 AND 3 DURAN SUBDIVISION ACCORDING TO THE PLAT THEREOF RECORDED DECEMBER 14, 1994 AS RECEPTION No. 553188 IN THE OFFICE OF THE EAGLE COUNTY CLERK AND RECORDER, EAGLE COUNTY, COLORADO, THE PERIMETER OF WHICH PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT A POINT ON THE EAST LINE OF SECTION 35, TOWNSHIP 5 SOUTH, RANGE 81 WEST, OF THE 6TH PRINCIPLE MERIDIAN, SAID POINT BEING A FOUND RED PLASTIC CAP STAMPED LS 26626 FROM WHICH THE NORTHEAST CORNER OF SAID SECTION 35 BEARS N00°02'00"W 1962.17 FEET; THENCE S00°02'00"W 0.57 FEET TO THE TRUE POINT OF BEGINNING, SAID POINT OF BEGINNING ALSO BEING A POINT ON THE SOUTH RIGHT OF WAY LINE OF U.S. HIGHWAY 24 PER C.D.O.T. PROJECT TAP M890-001 AND THE MAP THEREOF AND ALSO BEING THE NORTHEAST CORNER OF SAID LOT 32, SOUTH MINTURN ADDITION; THENCE UPON SAID EAST LINE OF SECTION 35 S00°02'00"W 356.38 FEET TO THE SOUTHEAST CORNER OF SAID LOT 32 BEING A FOUND 3" ALUMINUM DEPT. OF AGRICULTURE CAP IN MONUMENT BOX STAMPED LS 7235, 1984; THENCE DEPARTING SAID EAST LINE SECTION 35 AND UPON THE SOUTH LINE OF SAID LOT 32 AND SAID LOT 31, SOUTH MINTURN ADDITION S84°06'47"W 220.37 FEET TO THE SOUTHEAST CORNER SAID LOT 29, SOUTH MINTURN ADDITION BEING A FOUND 2.5" BRASS CAP ON 1" IRON PIPE STAMPED SW COR GATES TRACT; THENCE UPON THE SOUTH LINE OF SAID LOT 29 N71°22'44"W 63.47 FEET TO THE SOUTHWEST CORNER SAID LOT 29 BEING A FOUND 1" IRON PIPE WITH NO CAP; THENCE DEPARTING SAID SOUTH LINE AND UPON THE WEST LINE OF SAID LOT 29 N00°01'03"W 467.14 FEET TO SAID SOUTH RIGHT OF WAY U.S. HIGHWAY 24 ALSO BEING THE NORTHWEST CORNER OF SAID LOT 29; THENCE UPON SAID SOUTH RIGHT OF WAY U.S. HIGHWAY 24 S68°46'59"E 299.59 FEET TO THE TRUE POINT OF BEGINNING.

Exhibit B
Construction Plans and Specifications

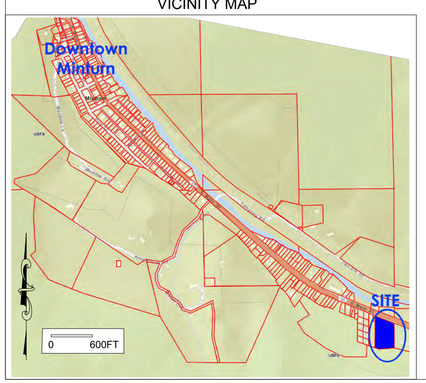
19

EXHIBIT B

BELDEN PLACE P.U.D. - FINAL PLAN SUBMITTAL

South Minturn Addition: Lots 29, 31 & 32, Minturn, Colorado

VICINITY MAP



SHEET INDEX:

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

PLANS ARE NOT FOR CONSTRUCTION UNLESS STAMPED "APPROVED FOR CONSTRUCTION" BY PROPER AUTHORITIES.

DATE	REVISION
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

Title:

COVER SHEET

Sheet:

C.100

CONSTRUCTION SPECIFICATIONS

THE FOLLOWING APPLICABLE CONSTRUCTION SPECIFICATIONS ARE A PORTION OF THE TOWN OF MINTURN ENGINEERING STANDARDS. TABLES, DRAWINGS, DETAILS AND EXHIBITS REFERENCED BELOW ARE INCLUDED IN THE TOWN STANDARDS.

CHAPTER 2 - SITE WORK/EARTHWORK/GRADING

SECTION 1 - SCOPE

All site work and earthwork shall comply with the requirements of these STANDARDS AND SPECIFICATIONS and any special criteria established by the Town of Minturn. Site work shall be completed as shown on the approved engineering plans. Site work shall consist of demolition, removal, and abandonment; clearing and grubbing; overlot grading; removal of topsoil; site preparation; embankment subgrade preparation; embankment fill; excavation, trenching, bedding and backfill of pipelines and service lines; excess excavation; structure backfill; roadway excavation, backfill and compaction; borrow; and restoration and cleanup. All workmanship and materials shall be in accordance with the requirements of these STANDARDS AND SPECIFICATIONS and shall conform to the lines, grades, quantities, and the typical cross-sections shown on the approved plans, or as directed by the Town Engineer or as directed by the Engineer-of-Record (EOR).

1.01 -Inspections

A Grading Permit shall be required for all construction activities. Construction activities shall be subject to inspection by the Town Engineer, and certain types of construction shall have continuous inspection.

It shall be the responsibility of the person performing the work authorized by a permit to notify the Town Engineer or his authorized representative that such work is ready for inspection. Every request for inspection shall be filled at least one (1) working day before such inspection is desired unless otherwise stated in these STANDARDS AND SPECIFICATIONS. An inspection request may be in writing or by telephone, at the option of the Town Engineer.

It shall be the responsibility of the person requesting an inspection required by these STANDARDS AND SPECIFICATIONS to provide access to and means for proper inspection of all work. All work shall be inspected by the Town Engineer or his designated representative. The Town Engineer has the authority to halt construction when, in his opinion, these STANDARDS AND SPECIFICATIONS and/or standard construction practices are not being followed, or the work is otherwise defective. Whenever any portion of these STANDARDS AND SPECIFICATIONS are violated, the Town Engineer shall give the Contractor written notice listing deficiencies to be corrected and may order further construction stopped until all deficiencies are Corrected. If the deficiencies are not corrected within the time limit specified in the notice, the Town Engineer may invoke enforcement options authorized by the Minturn Municipal Code and/or draw upon performance guarantees under which the work is being performed.

For small commercial developments, Minturn may require the development to hire a qualified private contract inspection professional or a Colorado Registered Professional Engineer at the developer's cost to certify to Minturn that the work was completed in accordance with these STANDARDS AND SPECIFICATIONS.

Landscaping that is privately owned and maintained by a Homeowners Association (HOA) or other property management entity shall be designed and constructed in accordance with these STANDARDS AND SPECIFICATIONS. Compliance to these STANDARDS AND SPECIFICATIONS shall be certified by a qualified third party approved by Minturn and paid by the developer. Minturn shall assist with inspection of the irrigation system for the landscaping.

Adequate inspections assure compliance to the Town of Minturn requirements and are the basis for the town's recommendation that said improvements be accepted for maintenance and for release of performance guarantees. It is the responsibility of the Contractor to contact the Town Engineer a minimum of one (1) full working day (twenty-four [24] hours) in advance of the required inspections. Required inspections shall include:

A. Erosion Control: Ensure that the Erosion Control Plan is adhered to and Best Management Practices (BMP's) are properly installed and maintained.

B. Geotechnical Testing: Verify that a Colorado Registered Professional Engineer (or designated representative), who practices the field of Geotechnical Engineering, is onsite and that adequate testing is performed. Full-time observation and testing is required for over-excavation work.

C. Grade Certification: Verify that the extent and depths of proposed work is certified. Verify the final grade.

The Contractor shall provide access to all Minturn Inspectors/Representatives, and all other project quality control (QC) and/or quality assurance (QA) personnel throughout the earthwork process for observation and testing purposes. The Contractor shall not proceed with work until the project Soils Engineer has performed adequate observations and testing, unless approved by the Town Engineer.

All testing and retesting to meet requirements and specifications shall be at the Contractor's or owner's expense.

SECTION 2 - DEMOLITION, REMOVAL AND ABANDONMENT

The Contractor shall remove—wholly or in part—and satisfactorily dispose of all foundations, structures, fences, old pavements, abandoned pipelines, and any other obstructions which are not designated on the approved plans or allowed to remain.

Where portions of structures shall be removed, the remaining parts shall be prepared to accommodate the new construction. The work shall be performed in such a manner that materials left in place shall be protected from damage. All damage to portions of structures to remain shall be repaired at the Contractor's expense.

2.01 - Disposal

The Contractor shall make all necessary arrangements for obtaining suitable disposal locations. If disposal shall be at other than established dumpsites, the EOR may require the Contractor to furnish written permission from the property owner on whose property the materials and debris is proposed to be placed. Materials and debris shall be disposed of in a manner approved by the Town Engineer. Burning shall not be allowed without prior written approval of the Town of Minturn.

2.02 - Salvage

All salvageable material shown on the approved plans and any additional salvageable material marked by the EOR shall be removed without unnecessary damage in sections or pieces which may be readily transported and shall be stored by the Contractor in locations approved by the EOR. The Contractor shall be required to replace any materials lost from improper storage methods or damaged by negligence. These materials include, but shall not be limited to, manhole frames and covers; inlet grates; valves and fire hydrants; landscape plant materials; fence materials; handrails; culverts; guardrail; walkway; roadway and traffic appurtenances (traffic signals and attached hardware, including mast arms and span wire) and irrigation systems and appurtenances.

2.03 - Pipe and Appurtenances

All pipe and appurtenances to be taken out of service shall be completely removed or abandoned in place, as required by the EOR.

Pipe designated to be reused shall be removed and stored, when necessary, to prevent loss or damage before re-laying.

Excavation required to remove pipe or appurtenances shall be back filled and compacted in accordance with Section 5 - TRENCHING, BACKFILLING AND COMPACTING of these STANDARDS AND SPECIFICATIONS.

When pipe is to be abandoned in place, it shall be completely filled with fly ash slurry composed of approximately sixty-five (65) percent Class C Fly ash and thirty-five (35) percent water, unless otherwise approved by the EOR. Each end of the pipe shall be capped with concrete.

When removing appurtenances such as manholes, catch basins, inlets etc., any live lines connected to these appurtenances shall be properly bypassed and shall remain in operation until abandonment is complete.

When appurtenances are to be abandoned in place, the remaining structure shall be lowered to a minimum of three (3) feet below finished grade, and shall be filled with concrete with a minimum compressive strength of 3000 psi (at 28 days) to the top of the remaining structure and then backfilled and compacted to the required grades.

2.04 - Pavement and Concrete Flatwork

All concrete or asphalt to remain shall have a straight, true break line and a vertical face. Concrete or asphalt may be cut with a cutting wheel, jackhammer, or saw. The EOR may require that saw-cutting be performed. Any damage to adjacent concrete or asphalt to remain in place shall be repaired at the Contractor's expense. The minimum depth of saw cuts in concrete shall be two (2) inches.

If areas cut for future placement of concrete or asphalt adjacent to existing asphalt or concrete are left exposed for longer than thirty (30) days or are subjected to inclement weather, the areas shall be evaluated by a Geotechnical Engineer and a recommendation shall be provided to the EOR. An additional cut of at least six (6) inches behind and/or below the existing structure—or until competent subgrade is encountered—may be required by the EOR.

SECTION 3 - SITE PREPARATION

3.01 - Clearing

All sites to receive fill shall be cleared of organic materials, including root structures, at the Contractor's expense. Vegetation shall be pulled or grubbed in such a manner as to assure complete and permanent removal. Branches of trees extending over the roadbed shall be trimmed to give a clear height of twenty (20) feet above the road bed surface. All surface objects and trees, stumps, roots and other protruding obstructions not designated to remain shall be cleared and/or grubbed as required. Non-biodegradable, solid objects located at least two (2) feet below the final subgrade surface may remain at the discretion of the EOR.

The EOR may establish clearing lines and designate items and materials to remain. The Contractor shall preserve all materials and items to remain. Paint used for cut or scarred surfaces of trees or shrubs to remain shall be an approved asphalt base paint formulated especially for tree surgery.

Except in areas to be excavated, stump holes and other holes from which obstructions are removed shall be backfilled with suitable material and compacted in accordance with these STANDARDS AND SPECIFICATIONS.

The Contractor shall scalp areas where excavation or embankment shall be made. Scalping shall include the removal of organic material such as brush, roots, sod, grass, residue of agricultural crops, sawdust, and vegetable matter from the surface of the ground.

An overlot grading summary report prepared by the project Soils Engineer which states that fill placement is in conformance to approved plans and reports and includes locations and elevations of field density tests (referenced from a permanent landmark or permanent control point), summaries of field and laboratory tests and any other substantiating data and comments regarding deviations from the approved plans and reports and how they relate to or affect recommendations in the approved Geotechnical Engineering Report and grading plan.

SECTION 4 - EARTHWORK

Earthwork shall consist of excavation, disposal, shaping and compaction of all material encountered within the limits of the project, including but not limited to excavation of ditches and channels, surface boulders, muck, rock, concrete foundations, slabs, stripping, etc. Excavation shall be performed to the line and grade and typical cross-sections shown on the approved plans or as required by the EOR.
Free-running water shall be drained from all earthwork materials prior to construction of structures, utilities, or concrete 4atwork construction.

4.01 - Definitions

A. Suitable Material: Any earthen material that consists of onsite or similar non-organic sands, gravels, clays, silts and mixtures thereof with a maximum size of six (6) inches. Claystone fragments exceeding three (3) inches in particle size are not to be incorporated in embankment material unless specifically approved by the project Soils Engineer and the EOR.

B. **Bedrock:** Bedrock that breaks down to specified soil types and sizes during excavation, hauling and placement may be considered as suitable material.

C. **Rock Excavation:** Igneous, metamorphic or sedimentary rock formations that cannot be excavated with a D-9 tractor in good repair with a single hydraulic ripper.

4.02 - Borrow

It shall be the Contractor's responsibility to stockpile suitable materials for use in the project. Only after the Contractor estimates that sufficient suitable backfill material is stockpiled to complete all earthwork operations of the project, shall excavated material be removed from the project site.

If the Contractor fails to preserve onsite, sufficient suitable material, and removes or disposes of suitable material, suitable material shall be recovered at the Contractor's expense.

4.03 - Embankment Construction

Embankment construction shall include placement, processing and compaction of all embankment material, and all related work required to ensure proper bond of materials with previously placed embankment material.

A. Preparation of Embankment Subgrade: The grade shall be maintained so that the surface is well drained at all times. When necessary, temporary drain systems shall be installed to intercept or divert surface water that may affect the work.

Where an embankment shall be constructed, unsuitable material shall be removed from the surface. The cleared surface shall be plowed or scarified to a minimum depth of six (6) inches. The embankment area shall adhere to the density and moisture content requirements shown in the following table, unless otherwise approved by the project Soils Engineer and the EOR:

TABLE 2.01

Soil Classification AASHTO M145	*Relative Compaction by Standard Proctor ASTM D698 or AASHTO T99 (percent compaction)*	*Relative Compaction by Modified Proctor ASTM D1557 or AASHTO T180 (percent compaction)*	*Moisture Content Range (with respect to Optimum Moisture Content)*
A-1, A-2, A-3	—	95	-2 to +2 (based on AASHTO T180)
A-4, A-5, A-6	95	—	-1 to +3 (based on AASHTO T99)

If equipment is deemed inadequate, the project Soils Engineer and/or the EOR may recommend the use of larger or different types of equipment.

After subgrade is properly prepared, the embankment filling operation shall begin in the deepest part of the area to be filled. Embankment material shall be placed and compacted in parallel layers until the finished rough grade is reached. Temporary gaps through the embankment shall not be allowed without approval of the EOR. All temporary slopes shall not be steeper than 4:l (horizontal:vertical).

The thickness of each layer shall not exceed six (6) inches before compacting.

B. Embankments Greater Than Twelve (12) Feet in Height

Compaction operations shall continue until each layer of embankment material for embankments greater than twelve (12) feet in height is compacted to the moisture and density requirements shown in the following table, unless otherwise required by the project Soils Engineer and the EOR.

TABLE 2.02

Soil Classification AASHTO M145	*Relative Compaction by Standard Proctor ASTM D698 or AASHTO T99 (percent compaction)*	*Relative Compaction by Modified Proctor ASTM D1557 or AASHTO T180 (percent compaction)*	*Moisture Content Range (with respect to Optimum Moisture Content)*
A-1, A-2, A-3	—	96	-2 to +2 based on AASHTO T180)
A-4, A-5, A-6	100	—	-1 to +2 (based on AASHTO T99)

4.04 - Excavation

It is the sole responsibility of the Contractor to become familiar with the existing conditions and potential excess excavation at each project site. Geotechnical reports or other data provided by Minturn may be used to assist in determining general site and soil characteristics.

4.05 - Structure Backfill

Structure backfill shall comply with Section 4.01 Definitions of these STANDARDS AND SPECIFICATIONS. Structure backfill material shall have a liquid limit not exceeding thirty-five (35) and a plasticity index less than fifteen (15), as determined by AASHTO T 89 and T 90, unless otherwise approved by the project Soils Engineer and the EOR.

Areas adjacent to structures and other areas inaccessible to mobile compaction equipment shall be compacted with suitable power-driven hand tampers or other approved devices. Backfilling shall consist of placing materials in horizontal, uniform layers brought up uniformly on all sides of the structure. **The thickness of each layer of backfill shall not exceed SIX (6) inches before compacting to the required density.**

Backfill material shall not be deposited against the back of concrete abutments, concrete retaining walls, or the outside of cast-in-place concrete structures until the concrete has developed a strength of not less than eighty (80) percent of the required design strength. Backfill placed within two (2) feet of any structure shall be placed evenly on all sides to avoid unequal lateral pressures.

In the event that suitable backfill material is not available on the site, the Contractor shall import Class 1 structure backfill materials as defined in Section 4.01 Definitions of these STANDARDS AND SPECIFICATIONS, or other material approved by the project Soils Engineer and the EOR. The Contractor shall not be required to excavate below the depths of excavation indicated on the approved plans to provide structure backfill material.

The Contractor shall uniformly process, maintain proper moisture in, and properly compact each lift throughout the backfilling process. All testing shall comply with Section 5.07 Compaction Testing of these STANDARDS AND SPECIFICATIONS.

SECTION 5 - TRENCHING, BACKFILLING AND COMPACTION

This work shall consist of furnishing all labor, materials, tools and equipment for trenching, bedding, backfill and compaction for all underground utilities (inclusive of "dry" utility trenches located under roadways or within roadway R.O.W.) as specified herein and shown on the approved plans. The excavation shall be made to lines and grades shown on the approved plans and as established by the EOR. Except where shown otherwise on the approved plans and except where the EOR gives written permission to do otherwise, all trench excavation shall be made by open cut to the depth required to construct the pipelines as shown on the approved plans. All excavation shall be 'unclassified', as defined in Section 4.01 Definitions of these STANDARDS AND SPECIFICATIONS. All trenching shall be performed in accordance with all Occupational Safety and Health Administration (OSHA) requirements. These regulations are described in Subpart P, Part 1926 of the Code of Federal Regulations.

All excavated material which meets the requirements for backfill materials shall be stockpiled in a manner which shall not contaminate the excavated material, and shall be located a sufficient distance from the trench to avoid overloading, to avoid obstructing sidewalks, driveways, or streets, and to provide the least possible interference with traffic.

5.01 - Special Conditions

A. Subsurface Investigation: Prior to the connection of any planned utility line to an existing line, the Contractor shall expose the existing utility at the points of connection in order to verify the elevations and materials of construction. The EOR shall be notified a minimum of two (2) working days before such an investigation is performed. The Contractor shall also expose utilities as they cross each other to allow for verification of elevation and materials of construction. The EOR shall evaluate this information and provide revisions, if required, within three (3) working days of the completion of the investigation.

B. Underground Wire, Cable, Fiber Optic, or Similar Lines: Where underground wire, cable, fiber optic or similar lines are encountered, they shall be relocated as directed by the telephone service provider and in accordance with their speci5cations. The Contractor shall coordinate this work with all other phases of construction to avoid further conflicts.

C. Gas and Electric Lines: Where underground gas and electric lines are encountered, they shall be relocated as directed by the gas and electric service provider and in accordance with their specifications. The Contractor shall coordinate this work with all other phases of construction to avoid further conflicts.

5.02 - Removal of Water

The Contractor shall provide and maintain adequate equipment to properly remove and dispose of all surface or ground water that enters the trench. Water shall be disposed of without damage to adjacent property and without being a nuisance to public health and convenience. The use of any sanitary sewer to dispose of trench water shall not be allowed. The trench shall be dry at all times during pipe installation. Dewatering shall be accomplished by well points, sumping or any other method approved by the Engineer.

5.03 Trench Excavation for Pipelines and Service Lines

The width of the trench shall comply with the requirements set forth in these STANDARDS AND SPECIFICATIONS and shall be sufficient to allow pipe to be installed and backfill placed and compacted. The allowable trench width, regardless of the type of soil encountered, the depth of excavation or method of bedding densification, shall not exceed the outside diameter of the pipe barrel plus twenty-four (24) inches, or be less than the outside diameter of the pipe barrel plus twelve (12) inches when measured at any point below the top of the pipe bell, flange or collar.

Where the width of the lower portion of the trench exceeds the maximum width herein stated, the Contractor shall furnish and install special pipe embedment or concrete encasement to protect the pipe from the additional loading. The type and quantities of special pipe embedment shall be determined by the pipe supplier, using trench loading criteria based upon saturated backfill weighing one-hundred twenty (120) pounds per cubic foot and allowance for other superimposed live loads.

A. Preparation of Foundation for Pipe Laying: When the excavation is in firm earth, care shall be taken to avoid excavation below the established grade plus the required specified over-depth to accommodate the pipe bedding material.

In case soft or otherwise unsuitable foundation material is encountered in the bottom of the trench, the project Soils Engineer and/or the EOR may require removal and replacement with stabilization material to provide a suitable foundation for the pipe. If the trench bottom is wet, the project Soils Engineer shall determine whether it is stable. The bottom of sumps utilized for dewatering shall be two (2) inches minimum below the bottom of the trench excavation to prevent the upward flow of water into the excavation, which may result in unstable bottom conditions.

5.04 - Bedding for Pipelines and Service Lines

See Sewer & Water Specifications for Bedding Requirements for Water Mains, Sewer Mains and water and sewer Service Lines.

Bedding material type and placement for storm sewer pipe shall be that specified in the latest version of the "Standard Plans M&S Standards" Plan No. 5 M-603-1 through M-603-3 for metal, plastic, and reinforced concrete pipe.

5.05 - Backfill for Pipelines and Service Lines

Suitable backfill shall be as defined in Section 4.01 Definitions of these STANDARDS AND SPECIFICATIONS. Clay and similar material with a liquid index in excess of thirty-five (35) and a plasticity index in excess of six (6), as determined in accordance with AASHTO T89 and T90, shall not be considered suitable for backfilling in trenches located in improved streets, roads, highways and thoroughfares, unless approved by the Town Engineer.

When the excavated material is unsuitable for compaction, import material shall be approved by the project Soils Engineer and the EOR prior to placement.

A. Backfill Compaction: Trench backfill shall be placed in loose six (6) inch lifts, processed and moisture-conditioned, and each lift thoroughly consolidated by tamping, vibrating, or a combination thereof, until the moisture content and the relative compaction complies with the values shown in the Moisture and Density Requirements for Embankment Materials table in Section 4.03 Embankment Construction of these STANDARDS AND SPECIFICATIONS for the various soil classifications and relative compaction.

For new landscape areas with trees, compaction shall be between eighty-five (85) and ninety (90) percent of the maximum Standard Proctor dry density in the top two (2) feet of soils below finished grade.

Where sidewalk or concrete trail will be constructed, soils shall be scarified, moisture treated and recompacted two (2) feet wider than the footprint of the sidewalk or trail until the moisture content and the relative compaction complies with the values shown in the table in Section 4.03 Embankment Construction.

Backfill of utilities, pipes, culverts, or other miscellaneous structures located in areas that will not have a hard surface shall be placed in six (6) inch lifts at ninety (90) percent of the maximum Standard Proctor dry density and within two (2) percent of the optimum moisture content. All other requirements for particle size and processing shall be met.

5.06 - Compaction Testing

Testing shall be performed at various depths and locations, and at all vertical structures. The project Soils Engineer and/or the EOR may require additional testing around structures, manholes, valve boxes, etc.

Field test results shall be submitted to the EOR within twenty-four (24) hours of the test or on the next working day. In no case shall fill or backfill be placed on materials that did not pass moisture and density testing.

Moisture and density testing shall be performed by a qualified technician who works under the direct supervision of a Colorado Registered Professional Engineer. Final soil compaction reports shall be prepared and signed by a Colorado Registered Professional Engineer, and who is qualified to prepare such reports. Reports shall be submitted to the EOR within one (1) week of the test.

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDREWS 39276 PROFESSIONAL ENGINEER

Belden Place PUD
South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

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2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

Title:

CONSTRUCTION SPECIFICATIONS 1

Sheet:

C.101

CONSTRUCTION SPECIFICATIONS - CONTINUED

SECTION 6 - RESTORATION AND CLEANUP

At all times during construction, the Contractor shall maintain the site, including partially finished structures, material stockpiles and other like areas, in a reasonable state of order and cleanliness.

The grade and condition of all unsurfaced areas shall be restored to a condition equal to or better than the grade and condition immediately prior to construction, unless otherwise shown in the approved plans and approved by the Town of Minturn. The Contractor shall restore or replace all seeded areas, sod, trees, landscaping materials, landscape irrigation systems, fences, and any other items, to a condition equal to or better than before the work began and to the satisfaction of the EOR.

All pavement and concrete flatwork shall be restored or replaced to a condition equal to or better than before the work began and to the satisfaction of the EOR.

CHAPTER 3 - EROSION CONTROL AND SEDIMENTATION

3.01 - Infiltration Practices
Infiltration practices include measures to percolate runoff into soils. Typical practices include rock-filled trenches or basins (dry wells) and diversion of storm runoff into vegetated areas. Directing water from impervious areas and allowing it to percolate reduces sediment transported off-site.

A. Maintenance
1. Clean out accumulated sediment and debris before the system fails to infiltrate storm runoff. It may be necessary to replace the upper layer of stone.
2. If rapid clogging occurs and pre-sedimentation BMP's cannot be placed upstream, install surface-maintained BMP's.
3. Monitor observation well to evaluate whether soil is clogging or infiltration device is not performing as designed.

4.01 - Silt Fences
Silt Fences are temporary barriers constructed of woven synthetic material, buried at the bottom, stretched and supported by posts. The goal of this BMP is to reduce velocity and pool sheet flow from an eroding area, allowing the sediment to settle. Silt fences can be used along the base of slopes, around stockpiles and at other discrete areas where erosion is likely to occur.

A. Installation/ Design Guidelines
1. Use only in areas of dispersed low-velocity runoff. Less than 1/4 acre should drain to each 100 foot of fence.
2. Anchor fences along the contour below the toe of disturbed slopes. Place fences to pond, not filter, runoff. A minimum of five feet of potential ponding area is recommended between the fence and the toe of the slope.
3. Avoid placing silt fences in ditches, except where erosion potential is low.
4. To properly install silt fence:
   4.1. Excavate a trench at least 6" deep, the length of the proposed barrier
   4.2. Place the bottom 6" to 1' of the fence material into the trench (see diagram).
   4.3. Drive posts at least 12" into the ground at intervals of 10' or less on the down gradient side of the trench
   4.4. Backfill and compact soil over the fence material in the trench.
   4.5. Secure the fence to the posts.
5. Minimize the number of joints between fences and overlap joints where they are unavoidable.
6. Silt fences should remain in place until vegetation has been established.

B. Special Considerations in Mountain Areas
1. Thin, rocky soils may preclude the use of this BMP.
2. Sediment traps, check dams, or berms are often better alternatives in rocky soils, especially where depth to bedrock is shallow.
3. Wire mesh and steel posts are recommended to reinforce the fence where rockfalls may occur, grading may place soils against fence, or near environmentally sensitive areas.
4. Leave enough area up gradient of the fence for runoff to pond and sediment to settle. Excavating up gradient of fence may be necessary to pond sufficient water to cause sediment deposition.
5. Silt fence often must be installed several times during construction due to changing slopes and hydrology of the site.

C. Maintenance
1. Check fences weekly and after rain or snowmelt.
2. Ensure silt fence material remains entrenched and anchored.
3. Look for rills under or around fences.
4. Replace torn or damaged sections of fence.
5. Remove excess sediment periodically, at a minimum when sediment reaches a depth of 8 inches.
6. Silt fences may only detain sediment for a period of weeks or months. Remove fabric, stakes, and accumulated sediments when there are has been successfully revegetated.

CHAPTER 4 - ROADWAY DESIGN & TECHNICAL CRITERIA
SECTION 1 - SIDEWALKS, CURBS AND GUTTERS, DRIVEWAYS, RAMPS, AND TRAILS
Curbs, gutters, and walks shall be constructed to comply with the approved details and Specifications.

1.01- Sidewalks
A. Minimum Width: All sidewalks used in conjunction with vertical curb and gutter shall have a minimum width per the approved plans. Tooled or saw cut joints are required at 10 foot intervals.
B. Minimum Thickness: All sidewalks used in conjunction with vertical curb and gutter shall have a minimum thickness of six (6) inches. All sidewalks shall consist of air-entrained (5%-7%), reinforced concrete (4000 psi) over a compacted six (6) inches of CDOT Class 6 ABC.
C. Drainage and Grading: Sidewalks shall have a positive drainage towards the street flowline.

1.02 - Curb and Gutter
Curbs, gutters, and ramps shall be constructed to comply with the approved plans. All material for construction of driveway, drive ramp, curb and gutter, and drainage pan must be made with CDOT's concrete designation Class and minimum strength of 4000 psi, in 28 consecutive days.

1.03 - Driveways
All material for construction of driveway, drive ramp, curb and gutter, and drainage pan must be made with CDOT's concrete designation Class and minimum strength of 4000 psi, in 28 consecutive days.

9.00 SHALLOW UTILITIES (UNDER GROUND ELECTRIC, TELEPHONE, CABLE TELEVISION, NATURAL GAS & IRRIGATION)
9.01 SCOPE
Shallow utilities are defined as any wire, pipe conduit or cable and shall include but not be limited to underground electric, telephone, cable television, natural gas and irrigation water systems.

9.02 SPECIAL CONDUIT ENCASEMENT
Any shallow utility which crosses under or is within 5 feet horizontally of any road or street structure, including, pavement, curb and gutter, sidewalk, bike path, or bridge shall be encased in conduit so that repair or replacement of the utility may be accomplished without disturbing the road or street structure.
For natural gas and irrigation water systems, the carrier pipes for the natural gas and irrigation water shall be installed inside of a second pipe having strength equal to or greater than the carrier pipe and of sufficient diameter to allow free movement of the carrier pipe in the event that replacement is required.
It is recommended that consideration be given to the potential for future increase in size/capacity of the respective utility when sizing the conduit.

9.03 SHALLOW UTILITY INSTALLATION
A. Electric system underground facilities shall be buried a minimum of 4.0 feet below finished grade. Electric system vaults and transformers shall be designed to be located and installed in areas that will not be subject to concentrated surface drainage flow.
B. Telephone system underground facilities shall be buried a minimum of 2.0 feet below finished grade. Telephone pedestals shall be designed to be located and installed in areas that will not be subject to concentrated surface drainage flow.
C. Cable television system underground facilities shall be buried a minimum of 2.0 feet below finished grade. Cable television risers and surface facilities shall be designed to be located and installed in areas that will not be subject to concentrated surface drainage flow.
D. Natural gas system underground facilities shall be buried a minimum of 3.5 feet below finished grade.
E. Whenever any shallow utility parallels or generally parallels a domestic water or sewer utility, a minimum horizontal separation of 4 feet shall be maintained between the domestic water or sewer main or service and the shallow utility. Where it must cross domestic water it must cross above and with a 1' minimum separation. Nonpotable water tape.

LIMITS FOR HOURS OF CONSTRUCTION

Sec. 16-18-30. Noise and vibration standards.
A. Maximum permissible noise levels. Every use shall be operated such that the noise level produced does not inherently and recurrently exceed sixty (60) decibels during the hours of 7:00 a.m. to 7:00 p.m., or fifty-five (55) decibels from 7:00 p.m. to 7:00 a.m.
   (1) Measured along property boundary. Noise levels shall be measured at any point along any boundary line of the property on which the use is located.
   (2) Measurement when there are multiple uses on a single parcel. Where more than one (1) use is located within the boundaries of a property, then the noise levels shall also be measured along any wall of any other building on the property.
B. Vibration generated. Every use shall be so operated that it does not inherently and recurrently generate a ground vibration that is perceptible at any point along any boundary line of the property on which the use is located. Where more than one (1) use is located within the boundaries of a property, then this standard shall also be measured along any wall of any other building on the property.

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

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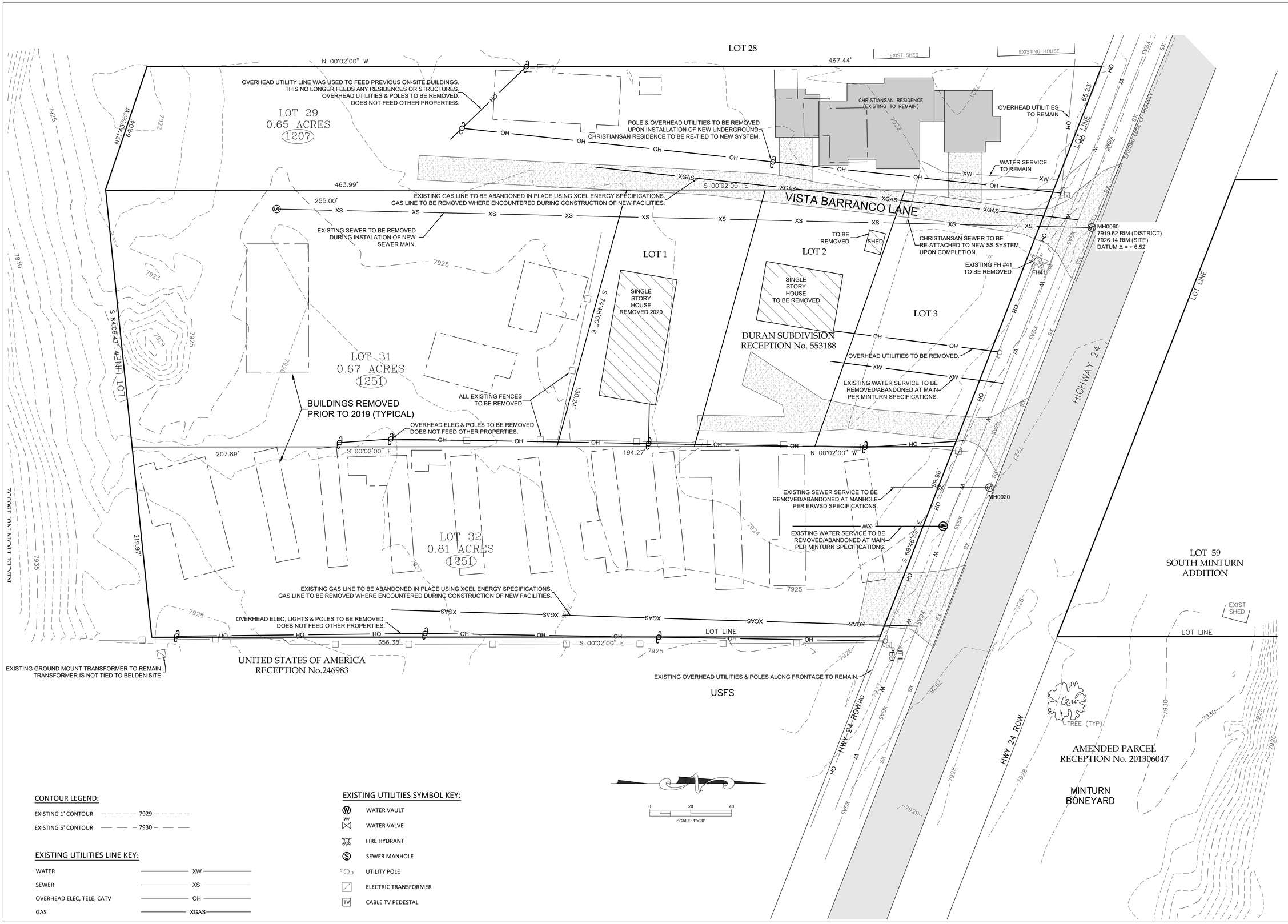
Title:
CONSTRUCTION SPECIFICATIONS 2

Sheet:
C.102

EXHIBIT B



CONTOUR LEGEND:

- EXISTING 1' CONTOUR — 7929
- EXISTING 5' CONTOUR — 7930

EXISTING UTILITIES LINE KEY:

- WATER — XW
- SEWER — XS
- OVERHEAD ELEC, TELE, CATV — OH
- GAS — XGAS

EXISTING UTILITIES SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
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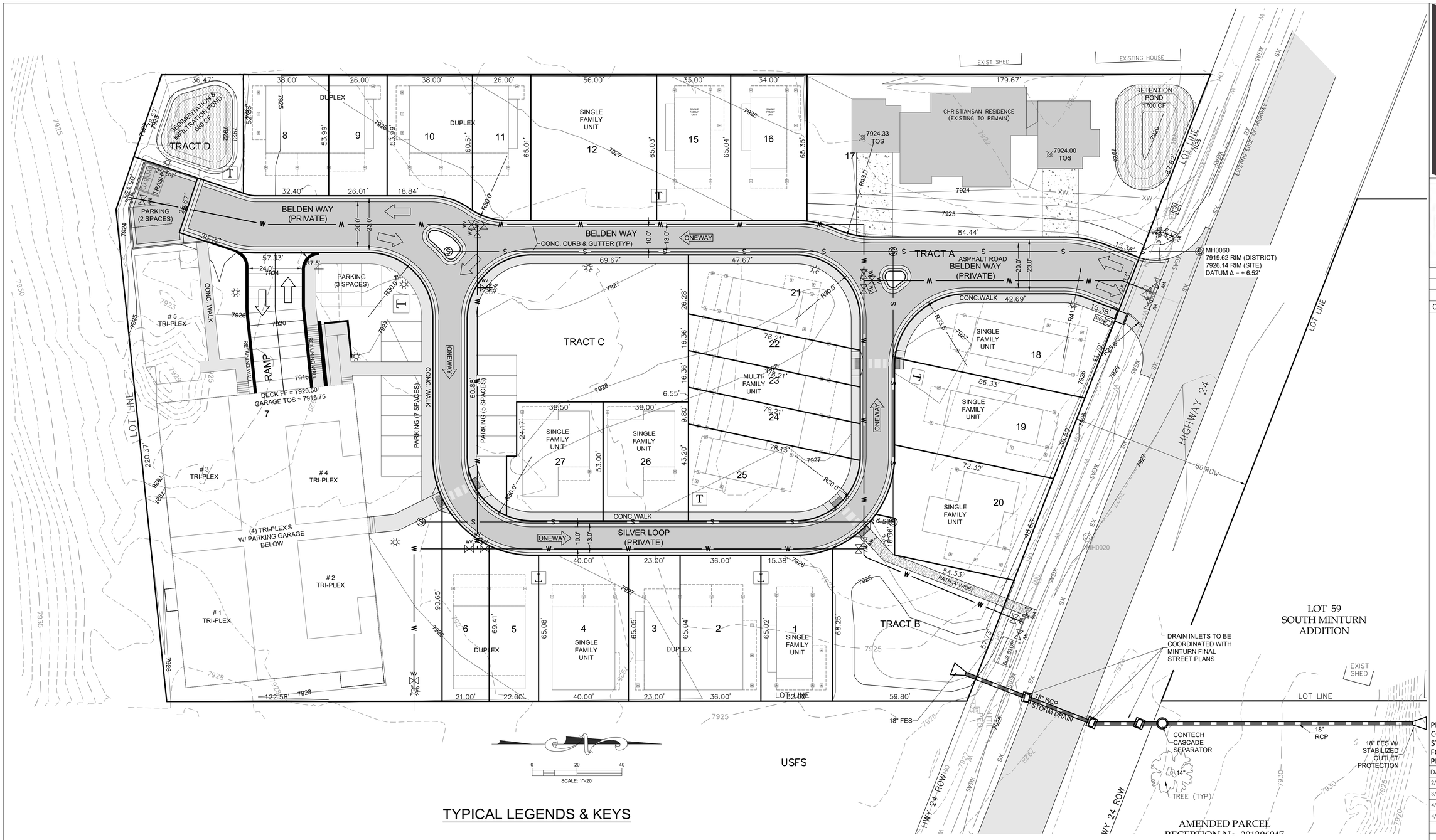
Title: EXISTING SITE & DEMOLITION PLAN

Sheet: C.110

EXHIBIT B



TYPICAL LEGENDS & KEYS

AD	= AREA DRAIN
CFS	= CUBIC FEET PER SECOND
CONC	= CONCRETE
EC	= EDGE OF CONCRETE
EOA	= EDGE OF ASPHALT
EP	= EDGE OF PAVEMENT
EX	= EXISTING
FF	= FINISHED FLOOR
FG	= FINISHED GRADE
FL	= FLOW LINE
GD	= GRADE/GROUND
HP	= HIGH POINT
LP	= LOW POINT
TBC	= TOP BACK OF CURB
TD	= TRENCH DRAIN
TOS	= TOP OF SLAB
TOW	= TOP OF WALL
TYP	= TYPICAL
WH	= WALL HEIGHT
TOW	= TOP BACK OF WALK
EL	= ELEVATION

CONTOUR LEGEND:

- EXISTING 1' CONTOUR — 7929
- EXISTING 5' CONTOUR — 7930
- PROPOSED 1' CONTOUR — 7929
- PROPOSED 5' CONTOUR — 7930

EXISTING UTILITIES LINE KEY:

- WATER — XW
- SEWER — XS
- OVERHEAD ELEC, TELE, CATV — OH
- GAS — XGAS

EXISTING UTILITIES SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL

PROPOSED UTILITY SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL
- ELECTRIC SPLICE VAULT
- STREET LIGHT

INDICATES DIRECTION OF TRAFFIC FLOW

LINE KEY:

- WATER — W
- SEWER — S

PARKING NOTES:

PARKING SPACES 9' X 18' MIN.

EARTHWORK:
5175 CYD CUT
8130 CYD FILL
2955 CYD NET <FILL>
(DOES NOT INCLUDE ONSITE HAUL-IN ±1000 CYD)

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

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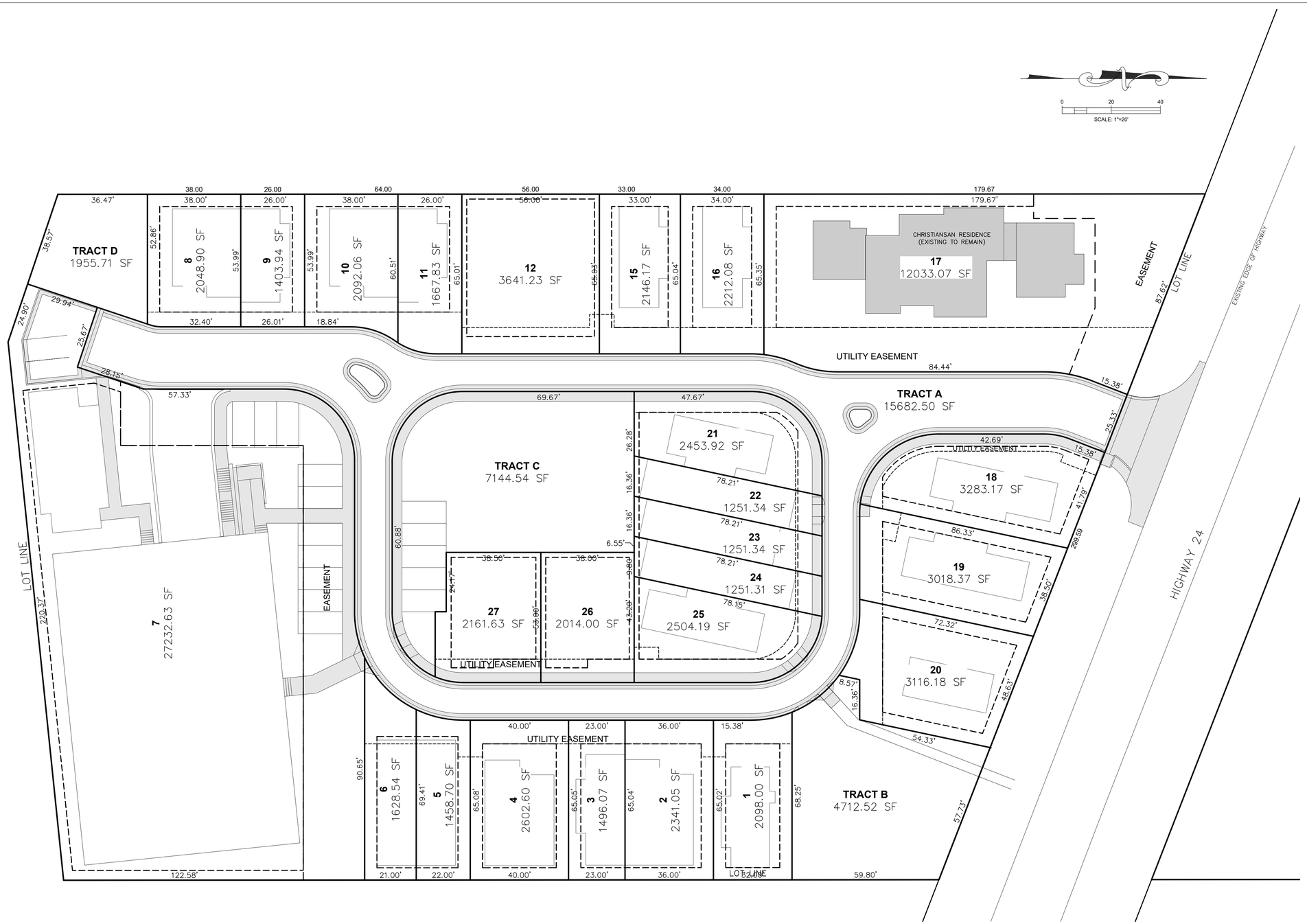
4/19/24	Final Plan

Title: PROPOSED SITE PLAN

Sheet: C.111

EXHIBIT B



NOTE:
SEE PLAT FOR ALL FINAL LOT LINES & EASEMENTS.

TRACT USES

USE	TRACT A	TRACT B	TRACT C	LOT 7 EASEMENT	TRACT D	LOT 17 EASEMENT
DRAINAGE	X	X	X	X	X	X
VEHICLE ACCESS	X					
OPEN SPACE		X	X	X	X	X
PARKING			X	X		
UTILITIES	X	X	X	X	X	X
SNOW STORAGE		X	X	X	X	X
PEDESTRIAN	X	X	X	X	X	X

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

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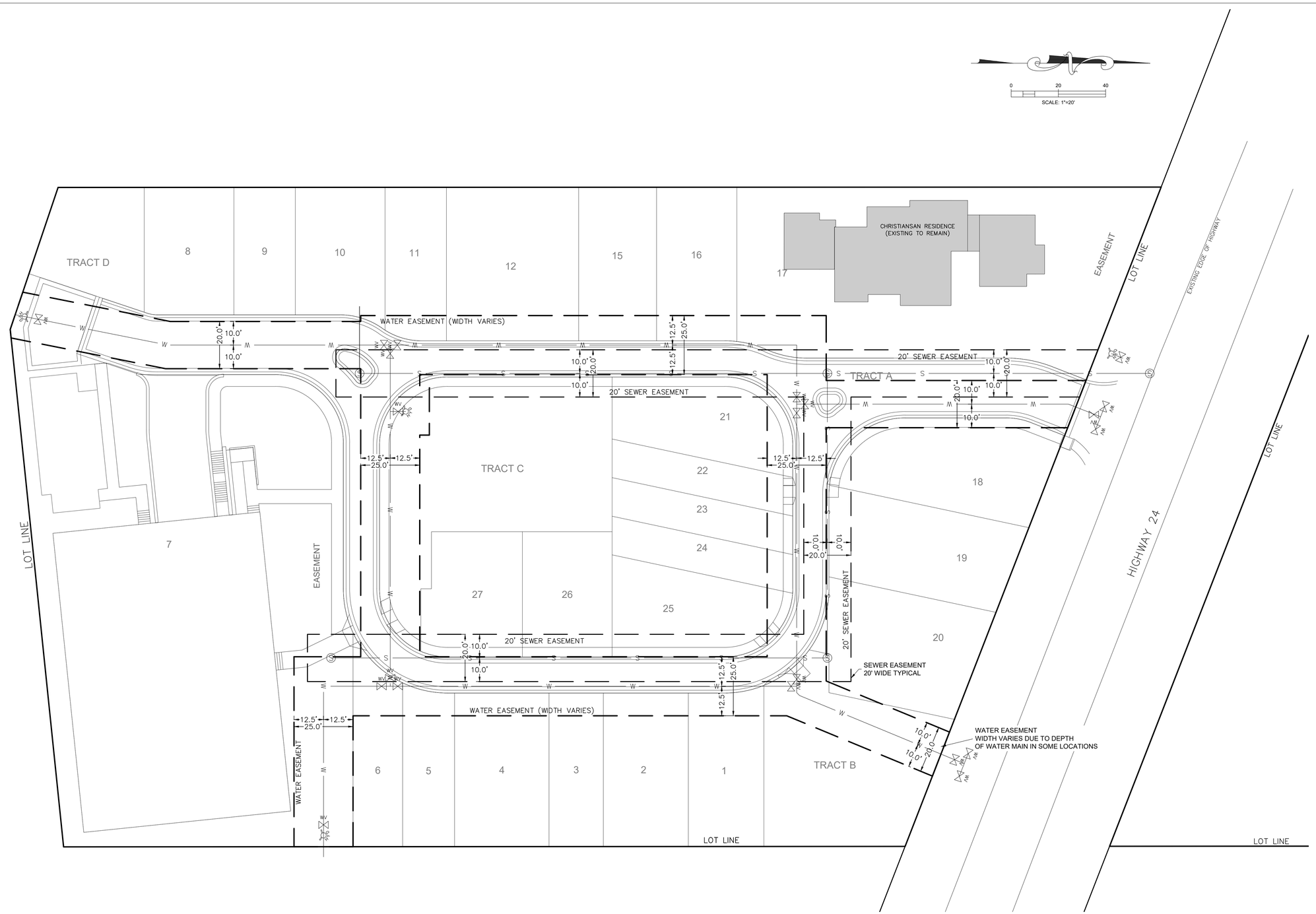
4/19/24	Final Plan

Title:
PARCEL MAP

Sheet:
C.120

EXHIBIT B



NOTE:
FINAL SS & WATER EASEMENTS TO BE CREATED & PLACED BASED ON AS-BUILT CONDITIONS & DATA.

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN JACKSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

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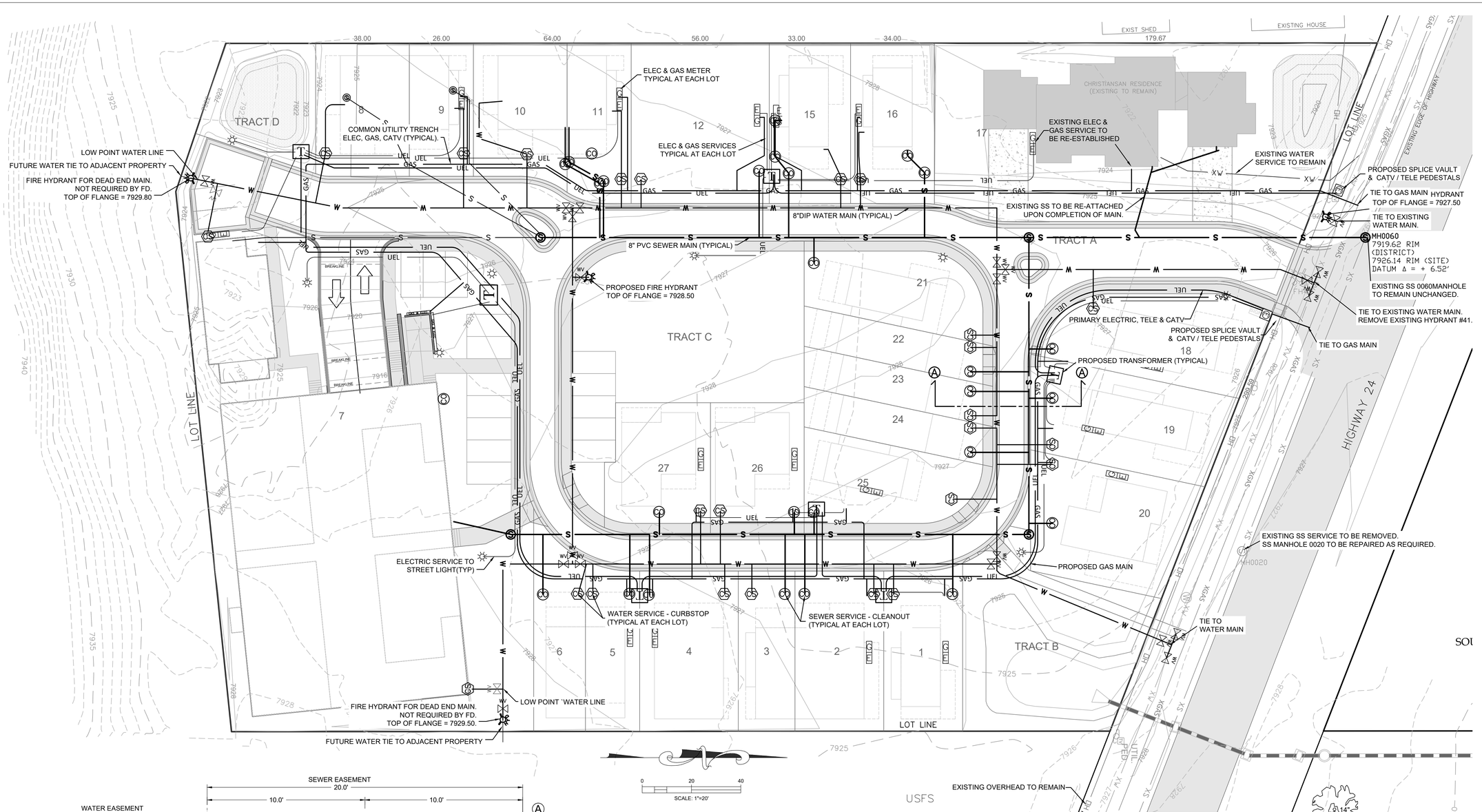
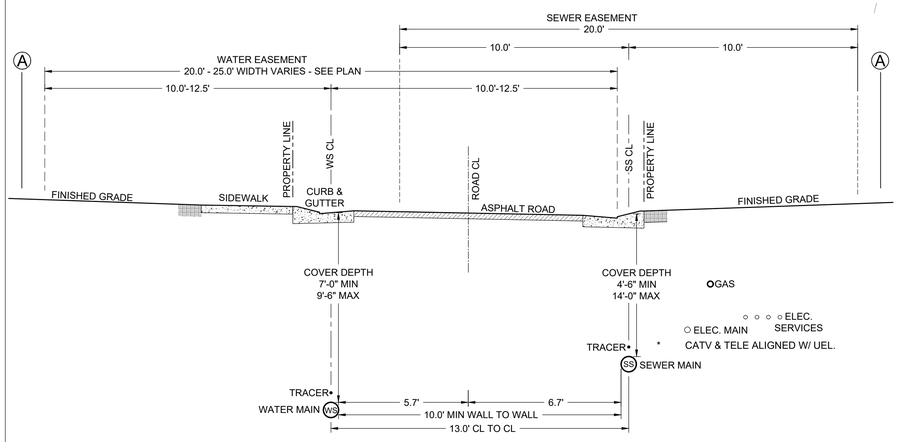
Title:
WATER & SEWER EASEMENTS

Sheet:
C.121

EXHIBIT B





TYPICAL STREET CROSS SECTION A-A

EXISTING UTILITIES SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL

EXISTING UTILITIES LINE KEY:

WATER	XW
SEWER	XS
OVERHEAD ELEC, TELE, CATV	OH
GAS	XGAS
TELEPHONE	XT
CATV	XTV

LINE KEY:

WATER	W
SEWER	S
ELECTRIC	UEL
GAS	GAS
TELEPHONE	TEL
CATV	CTV
PROPERTY LINE	PL

PROPOSED UTILITY SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL
- ELECTRIC SPLICE VAULT
- STREET LIGHT

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
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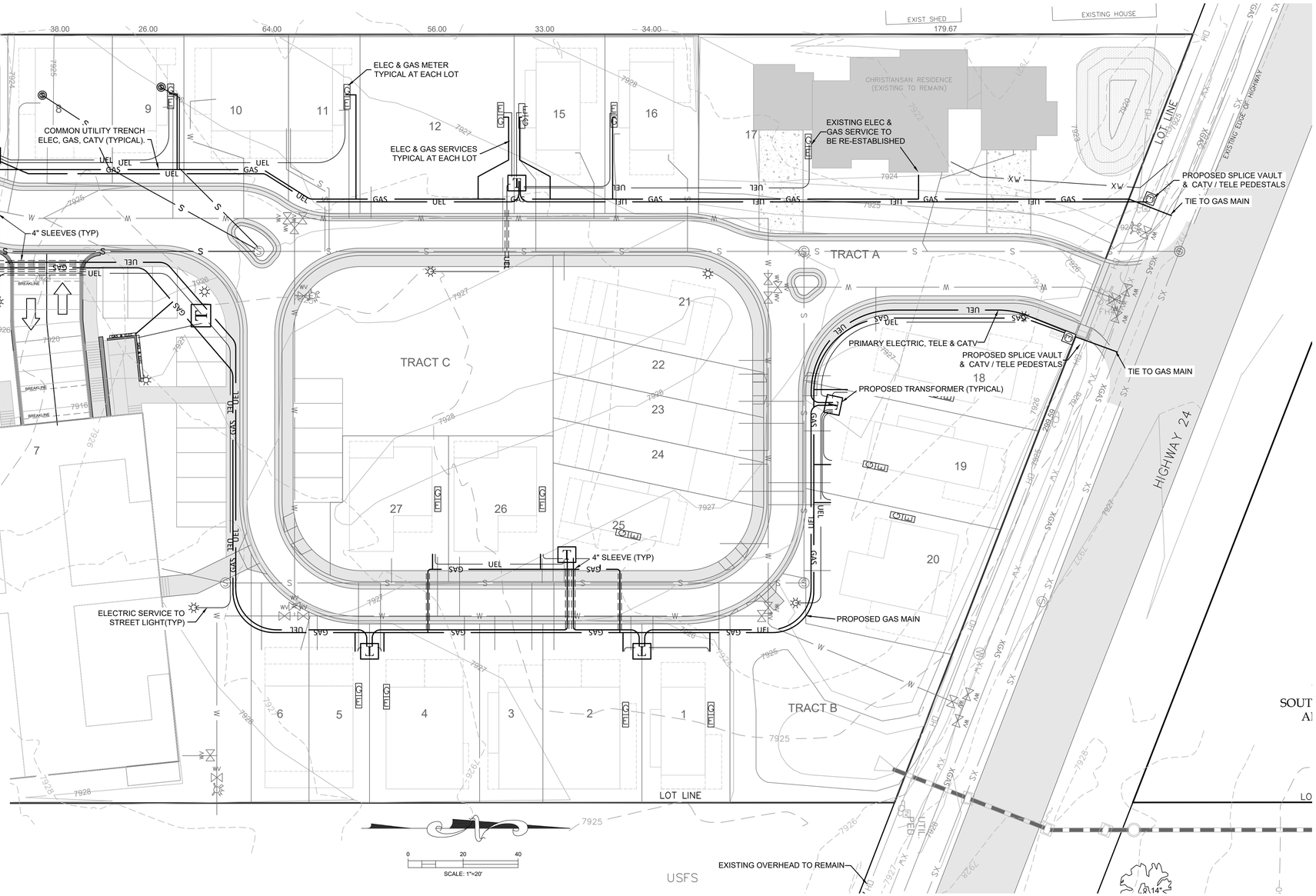
Title:

OVERALL UTILITY PLAN

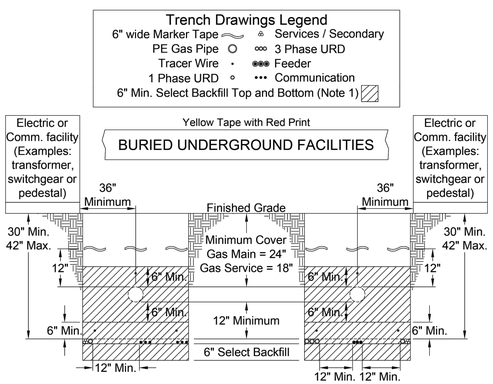
Sheet:

C.200

EXHIBIT B



JOINT TRENCH CROSS-SECTION PRIMARY AND SECONDARY CABLES WITH GAS AND/OR COMMUNICATION



Notes:
1. Where large rock or gravel is encountered, select backfill is required in the bottom of the trench. Select backfill must be a minimum of 6" deep from the top and bottom of the cable and gas pipe.
2. All trench backfill is to be compacted. All local codes must be followed.
3. For ease of construction and future maintenance, primary cable should be 12-24" from communication cables.
4. Electric cables must be separated from communication cables by a minimum of 12" horizontal (Reference NESC 354.D.3.a).
5. 30" minimum trench width should be used when all four types of utilities (Electric, Gas, TV, Phone) are included.
6. Steel gas pipe or steel duct is not allowed for joint trench construction.
7. Steel gas lines and buried electric lines installed in separate, parallel trenches should be separated by 24".
8. When parallel circuits are installed in any trench wider than 18", a separate buried marker tape shall be installed.
9. 600 A electric distribution (feeder) cable shall not be installed in the same trench with gas.

NOTES:
1. FINAL ELECTRIC & GAS PLAN TO BE APPROVED BY XCEL ENERGY.
2. TELEPHONE & CABLE TV TO BE INSTALLED IN COMMON TRENCH W/ ELECTRIC.

EXISTING UTILITIES SYMBOL KEY:
- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL

EXISTING UTILITIES LINE KEY:
- WATER — XW
- SEWER — XS
- OVERHEAD ELEC, TELE, CATV — OH
- GAS — XGAS
- TELEPHONE — XT
- CATV — XTV

LINE KEY:
- WATER — W
- SEWER — S
- ELECTRIC — UEL
- GAS — GAS
- TELEPHONE — TEL
- CATV — CTV
- PROPERTY LINE — PL

PROPOSED UTILITY SYMBOL KEY:
- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL
- ELECTRIC SPLICE VAULT
- STREET LIGHT

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

DAVID JOHN MACKEN 39276 COLORADO REGISTERED PROFESSIONAL ENGINEER

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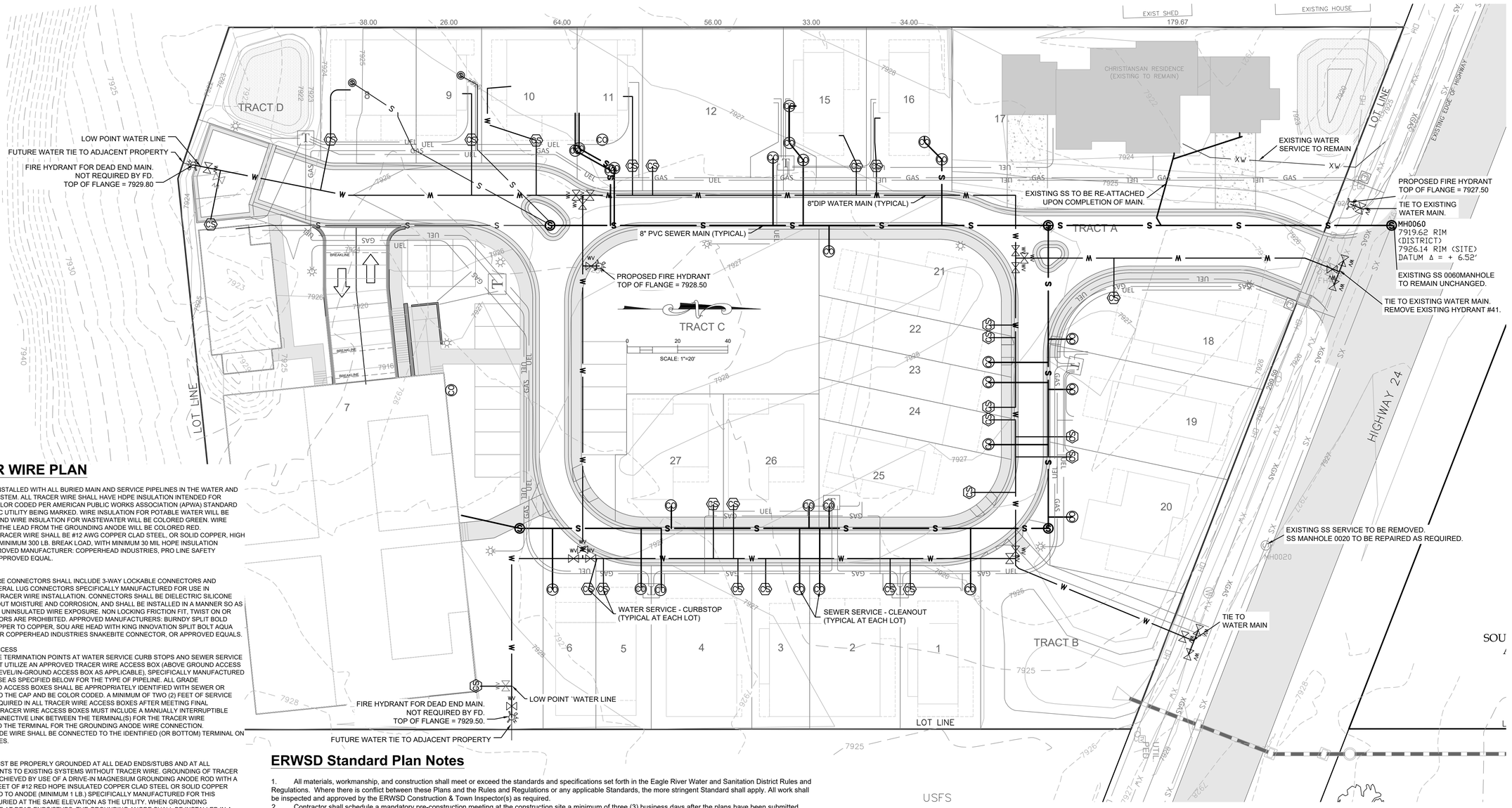
Title:

SHALLOW UTILITY PLAN

Sheet:

C.201

EXHIBIT B



TRACER WIRE PLAN

GENERAL
WIRE SHALL BE INSTALLED WITH ALL BURIED MAIN AND SERVICE PIPELINES IN THE WATER AND WASTEWATER SYSTEM. ALL TRACER WIRE SHALL HAVE HDPE INSULATION INTENDED FOR DIRECT BURY, COLOR CODED PER AMERICAN PUBLIC WORKS ASSOCIATION (APWA) STANDARD FOR THE SPECIFIC UTILITY BEING MARKED. WIRE INSULATION FOR POTABLE WATER WILL BE COLORED BLUE AND WIRE INSULATION FOR WASTEWATER WILL BE COLORED GREEN. WIRE INSULATION FOR THE LEAD FROM THE GROUNDING ANODE WILL BE COLORED RED.
OPEN TRENCH - TRACER WIRE SHALL BE #12 AWG COPPER CLAD STEEL, OR SOLID COPPER, HIGH STRENGTH WITH MINIMUM 300 LB. BREAK LOAD, WITH MINIMUM 30 MIL HOPE INSULATION THICKNESS. APPROVED MANUFACTURER: COPPERHEAD INDUSTRIES, PRO LINE SAFETY PRODUCTS, OR APPROVED EQUAL.

CONNECTORS
DIRECT BURY WIRE CONNECTORS SHALL INCLUDE 3-WAY LOCKABLE CONNECTORS AND MAINLINE TO LATERAL LUG CONNECTORS SPECIFICALLY MANUFACTURED FOR USE IN UNDERGROUND TRACER WIRE INSTALLATION. CONNECTORS SHALL BE DIELECTRIC SILICONE FILLED TO SEAL OUT MOISTURE AND CORROSION, AND SHALL BE INSTALLED IN A MANNER SO AS TO PREVENT ANY UNINSULATED WIRE EXPOSURE. NON LOCKING FRICTION FIT, TWIST ON OR TAPED CONNECTORS ARE PROHIBITED. APPROVED MANUFACTURERS: BURNDY SPLIT BOLD CONNECTOR, COPPER TO COPPER, SOU ARE HEAD WITH KING INNOVATION SPLIT BOLT AQUA HOUSING 69105 OR COPPERHEAD INDUSTRIES SNAKEBITE CONNECTOR, OR APPROVED EQUALS.

TERMINATION/ ACCESS
ALL TRACER WIRE TERMINATION POINTS AT WATER SERVICE CURB STOPS AND SEWER SERVICE CLEANOUTS MUST UTILIZE AN APPROVED TRACER WIRE ACCESS BOX (ABOVE GROUND ACCESS BOX OR GRADE LEVEL/IN-GROUND ACCESS BOX AS APPLICABLE), SPECIFICALLY MANUFACTURED FOR THIS PURPOSE AS SPECIFIED BELOW FOR THE TYPE OF PIPELINE. ALL GRADE LEVEL/IN-GROUND ACCESS BOXES SHALL BE APPROPRIATELY IDENTIFIED WITH SEWER OR WATER CAST INTO THE CAP AND BE COLOR CODED. A MINIMUM OF TWO (2) FEET OF SERVICE LOOP WIRE IS REQUIRED IN ALL TRACER WIRE ACCESS BOXES AFTER MEETING FINAL ELEVATION. ALL TRACER WIRE ACCESS BOXES MUST INCLUDE A MANUALLY INTERRUPTIBLE CONDUCTIVE/CONNECTIVE LINK BETWEEN THE TERMINAL(S) FOR THE TRACER WIRE CONNECTION AND THE TERMINAL FOR THE GROUNDING ANODE WIRE CONNECTION. GROUNDING ANODE WIRE SHALL BE CONNECTED TO THE IDENTIFIED (OR BOTTOM) TERMINAL ON ALL ACCESS BOXES.

GROUNDING
TRACER WIRE MUST BE PROPERLY GROUNDED AT ALL DEAD ENDS/STUBS AND AT ALL CONNECTION POINTS TO EXISTING SYSTEMS WITHOUT TRACER WIRE. GROUNDING OF TRACER WIRE SHALL BE ACHIEVED BY USE OF A DRIVE-IN MAGNESIUM GROUNDING ANODE ROD WITH A MINIMUM OF 20 FEET OF #12 RED HOPE INSULATED COPPER CLAD STEEL OR SOLID COPPER WIRE CONNECTED TO ANODE (MINIMUM 1 LB.) SPECIFICALLY MANUFACTURED FOR THIS PURPOSE, AND BURIED AT THE SAME ELEVATION AS THE UTILITY. WHEN GROUNDING THE TRACER WIRE AT DEAD ENDS/STUBS, THE GROUNDING ANODE SHALL BE INSTALLED IN A DIRECTION 180 DEGREES OPPOSITE OF THE TRACER WIRE, AT THE MAXIMUM POSSIBLE DISTANCE. WHERE THE ANODE WIRE WILL BE CONNECTED TO A TRACER WIRE ACCESS BOX, A MINIMUM OF TWO FEET OF SERVICE LOOP IS REQUIRED AFTER MEETING FINAL ELEVATION
GENERAL TRACER WIRE INSTALLATION SHALL BE PERFORMED IN SUCH A MANNER THAT ALLOWS PROPER ACCESS FOR CONNECTION OF LINE TRACING EQUIPMENT, PROPER LOCATING OF WIRE WITHOUT LOSS OR DETERIORATION OF LOW FREQUENCY (512HZ) SIGNAL FOR DISTANCES IN EXCESS OF 1,000 LINEAR FEET, AND WITHOUT DISTORTION OF SIGNAL CAUSED BY MULTIPLE WIRES BEING INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER. TRACER WIRE SYSTEMS MUST BE INSTALLED AS A SINGLE CONTINUOUS WIRE, EXCEPT WHERE USING APPROVED CONNECTORS. NO LOOPING OR COILING OF WIRE IS ALLOWED. ANY DAMAGE OCCURRING DURING INSTALLATION OF THE TRACER WIRE MUST BE IMMEDIATELY REPAIRED BY REMOVING THE DAMAGED WIRE, AND INSTALLING A NEW SECTION OF WIRE WITH APPROVED CONNECTORS. TAPING AND/OR SPRAY COATING ARE PROHIBITED. TRACER WIRE SHALL BE INSTALLED AT THE TOP HALF OF THE PIPE ANO SECURED (TAPED/TIED) AT FIVE FEET INTERVALS. TRACER WIRE MUST BE PROPERLY GROUNDED AS SPECIFIED.

AT ALL WATER AND WASTEWATER MAINLINE DEAD-ENDS, AND AT WATER SERVICE LINE CURB STOPS AND WASTEWATER SERVICE LINE CLEANOUTS CLOSEST TO THE PROPERTY BEING SERVED, TRACER WIRE SHALL GO TO GROUND USING AN APPROVED CONNECTION TO A DRIVE-IN MAGNESIUM GROUNDING ANODE ROD, BURIED AT THE SAME DEPTH AS THE SERVICE. (SEE GROUNDING) IF NO MAINLINE TRACER WIRE EXISTS AT A CONNECTION POINT, A MAINLINE TRACE WIRE SHALL NOT BE CONNECTED TO EXISTING CONDUCTIVE PIPES. TREAT AS A MAINLINE DEAD END, GROUND USING AN APPROVED WATERPROOF CONNECTION TO A GROUNDING ANODE BURIED AT THE SAME DEPTH AS THE MAIN. ALL SERVICE LATERAL TRACER WIRE SHALL BE A SINGLE WIRE, CONNECTED TO THE MAINLINE TRACER WIRE USING A MAINLINE TO LATERAL LUG CONNECTOR, INSTALLED WITHOUT CUTTING/SPLICING THE MAINLINE TRACER WIRE. IN OCCURRENCES WHERE AN EXISTING TRACER WIRE IS ENCOUNTERED ON AN EXISTING UTILITY THAT IS BEING EXTENDED OR TIED INTO, THE NEW TRACER WIRE AND EXISTING TRACER WIRE SHALL BE CONNECTED USING APPROVED SPLICE CONNECTORS.

SANITARY SEWER SYSTEM
A MAINLINE TRACER WIRE MUST BE INSTALLED, WITH ALL SERVICE LATERAL TRACER WIRE PROPERLY CONNECTED TO THE MAINLINE TRACER WIRE, TO ENSURE FULL TRACING/LOCATING CAPABILITIES FROM A SINGLE CONNECTION POINT. TRACER WIRE ON ALL SEWER SERVICE LATERALS MUST TERMINATE AT AN APPROVED TRACER WIRE ACCESS BOX COLOR CODED GREEN AND LOCATED DIRECTLY ADJACENT TO THE SEWER SERVICE CLEANOUT CLOSEST TO THE STRUCTURE BEING SERVED. A GROUNDING ANODE SHALL BE INSTALLED BENEATH THE CLEANOUT AT THE DEPTH OF THE SERVICE. ACCESS BOX APPROVED MANUFACTURER: COPPERHEAD INDUSTRIES SNAKE-PIT OR APPROVED EQUAL.

ERWSD Standard Plan Notes

1. All materials, workmanship, and construction shall meet or exceed the standards and specifications set forth in the Eagle River Water and Sanitation District Rules and Regulations. Where there is conflict between these Plans and the Rules and Regulations or any applicable Standards, the more stringent Standard shall apply. All work shall be inspected and approved by the ERWSD Construction & Town Inspector(s) as required.
2. Contractor shall schedule a mandatory pre-construction meeting at the construction site a minimum of three (3) business days after the plans have been submitted. Participants shall include, but are not limited to: the Applicant; Applicant's contractor, excavator and engineer; and the District representative. Construction may begin once the meeting has concluded and the District Inspector has signed off.
3. 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.
4. Provide a complete Bill of Materials for all proposed water and wastewater infrastructure.
5. The Contractor shall be responsible for all aspects of safety including, but not limited to, excavation, trenching, shoring, traffic control, and security.
6. 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 ERWSD Construction & Town Inspector(s) immediately.
7. Submit traffic control plans as approved by the appropriate governing agency.
8. 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.
9. 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 ERWSD Construction & Town Inspector(s) at all times. All as-built information shall be field surveyed under the direct care and supervision of a licensed Professional Land Surveyor.
10. The contractor shall obtain locates prior to any excavation.
11. The contractor is responsible for any damage to any utility facilities as a result of their actions. The contractor shall make the required repairs immediately to the satisfaction of the affected utility.
12. Eagle River Water and Sanitation District does not guarantee the accuracy of the locations of existing pipelines, manholes, hydrants, valves and service lines. If field conditions are found to be different than shown on the plans, the contractor shall notify the inspector(s) and design engineer immediately.
13. All trenching and backfill shall be in accordance with Appendix E of the ERWSD Rules and Regulations.

ERWSD Water Plan Notes

1. All water line construction is subject to the most recently adopted ERWSD Rules and Regulations.
2. All water mains shall be a minimum of 8" in diameter.
3. All water mains shall be installed with a minimum of 7ft cover to top of pipe and a maximum of 9.5ft cover to top of pipe.
4. Pipe deflections shall not exceed pipe manufacturers maximum allowable deflection or exceed the values in Appendix C- 2.6.9 Table C-1
5. All DIP water mains must be encased in PE Wrap per Article C-3.2.9
6. Tracer wire meeting ERWSD requirements per Appendix E-1.12
7. Water specific marking tape shall be installed 24" above water main.
8. All water mains shall be bedded per Appendix E, Detail E-01
9. All water lines that run parallel to sanitary or storm sewer shall be installed a minimum of 10ft horizontally away from water or secondary containment must be used.
10. All water mains must be tested in accordance with ERWSD Rules and Regulations Article 9.3.3.
11. All water service lines shall be constructed along the shortest and straightest route possible.
12. Water service lines taps must be a minimum of 18" apart.
13. Water service curb stop must be placed at property line, edge of ROW or edge of easement.

EXISTING UTILITIES LINE KEY:

WATER	XW
SEWER	XS
OVERHEAD ELEC, TELE, CATV	OH
GAS	XGAS
TELEPHONE	XT
CATV	XTV

LINE KEY:

WATER	W
SEWER	S
ELECTRIC	UEL
GAS	GAS
TELEPHONE	TEL
CATV	CTV
PROPERTY LINE	PL

EXISTING UTILITIES SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL

PROPOSED UTILITY SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL
- ELECTRIC SPLICE VAULT
- STREET LIGHT

WATER TAPS ARE TO BE CONSTRUCTED AS "WET TAPS" & COORDINATED W/ PUBLIC WORKS.

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

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DATE	REVISION
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

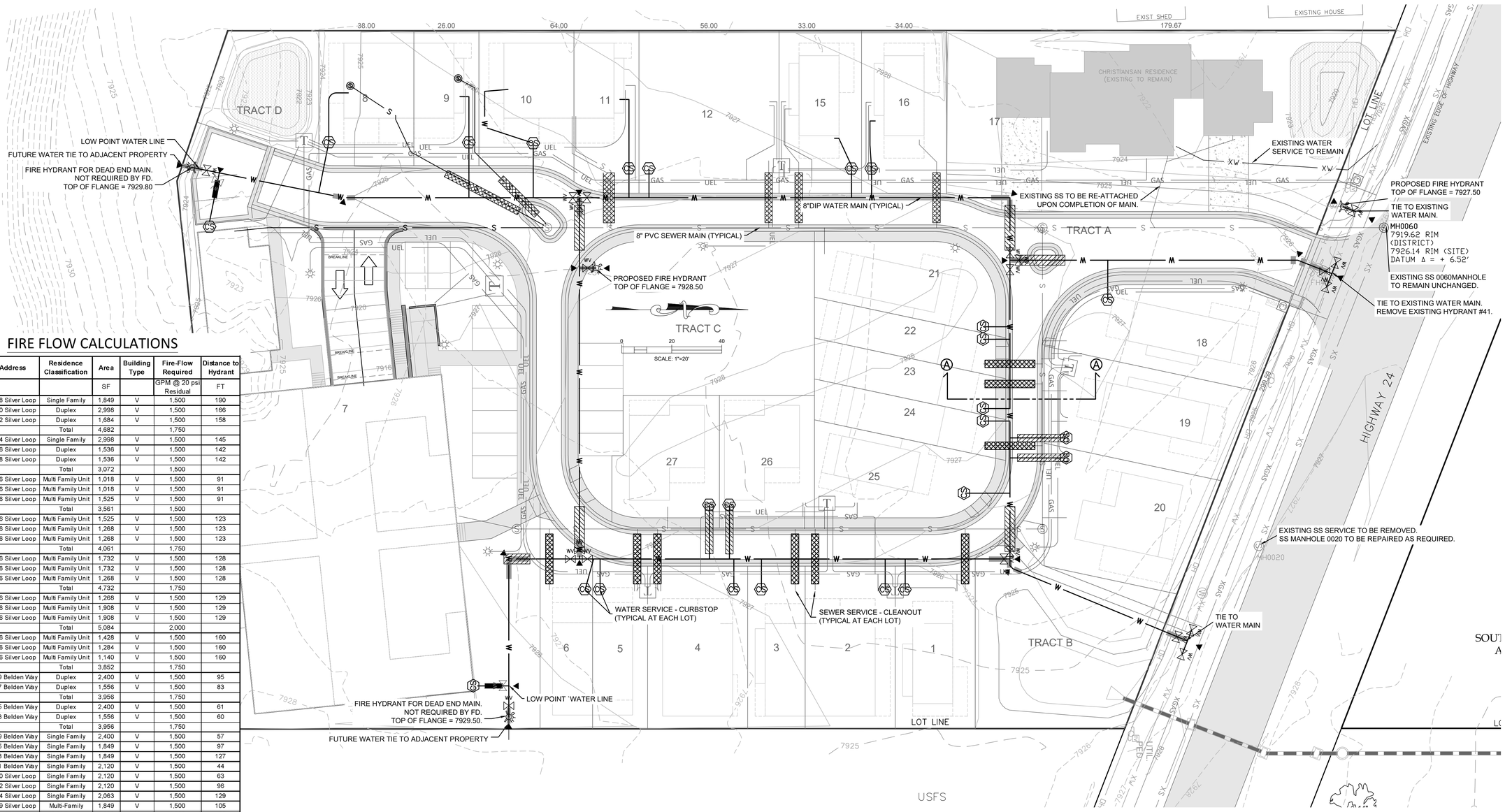
Title:

DEEP UTILITY PLAN

Sheet:

C.202

EXHIBIT B



FIRE FLOW CALCULATIONS

Unit Number	Address	Residence Classification	Area	Building Type	Fire-Flow Required	Distance to Hydrant
			SF		GPM @ 20 psi Residual	FT
Lot 1	0018 Silver Loop	Single Family	1,849	V	1,500	190
Lot 2	0020 Silver Loop	Duplex	2,998	V	1,500	166
Lot 3	0022 Silver Loop	Duplex	1,684	V	1,500	158
		Total	4,682		1,750	
Lot 4	0024 Silver Loop	Single Family	2,998	V	1,500	145
Lot 5	0026 Silver Loop	Duplex	1,538	V	1,500	142
Lot 6	0028 Silver Loop	Duplex	1,536	V	1,500	142
		Total	3,072		1,500	
Lot 7 - Unit 1	0036 Silver Loop	Multi Family Unit	1,018	V	1,500	91
Lot 7 - Unit 2	0036 Silver Loop	Multi Family Unit	1,018	V	1,500	91
Lot 7 - Unit 3	0036 Silver Loop	Multi Family Unit	1,525	V	1,500	91
		Total	3,561		1,500	
Lot 7 - Unit 4	0036 Silver Loop	Multi Family Unit	1,525	V	1,500	123
Lot 7 - Unit 5	0036 Silver Loop	Multi Family Unit	1,268	V	1,500	123
Lot 7 - Unit 6	0036 Silver Loop	Multi Family Unit	1,268	V	1,500	123
		Total	4,061		1,750	
Lot 7 - Unit 7	0036 Silver Loop	Multi Family Unit	1,732	V	1,500	128
Lot 7 - Unit 8	0036 Silver Loop	Multi Family Unit	1,732	V	1,500	128
Lot 7 - Unit 9	0036 Silver Loop	Multi Family Unit	1,268	V	1,500	128
		Total	4,732		1,750	
Lot 7 - Unit 10	0036 Silver Loop	Multi Family Unit	1,268	V	1,500	129
Lot 7 - Unit 11	0036 Silver Loop	Multi Family Unit	1,908	V	1,500	129
Lot 7 - Unit 12	0036 Silver Loop	Multi Family Unit	1,908	V	1,500	129
		Total	5,084		2,000	
Lot 7 - Unit 13	0036 Silver Loop	Multi Family Unit	1,428	V	1,500	160
Lot 7 - Unit 14	0036 Silver Loop	Multi Family Unit	1,284	V	1,500	160
Lot 7 - Unit 15	0036 Silver Loop	Multi Family Unit	1,140	V	1,500	160
		Total	3,852		1,750	
Lot 8	0029 Belden Way	Duplex	2,400	V	1,500	95
Lot 9	0027 Belden Way	Duplex	1,556	V	1,500	83
		Total	3,956		1,750	
Lot 10	0025 Belden Way	Duplex	2,400	V	1,500	61
Lot 11	0023 Belden Way	Duplex	1,556	V	1,500	60
		Total	3,956		1,750	
Lot 12	0019 Belden Way	Single Family	2,400	V	1,500	57
Lot 15	0015 Belden Way	Single Family	1,849	V	1,500	97
Lot 16	0013 Belden Way	Single Family	1,849	V	1,500	127
Lot 17 W ADU	0011 Belden Way	Single Family	2,120	V	1,500	44
Lot 18	0010 Silver Loop	Single Family	2,120	V	1,500	63
Lot 19	0012 Silver Loop	Single Family	2,120	V	1,500	96
Lot 20	0014 Silver Loop	Single Family	2,063	V	1,500	129
Lot 21	0009 Silver Loop	Multi-Family	1,849	V	1,500	105
Lot 22	0011 Silver Loop	Multi-Family	1,888	V	1,500	105
Lot 23	0013 Silver Loop	Multi-Family	1,888	V	1,500	109
Lot 24	0015 Silver Loop	Multi-Family	1,888	V	1,500	115
Lot 25	0017 Silver Loop	Multi-Family	1,849	V	1,500	120
		Total	9,362		3,500	
Lot 26	0023 Silver Loop	Single Family	1,410	V	1,500	79
Lot 27	0025 Silver Loop	Single Family	1,410	V	1,500	61
Hydrant Test Results:		Location - 1251 E. Main St.				
Static Pressure		70 psi			Measured Flow Rate	843 gpm
Residual		60 psi			Calculated Flow Rate @ 20 psi	2011 gpm
Tested by: John Volk, WQPC, LLC. 970 389-4491						
					John Volk, WQCP, LLC. 970-389-4491	

THRUST RESTRAINT CALCULATIONS

Fitting Type	Nominal Size (inch)	Branch Size (inch)	Restraint Length (Ft)	Notes
11 1/4° Horizontal Bend	8	-	1	
22 1/2° Horizontal Bend	8	-	2	
45° Horizontal Bend	8	-	3	
90° Horizontal Bend	8	-	7	
T	8	8	14	on branch
T	8	6	11	on branch
Reducer	8	6	6	on 8"
Fire Hydrant	RESTRAIN ALL JOINTS ON HYDRANT TEE, HYDRANT VALVE, AND HYDRANT LEAD. THRUST BLOCKS REQUIRED AT ALL LOCATIONS			

LINE KEY:

WATER	W
SEWER	S
ELECTRIC	UEL
GAS	GAS
TELEPHONE	TEL
CATV	CTV

EXISTING UTILITIES LINE KEY:

WATER	XW
SEWER	XS
OVERHEAD ELEC, TELE, CATV	OH
GAS	XGAS
TELEPHONE	XT
CATV	XTV

EXISTING UTILITIES SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL

PROPOSED UTILITY SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL
- WATER KICKBLOCK
- WATER JOINT RESTRAINT
- SEWER ENCASEMENT
- WATERLINE ENCASEMENT
- STREET LIGHT

ERWSD Water Plan Notes

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WATER TAPS ARE TO BE CONSTRUCTED AS "WET TAPS" & COORDINATED W/ PUBLIC WORKS.

APPROVED BY:

ALISON PERRY - OWNER'S REPRESENTATIVE DATE
Vail Land Company
PO Box 4691
Eagle County, CO 81631
perry@vailland.com

MICK WOODWORTH - FIRE MARSHALL DATE
Eagle River Fire Protection District
1050 Edwards Village Blvd
Edwards, CO 81632
mwoodworth@eagleriverfire.org

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

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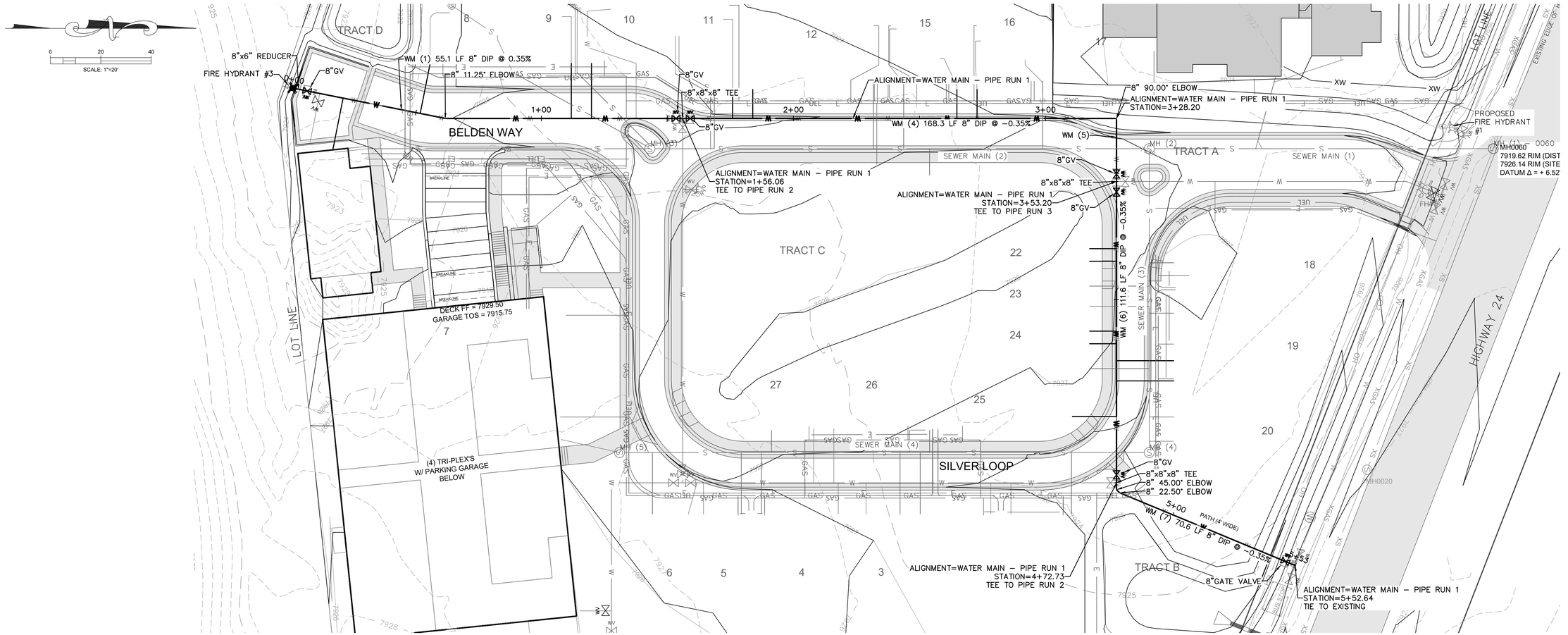
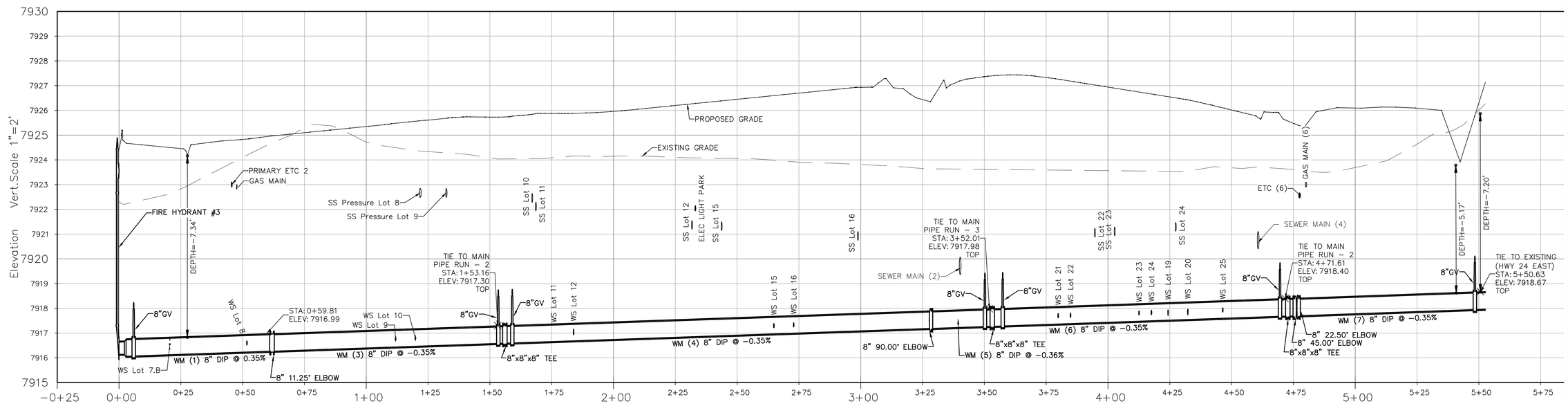
Title:
WATER OVERVIEW W/ CALCULATIONS

Sheet:
C.210

EXHIBIT B



Water Main - Pipe Run 1 Profile



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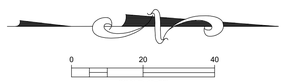
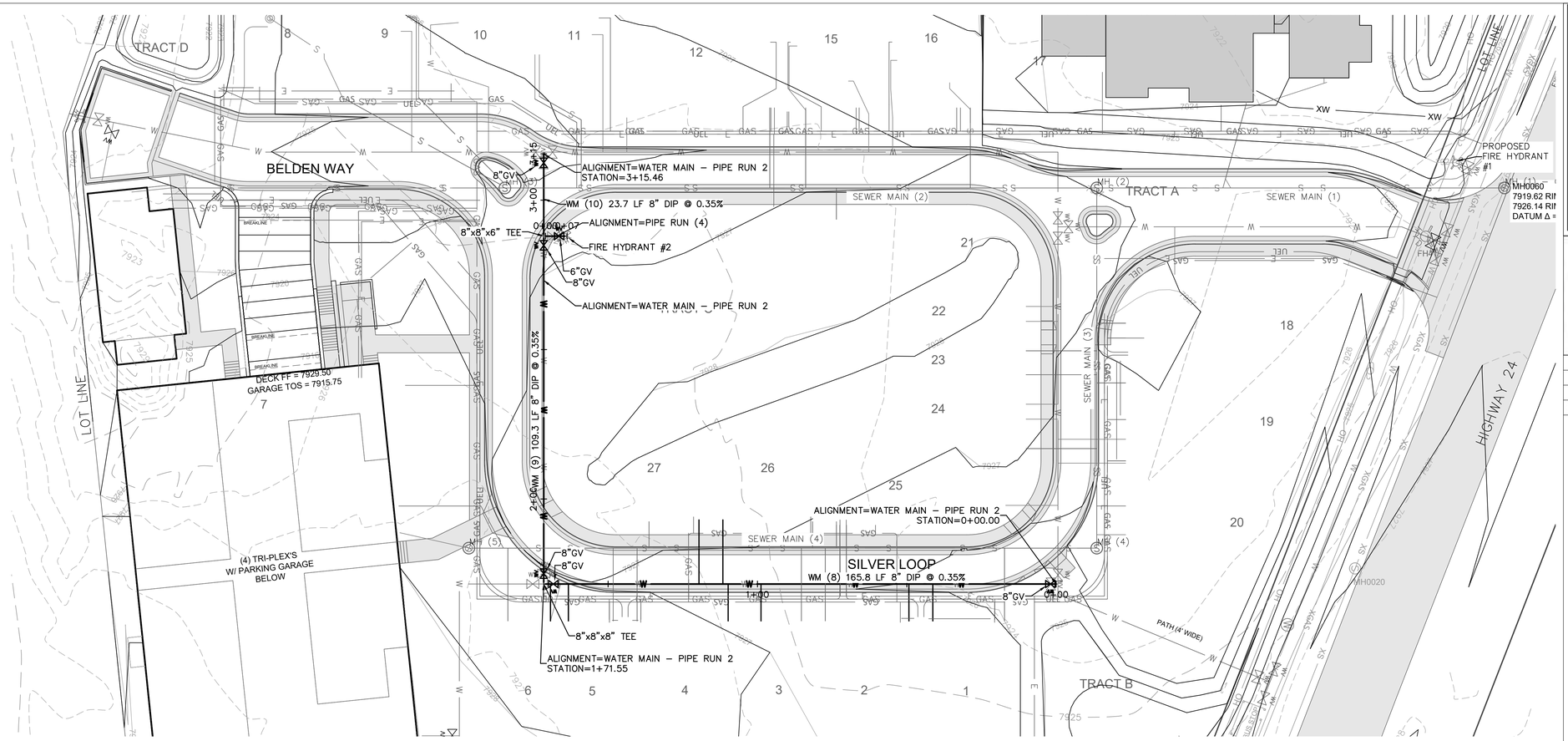
4/19/24	Final Plan

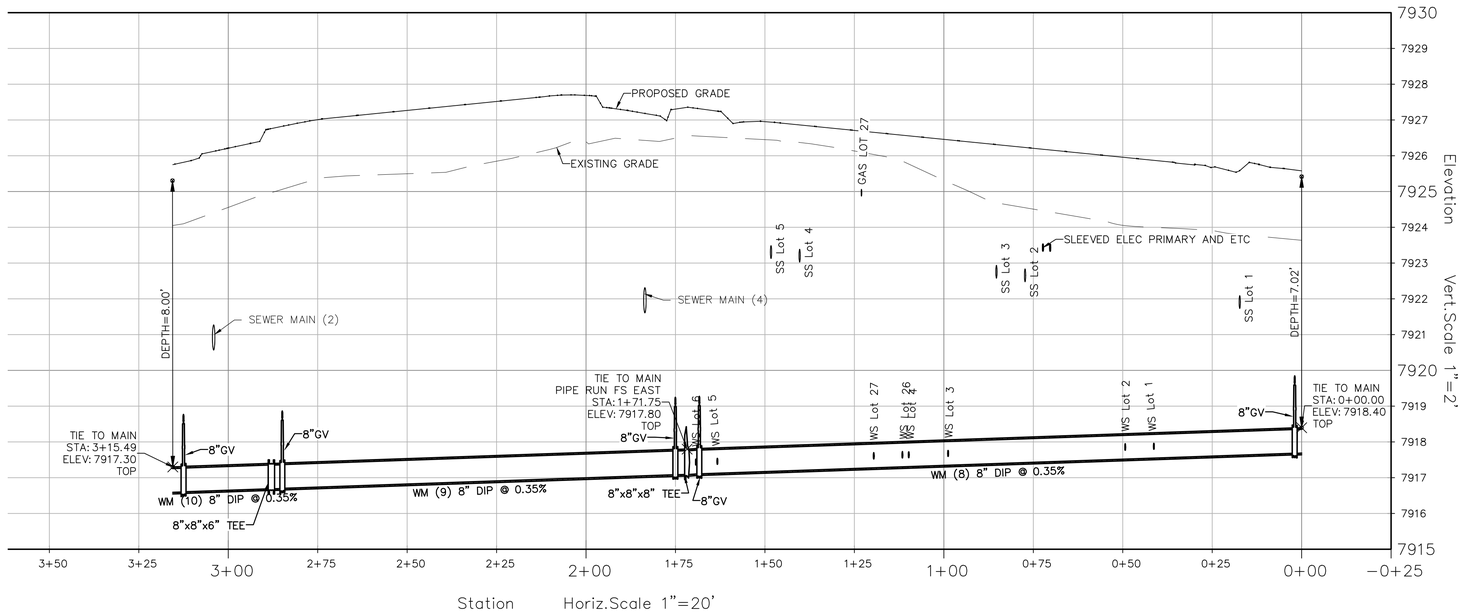
Title:
WATER P & P
BELDEN WAY /
SILVER LOOP
(PIPE RUN 1)

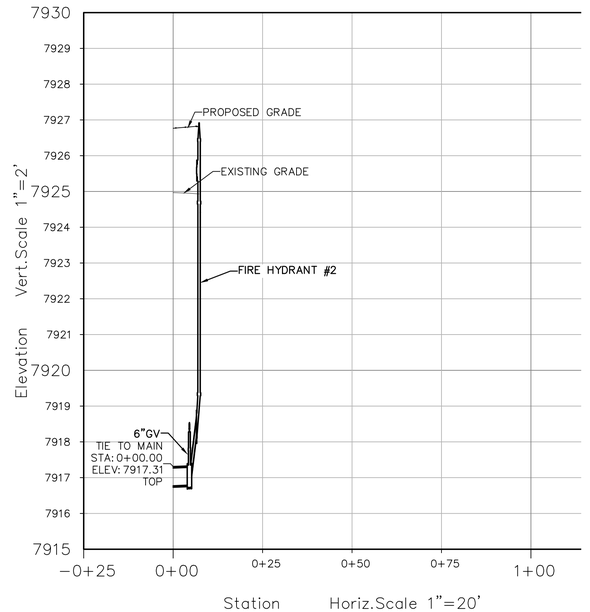
Sheet:
C.211

EXHIBIT B









TIMBERLINE ENGINEERING LLC CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
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4/19/24	Final Plan

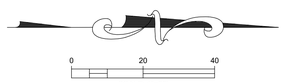
Title:

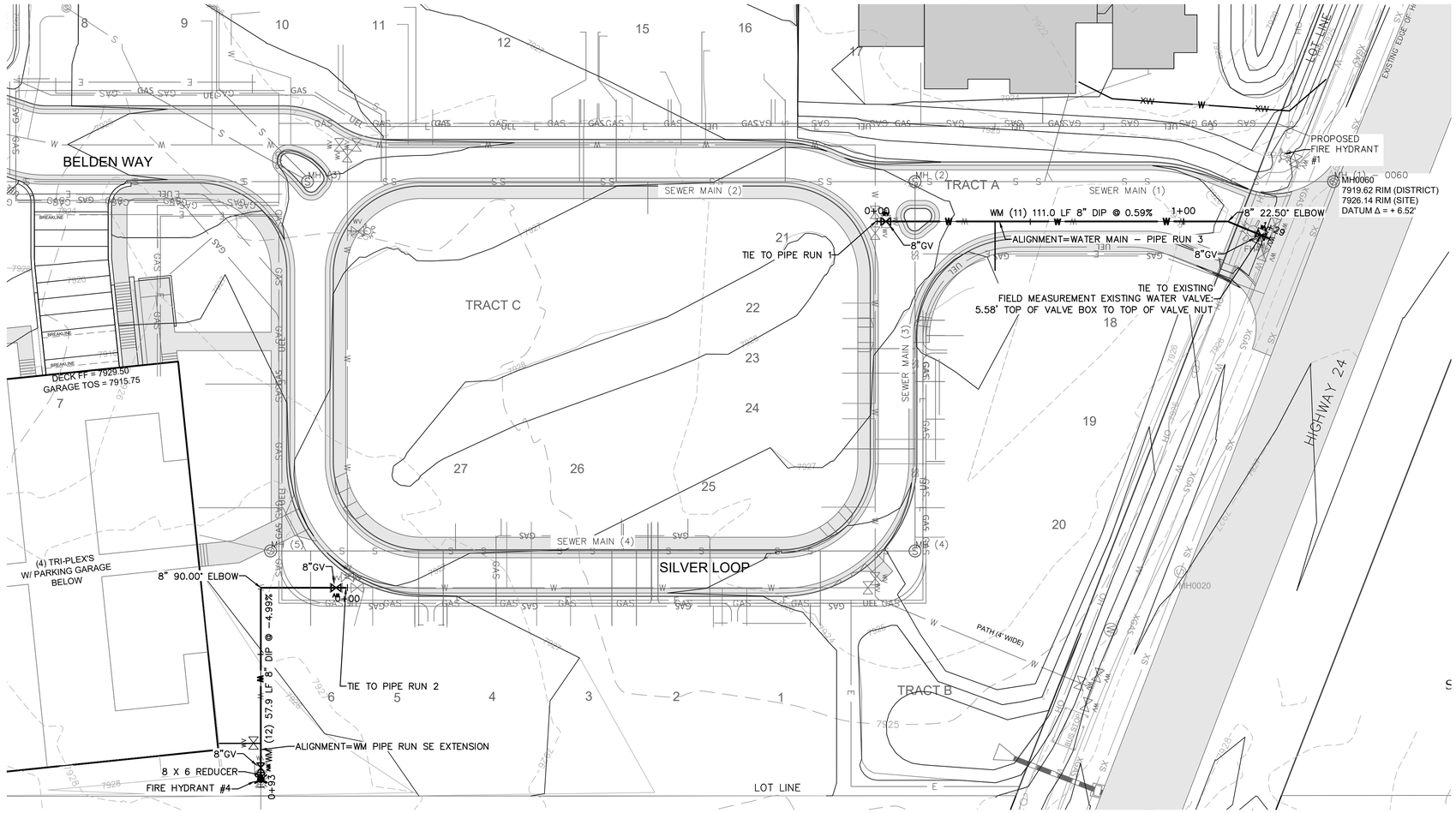
WATER P & P
SILVER LOOP
(PIPE RUNS 2 & 4)

Sheet:

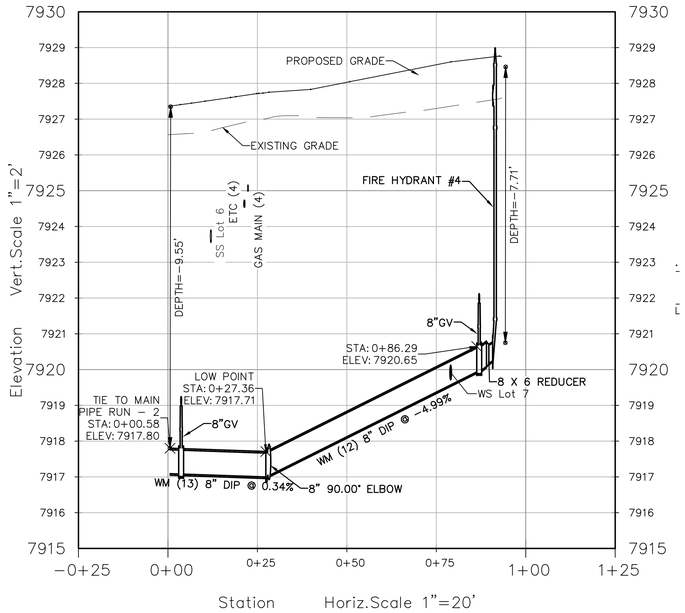
C.212

EXHIBIT B

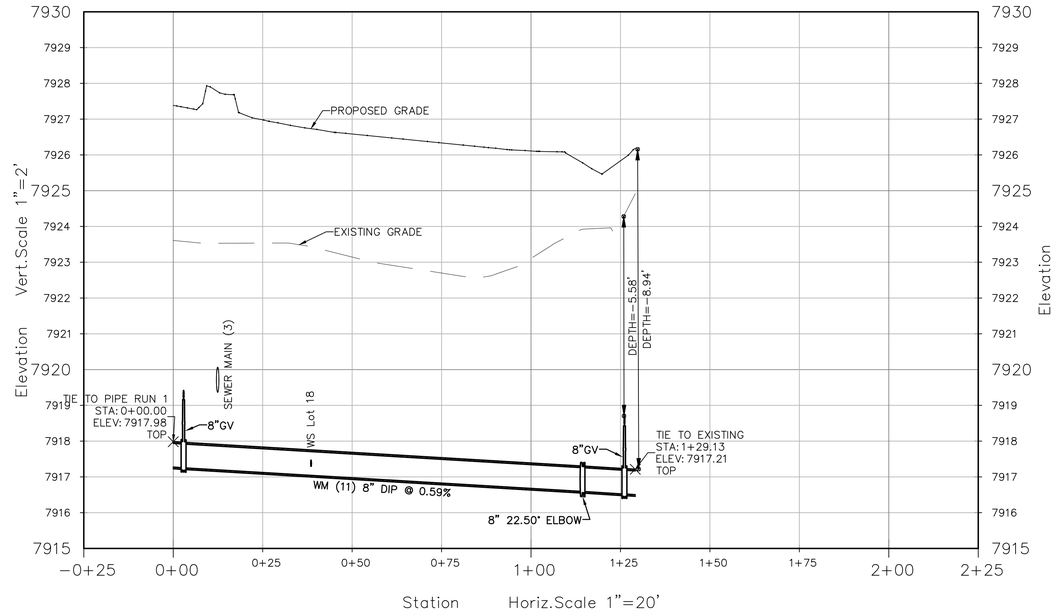




WM Pipe Run SE Extension Profile



Water Main – Pipe Run 3 Profile



TIMBERLINE ENGINEERING llc
CIVIL STRUCTURAL
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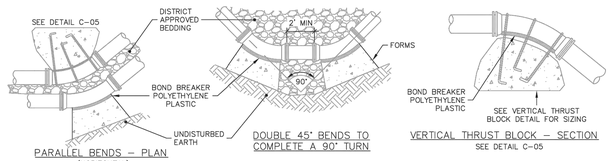
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

Title:
WATER P & P ENTRANCE & SE EXTENSION (PIPE RUNS 3&5)

Sheet:
C.213

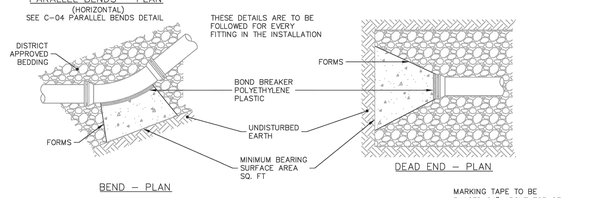
EXHIBIT B



PARALLEL BENDS – PLAN (HORIZONTAL)
SEE C-04 PARALLEL BENDS DETAIL

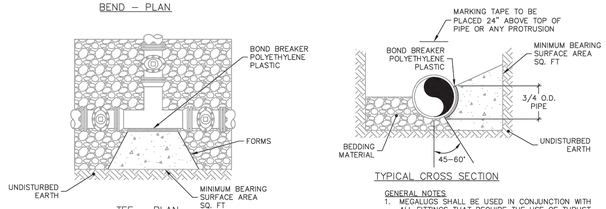
DOUBLE 45° BENDS TO COMPLETE A 90° TURN

VERTICAL THRUST BLOCK – SECTION
SEE DETAIL C-05



BEND – PLAN

DEAD END – PLAN



TEE – PLAN

TYPICAL CROSS SECTION

200 PSI WORKING	REQUIRED MINIMUM BEARING SURFACE AREA (SF)					
	SIZE OF PIPE	BENDS				TEE OR DEAD END
		11-1/4°	22-1/2°	45°	90°	
	4"-8"	1.2	2.5	4.8	8.9	6.3
	10"	1.9	3.8	7.5	13.9	9.8
	12"	2.8	5.5	10.8	20.0	14.1
	16"	4.9	9.8	19.2	35.5	25.1
	18"	6.2	12.4	24.3	45.0	31.8
	20"	7.7	15.3	30.1	55.5	39.3
	24"	11.1	22.1	43.3	80.0	56.5

THE MINIMUM BEARING SURFACE AREAS ARE PROVIDED FOR 200 PSI WORKING PIPE PRESSURE + 50 PSI SURGE (250 PSI TOTAL) AND 2,000 PSF SOIL BEARING CAPACITY. IF PRESSURE IS HIGHER OR SOIL BEARING POTENTIAL LOWER, CONSULT DISTRICT.

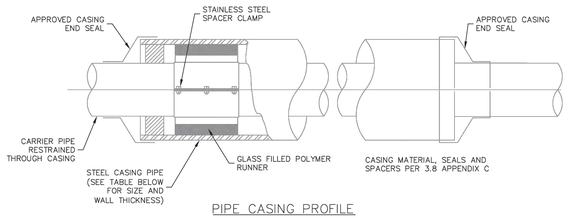
250 PSI WORKING	REQUIRED MINIMUM BEARING SURFACE AREA (SF)					
	SIZE OF PIPE	BENDS				TEE OR DEAD END
		11-1/4°	22-1/2°	45°	90°	
	4"-8"	1.5	2.9	5.8	10.7	7.5
	10"	2.3	4.6	9.0	16.7	11.8
	12"	3.3	6.6	13.0	24.0	17.0
	16"	5.9	11.8	23.1	42.7	30.2
	18"	7.5	14.9	29.2	54.0	38.2
	20"	9.2	18.4	36.1	66.6	47.1
	24"	13.3	26.5	51.9	96.0	67.9

THE MINIMUM BEARING SURFACE AREAS ARE PROVIDED FOR 250 PSI WORKING PIPE PRESSURE + 50 PSI SURGE (300 PSI TOTAL) AND 2,000 PSF SOIL BEARING CAPACITY. IF PRESSURE IS HIGHER OR SOIL BEARING POTENTIAL LOWER, CONSULT DISTRICT.

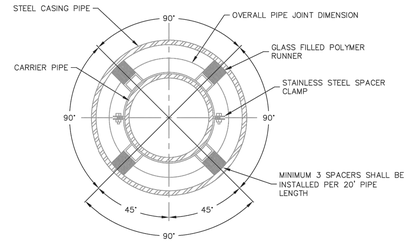
GENERAL NOTES

1. MEGALUGS SHALL BE USED IN CONJUNCTION WITH ALL FITTINGS THAT REQUIRE THE USE OF THRUST BLOCK.
2. REFER TO DISTRICT STANDARDS IN APPENDIX C SECTION 3.6 FOR REQUIREMENTS.
3. THRUST BLOCKS SHALL BE INSTALLED SO THAT ALL JOINTS ARE ACCESSIBLE. POLYWRAP FITTINGS PRIOR TO POURING THRUST BLOCK, EXTEND WRAP TO ENCLOSE ALL FITTINGS AND BOLTS.
4. THRUST BLOCKS SHALL BE FORMED AGAINST UNDISTURBED SOIL & FORMS PER APPENDIX C 4.14.
5. BLOCK HEIGHT SHALL BE ESTABLISHED SUCH THAT THE CALCULATED BLOCK WIDTH IS BETWEEN ONE AND TWO TIMES THE HEIGHT.
6. BOND BREAKER PER APPENDIX C 3.2.10.

DETAIL
CONCRETE THRUST BLOCKS



PIPE CASING PROFILE



PIPE CASING CROSS SECTION

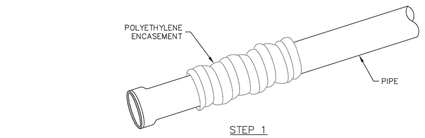
GENERAL NOTES

1. FOLLOW MANUFACTURER'S RECOMMENDATION, IF IN CONFLICT WITH ERWSD STANDARDS, USE MORE RESTRICTIVE SPECIFICATION.
2. CARRIER PIPE SHALL BE CENTERED AND ALL JOINTS RESTRAINED IN & THROUGH THE CASING PIPE.
3. WATER MAINS SHALL BE ENCASED SEPARATELY FROM OTHER UTILITIES.
4. ALL FASTENERS SHALL BE T-304 STAINLESS STEEL.
5. ALL CAD WELDS SHALL BE CONNECTED TO PIPE.
6. MAXIMUM DISTANCE BETWEEN SPACERS SHALL BE 6 FEET ON CENTER.

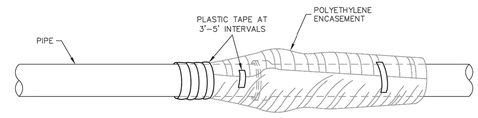
CARRIER PIPE NOMINAL Ø	CASING PIPE	
	MIN OD	MIN WALL THICKNESS
4"	12"	0.25"
6"	16"	0.3125"
8"	18"	0.3125"
12"	22"	0.375"
16"	28"	0.500"
20"	32"	0.500"

DETAIL
WATER CASING

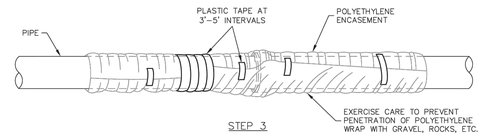
USE OF POLYETHYLENE WRAP FOR CORROSIVE SOILS



STEP 1



STEP 2



STEP 3

FIELD INSTALLATION – POLYETHYLENE WRAP

STEP 1 – PLACE POLYETHYLENE MATERIAL ON PIPE PRIOR TO LOWERING IT INTO PLACE.

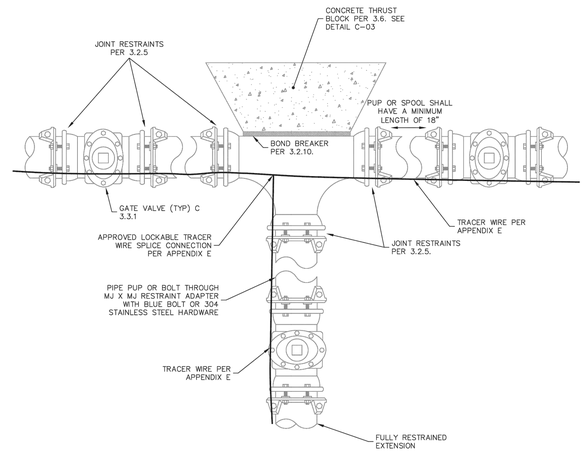
STEP 2 – PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH TAPE TO HOLD THE POLYETHYLENE ENCASEMENT IN PLACE.

STEP 3 – OVERLAP FIRST TUBE WITH ADJACENT TUBE AND SECURE WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE SHALL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED ON TOP OF PIPE AND TAPED IN PLACE.

GENERAL NOTES:

1. ALL DUCTILE IRON PIPE REQUIRES THE USE OF POLYETHYLENE WRAP UNLESS APPLICANT SUBMITS A SOILS TEST INDICATING THAT NO CORROSIVE SOILS ARE PRESENT.
2. POLYETHYLENE ENCASEMENT PER APPENDIX C 3.2.10.

DETAIL
POLYETHYLENE WRAP

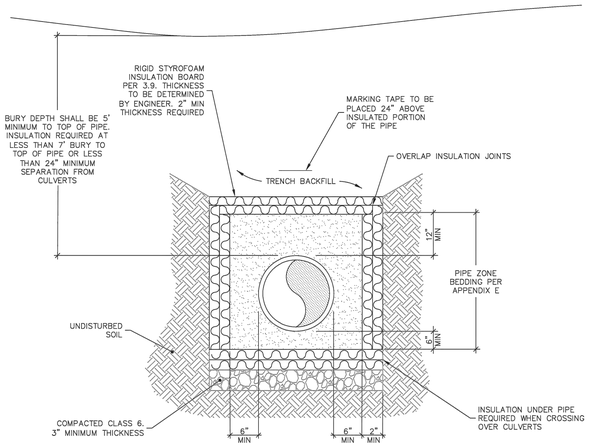


TOP VIEW

DETAIL
TEE

GENERAL NOTES

1. TEES SHALL BE CONSIDERED ON AN INDIVIDUAL BASIS. ALL USES OF THIS APPLICATION SHALL REQUIRE PRIOR DISTRICT APPROVAL.
2. JOINT RESTRAINT DEVICES SHALL BE REQUIRED ON ALL TEE APPLICATIONS.
3. THRUST BLOCKS ALONE WILL NOT BE ACCEPTED AS A RESTRAINT.

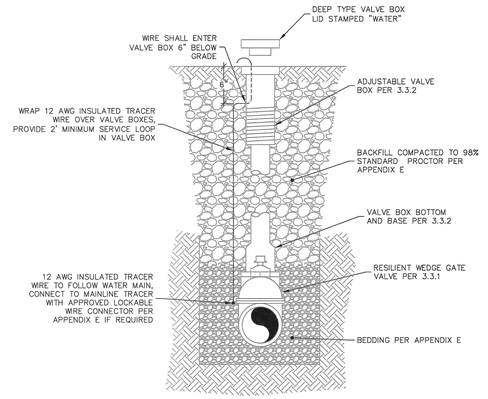


ELEVATION

DETAIL
MINIMUM COVER & CULVERT CROSSING INSULATION

GENERAL NOTES

1. CONDITION OF LESS THAN MINIMUM BURY DEPTH ALLOWED ONLY WITH WRITTEN APPROVAL FROM THE DISTRICT PRIOR TO CONSTRUCTION. INSULATION SHALL BE INSTALLED ON ALL PIPE THAT DOES NOT MEET MINIMUM BURY REQUIREMENTS.
2. SEE SEWER AND WATER PIPE BEDDING DETAIL AND APPENDIX E FOR BACKFILL MATERIAL AND COMPACTION SPECIFICATIONS.
3. INSULATION SHALL BE INSTALLED ON ALL PIPES THAT DO NOT HAVE A MINIMUM OF 7' OF EFFECTIVE COVER. EFFECTIVE COVER SHALL BE DEFINED AS SEPARATION FROM COLD AIR SOURCES, INCLUDING STORM SEWERS. 1" OF INSULATION BOARD MAY BE SUBSTITUTED FOR EACH 1' OF SOIL COVER (MIN. 2" INSULATION) REQUIRED TO MEET THE MINIMUM COVER REQUIREMENT.
4. INSULATION SPECIFICATIONS PER APPENDIX C 3.9.



DETAIL
GATE VALVE &
VALVE BOX ASSEMBLY

GENERAL NOTES

1. VALVE BOX IS TO BE INSTALLED PLUMB, LEVEL, AND CENTERED ON 2" NUT.
2. IF THE DISTANCE FROM THE TOP OF THE OPERATING NUT TO THE TOP OF THE VALVE COVER IS GREATER THAN 9', A CENTERING RING AND EXTENSION STEM IS REQUIRED. THE EXTENSION MUST BE SECURED TO THE VALVE OPERATING NUT.

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

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Title:

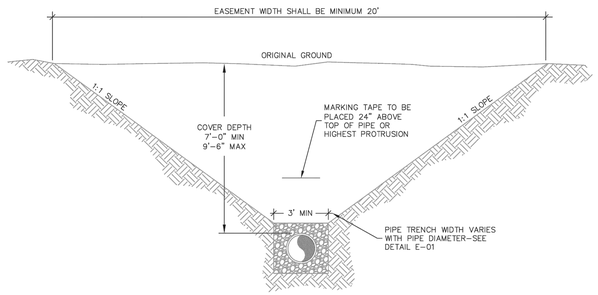
WATER DETAILS 1

Sheet:

C.214

EXHIBIT B

WATER MAIN COVER DEPTH	MINIMUM EASEMENT WIDTH REQUIRED
7'–0" TO 8'–6"	20'
8'–7" TO 9'–6"	25'



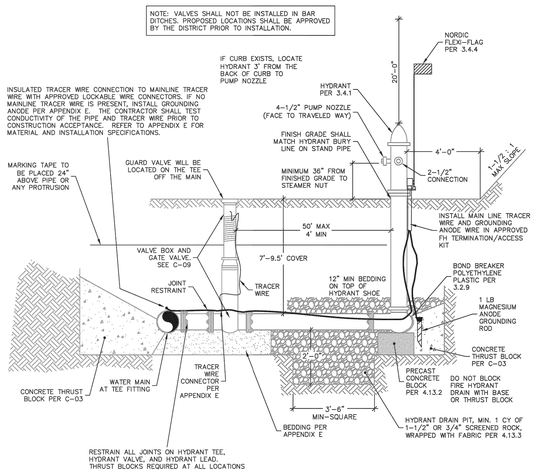
MINIMUM EASEMENT WIDTH

GENERAL NOTES

1. PIPE SHALL BE CENTERED IN EASEMENT.
2. CALCULATE EASEMENT WIDTH AS FOLLOWS:
   W = DEPTH TO TOP OF PIPE X 2 + 3 FEET
   (ROUND UP IN 5 FOOT INCREMENTS)

EXAMPLE:
9 FOOT DEEP PIPE = 9 X 2 + 3 = 21 FEET
W = 25 FOOT WIDE EASEMENT (ROUNDED UP)

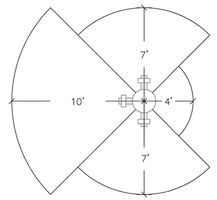
DETAIL
EASEMENT WIDTH



DETAIL
FIRE HYDRANT ASSEMBLY

HYDRANT CLEARANCE DIAGRAM

NO ABOVE GROUND OBSTRUCTIONS ALLOWED IN THESE AREAS



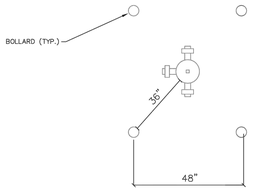
FRONT---10 FEET OF CLEARANCE

SIDES---7 FEET OF CLEARANCE

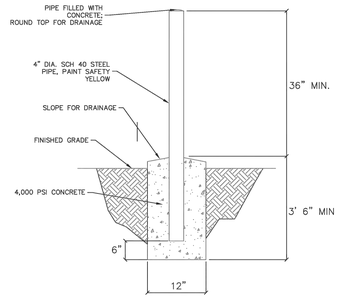
REAR---4 FEET OF CLEARANCE

ABOVE---20 FEET OF CLEARANCE

HYDRANT BOLLARD DIAGRAM



BOLLARDS REQUIRED WHEN LESS THAN 3' OF HORIZONTAL CLEARANCE EXISTS BETWEEN HYDRANT AND BACK OF CURB/EDGE OF ROAD



DETAIL
FIRE HYDRANT CLEARANCES & BOLLARDS

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

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WATER
DETAILS 2

Sheet:

C.215

WATER SPECIFICATIONS

THE FOLLOWING APPLICABLE CONSTRUCTION SPECIFICATIONS ARE A PORTION OF THE TOWN OF MINTURN ENGINEERING STANDARDS. TABLES, DRAWINGS, DETAILS AND EXHIBITS REFERENCED BELOW ARE INCLUDED IN THE TOWN STANDARDS.

SECTION 1 - DISTRIBUTION SYSTEM DESIGN AND LAYOUT

1.01 - Fire Protection

The number and location of fire hydrants in a given area must be approved by the Eagle River Fire Protection District. Fire hydrant branch lines shall be set at right angles to street mains. The fire hydrant shall be set at the end of the branch line and shall face the direction as dictated per the Eagle River Fire Protection District. No horizontal bends or offsets shall be used in installing fire hydrant branch lines unless approved by the Eagle River Fire Protection District. Under no circumstances shall any size or manner of tap be made on a fire hydrant branch line between the hydrant and hydrant valve. The maximum length of 6-inch main line shall not exceed 50 feet. All fire hydrant valves shall be attached to the tee off of the main line. A fire hydrant shall be installed at the end of all dead end water mains. The Applicant shall install an approved fire hydrant marker on all fire hydrants. The Applicant shall perform all fire hydrant "flow tests." Results of flow tests shall be provided to the Town and to the Eagle River Fire Protection District. All costs associated with the "flow test" shall be borne by the Applicant. The Town shall witness and oversee the "flow test" in conjunction with other appropriate governmental agencies.

1.02 - Layout of the Distribution System

A. Fire Hydrants: Fire hydrant depths shall be 7-feet to 9.5-feet. All fire hydrants will be installed within dedicated streets, right-of-ways, or easements as herein above defined. Fire hydrants shall be installed at locations approved by the Eagle River Fire Protection District and at the end of all dead-end line extensions.

SECTION 2 - MATERIAL SPECIFICATIONS

2.01 - Pipe and Fittings

All pipe and fittings used in the Town's System shall meet or exceed the latest AWWA Specifications and follow the guideline lines set forth below:

A.Tapping Sleeves: Wet taps shall only be made with the use of a tapping sleeve. The Town will allow epoxy-coated Mueller H304 (250 psi working pressure) or equivalent. No tapping sleeves will be allowed for any application with a working pressure of 150 psi or higher. For those applications where working pressure exceeds 150 psi, the Town will require the use of a tee.

2.02 - Fire Hydrants

A.Fire Hydrants: Fire hydrants shall be Mueller Centurion A423 Mountain Hydrant, which conforms to AWWA Standard C502 with a working pressure of 250 psi. They also shall be six-inch (6") mechanical joint inlet, minimum 5¼ inches, compression-type main valve that closes with pressure, two 2½-inch hose nozzles, one 4½-inch pump nozzle, nozzle threads ANSI B26. Nozzles must be easily replaceable in the field with standard tools. Operating and cap nuts must be 1½-inch, Number 17 National Standard hex main valve that open to the left. An arrow cast on top of hydrant shall indicate direction of opening. There shall be a breakable section that permits clean break at or near ground level, preventing water loss in case of breakage. Working parts must be removable for maintenance or repair without excavation. Also required are operating mechanism non-wetting, oil reservoir lubricated, with O-ring seals and barrel drain bronze mounted with at least two (2) outlets, which operate automatically with main valve. Fire hydrants must be installed at the end of all main lines. Finish grade around the fire hydrant shall be a minimum of six inches (6") to a maximum of twelve inches (12") below the flange for the final grade and paving inspection.

B.Fire Hydrant Extension Sections: New Installations: Defined as new main extensions throughout the one-year (1) warranty period. All new installations shall be installed at the standard 7-foot to 9.5-foot of cover measured from the top of the pipe to finish grade. All fire hydrants shall consist of a single solid shaft. No fire hydrant extensions will be allowed. Any special circumstance will require written approval from the Town prior to installation.
Existing Fire Hydrants: No more than one (1), two-foot (2') long, fire hydrant grade extension (extension section) shall be used or installed on fire hydrant assemblies. All hydrants shall be installed with a guard valve to isolate the hydrant for repair while maintaining service to main. No service line taps will be allowed between the guard valve and hydrant. Guard valves shall be installed on the tee off of the water main. The maximum distance from the guard valve to the fire hydrant shall not exceed fifty feet (50'). Fire hydrants shall be installed at the end of all dead-end mains.

C.Fire Hydrant Marker Flags: The Applicant shall purchase and install fire hydrant marker flags for all newly constructed fire hydrants. The required flag is a Nordic Flex Flag, FF2-72 inches.D.Fire Hydrant Depth of Bury: Fire hydrant depth of bury will conform to Manufacturer's requirements.

2.03 - Service Lines

The following represents the requirements for service line construction:

A.Copper Tubing: Copper Tubing Shall be Type K, soft copper. Connections are to be compression or silver-soldered.

B.Corporation Stops: Mueller 300 Ball Valve Number B-25008 or B25028, AWWA C800 constructed of all brass construction with compression connection.
McDonald Number 4701 BT, AWWA C800.

Ford cc/comp FB-1000-G

Ford IPS/Comp FB-1100-G

C.Curb Stops: Mueller 300 Ball Curb Valve No. B25209, Ford B44, or McDonald 6100 T. Curb stops must have compression end connections, AWWA C800.

D.Curb Boxes: For curb stops up to 1": Mueller H10314 with 89982 lid or McDonald 5601 with 5601L lid. For curb stops larger than 1": Mueller H10314 with 89982 lid and Tyler 6500 Series Enlarged Base #144809 or McDonald 5603 with 5601L lid. Shaft diameter shall be 1" and the top of the shaft shall be a minimum of 18" from final grade and lid.

E.Saddles: Ductile Iron Saddle: Mueller DE2A, JCM-402, Smith & Blair 313, Ford F202, McDonald 3825, 3826 or equal and approved by the District. The saddle must have a double flat strap design with ductile iron body. Said saddle must conform to AWWA C800.

F.Turn-On/Turn-Off of Service: All routine turn-on and turn-off of water service at a curbstop shall be performed only by Town personnel. During emergencies, a customer may turn-off the water service at the curb stop valve. The Town shall be notified of the turn-off and the circumstances at the earliest time. Only Town personnel shall turn-on the water service.

G.Repair of Service Line: Leaks, breaks and general maintenance of the water service line shall be the responsibility of the customer. The customer shall be given notice by first-class mail, that the water service line is defective and in need of repair. Customer shall institute repair or maintenance immediately. If satisfactory progress toward repairing the service line has not been completed in a timely manner or the Town determines that environmental or property damage is being caused, the Town shall shut off the water service until the service line has been repaired. In addition, the Town shall have the right to affect the repair, and the costs therefore shall constitute a lien on the property as provided for by C.R.S., 32-1-1001.

2.04 - Granular Bedding

Two types of bedding material are allowed: Screened rock and soil or select imported material, meeting the following gradation specification table:

TABLE 5.01

Sieve Size	Total Percent Passing by Weight	Screened Rock	Soil or Select Import
1½ inch maximum, and maximum of 10% of pipe diameter to ⅓ inch	100	100	
No. 4	0 to 10	30 to 100	
No. 200	0 to 10	0 to 50	
Minimum compaction requirement			
Tamp to spring line to fill voids below pipe haunches	90% of Standard Proctor placed at ± 3% of Optimum Moisture		

The maximum particle size of pipe bedding should generally not exceed 1½ inches or 10 percent of the nominal pipe diameter, whichever is less. Bedding for small pipe such as service lines should generally have a maximum particle size not exceeding ¾ inch.

Screened rock used for waterline or sewer pipe bedding should be crushed, angular material that meets the requirements of ASTM D 2321, Class IA bedding material. The material should have not more than 10 percent passing the No. 4 (4.75 millimeter) screen, and less than 5 percent passing the No. 200 (75 micrometer) screen. The bedding should be tamped under the haunches of the pipe to spring line. Where future excavation is anticipated, the sloughing properties of screened rock when unconfined should be taken into consideration. The Town may require soil or select import. Where groundwater may be present, the use of screened rock for bedding is prohibited.

Compacted pipe bedding should meet the requirements of ASTM D 2321, Class IB, Class II, or Class III bedding material. The material should have a minimum of 30 percent passing the No. 4 screen and less than 50 percent passing the No. 200 screen. Class 6 aggregate base course per CDOT Table 703.2 conforms to this gradation criteria. The bedding should be compacted to a minimum of 90 percent at +/- 3 percent of optimum moisture content, referencing Standard Proctor (ASTM D698, AASHTO T99). Material containing 10 to 30 percent passing the No. 4 screen can be used with the following considerations: materials in this range can be expected to possess properties similar to screened rock except that compaction will be required and materials in this range may be too free-draining to be testable for compaction by ASTM D698. Flow-fill, a ½ sack (50 pounds) per cubic yard lean concrete mix as defined in the CDOT 1999 Standard Specifications for Road and Bridge Construction, Section 206.02, may be used as bedding where a combination of ease of placement, low permeability, and unconfined stability is desired.

Additional Requirements:

•Bedding materials shall be free of topsoil, organic materials, frozen matter, debris, or other deleterious materials.

•Flow-fill as specified by CDOT 1999 Standard Specifications, Section 206.02, may be used with Town approval.

•Ductile Iron Pipe may be required to be encased in loose polyethylene in conformance with ANSI/AWWA C105/A21.5 installation methods, unless site soils and proposed bedding materials are determined to be non-corrosive to iron pipe when evaluated according to Appendix A of ANSI/AWWA C105/A21.5.

•Materials not meeting these requirements shall be used only with prior written approval of the Town.

In specific areas, such as where access is extremely limited, the use of on-site materials may be allowed, and, when used, must be on-site 1½ inches minus well-graded screened material, free from organic materials, chunks of soil, frozen material, debris, or other suitable materials. Use of on-site bedding material must have prior written Town approval.

2.05 - Marking Tape

The installation of "blue" marking tape is required on all water mains and service lines. The tape shall be installed approximately twenty-four inches (24") above the main or line. The tape shall meet the following specifications:

1. Four (4) mil thick PVC material.
2. Solid "blue" color with black lettering.
3. Six inches (6") in width.

SECTION 3 - PIPE INSTALLATION

3.01 - Fire Hydrants

A.Installation: The location of all hydrants shall be staked. Final location and grade shall be in accordance with the approved drawings. Offset stakes not farther than 12 feet from the fire hydrant are acceptable. All hydrants shall stand plumb. Each hydrant shall be connected to the main by a six-inch (6") branch line. An independent six-inch (6") gate valve shall be installed on the tee off of the water main. It is the intention of the Town to limit the length of the six-inch (6") branch line servicing the fire hydrant to 50 feet. If the length of the branch line extends beyond 50 feet, an eight-inch (8") main with an eight-inch (8") by six-inch (6") concentric reducer shall be used from the main until a point 50 feet from the hydrant is reached. At that point, a six-inch (6") branch line may be extended to the fire hydrant. No service line connections shall be installed between the fire hydrant and the fire hydrant guard valve. No service line connections shall be made on the six-inch (6") branch line servicing the fire hydrant.

B.Anchorage: The shoe of each hydrant shall be well braced against the un-excavated earth at the end of the trench with a concrete thrust block. Care shall be taken not to cover the weep holes with concrete. The bottom of the hydrant bowl and the hydrant valve shall be supported with minimum 18 x 8 x 4-inch precast concrete blocking slabs or a Town approved equal. The hydrant assembly shall require megalug restraints.

C.Drainage: Wherever a hydrant is set, drainage shall be provided at the base of the hydrant by placing approved granular bedding material from the bottom of the trench, to at least 12 inches above the barrel flange of the hydrant, and as shown on the typical fire hydrant detail. The minimum distance from the bottom of the trench to the bottom of the hydrant elbow shall be six inches (6"). The minimum of approved granular bedding material placed therein shall be 1/3 cubic yards.

D.Clearances: The minimum clearances around all fire hydrants shall be: ten feet (10') in the front, seven feet (7') on the sides, four feet (4') on the back, and 20 feet above.

E.Operation of Fire Hydrant: The required operational position of a fire hydrant is either fully opened or fully closed. The guard valve shall control any restriction of flow. The restriction of flow, through a fire hydrant, by means of the "operating nut" is strictly prohibited.

3.02 - Connection to the Town System

A.Connections: Connections to the Town system shall be in a neat and workmanlike manner. The connection shall be inspected and approved by the Town. Under no circumstances shall a non-disinfected main, which cannot be isolated, be connected to an existing distribution main in service.

B.Tapping Existing Mains: Main Line Connections: Unless otherwise approved by the Town, all main line connections shall be made by means of a tee.

C.Service Taps/Stubouts: During new main line construction, service line stubouts may only be installed after the required tests have been completed and approved by the Town. Stubouts shall be installed by the main line Contractor. Stubouts shall terminate at the curb stop valve. Curb stop valves shall be installed at the property line or edge of easement. The minimum separation distance between service line taps on the main shall be 18 inches.

The Contractor shall install all new service line taps. All tees/taps shall be witnessed and approved by the Town. Any tap preformed without a Town inspection and approval shall be considered "illegal system tampering" and punished in accordance with the provisions of Section 1-4-20 of this Code for each offense. Each day any person is in violation of Chapter 13 of the Minturn Municipal code and shall constitute a separate offense. (Ord. 7-2018 , §4)

SECTION 4 - CONSTRUCTION ACCEPTANCE

4.01 - Requirements

A.Field Maintenance Inspections

1.Fire Hydrant (To Grade and Operated). The fire hydrant shall be straight and plumb, and shall be operated with proper drainage. See Fire Hydrant Assembly detail.

2.Rough Grade Inspection. Above-ground attributes are to be in a reasonable grade so as not to allow standing water to accumulate on top of or allow drainage into the attributes of the system. All attributes within the road right-of-way/easement shall be protected from traffic, equipment, etc.

3.Warranty Period. During the 1-year warranty period that begins at Construction Acceptance, the Town will test the integrity of the telemetry and cathodic protection systems. Remedial repair and subsequent testing will be made by the applicant.

4.Redline Submittal. A redline submittal will be required to be made from the contractor to the engineer in order to facilitate the completion of as-builts in a timely manner.

SECTION 5 - FINAL ACCEPTANCE

5.01 - Requirements

The following items shall be required to be submitted to the Town for approval prior to Final Acceptance. Once these items have been received, reviewed, and approved by the Town Administrator, Final Acceptance may occur.

A.Final Grade and Paving Inspection: All system attributes shall be fully operational and meet Town Standards. Back lot access shall meet Town Standards. The ring and cover shall be centered over the cone section. All system attributes shall meet or exceed Town Standards.

B.Drawings of Record: Field measured Drawings of Record shall be submitted to the Town in the specific format as required by the Town. The Drawings of Record shall include, but not be limited to, all attribute information including main lengths, all bends (horizontal and vertical), valves, hydrants, materials, pipe diameters, encasement, insulation, pipe deflections, and service line information which shall include size, location of line, tap and curb stop. Water and Sewer Drawings of Record shall be submitted on the same drawing. The submittal will contain the swing ties for service lines. The Town requires a digital format using District formatting (AutoCAD Release 14 or newer), and three (3) black line copies of the field-measured Drawings of Record. The Drawings of Record shall also depict the established easement for each line segment with reference to the specific Town of Minturn recording information. Construction drawings will not be accepted as Drawings of Record.

C.Final Inspection: The District shall perform a final walk-through inspection prior to Final Acceptance. The purpose of this inspection is to determine if any changes have occurred since the final grade and paving inspection that would negatively effect the operation of the system. The owner or the owner's designated representative is required to accompany the Town's Inspector during this final inspection.

TIMBERLINE ENGINEERING llc
CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDREWS 39276 PROFESSIONAL ENGINEER

Belden Place PUD
South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

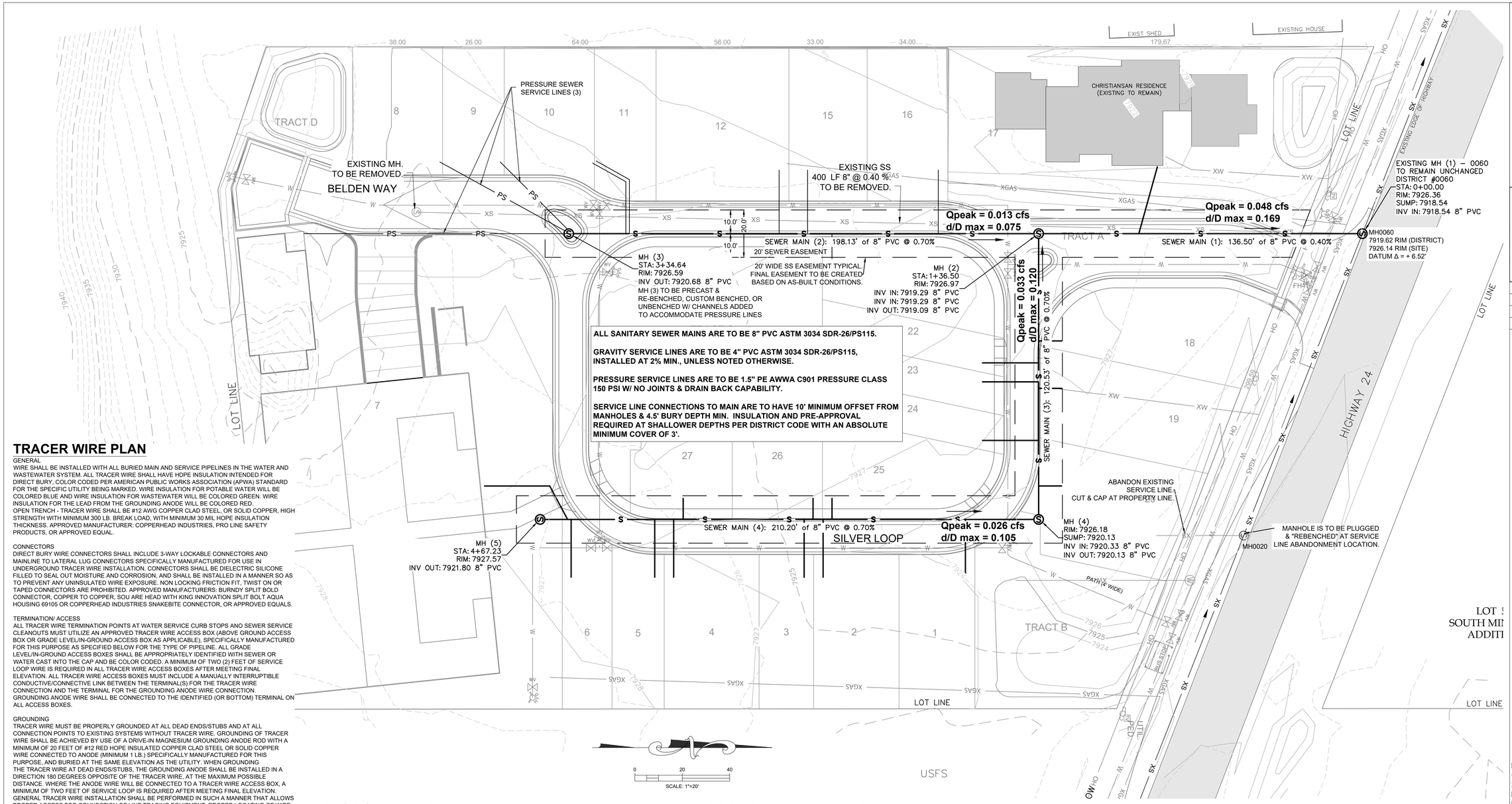
PLANS ARE NOT FOR CONSTRUCTION UNLESS STAMPED "APPROVED FOR CONSTRUCTION" BY PROPER AUTHORITIES.

DATE	REVISION
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

Title:
WATER CONSTRUCTION SPECIFICATIONS

Sheet:
C.216

EXHIBIT B



ALL SANITARY SEWER MAINS ARE TO BE 8" PVC ASTM 3034 SDR-26/PS115.

GRAVITY SERVICE LINES ARE TO BE 4" PVC ASTM 3034 SDR-26/PS115, INSTALLED AT 2% MIN., UNLESS NOTED OTHERWISE.

PRESSURE SERVICE LINES ARE TO BE 1.5" PE AWWA C901 PRESSURE CLASS 150 PSI W/ NO JOINTS & DRAIN BACK CAPABILITY.

SERVICE LINE CONNECTIONS TO MAIN ARE TO HAVE 10' MINIMUM OFFSET FROM MANHOLES & 4.5' BURY DEPTH MIN. INSULATION AND PRE-APPROVAL REQUIRED AT SHALLOWER DEPTHS PER DISTRICT CODE WITH AN ABSOLUTE MINIMUM COVER OF 3'.

TRACER WIRE PLAN

GENERAL
WIRE SHALL BE INSTALLED WITH ALL BURIED MAIN AND SERVICE PIPELINES IN THE WATER AND WASTEWATER SYSTEM. ALL TRACER WIRE SHALL HAVE HDPE INSULATION INTENDED FOR DIRECT BURY, COLOR CODED PER AMERICAN PUBLIC WORKS ASSOCIATION (APWA) STANDARD FOR THE SPECIFIC UTILITY BEING MARKED. WIRE INSULATION FOR POTABLE WATER WILL BE COLORED BLUE AND WIRE INSULATION FOR WASTEWATER WILL BE COLORED GREEN. WIRE INSULATION FOR THE LEAD FROM THE GROUNDING ANODE WILL BE COLORED RED.
OPEN TRENCH - TRACER WIRE SHALL BE #12 AWG COPPER CLAD STEEL, OR SOLID COPPER, HIGH STRENGTH WITH MINIMUM 300 LB. BREAK LOAD, WITH MINIMUM 30 MIL HOPE INSULATION THICKNESS. APPROVED MANUFACTURER: COPPERHEAD INDUSTRIES, PRO LINE SAFETY PRODUCTS, OR APPROVED EQUAL.

CONNECTORS
DIRECT BURY WIRE CONNECTORS SHALL INCLUDE 3-WAY LOCKABLE CONNECTORS AND MAINLINE TO LATERAL LUG CONNECTORS SPECIFICALLY MANUFACTURED FOR USE IN UNDERGROUND TRACER WIRE INSTALLATION. CONNECTORS SHALL BE DIELECTRIC SILICONE FILLED TO SEAL OUT MOISTURE AND CORROSION, AND SHALL BE INSTALLED IN A MANNER SO AS TO PREVENT ANY UNINSULATED WIRE EXPOSURE. NON LOCKING FRICTION FIT, TWIST ON OR TAPED CONNECTORS ARE PROHIBITED. APPROVED MANUFACTURERS: BURNDY SPLIT BOLD CONNECTOR, COPPER TO COPPER, SOU ARE HEAD WITH KING INNOVATION SPLIT BOLT AQUA HOUSING 69105 OR COPPERHEAD INDUSTRIES SNAKEBITE CONNECTOR, OR APPROVED EQUALS.

TERMINATION/ ACCESS
ALL TRACER WIRE TERMINATION POINTS AT WATER SERVICE CURB STOPS ANO SEWER SERVICE CLEANOUTS MUST UTILIZE AN APPROVED TRACER WIRE ACCESS BOX (ABOVE GROUND ACCESS BOX OR GRADE LEVEL/IN-GROUND ACCESS BOX AS APPLICABLE), SPECIFICALLY MANUFACTURED FOR THIS PURPOSE AS SPECIFIED BELOW FOR THE TYPE OF PIPELINE. ALL GRADE LEVEL/IN-GROUND ACCESS BOXES SHALL BE APPROPRIATELY IDENTIFIED WITH SEWER OR WATER CAST INTO THE CAP AND BE COLOR CODED. A MINIMUM OF TWO (2) FEET OF SERVICE LOOP WIRE IS REQUIRED IN ALL TRACER WIRE ACCESS BOXES AFTER MEETING FINAL ELEVATION. ALL TRACER WIRE ACCESS BOXES MUST INCLUDE A MANUALLY INTERRUPTIBLE CONDUCTIVE/CONNECTIVE LINK BETWEEN THE TERMINAL(S) FOR THE TRACER WIRE CONNECTION AND THE TERMINAL FOR THE GROUNDING ANODE WIRE CONNECTION. GROUNDING ANODE WIRE SHALL BE CONNECTED TO THE IDENTIFIED (OR BOTTOM) TERMINAL ON ALL ACCESS BOXES.

GROUNDING
TRACER WIRE MUST BE PROPERLY GROUNDED AT ALL DEAD ENDS/STUBS AND AT ALL CONNECTION POINTS TO EXISTING SYSTEMS WITHOUT TRACER WIRE. GROUNDING OF TRACER WIRE SHALL BE ACHIEVED BY USE OF A DRIVE-IN MAGNESIUM GROUNDING ANODE ROD WITH A MINIMUM OF 20 FEET OF #12 RED HOPE INSULATED COPPER CLAD STEEL OR SOLID COPPER WIRE CONNECTED TO ANODE (MINIMUM 1 LB.) SPECIFICALLY MANUFACTURED FOR THIS PURPOSE, AND BURIED AT THE SAME ELEVATION AS THE UTILITY. WHEN GROUNDING THE TRACER WIRE AT DEAD ENDS/STUBS, THE GROUNDING ANODE SHALL BE INSTALLED IN A DIRECTION 180 DEGREES OPPOSITE OF THE TRACER WIRE, AT THE MAXIMUM POSSIBLE DISTANCE. WHERE THE ANODE WIRE WILL BE CONNECTED TO A TRACER WIRE ACCESS BOX, A MINIMUM OF TWO FEET OF SERVICE LOOP IS REQUIRED AFTER MEETING FINAL ELEVATION. GENERAL TRACER WIRE INSTALLATION SHALL BE PERFORMED IN SUCH A MANNER THAT ALLOWS PROPER ACCESS FOR CONNECTION OF LINE TRACING EQUIPMENT, PROPER LOCATING OF WIRE WITHOUT LOSS OR DETERIORATION OF LOW FREQUENCY (512HZ) SIGNAL FOR DISTANCES IN EXCESS OF 1,000 LINEAR FEET, AND WITHOUT DISTORTION OF SIGNAL CAUSED BY MULTIPLE WIRES BEING INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER. TRACER WIRE SYSTEMS MUST BE INSTALLED AS A SINGLE CONTINUOUS WIRE, EXCEPT WHERE USING APPROVED CONNECTORS. NO LOOPING OR COILING OF WIRE IS ALLOWED. ANY DAMAGE OCCURRING DURING INSTALLATION OF THE TRACER WIRE MUST BE IMMEDIATELY REPAIRED BY REMOVING THE DAMAGED WIRE, AND INSTALLING A NEW SECTON OF WIRE WITH APPROVED CONNECTORS. TAPING AND/OR SPRAY COATING ARE PROHIBITED. TRACER WIRE SHALL BE INSTALLED AT THE TOP HALF OF THE PIPE ANO SECURED (TAPED/TIED) AT FIVE FEET INTERVALS. TRACER WIRE MUST BE PROPERLY GROUNDED AS SPECIFIED.

AT ALL WATER AND WASTEWATER MAINLINE DEAD-ENDS, AND AT WATER SERVICE LINE CURB STOPS AND WASTEWATER SERVICE LINE CLEANOUTS CLOSEST TO THE PROPERTY BEING SERVED, TRACER WIRE SHALL GO TO GROUND USING AN APPROVED CONNECTION TO A DRIVE-IN MAGNESIUM GROUNDING ANODE ROD, BURIED AT THE SAME DEPTH AS THE SERVICE. (SEE GROUNDING) IF NO MAINLINE TRACER WIRE EXISTS AT A CONNECTION POINT, MAINLINE TRACE WIRE SHALL NOT BE CONNECTED TO EXISTING CONDUCTIVE PIPES. TREAT AS A MAINLINE DEAD END, GROUND USING AN APPROVED WATERPROOF CONNECTION TO A GROUNDING ANODE BURIED AT THE SAME DEPTH AS THE MAIN. ALL SERVICE LATERAL TRACER WIRE SHALL BE A SINGLE WIRE, CONNECTED TO THE MAINLINE TRACER WIRE USING A MAINLINE TO LATERAL LUG CONNECTOR, INSTALLED WITHOUT CUTTING/SPLICING THE MAINLINE TRACER WIRE. IN OCCURRENCES WHERE AN EXISTING TRACER WIRE IS ENCOUNTERED ON AN EXISTING UTILITY THAT IS BEING EXTENDED OR TIED INTO, THE NEW TRACER WIRE AND EXISTING TRACER WIRE SHALL BE CONNECTED USING APPROVED SPLICE CONNECTORS.

SANITARY SEWER SYSTEM
A MAINLINE TRACER WIRE MUST BE INSTALLED, WITH ALL SERVICE LATERAL TRACER WIRE PROPERLY CONNECTED TO THE MAINLINE TRACER WIRE, TO ENSURE FULL TRACING/LOCATING CAPABILITIES FROM A SINGLE CONNECTION POINT. TRACER WIRE ON ALL SEWER SERVICE LATERALS MUST TERMINATE AT AN APPROVED TRACER WIRE ACCESS BOX COLOR CODED GREEN AND LOCATED DIRECTLY ADJACENT TO THE SEWER SERVICE CLEANOUT CLOSEST TO THE STRUCTURE BEING SERVED. A GROUNDING ANODE SHALL BE INSTALLED BENEATH THE CLEANOUT AT THE DEPTH OF THE SERVICE. ACCESS BOX APPROVED MANUFACTURER: COPPERHEAD INDUSTRIES SNAKE-PIT OR APPROVED EQUAL.

ERWSD Standard Plan Notes

1. All materials, workmanship, and construction shall meet or exceed the standards and specifications set forth in the Eagle River Water and Sanitation District Rules and Regulations. Where there is conflict between these Plans and the Rules and Regulations or any applicable Standards, the more stringent Standard shall apply. All work shall be inspected and approved by the ERWSD Construction & Town Inspector(s) as required.
2. Contractor shall schedule a mandatory pre-construction meeting at the construction site a minimum of three (3) business days after the plans have been submitted. Participants shall include, but are not limited to: the Applicant; Applicant's contractor, excavator and engineer; and the District representative. Construction may begin once the meeting has concluded and the District Inspector has signed off.
3. 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.
4. Provide a complete Bill of Materials for all proposed water and wastewater infrastructure.
5. The Contractor shall be responsible for all aspects of safety including, but not limited to, excavation, trenching, shoring, traffic control, and security.
6. 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 ERWSD Construction & Town Inspector(s) immediately.
7. Submit traffic control plans as approved by the appropriate governing agency.
8. 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.
9. 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 ERWSD Construction & Town Inspector(s) at all times. All as-built information shall be field surveyed under the direct care and supervision of a licensed Professional Land Surveyor.
10. The contractor shall obtain locates prior to any excavation.
11. The contractor is responsible for any damage to any utility facilities as a result of their actions. The contractor shall make the required repairs immediately to the satisfaction of the affected utility.
12. Eagle River Water and Sanitation District does not guarantee the accuracy of the locations of existing pipelines, manholes, hydrants, valves and service lines. If field conditions are found to be different than shown on the plans, the contractor shall notify the inspector(s) and design engineer immediately.
13. All trenching and backfill shall be in accordance with Appendix E of the ERWSD Rules and Regulations.

ERWSD Sanitary Sewer Construction Notes

1. All sanitary sewer construction is subject to the most recently adopted ERWSD Rules and Regulations.
2. All sanitary sewer mains shall be a minimum of 8" in diameter.
3. All sanitary sewers shall be installed with a minimum of 4.5ft cover to top of pipe and a maximum of 14ft cover to top of pipe.
4. Tracer wire per Appendix E1.12 to be installed on all sanitary sewer lines, to include both mains and service lines.
5. All sanitary sewers shall be bedded per Appendix E, Detail E-01
6. All sanitary sewers shall be installed a minimum of 10ft horizontally away from domestic water or secondary containment must be used.
7. All sanitary sewers must be tested in accordance with ERWSD Rules and Regulations Article 9.3.3.
8. All sanitary sewer service lines shall be constructed along the shortest and straightest route possible.
9. Sanitary sewer services shall be connected a minimum of 10 feet outside of manholes with a wye connection.
10. Sanitary sewer service lines taps must be a minimum of 18" apart.
11. Sanitary sewer service cleanouts should be placed outside of the ROW whenever possible.

SHEET INDEX SEWER

Pipe ID	# of Units added	Q_{avg} 198 gpd/unit gpd	Q_{avg} gpm	Q_{peak} Factor=4 gpm	Q_{peak} cfs	Q_{peak} combined cfs	Pipe Slope	Velocity @ Qpeak ft/s	d (depth) @ Qpeak ft	d/D max 8"Dia.Pipe typical
1	1	198	0.14	0.55	0.001	0.048	0.40%	1.240	0.113	0.169
2	11	2178	1.51	6.05	0.013	0.013	0.70%	0.980	0.050	0.075
3	6	1188	0.83	3.30	0.007	0.033	0.70%	1.320	0.080	0.120
4	21	4158	2.89	11.55	0.026	0.026	0.70%	1.250	0.070	0.105
Totals	39	7722	5.36	21.45	0.048					

EXIST	7	1386	0.96	3.85	0.009	0.009	0.40%	0.074	0.050	0.075

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

South Mintum Addition
Lots 29, 31 & 32
Mintum, Colorado

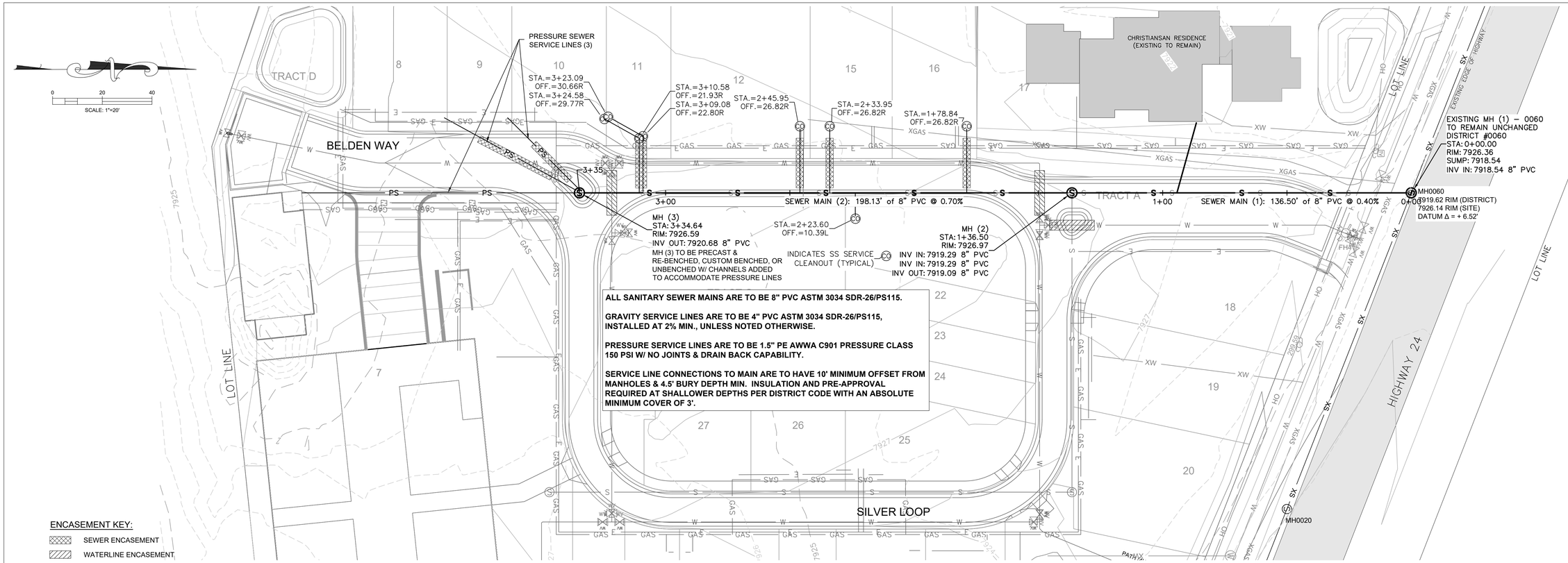
PLANS ARE NOT FOR CONSTRUCTION UNLESS STAMPED "APPROVED FOR CONSTRUCTION" BY PROPER AUTHORITIES.

DATE	REVISION
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

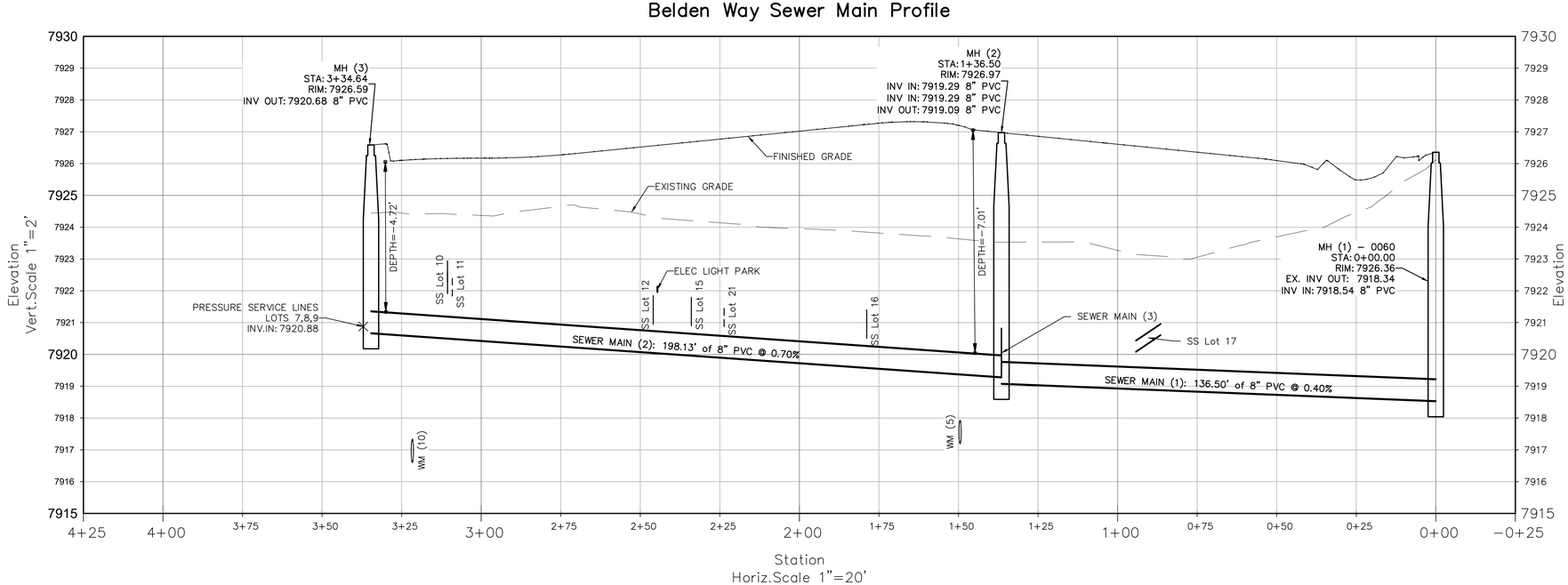
Title:
SEWER OVERVIEW W/ CALCULATIONS

Sheet:
C.220

EXHIBIT B



Belden Way Sewer Main Profile



TIMBERLINE ENGINEERING llc
CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED PROFESSIONAL ENGINEER 39276

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

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4/15/24	Final Plan Revised
4/19/24	Final Plan

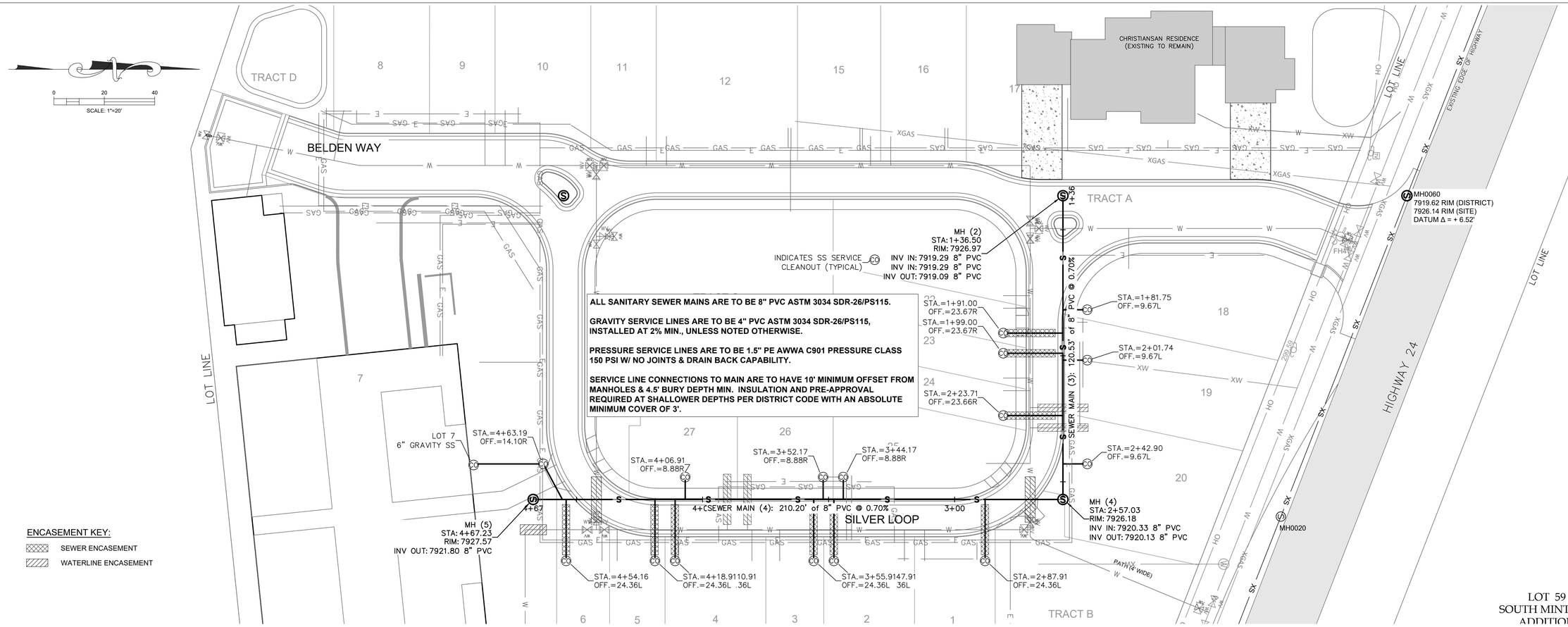
Title:

SEWER P & P
BELDEN WAY

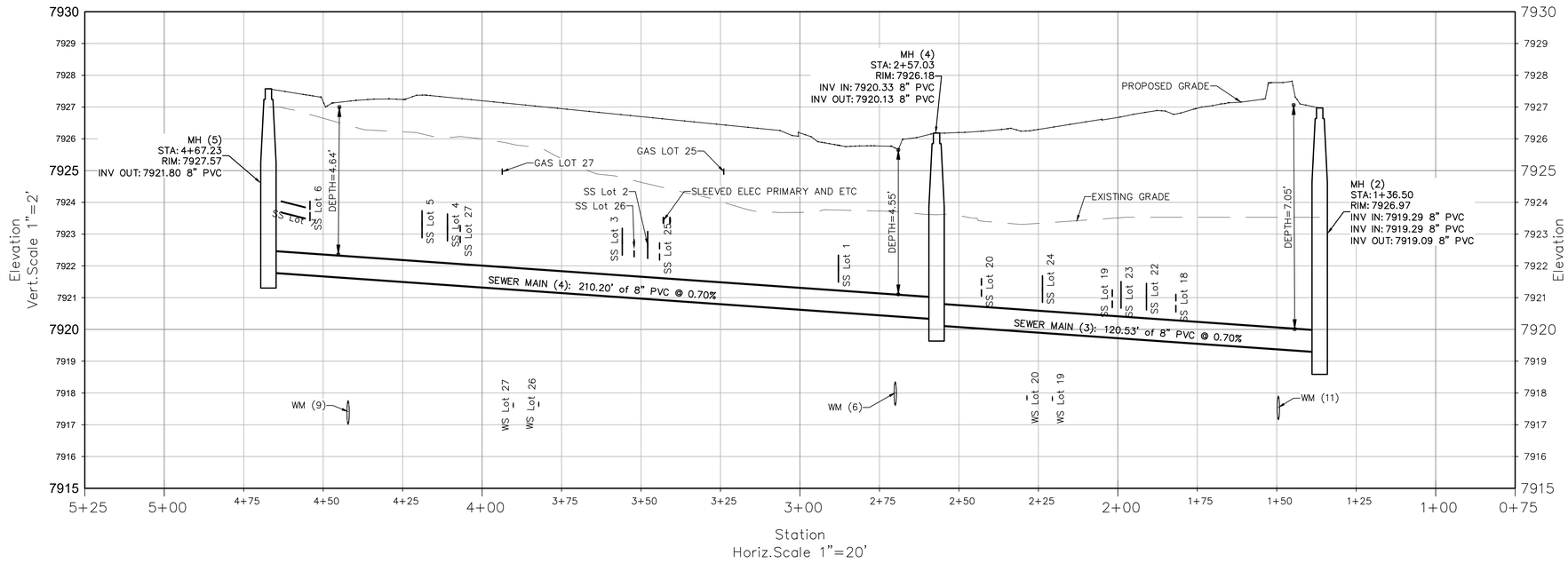
Sheet:

C.221

EXHIBIT B



Silver Loop Sewer Main Profile



TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED PROFESSIONAL ENGINEER
DAVID JOHN MOUGEY
39276

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

LOT 59
SOUTH MINTU
ADDITION

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3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

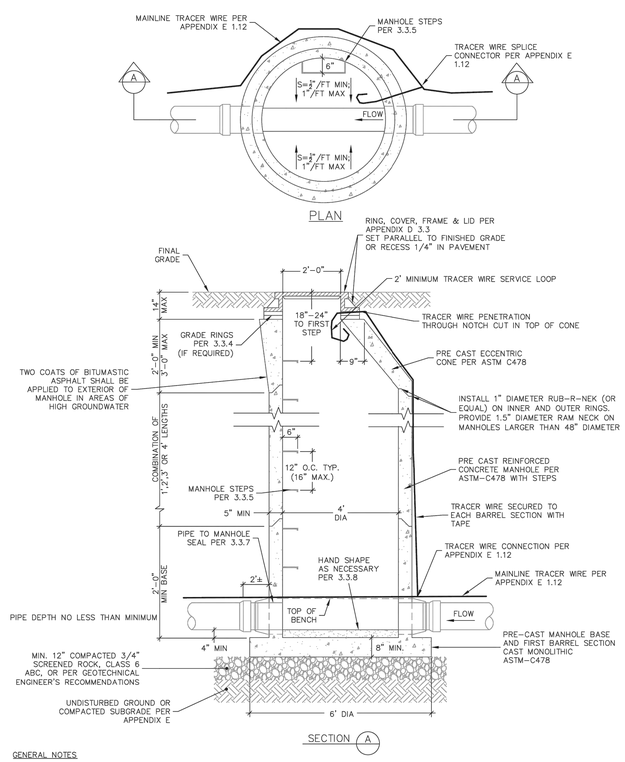
Title:

SEWER P & P
SILVER LOOP

Sheet:

C.222

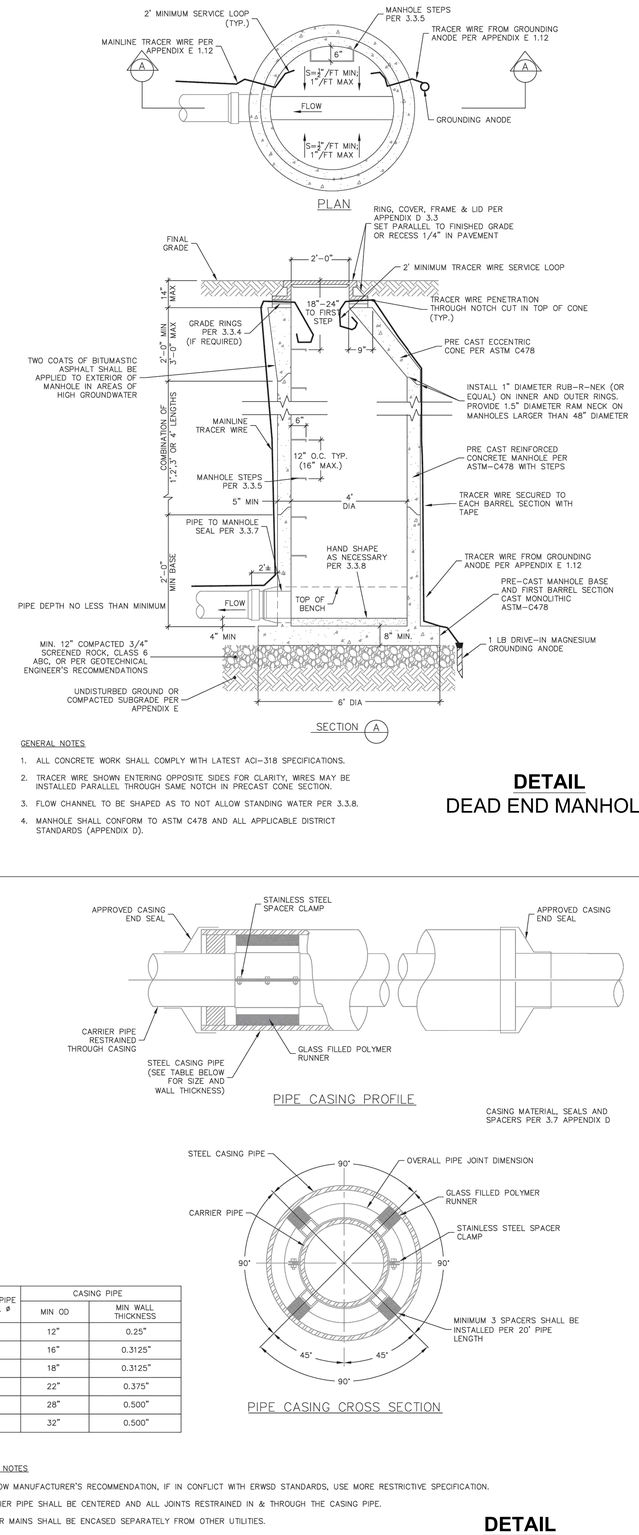
EXHIBIT B



GENERAL NOTES

1. ALL CONCRETE WORK SHALL COMPLY WITH LATEST ACI-318 SPECIFICATIONS.
2. MANHOLE TROUGH SHALL HAVE A MINIMUM OF 0.2' DROP FROM ENTRANCE THROUGH EXIT.
3. FLOW CHANNEL TO BE SHAPED AS TO NOT ALLOW STANDING WATER PER 3.3.8.
4. MANHOLE SHALL CONFORM TO ASTM C478 AND ALL APPLICABLE DISTRICT STANDARDS (APPENDIX D).

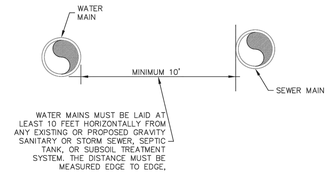
DETAIL
STANDARD MANHOLE



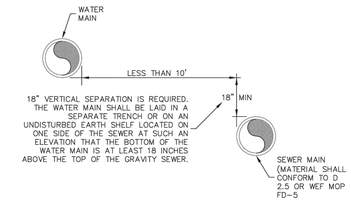
GENERAL NOTES

1. ALL CONCRETE WORK SHALL COMPLY WITH LATEST ACI-318 SPECIFICATIONS.
2. TRACER WIRE SHOWN ENTERING OPPOSITE SIDES FOR CLARITY, WIRES MAY BE INSTALLED PARALLEL THROUGH SAME NOTCH IN PRECAST CONE SECTION.
3. FLOW CHANNEL TO BE SHAPED AS TO NOT ALLOW STANDING WATER PER 3.3.8.
4. MANHOLE SHALL CONFORM TO ASTM C478 AND ALL APPLICABLE DISTRICT STANDARDS (APPENDIX D).

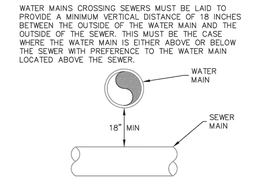
DETAIL
DEAD END MANHOLE



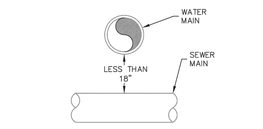
REQUIRED SEPARATION FOR PARALLEL INSTALLATIONS



EXCEPTION-REQUIRED SEPARATION FOR PARALLEL INSTALLATION CAN NOT BE ACHIEVED

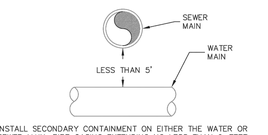


REQUIRED SEPARATION FOR PERPENDICULAR INSTALLATIONS



INSTALL SECONDARY CONTAINMENT ON EITHER THE WATER OR SEWER MAIN. PIPE CASING EXTENDING NO LESS THAN 9-FEET EACH SIDE OF THE CROSSING OR CONCRETE/CONTROLLED LOW STRENGTH MATERIAL (EX. FLOWABLE FILL) ENCASEMENT EXTENDING NO LESS THAN 10-FEET EACH SIDE OF THE CROSSING MAY BE USED. SEE GENERAL NOTE 3.

EXCEPTION A- SEWER UNDER WATER- REQUIRED SEPARATION FOR PERPENDICULAR INSTALLATION CANNOT BE ACHIEVED



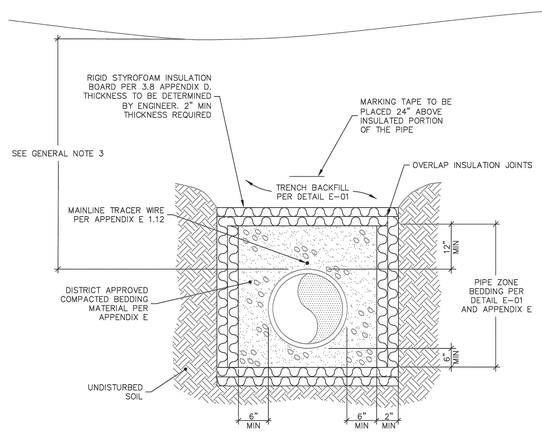
INSTALL SECONDARY CONTAINMENT ON EITHER THE WATER OR SEWER MAIN. PIPE CASING EXTENDING NO LESS THAN 9-FEET EACH SIDE OF THE CROSSING OR CONCRETE/CONTROLLED LOW STRENGTH MATERIAL (EX. FLOWABLE FILL) ENCASEMENT EXTENDING NO LESS THAN 10-FEET EACH SIDE OF THE CROSSING MAY BE USED. SEE GENERAL NOTE 4.

EXCEPTION B- SEWER OVER WATER- REQUIRED SEPARATION FOR PERPENDICULAR INSTALLATION CANNOT BE ACHIEVED

GENERAL NOTES

1. WATER PIPES MUST NOT PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER MANHOLE. WATER MAIN SHOULD BE LOCATED AT LEAST 10 FEET FROM SEWER MANHOLES.
2. PIPE SEPARATION MUST COMPLY WITH STATE OF COLORADO DESIGN CRITERIA FOR POTABLE WATER SYSTEMS, SECTION 8.8 (ALL DETAILS REGARDING SEPARATION BETWEEN WATER AND SEWER).
3. SECONDARY CONTAINMENT- THE PIPE CASING MUST BE OF WATERTIGHT MATERIAL WITH NO JOINTS. THE CASING PIPE MATERIALS MAY BE STEEL, DUCTILE IRON, FIBERGLASS, FIBERGLASS REINFORCED POLYMER MORTAR (FRPM), OR POLYVINYLCHLORIDE (PVC) WITH SUITABLE CARRIER PIPE SUPPORTS AND CASING PIPE END SEALS.
4. SECONDARY CONTAINMENT REQUIRED UNLESS THE VERTICAL DISTANCE EXCEEDS 5 FEET. THE CASING MUST BE A SINGLE SECTION OF STEEL OR DUCTILE IRON PIPE. THE DESIGN MUST INCLUDE A MEANS TO SUPPORT THE INTERCEPTOR OR SEWER MAIN TO PREVENT SETTLEMENT AND PERMIT MAINTENANCE OF THE WATER MAIN WITHOUT DAMAGE TO THE SEWER PIPE. CROSSINGS INVOLVING JOINTLESS PIPE SUCH AS HDPE, FUSIBLE PVC OR WELDED STEEL DO NOT REQUIRE INSTALLATION OF SECONDARY CONTAINMENT.

DETAIL
WATER & SANITARY SEWER SEPARATION



ELEVATION

GENERAL NOTES

1. CONDITION OF LESS THAN MINIMUM BURY DEPTH IS ALLOWED ONLY WITH WRITTEN APPROVAL FROM THE DISTRICT PRIOR TO CONSTRUCTION. INSULATION SHALL BE INSTALLED ON ALL PIPE THAT DOES NOT MEET MINIMUM BURY REQUIREMENTS.
2. THE USE OF INSULATION MUST BE APPROVED BY THE DISTRICT PRIOR TO INSTALLATION.
3. INSULATION SHALL BE INSTALLED ON ALL PIPES THAT DO NOT HAVE A MINIMUM OF 4.5' OF EFFECTIVE COVER. EFFECTIVE COVER SHALL BE DEFINED AS SEPARATION FROM COLD AIR SOURCES, INCLUDING STORM SEWERS. 1" OF INSULATION BOARD MAY BE SUBSTITUTED FOR EACH 1' OF SOIL COVER (MINIMUM 2" OF INSULATION) REQUIRED TO MEET THE MINIMUM COVER REQUIREMENT.
4. INSULATION SHALL BE DOW HIGHLOAD 100, OWENS CORNING FOAMULAR 1000, OR APPROVED EQUAL. HIGH COMPRESSIVE STRENGTH FOAM BOARD INSULATION IS REQUIRED WITHIN ALL RIGHT OF WAY AND PAVED AREAS.

DETAIL
SEWER PIPE INSULATION

PIPE CASING PROFILE

CASING MATERIAL, SEALS AND SPACERS PER 3.7 APPENDIX D

PIPE CASING CROSS SECTION

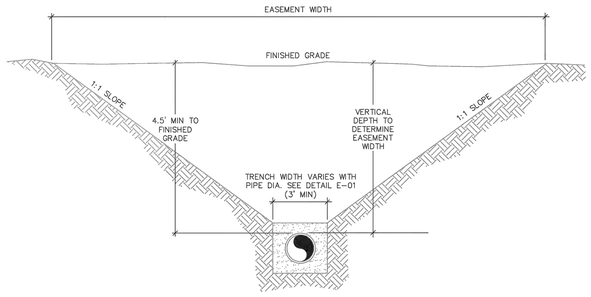
CARRIER PIPE NOMINAL ø	CASING PIPE	
	MIN OD	MIN WALL THICKNESS
4"	12"	0.25"
6"	16"	0.3125"
8"	18"	0.3125"
12"	22"	0.375"
16"	28"	0.500"
20"	32"	0.500"

GENERAL NOTES

1. FOLLOW MANUFACTURER'S RECOMMENDATION, IF IN CONFLICT WITH ERWSD STANDARDS, USE MORE RESTRICTIVE SPECIFICATION.
2. CARRIER PIPE SHALL BE CENTERED AND ALL JOINTS RESTRAINED IN & THROUGH THE CASING PIPE.
3. SEWER MAINS SHALL BE ENCASED SEPARATELY FROM OTHER UTILITIES.
4. ALL FASTENERS SHALL BE T-304 STAINLESS STEEL.
5. MAXIMUM DISTANCE BETWEEN SPACERS SHALL BE 6 FEET ON CENTER.

DETAIL
SEWER MAIN CASING

SEWER PIPE COVER DEPTH	MINIMUM EASEMENT WIDTH REQUIRED
4'6" TO 8'6"	20'
8'7" TO 11'0"	25'
11'1" TO 13'6"	30'
13'7" TO 16'0"	35'
16'1" TO 18'6"	40'
18'7" TO 21'0"	45'
21'1" TO 23'6"	50'



MINIMUM EASEMENT WIDTH

GENERAL NOTES

1. PIPE SHALL BE CENTERED IN EASEMENT.
2. ANY PROPOSED SEWER MAIN DEPTH GREATER THAN 14' DEEP REQUIRES AN ALTERNATIVES ANALYSIS AND DISTRICT APPROVAL.
3. CALCULATE EASEMENT WIDTH AS FOLLOWS:
   W = DEPTH TO TOP OF PIPE X 2 + 3 FEET
   (ROUNDED UP IN 5 FOOT INCREMENTS)

EXAMPLE:
10 FOOT DEEP PIPE = 10 X 2 + 3 = 23 FEET
W = 25 FOOT WIDE EASEMENT ROUNDED

DETAIL
SEWER EASEMENT WIDTH

TIMBERLINE ENGINEERING LLC
CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

South Mintum Addition
Lots 29, 31 & 32
Mintum, Colorado

PLANS ARE NOT FOR CONSTRUCTION UNLESS STAMPED "APPROVED FOR CONSTRUCTION" BY PROPER AUTHORITIES.

DATE	REVISION
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

Title:

SEWER DETAILS

Sheet:

C.223

EXHIBIT B

SEWER SPECIFICATIONS

THE FOLLOWING APPLICABLE CONSTRUCTIONS SPECIFICATIONS ARE A PORTION OF THE THE EAGLE RIVER WATER & SANITATION DISTRICT ("DISTRICT") RULES AND REGULATIONS FOR WATER AND WASTEWATER SERVICE.
TABLES, DRAWINGS, DETAILS AND EXHIBITS REFERENCED BELOW ARE INCLUDED IN THE APPENDICES OF THE DISTRICTS' RULES AND REGULATIONS

SECTION I – GENERAL REQUIREMENTS

1.1 Authority
The Standard Specifications for Sewer Mains (the "Specifications") are promulgated by the Eagle River Water & Sanitation District ("District"). The interpretation and enforcement of the Specifications is hereby delegated to the District Regulations Administrator.

SECTION II – COLLECTION SYSTEM DESIGN AND LAYOUT

2.5.10 Manhole Connections
Any new main connection eight inches (8") or greater within a manhole shall match the crown of pipe to crown of pipe at the highest existing main currently within the manhole.

2.5.11 Location/Marking Tape
All lines connected to District mains in any way shall be marked with the appropriate marking tape per Section 3.6 and shall be placed twenty four inches (24") above the pipe.

2.6.3 Horizontal and Vertical Separation from Potable Water Mains Refer to detail D-11.

(a) Parallel Main Installations and Appurtenances:

Sewer mains and sewer service lines shall be installed at least ten feet (10') horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten foot (10') separation, the District may allow installation of the sewer main closer to a water main utilizing encasement or pressure rated joints, provided that the water main is on a separate trench or on an undisturbed earth shelf located on one side of the main and at an elevation so the bottom of the water main is at least eighteen inches (18") above the top of the sewer main. The District requires a ten-foot (10') separation between water and sewer appurtenances including manholes. If a manhole is installed, it will be measured from outside of manhole to outside of water attribute.

(b) Perpendicular Crossings – Sewer under Water:

If the sewer pipe crosses under the water main but less than eighteen inches (18") of clear space will exist, either the water main or sewer main must be installed with secondary containment. Acceptable options include a pipe casing extending no less than nine feet (9') each side of the crossing. The pipe casing shall be of watertight material with no joints. The casing pipe materials may be steel, ductile iron, fiberglass, fiberglass reinforced polymer mortar (FRPM), or polyvinylchloride (PVC) with suitable carrier pipe supports and casing pipe end seals. Alternatively, concrete or Controlled Low Strength Material (ex. flowable fill) encasement of either pipe extending no less than ten-feet (10') each side of the crossing may be used.

(c) Perpendicular Crossings – Water under Sewer:

If the sewer pipe will cross above or over the water main, either the sewer pipe or water pipe shall be installed with secondary containment unless the vertical distance exceeds five feet (5'). Acceptable options include a pipe casing extending no less than 9- feet each side of the crossing. The casing must be a single section of steel or ductile iron pipe. The design must include a means to support the interceptor or sewer main to prevent settlement and permit maintenance of the water main without damage to the sewer pipe. Alternatively, concrete or Controlled Low Strength Material (ex. flowable fill) encasement of either pipe extending no less than 10-feet each side of the crossing may be used. Crossings involving jointless pipe such as HDPE, fusible PVE or welded steel do not require installation of secondary containment.

SECTION III – MATERIAL SPECIFICATIONS

3.1 General Requirements
All materials must conform to these Material Specifications and shall be new and undamaged. Acceptance of materials, or the waiving of inspection thereof, shall in no way relieve the Applicant of the responsibility for furnishing materials that meet the requirements of these Specifications.

3.2 Pipe and Fittings
The following materials are approved for District mains:

3.2.1 Polyvinyl Chloride (PVC) gravity pipe
Main installations from eight to fifteen inches (8" to 15") in diameter shall conform to ASTM D3034, and shall be either SDR-35/PS46 or SDR-26/PS115.
Main installations from eighteen to twenty-seven inches (18" to 27") in diameter shall conform to ASTM F679 and shall be SDR-26/P115. Push on joints and molded rubber gaskets shall conform to ASTM D3212.
Maximum pipe segment lengths shall be twenty feet (20'). Joint lubricant shall be nontoxic and water-soluble and supplied by the pipe manufacturer.

3.2.2 Polyvinyl Chloride (PVC) pressure pipe

(a) Yelomine
Yelomine pipe shall be SDR-21, restrained joint PVC pressure pipe and fittings having a minimum cell classification of 12454 as defined in ASTM D1784 and materials in conformance with ASTM D2241.

(b) C-900
AWWA C-900 pipe may be used for 8 " through 12" diameter pipe, and shall be pressure class 235 psi, DR18, with push-on joints and flexible elastomeric seals ASTM D3139/ASTM F477. All spigot ends shall be beveled to manufacturer's specifications with gaskets meeting ASTM F477 and joints in compliance with ASTM D3139.

3.2.3 Ductile Iron Pipe (DIP)
Ductile Iron Pipe shall be per ASTM A746, Class 52, 350 psi, AWWAC151. Push-on joints shall be ANSI/AWWA C111/A21.11. Factory applied Protecto 401, or equivalent, ceramic epoxy interior lining for DIP & fittings. Manufactured by U.S. Pipe and Foundry Company/Griffin Pipe Products or approved equal.

3.2.4 Service Line Taps
Factory wyes shall be used for all service line connections with new main installations. See Appendix B for requirements for new service line connections to existing mains.

3.2.5 Transition Adapter
If permitted on a case-by-case basis, Harco transition adapters or Shear Guard couplers may be used for pipe material transitions with prior approval. Fernco couplers shall not be permitted.

3.3 Manholes

3.3.1 Manhole
Manhole sections, base, riser, conical top sections, flat slab tops, and joint sealants between manhole sections shall be in accordance with ASTM C 478. Concrete used in cast in place manhole bases shall be per Section 3.3.10. All cone sections shall be the eccentric type. Openings through manhole risers shall be cored or cast-in, and access opening shall be twenty four-inch (24") diameter. Flat lid slabs are required on manholes with a depth of less than five feet (5') and must be eccentric.

3.3.2 Water Tightness
Manholes shall be watertight and constructed of precast concrete. Barrel sections, cones and frame joints shall all be sealed with a double Rub R Nek, or other equivalent material approved by the District. In areas of high groundwater or otherwise required by the District, a bituminous coating, or approved equal waterproofing material, shall be applied to the exterior of the manhole. Manhole vacuum testing shall be required by the District on all manholes in all areas of high groundwater.

3.3.3 Rings and Covers
Manhole rings and covers shall be heavy duty castings ASTM A 536 or gray cast iron per ASTM A 48 and all components shall be traffic rated to AASHTO HS-20. Ring and cover combined weight shall be greater than 245 pounds and machined to fit securely with a non-rocking cover. Manhole covers shall be twenty-four inch (24") in diameter and have a minimum of twenty-two and one-eighth inches (22-1/8") diameter clearance, have a waffle pattern with a flat lid and the lettering "SEWER" cast on the cover. Covers shall be D & L brand model A-1043 or accepted equal. Precision Cover Systems, Inc. (PCSI) fully-adjustable manhole covers with variable grade rings shall be installed in roadways.

3.3.4 Grade Rings
Grade rings shall be in accordance with ASTM C 478 and the maximum height of grade rings shall not exceed eleven inches (11").

3.3.5 Manhole steps
Steps shall be comprised of grade 60 deformed rebar encased in a polypropylene copolymer plastic with a tread width of fourteen inches (14"). The steps shall be M.A. Industries No. PS2-PF or PS2-PF-DF or approved equal. Steps shall be cast in place during manufacturing of the manhole sections and shall be six inches (6") from face of manhole. The top most step shall be installed between eighteen (18") and twenty-four inches (24") from the rim of the manhole. Manhole steps shall be vertically aligned and plumb. Steps shall be typically spaced at twelve inches on-center vertically with a maximum spacing of sixteen inches (16"). Steps shall not be installed in the "chimney" portion of the manhole. Entry steps shall be located in the barrel and cone sections of the manhole. See Standard Manhole Detail D-01.

3.3.6 Joint Sealant
Joints shall be sealed with Rub-R-Nek LTM or approved equal installed on the inner and outer ring. Sealant shall be a flexible gasket-type of Butyl rubber, Federal Specifications SS-S-210 (210-A), per ASTM C990-09, AASHTO M-198 75 1. Sealant shall be applied on all surfaces between precast concrete adjusting ring and casting, individual precast concrete adjusting rings, and precast concrete adjusting ring and cone joints. A compatible primer or solvent as recommended by manufacturer of butyl base material shall be used to prepare surfaces prior to application of butyl base material and riser rings. Two gaskets with a minimum cross sectional area equivalent to one inch (1") in diameter are required per joint on forty-eight inch (48") diameter manholes. Gaskets for manholes greater than forty-eight inches (48") in diameter shall have a minimum cross sectional area of one and one-half inches (1 ½").

3.3.7 Pipe to Manhole Seal
KOR-N-Seal, A-Lok, or approved equal flexible rubber boot in a cored hole per ASTM C 923 shall be used for installations in pre-cast bases.
For installations in cast-in-place bases (upon approval and on existing mains only), all pipe-to-manhole connections shall use two elastomeric Kor-N-Seal, or approved equal, "O"-ring water stops minimum per ASTM F477.

3.3.8 Flow Channel
The flow channel straight through a manhole should be made to conform as closely as possible in shape and slope to that of the connecting mains and shall have two tenths of a foot (0.2') minimum fall through the channel for a standard manhole. Channel depth and width shall equal the largest pipe diameter. The channel walls should be formed or shaped to the full height of the crown of the outlet main in such a manner as to not obstruct maintenance, inspection or flow in the sewers.

3.3.9 Bench
All manholes shall be constructed with a full bench configuration, in which the top of the invert channel walls shall match the crown of pipe elevation. The horizontal bench surface shall be sloped at a minimum of one-half inch (½") per foot, maximum of one inch (1") per foot with a medium broomed finish, perpendicular to the main direction of flow.

3.3.10 Manhole Base
The foundation for each manhole base shall be prepared by replacing unsuitable material with sub grade stabilization material in accordance with Appendix E-Earthwork.
The manhole base shall be precast (in accordance with ASTM C478) unless the manhole ties into an existing main, in which case a cast-in-place base may be used.
The invert shall be formed and smoothly finished to match the shape and elevation of all pipes connected to the manhole. Where the sewer line is designed with a continuous grade through the manhole, the pipe shall be laid through the manhole location, the top half of the pipe cut out and the manhole base formed around the bottom half of the pipe.
All concrete used in construction of cast-in-place manholes and bases shall be CDOT Class D. Concrete reinforcement shall be epoxy-coated steel reinforcing bars in accordance with ASTM A-615, Grade 60. In instances where a manhole ties into an existing main and a cast-in-place base is used, the first pre-cast manhole section shall be placed on the concrete base structure before the base has taken initial set, or the section shall be grouted into a suitable groove formed in the top of the manhole base.
The first section shall be adjusted to the proper grade and alignment so that it is uniformly supported by the base concrete and not bearing on any of the pipes. The manhole steps shall be located one-foot left or right of the main inflow pipe.
The remaining pre-cast sections shall be placed and aligned to provide vertical sides and alignment of the ladder rungs. Plumbness shall be checked as each barrel section is added. A bituminastic or other approved sealer shall be placed between pre-cast sections so that the completed manhole is rigid and watertight. The sealer shall be placed both on the inside lip as well as the outside lip of each section.

3.3.11 Interior Coatings
For drop manholes (or other applications as identified by the District), manhole interiors shall be coated with a Polyamidoamine Epoxy Primer with Polyamidoamine Epoxy Top Coat such as Tnemec Epoxoline Series L69 or equivalent. Preparation and application shall be per manufacturers' recommendations.

3.4 Concrete/Grout

3.4.1 General Requirements
Contractor shall provide the District Inspector with a specification sheet or mix design from the concrete supplier.

3.4.2 Concrete
All concrete used in construction of cast-in-place manholes and bases shall be CDOT Class D. Construction shall be in conformance with the Detail D-01.

3.4.3 Mortar and Grout
Non-shrink mortar and grout used in the shaping of inverts, grade ring gaps, sealing penetrations, or setting and anchoring cast iron shall consist of one part Type II Portland Cement and two parts of fine, clean sand. Only sufficient water shall be added to provide a stiff, workable cement mixture for proper troweling. Hydrate lime or masonry cement shall not be used. Where relatively thin portions of grout are to be applied (to a flow channel or top of bench) an approved epoxy bonding coat shall be applied to the exposed concrete surfaces prior to grouting.

3.5 Locating Disk
The District will provide green 3M brand Full-Range Disk Marker locating disks to the contractor for stub outs. The contractor shall ensure their correct installation.

3.6 Marking Tape
The installation of green marking tape is required on all sewer mains and service lines.
The tape shall be installed approximately 24 inches (24") above the main or line. The tape shall meet the following specifications:

(a) Five (5)-mil thick Polyethylene material.

(b) Solid green color with black lettering.

(c) Six inches (6") in width.

3.7 Casing Material and Spacers
Carrier pipes to be installed inside casings shall be installed with self-restraining casing spacers. Casing spacers shall provide axial thrust restraint to prevent pipe joint deflection during and after installation. They shall also provide dielectric insulation between the carrier pipe and the casing and facilitate installation of the carrier pipe into the casing. See Sewer Main Casing Detail D-5. Pipe casing shall be smooth wall welded steel ASTM A-53 Grade B cylinder fabricated in accordance with AWWA C200. External loading shall be AASHTO HS-20 highway or E-80 railroad loading, railroad loading plus jacking load. Casing joints shall have ends beveled for field welding, be butt welded with complete joint penetration welds around the entire circumference of the pipe, and be formed and accurately manufactured so that when pipes are placed together and welded they form a continuous casing with a smooth and uniform interior surface. Interlocking joints shall be Permalok Interlocking Pipe Joining System.
Casing spacers shall be stainless steel, two piece bolt-on style, minimum fourteen (14) gauge thickness and a minimum length of eleven inch (11"); casing spacers shall be installed every six feet (6') of the pipeline to support the pipe barrel and the weight of its contents, or at an appropriate spacing as determined by the engineer. The four runners shall be eleven inches (11") long at a minimum and manufactured of high abrasion resistant, low coefficient of friction, glass filled polymer. Runner heights shall be set to center the carrier pipe in the casing. Risers shall be ten (10) gauge maximum, and the coating shall be fusion-bonded epoxy or heat fused PVC. Casing spacer models shall be Uni-Flange Series UFRCS1300, Advance Products and Systems, Inc. SI-12; Pipeline Seal and Insulator, Inc. C12G or approved equivalent. Restrained casing spacers shall be provided at all pipe joints. Restrained casing spacers shall be UniFlange Series UFRCS1390 P or approved equivalent.
Casing end seals shall be preformed and designed to prevent entry of water or loss of material from casing. The end seals shall be made of one-eighth inch (1/8") thick 60 durometer EPDM or neoprene rubber held together with mastic strips to seal the edges.
The seals shall overlap the casing pipe by two inches (2") and shall be held on with AISI 304L stainless steel worm gear clamps. Casing end seals shall be Advance Products and Systems, Inc. AC or AW; Pipeline Seal and Insulator, Inc. C or W; or approved equivalent.

3.8 Tracer Wire (REQUIRED)
See Appendix E

SECTION IV – PIPE INSTALLATION & CONSTRUCTION

4.1 Safety
Job site safety shall be the responsibility of the contractor. The District Inspector may refuse to enter a jobsite if deemed unsafe by Occupational Health and Safety Act (OSHA) standards. Failure to provide a safe jobsite may prevent the District from conducting an inspection.

4.2 Handling of Materials
Pipe and fittings shall be loaded and unloaded by lifting so as to avoid shock or damage. Under no circumstances shall material be dropped. If, however, any part of the pipe is damaged, the replacement or repair of the damaged pipe shall be done to the satisfaction of the District. Any pipe or fittings that are not acceptable to the District shall be removed from the job site immediately. All pipe-handling equipment and pipe handling methods shall be in accordance with the methods and equipment recommended by the manufacturer.
Under NO circumstance shall forks be inserted into any pipe and or fitting.
Pipe shall be stored and handled in accordance with manufacturer's recommendations.
Any pipe with UV degradation or bowing may be rejected by the District Inspector. All pipe shall be delivered to the project site and stored with factory applied end caps intact.

4.3 Inspection and Preparation of Pipe and Fittings
Before placing pipe in the trench, each pipe or fitting shall be thoroughly cleaned of all foreign material, kept clean at all times thereafter, and carefully examined for cracks, warping, or any other defects before installation. Bell ends and spigot ends are to be examined and free of defects. Following the inspection, end caps shall be replaced prior to placing the pipe in the trench.
All lumps, blisters and excess coatings shall be removed from the pipe and fitting, and the outside of the spigot and the inside of the bell shall be wiped clean, dry and free from oil and grease before the pipe or fitting is installed. Dirt and any other material must be removed from the barrel of the pipe before installation.

4.4 Cutting and Fitting of Pipe
Pipe shall be cut in accordance with manufacturer's recommendations, whenever necessary, to conform to location of fittings, line, or grade. All cuts, when required, shall be straight, true and beveled and may be made with plastic pipe cutters or completed per the DIPRA Guidelines for Field Welding and Cutting Ductile Iron Pipe (August 2015). All burrs shall be removed from the ends of cut pipe and the ends of the pipe lightly rasped or filed.

4.5 Pipe Alignment and Grade
Manholes shall be installed at staked locations and elevations. Main installation stakes for alignment and grade shall be set by a surveyor under the guidance of a Professional Land Surveyor who is registered in the State of Colorado.
Pipe shall be installed at a constant grade from manhole to manhole. No grade breaks or low spots will be accepted. Pipe shall be installed with the bell ends facing in the direction of installation, unless directed otherwise by the District. Where pipe is to be installed on a grade of ten percent (10%) or greater, the installation shall start at the bottom and shall proceed upward with the bell ends of the pipe up grade.

4.6 Temporary Plugs
A mechanical pipe plug shall be used as a temporary plug during line installation to isolate the mainline extension from the existing collection system. All temporary plugs shall be provided by the Contractor.

4.7 Frost
No pipe or appurtenant structure shall be installed upon a foundation into which frost has penetrated, or if at any time there is danger of ice formation. No pipe or appurtenant structure shall be installed unless backfilling can be completed before the formation of ice and frost.

4.8 Lowering of Material into the Trench
Proper implements, tools and facilities satisfactory to the District shall be provided and used by the Contractor for the safe and convenient performance of the work. All pipe, manholes, and accessories shall be carefully lowered into the trench piece by piece by means of suitable tools and equipment, in such a manner as to prevent damage to the materials. Under no circumstances shall the materials be dropped or dumped into the trench.
If damage occurs to any pipe, manholes or main accessories in handling, the District inspector may reject the damaged material at the discretion of the inspector.

4.9 Installation of Pipe

4.9.1 General Requirements
Factory applied end caps shall remain installed on the pipe while it is being placed in the trench to prevent foreign material from entering the pipe. The end cap shall be left in place until the connection is to be made to the adjacent pipe. During installation, no debris, tools, clothing or other foreign materials shall be placed in the pipe.
As each length of pipe is placed in the trench, the spigot end shall be centered in the bell and the pipe inserted to the manufacturer's recommended depth with a slow steady pressure without jerky or jolting movements and brought to correct line and grade. The pipe shall be secured in place with bedding material tamped under it, except at the bells. Precautions shall be taken to prevent dirt from entering the joint space. No wooden blocking shall be left at any point under the pipeline. All pipe joints shall be uniform and smooth transitions shall exist from joint to joint or fitting.
See Appendix E for bedding, backfill and compaction requirements.

4.9.2 Ductile Iron Pipe
Push-On Joints: The inside of the bell, the outside of the spigot end, and the rubber gasket shall be thoroughly cleaned to remove oil, grit, excess coating, and other foreign matter. The rubber gasket shall be flexed inward and inserted into the gasket recess of the bell socket. NSF-61 approved gasket lubricant per the manufacturers recommendations shall be applied to either the inside face of the gasket, and the spigot end of the pipe, per the manufacturer's recommendations.
The spigot end of the pipe shall be placed in the bell end with care to prevent the joint from contacting the ground. Pipe furnished without a depth mark on the spigot end shall be marked before assembly to ensure insertion to the manufacturer's recommended depth. The pipe shall be kept in straight alignment and the joint shall be completed by inserting the pipe to the manufacturer's recommended depth with a slow, steady pressure by using a long pry bar, jack, lever puller, or backhoe bucket. A timber header should be used between the pipe and the jack or backhoe bucket to avoid damage to the pipe.
Upon completion of joining push-on joint pipe, an inspection shall be made to ensure that the gasket is correctly aligned in the gasket recess of the bell socket and not twisted or turned.

4.9.3 Polyvinyl Chloride Pipe
Elastomeric Gasket Joints: Immediately before joining two (2) lengths of PVC pipe, the inside of the bell or coupling, the outside of the spigot and the elastomeric gasket shall be thoroughly cleaned to remove all foreign material.
Lubrication of the joint and rubber gasket shall be done in accordance with the pipe manufacturer's specifications.
Care shall be taken that the correct elastomeric gasket, compatible with the annular groove of the bell, is used. Insertion of the elastomeric gasket in the annular groove of the bell or coupling must be in accordance with the manufacturer's recommendations.
The spigot and bell or coupling shall be aligned and inserted to the manufacturer's recommended depth or reference line. Installation or pushing shall be done in a smooth, steady motion. Upon completion of joining the pipe, an inspection shall be made to assure that the gasket is correctly aligned in the gasket recess of the bell socket and not twisted or turned. NO deflection will be allowed at a joint of PVC pipe.

4.9.4 Yelomine Pipe
Installation of Yelomine pipe shall be in accordance with the manufacturer's recommendations and specifications. Cleanout caps shall be installed with nonpermanent gaskets where applicable.

4.9.5 Job-Mixed Concrete
Job-mixed concrete shall be thoroughly mixed to combine aggregates, cement, and water into a uniform mass.

4.9.6 Ready-Mixed Concrete
Said materials must be proportioned, mixed and transported in accordance with ASTM C94. Any concrete not plastic and workable when it reaches project shall be rejected.
See Section 3.4 for material specifications.

4.10 Manholes
Manholes shall be precast, watertight and constructed in accordance with the District's standard details and per Section 3.3. For precast manhole bases, the area underneath the manhole base shall be excavated and bedding material shall be placed and compacted to 95% Modified Proctor the required elevation. The manhole base shall then be lowered into the trench and checked for proper bearing on the subgrade, proper elevation and orientation to receive the incoming and outgoing sewers at the designated invert elevation. If the invert elevation varies by more than plus or minus one half inch (1/2") from the designated invert elevation, the base shall be removed and reset. The concrete invert channel and bench shall be constructed following the connection of all sewer pipes to the manhole. The flow channel shall be smooth and true to the sewer pipe invert elevations, with uniform cross section and slope, either straight or with a continuous curve between inlet and outlet of pipes. To eliminate free fall conditions in a manhole resulting from invert elevation differentials between incoming and outgoing pipes, the Contractor shall form and construct suitable channels in the bottom of the manhole connecting the inverts. Shape channel base and bench per Sections 3.3.8 and 3.3.9, respectively. New manholes shall have pre-formed holes for pipe installation and existing manholes shall be cored to install pipe and connector. Chip existing concrete
bench inside manhole and shape smooth continuous invert for connections to existing manholes. All pipe-to-manhole connections and grade adjustment rings shall be sealed and grouted with non-shrink materials and be watertight. All lift holes shall be filled with non-shrink grout.
All dimensions, locations and elevations shall be coordinated by the Applicant and Contractor and meet the requirements of the District. Cast-in-place manhole bases will only be allowed when connecting to an existing main.

4.11 Service Lines
Refer to Appendix B, Section II.

SECTION V – TESTING AND ACCEPTANCE

5.1 General Requirements for Connections
Connections to the District system shall be inspected and approved by the District prior to backfilling.

5.1.1 Service Connections
Refer to Appendix B.

5.1.2 Connections to Manholes
All connections shall match the crown of pipe to crown of pipe at the highest existing main or per the direction of the District. All new main installations shall require reformed benches that meet all District standards.

5.2 Testing – Sewer Mains

5.2.1 Alignment
Straight alignment shall be checked by using either a laser beam or lamping.

5.2.2 Low Pressure Air Testing – General Requirements
The air test shall, as a minimum, conform to the test procedure described in ASTM F 1417 Standard Practice for Installation Acceptance of Plastic Non-Pressure Sewer Lines Using Low-Pressure Air. Deflection testing should occur prior to air test.

5.2.3 Low Pressure Air Testing Procedure

(a) Lines must be cleaned by flushing or by other means before the low pressure air test is to begin.

(b) Isolate the sewer line to be tested and ensure that all other outlets from which air could escape are properly sealed. In this step of the procedure, it is necessary to inspect the manhole invert being plugged to be sure that it has no damage which will be covered by the plug and not detected with the low-pressure air test.

(c) Determine the duration of the test by using the accompanying tables at the end of this section.

(d) Begin the test by connecting the air source to the inlet tap. Slowly add air until the internal pressure of the test section reaches a pressure 4.0 psig. If ground water back pressure exists, it must be quantified by the Engineer prior to testing.

(e) After the constant pressure of 4.0 psig is obtained, regulate the air supply so that the pressure is maintained between 3.5 to 4.0 psig for at least 2 min. Depending on air/ground temperature conditions, the internal air temperature will stabilize in equilibrium with the temperature of the pipe walls. The pressure will normally drop slightly until equilibrium is obtained; however, a minimum of 3.5 psig is required.

(f) Once the pressure has stabilized to 4.0 psig (plus the average ground water back pressure, if applicable) disconnect the air supply from the control panel. Observe the continuous monitoring gauge and decrease the internal pressure to no less than 3.5 psig. At a reading of 3.5 psig or within the range of 3.5 to 4.0 psig, stop decreasing the pressure and commence timing with a stopwatch or watch with a second hand or digital readout in minutes and seconds with an accuracy of 0.1.s.

(g) Once the predetermined time period from the formula or table above has elapsed, observe the continuous monitoring gauge to obtain the amount of pressure lost during the test duration. If the pressure drop is found to be less than 1.0 psig (or 0.5 psig in circumstances where a shorter test duration is desired), the section is presumed to be free of any leaks or defective joints. If the pressure drop is 1.0 psig or greater (0.5 psig or greater in circumstances where a shorter test duration is desired), the test section has failed due to excessive pressure loss. When low-pressure air testing of a sewer line results in a failure the Contractor, at his/her own expense, shall detect the leak or defect and repair or replace whatever is necessary to remedy such defect in a manner acceptable to the Owner.

See TABLE D-3 for Minimum Time for a 1.0 psig Pressure Drop for Size and Length of Pipe for Q = 0.0015
See Table D-4 for Minimum Time for a 0.5 psig Pressure Drop for Size and Length of Pipe for Q = 0.0015

5.3 Manhole Testing – General Requirements

Manhole vacuum testing shall be required by the District on all manholes in all areas of high groundwater via the vacuum test per ASTM C1244, "Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) prior to backfill.

5.3.1 Manhole Testing Procedure

(a) Plug all inlets and outlets.

(b) Install the vacuum tester head assembly on the manhole.

(c) Attach the vacuum pump assembly to the proper connection on the test head assembly. Make sure the vacuum inlet/outlet valve is in the closed position.

(d) Inflate the sealing element to twice the test pressure to be used. Do not over inflate.

(e) Start the vacuum pump assembly engine and allow preset RPMs to stabilize.

(f) Open the inlet/outlet ball valve and evacuate the manhole to ten-inch (10") Hg (mercury) that is equivalent to approximately 5 PSIG (0.3 bar) backpressure.

(g) Close the vacuum inlet/outlet ball valve, disconnect the vacuum pump and monitor the vacuum for one (1) minute.

(h) Allowable leakage - less than one-inch (1") Mercury (Hg) in one (1) minute.

(i) All manholes that do not meet the minimum amount for the leakage rests must be repaired and re-tested.

TIMBERLINE ENGINEERING llc
CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDREWS 39276 PROFESSIONAL ENGINEER

Belden Place PUD
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2/15/22	Easement Coordination
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4/19/24	Final Plan

Title:
SEWER CONSTRUCTION SPECIFICATIONS 1

Sheet:
C.224

SEWER SPECIFICATIONS - CONTINUED

Prior to construction/final acceptance of any sanitary sewer line by the District, the main shall be inspected internally by television as outlined in this Section. Leakage testing shall be performed prior to televising. The complete job is ready for television inspection when the following work has been completed.

(a) All sewer pipelines are installed and backfilled.

(b) All attributes are in place, all inverts are complete and pipelines are accessible.

(c) All other underground facilities, utility piping and conduits are installed.

(d) Pipelines have been jet cleaned.

(e) Final air test has been completed.

When the above work is complete, the Contractor shall arrange for the television inspection. The Contractor of the project will notify the District in writing as to the scheduled date of the television inspection.
After conditions a through e as outlined above, are met, the entire job will be televised.

(a) A video. accompanied by Standard Form 6.3 shall document defects requiring correction.

(b) If no deficiencies are observed, the work will be considered satisfactory.

There is no acceptance tolerance for defects such as high and low spots, joint separations, offset joints, chipped ends, cracked or damaged pipe, dimples or bumps in the pipe, or groundwater infiltration.

5.4.1 Inspection Format
Sanitary sewer lines shall be inspected by means of remote CCTV. All CCTV work shall conform to current NASSCO-PACP standards. Contractor shall provide the District with CCTV inspections (video and data collected) entirely in electronic format. Mains shall be tested with three and a half (3.5) gallons of water per minute flowing during televising and shall follow the direction of flow. The camera must be centered in the pipe and the speed of travel shall be slow enough to inspect each pipe joint, and tee connection, and should not, at any time, be faster than 30 feet per minute. The documentation of the work shall consist of PACP CCTV Reports, PACP database, logs, electronic reports, etc. noting important features encountered during the inspection. All CCTV video observations shall be identified by audio and recorded on the District Standard Form 6.3 and is required to accompany each submittal.

5.4.2 CCTV Video Content
Submitted CCTV videos shall include:

(a) Footage indicator

(b) Running time

(c) Date

(d) Location

(e) Beginning (upstream) and ending (downstream) manhole numbers for each run. Manhole numbers corresponding with the District's GIS mapping system shall be obtained by the District field inspector.

5.4.3 District Review
The Contractor will be notified in writing of any deficiencies revealed by the television inspection that require repair. If corrective work is indicated and the Contractor wishes to view CCTV videos, he shall contact the District to set a time for the viewing.

5.4.4 Correction of Deficiencies
Those segments of the pipeline system that have been corrected must be re-televised. The procedure outlined in above will be repeated until all deficiencies observed by television inspection have been corrected to the complete satisfaction of the District. Prior to submittal to the District, the CCTV videos shall be reviewed by the Engineer, Applicant, and Contractor for any defect that may be visible. If CCTV videos and cut sheets are submitted to the District that are deemed "unacceptable," the Contractor shall be charged for the time taken by District personnel to review the CCTV videos. The minimum charge shall be one hundred dollars ($100).

5.5 Sewer Main Repairs
All proposed repairs must be approved by the District Inspector prior to actual repair. Once repair has been made, inspection will be required by a District Inspector. There will be no exception to this requirement. If a repair and/or correction is made in a sewer line segment, the entire line segment shall be required to be re-televised with water flowing. A line segment is defined as the entire length of sewer line from manhole to manhole.

5.6 Protection of Existing Sewer System
On the outlet of the connection point to the existing District sewer main, a mechanical plug shall be installed to prevent any flow, debris and or material from the newly constructed main line from entering the District's system. The plug shall be normally set on the downstream outlet of the manhole. Plugs shall be installed per the direction of the District's Inspector. The plug shall be a mechanical-type device and is to be secured to the existing manhole to prevent loss of plug. The plug shall not be removed until Construction Acceptance has occurred. The Contractor shall be required to make routine inspections of the mechanical plug to insure that no leaking is occurring. If a leak is found, the Contractor shall immediately notify the District and take corrective action. The District may perform a video inspection of existing sewer mains that could potentially be impacted by construction activities prior to the start of construction and after the completion of construction. Any damage to existing facilities caused by the Contractor shall be repaired at the Contractor's expense.

5.7 Manhole Abandonment
Manholes to be abandoned in place shall have all pipes entering or exiting the structure plugged with lean concrete or controlled low strength material backfill (Flo-Fill). For manholes with existing pipes too large to plug with fill, a bulkhead shall be constructed on the inside of the manhole to prevent the fill from entering the pipes. Manhole tops or cone section shall be removed to the top of the full barrel diameter section or to a point not less than eighteen (18) inches below final grade. The structure shall then be backfilled with lean concrete or Flo-Fill. Surface restoration shall be completed to match the surrounding areas.

TIMBERLINE ENGINEERING llc CIVIL | STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

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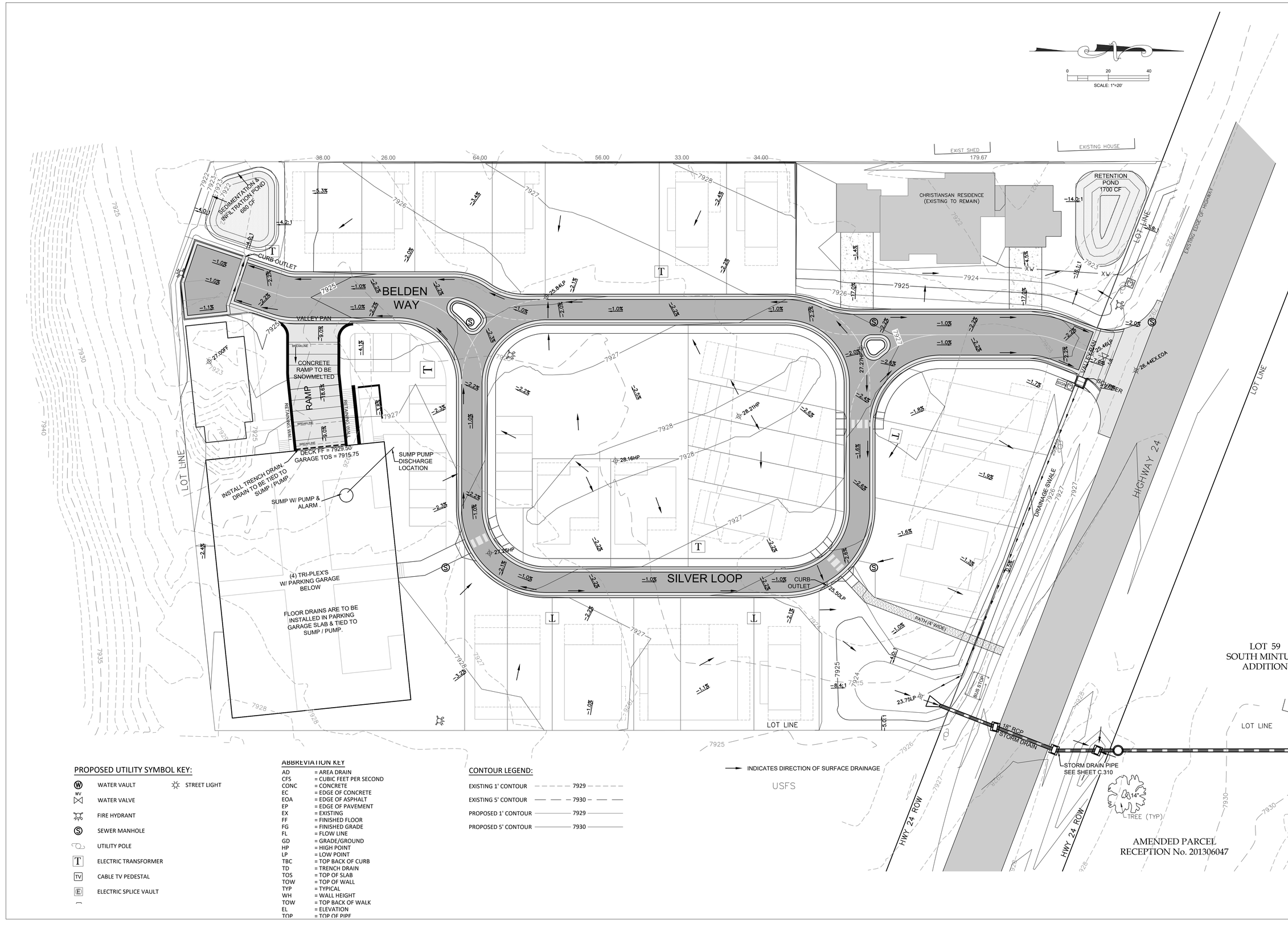
4/19/24	Final Plan

Title: SEWER CONSTRUCTION SPECIFICATIONS 2

Sheet: C.225

EXHIBIT B



PROPOSED UTILITY SYMBOL KEY:

- WATER VAULT
- WATER VALVE
- FIRE HYDRANT
- SEWER MANHOLE
- UTILITY POLE
- ELECTRIC TRANSFORMER
- CABLE TV PEDESTAL
- ELECTRIC SPLICE VAULT
- STREET LIGHT

ABBREVIATION KEY

AD	= AREA DRAIN
CFS	= CUBIC FEET PER SECOND
CONC	= CONCRETE
EC	= EDGE OF CONCRETE
EOA	= EDGE OF ASPHALT
EP	= EDGE OF PAVEMENT
EX	= EXISTING
FF	= FINISHED FLOOR
FG	= FINISHED GRADE
FL	= FLOW LINE
GD	= GRADE/GROUND
HP	= HIGH POINT
LP	= LOW POINT
TBC	= TOP BACK OF CURB
TD	= TRENCH DRAIN
TOS	= TOP OF SLAB
TOW	= TOP OF WALL
TYP	= TYPICAL
WH	= WALL HEIGHT
TOW	= TOP BACK OF WALK
EL	= ELEVATION
TOP	= TOP OF PIPE

CONTOUR LEGEND:

- EXISTING 1' CONTOUR — 7929
- EXISTING 5' CONTOUR — 7930
- PROPOSED 1' CONTOUR — 7929
- PROPOSED 5' CONTOUR — 7930

INDICATES DIRECTION OF SURFACE DRAINAGE

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

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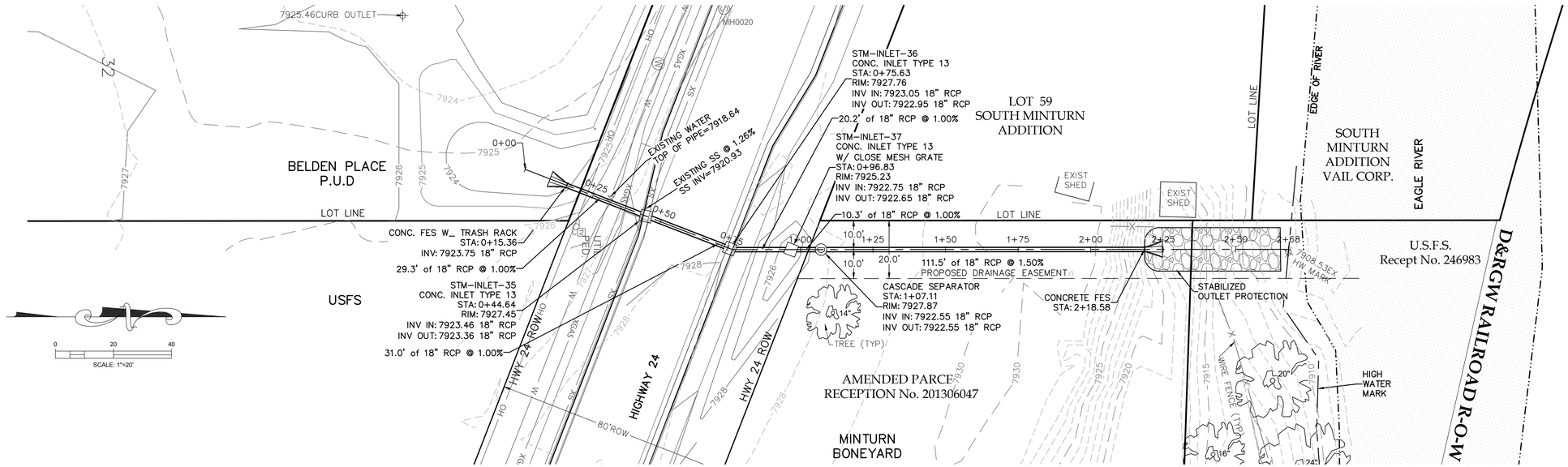
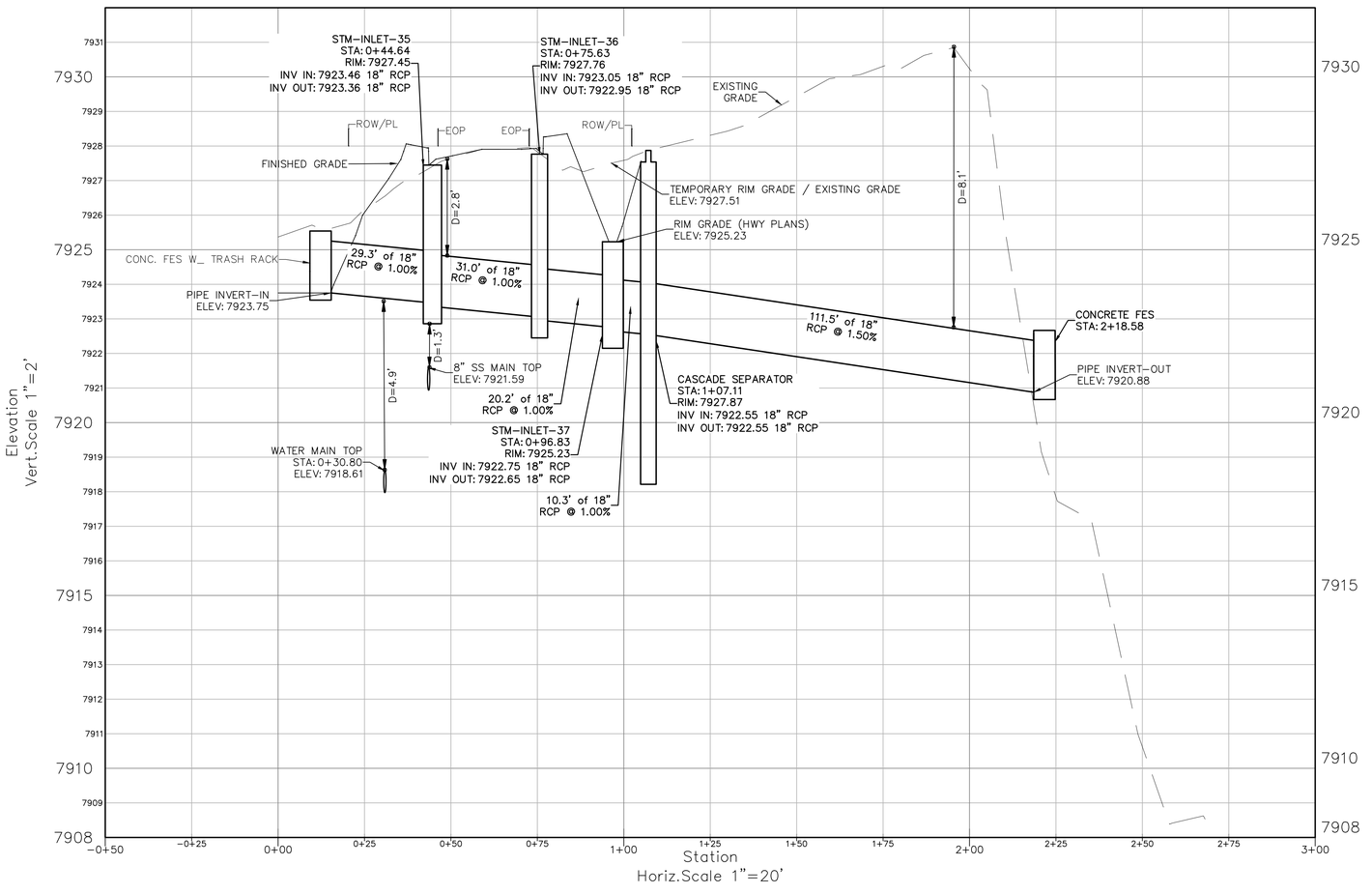
Sheet: C.300

EXHIBIT B



Highway 24 Storm Drain Profile



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218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ACKERSON 39276 PROFESSIONAL ENGINEER

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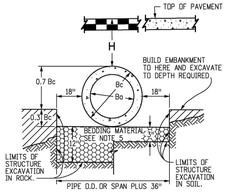
HIGHWAY 24
STORM DRAIN
PLAN & PROFILE

Sheet:

C.310

EXHIBIT B



NOTE: Bc IS THE OUTSIDE DIMENSION FOR DIAMETER, SPAN OR RISE.

PIPE INSTALLATION
(WITH 0.7 PROJECTION RATIO)

CIRCULAR (CIR) △ PIPE SIZE= Bo (INSIDE DIA)	WALL THICKNESS	0.3 Bc (OUTSIDE DIA)	VERTICAL ELLIPTICAL (VE) SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE	HORIZONTAL ELLIPTICAL (HE) SPAN	RISE	WALL THICKNESS	0.3 OUTSIDE RISE
IN.		FT.		IN.		FT.		IN.		FT.
12	2	0.40								
15	2-¼	0.49								
18	2-½	0.58								
							23	14	2-¾	0.49
21	2-¾	0.66								
24	3	0.75					30	19	3-¼	0.66
27	3-¼	0.84					34	22	3-½	0.73
30	3-½	0.92					38	24	3-¾	0.79
33	3-¾	1.01								
36	4	1.10	29	45	4-½	1.35	45	29	4-½	0.95
42	4-½	1.28	34	53	5	1.58	53	34	5	1.10
48	5	1.45	38	60	5-½	1.78	60	38	5-½	1.23
54	5-½	1.62	43	68	6	2.00	68	43	6	1.38
60	6	1.80	48	76	6-½	2.23	76	48	6-½	1.53
66	6-½	1.97	53	83	7	2.43	83	53	7	1.68
72	7	2.15	58	91	7-½	2.65	91	58	7-½	1.83
78	7-½	2.32	63	98	8	2.85	98	63	8	1.98
84	8	2.50	68	106	8-½	3.08	106	68	8-½	2.13
90	8-½	2.68	72	113	9	3.28	113	72	9	2.25
96	9	2.85	77	121	9-½	3.50	121	77	9-½	2.40
102	9-½	3.02	82	128	9-¾	3.69	128	82	9-¾	2.54
108	10	3.20	87	136	10	3.90	136	87	10	2.68

△ ALSO EQUIVALENT ROUND DIMENSION FOR ELLIPTICAL PIPE.

DIMENSIONS FOR REINFORCED CONCRETE PIPE
(FOR INFORMATION ONLY)

GENERAL NOTES

REINFORCED CONCRETE PIPE

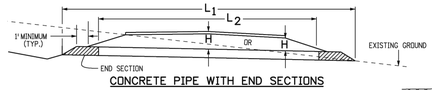
1. FILL HEIGHTS GREATER THAN MAXIMUM ALLOWED IN THE HEIGHTS OF FILL TABLE ON THIS SHEET REQUIRE SPECIAL DESIGN OF STRUCTURE.
2. PIPE DESIGN IS BASED ON SAFETY FACTOR OF 1.33 ON ULTIMATE STRENGTH.
3. THE HEIGHTS OF FILL OVER TOP OF PIPE ARE BASED ON UNIT WEIGHT OF SOIL AT 135 LBS. PER CUBIC FT.
4. PIPE CLASS IS DETERMINED FROM 0.01 IN. CRACK D-LOAD.
5. BEDDING IS CLASS B (MODIFIED) (FROM CONCRETE PIPE DESIGN MANUAL-AMERICAN CONCRETE PIPE ASSOCIATION) WITH SETTLEMENT RATIO $R = 0.0$ $_{ad}$ (YIELDING BED). BEDDING MATERIAL FOR RIGID PIPE IN SOIL SHALL BE 3 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 2. BEDDING MATERIAL FOR RIGID PIPE IN ROCK SHALL BE 12 IN. LOOSE THICKNESS STRUCTURE BACKFILL CLASS 1.
6. CHANGES IN DESIGN FACTORS REQUIRE COMPENSATING CHANGES IN PIPE DESIGN.
7. MINIMUM WALL THICKNESS DIMENSIONS ARE BASED ON AASHTO M 170 (WALL B) FOR CIRCULAR PIPE, AND AASHTO M 207 FOR ELLIPTICAL PIPE.
8. SPACING FOR MULTIPLE PIPE INSTALLATIONS SHALL CONFORM TO THE DETAILS SHOWN ON STANDARD PLAN M-206-1.
9. WHEN A PIPE IS TO BE EXTENDED, THE SAME PIPE MATERIAL AND SIZE AS IN THE ORIGINAL PIPE INSTALLATION SHALL BE USED.

NONREINFORCED CONCRETE PIPE

1. AT THE OPTION OF THE CONTRACTOR, NONREINFORCED CONCRETE PIPE CONFORMING TO AASHTO M 86 MAY BE USED IN LIEU OF REINFORCED CONCRETE PIPE FOR ALL SIZES 36 INCHES IN DIAMETER AND SMALLER. THE NONREINFORCED CONCRETE PIPE SHALL MEET THE SAME D-LOAD TO PRODUCE THE ULTIMATE LOAD UNDER THE THREE-EDGE BEARING METHOD AS SPECIFIED FOR REINFORCED CONCRETE PIPE IN CONFORMANCE WITH AASHTO M 170. THE CONTRACTOR SHALL PROVIDE WRITTEN CERTIFICATION OF CONFORMANCE. THE WALL THICKNESS OF THE NONREINFORCED PIPE MAY BE INCREASED AS REQUIRED TO MEET D-LOAD REQUIREMENT.
2. ALL REQUIREMENTS FOR REINFORCED CONCRETE PIPE, EXCEPT THOSE REFERRING TO REINFORCEMENT, SHALL APPLY TO NONREINFORCED CONCRETE PIPE.

GENERAL NOTES

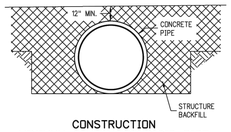
1. DIMENSIONS OF END SECTIONS MAY VARY SLIGHTLY FROM THOSE SHOWN ON THE TABLES DUE TO DIFFERENT MANUFACTURERS' CONFIGURATIONS.
2. CONCRETE END SECTIONS SHALL BE FURNISHED WITH TONGUE OR GROOVE AS REQUIRED.
3. DESIGN LENGTH OF PIPE OR SIDE DRAIN IS BASED ON LENGTH OF END SECTION SHOWN IN TABLE. ANY ADDITIONAL PIPE REQUIRED TO PROVIDE THE DESIGN LENGTH SHALL BE FURNISHED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.
4. THE INSIDE CONFIGURATION AND THE JOINT OF CONCRETE END SECTION AND PIPE SHALL MATCH.
5. END SECTIONS FOR CMP ARCH PIPE SHALL MATCH THE DIMENSIONS OF THE PIPE SHOWN ON THE PLANS.
6. GALVANIZED TOE PLATE AS SHOWN IS REQUIRED ON END SECTIONS FOR CORRUGATED STEEL PIPE AND SHALL BE THE SAME THICKNESS AS END SECTIONS. TOE PLATE SHALL BE FIELD-BOLTED TO END SECTION WITH ⅜ IN. GALVANIZED BOLTS, NUTS AND WASHERS.
7. GALVANIZED STEEL SHALL CONFORM TO AASHTO M 111, M 218 OR M 232.
8. CONCRETE PIPE JOINT FASTENERS, WHERE SHOWN ON PLANS, SHALL BE INSTALLED SO THAT A MINIMUM OF 15 LINEAR FEET OF THE OUTLET END OF THE PIPE ARE MECHANICALLY LOCKED TOGETHER. END SECTION LENGTHS WHEN USED, SHALL BE INCLUDED IN THE 15 LF REQUIREMENT.
9. CONNECTIONS OF METAL END SECTIONS TO PLASTIC PIPE SHALL BE APPROVED BY THE ENGINEER. PLASTIC END SECTIONS SHALL NOT BE USED.
10. THE END SECTION STYLE, EITHER REGULAR OR SAFETY, SHALL BE AS SHOWN ON THE PLANS.
11. AT THE OPTION OF THE CONTRACTOR AND APPROVAL OF THE CDOT PROJECT ENGINNER, REINFORCED CONCRETE END SECTIONS MAY BE MADE WITH SYNTHETIC FIBERS INSTEAD OF STEEL FOR PIPES 36 INCHES IN DIAMETER AND SMALLER, AND CONFORM TO AASHTO M 86 AND SUBSECTION 601.03.



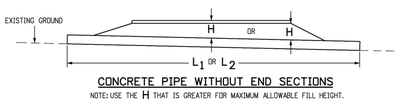
CONCRETE PIPE WITH END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

H = HEIGHT OF FILL OVER TOP OF PIPE, INCLUDING PAVEMENT THICKNESS.
L_1 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 624.
L_2 = LENGTH OF PIPE TO BE MEASURED WHEN PLACED IN ACCORDANCE WITH SECTION 603.



CONSTRUCTION
MINIMUM COVER FOR RIGID PIPE

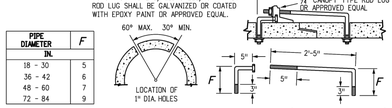


CONCRETE PIPE WITHOUT END SECTIONS

NOTE: USE THE H THAT IS GREATER FOR MAXIMUM ALLOWABLE FILL HEIGHT.

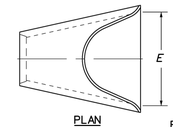
TYPE OF PIPE	HEIGHT OF FILL OVER TOP OF PIPE, H (FEET) CLASS OF PIPE (0.01 IN. CRACK D-LOAD) CLASS CIR II CLASS VE II CLASS HE II 1000 D	CLASS CIR III CLASS VE III CLASS HE III 1350 D	CLASS CIR IV CLASS VE IV CLASS HE IV 2000 D	CLASS CIR V CLASS VE V 3000 D	CLASS VE VI 4000 D
CIRCULAR (CIR)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	
VERTICAL ELLIPTICAL (VE)	1 TO 18	1 TO 25	± 25 TO 37	± 37 TO 45	± 45 TO 62
HORIZONTAL ELLIPTICAL (HE)	1 TO 18	1 TO 25	± 25 TO 37		

ALLOWABLE RANGE OF HEIGHTS FOR FILL
OVER REINFORCED CONCRETE PIPE
(ALL SIZES)



PIPE DIAMETER	F
IN.	
18 - 30	5
36 - 42	6
48 - 60	7
72 - 84	9

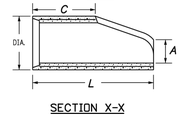
CONCRETE JOINT FASTENER (TWO PER JOINT)



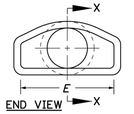
PLAN

PIPE I.D.	DIMENSIONS A	C	L	E
	IN.			
18	10	48	78	36
24	10	48	78	48
30	14	36	96	60
36	18	36	96	72
42	24	36	96	78
48	28	24	96	84
54	30	36	96	90
60	36	36	96	96
72	34	20	96	108

REINFORCED CONCRETE CIRCULAR PIPE



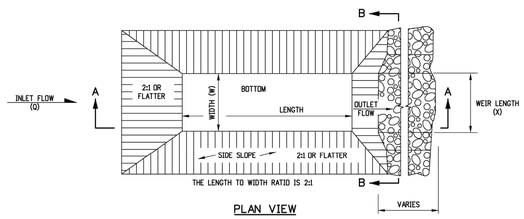
SECTION X-X



END VIEW

END SECTION FOR REINFORCED CONCRETE CIRCULAR PIPE

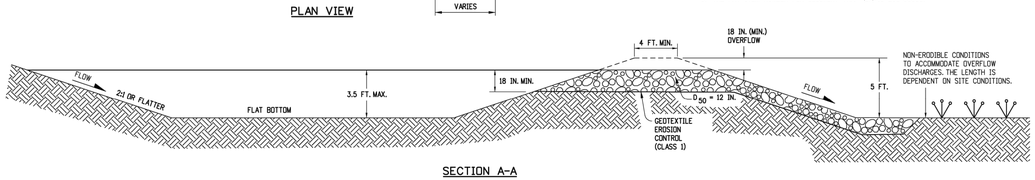
REINFORCED CONCRETE PIPE DETAIL



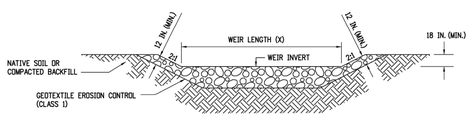
PLAN VIEW

NOTES

1. THE MAXIMUM DRAINAGE AREA IS 5 ACRES.
2. THE MAXIMUM STRUCTURE LIFE IS 2 YEARS.
3. THE STORAGE AREA IS 1800 CUBIC FEET PER ACRE.
4. THE MAXIMUM EMBANKMENT HEIGHT SHALL BE 5 FT. MEASURED ON THE DOWNSTREAM SIDE.
5. THE LENGTH/WIDTH RATIO MAY BE ADJUSTED TO MEET SITE CONDITIONS WHEN APPROVED BY THE ENGINEER.
6. WIDTH (W) OF SEDIMENT TRAP IS APPROXIMATELY EQUAL TO THE WEIR LENGTH (X).
7. SEDIMENT TRAP DESIGN SHALL BE APPROVED BY THE ENGINEER.
8. THE DOWN GRADE FROM WEIR SHALL BE STABLE AND NON-ERODIABLE.
9. THE PAY ITEM NUMBER FOR SEDIMENT TRAP (LF) IS 208-00033.



SECTION A-A

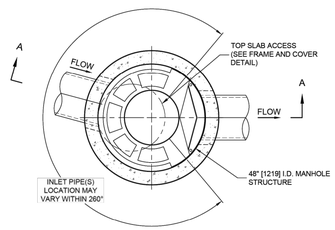


SECTION B-B

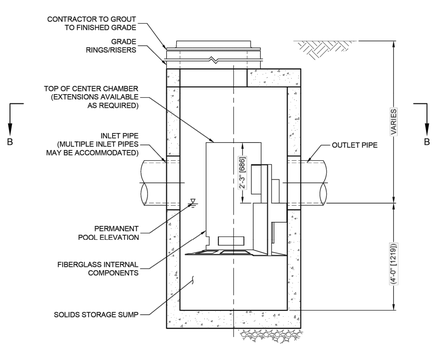
DRAINAGE AREA (ACRES)	WEIR LENGTH (FEET)
1	4
2	6
3	8
4	10
5	12

WEIR LENGTH TABLE

SEDIMENT TRAP DETAIL



PLAN VIEW B-B
NOT TO SCALE



ELEVATION A-A
NOT TO SCALE

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES

FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CS-4 CASCADE SEPARATOR DETAIL

TIMBERLINE ENGINEERING LLC CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

PLANS ARE NOT FOR CONSTRUCTION UNLESS STAMPED "APPROVED FOR CONSTRUCTION" BY PROPER AUTHORITIES.

DATE	REVISION
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

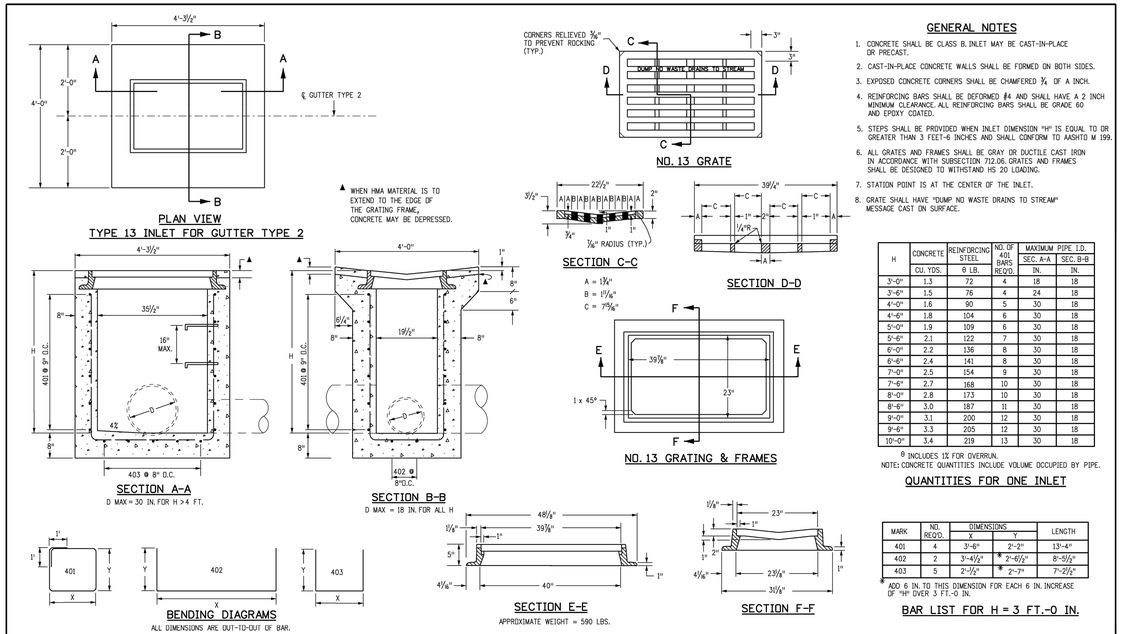
Title:

HIGHWAY 24 STORM DRAIN DETAILS

Sheet:

C.311

EXHIBIT B



H	CONCRETE	REINFORCING STEEL	NO. OF 401 BARS	MAXIMUM PIPE I.D.	
	CU. YDS.	θ LB.	REQ'D.	SEC. A-A IN.	SEC. B-B IN.
3'-0"	1.3	72	4	18	18
3'-6"	1.5	76	4	24	18
4'-0"	1.6	90	5	30	18
4'-6"	1.8	104	6	30	18
5'-0"	1.9	109	6	30	18
5'-6"	2.1	122	7	30	18
6'-0"	2.2	136	8	30	18
6'-6"	2.4	141	8	30	18
7'-0"	2.5	154	9	30	18
7'-6"	2.7	168	10	30	18
8'-0"	2.8	173	10	30	18
8'-6"	3.0	187	11	30	18
9'-0"	3.1	200	12	30	18
9'-6"	3.3	205	12	30	18
10'-0"	3.4	219	13	30	18

MARK	NO. REQ'D.	DIMENSIONS X	DIMENSIONS Y	LENGTH
401	4	3'-6"	2'-2"	13'-4"
402	2	3'-4½"	* 2'-6½"	8'-5½"
403	5	2'-5½"	* 2'-7"	7'-2½"

Computer File Information		Sheet Revisions	
Creation Date: 07/31/19		Date:	Comments
Designer Initials: JBK	RCX		
Last Modification Date: 07/31/19	RCX		
Detailer Initials: LTA	RCX		
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English	RCX		

Colorado Department of Transportation
2829 West Howard Place
CDOT HQ, 3rd Floor
Denver, CO 80204
Phone: 303-757-9021 FAX: 303-757-9868
Project Development Branch JBK

CONCRETE INLET TYPE 13
Issued by the Project Development Branch: July 31, 2019

STANDARD PLAN NO.
M-604-13
Standard Sheet No. 1 of 1
Project Sheet Number:

CONCRETE INLET - TYPE 13
DETAIL

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN MACKEN 39276 PROFESSIONAL ENGINEER

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
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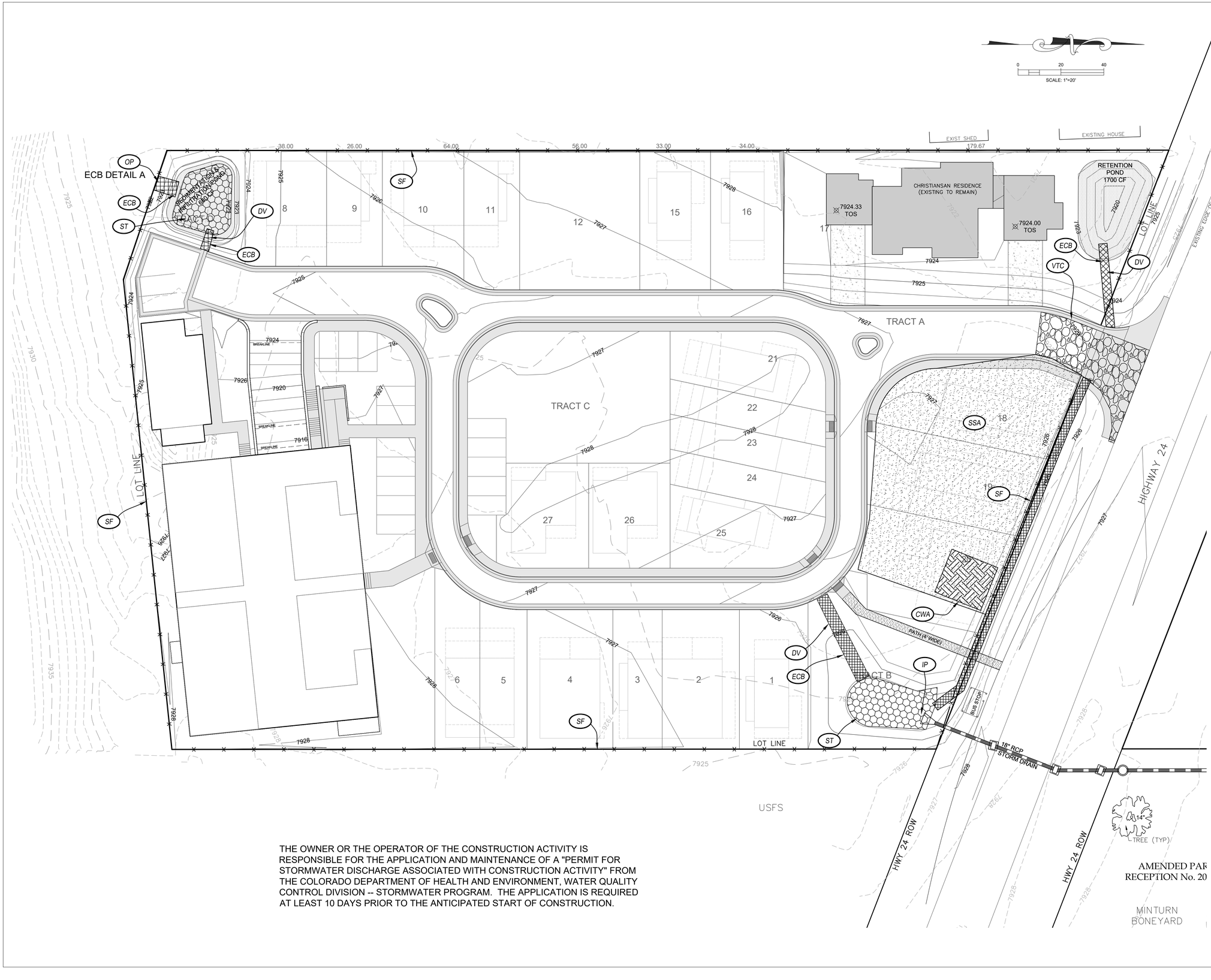
4/19/24	Final Plan

Title:
HIGHWAY 24 STORM DRAIN DETAILS

Sheet:
C.312

EXHIBIT B



THE OWNER OR THE OPERATOR OF THE CONSTRUCTION ACTIVITY IS RESPONSIBLE FOR THE APPLICATION AND MAINTENANCE OF A "PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY" FROM THE COLORADO DEPARTMENT OF HEALTH AND ENVIRONMENT, WATER QUALITY CONTROL DIVISION -- STORMWATER PROGRAM. THE APPLICATION IS REQUIRED AT LEAST 10 DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION.

BMP LEGEND

SYMBOL	KEY	TITLE
	CD	CHECK DAM
	CWA	CONCRETE WASHOUT AREA
	CF	CONSTRUCTION FENCE
CRS	CRS	CONSTRUCTION ROAD STABILIZATION
CS	CS	CURB SOCK INLET PROTECTION
DW	DW	DEWATERING
DV	DV	DIVERSION CHANNEL, TEMPORARY
DD	DD	DIVERSION DITCH AND DIKE, TEMPORARY
ECB	ECB	EROSION CONTROL BLANKET
ECR	ECR	EROSION CONTROL REINFORCEMENT
IF	IF	INLET FILTER
IP	IP	INLET PROTECTION FOR STORM DRAIN
LOC	LOC	LIMITS OF CONSTRUCTION
MU	MU	MULCHING
OP	OP	OUTLET PROTECTION
PF	PF	PAVED FLUME
PS	PS	PERMANENT SEEDING
RCD	RCD	REINFORCED CONCRETE DAM
RRB	RRB	REINFORCED ROCK BERM
RCS	RCS	ROUGH CUT STREET CONTROL
SB	SB	SEDIMENT BASIN
SCL	SCL	SEDIMENT LOG
ST	ST	SEDIMENT TRAP
SM	SM	SEEDING AND MULCHING
SF	SF	SILT FENCE
SSA	SSA	STABILIZED STAGING AREA
SR	SR	SURFACE ROUGHENING
TS	TS	TEMPORARY SEEDING
TSD	TSD	TEMPORARY SLOPE DRAIN
TSCC	TSCC	TEMPORARY STREAM CROSSING CULVERT/BRIDGE TYPE
TSCF	TSCF	TEMPORARY STREAM CROSSING FORD TYPE
TER	TER	TERRACING
VTC	VTC	VEHICLE TRACKING CONTROL
WR	WR	VEHICLE TRACKING CONTROL WITH WASH RACK

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218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

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4/19/24	Final Plan

Title:

STORM WATER MANAGEMENT PLAN (SWMP)

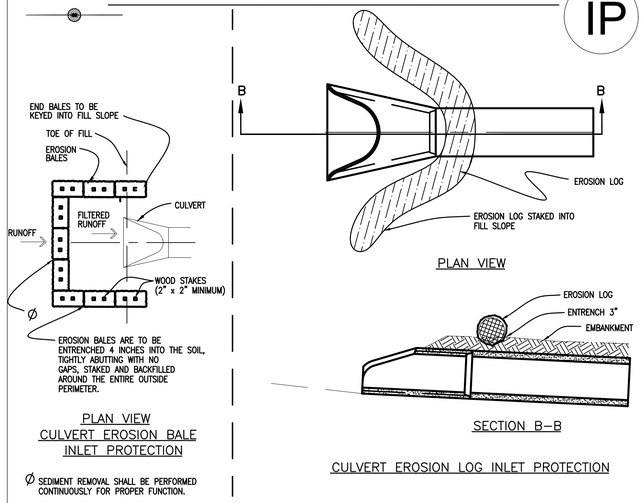
Sheet:

C.320

EXHIBIT B

INLET PROTECTION CULVERT

IP



PLAN VIEW

SECTION B–B

PLAN VIEW
CULVERT EROSION BALE INLET PROTECTION

CULVERT EROSION LOG INLET PROTECTION

Ø SEDIMENT REMOVAL SHALL BE PERFORMED CONTINUOUSLY FOR PROPER FUNCTION.

INLET PROTECTION INSTALLATION NOTES

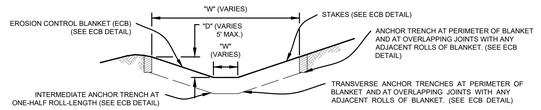
1. INLET PROTECTION AFTER INLET CONSTRUCTION OF AFTER PAVEMENT SHALL BE INSTALLED WITHIN 48 HOUR AFTER INLET CONSTRUCTION OR PAVING IS COMPLETED.

INLET PROTECTION MAINTENANCE NOTES

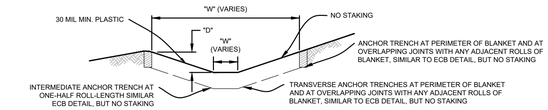
1. THE SWMP MANAGER SHALL INSPECT INLET PROTECTION WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT AS NECESSARY. INSPECT MORE FREQUENTLY DURING WINTER CONDITIONS DUE TO FREEZE/THAW PROBLEMS. REPAIRS AS NEEDED.
2. SEDIMENT ACCUMULATED UPSTREAM OF INLET PROTECTION SHALL BE REMOVED WHEN THE SEDIMENT DEPTH UPSTREAM OF ROCK BERM IS WITHIN 2-1/2 INCHES OF THE CREST.
3. INLET PROTECTION IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS APPROVED, UNLESS THE LOCAL JURISDICTION APPROVES EARLIER REMOVAL OF INLET PROTECTION IN STREETS.
4. WHEN INLET PROTECTION AT AREA INLETS IS REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, DRILL SEEDED AND CRIMP MULCHED, OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

DIVERSION CHANNEL

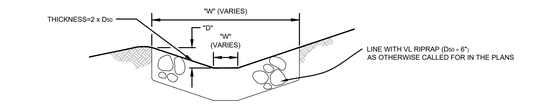
DV



EROSION CONTROL BLANKET (ECB) LINED



PLASTIC LINED



RIPRAP LINED

CHANNEL DIVERSION INSTALLATION NOTES:

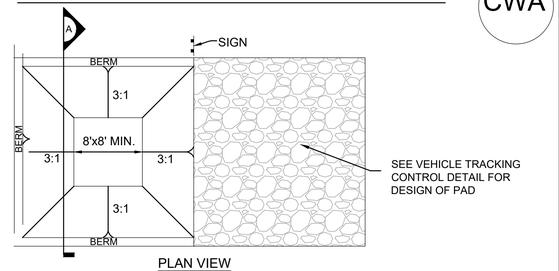
1. SEE PLAN VIEW FOR:
   - LOCATION OF DIVERSION CHANNEL.
   - TYPE OF CHANNEL (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).
   - LENGTH OF EACH TYPE OF CHANNEL.
   - DEPTH, "D", AND WIDTH, "W" DIMENSIONS.
   - FOR RIPRAP LINED CHANNEL, SIZE OF RIPRAP, "D 50 ", SHALL BE SHOWN ON PLANS.
2. SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES.
3. DIVERSION CHANNELS INDICATED ON THE SWMP PLAN SHALL BE INSTALLED PRIOR TO ANY WORK IN THE NATURAL CHANNEL.
4. FOR ECB LINED CHANNELS, INSTALLATION OF EROSION CONTROL BLANKET SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL, FOR PLASTIC LINED CHANNELS, INSTALLATION OF EROSION CONTROL LINER SHALL CONFORM TO THE ECB DETAILS.
5. WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION CHANNEL, THE PERMITTEE SHALL INSTALL A TEMPORARY CULVERT WITH A MINIMUM CAPACITY SPECIFIED FOR THE DIVERSION CHANNELS, FULLY ACCOUNT FOR HEADWATER REQUIREMENTS OF THE CULVERT.

DIVERSION CHANNEL MAINTENANCE NOTES:

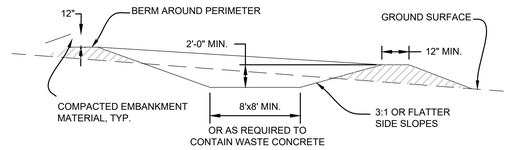
1. THE SWMP MANAGER SHALL INSPECT DIVERSION CHANNELS WEEKLY AND DURING AND AFTER ANY STORM. MAKE REPAIRS AS NECESSARY.
2. DIVERSION CHANNELS ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR IF APPROVED BY LOCAL JURISDICTION MAY BE LEFT IN PLACE.
3. IF DIVERSION CHANNELS ARE REMOVED, THE DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, DRILL SEEDED, HAY CRIMPED MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

CONCRETE WASHOUT AREA

CWA



PLAN VIEW



SECTION A

CONCRETE WASHOUT AREA INSTALLATION NOTES

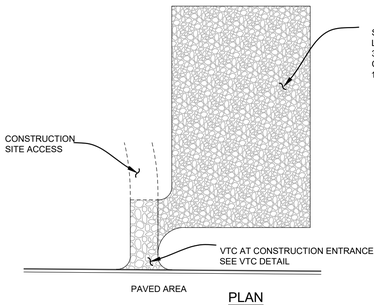
1. SEE PLAN VIEW FOR LOCATIONS OF CONCRETE WASHOUT AREA
2. THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
3. VEHICLE TRACKING CONTROL IS REQUIRED AT THE ACCESS POINT.
4. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
5. EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION

CONCRETE WASHOUT AREA MAINTENANCE NOTES

1. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
2. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
3. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, DRILL SEED AND CRIMP MULCH OR OTHERWISE STABILIZE IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
4. INSPECT WEEKLY, DURING AND AFTER ANY STORM EVENT.

STABALIZED STAGING AREA

SSA



PLAN

STABILIZED STAGING AREA INSTALLATION NOTES

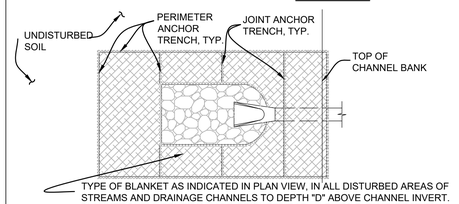
1. SEE PLAN VIEW FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH APPROVAL FROM LOCAL JURISDICTION.
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
3. IF REQUIRED BY THE LOCAL JURISDICTION, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
4. STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
5. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL OR CLEAN RECYCLED CONCRETE).

STABILIZED STAGING AREA MAINTENANCE NOTES

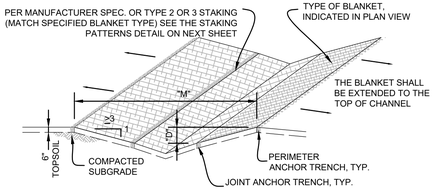
1. THE SWMP MANAGER SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SWMP MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
3. STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
4. ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA.
5. THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.

EROSION CONTROL BLANKET 1 of 2

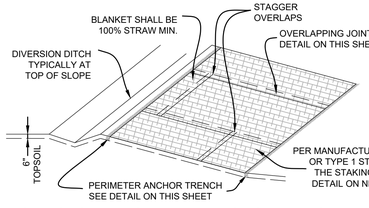
ECB



AT PIPE OUTLET AREAS OF STREAMS AND DRAINAGE CHANNELS - DETAIL A

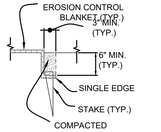


IN DIVERSION DITCH OR SMALL DITCH DRAINAGE WAY - DETAIL B

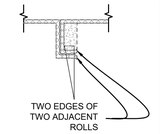


OUTSIDE OF STREAMS AND DRAINAGE CHANNELS - DETAIL C

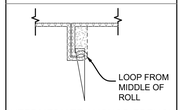
ANCHOR DETAILS



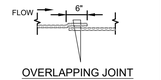
PERIMETER ANCHOR TRENCH



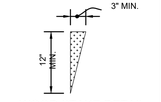
JOINT ANCHOR TRENCH



INTERMEDIATE ANCHOR TRENCH



OVERLAPPING JOINT

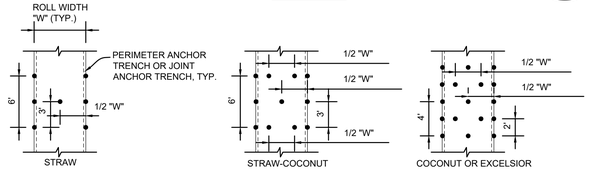


WOOD STAKE DETAIL

MINIMUM THICKNESS 1"
USE 2x4 MATERIAL FOR STAKES

EROSION CONTROL BLANKET 2 of 2

ECB



STAKING PATTERNS

SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION. IF NO MANUFACTURER'S SPECIFICATION IS AVAILABLE USE THE ACCEPTABLE STAKING PATTERN (AS SHOWN ABOVE)

EROSION CONTROL BLANKET INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION OF PERIMETER OF EROSION CONTROL BLANKET.
   - TYPE OF BLANKET (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
   - AREA "A" IN SQUARE YARDS OF EACH TYPE OF BLANKET.
2. ALL EROSION CONTROL BLANKETS AND NETTING SHALL BE MADE OF 100% NATURAL AND BIODEGRADABLE MATERIAL; NO PLASTIC OR OTHER SYNTHETIC MATERIAL, EVEN IF PHOTO DEGRADABLE, SHALL BE ALLOWED.
3. IN AREAS WHERE EROSION CONTROL BLANKET IS SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING BELOW THE SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO BLANKET INSTALLATION AND THE BLANKET SHALL BE IN FULL CONTACT WITH SUBGRADE, NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
4. PERIMETER ANCHOR TRENCH SHALL BE USED AT OUTSIDE PERIMETER OF ALL BLANKET AREAS.
5. JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL BLANKETS EXCEPT STRAW, WHICH MAY USE AN OVERLAPPING JOINT.
6. INTERMEDIATE ANCHOR TRENCH SHALL BE USED AT SPACING OF ONE-HALF THE ROLL LENGTH FOR COCONUT AND EXCELSIOR BLANKETS.
7. THE OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF BLANKETS TOGETHER FOR BLANKETS ON SLOPES.
8. MATERIAL SPECIFICATIONS OF EROSION CONTROL BLANKET SHALL CONFORM TO TABLE 7.1.
9. ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING EROSION CONTROL BLANKET SHALL BE RESEEDED AND MULCHED.
10. DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM ONES SHOWN HERE

TABLE 7.1 - EROSION CONTROL BLANKET TYPE

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	NETTING MIN.
STRAW*	-	100%	-	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN.	70% MAX.	-	DOUBLE/NATURAL
COCONUT	100%	-	-	DOUBLE/NATURAL
EXCELSIOR	-	-	100%	DOUBLE/NATURAL

* FOR OUTSIDE OF STREAMS AND DRAINAGE CHANNELS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. THE SWMP MANAGER SHALL INSPECT EROSION CONTROL BLANKETS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS AS NECESSARY.
2. EROSION CONTROL BLANKET IS TO BE LEFT IN PLACE UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
3. ANY EROSION CONTROL BLANKET PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE RE-INSTALLED. ANY SUBGRADE AREAS BELOW THE BLANKET THAT HAVE ERODED TO CREATE A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE EROSION CONTROL BLANKET REINSTALLED.

TIMBERLINE ENGINEERING LLC
CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

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STORMWATER MANAGEMENT PLAN (SWMP) DETAILS

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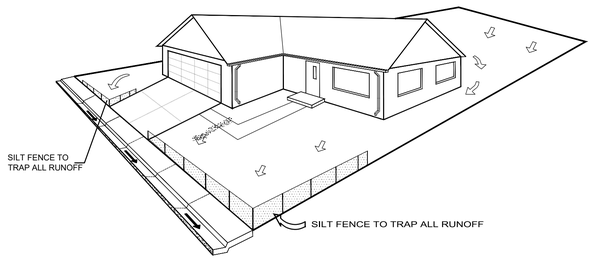
C.321

EXHIBIT B

SILT FENCE RESIDENTIAL

SF



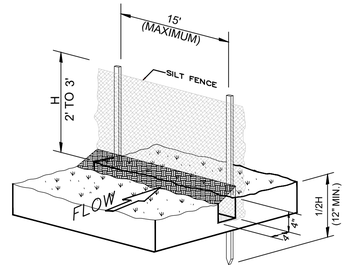
NOTE: EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY LOCAL JURISDICTION

SILT FENCE BARRIER

RESIDENTIAL INSTALATION

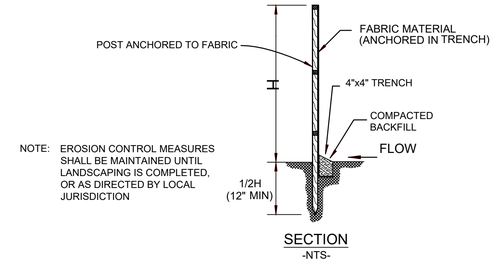
SILT FENCE INSTALLATION

SF



SILT FENCE INSTALLATION

-NTS-



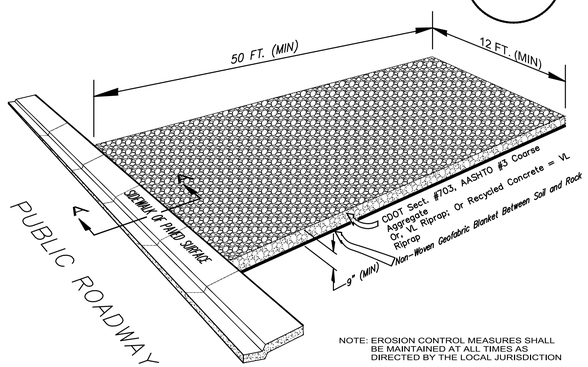
NOTE: EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL LANDSCAPING IS COMPLETED, OR AS DIRECTED BY LOCAL JURISDICTION

SECTION

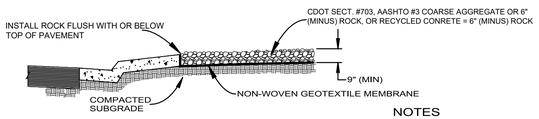
-NTS-

TEMPORARY VEHICLE TRACKING CONTROL

VTC



NOTE: EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES AS DIRECTED BY THE LOCAL JURISDICTION



SECTION A-A

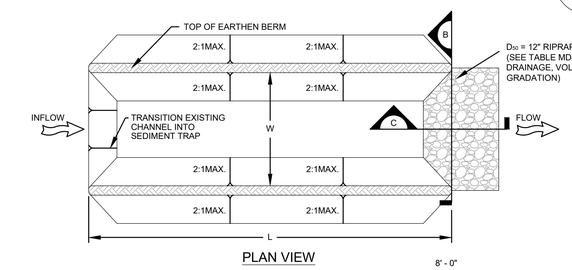
-NTS-

NOTES

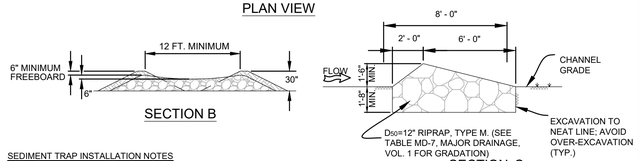
1. ALL ROCK TO BE REMOVED UPON COMPLETION OF CONSTRUCTION.
2. PUBLIC ROADWAY TO BE KEPT CLEAN AND FREE OF MUD, DIRT AND DEBRIS AT ALL TIMES.

SEDIMENT TRAP

ST



PLAN VIEW



SECTION B

SECTION C

SEDIMENT TRAP INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
   - LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.
2. SEDIMENT TRAPS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
3. SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
4. RIPRAP OUTLET SHALL BE CONSTRUCTED WITH D_{50} =12" RIPRAP (TYPE M, SEE TABLE MD-7, MAJOR DRAINAGE, VOL. 1 FOR GRADATION) WITH A MINIMUM OVERFLOW OF 6".
5. THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.
6. THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL BE MINIMUM OF 6" HIGHER THAN THE CENTER OF THE OUTLET STRUCTURE.

SEDIMENT TRAP MAINTENANCE NOTES

1. THE SWMP MANAGER SHALL INSPECT SEDIMENT TRAPS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
2. SEDIMENT ACCUMULATED UPSTREAM OF RIPRAP SHALL BE REMOVED WHEN THE UPSTREAM DEPTH IS WITHIN ½ THE HEIGHT OF THE RIPRAP OUTLET STRUCTURE.
3. SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVERAGE IS APPROVED BY THE LOCAL JURISDICTION.
4. WHEN SEDIMENT TRAPS ARE REMOVED THE DISTURBED AREA SHALL BE COVERED WITH TOP SOIL, DRILLED SEEDED AND CRIMP MULCHED OR STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

TIMBERLINE ENGINEERING LLC
CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177
Carbondale, Colorado 81623
timberlineengineering@gmail.com

COLORADO REGISTERED DAVID JOHN ANDERSON 39276 PROFESSIONAL ENGINEER

Belden Place PUD

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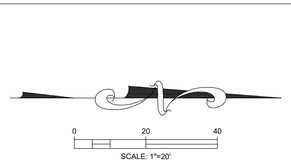
C.322

EXHIBIT B



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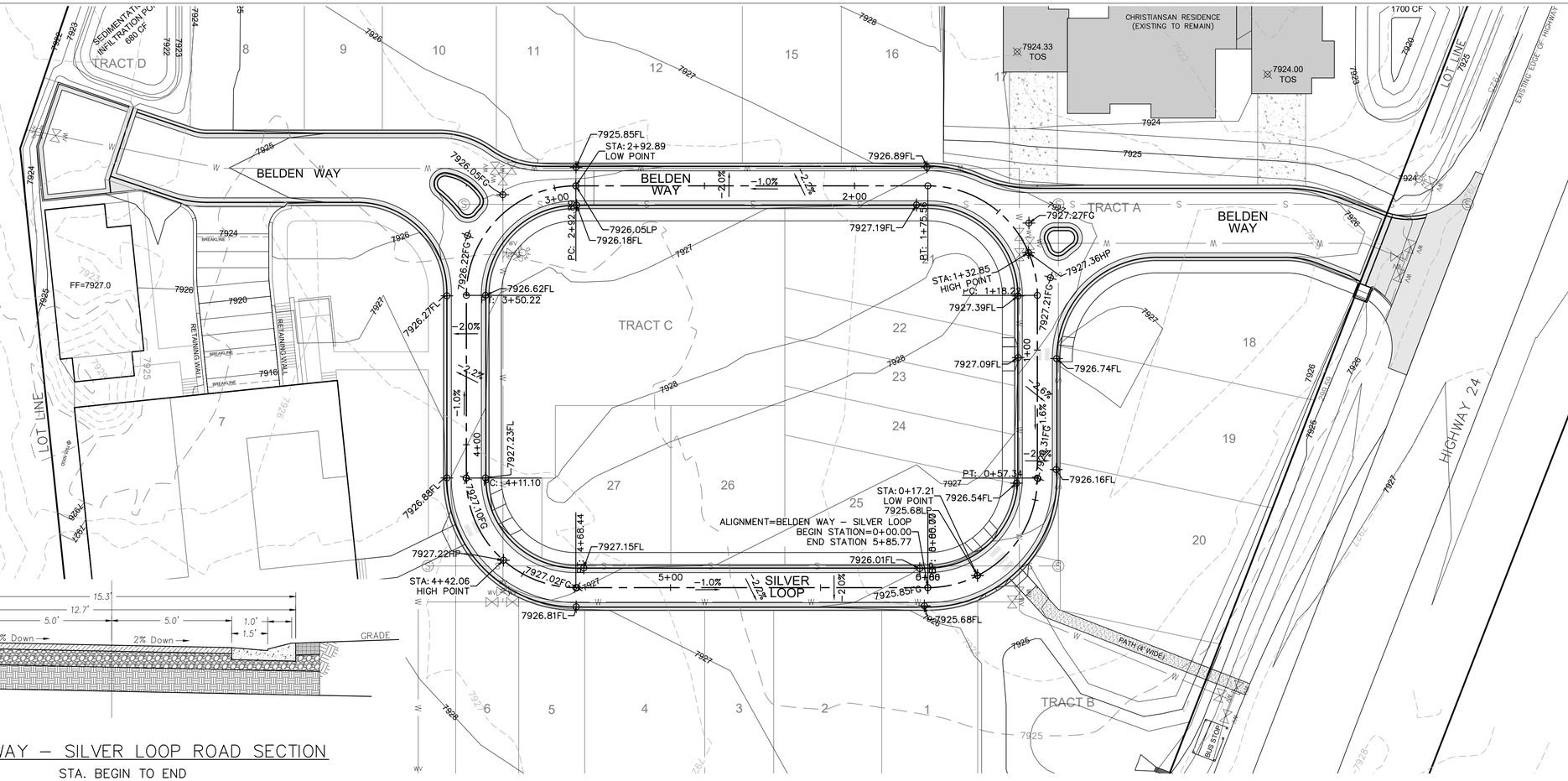
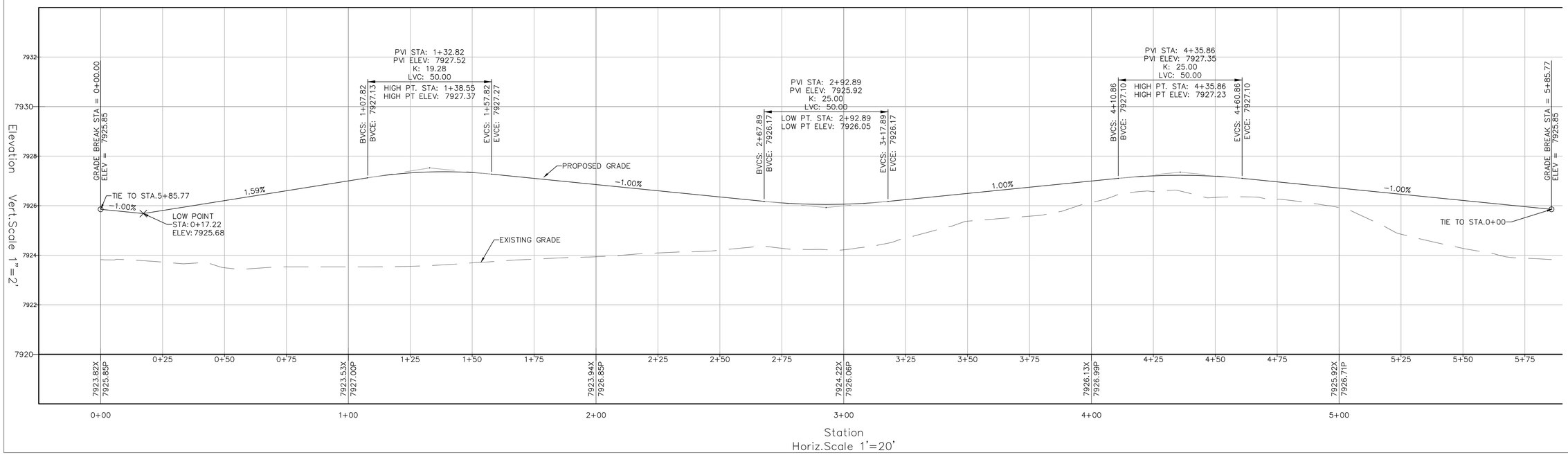


BELDEN WAY – SILVER LOOP ROAD SECTION

STA. BEGIN TO END

BELDEN WAY – SILVER LOOP PROFILE



TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
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STE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

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ROAD P & P BELDEN WAY- SILVER LOOP

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C.400

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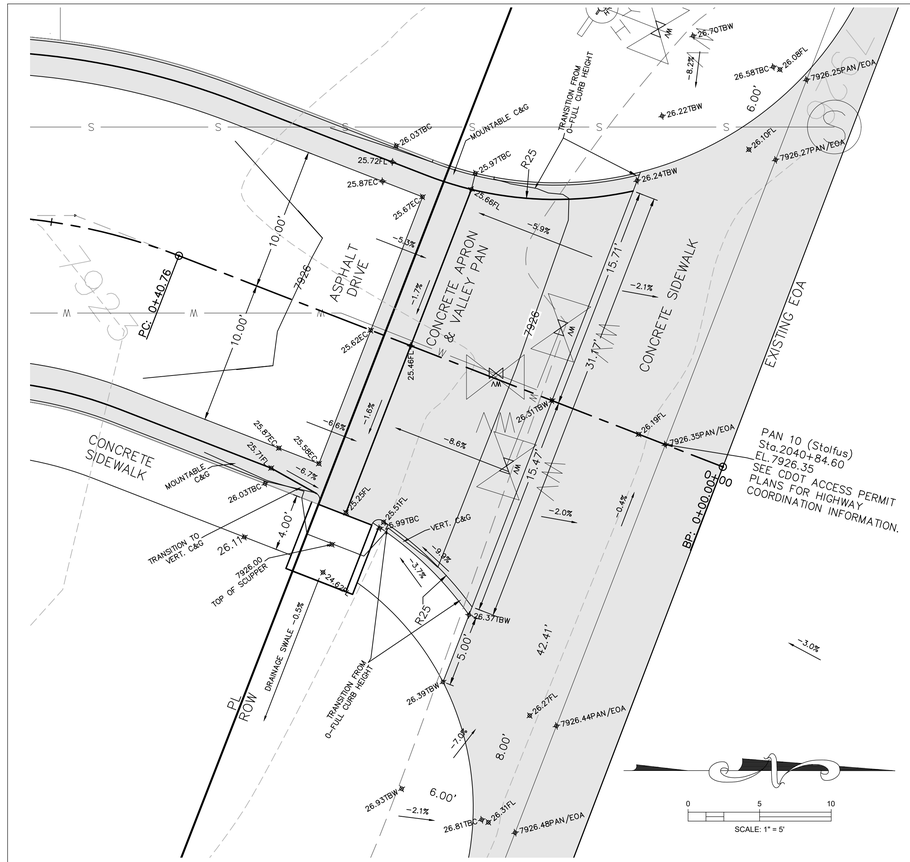
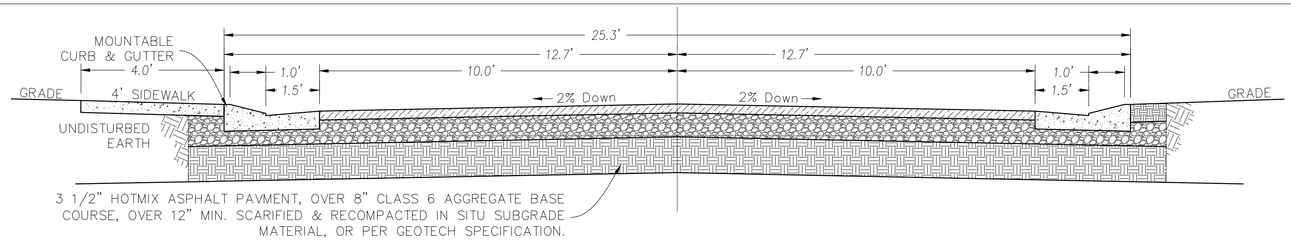


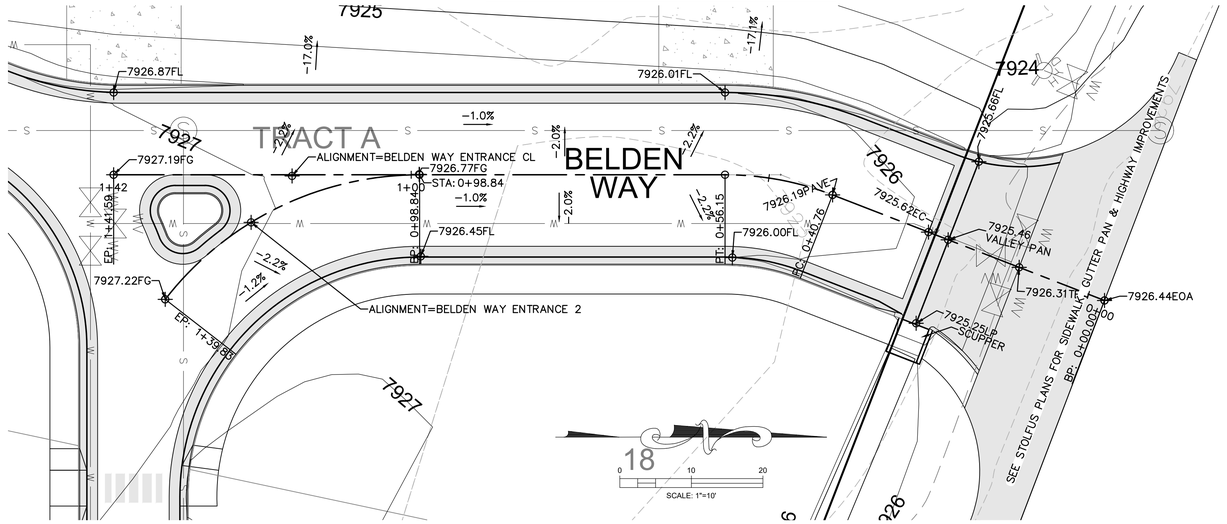
ENTRANCE DETAIL



BELDEN WAY ENTRANCE & BELDEN WAY (SOUTH) ROAD SECTION

BEGIN TO END

BELDEN WAY ENTRANCE PLAN



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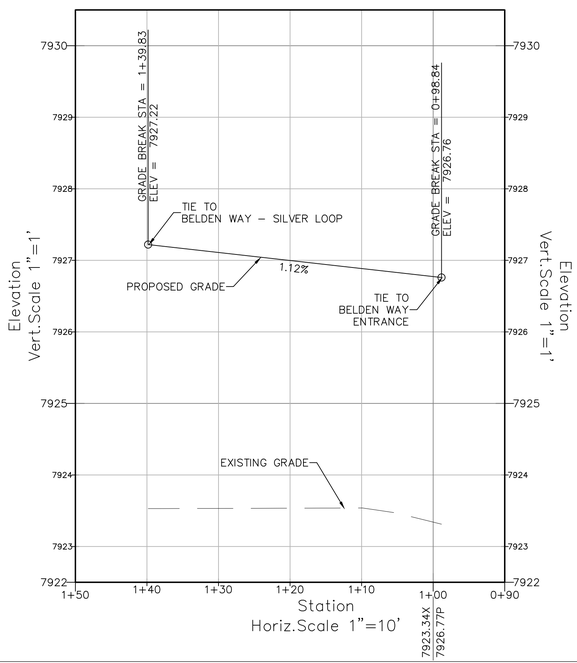

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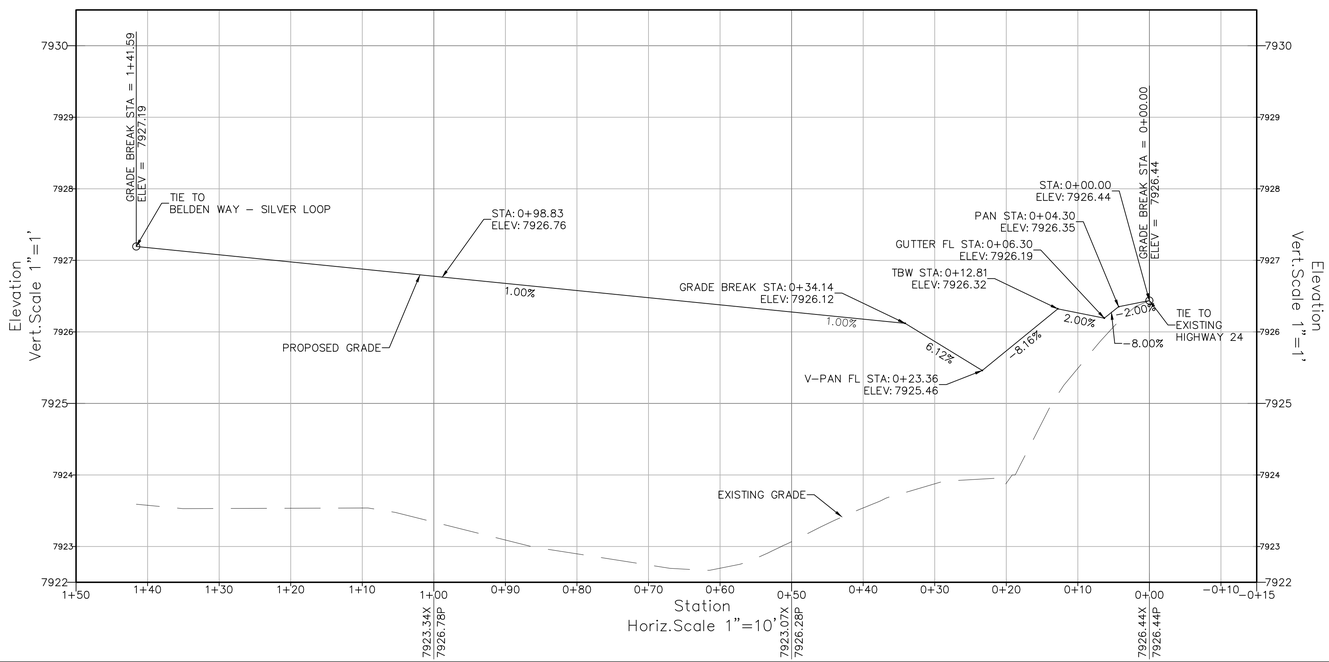

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
STE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED PROFESSIONAL ENGINEER
39276

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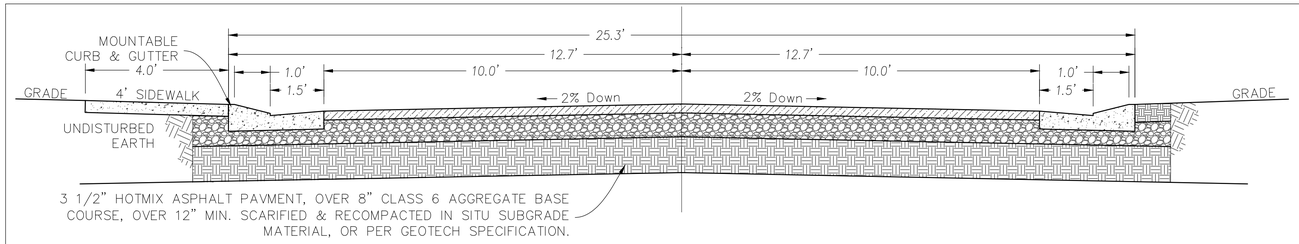
ROAD P & P
BELDEN WAY
ENTRANCE

Sheet:

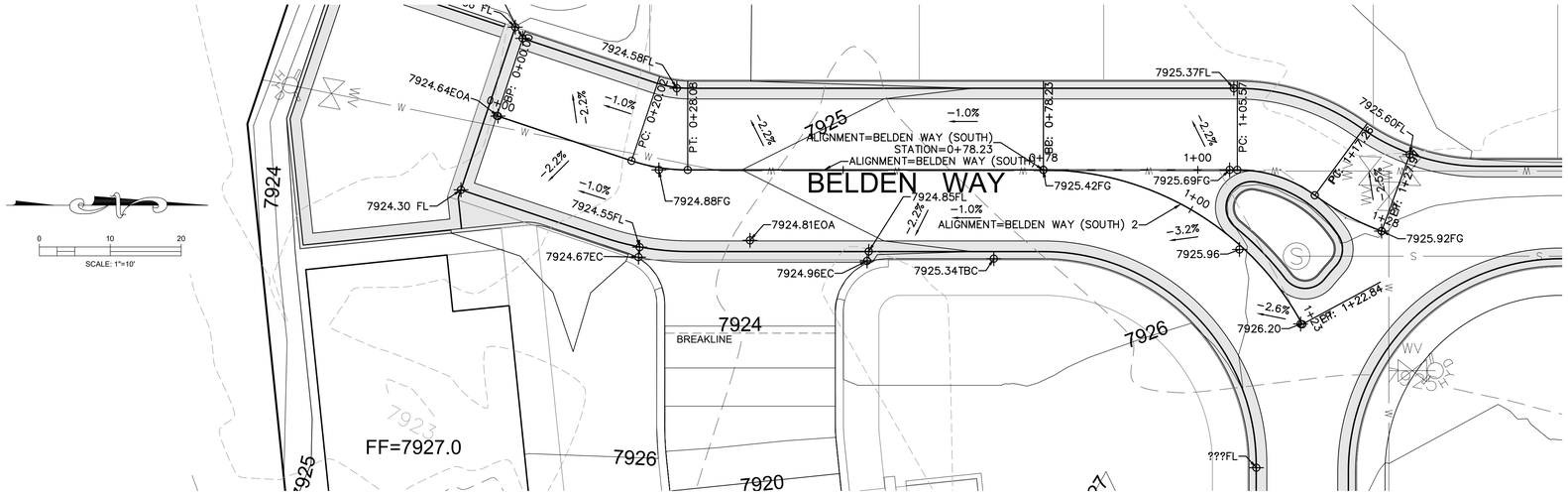
C.401

EXHIBIT B

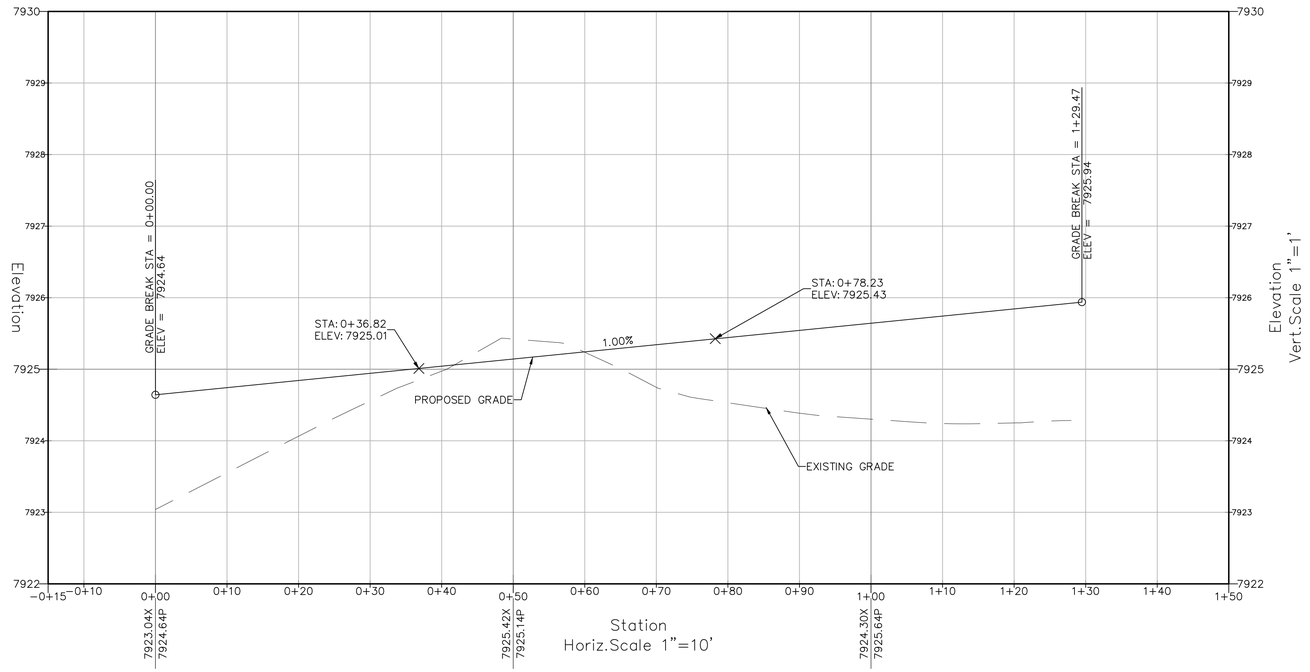


BELDEN WAY ENTRANCE & BELDEN WAY (SOUTH) ROAD SECTION
BEGIN TO END

BELDEN WAY PLAN



BELDEN WAY (SOUTH) PROFILE



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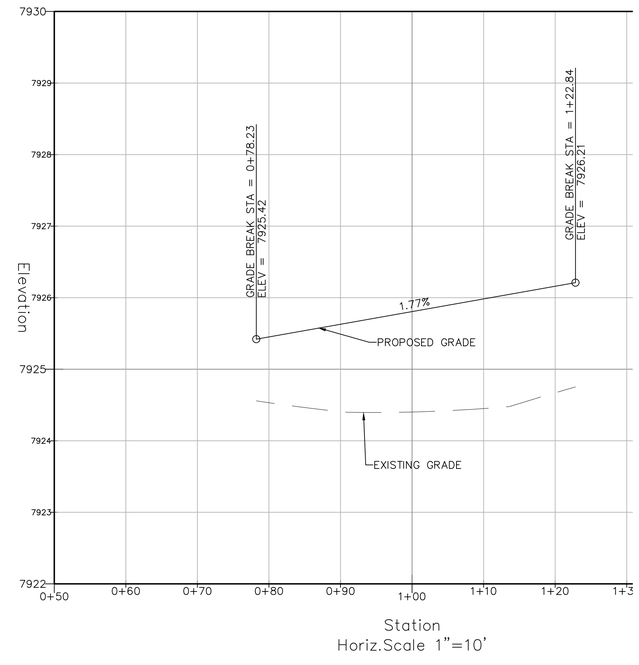

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218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
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ROAD P & P
BELDEN WAY

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C.402

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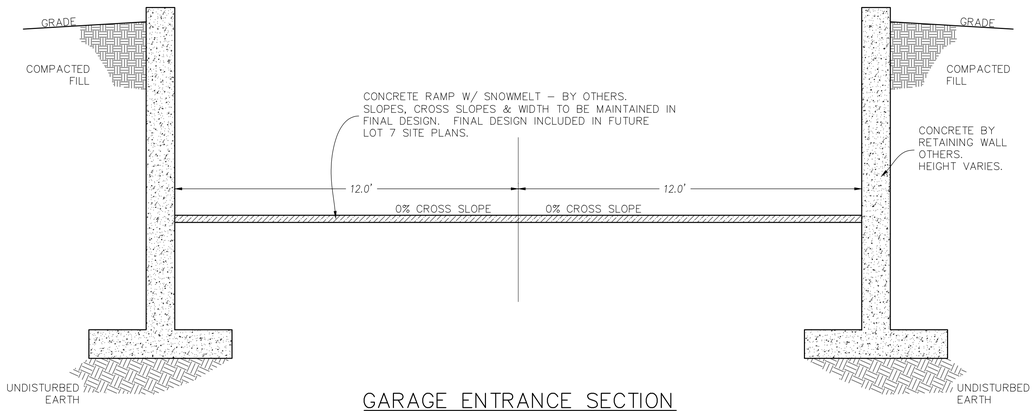
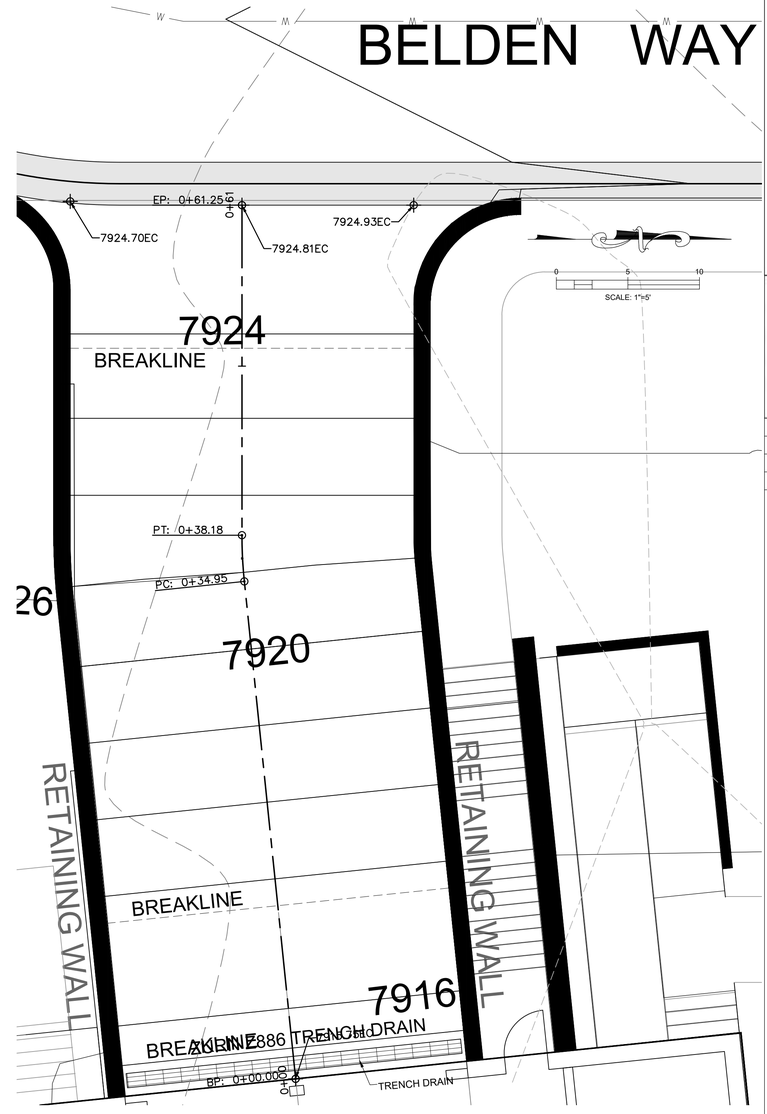
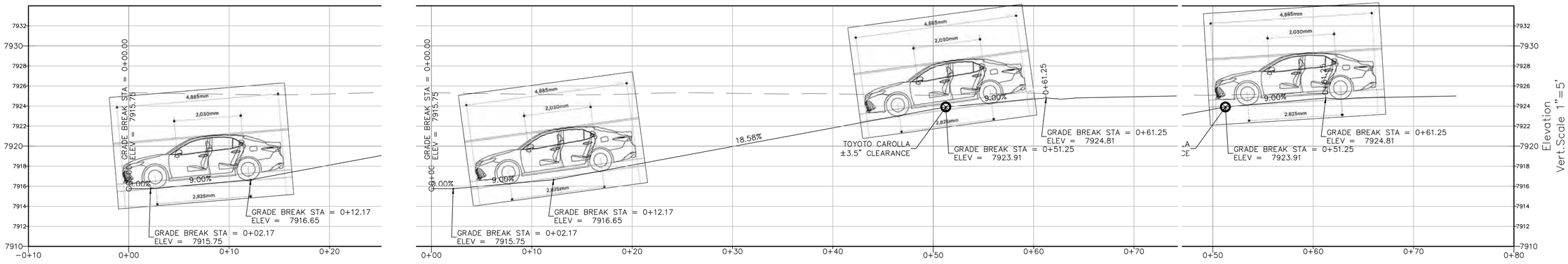


GARAGE ENTRANCE SECTION

STA. BEGIN TO END



GARAGE ENTRANCE PROFILE
W/ VEHICLE CLEARANCE



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ROAD P & P
GARAGE
ENTRANCE

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C.403

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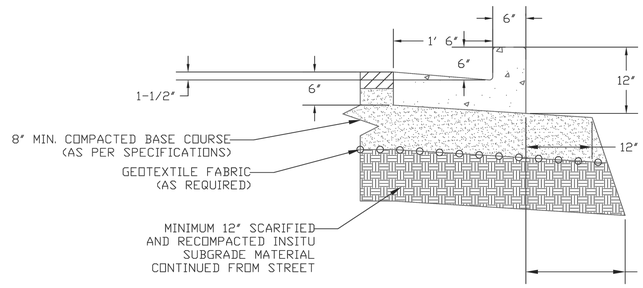
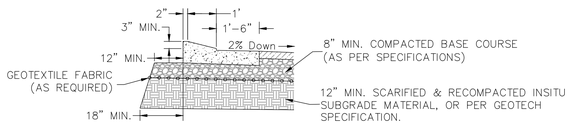
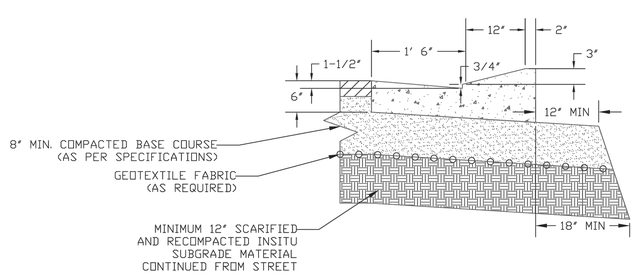


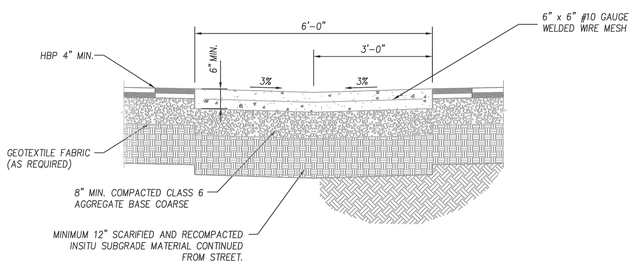
CURB & GUTTER CATCH
DETAIL



CURB & GUTTER MOUNTABLE (PITCH)
DETAIL



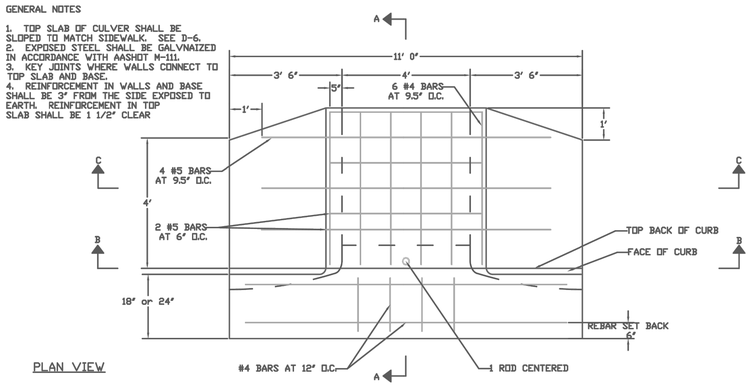
CURB & GUTTER MOUNTABLE (CATCH)
DETAIL



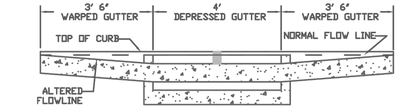
VALLEY PAN
DETAIL

GENERAL NOTES

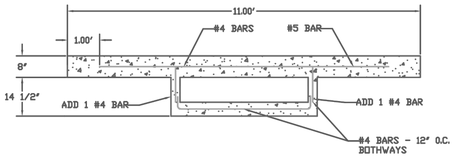
1. TOP SLAB OF CULVER SHALL BE SLOPED TO MATCH SIDEWALK. SEE D-6.
2. EXPOSED STEEL SHALL BE GALVNAIZED IN ACCORDANCE WITH AASHOT M-111.
3. KEY JOINTS WHERE WALLS CONNECT TO TOP SLAB AND BASE.
4. REINFORCEMENT IN WALLS AND BASE SHALL BE 3" FROM THE SIDE EXPOSED TO EARTH. REINFORCEMENT IN TOP SLAB SHALL BE 1 1/2" CLEAR



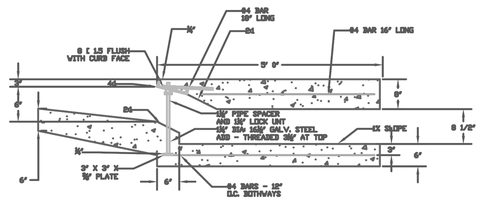
PLAN VIEW



SECTION B-B

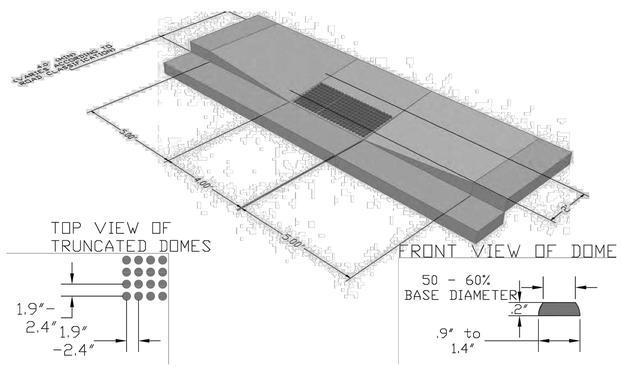


SECTION C-C



SECTION A-A

4' SCUPPER DETAIL
DETAIL



TYPICAL HANDICAP RAMP
DETAIL

TIMBERLINE ENGINEERING llc CIVIL STRUCTURAL
218 E. Valley Rd. p 970.963.9869
SITE 104-PMB 177 81623
Carbondale, Colorado
timberlineengineering@gmail.com

COLORADO REGISTERED
DAVID JOHN ANDERSON
39276
PROFESSIONAL ENGINEER

Belden Place PUD

South Minturn Addition
Lots 29, 31 & 32
Minturn, Colorado

PLANS ARE NOT FOR CONSTRUCTION UNLESS STAMPED "APPROVED FOR CONSTRUCTION" BY PROPER AUTHORITIES.

DATE	REVISION
2/15/22	Easement Coordination
3/20/24	Final Plan Resubmittal
4/15/24	Final Plan Revised
4/19/24	Final Plan

Title:

ROAD
DETAILS

Sheet:

C.404

Exhibit C
Public Improvements and Landscape Cost Estimates

20

EXHIBIT C

Timberline Engineering, LLC

Belden Place PUD
Final Submittal Cost Estimate

~~August 23, 2021~~
~~Revised Feb 2, 2022~~
Revised June4, 2024

Cost Item Summary	COST/UNIT	UNIT	QUANTITY	COST
General Conditions	$778,780	L S	1.0	$778,780
Water	$794,022	L S	1.0	$794,022
Sanitary Sewer	$251,812	L S	1.0	$251,812
Shallow Utilities (gas, electric, telephone/internet, CATV)	$730,910	L S	1.0	$730,910
Roads & Sidewalks	$473,150	L S	1.0	$473,150
Landscaping	$244,398	L S	1.0	$244,398
Storm Drain to Eagle River	$382,670	L S	1.0	$382,670

TOTAL	$3,655,742

EXHIBIT C

Timberline Engineering, LLC

Belden Place PUD
Final Submittal Cost Estimate

~~August 23, 2021~~
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Item	DESCRIPTION	COST/UNIT	UNIT	QUANTITY	TOTAL COST
	Belden PUD General Conditions				
1	Mobilization, Demobilization and Incidentals: including but not limited to: all permits, coordination, labor, equipment, all other materials, services, safety, utility locates, excavations, soil preparations, site grading, vertical adjustments to existing utility structures or other items not individual itemized but required to effect construction, initiation, and completion of the project.	$25,000	LS	1	$25,000
2	Site Grading and Earthwork: including but not limited to: topsoil removal, excavation (5,175 CY), export of material, 12" scarify and recompact entire road Right Of Way subgrade, fill placement (8,130 CY), screen approx. 1,000 CY of import already existing on-site for fill placement, import additional 2,000 CY of fill from off-site source, water for compaction, compaction testing to 95% standard proctor, all other materials, labor and equipment necessary for a completed project.	$330,000	LS	1	$330,000
3	Unsuitable Material Removal & Replacement - in areas below designed subgrade elevation as determined and field mesured by project engineer: including but not limited to: excavation, material removal, furnish and placement and water of Class 2 Aggregate replacement material, furnishing, labor, equipment, hauling, compaction, and all other materials, labor and equipment necessary for a completed project	$70	CY	50	$3,500
4	Rock Excavation- including but not limited to: removal of rock (as defined per CDOT Standards) from required areas to be excavated as measured in field by project engineer and all other materials, labor and equipment necessary for a completed project	$350	LS	50	$17,500
5	Contractor Trailer	$4,800	LS	1	$4,800
6	Security Fence	$17	LF	675	$11,475
7	Traffic Control	$8,500	LS	1	$8,500
8	Quality control testing	$13,500	LS	1	$13,500
9	Survey monumentation + final plat	$1,750	EA	26	$45,500
10	Stormwater Management	$7,500	LS	1	$7,500
11	MSE Retaining Wall @ West side Property Line and North side of Lot 16	$55	Face SF	925	$50,875
12	South Side Property Line Drainage Channel	$28	LF	283	$7,924
12	Erosion and Sediment Control - Silt Fencing	$4.00	LF	1,400	$5,600
13	Erosion and Sediment Control - Temporary Channelization	$15	LF	630	$9,450
14	Erosion and Sediment Control - culvert inlet protection	$350	EA	1	$350
15	Erosion and Sediment Control - Vehicle Tracking Pad (1,400 SF)	$3,600	LS	1	$3,600
16	Erosion and Sediment Control - Erosion Control Mats	$13	SF	1,300	$16,900
17	Dust Mitigation	$10,000	LS	1	$10,000
18	Concrete & Flow-Fill Washout structure	$3,500	EA	1	$3,500
19	Removal and Disposal of Sediment (Labor)	$95	HR	20	$1,900
20	Removal and Disposal of Sediment (Equipment)	$200	HR	20	$4,000
21	Erosion Control Mangement	$150	DAY	60	$9,000
22	Sweeping (sediment removal)	$210	HR	20	$4,200
23	Removal of Trash	$160	HR	20	$3,200
24	Sanitary facility	$1,250	EA	1	$1,250
25	Bus Stop	$24,000	EA	1	$24,000
26				**SUBTOTAL**	**$623,024**
27	PERIODIC CONSTRUCTION INSPECTION, AS-BUILTS (5% OF COSTS)				$31,151
28	CONSTRUCTION STAKING (10% OF COSTS)				$62,302
29	CONSTRUCTION CONTINGENCY (10% OF COSTS)				$62,302
30				**TOTAL**	**$778,780**

Item	DESCRIPTION	COST/UNIT	UNIT	QUANTITY	TOTAL COST
	Belden PUD Water Main and Services				
31	Connection to Existing - Saw-Cut connection to existing water main (not a hot tap), including but not limited to: potholling, labor, excavation, sawcuts, fittings, valves all 3 sides of new "T", valve boxes, debris cap, tracer wire, polywrap, thrustblocks, bedding, backfill, compaction, appurtenances, all other materials, labor and necessary equipment	$15,000	EA	3	$45,000
32	8" DIP water main with polywrap & concrete thrustblocks. 7' min. cover	$400	LF	1,092	$436,800
33	8" - " T" w/ thrustblock	$1,500	EA	4	$6,000
34	8" gate valve and box installed on main	$3,800	EA	11	$41,800
35	8" dia. field lock gaskets (joint restraint zones)	$550	ZONE	24	$13,200
36	6" DIP service lines	$250	LF	33	$8,250
37	6" dia. Service line construction (8x6" tee, 6" GV, 6" plug, kickblock, joint restraints)	$3,000	EA	2	$6,000
38	3/4" Water Service: **jointless copper tubing**: including but not limited to: excavation, bedding, backfill, compaction, compaction testing to 95% standard proctor, saddle, corporation stop, curb stop & box, jointless copper tubing, fittings, tracer wire, connections, district inspection, pressure testing and all other materials, labor and equipment necessary for a completed project	$2,200	EA	23	$50,600
39	Fire Hydrants w/ 8" tee & 6" gate valve & 6" pipe, thrustblock, joint restraints	$11,000	EA	4	$44,000
40	3/4" Water Services encasement: 20 ft of a pipe casing, concrete, or Controlled Low Strength Material (ex. Flowable fill) , per each.	$725	EA	4	$2,900
41	8" Main DIP encasement: 20 ft of a pipe casing, concrete, or Controlled Low Strength Material (ex. Flowable fill) , per each.	$725	EA	6	$4,350
42	Town of Minturn Water inspection fees	$7,000	EA	1	$7,000
43	Pressure Test and Bacteria Test	$7,000	EA	1	$7,000
44				**SUBTOTAL**	**$672,900**
45	PERIODIC CONSTRUCTION INSPECTION, AS-BUILTS (5% OF COSTS)				$33,645
46	CONSTRUCTION STAKING (3% OF COSTS)				$20,187
47	CONSTRUCTION CONTINGENCY (10% OF COSTS)				$67,290
48				**TOTAL**	**$794,022**

EXHIBIT C

Item	DESCRIPTION	COST/UNIT	UNIT	QUANTITY	TOTAL COST
	Belden PUD Sanitary Sewer Main and Services				
49	Sanitary Sewer Manhole Modification (Interconnection at existing sewer main manhole adjacent to HWY 24) including vacuum testing	$8,000	EA	1	$8,000
50	8" Sanitary Sewer Main (less than 10' deep). Including testing	$150	LF	660	$99,000
56	Insulate 8" Sanitary Sewer Main	$1,500	EACH	0	$0
51	4' Sanitary Sewer manholes including vacuum testing	$7,500	EA	4	$30,000
52	4" Gravity Sanitary Sewer Service lines	$2,000	EA	23	$46,000
53	2" Pressurized Sanitary Sewer service lines	$2,000	EA	3	$6,000
54	6" Sanitary Sewer service lines: 6" diameter	$100	LF	40	$4,000
55	4" Gravity Sanitary Sewer Services and 2" Pressurized Sanitary Sewer Services encasement at waterline crossings: 20 ft. of a pipe casing, concrete, or Controlled Low Strength Material (ex. Flowable fill)	$725	EA	16	$11,600
56	Eagle River Sanitation District inspection fees	$6,500	EA	1	$6,500
57	Televise and documentation	$6	LF	400	$2,300
58				**SUBTOTAL**	**$213,400**
59	PERIODIC CONSTRUCTION INSPECTION, AS-BUILTS (5% OF COSTS)				$10,670
60	CONSTRUCTION STAKING (3% OF COSTS)				$6,402
61	CONSTRUCTION CONTINGENCY (10% OF COSTS)				$21,340
62				**TOTAL**	**$251,812**

EXHIBIT C

Timberline Engineering, LLC

Belden Place PUD
Final Submittal Cost Estimate

~~August 23, 2021~~
~~Revised Feb 2, 2022~~
Revised June 4, 2024

Item	DESCRIPTION	COST/UNIT	UNIT	QUANTITY	TOTAL COST
	Belden PUD Shallow Utilities Mains and Services (Elec, Gas, Communications)				
63	Electrical lines and vaults (mat'l by Excel-estimated- "for construction" approval pending	$274,750.0	ea	1	$274,750
64	Century-Tel Contract (none reqd)	$0.0	ea	1	$0
65	Electric Transformer Pads/Vault Installation: including but not limited to: coordination with provider, excavation, installation (Pads/Vaults provided by others), bedding, backfill, compaction, compaction testing to 95% standard proctor, (wiring by others) and all other materials, labor and equipment necessary for a completed project.	$1,700.0	EA	7	$11,900
66	Gas, Electric and Communication Common Trench for **Main+Services** (4' min. cover for Elec.): including but not limited to coordination with Utility Providor, conduit installation (main electrical conduit provided by others, gas Utility to provide and install pipe and reconnections, services conduit provided by contractor - 2@4", 2@2"), excavation, bedding, sleeves at road crossings, backfill, marker tape, compaction, compaction testing to 95% standard proctor, and all other materials, labor and equipment necessary for a completed projecT	$45.0	LF	1,105	$49,725
67	Gas, Electric & Communication Services **within** Common Main Trench (3' min. cover for Elec.): including but not limited to: conduit installation (conduit provided by contractor - 2@4", 2@2"), pull boxes, radius elbows, excavation, bedding, sleeves at road crossings, termination at the location on lot per construction drawings, backfill, marker tape, compaction , compaction testing to 95% standard proctor, and all other materials, labor and equipment necessary for a completed project	$60.0	LF	1,218	$73,080
68	Gas, Electric & Communication Services **outside of** Common Main Trench (3' min. cover for Elec.): including but not limited to: conduit installation (conduit provided by contractor - 2@4", 2@2"), pull boxes, radius elbows, excavation, bedding, sleeves at road crossings, termination at the location on lot per construction drawings, backfill, marker tape, compaction , compaction testing to 95% standard proctor, and all other materials, labor and equipment necessary for a completed project	$60.0	LF	300	$18,000
69					
70	**Street lights**				
71	Shielded- 30'x250W HPS (Includes 2 unmetered panel & contactor photo cell actuator)	$12,500.0	ea	9	$112,500
72	Light Pole Base: including but not limited to: excavation, concrete base, reinforcing, 1.5" conduit connection to transformer, bedding, sleeves at road crossings, backfill, compaction, compaction testing to 95% standard proctor, (pole/lamp/wiring installed by others) and all other materials, labor and equipment necessary for a completed project	$3,000.0	lf	9	$27,000
73					
74	**Natural gas**				
75	Natural gas piping materials & welding (mat'l by Excel Gas-estimated- "for construction" approval pending)	$20.0	lf	2,623	$52,460
76	Gas Line Main Trenching Gas: including but not limited to: coordination with Utility Provider (Utility to provide and install pipe and reconnections), excavation, bedding, sleeves at road crossings, backfill, compaction, compaction testing to 95% standard proctor, all other materials and all other materials, labor and equipment necessary for a completed project,		lf	included in above quantities	
77	Gas Line Main Trenching Gas: including but not limited to: coordination with Utility Provider (Utility to provide and install pipe and reconnections), excavation, bedding, sleeves at road crossings, backfill, compaction, compaction testing to 95% standard proctor, all other materials and all other materials, labor and equipment necessary for a completed project,		lf	included in above quantities	
78				**SUBTOTAL**	**$619,415**
79	PERIODIC CONSTRUCTION INSPECTION, AS-BUILTS (5% OF COSTS)				$30,971
80	CONSTRUCTION STAKING (3% OF COSTS)				$18,582
81	CONSTRUCTION CONTINGENCY (10% OF COSTS)				$61,942
82				**TOTAL**	**$730,910**

EXHIBIT C

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Belden Place PUD
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~~August 23, 2021~~
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Revised June 4, 2024

Item	DESCRIPTION	COST/UNIT	UNIT	QUANTITY	TOTAL COST
	Belden PUD Road Work: 3.5"HBP & 8" Class 6 + 36" C&G + 3.0' Intermittent Sidewalk				
83	Scarify-wet-compact subgrade included in Item 2		SY		
84	Geotextile Fabric Contech C-200 (as needed)	$13.0	SY	135	$1,749
85	Silver Loop & Belden Way - 3.5" HBP over 8" class 6 -including but not limited to: soil preparation, 8" aggregate base course, compaction, compaction testing to 95% standard proctor	$12.0	SF	12,109	$145,308
86	Concrete Flatwork (entrance fillets, islands, valley pan crossings: including but not limited to: soil preparation, 8" aggregate base course, compaction, compaction testing to 95% standard proctor	$22.0	SF	832	$18,304
87	Curb & Gutter: including but not limited to: soil preparation, 8" aggregate base course, compaction, compaction testing to 95% standard proctor	$60.0	LF	1,059	$63,540
88	Curb, Gutter and Sidewalk: including but not limited to: soil preparation, 8" aggregate base course, compaction, compaction testing to 95% standard proctor	$120.0	LF	673	$80,760
89	Parking Areas (13Total) (Turfstone Pavers) over 8" ABC	$22.0	SF	2,106	$46,332
90	4 Ft Path to Bus Stop	$17.0	SF	347	$5,899
91	Scupper w/Reinforced Turf outlet	$1,500.0	EA	2	$3,000
92	Adjust sewer MH @ paving	$1,650.0	EA	3	$4,950
93	Adjust water gatevalves @ paving	$1,650.0	EA	11	$18,150
98	Pavement Markings and Striping: including but not limited to: lane lines, crosswalks, stop bars, turn arrows,one way arroes	$4,200.0	LS	1	$4,200
99	Sign - Street Name (Silver Loop and Belden Way)	$450.0	EA	2	$900
100	Sign - STOP R1-1, 30"x30"	$450.0	EA	1	$450
101	Sign - Speed Limit	$250.0	EA	1	$250
102	Sign - No Parking On Street	$250.0	EA	1	$250
103	Sign - Not a Through Street	$250.0	EA	1	$250
104				**SUBTOTAL**	**$394,292**
105	PERIODIC CONSTRUCTION INSPECTION, AS-BUILTS (5% OF COSTS)				$19,715
106	CONSTRUCTION STAKING (5% OF COSTS)				$19,715
107	CONSTRUCTION CONTINGENCY (10% OF COSTS)				$39,429
108				**TOTAL**	**$473,150**

EXHIBIT C

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Belden Place PUD
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~~August 23, 2021~~
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Item	DESCRIPTION	COST/UNIT	UNIT	QUANTITY	TOTAL COST
	Belden PUD Landscaping				
109	Irrigation Water Tap	$7,500	ea	1	$7,500
110	**PARK**				
111	**Deciduous Trees**				
112	Honeycrisp Apple 2" Cal	$1,200	ea	4	$4,800
113	**Evergreen Trees**				
114	Baby Blue Eyes Spruce 6 ft	$1,500	ea	5	$7,500
115	**Ornamental Trees**				
116	Thunderchild Crabapple 2" Cal	$1,200	ea	1	$1,200
117	**Deciduous Shrubs**				
118	Ash-leaf Spirea 5 Gal	$150	ea	6	$900
119	Miss Kim Lilac 5 Gal	$150	ea	9	$1,350
120	**Landscaping Miscellaneous**				
121	Irrigation System (DesignBuild)	$10,000	ea	1	$10,000
122	Turfstone pavers	$22	sf	810	$17,820
123	Topsoil (soil + placement)	$135	cy	270	$36,450
124	Seeding (hydraulic)	$0.30	sf	3,411	$1,023
125	Soil Conditioning	$1.50	sf	3,411	$5,117
126	Picnic Table	$2,600	ea	1	$2,600
127	Balance Logs	$750	ea	3	$2,250
128	Decorative Boulders	$450	ea	4	$1,800
129	Dog Waste Station	$600	ea	1	$600
130	Concrete Curbing	$50	lf	132.00	$6,600
131	Fibar Engineered Play Surface	$300	cy	27	$8,100
132	3" Shredded Mulch	$170	cy	7	$1,190
133	**TRACTS B & D, LOT 17**				
134	**Evergreen Trees**				
135	Baby Blue Eyes Spruce 6 ft	$1,500	ea	11	$16,500
136	**Ornamental Trees**				
137	Autumn Brilliance Serviceberry 8" clump	$600	ea	8	$4,800
138	**Deciduous Shrubs**				
139	Miss Kim Lilac 5 Gal	$150	ea	4	$600
140	**Landscaping Miscellaneous**				
141	Irrigation System (DesignBuild)	$10,000	ea	1	$10,000
142	Topsoil (soil + placement)	$135	cy	270	$36,450
143	Seeding (hydraulic)	$0.30	sf	3,411	$1,023
144	Soil Conditioning	$1.50	sf	3,411	$5,117
145	Dog Waste Station	$600	ea	2	$1,200
146	3" Shredded Mulch	$170	cy	7	$1,190
147	Landscape Maintenance (24 month)	$36,000	l s	1	$36,000
148				**SUBTOTAL**	**$222,180**
149	CONSTRUCTION CONTINGENCY (10% OF COSTS)				$22,218
150				**TOTAL**	**$244,398**

EXHIBIT C

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Belden Place PUD
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~~August 23, 2021~~
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Item	DESCRIPTION	COST/UNIT	UNIT	QUANTITY	TOTAL COST
	Belden PUD - 18" STORM DRAIN TO EAGLE RIVER - HWY 24 CROSSING & BONEYARD OPEN SPACE CROSSING				
151	Mobilization (included in Item 1 Belden PUD mobilization by same contractor)	$20,000	L S		
152	Clearing and grubbing	$1,150	L S	1	$1,150
153	Removal of Debris	$725	L S	1	$725
154	Erosion Log Type 1 (12 inch)	$9	LF	20	$180
155	Erosion Bales (Weed Free)	$28	EACH	20	$560
156	Silt Fence	$4.00	LF	270	$1,080
157	Sawing Asphalt Mat (Highway 24)	$60	LF	50	$3,000
158	Removal of Asphalt Mat (Highway 24)	$40	SY	27	$1,067
159	Potholing	$320	HOUR	10	$3,200
160	Trench Box for excavation at open space	$6,500	L S	1	$6,500
161	18-Inch Reinforced Concrete Pipe (Hwy 24 Crossing - complete in place)	$225	LF	206	$46,260
162	18-Inch Reinforced Concrete Pipe Flared End Section w/Trash Grate	$3,100	EACH	2	$6,200
163	Insulate existing utility crossings in Hwy 24	$1,150	EACH	1	$1,150
164	Inlet Type R L5 (5 Foot)	$12,000	EACH	2	$24,000
165	Inlet Type D Inlet (5 Foot)	$10,000	EACH	1	$10,000
166	Hydrodynamic Seperator (Cascade 4)	$18,000	EACH	1	$18,000
167	Flow Fill Culvert Backfill (@Highway 24)	$800	CY	19	$14,815
168	Aggregate Base Course (Class 6) (@highway ROW)	$140	CY	48	$6,741
169	Hot Mix Asphalt	$260	TON	14	$3,640
170	Stabilized outlet protection - RipRap (9 inch)	$600	CY	20	$12,000
171	Geotextile @ RipRap (Drainage) (Class 1)	$7	SY	44	$311
172	Proof Rolling	$310	HOUR	4	$1,240
173	Blading	$280	HOUR	10	$2,800
174	Backhoe	$190	HOUR	10	$1,900
175	Combination Loader	$225	HOUR	10	$2,250
176	Laborer	$80	HOUR	80	$6,400
177	Topsoil	$45	CY	43	$1,917
178	Concrete Washout structure (included in Belden PUD staging area)	$3,500	EACH		
179	Vehicle Tracking Pad	$4,000	EACH	1	$4,000
180	Removal and Disposal of Sediment (Labor)	$95	HR	2	$190
181	Removal and Disposal of Sediment (Equipment)	$200	HR	2	$400
182	Erosion Control Mangement	$150	DAY	10	$1,500
183	Soil Conditioning	$3,800	ACRE	1	$3,800
184	Seeding (Native) (Hydraulic)	$2,250	ACRE	1	$2,250
185	Sanitary Facility	$1,250	EACH	1	$1,250
186	Surveying as-builts	$5,600	L S	1	$5,600
187	Epoxy Pavement Marking	$225	GAL	10	$2,250
188	Flagging	$60	HR	160	$9,600
189	Traffic Control Inspection	$500	DAY	14	$7,000
190	Traffic Control Management	$1,400	DAY	14	$19,600
191	Flashing Beacon (Portable)	$1,600	EACH	4	$6,400
192	Construction Traffic Sign (Panel Size A)	$80	EACH	16	$1,280
193	Construction Traffic Sign (Panel Size B)	$125	EACH	44	$5,500
194	Portable Message Sign Panel	$6,000	EACH	2	$12,000
195	Advance Warning Flashing or Sequencing Arrow Panel (C Type)	$2,750	EACH	2	$5,500
196	Drum Channelizing Device	$60	EACH	10	$600
197	Barrier (temporary)	$95	LF	100	$9,500
198	Rumble Strip (Portable)	$2,250	EACH	6	$13,500
199	Traffic Signal (Temporary)	$8,000	EACH	2	$16,000
200	Night Work Lighting	$3,800	L S	1	$3,800
201				**SUBTOTAL**	**$308,605**
202	DESIGN, PERIODIC CONST. INSPECTION, AS-BUILTS & TRAFFIC CONTROL PLAN (12% OF COSTS)				$37,033
203	CONSTRUCTION STAKING (2% OF COSTS)				$6,172
204	CONSTRUCTION CONTINGENCY (10% OF COSTS)				$30,861
205				**TOTAL COST**	**$382,670**